

Operator's Manual

ZAXIS

35U-5N

50U-5N

60USB-5N

Hydraulic Excavator

Serial No.

ZX35U-5N 270001 and up

ZX50U-5N 280001 and up

ZX60USB-5N 285001 and up

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SAFETY SIGNS

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OPERATING THE ENGINE

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OPERATING THE MACHINE

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MAINTENANCE

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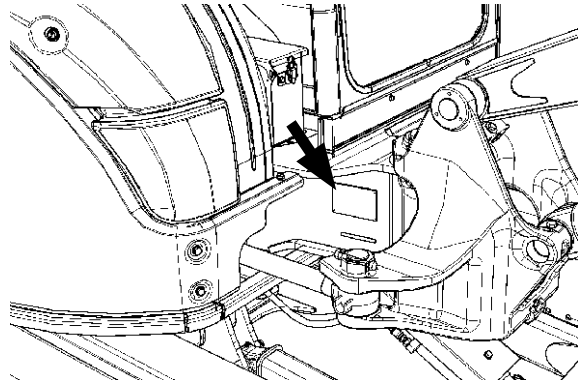
MACHINE NUMBERS

The manufacturing Nos. explained in this group is the individual number (serial No.) given to each machine and hydraulic components. These numbers are requested when inquiring any information on the machine and/or components. Fill these serial Nos. in the blank spaces in this group to immediately make them available upon request.

Machine

MODEL / TYPE: _____

PRODUCT IDENTIFICATION NUMBER:



MADB-00-002

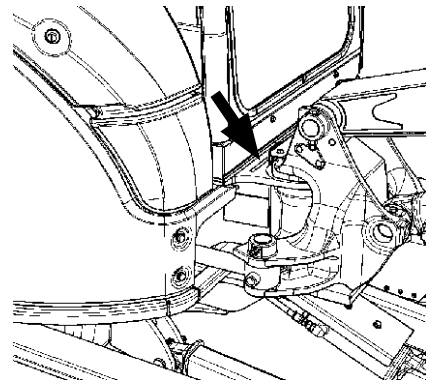
Product Identification Number

PRODUCT IDENTIFICATION NUMBER:

 NOTE:

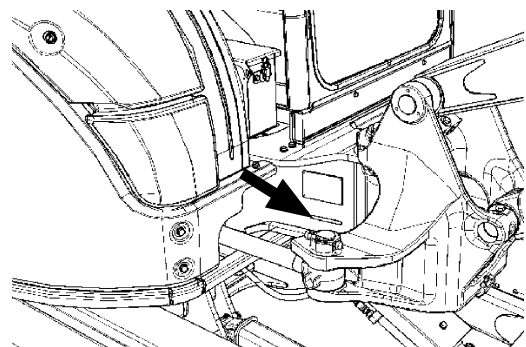
HCMADG00X00270001 Marks to indicate the start and end of the PIN

PRODUCT IDENTIFICATION NUMBER (PIN)



ZX35U-5N

MADB-00-003



ZX50U-5N, 60USB-5N

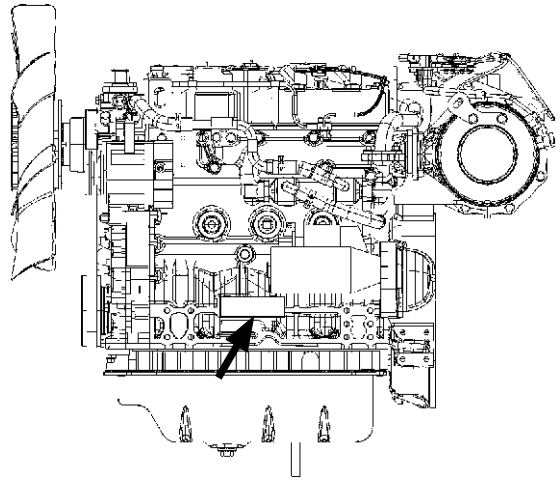
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MACHINE NUMBERS

