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# Solar 130W-V

Shop Manual

2023-7133E

Serial Number 0001 and Up

January 1999

Daewoo reserves the right to improve our products in a continuing process to provide the best possible product to the market place. These improvements can be implemented at any time with no obligation to change materials on previously sold products. It is recommended that consumers periodically contact their distributors for recent documentation on purchased equipment.

This documentation may include attachments and optional equipment that is not available in your machine's package. Please call your distributor for additional items that you may require.

Illustrations used throughout this manual are used only as a representation of the actual piece of equipment, and may vary from the actual item.

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**Solar 130W-V**  
Serial No. 0001 and Up  
Pub.No. 2023-7133E

**Product Label**



**Instructions**

**Trim Out The Label Along  
The Lines And Insert Int  
Pocket On The Binder Spine**





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# SAFETY





# WHEEL EXCAVATOR SAFETY

 **CAUTION!**

Follow all safety recommendations and safe shop practices outlined in the front of this manual or those contained within this section.

Always use tools and equipment that is in good working order.

Use lifting and hoisting equipment capable of safely handling load.

Remember, that ultimately safety is your own personal responsibility.

MODEL	SERIAL NUMBER RANGE
Solar 130W-V	0001 and Up

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# TO THE OPERATOR OF A DAEWOO EXCAVATOR



## DANGER!

Unsafe use of the excavator could lead to serious injury or death. Operating procedures, maintenance and equipment practices or traveling or shipping methods that do not follow the safety guidelines on the following pages could cause serious, potentially fatal injuries or extensive damage to the machine or nearby property.

Please respect the importance of taking responsibility for your own safety, and that of other people who may be affected by your actions.

The safety information on the following pages is organized into the following sections:

1. "General Safety Essentials" on page 5
2. "Location of Safety Labels" on page 6
3. "Summary of Safety Precautions for Lifting in Digging Mode" on page 12
4. "Work-site Precautions" on page 13
5. "Operation" on page 15
6. "Equipment" on page 20
7. "Maintenance" on page 24
8. "Shipping and Transportation" on page 27



## SAFETY ALERT SYMBOL



**Be Prepared - Get To Know All Operating and Safety Instructions.**

**This is the Safety Alert Symbol. Wherever it appears in this manual or on safety signs on the machine you should be alert to the potential for personal injury or accidents. Always observe safety precautions and follow recommended procedures.**

### LEARN THE SIGNAL WORDS USED WITH THE SAFETY ALERT SYMBOL

The words "**CAUTION**", "**WARNING**", and "**DANGER**" used throughout this manual and on decals on the machine indicate degree of risk of hazards or unsafe practices. All three degrees of risk indicate that safety is involved. Observe precautions indicated whenever you see the Safety Alert "Triangle," no matter which signal word appears next to the "Exclamation Point" symbol.



## CAUTION!

**Indicates potential of a hazardous situation that, if not avoided, could result in minor or moderate injury. It may also be used to alert against a generally unsafe practice.**



## **WARNING!**

Indicates potential of a hazardous situation that, if not avoided, could result in serious injury or death. It may also be used to alert against a highly unsafe practice.



## **DANGER!**

Indicates imminent hazard of a situation that, if not avoided, is very likely to cause death or extremely serious injury. It may also be used to alert against equipment that may explode or detonate if handled or treated carelessly.

# GENERAL SAFETY ESSENTIALS

## ACCESSORY APPLICATIONS

The excavator has been primarily designed for moving earth with a bucket. For use as a grapple or for other object handling, contact Daewoo for proper installation and application. Lifting-work applications (unless restricted or prohibited by local regulations) are permitted in approved lift configuration, to rated capacity only, with no side-loading. DO NOT use the machine for activities for which it was not intended. DO NOT use the bucket for lifting work, unless lift slings are used in the approved configuration.

Use of an accessory hydraulic hammer (breaker), work in rough terrain, demolition applications or other hazardous operation may require installation of additional protective structures to safeguard the operator.

