

PART NO. EM18J-1-5

**HITACHI**

# Operator's Manual

# **EX 1200-6**

## **Hydraulic Excavator**

Serial No 1193, 1221 and up

# INDEX

MACHINE NUMBERS

SAFETY

SAFETY SIGNS

COMPONENTS NAME

GETTING ON/OFF MACHINE

HANDLING LADDER

HANDLING EMERGENCY ESCAPE ROPE

EMERGENCY EXIT

OPERATOR'S STATION

BREAK-IN

OPERATING ENGINE

DRIVING MACHINE

OPERATING MACHINE

TRANSPORTING

MAINTENANCE

MAINTENANCE UNDER SPECIAL ENVIRONMENTAL CONDITIONS

STORAGE

TROUBLESHOOTING

SPECIFICATIONS

INDEX

# CONTENTS

## MACHINE NUMBERS

<b>SAFETY</b> .....	S-1
Recognize Safety Information .....	S-1
Understand Signal Words.....	S-1
Follow Safety Instructions.....	S-2
Prepare for Emergencies.....	S-2
Wear Protective Clothing.....	S-3
Protect Against Noise .....	S-3
Inspect Machine .....	S-3
General Precautions for Cab.....	S-4
Use Handholds and Steps .....	S-5
Adjust Operator's Seat.....	S-5
Ensure Safety Before Rising From or Leaving Operator's Seat .....	S-5
Fasten Your Seat Belt .....	S-6
Move and Operate Machine Safely.....	S-6
Handle Starting Aids Safely .....	S-6
Operate Only from Operator's Seat .....	S-7
Jump Starting .....	S-7
Keep Riders off Machine .....	S-7
Precautions for Operations .....	S-8
Investigate Job Site Beforehand .....	S-9
Install OPG Guard .....	S-10
Provide Signals for Jobs Involving Multiple Machines....	S-10
Confirm Direction of Machine to be Driven .....	S-10
Drive Machine Safely.....	S-11
Avoid Injury from Rollaway Accidents.....	S-13
Avoid Injury from Back-Over and Swing Accidents .....	S-14
Keep Person Clear from Working Area.....	S-15
Never Position Bucket Over Anyone .....	S-15
Avoid Undercutting.....	S-15
Avoid Tipping.....	S-16
Never Undercut a High Bank.....	S-16
Dig with Caution.....	S-17
Operate with Caution .....	S-17
Avoid Power Lines.....	S-18
Precautions for Lightning.....	S-18
Object Handling .....	S-18
Protect Against Flying Debris .....	S-19
Park Machine Safely.....	S-19
Handle Fluids Safely – Avoid Fires.....	S-19
Practice Safe Maintenance.....	S-20
Warn Others of Service Work .....	S-21
Support Machine Properly.....	S-21
Stay Clear of Moving Parts .....	S-22
Prevent Parts from Flying .....	S-22
Store Attachments Safely .....	S-22
Prevent Burns.....	S-23
Replace Rubber Hoses Periodically.....	S-23
Avoid High-Pressure Fluids .....	S-24
Prevent Fires.....	S-25
Evacuating in Case of Fire.....	S-27
Beware of Exhaust Fumes.....	S-27
Precautions for Welding and Grinding .....	S-27
Avoid Heating Near Pressurized Fluid Lines .....	S-28

Avoid Applying Heat to Lines Containing Flammable Fluids .....	S-28
Precautions for Handling Accumulator and Gas Damper.....	S-28
Remove Paint before Welding or Heating .....	S-29
Beware of Asbestos and Silicon Dust and Other Contamination .....	S-29
Prevent Battery Explosions .....	S-30
Service Air Conditioning System Safely .....	S-30
Handle Chemical Products Safely.....	S-31
Dispose of Waste Properly.....	S-31
Never Ride Attachment.....	S-31
Precautions for Communication Terminal.....	S-31
<b>SAFETY SIGNS</b> .....	S-32
<b>COMPONENTS NAME</b> .....	1-1
Components Name .....	1-1
<b>GETTING ON/OFF MACHINE</b> .....	1-2
Getting ON/OFF Machine.....	1-2
<b>HANDLING LADDER</b> .....	1-3
Using Ladder (Optional).....	1-3
Operating Ladder on the Ground.....	1-4
Extending .....	1-4
Retracting .....	1-4
Operating Ladder on the Upper-Structure .....	1-4
Extending .....	1-4
Retracting .....	1-4
<b>HANDLING EMERGENCY ESCAPE ROPE (ELEVATED CAB)</b> .....	1-5
Emergency Escape Rope .....	1-5
Storing Emergency Escape Rope.....	1-5
<b>EMERGENCY EXIT (ELEVATED CAB)</b> .....	1-6
Emergency Exit .....	1-6
Evacuating in Case of Fire.....	1-6
<b>OPERATOR'S STATION</b> .....	1-8
Cab Features.....	1-8
Std. Model.....	1-8
Multi Function Monitor .....	1-9
How to Use Screens .....	1-9
Displaying Basic Screen .....	1-9
Outline.....	1-10
Menu Screen (19) .....	1-12
Hour Meter .....	1-13
Fuel Gauge .....	1-13
Clock.....	1-13
Back Monitor Selector .....	1-13
Menu Key .....	1-14
Optional Function Key .....	1-14
Return to Basic Screen Key .....	1-14
Alarm Light.....	1-14
Optional Function Display .....	1-14
Coolant Temperature Gauge .....	1-15
Operating Status Icon Display.....	1-15

