

PART No. EM24K – EN2 – 1

Operator's Manual

SCX700

Hydraulic Crawler Crane

Serial No. 000505 and up

HITACHI SUMITOMO

INTRODUCTION

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/cm², 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 part of our 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 we will back its products where defects appear within the warranty period. In some circumstances, we 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.

The yellow pages in this operator's manual contain **IMPORTANT SAFETY INFORMATION**. Read these pages thoroughly and familiarize yourself with the safety standards and recommendations set forth in these yellow pages of the manual. Follow all safety instructions prior to and while operating the machine.

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/service the machine.

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.

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SAFETY

RECOGNIZE SAFETY INFORMATION

- This is the **SAFETY ALERT SYMBOL**.
 - When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.
 - Follow recommended precautions and safe operating practices.



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SA-001

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.
- **CAUTION** also calls attention to safety messages in this manual.
- 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

NOTE

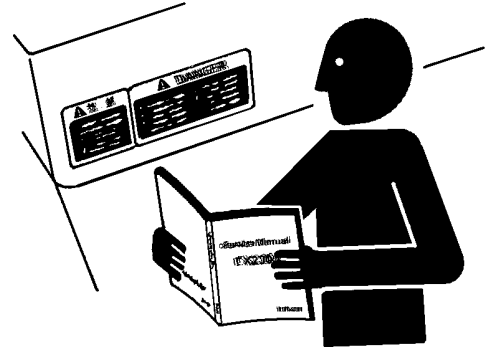
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SAFETY

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.
- 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

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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.
 - 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

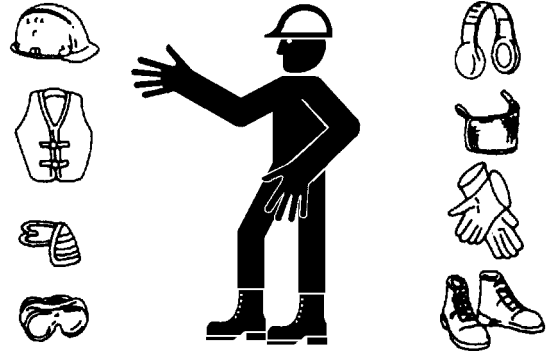
- Wear close fitting clothing and safety equipment appropriate to the job.

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

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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.



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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.



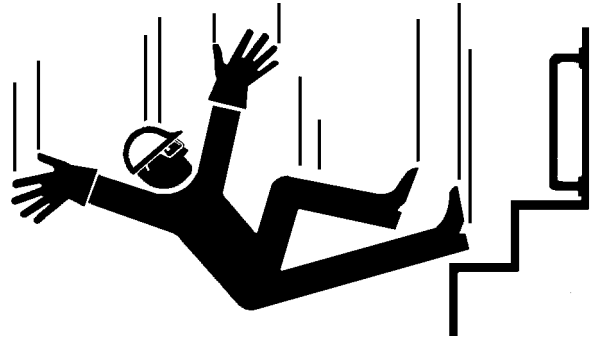
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SAFETY

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 handholds.
 - 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.



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.



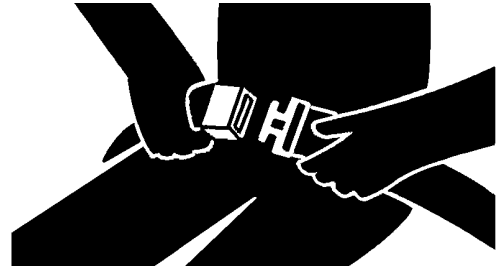
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SAFETY

FASTEN YOUR SEAT BELT (IF EQUIPPED)

- 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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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 from 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.



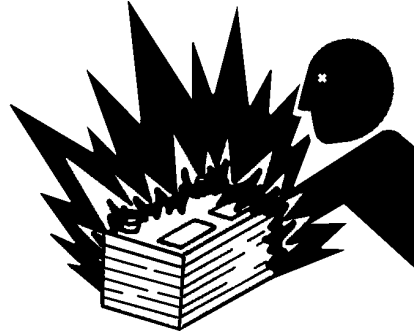
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SAFETY

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.
 - 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.