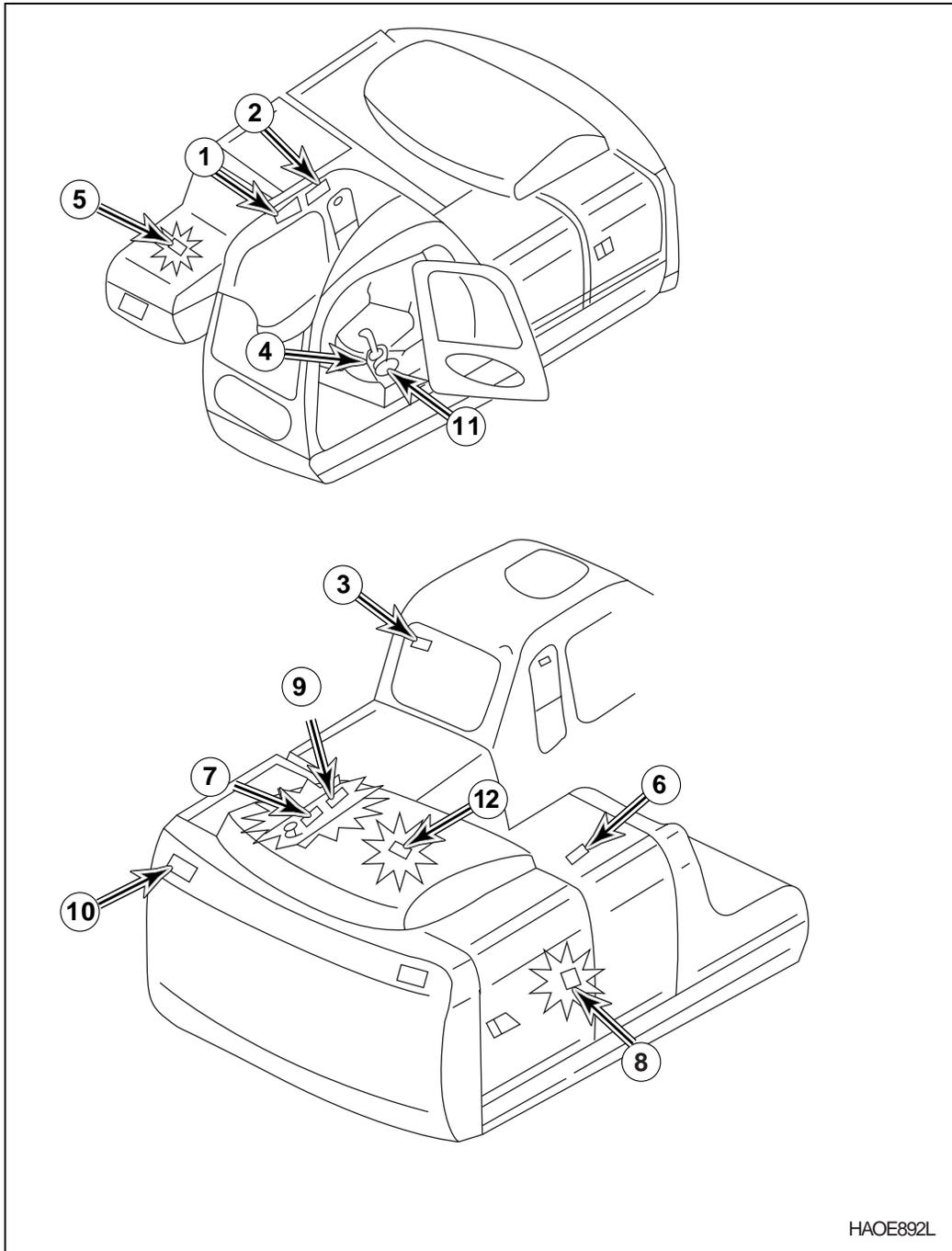
## LIFTING CAPACITY RATING CONFIGURATION

Lifting capacity ratings that are printed at the end of this safety section are based on the machine being level, on a firm supporting surface, with hooks and slings attached in approved configuration. Loads must be balanced and supported evenly. Use taglines to keep the load steady if wind conditions and large surface area are a problem. Work crew hand signals, individual tasks and safe procedures should all be universally understood before the lift is made .

## IMPORTANT

**Before using the excavator to make lifts check municipal and regional regulations or statutes that could apply. Governing ordinances may require that all heavy lifting be done with single purpose equipment specifically designed for making lifts, or other local restrictions may apply. Making heavy lifts with a general purpose excavator that can be used for digging, loading, grading or other work may be expressly forbidden by a regional injunction or other legal prohibition. Always follow all of the other instructions, guidelines and restrictions for Safe Lifting in the Operation and Maintenance and Shop Manuals.**

# LOCATION OF SAFETY LABELS



**Figure 1**

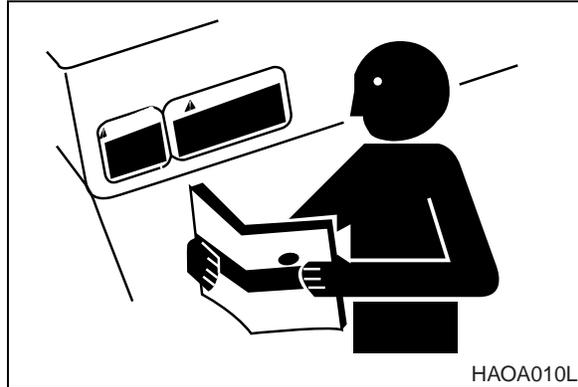
Always keep these labels clean. If they are lost or damaged, replace them with a new label. It is the responsibility of the equipment owner and crew to provide essential safety information in the immediate vicinity of hazards.

Safety labels may be available in languages other than English, or labels providing a warning for other hazards than those that follow may be available. Contact your Daewoo distributor to find out what labels are available.

## 1. WARNING FOR OPERATION, INSPECTION MAINTENANCE (2190 - 3312)

### CAUTION!

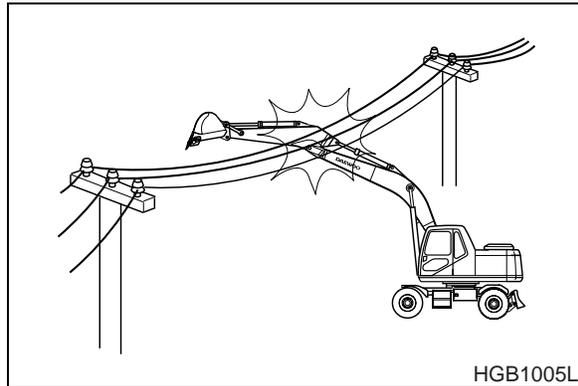
- Read manual and labels before operation and maintenance. Follow instructions and warnings in manual and on labels on the machine.
- Never get in under the machine while it is being jacked up with boom and arm.
- Turn Auto-Idle switch OFF, when loading or unloading the machine.
- Sound the horn to alert the people nearby before operating, and make sure all persons are clear of area.
- Always make sure when leaving operator's seat to:
  - Lower bucket or other working tools to the ground.
  - Pull SAFETY LOCK LEVER to LOCK position.
  - Turn key switch OFF. Remove key from switch.



## 2. WARNINGS FOR HIGH VOLTAGE (2190 - 2532)

### DANGER!

Serious injury or death can occur if machine or attachments contact with electric lines. Never move any part of unit or load closer to electric lines than 3 m (10') plus twice the line insulator length.



