

TB175W

TB175W

Hydraulic Excavator

OPERATOR'S MANUAL

Serial No.175400095~

Book No. AW3E004

OPERATOR'S MANUAL

Original instructions

TAKEUCHI

TAKEUCHI



WARNING

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



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 excavator 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

INTRODUCTION

Foreword

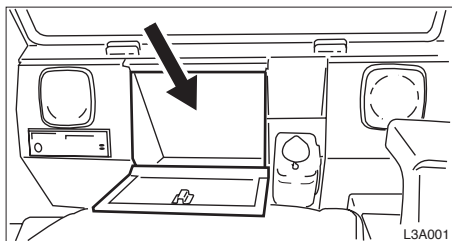
This manual describes operation, inspection and maintenance of the machine, as well as safety instructions to be heeded during these operations.

If you have any questions about the machine, please contact a Takeuchi sales or service outlet.

■ Manual storage

A manual box is provided at the position shown on the diagram below.

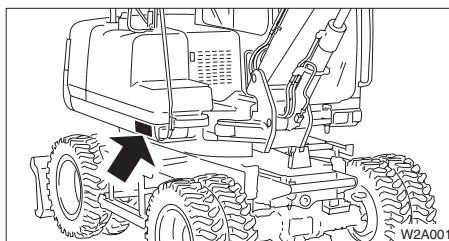
After using the manual, place it in the plastic pouch and store it back in the manual box.



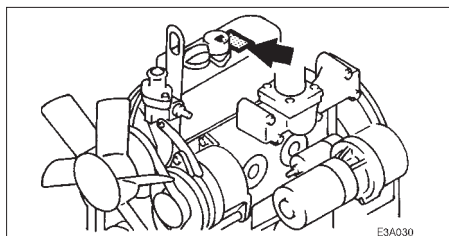
■ Serial numbers

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

Machine number :



Engine number :



MACHINE DESCRIPTION

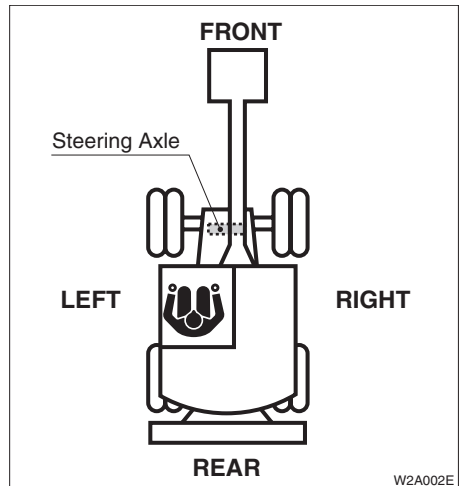
■ Front, rear, left and right

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

■ Designated operations

Use this machine primarily for the following operations:

- Excavating
- Digging ditches
- Digging side ditches
- Leveling
- Loading



■ Features

- Isolation mounted cab minimizes vibration.
- Low engine noise and exhaust emissions.
- Electro over hydraulic control of auxiliary hydraulic circuit.
- One touch engine deceleration button.
- Two-speed slew allows the operator to slow the excavators slew speed.
- Engine emergency stop / idle 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

Introduction.....2

Machine Description3



Safety7



Controls 37



Operation..... 69



Transport 97



Maintenance 103



Troubleshooting..... 153



Specifications 167



Options 183



Index..... 211



SAFETY

General precautions	8
Preparing precautions.....	12
Starting precautions	14
Operating precautions	16
Stopping precautions	23
Transporting precautions	24
Maintenance precautions	25
Safety signs (Decals)	34

**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.

When a problem is found on the machine

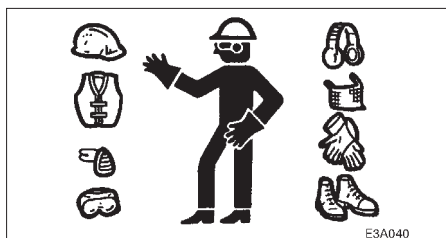
If any problem (noise, vibration, smell, disorder of instrument, smoke, oil leak, wrong indication of alarm or unusual indication in the instrument cluster, etc.) is detected during the operation or inspection and maintenance of the machine, immediately inform your sales or service dealer and take proper actions. Do not operate the machine until the trouble is cleared.

Operating temperature range

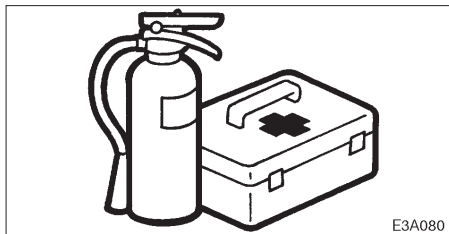
To maintain the performance of machine and to prevent it from early wear, observe the following operating conditions.

- Do not operate the machine if the ambient temperature is higher than +45°C (+113°F) or lower than -15°C (+5°F).
 - If operated at an ambient temperature of higher than +45°C (+113°F), the engine may overheat and cause the engine oil to degrade.

- If operated at an ambient temperature of lower than -15°C (+5°F), the parts made of rubber such as gaskets may get hardened to cause an early wear or damage to the machine.
- If the machine is to be used outside the ambient temperature range described above, consult your sales or a service dealer.

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.

**General Precautions****Provide a fire extinguisher and first aid kit**

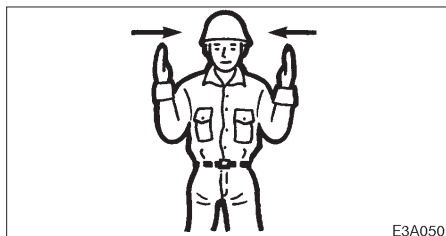
- Know where a fire extinguisher and first aid kit are located and understand how to use them.
- Know how to contact emergency assistance and first aid help.

Never remove safety equipment

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



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

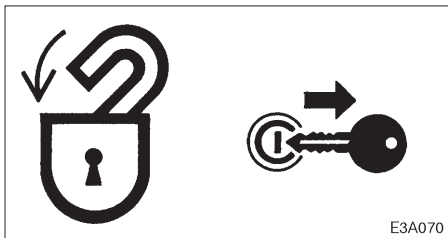
Use a signal person and flagman

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 been locked, the machine will move suddenly, and cause serious injury or death.
- Note that the dozer blade control is not locked, even when the safety lock lever is set to the lock position. Do not touch this control accidentally.
- Immediately after stopping the engine, move all the control levers and pedals several times in all directions to release the pressure from the working equipment circuitry.
Refer to the section titled "Releasing the residual pressure" for further instructions.
- Before leaving the operator's seat, lower the working equipment, lock the safety lock lever, blade lever and boom swing pedal 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

Never put your hands, feet or other parts of your body between the upperstructure and the undercarriage or tires, between the machine body and working equipment, or between a cylinder and moving part. The size of these gaps change when the machine moves and if caught a person can suffer serious injury or death.

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 before installing optional attachments.
- Do not use attachments that have not been approved by Takeuchi. 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.



Preparing Precautions

Know the working area

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

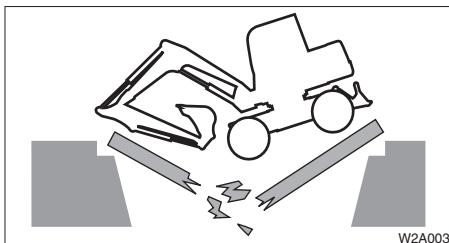
- Check the topography and ground condition of the working area, or the structure of the building when working indoors, and take the necessary safety measures in dangerous spots.
- Note and avoid all hazards and obstructions such as ditches, underground lines, trees, cliffs, overhead electrical wires or areas where there is danger of a slide.



- Check with the local utilities for the locations of buried gas and water pipes and buried power cables. Determine jointly what specific precautions must be taken to insure safety.
- 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 Operating” for further instructions.

Check the strength of the bridge



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

Always keep the machine clean



- 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



E3A520

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.

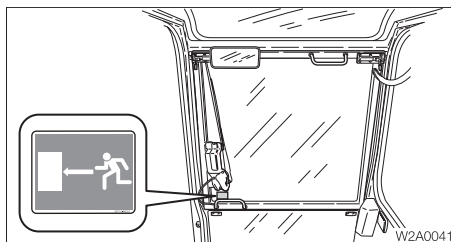
Cautions in the operator's compartment

- Remove mud and grease from shoe soles before entering the operator's compartment.
Pedaling the machine with the shoes with mud and grease will cause a slip accident.
- Do not leave the parts or tools around the operator's seat.
- Do not leave any plastic bottles in the operator's compartment or attach any suction cups on the window glass. The plastic bottle or suction cup act as a lens and can cause fire.
- Do not use the mobile phone during traveling or working.
- Do not bring combustibles or explosives into the operator's compartment.

- After smoking, be sure to tightly close the lid of the ashtray to put out the match or cigarette.
- Do not leave the cigarette lighter in the operator's compartment. When the room temperature rises, the lighter may explore.

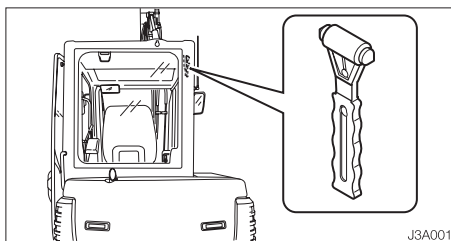
Emergency Exit

Front window (excluding machines with a front guard)



If you should become trapped inside the cab, open the front window to get out.

Emergency hammer (optional)



An emergency hammer is installed to be used to escape from the cab in an emergency. When escaping, break the windows with the hammer.

Applicable machine models
175400373 or later



Starting Precautions

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.

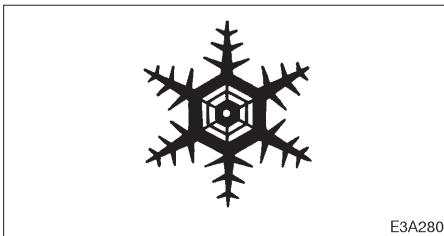


- Fasten the seat belt.
- Check that the parking device is applied and place all controls in the neutral position.
- Check that the safety lock lever is in the lock position.
- Clear the area of all persons.
- Start and operate the engine from the operator's seat only.
- Never attempt to start the engine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

**Starting Precautions****Starting with jumper cables**

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.

In cold weather

- Be careful of slippery conditions on freezing ground, steps and handrails.
- 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.

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.



Operating Precautions

Ensure good visibility

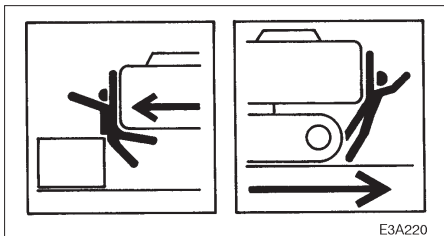
- When working in dark places, turn on the machine's working lights and headlights and/or provide extra stationary lighting if necessary.
- When visibility is poor due to severe weather (fog, snow or rain), stop operating the machine and wait until conditions improves.

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

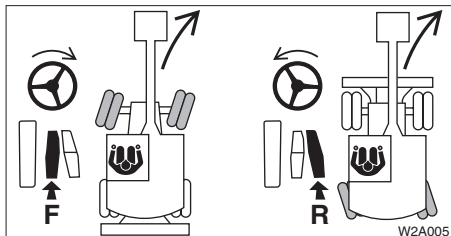


- Understand the machine limitations.
- Use a signal person where clearances are close or your vision is obstructed.
- Never allow anyone to enter the slewing (swing) radius and machine path.
- Signal your intention to move by sounding the horn.
- There is a blind spot in the rear of the machine.

Before traveling in reverse, check that the area is safe and clear.



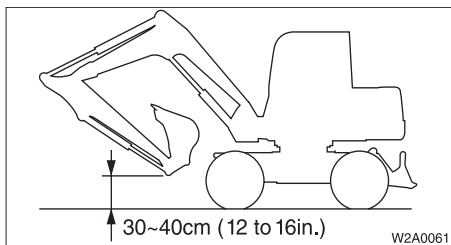
Check the position of the undercarriage before traveling



Check the position of the upperstructure in relation to the undercarriage.

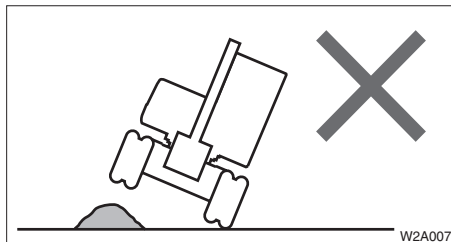
If the steering axle is not located beneath the cab, changes in direction and steering wheel turns will not coincide. Turning the wheel to the right translates as steering to the left, and vice versa.

Travel safety



- Travel with the dozer blade and outriggers (option) up, the hoe attachment folded as shown on the diagram, and the bucket raised 30 to 40 cm (12 to 16 in.) from the ground.
- Do not slew (swing) while traveling. If you must operate the hoe attachment while traveling, operate at speeds slow enough so you have complete control at all times.

- Do not raise the safety lock lever while traveling. This is dangerous, since raising the safety lock lever will cause the parking brake to operate and apply the brake abruptly.

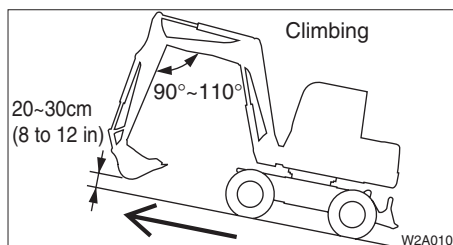
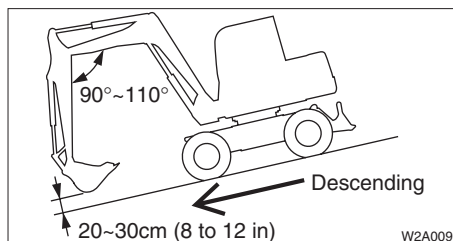


- Avoid crossing over obstacles whenever possible. If you must do so, keep the hoe attachment close to the ground and travel slowly. Never cross obstacles if they will seriously tilt the machine (to an angle of 10° or greater).
- On uneven ground, travel at low speed and avoid accelerating, stopping or changing directions abruptly.
- Do not turn off the starter switch while traveling. Doing so will activate the parking brake, causing the machine to stop suddenly.
- When traveling, do not step on the travel pedal for the opposite direction. Doing so is dangerous as it causes the machine to stop suddenly.
- When roading a machine, know and use the signaling devices required on the machine. Provide an escort for road travel when required.

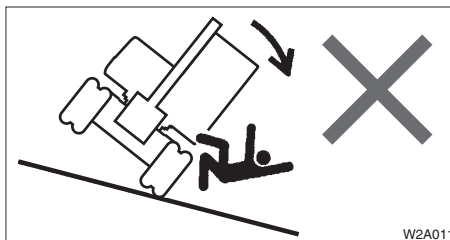
**Cautions on traveling on slopes**

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

- Never exceed the machine's stability capabilities (maximum gradeability – 35°, lateral tipping angle – 15°). Also note that when actual working area conditions are poor the machine's stability capabilities may be lower.



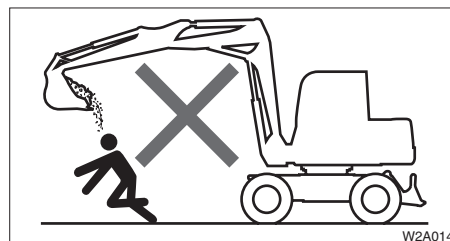
- When traveling on slopes or grades, lower the bucket to a height of 20 to 30 cm (8 to 12 in.) off the ground. In emergencies, lower the bucket to the ground and stop the machine.
- When traveling on slopes or grades, move slowly at low speed.
- Do not travel down slopes in reverse.
- On grass, dead 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.
- Do not travel at speeds of over 20 km/h (12.4 mph) on long down slopes. Release the travel pedal from time to time to protect the travel motor and ensure travel stability.



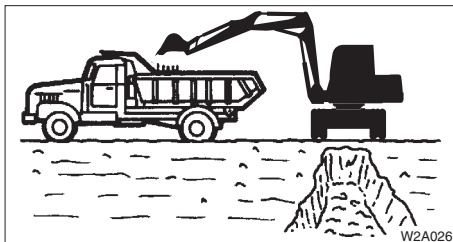
- Do not change directions or cross slopes sideways. First return to a flat surface then redirect the machine.

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.
- Lower the dozer blade when parked on unsure ground conditions.

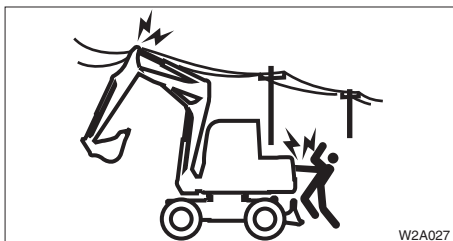
Do not carry the bucket over the heads of people

Carrying the bucket over the heads of people entails the danger of the load spilling or the sudden dropping of the bucket.

**Insure driver safety before loading trucks**

Do not load a truck unless the driver is in a safe place.

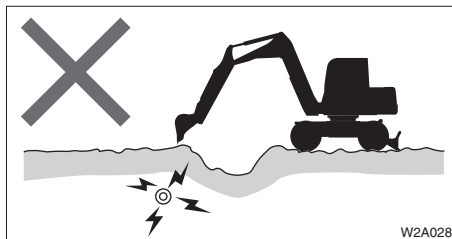
- Never swing or position the bucket over personnel or truck cabs.
- Load the truck from the rear.

Keep a safe distance from electrical power lines

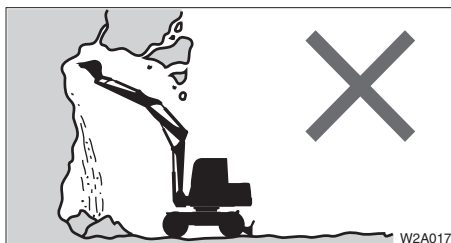
Never approach power lines with any part of the machine and its load unless all local and national required safety precautions have been taken. Electrocutation and death can result from arcing, touching or even being close to a machine that is in contact with or near an electrical source.

- 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.



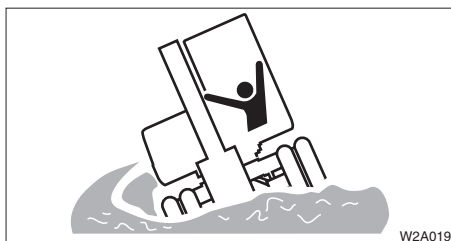
- Be especially careful of buried high voltage power lines.

**Watch out for hazardous working conditions**

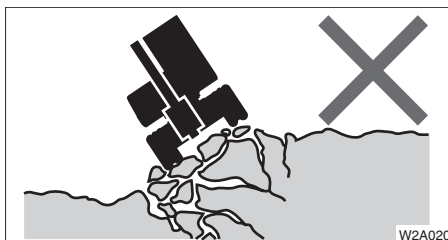
- Never undercut a high bank. Be particularly alert for the possibility of a cave-in.
- Do not operate in places where there is a danger of falling rocks.



- Keep machine well back from the edge of an excavation. Avoid undercutting 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 approach unstable surfaces (cliffs, road shoulders, deep trenches, etc.). The ground may give way under the machine's weight or vibrations, causing the machine to tip over.
 - The ground is weak after rain or explosions.
 - The ground is also unstable on banks and near dugout trenches.

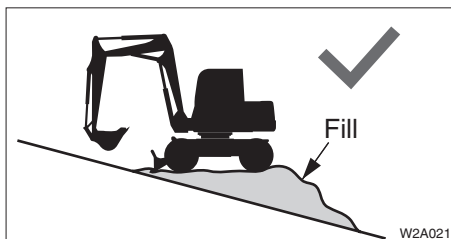
Danger of flying objects

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.

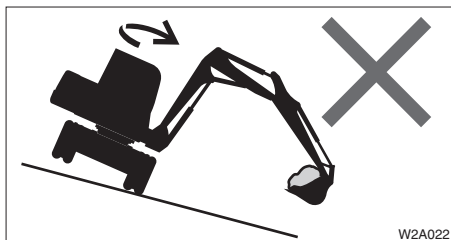


Operating on slopes is dangerous

When operating on slopes or grades, slewing (swinging) or operating working equipment may cause the machine to lose stability and tip over. Avoid operating on slopes whenever possible.

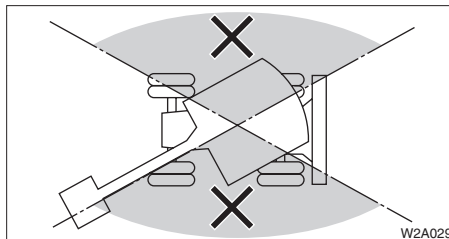


- Level off the work area.



- Avoid swinging the loaded bucket in a downhill direction. This will reduce the stability of the machine.

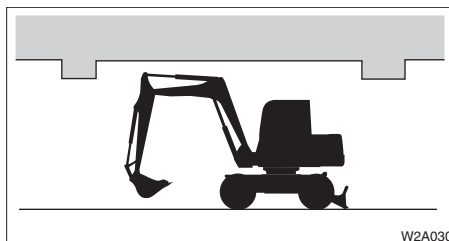
Never slew (swing) sideways with excessive weights



The machine can tip over more easily in the lateral direction than in the longitudinal direction.

- Do not slew (swing) sideways with excessive weight at the front. In particular do not slew sideways on slopes.
- The front is heavier for machines equipped with breakers, crushers or telescopic arms than for machines equipped with the standard bucket. Do not operate such machines sideways especially with the digging arm (boom) downhill.

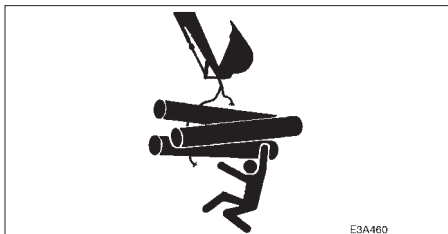
Watch boom clearance



When operating under bridges, in tunnels, near power lines or indoors, be careful not to hit the boom or arm against overhead objects.



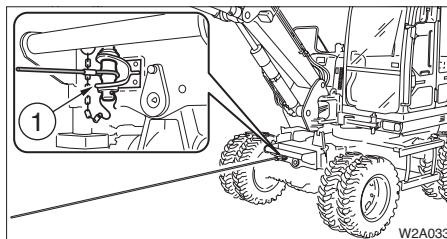
Excavators are not designed for lifting loads



The machine is specifically designed for excavation work and has no safety devices for crane operation. Extreme caution should be used if the excavator is used for lifting.

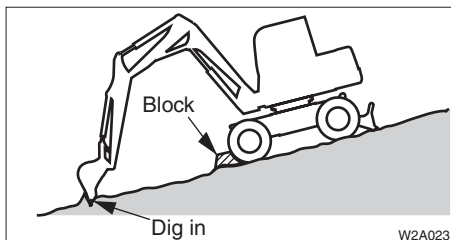
- Never lift loads in excess of capacity. Overload will cause the machine to roll and can result in serious injury or death.
- All rated lift capacities are based on the machine being level and on a firm supporting surface. For safe working loads, the user is expected to make due allowance for the particular job conditions such as soft or uneven ground, non-level condition, side loads, dynamic or jerked loads, hazardous conditions, experience of personnel, etc. The operator and other personnel should fully acquaint themselves with the operator's manual before operating this machine, and rules for safe operation of equipment shall be adhered to at all times.
- Failure of the bucket linkage or slings could result if chains or slings are incorrectly attached, resulting in serious injury or death.
- Do not attempt to pull stumps out of the ground while using the machine as a crane. The loads imposed on the machine under this use are completely unknown.
- Never allow any personnel to stand on or under lifted loads or even within the maneuvering area.

Cautions on Towing

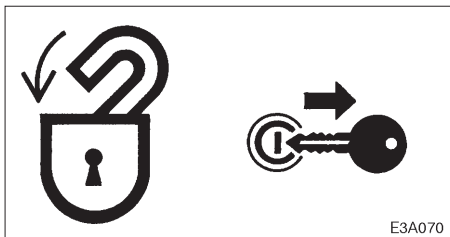


When towing, selecting the wrong wire rope, inspecting improperly, or towing in the wrong way could lead to accidents resulting in serious injury or death.

- 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**

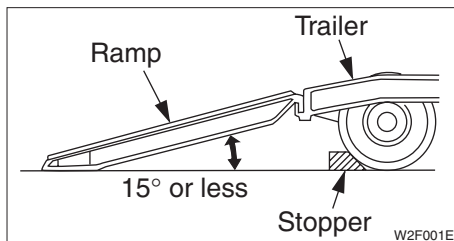
- Park the machine on firm, level ground and apply the parking device. If you must park on a slope or incline, block the machine securely to prevent movement.
- When parking on streets, use barriers, caution signs, lights, etc., so that the machine can easily be seen even at night to avoid collision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



- Before leaving the machine, do the following:
 1. Lower the bucket and dozer blade to the ground.
 2. Place the safety lock lever in the lock position.
 3. Lock the blade lever and boom swing pedal.
 4. Stop the engine and remove the key.
 5. 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. If the ramps are bowed down too low, support them with poles or blocks.
- Secure the ramps to the trailer deck.
- Keep the trailer deck and loading ramps clean of oil, clay, ice, snow, and other materials which can become slippery. Clean the machine tires.
- Block the trailer so it can not move.
- Use a signal person when loading and unloading the machine, and travel slowly in site travel gear.
- Never change course on the ramp.
- Do not slew (swing) on ramps. The machine may tip over.
- When slewing (swinging) on the trailer deck, do so slowly as the footing can be unstable.
- Engage the slew (swing) lock after loading.
- Block the machine tires and secure the machine to the trailer deck with load binders.

Hoist the machine safely

- Know and use correct crane signals.
- Check the hoisting equipment for damaged or missing parts on a daily basis and replace as necessary.
- When hoisting, use a wire rope capable of lifting the machine mass.
- Hoist the machine in such a manner described in the procedure below. Do not do it in any other manner, as it may result in the machine losing its balance. Refer to “Hoisting the machine” for further instructions.
- Do not hoist the machine with an operator on it.
- When hoisting, hoist slowly so that the machine does not tip.
- Keep everyone out of the area when hoisting. Do not move the machine over the heads of the persons.

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 trailer with the machine loaded on it when determining the best route.

**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

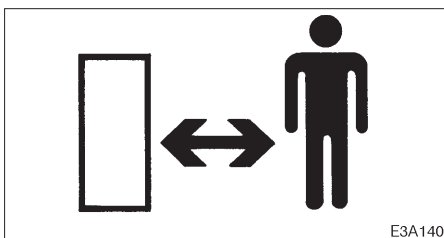
Do not use damaged or weakened tools or tools designed for other purposes. Use tools suited for the operation at hand.

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.



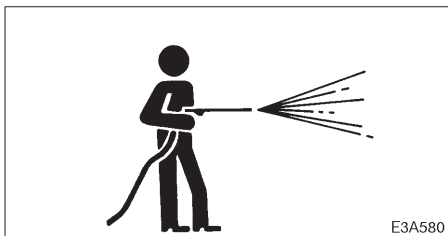
Prepare the work area

- 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

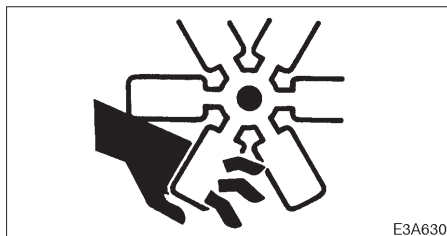
- Avoid lubrication or mechanical adjustments with the machine in motion or with the engine running while stationary.
- If maintenance must be performed with the engine running, always work as a two person team with one person sitting in the operator's seat while the other works on the machine.
 - When 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 before washing the machine. Cover the electrical parts so that water cannot enter. Water on electrical parts could cause short-circuits or malfunctions. Do not use water or steam to wash the battery, electronic control components, sensors, connectors or the operator's compartment.

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 tires.
- 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 working equipment if they are not sufficiently supported. This procedure is especially important when working on hydraulic cylinders.

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.

Securely block the working equipment

To prevent unexpected movement, securely block the working equipment when repairing or replacing the cutting edges or bucket teeth.

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.

Place heavy objects in a stable position



When removing or installing the hoe attachment, place it in a stable position so that it does not tip over.



Use caution when fueling



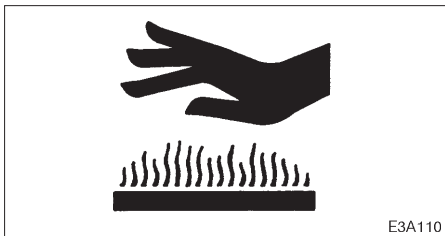
- Do not smoke or permit open flames while fueling or near fueling operations.
- Never remove the fuel cap or refuel with the engine running or hot. Never allow fuel to spill on hot machine components.
- Maintain control of the fuel filler nozzle when filling the tank.
- Do not fill the fuel tank to 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.

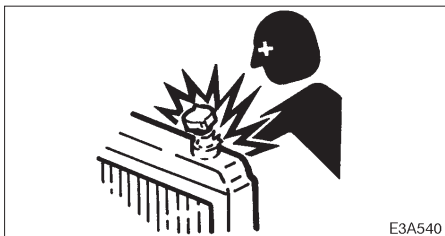
Be careful with hot and pressurized components



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



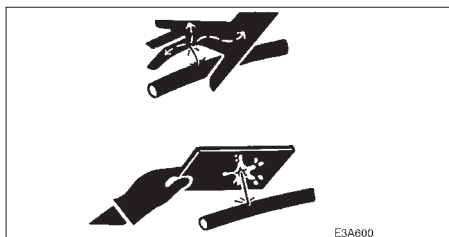
Do not remove the radiator cap or drain plugs when the coolant is hot. Stop the engine, let the engine and radiator cool and loosen the radiator cap or drain plugs slowly.



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 press the air breather button to relieve tank pressure.
- Immediately after stopping the engine, move all the control levers and pedals several times in all directions to release the pressure from the working equipment circuitry.
- When removing plugs or screws or disconnecting hoses, stand to the side and loosen slowly to gradually release the internal pressure before removing.

Handling of the Accumulator

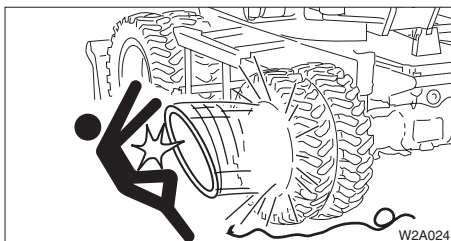


High pressure nitrogen gas is enclosed in the accumulator and incorrect handling could possibly bring about serious personal injury due to explosion. The following matters should be strictly observed:

- Do not disassemble.
- Do not bring close to fire or throw into a fire.
- Do not make hole, weld, or fuse.
- Do not subject to shock such as hitting or rolling.
- At time of disposal, it will be necessary to release the enclosed gas. Please contact a Takeuchi sales or service outlet.



Tire Maintenance



- Explosive separation of a tire and/or rim parts can cause serious injury or death. Always follow the service outlet or see your tire supplier.
 - Special tools and procedures are required to change tires. To do it safely, it must be done correctly. Changing tires is a job better done by your tire service company.
 - Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure.
 - Inspect tires and wheels daily. Do not operate with low pressure, cuts, bubbles, damaged rims.
 - A rise in tire pressure during operation is normal, and should NOT be reduced.
- Do not inflate tires with flammable gases or from systems utilizing an alcohol injector.
 - Never cut or weld on a wheel with an inflated tire mounted on it. This could cause explosive decompression.
 - Tires are to be repaired only by an authorized person using the proper procedures and safety equipment. New or replacement tires and wheels should always be checked for proper size before mounting.
 - Always use a safety cage or cable restraints when reinflating a repaired tire.



- When adding air to a tire, do so from a distance. Use a long hose with self-attaching chuck. Always stand behind tread when adjusting tire pressure.



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

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.

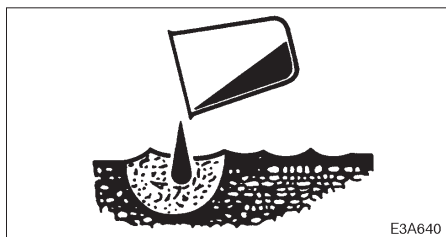
Vibrations to which the operator is subjected

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

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.

Handling of poisonous chemicals

Poisonous chemicals will cause serious injury if directly contacted.

Poisonous chemistry used in this machine includes grease, battery solution, coolant, paint and adhesive agent.

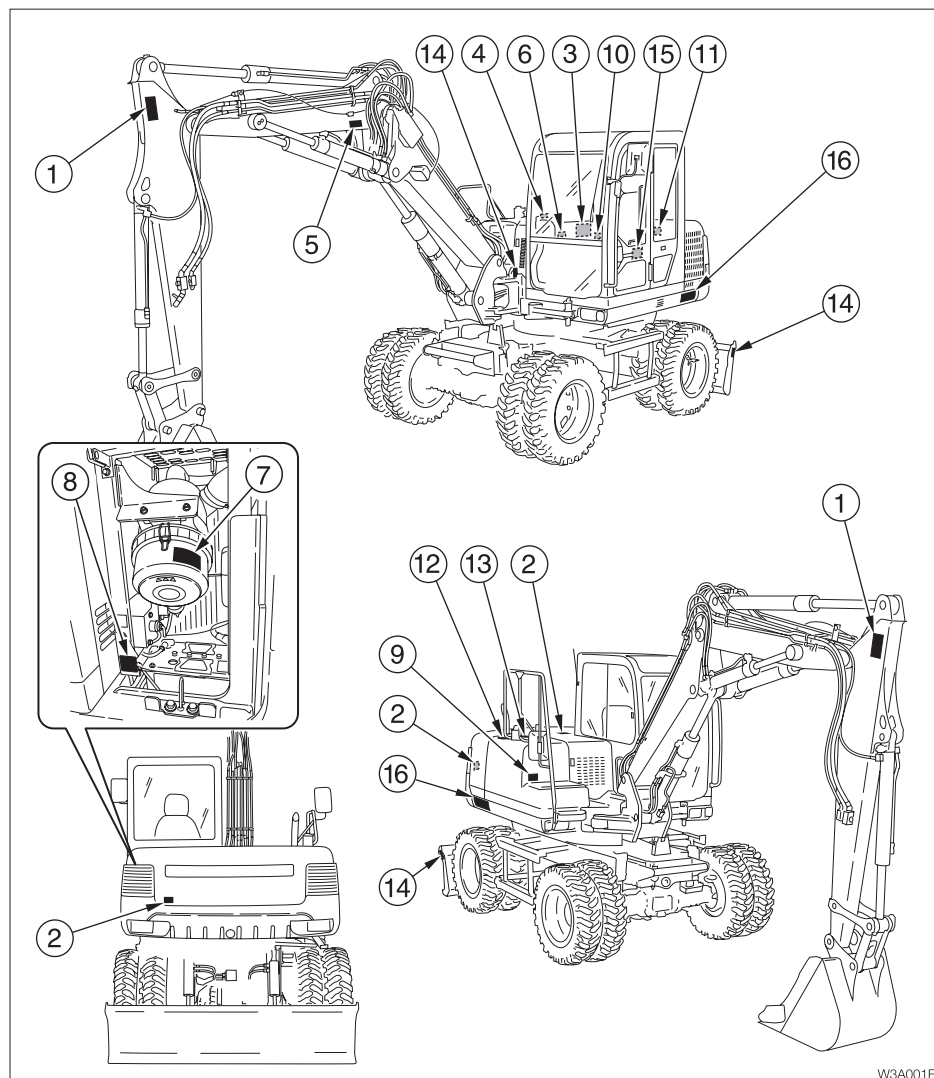
Handle the poisonous chemicals properly with care.

MEMO



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.



W3A001E



1. No.0579300049

Safety Distance

Hazard of being hit by the working device of the machine

Keep away from machine during operation.

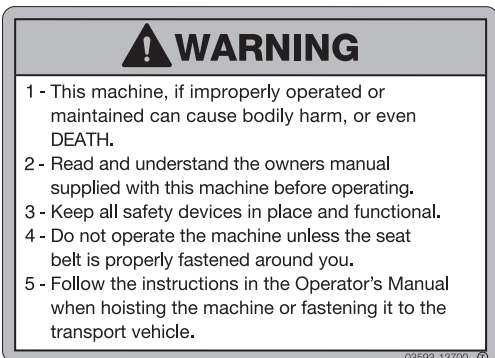


2. No.0379366006

Hazard of rotating parts. Turn off before inspection and maintenance.



3. No.0359313700



4. No.0569353131



5. No.0359347010



Except for UK

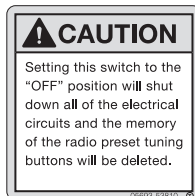
6. No.0359347020



7. No.0339375040



8. No.0569353810





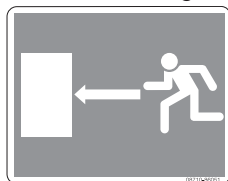
9. No.0399300400

Position of Fire extinguisher



10. No.0871086051

Position of Emergency Exit



11. No.0569334080

Position of First Aid Kit



12. No.0359306600

Diesel Fuel



13. No.0359306700

Hydraulic oil



14. No.0399300500

Position of Hoisting

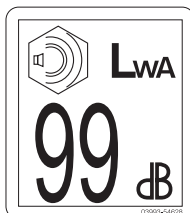


15. No.0399354628

for EU

Noise Outside the Cab

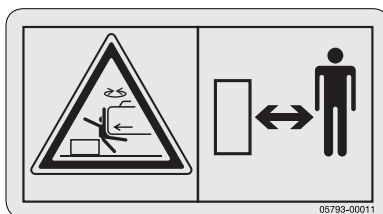
This value indicates the noise level outside the machine and refers to the noise perceived by the persons who are in the vicinity of the work area.



16. No.0579300011

Safety Distance

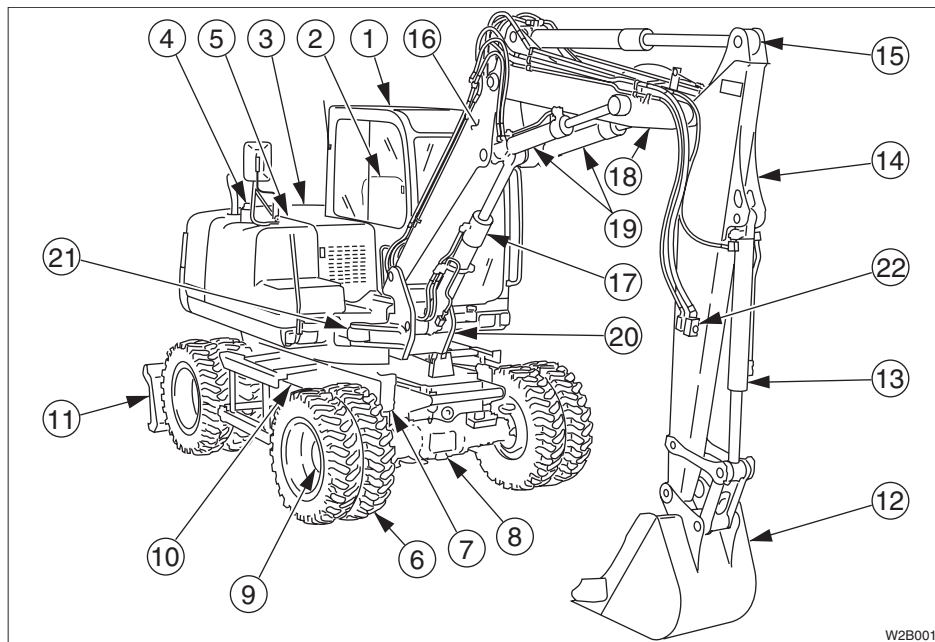
Do not get near or stand within the machine working area.





