

SAFETY.CAT.COM™

SAFETY

Operation and Maintenance
Manual Excerpt

Operation and Maintenance Manual

D350E Series II and D400E Series II Articulated Trucks

8PS1-Up (Machine)
2XW1-Up (Machine)

Important Safety Information

Most accidents that involve product operation, maintenance and repair are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs. A person must be alert to potential hazards. This person should also have the necessary training, skills and tools to perform these functions properly.

Improper operation, lubrication, maintenance or repair of this product can be dangerous and could result in injury or death.

Do not operate or perform any lubrication, maintenance or repair on this product, until you have read and understood the operation, lubrication, maintenance and repair information.

Safety precautions and warnings are provided in this manual and on the product. If these hazard warnings are not heeded, bodily injury or death could occur to you or to other persons.

The hazards are identified by the "Safety Alert Symbol" and followed by a "Signal Word" such as "DANGER", "WARNING" or "CAUTION". The Safety Alert "WARNING" label is shown below.



The meaning of this safety alert symbol is as follows:

Attention! Become Alert! Your Safety is Involved.

The message that appears under the warning explains the hazard and can be either written or pictorially presented.

Operations that may cause product damage are identified by "NOTICE" labels on the product and in this publication.

Caterpillar cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this publication and on the product are, therefore, not all inclusive. If a tool, procedure, work method or operating technique that is not specifically recommended by Caterpillar is used, you must satisfy yourself that it is safe for you and for others. You should also ensure that the product will not be damaged or be made unsafe by the operation, lubrication, maintenance or repair procedures that you choose.

The information, specifications, and illustrations in this publication are on the basis of information that was available at the time that the publication was written. The specifications, torques, pressures, measurements, adjustments, illustrations, and other items can change at any time. These changes can affect the service that is given to the product. Obtain the complete and most current information before you start any job. Caterpillar dealers have the most current information available. For a list of the most current publication form numbers available, see the Service Manual Contents Microfiche, REG1139F.



When replacement parts are required for this product Caterpillar recommends using Caterpillar replacement parts or parts with equivalent specifications including, but not limited to, physical dimensions, type, strength and material.

Failure to heed this warning can lead to premature failures, product damage, personal injury or death.

Safety Section

Safety Signs and Labels

i01146653

SMCS Code: 7000

There are several specific safety signs on this machine. The exact location of the hazards and the description of the hazards are reviewed in this section. Please become familiarized with all safety signs.

Make sure that all of the safety signs are legible. Clean the safety signs or replace the safety signs if you cannot read the words. Clean the safety signs or replace the safety signs if the illustrations are not legible. When you clean the safety signs, use a cloth, water and soap. Do not use solvent, gasoline, or other harsh chemicals to clean the safety signs. Solvent, gasoline, or harsh chemicals could loosen the adhesive that secures the safety sign. Loose adhesive will cause the safety sign to fall off the machine.

Replace any safety sign that is damaged, or missing. If a safety sign is attached to a part that is replaced, install a safety sign on the replacement part. Any Caterpillar dealer can provide new safety signs.

Do Not Operate

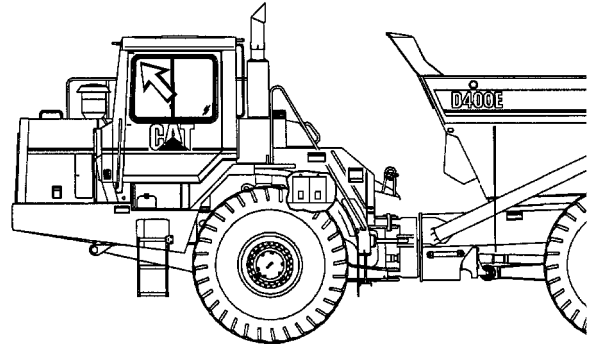
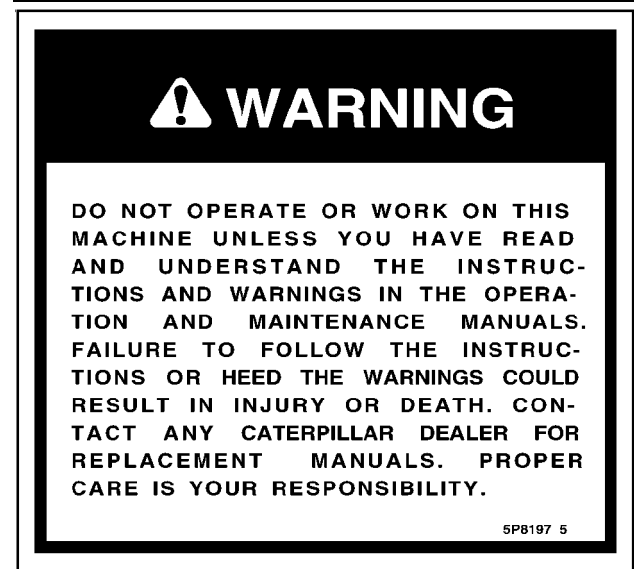


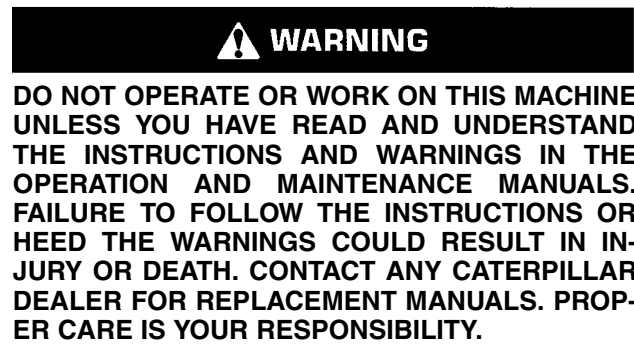
Illustration 2

g00608641

This decal is located in the cab.