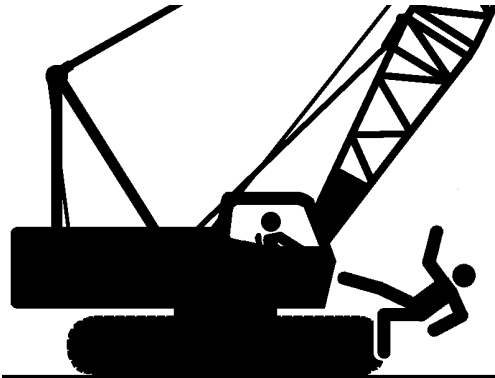


SA-032

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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.



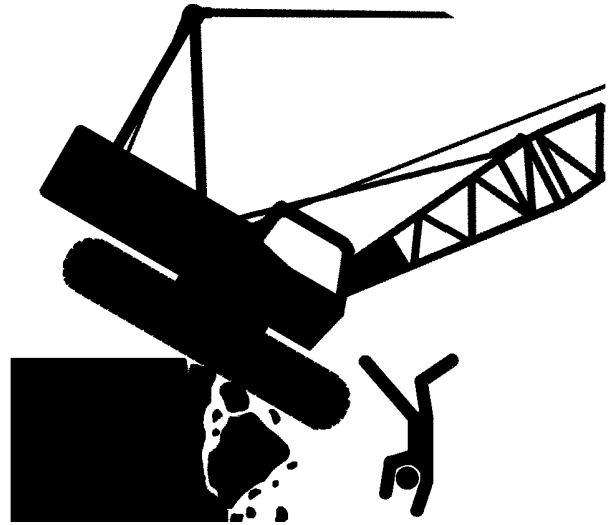
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SA-465

SAFETY

INVESTIGATE JOB SITE BEFOREHAND

- Soft ground may collapse when operating the machine on it, causing the machine to tip over, possibly resulting in serious injury or death.
 - Investigate and record geographical and geological features in advance to prevent the machine from tipping over and the ground from collapsing.
 - Always operate on a firm, level surface.
 - If operation on soft ground is required, sufficiently reinforce the ground with large steel plates of required strength to prevent the machine from tipping over.
 - Ground where underground embedding exists poses a danger of ground collapse. Be sure to sufficiently reinforce such ground.
 - Frozen ground becomes softer as air temperature increases. Be careful of footing when operating on frozen ground, and reinforce the ground if required.
 - Where flowing water or infiltration water is observed, the resultant is often soft ground. Avoid operating on such ground. If unavoidable, be sure to sufficiently reinforce the ground.



SA-467

015-E03A-0467-5

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.



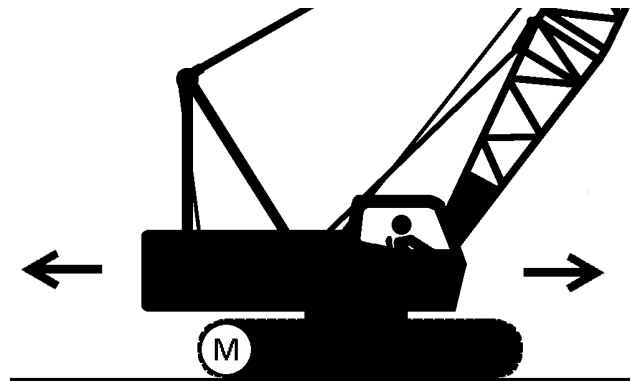
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SA-481

SAFETY

CONFIRM DIRECTION OF MACHINE TO BE DRIVEN

- Incorrect travel 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 levers are operated to the front.

