



GENERAL PRECAUTIONS

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.

Most accidents can be prevented by identifying the potentially hazardous situations beforehand.

Read and understand all safety messages which describe how to prevent accidents.

Do not operate the machine until you are sure that you have gained a proper understanding of its operation, inspection and maintenance.

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.

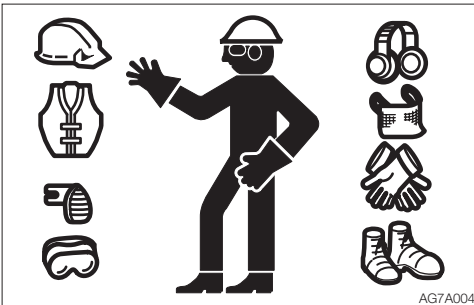
- Do not operate the machine if the ambient temperature is higher than +45°C (+113°F) or lower than -15°C (+5°F).
 - If operated at an ambient temperature of higher than +45°C (+113°F), the engine may overheat and cause the engine oil to degrade. Also, the hydraulic oil may become very hot, causing damage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



SAFETY

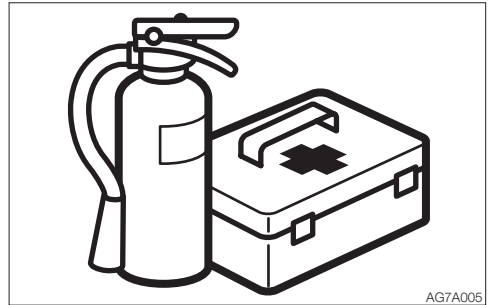
GENERAL PRECAUTIONS

Wear appropriate clothing and 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 easily 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.

Install a fire extinguisher and first aid kit



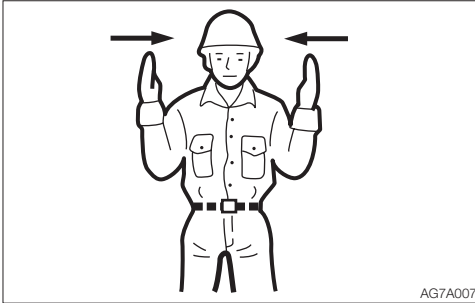
Be prepared for fire and accidents

- Install an extinguisher and a first aid kit, and learn how to use them.
- Learn how to fight a fire and how to deal with accidents.
- Know how to contact emergency assistance and make a list of emergency contacts.

Never remove safety equipment

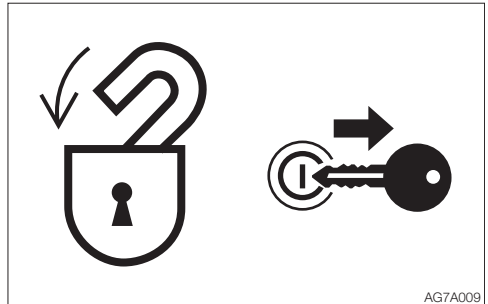


- Make sure all protective guards, covers, canopies, cabs and doors are in place and secured. Repair or replace damaged parts before operating the machine.
- Know how to use the safety bar, seat belt and other safety equipment and use them properly.
- Never remove any safety equipment except for servicing. Keep all safety equipment in good operating condition.

**Use a signal person and a flag person**

Learn how to 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 must respond to signals only from the appointed signal person, but must obey a stop signal at any time from anyone.
- The signal person must stand in a clearly visible location when giving signals.

Cautions when standing up from or leaving the operator's seat

- Before standing up from the operator's seat, lower the bucket to the ground. If the lift arms must be left in a raised position, engage the lift arm stopper, set the safety bar to the lock position and stop the engine.

If any controls should be accidentally touched when the safety bar is lowered (unlocked), the machine will suddenly move and cause serious injury or death.

- Be careful not to touch the control levers when raising or lowering the safety bar.
- Before leaving the operator's seat, lower the working equipment to the ground, raise the safety bar to engage the lock and stop the engine. Also, be sure to remove the key, lock the door and covers, take it with you and store it in a specified place.

**Avoid fire and explosion hazards**

Keep flames away from fuel, 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 handling fuel or working on the fuel system.
 - Do not leave the location while refilling with fuel or oil.
 - Never remove the fuel cap or add fuel when the engine is running or still hot. Also, do not spill the fuel on the hot surface of the machine or the component of the electric system.
 - Clean up spilled fuel or oil immediately.
 - Check for fuel, oil leak. Stop all leaks and clean the machine before operating.
 - When operating with grinder or welding, move inflammables to a safe place.
 - 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 (foam type fire extinguisher) according to procedures identified on manufacturer's containers. Work in a well-ventilated area.
 - Never use fuel for cleaning purposes. Always use a nonflammable solvent.
- When handling the fuel, washing oil or paint, open the door and windows to ventilate thoroughly.
 - Store all flammable fluids and materials in a safe and well-ventilated place.
 - The short circuit of the electric system may cause the fire. Check for any loosened connections or damage to the wires every day. Retighten the loosened connector and wire clamp. Fix or change the damaged wire.
 - Fire from the pipes:
Make sure that the clamps, guards and cushions of the hoses and tubes are securely fixed. If not, hoses or tubes may be damaged due to vibration or contact with other parts during operation. This can cause the high-pressure oil to spurt out, resulting in the fire or injury.
 - Do not perform the DPF regeneration if the machine is surrounded by flammable items such as plants, trees, dry grass, wastepaper, oil and waste tires. There is a risk of fire due to the high-temperature exhaust gas emitted from the DPF.
DPF: Diesel Particulate Filter



Fire prevention



When working in a certain environment, it is impossible to prevent combustible debris from collecting in the machine. This debris, in itself, may cause a fire; however, when mixed with fuel, oil or grease in a hot or confined place, the danger of fire is greatly increased. The following fire prevention guidelines should be used to supplement the operator's fire prevention efforts. In no case should the guidelines be used, or assumed, as replacements for diligent operator efforts at preventing fires (that include regular schedule of cleaning and inspecting the machine as conditions require).

The following guidelines will help to keep your equipment up and running efficiently and keep the risk of fire to a minimum.

1. Maintain a CHARGED fire extinguisher on or near the machine at all times and **KNOW HOW TO USE IT**.
2. Remove debris and blow out dust regularly from side air intake areas, engine radiator, hydraulic oil cooler, air conditioning condenser core to prevent overheating of the engine and hydraulics and to maintain efficient operation of the machine.
3. Blow off all accumulated debris near hot engine exhaust components (turbocharger and exhaust manifold as well as exhaust pipes and muffler) at the completion of each work shift or more frequently when working in severe conditions where large amounts of combustible debris are present. Engine exhaust systems provide numerous small pockets where flammable debris can gather. Even small accumulations close to hot exhaust components can ignite and smolder.
4. Clean out all accumulated debris (twigs, pine needles, branches, bark, leaves, saw dust, small wood chips) and any other combustible materials from inside the machine belly pans or lower machine structures as well as from areas in proximity to the engine, fuel and hydraulic oil systems no less frequently than at the completion of each work shift.
5. Inspect the machine regularly for any signs of diesel fuel or hydraulic system leakage. Check for worn or damaged fuel or hydraulic lines before starting up any equipment.
6. Clean up any grease, diesel fuel, hydraulic and lubricating oil accumulation and spillage immediately.
7. Steam clean the engine, and belly pan areas at least once a month or more frequently when working in severe conditions where large amounts of combustible debris are present.
8. Use only nonflammable solutions for cleaning the machine and components.
9. Inspect the exhaust system daily for any signs of leakage. Check for worn, cracked, broken or damaged pipes or muffler. Also check for missing or damaged bolts or clamps. Should any exhaust leaks or defective parts be found, repairs must be made immediately. Engine exhaust leaks can cause fires. Do not operate the machine until the exhaust leak is repaired.



10. During daily operation of the machine, the occurrence of exhaust leaks are usually accompanied by a change or increase in engine exhaust noise levels. These audible warnings cannot be ignored. Should any exhaust leaks occur during operation, the machine must be shut down immediately and not put back to work until the necessary repairs have been completed.
11. Before starting repair work, such as welding, the surrounding area should be cleaned and a fire extinguisher should be close by.
12. Do not use the machine on top of or to push piles of burning timber. A machine fire will likely result.

What to do to prepare for a machine fire

- Prevent the fire from happening in the first place by ensuring that all machine systems are frequently inspected and always well maintained.
- Ensure that any hand held fire extinguishers are charged and in working order. Fire extinguishers require routine care. Follow the manufacturer's instructions for inspection and maintenance shown on the label of the fire extinguisher and in the extinguisher manufacturer's manual.
- Ensure that you follow all national, state / provincial and local regulations dealing with fire fighting in effect in your specific geographic region.
- Ensure that all information necessary for you to immediately contact all sources of help (local fire department, etc) in the event of a fire emergency is recorded and readily available at all times.