# CONTENTS

Displaying Basic Screen by Password Input (Optional) .....	1-16	For Rapid Cooling .....	1-59
In Case of Inputting an Incorrect Password .....	1-17	When Windows Become Clouded .....	1-59
Extending Password Duration Time .....	1-19	Off-Season Air Conditioner Maintenance .....	1-59
Alarm Occurrence Screen .....	1-20	AM/FM Radio Operation .....	1-60
Contents of Alarms .....	1-22	Tuning Procedure .....	1-60
Clock Setting .....	1-25	Station Presetting Procedure .....	1-60
Time Adjustment .....	1-25	Sound Adjustment .....	1-61
Password Change (Optional) .....	1-26	Digital Clock Setting Procedure .....	1-61
Back Monitor Settings .....	1-29	Cab Door Release Lever .....	1-62
Auto-Control: ON .....	1-29	Opening Side Windows .....	1-62
Auto-Control: OFF .....	1-30	Emergency Exit .....	1-63
Maintenance Settings .....	1-31	Fire Extinguisher --- If Equipped .....	1-63
Maintenance Information Display ON/OFF .....	1-31	Adjusting Seat .....	1-64
Change Interval Settings .....	1-32	Seat Height and Angle Adjustment .....	1-64
Resetting Data .....	1-33	Console and Seat Fore-aft Adjustment .....	1-64
Screen Display when Maintenance Information		Seat Fore-Aft Adjustment .....	1-64
Display is ON .....	1-34	Backrest Adjustment .....	1-64
Language Settings .....	1-36	Armrest Adjustment .....	1-65
Lists of Display Language .....	1-37	Adjusting Seat (Heater Seat Optional) .....	1-66
Switch Panel .....	1-38	Seat Height and Angle Adjustment .....	1-66
Engine Control Dial .....	1-39	Console and Seat Fore-aft Adjustment .....	1-66
Auto-Idle Switch .....	1-39	Seat Fore-Aft Adjustment .....	1-66
Power Mode Switch .....	1-40	Backrest Adjustment .....	1-66
Travel Mode Switch .....	1-40	Armrest Adjustment .....	1-67
Work Light Switch .....	1-41	Seat with a Built-In Heater .....	1-67
Wiper/Washer Switch .....	1-42	Adjusting Air-Suspension Seat (Optional) .....	1-68
Switch Panel (Optional Included) .....	1-43	Seat Height and Angle Adjustment .....	1-68
Travel Alarm Deactivation Switch (Optional) .....	1-44	Console and Seat Fore-aft Adjustment .....	1-68
Seat Heater Switch (Optional) .....	1-44	Seat Fore-Aft Adjustment .....	1-68
Boom Mode Switch .....	1-44	Suspension Adjustment .....	1-68
Level Check Switch .....	1-44	Backrest Adjustment .....	1-68
Lubrication Mode Switch (Optional) .....	1-44	Armrest Adjustment .....	1-69
Buzzer Deactivation Switch .....	1-44	Seat with a Built-In Heater .....	1-69
Key Switch .....	1-45	Adjusting Console Height .....	1-70
Horn Switch .....	1-45	Adjusting Procedures .....	1-70
Cigar Lighter .....	1-46	Installation and Adjustment of Mirror and Camera .....	1-71
Operation .....	1-46	Seat Belt .....	1-72
Using Cigar Lighter (2) Port as External Power		Seat Belt .....	1-72
Source .....	1-46	Battery Disconnect Switch (Optional) .....	1-73
Cab Light Switch .....	1-47	How to operate the disconnect switch .....	1-73
Step Light Switch .....	1-47	<b>BREAK-IN</b> .....	2-1
Installing Fire Extinguisher (Optional) .....	1-48	Observe Engine Operation Closely .....	2-1
Engine Fault Diagnostics Switch .....	1-48	Every 10 Hours or Daily .....	2-1
Pilot Control Shut-Off Lever .....	1-49	After the First 50 Hours .....	2-1
Fuse Box 1 .....	1-50	<b>OPERATING ENGINE</b> .....	3-1
Fuse Box 2 .....	1-50	Inspect Machine Daily Before Starting .....	3-1
Air Conditioner Operation .....	1-51	Before Starting Engine .....	3-2
Features: .....	1-51	Level Check .....	3-3
Auto Air Conditioner .....	1-52	Starting Engine in Ordinary Temperature .....	3-4
Distinctive Feature .....	1-52	Starting Engine in Cold Weather .....	3-5
Controller Part Name and Function .....	1-53	Check Instruments After Starting .....	3-6
Cab Heater Operation .....	1-57	Using Booster Batteries .....	3-7
Cooling Operation .....	1-57	Stopping Engine .....	3-9
Defroster Operation .....	1-58	Engine Stop Switch .....	3-10
Tips for Optimal Air Conditioner Usage .....	1-59		

# CONTENTS

<b>DRIVING MACHINE</b> .....	4-1	Maintenance Interval Guide.....	7-16
Drive Machine Carefully.....	4-1	A. Greasing.....	7-19
Steering Machine Using Pedals.....	4-2	Front Joint Pins .....	7-20
Steering Machine Using Levers.....	4-3	Swing Bearing .....	7-24
Travel Mode Switch .....	4-4	Lubricator.....	7-25
Travel Alarm (Optional) .....	4-4	Swing Internal Gear .....	7-27
Operating on Soft Ground .....	4-5	Fan Pulley and Tension Pulley .....	7-28
Raise One Track Using Boom and Arm .....	4-5	B. Engine .....	7-29
Towing Machine a Short Distance.....	4-6	Check Engine Oil Level.....	7-30
Operating in Ground Condition.....	4-7	Change Engine Oil .....	7-30
Parking Machine on Slopes .....	4-8	Replace Engine Oil Filters .....	7-30
Parking Machine .....	4-8	C. Transmission.....	7-32
<b>OPERATING MACHINE</b> .....	5-1	Pump Transmission .....	7-33
Control Lever (ISO Pattern Backhoe) .....	5-1	Swing Reduction Gear .....	7-36
Control Lever (ISO Pattern Loading Shovel) .....	5-2	Travel Reduction Gear .....	7-38
Bucket Open-Close Pedals (Loading Shovel) .....	5-3	D. Hydraulic System.....	7-40
Control Lever (HITACHI Pattern Backhoe) (Optional) .....	5-4	Inspection and Maintenance of Hydraulic Equipment... 7-41	
Control Lever (HITACHI Pattern Loading Shovel) (Optional).....	5-5	Check Hydraulic Oil Level .....	7-43
Pilot Control Shut-Off Lever .....	5-6	Drain Hydraulic Oil Tank Sump .....	7-44
Warming-Up Operation .....	5-7	Change Hydraulic Oil.....	7-45
Auto-Idle.....	5-8	Suction Filter Cleaning .....	7-48
Engine Speed Control.....	5-9	Replace Drain Filter .....	7-49
Power Mode .....	5-10	Replace Full-Flow Filter Element .....	7-51
E (Economy) Mode.....	5-11	Replace Pilot Oil Filter.....	7-53
P (Power) Mode.....	5-12	Replace High-Pressure Filter Element .....	7-55
H/P (High Power) Mode .....	5-13	Replace Tank Air Breather Element.....	7-56
Heavy Lift.....	5-14	Check Hoses and Lines .....	7-57
Operating Backhoe.....	5-15	E. Fuel System .....	7-63
Grading Operation.....	5-15	Drain Fuel Tank Sump .....	7-65
Avoid Abusive Operation .....	5-16	Drain Fuel Filter Sediment .....	7-66
Avoid Side Load the Bucket.....	5-16	Replace Fuel Filter.....	7-67
Operating Tips.....	5-17	Check Fuel Hoses .....	7-68
Select Correct Track Shoes .....	5-17	Clean Fuel Cooler Core .....	7-70
Loading Shovel Operation .....	5-18	F. Air Cleaner.....	7-71
Prohibited Operation .....	5-18	Clean Air Cleaner Outer Element .....	7-71
Object Handling --- If Equipped.....	5-21	Replace Air Cleaner Outer and Inner Elements.....	7-71
Overnight Storage Instructions.....	5-22	G. Cooling System .....	7-73
<b>TRANSPORTING</b> .....	6-1	Check Coolant Level .....	7-74
Packing Dimensions and Weights for Transportation.....	6-1	Check DCA4 Concentration in Coolant .....	7-75
<b>MAINTENANCE</b> .....	7-1	Replace Coolant Filter .....	7-83
Correct Maintenance and Inspection Procedures.....	7-1	Change Coolant .....	7-84
Check Hour Meter Regularly .....	7-2	Check Fan Belt for Wear .....	7-85
Use Correct Fuels and Lubricants .....	7-2	Clean Radiator, Inter Cooler and Oil Cooler Core .....	7-86
Prepare Machine for Maintenance .....	7-3	Clean Inter Cooler Front Screen.....	7-86
Hood and Access Covers.....	7-4	Clean Oil Cooler Front Screen.....	7-86
Use Electrical Outlet (Optional) .....	7-4	H. Air Conditioner.....	7-87
Construction Outline .....	7-5	Recirculation Air Filter .....	7-87
Hydraulic System.....	7-7	Ventilation Air Filter .....	7-88
Loading Shovel.....	7-8	Check Refrigerant Quantity.....	7-89
Backhoe .....	7-9	Check Compressor Belt Tension .....	7-90
Electrical Circuit .....	7-10	Clean Condenser Core .....	7-90
EX1200-6 Electrical Circuit Diagram .....	7-11	Check Tightening Torque .....	7-91
Periodic Replacement of Rubber Hoses.....	7-13	Seasonal Maintenance.....	7-92
		I. Electrical System.....	7-93
		Batteries .....	7-94
		Replacing Fuses .....	7-98