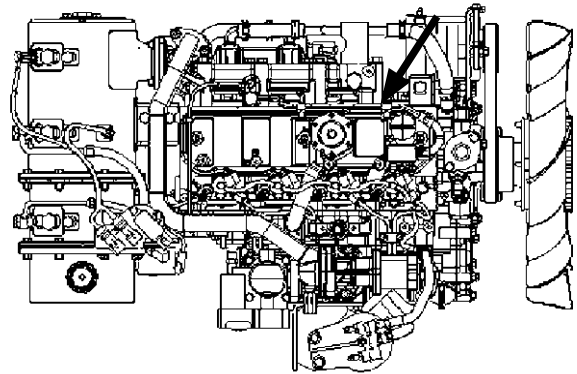
Engine

TYPE: _____

MFG. NO.: _____



MADG-00-022



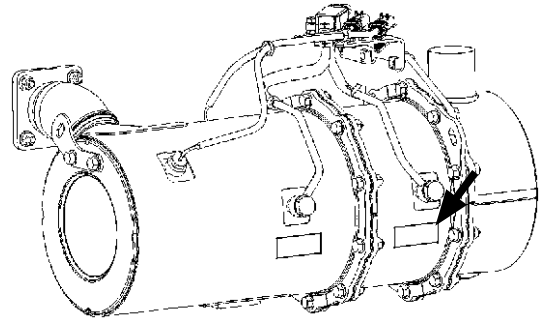
MADG-00-001

MACHINE NUMBERS

Muffler Filter

TYPE: _____

MFG. NO.: _____

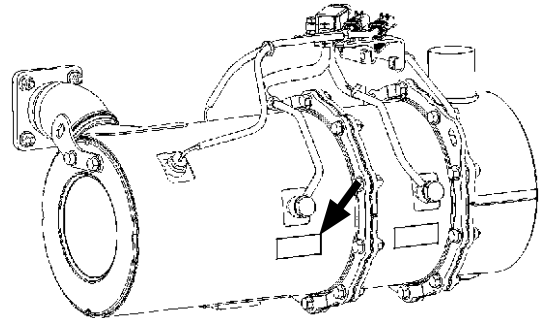


MADG-00-017

DOC (Diesel Oxidation Catalyst)

TYPE: _____

MFG. NO.: _____

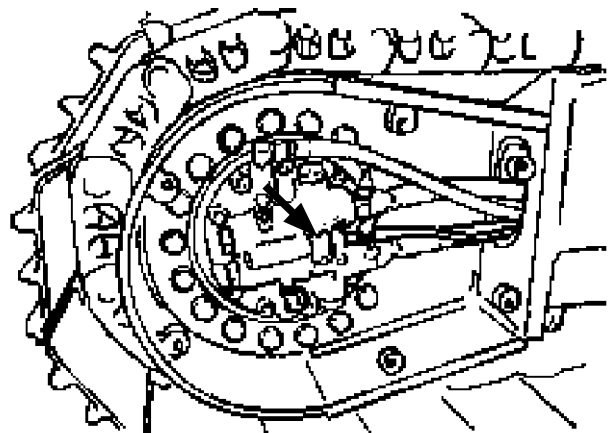


MADG-00-017

Travel Motor

TYPE: _____

MFG. NO.: _____



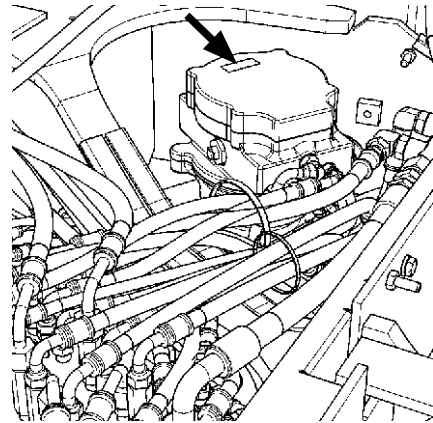
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MACHINE NUMBERS