g00038370



No Clearance

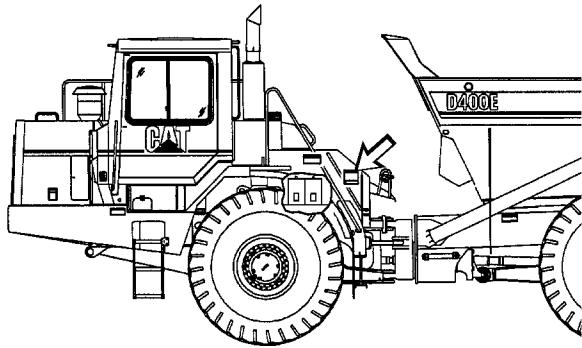


Illustration 3

g00608661

This decal is located on both sides of the machine.

Body Prop

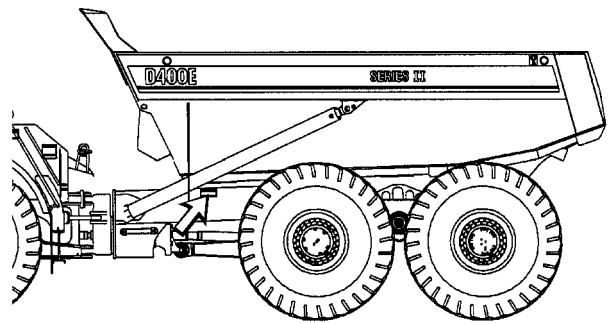


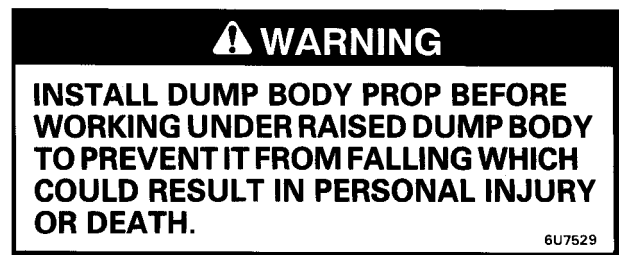
Illustration 4

g00608665

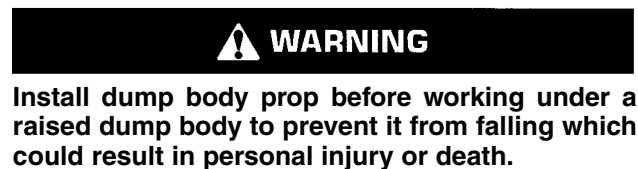
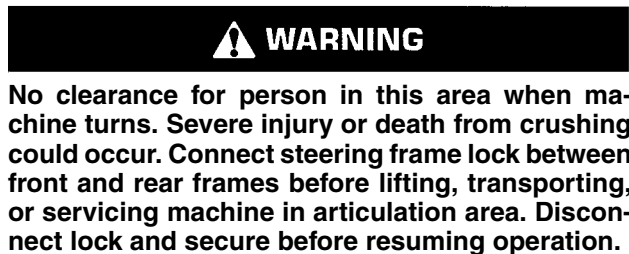
This decal is located on both sides of the rear frame.



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g00616289



Proper Connections for Jump Start Cables

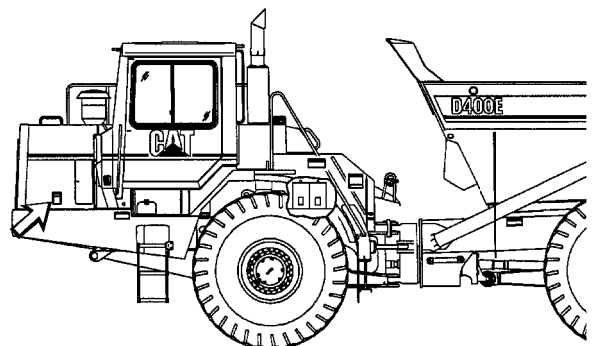


Illustration 5

g00608671

This decal is located above the battery compartment.

! WARNING

IMPROPER JUMPER CABLE CONNECTIONS CAN CAUSE EXPLOSION RESULTING IN PERSONAL INJURY.

BATTERIES MAY BE LOCATED IN SEPARATE COMPARTMENTS. WHEN USING JUMPER CABLES, ALWAYS CONNECT POSITIVE (+) CABLE TO POSITIVE (+) TERMINAL OF BATTERY CONNECTED TO STARTER SOLENOID AND NEGATIVE (-) CABLE FROM EXTERNAL SOURCE TO STARTER NEGATIVE (-) TERMINAL (IF MACHINE NOT EQUIPPED WITH STARTER NEGATIVE TERMINAL, CONNECT TO ENGINE BLOCK.) FOLLOW PROCEDURE IN THE OPERATION MANUAL.

6V-4611 4

g00038786

! WARNING

Improper jumper cable connections can cause explosion resulting in personal injury.

Batteries may be located in separate compartments. When using jumper cables, always connect positive (+) cable to positive (+) terminal of battery connected to starter solenoid and negative (-) cable from external source to starter negative (-) terminal (if machine not equipped with starter negative terminal, connect to engine block.) Follow procedure in the operation manual.