What to do if a machine fire occurs

If operating the machine when a fire occurs:

1. Lower all working attachments to the ground.
2. Shut the engine off.
3. Exit the machine. Call for help. Be certain to report a fire immediately.
4. At all times ensure your own personal safety and the safety of anyone that may be in the area. Approach any fire with extreme caution. All fires can be very dangerous and life threatening.

Before deciding to fight the fire, be certain that:

1. The fire is small and not rapidly spreading.
 2. There is always a clear, safe escape route.
 3. You have received training in the use of the available fire extinguishing devices and are confident that you can operate them effectively.
- Be aware that engine coolant, diesel fuel or hydraulic hoses could fail during a fire. If this happens, hot coolant, fuel or oil could possibly be ignited by the fire.
 - If in any doubt about whether or not to fight the fire ? DON'T. Instead stand well clear of the fire and wait for help to arrive.



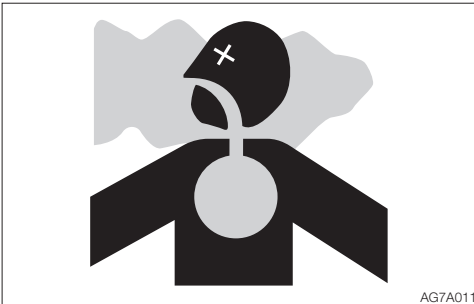
- To use a fire extinguisher in the most effectively way, follow the instructions below.
 - Pull the pin at the top of the extinguisher that keeps the handle from being pressed. Break the plastic seal as the pin is pulled.
 - Aim the nozzle at the base of the fire. Do not aim the nozzle at the flames. In order to put out the fire, you must extinguish the fuel, not the flames. Hose nozzles are often clipped to the extinguisher body. Release the hose before taking aim.
 - Squeeze the handle to release the pressurized extinguishing agent. The handle can be released at any time to stop the discharge.
 - Sweep from side to side at the base of the fire until the fire is completely out or the fire extinguisher is empty.
- Only if you can safely do so, open the access panels to the machine in the area of the fire.
- Failing all attempts to access the machine compartment, discharge the extinguisher through the mesh or any available openings on the machine.
- Ensure that the machine and all components have cooled down sufficiently after a fire so that re-ignition does not occur.
- Remain in the area until help arrives.

What to do after a machine fire has occurred

- Before returning the machine to work.
 1. Ensure that the cause of the fire is determined and all appropriate repairs are completed.
 2. Ensure that all extinguishers used in fighting the fire are replaced or recharged.
- Notify your equipment dealer and/or Takeuchi Manufacturing.



Exhaust fumes from the engine are poisonous



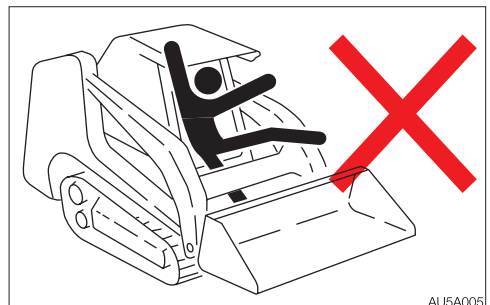
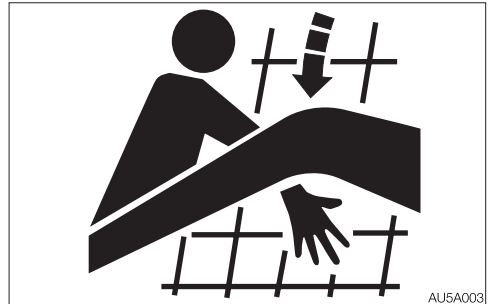
- Do not operate the engine in an enclosed area without adequate ventilation.
- If natural ventilation is not possible, install ventilators, fans, exhaust extension pipes or other venting devices.
- Do not perform the DPF regeneration in poorly-ventilated indoor spaces, as smoke could be generated during the DPF regeneration or carbon monoxide poisoning could result.

Handling asbestos dust

Inhaling asbestos dust can cause lung cancer. When handling the materials which may contain asbestos, take the following precautions:

- Never use compressed air for cleaning.
- Avoid brushing or grinding parts containing asbestos.
- For clean up, use a vacuum equipped with a high efficiency particulate air filter (HEPA).
- Wear the stipulated respirator if there is no other way to control the dust. When working indoors, install a ventilation system with a macromolecular filter.
- Do not allow unauthorized personnel in the work area while working.
- Follow the rules and environmental standard applicable to the work area.

Be careful not to get crushed or cut



- Never put your hands, feet or other parts of your body between the machine body or bucket and lift arms, or between a cylinder and moving part on the working equipment. The sizes of these gaps change when the machine moves, and a person could suffer severe injury or death.
- The lift arms move closely along the outside of the side screens; never put your arm or other part of your body out of the side screens.
- The lift arms move closely along the canopy/cab; do not stand on or lean against the machine.



Using optional products

- Consult with Takeuchi before installing optional attachments. Depending on the type of attachments or the combination of them, the attachment may come into contact with the operator's compartment or the other parts of the machine. Make sure that the optional attachment installed is not contacted with other parts before use.
- Do not use optional products that have not been approved by Takeuchi. Doing so could cause safety problems. It also could 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 optional product.

Product usage

Note that the high-output type brush cutter attachment can be used only if it is equipped with the easy brush-cleaning function and the proper cooling system, for a short period of time at a moderate ambient temperature. Pay careful attention not to damage the undercarriage when using such attachment. These precautions also apply to any other high-performance and/or highly functional 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.

If you modify or alter the configuration of the machine in a way which results in a restriction of the operator's field of vision, a new risk assessment will need to be performed. If this becomes necessary, contact your Takeuchi service or sales dealer.

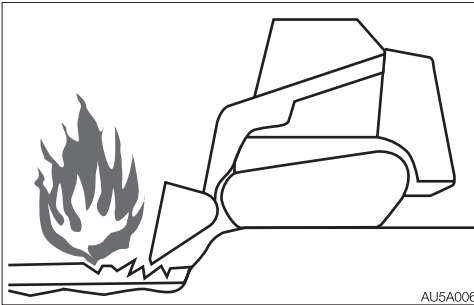


PRECAUTIONS WHEN PREPARING

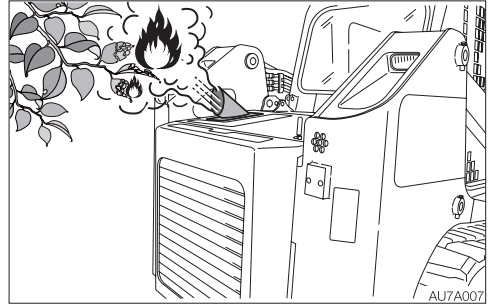
Know the work area

Before starting operation, know the working area condition to ensure safe operation.

- Inspect the topography and ground condition of the working area, or the structure of the building when working indoors, and take the safety precautions as necessary.
- Be sure to avoid all hazards and obstructions such as ditches, underground lines, trees, cliffs, overhead electrical wires, or places where there is a danger of falling rocks or slides.



- Check with the administrator for the locations of buried gas pipes, water pipes and power cables. If necessary, determine what specific precautions must be taken to insure safety by consulting with the administrator.
- When working on roads, be sure to consider the safety of pedestrians and vehicles.
 - Use a flag person and/or a signal.
 - Fence off the working area and keep off 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 water flow speed beforehand. Refer to “Cautions on operating” for further instructions.

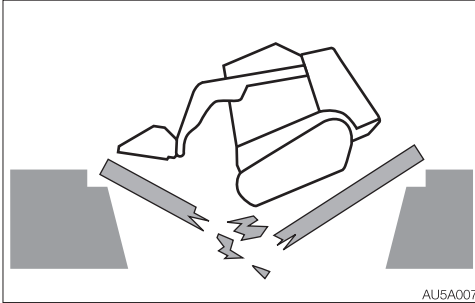


- Do not perform the DPF regeneration if the machine is surrounded by flammable items such as plants, trees, dry grass, wastepaper, oil and waste tires. There is a risk of fire due to the high-temperature exhaust gas emitted from the DPF. DPF: Diesel Particulate Filter
- The DPF may automatically perform the regeneration while the engine is left running. Make sure that there are no flammable items around the DPF and the exhaust line, and also that the engine hood is closed to prevent fire. Be careful not to burn yourself on the high-temperature exhaust gas.
- Do not perform the DPF regeneration in poorly-ventilated indoor spaces, as smoke could be generated during the DPF regeneration or carbon monoxide poisoning could result.