Swing Motor

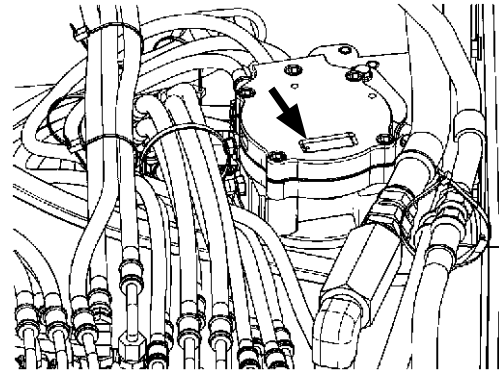
TYPE: _____

MFG. NO.: _____



ZX35U-5N, 50U-5N

MADB-00-005



ZX60USB-5N

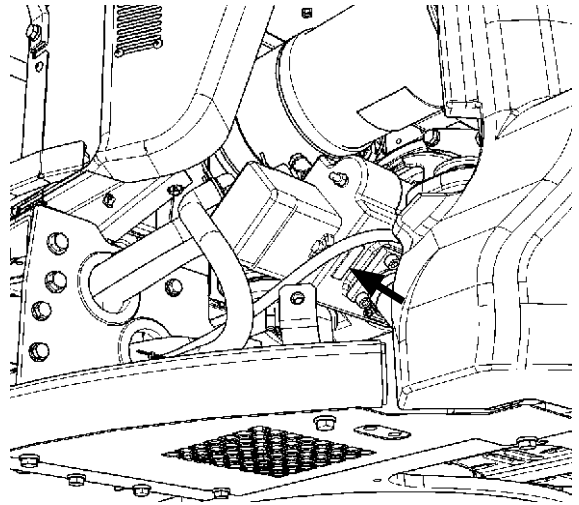
MADC-00-001

MACHINE NUMBERS

Hydraulic Pump

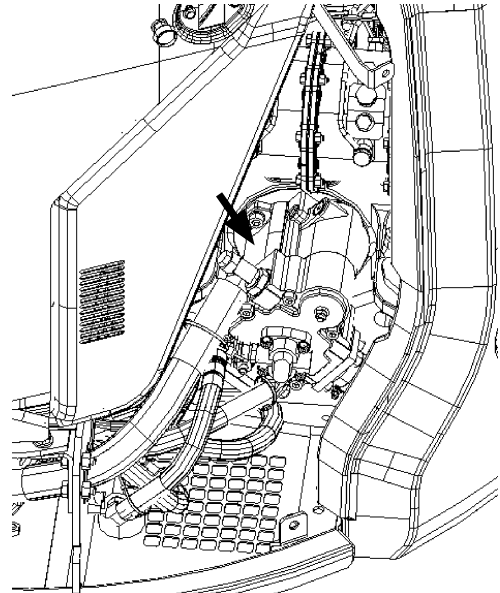
TYPE: _____

MFG. NO.: _____



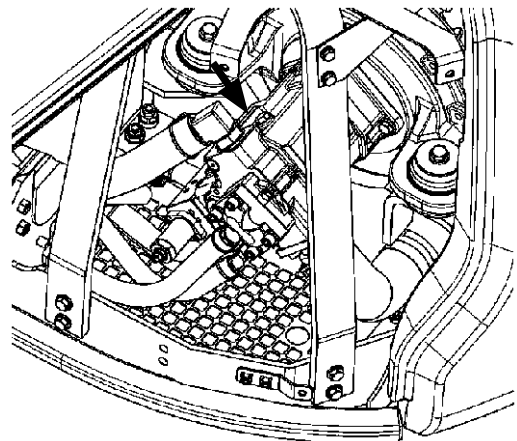
ZX35U-5N

MADB-00-006



ZX50U-5N

MADB-00-021



ZX60USB-5N

MADC-00-002

MACHINE NUMBERS

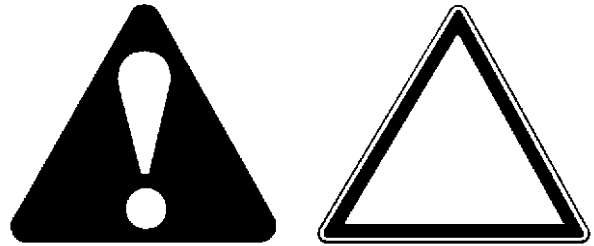
MEMO

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SAFETY


Recognize Safety Information

- These are the **SAFETY ALERT SYMBOLS**.
 - When you see these symbols on your machine or in this manual, be alert to the potential for personal injury.
 - Follow recommended precautions and safe operating practices.



SA-688

Understand Signal Words

- On machine safety signs, signal words designating the degree or level of hazard - **DANGER**, **WARNING**, or **CAUTION** - are used with the safety alert symbol.
 - **DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
 - **WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 - **CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
 - **DANGER** or **WARNING** safety signs are located near specific hazards. General precautions are listed on **CAUTION** safety signs.
 - Some safety signs do not use any of the designated signal words above after the safety alert symbol are occasionally used on this machine.
- To avoid confusing machine protection with personal safety messages, a signal word **IMPORTANT** indicates a situation which, if not avoided, could result in damage to the machine.
-  **NOTE** indicates an additional explanation for an element of information.