# CONTENTS

---

Check Power Source Terminal .....	7-100
Check Electrical Cables and Wire Harnesses for Short Circuits.....	7-101
J. Miscellaneous .....	7-103
Check Bucket Teeth .....	7-104
Change Bucket (Backhoe).....	7-109
Check and Replace Seat Belt.....	7-110
Check Windshield Washer Fluid Level .....	7-110
Check Track Sag .....	7-111
Auto-Lubrication System .....	7-113
Check Tightening Torque of Bolts and Nuts.....	7-117
Check O-rings in Bucket Joints .....	7-131
<b>MAINTENANCE UNDER SPECIAL ENVIRONMENTAL CONDITIONS .....</b>	<b>9-1</b>
Maintenance Under Special Environmental Conditions...	9-1
<b>STORAGE .....</b>	<b>10-1</b>
Storing Machine.....	10-1
Removing Machine from Storage .....	10-2
Transporting Machine .....	10-2
<b>TROUBLESHOOTING .....</b>	<b>11-1</b>
Engine Troubleshooting .....	11-1
How to Read Engine Fault Codes.....	11-2
Engine.....	11-3
Electrical System .....	11-6
Mode Selection .....	11-8
Control Levers.....	11-8
Hydraulic System.....	11-9
<b>SPECIFICATIONS .....</b>	<b>12-1</b>
Specifications.....	12-1
Working Range (Backhoe).....	12-3
Working Range (Be Backhoe).....	12-4
Working Range (Loading Shovel) .....	12-5
Backhoe Shoe Types and Applications .....	12-6
Sound Level Results (2000/14/EC) .....	12-7
<b>INDEX .....</b>	<b>14-1</b>

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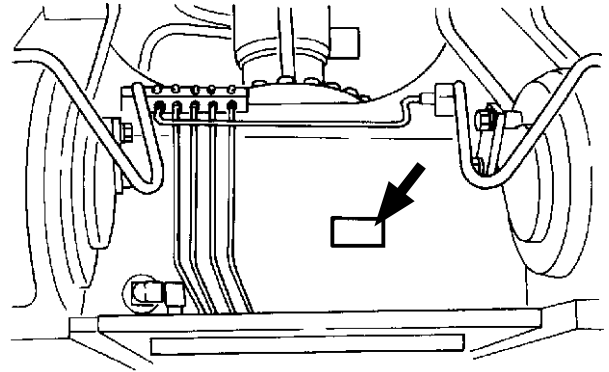
# MACHINE NUMBERS

The manufacturing Nos. explained in this group is the individual number (serial No.) given to each machine and main 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: \_\_\_\_\_

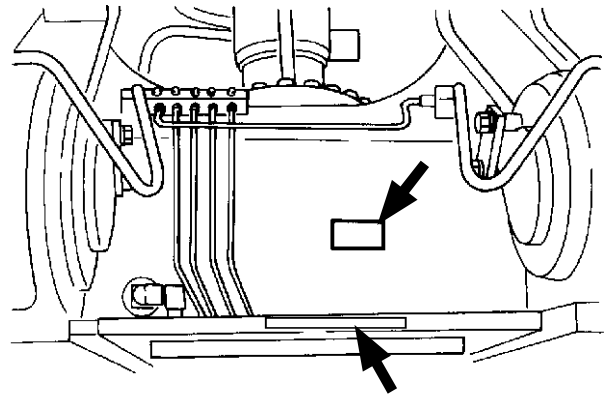
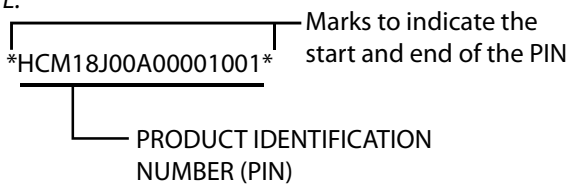


M142-12-001

## Product Identification Number

PRODUCT  
IDENTIFICATION  
NUMBER: \_\_\_\_\_

 NOTE:

