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SAFETY

Operation and Maintenance
Manual Excerpt

Operation and Maintenance Manual

M312 and M315 Excavators

6TL1-Up (Machine)
7ML1-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

i01049309

SMCS Code: 7000; 7405

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. Replace the illustrations if the illustrations are not visible. 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. Solvents, gasoline, or harsh chemicals could loosen the adhesive that secures the safety sign. Loose adhesive will allow the safety sign to fall.

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

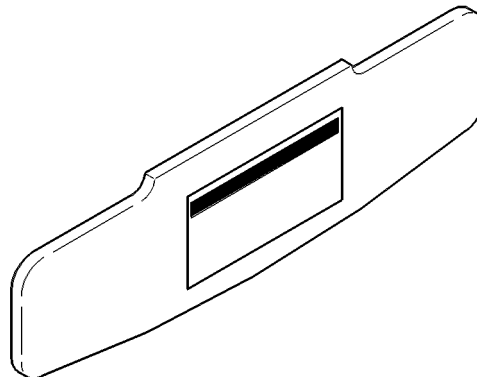


Illustration 2

g00330103

This warning label is located on either side of the sun visor.



g00103591



Do not operate or work on this machine unless you have read and understand the instructions and warnings in the Operation and Maintenance Manuals. Failure to follow the instructions or heed the warnings could result in injury or death. Contact any Caterpillar dealer for replacement manuals. Proper care is your responsibility.

Certification of the Falling Object Protective Structure

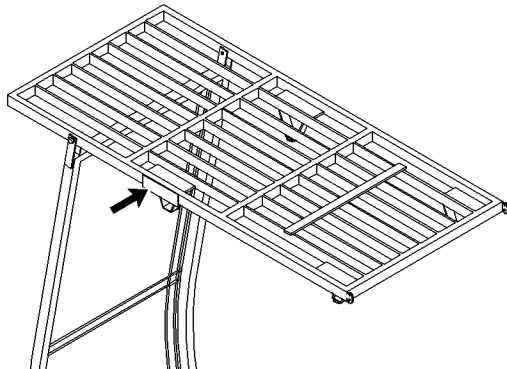


Illustration 3 g00330163

This warning is located on the overhead guard (if equipped).



g00103593



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.

Improper Connections for Jump Start Cables

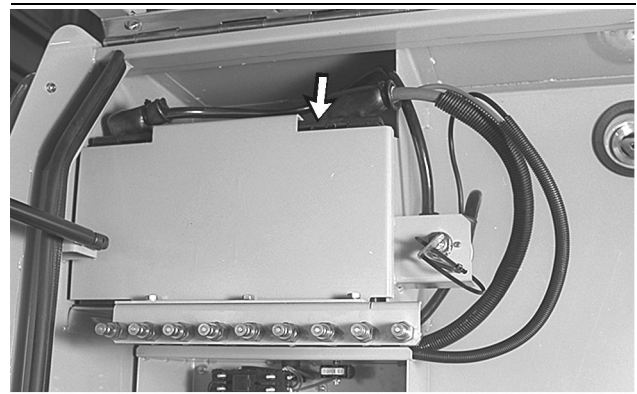
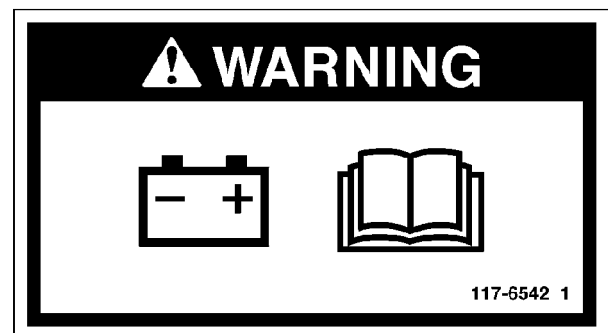


Illustration 4 g00103595

This warning is located on the battery box.



g00104283

Read Operation and Maintenance Manual, "Starting with Jump Start Cables" before attempting to jump start your machine.