High pressure in Suspension System

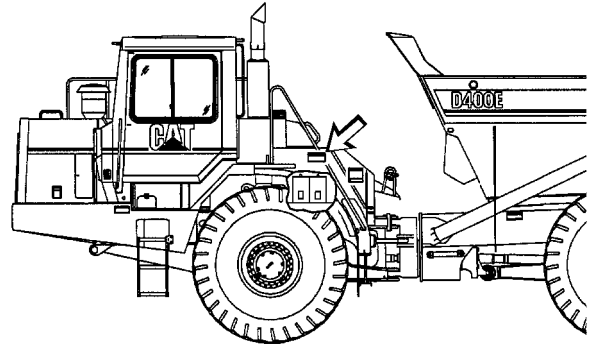


Illustration 6

g00608674

This decal is located on both sides of the tractor unit.

! WARNING

SUSPENSION LINES AND CYLINDERS CONTAIN FLUID AT HIGH PRESSURE.

PERSONAL INJURY OR DEATH BY CRUSHING CAN RESULT FROM IMPROPER SERVICING PROCEDURES.

THE MACHINE MUST BE ON HARD, LEVEL GROUND WITH THE FRAME BLOCKED AND PRESSURE RELIEVED. SEE SERVICE MANUAL FOR CORRECT PROCEDURE.

9U-7944

g00616291

! WARNING

Suspension lines and cylinders contain fluid at high pressure. Personal injury or death by crushing can result from improper servicing procedures. The machine must be on hard, level ground with the frame blocked and pressure relieved. See service manual for correct procedure.

Do Not Modify the ROPS/FOPS Structure

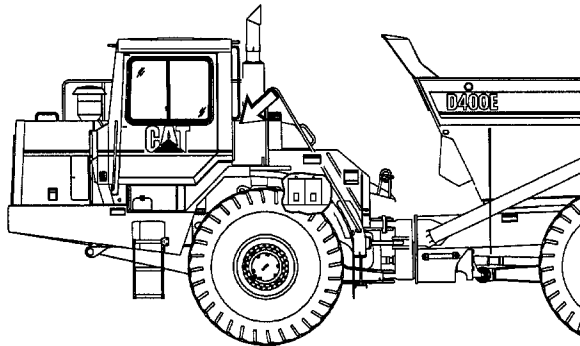


Illustration 7

g00608676

This decal is located on the back of the cab.



g00616292



Structural damage, an overturn, modification, alteration, or improper repair can impair this structure's protection capability thereby voiding this certification. Do not weld on or drill holes in the structure. Consult a Caterpillar dealer to determine this structure's limitations without voiding its certification.

Prop for the Cab

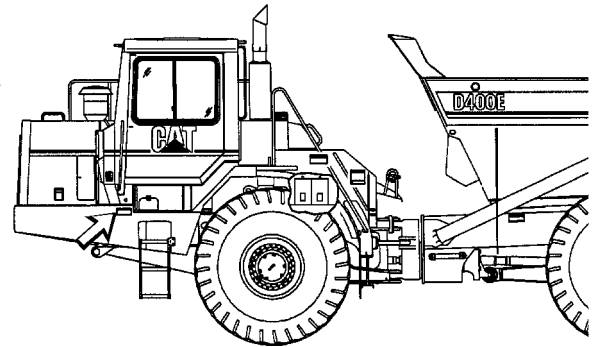
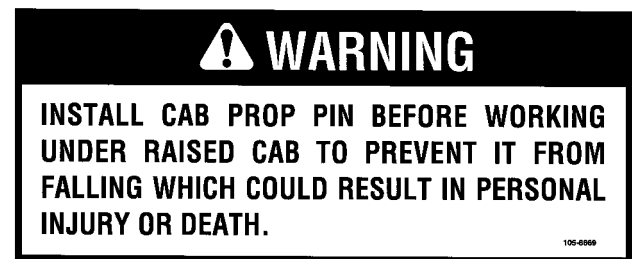


Illustration 8

g00608683

This decal is located below the cab door.



g00616293



Install cab prop pin before working under raised cab to prevent it from falling which could result in injury or death.

High Pressure Cylinder

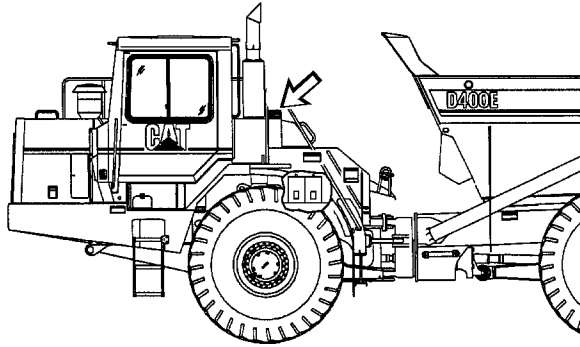


Illustration 9

g00608698

This decal is located on the front suspension accumulator.