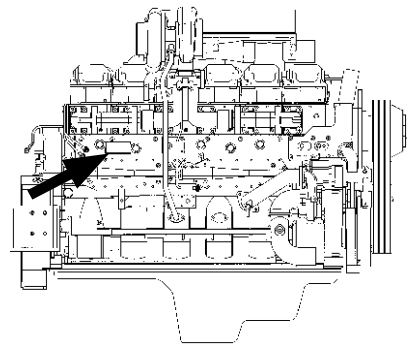


M142-12-001

## Engine

TYPE: \_\_\_\_\_

MFG. NO.: \_\_\_\_\_



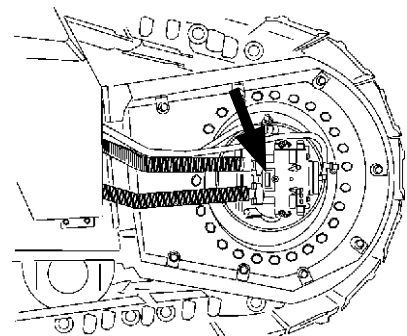
M18E-01-008

## Travel Motor

TYPE: \_\_\_\_\_

MFG. NO.: (LEFT) \_\_\_\_\_

MFG. NO.: (RIGHT) \_\_\_\_\_



M183-01-001

# MACHINE NUMBERS

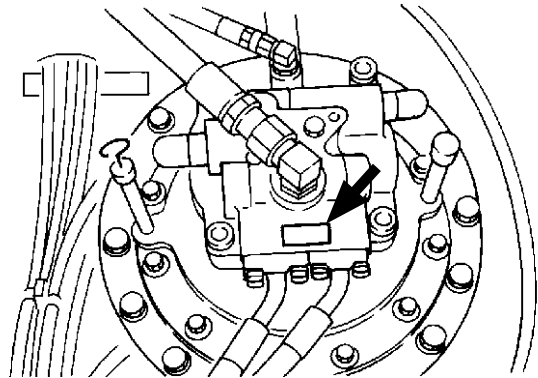
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## Swing Motor

TYPE: \_\_\_\_\_

MFG. NO.: (FRONT) \_\_\_\_\_

MFG. NO.: (REAR) \_\_\_\_\_



M142-12-003

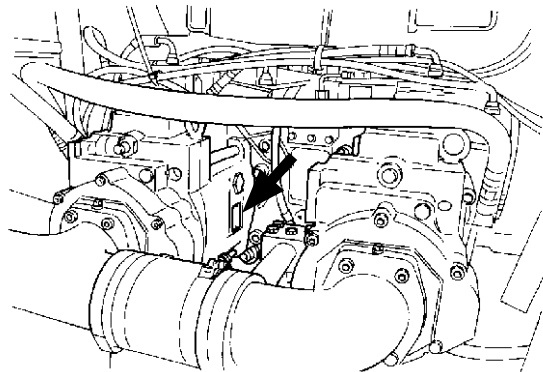
## Hydraulic Pump

TYPE: \_\_\_\_\_

MFG. NO.: (NO.1) \_\_\_\_\_

MFG. NO.: (NO.2) \_\_\_\_\_

MFG. NO.: (NO.3) \_\_\_\_\_

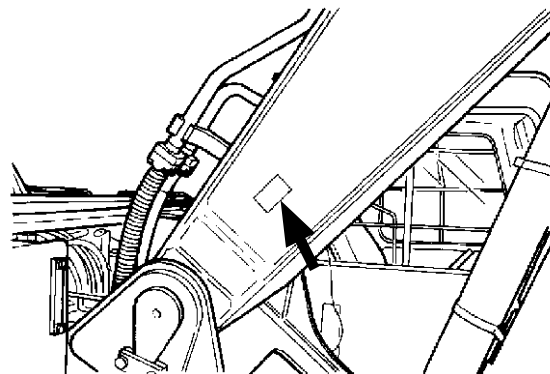


M142-12-004

## Boom

TYPE: \_\_\_\_\_

MFG. NO.: \_\_\_\_\_

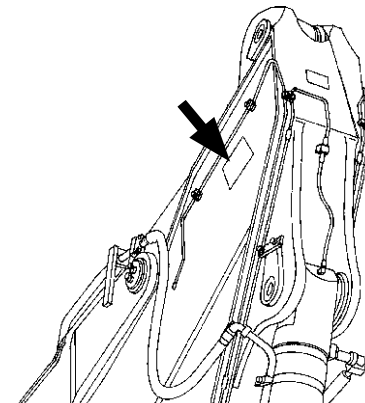


M111-12-005

## Arm

TYPE: \_\_\_\_\_

MFG. NO.: \_\_\_\_\_



M17V-00-005

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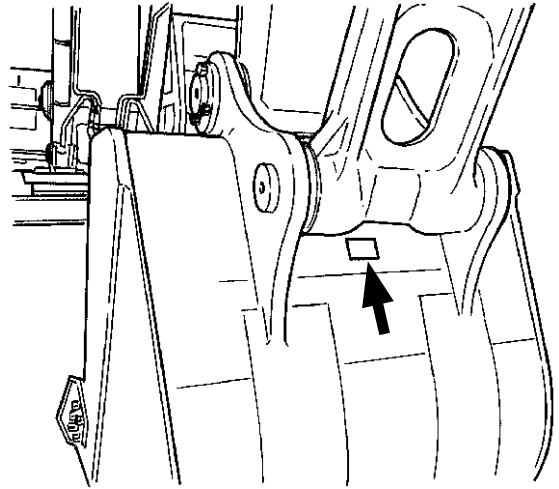
## MACHINE NUMBERS

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### Bucket

TYPE: \_\_\_\_\_

MFG. NO.: \_\_\_\_\_



M116-12-004

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## SAFETY

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### 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.



**IMPORTANT**

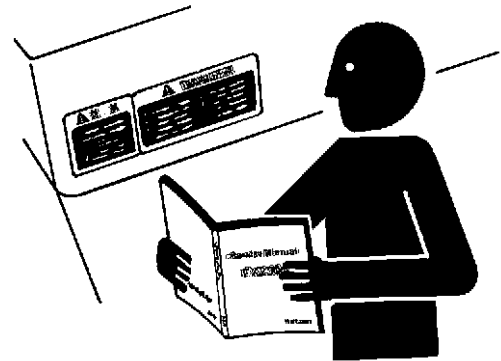


SA-1223

## SAFETY

### Follow Safety Instructions

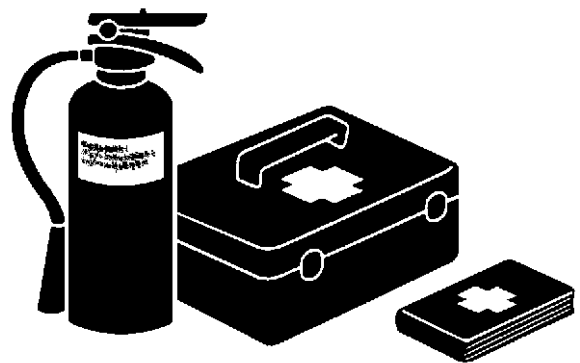
- Carefully read and follow all safety signs on the machine and all safety messages in this manual.
- Safety signs should be installed, maintained and replaced when necessary.
  - If a safety sign or this manual is damaged or missing, order a replacement from your authorized dealer in the same way you order other replacement parts (be sure to state machine model and serial number when ordering).
- Learn how to operate the machine and its controls correctly and safely.
- Allow only trained, qualified, authorized personnel to operate 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.
  - 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 hazardous situation you may encounter. If you have any questions, you should first consult your supervisor and/or your authorized dealer before operating or performing maintenance work on the machine.