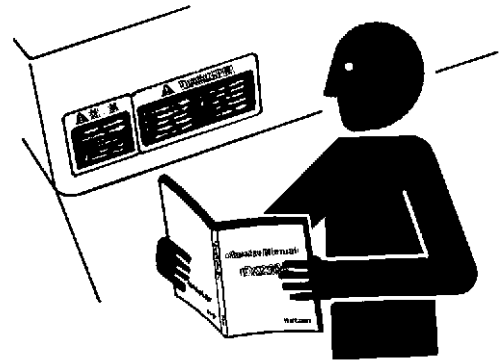


SA-1223

SAFETY

Follow Safety Instructions

- Carefully read and follow all safety signs on the machine as well as all safety messages in this manual.
- Safety signs must be installed, maintained and replaced if damaged.
 - If a safety sign or this manual is damaged or missing, order a replacement from your authorized dealer in the same way you order other replacement parts (be sure to state machine model and serial number when ordering).
- Allow only properly trained, qualified, authorized personnel to operate the machine.
- Learn how to correctly operate and service the machine.
- Keep your machine in proper working condition.
 - Unauthorized modifications of the machine may impair its function and/or safety and affect machine life.
 - Do not modify any machine parts without authorization. Failure to do so may deteriorate the part safety, function, and/or service life. In addition, personal accident, machine trouble, and/or damage to material caused by unauthorized modifications will void Hitachi Warranty Policy.
 - Never modify the air inlet and exhaust parts and/or disassemble the muffler filter on the machines equipped with the muffler filter. Avoid giving shocks on the muffler filter by striking elements with other objects or dropping the elements. Failure to do so may affect the exhaust gas purifying device, possibly damaging it or lowering its performance.
 - Do not use attachments and/or optional parts or equipment not authorized by Hitachi. Failure to do so may deteriorate the safety, function, and/or service life of the machine. In addition, personal accident, machine trouble, and/or damage to material caused by using unauthorized attachments and/or optional parts or equipment will void Hitachi Warranty Policy.
- The safety messages in this SAFETY chapter are intended to illustrate basic safety procedures of machines. However it is impossible for these safety messages to cover every possible hazardous situation you may encounter. If you have any questions concerning safety, you should first consult your supervisor and/or your authorized dealer before operating or performing maintenance work on the machine.

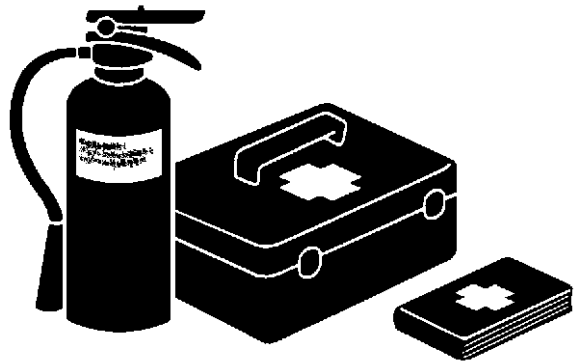


SA-003

SAFETY

Prepare For Emergencies

- Be prepared if a fire starts or if an accident occurs.
 - Keep a first aid kit and fire extinguisher on hand.
 - Thoroughly read and understand the label attached on the fire extinguisher and use it properly.
 - To ensure that a fire extinguisher can be always used when necessary, check and service the fire extinguisher at the recommended intervals as specified in the fire-extinguisher manual.
 - Establish emergency procedure guidelines to cope with any fire or accidents which may occur.
 - Keep emergency numbers for doctors, ambulance service, hospitals, and fire department posted near your telephone.



SA-437

Wear Protective Clothing

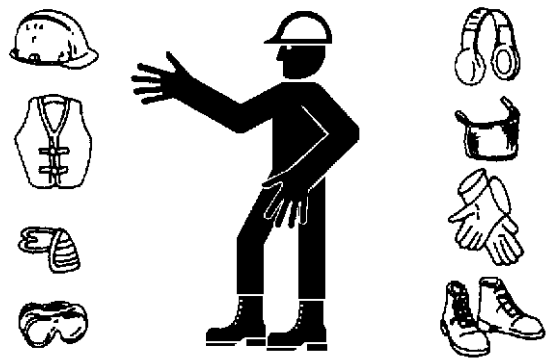
- Wear close fitting clothing and safety equipment appropriate to the job.