High Pressure Cylinder

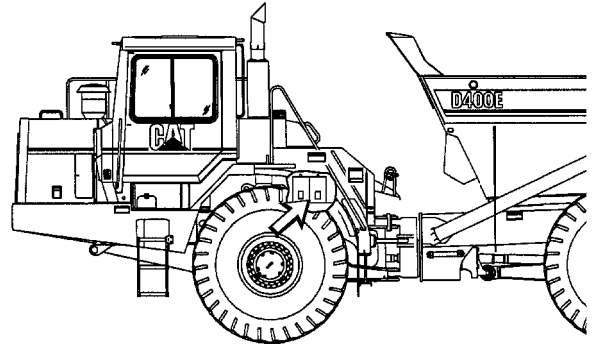
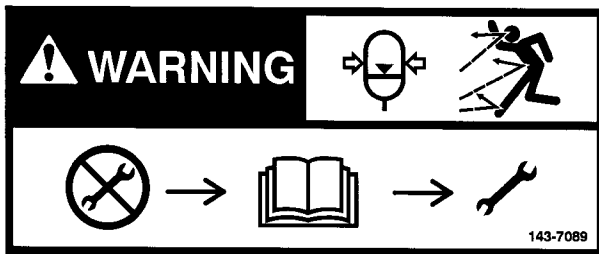


Illustration 10

g00608708

This decal is located on the service brake accumulators.



g00616295



High pressure cylinder. Parts can separate with explosive force if proper care is not used during disassembly.

This can cause injury or death.

Do not disassemble any part of this cylinder until you have read and understand the instructions given in the service manual. Observe the instructions given in the service manual.

WARNING

HIGH PRESSURE CYLINDER
DO NOT REMOVE ANY PARTS UNTIL
PRESSURE HAS BEEN RELIEVED OR
PERSONAL INJURY MAY OCCUR.

INTERNAL VOLUME:

750 cm³ (46 in³)

PRECHARGE PRESSURE:

8500 kPa (1233 psi)

MAX OPERATING PRESSURE:

21 000 kPa (3045 psi)

MIN. BURST PRESSURE:

84 000 kPa (12,180 psi)

CHARGING MEDIUM:

DRY NITROGEN GAS

**SEE YOUR CATERPILLAR
DEALER FOR TOOLS AND
DETAILED INFORMATION
REQUIRED FOR CHARGING
CYLINDERS.**

115-6441 2

g00616297

WARNING

High pressure cylinder. Do not remove any parts until pressure has been relieved or personal injury may occur.

Unit Injectors

i01301817

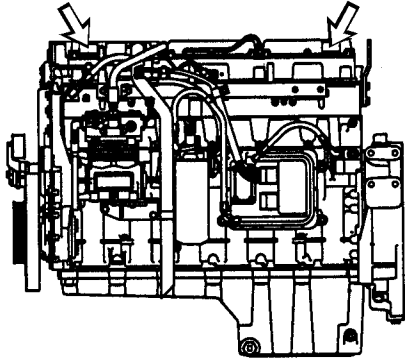
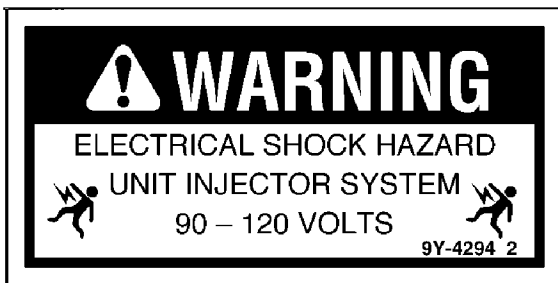


Illustration 11

g00608717

This decal is located on the engine valve covers.



g00039226



This engine uses high voltage to the unit injectors. Do not touch the injector terminals while the engine is running.

General Hazard Information

SMCS Code: 7000

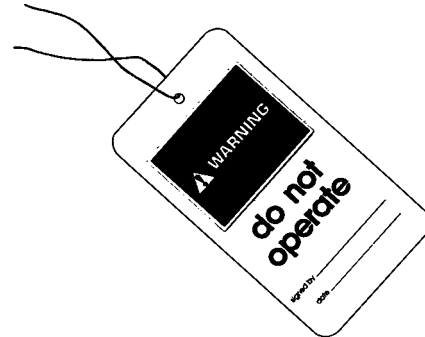


Illustration 12

g00100846

Before you service the machine or before you repair the machine, attach a "Do Not Operate" warning tag or a similar warning tag to the start switch or to the controls.

For more information about these warning tags, see Special Instruction, SEHS7332 or consult your Caterpillar Dealer.

Know the width of your equipment in order to maintain proper clearance near fences, boundary obstacles, etc.

Wear a hard hat, protective glasses and other protective equipment in order to suit job conditions.

Do not wear jewelry. Do not wear clothing that is loose. Jewelry and clothing that is loose can snag on controls or on other parts of the machine.

Ensure that all protective guards and all covers are secured in place on the machine.

Keep the machine free from foreign material. Check the deck, the walkways and the steps. Remove debris, oil, tools and other items.

Secure all loose items that are not a part of the machine. Secure lunch boxes, tools and other items.

Know the appropriate job site hand signals. Also, know the personnel that are authorized to give hand signals. Accept hand signals from one person only.

Do not smoke when you service an air conditioner. Also, do not smoke if refrigerant gas may be present. Inhaling the fumes that are emitted from a flame that contacts air conditioner refrigerant can cause bodily harm or death. Inhaling gas from air conditioner refrigerant through a lighted cigarette or any other means of smoking can cause bodily harm or death.

Never put maintenance fluids into glass containers. Drain all liquids into a suitable container.

When you discard liquids, obey all local regulations.

Use all cleaning solutions with care.

Report all necessary repairs.

Do not allow unauthorized personnel on the machine.

Unless you are instructed otherwise, perform maintenance with the following conditions:

- The machine parked on level ground.
- The dump body lowered to the frame. The dump body must be secured if the dump body is raised.
- The transmission control must be in the NEUTRAL position.
- The parking and secondary brake control moved to the ENGAGED position.
- The engine stopped.
- The engine start switch must be in the OFF position and the key must be removed.
- The disconnect switch must be in the OFF position and the key must be removed.