Reversed Control Functions



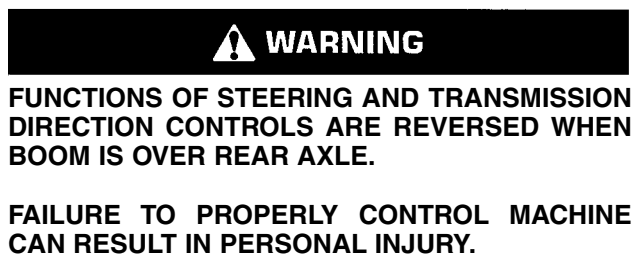
Illustration 5

g00103597

This warning is located in the cab.



g00103797



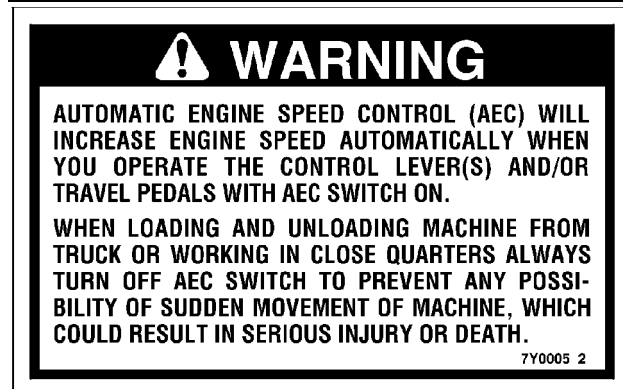
Automatic Engine Control (AEC)



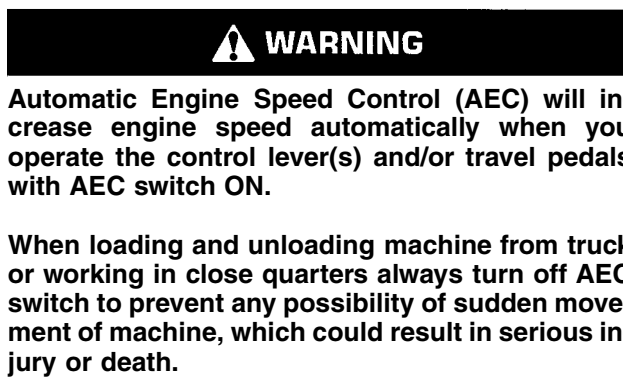
Illustration 6

g00103802

This warning label is positioned in the cab.



g00100749



Air Inlet Heater (S/N: 5HK; 9RM)



Illustration 7 g00304965

This warning label is located on the engine.

Air Inlet Heater (S/N: 7BJ)

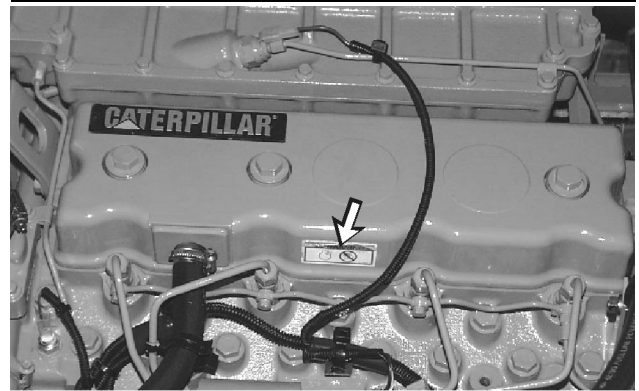


Illustration 8 g00518748

This warning label is located on the engine.



g00100745

Do not spray ether into the engine air intake.



g00100745

Do not spray ether into the engine air intake.

i00994424

General Hazard Information

SMCS Code: 7000



Illustration 9 g00102311

Attach a "Do Not Operate" warning tag or a similar warning tag to the start switch or to the controls before you service the machine or before you repair the machine. These warning tags (Special Instruction, SEHS7332) are available from your Caterpillar dealer.

Know the width of your implement in order to maintain proper clearance when you operate the machine near fences or near boundary obstacles.

Wear a hard hat, protective glasses, and other protective equipment, as required.

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

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

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

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

Know the appropriate work site hand signals and the personnel that are authorized to give the 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 released from a flame that contacts air conditioner refrigerant can cause bodily harm or death. Inhaling gas from air conditioner refrigerant through a lighted cigarette can cause bodily harm or death.

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

Obey all local regulations for the disposal of liquids.

Use all cleaning solutions with care. Report all necessary repairs.

Do not allow unauthorized personnel on the machine.

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

- The machine is parked on level ground.
- The implement is lowered to the ground.
- The implement control levers are in the HOLD position.

- The left console is raised so that the hydraulic system is disengaged.
- The engine is stopped.
- The engine start switch is turned to the OFF position and the engine start switch key is removed.
- The battery disconnect switch is in the OFF position and the disconnect switch key is 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 for cleaning purposes must be below 205 kPa (30 psi).