You may need:

- A hard hat
- Safety belt
- Safety shoes
- Safety glasses, goggles, or face shield
- Heavy gloves
- Hearing protection
- Reflective clothing
- Wet weather gear
- Respirator or filter mask

Be sure to wear the correct equipment and clothing for the job. Do not take any chances.

- Avoid wearing loose clothing, jewelry, or other items that can catch on control levers or other parts of the machine.
- Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating the machine.



SA-438

SAFETY

Protect Against Noise

- Prolonged exposure to loud noise can cause impairment or loss of hearing.
- Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortably loud noises.



SA-434

Inspect Machine

- If any abnormality is found, be sure to repair it immediately before operating the machine.
- In the walk-around inspection, be sure to cover all points described in the “Daily Inspection” section in the operator’s manual.



SA-435

SAFETY

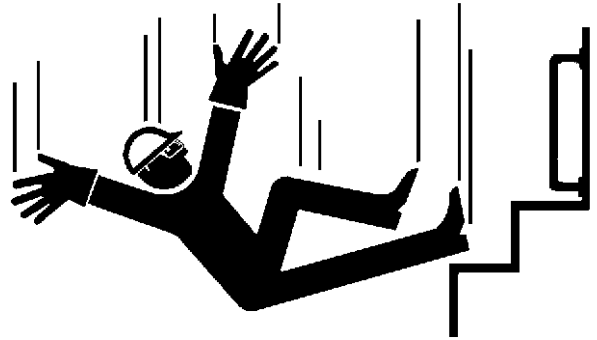
General Precautions for Cab

- Always keep inside the cab clean by observing instructions below, to prevent any personal accidents from occurring.
 - Before entering the cab, thoroughly remove all dirt and/or oil such as mud, grease, soil or stones that may mess up the cab from the soles of your work boots. If any controls such as a pedal is operated while with dirt and/or oil on the soles of the operator's work boots, the operator's foot may slip off the pedal, possibly resulting in a personal accident.
 - Do not mess up around the operator's seat with parts, tools, soil, stones, obstacles that may fold up or turn over, cans or lunch box. The levers or pedals become inoperable if obstacle jams in operation stroke of the travel levers/pedals, pilot control shut-off lever or control levers, which may result in serious injury or death.
 - Avoid storing transparent bottles in the cab. Do not attach any transparent type window decorations on the windowpanes as they may focus sunlight, possibly starting a fire.
 - Refrain from listening to the radio, or using music headphones or mobile telephones in the cab while operating the machine.
 - Keep all flammable objects and/or explosives away from the machine.
 - After using the ashtray, always cover it to extinguish the match and/or tobacco.
 - Do not leave cigarette lighters in the cab. If the temperature in the cab increases, the lighter may explode.
 - Use proper floor mat dedicated to the machine. If another floor mat is used, it may be displaced and contact with the travel pedals during operation, resulting in serious injury or death.

SAFETY

Use Handrails and Steps

- Falling is one of the major causes of personal injury.
 - When you get on and off the machine, always use the crawler instead of the step for safety. Be sure you have adequate footing on the crawler when getting on or off the machine.
 - When you get on and off the machine, always face the machine.
 - Maintain a three-point contact with the steps and handrails.
 - Do not use any controls as handholds.
 - Never jump on or off the machine. Never mount or dismount a moving machine.
 - In case adhered slippery material such as oil, grease, or mud is present on steps, handrails, or platforms, thoroughly remove such material.
 - Never get on and off the machine with tools in your hands.



SA-439

Adjust the Operator's Seat

- A poorly adjusted seat for either the operator or the work at hand may quickly fatigue the operator leading to misoperation of the machine.
 - The seat should be adjusted whenever the operator for the machine changes.
 - The operator should be able to fully depress the pedals and to correctly operate the control levers with his back firmly against the seat back.
 - If not, readjust the seat forward or backward, and check again.