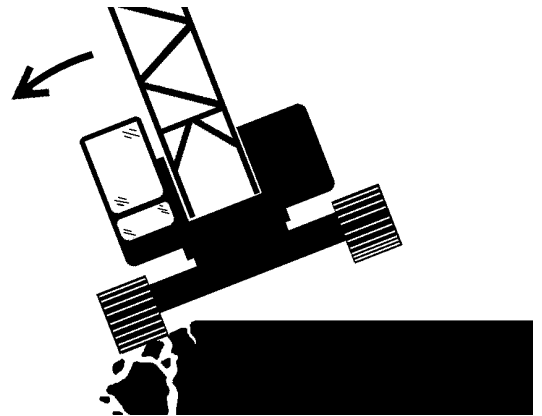


SA-482

017-E01A-0482-2

DRIVE MACHINE SAFELY

- Clear all persons from the work area.
- Before moving the machine, find out which way to move the travel levers for the direction you wish to go.
- Do not approach precipices or weak road shoulders.



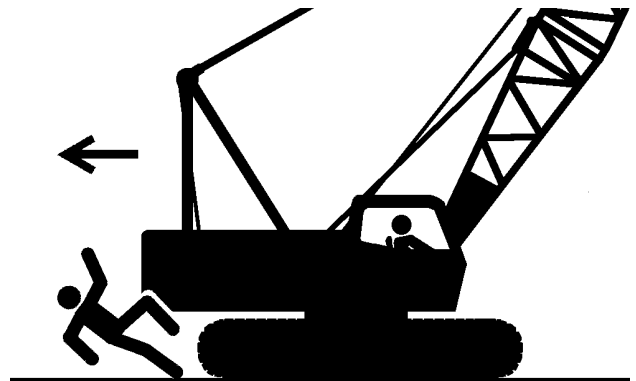
SA-337

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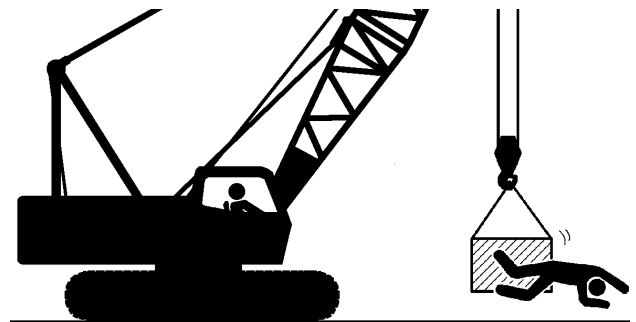
SAFETY

AVOID ACCIDENTS

- Failure to obey signs used on the job may result in serious injury or death.
 - Learn the meaning of all signs used on the job and who has the responsibility for signaling.
 - Always be alert for bystanders moving into the work area. Use horn or other signal to warn bystanders before starting the engine, driving, or swinging the machine.
- Failure to follow basic operation procedures and precautions may result in serious injury or death.
 - Avoid sudden starts and stops while operating.
 - After lifting a load 50 to 60 mm (2 to 2.4 inches) above the ground, stop hoisting and check the brake and clutch for correct function. Also, check that the machine remains stable.
 - Constantly pay attention to overhead and surrounding obstacles.
 - Do not move a lifted load over anyone.
 - Always confirm that the hoist line is vertical before starting the lift.
 - NEVER lift a load by raising the boom only.
 - NEVER drag a load using the swing function.
 - NEVER use the swing parking brake to stop swing motion. Always stop swing motion by slowly moving the swing control lever into the reverse swing direction.
 - Be sure that all safety devices, such as the overload prevention device, overload warning device, etc., are activated before operating.