SA-003

### 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 to 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 fires and accidents.
- Keep emergency numbers for doctors, ambulance service, hospital, and fire department posted near your telephone.



SA-437

## SAFETY

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### Wear Protective Clothing

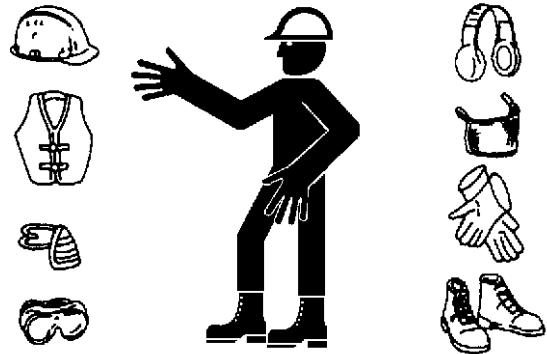
- Wear close fitting clothing and safety equipment appropriate to the job.

You may need:

- A hard hat
- 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

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### 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

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### Inspect Machine

- Inspect your machine carefully each day or shift by walking around it before you start it to avoid personal injury.
- In the walk-around inspection be sure to cover all points described in the "PRE-START INSPECTION" chapter in the operator's manual.



SA-435

## SAFETY

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### General Precautions for Cab

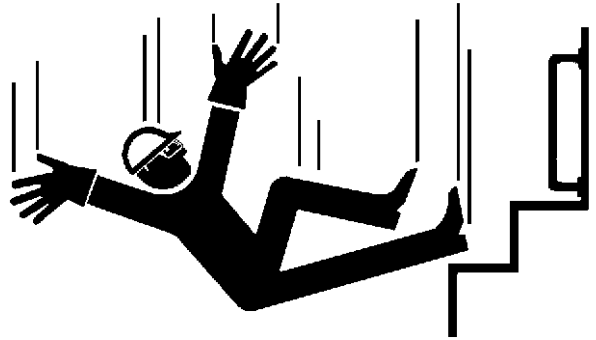
- Before entering the cab, thoroughly remove all dirt and/or oil such as mud, grease, soil or stones that may mess up the cab from the soles of your work boots. If any controls such as a pedal is operated while with dirt and/or oil on the soles of the operator's work boots, the operator's foot may slip 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, control 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. When 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 or control pedals during operation, resulting in serious injury or death.

## SAFETY

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### Use Handholds and Steps

- Falling is one of the major causes of personal injury.
  - When you get on and off the machine, always face the machine and maintain a three-point contact with the steps and handrails.
  - Do not use any controls as hand holds.
  - Never jump on or off the machine. Never mount or dismount a moving machine.
  - Be careful of slippery conditions on platforms, steps, and handrails when leaving the machine.
  - Never get on and off the machine with tools in your hands.



SA-439

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### Adjust Operator's Seat

- A poorly adjusted seat for either the operator or the work at hand may quickly fatigue the operator leading to misoperations.
  - The seat should be adjusted whenever changing the operator for the machine.
  - The operator should be able to fully depress the pedals and to correctly operate the control levers with his back against the seat back.
  - If not, move the seat forward or backward, and check again.
  - Adjust the rear view mirror position so that the best rear visibility is obtained from the operator's seat. If the mirror is broken, immediately replace it with a new one.



SA-378

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### Ensure Safety Before Rising From or Leaving Operator's Seat

- Before rising from the operator's seat to open/close either side 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.

## SAFETY

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### 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.
- 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.
- Be sure to remain seated with the seat belt securely fastened at all times when the machine is in operation to minimize the chance of injury from an accident.
- We recommend that the seat belt is replaced every three years regardless of its apparent condition.

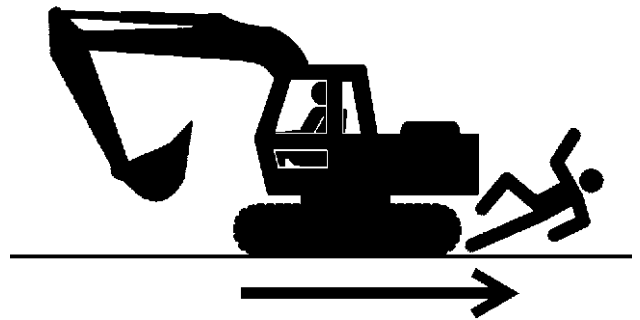


SA-237

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### Move and Operate Machine Safely

- Bystanders can be run over.
- 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). It warns people when the machine starts to move.
- Use a signal person when moving, swinging, or operating the machine in congested areas. Coordinate hand signals before starting the machine.
- Use appropriate illumination. Check that all lights are operable before operating the machine. If any faulty illumination is present, immediately repair it.
- Ensure the cab door, windows, doors and covers are securely locked.
- Check the mirror and the monitors in the CAB for problems. If there are, replace the problem parts or clean the mirror, camera and monitor. Refer to Back Monitor Settings section on the cleaning of the camera and monitor.



SA-426

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### Handle Starting Aids Safely

Starting fluid:

- Starting fluid is highly flammable.
- Keep all sparks and flame away when using it.
- Keep starting fluid well away from batteries and cables.
- Remove container from machine if engine does not need starting fluid.
- To prevent accidental discharge when storing a pressurized container, keep the cap on the container, and store it in a cool, well-protected location.
- Do not incinerate or puncture a starting fluid container.



SA-293



## SAFETY

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### 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.
- Do not start engine by shorting across starter terminals.
- Before starting the engine, confirm that all control levers are in neutral.
- Before starting the engine, confirm the safety around the machine and sound the horn to alert bystanders.

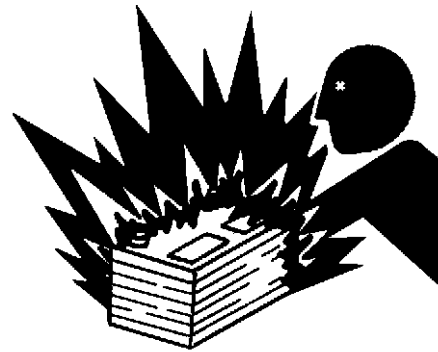


SA-444

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### Jump Starting

- Battery gas can explode, resulting in serious injury.
- If the engine must be jump started, be sure to follow the instructions shown in the "OPERATING ENGINE" chapter in the operator's manual.
- The operator must be 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.
- Failure to follow correct jump starting procedures could result in a battery explosion or a runaway machine.