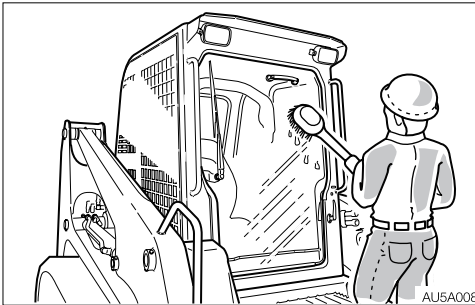


Check the strength of the bridge

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

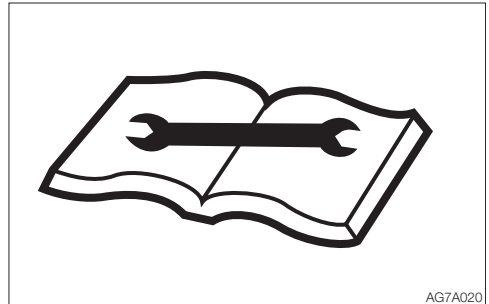


Always keep the machine clean



- Wipe off any oil, grease, mud, snow or ice, to prevent accidents due to slipping.
- Remove all loose objects and unnecessary devices from the machine.
- Remove any dirt, oil or grease from the engine area to prevent fires.
- Clean around the operator's seat and remove any unnecessary object from the machine.

Perform inspection and maintenance every day



Failure to identify or repair the irregularities or damage on machine can lead to accidents.

- Before operating, perform the specified inspection and make prompt repairs where necessary.
- If a failure occurs and the operation becomes impossible or the engine fails, immediately stop the machine by following the shutdown procedure, and keep machine securely parked until the malfunction is corrected.



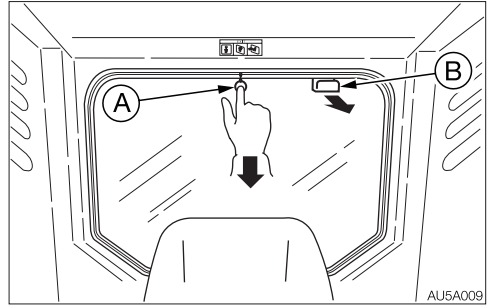
Cautions in the operator's compartment

- 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.
- Do not throw cigarette butts out of the windows of the operator's compartment. Doing so may cause a fire if the butt is drawn into the rear portion of the machine.
- 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 explode.

Emergency exit

Rear window

If you are trapped inside the cab, remove the rear window to get out.



There are two ways to remove the rear window.

In case of emergency

Kick off the rear window. Note that the glass may break. Be careful not to get injured.

- If the glass breaks, it will shatter into pieces. Take great care not to injure yourself with them.
- Remove the glass pieces from the window sill so as not to cut yourself when evacuating. Broken glass will fall from the window, so be careful of your footing and do not slip on the glass.

When necessary

1. Pull off the ring (A) and remove the tip of the rubber wedge.
2. Grasp the tip, pull and remove the entire rubber wedge.
3. Pull the knob (B) toward you and remove the rear window.



PRECAUTIONS WHEN STARTING

Support your weight in a three point secure stance when getting on/off the machine

- Do not jump on or down from the machine. Never attempt to get on or off the moving machine.
- When getting on or off the cab, first fully open the door to the locked position and check that it does not move (for machines with cab).



- Climb up/down the steps facing the machine and holding the handrail to support your weight in a three point secure stance (hand and feet).
- Never use the safety bar or control levers as hand holds.
- Do not go under the raised lift arms to get in and out of the operator's compartment. Always lower the lift arms to the ground beforehand.

Before starting the machine, ask any unauthorized personnel to leave the area

Do not start the engine until you are sure it is safe to start the machine by checking the following items.

- Walk around the machine and warn the person who is servicing the machine or is walking near the machine. Do not start the machine until you are certain that no one is around the machine.

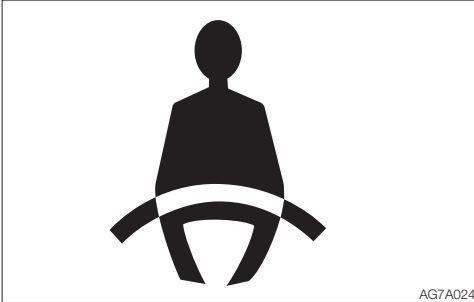


- Check if there is a “DO NOT OPERATE” alert sign or similar sign is on the cab door, controls or ignition switch. If there is one, do not start the engine or touch any levers.
- Sound the horn to warn people around the machine.



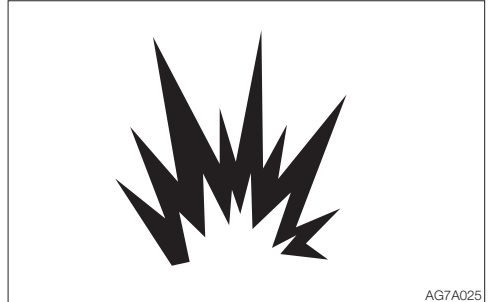
Sit in the operator's seat and start the engine

- Adjust the seat to securely latch it.



- Fasten the seat belt.
- Check if the parking brake is on and control levers and pedal are in the neutral position.
- Check if the safety bar is in the lock position.
- Make sure that no one is near the machine.
- Start and operate the machine only from the operator's seat.
- Never attempt to start the engine by shorting across the ignition terminals.

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 "If the battery goes dead" for further instructions.



After starting the engine

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

- Warm up the engine and hydraulic oil.
- Check if all gauges and warning devices are properly working.
- Check for any noises.
- Test the engine speed control.
- Operate each control to ensure they are properly working.

In cold climates



- Be careful of slippery conditions on freezing ground, steps and hand holds.
- In severe cold climates, do not touch any metal parts of the machine with bare hands. The skin will freeze to the metal, resulting in severe injury.
- Do not use ether or starting fluid on this engine. The starting fluids can cause explosion and serious injury or death.
- Warm up the engine and hydraulic oil. If the levers are operated without warming, the machine will not react or move promptly or properly, resulting in accident.



PRECAUTIONS WHEN OPERATING

Ensure good visibility

Check the field of view before operating the machine.

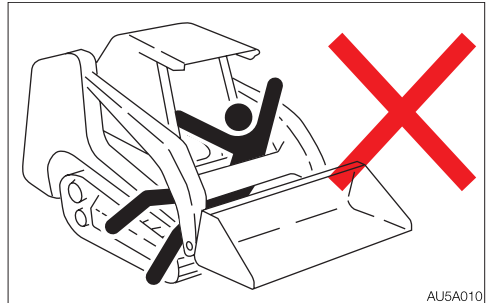
- When working in dark places, turn on the machine's working lights and headlights and additional lighting equipment installed, as necessary.
- When visibility is poor due to bad weather (fog, snow, rain or a cloud of dust), stop operating the machine and wait until visibility improves.
- Clean the windows, mirrors, lights and camera to ensure good visibility. Adjust the mirror and camera to the best positions so that the operator can see the rear view (blind spots) from the operator's seat.
- Unauthorized machine modifications or installation of unapproved attachments could impair the visibility. The operator's field of view must conform to ISO 5006.

Do not permit riders on the machine



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

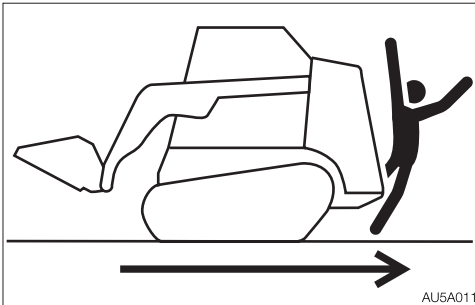
Operate the machine only from the operator's seat



When operating any lever, pedal or switch, always do it while sitting in the operator's seat. Failure to do so could cause serious injury or death.

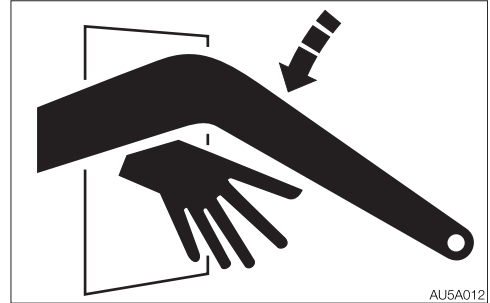


Check if the work area is safe and secure before operation

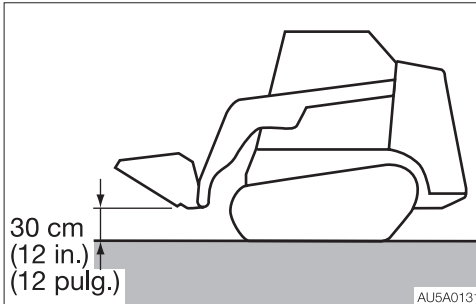


- Confirm the performance limits of the machine.
- Use a signal person at road shoulders, narrow places or where your vision is obstructed.
- Never allow anyone to enter the machine's turning radius and path.
- Signal your intention to move by sounding the horn.
- There is a blind spot in the rear of the machine. Before traveling in reverse, check that the area is safe and clear.