SA-471

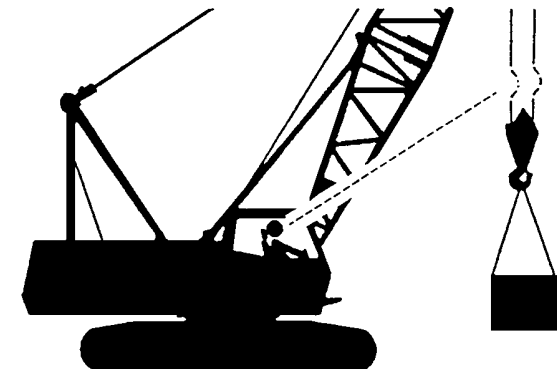


SA-472

037-E01A-0513-6

ALWAYS OPERATE THE MACHINE SAFELY WITH DIRECT LINE OF SIGHT VISIBILITY

- Visibility may be distorted by refraction at the curved section of the windowpane.
 - Avoid operating the machine with your visibility distorted.
 - If visibility is distorted, change your eyes to a position so that direct line of sight visibility can be obtained.



SA-674

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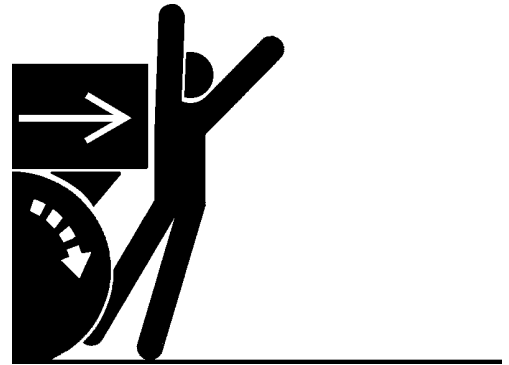
SAFETY

AVOID INJURY FROM BACK-OVER AND SWING ACCIDENTS

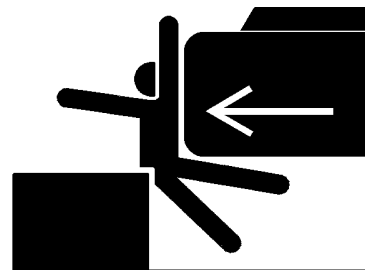
- If any person is present near the machine when backing or swinging the upperstructure, the machine may hit or run over that person, resulting in serious injury or death.

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 signalman 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



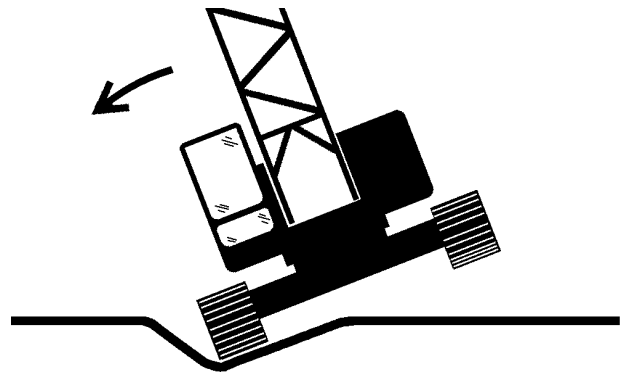
SA-384

021-E01A-0494-8

SAFETY

AVOID TIPPING

- Soft ground may collapse when operating the machine on it, causing the machine to tip over, possibly resulting in serious injury or death.
 - Investigate and record geographical and geological features in advance to prevent the machine from tipping over and the ground from collapsing.
 - Always operate on a firm, level surface.
 - If operation on soft ground is required, sufficiently reinforce the ground with large steel plates of required strength to prevent the machine from tipping over.
 - Ground where underground embedding exists poses a danger of ground collapse. Be sure to sufficiently reinforce such ground.
 - Frozen ground becomes softer as air temperature increases. Be careful of footing when operating on frozen ground, and reinforce the ground if required.
 - Where flowing water or infiltration water is observed, the resultant is often soft ground. Avoid operating on such ground. If unavoidable, be sure to sufficiently reinforce the ground.