Fluid Penetration

Pressure can be maintained in the hydraulic circuit long after the engine has been stopped. The pressure can cause hydraulic fluid or items such as pipe plugs to escape rapidly if the pressure is not relieved correctly.

Do not remove any hydraulic components or parts until pressure has been relieved or personal injury may occur. Do not disassemble any hydraulic components or parts until pressure has been relieved or personal injury may occur.

Perform the following procedures in order to relieve pressure:

1. Lower the bucket or equipment to the ground.
2. Stop the engine.
3. With the operator in the seat, move the left console to the RAISED position.
4. Actuate an implement control lever about ten times in order to dissipate the pressure in the hydraulic circuit.
5. Raise the left console.

Always use a board or cardboard when you check for a leak. 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 get treatment immediately. Seek treatment from a doctor that is familiar with this type of injury.

Containing Fluid Spillage

All fluids must be contained during the following procedures: inspections, maintenance, testing, adjusting, and repair. Allow all fluids to drain into a suitable container.

Refer to Special Publication, NENG2500, "Tools and Shop Products Guide" for the suitable tools and the suitable supplies.

Dispose of used fluids according to local regulations.

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. Use the following guidelines when you handle any replacement parts that contain asbestos or when you handle 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. The normal handling is not hazardous unless airborne dust that contains asbestos is generated.

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

Never use compressed air for cleaning. Avoid the brushing or the grinding of materials that contain asbestos. Use a wet method to clean up asbestos debris. A vacuum that is equipped with a high efficiency particulate air filter (HEPA) can also be used.

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 regulations for disposal of asbestos.

Stay away from areas that might have asbestos particles in the air.

i00081003

Crushing Prevention and Cutting Prevention

SMCS Code: 7000

Support the equipment and the implements properly when you perform work beneath the equipment and the implements. Do not depend on the hydraulic cylinders to hold up the equipment and implements. An implement can fall if a control lever is moved or if a hydraulic line breaks.

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

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

Stay clear of all rotating parts and moving parts.

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

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

When you strike a retainer pin, the retainer pin might fly out. The loose retainer pin can injure personnel. Make sure that the area is clear of people 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. Before you strike objects, make sure that nearby persons will not be injured by flying debris.

Do not attempt to lift the machine with the lift eyes on the cab. Do not attempt to lift the machine with the counterweight. See Operation and Maintenance Manual, "Transportation Information" for the lifting procedures. Also, you may consult your Caterpillar dealer.

Falling Objects Guard

This is an attached guard that is located above the operator compartment.

To avoid the possible weakening of the Falling Objects Guard, consult your Caterpillar dealer before you alter the structure. The protection that is offered by the Falling Objects Guard will be impaired if the Falling Objects Guard has structural damage. Damage to the structure can be caused by an overturn or by falling objects.

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Burn Prevention

SMCS Code: 7000

Coolant

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

Only check the coolant level after the engine has been stopped. Make sure that the radiator cap is cool before you remove the radiator cap with your bare hand. Remove the radiator cap slowly in order to relieve pressure.

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

When the hydraulic system is at operating temperature, the hydraulic oil is hot and the hydraulic oil is under pressure.

Remove the filler plug on the hydraulic tank only after the engine has been stopped. Make sure that the filler plug on the hydraulic tank is cool before you remove the filler plug on the hydraulic tank with your bare hand. Remove the filler plug on the hydraulic tank slowly in order to relieve pressure.

Relieve all pressure in the air system, in the oil system, in the fuel system, or in the cooling system before you disconnect any lines, fittings, or related items.

Batteries

Batteries give off flammable fumes which can explode.

Do not smoke while you are observing 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 on batteries.

i01102917

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 Section of this manual 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.

Ether

Do not spray ether into an engine when you use thermal starting aid to start the engine.

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 49 °C (120 °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. See Operation and Maintenance Manual, "General Hazard Information" for more details. Tighten all connections to the recommended torque.