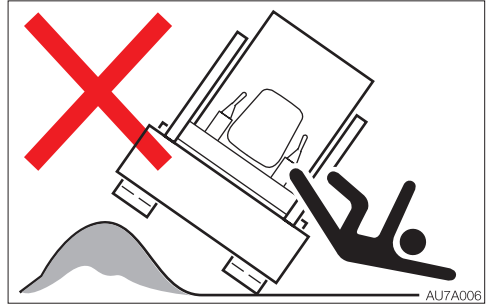
Keep your body inside the operator's cab



It is dangerous to operate the machine while putting your arms, feet or legs out of the operator's compartment. Never do it.

**Precautions on traveling and turning**

- Traveling and turning should be performed with the bucket cylinder fully retracted and the bucket at a height of approximately 30 cm (12 in.) from the ground.
- Avoid sudden stops, starts and turns. Otherwise, the working equipment may come in contact with the ground, causing the machine to lose its balance and get damaged or to damage the structures in the surrounding area.
- Do not raise the safety bar while traveling. This is dangerous, because raising the safety bar will cause the parking brakes of the travel motors to operate and apply the brakes abruptly.
- Do not switch off the ignition switch while traveling. Doing so will cause sudden braking and is dangerous.
- Before backing up, visually check for safety to the rear. Backing up without checking could result in contact with a worker or obstacle.
- If the working equipment must be operated while traveling, do so with extra care.
- When traveling on rough terrain or when carrying a load, lower the load and travel slowly.



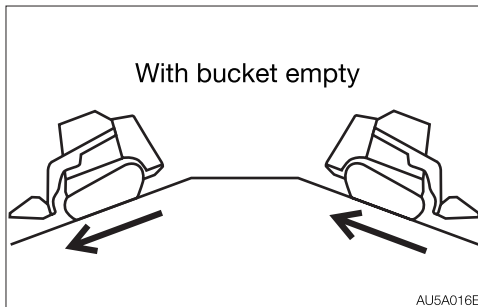
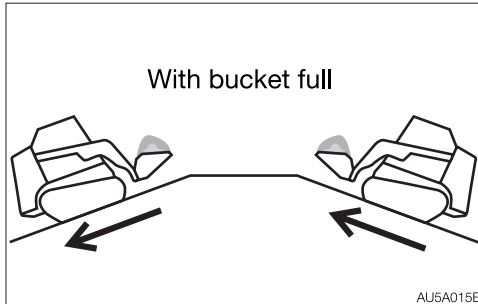
- Avoid crossing over obstacles whenever possible. If you must do so, keep the bucket close to the ground level and travel slowly. Never cross obstacles which will tilt the machine to an angle of 10° or greater.

Safety precautions when performing the DPF regeneration

The DPF may automatically perform the regeneration while the engine is left running. Make sure that there are no flammable items around the DPF and the exhaust line, and also that the engine hood is closed to prevent fire. Be careful not to burn yourself on the high-temperature exhaust gas.
DPF: Diesel Particulate Filter

**Cautions on traveling on slopes**

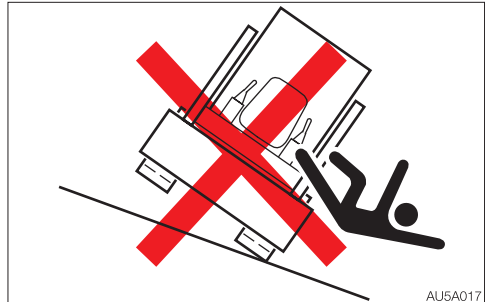
Do not perform any operation on a slope. The machine may lose its balance and tip over if the working equipment is operated on a slope.



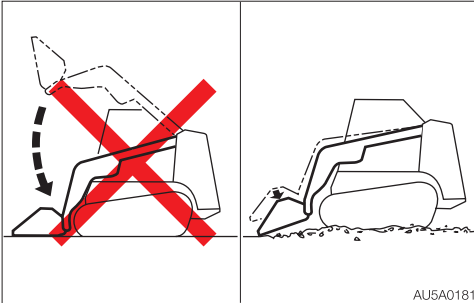
When traveling on slopes of 15 degrees or more, position the heavier end of the machine (front or back, whichever is heavier) pointing up the slope. Also, be careful not to tip over or slide.

- Never travel on slopes that are too steep for the machine to maintain its stability (maximum gradeability: 30°, lateral tipping angle: 15°). Note that in reality, the machine's stability becomes lower than the above values depending on the working condition.
- When traveling on slopes, lower the bucket to a height of 20 to 30 cm (8 to 12 in.) above the ground. In emergencies, lower the bucket to the ground and stop the machine.

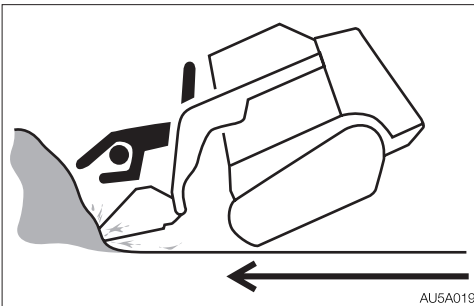
- When traveling on slopes or grades, drive slowly in 1st (low) speed. Especially on down slopes, slow down the engine speed and limit the stroke length of the left control lever to less than half. Going down a slope at high speed may lead to loss of control.
- Stopping abruptly on a slope may result in the machine losing its balance and tipping over.



- Do not change directions on slopes or traverse slopes. First return to a flat surface, and then take an alternative path.
- The machine may slip sideways even on a slight slope if the ground is covered with grass or dead leaves, or when traveling on a wet metal plate or frozen surfaces. Make sure the machine is never positioned sideways on slopes.
- If the machine is stalled on the slope, return each control lever to the neutral position before restarting the engine.

**Precautions when the lift arms are in the float mode**

- It is very dangerous to set the lift arms to the float mode while the bucket is raised too high, as the bucket is likely to fall. Lower the bucket to a height of 30 cm (12 in.) or less above the ground before setting the lift arms to the float mode.
- Do not travel forward with the lift arms in the float mode.

Do not drive into materials at high speeds

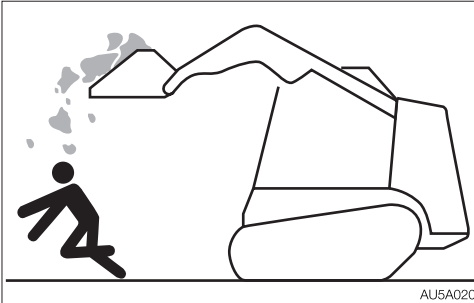
Driving at high speed into the materials you are handling can lead to your body striking the machine or being thrown from the machine. Before working the material, check the conditions of the area and work at low speeds.

Operate the machine on snow or ice with extra care

- When traveling on snow or on frozen surfaces, drive at a low speed and avoid starting, stopping or changing directions abruptly.
- In the snowy area, the road shoulder and objects placed beside the road are buried in the snow and cannot be seen. There is a hazard of the machine tipping over or hitting covered objects, so always carry out operations carefully.
- If the machine enters deep snow, there is a hazard that it may tip over or become buried in the snow. Be careful not to drive beyond the road shoulder or to get trapped in a snow drift.
- With frozen ground surfaces, the ground becomes soft when the temperature rises, and this may cause the machine to tip over, resulting in an operator trapped inside the machine.
- When parking the machine on an unstable ground, lower the bucket.



Do not move the bucket over the heads of people



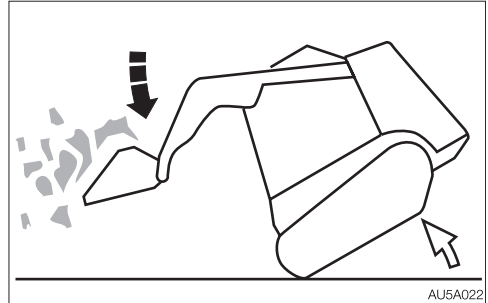
The load spilling or the bucket dropping may occur while the bucket is over the heads of people.

Take care when handling unstable loads



Unstable loads such as round items, cylindrical items, and stacked plates may fall from the bucket. When handling unstable load, do not raise the bucket too high or tilt it backward too far.

Do not suddenly stop or lower the working equipment



Sudden lowering or stopping of the working equipment could cause the machine to react and tip over. Operate the working equipment carefully, especially when the bucket is loaded.