Pressure Air

Pressure air can cause personal injury. When pressure air is used for cleaning, wear a protective face shield, protective clothing and protective shoes.

The maximum air pressure must be below 205 kPa (30 psi) for cleaning purposes.

Fluid Penetration

When you check for a leak, use a board or cardboard. Leaking fluid that is under pressure can penetrate body tissue. Fluid penetration can cause serious injury and possible death. A pin hole leak can cause severe injury. If fluid is injected into your skin, you must obtain treatment immediately. Seek treatment from a doctor that is familiar with this type of injury.

Asbestos Information

Caterpillar equipment and replacement parts that are shipped from Caterpillar are asbestos free. Caterpillar recommends the use of only genuine Caterpillar replacement parts. If any replacement parts that contain asbestos are used, the following guidelines should be used in handling these parts and asbestos debris.

Use caution. Avoid inhaling dust that might be generated when you handle components that contain asbestos fibers. Inhaling this dust can be hazardous to your health. The components that may contain asbestos fibers are brake pads, brake bands, lining material, clutch plates, and some gaskets. The asbestos that is used in these components is usually bound in a resin or sealed in some way. Normal use is not hazardous, unless airborne dust that contains asbestos is generated.

If dust which can contain asbestos is present, there are several guidelines that should be followed:

- Never use compressed air for cleaning.
- Avoid brushing materials that contain asbestos.
- Also avoid grinding materials that contain asbestos.
- Use a wet method in order to clean up asbestos materials.
- You may also use a vacuum that is equipped with a highly efficient filter that cleans particulate air.
- Use exhaust ventilation on permanent machining jobs.
- Wear an approved respirator if there is no other way to control the dust.
- Comply with applicable rules and regulations for the work place. In the USA, use Occupational Safety and Health Administration requirements. These OSHA requirements can be found in "29 CFR 1910.1001".

- Obey environmental rules and regulations for the disposal of asbestos.
- Stay away from areas that might have asbestos particles in the air.

Containing Fluid Spillage

Care must be taken in order to ensure that fluids are contained while you do the following procedures.

- Inspect the machine.
- Maintain the machine.
- Test the machine.
- Adjust the machine.
- Repair the machine.

Be ready to collect the fluid with suitable containers before you open any compartment and before you disassemble any component which contains fluids.

Refer to Special Publication, NENG2500, "Tools and Shop Products Guide" for the following items:

- Tools that are suitable for collecting fluids and for containing fluids
- Equipment that is suitable for collecting fluids and for containing fluids

Obey all local regulations for the disposal of liquids.

i01303395

Crushing Prevention and Cutting Prevention

SMCS Code: 7000

Support the equipment properly when you work beneath the equipment. Do not depend on the hydraulic cylinders in order to support the equipment. A piece of equipment can fall if a control lever is moved, or if a hydraulic line breaks.

Install the prop for the cab before you work under a raised cab.

Unless you are instructed otherwise, never attempt adjustments while the machine is moving or while the engine is running.

Whenever there are equipment linkages, the clearance in the linkage area will change with movement of the equipment.

Stay clear of all rotating parts and all moving parts.

Keep objects away from moving fan blades. The fan blades will throw objects and the fan blades will cut objects.

Do not use a wire cable that is kinked or frayed. Wear gloves when you handle wire cable.

When you strike a retainer pin, the retainer pin might fly out. The flying retainer pin can injure personnel. Make sure that there are no people in the area when you strike a retainer pin. To avoid injury to your eyes, wear protective glasses when you strike a retainer pin.

Chips or other debris may fly off objects when you strike the objects. Make sure that no one will be injured by flying debris before you strike any object.

Be sure that the area behind the machine is clear of personnel before you raise the dump body. The warm shop can cause material that was frozen to thaw. This material can slide out of the dump body.

Rollover Protective Structure (ROPS) or Falling Object Protective Structure (FOPS)

A ROPS is designed to provide operator crush protection in a rollover.

To avoid the possible weakening of the ROPS or of the FOPS, consult your Caterpillar dealer before you alter the structure. Do not alter the structure by welding on the structure, by cutting the structure, by adding weight to the structure, or by drilling holes in the structure.

Any alteration that is not specifically authorized by Caterpillar invalidates the Caterpillar certification for the ROPS or for the FOPS. The protection that is offered by the ROPS will be impaired if the ROPS has structural damage. Damage to the structure can be caused by an overturn or by falling objects.

Do not mount items (fire extinguishers, first aid kits, work lights, etc) by welding any brackets to the ROPS or by drilling holes in the ROPS. See your Caterpillar dealer for mounting guidelines.

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Burn Prevention

SMCS Code: 7000

Coolant

At operating temperature, the engine coolant is hot and the engine coolant is under pressure. The radiator and all lines to heaters or to the engine contain hot coolant or steam. Any contact can cause severe burns.

Steam can cause personal injury.

Only check the coolant level after the engine has been stopped. Make sure that the radiator filler cap is cool. In order to remove the radiator cap with the bare hand, the radiator cap must be cool. In order to relieve pressure, remove the radiator filler cap slowly.

Cooling system conditioner contains alkali. Alkali can cause personal injury. Do not allow alkali to contact the skin, the eyes and the mouth.

Allow cooling system components to cool before you drain the cooling system.