CONTROLS

Names of Components	38
Doors and Covers	40
Seat and Seat Belt	46
Instrument cluster.....	48
Control console	50
Switches	52
Levers and Pedals.....	57
Accessories	61



W2B001

Upperstructure

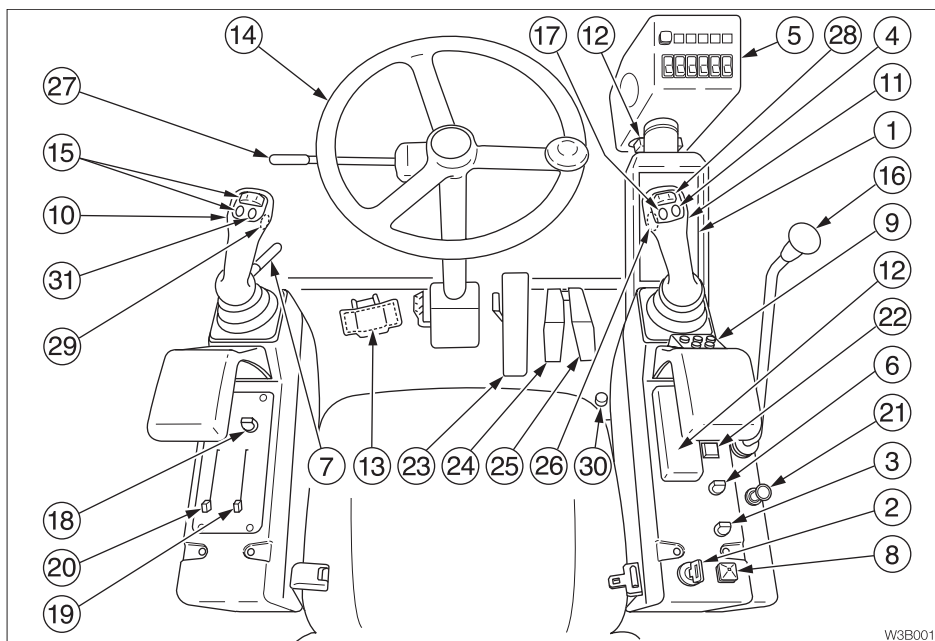
1. Cab
2. Seat
3. Engine hood
4. Fuel tank
5. Hydraulic tank

Undercarriage

6. Tire
7. Axle lock cylinder
8. Steering axle
9. Hub
10. Chassis

Working equipment

11. Dozer blade
12. Bucket
13. Bucket cylinder
14. Arm
15. Arm cylinder
16. Boom
17. Boom cylinder
18. Intermediate boom
19. Boom adjustment cylinder
20. Boom bracket
21. Swing cylinder
22. Auxiliary hydraulic lines

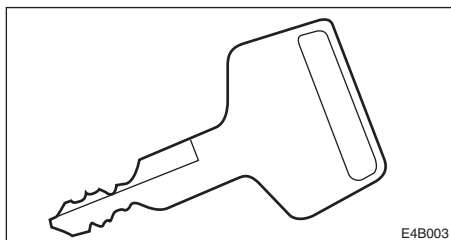


W3B001

- | | |
|--|---|
| 1. Instrument cluster | 17. Horn button |
| 2. Starter switch | 18. Fan switch (Heater) |
| 3. Working light switch | 19. Heater / Defroster switch |
| 4. Decel. button | 20. Ventilation / Circulation switch |
| 5. Control console | 21. Cigarette lighter |
| 6. Wiper switch | 22. Engine Fault Warning Lamp |
| 7. Safety lock lever | 23. Brake pedal |
| 8. Slew speed button | 24. Forward travel pedal |
| 9. Power mode buttons / Throttle buttons | 25. Reverse travel pedal |
| 10. Left operating lever | 26. Selector button (2 or 4 Aux.) |
| 11. Right operating lever | 27. Turn signal switch |
| 12. Fuse box | 28. Second / Fourth auxiliary hydraulic switch (option) |
| 13. Boom swing pedal | 29. Third auxiliary hydraulic button (option) |
| 14. Steering wheel | 30. Third auxiliary hydraulic switch (option) |
| 15. First auxiliary hydraulic switches | 31. Selector button (2-Piece boom) |
| 16. Blade lever | |



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
- Cab door
- Covers

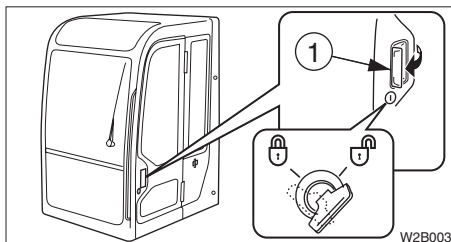
Cab Door

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.

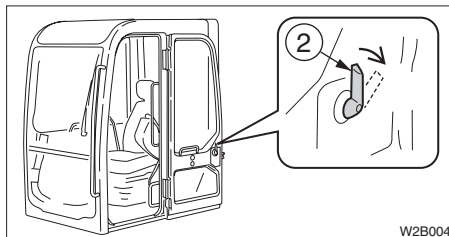
Lock and unlock



1. Insert the starter key and turn it.

Opening

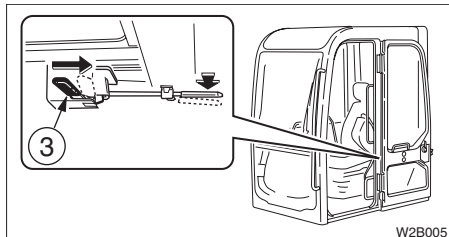
1. Pull the knob (1) to open the door.



To open the door from inside, push the lever (2) forward.

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.
2. Close the released door.



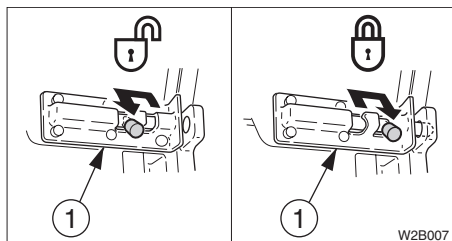
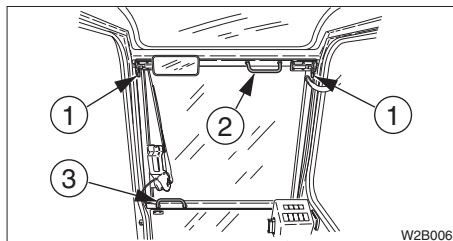
Front Window

WARNING

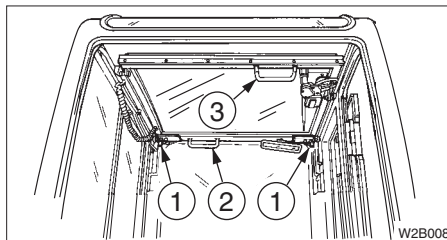
- Grasp the handles firmly with both hands when opening and closing the front window. Your head or hands may get caught if they slip.
- If you open the front window, be sure to lock it in place with the lock pins on the left and right sides. The window may fall if it is not locked in place.

Opening

1. Park 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 (3) with the left hand, the upper handle (2) 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 the front window.

Closing

WARNING

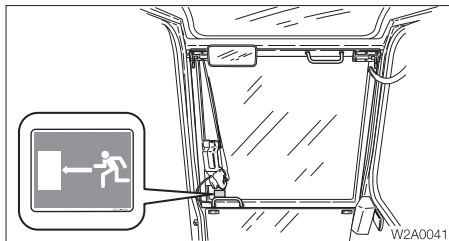
When closing the front window, lower the window slowly so as not to hit your head. Lowering the window abruptly may result in injury or damage the front window.

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 (3) with the left hand, the rear (upper) handle (2) with the right hand, then slowly lower the front window.
3. Move the lock pins (1) to the outside to lock the front window.



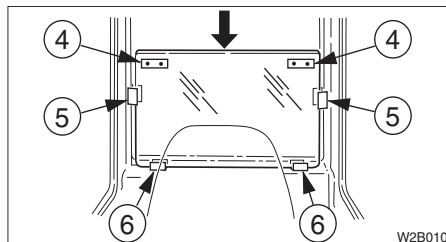
Emergency Exit

Front window (excluding machines with a front guard)



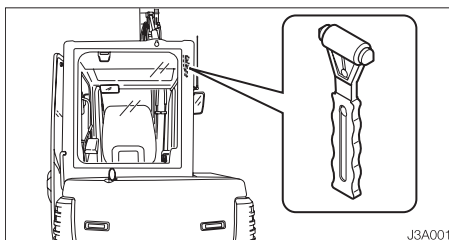
If you should become trapped inside the cab, open the front window to get out.

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.

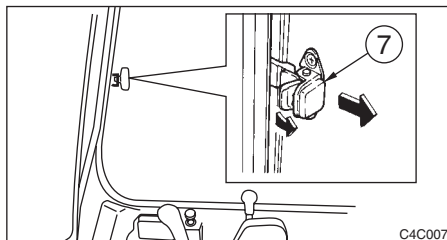
Emergency hammer (optional)



An emergency hammer is installed to be used to escape from the cab in an emergency. When escaping, break the windows with the hammer.

Applicable machine models
175400373 or later

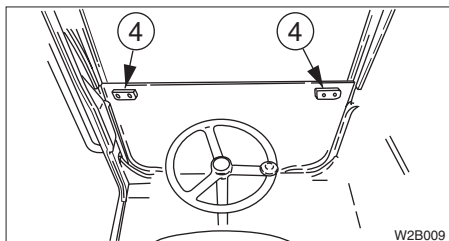
Side Window



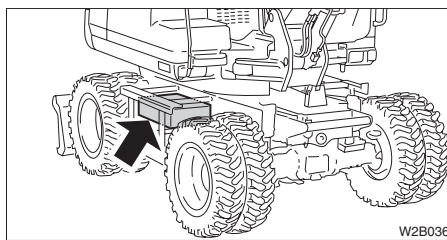
1. Grasp the catch (7), unlock it and open the side window.
2. To close the side window, close it until a click is heard.

Lower Front Window

Removing



Tool Box



1. After using tools, store them back in the tool box.

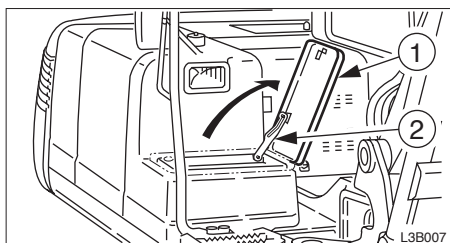


Front Cover (Tool Box)

CAUTION

- 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.
- When opening the front cover, open it firmly to the stopped position.
- When opening and closing the front cover, be careful not to get your hands or other parts of your body caught.

The grease gun and tools are stored under the cover.



Opening

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

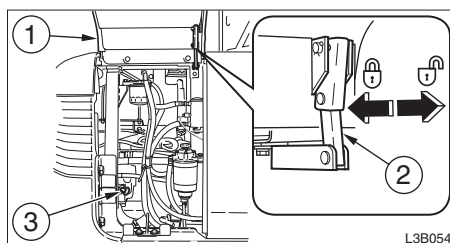
Closing

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

Side Covers

CAUTION

- When opening the side cover, open it firmly to the locked position.
- When opening and closing the side cover, be careful not to get your hands or other parts of your body caught.



Opening

1. Insert the starter key and turn it counterclockwise to unlock the side cover.
2. Lift the side cover (1) fully until it stops.
3. Press the stay (2) to fix the side cover. Engine hood unlock knob (3) is located behind the right side cover.

Closing

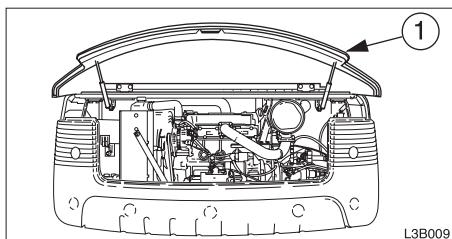
1. Support the side cover (1) by hand and release the stay (2).
2. Close the side cover (1) and press it down until a click is heard.



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.



Opening

1. Open the right side cover.
2. Pull the engine hood unlock knob (3).
Refer to page 43 "Side Covers".
3. Lift the engine hood (1) fully.

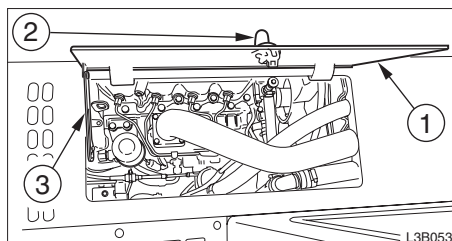
Closing

1. Close the engine hood and press it down until a click is heard.

Maintenance Cover

WARNING

- Before opening the maintenance cover, be sure to stop the engine.
- 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.



Opening

1. Insert the starter key and turn it counterclockwise to unlock the maintenance cover (1).
2. Pull the knob (2), then lift the maintenance cover (1) fully until it stops.

Closing

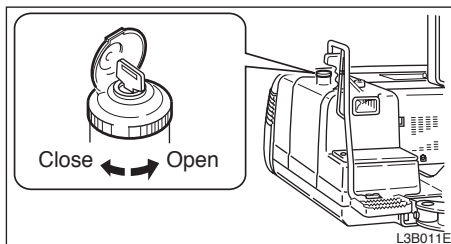
1. Support the maintenance cover (1) by hand and release the stay (3).
2. Close the maintenance cover (1).
3. Insert the starter key and turn it clockwise to lock the maintenance cover (1).



Fuel Filler Cap

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.**
- **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

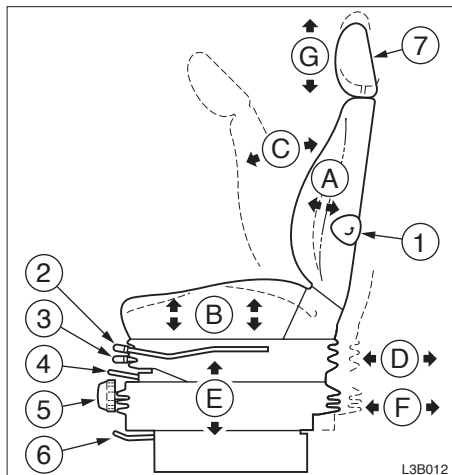
1. Open the key cover, insert the key and turn it clockwise to unlock the fuel cap.
2. Turn the fuel cap counterclockwise and remove it.

Closing

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

**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 seat back to curve outwards for greater back support.
2. Turning the knob (1) further then removes the curve and returns the seat back 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 seat back 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.

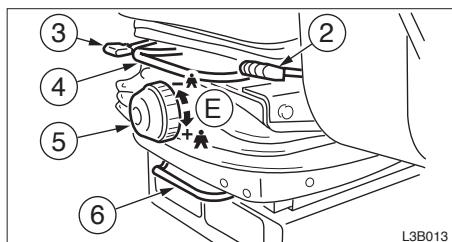
(C) Back angle adjustment**⚠ WARNING**

- **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 remain fixed 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 (6.3 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 (6) at the desired position and the lever stand will remain fixed there.
Adjustment stroke: 70mm (2.8 in.)

(G) Headrest adjustment

The position of the headrest (7) can be adjusted in the up and down directions.

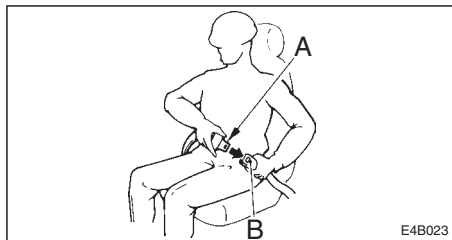
1. Grasp the headrest with both hands and move it upwards or downwards.

Seat Belt

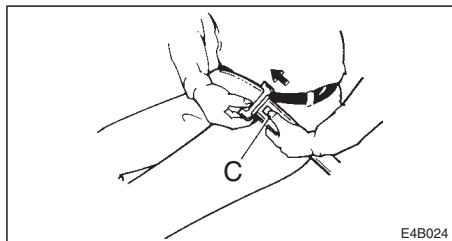
Always fasten the seat belt securely before starting the engine.

Fastening the seat belt

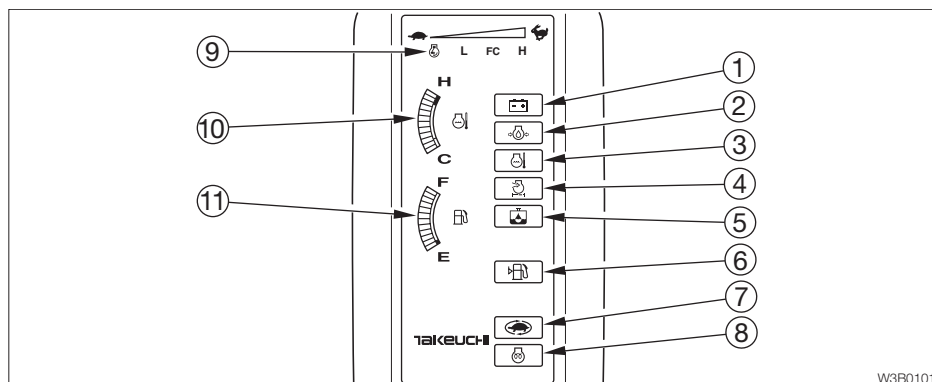
1. Adjust the seat to the optimum position for operating, raise your torso, and sit back firmly into the seat.
2. Pull the seat belt to the desired length.



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.



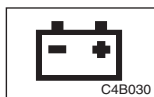
W3B0101

Warning Lamps

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

Refer to page 160 “Troubleshooting”.

1. Battery Charge Warning Lamp



C4B030

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

2. Engine Oil Pressure Warning Lamp



C4B031

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

is running.

3. Coolant Temperature Warning Lamp



C4B012

This lamp flashes and an alarm is sounded if the engine coolant temperature rises abnormally while the

engine is running.

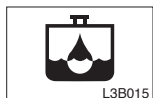
4. Air Cleaner Warning Lamp



G4B010

This lamp flashes and an alarm is sounded if the air cleaner filter is clogged while the engine is running.

5. Water Separator Warning Lamp



L3B015

This lamp flashes and an alarm is sounded if the water is detected within the water separator while the starter

switch is in the ON position.

6. Fuel Level Warning Lamp



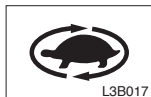
L3B016

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



Indicators

7. Slow Speed Slew Lamp



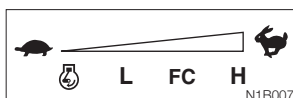
This lamp lights when slow speed slew switch pressed, the slow speed decreases.

8. Glow Lamp



This lamp turns off when engine preheating is completed.

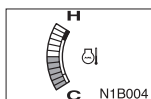
9. Power Mode Lamp



These lamps indicates the engine speed.

Meters

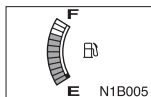
10. Water Temperature Gauge



This gauge indicates the temperature of the engine coolant water.

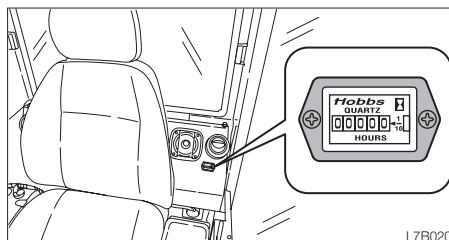
The needle should be within the green range during machine operation. The red range indicates overheating.

11. Fuel Gauge



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

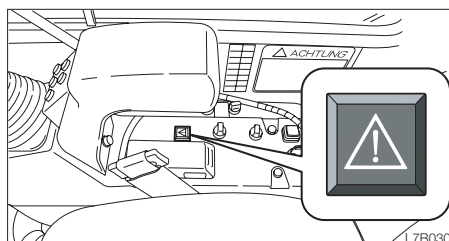
Hour Meter



This 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.

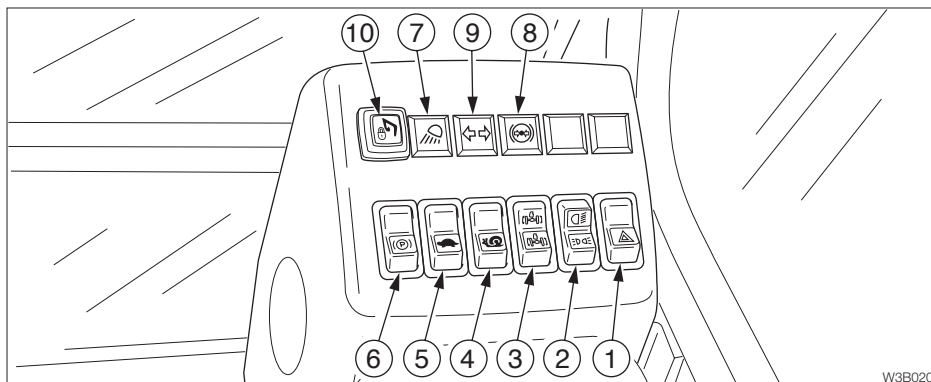
Engine Fault Warning Lamp



IMPORTANT: If the lamp flashes, check the flashing pattern, stop the engine and then contact a Takeuchi sales or service outlet for help. Do not run the engine while the lamp is flashing. Otherwise, the specified engine performance cannot be obtained or more serious error can occur.

When the starter switch is turned to the ON position, the lamp lights up and stays on for 2 seconds and then goes out.

If a problem rises in the engine or controls, the lamp starts flashing using the corresponding flashing pattern to the type of problem.



W3B020

The switches and indicators needed for driving on a road are grouped in the control console.

Switches

1. Hazard Switch

 Depress the hazard symbol on this switch to blink the hazard lamps. The turn signal indicator also blinks.

2. Light Switch

CAUTION

It is NOT permitted to light the work lights during on-road driving.

When this switch is depressed, the lights are illuminated as follows:

 Headlights

neutral OFF

 Parking lights

Work lights can be turned on in this position.

3. Suspension Lock Switch

WARNING

Do not lock the suspension while traveling. Doing so may create a dangerous situation. Be sure to lock the suspension only when working on the machine.

Lock the suspension of the front axle (wobbling) with this switch to prevent the cylinder from moving.

LOCK



..... Locks the suspension of the front axle. Push the LOCK side of the switch to secure the machine when working.

Neutral Unlocks the suspension. Keep the switch in this neutral position while traveling (2nd speed: site travel switch is off).



AUTO

..... The suspension is automatically locked if the brake is pressed when traveling at low speed (1st speed: ) , and it is unlocked when the brake is released.

When traveling at high speed (2nd speed: site travel switch is off), the suspension is not locked even if the brake is pressed.

4. Creeping Travel Switch



Depress the “creeping gear” symbol on this switch to change the travel speed from site travel to creeping travel gear.

This switch only functions when the site travel switch is on.

Slow down sufficiently when switching the travel gear.

☐ Depress the other side of the switch to change into site travel gear.

5. Site Travel Switch



Depress the “slow” symbol on this switch to change the travel speed from road travel to site travel gear.

Stop the machine and engage the brake pedal lock and then shift the travel gear.

☐ Depress the other side of the switch to change into road travel gear.

6. Parking Brake Switch



Depress the parking brake symbol on this switch to engage the parking brake.

☐ Depress the other side of the switch to disengage the parking brake, when the safety lock lever is fully lowered to the unlocked position while the engine is running.

Indicators

7. Working Light Indicator Lamp



This lamp illuminates when the work lights are turned on.

8. Brake Oil Pressure Warning Lamp



CAUTION

Wait 5 seconds after this lamp has gone out before operating the machine.

If this lamp is illuminated while traveling on a road, pull over as soon as possible.



This lamp illuminates when the brake oil pressure drops abnormally while the engine is running.

9. Turn Signal Indicator Lamp



This lamp blinks when the turn signal switch or hazard switch is operated.

10. Safety Lock Button



CAUTION

Before traveling on a road, use this button to lock the right and left operating levers.



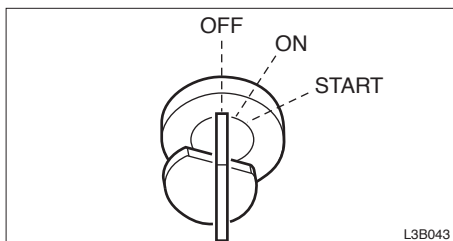
The button operates when the lock lever is in the free position.

If the button is pressed, the hoe attachment cannot move, even if the operating levers are accidentally engaged. In this configuration, the light comes on in the switch.

The operating levers are re-activated by pressing the switch again.



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.

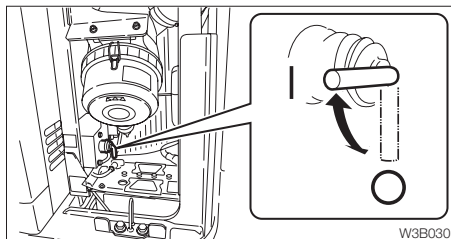
When the coolant temperature is low, the air heater is energized and automatic preheating is done.

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

Battery Switch

IMPORTANT: Never set this switch to the OFF (O) position while the engine is running.

Doing so will cause the engine and the electrical circuits to fail.



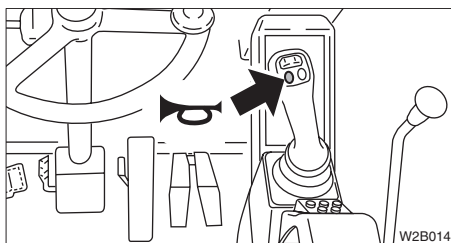
OFF (O) Switches off the electrical circuit. Be sure to set this switch to the OFF (O) position when storing the machine for a long period, or when performing maintenance of the electrical system.

ON (I) Connects the electrical system. Check that this switch is in the ON (I) position before starting the engine.

Supplement: Setting this switch to the OFF (O) position will shut down all electrical circuits, but the memory of the radio preset tuning keys will be retained.



Horn Button

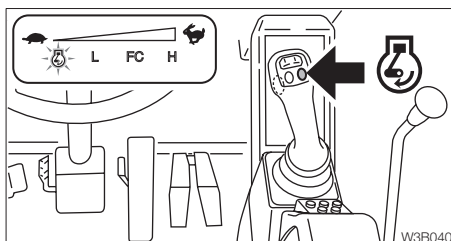


Press the button on the right operating lever to blow the horn.

Decel. Button

WARNING

Set the operating and travel levers to neutral before operating the decel. button. The machine's operating speed will change abruptly if the button is operated while the levers are engaged.



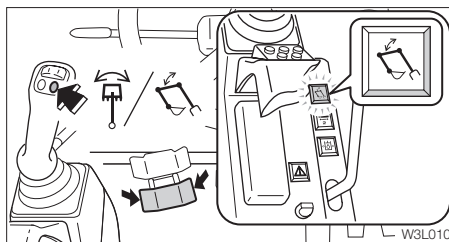
Press the button on the right operating lever to lower the engine speed to low idling. Press the button again to return to the engine speed set with the throttle or power mode buttons.

Supplement: The one-touch decelerator is a device for lowering the engine speed and reducing fuel consumption when little engine output is required, for example when the operating and travel levers are in neutral.

Selector Button (2-Piece boom)

WARNING

Pressing (switching ON or OFF) the selector button while the boom swing pedal is depressed is dangerous, since the attachment will move unexpectedly. Always set the boom swing pedal back to the neutral position before operating the selector button.



This button changes from the boom swing operation to the intermediate boom operation.

Press this button to change over to operation of the intermediate boom. The intermediate boom operation indicator lamp will light. One more press of this button will result in a return to boom swing operation. Actual operation is performed with the boom swing pedal.



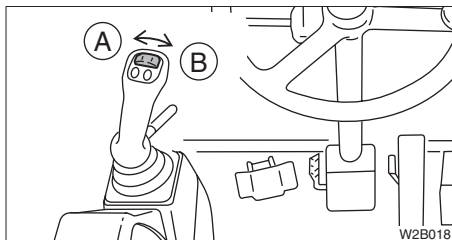
First Auxiliary Hydraulic Switches

Auxiliary Hydraulic Switch (Proportional control)

Supplement: The machine has auxiliary proportional controls for first and second auxiliary hydraulics.

Proportional control allows for slow-to-fast movement of auxiliary functions.

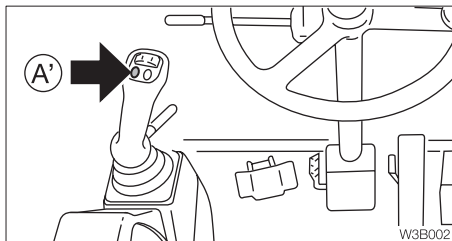
Example: If you move the auxiliary switch half way, the auxiliary function will move at approximately one-half speed.



Move this switch to control the flow of the oil in the first auxiliary hydraulic lines.

- (A)Hydraulic oil flows to left auxiliary line(a)
- (B)Hydraulic oil flows to right auxiliary line(b)

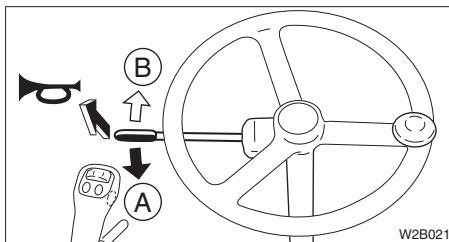
Auxiliary Hydraulic Buttons



Press those buttons to control the flow of the oil in the first auxiliary hydraulic lines.

- (A') Hydraulic oil flows to left auxiliary line(a)
- Proportional control of the auxiliary hydraulic circuit is not possible.

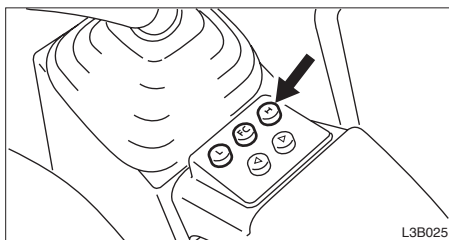
Turn Signal Switch



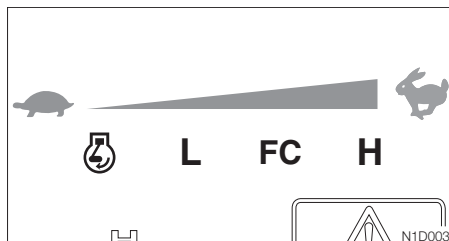
Move this switch to blink the turn lights and sound the horn.

- (A) Left turn lights
- (B) Right turn lights
- UP Horn

Power Mode Buttons



The engine speed can be changed at the touch of a button. When one of these buttons is pressed, the engine is set to the set speed and the power mode indicator lights.





- L: This mode is always set when the engine is started.
Use it for light and very light operations.
- FC: Use this mode for light operations and leveling operations which do not require speed. Using this mode reduces fuel consumption and noise.
- H: Use this mode for general digging and loading operations requiring power and speed.

Changing the engine revolutions

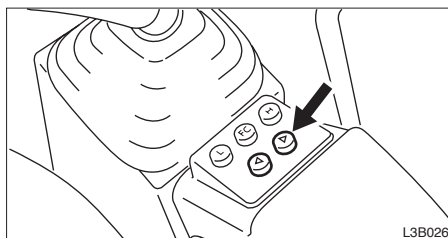
The engine revolutions can be changed in the L and FC modes.

Do the following steps to change.

1. Start the engine.
2. Press and hold the L or FC mode button for two seconds or more to cause the mode lamp start flashing on the instrument cluster.
3. Press the throttle button while pressing down the L or FC mode button.
(Each pressing increases/decreases the revolutions by 10 revolutions)
 - ▶ Engine revolutions increases
 - ◀ Engine revolutions decreases
4. Listen to the engine sound and release the button when you hear the desired revolution sound.

To return to the initially set revolutions, press and hold the L or FC mode button for five seconds or more.

Throttle Buttons



The engine speed increases and decreases continuously while these buttons are pressed. When the button is released, the engine speed is set to the speed at the time the button is released.

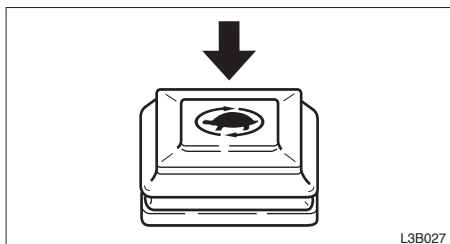
▶ Engine speed increases

◀ Engine speed decreases

When the throttle buttons are operated and the engine speed is at a point between the different modes, the lamps on both sides light. When the speed is changing, only the lamp for the nearest engine speed lights.



Slew Speed Button



Pressing this button shifts rotation into Slow speed, bringing its speed down to the minimum. Slow speed is useful for performing tasks that require precision handling even at the cost of speed or efficiency.

Slow speed

The lamps on the button and instrument panel will light up. Used for low speed slew.

The maximum set speed in slow speed can be adjustable.

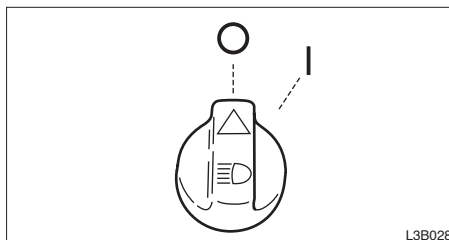
Upon shipment, it is set to 7.6 min^{-1} (7.6 rpm). Contact a Takeuchi sales or service outlet for change.

Normal speed

The lamps will go out and slew will return to its normal speed.

Supplement: As a safety precaution, the machine is designed so that you cannot switch to normal speed while slewing in slow speed. You must instead bring the rotation to a temporary halt and then press the slew speed button to return to normal speed.

Working Light Switch



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

O Off

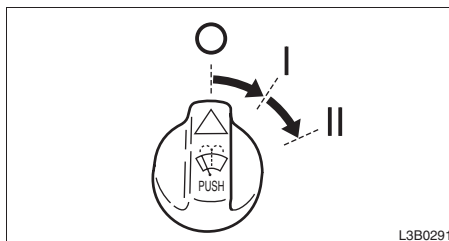
I Work light, side lights and boom light turn on.

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 INT

II Wiper

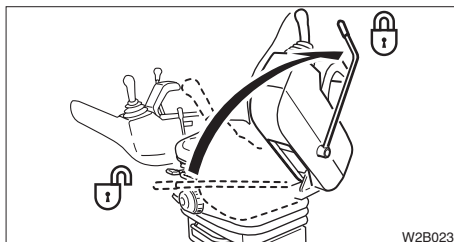
PUSH Washer



Safety Lock Lever

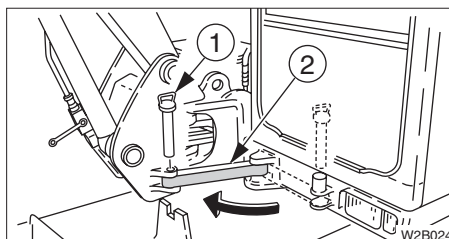
WARNING

- 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 been locked, the machine will move suddenly, and cause serious injury or death.
- Note that the dozer blade control is not locked, even when the safety lock lever is set to the lock position. Do not touch this control accidentally.
- Be careful not to touch the operating levers when raising and lowering the safety lock lever.



This device is for locking the hoe attachment, auxiliary hydraulic systems and slewing. When the lever is lifted, the lever stand springs up and the lever is locked.

Swing Lock Pin



To lock the hoe attachment and upperstructure for transport and on-road driving use the pin as follow:

1. Lift the pin (1) out of the bracket near the operator's seat.
2. Swing the coupling (2) forward.
3. Align equipment and upperstructure.
4. Lower the pin (1) fully into the lock.

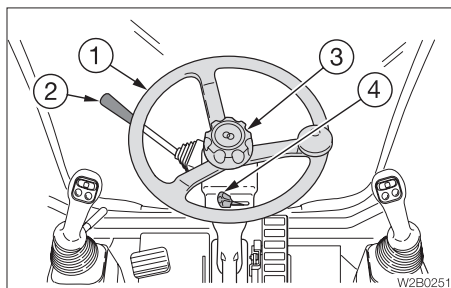
IMPORTANT: Operation of the excavator and slewing of the upperstructure is possible only if the pin is in the bracket near the operator's seat. A side from small correctional movements, any swinging can result in damage to the machine.



Steering Wheel

CAUTION

Check the position of the upperstructure in relation to the undercarriage. If the steering axle is not located beneath the cab, changes in direction and steering wheel turns will not coincide.

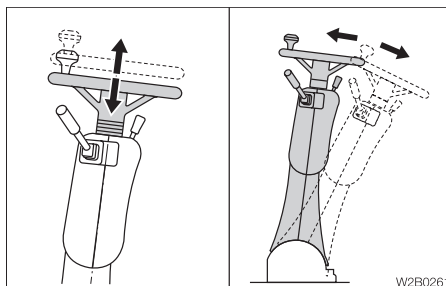


The steering contains the steering wheel (1) and turn signal switch (2) for driving. Change direction by carefully turning the wheel. The additional steering knob makes major steering wheel movement easier.

Adjusting the position of the steering wheel

WARNING

- Be sure to adjust the position of the steering wheel before driving the excavator.
If you attempt to adjust it while driving the excavator, steering will become unstable, possibly resulting in accidents.
- Check that the steering wheel is securely locked in place.
After adjusting it. If not it may move unexpectedly, and this is dangerous.



The position of the steering wheel can be adjusted in up/down and front/back directions.

Up/Down

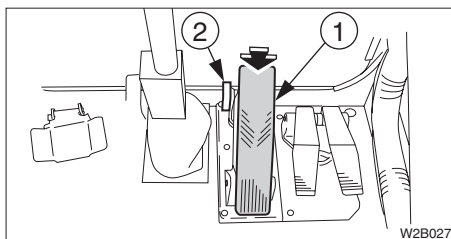
1. Turn the cap (3) counterclockwise and pull up or push down the wheel.
2. Tighten the cap (3).

Forward/backward

1. Press the lever (4) to the right and tilt the steering wheel forward or backward.
2. Release the lever (4) at the desired angle.



Brake Pedal



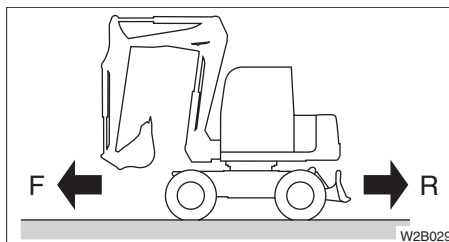
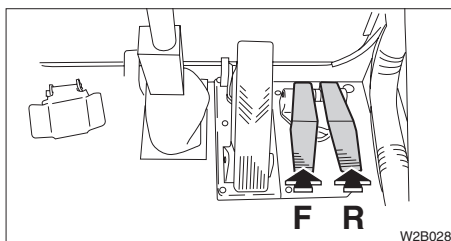
The brake pedal (1) operates the brakes (arrow = brakes). The pedal (1) can be locked in position by pressing fully down. Press on the Release lever (2) to release the lock.

IMPORTANT: When using the bucket, lock the brake.

Forward Travel Pedal Reverse Travel Pedal

DANGER

- Before reversing, check that there is nothing behind you and that the upperstructure and undercarriage are aligned. If the steering axle is not beneath the cab, forward and backward movements are reversed.
- When traveling, do not step on the travel pedal for the opposite direction. Doing so is dangerous as it causes the machine to stop suddenly.



Use the travel pedals to drive the machine and to control the machine travel speed.