SA-378

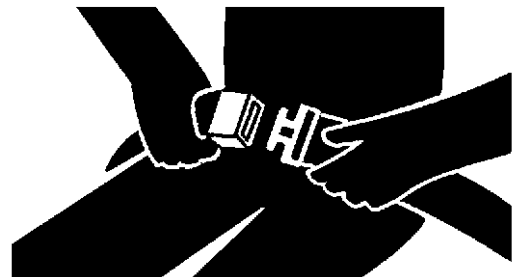
SAFETY

Ensure Safety Before Rising From or Leaving Operator's Seat

- Before rising from the operator's seat to open/close cab front window or to adjust the seat position, be sure to first lower the front attachment to the ground and then move the pilot control shut-off lever to the LOCK position. Failure to do so may allow the machine to unexpectedly move when a body part unintentionally comes in contact with a control lever, possibly resulting in serious personal injury or death.
- Before leaving the machine, be sure to first lower the front attachment to the ground and then move the pilot control shut-off lever to the LOCK position. Turn the key switch OFF to stop the engine.
- Before leaving the machine, close all windows, doors, and access covers and lock them up.

Fasten Your Seat Belt

- If the machine should overturn, the operator may become injured and/or thrown from the cab. Additionally the operator may be crushed by the overturning machine, resulting in serious injury or death.
 - Be sure to remain seated with the seat belt securely fastened whenever operating the machine.
 - Prior to operating the machine, thoroughly examine webbing, buckle and attaching hardware. If any item is damaged or worn, replace the seat belt or component before operating the machine. Replace the seat belt at least once every 3 years regardless of appearance.

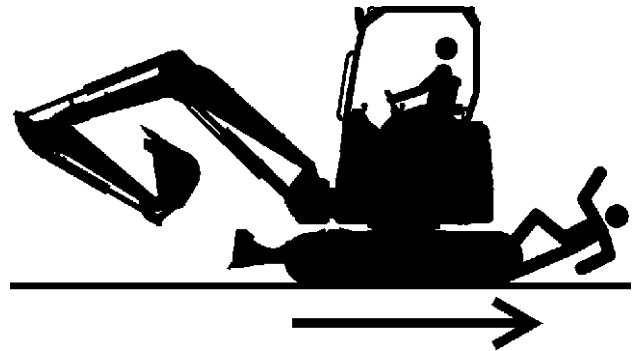


SA-237

SAFETY

Move and Operate Machine Safely

- Always be aware that there is a potential danger around the machine while operating the machine.
- Take extra care not to run over bystanders. Confirm the location of bystanders before moving, swinging, or operating the machine.
- Always keep the travel alarm and horn in working condition (if equipped).
- Before starting to move or operate the machine, sound the travel alarm and horn to alert bystanders.
- Use a signal person when moving, swinging, or operating the machine in congested areas. Locate the signal person so that the operator can always witness the signal person.
- Coordinate the meanings of all safety signs, hand signals and marks before starting the machine. Appoint a person who is responsible to make a signal and/or guidance.
- Never allow any persons or obstacles to enter the machine operation areas.
- Use appropriate illumination.



SA-1291

Operate Only From Operator's Seat

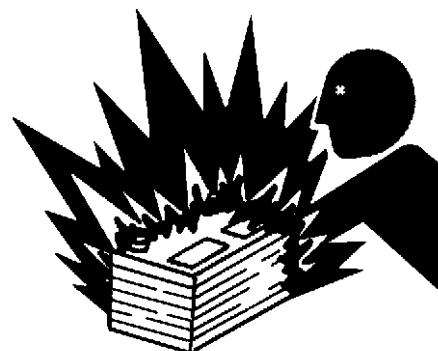
- Inappropriate engine starting procedures may cause the machine to runaway, possibly resulting in serious injury or death.
- Start the engine only when seated in the operator's seat.
- NEVER start the engine while standing on the tracks or on ground.
- Do not start engine by shorting across starter terminals. A hazardous situation may be created and/or possible damage to the machine may result.
- Before starting the engine, confirm that all control levers are in neutral.



SA-444

Jump Starting

- Failure to follow correct jump starting procedures could result in a battery explosion or a runaway machine.
- If the engine must be jump started, be sure to follow the instructions shown in the "OPERATING ENGINE" chapter.
- The operator must be seated in the operator's seat so that the machine will be under control when the engine starts. Jump starting is a two-person operation.
- Never use a frozen battery.