3. WARNING WHEN OPENING FRONT WINDOW (2190 - 3388).

 **WARNING!**

When raising window, lock it in place with lock pins on both sides.  
Falling window can cause injury.

4. CAUTION FOR SAFETY LEVER LOCKING (2190 - 3383).

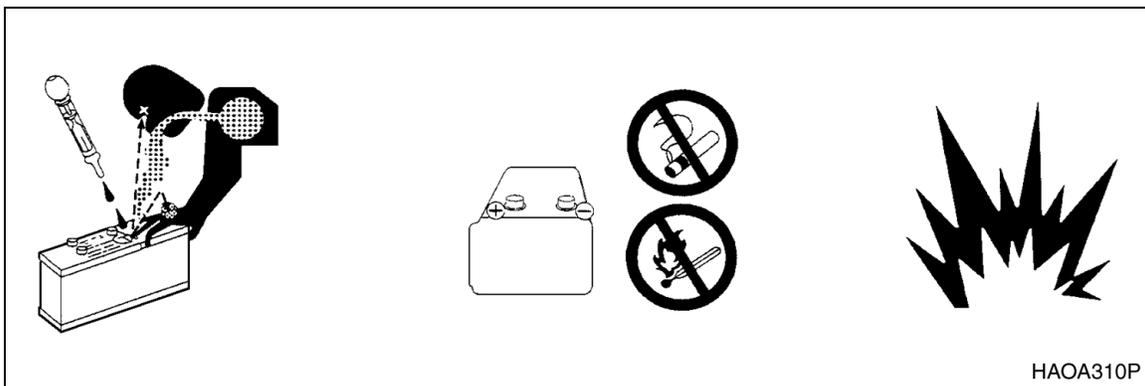
 **CAUTION!**

When putting down the side control stand, use the safety lever surely.

5. WARNING FOR BATTERIES MAINTENANCE (2190 - 2533).

 **WARNING!**

- Battery fumes can explode. Keep sparks and flames away from batteries.
- Always avoid storing metals like tools or inflammable materials around or on the batteries. Explosion or fire can be caused by short circuiting batteries.
- Sulfuric acid in battery is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed in eyes.
- If you spill acid on yourself:
  1. Flush your skin with water.
  2. Apply baking soda or lime to help neutralize the acid.
  3. Flush your eyes with water for 10-15 minutes.Get medical attention immediately.



6. WARNING FOR HIGH TEMPERATURE HYDRAULIC OIL (2190 - 3318)



**WARNING!**

To prevent hot oil from spurting out:

- Turn engine off.
- After oil to cooled.
- Push button on the breather to relieve pressure before removing cover.

7. WARNING FOR HIGH TEMPERATURE COOLANT (2190 - 2531)



**WARNING!**

To prevent hot water from spurting out:

- Turn engine off.
- Allow water to cool.
- Slowly loosen cap to relieve pressure before removing.

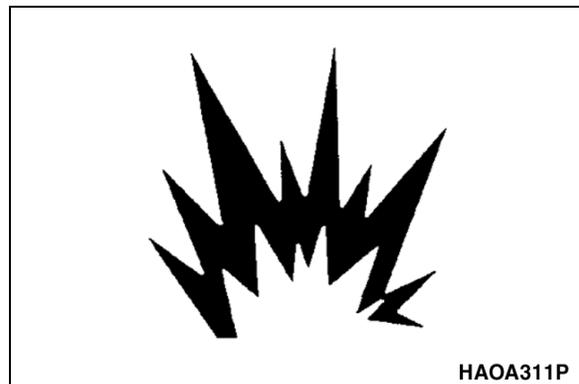
8. WARNING FOR HANDLING ACCUMULATOR (2190 - 2528)



**WARNING!**

Explosion hazard

- Keep away from flame.
- Do not weld or drill.



**ACCUMULATOR**

The pilot control system is equipped with an accumulator. The accumulator will store a pressure charge that may enable the hydraulic controls to be activated for a brief period of time after the engine has been shut down. Activation of any of the controls may enable the selected function to operate under the force of gravity.

When shutting the machine down, lower the front attachment to the ground. After the engine has been shut down, move the joystick controls to release the pressure in the accumulator.



## WARNING!

Any raised attachment will lower to the ground if the accumulator holds a charge.



## WARNING!

Refer to the Shop Manual for service procedures. Do not release any of the pilot lines until the pressure within the accumulator has been released.

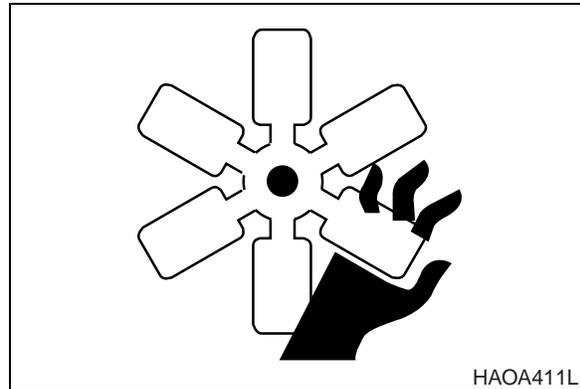
### 9. WARNING FOR ENGINE FAN (2190 - 3315)



## WARNING!

Keep your hands away from the fan during operation.

Entanglement in the fan can cause serious injury.