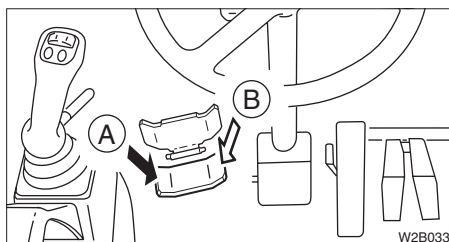
F Forwards

R Rearwards

Boom Swing Pedal

WARNING

When not using the boom swing pedal, engage the boom swing pedal lock. Stepping on the pedal accidentally when it is not locked may lead to unexpected accidents.



Use this pedal to operate the boom swing. Operation switches to the intermediate boom when the selector switch is pressed.

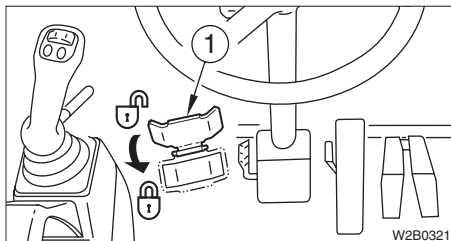
(A) Boom swing left /
Intermediate boom raise

(B) Boom swing right /
Intermediate boom lower

Refer to page 82 “Operating the Boom Swing and Intermediate Boom”.



Pedal Lock

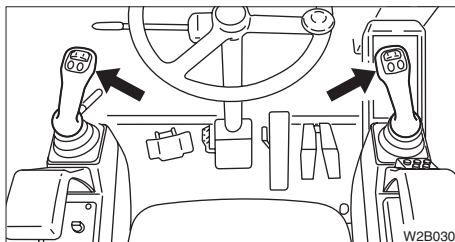


Pivot the pedal lock (1) over the pedal to lock it.

Operating Levers

⚠ WARNING

- Be careful to check which pattern of lever control arrangement you are operating with before beginning operations.
- The explanations in this manual are for the ISO pattern.

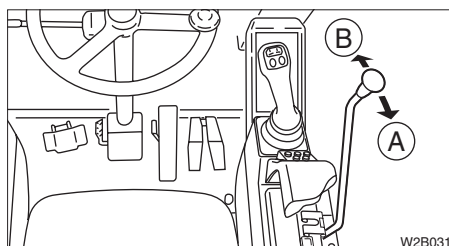


Use these levers to operate the boom, arm, bucket and upperstructure (slew). Refer to page 74 "Lever Pattern". Refer to page 81 "Operating the Working Equipment".

Blade Lever

⚠ WARNING

When not using the blade lever, engage the blade lever lock. Touching the lever accidentally when it is not locked may lead to unexpected accidents.



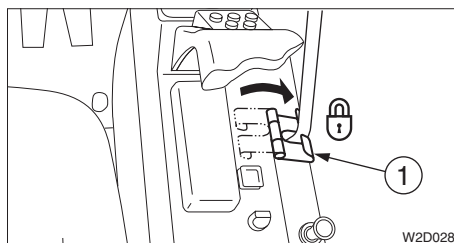
Use this lever to operate the dozer blade and outriggers.

(A)Blade Raise / Outriggers Raise

(B)Blade Lower / Outriggers Lower

Refer to page 82 "Operating the Dozer Blade".

Lever Lock



When the blade lever is at the neutral position, turn the lock plate (1) to lock the blade lever.

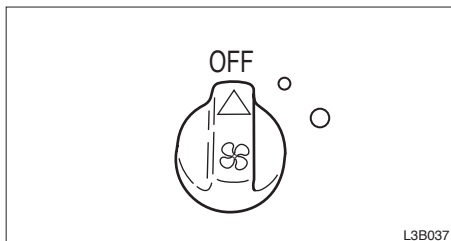


Heater

WARNING

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

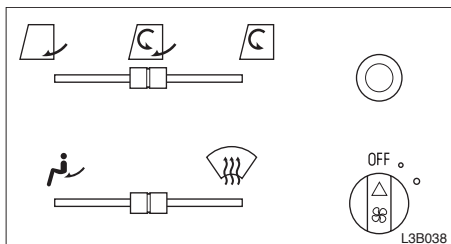
Fan Switch



OFF ... Off

- Heater fan rotates at low speed.
- Heater fan rotates at high speed.

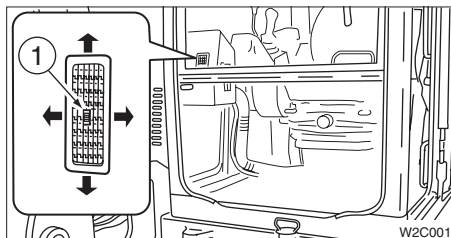
Heater / Defroster / Ventilation / Circulation Switch



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

-  Heater
-  Windshield defroster
-  Full ventilation
-  Half ventilation
-  Internal circulation

Outlets



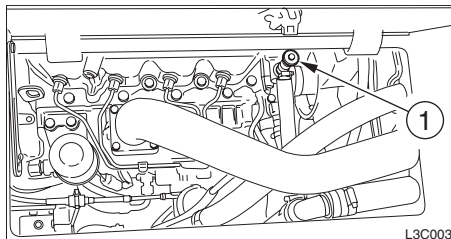
Move knob (1) up and down or left and right to adjust the direction of the air.

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.

Cooling water could leak when the valve is set at a halfway position.



1. Park on a flat surface and stop the engine.
2. Open the maintenance cover.
3. Turn the valve (1) clockwise until it stops to close it.



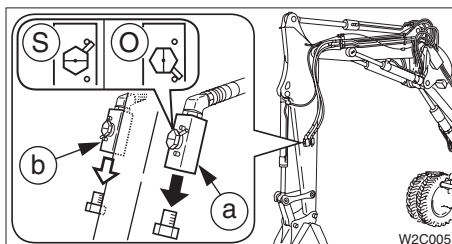
First Auxiliary Hydraulic Lines

WARNING

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

- When disconnecting hoses, release the internal pressure before removing.

These lines deliver the hydraulic oil necessary for operating a hydraulic breaker, crusher or other attachments.



Stop valve..... (S) : Closed (O) : Open

Connecting the Hydraulic Circuits

To connect the attachment hydraulic lines, use the following procedures:

1. Release the pressure remaining in the lines then close the stop valve.
Refer to “Releasing the residual pressure”.
2. Remove the plugs.
3. Connect the attachment hydraulic lines to ports (a) and (b).
When fitted with a hydraulic breaker, connect the return circuit to port (b) and the supply circuit to port (a).
4. Open the stop valves.
When fitted with a hydraulic breaker, open the selector valve (1).
Refer to page 63 “Selector Valve”.
5. When connecting is complete, purge air from the hydraulic lines.
 - a. Start and run the engine at low idle with no load for 10 minutes.

- b. With the engine running at low idle operate the auxiliary hydraulic switches repeatedly (approx. 10 times) to purge air from the hydraulic lines.
- c. Stop the engine and wait for more than 5 minutes until bubbles escape from the hydraulic oil in the tank.

IMPORTANT: Follow the procedures for purging air as instructed by the attachment manufacturer if specified to do so.

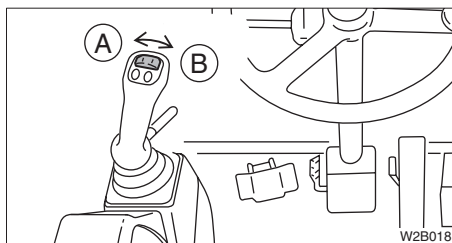
6. Check for leaks.

Disconnecting the hydraulic circuits

1. Release the pressure remaining in the lines then close the stop valve.
Refer to “Releasing the residual pressure”.
2. Disconnect the lines from ports (a) and (b).
3. Install the plugs.

Releasing the residual pressure

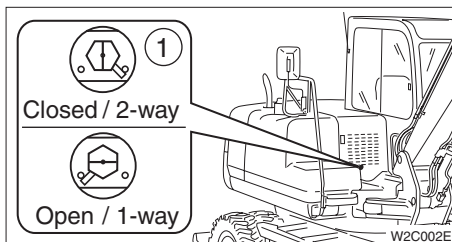
After using the auxiliary hydraulic circuits, pressure remains in the circuits. This is called the residual pressure. Release this residual pressure before disconnecting the lines.



1. Stop the engine.
2. Turn the starter switch to the ON position.
3. Fully lower the safety lock lever.
4. Within 10 minutes after the engine comes to a complete stop, move the 1st auxiliary hydraulic switch to the right and left several times.
5. Place the safety lock lever to the lock position.



Selector valve



Open When using a hydraulic breaker (One-way flow)

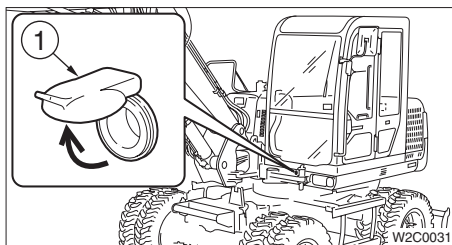
Closed..... When using a reversible attachment (Two-way flow)

Change the direction of the hydraulic oil flow by opening or closing the selector valve on the machine body.

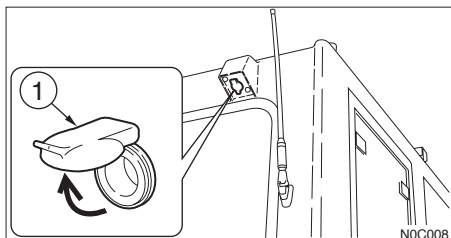
External Power Sockets (for EU)

WARNING

Only use applicable electric products with those sockets.



for Beacon

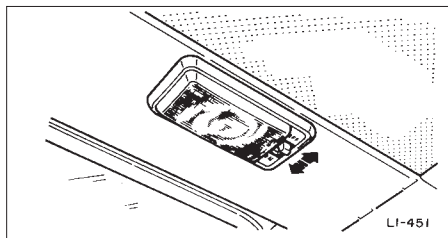


Use those sockets as an external power supply. When using this socket, be careful not to exceed 12V/5A.

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 lamp off when leaving the machine.



OFF Lamp is turned off all the time.

ON..... Lamp is turned on all the time, with no regard for the door being opened or closed.



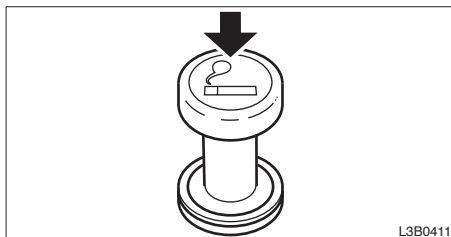
Cigarette Lighter

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 12V/5A.

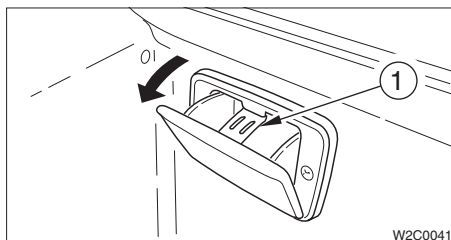


1. Press the lighter in.
2. Release the lighter and wait for it to pop out. The lighter pops out automatically when the heater becomes red.
3. Once the lighter pops out, pull it out.

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.

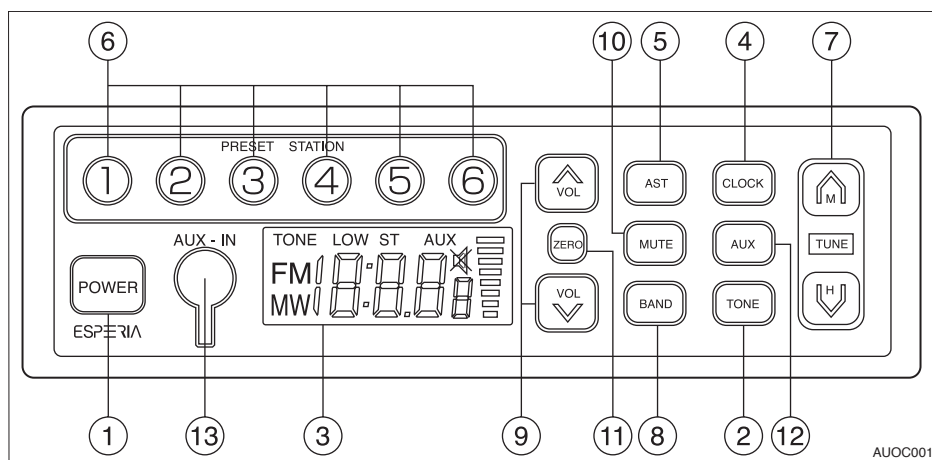


Radio (Cab Type)

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” to “59” or “01” to “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.

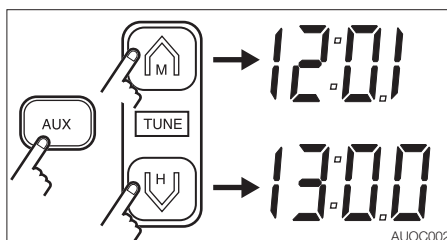
Note: The previous station setting stored in memory will be overwritten. If the arrangement of the preset buttons to the corresponding stations is not desirable, try the "Presetting stations" described above.

AUX audio connection

- Connect a 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  button to set the minute. Use the tune  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	: 12/24 VDC (negative ground)
Power consumption	: 2A
Maximum output power	: 16 W + 16 W (4Ω) (at DC 28.8 V input) 5W+5W (4Ω) (at DC 14.4 V input)
Rated output power	: 14W + 14W (10% distortion, 4 Ω) (at DC28.8 V input) 3.8 W + 3.8 W(10% distortion, 4Ω) (at DC 14.4V input)
Dimensions	: 178 (W) x 50 (H) X 92 (D) mm (without projections)
Receiving frequency	: MW (AM) 530 to 1602 kHz (EU, Asia), 1710 kHz (North, Central and South America) FM 87.9 to 108 MHz
Practical sensitivity	: MW (AM) 32 dB or less (S/N 20 dB) FM 12 dB or less (S/N 30 dB)
S/N ratio	: MW(AM) 40 dB or more FM 60 dB or more
AUX IN	: Stereo mini jack (3.5 mm); rated input, 90 mV

Note: Specifications and dimensions may be changed without notice.



OPERATION

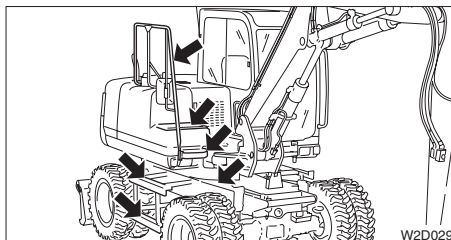
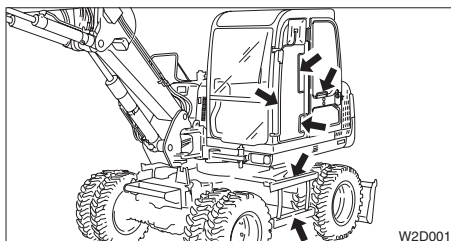
Before Starting Operation	70
Starting and Stopping the Engine	71
Machine Operation	74
Operating Procedures.....	84
Parking the Machine	92
Handling in Cold Weather	93
Handling Tires.....	94



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 114 and 115).

Daily Inspection

Perform the daily inspections once a day before starting the engine the first time that day.

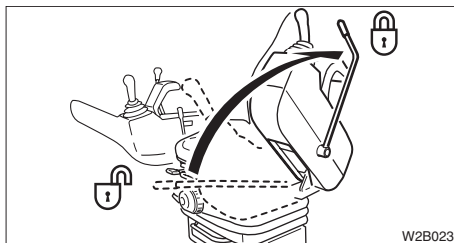
Perform the inspections as described under “Maintenance - Daily Inspection” (pages 116 to 122).



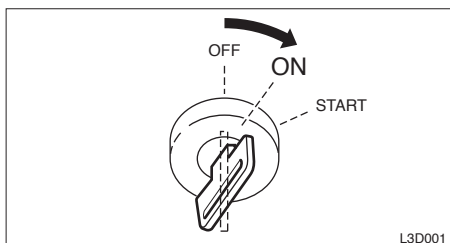
Starting and Stopping the Engine

Before Starting the Engine

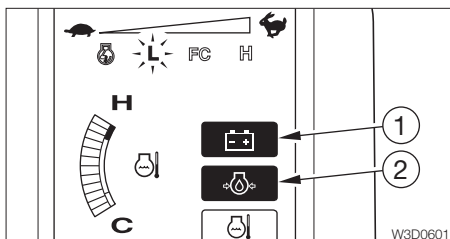
1. Adjust the seat and fasten the seat belt.



2. Check that the safety lock lever is in the locked position.
3. Check that all the controls are in the neutral position.



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

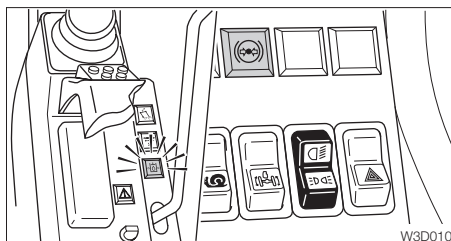


IMPORTANT: Do not start the engine before the power mode lamp (L) lights.

- On Instrument Cluster

Check that the power mode lamp (L) is lit.

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 (1) and engine oil pressure warning lamp (2) flash, and the other lamps go off.



- On Control Console

The brake oil and third auxiliary hydraulics warning lamps illuminate and will stay lit until the engine starts.

- Turn the light switches to check that all the lights come on.
- Check the fuel level.

If the lamps do 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.



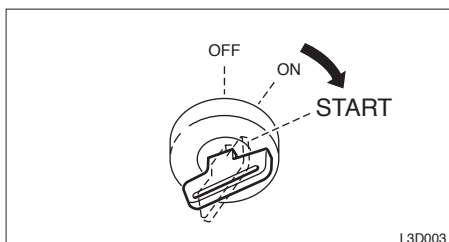
Starting the Engine

WARNING

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

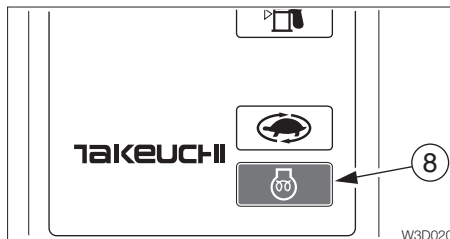
IMPORTANT: Do not run the starter motor for more than 15 consecutive seconds. If the engine fails to start, wait for 30 seconds to protect the battery, and then try again to start the engine.

Normal Starting

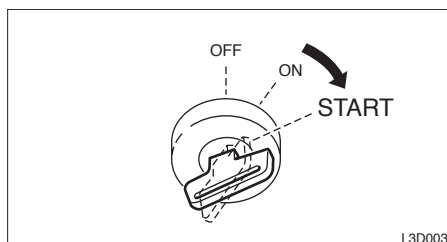


1. Turn the key to the START position and start the engine.
2. Once the engine starts, release the key. The key automatically returns to the ON position.
3. Check that the warning lamps are off.
4. Warm up the engine.
Refer to page 73 "Warming Up the Engine".

Starting in Cold Weather



1. Make sure that the glow lamp (8) is lit.
(The glow lamp lights for 15 seconds when coolant temperature is at -10°C (14°F)).



2. After the glow lamp (8) turns off, then 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. Warm up the engine.
Refer to page 73 "Warming Up the Engine".

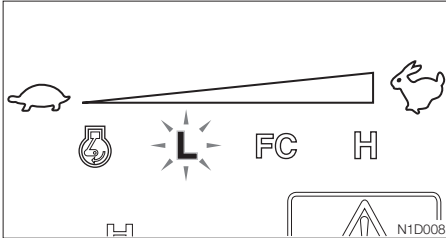


Starting and Stopping the Engine

Warming Up the Engine

IMPORTANT: Avoid racing the engine until it is warmed up.

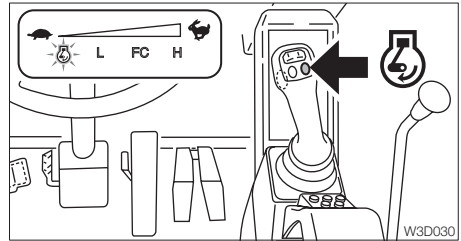
Do not warm up the engine for long periods of time (20 minutes or more).



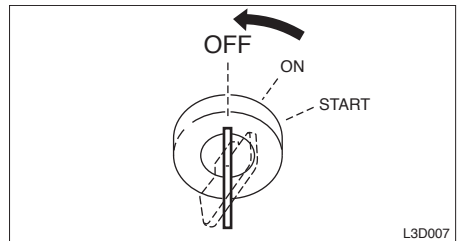
1. Make sure that the power mode lamp (L) lights, then idle the engine and run it for about 5 minutes with no load.

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 emergency.



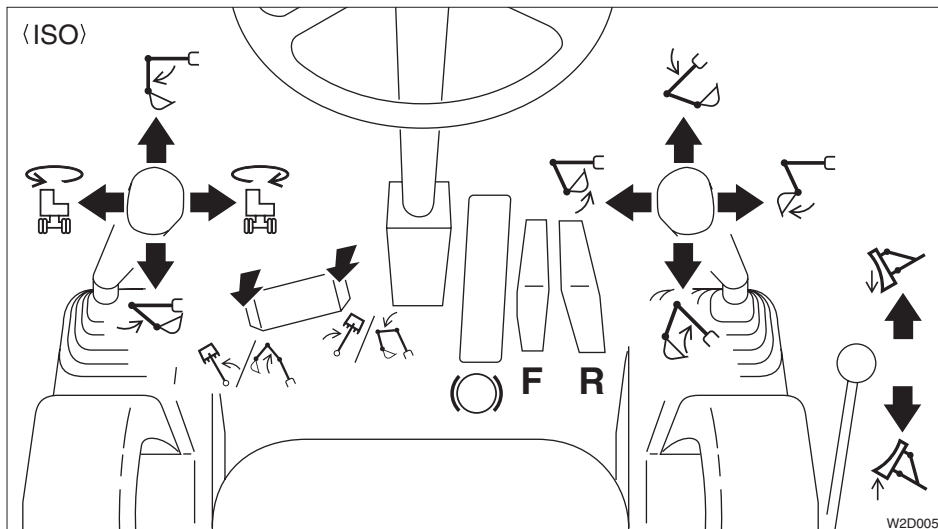
1. Press the decel. button.
2. Idle the engine for about 5 minutes to gradually let it cool.



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

**Lever Pattern (ISO Pattern)****WARNING**

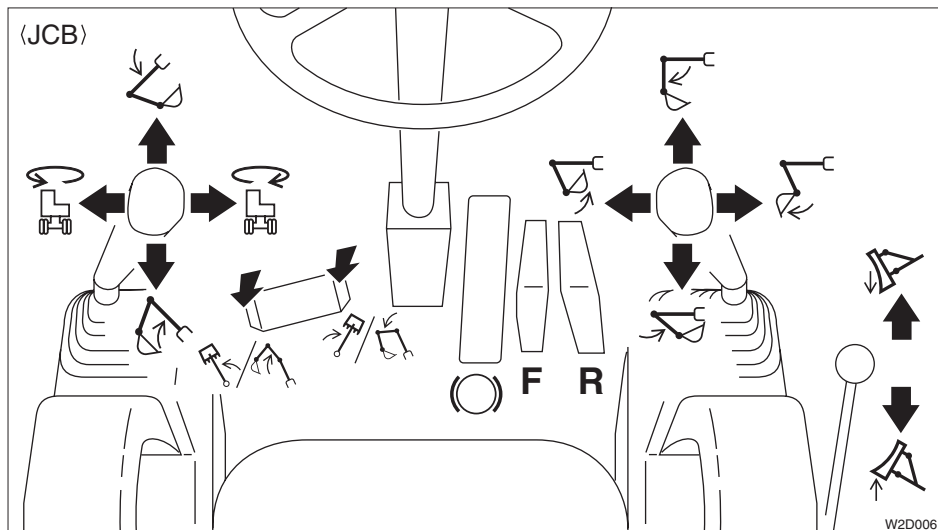
- Be careful to check which pattern of lever control arrangement you are operating with before beginning operations.
- The explanations in this manual are for the ISO pattern.



	Brake	F	Forward Travel	R	Reverse Travel
	Arm Out				Boom Lower
	Arm In				Boom Raise
	Upperstructure Left Slew				Bucket Load
	Upperstructure Right Slew				Bucket Dump
	Boom Swing Left				Dozer Blade Lower
	Boom Swing Right				Dozer Blade Raise
	Intermediate Boom Raise (2-piece boom)				Intermediate Boom Lower (2-piece boom)

**Lever Pattern (JCB Pattern)****WARNING**

- Be careful to check which pattern of lever control arrangement you are operating with before beginning operations.
- The explanations in this manual are for the ISO pattern.



	Brake	F	Forward Travel	R	Reverse Travel
	Boom Lower			Arm Out	
	Boom Raise			Arm In	
	Upperstructure Left Slew			Bucket Load	
	Upperstructure Right Slew			Bucket Dump	
	Boom Swing Left			Dozer Blade Lower	
	Boom Swing Right			Dozer Blade Raise	
	Intermediate Boom Raise (2-piece boom)			Intermediate Boom Lower (2-piece boom)	



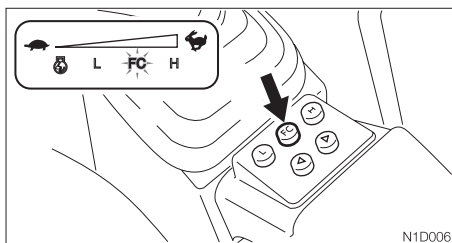
Warming Up the Machine (Hydraulic Oil)

WARNING

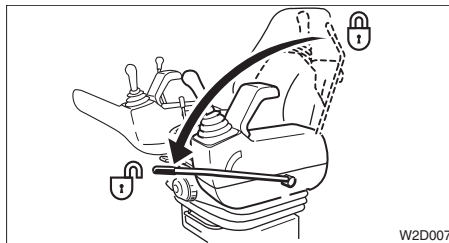
- Operating the working equipment without warming up the machine (hydraulic oil) is dangerous, as response will be slow and the equipment may move in unexpected ways and safety devices may not operate properly. Be sure to sufficiently warm up the machine.
- When traveling, do not step on the travel pedal for the opposite direction. Doing so is dangerous as it causes the machine to stop suddenly.

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, heat up the hydraulic oil to at least 20°C (68°F).

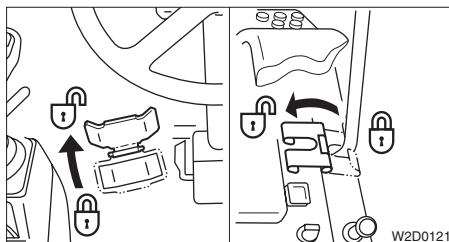
Normal Warm-up



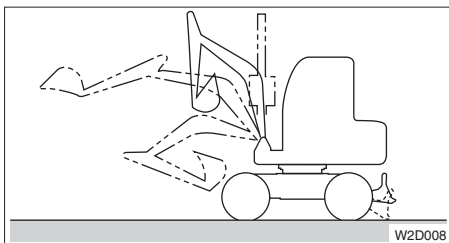
1. Run the engine at medium speed (FC mode) for about 5 minutes with no load.



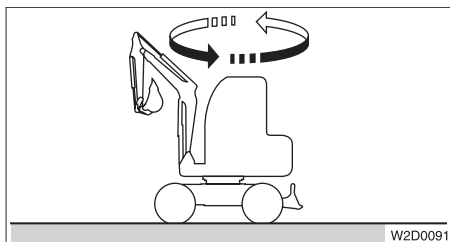
2. Set the safety lock lever to the released position and lift the bucket from the ground.



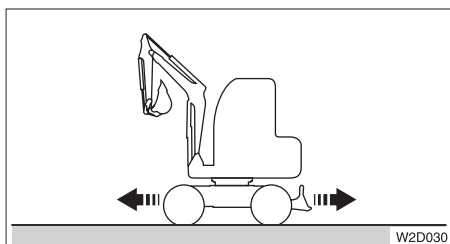
3. Disengage the boom swing pedal and blade lever locks.



4. Extend and retract each of the cylinders several times with no load.



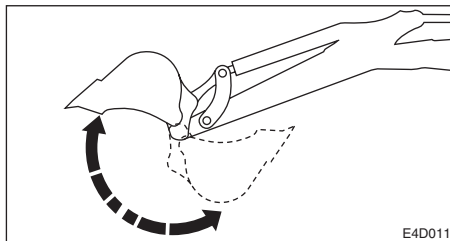
5. Slew slowly left and right several times.



6. Travel slowly forward and backward several times.

Warming Up in Cold Weather

1. Perform the normal warm-up procedure.



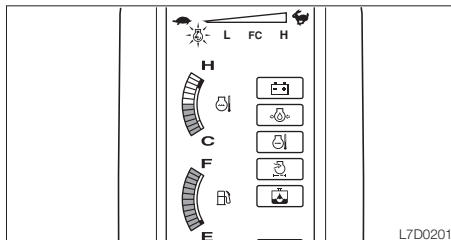
2. Set the bucket cylinder at the stroke end and keep it there.

Do not do this for more than 30 seconds.

3. Repeat step 2 until the bucket operating speed is normal.

Inspection After Warm-up

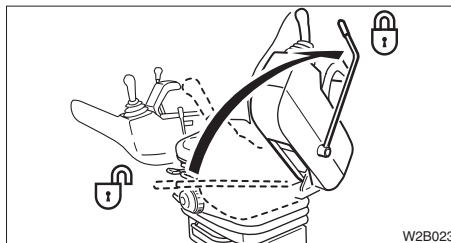
After warming up the engine and hydraulic oil, perform the checks and inspections described below, and repair if there is a problem.



1. Check that the warning lamps and meters are as follows:

- Are all the warning lamps off?
- Is the water temperature gauge's needle 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 operating levers and boom swing pedal are locked.

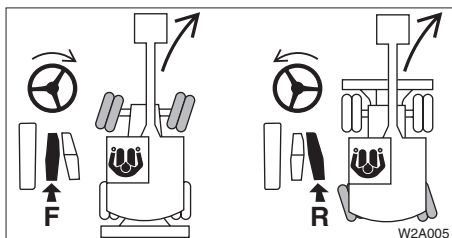


Traveling the Machine

WARNING

- Never allow anyone to enter the slewing (swing) radius and machine path.
- Signal your intention to move by sounding the horn.
- There are blind spots to the rear of the machine.

If necessary, swing the cab around before backing up to check that the area is safe and clear.



- Check the position of the upperstructure in relation to the undercarriage. If the steering axle is not located beneath the cab, changes in direction and steering wheel turns will not coincide.
- Avoid sudden stops, start or turns.
- Do not raise the safety lock lever while traveling. This is dangerous, since raising the safety lock lever will cause the parking brake to operate and apply the brake abruptly.
- Do not switch off the starter switch while traveling. Doing so will cause sudden braking and is dangerous.
- Avoid crossing over obstacles whenever possible. If you must do so, keep the bucket close to the ground and travel slowly. Never cross obstacles if they will seriously tilt the machine (to an angle of 15° or greater).

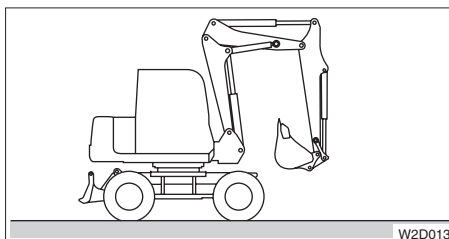
- When traveling on rough terrain or when carrying a load, lower the load and travel slowly.
- Remove any obstacles in the machine's path.

Preparing for Travel

1. Cab facing forward over steering axle, hoe equipment straight out in front, dozer blade / outriggers (option) fully up.
2. Put the machine in the travel posture.

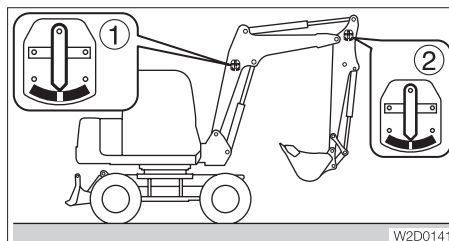
Road Travel Posture

- With 2-Piece Boom



Raise the boom fully, lower the intermediate boom fully, position the arm vertically and rollback the bucket.

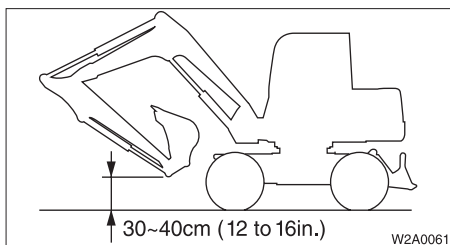
- With Mono-Boom



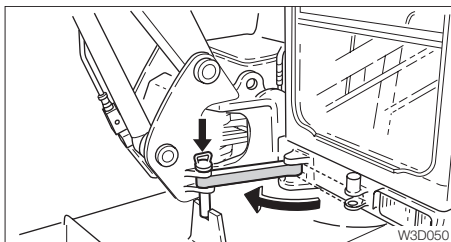
Move the boom and arm to set them so that the position pointers (1), (2) are in the green ranges.



Site Travel Posture

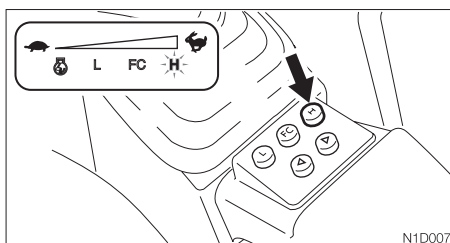


Fold the hoe equipment and lower it to 30 to 40 cm (12 to 16 in.) above the ground.

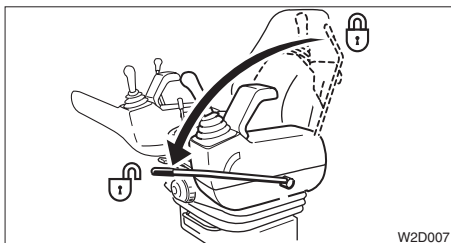


3. Engage the swing lock.

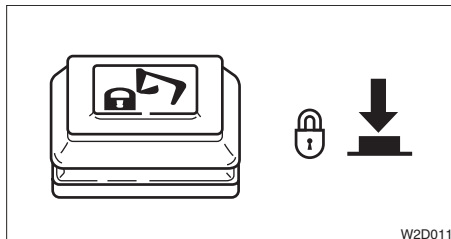
Traveling Forward and Backward



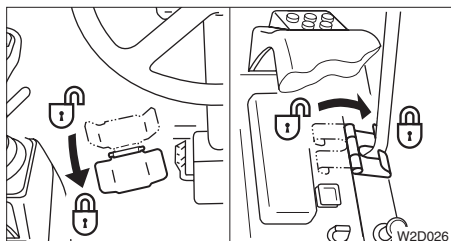
1. Increase the engine speed.



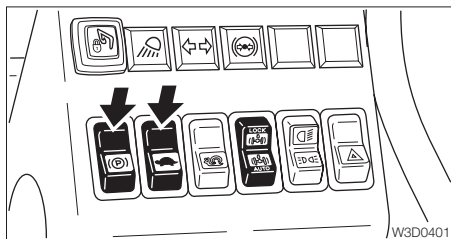
2. Set the safety lock lever to the released position.



3. Press the safety lock button to lock the operating levers.



4. Engage the blade lever and boom swing pedal locks.



5. Press the axle lock switch down to disengage the axle lock.

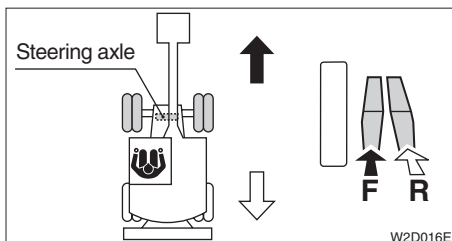
6. Press the site travel switch down to choose the proper speed.

7. Press the parking brake switch down to disengage the parking brake.

8. Operate the travel pedals as described below.

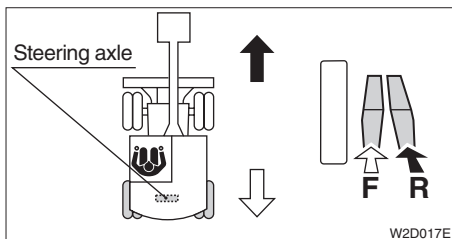
**⚠ WARNING**

When traveling, do not step on the travel pedal for the opposite direction. Doing so is dangerous as it causes the machine to stop suddenly.



When the steering axle is in front of the operator's seat:

- ➡ To move forward:
Step on the pedal (F).
- ⇨ To move backward:
Step on the pedal (R).



When the steering axle is behind the operator's seat:

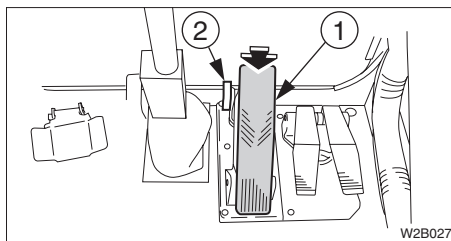
- ➡ To move forward:
Step on the pedal (R).
- ⇨ To move backward:
Step on the pedal (F).

Stopping Travel**⚠ WARNING**

- Park the machine on firm, level ground and apply the parking device. 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 has not been locked, the machine will move suddenly, and cause serious injury or death.
- Note that the dozer blade control is not locked, even when the safety lock lever is set to the lock position. Do not touch this control accidentally.

⚠ CAUTION

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



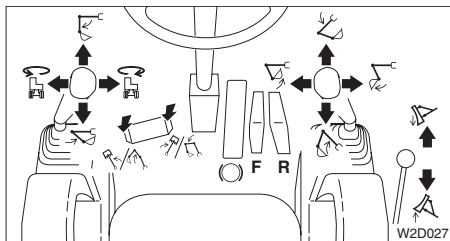
1. Slowly step on the brake pedal to stop the machine.



Operating the Working Equipment

WARNING

- Be careful to check which pattern of lever control arrangement you are operating with before beginning operations.
- The explanations in this manual are for the ISO pattern.



Use the right operating lever to operate the boom and bucket.

Use the left operating lever to operate the arm and for slewing.

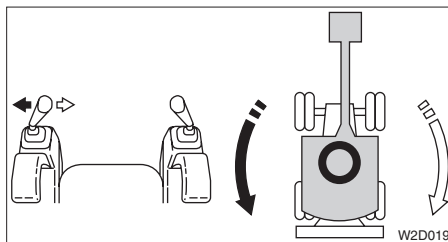
Return the operating levers to the neutral position to stop the hoe attachments.

1. Push the brake pedal fully down to engage the pedal lock.
2. Disengage the boom swing pedal and blade lever locks.
3. Press the axle lock switch down to engage the axle lock.
4. Lower the dozer blade to the ground.
5. Set the safety lock lever to the released position.

Slewing

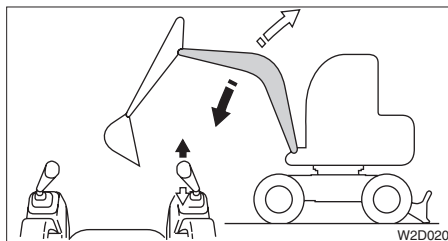
WARNING

Check the surrounding area for safety before slewing.



- ➡ To slew left:
Tilt the left operating lever to the left.
- ⇨ To slew right:
Tilt the left operating lever to the right.

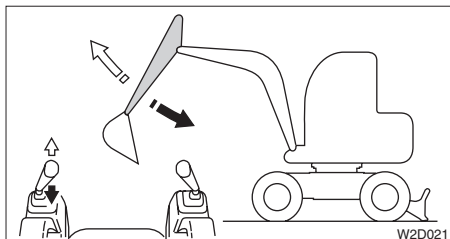
Operating the Boom



- ➡ To lower the boom:
Tilt the right operating lever forward.
- ⇨ To raise the boom:
Tilt the right operating lever backward.