Oils

Hot oil and hot components can cause personal injury. Do not allow hot oil or hot components to contact the skin.

At operating temperature, the oil tank is hot and the oil tank can be under pressure.

Remove the oil filler cap after the engine has been shut down. The filler cap must be cool enough to touch.

Remove the oil filler cap slowly in order to relieve system pressure.

Relieve all pressure in the air system, in the oil system, in the fuel system or in the cooling system. Relieve the pressure before any lines, any fittings or any related items are disconnected or removed.

Batteries

Batteries give off flammable fumes which can explode.

Do not smoke when you observe the battery electrolyte levels.

Electrolyte is an acid. Electrolyte can cause personal injury. Do not allow electrolyte to contact the skin or the eyes.

Always wear protective glasses when you work with batteries.

i00891408

Fire Prevention and Explosion Prevention

SMCS Code: 7000

All fuels, most lubricants, and some coolant mixtures are flammable.

Fuel that is leaking, fuel that is spilled onto hot surfaces, and fuel that is spilled onto electrical components can cause a fire.

Do not smoke while you refuel or while you are in a refueling area.

Do not smoke in battery charging areas or in areas that are used to store flammable material.

Batteries can be installed in separate compartments. When you use jump start cables, always connect the positive "(+)" cable to the positive "(+)" terminal of the battery that is connected to the starter solenoid. Connect the negative "(-)" cable from the external source to the negative "(-)" terminal of the starter.

Note: If the starter is not equipped with a negative "(-)" terminal, connect the cable to the engine block.

See the Operation and Maintenance Manual, "Engine Starting" for specific starting instructions.

Clean all electrical connections and tighten all electrical connections. Check the electrical wires daily for loose wires or for frayed wires. Tighten all loose wires before you operate the machine. Repair all frayed wires before you operate the machine.

Store all fuels and lubricants in properly marked containers and away from all unauthorized persons.

Store all oily rags or other flammable material in a protective container.

Do not weld pipes that contain flammable fluids or tubes that contain flammable fluids. Do not flame cut pipes that contain flammable fluids or tubes that contain flammable fluids. Clean the pipes or tubes thoroughly with nonflammable solvent before you weld the pipes or tubes or you flame cut the pipes or tubes.

Remove all flammable materials (fuel, oil, debris, etc) before the flammable materials accumulate on the machine.

Do not expose the machine to flames or to brush that is burning.

Shields protect hot exhaust components from oil spray or fuel spray. Make sure that the shields are installed correctly in case a line, a tube, or a seal fails.

Fire Extinguisher

Make sure that a fire extinguisher is on the machine. Make sure that you are familiar with the operation of the fire extinguisher. Inspect the fire extinguisher and service the fire extinguisher. Obey the recommendations on the instruction plate.

Ether

Ether is poisonous and flammable. Inhaling ether vapors can cause personal injury. Do not allow ether to contact your skin repeatedly. Use ether only in well ventilated areas. Do not smoke while you replace ether cylinders. Use ether carefully to avoid fires. Do not store ether cylinders in living areas or in the operator's compartment.

Do not store ether cylinders in direct sunlight or at temperatures above 40°C (102°F). Discard ether cylinders in an approved place. Do not puncture ether cylinders. Do not burn ether cylinders. Keep ether cylinders out of the reach of unauthorized personnel.

Lines, Tubes and Hoses

Do not bend high pressure lines. Do not strike high pressure lines. Do not install bent lines, bent tubes, or bent hoses. Do not install damaged lines, damaged tubes, or damaged hoses.

Repair loose lines, loose tubes, and loose hoses. Repair damaged lines, damaged tubes, and damaged hoses. Leaks can cause fires. See your Caterpillar dealer for repair or for replacement parts.

Check lines, tubes and hoses carefully. Do not use your bare hand to check for leaks. Use a board or cardboard to check for leaks.

Replace the parts if any of the following conditions are present:

- The end fittings are damaged or leaking.
- The outer covering is chafed or cut.

- The wire shield is exposed.
- The outer covering is ballooning locally.
- The flexible part of the hose is kinked or crushed.
- The armoring is embedded in the outer cover.
- The end fittings are displaced.

Make sure that all clamps, guards, and heat shields are installed correctly. This will help to prevent vibration, abrasion, and excessive heat. Tighten all connections to the recommended torque.

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Fire Extinguisher Location

SMCS Code: 7000

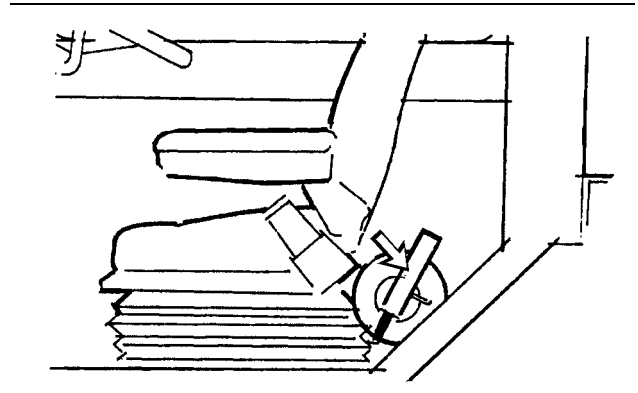


Illustration 13

g00608541

The fire extinguisher must be mounted in the cab. Mount the fire extinguisher behind the seat on the angled floorplate.

Do not mount the fire extinguisher on the ROPS.

The fire extinguisher mounting must be capable of withstanding a force that is equivalent to twenty times the effect of gravity.

