



Operation and Maintenance Manual

308E2 CR Mini Hydraulic Excavator

FJX 1-UP (308E2)
TMX 1-UP (308E2)
W8S 1-UP (308E2 CR)

Language: Original Instructions



Scan to find and purchase genuine Cat® parts and related service information.



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, including human factors that can affect safety. 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 verify that you are authorized to perform this work, and 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.

A non-exhaustive list of 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. You must not use this product in any manner different from that considered by this manual without first satisfying yourself that you have considered all safety rules and precautions applicable to the operation of the product in the location of use, including site-specific rules and precautions applicable to the worksite. 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 you are authorized to perform this work, and that the product will not be damaged or become unsafe by the operation, lubrication, maintenance or repair procedures that you intend to use.

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. Cat dealers have the most current information available.

NOTICE

When replacement parts are required for this product Caterpillar recommends using original Caterpillar® replacement parts.

Other parts may not meet certain original equipment specifications.

When replacement parts are installed, the machine owner/user should ensure that the machine remains in compliance with all applicable requirements.

In the United States, the maintenance, replacement, or repair of the emission control devices and systems may be performed by any repair establishment or individual of the owner's choosing.

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Foreword

California Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.



WARNING – This product can expose you to chemicals including ethylene glycol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to:

www.P65Warnings.ca.gov

Do not ingest this chemical. Wash hands after handling to avoid incidental ingestion.



WARNING – This product can expose you to chemicals including lead and lead compounds, which are known to the State of California to cause cancer, birth defects, or other reproductive harm. For more information go to:

www.P65Warnings.ca.gov

Wash hands after handling components that may contain lead.

Literature Information

This manual should be stored in the operator's compartment in the literature holder or seat back literature storage area.

This manual contains safety information, operation instructions, transportation information, lubrication information, and maintenance information.

Some photographs or illustrations in this publication show details or attachments that can be different from your machine. Guards and covers might have been removed for illustrative purposes.

Continuing improvement and advancement of product design might have caused changes to your machine which are not included in this publication. Read, study, and keep this manual with the machine.

Whenever a question arises regarding your machine, or this publication, please consult your Cat dealer for the latest available information.

Safety

The safety section lists basic safety precautions. In addition, this section identifies the text and locations of warning signs and labels used on the machine.

Read and understand the basic precautions listed in the safety section before operating or performing lubrication, maintenance, and repair on this machine.

Operation

The operation section is a reference for the new operator and a refresher for the experienced operator. This section includes a discussion of gauges, switches, machine controls, attachment controls, transportation, and towing information.

Photographs and illustrations guide the operator through correct procedures of checking, starting, operating, and stopping the machine.

Operating techniques outlined in this publication are basic. Skill and techniques develop as the operator gains knowledge of the machine and its capabilities.

Maintenance

The maintenance section is a guide to equipment care. The Maintenance Interval Schedule (MIS) lists the items to be maintained at a specific service interval. Items without specific intervals are listed under the "When Required" service interval. The Maintenance Interval Schedule lists the page number for the step-by-step instructions required to accomplish the scheduled maintenance. Use the Maintenance Interval Schedule as an index or "one safe source" for all maintenance procedures.

Maintenance Intervals

Use the service hour meter to determine servicing intervals. Calendar intervals shown (daily, weekly, monthly, etc.) can be used instead of service hour meter intervals if the calendar intervals provide more convenient servicing schedules and approximate the indicated service hour meter reading. Perform the recommended service at the interval that occurs first.

Under severe, dusty, or wet operating conditions, more frequent lubrication than is specified in the maintenance intervals chart might be necessary.

Perform service on items at multiples of the original requirement. For example, at every 500 service hours or 3 months, also service those items listed under every 250 service hours or monthly and every 10 service hours or daily.

Certified Engine Maintenance

Proper maintenance and repair are essential to keep the engine and machine systems operating correctly. As the heavy-duty off-road diesel engine owner, you are responsible for the performance of the required maintenance listed in the Owner Manual, Operation and Maintenance Manual, and Service Manual.

It is prohibited for any person engaged in the business of repairing, servicing, selling, leasing, or trading engines or machines to remove, alter, or to render inoperative, any emission-related device or element of design installed on or in an engine or machine that is in compliance with all applicable regulations of the intended country to which it has been shipped. Certain elements of the machine and engine such as the exhaust system, fuel system, electrical system, intake air system, and cooling system may be emission-related and should not be altered unless approved by Caterpillar.

Machine Capacity

Additional attachments or modifications may exceed machine design capacity which can adversely affect performance characteristics. Included would be stability and system certifications such as brakes, steering, and rollover protective structures (ROPS). Contact your Cat dealer for further information.

Product Identification Number

Effective First Quarter 2001 the Product Identification Number (PIN) has changed from 8 to 17 characters. To provide uniform equipment identification, construction equipment manufacturers are moving to comply with the latest version of the product identification numbering standard. Non-road machine PINs are defined by ISO 10261. The new PIN format will apply to all machines and generator sets. The PIN plates and frame marking will display the 17 character PIN. The new format will look like the following:

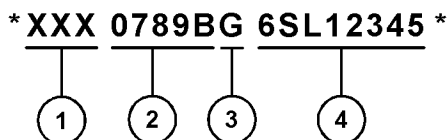


Illustration 1

g03891925

Where:

1. World Manufacturing Code (characters 1-3)

2. Machine Descriptor (characters 4-8)

3. Check Character (character 9)

4. Machine Indicator Section (MIS) or Product Sequence Number (characters 10-17). These were previously referred to as the Serial Number.

Machines and generator sets produced before First Quarter 2001 will maintain their 8 character PIN format.

Components such as engines, transmissions, axles, and work tools will continue to use an 8 character Serial Number (S/N).

Safety Section

i05268431

Safety Messages

SMCS Code: 7000; 7405

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

Make sure that all of the safety messages are legible. Clean the safety messages or replace the safety messages if you cannot read the words. Clean the safety messages or replace the safety messages if the illustrations are not legible. When you clean the safety messages, use a cloth, water, and soap. Do not use solvent, gasoline, or other harsh chemicals to clean the safety messages. Solvents, gasoline, or harsh chemicals could loosen the adhesive that secures the safety message. Loose adhesive will allow the safety message to detach from the machine. Replace any safety message that is damaged, or missing. If a safety message is attached to a part that is replaced, install a safety message on the replacement part. Any Cat dealer can provide new safety messages.

