

TB070

Compact Excavator

S/N 1703004~

BOOK No. OL1-107E0

OPERATOR'S MANUAL



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

NOTES ON SAFETY

Virtually all accidents occur as the result of a failure to inspect, maintain, or operate the machine in accordance with basic safety procedures. This is why we ask you to read this manual carefully before inspecting, repairing or operating the machine. Read all safety messages explaining how to prevent these problems from occurring and be sure that you understand and have memorized them before going on. Also be careful not to operate the machine until you have made sure that you have gained a proper understanding of its inspection, maintenance, and use.

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

- DANGER indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death.



- WARNING indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.



- CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against possible damage to the machine and its components.



It is impossible to foresee all possible sources of danger, and we in no way maintain that the warnings contained in this manual or located on the body of the machine cover all possible contingencies. This is why we ask you to exercise all due care and follow safety procedures of your own when operating the machine so as to ensure that no damage occurs to the machine or its operators.

- This symbol is used to indicate that the information following is considered to be useful in the operation of the machine.



OPERATOR PRECAUTIONS

If this machine is used by an employee, it is the employer's responsibility to fully instruct each operator in the proper and safe operation of all operative equipment. Both employer and employee should thoroughly familiarize themselves with the following sections.

All operators must be instructed on the proper operation of the excavator before they operate the unit.

● Personnel Precautions

- Avoid loose fitting clothing, loose or uncovered long hair, jewelry and loose personal articles.
- Know and use the protective equipment that is to be worn when operating this machine. Hard hats, protective glasses, protective shoes, gloves, and ear protection are examples of types of equipment that may be required.
- Do not rush. Walk, do not run.
- Know and use the hand signals required for particular jobs and know who has the responsibility for signaling.

● Operator-General Precautions

- It is the responsibility of the operator to read and understand the Operators Manual and other information provided and use the correct operating procedure. Machines should be operated only by qualified operators.
- Wear the seat belt.
- Do not permit riders on the machine.
- Make sure all protective guards, canopies, doors, etc, are in place and secure.
- Remove all loose objects stored in the machine. Remove all objects which do not belong in or on the machine and its equipment.
- Where there is a risk of falling material (for example: during demolition work), the cab has to be protected according to the FOPS standards.

● Mounting and Dismounting Precautions

- Use the recommended hand holds and steps with at least three points of support when getting on and off the machine. Keep steps and platform clean. Face the access system when climbing up and down.
- Do not jump off the machine.
- Do not dismount while the machine is in motion.

● Starting and Stopping Precautions

- Walk around the machine and warn all personnel who may be servicing the machine or are in the machine path prior to starting. Do not start until all personnel are clearly away from the machine.
- Check that the parking device is applied, place the travel levers in neutral before starting the machine.
- Adjust, secure and latch the seat and fasten the seat belt before starting the machine.
- Start and operate the machine only from the operator's station.
- Do not bypass the machine's neutral-start system. The neutral-start system must be repaired if it malfunctions.
- Use jumper cables only in the recommended manner. Improper use can result in battery explosion or unexpected machine motion.
- Do not operate the engine in an enclosed area without adequate ventilation.
- Park the machine on level ground whenever possible and apply the parking device. On grades, park the machine with the crawler belts securely blocked.
- Before leaving the operator's station, place the travel levers in the neutral position, lower the equipment to the ground or put in the locked position, set the parking device and shut off the engine.
- Remove the starter key or disconnect switch key when leaving the machine parked or unattended.

● Operating Precautions

- Check brakes, steering and other machine control devices prior to starting operation. Observe all gauges or warning instruments for proper operation. Operate all controls to insure proper operation. If any malfunctions are found, follow the shutdown procedure and report the malfunction for resolution.
- 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.
- Understand the machine limitations and keep the machine control.
- Operate the machine with care and at speeds compatible with conditions. Use extra caution when operating over rough ground, on slopes, and when turning the machine.
- 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.
- Carry loads in recommended positions for maximum stability.
- Never lift loads in excess of capacity.
- Use the recommended machine ballast and counterweighting.

- Know and understand the job site traffic flow patterns and obey flagmen, road signs and signals.
- Watch for bystanders and never allow anyone to be under or to reach through the machine and its equipment while operating.
- Select the 1st. speed (low gear) that will prevent excessive speed when going downhill.
- When roading a machine, know and use the signaling devices required on the machine. Provide an escort for roading when required.

- **Maintenance Precautions**

- Do not attempt repairs unless trained. Refer to manuals and experienced repair personnel for help.
- Wear protective glasses and other required safety equipment when servicing or repairing the machine.
- Wear gloves to protect hands when handling cable.
- Disconnect the battery before working on the electrical system.
- Avoid lubrication or mechanical adjustments with the machine in motion or the engine operating. If the engine must be in operation to make certain adjustments, place the travel levers in neutral, apply the parking device, place the equipment in a safe position, securely block the crawler belts and use extreme caution.
- Securely block the machine or any component that may fall before working on the machine or component.
- To prevent unexpected movement, securely block working elements when repairing or changing working tool parts such as cutting edges.
- Never make repairs on pressurized components, fluid, gas or mechanical until the pressure has been relieved.
- Use extreme caution when removing radiator caps, drain plugs, grease fitting or pressure taps. Park the machine and let it cool down before opening a pressurized compartment.
- Release all pressure before working on the hydraulic system. Use a piece of cardboard or wood to check for pressurized leaks to prevent fluid penetrating the skin.
- Observe proper maintenance procedures.
- Whenever servicing or replacing hardened pins, etc, use a brass drift or other suitable material between the hammer and pin.
- Keep the brakes and steering systems in good operating condition.
- Replace all missing, illegible or damaged safety signs. Keep all safety signs clean.

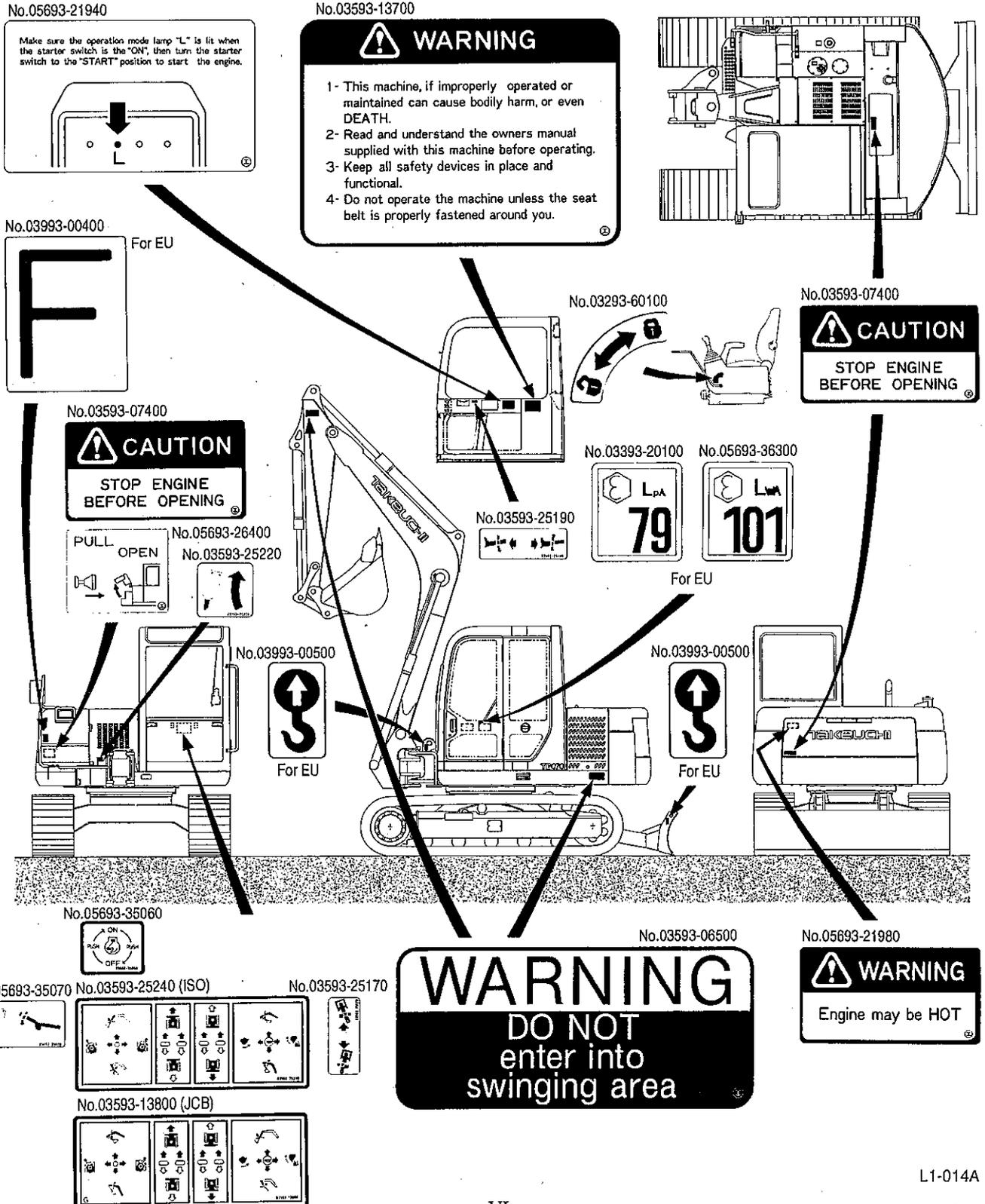
● Fuel Handling Precautions

- 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.

SAFETY SIGNS (Decals)

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

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



INTRODUCTION

Congratulations on your purchase of a Takeuchi construction machine. This manual explains operation and maintenance so that you can use your compact excavator efficiently and economically. Read this manual carefully, and operate and service your excavator accordingly. Please note that due to improvements, the explanations and diagrams in this manual may differ in some points from the actual excavator and the explanations in the engine's manual.