### 10. KEEP OUT OF THE SWING AREA (2190 - 3379).



## DANGER!

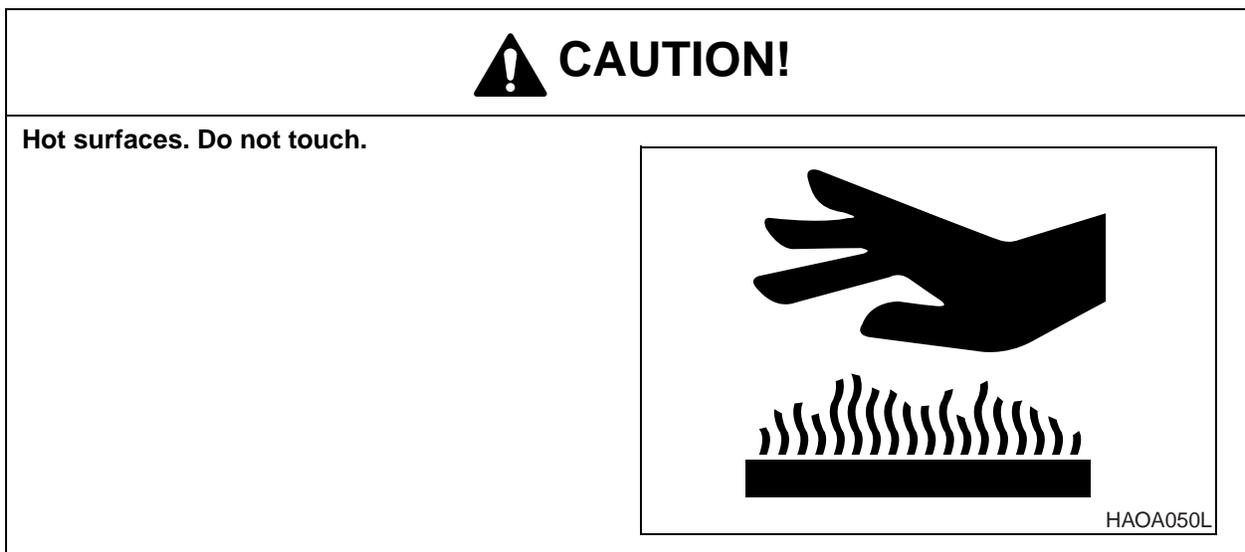
KEEP OUT OF SWING AREA

11. **WARNING TAG - USED WHEN INSPECTING HYDRAULIC SYSTEM (2190 - 2549).**



Figure 2

12. **WARNING FOR HOT ENGINE SURFACE (2190-3314)**



# SUMMARY OF SAFETY PRECAUTIONS FOR LIFTING IN DIGGING MODE

## DANGER!

**Unsafe use of the excavator while making rated lifts could cause serious, potentially fatal injuries or extensive damage to the machine or nearby property. Do not let anyone operate the machine unless they've been properly trained and understand the information in the Operation and Maintenance Manual.**

To lift safely while in Digging Mode, the following items must be evaluated by the operator and the work-site crew.

- Condition of ground support
- Excavator configuration and attachments
- Weight, lifting height and lifting radius
- Safe rigging of the load
- Proper handling of the suspended load

Taglines on opposite sides of the load can be very helpful in keeping a suspended load secure, if they are anchored safely to control points on the ground.

## WARNING!

**NEVER wrap a tagline around your hands or body.**

**NEVER rely on taglines or make rated lifts when wind gusts are in excess of 48.3 km/hr (30 mi/h). Be prepared for any type of wind gust when working with loads that have a large surface area.**

Always engage the "Digging Mode" control on the Instrument Panel before using the excavator for lifting work.

## WARNING!

**If you need more information or have any questions or concerns about safe operating procedures or working the excavator correctly in a particular application or in the specific conditions of your individual operating environment, please consult your local Daewoo representative.**

### UNAUTHORIZED MODIFICATIONS

Any modification made without authorization or written approval from Daewoo can create a safety hazard, for which the machine owner must be held responsible.

For safety's sake, replace all OEM parts with the correct authorized or genuine Daewoo part. For example, not taking the time to replace fasteners, bolts or nuts with the correct replacement parts could lead to a condition in which the safety of critical assemblies is dangerously compromised.

# WORK-SITE PRECAUTIONS

## ATTACHMENT PRECAUTIONS

Options kits are available through your dealer. Contact Daewoo for information on available one-way (single-acting) and two-way (double-acting) piping/valving/auxiliary control kits. Because Daewoo cannot anticipate, identify or test all of the attachments that owners may wish to install on their machines, please contact Daewoo for authorization and approval of attachments, and their compatibility with options kits.

## AVOID HIGH-VOLTAGE CABLES

Serious injury or death can result from contact or proximity to high-voltage electric lines. The bucket does not have to make physical contact with power lines for current to be transmitted.

Use a spotter and hand signals to stay away from power lines not clearly visible to the operator.

VOLTAGE	MINIMUM SAFE DISTANCE
6.6kV	3.0 m (9' - 10")
33.0kV	4.0 m (13' - 1")
66.0kV	5.0 m (16' - 5")
154.0kV	8.0 m (26' - 3")
275.0kV	10.0 m (32' - 10")

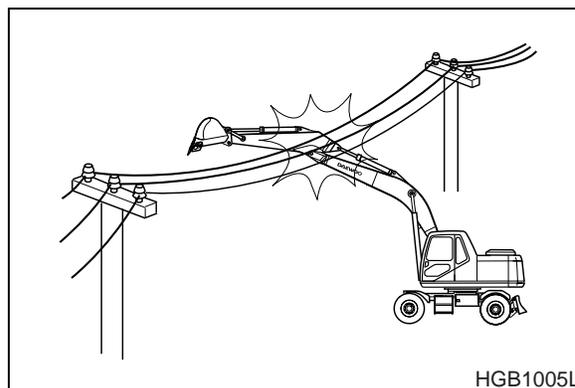


Figure 3

Use these minimum distances as a guideline only. Depending upon the voltage in the line and atmospheric conditions, strong current shocks can occur with the boom or bucket as far away as 4 - 6 m (13 - 20 ft) from the power line. Very high voltage and rainy weather could further decrease that safety margin.