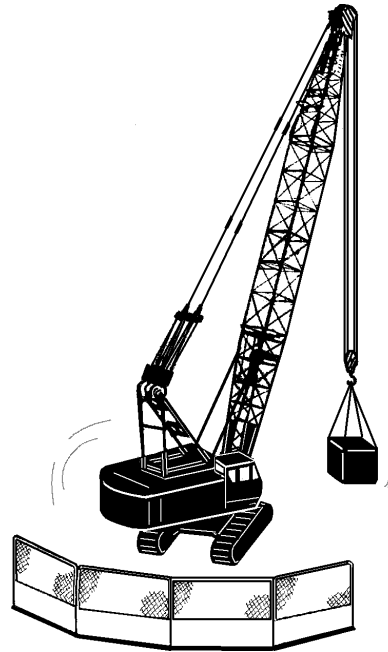
SA-116

025-E04A-0116-4

SAFETY

KEEP PERSONNEL CLEAR FROM WORKING AREA

- Serious injury or death may result if anyone comes near the machine or under a lifted load.
- Before operating the machine, set up barriers to the sides and rear area of the load swing radius to prevent anyone from entering the working area.
- Keep all persons clear from the area of operation and machine movement .
- NEVER allow anyone underneath a lifted load.

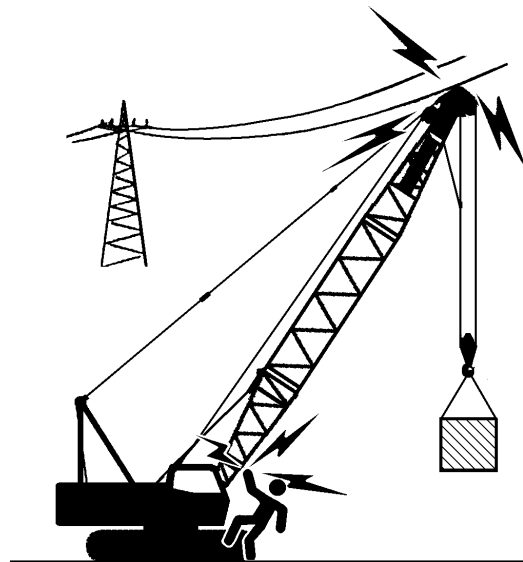


SA-514

022-E02A-0514-3

AVOID POWER LINES

- Serious injury or death can result if the machine or front attachments, or lifting load are not kept a safe distance from electrical lines.
- If operation near power lines is required, be sure to contact the utility company beforehand to take appropriate measures.
- Never any part of the machine, including the hook or load, approach power lines nearer than specified. For details, refer to the BASIC CRANE OPERATION section in the manual.
- If operation near power lines is unavoidable, be sure to have a signal person observe crane proximity to power lines.
- Never allow any bystanders to come in the work site.
- Wet ground will expand the area that could cause any person on it to be affected by electric shock. Keep all bystanders or co-workers away from the site. For details, refer to the BASIC CRANE OPERATION section in this manual.



SA-468

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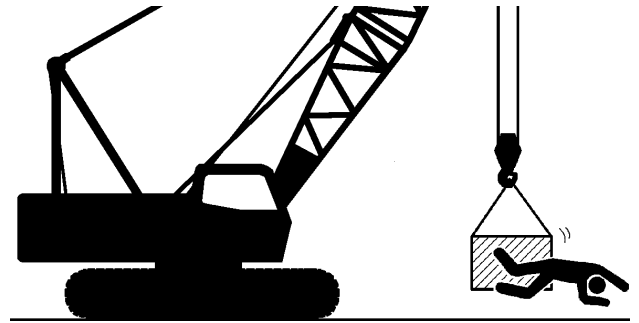
SAFETY

DO NOT LEAVE MACHINE WITH A LOAD LIFTED AND/OR ENGINE RUNNING

- Do not leave the machine with a load lifted and/or the engine running. Serious injury or death may result.

When leaving the machine:

- Park the machine on a firm, level surface.
- Lower the load to the ground.
- Securely engage all brake and drum locks.
- Stop the engine.
- Remove the key from the key switch.
- Lock the cab door and all access doors.