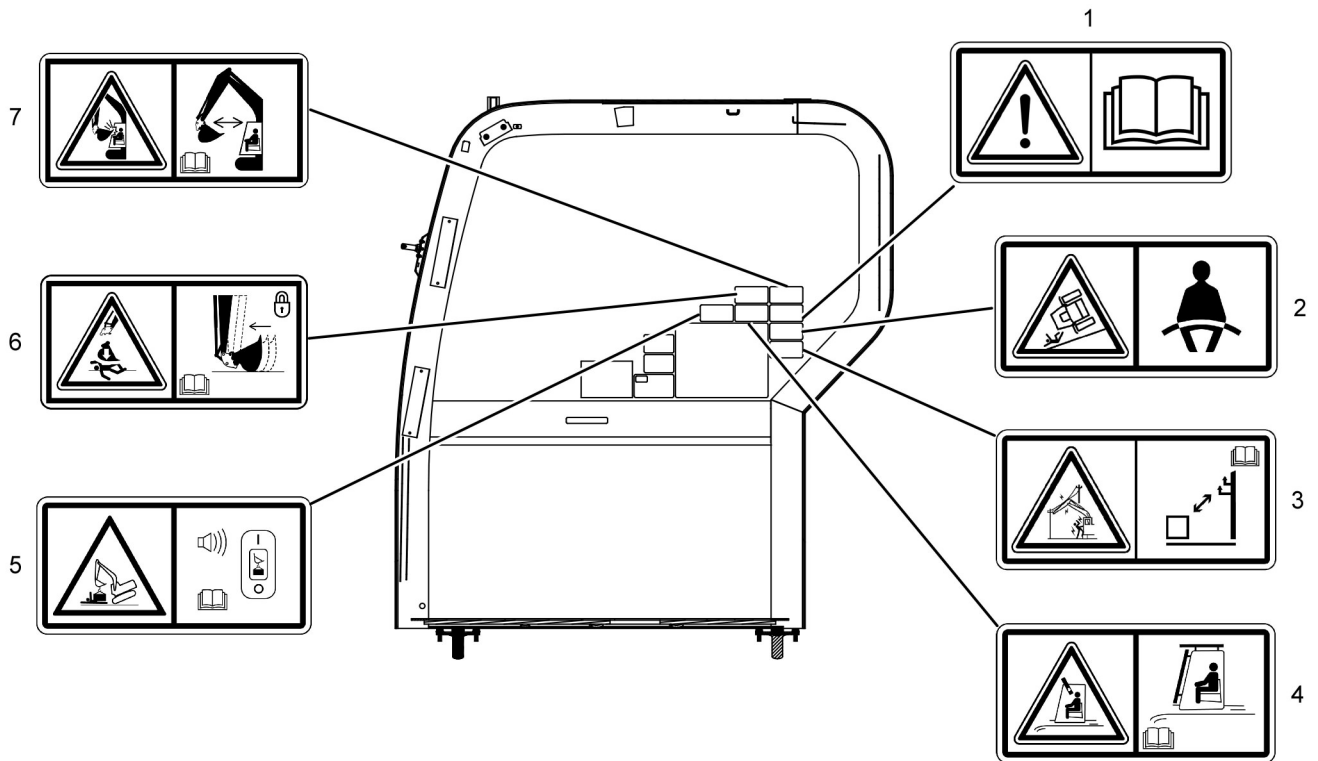


Illustration 2

g03352766

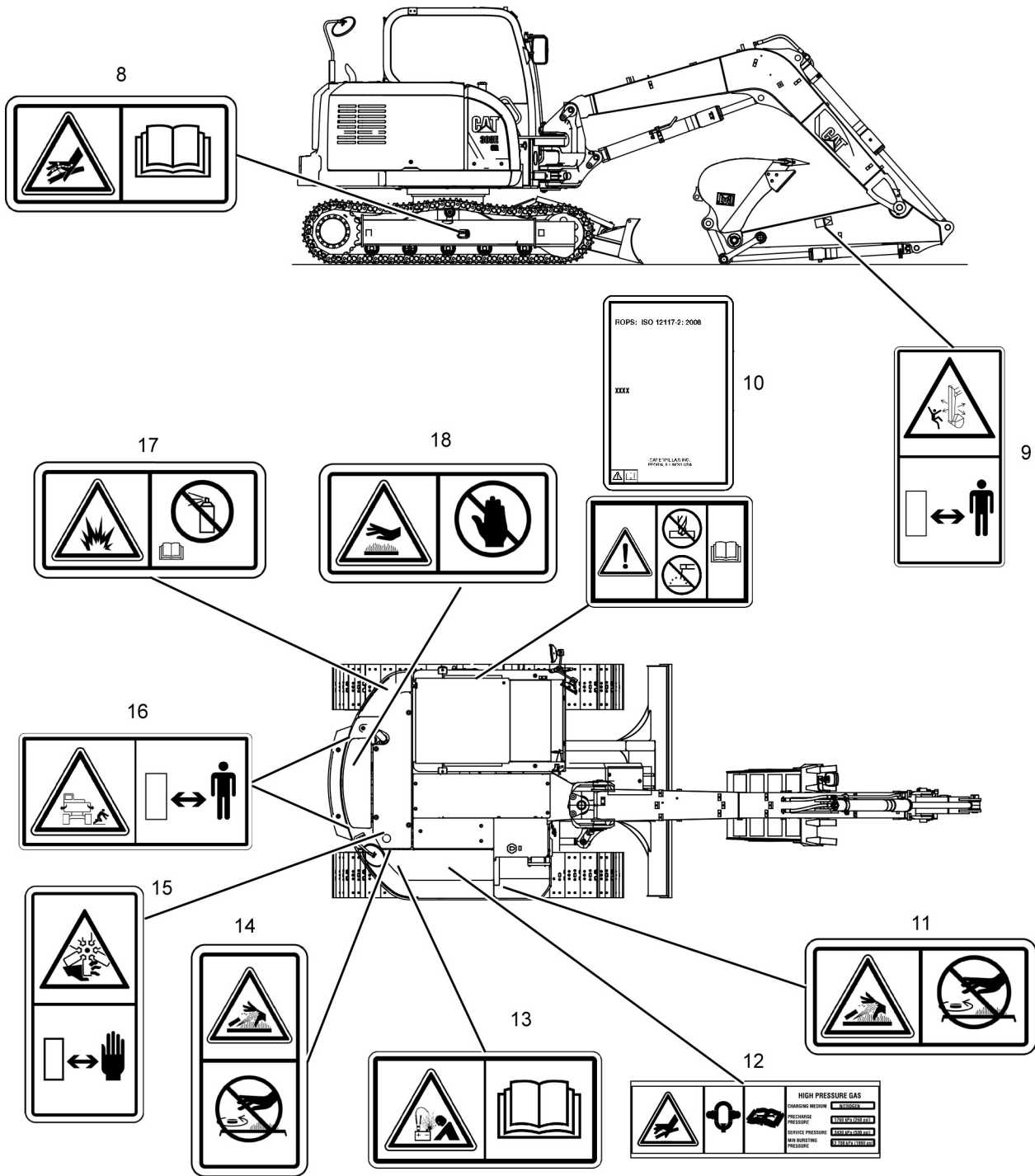


Illustration 3

g02860398

Do Not Operate (1)

This safety message is located in the cab on the right side window.



Illustration 4

g01370904

WARNING

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

Seat Belt (2)

This safety message is located in the cab on the right side window.

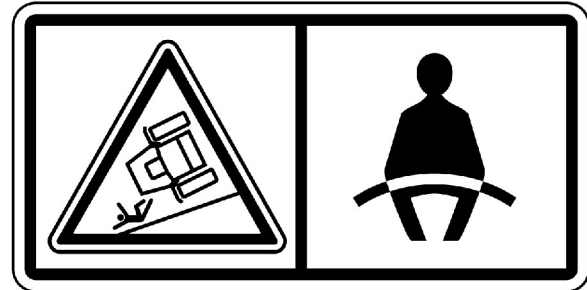


Illustration 5

g01370908

WARNING

A seat belt should be worn at all times during machine operation to prevent serious injury or death in the event of an accident or machine overturn. Failure to wear a seat belt during machine operation may result in serious injury or death.

Electrical Power Lines (3)

This safety message is located in the cab on the right side window.

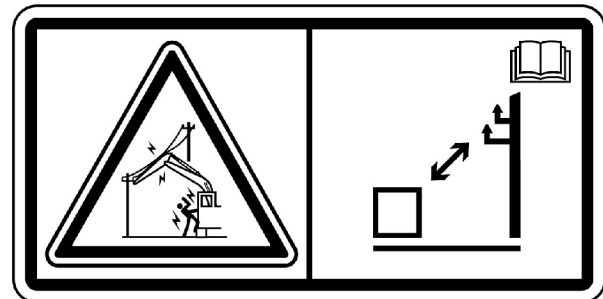


Illustration 6

g01374045

DANGER

Electrocution Hazard! Keep the machine and attachments a safe distance from electrical power. Stay clear 3 m (10 ft) plus twice the line insulator length. Read and understand the instructions and warnings in the Operation and Maintenance Manual. Failure to follow the instructions and warnings will cause serious injury or death

Refer to Operation and Maintenance Manual, "Specifications" for further information.

Crushing Hazard (4)

This safety message is located in the cab on the right side window.

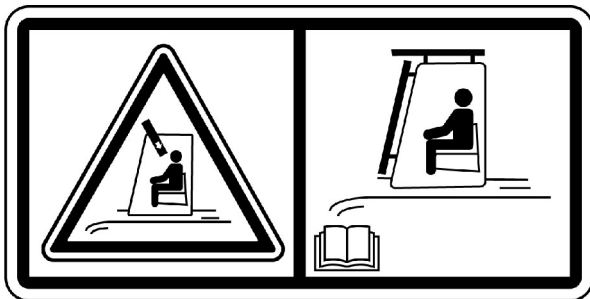


Illustration 7

g01374048

WARNING

The impact from objects that strike the front of the cab or the top of the cab could result in a crushing hazard with the potential for personal injury or death.

The front guard and the top guard should be installed on the cab for applications where the hazard of falling objects exist. Read the Operation and Maintenance Manual.

Refer to Operation and Maintenance Manual, "Guards" for further information.

Overload Warning Device (5)

If equipped, this safety message is located in the cab on the right side window.