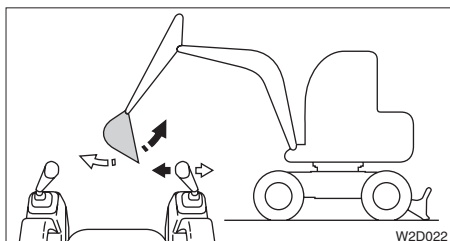


Operating the Arm



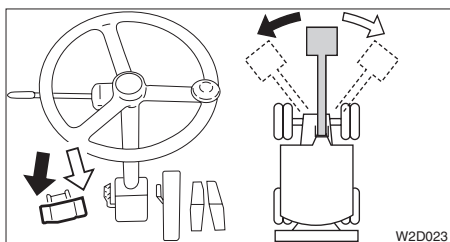
- ➔ To contract the arm:
Tilt the left operating lever backward.
- ⇨ To extend the arm:
Tilt the left operating lever forward.

Operating the Bucket



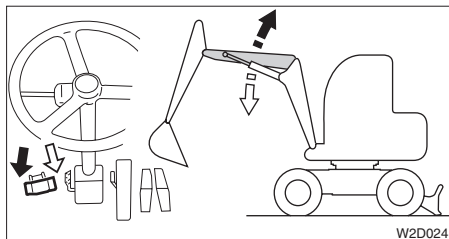
- ➔ To dig:
Tilt the right operating lever to the left.
- ⇨ To dump:
Tilt the right operating lever to the right.

Operating the Boom Swing



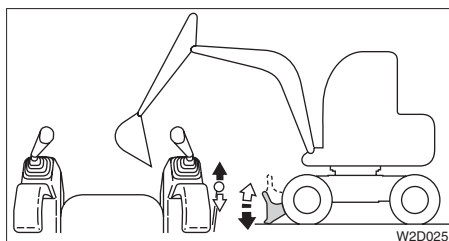
- ➔ To swing left:
Press the left side of the pedal.
- ⇨ To swing right:
Press the right side of the pedal.

Operating the Intermediate Boom



- ➔ To raise the intermediate boom:
Press the selector switch and step on the left side of the pedal.
- ⇨ To lower the intermediate boom:
Press the selector switch and step on the right side of the pedal.

Operating the Dozer Blade



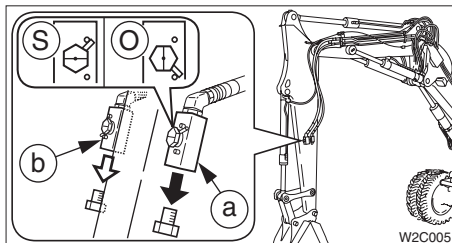
- ➔ To lower the dozer blade:
Tilt the lever forward.
- ⇨ To raise the dozer blade:
Tilt the lever backward.



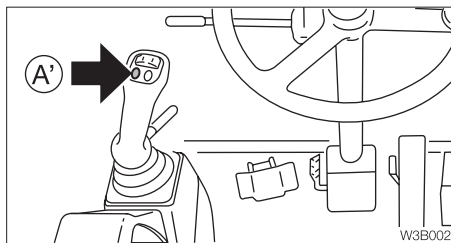
Operating the First Auxiliary Hydraulics

Use this to operate a breaker, crusher or other attachment.

Two methods of operation are permitted: operation with the auxiliary hydraulic buttons and operation with the auxiliary hydraulic (proportional control) switch.

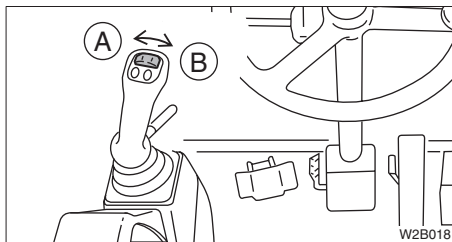


Operating With the Auxiliary Hydraulic Buttons



➡ To deliver hydraulic oil to port (a):
Press (A').

Operating With the Auxiliary Hydraulic Switch (Proportional Control)



- ➡ To deliver hydraulic oil to port (a):
Move the switch to the left (A).
- ⇨ To deliver hydraulic oil to port (b):
Move the switch to the right (B).

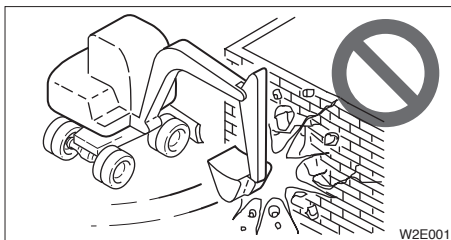


Prohibited Operations

WARNING

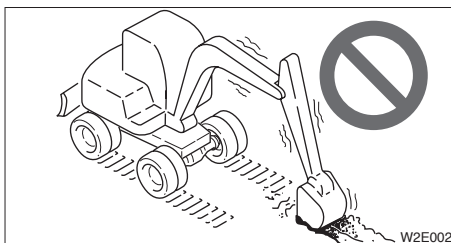
- Do not operate on base rock (hard or soft).
- Do not slew (swing) while traveling. If you must operate the hoe attachment while traveling, operate at speeds slow enough so you have complete control at all times.

Do not perform breaking or leveling operations using slew force



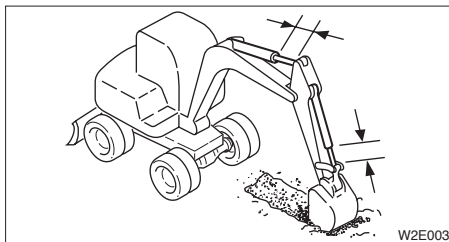
Do not break down walls or level ground using slew force. Also, do not dig the bucket teeth into the ground during slewing. Doing so will damage the hoe attachment.

Do not Dig while Traveling

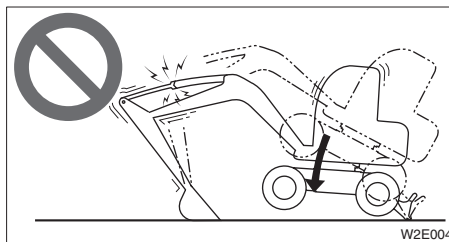


Do not dig the bucket into the ground and use the traveling force to dig.

Be Gentle on the Hydraulic Cylinders

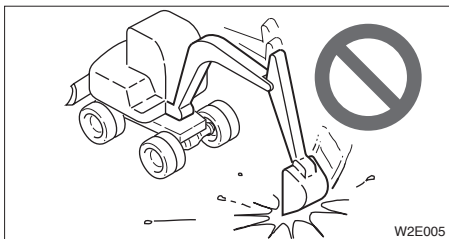


Do not extend the hydraulic cylinders to the stroke ends. Operate them with leeway.

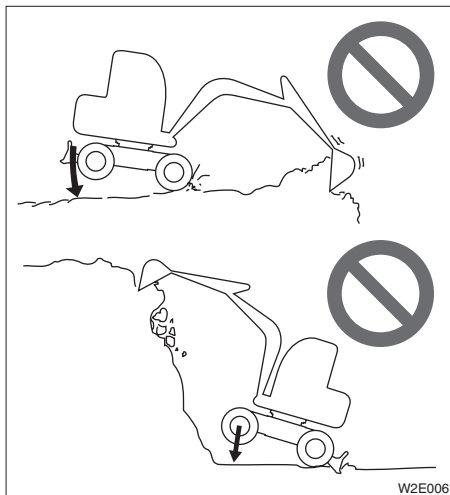


Do not support the machine body with the hoe attachment as it is lowering with the arm cylinder fully extended. Doing so concentrates the load on the arm cylinder and could damage the arm cylinder.

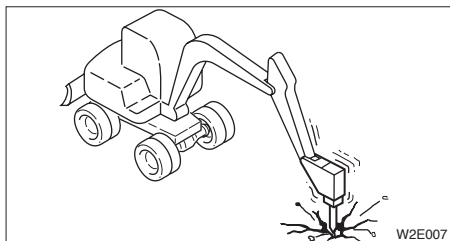
Do not Drive Piles with the Bucket or Dig with it Using Shock Force



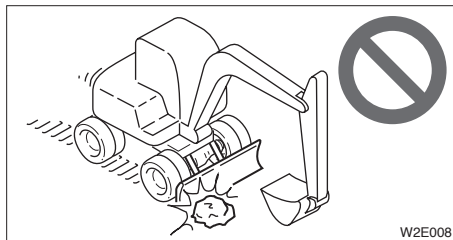
Doing so will shorten the service life of the hoe attachment. Use hydraulic force to dig.

**Do not Perform Operations Using the Machine's Dropping Force**

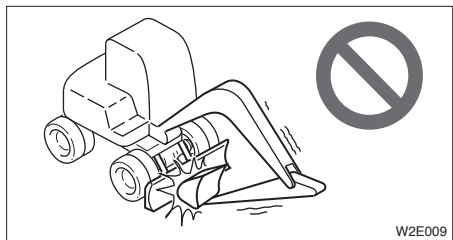
Putting excessive strain on the machine will shorten its service life. Use the hydraulic force of the cylinders and always dig with shallow, long strokes.

Digging Base Rock

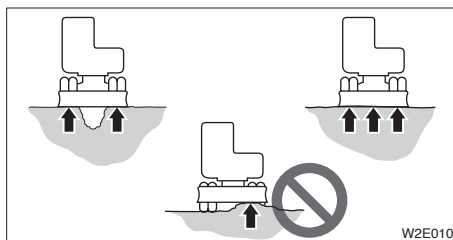
For hard base rock, break the rock up into small pieces with a breaker, etc., before digging. This prevents damage to the machine and is thus more economical in the end.

Caution on Exposing the Dozer Blade to Shocks

Hitting the dozer blade against rocks, etc., could damage the dozer blade or the blade cylinder.

Caution on Folding the Hoe Attachment

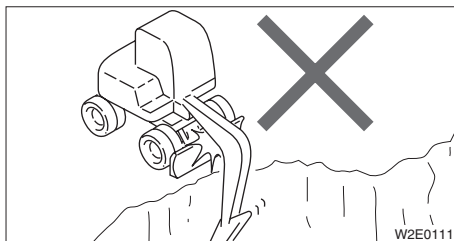
Be careful not to hit the bucket or dozer blade when folding the hoe attachment.

Support the Dozer Blade on Both Sides

When using the dozer blade as an outrigger, do not support it on one side only.



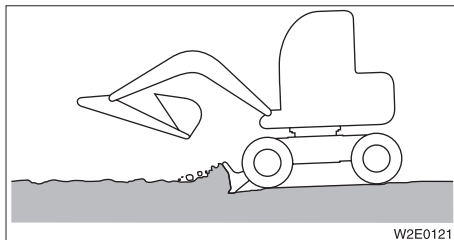
Pay Attention to the Dozer Blade when Digging



When digging deeply with the dozer blade positioned at the front, be careful that the boom cylinder and bucket do not hit the dozer blade.

Operate with the dozer blade at the rear whenever possible.

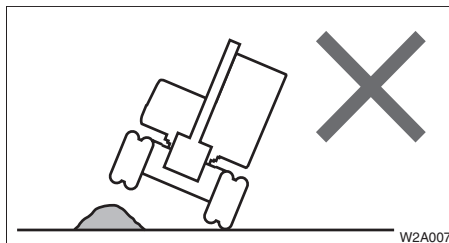
Caution on Digging Down with the Dozer Blade



This dozer blade is designed for simple earth pushing. Do not dig down deeply with the dozer blade. Doing so could damage the dozer blade and lower body.

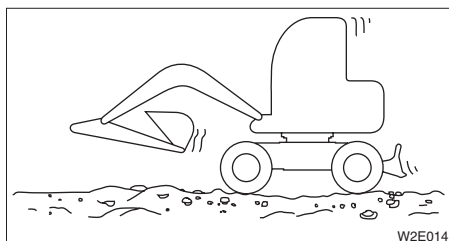
Cautions on Operating

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, keep the hoe attachment near the ground, travel at low speed, and go over the obstacle at the center of the tire.

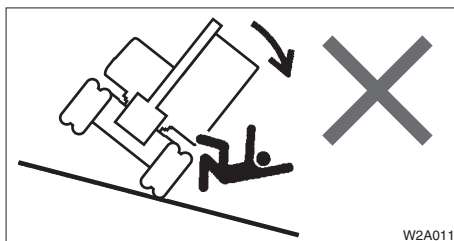
Cautions on Traveling in High Speed



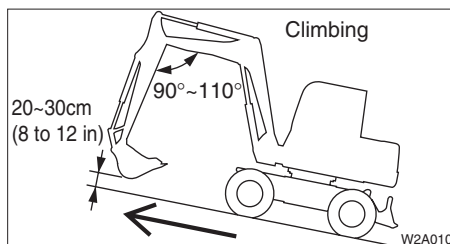
- On uneven ground, travel at low speed and avoid accelerating, stopping or changing directions abruptly.
- When traveling in high speed, do so with the steering axle at the front.

**Cautions on Traveling on Slopes****⚠ WARNING**

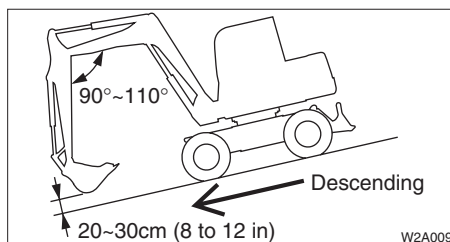
- Never exceed the machine's stability capabilities (maximum gradeability – 35°, lateral tipping angle – 15°). Also note that when actual working area conditions are poor the machine's stability capabilities may be lower.
- When traveling on slopes or grades, lower the bucket to a height of 20 to 30 cm (8 to 12 in.) off the ground. In emergencies, lower the bucket to the ground and stop the machine.
- When traveling on slopes or grades, move slowly in site travel gear.
- Do not travel at speeds of over 20 km/h (12.4 mph) on long down slopes. Release the travel pedal from time to time to protect the travel motor and ensure travel stability.
- Do not travel down slopes in reverse.



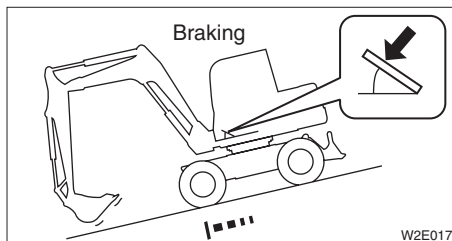
- Do not change directions or cross slopes sideways. First return to a flat surface then redirect the machine.
- On grass, dead leaves, wet metal or frozen surfaces, the machine may slide sideways even on very gentle slopes. Make sure the machine never faces sideways with respect to the slope.

**Travel Posture on a job site
Traveling up slopes**

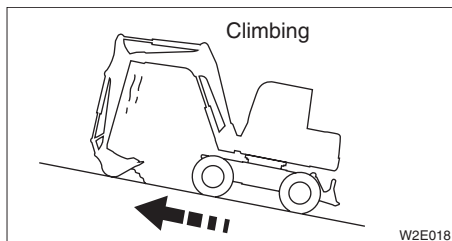
When traveling up slopes at an angle of 15° or greater, travel in the posture shown in the diagram above.

Traveling down slopes

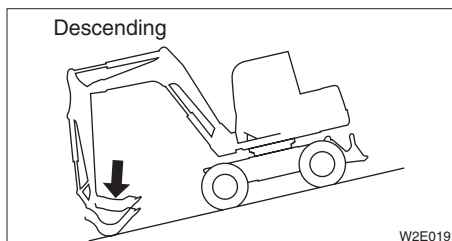
When traveling down slopes at an angle of 15° or greater, change into the site travel gear and lower the engine speed and travel in the posture shown in the diagram above.

**Braking when traveling down slopes**

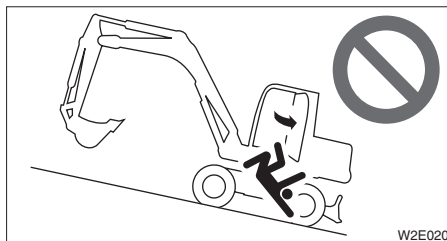
When traveling down slopes, apply the brake earlier than you normally would.

If the tires slip

If the tires slip while traveling up a slope, use the pulling force of the arm to climb the slope.

If the engine stops

If the engine stops when traveling down a slope, step on the brake pedal to stop the machine, then set the bucket against the ground and start the engine.

Do not open the door while traveling on slopes

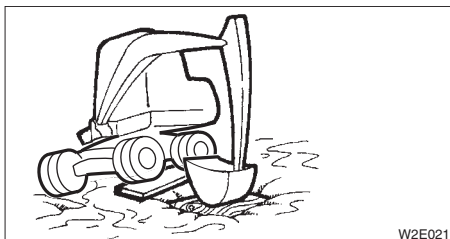
Opening the door while traveling on slopes is dangerous, as the force required to open and close the door changes abruptly. Always keep the door closed when traveling on slopes.



Getting Out of Mud

If the machine gets stuck in mud, use the procedure below to get it out.

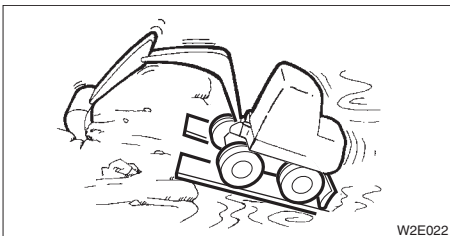
If tires on one side are stuck



1. Slew the bucket to the side which is stuck.
2. Set the arm and boom to an angle of 90 to 110°.
3. Press the bottom of the bucket (not the teeth) against the ground.
4. Place a plank, etc., under the lifted tires.
5. Raise the bucket and slowly move out of the mud.

If all tires are stuck

1. Perform steps 1 to 4 above for both tires.
2. Dig the bucket into the ground in front of the machine.
3. Pull with the arm and travel forward simultaneously to slowly move out of the mud.

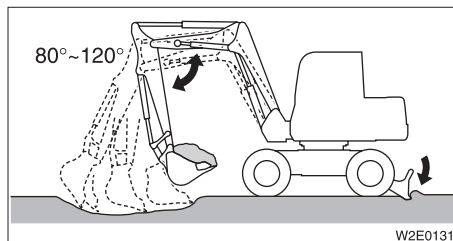




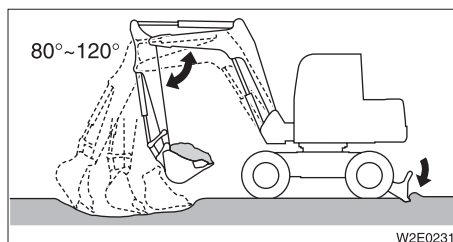
Operations Possible with this Machine

Excavating

2-Piece Boom

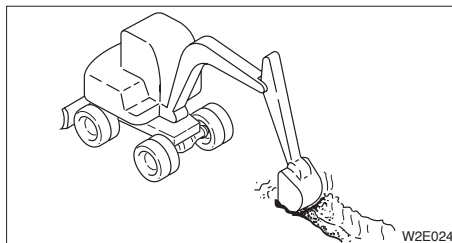


Mono-Boom



1. Set the dozer blade on the side opposite the side you want to dig on and dig it slightly into the ground.
2. Use the arm and bucket and dig with shallow, long strokes. The digging force is strongest when the boom and arm angle is 80 to 120°. Use this angle for effective digging.

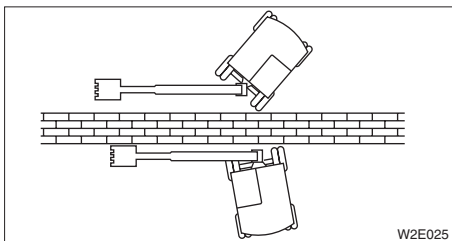
Digging Ditches



Mount a bucket suited for digging ditches and set the tires parallel to the ditch to be dug for greater efficiency.

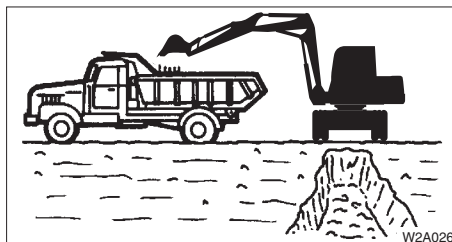
When digging wide ditches, dig the sides first, the center later.

Digging Side Ditches



Use the boom swing function to dig side ditches as shown in the diagram.

Loading

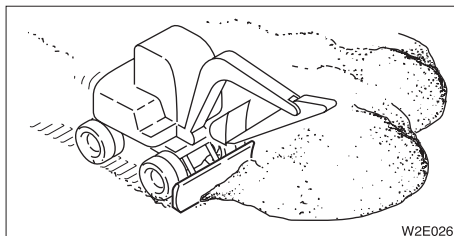


When loading dirt in a truck, starting from the back of the truck's bed makes for easier loading and increases the amount of dirt that can be loaded.

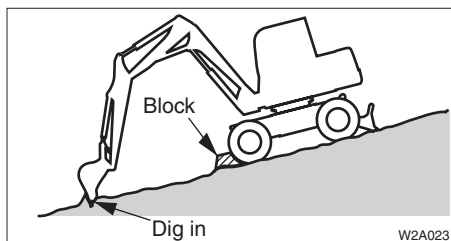
Also, use a small slewing angle for greater efficiency.



Leveling



1. Bring the hoe attachment close to the body.
2. Gradually remove the dirt from the side of the mound.
3. Once the mound is low, remove the dirt from the top. If the load on the body is too heavy, adjust by raising or lowering the dozer blade.

**Parking****⚠ WARNING**

- **Park the machine on firm, level ground and apply the parking device. If you must park on a slope or incline, block the machine securely to prevent movement.**
- **Before leaving the operator's seat, set the locking devices securely to the lock position and stop the engine. If any controls should be touched accidentally when the locking devices have not been locked, the machine will move suddenly, and cause serious injury or death.**

1. Slowly step on the brake pedal to stop the machine.
2. Press the decel. button and idle the engine at low speed.
3. Lower the bucket and dozer blade to the ground.
4. Set the safety lock lever to the lock position.
5. Lock the blade lever and boom swing pedal.
6. Stop the engine and remove the key.
Refer to page 73 "Stopping the Engine".

Releasing the residual pressure from the working equipment circuitry

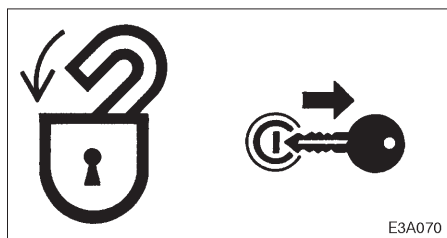
1. Stop the engine.
2. Turn the starter switch to the ON position.
3. Fully lower the safety lock lever.
4. Within 10 minutes after the engine comes to a complete stop, move all the control levers and pedals several times in all directions to release the residual pressure.

Inspection and Checks After Stopping the Engine

1. Check for oil and water leakage and inspect the working equipment, covers and undercarriage. If any irregularities are found, repair.
2. Fill the fuel tank.
Refer to page 118 "Inspecting the Fuel Level".
3. Remove any paper scraps or dirt from the engine room.
4. Remove any mud from the undercarriage.

Locking

Be sure to lock the following places:



- Cab door
- Fuel filler cap
- Covers



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 Fuel and Lubricant

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

Refer to page 106 “Fuel and Lubricant 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 machines are delivered with JIS Type 2 long-life coolant (antifreeze) at a concentration of 50%.

Refer to page 106 “Fuel and Lubricant 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 128 “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 undercarriage 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 129 “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 106 “Fuel and Lubricant 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 137 “Cleaning the Engine Cooling System”.

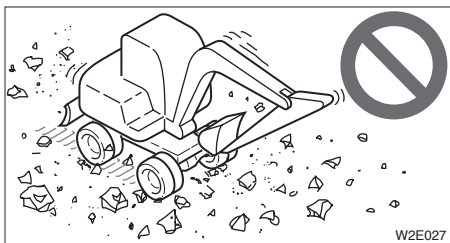


Handling Tires

Tires 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 tires.

Prohibited Actions

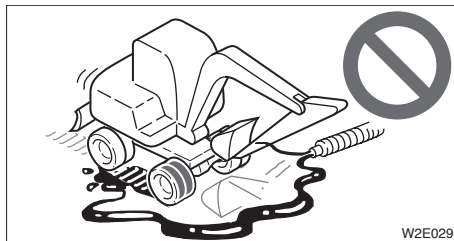
Do not travel or operate the machine in the following places:



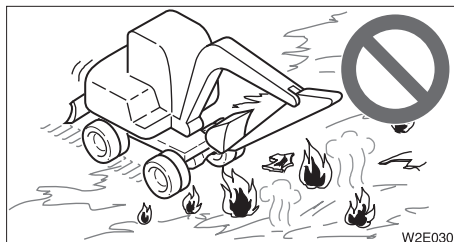
- Traveling or slewing on broken stone, jagged base rock, iron rods, iron scraps or the edges of iron sheets may damage or cut the tires.



- Traveling on riverbeds or places with many soft rocks may damage the tires.
- Do not use on the seashore. The salt may corrode the metal wheels.



- Do not let fuel, oil, salt or chemical solvents get on the tires. These substances may corrode the tires and wheels, resulting in rust or peeling. If these substances should get on the tires, wipe them off immediately using water.



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



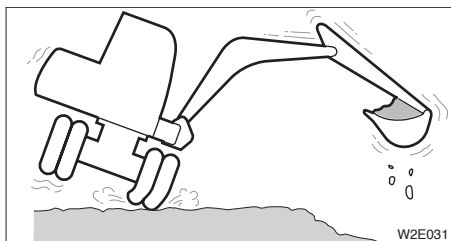
Cautions

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 tires.

- Avoid drops that may expose the tires to strong shocks.
- Salt, potassium chloride, ammonium sulfate, potassium sulfate, and triple superphosphate of lime can damage the tires. If any of these substances should get on the tires, wash them off thoroughly with water.
- Do not let the sides of the tires tread against concrete or walls.
- Do not damage the tires by hitting the bucket against them.
- Be especially careful in the winter on snowy or frozen surfaces as the tires tend to slip.
- When storing the tires for long periods of time (3 months or more), do so indoors in a place not exposed to direct sunlight or rain.



- Tires are not stable. Be very careful when slewing and swinging sideways.



TRANSPORT

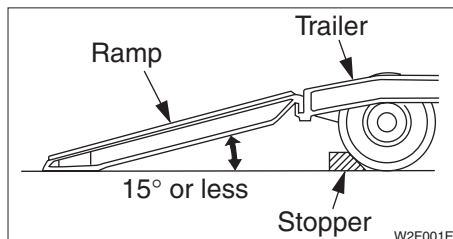
Loading and Unloading.....	98
Securing the Machine	99
Hoisting the Machine	100
Cautions on Transporting	102

**⚠ WARNING**

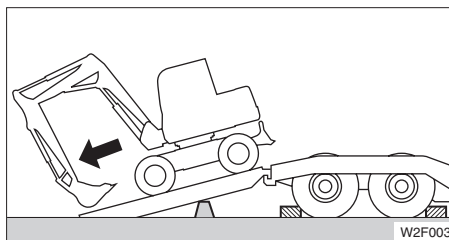
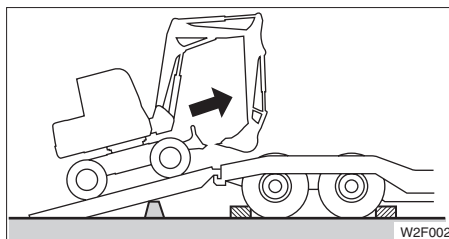
The machine may roll or tip over or fall while loading or unloading it. Take the following precautions:

- 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. If the ramps are bowed down too low, support them with poles or blocks.
- Secure the ramps to the trailer deck.
- Keep the trailer deck and loading ramps clean of oil, clay, ice, snow, and other materials which can become slippery. Clean the machine tires.
- Block the trailer so it can not move.
- Use a signal person when loading and unloading the machine, and travel slowly in site travel gear.
- Never change course on the ramp.
- Do not slew (swing) on ramps. The machine may tip over.
- When slewing (swinging) on the trailer deck, do so slowly as the footing can be unstable.
- Engage the slew (swing) lock after loading.
- Block the machine tires and secure the machine to the trailer deck with load binders.

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



1. Apply the trailer's parking brake and place stoppers against its tires.
2. Fasten the ramps securely to the trailer 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 trailer bed with the center of the machine and the center of the ramps with the center of the tires.
4. Make sure the dozer blade does not hit the ramps.
5. Lower the hoe attachment as much as possible, making sure it will not hit the trailer.
6. Lower the engine speed.

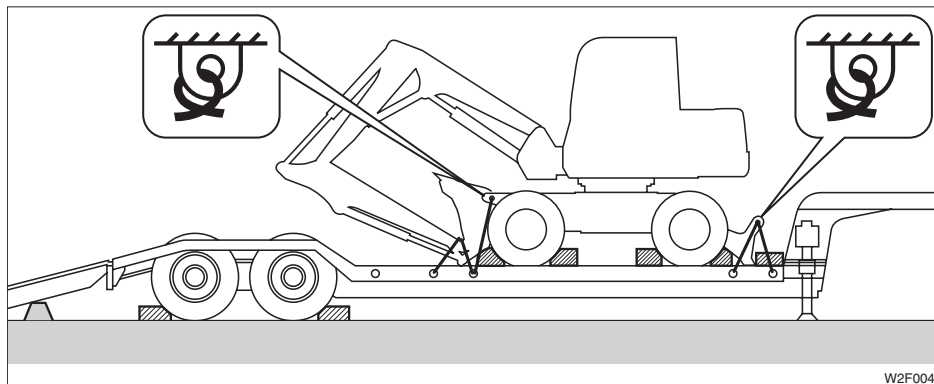


7. Determine the direction on the ramps, then slowly travel up or down the ramps in site travel gear (low range), following the signals of a flagman.
8. Load the machine properly at the prescribed position on the bed.
Refer to page 99 "Transporting Posture".



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

Transporting Posture



1. Lower the dozer blade.
2. Fully extend the bucket and arm cylinders, then lower the boom.
3. Stop the engine and remove the starter key.
4. Set the safety lock lever securely to the locked position.
5. Engage the swing lock.
6. Set stoppers in front and behind the tires.
7. Put a chain or wire rope over the lower frame and fasten it securely to prevent sideways slippage.
8. Secure the bucket with a chain or wire rope.

**⚠ WARNING**

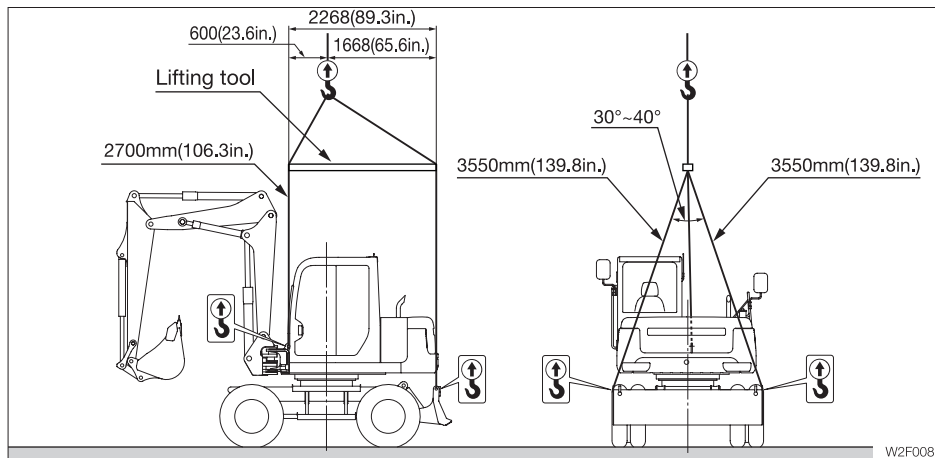
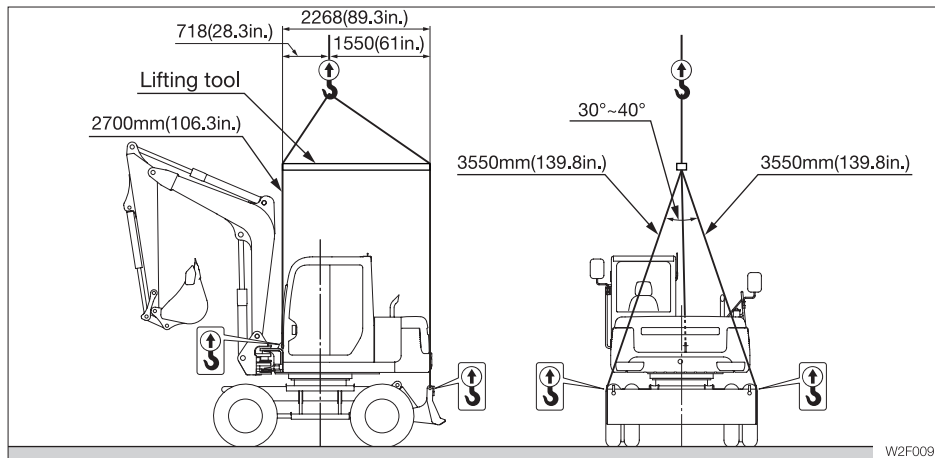
- Know and use correct crane signals.
- Check the hoisting equipment for damaged or missing parts on a daily basis and replace as necessary.
- When hoisting, use a wire rope capable of lifting the machine mass.
- Hoist the machine in such a manner described in the procedure below. Do not do it in any other manner, as it may result in the machine losing its balance.
- Do not hoist the machine with an operator on it.
- When hoisting, hoist slowly so that the machine does not tip.
- Keep everyone out of the area when hoisting. Do not move the machine over the heads of the persons.

IMPORTANT: This hoisting method applies to machines with standard specifications. The center of gravity differs according to the attachments and optional equipment installed.

Contact your Takeuchi service agent for details.

Hoisting

1. Slew the upperstructure so that the dozer blade is at the rear of the machine (set the upperstructure parallel to the track frame).
2. Raise the dozer blade fully.
3. Extend the bucket cylinder and arm cylinder fully to raise the boom to its uppermost position.
4. If the boom is swung to either the left or right side, set it in the neutral position.
5. Raise the safety lock lever to the locked position.
6. Stop the engine, remove the starter key and get off the machine.
7. Install the wire ropes as shown on the figure below. Install the wire ropes and hoisting attachment without letting them touch the machine body.
8. Hoist the machine slowly until it leaves the ground.
9. Stop hoisting until the machine becomes stable, and then start hoisting the machine slowly again.

**2-Piece Boom****Mono-Boom**



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 and trailer with the machine loaded on it when determining the best route.

CAUTION

If the machine is to be transported complete, by sea, for example, the special tie bar provided by the manufacturer is to be used.

For enquiries, contact the manufacturer.

Dimensions for transportation by low loader and rail

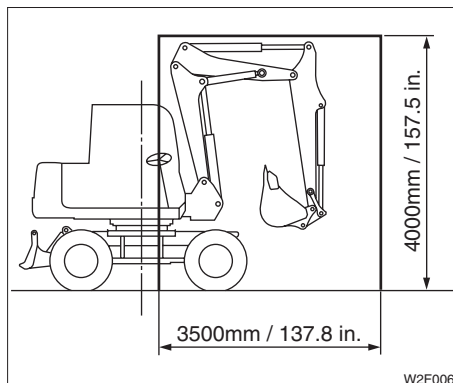
For rail transport, the machine is to be carried on a suitable type of wagon.

Information of loading procedures is available from the relevant rail authorities.

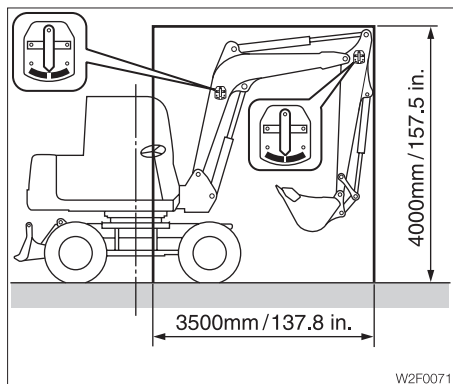
For road or rail transport, the upperstructure must be locked in position using the mechanism located near the operator's seat in order to prevent slewing; the slewing brake must be on; and the wheels must be chocked. Any attached equipment is to rest on the floor of the transporter.

Road Travel Posture

2-Piece Boom



Mono-Boom





MAINTENANCE

General	104
Service Data.....	106
Important Parts	111
Maintenance Chart	112
Walk-Around Inspection	114
Daily Inspection (Every 10 Hours).....	116
After First 50 Hours (New Machines Only).....	123
Every 50 Hours	127
Every 250 Hours	130
Every 400 Hours	133
Every 500 Hours	135
Every 1000 Hours	137
Every 1500 Hours	140
Every 2000 Hours	142
When Required.....	145
Long-term Storage	152



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, electronic control components, 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

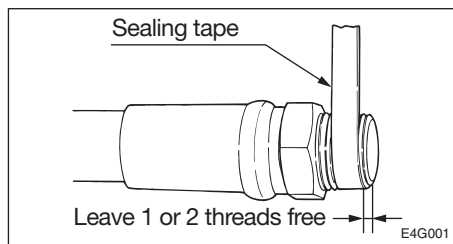
When mounting and removing parts, do so in a place where there is no dust, clean the working area and the part, and keep dirt out.

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.

Do not let the wheels spin

Do not let the wheels spin when the undercarriage is raised. Doing so may damage the differential gears.



Fuel and Lubricant Chart

Use different fuels, lubricants and greases 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.

