

PART NO. EM1JK-1-1

**HITACHI**

# Operator's Manual

# ZAXIS

## 400R-3

## 400LCH-3

## Hydraulic Excavator

ZAXIS400R-3 • 400LCH-3 HYDRAULIC EXCAVATOR OPERATOR'S MANUAL

 **Hitachi Construction Machinery Co., Ltd.**

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EM1JK-1-1

Serial No.

ZAXIS400R-3 001001 and up

ZAXIS400LCH-3 001001 and up

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## INTRODUCTION

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**Read this manual** carefully to learn how to operate and service your machine correctly. Failure to do so could result in personal injury or machine damage.

**This manual should be considered** a permanent part of your machine and should remain with the machine when you sell it.

**This machine is of metric** design. Measurements in this manual are metric. Use only metric hardware and tools as specified.

- SI Units (International System of Units) are used in this manual.  
For reference MKS system units and English units are also indicated in parentheses after the SI units.  
Example : 24.5 MPa (250 kgf/cm<sup>2</sup>, 3560 psi)

**Right-hand and left-hand** sides are determined by facing in the direction of forward travel.

**Write product identification numbers** in the Machine Numbers section. Accurately record all the numbers to help in tracing the machine should it be stolen. Your dealer also needs these numbers when you order parts. If this manual is kept on the machine, also file the identification numbers in a secure place off the machine.

**Warranty** is provided as a part of Hitachi's support program for customers who operate and maintain their equipment as described in this manual. The warranty is explained on the warranty certificate which you should have received from your dealer.

This warranty provides you the assurance that Hitachi will back its products where defects appear within the warranty period. In some circumstances, Hitachi also provides field improvements, often without charge to the customer, even if the product is out of warranty.

**Should the equipment be abused, or modified to change its performance beyond the original factory specifications, the warranty will become void and field improvements may be denied.**

Setting fuel delivery above specifications or otherwise overpowering machines will result in such action.

Only qualified, experienced operators officially licensed (according to local law) should be allowed to operate the machine. Moreover, only officially licensed personnel should be allowed to inspect and service the machine.

Prior to operating this machine, including satellite communication system, in a country other than a country of its intended use, it may be necessary to make modifications to it so that it complies with the local regulatory standards (including safety standards) and legal requirements of that particular country. Please do not export or operate this machine outside of the country of its intended use until such compliance has been confirmed. Please contact Hitachi Construction Machinery Co., Ltd. or any of our authorized distributor or dealer if you have any questions concerning compliance.

All information, illustrations and specifications in this manual are based on the latest product information available at the time of publication. The right is reserved to make changes at any time without notice.

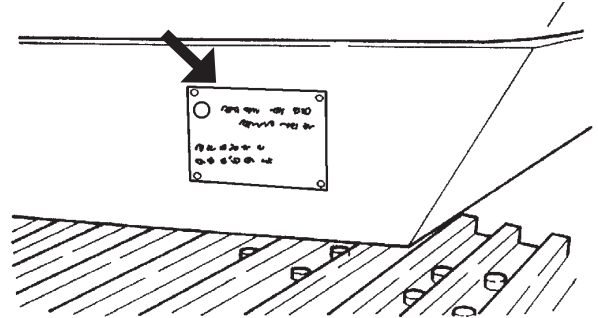
# MACHINE NUMBERS

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

CE	
Model/type	<input type="text"/>
Product Identification Number	Hydraulic Excavator
Year of Manufacturing	<input type="text"/>
Engine Power(kw)	<input type="text"/>
Mass(kg)	<input type="text"/>
Hitachi Construction Machinery Co.,Ltd. 650, Kandatsu-machi, Tsuchiura-shi, Ibaraki-ken, 300-0013 Japan	

SS3097499

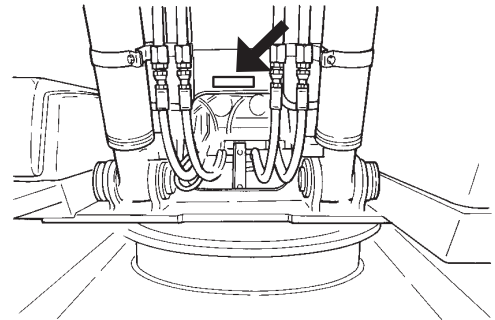


M157-00-001

1. MODEL/TYPE
2. Product Identification Number
3. Year of Manufacturing
4. Operating mass (standard version)
5. Engine power in kW according to ISO9249