Avoid overloading and off-center loading

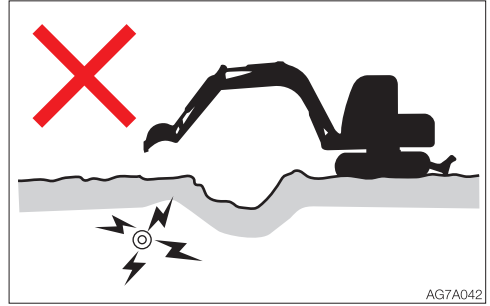
Filling the bucket in excess of the rated loading mass or loading an off-center load could cause the machine to become unstable and result in the machine tipping over. Loading should be done evenly with a load less than the rated loading mass (refer to the table below).

TL8 Rated loading mass	955 kg (2105 lbs)
TL10 Rated loading mass	1090 kg (2403 lbs)
TL12 Rated loading mass	1285 kg (2833 lbs)

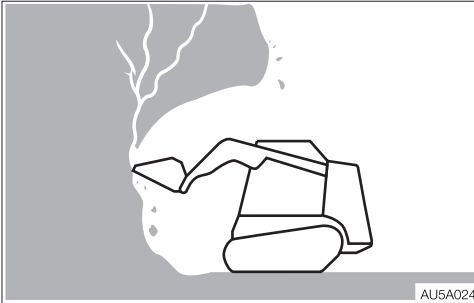
**Keep a safe distance from the overhead high-voltage cables**

Never bring any part of the machine or loaded material to near to the high voltage cables unless all safety precautions required by the local and national authorities have been installed. If a person comes near to the machine that is discharging sparks or located near to or in contact with the power source, there is a hazard of electric shock and death.

- Always maintain a safe distance between the machine and the high-voltage electric cable.
- Check with the local power company about safe operating procedure before starting operations.
- Consider all cables to be high-voltage cables and treat all cables as energized even though it is known or believed that the power is shut off and the cables are visibly grounded.
- Use a signal person to give warning if the machine approaches too close to the high-voltage electric cables.
- Caution all personnel in the work area not to come close to the machine or the loaded material.

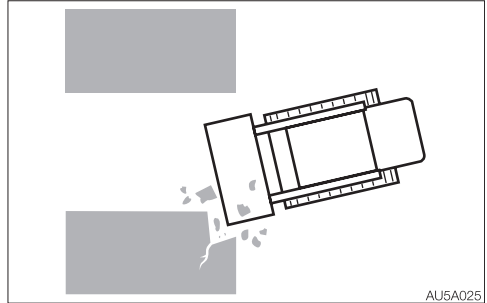


- Pay also careful attention to the high-voltage electric cables buried underground.

**Watch out for hazardous working conditions**

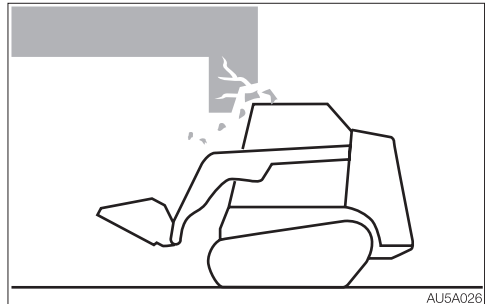
AU5A024

- Never undercut a high bank. Doing so is dangerous as it may cause ground collapse.
- Do not operate in places where there is a danger of falling rocks.
- Do not come close to unstable grounds (cliffs, road shoulders, deep ditches). If the ground should collapse under the weight or vibration of the machine, there is a hazard that the machine may fall or tip over.
 - Remember that the soil after heavy rain or blasting is weak.
 - The ground of top of the embankment and of the circumferences of the excavated ditches are also weak.

Travel in narrow or crowded places

AU5A025

When traveling in narrow sites, crowded places or indoors, operate the machine while carefully looking around the area and maintaining the safe speed to avoid contact accidents.

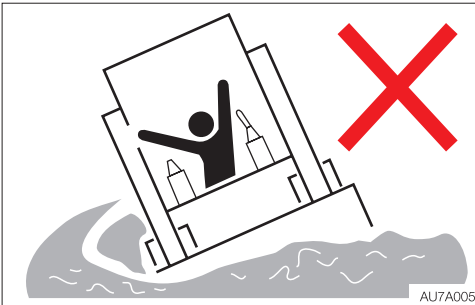
Precautions when passing through tunnels or going under bridges

AU5A026

Check the height limit and width limit of tunnels and bridges beforehand to avoid the machine from contact with the ceiling or walls. If contacted, it could result in a serious accident.



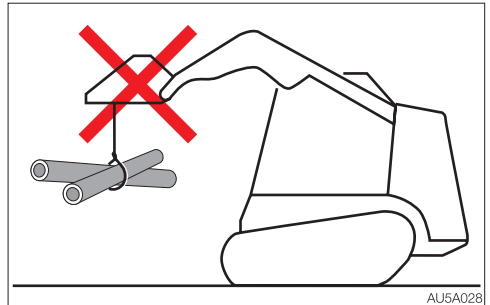
Do not enter areas where there is soft ground



Driving on the soft ground could cause the machine to tilt under its own weight, resulting in a machine tipping over or sinking into the ground.

Do not drive on soft surface such as a back-filled ground.

Loaders are NOT designed for lifting loads



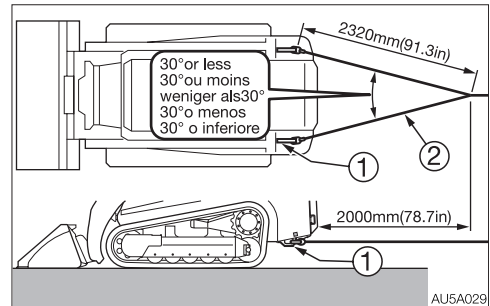
The machine is NOT specifically designed for lifting loads and has no safety devices for crane operation.



Be careful with flying objects

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

Cautions when towing



When towing, serious injury or death could result, if performed incorrectly or the wire rope being used is inappropriate or not properly inspected.

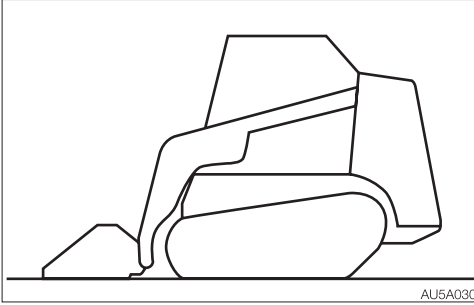
- Do not tow using only a towing hole on one side.
- It becomes dangerous if the wire rope breaks or becomes disengaged. Use a wire rope appropriate for the required tractive force.
- Do not use a wire rope that is kinked, twisted or otherwise damaged.
- Do not apply heavy loads abruptly to the wire rope.
- Wear 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 come near to the wire rope while towing.

Refer to "Towing" for further instructions.

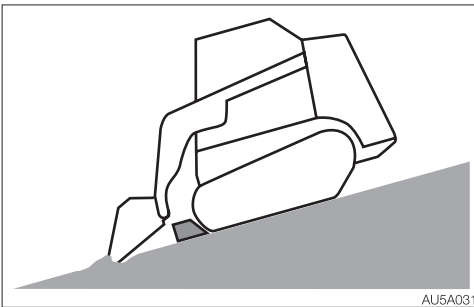


PRECAUTIONS WHEN STOPPING

Park safely

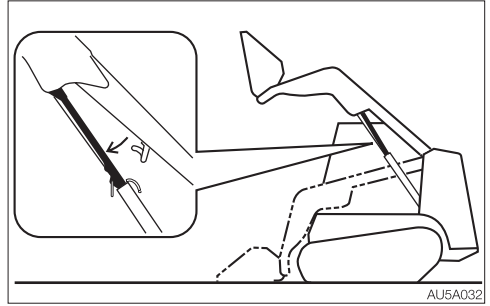


- Park the machine on a flat, rigid and safe ground. Set the parking brake.

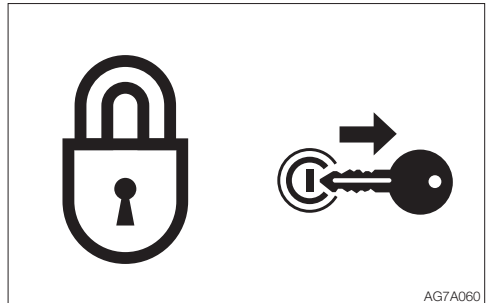


If you must park on a slope or incline, park the machine securely and block the movement of the machine.

- When parking on a street, use barriers, caution signs, lights, etc., so that the machine can easily be seen even at night to avoid collision with other vehicles.