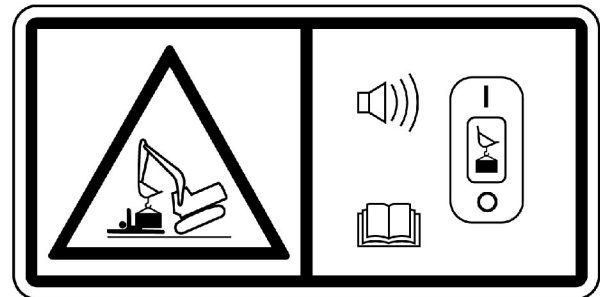


Illustration 8

g01602013

WARNING

Overloading the machine could impact the machine's stability which could result in a tipover hazard. A tipover hazard could result in serious injury or death. Always activate the overload warning device before you handle or lift objects.

Refer to Operation and Maintenance Manual, "Operator Controls" for further information.

Crushing Injury (6)

If equipped, this safety message is located in the cab on the right side window.



Illustration 9

g01374035

WARNING

Crush injury. Could cause serious injury or death. Always confirm that the quick coupler is engaged onto the pins. Read the Operator's Manual.

Refer to Operation and Maintenance Manual, “Quick Coupler Operation” for further information.

Crushing Hazard (7)

If equipped, this safety message is located in the cab on the right side window.



Illustration 10

g01373971

⚠ WARNING

Crushing Hazard! Certain machine front linkage combinations (boom, stick, quick coupler, work tool) may require keeping the work tool away from the cab during operation. Personal injury or death may result if the work tool contacts the cab during operation.

Refer to Operation and Maintenance Manual, “Quick Coupler Operation” for further information.

High Pressure Cylinder (8)

This safety message is positioned on the track adjusters.

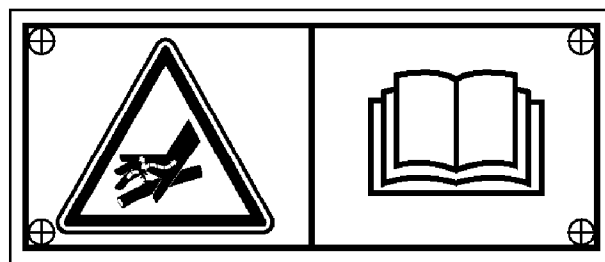


Illustration 11

g01076729

⚠ WARNING

High Pressure Cylinder. Do not remove any parts from the cylinder until all of the pressure has been relieved. This will prevent possible personal injury or death.

Refer to Operation and Maintenance Manual , “Track Adjustment - Adjust” for further information.

Crushing Hazard (9)

This safety message is located on both sides of the stick.

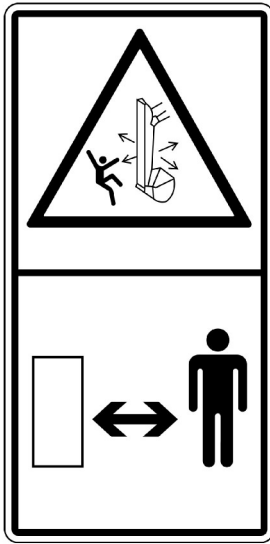


Illustration 12

g01385579

WARNING

A crushing hazard exists when the stick and boom are in motion and when the machine is being used in object handling applications. Failure to stay clear of the stick and boom when the machine is in operation can result in personal injury or death. Stay clear of the stick and boom when the machine is in operation.

Do Not Weld or Drill (ROPS) (10)

This safety message is located on the left side of the machine near the cab door.

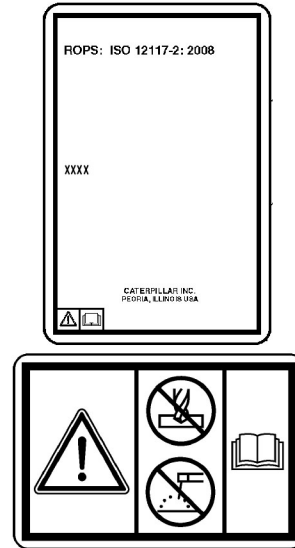


Illustration 13

g02863317

WARNING

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. This will void the certification. Consult your Cat dealer to determine this structure's limitations without voiding its certification.

This machine has been certified to the standards that are listed on the certification film. The maximum mass of the machine, which includes the operator and the attachments without a payload, should not exceed the mass on the certification film.

Refer to Operation and Maintenance Manual , "Plate Locations and Film Locations" for further information.

Relieve Hydraulic Tank Pressure (11)

This safety message is located near the cap of the hydraulic tank.



Illustration 14

g01371640

! WARNING
HYDRAULIC TANK
 RELIEVE TANK PRESSURE WITH ENGINE OFF BY REMOVING CAP SLOWLY TO PREVENT BURNS FROM HOT OIL.

High Pressure Gas (12)

This safety message is located on the accumulator.

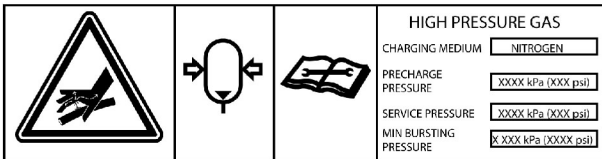


Illustration 15

g01374065

! WARNING
 This system contains high pressure gas. Failure to follow the instructions and warnings could cause an explosion, resulting in possible injury or death.
 Do not expose to fire. Do not weld. Do not drill. Relieve pressure before discharging.
 See Operation and Maintenance Manual for charging and discharging. See your Caterpillar Dealer for tools and detailed information.

Refer to Operation and Maintenance Manual, "Equipment Lowering with Engine Stopped" for further information.

Improper Connections For Jump Start Cables (13)

This safety message is located next to the battery.

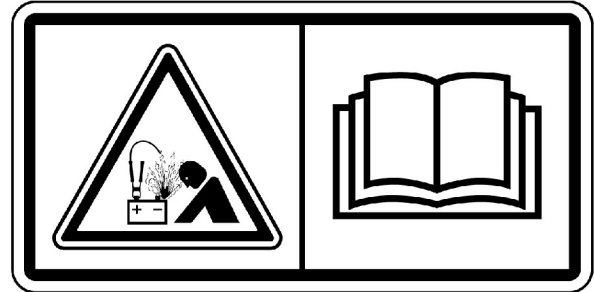


Illustration 16

g01370909

! WARNING
Explosion Hazard! Improper jumper cable connections can cause an explosion resulting in serious injury or death. Batteries may be located in separate compartments. Refer to the Operation and Maintenance Manual for the correct jump starting procedure.

Refer to Operation and Maintenance Manual, "Engine Starting with Jump Start Cables" for further information.

Pressurized System (14)

This safety message is located next to the cooling system filler cap.



Illustration 17

g01378799

⚠ WARNING

Pressurized system! Hot coolant can cause serious burns, injury or death. To open the cooling system filler cap, stop the engine and wait until the cooling system components are cool. Loosen the cooling system pressure cap slowly in order to relieve the pressure. Read and understand the Operation and Maintenance Manual before performing any cooling system maintenance.

Refer to Operation and Maintenance Manual, "Cooling System Coolant Level - Check" for further information.

Rotating Fan (15)

This safety message is located near the engine fan.



Illustration 18

g02793868

⚠ WARNING

Cutting Hazard! Keep hands clear of fan while engine is running. May cause serious injury or death.

Crushing Hazard (16)

This safety message is located on the rear of each side of the machine.

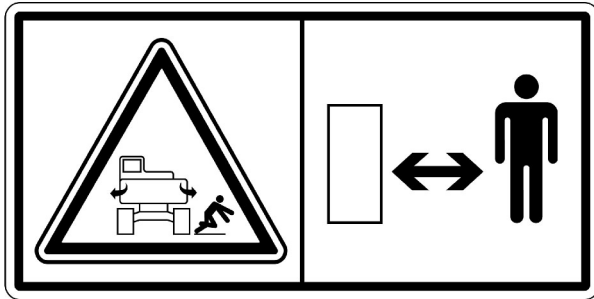


Illustration 19

g01374060

! WARNING

Machine swings. Stay back. Crushing hazard could cause serious injury or death.

Aerosol Starting Aid (17)

This safety message is located on the air cleaner housing.