**NOTE:** *Before starting any type of operation near power lines (either above ground or buried cable-type), you should always contact the power utility directly and work out a safety plan with them.*

## BEFORE STARTING TO DIG, CONTACT AUTHORITIES

Below ground hazards also include natural gas lines, water mains, tunnels and buried foundations. Know what's underneath the work-site before starting to dig.

## BE AWARE OF HEIGHT OBSTACLES

Any type of object in the vicinity of the boom could represent a potential hazard, or cause the operator to react suddenly and cause an accident. Use a spotter or signal person working near bridges, phone lines, work-site scaffolds, or other obstructions.

## USE CARE ON LOOSE SUPPORT

Working heavy loads over loose, soft ground or uneven, broken terrain can cause dangerous side load conditions and possible tipover and injury. Travel without a load or balanced load may also be hazardous.

If temperatures are changing, be cautious of dark and wet patches when working or traveling over frozen ground. Stay away from ditches, overhangs and all other weak support surfaces. Halt work and install support mats or blocking if work is required in an area of poor tire support.

## USE SOLID SUPPORT BLOCKING

Never rely on lift jacks or other inadequate supports when work is being done. Block tires fore and aft to prevent any movement.

## OVERHANGS ARE DANGEROUS

Digging the workface under an overhang – the work area beneath a cliff or under the edge of a ditch – is dangerous. Know the height and reach limits of the excavator and plan ahead while working. Avoid creating dangerous situations by moving around the work-site while making excavations. Go on to another digging area before steep overhangs are formed. Working around deep pits or along high walls or trenching may require support blocks, especially after heavy rainfalls or during spring thaws. Park the excavator away from overhangs before work shutdown.

## SLOPING TERRAIN REQUIRES CAUTION

Dig evenly around the work-site whenever possible, trying to gradually level any existing slope. If it's not possible to level the area or avoid working on a slope, reducing the size and cycling rate of the workload is recommended.

On sloping surfaces, use caution when positioning the excavator prior to starting a work cycle. Stay alert for instability situations in order to avoid getting into them. For example, you should always avoid working the bucket over downhill tires when parked perpendicular to the slope. Slow all downhill swing movements and avoid full extensions of the bucket in a downhill direction. Lifting the bucket too high, too close to the machine, while the excavator is turned uphill can also be hazardous.

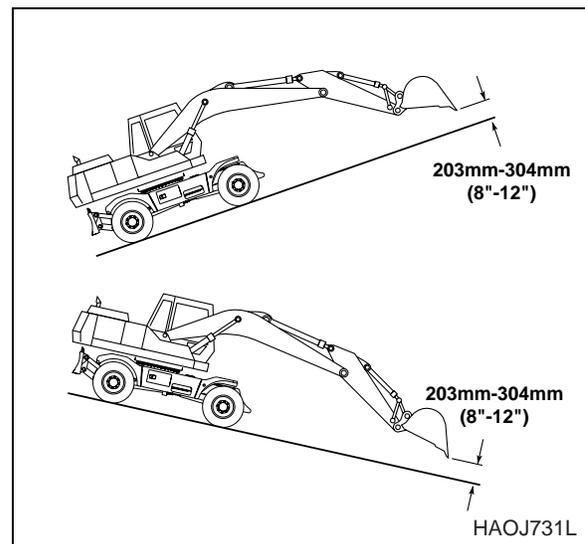


Figure 4

## STAY ALERT FOR PEOPLE MOVING THROUGH THE WORK ARE

When loading a truck you should always know where the driver is.

Avoid loading over the cab of a truck even if the driver is in a safe spot. Someone else could have gone inside, for any number of reasons. Avoid working where unseen passersby might be.

Slow down the work cycle and use slower travel speeds in congested or populated areas. Use a commonly understood signal so that other members of the work crew can warn the operator to slow or halt work in an impending hazard situation.

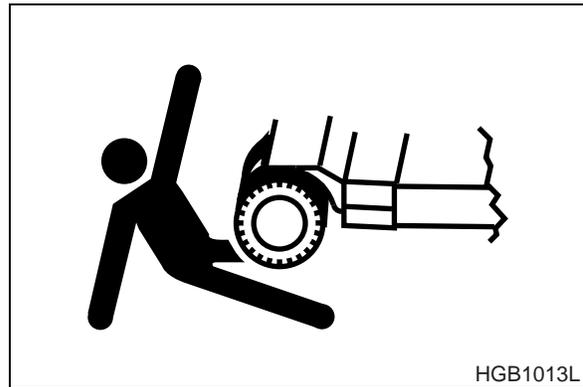


Figure 5

## BE AWARE OF AND CONFORM TO LOCAL REGULATIONS

Minimum levels of insurance coverage, work permits or certification, physical barriers around the work-site or restricted hours of operation may be mandated by governing authorities. There may also be guidelines, standards or restrictions on equipment that may be used to perform certain kinds of work. Check and follow all local requirements, which may also be related to below ground hazards and power lines.

## OPERATION

### OPERATE WHILE SEATED AT THE OPERATOR'S STATION ONLY

Never reach in through a window to work a control. Do not operate the excavator unless you're in the command position, stay alert and focused on your work at all times but DO NOT twist out of the seat if job activity behind you (or to the side) requires your attention.

Use a spotter or signal person if you can't see clearly and something is happening behind you.

Replace damaged safety labels and lost or damaged owner's manuals.