- Never leave the machine with the engine running or the lift arms raised. If the lift arms are left in a raised position, prevent them from falling by engaging the lift arm stopper.

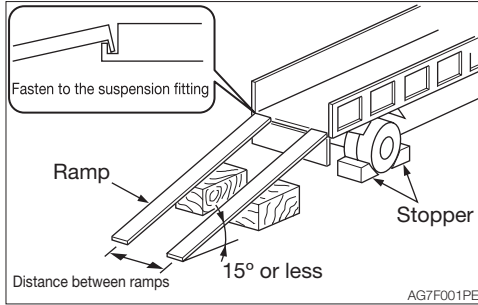


- Before leaving the machine, do the followings:
 1. Lower the bucket to the ground.
 2. Raise the safety bar to the lock position.
 3. Stop the engine and remove the ignition key.
 4. Lock the cab and covers and take the key with you.



PRECAUTIONS WHEN TRANSPORTING

Load/unload the machine safely



The machine may roll or tip over or fall while being loaded or unloaded. Take the following precautions:

- Select a firm, level surface and keep sufficient distance from road shoulders.
- Secure ramps of adequate strength and size to the truck bed. The slope of the ramps must not exceed 15°. If the ramps are bowed down too low, support them with poles or blocks.
- Keep the truck bed and loading ramps clean of oil, soil, ice, snow, and other materials to prevent the machine from sliding sideways. Clean the tracks.
- Chock the transporter wheels to prevent movement.
- When being loaded or unloaded, travel slowly in 1st (low) gear by following the signal from the signal person.
- Never change courses on the ramp. If it is necessary, move down from the ramps, change the course and then get on the ramps again.
- Do not raise the lift arms on the ramp. The machine may tip over.
- When raising the lift arms on the truck bed, do it slowly as the footing should be unstable.
- Lock the cab door after being loaded, if applicable. Otherwise, the door may open during transport.
- Chock the tracks and secure the machine to the truck bed with wire rope or chain.

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 applicable safety rules, vehicle code and traffic laws when transporting the machine.
- Select the best transport route by considering the length, width, height and weight of the truck with the machine loaded on it.
- Never abruptly start or stop or run at a high speed at the sharp curves during transport. Doing so will move or lose the balance of the loaded machine.



PRECAUTIONS ON MAINTENANCE

Display a “DO NOT OPERATE” alert sign

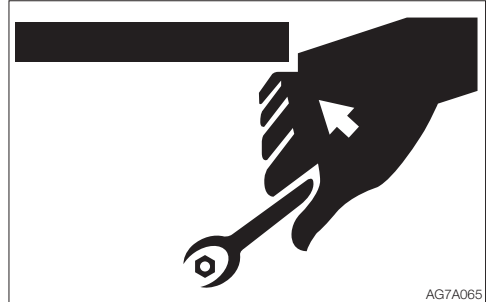
Severe injury could result if an unauthorized person should start the engine or touch controls during inspection or maintenance.

- Before performing maintenance, stop the engine, remove the key and take it with you.



- Display a “DO NOT OPERATE” alert sign on easy-to-see locations such as on the ignition switch or on control levers.

Use the correct tools



Do not use damaged or weakened tools or tools designed for other purposes. Use tools appropriate for the work involved.

Replace safety-critical parts periodically

- Replace fuel hoses periodically. Fuel hoses wear out over time, even if they do not show any symptom of wear.
- Regardless of the replacement schedule, replace immediately if a symptom of wear is found. Refer to “List of safety-critical parts” for further details.

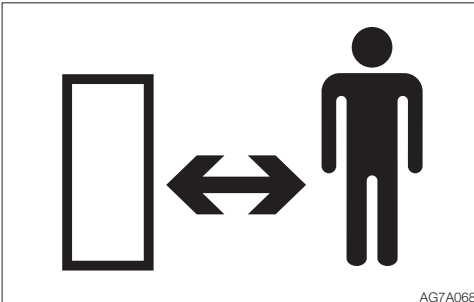


Explosionproof lighting



To prevent an ignition or explosion, use explosion-proof lights when inspecting fuel, oil, coolant or battery fluid. Otherwise, explosion could result causing serious injury or death.

Prohibit access by unauthorized persons

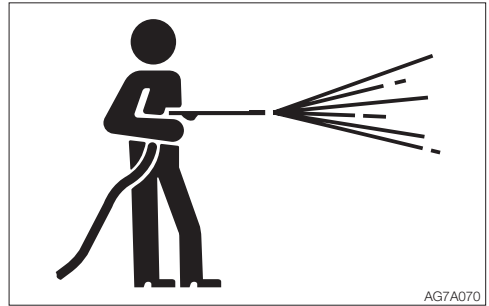


Do not allow unauthorized personnel in the work area while working. Be careful when grinding, welding or using a hammer. You could be injured by flying debris from the machine.

Prepare 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.

Always keep the machine clean



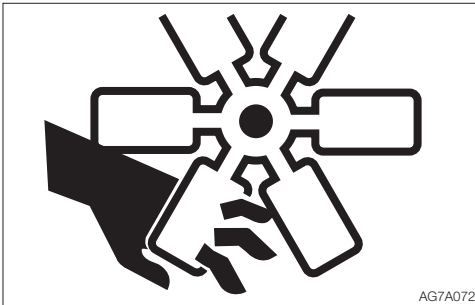
- Clean the machine before performing maintenance.
- Stop the engine before washing the machine. Cover the electrical parts so that water cannot enter. Water on electrical parts could cause short-circuits or malfunctions. Do not use water or steam to wash the battery, electronic control components, sensors, connectors or the operator's compartment.



Stop the engine before performing maintenance

- Avoid lubrication or mechanical adjustments while the machine is moving or while the engine is running when the machine is not moving.
- If maintenance must be performed with the engine running, always work as a two person team communicating each other.
 - One person must sit in the operator's seat so that he/she can immediately stop the engine when necessary. He/she must take care not to touch the lever or pedal unless necessary.
 - The one who performs maintenance must make sure to keep his/her body or clothing away from the moving part of the machine.

Stay clear of the moving parts



- Stay clear of all rotating and moving parts. If a hand or tool becomes trapped in the rotating or moving part, serious injury or death could result.
- If a tool or other objects is dropped or inserted in the fan or fan belt, it will be flown or cut in pieces. Do not drop or insert anything in the fan or fan belt.

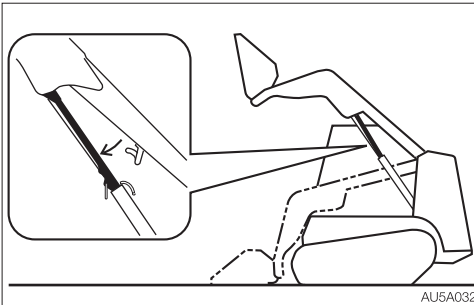
Firmly secure the machine or any component that may fall



- Before performing maintenance or repairs under the machine, lower all moveable working equipment to the ground or in the lowermost position.
- Chock the tracks.
- If you must work beneath the raised machine or equipment, always use arm stopper, 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.
- The support device provided on the machine is designed assuming that there is no load. Remove the load before using the support device.



Precautions when working under the raised lift arms



- If you must work under the raised lift arms, use the lift arm stopper to securely support the lift arms. Never position yourself under the lift arms or bucket if they are not securely supported.
- Disconnecting or loosening any faulty hydraulic line, hose, fitting or component or a parts could cause the lift arms to fall.
- Repair or replace the lift arm stopper if it is damaged or any part is missing. Failure to do so may cause the lift arms to fall, resulting in a serious injury or death.

Secure the rear door or radiator when opened

Be sure to secure the rear door or radiator before working the inside. Do not keep the rear door or radiator open on a windy day or if the machine is parked on a slope.

Precautions on tilting up the canopy (cab)

- Raising or lowering the canopy while the engine is running may cause the machine to move, and cause serious injury or death. Lower the working equipment to the ground and stop the engine before raising or lowering the canopy.
- When the canopy is tilted up, support it firmly with the stopper pin to prevent it from falling. Refer to “Tilting up the canopy (cab)” for further instructions.

Place heavy objects in a stable position



When it is necessary to temporarily place a heavy object, bucket or an attachment on the ground during removal or installation, be sure to place it in a stable position. Keep unauthorized persons from the storage place for such object.



Cautions when refueling



- Do not smoke or permit open flames while fueling or near fueling operations.
- Never remove the fuel cap or add fuel when the engine is running or still hot. Do not spill fuel on the hot surface of the machine.
- Fill the fuel tank in a well ventilated place.
- Do not fill the fuel tank to capacity. Allow room for oil expansion.
- Clean up spilled fuel immediately.
- Securely tighten the fuel filler cap. If the fuel cap is lost, replace it only with the genuine cap. Use of a non-approved cap without proper venting may result in pressurization of the tank.
- Never use fuel for cleaning.
- Use the correct grade of fuel for the operating season.