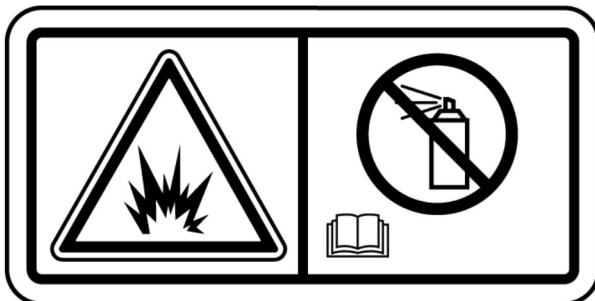


Illustration 20

g01372254

! WARNING

Explosion hazard! Do not use ether! This machine is equipped with an air inlet heater. Using ether can create explosions or fires that can cause personal injury or death. Read and follow the starting procedure in the Operation and Maintenance Manual.

Refer to Operation and Maintenance Manual, "Engine Starting" for further information.

Hot Surface (18)

This safety message is located by the muffler.



Illustration 21

g01372256

! WARNING

Hot parts or hot components can cause burns or personal injury. Do not allow hot parts or components to contact your skin. Use protective clothing or protective equipment to protect your skin.

i05264279

Additional Messages

SMCS Code: 7000; 7405

There are several specific messages on this machine. The exact location of the messages and the description of the information are reviewed in this section. Please become familiar with all messages.

Make sure that all of the messages are legible. Clean the messages or replace the messages if you cannot read the words. Replace the illustrations if the illustrations are not legible. When you clean the messages, use a cloth, water, and soap. Do not use solvent, gasoline, or other harsh chemicals to clean the messages. Solvents, gasoline, or harsh chemicals could loosen the adhesive that secures the messages. Loose adhesive will allow the messages to fall.

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

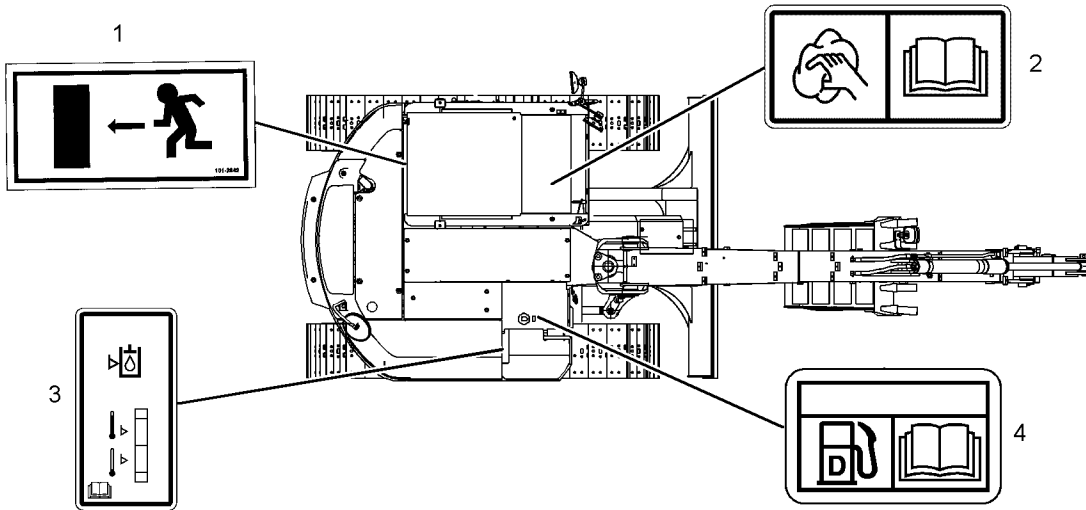


Illustration 22

g03350964

Alternate Exit (1)

This message is located on the rear window in the cab.

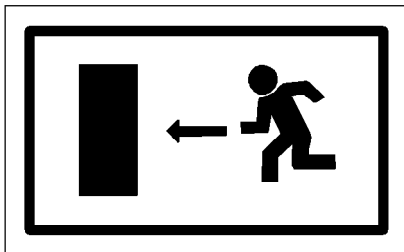


Illustration 23

g01002993

If the Primary exits are blocked, the rear window serves as the alternate exit. Exit the machine through the window. For more information, refer to Operation and Maintenance Manual, "Alternate Exit"

Cleaning Windows (2)

This message is located on the upper window in the cab.

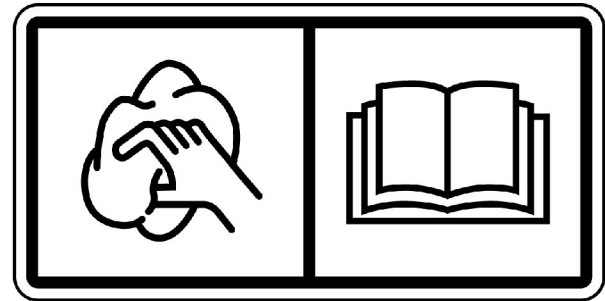


Illustration 24

g01134495

NOTICE

Clean windows with a wet cloth or sponge. Dry cloth or sponge may scratch window material.

Hydraulic Oil Level Check (3)

This message is located in the right access compartment next to the sight gauge for the hydraulic oil .

i08313103

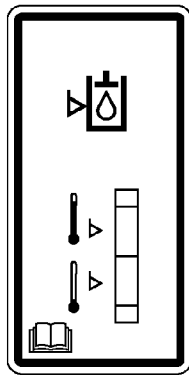


Illustration 25

g02863836

Check hydraulic oil level daily. See Operation and maintenance Manual, "Hydraulic System Oil Level - Check" for details.

Diesel Fuel Requirements (4)

One of these messages will be located by the fuel tank.

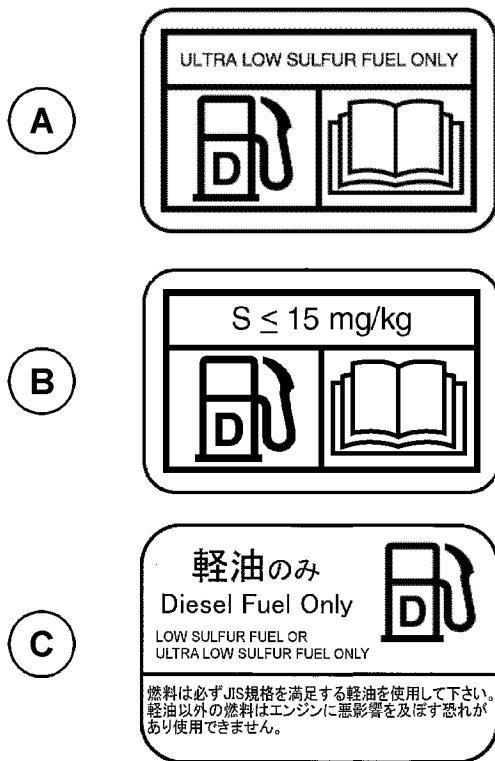


Illustration 26

g03353395

- (A) NACD film
- (B) EAME film
- (C) Japan film

Refer to Operation and Maintenance Manual, "Lubricant Viscosities".

General Hazard Information

SMCS Code: 7000

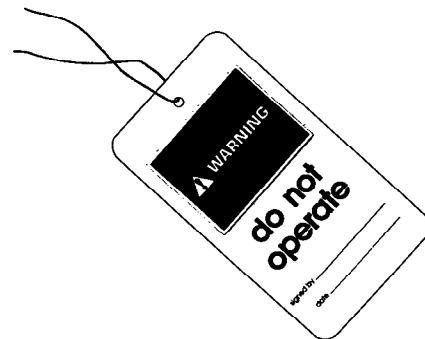


Illustration 27

g00104545

Typical example

Attach a "Do Not Operate" warning tag or a similar warning tag to the start switch or to the controls. Attach the warning tag before you service the equipment or before you repair the equipment. Warning tag SEHS7332 is available from your Cat dealer.

⚠ WARNING

Operating the machine while distracted can result in the loss of machine control. Use extreme caution when using any device while operating the machine. Operating the machine while distracted can result in personal injury or death.

Know the width of your equipment to maintain proper clearance when you operate the equipment near fences or near boundary obstacles.

Be aware of high-voltage power lines and power cables that are buried. If the machine comes in contact with these hazards, serious injury or death may occur from electrocution.

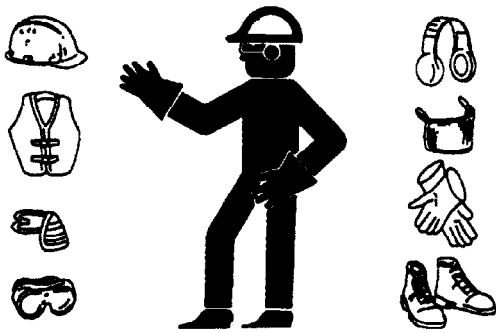


Illustration 28

g00702020

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 equipment.