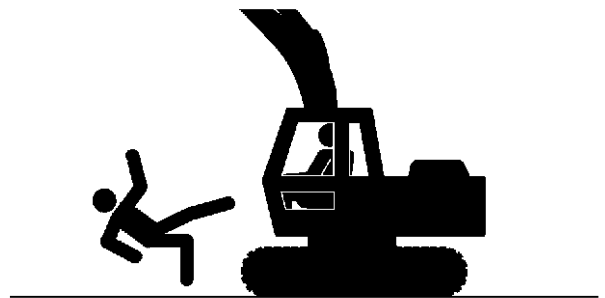


SA-032

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### Keep Riders off Machine

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



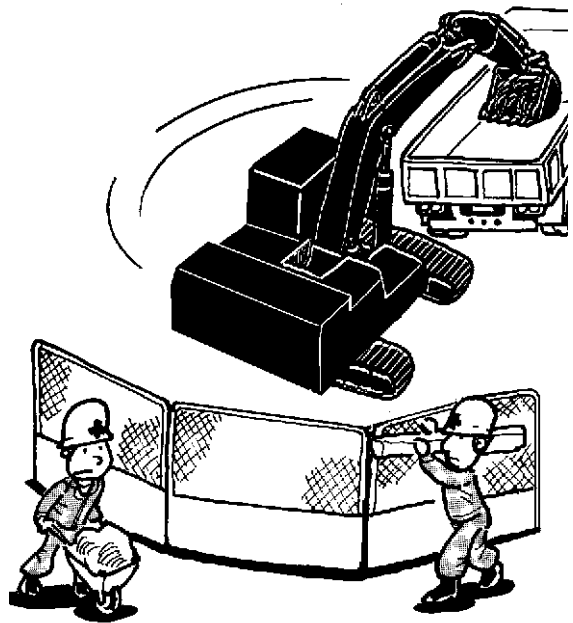
SA-379

## SAFETY

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### Precautions for Operations

- Investigate the work site before starting operations.
- Be sure to wear close fitting clothing and safety equipment appropriate for the job, such as a hard hat, etc. when operating the machine.
- Clear all persons and obstacles from area of operation and machine movement.  
Always beware of the surroundings while operating.  
When working in a small area surrounded by obstacles, take care not to hit the upperstructure against obstacles.
- When loading onto trucks, bring the bucket over the truck beds from the rear side. Take care not to swing the bucket over the cab or over any person.



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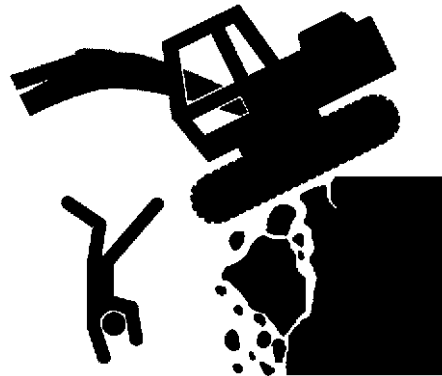
## SAFETY

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### Investigate Job Site Beforehand

- When working at the edge of an excavation or on a road shoulder, the machine could tip over, 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.
  - When the footing is weak, reinforce the ground before starting work.
  - When working on frozen ground, be extremely alert. As ambient temperatures rise, footing becomes loose and slippery.
  - Beware the possibility of fire when operating the machine near flammable objects such as dry grass.
- Make sure the worksite has sufficient strength to firmly support the machine.

When working close to an excavation or at road shoulders, operate the machine with the tracks positioned perpendicular to the cliff face with travel motors at the rear, so that the machine can more easily evacuate if the cliff face collapses.
- If working on the bottom of a cliff or 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 on the 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 and firm enough 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. When operating on rough terrain or on slopes:
  - Reduce the engine speed.
  - Select slow travel speed mode.
  - Operate the machine slowly and be cautious with machine movements.



SA-380

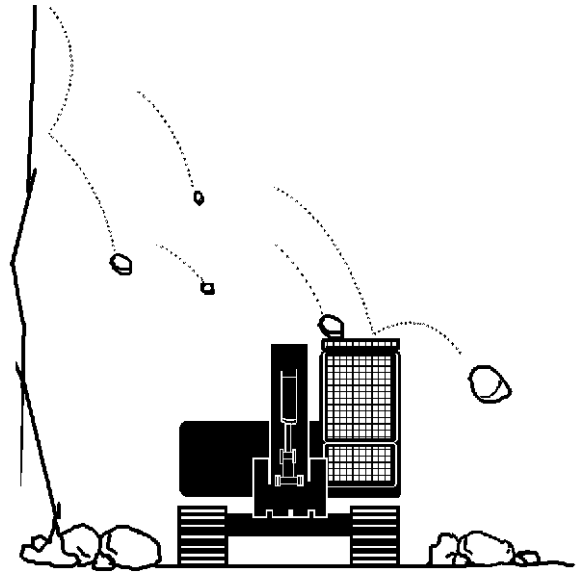
## SAFETY

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### Install OPG Guard

In case the machine is operated in areas where the possibilities of falling stones or debris exist, equip Hitachi OPG guard. Consult your authorized dealer for installing the OPG guard. In order not to impair operator protective structure: Replace damaged OPG guard. Never attempt to repair or modify the guard.

OPG: Operator Protective Guard



SA-490

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### Provide Signals for Jobs Involving Multiple Machines

- 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.

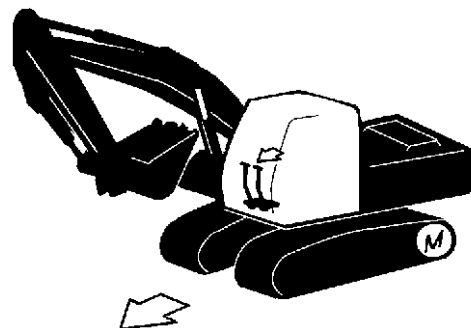


SA-481

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### 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 in front of the cab, the machine will move in reverse when travel pedals/levers are operated to the front.