Handling of hoses

Oil leak or fuel leak can cause a fire.

- Do not twist, bend or hit the hoses.
- Never use twisted, bent or cracked pipes, tubes or hoses; otherwise, they may burst.
- Retighten loose connection.

**Be careful with hot and pressurized components**

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

- The engine, muffler, radiator, hydraulic lines, sliding parts and many other parts of the machine are hot immediately after the engine is stopped. Touching these parts will cause burns.
- The engine coolant, hydraulic oil and other oils are also hot and under high pressure. Be careful not to touch the hydraulic oil when loosening the cap or plug. Working on the machine under these conditions could result in burns or injuries due to the hot oil spurting out.
- The DPF and the exhaust gas emitted from the exhaust line can be very hot while the engine is running or the regeneration is under way, as well as immediately after the engine is stopped. Be careful not to accidentally touch them; doing so could cause burns.

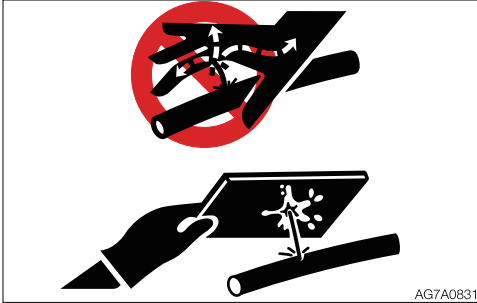
Be careful with hot cooling systems

Do not remove the radiator cap or the drain plug when the cooling water is hot. Stop the engine and wait until the engine and the cooling water cool. Then, slowly loosen the radiator cap to release the internal pressure and remove it.

**Be careful with oil internal pressure**

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

- Completely relieve the internal pressure before performing maintenance work.



- The hydraulic oil is high enough pressure to penetrate the skin or eyes and cause serious injury, blindness or death. Remember that the hydraulic oil escaping from a small hole is almost invisible. When checking for leaks, wear protective goggles and thick gloves, and use a paperboard or plywood to keep your skin from oil spurting. If oil penetrates the skin, it must be surgically removed within a few hours by a doctor familiar with this type of injury.

Release pressure before working on the hydraulic system

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

- Gradually loosen the vent plug to relieve tank pressure.
- When removing plugs or screws, or when disconnecting hoses, stand to the side and loosen them slowly to gradually release the internal pressure before removing.
- Oil or plug may spurt out according to the pressure in the travel motor case. Loosen the plug slowly and release the internal pressure.

Be careful with debris when the hammer is being used

When using a hammer, pins may fly out or metal particles may be scattered. This may lead to serious injury.

- If hard metal parts such as pins, bucket teeth or bearings are hit with a hammer, wear protective gear such as safety goggles and gloves.
- When hitting pins or bucket teeth, always check that there is no one in the surrounding area.



SAFETY

PRECAUTIONS ON MAINTENANCE

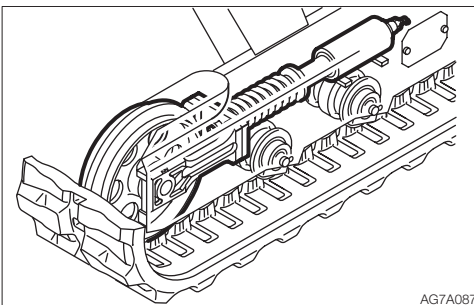
Be careful with the high-pressure grease



In the track adjuster, the grease has been injected under high pressure. If the tension is adjusted without following the prescribed procedure, the grease discharge valve may fly off, resulting in injury.

- Loosen the grease discharge valve slowly. Do not turn it more than one turn.
- Do not put your face, arms, legs or body in front of the grease discharge valve.
- If grease does not come out when the grease discharge valve is loosened, the valve is faulty. Ask a Takeuchi service agent for repair.

Never disassemble the track adjuster



There is a very strong spring contained in the track adjuster. If the track adjuster is accidentally disassembled, the spring can pop out, resulting in serious injury. Never disassemble the track adjuster.

Cautions when servicing the air conditioner

If the refrigerant comes in contact with eyes, it damages your eyesight. If the refrigerant comes in contact with skin, it may cause frostbite. Never touch the refrigerant.

Disconnect the battery wiring



Disconnect the battery wiring before working on the electrical system or doing electric welding. Disconnect the negative (-) battery cable first. When reconnecting, connect the negative (-) battery cable last.

**Use caution when handling batteries**

- Batteries contain sulfuric acid which will damage the eyes or skin in case of contact.
 - If eye contact occurs, flush immediately with clean water and get prompt medical attention.
 - If accidentally swallowed, drink large quantities of water or milk and call a physician immediately.
 - If acid contacts skin or clothing, wash off immediately with a lot of water.
- Wear protective goggles and gloves when working with batteries.
- Batteries generate flammable hydrogen gas which may explode. Keep away from flame, sparks, fire or lighted cigarettes.
- When checking the level of the battery fluid, use a flashlight.
- Be sure to stop the engine by turning off the ignition switch before inspecting or handling the battery.
- Be careful not to let metal tools or any metal objects come into contact with the battery terminals and cause a short circuit.
- Loose battery terminals may result in sparks. Be sure to fasten terminals tightly.
- Make sure the battery caps are tightened securely.
- Do not charge a battery or jump-start the engine if the battery is frozen; otherwise it may explode. Warm the frozen battery to 15°C (60°F) before use.
- Do not use the battery when the fluid level is below the lower level limit. Doing so will hasten the deterioration of the internal portions of the battery and shorten the battery life. It also can cause rupturing (explosion).
- Do not add the distilled water above the upper level limit. Doing so could cause the fluid to leak. This fluid can cause skin damage if contacted, or can cause the machine components to corrode.
- Use a dampened cloth to clean around the fluid level line and check the fluid level. Do not clean with a dry cloth; otherwise it could cause static electricity to build up, resulting in ignition or explosion.



Periodically replace the safety-critical parts

- To use the machine safely for a longer period, periodically add oil and perform inspection and maintenance. To improve safety, replace the safety-critical parts like hoses and seat belts periodically. Refer to “Safety-critical parts to be replaced periodically” for further details.
- The “Safety-critical parts to be replaced periodically” are the parts which deteriorate, wear and fatigue after repeated use and whose properties change over time. While these characteristics of these parts could cause serious physical or personal damage, judging the remaining life of these parts is difficult from external inspection or the feeling when operating.
- Replace the “Safety-critical parts to be replaced periodically” if any defect is found from external inspection, even when they have not reached the time specified interval.

Jump starting with booster cables

- When starting the engine using the booster cables, be sure to connect the cables in the proper order described below. Wrongly connected cables can result in sparking and battery explosion.
 - Do not allow the “machine in trouble” and “rescue machine” to touch each other.
 - Do not allow the positive (+) and negative (-) clips of the booster cables to touch each other or to come in contact with the machine.
 - When connecting, attach the positive booster cable to the positive (+) terminals first. When disconnecting, remove the negative cable from the negative (-) terminal (ground) first.
 - Be sure to connect the clips securely.
 - Connect the last clip of the booster cable to a point as far away from the battery as possible.
- Always wear the protective goggles and gloves when starting the engine by using the booster cables.
- Use the booster cables and clips of a size suited to the capacity of the battery. Do not use damaged or corroded booster cables and clips.
- Be sure that the battery of the “rescue machine” has the same capacity as the battery of the “machine in trouble”.

**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 operators are subject to

According to the results of the tests conducted to determine the vibrations transmitted to the operator by the machine, the upper limbs are subjected to vibrations lower than 2.5 m/s² (8.2 ft/s²) while the seated part of the body is subjected to vibrations lower than 0.5 m/s² (1.64 ft/s²).

Checks 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 the serviced parts.
- Operate each control lever and check that the machine is operating properly.



Disposing of wastes



- Always collect oil that is drained from the machine in containers. Improperly disposed waste oil can cause environmental harm.
- Follow appropriate laws and regulations when disposing of harmful objects such as oil, fuel, coolant, solvent, filters and batteries.

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.