Do not let anyone operate the machine unless they've been fully and completely trained, in safety and in the operation of the machine.



Figure 6

## BEFORE STARTING THE ENGINE

Do a "pre-start" safety check:

- Walk around your machine before getting in the operator's cab. Look for evidence of leaking fluid, loose fasteners, misaligned assemblies or any other indications of possible equipment hazard.
- All equipment covers and machinery safety guards must be in place, to protect against injury while the machine is being operated.
- Look around the work-site area for potential hazards, or people or property that could be at risk while operation is in progress.
- NEVER start the engine if there is any indication that maintenance or service work is in progress, or if a warning tag is attached to controls in the cab.
- A machine that has not been used recently, or is being operated in extremely cold temperatures, could require a warm-up or maintenance service prior to start-up.
- Check gauges and monitor displays for normal operation prior to starting the engine. Listen for unusual noises and remain alert for other potentially hazardous conditions at the start of the work cycle.

## NEVER USE ETHER STARTING AIDS

An electric-grid type manifold heater is used for cold starting. The glowing heater element can cause ether or other starting fluid to detonate, causing injury.

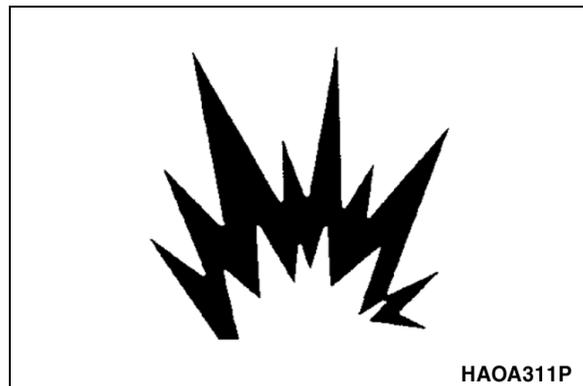


Figure 7

## MOUNTING AND DISMOUNTING

NEVER get on or off a moving machine. Do not jump on/off. The entry/egress path should be clear of mud, oil and spills and mounting hardware must be kept tight and secure.

Always use handholds and steps, and maintain at least 3-point contact of hands and feet. Never use controls as handholds.

NEVER get up from the operator's seat or leave the operator's station and dismount the machine if the engine is running.

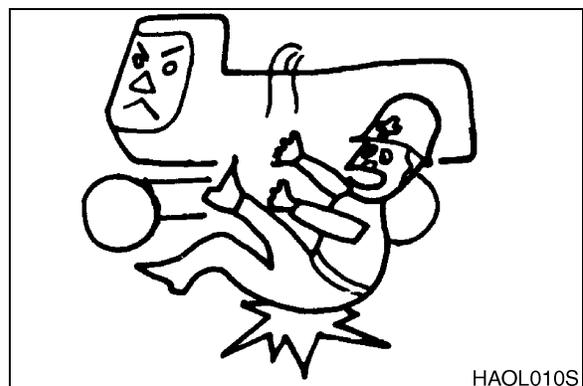


Figure 8

## **OBSERVE GENERAL SAFETY RULES**

Only trained and authorized personnel, with a good knowledge and awareness of safe procedures, may be allowed to operate or perform maintenance or service on the excavator.

All personnel at the work-site should be aware of assigned individual responsibilities and tasks. Communication and hand signals used should be understood by everyone.

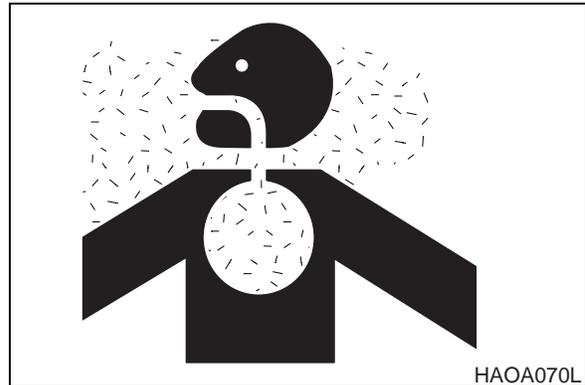
Terrain and soil conditions at the job site, approaching traffic, weather-related hazards and any above or below ground obstacles or hazards should be observed and monitored by all work crew members.

## **ENGINE VENTILATION**

Engine exhaust gases can cause fatal accidents, as well as unconsciousness, loss of alertness, judgement and motor control and serious injury

Make sure of adequate ventilation before starting the engine in any enclosed area.

You should also be aware of open windows, doors or ductwork into which exhaust may be carried, or blown by the wind, exposing others to danger.



**Figure 9**

## **ASBESTOS DUST HAZARD PREVENTION**

Asbestos dust can be HAZARDOUS to your health if it is inhaled.

If you handle materials containing asbestos fibers, follow these guidelines as given below:

- Never use compressed air for cleaning
- Use water for cleaning to keep down the dust.
- Work on the machine or component with the wind at your back whenever possible.
- Use an approved respirator, with proper filtration cartridges.

## **TAKE TIME TO PROVIDE GOOD VISIBILITY**

Halt work if visibility is poor. Strong rains, snow, fog and extremely dusty conditions can all obscure visibility so badly that it is best to wait for weather to change or dust to settle before continuing operation.

Night work in areas of limited visibility should be halted if installation of extra work lights on the machine (or work area) is necessary

Keep dirt and dust off of windows and off the lens surfaces of work lights. Stop working if lights, windows or mirrors need cleaning or adjustment.

## FUEL, OIL AND HYDRAULIC FLUID FIRE HAZARDS

Add fuel, oil, antifreeze and hydraulic fluid to the machine only in a well ventilated area. The machine must be parked with controls, lights and switches turned off. The engine must be "OFF" and any flames, glowing embers, auxiliary heating units or spark-causing equipment must be doused, turned "OFF" and/or kept well clear of the machine.