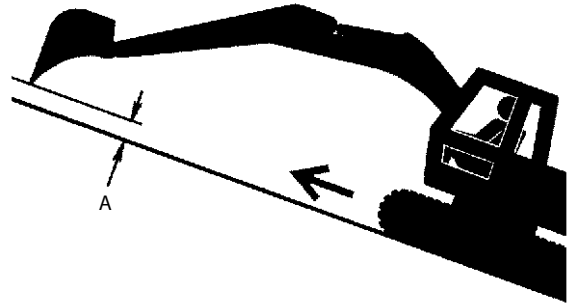


SA-491

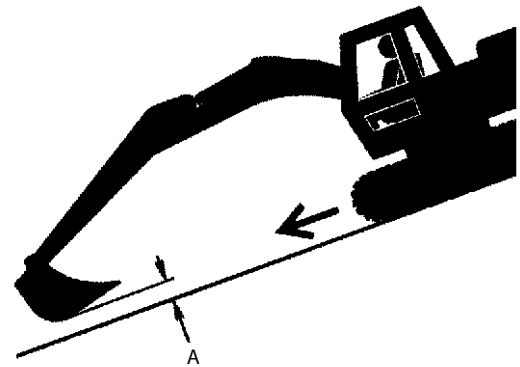
## SAFETY

### Drive Machine Safely

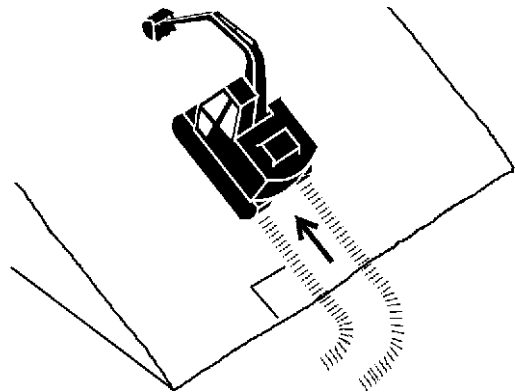
- Before driving the machine, always confirm that the travel levers/pedals direction corresponds to the direction you wish to drive.
- Be sure to detour around any obstructions.
- Avoid traveling over obstructions. Soil, fragments of rocks, and/or metal pieces may scatter around the machine. Do not allow personnel to stay around the machine while traveling.
- Driving on a slope may cause the machine to slip or overturn, possibly resulting in serious injury or death.
  - Never attempt to ascend or descend 35 degrees or steeper slopes.
  - Be sure to fasten the seat belt.
  - When driving up or down a slope, keep the bucket facing the direction of travel, approximately 0.5 to 1.0 m (A) above the ground.
  - If the machine starts to skid or becomes unstable, immediately lower the bucket to the ground and stop.



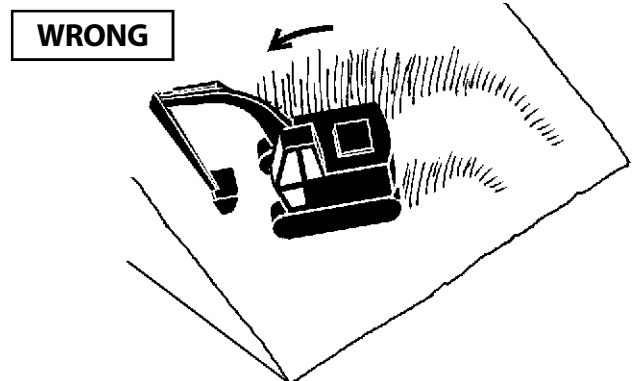
SA-657



SA-658



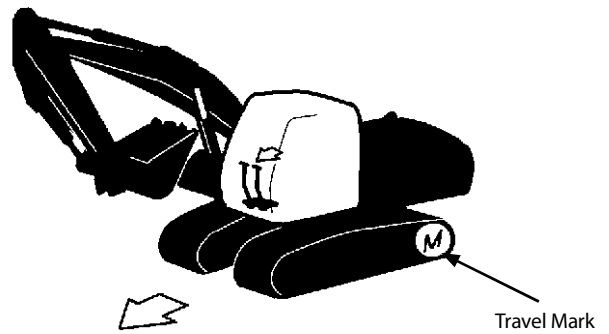
SA-441



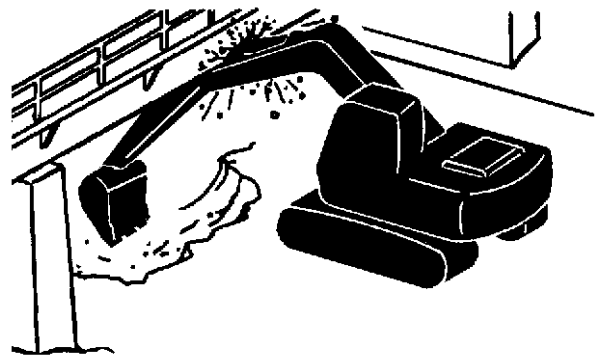
SA-442

## SAFETY

- Driving across the face of a slope or steering on a slope may cause the machine to skid or turnover. If the direction must be changed, move the machine to level ground, then, change the direction to ensure safe operation.
- Avoid swinging the upperstructure on slopes. Never attempt to swing the upperstructure downhill. The machine may tip over. If swinging uphill is unavoidable, carefully operate the upperstructure and boom at slow speed.
- If the engine stalls on a slope, immediately lower the bucket to the ground. Return the control levers to neutral. Then, restart the engine.
- Be sure to thoroughly warm up the machine before ascending steep slopes. If hydraulic oil has not warmed up sufficiently, sufficient performance may not be obtained.
- Use a signal person when moving, swinging or operating the machine in congested areas. Coordinate hand signals before starting the machine.
- Before moving machine, determine which way to move travel pedals/levers for the direction you want to go. When the travel motors are in the rear, pushing down on the front of the travel pedals or pushing the levers forward moves the machine forward, towards the idlers.
- Select a travel route that is as flat as possible. Steer the machine as straight as possible, making small gradual changes in direction.
- Before traveling on them, check the strengths of bridges and road shoulders, and reinforce if necessary.
- Use wood plates in order not to damage the road surface. Be careful of steering when operating on asphalt roads in summer.
- When crossing train tracks, use wood plates in order not to damage them.
- Do not make contact with electric wires or bridges.
- When crossing a river, measure the depth of the river using the bucket, and cross slowly. Do not cross the river when the depth of the river is deeper than the upper edge of the upper roller.
- When traveling on rough terrain, reduce engine speed. Select slow travel speed. Slower speed will reduce possible damage to the machine.
- Avoid operations that may damage the track and undercarriage components.
- During freezing weather, always clean snow and ice from track shoes, to prevent the machine from slipping.