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

Keep the equipment 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 equipment.

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 equipment.

Unless you are instructed otherwise, perform maintenance with the equipment in the servicing position. Refer to Operation and Maintenance Manual for the procedure for placing the equipment in the servicing position.

When you perform maintenance above ground level, use appropriate devices such as ladders or man lift machines. If equipped, use the machine anchorage points and use approved fall arrest harnesses and lanyards.

Pressurized Air and Water

Pressurized air and/or water can cause debris and/or hot water to be blown out. The debris and/or hot water could result in personal injury.

When pressurized air and/or pressurized water is used for cleaning, wear protective clothing, protective shoes, and eye protection. Eye protection includes goggles or a protective face shield.

The maximum air pressure for cleaning purposes must be reduced to 205 kPa (30 psi) when the nozzle is deadheaded and the nozzle is used with an effective chip deflector and personal protective equipment. The maximum water pressure for cleaning purposes must be below 275 kPa (40 psi).

Avoid direct spraying of water on electrical connectors, connections, and components. When using air for cleaning, allow the machine to cool to reduce the possibility of fine debris igniting when re-deposited on hot surfaces.

Trapped Pressure

Pressure can be trapped in a hydraulic system. Releasing trapped pressure can cause sudden machine movement or attachment movement. Use caution if you disconnect hydraulic lines or fittings. High-pressure oil that is released can cause a hose to whip. High-pressure oil that is released can cause oil to spray. Fluid penetration can cause serious injury and possible death.

Fluid Penetration

Pressure can be trapped in the hydraulic circuit long after the machine 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. Refer to the Service Manual for any procedures that are required to relieve the hydraulic pressure.

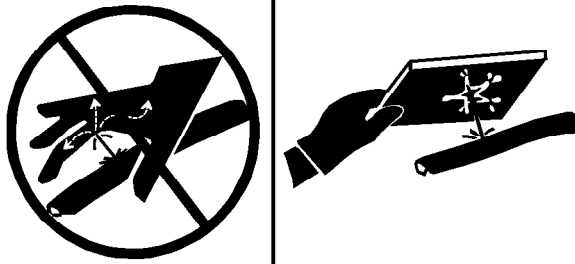


Illustration 29

g00687600

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

Care must be taken in order to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting, and repair of the equipment. Prepare to collect the fluid with suitable containers before opening any compartment or disassembling any component that contains fluids.

Refer to Special Publication, NENG2500, "Cat dealer Service Tool Catalog" for the following items:

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

Obey all local regulations for the disposal of liquids.

Inhalation

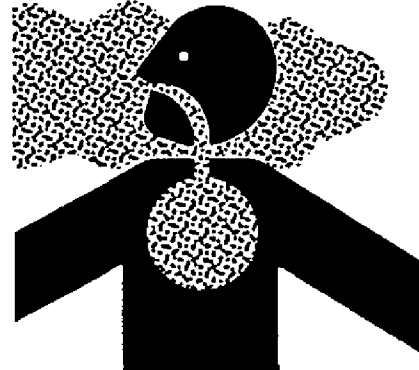


Illustration 30

g02159053

Exhaust

Use caution. Exhaust fumes can be hazardous to your health. If you operate the machine in an enclosed area, adequate ventilation is necessary.

Asbestos Information

Cat equipment and replacement parts that are shipped from Caterpillar are asbestos free. Caterpillar recommends the use of only genuine Cat 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 bound in a resin or sealed in some way. Normal handling is not hazardous unless airborne dust that contains asbestos is generated.

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

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

Safety Section

Crushing Prevention and Cutting Prevention

- 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 United States, use Occupational Safety and Health Administration (OSHA) requirements. These OSHA requirements can be found in “29 CFR 1910.1001”. In Japan, use the requirements found in the “Ordinance on Prevention of Health Impairment due to Asbestos” in addition to the requirements of the Industrial Safety and Health Act.
- Obey environmental regulations for the disposal of asbestos.
- Stay away from areas that might have asbestos particles in the air.

Hexavalent Chromium Information

Cat equipment and replacement parts comply with applicable regulations and requirements where originally sold. Caterpillar recommends the use of only genuine Cat replacement parts.

Hexavalent chromium has occasionally been detected on exhaust and heat shield systems on Cat engines. Although lab testing is the only accurate way to know if hexavalent chromium is, in fact, present, the presence of a yellow deposit in areas of high heat (for example, exhaust system components or exhaust insulation) may be an indication of the presence of hexavalent chromium.

Use caution if you suspect the presence of hexavalent chromium. Avoid skin contact when handling items that you suspect may contain hexavalent chromium, and avoid inhalation of any dust in the suspect area. Inhalation of, or skin contact with, hexavalent chromium dust may be hazardous to your health.

If such yellow deposits are found on the engine, engine component parts, or associated equipment or packages, Caterpillar recommends following local health and safety regulations and guidelines, utilizing good hygiene, and adhering to safe work practices when handling the equipment or parts. Caterpillar also recommends the following:

- Wear appropriate personal protective equipment (PPE).
- Wash your hands and face with soap and water prior to eating, drinking, or smoking, and also during rest room breaks, to prevent ingestion of any yellow powder.
- Never use compressed air for cleaning areas suspected of containing hexavalent chromium.

- Avoid brushing, grinding, or cutting materials suspected of containing hexavalent chromium.
- Obey environmental regulations for the disposal of all materials that may contain or have come into contact with hexavalent chromium.
- Stay away from areas that might have hexavalent chromium particles in the air.

Dispose of Waste Properly

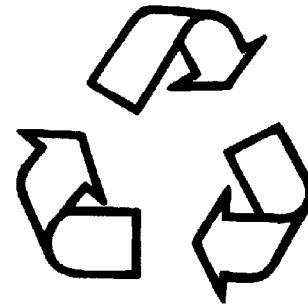


Illustration 31

g00706404

Improperly disposing of waste can threaten the environment. Potentially harmful fluids should be disposed of according to local regulations.

Always use leakproof containers when you drain fluids. Do not pour waste onto the ground, down a drain, or into any source of water.

i01359664

Crushing Prevention and Cutting Prevention

SMCS Code: 7000

Support the equipment properly before you perform any work or maintenance beneath that equipment. Do not depend on the hydraulic cylinders to hold up the equipment. Equipment can fall if a control is moved, or if a hydraulic line breaks.

Do not work beneath the cab of the machine unless the cab is properly supported.

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

Never jump across the starter solenoid terminals in order to start the engine. Unexpected machine movement could result.

Whenever there are equipment control linkages the clearance in the linkage area will change with the movement of the equipment or the machine. Stay clear of areas that may have a sudden change in clearance with machine movement or equipment movement.

Stay clear of all rotating and moving parts.

If it is necessary to remove guards in order to perform maintenance, always install the guards after the maintenance is performed.

Keep objects away from moving fan blades. The fan blade will throw objects or cut objects.

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

When you strike a retainer pin with force, the retainer pin can 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 can fly off an object when you strike the object. Make sure that no one can be injured by flying debris before striking any object.

i07746334

Burn Prevention

SMCS Code: 7000

Do not touch any part of an operating engine. Allow the engine to cool before any maintenance is performed on the engine. Relieve all pressure in the air system, in the oil system, in the lubrication system, in the fuel system, or in the cooling system before any lines, fittings, or related items are disconnected.

Coolant

When the engine is at operating temperature, the engine coolant is hot. The coolant is also under pressure. The radiator and all lines to the heaters or to the engine contain hot coolant.

Any contact with hot coolant or with steam can cause severe burns. Allow cooling system components to cool before the cooling system is drained.

Check the coolant level only after the engine has been stopped.

Ensure that the filler cap is cool before removing the filler cap. The filler cap must be cool enough to touch with a bare hand. Remove the filler cap slowly 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.

Oils

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

Remove the hydraulic tank filler cap only after the engine has been stopped. The filler cap must be cool enough to touch with a bare hand. Follow the standard procedure in this manual to remove the hydraulic tank filler cap.

Batteries

The liquid in a battery is an electrolyte. Electrolyte is an acid that can cause personal injury. Do not allow electrolyte to contact the skin or the eyes.

Do not smoke while checking the battery electrolyte levels. Batteries give off flammable fumes which can explode.