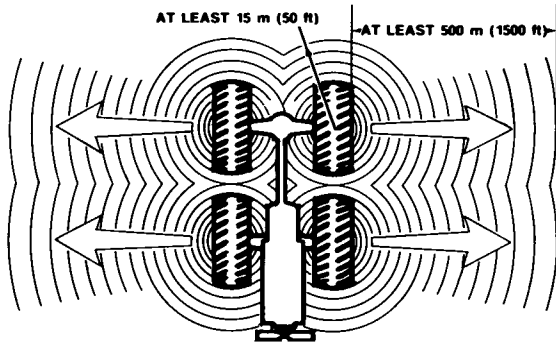
i01001250

Tire Explosion Prevention

SMCS Code: 7000

Explosions of air inflated tires have resulted from heat-induced gas combustion inside the tires. Explosions can be caused by heat that is generated by welding, by heating rim components, by external fire, or by excessive use of brakes.

A tire explosion is much more violent than a blowout. The explosion can propel the tire, the rim components, and the axle components as far as 500 m (1500 ft) or more from the machine. Both the force of the explosion and the flying debris can cause property damage, personal injury, or death.



1a0700

Illustration 14

g00023253

Do not approach a warm tire. Maintain a minimum distance, as shown. Stay outside the shaded area in Illustration 14.

Dry nitrogen gas is recommended for inflation of tires. If the tires were originally inflated with air, nitrogen is still preferred for adjusting the pressure. Nitrogen mixes properly with air.

Nitrogen inflated tires reduce the potential of a tire explosion because nitrogen does not aid combustion. Nitrogen helps to prevent oxidation of the rubber, deterioration of rubber, and corrosion of rim components.

To avoid overinflation, proper nitrogen inflation equipment and training in the usage of the equipment are necessary. A tire blowout or a rim failure can result from improper equipment or from misused equipment.

When you inflate a tire, stand behind the tread and use a self-attaching chuck.

Servicing tires and rims can be dangerous. Only trained personnel that use proper tools and proper procedures should perform this maintenance. Never repair rims by welding. If a rim has a crack, replace the rim immediately. If correct procedures are not used for servicing tires and rims, the assemblies could burst with explosive force. This explosive force can cause serious personal injury or death. Carefully obey the specific instructions from your tire dealer.

i01122596

Electrical Storm Injury Prevention

SMCS Code: 7000

When lightning is striking in the vicinity of the machine, the operator should never attempt the following procedures:

- Mount the machine.
- Dismount the machine.

If you are in the operator's station during an electrical storm, stay in the operator's station. If you are on the ground during an electrical storm, stay away from the vicinity of the machine.

i01218821

Mounting and Dismounting

SMCS Code: 7000

Get on the machine only at locations that have steps and/or handholds. Get off the machine only at locations that have steps and/or handholds. Before you get on the machine, clean the steps and the handholds. Inspect the steps and handholds. Make all necessary repairs.

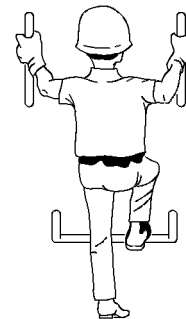


Illustration 15

g00037860

Face the machine whenever you get on the machine and whenever you get off the machine.

Maintain a three-point contact with the steps and with the handholds.

Note: Three-point contact can be two feet and one hand. Three-point contact can also be one foot and two hands.

Do not get on a moving machine. Do not get off a moving machine. Never jump off the machine. Do not try to get on the machine when you carry tools or supplies. Do not try to get off the machine when you carry tools or supplies. Use a hand line to pull equipment onto the platform. Do not use any controls as handholds when you enter the operator compartment or when you exit the operator compartment.

i01308750

Before Starting Engine

SMCS Code: 1000; 7000



Illustration 16

g00693192

The steering frame lock must be stored in the proper location for normal operation of the machine. The steering frame lock must be removed in order to articulate the machine.

Start the engine only from the operator's compartment. Never short across the starter terminals or across the batteries. Shorting could bypass the engine neutral start system. Shorting could also damage the electrical system.

Inspect the condition of the seat belt and the condition of the mounting hardware. Replace any damaged parts and any worn parts. Regardless of appearance, replace the seat belt after three years of use. Do not use a seat belt extension on a retractable seat belt.

Adjust the seat so that full pedal travel can be achieved. The operator's back must be against the back of the seat. Adjust the steering column.

Make sure that the machine is equipped with a lighting system that is adequate for the job conditions. Make sure that all lights are working properly.

Before you start the engine or before you move the machine, make sure that no one is on the machine, underneath the machine, or around the machine. Make sure that there are no personnel in the area.

i01301819

Engine Starting

SMCS Code: 1000; 7000

If a warning tag is attached to the start switch or to the controls, do not start the engine. Also, do not move any controls.

Move the body hoist control to the FLOAT position before you start the engine.

Move the transmission control to the N position before you start the engine.

Move the parking and secondary brake control to the ENGAGED position before you start the engine.

Diesel engine exhaust contains products of combustion which can be harmful to your health. Always start the engine in a well ventilated area. Always operate the engine in a well ventilated area. If you are in an enclosed area, vent the exhaust to the outside.

i00954921

Before Operating Machine

SMCS Code: 7000

Move all personnel from the machine and from the area.

Move all obstacles from the machine's path. Beware of hazards (wires, ditches, etc).

Be sure that all windows are clean. Secure the windows in the open position or in the shut position.