Part	Type	Type by temperature										Replacement interval	Capacity Lit. (US. qt.)
		-22 -30	-4 -20	14 -10	32 0	50 10	68 20	86 30	104°F 40 °C				
Engine oil pan	Diesel engine oil API-CF											After first 50 hrs. Every 250 hrs.	Upper limit: 10.2 (10.8)
													Lower limit: 5.7 (6)
Hydraulic tank	Antiwear hydraulic oil											Every 2000 hrs.	System: 135 (35.7 US.gal.)
													Tank: 68 (18 US.gal.)
Engine cooling system	Cooling water (water + coolant) *											Every 1000 hrs.	12.0 (12.7)
Hub	Gear oil API-GL-4											Every 1500 hrs.	1.0 (1.1)
Transmission													1.3 (1.38)
Differential													8.5 (2.25 US.gal.)
Undercarriage	Lithium based grease EP-2 NLGI No. 2											Every 250 hrs.	As required
Slew bearing												Every 50 hrs.	
Working equipment												Daily or every 10 hrs.	
Levers												When required	

* : 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 Specifications

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

Diesel Fuel Specification	Location	Diesel Fuel Specification	Location
ASTM D975 No. 1D S15 No. 2D S15	USA	ISO 8217 DMX	International
EN590:96	European Union	BS 2869-A1 or A2	United Kingdom

Part	Type		Capacity Lit. (US. gal.)
Fuel tank	Diesel fuel	To maintain the performance and service life of the engine, always use clean and high-quality fuel. ● To avoid freezing in cold climates, use a diesel fuel that still functions when the temperature is at least 12°C below the lowest expected ambient temperature. ● Use a diesel fuel that has a cetane number of 45 or higher. When operating at a very low temperature or at a high altitude, a higher cetane number fuel will be required. ● Use fuel with sulfur content of less than 0.05 to 0.0015% by volume. Especially in the U.S.A. and Canada, ultra-low sulfur fuel should be used. 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.	120 (31.7)



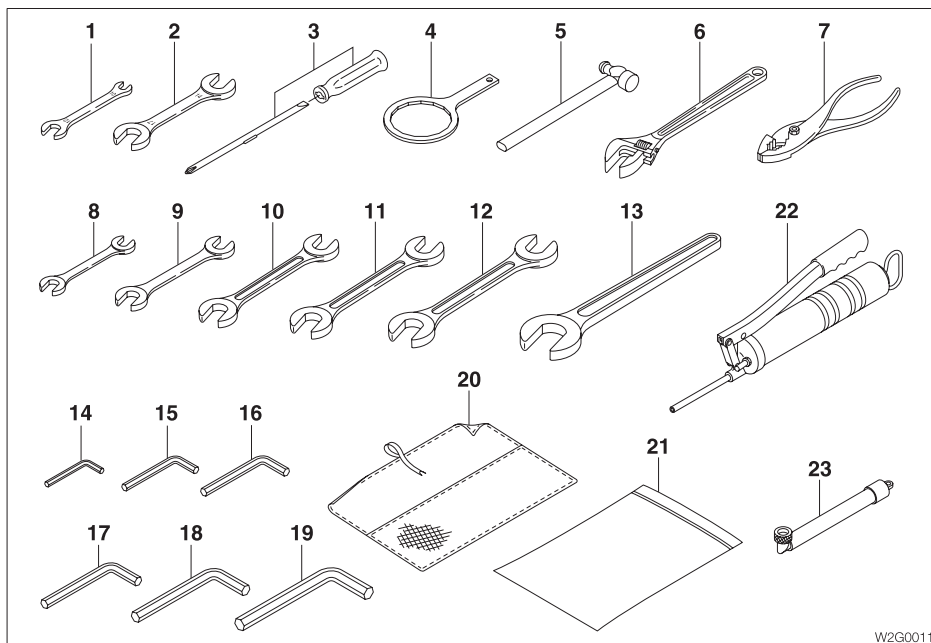
Expendables

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

Item	Part name	Part No.	Replacement interval
Hydraulic oil return filter	Element	1551102600	After first 50 hrs. Every 500 hrs.
Pilot line filter		1551200601	
Fuel filter	Cartridge	Y129907-55801	Every 500 hrs.
Water separator filter	Cartridge	Y129917-55850	
Engine oil filter	Cartridge	Y129150-35153	After first 50 hrs. Every 250 hrs.
Air cleaner	Outer Element	Y129948-12621	Every 1000 hrs. or after 6 cleanings (whichever comes first)
	Inner Element	Y129948-12630	Every 1000 hrs. or after 3 cleanings of the outer element (whichever comes first)
Air breather filter	Element	1552002715	Every 1000 hrs.



Tools



W2G0011

No.	Part name	Part No.	Remarks
1	Spanner	1910047081	10-12
2	Spanner	1910047082	14-17
3	Screwdriver	1910006112	(+) (-)
4	Filter wrench	1910065081	
5	Hammer	1690300330	3/4
6	Monkey wrench	1690400250	250mm
7	Pliers	1690500200	200mm
8	Spanner	1690001013	10-13
9	Spanner	1690001922	19-22
10	Spanner	1690002427	24-27
11	Spanner	1690002730	27-30
12	Spanner	1690003236	32-36

No.	Part name	Part No.	Remarks
13	Spanner	1690100041	41
14	Hex. wrench	1690600250	2.5mm
15	Hex. wrench	1690600500	5mm
16	Hex. wrench	1690600600	6mm
17	Hex. wrench	1690600800	8mm
18	Hex. wrench	1690601000	10mm
19	Hex. wrench	1690601200	12mm
20	Tool case	1691400001	
21	Case	1691900001	
22	Grease gun	1691060600	600cc
23	Drain connector	1554512601	

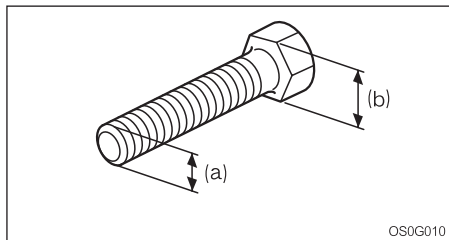
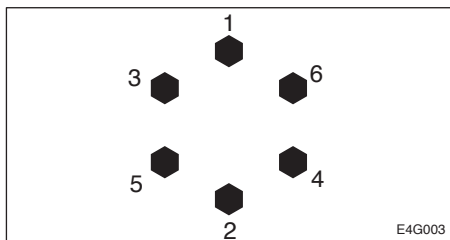


Tightening Torques

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	
			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

**Important Parts**

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	
Engine connection		Engine oil filter hoses	
Heater & AC systems		Heater hoses	
		Air conditioner hoses	
Hydraulic system	Machine body	Hydraulic hoses (Pump - delivery)	
		Hydraulic hoses (Pump - suction)	
		Hydraulic hoses (Slew motor)	
		Hydraulic hoses (Travel motor)	
	Working equipment	Hydraulic hoses (Boom cylinder lines)	
		Hydraulic hoses (Boom adjustment cylinder lines)	
		Hydraulic hoses (Arm cylinder lines)	
		Hydraulic hoses (Bucket cylinder lines)	
		Hydraulic hoses (Swing cylinder)	
		Hydraulic hoses (Blade cylinder)	
		Hydraulic hoses (Axle lock cylinder)	
		Hydraulic hoses (Pilot valve)	
		Hydraulic hoses (Auxiliary lines)	
		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 Items	See page
Walk-Around Inspection	
Inspecting by opening the engine hood and covers	114
Inspecting by walking around the machine	115
Inspecting while sitting in the operator's seat	115
Daily Inspection (Every 10 Hours)	
Inspecting and replenishing the coolant	116
Inspecting and replenishing the engine oil	117
Inspecting the water separator	117
Inspecting the fuel level	118
Cleaning the dust screen	118
Inspecting the hydraulic oil level and replenishing	118
Lubricating the working equipment	120
Inspecting and inflating the tires	121
After First 50 Hours (New Machines Only)	
Replacing the hydraulic oil return filter	123
Replacing the engine oil and oil filter	124
Inspecting and adjusting the fan belt	125
Replacing the pilot line filter	126
Every 50 Hours	
Lubricating the slew bearing	127
Inspecting the battery fluid level and replenishing	128
Draining the fuel tank	129
Every 250 Hours	
Lubricating the undercarriage	130
Cleaning the air cleaner	131
Cleaning the radiator fins and oil cooler fins	132
Replacing the engine oil and oil filter	132
Inspecting and adjusting the fan belt	132
Every 400 Hours	
Inspecting the transmission gear oil	133
Inspecting the differential gear oil	133
Inspecting the hub gear oil	134



Maintenance Items	See page
Every 500 Hours	
Replacing the fuel filter	135
Replacing the water separator filter	135
Replacing the hydraulic oil return filter	136
Replacing the pilot line filter	136
Every 1000 Hours	
Cleaning the engine cooling system	137
Replacing the air cleaner elements	138
Replacing the air breather filter	139
Inspecting and adjusting the engine valve clearance	139
Retightening the engine cylinder head bolts	139
Every 1500 Hours	
Replacing the transmission gear oil	140
Replacing the differential gear oil	140
Replacing the hub gear oil	141
Inspecting and cleaning the engine fuel injectors	141
Inspecting the turbocharger (Blower wash as necessary)	141
Inspecting and cleaning the EGR valve, lead valve and cooler	141
Inspecting the crankcase breather system	141
Every 2000 Hours	
Lapping the engine valve seats	142
Replacing the hydraulic oil and cleaning the suction strainer	143
When Required	
Replacing the bucket teeth and the side cutters	145
Adjusting the gap between the bucket and arm	147
Inspecting and replenishing the windshield washer fluid	148
Draining the water separator	148
Replacing the bucket	149
Lubricating the levers	151



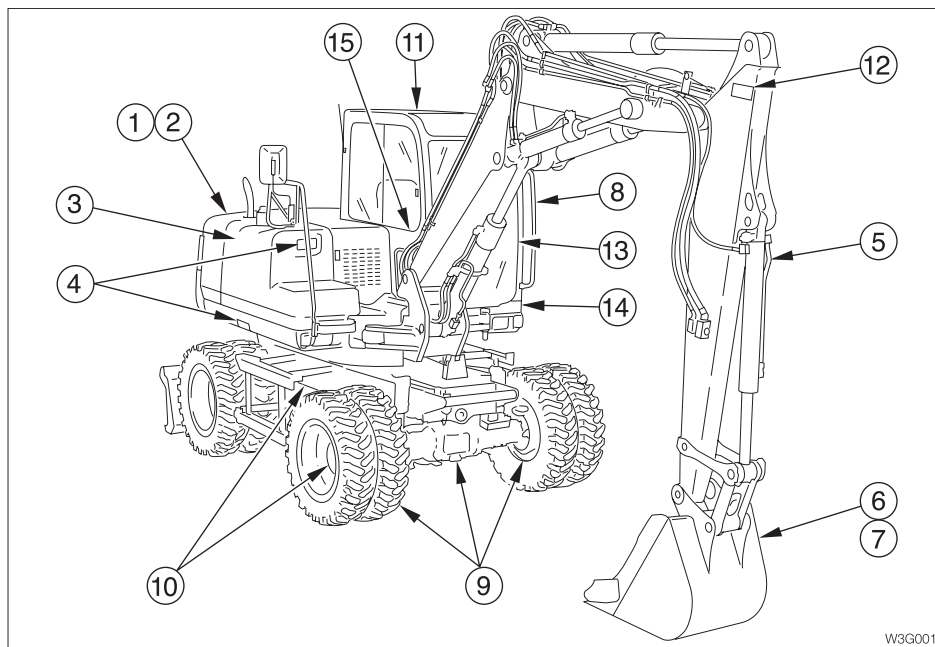
Walk-Around Inspection

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.
3. Check for oil leakage from the hydraulic tank, hydraulic devices, hoses and connections.



Inspecting by Walking Around the Machine

4. Check lights for dirt, damage and burnt out bulbs.
5. Check attachments and hoses for damage.
6. Check the bucket, bucket teeth and side cutter for wear, damage and looseness.
7. Check the hook, slip stopper and hook mount of buckets with hooks for damage. (Option)
8. Check the handrail and step for damage and loose bolts.
9. Check the tires, wheels, axles and drive shaft for damage, wear and loose bolts.
10. Check for oil leakage from the hubs, differential and transmission.
11. Check the cab and guard for damage and loose nuts and bolts.
Check the rear view mirror and room mirror for dirt, damage, and angle adjustment.
12. Check the decals for dirt and damage.

Inspecting While Sitting in the Operator's Seat

13. Check the windshield for dirt or damage.
14. Check the seat and seat belt for dirt or damage.
Check the operator's seat for dirt, oil or other combustible materials.
15. 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.

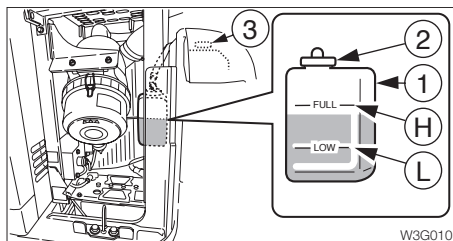
Replenishing

1. Remove the reserve tank's 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).

Inspection



1. Open the engine hood and left side cover.
2. Inspect the quantity of coolant 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.

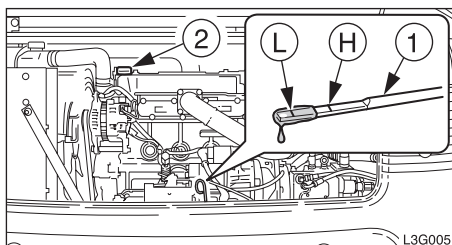


Inspecting and Replenishing the Engine Oil

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

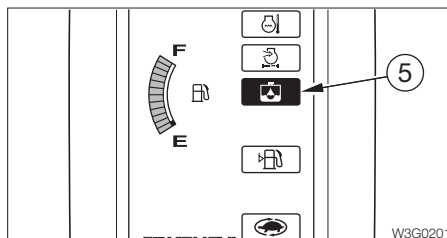


1. Open the engine hood.
2. Pull out the dipstick (1) and wipe off the oil with a rag.
3. Fully reinsert the dipstick (1), then pull it back out.
4. Check the oil on the dipstick (1).
The level should be between the upper limit (H) and lower limit (L).
If it is below the lower limit (L), replenish.

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



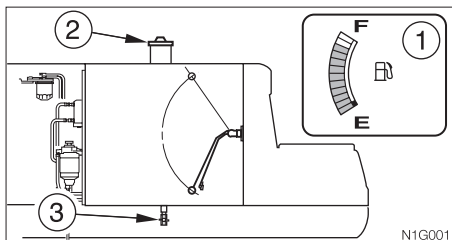
1. Turn the starter switch to the ON position.
2. Inspect the water separator warning lamp (5).
3. If an alarm is sounded or a warning lamp starts flashing, drain the water.
Refer to page 148 "Draining the Water Separator".



Inspecting the Fuel Level

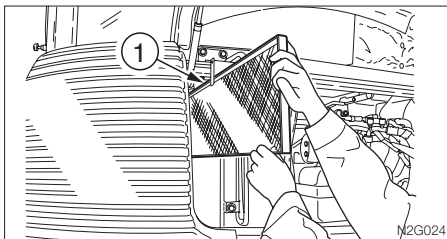
WARNING

- **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 adding 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, add fuel from the fuel port (2) while watching the fuel gauge (1). Refer to page 45 “Fuel Filler Cap”.

Cleaning the Dust Screen



1. Open the engine hood.
2. Inspect if any dirt or bugs are on the dust screen (1).
3. The dust screen (1) is divided into three sections: upper, middle and lower. Remove them starting with the upper one and work downward.
4. Lift each section of the dust screen (1) straight upward and pull it toward you to remove and clean.

Inspecting the Hydraulic Oil Level and Replenishing

WARNING

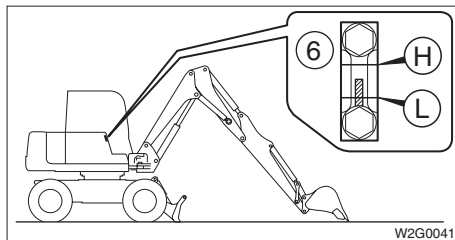
- **Never jump off the machine. Use the steps and handrails when climbing on and off the machine, and always support your body at three points with your hands and feet.**
- **Oil may spurt out if caps or filters are removed or pipes disconnected before releasing the pressure in the hydraulic system.**
 - Gradually press the air breather button to relieve tank pressure.



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 retract the bucket, arm and boom adjustment cylinders and ground the bucket.
3. Ground the dozer blade, then stop the engine.
4. Inspect the oil level using the sight gauge (6).

- When the oil temperature is about 20°C (68°F):

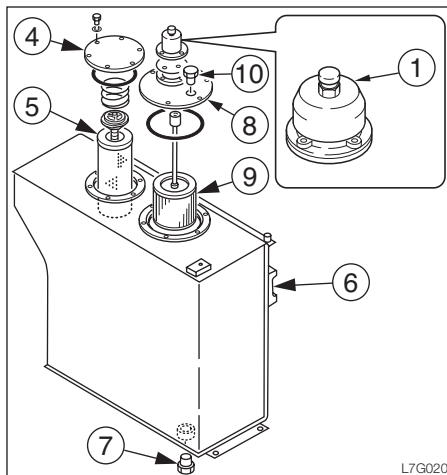
The level should be halfway between the upper limit (H) and lower limit (L).

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 upper limit (H).

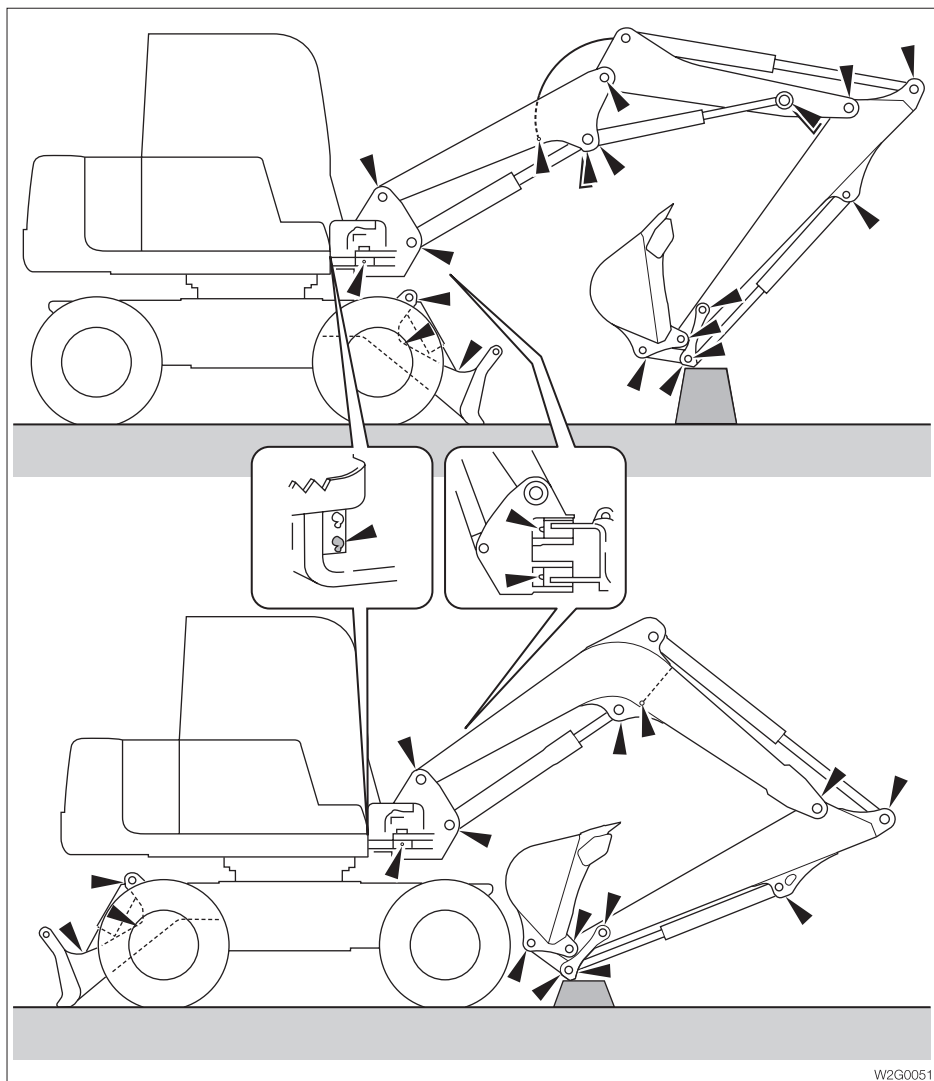
Replenishing



1. Press button (1) and bleed the air from the tank.
2. Remove the plug (10).
3. Add hydraulic oil up to the middle of the sight gauge (6).
4. Tighten the plug (10).



Lubricating the Working Equipment

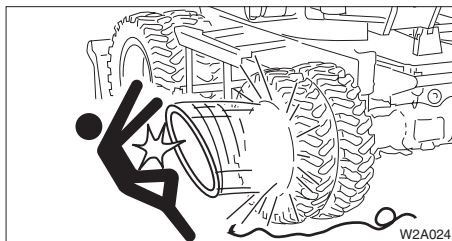


1. Set the machine to the lubrication posture shown in the diagram above, ground the working equipment, then stop the engine.
2. Use the grease gun to lubricate the grease nipples.
3. Wipe off the expelled grease.



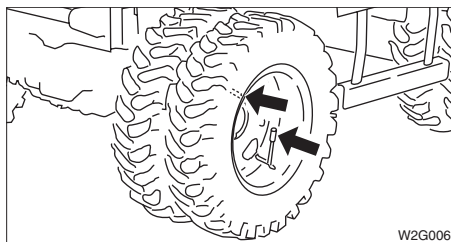
Inspecting and Inflating the Tires

WARNING



- Explosive separation of a tire and/or rim parts can cause serious injury or death. Always follow the service outlet or see your tire supplier.
- Do not inflate tires with flammable gases or from systems utilizing an alcohol injector.
- Never cut or weld on a wheel with an inflated tire mounted on it. This could cause explosive decompression.
- Always use a safety cage or cable restraints when reinflating a repaired tire.
- A rise in tire pressure during operation is normal, and should NOT be reduced.
- Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure.

Recommended air pressure must be maintained in every tire. Daily checks assure that inflation is correct. If your periodic check discloses a tire that is continuously losing air, a leak is indicated and must be repaired.



During your pressure checks, also inspect for:

- Objects wedged between duals or embedded in tires.
- Mismatched duals. Diameters should be equal as well as amount of tread wear.
- Missing valve caps and wheel lugs.
- Cuts, tears, and breaks that may need repair.
- Abnormal or uneven wear.
- Damaged or poor fitting rim or rim flanges.
- Projecting body hardware, loose fender bolts, spring clips - anything that could contact a tire.



Inflating the tires

These instructions are for adding air to a tire which is already inflated. If the tire has lost all its air pressure, call in a qualified tire mechanic. The tire mechanic should use a tire inflation cage and the correct equipment to do the job.

1. Prepare the wheel.

Before you add air to the tire, make sure it is correctly fitted on the machine or installed in a tire inflation cage.

2. Prepare the equipment.

Use only an air supply system which includes a pressure regulator.

Set the regulator no higher than above the recommended tire pressure. (See below).

Use an air hose fitted with a self locking air chuck and remote shut-off valve.



3. Add the air.

Make sure that the air hose is correctly connected to the tire valve.

Clear other people from the area.

Stand behind the tread of the tire while adding the air.

Inflate the tire to the recommended pressure. Do not over-inflate.

- 8.25 - 20 Twin tires
- Tire pressure: 600kPa(87 psi)

Checking the wheel nut torques



WARNING

If, for whatever reason, wheel nut is renewed, all the nuts for that wheel must be changed as a set, since the remaining nuts may have been damaged.

On new machines, and whenever a wheel has been removed, check the wheel nut torques every two hours until they stay correct.

Every day, before starting work, check that the wheel nuts are tight.

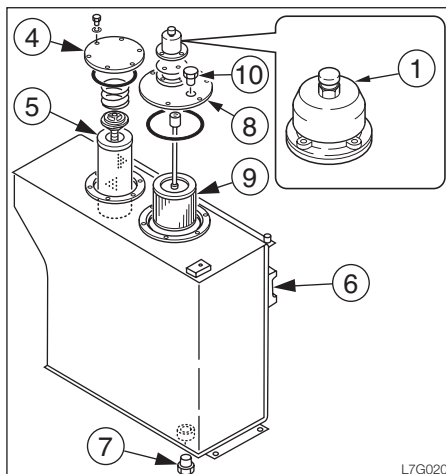
- Tightening torque:
400 to 500 N·m (295 to 369 ft-lb.)



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.
- 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.
- Oil may spurt out if caps or filters are removed or pipes disconnected before releasing the pressure in the hydraulic system.
 - Gradually press the air breather button to relieve tank pressure.
 - When removing plugs or screws or disconnecting hoses, stand to the side and loosen slowly to gradually release the internal pressure before removing.



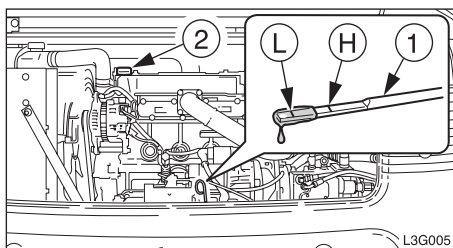
1. Press button (1) and bleed the air from the tank.
2. Loosen the bolts, and remove the flange (4).
3. Remove the return filter (5).
4. Install the new return filter.
5. Install the flange (4).
6. Inspect the level with the sight gauge (6), and replenish if the level is low. Refer to page 118 "Inspecting the Hydraulic Oil Level and Replenishing".



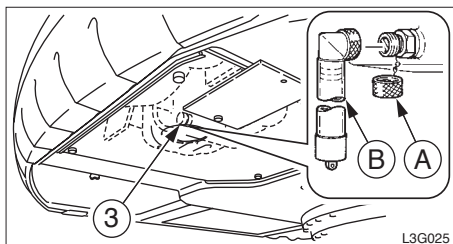
Replacing the Engine Oil and Oil Filter

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.



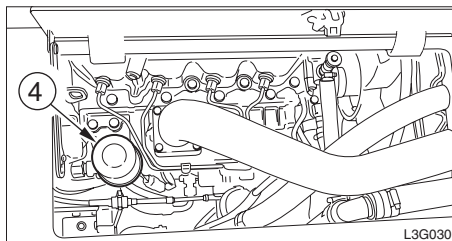
1. Open the engine hood and remove the oil supply cap (2).



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

6. Install the under cover.



7. Open the maintenance cover.
8. Using a filter wrench, turn the filter (4) counterclockwise and remove it.
9. Clean the surface of installation of the filter stand.
10. Apply a thin layer of oil to the packing of the new filter.
11. Install the new filter by hand.
12. Tighten 3/4 more turn with the filter wrench after the filter packing comes in contact with the surface of installation.
13. Supply 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.
14. Tighten the oil supply cap (2).
15. Start the engine, run it at low idle for about 3 minutes, then stop it.
16. After about 10 minutes, inspect the oil level.



Inspecting and Adjusting the Fan Belt

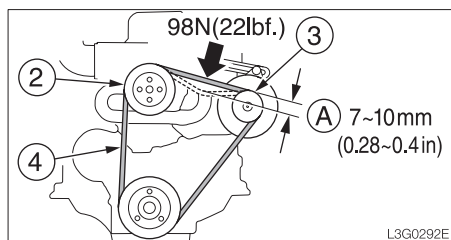
WARNING

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

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

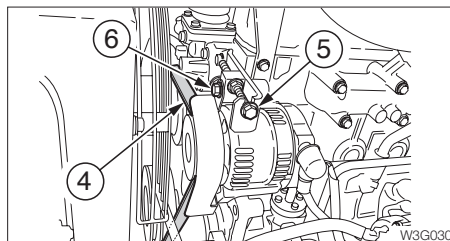
Inspection

1. Open the engine hood.



2. Press at the center of the fan pulley (2) and alternator pulley (3) and check the tension (about 98 N or 22 lbf.).
The slack (A) should be about 7 to 10 mm (0.28 to 0.4 in).
3. Inspect the fan belt (4) and replace it if:
 - there are cuts or cracks.
 - the belt is worn and touches the bottom of the V groove in the pulley.
 - the belt stretches and cannot be adjusted.

Adjustment



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



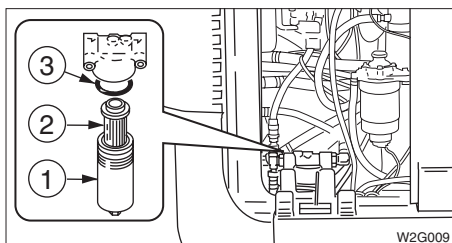
Replacing the Pilot Line Filter

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.**
- **Gradually press the air breather button to relieve tank pressure.**

7. Inspect the level with the sight gauge, and replenish if the level is low.

Refer to page 118 "Inspecting the Hydraulic Oil Level and Replenishing".



1. Open the right side cover.
2. Turn the case (1) counterclockwise and remove it.
3. Remove the element (2) and O-ring (3).
4. Clean the inside of the case (1).
5. Install the new element in the case (1).
6. Set the new O-ring, then tighten the case (1).

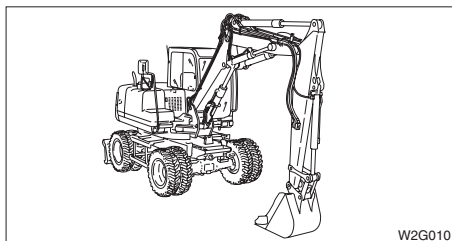


Lubricating the Slew Bearing

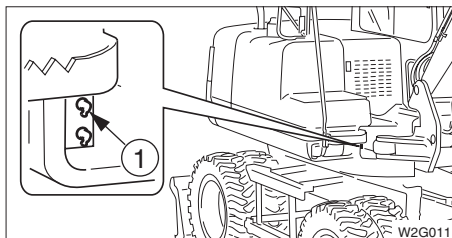
WARNING

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

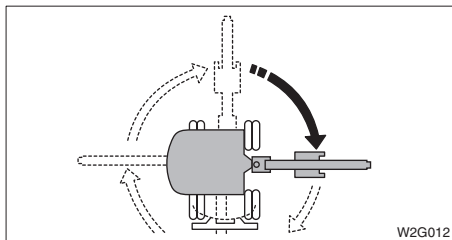
5. Repeat steps 2 to 4 above three times.
6. Wipe off the grease expelled from the slew bearing and grease nipple.



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, lift the bucket and slew clockwise 90°.
4. Ground the bucket and stop the engine.



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.

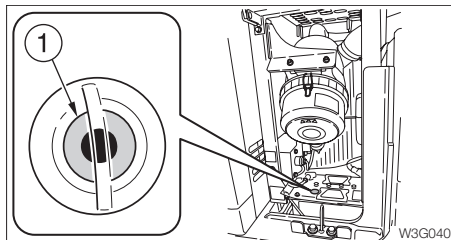
WARNING

- 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

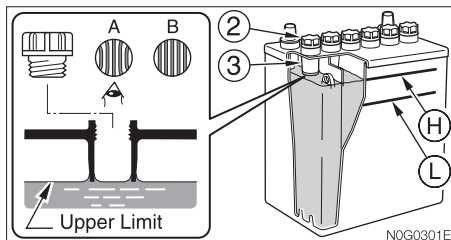
IMPORTANT: Check the fluid level of all cells, even when the fluid level can be checked by indicator.

1. Open the left side 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.

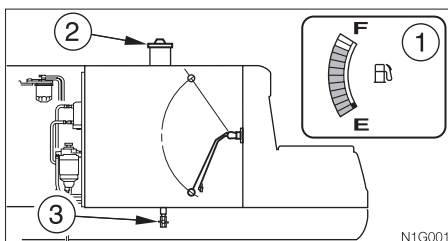
1. Remove the caps (2), and add distilled water until the upper level (H).
2. Inspect the indicator (1) then it turns blue.
3. Clean the cap's exhaust hole, then tighten the caps (2) securely.

Draining the Fuel Tank

WARNING

- **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 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 cock (3).
3. Open the drain cock (3) and drain the water and sediment from the bottom of the tank.
4. Close the drain cock (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.

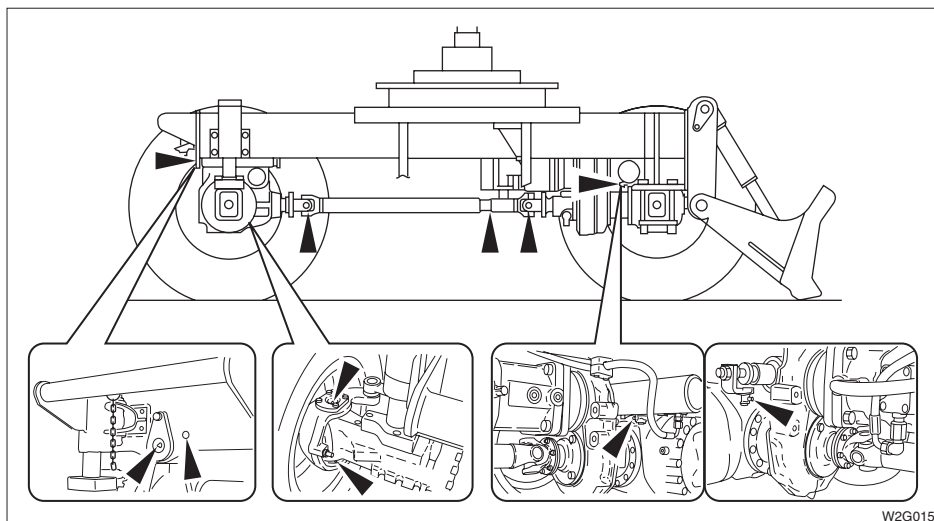
Bleeding the air from the fuel system

Refer to page 157 "Bleeding the Air from the Fuel System".

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.



Lubricating the Undercarriage



W2G015

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



Cleaning the Air Cleaner

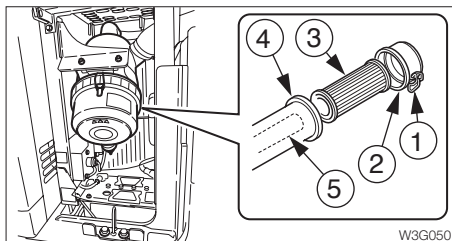
WARNING

- 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 left side cover.

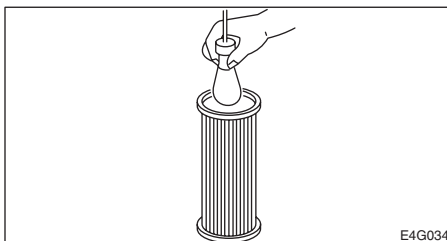


2. Loosen the clamps (1) and remove the dust cup (2).
3. Clean the inside of the dust cup (2).
4. Remove the outer element (3).
Do not remove and clean the inner element (5).
5. Clean the inside of the body (4).



6. Clean the outer 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 outer element (3) with a bulb, inspect it, and replace it if there are small holes or thin spots.
8. Install the outer element (3).
9. Install the dust cup (2) with the "TOP" mark at the top, then fasten it with the clamps (1).



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.

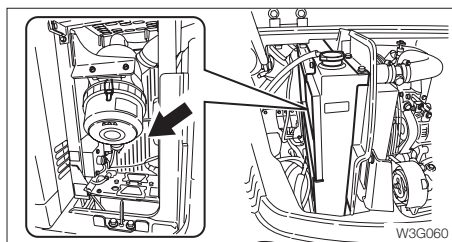
IMPORTANT: When operating the machine in very dusty places, inspection and maintenance should be performed every day.

Replacing the Engine Oil and Oil Filter

Refer to page 124 “Replacing the Engine Oil and Oil Filter”.

Inspecting and Adjusting the Fan Belt

Refer to page 125 “Inspecting and Adjusting the Fan Belt”.



1. Open the left side cover and the engine hood.
2. Blow compressed air on the radiator fins and oil cooler fins to remove mud and dirt stuck on them.

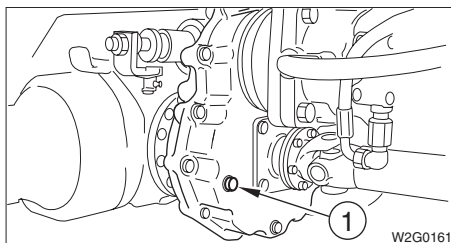


Inspecting the Transmission Gear Oil

WARNING

- Stop the engine and allow the machine to cool down before performing maintenance.
- The transmission 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 transmission reduction gears case may cause oil or the plug to fly out. Loosen the plug slowly to release the pressure.

1. Park the machine on a level surface. Stop the engine.



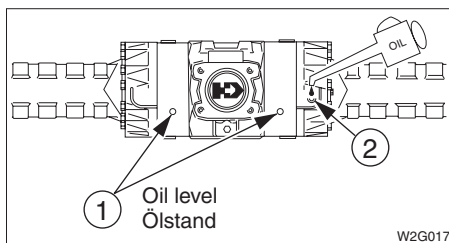
2. Remove the plug (1) from the transmission housing.
3. If oil can be reached with the tip of your finger through the hole, the oil level is correct.
4. If the level is low, add oil through the check plug hole until the oil flows from the hole.
5. Install and tighten the plug.

Inspecting the Differential Gear Oil

WARNING

- Stop the engine and allow the machine to cool down before performing maintenance.
- The differential 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 differential gears case may cause oil or the plug to fly out. Loosen the plug slowly to release the pressure.

1. Park the machine on a level surface. Stop the engine.



2. Remove the plug (1) from the differential housing.
3. If oil can be reached with the tip of your finger through the hole, the oil level is correct.
4. If the level is low, add oil through the add plug hole (2) until the oil flows from the hole.
5. Install and tighten the plug.

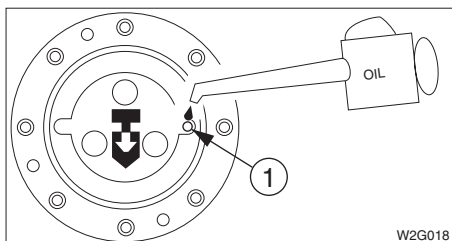


Inspecting the Hub Gear Oil

WARNING

- **Stop the engine and allow the machine to cool down before performing maintenance.**
- **The hubs 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 hubs reduction gears case may cause oil or the plug to fly out. Loosen the plug slowly to release the pressure.**

1. Park the machine on a level surface. Stop the engine.
2. Set the hub so that the plug (1) is at the level.



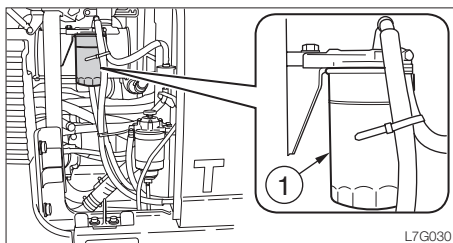
3. Remove the plug (1) from the hub housing.
4. If oil can be reached with the tip of your finger through the hole, the oil level is correct.
5. If the level is low, add oil through the check plug hole until the oil flows from the hole.
6. Install and tighten the plug.



Replacing the Fuel 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.

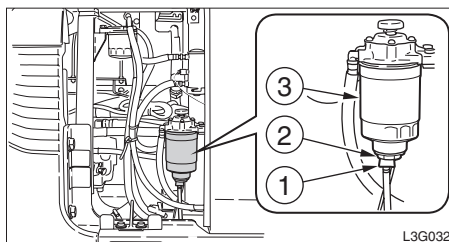


1. Open the right side cover.
2. Using a filter wrench, turn the filter (1) counterclockwise and remove it.
3. Clean the surface of installation of the filter stand.
4. Apply a thin layer of oil to the packing of the new filter.
5. Install the new filter by hand.
6. Tighten 2/3 more turn with the filter wrench after the filter packing comes in contact with the surface of installation.
7. Bleed the air.
Refer to page 157 "Bleeding the Air from the Fuel System".

Replacing the Water Separator 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. Open the right side cover.
2. Place a pan under the drain hose.
3. Open the drain cock (1) and drain the fuel.
4. Remove the sensor (2).
5. Remove and discard the filter (3).
6. Install the sensor (2) on the new filter.
7. Clean the surface of installation of the filter stand.
8. Apply a thin layer of oil to the packing of the new filter.
9. Install the new filter by hand.
10. Tighten 2/3 more turn with the filter wrench after the filter packing comes in contact with the surface of installation.
11. Bleed the air.
Refer to page 157 "Bleeding the Air from the Fuel System".



Replacing the Hydraulic Oil Return Filter

Refer to page 123 “Replacing the Hydraulic Oil Return Filter”.

Replacing the Pilot Line Filter

Refer to page 126 “Replacing the Line Filter”.



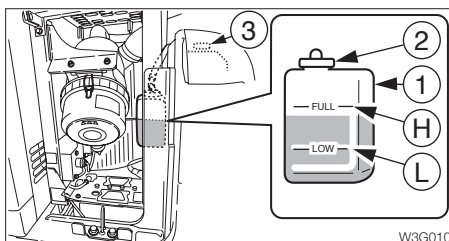
Cleaning the Engine Cooling System

WARNING

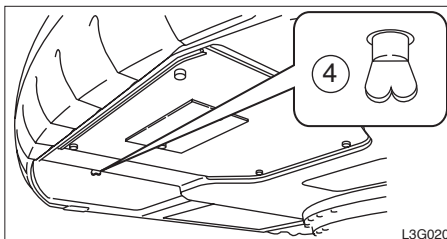
- Stop the engine and allow the machine to cool down before performing maintenance.
- The engine, muffler, radiator and many other parts of the machine are hot directly after the engine is stopped. Touching these parts will cause burns.
- The engine coolant is also hot and under high pressure. Be careful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

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 (194°F) before cleaning.