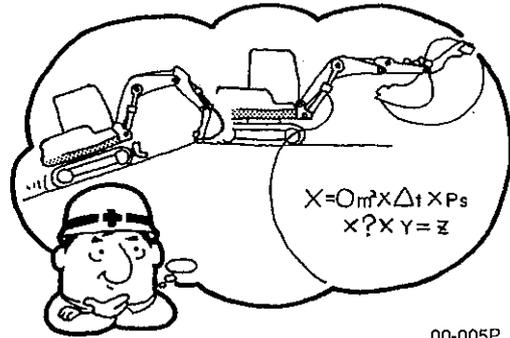
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SAFETY INSTRUCTIONS <BEFORE OPERATION>

Know your machine well.

- Make sure you know and understand the machine's performance, working capacities, sizes, weights, etc.



00-005P

Read this manual carefully and inspect and service the machine accordingly.

- Proper handling of the machine is the basis for safe operation. Read this manual and the safety signs (decals) on the machine carefully and make sure you understand them.
- Conduct pre-operation and daily inspections rigorously.



00-006P

Wear the proper clothing.

- Always use a helmet, work shoes, protective tools and work clothes.



00-007A

Service and repair defects or problems carefully before operating the machine.

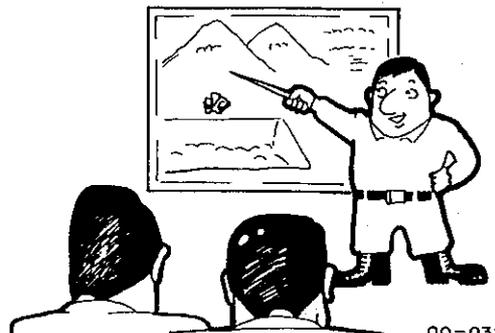
- Mark non-serviced machine with the words "DO NOT OPERATE".
- Reinspect problem parts serviced or repaired the previous day before operating the machine.



00-008P

Perform operations systematically.

- Carefully discuss the work to be done for the day and the procedures.
- Survey the area on which the machine is to be used, checking the ground, road shoulders, etc., for dangerous places, and prepare plans.

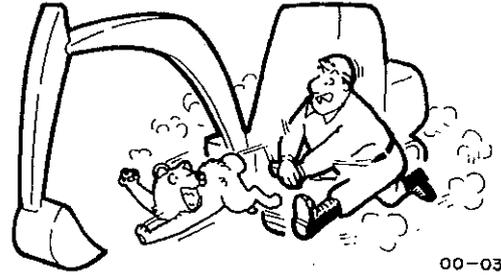


00-032

⚠ SAFETY INSTRUCTIONS < DURING OPERATION >

Check the area around the machine before starting operations.

- Walk around the machine once to check whether it is safe to move it. While doing so, check the outside of the machine for scratches or damage.



00-033

Carefully perform the proper inspections before starting.

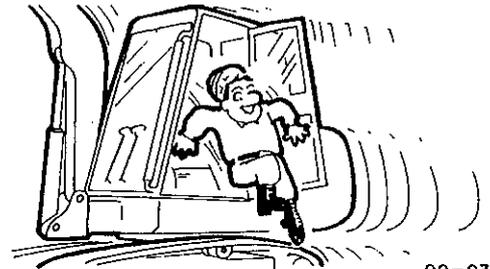
- Before starting, perform the inspections explained in the section "Before Starting Operation". If you find any problems, adjust or repair them completely before starting.



00-034

Do not jump onto or off of the machine!

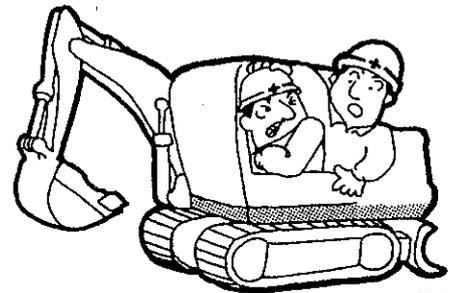
- Check that the engine is stopped and hold onto the handrail when climbing off.
- Do not grab operation levers when climbing in or out.
- Keep the floor and pedals clean, as dirt can make them slippery.



00-035

No passengers!

- No one but the operator should be in the machine.



00-011P

Be careful of noise.

- Loud prolonged noise can cause hearing impairments, even the total loss of hearing. Use ear plugs or ear covers when operating the machine.



00-036

⚠ SAFETY INSTRUCTIONS < DURING OPERATION >

Warming up the engine.

- Before beginning work always be careful to make sure that the engine and hydraulic oil have been properly warmed up. Failure to do so will not only result in substandard performance, but may also result in damage to the machine.

Honk the horn as a warning before starting the engine, starting up or slewing.

- To prevent accidents, signal others around the machine before moving it by honking the horn or flashing the lights.



00-037

Be careful of exhaust gases!

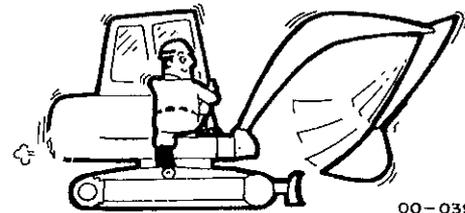
- The exhaust gases from the engine are extremely toxic. Take the following measures:
 - Ventilate thoroughly when working indoors.
 - Extend an exhaust pipe outdoors.



00-038

Always operate from the operator's seat.

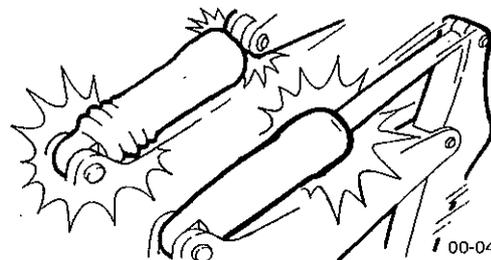
- Do not start the engine or operate the operating or travel levers except when in the operator's seat with the seat belt fastened. Doing so is extremely dangerous.



00-039

Treat the hydraulic cylinders gently.

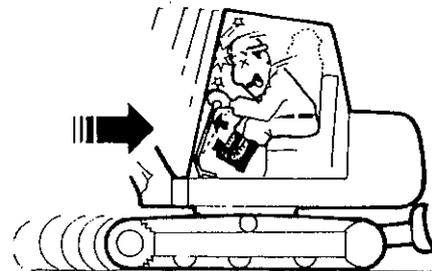
- Whenever possible, do not operate the hydraulic cylinders to the stroke ends. Leave a little leeway.



00-040P

Check the position of the dozer blade before starting to travel.

- Remember that when the dozer blade is to the rear of the operator's seat, the machine will move backwards when the travel levers are pushed forwards.
- The side on which the dozer blade is located is the front of the undercarriage. Lift the dozer blade before travelling.
- Travelling long distances in reverse can damage the crawler belts.
- The drive sprocket and links come together and create friction when the travel motor is put into forward and then engaged. Note that this also places tension on the upper link, causing extra wear the bushing and the carrier roller.
- Be careful not to damage asphalt surfaces which are soft in the summer.

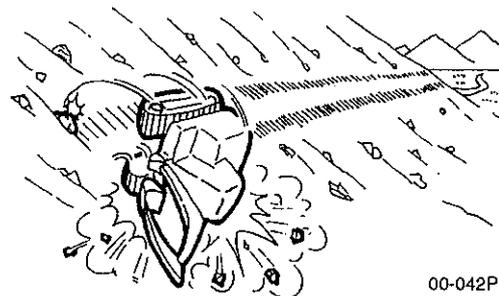


00-041

⚠ SAFETY INSTRUCTIONS < DURING OPERATION >

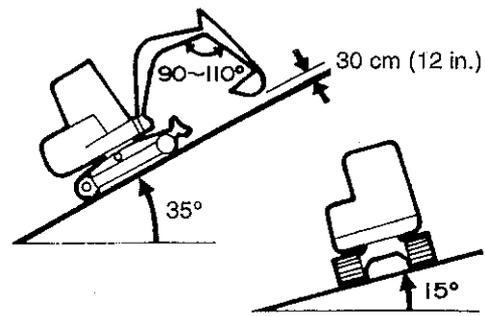
Never travel sideways or change directions on slopes !

- Doing so is extremely dangerous. First move down the slope, then travel or change directions.
- When slewing on slopes, first pull the boom in as close as possible to the body and lower the bucket, then slew slowly.



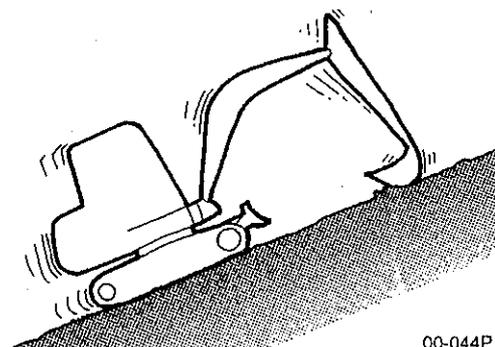
Use within the maximum gradeability (35°) and lateral tipping angle (15°).

- Never use on slopes steeper than the machine's specified maximum gradient.
- On slopes, set the bucket 30cm (12 in.) from the surface and use it for support in emergencies.
- When travelling down slopes, setting the travel levers to the neutral position provides automatic braking force.



Cautions when climbing and descending slopes!

- If the crawlers slip and it is not possible to climb the slope, use the force of the arm pulling in to help.
- Travelling in high speed on slopes or non-leveled ground is dangerous as it could result in tipping or sliding. Always travel slowly in low speed.
- If the engine stops when climbing a slope, set the travel levers to the neutral position, lower the bucket to the ground and stop the machine before starting the engine back up. Also, never slew when the engine is stopped. The machine slews from its own weight.