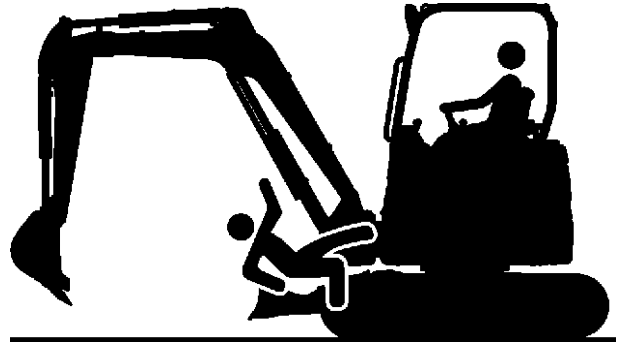


SA-032

SAFETY

Keep Riders Off Machine

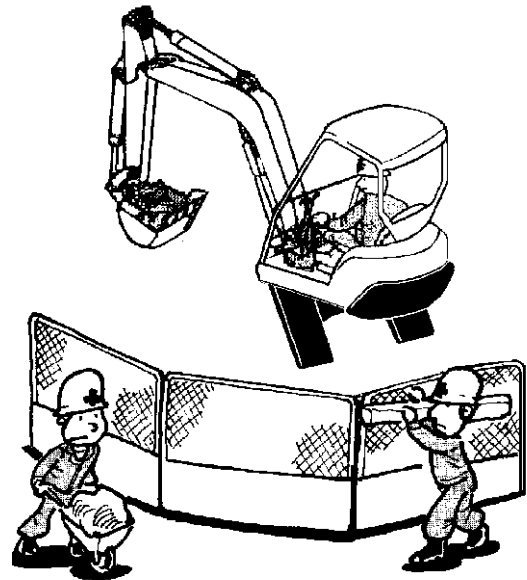
- Riders on machine are subject to injury such as being struck by foreign objects and being thrown off the machine.
- Riders also obstruct the operator's view, resulting in the machine being operated in an unsafe manner.
- Only the operator is allowed on the machine. Keep riders off.



SA-1292

Precautions for Operations

- Investigate the work site before starting operations.
 - Be sure to wear close fitting clothing and required safety items, such as a hard hat, when operating the machine.
 - Keep all bystanders and unnecessary objects out of and away from the machine working areas. Always beware of the surroundings while operating the machine. Take care not to allow the rear part of the upperstructure to come in contact with objects when swinging the machine in a small area.
- When loading a dump truck, bring the bucket from the rear side of the dump truck to avoid moving the bucket over the dump truck cab or over any co-workers.

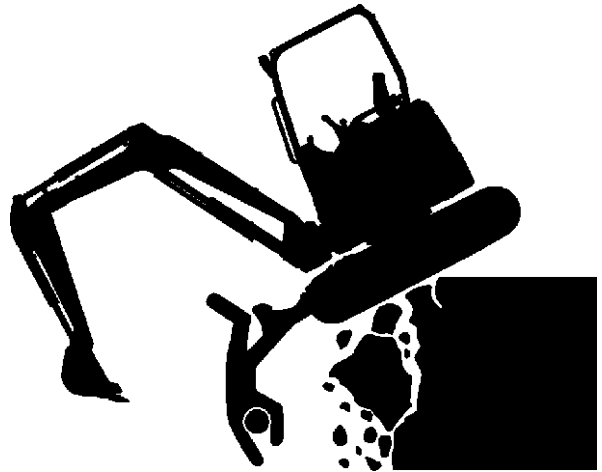


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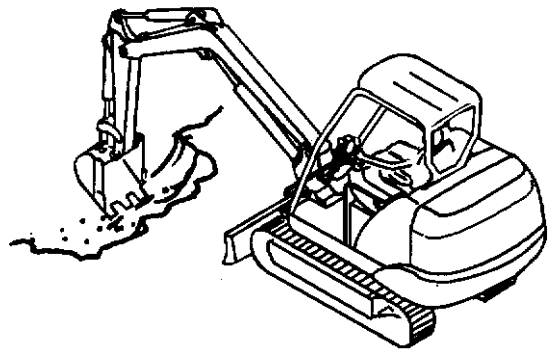
SAFETY