1. Open the left side cover and the engine hood.



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



3. Place a pan for catching the spent coolant under the drain plug (4), then loosen the drain plug (4) and drain the coolant.
4. Tighten the drain plug (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 (194°F), 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 plug (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 plug (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 there are no irregularities in the cooling system at this time.
15. Raise the water temperature to at least 90°C (194°F), 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 the level has decreased.

Replacing the Air Cleaner Elements

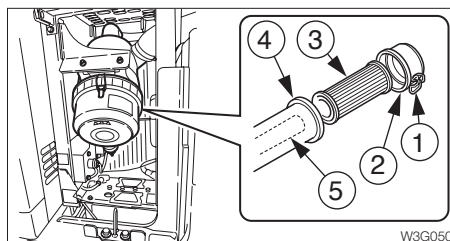
WARNING

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 left side cover.



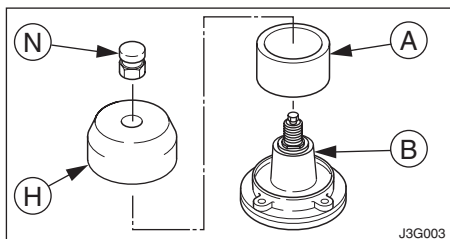
2. Loosen the clamps (1) and remove the dust cup (2).
3. Clean the inside of the dust cup (2).
4. Remove the outer element (3).
Do not yet remove inner element (5).
5. Clean the inside of the body (4).
6. Remove the inner element (5).
7. Install the new elements.
8. Install the dust cup (2) with the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



Replacing the Air Breather Filter

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.**
- **Oil may spurt out if caps or filters are removed or pipes disconnected before releasing the pressure in the hydraulic system.**
 - **Gradually press the air breather button to relieve tank pressure.**



1. Press the button (N) and bleed the air from the tank.
2. Remove the button (N) on the air breather.
3. Remove cover (H).
4. Replace filter (A).
5. Install cover (H) on the body (B).
6. Install the button (N).

Inspecting and Adjusting the Engine Valve Clearance

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

Retightening the Engine Cylinder Head Bolts

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

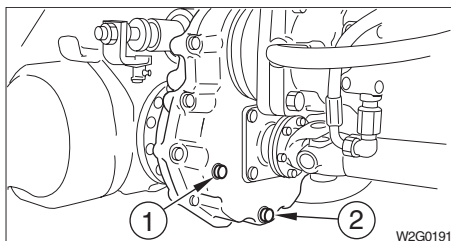


Replacing the Transmission Gear Oil

WARNING

- Stop the engine and allow the machine to cool down before performing maintenance.
- The transmission 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 transmission reduction gears case may cause oil or the plug to fly out. Loosen the plug slowly to release the pressure.

1. Park the machine on a level surface. Stop the engine.



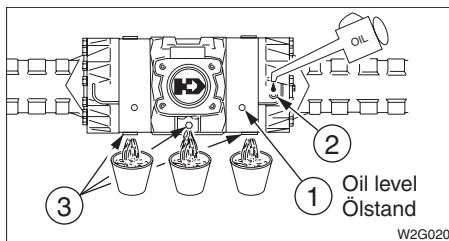
2. Place a pan for catching the spent oil under plug (2).
3. Remove plug (2) and drain the oil.
4. Tighten plug (2).
5. Supply oil through the hole for plug (1) until oil flows out of the hole.
6. Tighten plug (1).

Replacing the Differential Gear Oil

WARNING

- Stop the engine and allow the machine to cool down before performing maintenance.
- The differential 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 differential gears case may cause oil or the plug to fly out. Loosen the plug slowly to release the pressure.

1. Park the machine on a level surface. Stop the engine.



2. Place a pan for catching the spent oil under plugs (3).
3. Remove plugs (3) and drain the oil.
4. Tighten plugs (3).
5. Supply oil through the hole for plug (2) until oil flows out of the hole (1).
6. Tighten plugs (1), (2).

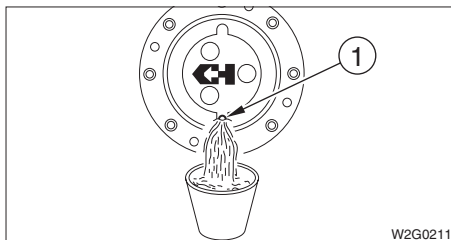


Replacing the Hub Gear Oil

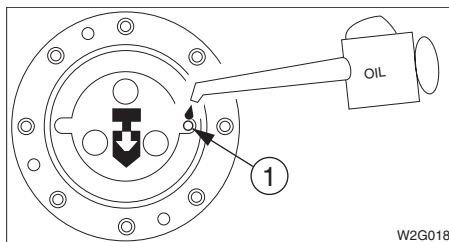
WARNING

- **Stop the engine and allow the machine to cool down before performing maintenance.**
- **The hubs 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 hubs reduction gears case may cause oil or the plug to fly out. Loosen the plug slowly to release the pressure.**

1. Set the hub so that the plug (1) is at the very bottom.
2. Park the machine on a level surface. Stop the engine.



3. Place a pan for catching the spent oil under plug (1).
4. Remove plug (1) and drain the oil.
5. Set the hub so that plug (1) is at the level.



6. Supply oil through the hole for plug (1) until oil flows out of the hole of plug (1).
7. Tighten plug (1).

Inspecting and Cleaning the Engine Fuel Injectors

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

Inspecting the Turbocharger (Blower wash as necessary)

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

Inspecting and Cleaning the EGR Valve, Lead Valve and Cooler

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

Inspecting the Crankcase Breather System

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



Lapping the Engine Valve Seats

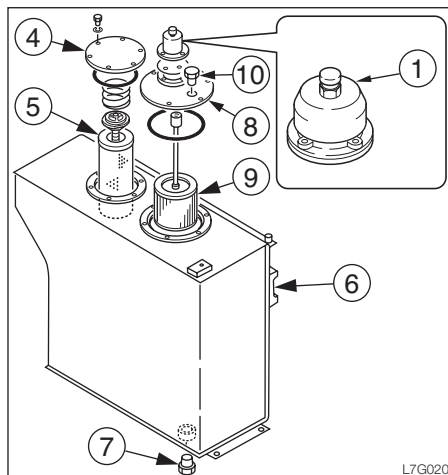
This operation requires experience. Have it performed by a Takeuchi sales or service outlet.



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.
- 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.
- Oil may spurt out if caps or filters are removed or pipes disconnected before releasing the pressure in the hydraulic system.
 - Gradually press the air breather button to relieve tank pressure.
 - When removing plugs or screws or disconnecting hoses, stand to the side and loosen slowly to gradually release the internal pressure before removing.



1. Slew 45° clockwise and set the machine to the hydraulic oil level inspection posture. Refer to page 118 “Inspecting the Hydraulic Oil Level and Replenishing”.
2. Press button (1) and release the pressure in the tank.
3. Replace the air breather filter (A). Refer to page 139 “Replacing the Air Breather filter”.
4. Remove the plug (10).
5. Loosen the bolts, and remove the flange (4).
6. Remove the return filter (5).
7. Place a pan for catching the spent oil under the drain plug (7).
8. Loosen the drain plug (7) and drain the hydraulic oil.
9. Loosen the bolts, and remove the flange (8).
10. Remove the suction strainer (9) and clean it.
11. Clean the inside of the hydraulic tank.
12. Install the new return filter and suction strainer (9).
13. Install the flanges (4) and (8).
14. Tighten the drain plug (7).
15. Supply hydraulic oil up to the middle of the sight gauge (6) from the hole of plug (10).
16. Tighten the plug (10).

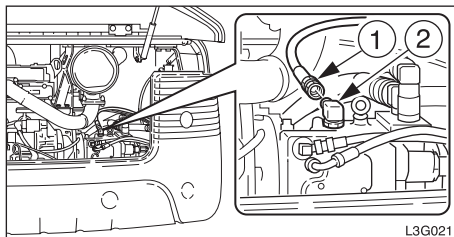


17. Follow the procedure next “Bleeding the air” to bleed the air from the hydraulic oil circuit.
18. Set the machine to the hydraulic oil level inspection posture and inspect the level once the temperature of the oil has dropped.
Refer to page 118 “Inspecting the Hydraulic Oil Level and Replenishing”.

Bleeding the air

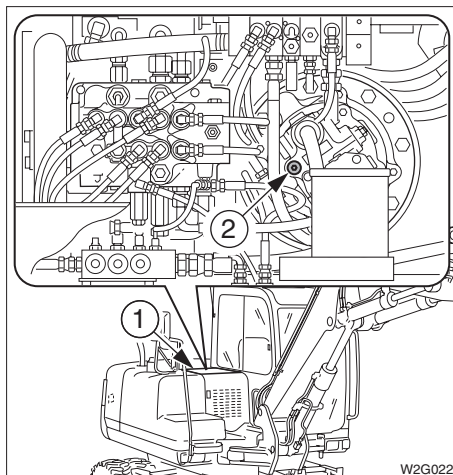
IMPORTANT: After replacing the hydraulic oil, bleed the air from the hydraulic circuit and hydraulic devices. Failure to do so may damage the hydraulic devices.

● Hydraulic pump



1. Open the engine hood.
2. Disconnect the drain hose (1) from the hydraulic pump.
3. Once hydraulic oil overflows from the elbow (2), connect the drain hose (1).

● Slew motor



1. Loosen the bolts and remove the center cover (1).
2. Remove the plug (2).
3. Once hydraulic oil overflows from the plug hole, tighten the plug (2).
4. Install the center cover (1).

● 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 contract all the cylinders 4 or 5 times, without going to the stroke end.
3. Run the engine at high speed, then extend and contract 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 contract all the cylinders 4 or 5 times to the stroke ends.



Replacing the Bucket Teeth and the Side Cutters

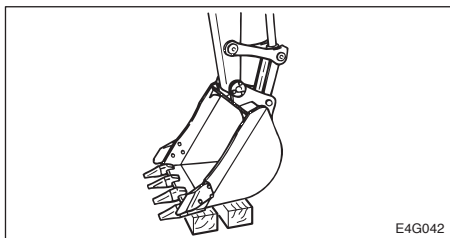
Replace the bucket teeth and the side cutters when the tooth points or the side cutters are worn, before the adapter or the bucket is damaged.

WARNING

- Before performing maintenance or repairs under the machine, set all working equipment against the ground or in the lowermost position.
- To prevent unexpected movement, securely block the working elements when repairing or replacing the bucket teeth and the side cutters.
- Wear required appropriate equipment such as safety glasses when using hammers, as metal fragments or other objects can fly and cause serious personal injury.
- Do not allow unauthorized personnel in the work area.

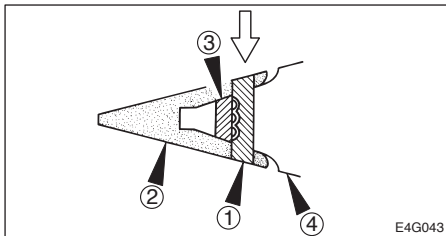
• **Bucket tooth Removal**

1. Clean the bucket and park the machine in a flat, safe place where the ground is hard.

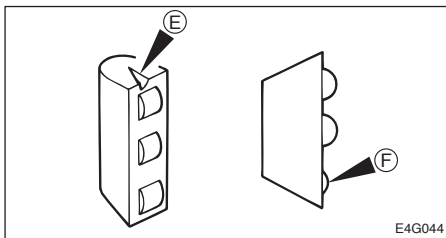


2. Set the bottom surface of the bucket flat and lower it on a block so that the locking pin can be knocked out.

3. Remove the key, then check that the bucket is stable.



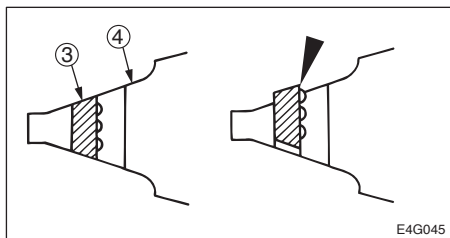
4. Remove locking pin (1) and remove point (2).
5. Take out rubber pin lock (3) and check whether it is still usable.



- EWhen these are cracks in the rubber and it seems like the roller is about to come off.
- FWhen the roller becomes dented when pressed with a finger.

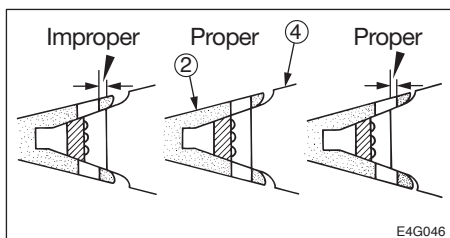


Installation

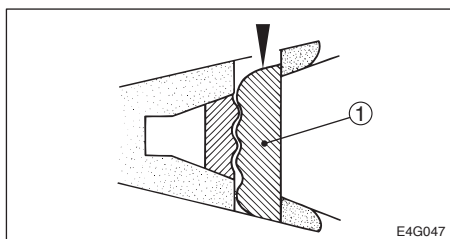


1. Push rubber pin lock (3) into welding adaptor (4).

Do not let the rubber pin lock stick out past the welding adapter surface.



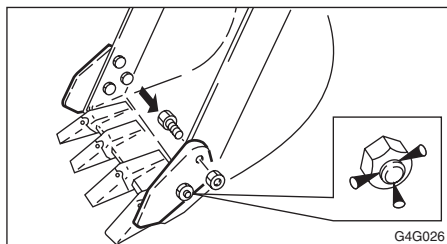
2. Install point (2) onto welding adaptor (4).
Insert the point so that the surface behind the point's pin hole is flush or deeper than the surface behind the welding adapter's pin hole.



3. Drive in locking pin (1).

After driving in the locking pin, use a pin with the same surface as the point surface. Do not use worn locking pins.

● Side cutter Installation



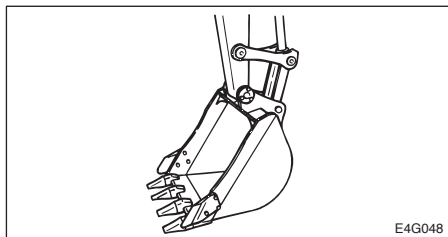
1. Insert the bolts from the inner of the bucket and tighten the nuts.
 - Tightening torque: 475 N·m (350 ft-lb)
2. Caulk the bolts with a punch at three spots along the periphery of the screw to prevent the nuts from coming loose.



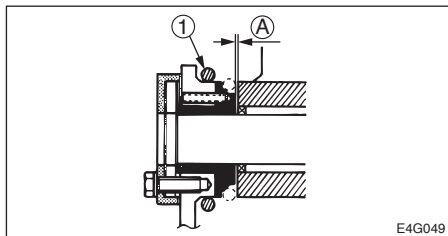
Adjusting the gap between the bucket and arm

WARNING

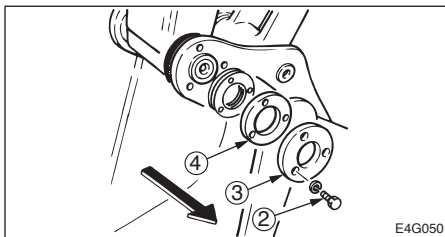
- Before performing maintenance or repairs under the machine, set all working equipment against the ground or in the lowermost position.
- To prevent unexpected movement, securely block the working equipment when adjusting.



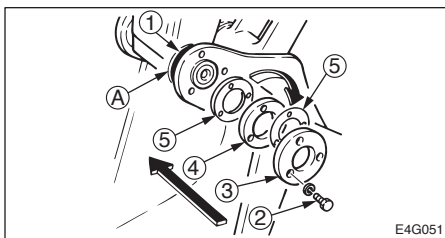
1. Ground the bucket as shown on the diagram above in a stable position.
2. Check that the bucket does not move, then set the safety lock lever to the locked position and stop the engine.



3. Slide the O-ring (1) to bring the gap (A) into view and measure the width of the gap (A).
The gap (A) should be 0.5 mm (0.02 in.)
Swing the bucket slightly to the left and lightly press the arm point to the left side of the bucket (the side without an adjuster).



4. Remove the three bolts (2), the end plate (3) and flange (4).



5. Extract adjustment shim (5) from between flange (4) and the bucket body according to gap (A).

Adjustment shim thickness : 0.5 mm (0.02 in.)

Be careful that the gap is no less than 0.5 mm (0.02 in.) after adjustment.

Note: Example (for a gap of 2 mm or 0.08 in.)

2 mm – 0.5 mm (standard value)
= 1.5 mm (0.06 in.)

In the above example, three shims (5) should be removed.

6. Insert adjustment shim (5) removed in step 5 above between end plate (3) and flange (4) and fasten it in place with the three bolts (2).

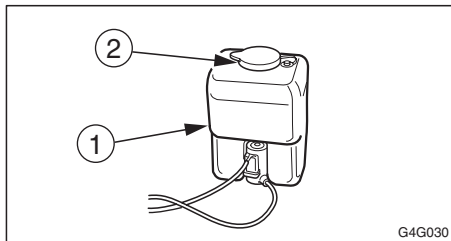
• Tightening torque for bolts (2)
83.4 N·m (61.5 ft·lb.)

7. Return the O-ring (1) to their original position.



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.

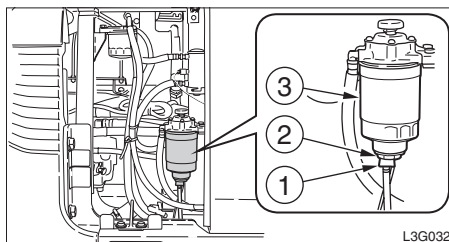
Replenishment

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

Draining the Water Separator

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. Open the right side cover.
2. Place a pan under the drain hose.
3. Open the drain cock (1) and drain the water.
4. Close the drain cock (1).

Bleeding the air from the fuel system

Refer to page 157 "Bleeding the Air from the Fuel System".

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.

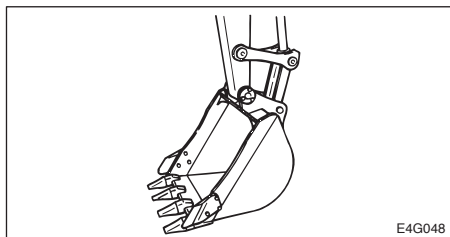


Replacing the Bucket

WARNING

- Before performing maintenance or repairs under the machine, set all working equipment against the ground or in the lowermost position.
- 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.
- Wear required appropriate equipment such as safety glasses and filter mask when using hammers, as metal fragments or other objects can fly and cause serious personal injury.
- When lining up the pin holes, always do so by sight. Your finger may be cut off if you stick it into the hole.

Removal

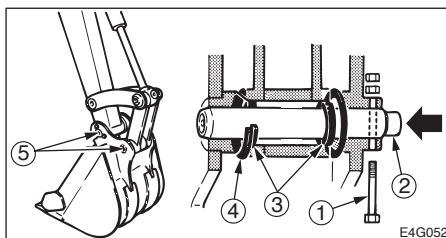


1. Ground the bucket as shown on the diagram above in a stable position.

Supplement: When removing pins, set the bucket so that it is just gently against the ground. If it is strongly against the ground, the resistance will be great and it will be difficult to remove the pin.

2. Set the safety lock lever to the locked position and stop the engine.

3. Remove the bolt (1).

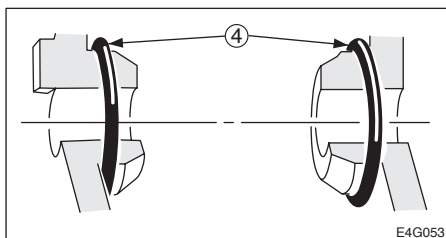


4. Hammer pin (2) out of the bucket.

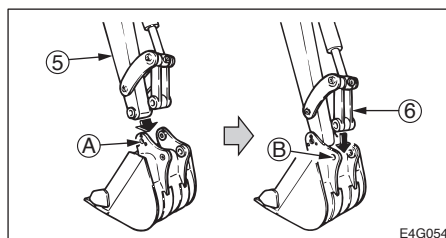
5. Remove the bucket.

Inspect the pin seal (3) and replace it if it is deformed or damaged. (See next page.)

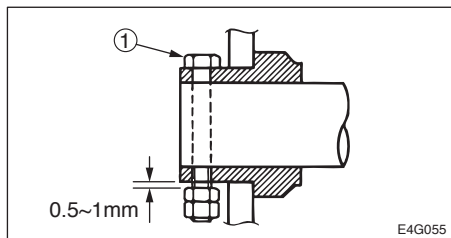
Installation



1. Set the bucket's O-ring (4) as shown on the diagram.

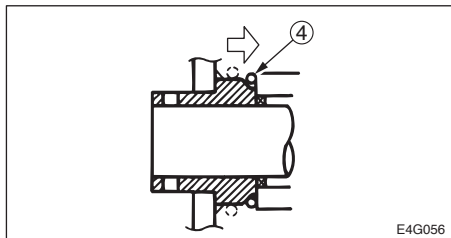


2. Line up pin hole (A) in the bucket with the pin hole in the arm (5), and install the pin (2).
3. Operate the cylinder, line up pin hole (B) in the bucket with the pin hole in the link arm (6), and install the pin (2).

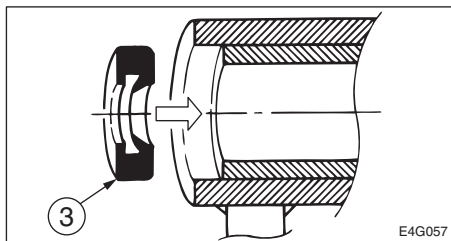
**When Required**

4. Line up the turn prevention holes, install the bolt (1), and the nuts.

Be sure to leave a gap of about 0.5 ~ 1 mm (0.02 ~ 0.04 in.) between the nut and bucket bush, or the nut will come loose.



5. Adjust the gap between the bucket and the arm. Refer to page 145.
6. Slide the O-ring (4).

Replacing the pin seal

1. Set the pin seal (3) in the direction shown on the diagram above.
2. Use a mallet to slowly press the pin seal in. Be careful not to damage the seal.



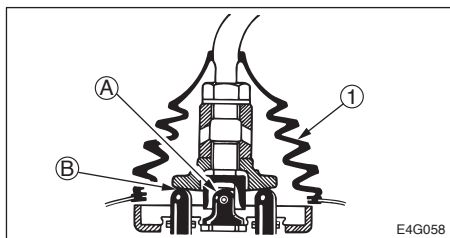
Lubricating the Levers

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.

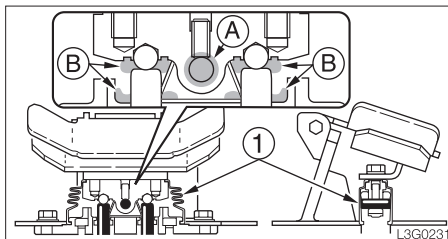
If the levers or pedals no longer move smoothly, supply grease.

Operating 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.

Boom swing pedal



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.

**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 137 "Cleaning the Engine Cooling System".

5. Use the grease gun to supply grease to the grease nipples.
6. Fully contract the bucket and arm cylinders and ground the bucket and dozer blade.
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

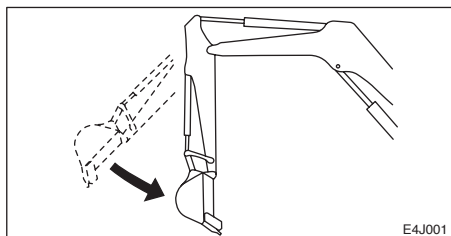
Symptoms that are not Malfunctions	154
If the Engine Overheats.....	155
If the Battery Goes Dead	156
After the Fuel Runs Out.....	157
If a Fuse Blows	158
If a Warning Lamp Flashes	160
Other Symptoms	162
To Lower the Boom	164
Towing.....	165



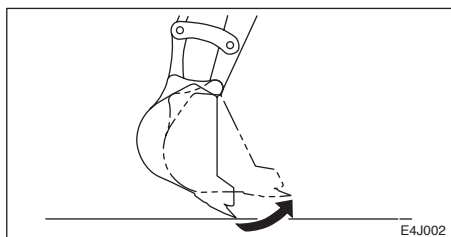
Symptoms that are not Malfunctions

The following symptoms are not malfunctions:

- Performance decreases when an attachment weighing more than a standard arm or bucket is mounted.



- When the arm reaches the vertical position while contracting it while the engine is running at low speed, the contracting speed slows down momentarily.



- When the bucket teeth reach the horizontal position while the engine is running at low speed, the speed of bucket movement slows down momentarily.
- The slew motor produces noise at the beginning and end of the slewing 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 working equipment and when the stroke end is reached.

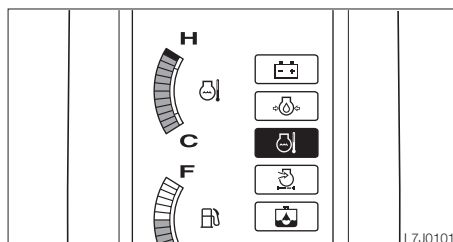


If the Engine Overheats

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 flashes.
- 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. Inspect whether the coolant temperature warning lamp is flashing or if there is steam coming out when the engine hood is closed.
3. If there is steam, stop the engine immediately and contact a Takeuchi sales or service outlet for repairs.
If the coolant temperature warning lamp is off, 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 125.
 - Coolant levelAdd.
Refer to page 116.
 - Water leakage Repair.
 - Radiator fins Clean.
Refer to page 132.
 - Sediment in cooling system..... Clean.
Refer to page 137.

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.

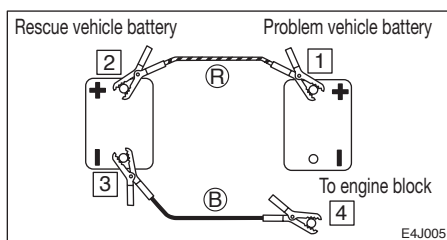
IMPORTANT: Use jumper cables and clips of a size suited to the battery's capacity. Do not use damaged or corroded jumper cables and clips.

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.



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.

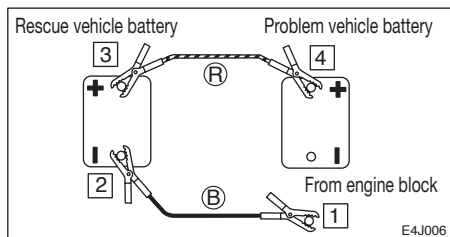
Starting the engine

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.



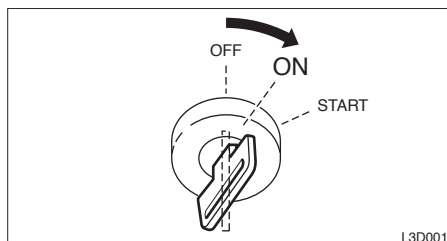
1. Disconnect the clip of jumper cable (B) from the problem vehicle's engine block.
2. Disconnect the other clip of jumper cable (B) from the rescue vehicle's "-" terminal.
3. Disconnect the clip of jumper cable (R) from the rescue vehicle's "+" terminal.
4. Disconnect the other clip of jumper cable (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. Turn the starter key to the ON position and hold it there for about 20 seconds.
The automatic air bleeder bleeds the air from the fuel system.

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 Fuse Blows

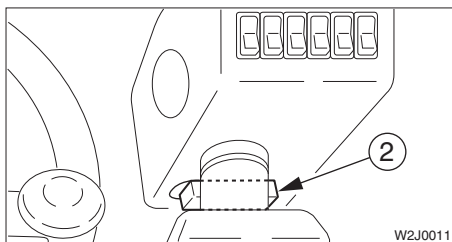
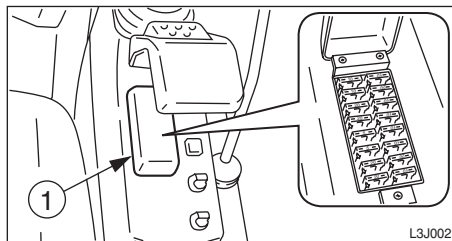
If a light does not turn on or the electric system does not operate, a fuse may be blown. Inspect the fuses.

Inspecting and Replacing the Fuse

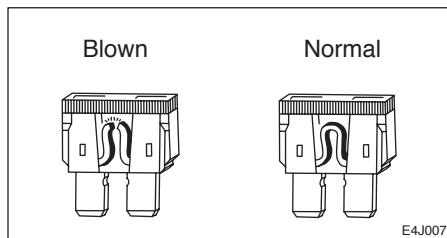
WARNING

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) or (2).
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 (1)

Capacity	Protected circuit	Capacity	Protected circuit
5A	Starter switch	10A	Turn signal
10A	Solenoid (Opt.)	10A	Lever lock
10A	Wiper, Radio	5A	Instrument cluster
30A	Air conditioner (Opt.)	10A	Solenoid
10A	Option	10A	T-ECU
30A	F. S. pump	10A	Sensor
5A	Horn, Radio (B)	5A	Feed Pump
10A	T-ECU (B)	5A	E-ECU (IG)

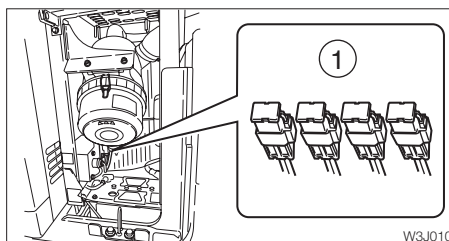


If a Fuse Blows

Fuse Layout and Circuits Protected (2)

Capacity	Protected circuit
10A	Hazard, Turn signal
10A	Buzzer
5A	Parking lights (R.H.)
5A	Parking lights (L.H.)
10A	Head lights (R.H.)
10A	Head lights (L.H.)
5A	Reserve
10A	Reserve

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 left side 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
 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 125 "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 are added, consult a Takeuchi sales or service outlet. Refer to page 117 "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 155 "If the Engine Overheats".
 G4B010	Air cleaner warning lamp	The air cleaner filter is clogged. Refer to page 131 "Cleaning the Air Cleaner".

**If a Warning Lamp Flashes**

Warning lamp	Lamp name	Procedure
 L3J005	Water separator warning lamp	Water has accumulated in the water separator. Drain the water. Refer to page 148 “Draining the Water Separator”.
 L3J006	Fuel level warning lamp	The fuel level is low. Supply fuel. Refer to page 45 “Fuel Filler Cap”.
 W2J003	Brake oil pressure warning lamp	The brake fluid pressure is low. Consult a Takeuchi sales or service outlet.
 W2J004	Third auxiliary hydraulics warning lamp (option)	Pressure in the third auxiliary hydraulic lines is low. Consult a Takeuchi sales or service outlet.



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
Left and right operating levers and boom swing pedal do not move smoothly	● Insufficient grease on left and right operating levers and boom swing pedal	● Add grease. Refer to page 151.
Steering operation not possible	● Defective steering unit	● Contact a sales or service outlet.
Hoe attachment, auxiliary hydraulics, slewing or traveling operation not possible	● Safety lock lever is locked ● Fuse is blown	● Release the safety lock lever. Refer to page 57. ● Replace the fuse. Refer to page 158.
Digging 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 118. ● Perform the warm-up procedure. Refer to page 76. ● Clean the air cleaner. Refer to page 131. ● Replace the hydraulic oil. Refer to page 142.
Traveling is not possible or not smooth	● Stones or foreign objects are stuck ● Brake pedal is locked ● Parking brake is activated	● Remove the foreign object. ● Release the brake pedal. Refer to page 59. ● Turn off the parking brake switch. Refer to page 51. ● Release the safety lock lever. Refer to page 57.
Machine does not travel straight forward	● Stones or foreign objects are stuck ● Air pressure in tires is uneven	● Remove the foreign object. ● Make the air pressure in the different tires uniform
Slew speed cannot be shifted	● Fuse is blown	● Replace the fuse. Refer to page 158.

**Other Symptoms**

Symptom	Main cause	Procedure
Travel speed cannot be changed	● Fuse is blown	● Replace the fuse. Refer to page 158.
Slewing is not possible or not smooth	● Insufficient grease on slew bearing	● Add grease. Refer to page 127.
Hydraulic oil temperature is too high	● Insufficient hydraulic oil	● Replenish to the prescribed level. Refer to page 118.
Starter motor turns but engine does not start	● Insufficient fuel ● Air in fuel system ● Water in fuel system	● Add fuel. Refer to page 118. ● Bleed the air. Refer to page 157. ● Drain the water. Refer to page 148.
Engine exhaust is white or bluish	● Excessive engine oil ● Poor fuel	● Adjust to the prescribed level. Refer to page 117. ● Replace the fuel.
Engine exhaust is occasionally black	● Air cleaner is clogged	● Clean the air cleaner. Refer to page 131.
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 155. ● Replace the muffler. (Request at a sales or service outlet.)



If the hoe attachment must be lowered to the ground while the engine is stopped, use the following procedures to do so.

WARNING

Do not approach in the area of the ground where the hoe attachment is to be lowered. You may be hit by dirt falling out of the bucket or the hoe attachment as it drops.

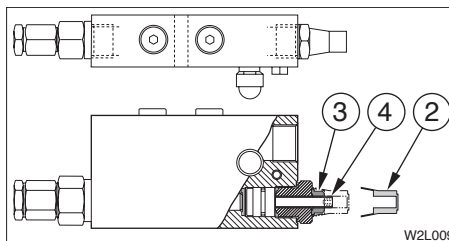
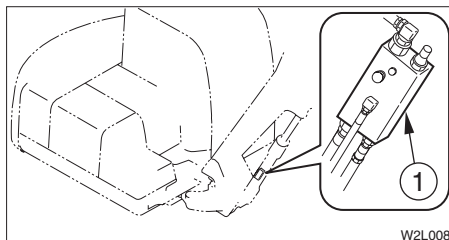
Procedure 1

Perform the following procedure within 10 minutes after the engine is stopped.

1. Turn the starter switch key to the ON position.
2. Release the safety lock lever.
3. Lower the boom by the operating lever.
4. Check for safety and machine stability.

Procedure 2

If equipped with emergency shut-off valve



1. Check for safety in the working area and for stability of the machine and lifted load.
2. Remove the cap (2).
3. Loosen the lock nut (3).
4. Tighten the stem (4) to lower the boom.
5. Check for stability of the hoe attachment and load.
6. Loosen the stem (4) secure it with the lock nut (3).

**⚠ 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.

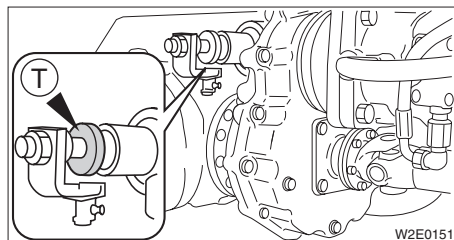
- The wire rope breaking or coming detached could be extremely dangerous. Use a wire rope suited for the required towing force.
- Do not use a wire rope that is kinked, twisted or otherwise damaged.
- Do not apply strong loads abruptly to the wire rope.
- Use safety gloves when handling the wire rope.
- 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

The machine is to be towed only when strictly necessary to remove it from danger. In the interests of safety, towing operator is responsible for the following:

To ensure that a rigid towing rod and a tow-truck with sufficient braking power are used.

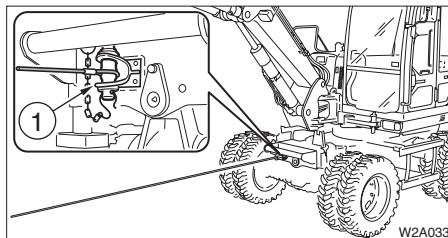
No servo-assisted steering - only manual steering with great force.



Release the parking brake (if control oil pressure fails):

Knock plate (T) in the direction of the spring brake cylinder.

When next operated (releasing the parking brake), the original position resumes.



- Permissible forces:
25500 N (5730 lb) or less

1. Attach the wire rope to the shackle (1).
2. Attach the wire rope to the object to be towed.
3. Make the wire rope horizontal and line up straight with the travel frame.
4. Move the machine to tauten the wire rope.
5. Move the machine slowly and tow.



SPECIFICATIONS

Main Specifications	168
Machine Dimensions.....	170
Operating Range.....	172
Lifting Capacities	177

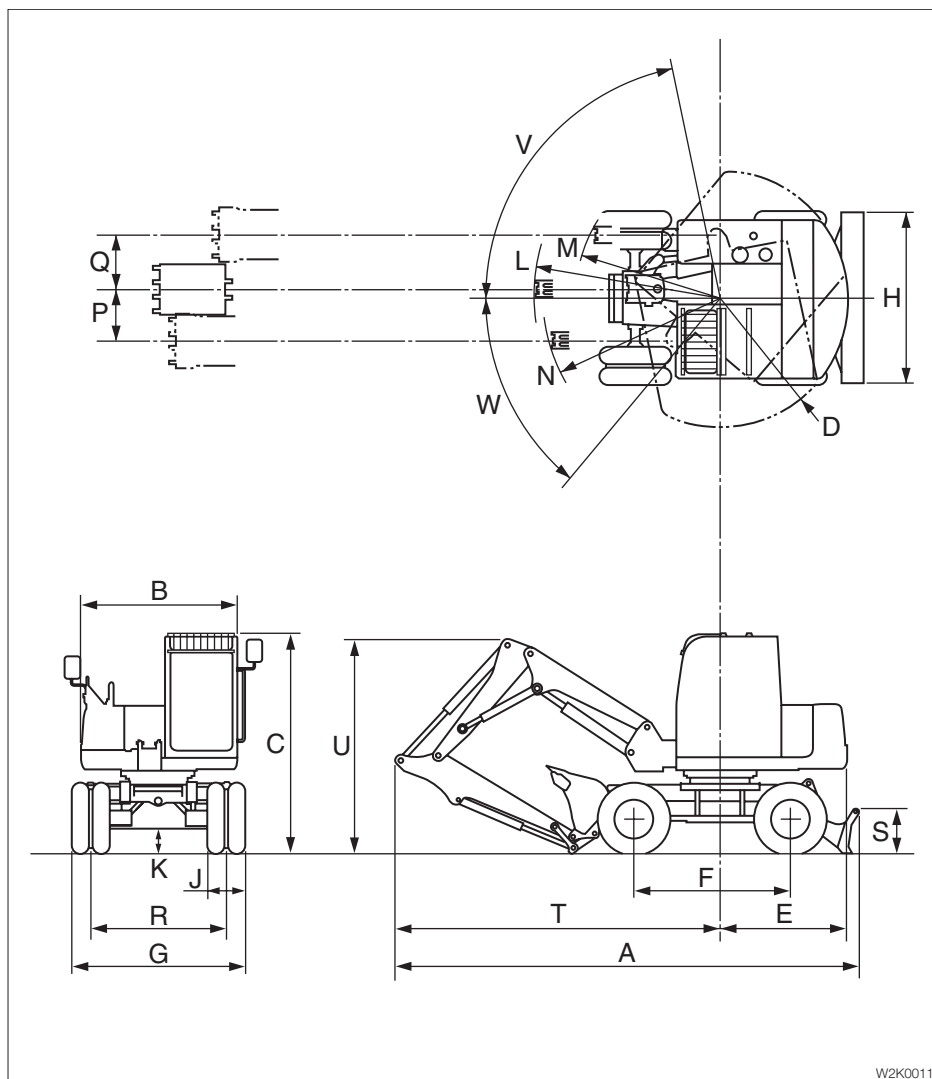


Main Specifications

TYPE		2-Piece Boom	Mono-Boom
MASS			
Machine mass kg (lb.) (not including operator)		8140 (17950)	7845 (17300)
PERFORMANCE			
Bucket capacity m ³ (cu.ft.) (standard bucket)	Heaped		0.245 (8.65)
	Struck		0.185 (6.53)
Slew speed min ⁻¹ (rpm)	Slow speed		4.3 to 8.0 (4.3 to 8.0)*
	Normal speed		10.9 (10.9)
Travel speed km/h (mph)	Forward	Creep	0 to 4.5 (0 to 2.8)
		Site	0 to 9.0 (0 to 5.6)
		Road	0 to 30 (0 to 18.6)
	Reverse	Creep	0 to 4.5 (0 to 2.8)
		Site	0 to 9.0 (0 to 5.6)
		Road	0 to 30 (0 to 18.6)
Gradeability (degrees)		35	
Noise level dB(A)	Sound-power level		L _{WA} 99
	Sound-pressure level		L _{pA} 77
ENGINE			
Manufacturer and model		Yanmar 4TNV98T-ZSTBW	
Rated output	kW / min ⁻¹ (hp / rpm)		53.6 / 2200 (71.9 / 2200)
Displacement	ml (cu.in.)		3318 (202.5)
Starter	V – kW		12 – 3.0
Alternator	V – kW		12 – 0.96
Battery	V – A·h		12 – 90

* : The maximum set speed in slow speed can be adjustable. Upon shipment, it is set to 8.0 min⁻¹ (8.0 rpm).