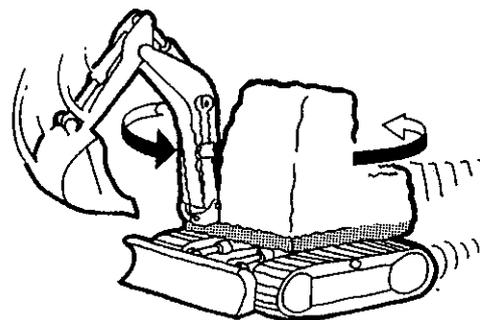


Cautions when performing a pivot or spin turn.

- Making a sharp pivot or spin turn often causes dirt to be caught up in the rollers or crawler belts, making it impossible to move the machine any further. If this happens do not try to travel forward or back up the machine. You should instead bring the machine to a halt, use the hoe attachment to raise the crawler belts up from the ground, and then run the crawler belts in forward and reverse until all the dirt has been removed.

Be careful when slewing while travelling.

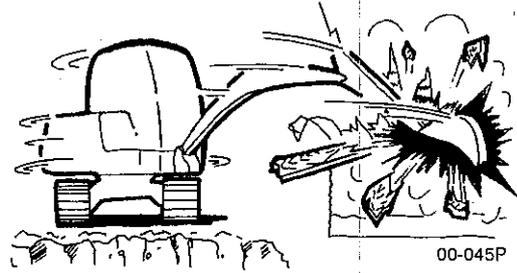
- Slewing while travelling is dangerous since it is necessary to pay attention to too many factors at the same time when doing so. In addition, Take special care when operating the hoe attachment while travelling.
- Do not travel the bucket's teeth into the ground while slewing, as this could damage the machine.



⚠ SAFETY INSTRUCTIONS <DURING OPERATION>

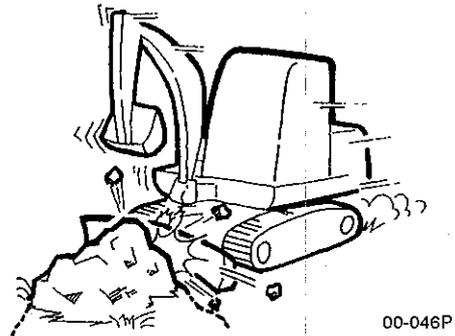
Watch for obstacles!

- Be very careful that the hoe attachment does not come into contact with obstacles while operating the machine.



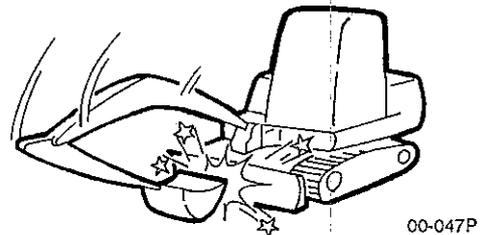
Be careful not to subject the dozer blade to shocks!

- Hitting the dozer blade against large rocks, etc., can damage the dozer blade or dozer blade cylinder.



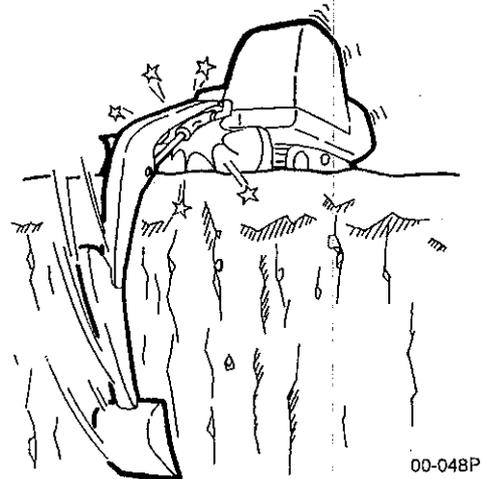
Be careful when folding the hoe attachment!

- When folding the hoe attachment, be careful that the bucket does not hit the dozer blade.



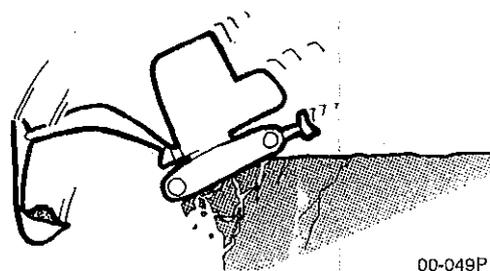
Be careful of the dozer blade when digging!

- When digging deeply with the dozer blade at the front, be careful that it does not hit the boom cylinder or bucket. Always operate with the dozer blade at the back unless otherwise necessary.



Be careful when operating on the edges of cliffs or road shoulders!

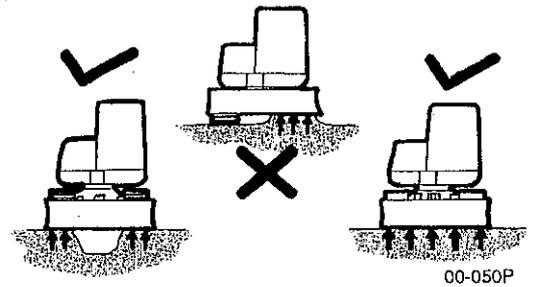
- To avoid unforeseeable situations, keep the crawler belts at right angles to the cliff or road shoulder so that it can be moved back easily.
- Check the hardness of the ground beforehand for safety.
- Be careful not to dig the area directly in front of the machine too deeply.



⚠ SAFETY INSTRUCTIONS <DURING OPERATION>

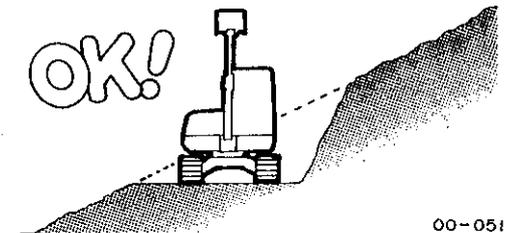
Support the dozer blade on both sides.

- When supporting the dozer blade to stabilize the machine while digging, do not support it on one side only.



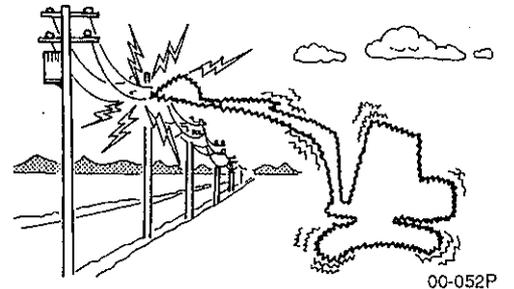
Operating on slopes is dangerous!

- Level the ground on which the machine is sitting before operating on slopes.



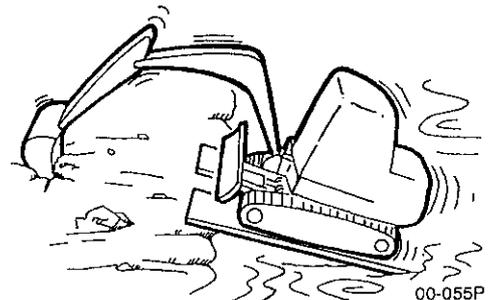
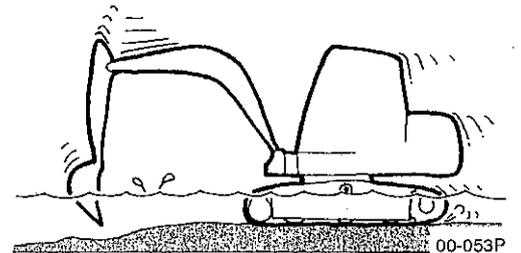
Be careful of electric cables!

- Coming into contact with electric cables can result in shocks. Keep the hoe attachment and machine body a sufficient distance from electric cables.
- If there are electric cables in the area in which you are to work, consult with the electric company so that work can be done safely.



Cautions on using in water and on soft ground.

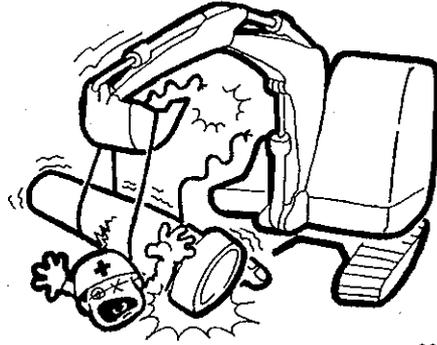
- The machine can be used in water up to the middle of the carrier rollers. When operating in a river, check the depth of the river floor constantly with the bucket and operate carefully.
- For parts used over long periods of time under water, supply new grease until the old grease is expelled.
- Never let water or sand on the slew bearings or upperstructure. If water or sand gets on these, have the machine inspected at a service outlet.
- When leaving water at a steep angle, be sufficiently careful that the back of the machine does not get in the water, getting the radiator fin wet or damaging it.
- On soft ground, constantly observe the area around the machine to make sure the machine does not sink in.
- Getting out of mud
 - If only one side is stuck in mud, lift that side using the hoe attachment then place planks or boards underneath. When doing so, always push on the ground with the bottom of the bucket.
 - When both sides are stuck in the mud, set boards or planks underneath using the above procedure, dig the bucket into the ground in front, then pull the arm in and push the travel levers forward to get the machine out.



⚠ SAFETY INSTRUCTIONS < DURING OPERATION >

Never use the machine as a crane!