## PRODUCT IDENTIFICATION NUMBER

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

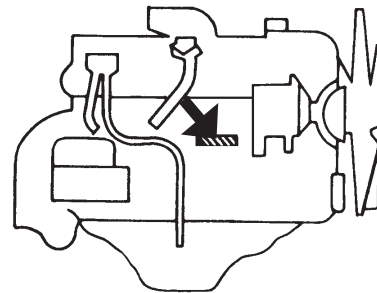


M157-12-008

**NOTE:** Marks to indicate the start and end of the PIN

\*HCM1JK00E00001001\*

PRODUCT IDENTIFICATION NUMBER (PIN)



M1V1-00-001

## ENGINE

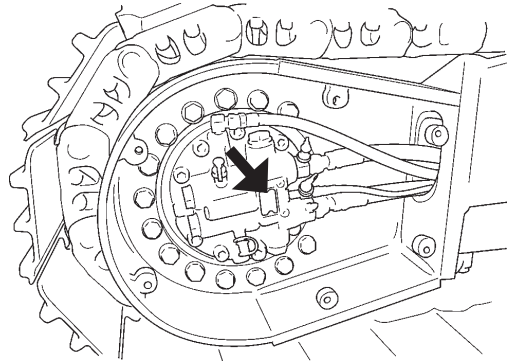
TYPE: \_\_\_\_\_  
MFG. NO.: \_\_\_\_\_

## MACHINE NUMBERS

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### TRAVEL MOTOR

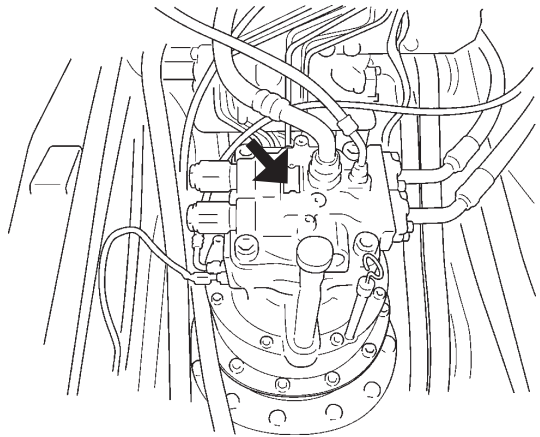
TYPE: \_\_\_\_\_  
MFG. NO.: \_\_\_\_\_



M178-07-047

### SWING MOTOR

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



M178-07-014

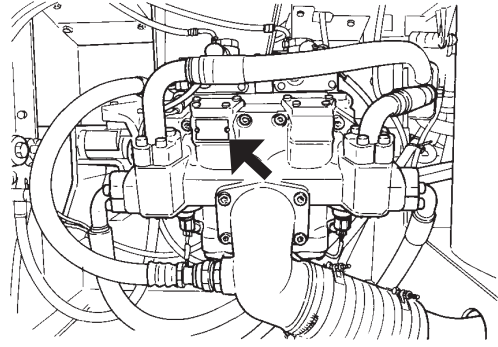
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## MACHINE NUMBERS

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### HYDRAULIC PUMP

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



M157-00-004

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# MACHINE NUMBERS

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## MEMO

A series of horizontal dotted lines for writing a memo.

# CONTENTS

## MACHINE NUMBERS

### SAFETY

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 the 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
Equipment of Head Guard, ROPS, FOPS .....	S-10
Provide Signals for Jobs Involving Multiple Numbers of 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 Lightening .....	S-18
Object Handling .....	S-18
Protect Against Flying Debris .....	S-19
Park Machine Safely .....	S-19
Handle Fluids Safely—avoid Fires .....	S-19
Transport Safely .....	S-20
Practice Safe Maintenance .....	S-21
Warn Others of Service Work .....	S-22
Support Machine Properly .....	S-22
Stay Clear of Moving Parts .....	S-22
Prevent Parts from Flying .....	S-23
Store Attachments Safely .....	S-23
Prevent Burns .....	S-24
Replace Rubber Hoses Periodically .....	S-24
Avoid High-pressure Fluids .....	S-25
Prevent Fires .....	S-26
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
Remove Paint Before Welding or Heating .....	S-28
Beware of Asbestos Dust .....	S-29
Prevent Battery Explosions .....	S-29
Service Air Conditioning System Safely .....	S-29
Handle Chemical Products Safely .....	S-30
Dispose of Waste Properly .....	S-30