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

- End fittings that are damaged or leaking
- Outer coverings that are chafed or cut
- Wire shields that are exposed
- Outer coverings that are ballooning
- Flexible part of the hoses that are kinked
- Outer covers that have embedded armoring
- End fittings that are displaced

Make sure that all clamps, guards, and heat shields are installed correctly. During machine operation, this will help prevent vibration, the rubbing against other parts, and excessive heat.

i00768564

Fire Extinguisher Location

SMCS Code: 7000; 7419



Illustration 10

g00104719

Typical example

Make sure that a fire extinguisher is available. Be familiar with the operation of the fire extinguisher. Inspect the fire extinguisher and service the fire extinguisher regularly. Obey the recommendations on the instruction plate. The fire extinguisher may be mounted in the cab, next to the travel speed pedals.

i00773927

Tire Explosion Prevention

SMCS Code: 4200; 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.

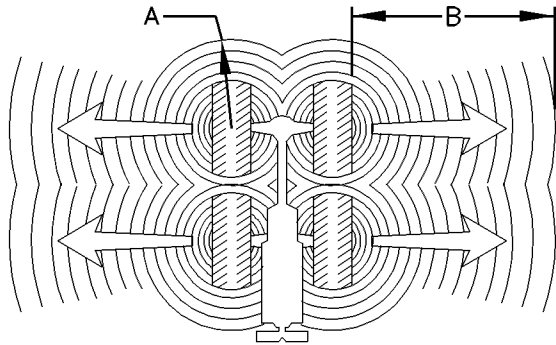


Illustration 11

g00337832

- (A) At least 15 m (50 ft)
- (B) At least 500 m (1500 ft)

Do not approach a warm tire. Maintain a minimum distance, as shown. Stay outside the shaded area in Illustration 11.

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. 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.

i00061083

Electrical Storm Injury Prevention

SMCS Code: 7000

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

- Mounting the machine
- Dismounting 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 during an electrical storm.

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Mounting and Dismounting

SMCS Code: 7000

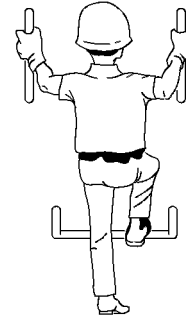


Illustration 12

g00037860

Mount the machine and dismount the machine only at locations that have steps and/or handholds. Before you mount the machine, clean the steps and the handholds. Inspect the stairs and handholds. Make any necessary repairs.

Face the machine whenever you mount the machine and whenever you dismount 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.

Never mount a moving machine. Never dismount a moving machine. Never jump off the machine.

Do not carry tools or supplies when you try to mount the machine or when you try to dismount the machine. 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.

Alternate Exit

Machines that are equipped with cabs have alternate exits. For additional information, see Operation and Maintenance Manual, "Exit (Alternate)".

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i00058292

Before Starting Engine

SMCS Code: 1000; 7000

Start the engine only from the operator compartment. Never short across the starter terminals or across the batteries. Shorting could damage the electrical system by bypassing the engine neutral start system.

Inspect the condition of the seat belt and of the mounting hardware. Replace any parts that are worn or damaged. 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 with the operator's back against the back of the seat.

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

Before you start the engine and before you move the machine, make sure that no one is underneath the machine, around the machine, or on the machine. Make sure that the area is free of personnel.

i00994427

Engine Starting

SMCS Code: 1000; 7000

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

Move all hydraulic controls to the HOLD position before you start the engine. Raise the left console in order to disengage the hydraulic controls. For further details on this procedure, refer to Operation and Maintenance Manual, "Hydraulic Activation Control".

Engage the parking brake.

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

Before Operating Machine

SMCS Code: 7000

Clear all personnel from the machine and from the area.

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

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

Adjust the rearview mirrors (if equipped) for the best visibility close to the machine. Make sure that the horn, the travel alarm (if equipped), and all other warning devices are working properly.

Fasten the seat belt securely.

Warm up the engine and the hydraulic oil before operating the machine.

Before moving the machine, check the position of the undercarriage. The normal travel position is with the idler wheels to the front under the cab and the drive sprockets to the rear. When the undercarriage is in the reversed position, the directional controls must be operated in opposite directions.

i01100387

Work Tools

SMCS Code: 6100; 6300; 6400; 6500

Only use work tools that are recommended by Caterpillar for use on Caterpillar machines.

If you are in doubt about the compatibility of a particular work tool with your machine, consult your Caterpillar dealer.

Make sure that all necessary guarding is in place on the host machine and on the work tool.

Keep all windows and doors closed on the host machine. Always wear protective glasses. Always wear the protective equipment that is recommended in the work tool's operation manual. Wear any other protective equipment that is required for the operating environment.

To prevent personnel from being struck by flying objects, ensure that all personnel are out of the work area.