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SA-011

## SAFETY

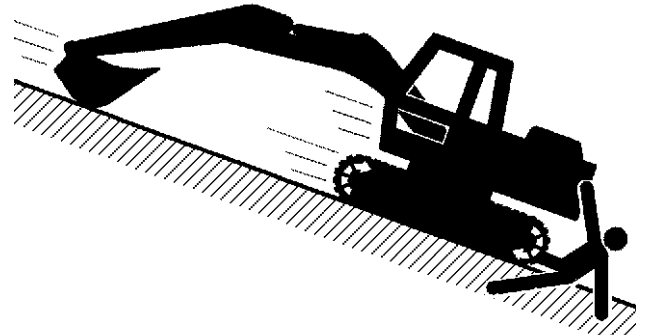
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### Avoid Injury from Rollaway Accidents

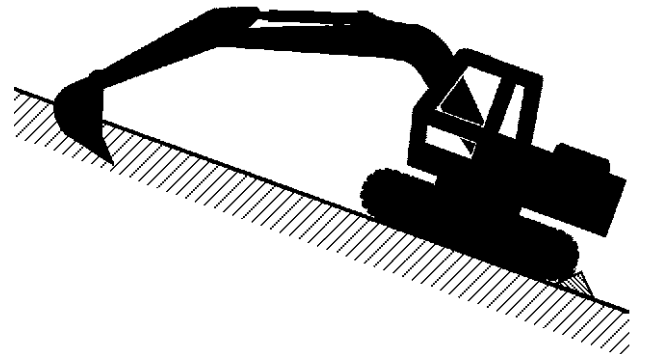
- Death or serious injury may result if you attempt to mount or stop a moving machine.

To avoid rollaways:

1. Select level ground when possible to park the machine.
2. Do not park the machine on a grade.
3. Lower the bucket and/or other work tools to the ground.
4. Turn the auto-idle switch OFF and the Power mode switch E or P.
5. Run the engine at slow idle speed without load for 5 minutes to cool down the engine.
6. Stop the engine and remove the key from the key switch.
7. Pull the pilot control shut-off lever to LOCK position.
8. Block both tracks and lower the bucket to the ground. Thrust the bucket teeth into the ground if you must park on a grade.
9. Position the machine to prevent rolling.
10. Park at a reasonable distance from other machines.



SA-391



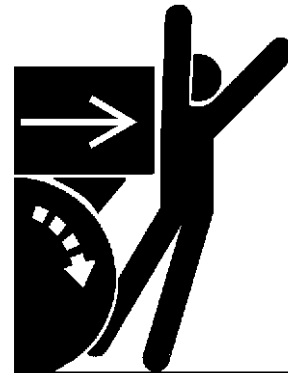
SA-392

## SAFETY

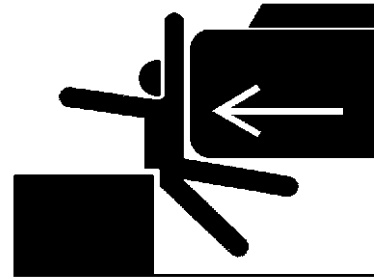
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### Avoid Injury from Back-Over and Swing Accidents

- If any person is present near the machine when backing or swinging the upperstructure, the machine may hit or run over that person, resulting in serious injury or death. To avoid back-over and swing accidents:
  - Always look around BEFORE YOU BACK UP AND SWING THE MACHINE. BE SURE THAT ALL BYSTANDERS ARE CLEAR.
  - Keep the travel alarm in working condition (if equipped). ALWAYS BE ALERT FOR BYSTANDERS MOVING INTO THE WORK AREA. USE THE HORN OR OTHER SIGNAL TO WARN BYSTANDERS BEFORE MOVING MACHINE.
  - USE A SIGNAL PERSON WHEN BACKING UP IF YOUR VIEW IS OBSTRUCTED. ALWAYS KEEP THE SIGNAL PERSON IN VIEW.  
Use hand signals, which conform to your local regulations, when work conditions require a signal person.
  - No machine motions shall be made unless signals are clearly understood by both signal person and operator.
  - Learn the meanings of all flags, signs, and markings used on the job and confirm who has the responsibility for signaling.
  - Keep windows, mirrors, and lights clean and in good condition.
  - Dust, heavy rain, fog, etc., can reduce visibility. As visibility decreases, reduce speed and use proper lighting.
  - Read and understand all operating instructions in the operator's manual.



SA-383



SA-384

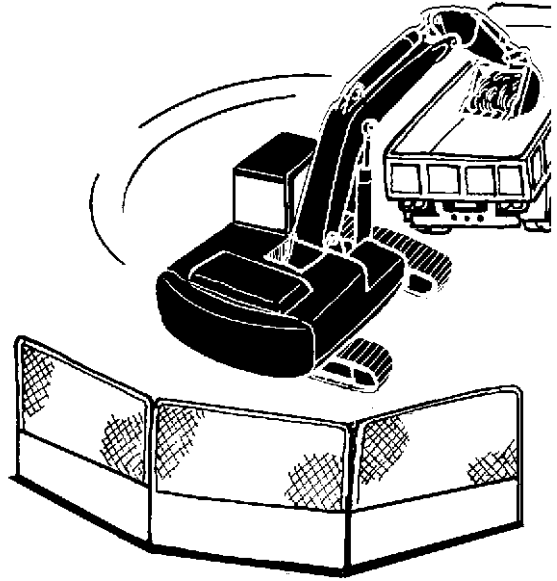


## SAFETY

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### Keep Person Clear from Working Area

- A person may be hit severely by the swinging front attachment or counterweight and/or may be crushed against an other object, resulting in serious injury or death.
- Keep all persons clear from the area of operation and machine movement.
- Before operating the machine, set up barriers to the sides and rear area of the bucket swing radius to prevent anyone from entering the work area.



SA-386

### Never Position Bucket Over Anyone

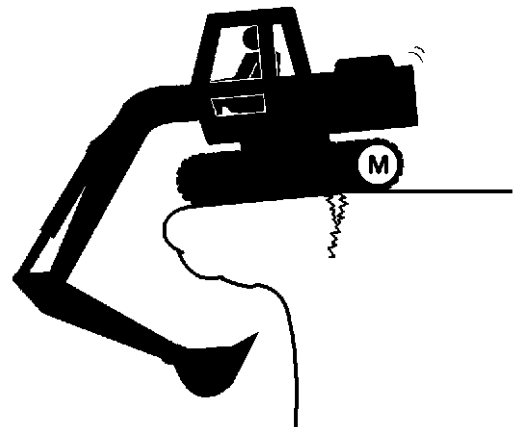
- Never lift, move, or swing bucket above anyone or a truck cab. Serious injury or machine damage may result due to bucket load spill or due to collision with the bucket.



SA-487

### Avoid Undercutting

- In order to retreat from the edge of an excavation if the footing should collapse, always position the undercarriage perpendicular to the edge of the excavation with the travel motors at the rear.
- If the footing starts to collapse and if retreat is not possible, do not panic. Often, the machine can be secured by lowering the front attachment, in such cases.



SA-488

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