MEMO



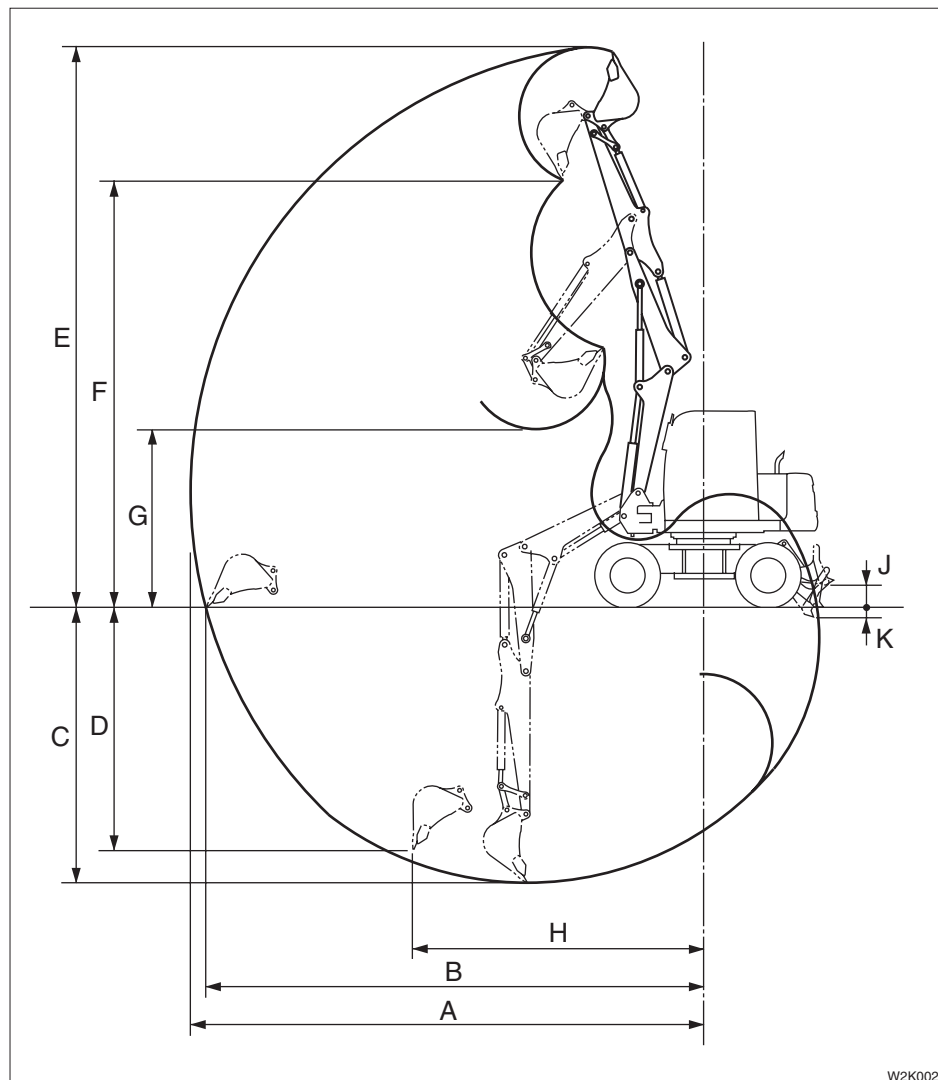
**Machine Dimensions**

Units: mm (inches)

	2-Peice Boom	Mono-Boom
A	6260 (246.4)	6320 (248.8)
B	2110 (83.1)	←
C	2925 (115.2) / 2970 (116.9) *	←
D	1720 (67.8)	←
E	1715 (67.5)	←
F	2100 (82.7)	←
G	2330 (91.7)	←
H	2300 (90.6)	←
J	515 (20.2)	←
K	335 (13.2)	←
L	2505 (98.6)	2620 (103.2)
M	1955 (77)	2060 (81.1)
N	2385 (93.8)	2495 (98.3)
P	690 (27.1)	←
Q	730 (28.8)	←
R	1815 (171.5)	←
S	600 (23.6)	←
T	4380 (172.5)	4445 (174.9)
U	2895 (114.1)	2645 (104.2)
V	80°	←
W	50°	←

* : When equipped with Roof guard.

2-Piece Boom



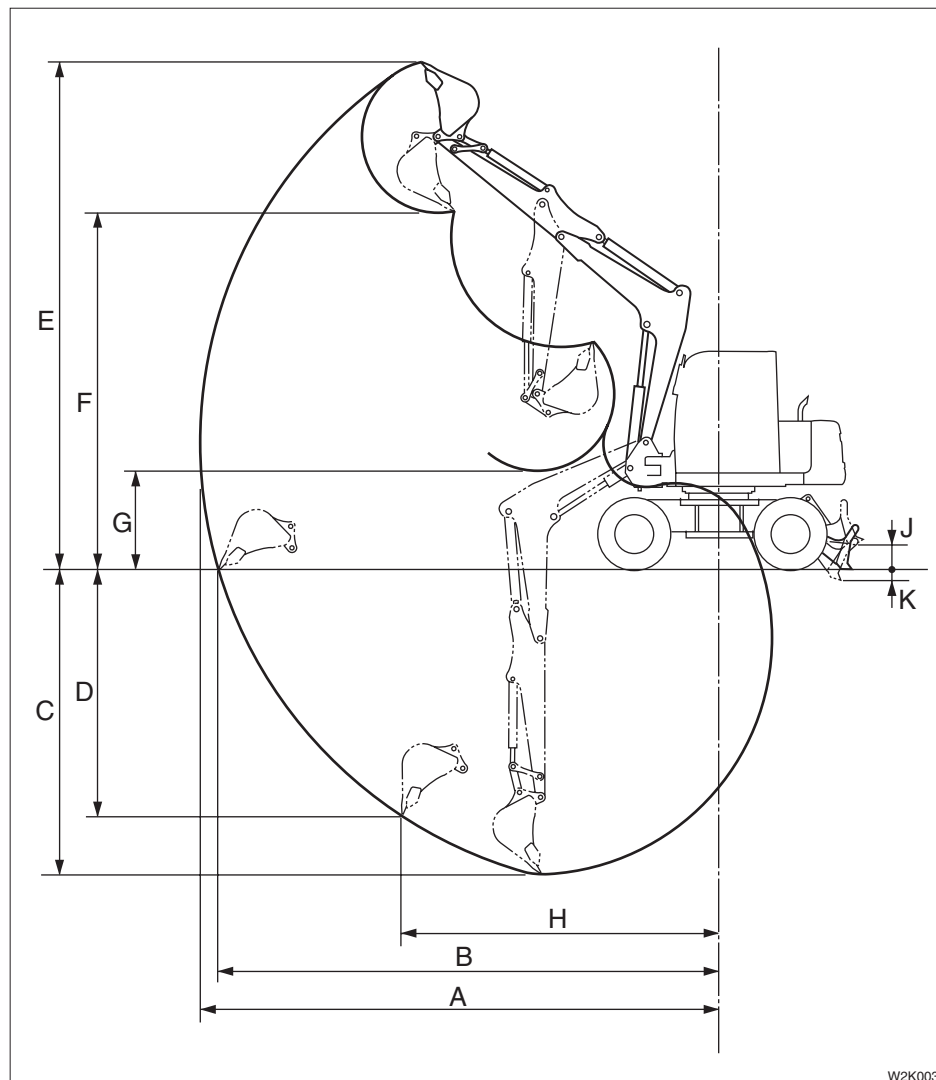
W2K002

**Operating Range****2-Piece Boom**

Units: mm (inches)

A	Max. digging radius	7650 (301.2)
B	Max. ground digging radius	7430 (292.6)
C	Max. digging depth	4085 (160.8)
D	Max. vertical digging depth	3600 (141.7)
E	Max. digging height	8325 (327.8)
F	Max. dumping height	6355 (250.2)
G	Min. dumping height	2665 (104.9)
H	Max. vertical digging radius	4360 (171.6)
J	Max. raising height	335 (13.2)
K	Max. lowering depth	145 (5.7)

Mono-Boom



W2K003

**Operating Range****Mono-Boom**

Units: mm (inches)

A	Max. digging radius	6945 (273.4)
B	Max. ground digging radius	6700 (263.7)
C	Max. digging depth	4055 (159.6)
D	Max. vertical digging depth	3220 (126.8)
E	Max. digging height	6780 (267)
F	Max. dumping height	4765 (187.7)
G	Min. dumping height	1330 (52.3)
H	Max. vertical digging radius	4270 (168)
J	Max. raising height	335 (13.2)
K	Max. lowering depth	145 (5.7)

MEMO

**Rated lift capacity chart**

- The loads in the charts do not exceed 87% of hydraulic lift capacity or 75% of tipping load.
- Rated lift capacities limited by rated hydraulic lift capacity are identified by an asterisk(*)
- The mass of slings and any auxiliary lifting devices shall be deducted from the rated load to determine the net load that may be lifted.
- The load point is the bucket hinge pin, and the bucket posture is with the standard bucket completely retracted under the arm.
- Units: daN (lbs.)

Load hooking system

A load hooking system with all of the following capacities must be provided and used.

1. A system which can withstand a weight of two times the rated lift capacity no matter at what position the load is applied.
2. A system in which there is no risk of the lifted load falling from the hooking device, for example one equipped with a hook slippage prevention device.
3. A system in which there is no risk of the hooking system slipping from the hoe attachment.

Load safety device

In addition, the following load safety devices must be installed. (For details, contact a designated service outlet.)

- (1) An overload warning device.
- (2) A boom lowering control device.

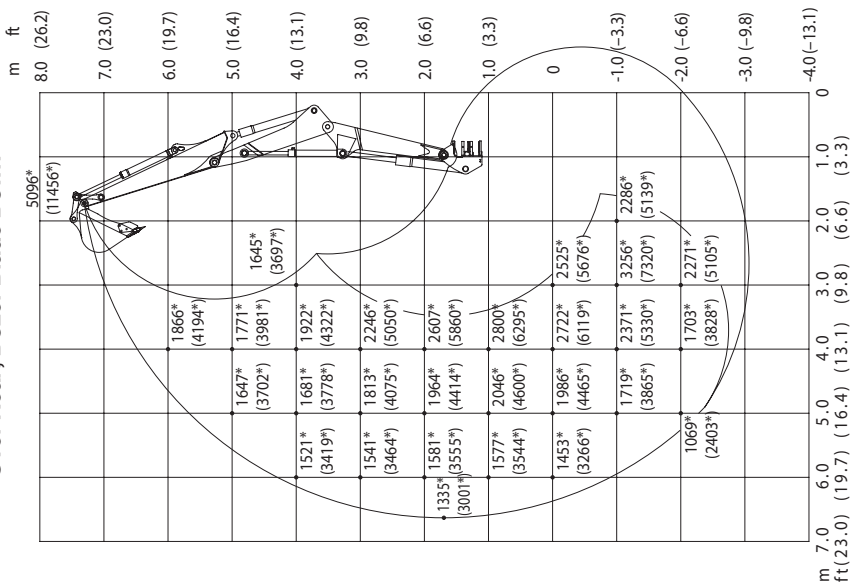
 WARNING

- **DO NOT attempt to lift or hold any load that is greater than these rated values at their specified load radii and height.**
 - **All rated lift capacities are based on the machine being level and on a firm supporting surface. For safe working loads, the user is expected to make due allowance for the particular job conditions such as soft or uneven ground, non-level condition, side loads, hazardous conditions, experience of personnel, etc. The operator and other personnel should fully acquaint themselves with the operator's manual furnished by the manufacturer before operating this machine, and rules for safe operation of equipment shall be adhered to at all times.**
 - **Do not travel while lifting a load; It is very dangerous.**
-



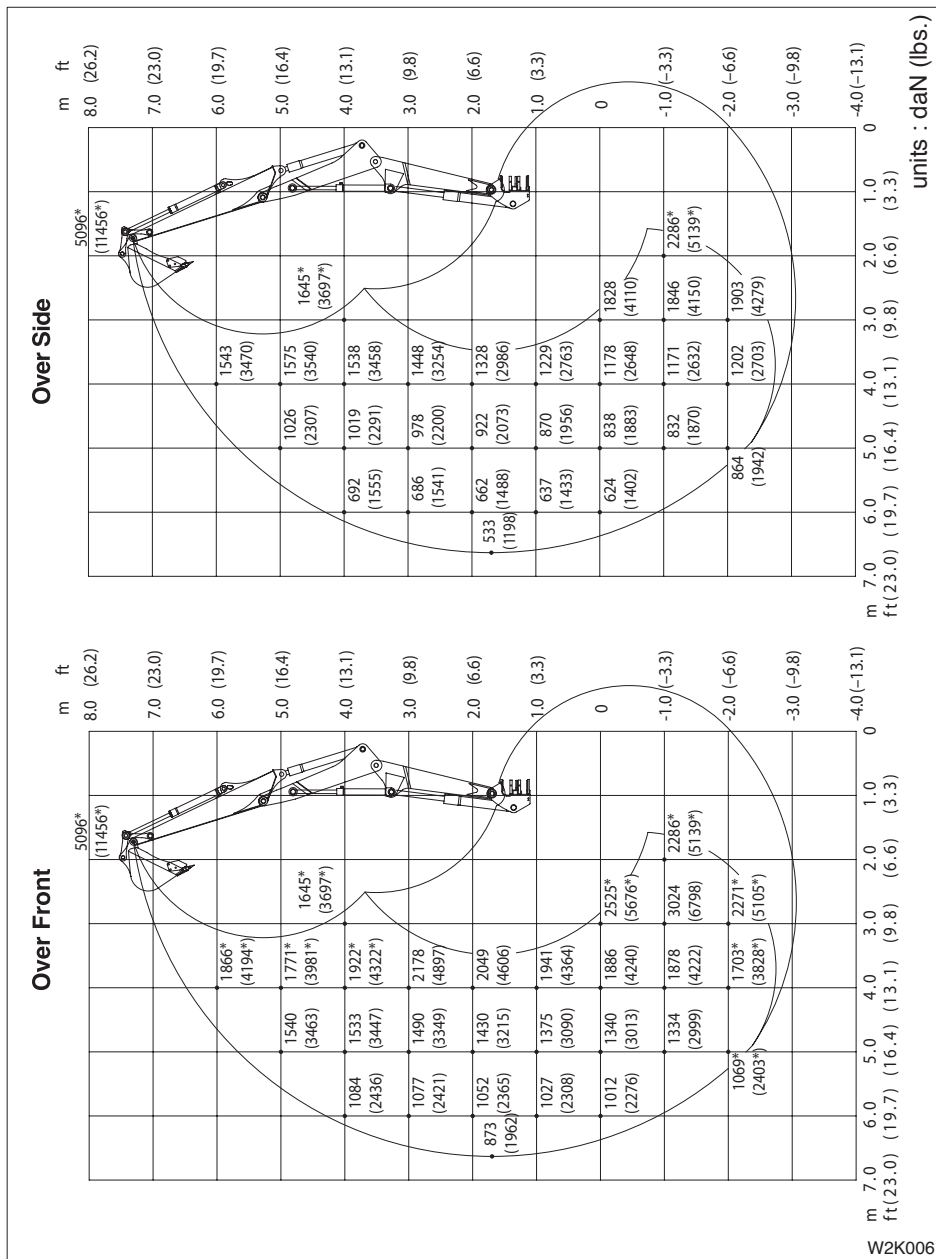
2-Piece Boom

Over Rear; Dozer Blade Down



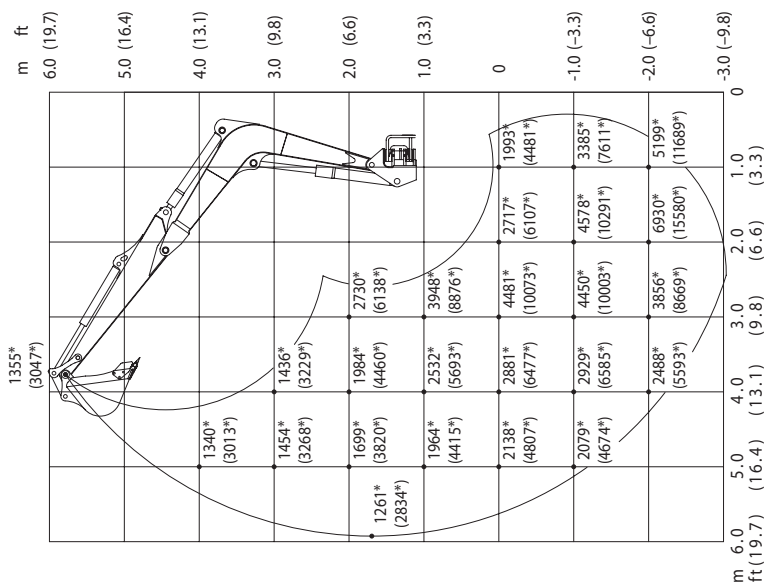


2-Piece Boom



Mono-Boom

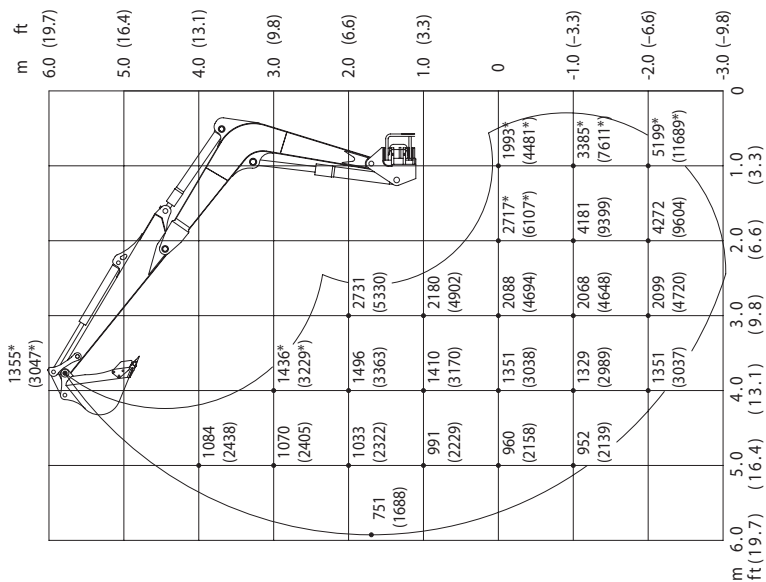
Over Rear; Dozer Blade Down



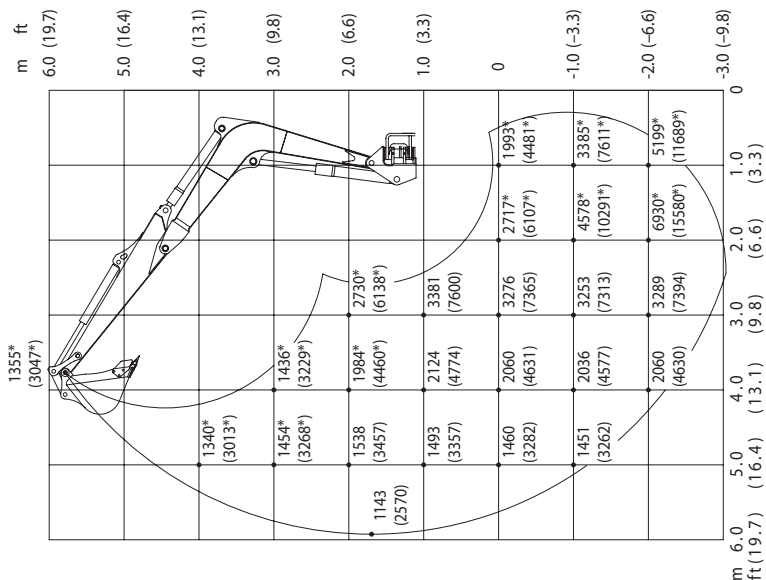


Mono-Boom

Over Side



Over Front



units : daN (lbs.)

W2K008



OPTIONS

General Precautions	184
Swing Stopper	186
Biodegradable Oil	187
Second Auxiliary Hydraulics	188
Third Auxiliary Hydraulics	190
Fourth Auxiliary Hydraulics	192
Hydraulic Breaker	194
Load Safety Device	196
Fuel Supply Pump	198
Outrigger	199
Air Conditioner	200
Optional Equipment Mass	209



Precautions on Safety

WARNING

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

- Consult with a Takeuchi before installing optional attachments.
 - Do not use attachments that have not been approved by Takeuchi. 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 performing lifting operations, determine a person to lead the operations and always follow that person's instructions.
 - Follow the leader's instructions on operating methods and procedures.
 - Determine a signal leader and heed this person's signals.
 - When removing or installing the hoe 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 boom or arm, 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 attachments reduce machine stability. When traveling down steep slopes or slewing on slopes, the machine may lose its balance and tip over.

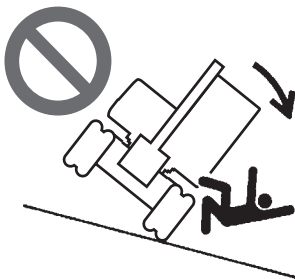
The following operations are particularly dangerous. Do not perform them.

- Traveling down slopes with the attachment lifted



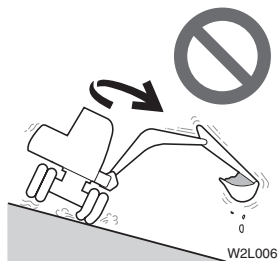
W2L004

- Traveling across slopes



W2L005

- Slewing on slopes



W2L006

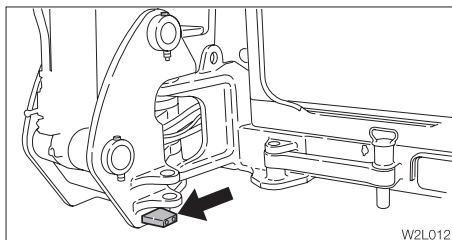
- When heavy attachments are installed, the overslew (the distance from where the operation to stop slewing is performed until slewing stops completely) increases and mistakes in judgment may result in the attachment hitting surrounding objects. Allow for plenty of room between the attachment and obstacles. 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 slew (swing) sideways with excessive weight at the front. In particular do not slew sideways on slopes.
 - The front is heavier for machines equipped with breakers, crushers or telescopic arms than for machines equipped with the standard bucket. Do not operate such machines sideways, especially with the digging arm (boom) downhill.
- When a long arm or a telescopic arm is installed, the operating range suddenly increases and mistakes in judgment may result in the attachment hitting surrounding objects. Allow for plenty of room between the attachment and obstacles.



Swing Stopper

WARNING

Install a swing stopper when a bucket wider than the standard bucket is installed. Failure to mount the swing stopper may result in the bucket hitting the machine body.





Biodegradable oil

Biodegradable oil is a new type of hydraulic oil that is decomposed into carbon dioxide and water by microorganisms in the soil and water. It is highly safe for living organisms and offers advantages in terms of environmental protection.

- Recommended biodegradable oil: Mobile EAL Envirosyn 46H (an ester synthetic oil).

When replacing the hydraulic oil with biodegradable oil, use the above or an equivalent oil. Note that other oils, even other brands of ester synthetic oils, may damage O-rings, packings and seals. Takeuchi products shipped with the optional biodegradable oil are shipped with the above brand of oil.

- When switching from a mineral oil to a biodegradable oil, the parking brake torque decreases by about 30%.

Replacing the hydraulic oil with biodegradable oil

Mixing mineral oil with biodegradable oil will result in a decrease of the hydraulic oil's performance as well as a decrease in biodegradability and safety. The hydraulic oil system must be flushed as described below before supplying the biodegradable oil. This operation is dangerous and requires experience. Have it performed by a Takeuchi sales or service outlet.

Flushing

To be performed by a Takeuchi sales or service outlet

1. Drain the hydraulic oil (mineral oil) from the hydraulic tank and clean the inside of the tank and suction strainer. (Refer to the section on replacing the hydraulic oil and cleaning the suction strainer.)
2. Remove the cylinder hoses and drain the hydraulic oil (mineral oil) from inside the cylinders.
3. Supply new biodegradable oil to the hydraulic tank.
4. Bleed the air from the hydraulic pump, control valve, slew motor and cylinders.
5. Operate the hydraulic devices for 30 minutes.
6. Drain the biodegradable oil from the tank and cylinders.
7. Replace the hydraulic oil return filter with a new filter.
8. Repeat steps 3 and 4.
9. Operate the hydraulic devices for 30 minutes.
10. Drain the biodegradable oil from the tank and cylinders.
11. Repeat steps 3 and 4.
12. Operate the hydraulic devices for 1 hour.
13. Drain the biodegradable oil from the tank and cylinders.
14. Replace the return filter with a new filter.
15. Repeat steps 3 and 4.
16. Operate the hydraulic devices, then check for oil leakage.

There is no need to flush the hydraulic oil system when switching from biodegradable to mineral hydraulic oil.



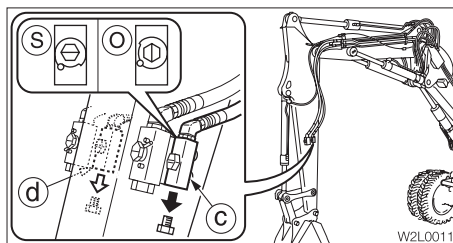
Second Auxiliary Hydraulic Lines

WARNING

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

- **When disconnecting hoses, release the internal pressure before removing.**

These lines deliver the hydraulic oil necessary for operating a hydraulic attachment.



Stop valve.....  : Closed  : Open

Connecting the Hydraulic Circuits

To connect the attachment hydraulic lines, use the following procedures:

1. Release the pressure remaining in the lines then close the stop valve.
Refer to “Releasing the residual pressure”.
2. Remove the plugs.
3. Connect the attachment hydraulic lines to ports (c) and (d).
4. Open the stop valves.
5. When connecting is complete, purge air from the hydraulic lines.
 - a. Start and run the engine at low idle with no load for 10 minutes.
 - b. With the engine running at low idle operate the auxiliary hydraulic switches repeatedly (approx. 10 times) to purge air from the hydraulic lines.

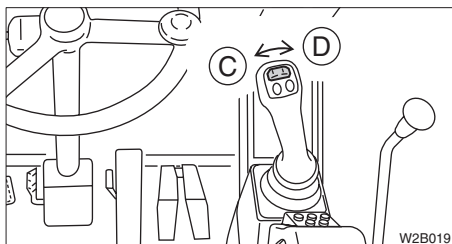
- c. Stop the engine and wait for more than 5 minutes until bubbles escape from the hydraulic oil in the tank.

IMPORTANT: Follow the procedures for purging air as instructed by the attachment manufacturer if specified to do so.

6. Check for leaks.



Second Auxiliary Hydraulic Switch (Proportional control)



Move this switch to control the flow of the oil in the second auxiliary hydraulic lines.

- (C)..... Hydraulic oil flows to left auxiliary line(c)
(D)..... Hydraulic oil flows to right auxiliary line(d)

Disconnecting the hydraulic circuits

1. Release the pressure remaining in the lines then close the stop valve.
Refer to “Releasing the residual pressure”.
2. Disconnect the lines from ports (c) and (d).
3. Install the plugs.

Releasing the residual pressure

After using the auxilliary hydraulic circuits, pressure remains in the circuits. This is called the residual pressure. Release this residual pressure before disconnecting the lines.

1. Stop the engine.
2. Turn the starter switch to the ON position.
3. Fully lower the safety lock lever.
4. Within 10 minutes after the engine comes to a complete stop, move the 2nd auxiliary hydraulic switch to the right and left several times.
5. Raise the safety lock lever to the lock position.



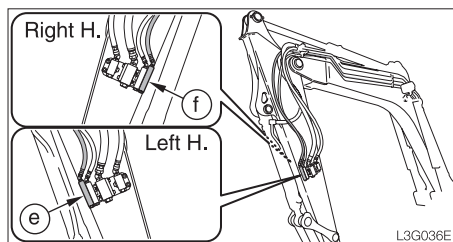
Third Auxiliary Hydraulic Lines

WARNING

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

- **When disconnecting hoses, release the internal pressure before removing.**

These lines deliver the hydraulic oil necessary for operating a quick attachment.



Connecting the Hydraulic Circuits

To connect the attachment hydraulic lines, use the following procedures:

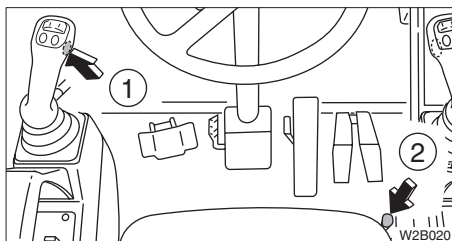
1. Release the pressure remaining in the lines.
Refer to "Releasing the residual pressure".
2. Remove the plugs.
3. Connect the attachment hydraulic lines to ports (e) and (f).
4. When connecting is complete, purge air from the hydraulic lines.
 - a. Start and run the engine at low idle with no load for 10 minutes.
 - b. With the engine running at low idle operate the auxiliary hydraulic switches repeatedly (approx. 10 times) to purge air from the hydraulic lines.
 - c. Stop the engine and wait for more than 5 minutes until bubbles escape from the hydraulic oil in the tank.

IMPORTANT: Follow the procedures for purging air as instructed by the attachment manufacturer if specified to do so.

5. Check for leaks.



Third Auxiliary Hydraulic Switch and Button



Press those switch and button to control the flow of the oil in the third auxiliary hydraulic lines.

When the safety lock lever is released after the engine is started, hydraulic oil constantly flows in pipe (e). When button (1) and switch (2) are pressed simultaneously, the oil flow switches to pipe (f). When this happens, the pressure of pipe (e) drops, an alarm is sounded and the warning lamp lights. For safety, only operates when both button (1) and switch (2) are pressed.

Disconnecting the hydraulic circuits

1. Release the pressure remaining in the lines.

Refer to “Releasing the residual pressure”.

2. Disconnect the lines from ports (e) and (f).
3. Install the plugs.

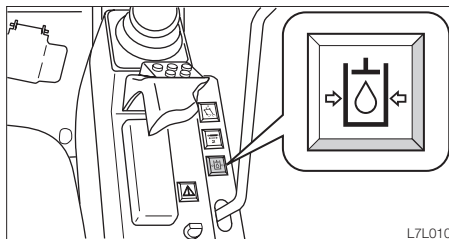
Releasing the residual pressure

After using the auxilliary hydraulic circuits, pressure remains in the circuits. This is called the residual pressure. Release this residual pressure before disconnecting the lines.

1. Stop the engine.

(The residual pressure is released from the (e) port line.)

Third Auxiliary Hydraulics Warning Lamp



This lamp illuminates and an alarm sounds when the third auxiliary hydraulic pressure drops abnormally while the engine is running.



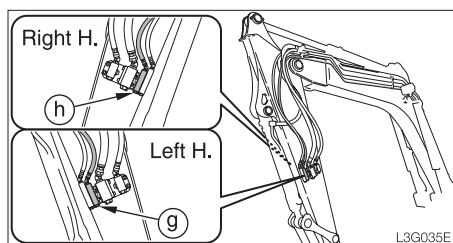
Fourth Auxiliary Hydraulic Lines

WARNING

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

- When disconnecting hoses, release the internal pressure before removing.

These lines deliver the hydraulic oil necessary for operating a hydraulic attachment.



Connecting the Hydraulic Circuits

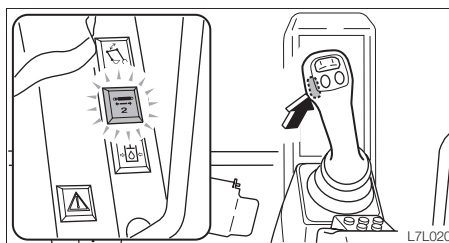
To connect the attachment hydraulic lines, use the following procedures :

1. Release the pressure remaining in the lines.
Refer to "Releasing the residual pressure".
2. Remove the plugs.
3. Connect the attachment hydraulic lines to ports (g) and (h).
4. When connecting is complete, purge air from the hydraulic lines.
 - a. Start and run the engine at low idle with no load for 10 minutes.
 - b. With the engine running at low idle operate the auxiliary hydraulic switches repeatedly (approx. 10 times) to purge air from the hydraulic lines.
 - c. Stop the engine and wait for more than 5 minutes until bubbles escape from the hydraulic oil in the tank.

IMPORTANT: Follow the procedures for purging air as instructed by the attachment manufacturer if specified to do so.

5. Check for leaks.

Selector Button (2 or 4 Aux.)

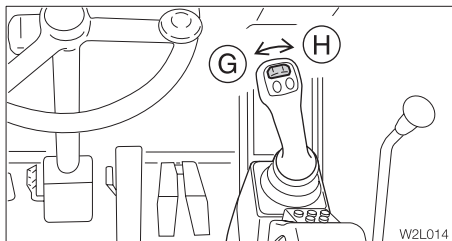


This button changes from the fourth auxiliary hydraulics operation to the second auxiliary hydraulics operation.

Press this button to change over to operation of the second auxiliary hydraulics. The second auxiliary hydraulics operation indicator lamp will light. One more press of this button will result in a return to fourth auxiliary hydraulics operation. Actual operation is performed with the second / fourth auxiliary hydraulic switch (slider switch).



Second / Fourth Auxiliary Hydraulic Switch



Move this switch to control the flow of the oil in the fourth auxiliary hydraulic lines.

(G).....Hydraulic oil flows to left auxiliary line(g)
(H).....Hydraulic oil flows to right auxiliary line(h)

- When the safety lock lever is set to the lock position, this control is locked.

Disconnecting the hydraulic circuits

1. Release the pressure remaining in the lines.
Refer to “Releasing the residual pressure”.
2. Disconnect the lines from ports (g) and (h).
3. Install the plugs.

Releasing the residual pressure

After using the auxilliary hydraulic circuits, pressure remains in the circuits. This is called the residual pressure. Release this residual pressure before disconnecting the lines.

1. Stop the engine.
2. Turn the starter switch to the ON position.
3. Fully lower the safety lock lever.
4. Within 10 minutes after the engine comes to a complete stop, move the second / fourth auxiliary hydraulic switch to the right and left several times.
 - a. Press the selector button (2nd or 4th Aux.) to change over to operation of the second auxiliary hydraulics.

- b. Move the second / fourth auxiliary hydraulic switch to the right and left several times.

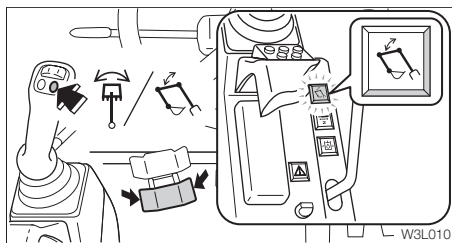
5. Raise the safety lock lever to the lock position.

Selector Button (2-Piece boom)

WARNING

Pressing (switching ON or OFF) the selector button while the boom swing pedal is depressed is dangerous, since the attachment will move unexpectedly.

Always set the boom swing pedal back to the neutral position before operating the selector button.



This button changes from the boom swing operation to the intermediate boom operation.

While the button is pressed and held in, operation changes from the boom swing operation to the intermediate boom operation and the intermediate boom operation indicator lamp lights. When the finger is released from the button, operation switches back to boom swing operation. Actual operation is performed with the boom swing pedal.

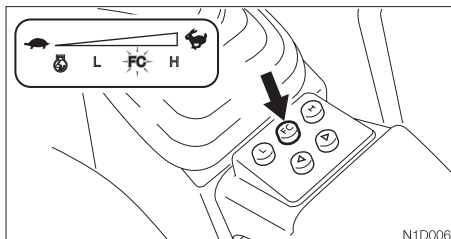
Operation of the first auxiliary hydraulic switch push button: left side (A') only.



For handling of the breaker, read the hydraulic breaker's manual, provided separately.

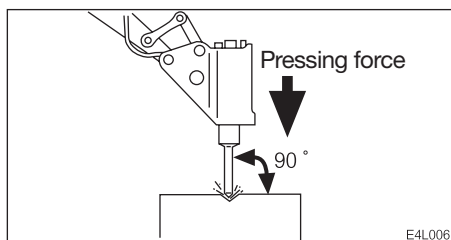
IMPORTANT: When mounting devices, select devices suited for this machine. For advice on selecting device, contact a Takeuchi sales or service outlet.

Precautions on Operating



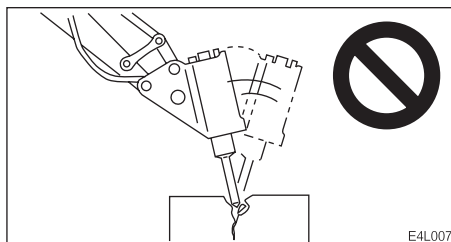
N1D006

- Run the engine with 75% the maximum speed.



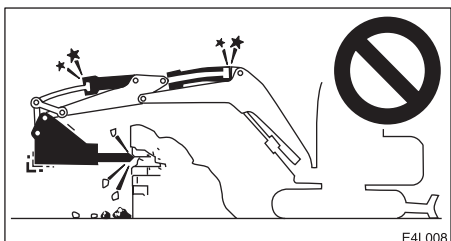
E4L006

- Pound with the chisel perpendicular to the surface you are pounding.
- When pounding, press the chisel properly against the object to be broken so as to avoid pounding the air.



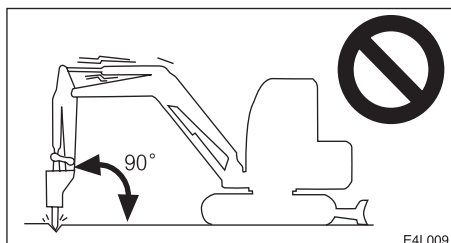
E4L007

- Do not pry with the chisel, and do not pry while pounding.
- Do not move the chisel while pounding.
- Do not pound continuously for over 30 seconds on the same surface.



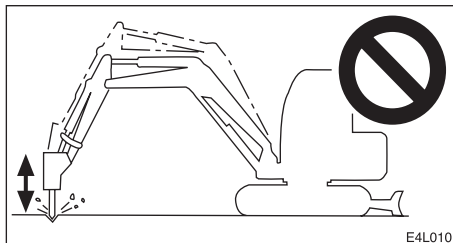
E4L008

- Do not pound with the cylinder fully extended or contracted (at the stroke end). Leave a margin of at least 5 cm.