Static electricity can produce dangerous sparks at the fuel filling nozzle. In very cold, dry weather or other conditions that could produce static discharge, keep the tip of the fuel nozzle in constant contact with the neck of the fuel filling nozzle, to provide a ground.

Keep fuel and other fluid reservoir caps tight and do not start the engine until caps have been secured.



Figure 10

## BOOST STARTING OR CHARGING ENGINE BATTERIES

Turn "OFF" all electrical equipment before connecting leads to the battery. This includes electrical switches on the battery charger or boost starting equipment.

When boost-starting from another machine or vehicle do not allow the two machines to touch. Wear safety glasses or goggles while required parallel battery connections – positive to positive and negative to negative – are made.

24 volt battery units consisting of two series-connected twelve volt batteries have a cable connecting one positive terminal on one of the 12 volt batteries to a negative terminal on the other battery. Booster or charger cable connections must be made between the non-series-connected positive terminals and between the negative terminal of the booster battery and the metal frame of the machine being boosted or charged. Refer to the procedure and illustration in "Starting Engine Using A Booster Battery" on page 3 8 of this manual.

Connect positive cable first when installing cables and disconnect the negative cable first when removing them. The final cable connection, at the metal frame of the machine being charged or boost-started, should be as far away from the batteries as possible.

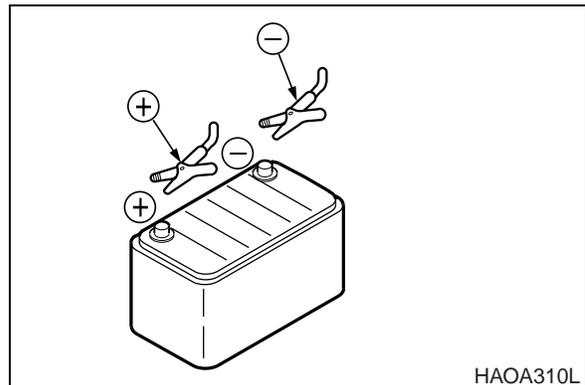


Figure 11

## TRAVEL CONTROLS MAY PRODUCE REVERSED OPERATIONS

Before starting the machine you should always check to see which end of the lower structure is under the operator's cab. In the normal travel configuration, the steering axle is at the front of the machine, and the rigid axle is under the engine and counterweight. If the operator swings the cab 180°, the rigid axle will be underneath the operator's cab, and steering will be reversed.

When traveling the excavator always keep lights on; make sure that you are in compliance with all state and local regulations concerning warning flags and signs and keep the operator's cab positioned over the front end of lower structure. That will keep travel controls in their intended configuration and at the same time, maintain the proper orientation of lights on the machine and posted flags and signs.

## KEEP "PINCH POINT" AREAS CLEAR - USE CAUTION IN REVERSE & SWING

Use a signal person in high traffic areas and whenever the operator's view is not clear, such as when traveling in reverse. Make sure that no one comes inside the swing radius of the machine.

Anyone standing near the lower structure, or working assemblies of the attachment, is at risk of being caught between moving parts of the machine.

Never allow anyone to ride on any part of the machine or attachment, including any part of the turntable or operator's cab.

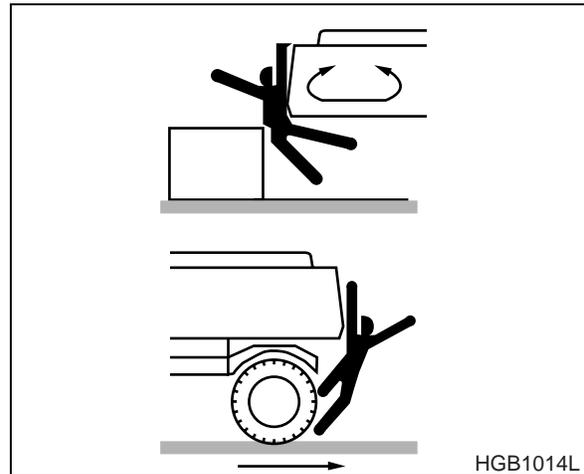


Figure 12

## TRAVEL PRECAUTIONS

Attachment control levers should not be operated while traveling.

Do not change selected travel mode (FAST/SLOW) while traveling.

Fold in work equipment so that the outer end of the boom is as close to the machine as possible, and is 203 mm – 304 mm (8" – 12") above ground.

Never travel over obstacles or slopes that will cause the machine to tilt severely. Travel around any slope or obstacle that causes 10 degrees tilt, or more.

## OPERATE CAREFULLY ON SNOW AND ICE AND IN VERY COLD TEMPERATURES

In icy cold weather avoid sudden travel movements and stay away from even very slight slopes. The machine could skid off to one side very easily.

Snow accumulation could hide or obscure potential hazards. Use care while operating or while using the machine to clear snow.

Warming up the engine for a short period may be necessary, to avoid operating with sluggish or reduced working capacity. The jolting shocks and impact loads caused by bumping or bottoming the boom or attachment are more likely to cause severe stress in very cold temperatures. Reducing work cycle rate and work load may be necessary.

## PARKING THE MACHINE

Avoid making sudden stops, or parking the machine wherever it happens to be at the end of the work day. Plan ahead so that the excavator will be on a firm, level surface away from traffic and away from high walls, cliff edges and any area of potential water accumulation or runoff. If parking on inclines is unavoidable, block the tires to prevent movement. Lower the bucket or other working attachment completely to the ground, or to an overnight support saddle. There should be no possibility of unintended or accidental movement.