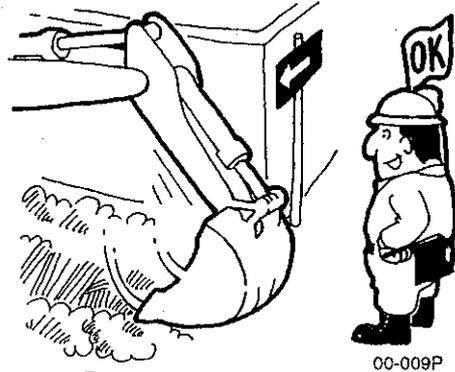
- Do not use the machine as a crane. The machine is not equipped for such operations.
- However, lifting operations within the specified limits are possible using the proper attachment.



00-030P

Use a guide in dangerous places or places where visibility is poor.

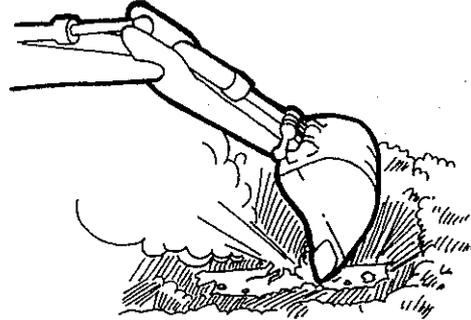
- Establish hand signals, etc., ahead of time.



00-009P

Watch for buried objects!

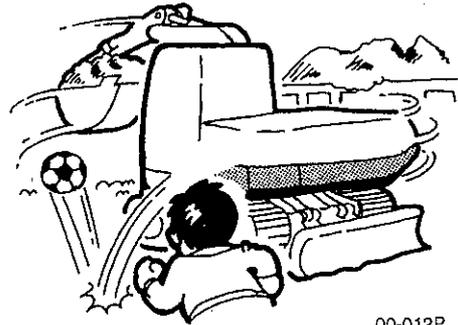
- Dig shallowly first to check for the presence or position of buried objects before starting actual operations.



00-010P

Do not let anyone within the slewing range!

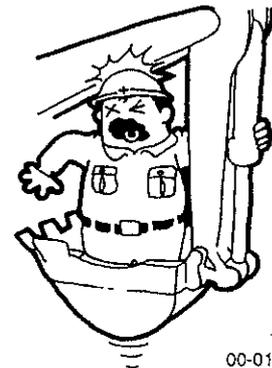
- Blow the horn as a warning before slewing so that no one but the guide comes near the machine.



00-012P

Only use the machine for its designated purposes!

- Never let people ride in the bucket.

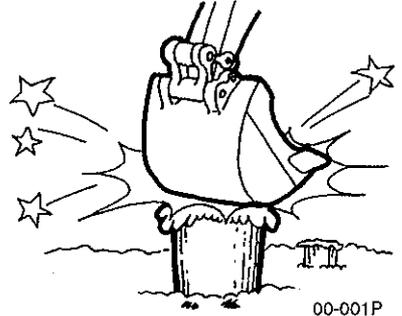


00-013P

▲ SAFETY INSTRUCTIONS (DURING OPERATION)

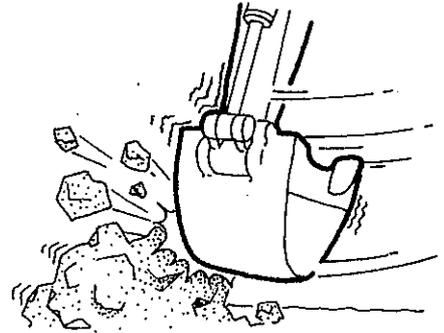
Do not try to drive piles or clear away dirt by banging the bucket down!

- This can shorten the service life of the hoe attachment parts. Always dig using the hydraulic force.



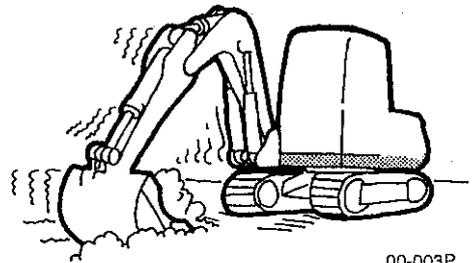
Do not fill in holes or break earthen walls using the slewing or boom swinging force!

- Subjecting the swing bracket or slew mechanism to excessive force can result in damage.
- Do not slew the cab while the bucket is lowered into a ditch. Doing so would damage the hoe attachment of the machine.



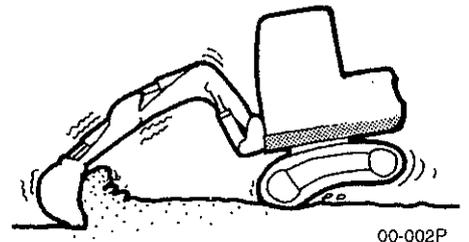
Do not try to dig while traveling!

- Do not dig the bucket in first then try to pull it with the motion of the machine.



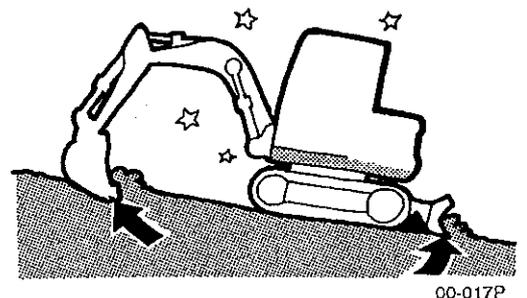
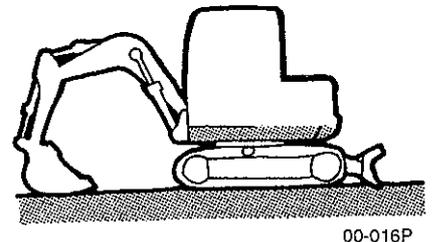
Do not try to use the weight of the machine to add force when digging!

- Use the hydraulic force of the hoe attachment and always dig with shallow, long strokes.



Do the following before leaving the operator's seat!

- When parking or stopping on flat surfaces:
 - Set the bucket and dozer blade against the ground.
 - Stop the engine and lock the operation levers.
 - Lock slewing and store the starter switch key away.
- When parking and stopping on slopes:
 - Do the above and also set stoppers against the crawler belts.

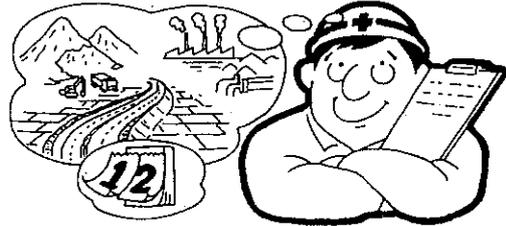


⚠ SAFETY INSTRUCTIONS (DURING INSPECTION AND MAINTENANCE)

Inspection and maintenance schedule.

- Perform inspection and maintenance according to the time indicated on the hour meter.

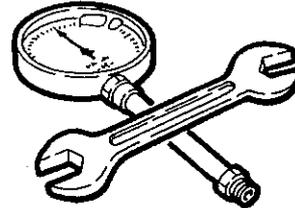
Check and add oil at regular intervals, determined in function of the type of operation, the load, the weather, etc., using as a basis that if the machine is operated 8 hours a day, the oil should be checked and replenished after 1 week or 50 hours, 1 month or 250 hours, 6 months or 500 hours, 1 year or 1000 hours.



00-056

Have a service outlet perform major inspections and servicing.

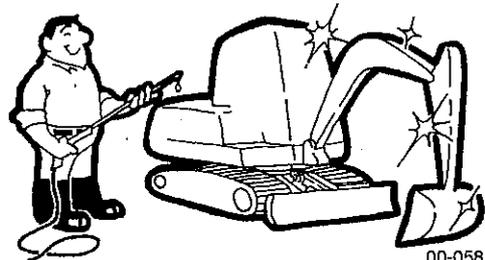
- Have a service outlet perform any inspections, maintenance, and adjustments not explained in this manual. Also feel free to contact a service outlet should you have any questions.
- If any of the situations for which this manual says to contact a service outlet arise, do so as soon as possible.



00-057

Wash the machine methodically.

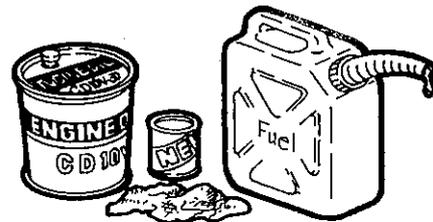
- Make it a habit to wash the machine every day after using it. Dirt on the pedals can make them slippery, so clean it off carefully.
- When washing the machine, cover electrical parts with vinyl to protect them from water. If they get wet, this could result in short circuits, malfunction or errors.



00-058P

Handling fuel and oil.

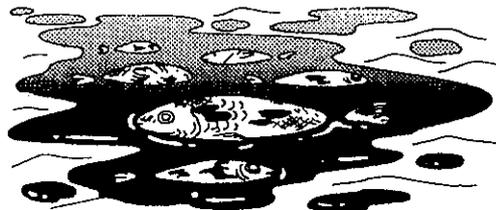
- Fuel and oil are extremely inflammable, so handle them with sufficient care.
 - Replenish fuel outdoors with the engine stopped.
 - Carefully wipe off any fuel which may have spilled while fueling or servicing the machine.
 - Store fuel and oil in places away from flames.
 - Cloths on which there is fuel or oil may ignite spontaneously, so dispose of them following the prescribed rules.



00-059

Disposing of spent oil!

- Place spent oil in oil barrels, etc. Do not pour the oil on the ground or into rivers or lakes, as this can damage the environment. Dispose of it following the prescribed rules for industrial wastes. Do the same for filters.



00-060

⚠ SAFETY INSTRUCTIONS (DURING INSPECTION AND MAINTENANCE)

Never try to modify the machine.