<b>SAFETY SIGNS</b> .....	S-31
---------------------------	------

<b>COMPONENTS NAME</b> .....	1-1
------------------------------	-----

### OPERATOR'S STATION

Cab Features .....	1-2
Multi Function Monitor .....	1-4
Outline .....	1-5
Menu Screen (23) .....	1-8
Hour Meter .....	1-9
Fuel Gauge .....	1-9
Clock .....	1-9
Back Monitor Selector .....	1-9
Menu Key .....	1-10
Optional Function Key .....	1-10
Return to Basic Screen Key .....	1-10
Alarm Light .....	1-10
Optional Function Display .....	1-10
Coolant Temperature Gauge .....	1-11
Operating Status Icon Display .....	1-11
Alarm Occurrence Screen .....	1-16
Contents of Alarms .....	1-18
Clock Setting .....	1-20
Attachment Selection (Only Machines Equipped with Optional Parts) .....	1-21
Pump 2 Flow Rate Adjustment (Only Machines Equipped with Optional Parts) .....	1-25
Displaying Operating Conditions .....	1-26
Fuel Rate Display/No Display .....	1-27
Back Monitor Settings .....	1-35
Maintenance Settings .....	1-37
Mail (Optional) .....	1-42
Language Settings .....	1-44
Switch Panel .....	1-46
Engine Control Dial .....	1-47
Auto-idle Switch .....	1-47
Power Mode Switch .....	1-48
Travel Mode Switch .....	1-48
Work Light Switch .....	1-49
Wiper/Washer Switch .....	1-50
Switch Panel (Optional) .....	1-52
Key Switch .....	1-54
Power Boost Switch .....	1-54

# CONTENTS

Horn Switch .....	1-54	Travel Alarm (Optional) .....	4-4
Cigar Lighter.....	1-55	Operating on Soft Ground .....	4-5
Cab Light .....	1-56	Raise One Track Using Boom and Arm .....	4-5
Installing Fire Extinguisher (Optional) .....	1-56	Towing Machine a Short Distance.....	4-6
Pilot Control Shut-off Lever .....	1-57	Operating in Water or Mud .....	4-7
Engine Stop Switch.....	1-57	Parking the Machine on Slopes.....	4-8
Fuse Box.....	1-58	Parking the Machine .....	4-8
Additional Fuse Box.....	1-58		
Auto Air Conditioner .....	1-59	<b>OPERATING THE MACHINE</b>	
Cab Heater Operation.....	1-62	Control Lever (ISO Pattern) .....	5-1
Cooling Operation .....	1-63	Control Lever (HITACHI Pattern) (Optional).....	5-2
Defroster Operation .....	1-63	Attachment Pedal (Hydraulic Breaker) (Optional) .....	5-3
Tips for Optimal Air Conditioner Usage .....	1-65	Attachment Pedal (Accelerator Type) .....	5-4
Cab Heater (Optional).....	1-66	Attachment Pedal (Common Use Type)	
Cab Heater Operation.....	1-67	in the Unlock Position.....	5-5
Defroster Operation .....	1-68	Attachment Pedal (Hydraulic Crusher).....	5-6
AM/FM Radio Operation .....	1-69	Pilot Control Shut-off Lever .....	5-7
Digital Clock Setting Procedure .....	1-70	Engine Speed Control.....	5-9
Cab Door Release Lever .....	1-71	Auto-idle .....	5-10
Opening Upper Front Window (Optional).....	1-71	Work Mode .....	5-11
Closing Upper Front Window (Optional) .....	1-72	Work Mode Select .....	5-12
Removing and Storing Lower Front Window (Optional) ..	1-73	Power Boost .....	5-13
Opening Side Windows.....	1-73	Power Mode .....	5-14
Opening/Closing Overhead Window (Optional) .....	1-74	Operating Backhoe.....	5-15
Emergency Exit .....	1-75	Grading Operation.....	5-15
Emergency Exit (Optional) .....	1-76	Avoid Abusive Operation .....	5-16
Adjusting the Mechanical Suspension Seat .....	1-77	Operating Tips.....	5-17
Seat With a Built-in Heater .....	1-78	Select Correct Track Shoes.....	5-17
Adjusting the Air-suspension Seat (Optional) .....	1-79	Hydraulic Breaker and Hydraulic Crusher.....	5-18
Seat With a Built-in Heater .....	1-80	Pipings for Breaker and Crusher .....	5-19
Adjusting the Fixed Seat (Optional).....	1-81	Secondary Relief Pressure Adjustment .....	5-20
Adjusting Console Height .....	1-83	Precautions for Breaker Operation.....	5-21
Seat Belt.....	1-84	Breaker Maintenance .....	5-24
		Precautions for Crusher Operation .....	5-26
		Attachment.....	5-28
		Attachment Connection Parts .....	5-32
		Precaution for Arm Roll-in/Bucket Roll-in	
		Combined Operation .....	5-33
		When Installing an Attachment Longer	
		Than Standard Bucket.....	5-33
		Shackle Hole Usage .....	5-34
		Overnight Storage Instructions.....	5-34
		Emergency Boom Lowering Procedure .....	5-35
		Object Handling .....	5-36
		<b>TRANSPORTING</b>	
		Transporting By Road .....	6-1
		Loading/Unloading on a Trailer .....	6-1
		Machine Lifting Procedure.....	6-5
		<b>MAINTENANCE</b>	
		Correct Maintenance and Inspection Procedures.....	7-1
		Check the Hour Meter Regularly.....	7-2
		Use Correct Fuels and Lubricants .....	7-2
		Layout.....	7-3