E4L009

- Do not pound with the arm perpendicular to the ground surface.



- Do not drop the breaker itself on the object to be broken in order to break it.
- Do not move objects to be broken or rocks with the breaker itself.
- Slew occasionally to cool the engine.
- If a hydraulic hose is vibrating abnormally, nitrogen gas may be leaking from the accumulator. Have an inspection as soon as possible.

Replace the hydraulic oil regularly!

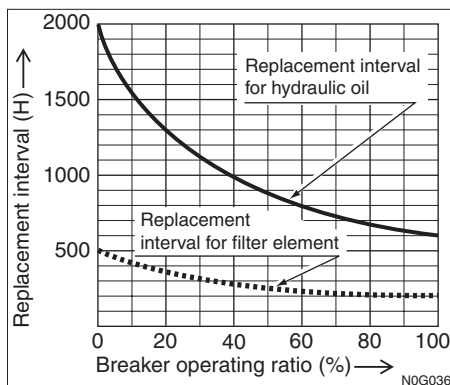
When using a hydraulic breaker, the oil deteriorates quicker than during normal digging. Be sure to replace the hydraulic oil and return filter element.

- Failure to replace these in time can lead to damage to the machine and breaker's hydraulic systems. In order to improve the service life of the hydraulic systems, be sure to replace the hydraulic oil and return filter element after the number of hours shown on the diagram below.
- Clean the suction strainer when changing the return filter element.

Replacement Interval (Hours)

Item	Hydraulic Oil	Filter Element
1st time	—	25
2nd time	—	100
Periodically	600	200

When the breaker operating ratio is 100%





The load safety devices include an emergency shut-off valve and an overload warning device. The emergency shut-off valve stops the boom, intermediate boom or arm part way through a fall. The overload warning device sounds an alarm when an excessive load is applied.

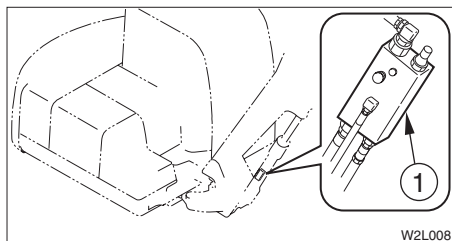
Emergency shut-off valve

When the hose of the boom, intermediate boom or arm cylinders are ruptured and the boom, intermediate boom or arm falls, the emergency shut-off valve is activated and stops the boom, intermediate boom or arm part way through the fall.

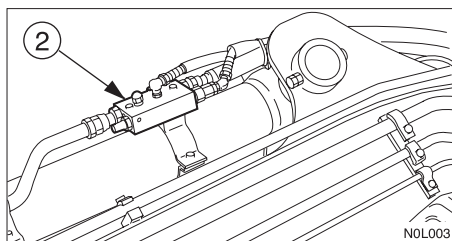
WARNING

If the boom, intermediate boom or arm drops and the emergency shut-off valves are activated, immediately move away from the suspended object.

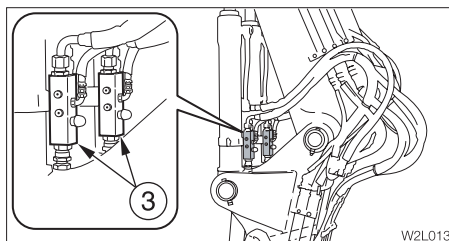
Boom



Arm



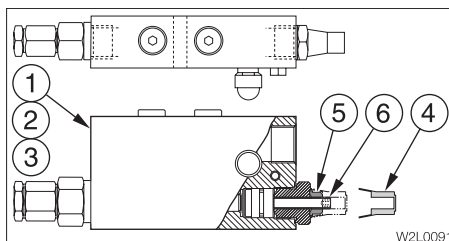
Intermediate Boom (2-Piece boom)



If the emergency shut-off valve (1), (2) or (3) is activated, immediately set the operating levers or swing pedal to the neutral position. Do not move the operating levers or swing pedal to the boom, intermediate boom or arm lowering side. Contact a Takeuchi dealer for maintenance.

If the engine can be started, the boom, intermediate boom or arm can be lowered with the operating lever or swing pedal. Check for safety, then slowly lower the boom, intermediate boom or arm.

If the engine cannot be started, the boom, intermediate boom or arm can be lowered using the procedure described below.



1. Check for safety in the working area and for stability of the machine and lifted load.
2. Remove the cap (4).
3. Loosen the lock nut (5).
4. Tighten the stem (6) to lower the boom.
5. Check for stability of the hoe attachment and load.
6. Loosen the stem (6) secure it with the lock nut (5).

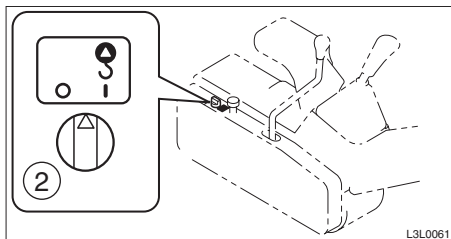


Overload Warning Device

If a weight greater than the machine is designed to lift is lifted, the overload warning device is activated and a horn is sounded (when the overload warning switch is turned on).

WARNING

Continuing to apply the load after the overload warning horn sounds could result in the machine tipping over or the emergency shut-off valve being activated. If the horn sounds, stop operating the machine and lighten the load.



Overload warning switch (2)

O position..... OFF

I position..... ON

When the emergency shut-off valve is activated, the overload warning horn stops. (This is because the pressure sensor can no longer detect hydraulic pressure.)



Fuel Supply Pump

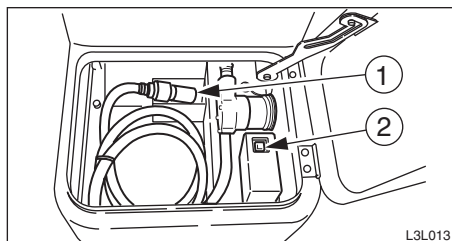
This device automatically supplies fuel to the fuel tank and stops automatically when the fuel tank is full.



DANGER

Do not use the fuel supply pump for gasoline or hydraulic oil. Doing so could result in explosion or damage.

Only use the fuel supply pump for diesel fuel.



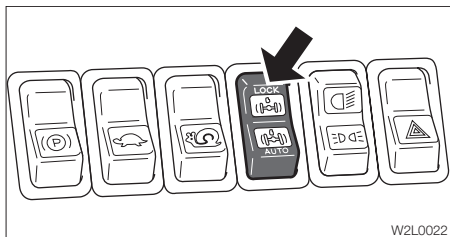
1. Open the front cover.
2. Insert the pump's nozzle (1) in the fuel supply tank.
3. Press the switch (2).

The pump stops automatically once the fuel tank is full.



⚠ WARNING

Provide firm uniform supporting surface for outrigger pads.



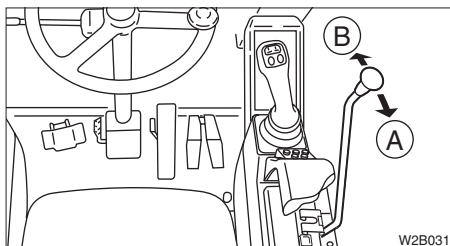
W2L0022

Depress the axle lock switch to change into the outrigger operation.

 Outrigger operation
(The suspension lock is engaged)

Neutral Dozer blade operation
(The suspension lock is disengaged)

 Dozer blade operation
(When the suspension lock is disengaged)



W2B031

The outrigger operation is done by the blade lever.

(A) Outriggers Raise
(B) Outriggers Lower



CAUTIONS ON USE

Ventilate periodically

- When using the air conditioner over an extended period of time, open the windows about once each hour to let in fresh air.
- Your eyes may become irritated if you smoke while using the air conditioner. If this happens, open the windows to let in fresh air. Cigarette smoke particularly irritates the eyes when using the air conditioner because the humidity in the cabin drops and the eyes' membranes tend to become dry.
- If the outside air is dirty, set the air conditioner to the recirculation mode.

Always maintain good visibility

Working with the windows dirty or fogged restricts visibility and is dangerous. Always clean dirt and moisture off the windows before working.

- The windows tends to get foggy when the humidity is high. If this happens, turn on the air conditioner and use outside air and the defroster to get rid of the fog.
- If the air conditioner is set to high when using the defroster, the difference between the external and internal temperatures increases, and fog may form on the outside of the windows. If this happens, either turn the air conditioner off or turn the temperature control dial clockwise to increase the internal temperature.
- Mist may blow out of the air outlets. This is not a malfunction. When moist air passes through the air conditioner unit's evaporator, water particles in the air freeze and are emitted as mist.

Do not overcool

For health purposes, the air inside the cab should be kept at a temperature at which you feel a little cool when entering the cab from outside (a difference of 5 to 6°C (41 to 43°F)). Be careful to adjust the temperature properly.

Do not turn the air conditioner on until the engine is started

To avoid placing an excessive load on the compressor, wait until the engine is started and is running smoothly before turning on the air conditioner.

Let hot air out first

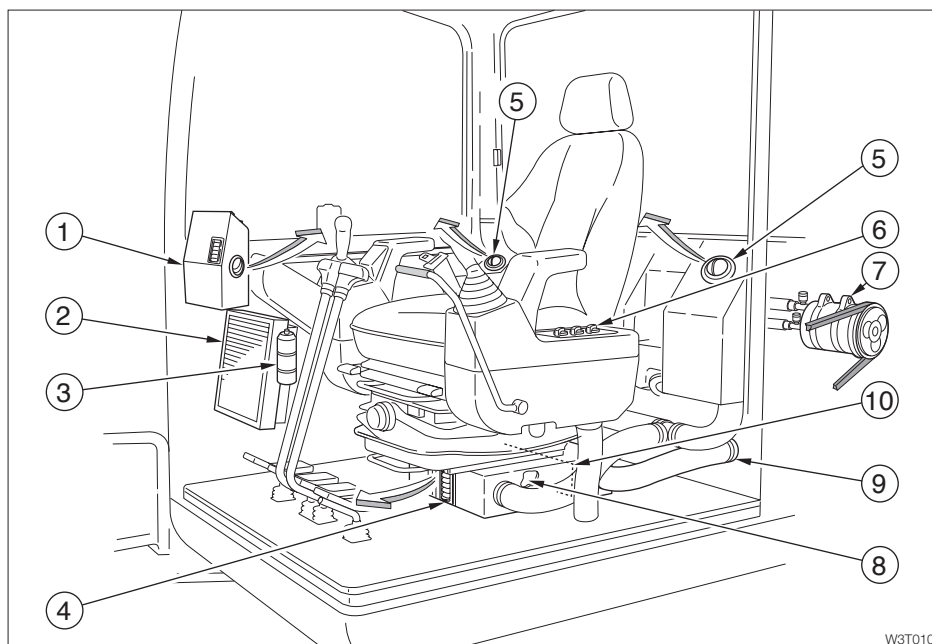
If the excavator has been parked in the sun, open the windows or door to let the hot air out of the cab before using the air conditioner.

Caution on refrigerant (gas)

Exposure of the eyes or hands to the cooler's refrigerant could result in blindness or frostbite. Never touch the refrigerant or loosen the parts of the cooling circuit. Should the refrigerant gas leak, keep flames away.



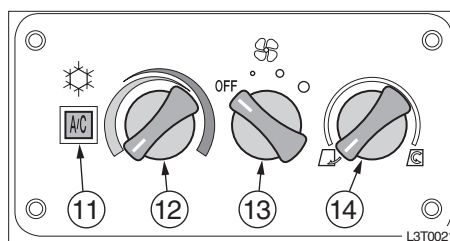
NAMES OF COMPONENTS



W3T010

1. Defroster
2. Condenser
3. Receiver drier
4. Foot outlets
5. Back outlets
6. Control panel
7. Compressor
8. Air conditioner unit
9. External air duct
10. Filter

Control Panel



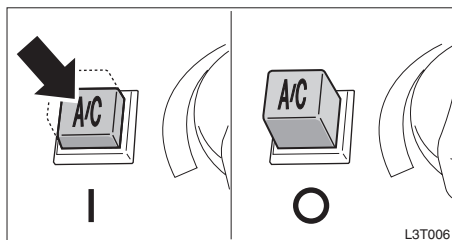
L3T0021

11. Air conditioner switch
12. Temperature control dial
13. Fan switch
14. Airflow mode control dial



Air Conditioner Switch

IMPORTANT: To avoid placing an excessive load on the compressor, wait until the engine is started and is running smoothly before turning on the air conditioner.



Use this switch to turn the air conditioner ON and OFF. When this switch is pressed while the engine is running and the fan switch is ON, the air conditioner turns on. Press the switch again or turn the fan switch OFF to stop the air conditioner.

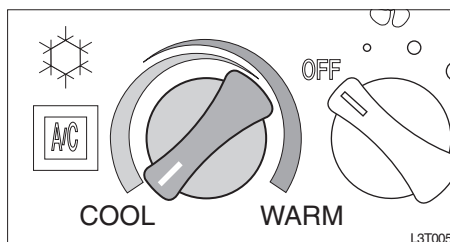
O..... OFF

I..... ON

Supplement: To prevent leakage of coolant gas from the compressor's seal, operate the air conditioner at least once a week, regardless of the season.

Supplement: The air conditioner will not function if the temperature in the cab is low (about 3°C (38°F) or lower).

Temperature Control Dial



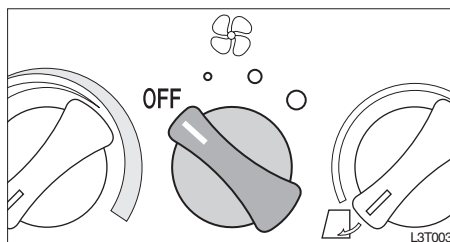
Use this dial to adjust the air temperature.

COOL..... To lower the temperature

WARM..... To increase the temperature

Supplement: No warm air is emitted if the temperature of the engine coolant is low.

Fan Switch



Use this switch to adjust the fan speed in three steps. At the OFF position, the air conditioner is also OFF.

OFF Fan and air conditioner off

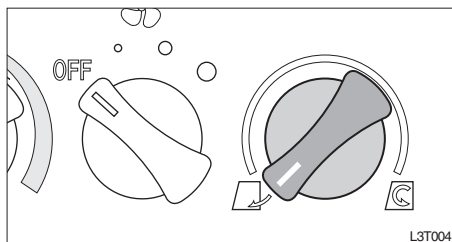
•..... Low

○..... Medium

○..... High



Airflow Mode Control Dial



Use this dial to select recirculation or fresh air intake.

 Recirculation

- To cool or heat the cab quickly
- When external air is dirty

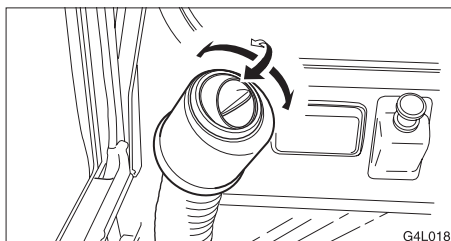
CENTER..... 50% fresh air intake

- To let in fresh air
- To ventilate while cooling or heating the cab slowly

 Fresh air intake

- To let in fresh air
- To remove fog from the windows
- To ventilate while cooling or heating the cab

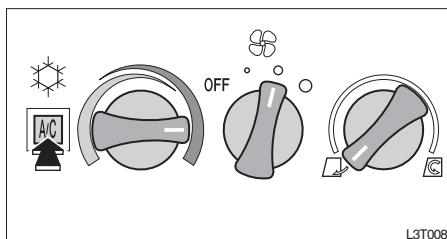
Outlets



Move the louvers up and down or left and right to adjust the air flow direction and amount.

OPERATION

**Heating and Dehumidifying
(in cold weather or when the
humidity is high)**



After starting the engine, turn the air conditioner ON and adjust the switches as shown in the diagram above.

The outflow slot of foot area and the outflow slots of the defroster can be directed at the front window.

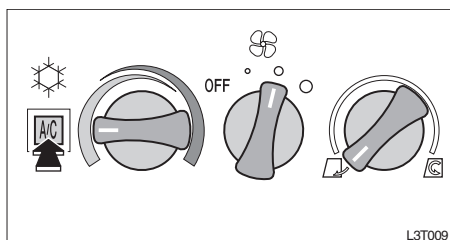
Warm, dehumidified air blows on the front window, preventing fogging.

Set the temperature control dial and fan switch to the desired positions.

Cooling

CAUTION

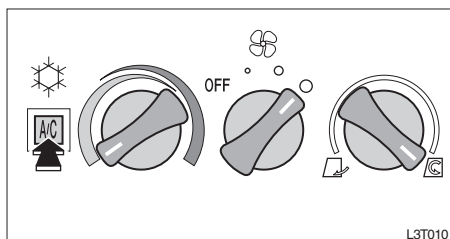
- When the air conditioner is set to the recirculation mode, the air in the cab gradually becomes dirty, so switch to external air to ventilate once a comfortable temperature is reached.
- Excessive cooling can be harmful to your health. It is best to keep the air inside the cab only about 5 to 6°C (41 to 43°F) cooler than the outside air.
- If the excavator has been parked in the sun, open the windows or door to let the hot air out of the cab before using the air conditioner.



After starting the engine, turn the air conditioner ON and adjust the switches as shown in the diagram above.

Set the temperature control dial and fan switch to the desired positions.

Quick cooling

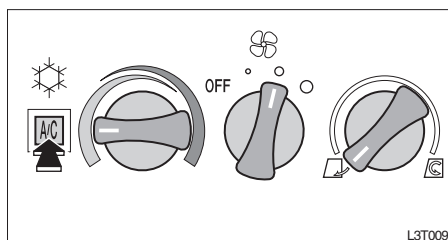


To cool the cab quickly, set the airflow mode control dial to the recirculation position and the fan switch to High, as shown on the diagram above.

Defogging the Windows

CAUTION

If the air conditioner is set to high when using the defroster, the difference between the external and internal temperatures increases, and fog may form on the outside of the windows. If this happens, either turn the air conditioner OFF or turn the temperature control dial clockwise (WARM).



After starting the engine, turn the air conditioner ON and adjust the switches as shown in the diagram above.

The outflow slot of foot area and the outflow slots of the defroster can be directed at the front window.



INSPECTION AND MAINTENANCE

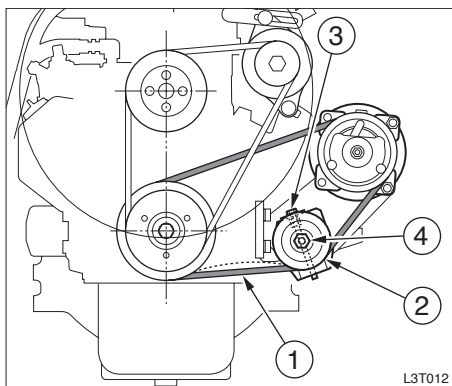
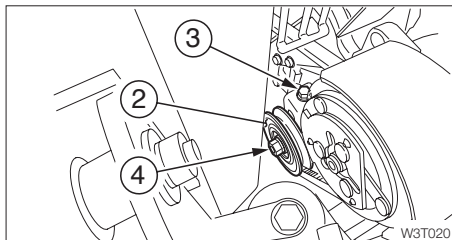
Inspection and maintenance interval
..... Every 250 hours

Inspecting and Adjusting the Air Conditioner Belt

Inspection and maintenance interval
..... After first 50 hours (New machines only)

IMPORTANT: Do not let any oil or grease get on the belt, as it will cause the belt to slip, shortening its service life and reducing the air conditioner's cooling capacity.

If the belt is slack, it will slip and vibrate, shortening its service life and reducing the air conditioner's cooling capacity. The belt should also not be too tense. Adjust the belt tension to the standard value (approximately 8 mm or 0.3 in).



Inspection

1. Open the bonnet.
2. Press on the center of the belt (1) with a finger. The belt's tension is normal if it bends about 8 mm (0.3 in) when pressed with a force of about 98N (22 lbf.).

Adjustment

If the belt's tension is not normal, adjust it with the adjust bolt (3).

1. Loosen the nut (4).
2. Tighten the bolt (3) to decrease the tension.
Loosen the bolt (3) to increase the tension.
3. After adjusting is completed, tighten the nut (4).

Replace

Replace the belt in the following cases:

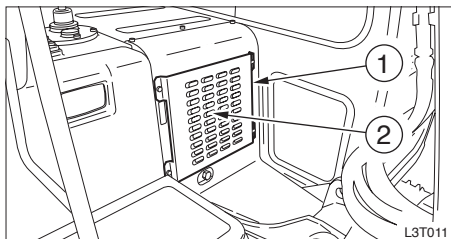
- If it stretches and its tension cannot be adjusted.
- If it is cut or cracked.
- If the fan belt is worn and the pulley is touching the bottom of the V groove.



Cleaning the Condenser

CAUTION

Cleaning the condenser with high pressured water may damage it. Clean the condenser gently.



If the condenser is dirty, heat will not discharge properly. Wash dirt off the condenser with water.

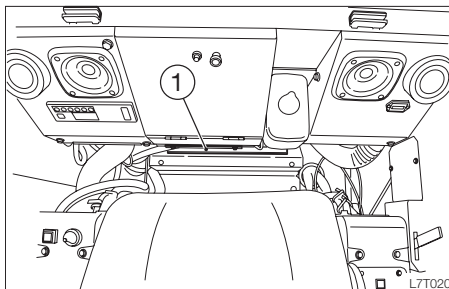
1. Remove the cover (1) on the right side of the cab.
2. Clean the condenser (2).

Cleaning the Filter

Clean the filter sooner when operating in dusty places.

If the filter is clogged, the air becomes weak and a muted booming sound is heard from the air conditioner unit.

Removing the filter



1. Move the seat all the way forward, then fold down the seat back toward the front.
2. Remove the filter (1).
3. Use compressed air or water to clean the filters, depending on how dirty it is.

Cleaning

CAUTION

Wear safety glasses when using compressed air.

1. Blow dry, compressed air (138 kPa or 20 psi or less) directly on the filter from the inside, moving up and down along the creases.
Be sure to keep the nozzle at an adequate distance from the filter.
2. For tough dirt, wash the filter (1) with neutral detergent and water. Dry the filter (1) completely after washing it.

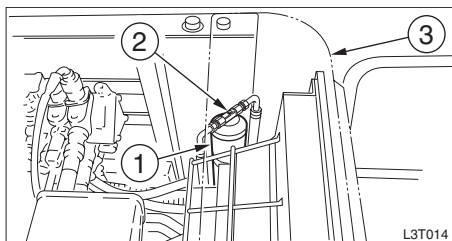


Inspecting the Refrigerant (gas) Level

⚠ WARNING

Exposure of the eyes or hands to the cooler's refrigerant could result in blindness or frostbite. Never touch the refrigerant or loosen the parts of the cooling circuit. Should the refrigerant gas leak, keep flames away.

The cooling capacity will decrease if the amount of refrigerant is insufficient.

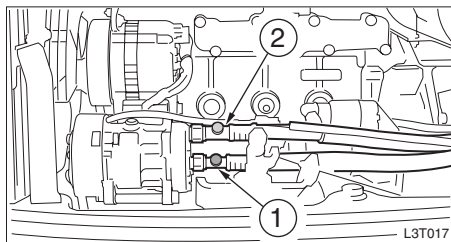


Inspect the refrigerant level using the sight glass (2) on the top of the receiver drier (1).

1. Remove the center cover(3).
2. Inspect under the following conditions:
 - Cab doorFully open
 - Temperature control dialFully to the COOL side
 - Air strengthHigh
 - Airflow mode control dialRecirculation position
 - Engine speedMaximum speed
 - Air conditionerOn
3. Inspect by watching the flow of air bubbles in the refrigerant through the sight glass (2). Refer to page 208 "Condition of the refrigerant".

⚠ CAUTION

The high pressure pipe becomes hot (80 to 120°C (176 to 248°F)), so be careful not to burn yourself when inspecting the refrigerant level.

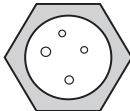
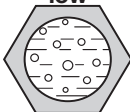
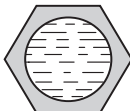
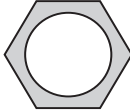


4. Also check the temperature of the compressor's high pressure pipe (1) and low pressure pipe (2). Refer to page 208 "Condition of the refrigerant."

Off-Season Inspection

Even off season, run the cooler for 3 to 5 minutes at least once a week to maintain oil in the various parts of the compressor.

**Condition of the refrigerant**

Sight glass (refrigerant)		High / low pressure pipe temperature	Pipe connection
Normal 	Almost transparent, with some bubbles, but fully transparent when the engine speed is increased or decreased.	High pressure pipe (1) hot (80 to 120°C (176 to 248°F)), low pressure pipe (2) cold (8 to 15°C (46 to 59°F)). Clear difference in temperature between the pipes.	No irregularities.
Refrigerant low 	Flow of bubbles can be seen constantly. Refrigerant is sometimes transparent or has white bubbles. Refrigerant may be leaking.	High pressure pipe warm, low pressure pipe somewhat cool. No great difference in temperature between the pipes.	Some oily places.
Almost no refrigerant 	Some mist-like refrigerant can be barely seen flowing. Refrigerant has leaked, and almost none is left.	Almost no difference in temperature between the high and low pressure pipes.	Some heavily oily places.
Excess refrigerant 	No bubbles can be seen, even when the fan is set to high and the engine is idling.	High pressure pipe is hot, low pressure pipe is somewhat cool. There is a difference in temperature between the pipes.	No irregularities.

If the air conditioner does not function

If the air conditioner does not cool or heat the air, set the fan switch to OFF and contact a service outlet for inspection and/or repairs.

IMPORTANT: Continued use of the air conditioner when it is not functioning properly may damage its various parts.

IMPORTANT: Using the air conditioner when there is no refrigerant will damage the compressor. Be particularly careful not to do this.

IMPORTANT: Always have a service outlet add or replace the refrigerant. Be sure to use R134a refrigerant (1700g or 3.75 lb).



Standard machine mass kg (lb.) (Not including operator)			Cab
			7845 (17295)
OPTION			
Undercarriage outriggers			445 (985)
2-Piece boom			300 (665)
Emergency shut-off valve	Mono-boom	Boom	10 (25)
		Arm	20 (45)
	2-Piece boom	Boom	15 (35)
		Boom + Adjustment	30 (70)
		Boom + Arm	20 (45)
		Boom+ Adjustment + Arm	40 (90)
Auxiliary hydraulic lines	Mono-boom	Second aux.	20 (45)
		Second aux. + Third aux.	30 (70)
		Second aux. + Third aux. + Fourth aux.	55 (125)
	2-Piece boom	Second aux.	20 (45)
		Second aux. + Third aux.	35 (80)
		Second aux. + Third aux. + Fourth aux.	60 (135)
Air conditioner			60 (135)

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.



INDEX



A

Accessories	61
Adjusting the gap between the bucket and arm	147
After Cold Weather is Over	93
After First 50 Hours (New Machines Only).....	123
After starting the engine.....	15
After the Fuel Runs Out	157
Air Conditioner.....	200
Air Conditioner Switch	202
Airflow Mode Control Dial.....	203
Always keep the machine clean.....	12
Always clean the machine	26
Always maintain good visibility.....	200
Anti-explosive lighting	25
Ashtray	64
Attach a "DO NOT OPERATE" tag.....	25
Avoid battery hazards	31
Avoid fire and explosion hazards	10

B

Battery Switch.....	52
Be careful not to get crushed or cut	11
Be careful with fluids under pressure.....	29
Be careful with hot and pressurized components.....	28
Be careful with hot cooling systems	28
Be sure to lock the safety lock lever before leaving the operator's seat.....	10
Before Starting Operation.....	70
Before Starting the Engine.....	71
Biodegradable Oil	187
Blade Lever.....	60
Bleeding the Air from the Fuel System	157
Boom Swing Pedal	59
Brake Pedal	59

C

Cab Door	40
Caution on refrigerant (gas)	200
Cautions.....	95
Cautions after Completing Operations	93
Cautions in the operator's compartment	13
Cautions on Maintenance.....	104
Cautions on Operating.....	86
Cautions on Towing	22
Cautions on Transporting	102
Cautions on traveling on slopes	18
Cautions on Traveling on Slopes.....	87
Cautions on working on the machine	27
Check for safety in the surrounding area before starting	16
Check the position of the undercarriage before traveling	17
Check the strength of the bridge	12
Checks after maintenance.....	32
Cigarette Lighter.....	64
Cleaning the air cleaner	131
Cleaning the Condenser	206
Cleaning the dust screen	118
Cleaning the engine cooling system	137
Cleaning the Filter	206
Cleaning the radiator fins and oil cooler fins	132
Clear the area of other persons before starting the machine	14
Condition of the refrigerant.....	208
Control console	50
Controls	37
Cooling.....	203

D

Daily Inspection	70
Daily Inspection (Every 10 Hours)	116



Danger of flying objects	20
Decel. Button.....	53
Defogging the Windows	204
Disconnect the battery.....	31
Disposing of wastes.....	32
Do not allow unauthorized personnel in the work area....	25
Do not carry the bucket over the heads of people.....	18
Do not overcool.....	200
Do not permit riders on the machine	16
Do not turn the air conditioner on until the engine is started.....	200
Doors and Covers	40
Draining the fuel tank	129
Draining the water separator	148

E

Emergency Exit	13
Emergency Exit	42
Emergency hammer (optional)	13
Emergency hammer (optional)	42
Emergency shut-off valve	196
Engine Hood.....	44
Engine Fault Warning Lamp	49
Ensure good visibility	16
Every 1000 Hours.....	137
Every 1500 Hours.....	140
Every 2000 Hours.....	142
Every 250 Hours.....	130
Every 400 Hours.....	133
Every 50 Hours.....	127
Every 500 Hours.....	135
Excavators are not designed for lifting loads	22
Exhaust fumes from the engine can kill	11
Expendables.....	108
External Power Sockets (for EU)	63

F

Fan Switch.....	202
First Auxiliary Hydraulic Lines.....	62
First Auxiliary Hydraulic Switches	54
Forward Travel Pedal, Reverse Travel Pedal	59
Fourth Auxiliary Hydraulic Lines	192
Fourth Auxiliary Hydraulics	192
Front Cover (Tool Box)	43
Front Window	41
Fuel and Lubricant Chart	106
Fuel Filler Cap.....	45
Fuel Supply Pump.....	198

G

General	104
General precautions.....	8
General Precautions.....	184
Getting Out of Mud	89

H

Handling asbestos dust.....	11
Handling in Cold Weather.....	93
Handling of hoses	28
Handling of the Accumulator	29
Handling Tires.....	94
Have a Takeuchi service agent repair welding	32
Heater	61
Heating and Dehumidifying (in cold weather or when the humidity is high)	203
Horn Button	53
Hoist the machine safely.....	24
Hoisting the Machine.....	100
Hour Meter.....	49
Hydraulic Breaker.....	194



I

If a Fuse Blows	158
If a Warning Lamp Flashes	160
If the Battery Goes Dead	156
If the Engine Overheats.....	155
Immobilizer System.....	210
Important Parts.....	111
In cold weather	15
Index	211
Indicators.....	49
Indicators.....	51
Inspecting and Adjusting the Air Conditioner Belt	205
Inspecting and adjusting the engine valve clearance	139
Inspecting and adjusting the fan belt.....	125
Inspecting and adjusting the fan belt.....	132
Inspecting and cleaning the engine fuel injectors	141
Inspecting and cleaning the EGR valve, lead valve and cooler	141
Inspecting the crankcase breather system.....	141
Inspecting and inflating the tires	121
Inspecting and Replacing the Fuse.....	158
Inspecting and replenishing the coolant.....	116
Inspecting and replenishing the engine oil	117
Inspecting and replenishing the windshield washer fluid	148
Inspecting by opening the engine hood and covers.....	114
Inspecting by walking around the machine.....	115
Inspecting the battery fluid level and replenishing	128
Inspecting the differential gear oil.....	133
Inspecting the fuel level	118
Inspecting the Fusible Link.....	159
Inspecting the hub gear oil	134
Inspecting the hydraulic oil level and replenishing	118
Inspecting the Refrigerant (gas) Level.....	207
Inspecting the transmission gear oil	133
Inspecting the turbocharger (Blower wash as necessary).....	141

Inspecting the water separator.....	117
Inspecting while sitting in the operator's seat.....	115
Inspection After Warm-up	77
Inspection and Checks After Stopping the Engine	92
Instrument cluster	48
Insure driver safety before loading trucks.....	19
Interior Light.....	63
Introduction	2

K

Keep a safe distance from electrical power lines.....	19
Know the working area	12

L

Lapping the engine valve seats.....	144
Let hot air out first	200
Lever Pattern (ISO Pattern).....	74
Lever Pattern (JCB Pattern).....	75
Levers and Pedals.....	57
Lifting Capacities.....	177
Load and unload the machine safely.....	24
Load Safety Device.....	196
Loading and Unloading	98
Long-term Storage.....	152
Lower Front Window.....	42
Lubricating the levers.....	151
Lubricating the slew bearing	127
Lubricating the undercarriage	130
Lubricating the working equipment	120

M

Machine Description	3
Machine Dimensions	170



Machine Operation.....	74
Main Specifications.....	168
Maintain three point contact when mounting and dis- mounting.....	14
Maintenance.....	103
Maintenance Chart.....	112
Maintenance Cover.....	44
Maintenance Description.....	104
Maintenance precautions.....	25
Meters.....	49
Mounting and Dismounting.....	70

N

Names of Components.....	38
Never modify the machine.....	11
Never remove safety equipment.....	9
Never slew (swing) sideways with excessive weights.....	21

O

Observe all safety rules.....	8
Off-Season Inspection.....	207
Operate on snow or ice with extra care.....	18
Operating Levers.....	60
Operating on slopes is dangerous.....	21
Operating precautions.....	16
Operating Procedures.....	84
Operating Range.....	172
Operating temperature range.....	8
Operating the First Auxiliary Hydraulics.....	83
Operating the Working Equipment.....	81
Operation.....	69
Operations Possible with this Machine.....	90
Optional Equipment Mass.....	209
Options.....	183
Other Symptoms.....	162

Outlets.....	203
Outtrigger.....	199
Overload Warning Device.....	197

P

Park safely.....	23
Parking.....	92
Parking the Machine.....	92
Perform inspection and maintenance daily.....	13
Place heavy objects in a stable position.....	27
Power Mode Buttons.....	54
Precautions on Installing Attachments.....	184
Precautions on Operating.....	194
Precautions on Operating Attachments.....	185
Precautions on Safety.....	184
Prepare the work area.....	26
Preparing for Cold Weather.....	93
Preparing precautions.....	12
Prohibited Actions.....	94
Prohibited Operations.....	84
Provide a fire extinguisher and first aid kit.....	9

R

Radio.....	65
Release all pressure before working on the hydraulic system.....	29
Replace important safety parts periodically.....	25
Replace the hydraulic oil regularly!.....	107
Replace the hydraulic oil regularly!.....	195
Replacing the air breather filter.....	139
Replacing the air cleaner elements.....	138
Replacing the bucket.....	149
Replacing the bucket teeth and the side cutters.....	145
Replacing the differential gear oil.....	140
Replacing the engine oil and oil filter.....	124
Replacing the engine oil and oil filter.....	132



Replacing the fuel filter	135
Replacing the hub gear oil	141
Replacing the hydraulic oil and cleaning the suction strainer	143
Replacing the hydraulic oil return filter	123
Replacing the hydraulic oil return filter	136
Replacing the hydraulic oil with biodegradable oil	187
Replacing the pilot line filter	126
Replacing the pilot line filter	136
Replacing the transmission gear oil	140
Replacing the water separator filter	135
Retightening the engine cylinder head bolts	139

S

Safety	7
Safety Lock Button	51
Safety Lock Lever	57
Safety signs (Decals)	34
Seat	46
Seat and Seat Belt	46
Seat Belt	47
Second Auxiliary Hydraulic Lines	188
Second Auxiliary Hydraulic Switch (Proportional control)	189
Second Auxiliary Hydraulics	188
Second / Fourth Auxiliary Hydraulic Switch	193
Secure the engine hood or cover when opened	27
Securely block the machine or any component that may fall	27
Securely block the working equipment	27
Securing the Machine	99
Selector Button (2 or 4 Aux.)	192
Selector Button (2-Piece boom)	53
Selector Button (2-Piece boom)	193
Service Data	106
Side Covers	43

Side Window	42
Slew Speed Button	56
Specifications	167
Start the engine from the operator's seat	14
Starter Key	40
Starter Switch	52
Starting and Stopping the Engine	71
Starting precautions	14
Starting the Engine	72
Starting with jumper cables	15
Stay clear of moving parts	26
Steering Wheel	58
Stop the engine before performing maintenance	26
Stopping precautions	23
Stopping the Engine	73
Swing Lock Pin	57
Swing Stopper	186
Switches	52
Switches	50
Symptoms that are not Malfunctions	154

T

Temperature Control Dial	202
Third Auxiliary Hydraulic Lines	190
Third Auxiliary Hydraulic Switch and Button	191
Third Auxiliary Hydraulics	190
Third Auxiliary Hydraulics Warning Lamp	191
Throttle Buttons	55
Tightening Torques	110
Tire Maintenance	30
To Lower the Boom	164
Tool Box	42
Tools	109
Towing	165
Transport	97
Transport the machine safely	24



Transporting precautions	24
Travel safety	17
Traveling the Machine	78
Troubleshooting	153
Turn Signal Switch	54

U

Use a signal person and flagman	9
Use caution when fueling	28
Use the correct tools	25
Using optional products	11

V

Ventilate periodically	200
Vibrations to which the operator is subjected	32

W

Walk-Around Inspection	70
Walk-Around Inspection	114
Warming Up the Engine	73
Warming Up the Machine (Hydraulic Oil)	76
Warning Lamps	48
Watch boom clearance	21
Watch out for hazardous working conditions	20
When a problem is found on the machine	8
Wear appropriate clothing and personal protective equip- ment	8
When Required	145
Wiper Switch	56
Working Light Switch	56

First Published February 2008

No. 40100

Fifth Published May 2012 OE-T175W-E

OPERATOR'S MANUAL

TB175W Hydraulic Excavator

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

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.

EC-CONFORMITY CERTIFICATE

We herewith declare that following named machine, based on its conception and design and in the form brought into service is in accordance with the relevant, basic safety and health requirements of the following EC directives. In case of any alteration of the machine not coordinated with us, this certificate loses its validity.

Designation of the machine Hydraulic Excavator

Manufacturer TAKEUCHI MFG. CO., LTD

205 Uwadaira, Sakaki-machi, Hanishina-gun, Nagano 389-0605, Japan

Model TB175W

Engine type 4TNV98T-ZSTBW

Engine power 56.6kW @ 2200 rpm

The machine is in accordance with the requirements of EC regulations:

- 1) Machine directive 2006/42/EC and appendix
- 2) Electromagnetic compatibility-regulation 2004/108/EC and appendix
- 3) Noise directive 2000/14/EC (Evaluation procedure according to appendix VI), 2005/88/EC and appendices.
- 4) Regulations on engine emissions: 2004/26/EC and appendices.

Harmonized norms: EN474-1:2006+A1:2009, EN474-5:2006+A1:2009.

Compiler of the technical files:

Adam Geiss

Oliver Scharschmidt

Wilhelm Schafer GmbH

68307 Mannheim-Sandhofen GERMANY

Issued in Sakaki, Japan

Akio Takeuchi, President