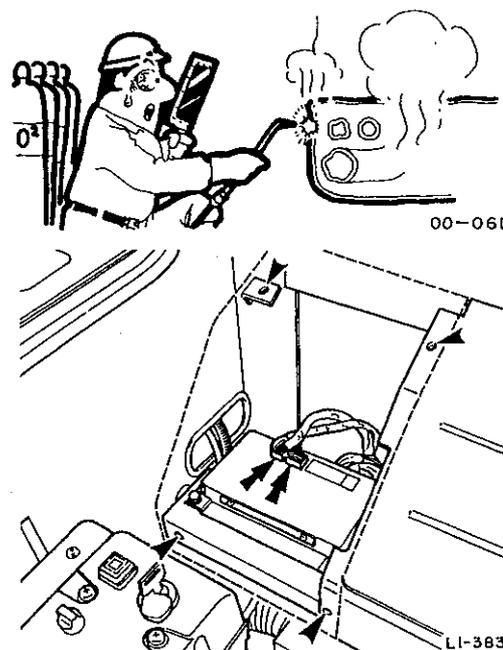
- Never try to modify the machine by yourself, as this could lead to reduced safety, function and service life.

Have welding repairs done by a service outlet.

- Heating hydraulic parts, pipes or nearby areas can generate combustible steam or gases which may explode, so have welding repairs done by a service outlet.
- If welding must be performed, disconnect the controller connectors and both the battery cables (+) and (-).

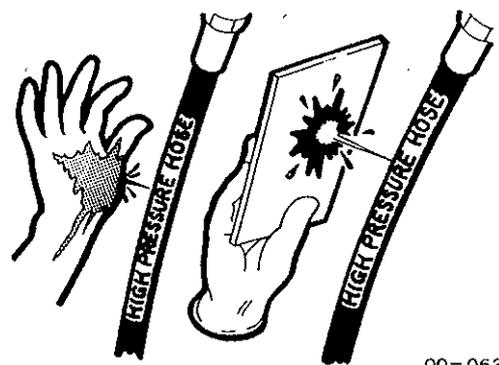
Disconnecting the Controller Connectors

1. Remove the panel on which the radio and speaker are installed, at the right rear of the operator's seat.
2. Disconnect the two connectors on the top surface of the controller.



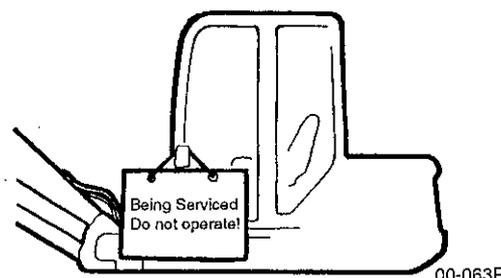
High pressure oil is dangerous!

- Do not let oil under high pressure spurt out onto the hands or body.
- If high pressure oil spurts out and gets into the skin, it can cause necrosis after several hours. If you should be exposed to high pressure oil, contact a physician immediately.
- Release the remaining oil pressure before removing hydraulic parts and pipes. Inversely, inspect the hoses and pipes carefully before pressurizing.
- Use boards to check for high pressure oil leaks.



Use signs during inspection.

- To prevent accidents, during inspecting and maintenance, place a sign on an easily visible part such as the door or operation levers saying "Being Serviced Do not operate!" so that others will not touch the machine inadvertently.



Cautions on handling the radiator!

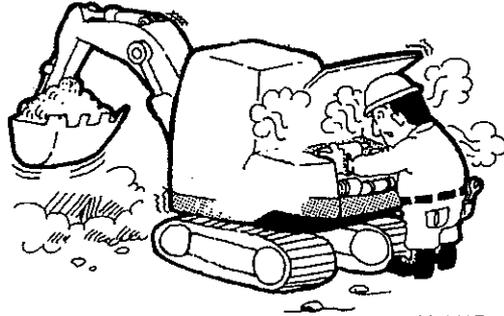
- If the radiator cap is removed inadvertently when the engine is hot, hot coolant may spurt out, resulting in burns.
- Let the engine cool down, then slowly turn the cap to release the pressure.



⚠ SAFETY INSTRUCTIONS (DURING INSPECTION AND MAINTENANCE)

Do not service while the machine is operating!

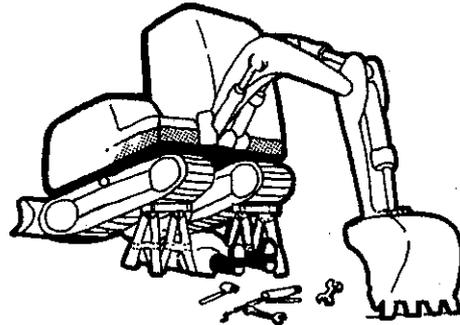
- Be sure to turn the engine off when inspecting or servicing.
- If a problem should arise with the machine during operation, stop operating it immediately, inspect carefully and find the cause of the problem. Conduct repairs as soon as possible.



00-019P

Place safety blocks under the body!

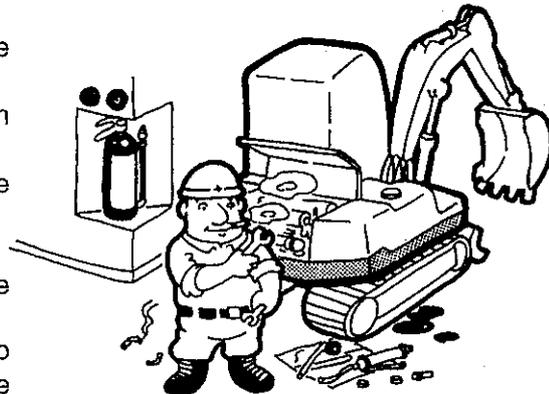
- Always set safety blocks under the body when inspecting or servicing underneath the machine to prevent it from falling.



00-020P

Keep sources of fire away from the machine!

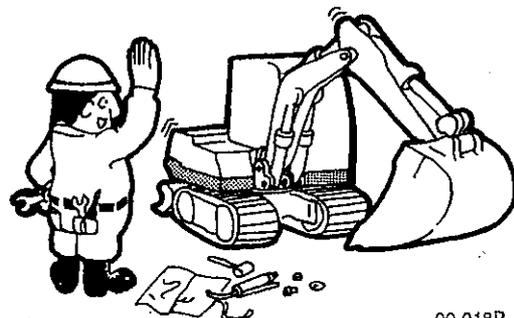
- Always be prepared - check the location and operation of the nearest fire extinguisher.
- Never smoke while inspecting the machine, as this can cause fires.
- In particular, the battery can explode. Be careful of the following:
 - Inspect and service in a well ventilated place.
 - Keep sparks, cigarettes and other flames away from the battery.
 - Do not charge frozen batteries. Heat up the battery first to melt the battery fluid, and only charge the battery when the temperature is 15°C (59°F) or above.



00-021P

Use proper signals when inspecting and servicing!

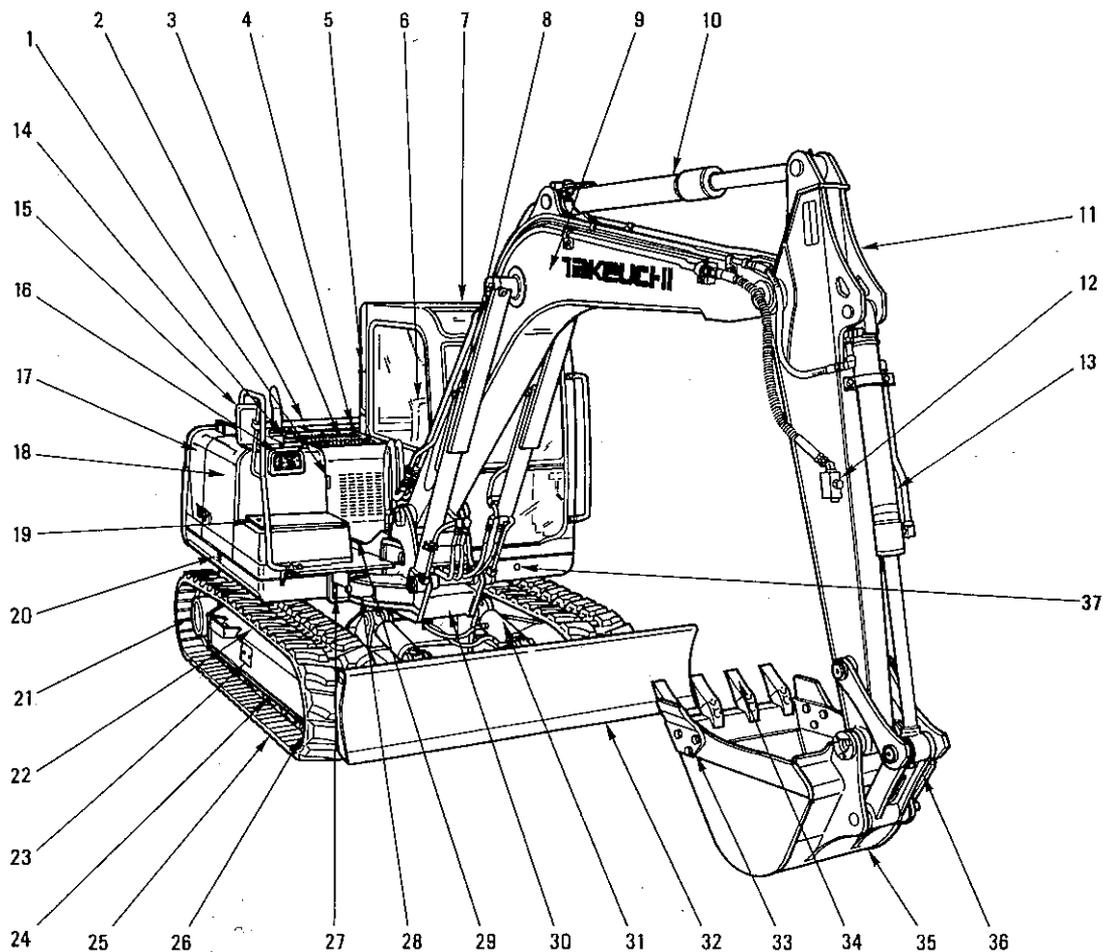
- Inspect and service on a flat, firm surface.