## CONTENTS

Maintenance Guide Table.....	7-4	Change Bucket .....	7-80
Prepare Machine for Maintenance.....	7-6	Adjust the Bucket Linkage (Backhoe) .....	7-81
Hood and Access Covers.....	7-7	Remove the Travel Levers .....	7-82
Periodic Replacement of Parts.....	7-8	Check and Replace Seat Belt Check.....	7-82
Maintenance Guide .....	7-9	Check Windshield Washer Fluid Level.....	7-83
A. Greasing.....	7-14	Check Track Sag.....	7-84
Front Joint Pins.....	7-14	Clean and Replace Air Conditioner Filter .....	7-86
Swing Bearing.....	7-19	Check the Air Conditioner.....	7-88
Swing Internal Gear .....	7-20	Clean Cab Floor .....	7-89
Electric Grease Gun.....	7-21	Retighten Cylinder Head Bolt .....	7-90
B. Engine .....	7-29	Inspect and Adjust Valve Clearance.....	7-90
Engine Oil Level.....	7-29	Check Fuel Injection Timing .....	7-90
Change Engine Oil .....	7-30	Measure Engine Compression Pressure .....	7-90
Replace Engine Oil Filter .....	7-30	Check Starter and Alternator .....	7-90
C. Transmission.....	7-32	Check Water Pump.....	7-90
Pump Transmission.....	7-32	Check Tightening Torque of Bolts and Nuts .....	7-91
Swing Reduction Gear .....	7-33		
Travel Reduction Gear.....	7-34		
D. Hydraulic System.....	7-36		
Inspection and Maintenance of Hydraulic Equipment .....	7-36	<b>HYDRAULIC CIRCUIT AND ELECTRICAL CIRCUIT</b>	
Breaker Maintenance .....	7-38	Hydraulic Circuit .....	8-1
Check Hydraulic Oil Level .....	7-39	Electrical Circuit .....	8-2
Change Hydraulic Oil .....	7-40	Electrical Diagram .....	8-3
Suction Filter Cleaning .....	7-40		
Replace Hydraulic Tank Oil Filter .....	7-43	<b>MAINTENANCE UNDER SPECIAL ENVIRONMENTAL CONDITIONS</b>	
Replace Pilot Oil Filter .....	7-45	Maintenance Under Special Environmental Conditions..	9-1
Replace Air Breather Element .....	7-46		
Check Hoses and Lines .....	7-47	<b>STORAGE</b>	
Service Recommendations for Hydraulic Fittings .....	7-50	Storing the Machine.....	10-1
E. Fuel System .....	7-52	Removing the Machine from Storage.....	10-2
Drain Fuel Tank Sump .....	7-54		
Check Water Separator .....	7-55	<b>TROUBLESHOOTING</b>	
Replace Fuel Main Filter Element.....	7-59	Impossible to Start the Engine .....	11-1
Replace Fuel Pre-Filter Element .....	7-60	Engine.....	11-2
Clean Fuel Solenoid Pump Strainer .....	7-61	Electrical System.....	11-6
Check Fuel Hoses.....	7-62	Mode Selection .....	11-8
F. Air Cleaner.....	7-63	Control Levers.....	11-9
Clean the Air Cleaner Outer Element .....	7-63	Hydraulic System.....	11-9
Replace the Air Cleaner Outer and Inner Elements... 7-63			
G. Cooling System .....	7-65	<b>SPECIFICATIONS</b>	
Check Coolant Level .....	7-67	Specifications (ZAXIS400R-3, ZAXIS400LCH-3) .....	12-1
Check and Adjust Fan Belt Tension .....	7-68	Working Ranges (ZAXIS400R-3, ZAXIS400LCH-3) .....	12-2
Change Coolant .....	7-69	Bucket Types and Applications (ZAXIS400R-3, ZAXIS400LCH-3) .....	12-3
Clean Radiator, Oil Cooler Core and Inter Cooler .....	7-70	Sound Level Results (2000/14/EC) .....	12-4
Clean Oil Cooler, Radiator and Inter Coller Front Screen.....	7-70	Vibration Level.....	12-4
Clean Air Conditioner Condenser.....	7-70		
Clean Fuel Oil Cooler .....	7-70	<b>OPTIONAL ATTACHMENTS AND DEVICES</b>	
Clean Air Conditioner Front Screen (Opt.) .....	7-70	Lifting Capacities .....	13-1
H. Electrical System.....	7-71		
Replace Batteries .....	7-74	<b>INDEX</b> .....	14-1
Replacing Fuses.....	7-75		
I. Miscellaneous .....	7-77		
Check Bucket Teeth.....	7-77		