Always wear protective glasses when you work with batteries. Wash hands after touching batteries. The use of gloves is recommended.

i05271395

Fire Prevention and Explosion Prevention

SMCS Code: 7000



Illustration 32

g00704000

Regeneration

The exhaust gas temperatures during regeneration will be elevated. Follow proper fire prevention instructions.

General

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

To minimize the risk of fire or explosion, Caterpillar recommends the following actions.

Always perform a Walk-Around Inspection, which may help you identify a fire hazard. Do not operate a machine when a fire hazard exists. Contact your Cat dealer for service.

Understand the use of the primary exit and alternative exit on the machine. Refer to Operation and Maintenance Manual, "Alternative Exit".

Do not operate a machine with a fluid leak. Repair leaks and clean up fluids before resuming machine operation. Fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire. A fire may cause personal injury or death.

Remove flammable material such as leaves, twigs, papers, trash, and so on. These items may accumulate in the engine compartment or around other hot areas and hot parts on the machine.

Keep the access doors to major machine compartments closed and access doors in working condition in order to permit the use of fire suppression equipment, in case a fire should occur.

Clean all accumulations of flammable materials such as fuel, oil, and debris from the machine.

Do not operate the machine near any flame.

Keep shields in place. Exhaust shields (if equipped) protect hot exhaust components from oil spray or fuel spray in a break in a line, in a hose, or in a seal. Exhaust shields must be installed correctly.

Do not weld or flame cut on tanks or lines that contain flammable fluids or flammable material. Empty and purge the lines and tanks. Then clean the lines and tanks with a nonflammable solvent prior to welding or flame cutting. Ensure that the components are properly grounded in order to avoid unwanted arcs.

Dust that is generated from repairing nonmetallic hoods or fenders may be flammable and/or explosive. Repair such components in a ventilated area away from open flames or sparks. Use suitable Personal Protection Equipment (PPE).

Inspect all lines and hoses for wear or deterioration. Replace damaged lines and hoses. The lines and the hoses should have adequate support and secure clamps. Tighten all connections to the recommended torque. Damage to the protective cover or insulation may provide fuel for fires.

Store fuels and lubricants in properly marked containers away from unauthorized personnel. Store oily rags and flammable materials in protective containers. Do not smoke in areas that are used for storing flammable materials.



Illustration 33

g00704059

Use caution when you are fueling a machine. Do not smoke while you are fueling a machine. Do not fuel a machine near open flames or sparks. Always stop the engine before fueling. Fill the fuel tank outdoors. Properly clean areas of spillage.

Never store flammable fluids in the operator compartment of the machine.

Battery and Battery Cables



Illustration 34

g02298225

Caterpillar recommends the following in order to minimize the risk of fire or an explosion related to the battery.

Do not operate a machine if battery cables or related parts show signs of wear or damage. Contact your Cat dealer for service.

Follow safe procedures for engine starting with jump-start cables. Improper jumper cable connections can cause an explosion that may result in injury. Refer to Operation and Maintenance Manual, "Engine Starting with Jump Start Cables" for specific instructions.

Do not charge a frozen battery. This may cause an explosion.

Gases from a battery can explode. Keep any open flames or sparks away from the top of a battery. Do not smoke in battery charging areas.

Never check the battery charge by placing a metal object across the terminal posts. Use a voltmeter in order to check the battery charge.

Daily inspect battery cables that are in areas that are visible. Inspect cables, clips, straps, and other restraints for damage. Replace any damaged parts. Check for signs of the following, which can occur over time due to use and environmental factors:

- Fraying
- Abrasion
- Cracking
- Discoloration
- Cuts on the insulation of the cable
- Fouling
- Corroded terminals, damaged terminals, and loose terminals

Replace damaged battery cable(s) and replace any related parts. Eliminate any fouling, which may have caused insulation failure or related component damage or wear. Ensure that all components are reinstalled correctly.

An exposed wire on the battery cable may cause a short to ground if the exposed area comes into contact with a grounded surface. A battery cable short produces heat from the battery current, which may be a fire hazard.

An exposed wire on the ground cable between the battery and the disconnect switch may cause the disconnect switch to be bypassed if the exposed area comes into contact with a grounded surface. This may result in an unsafe condition for servicing the machine. Repair components or replace components before servicing the machine.

WARNING

Fire on a machine can result in personal injury or death. Exposed battery cables that come into contact with a grounded connection can result in fires. Replace cables and related parts that show signs of wear or damage. Contact your Cat dealer.

Wiring

Check electrical wires daily. If any of the following conditions exist, replace parts before you operate the machine.

- Fraying
- Signs of abrasion or wear
- Cracking
- Discoloration
- Cuts on insulation
- Other damage

Make sure that all clamps, guards, clips, and straps are reinstalled correctly. This will help to prevent vibration, rubbing against other parts, and excessive heat during machine operation.

Attaching electrical wiring to hoses and tubes that contain flammable fluids or combustible fluids should be avoided.

Consult your Cat dealer for repair or for replacement parts.

Keep wiring and electrical connections free of debris.

Lines, Tubes, and Hoses

Do not bend high-pressure lines. Do not strike high-pressure lines. Do not install any lines that are bent or damaged. Use the appropriate backup wrenches in order to tighten all connections to the recommended torque.

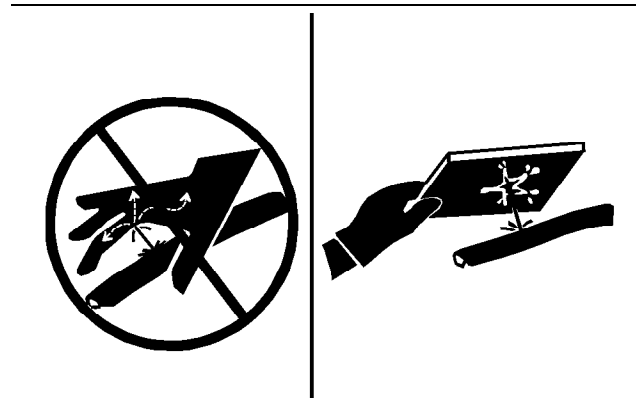


Illustration 35

g00687600

Check lines, tubes, and hoses carefully. Wear Personal Protection Equipment (PPE) in order to check for leaks. 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.

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

- End fittings are damaged or leaking.
- Outer coverings are chafed or cut.
- Wires are exposed.
- Outer coverings are swelling or ballooning.
- Flexible parts of the hoses are kinked.
- Outer covers have exposed embedded armoring.
- End fittings are displaced.

Make sure that all clamps, guards, and heat shields are installed correctly. During machine operation, this will help to prevent vibration, rubbing against other parts, excessive heat, and failure of lines, tubes, and hoses.

Do not operate a machine when a fire hazard exists. Repair any lines that are corroded, loose, or damaged. Leaks may provide fuel for fires. Consult your Cat dealer for repair or for replacement parts. Use genuine Cat parts or the equivalent, for capabilities of both the pressure limit and temperature limit.

Fire Extinguisher

As an additional safety measure, keep a fire extinguisher on the machine.

Be familiar with the operation of the fire extinguisher. Inspect the fire extinguisher and service the fire extinguisher regularly. Follow the recommendations on the instruction plate.

Consider installation of an aftermarket Fire Suppression System, if the application and working conditions warrant the installation.

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Fire Extinguisher Location

SMCS Code: 7000; 7419

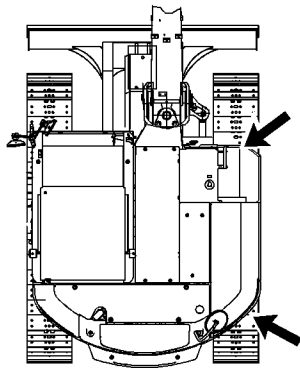


Illustration 36

g02864198

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 recommended location for mounting the fire extinguisher is the storage area above the main control valve on the right-hand skirt. The second recommended location for mounting the fire extinguisher is in front of the radiator.

i01329108

Track Information

SMCS Code: 4170; 7000

Track adjusting systems use either grease or oil under high pressure to keep the track under tension.

Grease or oil under high pressure coming out of the relief valve can penetrate the body causing injury or death. Do not watch the relief valve to see if grease or oil is escaping. Watch the track or track adjustment cylinder to see if the track is being loosened.

The pins and bushings in a dry track pin joint can become very hot. It is possible to burn the fingers if there is more than brief contact with these components.