00-018P

CONTROLS AND INSTRUMENTS

NAMES OF COMPONENTS

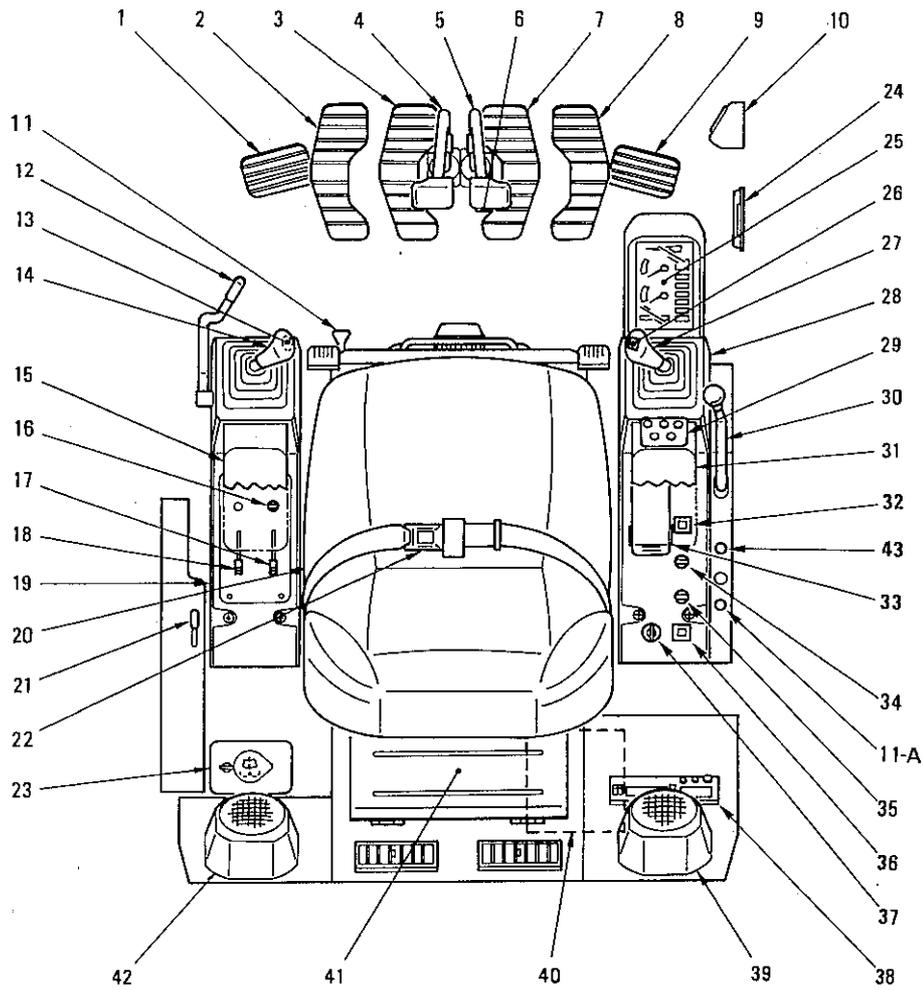


LI-001A

- | | | |
|------------------------------|-------------------------|---------------------------------------|
| 1. Hydraulic oil Level Gauge | 13. Bucket Cylinder | 25. Crawler Belt |
| 2. Bonnet | 14. Hydraulic Tank | 26. Idler |
| 3. Center Cover | 15. Rear View Mirror | 27. Grease Nipple |
| 4. Inspection Cover | 16. Front Light | 28. Swing Cylinder |
| 5. Antenna | 17. Right Side Cover | 29. Stop Valve |
| 6. Seat | 18. Fuel Tank | 30. Swing Bracket |
| 7. Cab | 19. Tool Box | 31. Dozer Blade Cylinder |
| 8. Boom Cylinder | 20. Side Light | 32. Dozer Blade |
| 9. Boom | 21. Travel Motor | 33. Side Cutter |
| 10. Arm Cylinder | 22. Carrier Roller | 34. Tooth Point |
| 11. Arm | 23. Tensioning Cylinder | 35. Bucket |
| 12. Auxiliary Port | 24. Track Roller | 36. Bucket Link |
| | | 37. Electric Socket DC24V
(for EU) |

CONTROLS AND INSTRUMENTS

CONTROLS AND INSTRUMENTS



L1-0118

- | | | |
|---------------------------|------------------------------|--------------------------------|
| 1. Left Footrest | 14. Left Operation Lever | 29. Throttle Control Buttons |
| 2. Auxiliary Pedal | 15. Left Armrest | 30. Dozer Blade Lever |
| 3. Left Travel Pedal | 16. Heater Switch | 31. Right Armrest |
| 4. Left Travel Lever | 17. Heater / Defroster Lever | 32. Blinker Switch |
| 5. Right Travel Lever | 18. Ventilation Lever | 33. Fuse Box |
| 6. Travel Speed Switch | 19. Left Lever Stand | 34. Wiper Switch |
| 7. Right Travel Pedal | 20. Seat | 35. Light Switch |
| 8. Swing Pedal | 21. Door Release Lever | 36. Slew Speed Switch |
| 9. Right Footrest | 22. Seat Belt | 37. Starter Switch |
| 10. Defroster | 23. Washer Fluid Reservoir | 38. Radio with Cassette Player |
| 11. Emergency Stop Knob | 24. Ashtray | 39. Right Speaker |
| Serial No.1703004~1703546 | 25. Cluster Gauge | 40. Heater |
| 11-A. Serial No.1703547~ | 26. Horn Switch | 41. Consol Box |
| 12. Locking Lever | 27. Right Operation Lever | 42. Left Speaker |
| 13. Decel. Switch | 28. Instrument Panel | 43. Cigarette Lighter |

CONTROLS AND INSTRUMENTS

LOCKING LEVER

⚠ WARNING

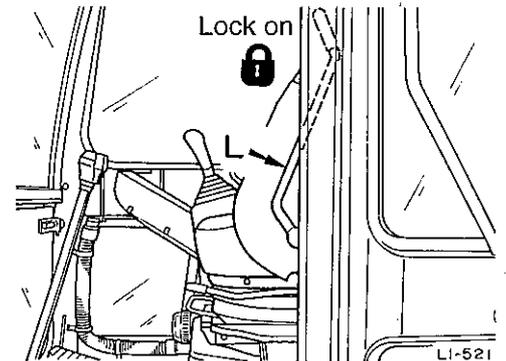
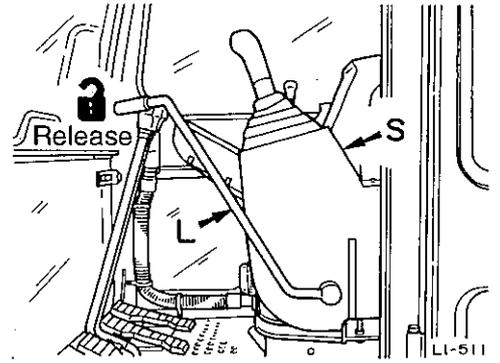
- Be sure to, set the bucket on the ground, lock the operation levers, and remove the key when not working or away from the machine.
- Be careful not to touch the operation levers when shifting the locking lever. Doing so with the locking lever incompletely set may result in the machine slewing or in the hoe attachment being inadvertently moved.

This lever locks the right and left operation levers.

Serial No. 1705081 ~

This lever locks the operation levers and travel levers. The locking lever is located on the left side of the left lever stand (S).

- To unlock, push locking lever (L), firmly down until the stand comes to a full halt.
 - To lock, pull up locking lever (L), causing the lever stand to rise automatically.
- ☞ Note that the operation of the travel, boom swing, and dozer blade are not locked by the locking of the operation levers.
- ☞ The locking system is hydraulically operated. This means that while the left and right operation levers still move when the levers has been locked, the cab may not be slewed and the hoe attachment cannot be used.



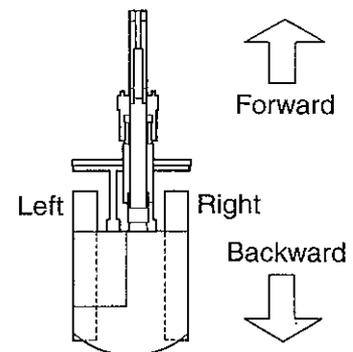
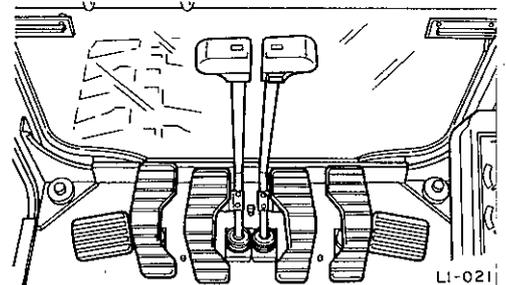
TRAVEL LEVERS

⚠ WARNING

- Check the dozer blade location before traveling, when the dozer blade is to the rear, operate the travel levers in the opposite direction to when the dozer blade is in the front.

These levers control the travel of the machine, i.e., move the machine forward or backward or change direction. Moving the levers further down causes the travel speed to increase.

(See page 39)



OPERATION LEVERS

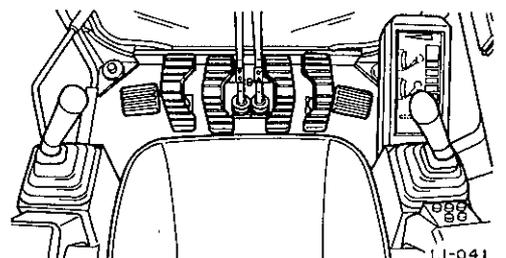
⚠ CAUTION

- Always check the lever type before operating the levers.