SAFETY SIGNS (DECALS)

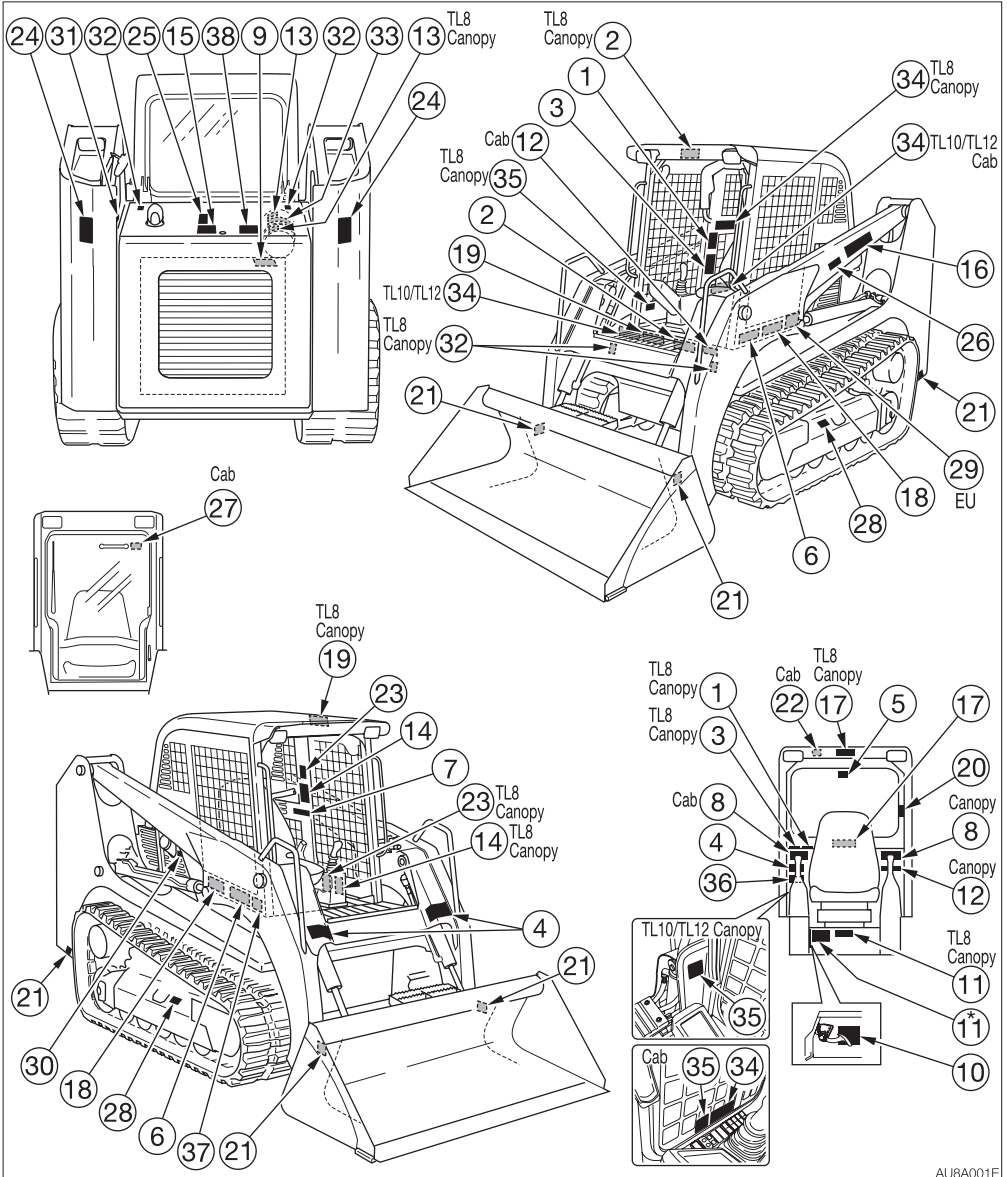
For the safety of the operator and the personnel working around the site, safety signs (decals) are placed at certain locations on the machine as shown below. Walk around the machine with this manual, and check the content and location of these safety signs. Review these signs and the operating instructions in this manual with your machine operators.

- Keep the signs clean and legible. If any of the safety labels is peeling or damaged and becomes difficult to read, replace it with a new one. Please include your product serial number when ordering a new sign from the Takeuchi service agent.
- When a part/unit to which a safety sign is attached is replenished, a new sign must be attached to the new part/unit.



SAFETY

SAFETY SIGNS (DECALS)



*: With Lift arm lower button (TL10/TL12)



SAFETY
SAFETY SIGNS (DECALS)

1. No.06593-00012



AVOID DEATH
Before removing seat belt and leaving seat

- Lower lift arms to ground or rest lift arms on stops.
- Stop engine.

6. No.08800-31005



2. No.08800-30010



7. No.08810-30026



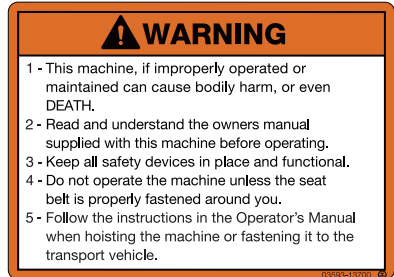
3. No.06593-00013



AVOID INJURY

- Loader can move suddenly and violently
- Always wear seat belt

8. No.03593-13700



4. No.06593-00011

AVOID INJURY

- Lift arms move close by window opening
- Never place hands or arms, through screen opening



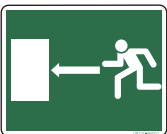
9. No.08820-31135

Sign indicates a burn hazard from spurting hot water or oil if radiator or hydraulic tank is uncapped while hot.
Allow radiator or hydraulic tank to cool before removing cap.

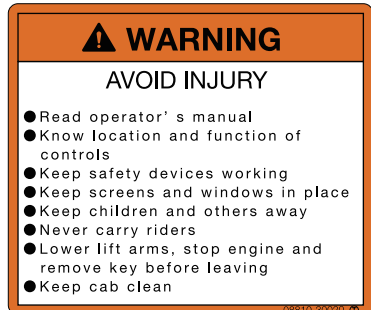


5. No.08710-86051

Position of Emergency Exit



10. No.08810-30020



AU8A003E



SAFETY

SAFETY SIGNS (DECALS)

<TL8>

11. No.06693-00026



<TL10>

11. No.06893-00004



<TL12>

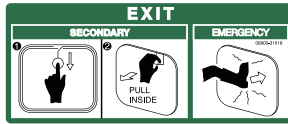
11. No.06993-00005



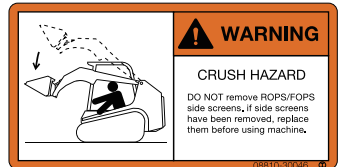
12. No.08800-30015



17. No.08800-31018



18. No.08810-30046



13. No.03393-75040



19. No.08810-31551



14. No.06893-00035



Sign indicates a crush hazard from falling off of working device. Keep away when the working device is raised.

20. No.03993-00400

For EU

Position of Fire extinguisher



15. No.03793-66006

Hazard of rotating parts

Turn off before inspection and maintenance.

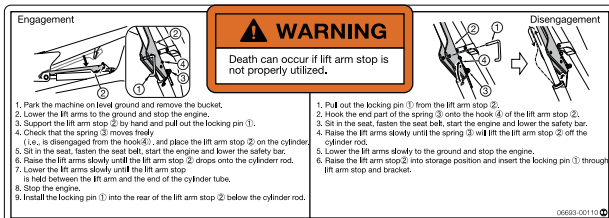


21. No.08810-31549

Tie down point



16. No.06693-00110



22. No.08810-31554(Cab)

Position of Emergency unlock lever



AU8A004E



SAFETY

SAFETY SIGNS (DECALS)

23. No.08810-31556



Warning

Read and understand this manual before performing any operation, inspection or maintenance on this machine.

25. No.05793-03630



Sign indicates a burn hazard from touching heated parts, such as engine, pump, or muffler during or right after operation. Never touch when hot.

27. No.08810-31557(Cab)

Hazard from falling window
After raising window, be sure to lock it in place with lock pins.



24. No.08820-31159



Safety Distance

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

26. No.08820-31046



Safety Distance

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

28. No.05793-00052

Hazard of a flying plug from track adjuster
Read manual before adjusting track for safe and proper handling.



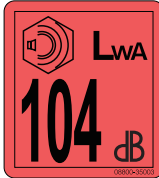
<TL8>

29. No.08800-38041



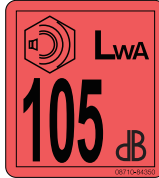
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29. No.08800-35003



<TL12>

29. No.08710-84350



Noise Outside the Cab / for EU
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.

30. No.06993-00154



33. No.06693-00814



34. No.05693-00090
(if equipped)



31. No.03593-06700

Hydraulic oil



35. No.06993-00023
(if equipped)



36. No.03593-32300(Option)



32. No.03993-00500

Position of hoisting



37. No.06593-00042

WARNING

When the cab or canopy is tilted up, be sure to install the lock pin.



38. No.06993-00163



AU8A005E

CONTROLS