High Pressure Fuel Lines

SMCS Code: 1000; 1274; 7000

WARNING

Contact with high pressure fuel may cause fluid penetration and burn hazards. High pressure fuel spray may cause a fire hazard. Failure to follow these inspection, maintenance and service instructions may cause personal injury or death.

The high-pressure fuel lines are the fuel lines that are between the high-pressure fuel pump and the high-pressure fuel manifold and the fuel lines that are between the fuel manifold and cylinder head. These fuel lines are different from fuel lines on other fuel systems.

This is because of the following differences:

- The high-pressure fuel lines are constantly charged with high pressure.
- The internal pressures of the high-pressure fuel lines are higher than other types of fuel system.
- The high-pressure fuel lines are formed to shape and then strengthened by a special process.

Do not step on the high-pressure fuel lines. Do not deflect the high-pressure fuel lines. Do not bend or strike the high-pressure fuel lines. Deformation or damage of the high-pressure fuel lines may cause a point of weakness and potential failure.

Do not check the high-pressure fuel lines with the engine or the starting motor in operation. After the engine has stopped, allow 5 minutes to pass in order to allow the pressure to be purged before any service or repair is performed on the engine fuel lines.

Do not loosen the high-pressure fuel lines in order to remove air from the fuel system. This procedure is not required.

Visually inspect the high-pressure fuel lines before the engine is started. This inspection should be each day.

If you inspect the engine in operation, always use the proper inspection procedure in order to avoid a fluid penetration hazard. Refer to Operation and Maintenance Manual, "General hazard Information".

- Inspect the high-pressure fuel lines for damage, deformation, a nick, a cut, a crease, or a dent.
- Do not operate the engine with a fuel leak. If there is a leak, do not tighten the connection in order to stop the leak. The connection must only be tightened to the recommended torque. Refer to Disassembly and Assembly for your engine.

Safety Section

Electrical Storm Injury Prevention

- If the high-pressure fuel lines are torqued correctly, and the high-pressure fuel lines are leaking, the high-pressure fuel lines must be replaced.
- Ensure that all clips on the high-pressure fuel lines are in place. Do not operate the engine with clips that are damaged, missing, or loose.
- Do not attach any other item to the high-pressure fuel lines.
- Loosened high-pressure fuel lines must be replaced. Also removed high-pressure fuel lines must be replaced. Refer to Disassembly and Assembly for your engine.

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.

i01186721

Before Starting Engine

SMCS Code: 1000; 7000

Start the engine only from the operator's compartment. Do not short across the battery terminals and do not short across the battery. Bypassing the engine neutral start system can damage the electrical system.

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

Adjust the seat so that full pedal travel can be achieved. Adjust the seat so that full lever travel can be achieved. Make sure that your back is 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 lights are working properly.

Make sure that the hydraulic control console is in the RAISED position. When the hydraulic control console is in the RAISED position, the hydraulic controls will be deactivated.

WARNING

Deactivation of the hydraulic controls does not prevent the blade, boom swing, or auxiliary circuit functions from moving under gravity or other external forces. Gravity or other external forces can move the blade, boom swing, or auxiliary circuit functions suddenly if a hydraulic control lever is moved.

Personal injury or death may occur from sudden machine movement.

Put the cover on the control pedal for the swinging boom. Put the cover on the auxiliary hydraulic control.

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

i08473852

Visibility Information

SMCS Code: 7000

Before you start the machine, perform a walk-around inspection to ensure that there are no hazards around the machine.

While the machine is in operation, constantly survey the area around the machine to identify potential hazards as hazards become visible around the machine.

Your machine may be equipped with visual aids. Some examples of visual aids are Closed Circuit Television (CCTV) and mirrors. Before operating the machine, ensure that the visual aids are in proper working condition and that the visual aids are clean. Shut down the machine until damaged or nonfunctional visual aid(s) are repaired (if applicable) or until appropriate job site organization is used to minimize hazards that are caused by any resulting restricted visibility. Adjust the visual aids using the procedures that are located in this Operation and Maintenance Manual. If equipped, the Work Area Vision System shall be adjusted according to Operation and Maintenance Manual, SEBU8157, "Work Area Vision System". If equipped, the Cat Detect Object Detection shall be adjusted according to the Operation and Maintenance Manual, "Cat Detect Object Detection" for your machine.

It may not be possible to provide direct visibility on large machines to all areas around the machine. Appropriate job site organization is required to minimize hazards that are caused by restricted visibility. Job site organization is a collection of rules and procedures that coordinates machines and people that work together in the same area. Examples of job site organization include the following:

- Safety instructions
- Controlled patterns of machine movement and vehicle movement
- Workers that direct safe movement of traffic
- Restricted areas
- Operator training
- Warning symbols or warning signs on machines or on vehicles
- A system of communication
- Communication between workers and operators prior to approaching the machine

Modifications of the machine configuration by the user that result in a restriction of visibility shall be evaluated.

i03562260

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.

Make sure that you are seated before you start the engine.

Move all hydraulic controls to the HOLD position before you start the engine. Move the hydraulic lockout control to the LOCKED position. For further details on this procedure, refer to Operation and Maintenance Manual, "Operator Controls".

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.

Briefly sound the horn before you start the engine.

i01340061

Before Operation

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.

i04159629

Work Tools

SMCS Code: 6700

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

Use of work tools, including buckets, which are outside of Caterpillar's recommendations or specifications for weight, dimensions, flows, pressures, and so on, may result in less-than-optimal vehicle performance, including but not limited to reductions in production, stability, reliability, and component durability. Caterpillar recommends appropriate work tools for our machines to maximize the value our customers receive from our products. Caterpillar understands that special circumstances may lead a customer to use tools outside of our specifications. In these cases, customers must be aware that such choices can reduce vehicle performance and will affect their ability to claim warranty in the event of what a customer may perceive as a premature failure.

Work tools and work tool control systems, that are compatible with your Cat machine, are required for safe machine operation and/or reliable machine operation. If you are in doubt about the compatibility of a particular work tool with your machine, consult your Cat 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. A polycarbonate shield must be used when the host machine is not equipped with windows and when a work tool could throw debris.

Do not exceed the maximum operating weight that is listed on the ROPS certification.

If your machine is equipped with an extendable stick, install the transport pin when you are using the following work tools: hydraulic hammers, augers and compactors

Always wear protective glasses. Always wear the protective equipment that is recommended in the operation manual for the work tool. 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.

Never use the work tool for a work platform.

i08127816

Operation

SMCS Code: 7000

Machine Operating Temperature Range

The machine must function satisfactorily in the anticipated ambient temperature limits that are encountered during operation. The standard machine configuration is intended for use within an ambient temperature range of $-18\text{ }^{\circ}\text{C}$ ($-0\text{ }^{\circ}\text{F}$) to $41\text{ }^{\circ}\text{C}$ ($106\text{ }^{\circ}\text{F}$). Special configurations for different ambient temperatures may be available. Consult your Caterpillar dealer for additional information on special configurations of your machine.

Limiting Conditions and Criteria

Limiting conditions are immediate issues with this machine that must be addressed prior to continuing operation.

The Operation and Maintenance Manual, Safety Section describes limiting condition criteria for replacing items such as safety messages, seat belt and mounting hardware, lines, tubes, hoses, battery cables and related parts, electrical wires, and repairing any fluid leak.

The Operation and Maintenance Manual, Maintenance Interval Schedule describes limiting condition criteria that require repair or replacement for items (if equipped) such as alarms, horns, braking system, steering system, and rollover protective structures.

The Operation and Maintenance Manual, Monitoring System (if equipped) provides information on limiting condition criteria, including a Warning Category 3 that requires immediate shutdown of the engine.

Critical Failures

The following table provides summary information on several limiting conditions found in this Operation and Maintenance Manual. The table provides criteria and required action for the limiting conditions listed. Each System or Component in this table, together with the respective limiting condition, describes a potential critical failure that must be addressed. Not addressing limiting conditions with required actions may, in conjunction with other factors or circumstances, result in a risk of personal injury or death. If an accident occurs, notify emergency personnel and provide location and description of accident.