These levers control the boom, arm, bucket, and the slewing of the upperstructure.

- Moving the levers further down causes the working speed to increase.

(See pages 38 to 41)

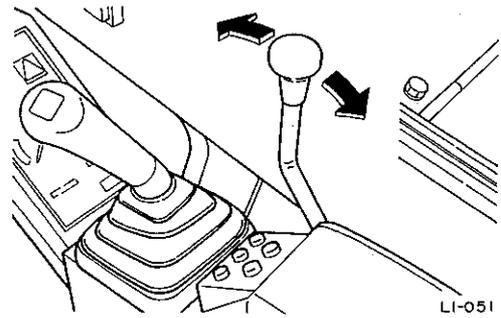


CONTROLS AND INSTRUMENTS

DOZER BLADE LEVER

This lever controls the motion of the dozer blade.

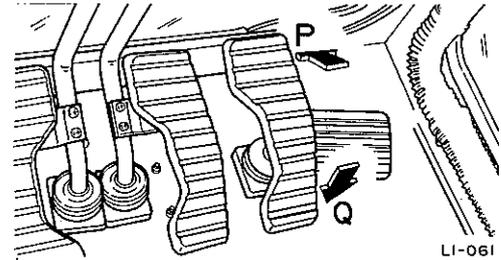
- Pushing the lever forward causes the dozer blade to lower, and pulling it backward causes the dozer blade to rise.
(See pages 38 to 41)



SWING PEDAL

This pedal controls the swinging of the boom.

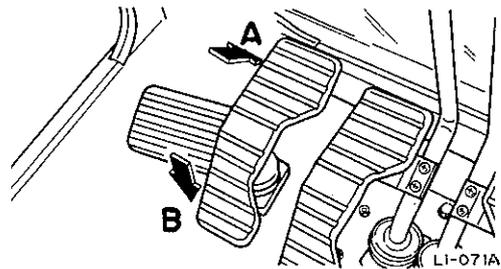
- Depressing the heel of the pedal (Q) causes the boom to swing to the right.
- Depressing the toe of the pedal (P) causes the boom to swing to the left.
(See page 41)



AUXILIARY PEDAL

This pedal controls optional hydraulic attachments when installed on the arm.

- Depressing the toe (A) of the pedal causes hydraulic oil to be expelled from auxiliary port (a).
- Depressing the heel (B) of the pedal causes hydraulic oil to be expelled from auxiliary port (b / T).
(See page 47)

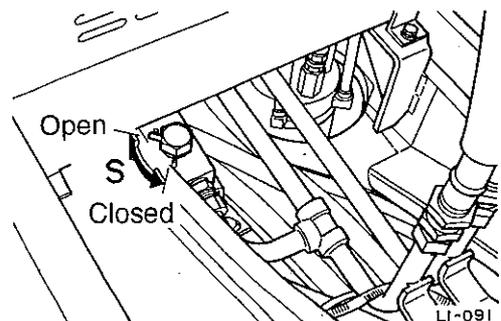
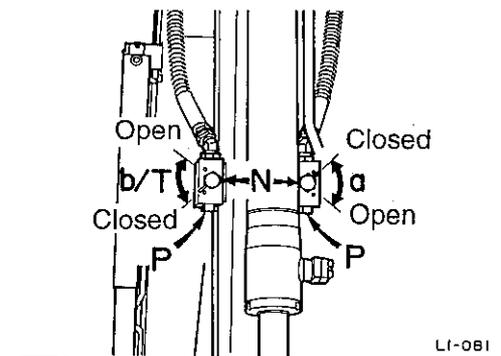


AUXILIARY PORTS

These ports allow you to replace the bucket with a breaker, crusher, or other attachment. Opening and closing the stopper valve (S) located on the Upperstructure switches these ports between one-way and two-way flow. Attachment hoses must be connected to the stopper valves (a) and (b / T) located on the end of the auxiliary tubes, and the stopper valves must then be opened. The attachments may then be controlled using the auxiliary pedal.

(See pages 44 to 47)

- ⚠ Always be sure to attach a plug to seal ports to which no hose has been attached.



CONTROLS AND INSTRUMENTS

CLUSTER GAUGE

The cluster gauge is a device which indicates information sent from sensors located at various parts of the machine to monitor the machine conditions.

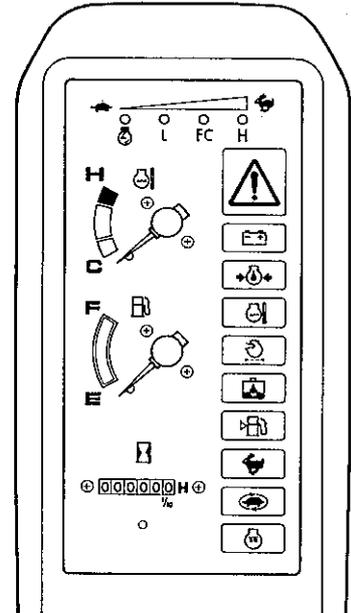
- When the starter switch is turned to the ON position, the warning lamps and pilot lamps on the cluster gauge light for approximately 1 second and a buzzer sound.

The coolant temperature and fuel gauges then start operating.

In addition, the battery charge warning lamp and engine oil pressure warning lamp flash until the engine is started, then go out once the engine is started.

The hour meter only operates when the engine is started.

- ☞ If any of the lamps do not light, the bulb is burnt out. Replace it as soon as possible.
- ☞ Pay attention to the gauges and lamps and operate the machine correctly to prevent problems before they occur.



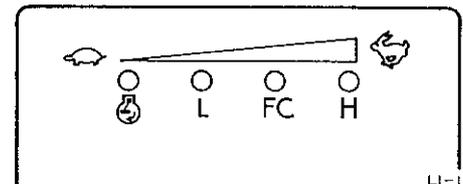
LI-101

THROTTLE CONTROL

The engine output is controlled by operating the decel. (decelerate) switch, the operating mode buttons and the throttle buttons.

The engine output is checked with the operating mode lamps.

- ☞ This device may malfunction due to external radio wave interference, so consult a sales or service outlet before installing a radio, etc.

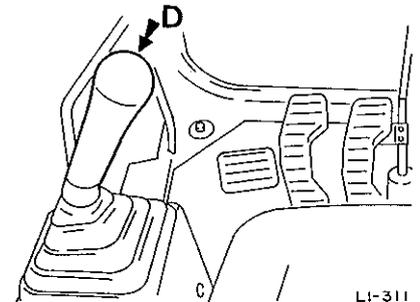


LI-111

Decel. Switch

When switch (D) is pressed while the engine is running, the engine speed is set to the low idle and the decel. lamp (D) lights. When this switch is pressed again, the decelerate function is turned off, the engine speed returns to the original speed and the lamp goes out.

Use this when waiting to dump or when leaving the machine unattended for a short while.

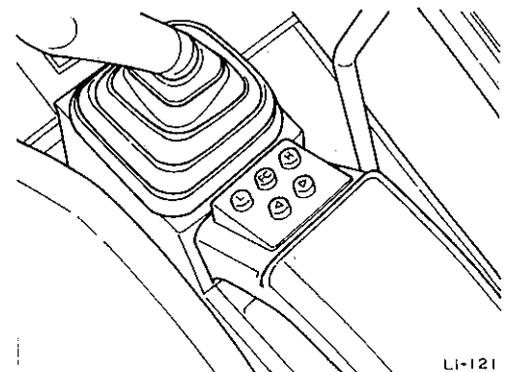


LI-311

Operating Mode Buttons

Press one of the three buttons while the engine is running. The lamp for the selected mode lights, and the engine speed is set accordingly.

- 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.



LI-121

CONTROLS AND INSTRUMENTS

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.

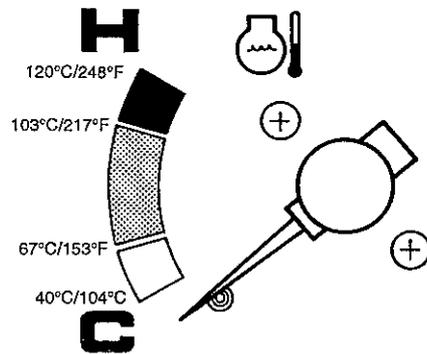
- ▶ Engine speed increases
- ◀ Engine speed decreases

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.

Coolant Temperature Gauge

This gauge shows the temperature of the engine coolant. The green area (67 to 103°C or 153° to 217°F) indicates the range of normal operating temperatures.

- Please refer to page 21 with its explanation of the coolant temperature warning lamp for instructions on what to do if the needle moves into the red area.

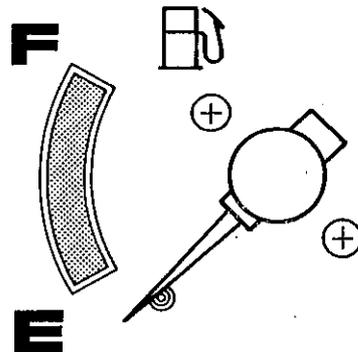


LI-131

Fuel Gauge

This gauge indicates the amount of fuel in the tank.

- F: Tank is full
Capacity: 120 liters (31.7 U.S. gal.)
 - E: Tank is empty
- ☞ Be sure to top off the tank before running out of fuel.
(See pages 59, 60.)

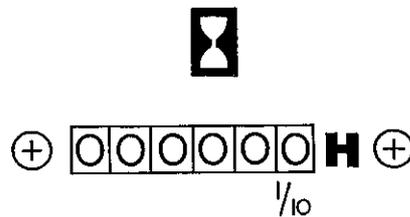


LI-141

Hour Meter

This meter indicates the total time in hours the engine has been run. The value on this meter increases whenever the engine is in operation, even if the machine is not in motion.