## 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.



001-E01A-0001

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 don't 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

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## 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

003-E01B-0003

### 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

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# SAFETY

## WEAR PROTECTIVE CLOTHING

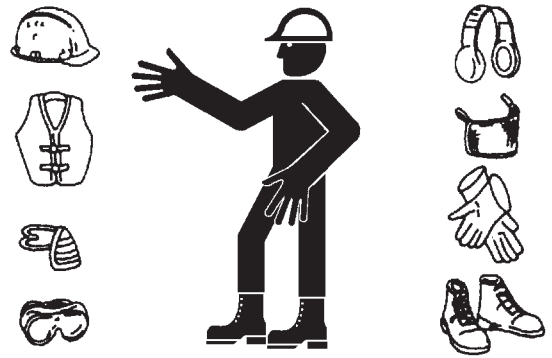
- Wear close fitting clothing and safety equipment appropriate to the job.

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

005-E01A-0438

## 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.



006-E01A-0434

SA-434

## 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.



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SA-435

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## SAFETY

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### GENERAL PRECAUTIONS FOR CAB

- Before entering the cab, thoroughly remove all dirt and/or oil 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 leave parts and/or tools lying around the operator's seat. Store them in their specified locations.
- 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.

524-E01A-0000

## 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.



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SA-439

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### ADJUST THE OPERATOR'S SEAT

- A poorly adjusted seat for either the operator or for 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

### 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 be replaced every three years regardless of its apparent condition.

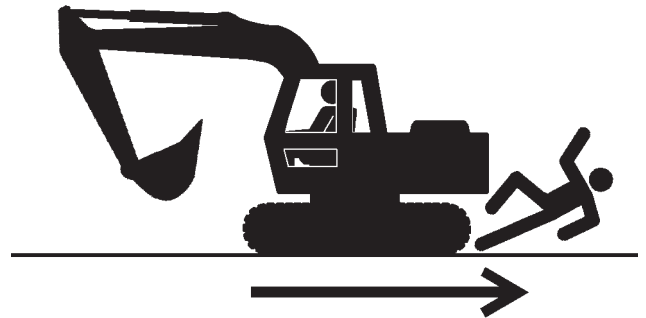


SA-237

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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.