Investigate Job Site Beforehand

- When working at the edge of an excavation or on a road shoulder, the machine could tip over due to collapse of the ground, possibly resulting in serious injury or death.
 - Investigate the configuration and ground conditions of the job site beforehand to prevent the machine from falling and to prevent the ground, stockpiles, or banks from collapsing.
 - Make a work plan. Use machines appropriate to the work and job site.
 - Reinforce ground, edges, and road shoulders as necessary. Keep the machine well back from the edges of excavations and road shoulders.
 - When working on an incline or on a road shoulder, employ a signal person as required.
 - Never allow bystanders to enter the working area such as swing radius or traveling range.
 - When the footing is weak, reinforce the ground before starting work.
 - When working on frozen ground, be extremely alert. As ambient temperatures rise, footing may become loose and slippery.
 - When operating the machine near open flame, sparks, and/or dead grass, a fire may easily break out. Use special care not to cause a fire.
- Make sure the work site ground has sufficient strength to firmly support the machine. When working close to an excavation or on road shoulders, operate the machine with the tracks positioned perpendicular to the cliff face with travel motors at the rear and with the blade at the front, so that the machine can more easily evacuate if the cliff face collapses.
- If working at the bottom of a cliff or on a high bank is required, be sure to investigate the area first and confirm that no danger of the cliff or bank collapsing exists. If any possibility of cliff or bank collapsing exists, do not work in that area.
- Soft ground may collapse when operating the machine on it, possibly causing the machine to tip over. When working on a soft ground is required, be sure to reinforce the ground first using large pieces of steel plates strong enough and firm to easily support the machine.
- Note that there is always a possibility of machine tipping over when working on rough terrain or on slopes. Prevent machine tipping over from occurring. Operate the machine slowly to ensure safe operation.



SA-1293



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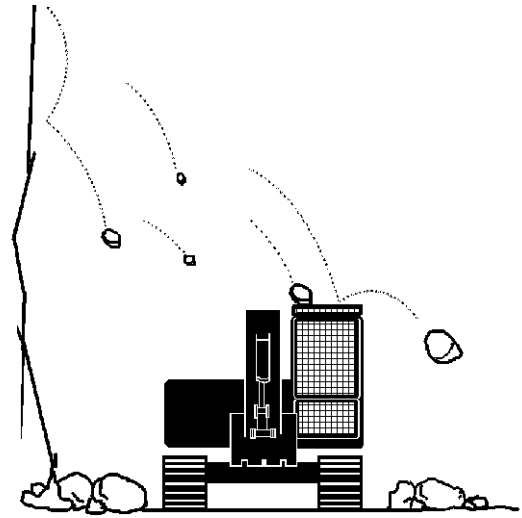
SAFETY

Equipment of OPG

- In case the machine is operated in areas where the possibility of falling stones or debris exists, equip genuine Hitachi OPG guard. Contact your nearest Hitachi dealer for installation method of the OPG guard. Depending on the specifications applied to your machine, modification of the machine to meet ROPS standards will be possible.
- To maintain unimpaired operator protection and manufacturer's protective structure.
 - Damaged ROPS, OPG guard must be replaced, not repaired or revised.
 - Any alternation to the ROPS or OPG guard must be approved by the manufacturer.

ROPS : Roll Over Protective Structure

OPG : Operator Protective Guard



SA-490

Provide Signals for Jobs Involving Multiple Machines

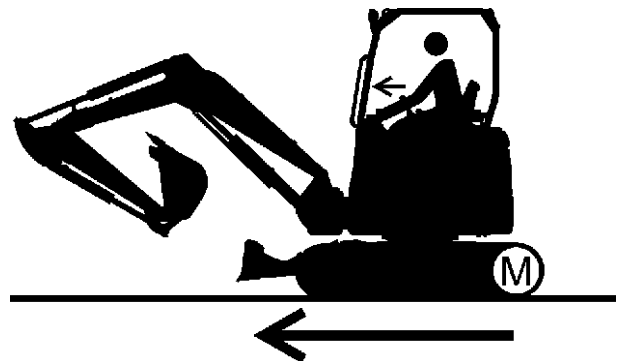
- In case more than one machine is operated in the same job site, accidental collision between machines may cause serious injury or death.
- For jobs involving multiple machines, provide signals commonly known by all personnel involved. Also, appoint a signal person to coordinate the job site. Make sure that all personnel obey the signal person's directions.



SA-481

Confirm Direction of Machine to be Driven

- Incorrect travel pedal/lever operation may result in serious injury or death.
 - Before driving the machine, confirm the position of the undercarriage in relation to the operator's position.
 - If the travel motors are located towards the front of the cab, the machine will move in the reverse direction when travel pedals/levers are operated.



SA-1294

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