## SHUTDOWN CONTROL FUNCTIONS

After the machine has been lowered to the overnight storage position and all switches and operating controls are in the "OFF" position, the control stand lock lever must be engaged. Release the left console to disable all pilot circuit control functions.

Insert the swing lock pin and engage all brakes and lock-down security equipment that may have been installed on the machine.

## IMPORTANT

**When hydraulic system maintenance or service work must be performed, you should be aware that an accumulator in the system stores fluid under pressure after system lock down, even after the control stand is raised. Release this energy by working controls with the engine "OFF," until pressure in the pilot circuit has been completely bled away.**

## EQUIPMENT

### ROUGH OPERATION MAY REQUIRE USE OF CERTIFIED SAFETY EQUIPMENT

Working in mines, tunnels, deep pits or on loose or wet surfaces could produce danger of falling rock or hazardous flying objects. Additional protection for the operator's cab could be required in the form of a FOG / Falling Object Guard or windows guards.

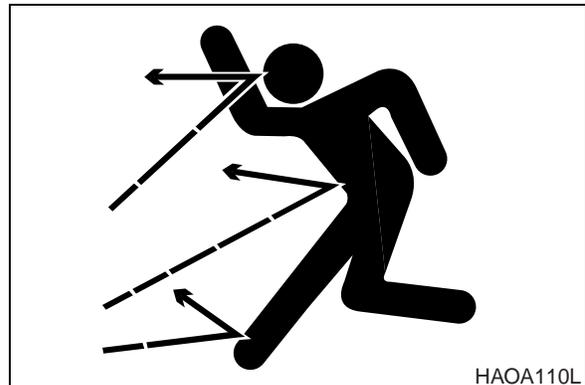


Figure 13

Any reinforcement system that is installed on the machine must pass safety and certification standards and carry appropriate labeling and rating information. For example, the most often added type of reinforcement system, FOG, must meet or exceed International Standard ISO10262, Laboratory Tests and Performance Requirements Earth-Moving Machinery.

Never attempt to alter or modify any type of protective structure reinforcement system, by drilling holes, welding, remounting or relocating fasteners. Any serious impact or damage to the system requires a complete integrity reevaluation. Reinstallation, recertification and/or replacement of the system may be necessary.



**Figure 14**

### **INSTALL ADDITIONAL SAFETY EQUIPMENT IF CONDITIONS REQUIR**

When working with a breaker or in some shear work applications, a front guard over the windshield may be required. The windshield guard may or may not be OPS/certified, depending upon the specific application and working situation.

Laminate glass protection for the front, side or rear windows may also be recommended depending upon particular site conditions.

Contact your Daewoo distributor for available safety guards and/or recommendations if there is any danger of getting hit by objects that could strike the operator's cab. Make sure that all other work-site crew members are kept well away from the excavator and safe from potential hazards.

### **MOVEMENT ALARMS**

If the excavator is equipped with an audible travel movement alarm or visible swing movement alarm (strobe light), test the alarm on a daily basis. The audible alarm should sound as soon as the travel system is engaged. The strobe light should begin to flash as soon as the swing system is engaged.

### **SEAT BELTS SHOULD BE USED AT ALL TIMES**

Whenever the engine is running, the operator should be seated at the control station with the seat belt properly engaged.



**Figure 15**

### WINDOW GLASS BREAKING TOOL

This excavator is equipped with a glass breaking tool. It is located behind the operator seat in the upper right corner of the cab. This tool can be used in case of an emergency situation which requires the breaking of glass to exit from the operator's cabin. Grip the handle firmly and use the sharp point to break the glass.



Figure 16

### KEEP A FIRE EXTINGUISHER AT HAND

It is recommended that an appropriately sized (2.27 kg [5 lb.] or larger) multi-purpose "A/B/C" fire extinguisher be mounted in the cab. Check and service the fire extinguisher at regular intervals and make sure that all work-site crew members are adequately trained in its use.

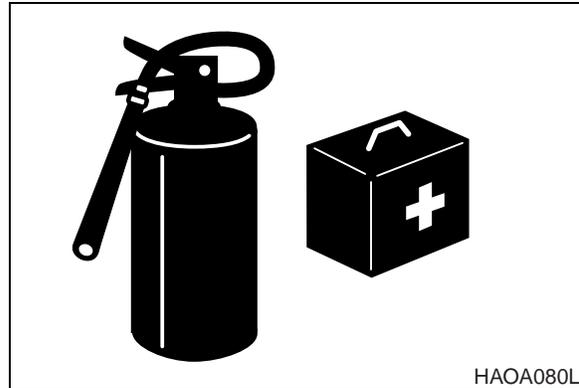


Figure 17

### MAINTAIN STANDARD SAFETY EQUIPMENT IN GOOD CONDITION

Machinery guards and body panel covers must be in place at all times. Keep well clear of rotating parts. Pinch point hazards such as cooling fan and alternator drive belts could catch hair, jewelry or oversize or very loose clothing.

Safety labels must be replaced if they are damaged or become unreadable. The information on labels gives work crew members an important safety reminder exactly where it will do the most good. Part numbers for each label and required mounting locations are shown in "Location of Safety Labels" on page 6 of this section.

### SAFETY-CRITICAL PARTS MUST BE REPLACED PERIODICALLY

Replace the following fire-related components as soon as they begin to show any sign of wear, or at regular periodic intervals, whether or not deterioration is visible:

- Fuel system flexible hoses, the tank overflow drain hose and the fuel fill cap.
- Hydraulic system hoses, especially the pump outlet lines and front and rear pump branch hoses.
- Keep mounting brackets and hose and cable routing straps tight. Hose routing should have gradual bends.