SA-426

011-E01A-0398

### 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

036-E01A-0293-3



## SAFETY

### 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 track or on ground.
- 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.



012-E01B-0431

SA-444

### 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 THE 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.



S013-E01A-0032

SA-032

### 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.



014-E01B-0427

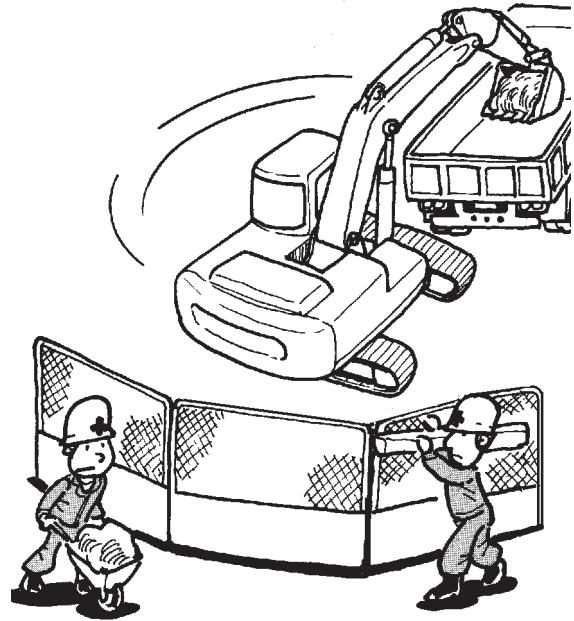
SA-379

## 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.



M104-05-015

## 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.
  - Confirm that your machine is equipped a FOPS cab before working in areas where the possibility of falling stones or debris exist.
  - 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

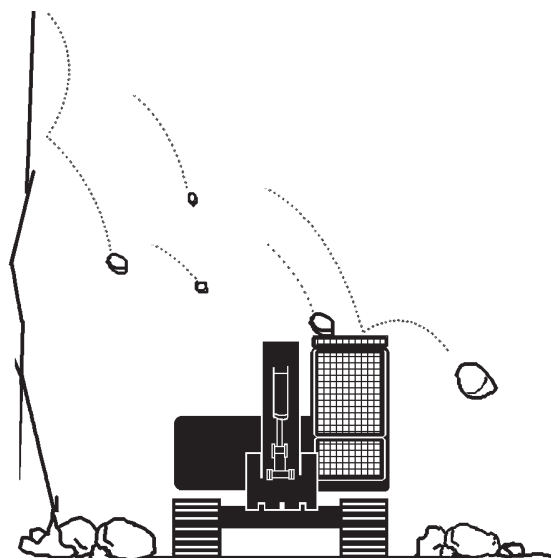
## SAFETY

### EQUIPMENT OF HEAD GUARD, ROPS, FOPS

In case the machine is operated in areas where the possibility of falling stones or debris exist, equip a head guard, ROPS, or FOPS according to the potential hazardous conditions. (The standard cab for this machine corresponds to ROPS and FOPS.)

ROPS: Roll-Over Protective Structure

FOPS: Falling Object Protective Structure



SA-490

### PROVIDE SIGNALS FOR JOBS INVOLVING MULTIPLE NUMBERS OF MACHINES

- For jobs involving multiple numbers of 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.

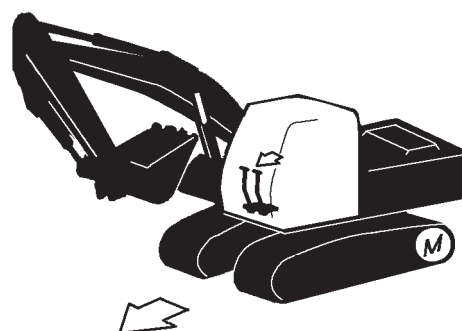


018-E01A-0481

SA-481

### CONFIRM DIRECTION OF MACHINE TO BE DRIVEN

- Incorrect travel pedal/lever operation may result in serious injury 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.



017-E01A-0491

SA-491