SA-474

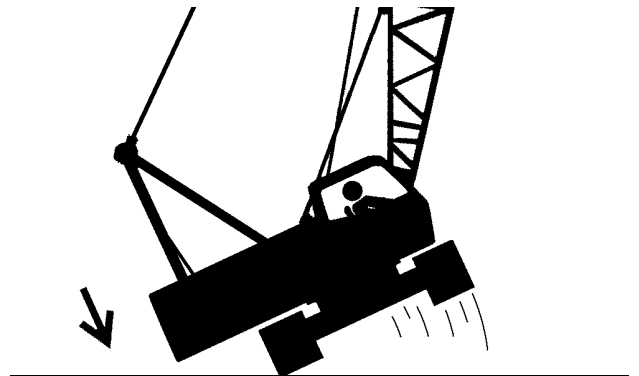
038-E01A-0474-3

CORRECT MACHINE POSE FOR OPERATION

- Incorrect machine pose operation may cause the machine to tip over, possibly resulting in serious injury or death.

Confirm that the machine is posed as follows before starting operation.

- The required counterweights are mounted.
 - The side frame is fully extended and pin-locked.
 - The gantry is in the HIGH gantry position.
-
- Also, confirm that the machine is on a firm, level surface. Use a level to confirm that the machine is positioned correctly. Moreover, be sure to periodically calibrate the level.



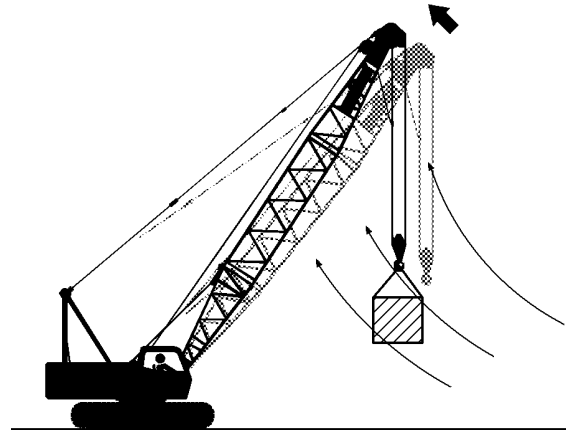
SA-469

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SAFETY

SAFETY DEVICES' CAPACITIES ARE LIMITED

- This crane is equipped with safety devices, such as a moment limiter, boom and hook overhoist prevention devices. However, these safety devices cannot detect if the machine is assembled improperly or maladjusted, if the footing is loose, nor can they automatically adjust the machine position or pose to neutralize the effect of change of the wind.
- Learn the capacities and limitations of the safety devices before ever operating the machine.
- For the areas that cannot be compensated with the safety device capacities, thoroughly read the instruction in this manual and take appropriate measures to prevent accidents from occurring.

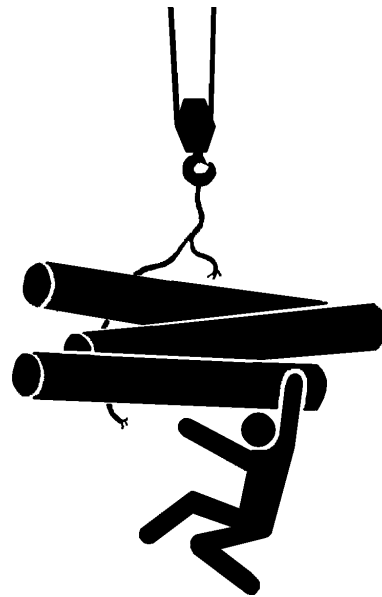


SA-473

040-E01B-0473-4

PRECAUTIONS FOR LOAD HOISTING

- Accidental falling loads may result in serious injury or death.
 - Follow local regulations for hoisting/slinging operations.
 - Never come or work under a lifted load.
 - Never move a lifted load over a person's head.
 - Always use hook(s) with a detachment prevention latch.
 - Use wire ropes, hooks, sling chains and shackles of appropriate sizes and sufficient strength.



SA-118

041-E01A-0118-3