- ☞ Note this value and keep it on hand for reference when ordering parts or requesting repairs.
(See page 81.)



LI-151

CONTROLS AND INSTRUMENTS

Engine Emergency Lamp

⚠ CAUTION

- Be careful not to panic and immediately stop the engine when this lamp begins flashing, being sure to refer instead to the instructions below for information on the correct procedure to be taken.
- When the engine emergency lamp flashes, be sure to check for the problem and take appropriate action before starting the engine again. Failing to do so may result in serious damage to the engine.

A failure in the lubrication system or an abnormal rise in the temperature of the coolant (above 103°C or 217°F) will cause a buzzer to sound and this orange lamp to flash. If the problem lies in the lubrication system, the engine will stop automatically after an interval of approximately 15 seconds, and if the problem was the overheating of the coolant, the engine will automatically begin low idling. In the latter event you should wait until the indicator of the coolant temperature gauge falls within the green range and then stop the engine, check for the problem and perform repairs.

- 🔧 If the warning lamps for the engine oil pressure and / or the coolant temperature flash simultaneously, refer to the pages explaining the functions of the lamps for instructions on how to check the machine and perform repairs.
- 🔧 Be sure to have the machine inspected at a service outlet before using it again after performing repairs.
- 🔧 The engine cannot be restarted after bringing it to an emergency halt without turning off the main power switch. This means that the starter switch should be turned to the OFF position momentarily before restarting the engine.

Battery Charge Warning Lamp

A failure in the charging circuit will causes a buzzer to sound and this red lamp to flash.

- 🔧 Have the machine checked at a service outlet.

Engine Oil Pressure Warning Lamp

A failure in the lubrication system will causes a buzzer to sound and this red lamp to flash.

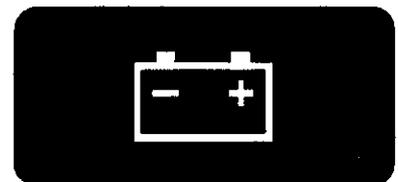
⚠ CAUTION

- Continuing to run the engine even after this warning lamp has lit up may result in seizure in each portion of the engine. If this lamp comes on stop the engine, check for the problem, and take appropriate action to effect repairs.

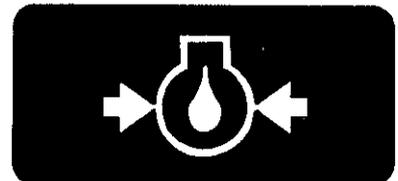
- Stop the engine and check the engine oil level.
(See page 34.)
- If the problem lies somewhere other than with the oil, have the engine checked at a service outlet.



LI-161



LI-171



LI-181

CONTROLS AND INSTRUMENTS

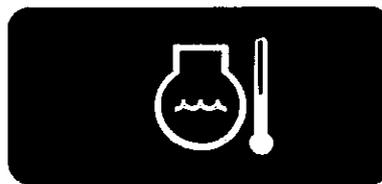
Coolant Temperature Warning Lamp

An abnormally high increase in the temperature of the coolant (above 103° C or 217°F) will cause a buzzer to sound and this red lamp to flash.

⚠ CAUTION

- The coolant may overheat as a result of the engine being continuously run under excessively heavy loads. Continuing to run the engine after it overheats in this manner may result in seizure in each portion. See the section below for instructions on what to do if this happens.

- The engine is about to overheat. Halt work immediately to allow the temperature of the coolant to recede. The engine will automatically begin low idling.
 - Wait for the temperature of the coolant to fall back to normal levels and then stop the engine.
 - After the engine has cooled down check to see that there is enough coolant and that the fan belt is not cut, cracked, or loose. (See page 34.)
- ☞ Follow the procedure above to allow the temperature of the coolant to fall back to normal levels, then start operating the machine again, being careful not to overdo it.



LI-19I

Air Cleaner Warning Lamp

A restriction in the air cleaner will cause a buzzer to sound and this red lamp to flash.

- Clean the dust cup and element.
(See page 62.)

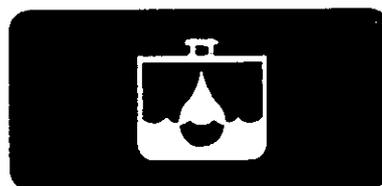


LI-20I

Water Separator Warning Lamp

A buzzer sounds and this red lamp flashes when water is detected within the water separator when the starter switch is in the ON position.

- When the lamp flashes, drain the water from the water separator immediately.
(See page 61.)



LI-22I

Fuel Level Warning Lamp

This orange lamp lights up when fuel is low with the starter switch in the ON position.

- If the lamp lights up, stop the engine and refuel.
(See pages 59 to 61.)



LI-21I

CONTROLS AND INSTRUMENTS

Second Speed Travel Lamp

Switching the travel speed to second speed causes this light green indicator to light up. The travel speed switch is located on the grip of the right travel lever.

☞ Turning the starter switch off automatically returns the machine to first speed.



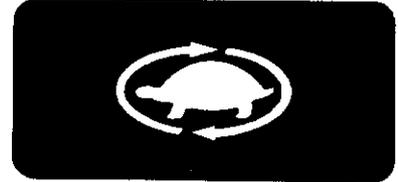
LI-231

Slow Speed Slew Lamp

Pressing the Slew speed switch 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. Switching gears causes the green lamps located on the switch and that located on the instrument panel to light up. Bringing rotation to a halt and pressing the slow speed switch again returns the upperstructure to its normal speed slew and extinguishes the lamps.

☞ As a safety precaution, the machine is designed so that you cannot switch to normal speed while slewing in slow speed.

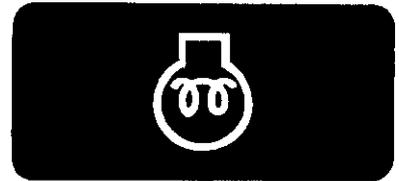
You must instead bring the rotation to a temporary halt and then press the slew speed switch to return to normal speed.



LI-241

Glow Lamp

When the starter switch is in the ON position and the coolant temperature is low, the air heater will automatically begin to operate to make it easier to start up the engine and an orange glow lamp will light up to indicate that the air heater has started up. When this lamp lights up wait until it goes out before starting up the engine. The lamp stays lit for approximately 1 seconds at temperatures of 0°C (32°F) and for approximately 9 seconds at temperatures of -10°C (14°F).



LI-251

STARTER SWITCH

OFF Deenergizes the electrical system. (engine stop position.)

ON Energizes all electrical systems. (engine operating position.)

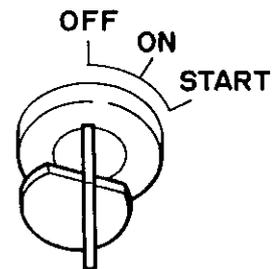
If the coolant temperature is low, the air heater is energized and automatic preheating is done.

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

START Starts up the engine. (Releasing the switch here causes it to return automatically to the ON position.)
(See pages 36, 37)

☞ Position not shown on decal.

- Starter switch key may be used in any of the following places
Starter switch / Cab door / Fuel filler cap / Front cover / Right and left side covers



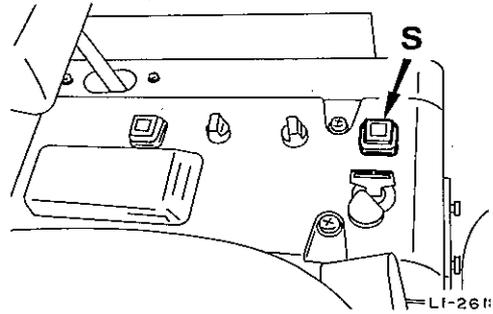
SZ2-041A

SLEW SPEED SWITCH

Pressing this switch (S) 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.

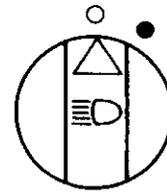
Slow speed The lamps on the switch and instrument panel will light up. Used for low speed slew.
 Normal speed The lamps will go out and slew will return to its normal speed.

☞ 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 switch to return to normal speed.



LIGHT SWITCH

- position OFF
 - position Lights on the cluster gauge and radio, front light, side lights, and boom light on.
- ☞ Position not shown on decal.

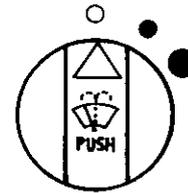


SK2-141

WIPER SWITCH

- position OFF
 - position Causes the wiper to engage intermittently in 4-second intervals.
 - position: Causes the wiper to operate continuously.
- Push Washer fluid is ejected from the washer nozzle in a continuous stream as long as this button is being held down. Releasing the button brings the stream to a halt.

☞ Position not shown on decal.



SK2-151A

HEATER SWITCH AND LEVER

CAUTION

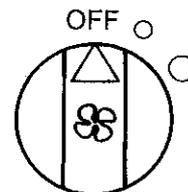
- Always be sure to allow sufficient ventilation.

Switch

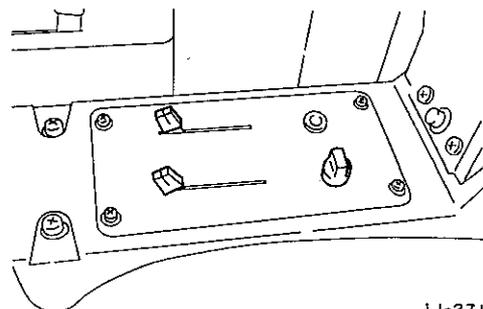
- OFF Stop
- position Causes the heater fan to engage at low speed
 - position Causes the heater fan to engage at high speed

Lever

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



SK2-161A



LI-271