Adjust the mirrors for the best visibility close to the machine. Make sure that the horn, the backup alarm, and all other warning devices are working properly.

Fasten your seat belt securely.

A person that occupies the companion seat must wear the seat belt for the companion seat.

i00892010

Machine Operation

SMCS Code: 7000

Only operate the machine while you are in a seat. The seat belt must be fastened while you operate the machine. A passenger must sit on the seat that is provided. If a passenger is carried the seat belt must be fastened.

While you operate the machine slowly in an open area, check for proper operation of all controls and all protective devices.

Before you move the machine, you must make sure that no one will be endangered.

Do not allow riders on the machine.

Note any needed repairs during machine operation. Report any needed repairs.

Stay away from the edge of cliffs, overhangs and slide areas. Do not go close to the edge of a cliff, an excavation, or an overhang.

If the machine begins to sideslip downward on a grade, turn the machine downhill.

Avoid any conditions that can lead to tipping the machine. The machine can tip when you work on hills, on banks and on slopes. Also, the machine can tip when you cross ditches, ridges or other obstacles.

Avoid operating the machine across the slope. When possible, operate the machine up the slopes and down the slopes.

Maintain control of the machine. Do not load the machine beyond the machine capacity.

Stay in the cab while the machine is being loaded.

Travel with the dump body lowered to the frame.

Before starting up a grade, select the gear that will give you full control under the conditions.

Know the maximum dimensions of your machine.

Inspect tires periodically during your shift. Allow tires to cool before going near the tires. Refer to Operation and Maintenance Manual, SEBU7028, "Tire Explosion Prevention" for additional information.

Do not coast with the transmission in neutral.

Use a person to give signals when you enter a building. Use a person to give signals when you leave a building.

i01301820

Machine Parking

SMCS Code: 7000

Park the machine on a level surface. If you must park on a grade, chock the machine's wheels.

Apply the service brakes in order to stop the machine. Move the transmission control to the NEUTRAL position. Move the accelerator control to the LOW IDLE position. Move the parking and secondary brake control to the ENGAGED position.

The dump body must be lowered to the frame.

The hoist control must be in the FLOAT position.

Run the engine at low idle for five minutes.

Stop the engine.

Turn the engine start switch to the OFF position and remove the engine start switch key.

Turn the battery disconnect switch to the OFF position. Remove the battery disconnect switch key if you do not operate the machine for an extended period of time. This will prevent drainage of the battery. A battery short circuit, any current draw from certain components, and vandalism can cause drainage of the battery.

i01147129

Equipment Lowering with Engine Stopped

SMCS Code: 7000



Be sure all personnel are clear of equipment while equipment is being lowered.

Failure to stay clear may result in personal injury.

The dump body can be lowered manually. It may be necessary to lower the dump body manually if the engine cannot be started.

Before you lower the dump body, make sure that the area around the machine is clear of all persons. Also, make sure that the rear frame is clear of all persons.

Refer to Operation and Maintenance Manual, SEBU7064, "Lowering the Body with Engine Stopped".

i01309567

Sound Information and Vibration Information

SMCS Code: 7000

Sound Level for Enclosed Cab

The operator sound pressure level for this machine in the operator's compartment is less than 85 dB(A). This machine is equipped with a properly installed, properly maintained enclosed cab.

The measurement was obtained on a static machine. To find the procedure for using the static machine and the conditions for using the static machine, see "ISO 6394" or "86/662/EEC".

Vibration Level

Hands and Arms – The hands and the arms are exposed to a weighted root mean square acceleration that is less than 2.5 meters per second squared.

Whole Body – The whole body is exposed to a weighted root mean square acceleration less than 0.56 meters per second squared.

Measurements are obtained on a representative machine. Use the measuring procedure in the following standards: "ISO 2631/1", "ISO 5349", and "SAE J1166".

i01173788

Cab Internal Clearance

SMCS Code: 7000

This Caterpillar machine is equipped with a factory installed cab that conforms to industry standards. The standards specify the clearance that is required in the cab for the operator. These standards are "SAE J154" and "EN474-1".

Any modifications to the inside of the cab should not project into this defined space. The addition of a radio, fire extinguisher, and other equipment must be installed so that the defined space is maintained. Any item that is brought into the cab should not project into this defined space. A lunch box or other loose items must be secured. Objects must not pose an impact hazard in rough terrain or in the event of a machine rollover.

i01339561

Steering Frame Lock

SMCS Code: 7000

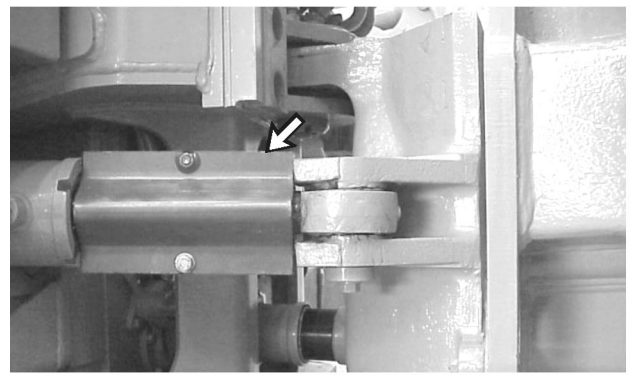


Illustration 17

g00608422

There are two steering frame locks on these machines. When the steering frame locks are installed, the machine cannot be turned. This prevents injury by crushing to people that are in the area of the oscillating hitch. The steering frame lock must be installed before any person is allowed in the area of the oscillating hitch.