While you are performing any maintenance, any testing, or any adjustments to the work tool stay clear of the following areas: cutting edges, pinching surfaces, and crushing surfaces.

i00072424

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. Only operate the controls while the engine is running.

Check for proper operation of all controls and of all protective devices while you operate the machine slowly in an open area.

When the machine is moving watch the clearance of the boom. Uneven ground can cause the boom to move in all directions.

Make sure that no personnel will be endangered before you move the machine. Do not allow riders on the machine unless the machine has an additional seat with a seat belt.

Report any machine damage that was noted during machine operation. Make any necessary repairs.

Hold attachments approximately 40 cm (15 inches) above ground level while you drive the machine. Do not drive the machine close to an overhang, to the edge of a cliff, or to the edge of an excavation.

If the machine begins to sideslip on a grade, immediately dump the load and turn the machine downhill.

Be careful to avoid any ground condition which could cause the machine to tip. Tipping can occur when you work on hills, on banks, or on slopes. Tipping can also occur when you cross ditches, ridges, or other unexpected obstructions.

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

Keep the machine under control. Do not overload the machine beyond capacity.

Avoid changing the direction of travel on a slope. This could result in tipping or side slipping of the machine.

Bring the load close to the machine before traveling distances or swinging the load.

Lifting capacity decreases as the load is moved further from the machine.

Make sure that the towing eyes and the towing devices are adequate for your needs.

Only connect trailing equipment to a drawbar or to a hitch.

Never straddle a wire rope cable. Never allow other personnel to straddle a wire rope cable.

When you maneuver in order to connect the equipment, make sure that no personnel are between the machine and trailing equipment. Block up the hitch of the trailing equipment in order to align the equipment with the drawbar.

Check the local regulations, state codes, and/or directives of the job site for a specific minimum distance from obstacles.

Before you operate the machine check with the local utilities for the locations of buried pipes and buried cables.

Know the maximum dimensions of your machine.

Watch the load at all times.

Do not operate the machine without the counterweight. The machine can tip when the boom is over the side.

The clamshell, the grapple, or the magnet can swing in all directions. Move the implement control levers in a continuous motion. Failure to move the implement control levers in a continuous motion can cause the clamshell, the grapple or the magnet to swing into the cab or into a person in the work area. This will result in a personal injury.

The boom and the stick linkage can allow the bucket to contact the undercarriage and/or the cab.

i00697030

Lifting Objects

SMCS Code: 6513

There may be some local regulations and/or government regulations that govern the use of excavators which lift heavy objects. Obey those regulations.

If this machine is used to lift objects within an area that is controlled by the European Directive "89/392/EEC", the machine must be equipped with a boom lowering control valve and an overload warning device.

i00994441

i00994443

Machine Parking

SMCS Code: 7000

The hydraulic system remains pressurized provided that the accumulator is charged. This condition is true even when the engine is not running. This pressure should decrease in a short time (approximately one minute). While the hydraulic system maintains a charge, the hydraulic implement and machine controls remain functional.

Machine movement that is sudden and unexpected will occur if any of the controls are moved. This can cause personal injury or death.

Always raise the left console before you shut off the engine or immediately after the engine stops running.

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

Apply the service brake in order to stop the machine.

Engage the parking brake.

Move the engine speed dial to Low Idle.

Raise the left console in order to disengage the hydraulic system.

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 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.

i00077442

Boom Lowering with Engine Stopped

SMCS Code: 7000

For detailed information that pertains to boom lowering, refer to Operation and Maintenance Manual, "Boom Lowering with Engine Stopped" in the Operation Section.

Sound Information and Vibration Information

SMCS Code: 7000

Sound Level for Enclosed Cab

The dynamic sound level in the operator compartment on the M312 is 72 decibel reading average. The sound level in the operator compartment on the M315 is 75 decibel reading average. These sound levels are only valid only if the machine is equipped with a properly installed closed cab and if the closed cab has been properly maintained.

Vibration Level

The hands and the arms are exposed to a weighted root mean square acceleration that is less than 2.5 m/s² (8.15 ft/s²).

The whole body is exposed to a weighted root mean square acceleration that is less than 0.5 m/s² (1.63 ft/s²).

Measurements are obtained on a representative machine. Use the measuring procedure in the following standards:

- "ISO 2631/1"
- "ISO 5349"
- "SAE J1166"

i01173788

Cab Internal Clearance

SMCS Code: 7301

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.