Table 1

System or Component Name	Limiting Condition	Criteria for Action	Required Action
Line, tubes, and hoses	End fittings are damaged or leaking. Outer coverings are chafed or cut. Wires are exposed. Outer coverings are swelling or ballooning. Flexible parts of the hoses are kinked. Outer covers have exposed embedded armoring. End fittings are displaced.	Visible corrosion, loose, or damaged lines, tubes, or hoses. Visible fluid leaks.	Immediately repair any lines, tubes, or hoses that are corroded, loose, or damaged. Immediately repair any leaks as these may provide fuel for fires.
Electrical Wiring	Signs of fraying, abrasion, cracking, discoloration, cuts on the insulation	Visible damage to electrical wiring	Immediately replace damaged wiring
Battery cable(s)	Signs of fraying, abrasion, cracking, discoloration, cuts on the insulation of the cable, fouling, corroded terminals, damaged terminals, and loose terminals	Visible damage to battery cable(s)	Immediately replace damaged battery cables
Operator Protective Structure	Structures that are bent, cracked, or loose. Loose, missing, or damaged bolts.	Visible damage to structure. Loose, missing, or damaged bolts.	Do not operate machine with damaged structure or loose, missing, or damaged bolts. Contact your Cat dealer for inspection and repair or replacement options.
Seat Belt	Worn or damaged seat belt or mounting hardware	Visible wear or damage	Immediately replace parts that are worn or damaged.
Seat Belt	Age of seat belt	Three years after date of installation	Replace seat belt three years after date of installation
Safety Messages	Appearance of safety message	Damage to safety messages making them illegible	Replace the illustrations if illegible.
Audible Warning Device(s) (if equipped)	Sound level of audible warning	Reduced or no audible warning present	Immediately repair or replace audible warning devices not working properly.
Camera(s) (if equipped)	Dirt or debris on camera lens	Dirt or debris obstructing camera view	Clean camera before operating machine.
Cab Windows (if equipped)	Dirt, debris, or damaged windows	Dirt or debris obstructing operator visibility. Any damaged windows.	Clean windows before operating machine. Repair or replace damaged windows before operating machine.
Mirrors (if equipped)	Dirt, debris, or damaged mirror	Dirt or debris obstructing operator visibility. Any damaged mirrors.	Clean mirrors before operating machine. Repair or replace damaged mirrors before operating machine.
Braking System	Inadequate braking performance	System does not pass Braking System - Test(s) included in Maintenance Section or in the Testing and Adjusting Manual	Contact your Cat dealer to inspect and, if necessary, repair the brake system.
Cooling System	The coolant temperature is too high.	Monitoring System displays Warning Category 3	Stop the engine immediately. Check the coolant level and check the radiator for debris. Refer to Operation and Maintenance Manual, Cooling System Coolant Level - Check. Check the fan drive belts for the water pump. Refer to Operation and Maintenance Manual, Belts - Inspect/Adjust/ Replace. Make any necessary repairs.
Engine Oil System	A problem has been detected with the engine oil pressure.	Monitoring System displays Warning Category 3	If the warning stays on during low idle, stop the engine and check the engine oil level. Perform any necessary repairs as soon as possible.
Engine system	An engine fault has been detected by the engine ECM.	Monitoring System displays Warning Category 3	Stop the engine immediately. Contact your Cat dealer for service.
Fuel System	A problem has been detected with the fuel system.	Monitoring System displays Warning Category 3	Stop the engine. Determine the cause of the fault and perform any necessary repairs.
Hydraulic Oil System	The hydraulic oil temperature is too high.	Monitoring System displays Warning Category 3	Stop the engine immediately. Check the hydraulic oil level and check the hydraulic oil cooler for debris. Perform any necessary repairs as soon as possible.

(continued)

(Table 1, contd)

System or Component Name	Limiting Condition	Criteria for Action	Required Action
Steering System	A problem has been detected with the steering system. (If equipped with steering system monitoring.)	Monitoring System displays Warning Category 3	Move machine to a safe location and stop the engine immediately. Contact your Cat dealer to inspect and, if necessary, repair the steering system.
Overall Machine	Machine service is required.	Monitoring System displays Warning Category 3	Stop the engine immediately. Contact your Cat dealer for service.

Machine Operation

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.

Shut the machine down until damaged or nonfunctional visibility aid(s) is repaired (if applicable) or until appropriate job site organization is used to minimize hazards that are caused by any resulting restricted visibility.

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.

Never use the work tool for a work platform.

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.

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 any distances.

Bring the load close to the machine before 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 cable. Never allow other personnel to straddle a wire cable.

When you maneuver to connect the equipment, make sure that no personnel are between the machine and trailing equipment. Block up the hitch of the trailing equipment 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 local utilities for the locations of underground pipes and for the locations of 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 boom and the stick linkage can allow the work tool to contact the undercarriage and/or the cab. This could result in personal injury. Be aware of the position of the work tool.

i06299648

Engine Stopping

SMCS Code: 1000; 7000

Do not stop the engine immediately after the machine has been operated under load. Stopping the engine immediately can cause overheating and accelerated wear of engine components.

After the machine is parked and the parking brake is engaged, allow the engine to run at low idle for 5 minutes before shutdown. Running the engine allows hot areas of the engine to cool gradually.

i01591879

Lifting Objects

SMCS Code: 7000

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

i06159274

Demolition

SMCS Code: 6700

There may be local regulations and/or government regulations that govern the use of machines which are designed and used as demolition machinery.

Note: Obey all local and government regulations.

Demolition machinery is designed for demolishing by pushing or pulling, or fragmenting. Demolition is done by crushing or shearing, buildings and/or other civil engineering structures and component parts and/or separating the resultant debris.

If this machine is used as a demolition machine, within an area that is controlled by the "European Directive 2006/42/EC" the machine must be equipped with:

- EN 356 Class P5A Front Window or Equivalent
- Front Guard Level II
- FOPS Level II
- Camera, Rear View, and Display

Demolition applications may generate flying debris. Ensure that there are no personnel in the area around the machine where flying debris may travel.

Demolition applications may generate airborne dust that can be hazardous to your health. If you operate the machine in a dust generating applications, use appropriate safeguarding or adequate ventilation to minimize risk.

Parking

SMCS Code: 7000

The hydraulic system controls remain pressurized if the accumulator is charged. This condition is true even when the engine is not running. The hydraulic control system pressure should decrease in a short time (approximately 1 minute). While the hydraulic controls maintain a charge, the hydraulic work tools and machine controls remain functional.

There can be residual pressure within the hydraulic system even when the accumulator is empty. Refer to this Operation and Maintenance Manual, "System Pressure Release" before any service is performed to the hydraulic system.

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

Always move the hydraulic lockout control to the LOCKED position before you shut off the engine or immediately after the engine stops running.

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

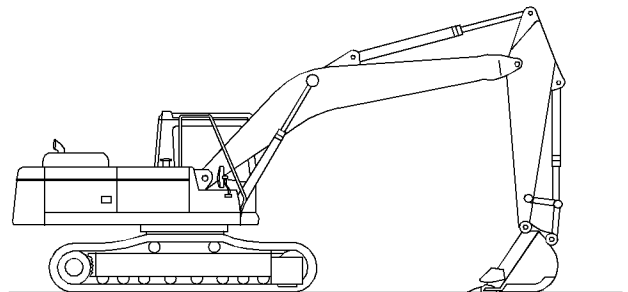


Illustration 37

g02154493

Place the machine in the servicing position.

Note: Make sure that all work tools are in the recommended servicing position before servicing the machine.

Move the hydraulic lockout control to the LOCKED position.

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. 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.

Install barriers or lighting as required to prevent interference in road traffic.

Select places free of danger by flooding and other water damage.

i07746366

Slope Operation

SMCS Code: 7000

Machines that are operating safely in various applications depend on these criteria: the machine model, configuration, machine maintenance, operating speed of the machine, conditions of the terrain, fluid levels, and tire inflation pressures. The most important criteria are the skill and judgment of the operator.

A well trained operator that follows the instructions in the Operation and Maintenance Manual has the greatest impact on stability. Operator training provides a person with the following abilities: observation of working and environmental conditions, feel for the machine, identification of potential hazards and operating the machine safely by making appropriate decisions.

When you work on side hills and when you work on slopes, consider the following important points:

Speed of travel – At higher speeds, forces of inertia tend to make the machine less stable.

Roughness of terrain or surface – The machine may be less stable with uneven terrain.

Direction of travel – Avoid operating the machine across the slope. When possible, operate the machine up the slopes and operate the machine down the slopes. Place the heaviest end of the machine uphill when you are working on an incline.

Mounted equipment – Balance of the machine may be impeded by the following components: equipment that is mounted on the machine, machine configuration, weights, and counterweights.

Nature of surface – Ground that has been newly filled with earth may collapse from the weight of the machine.

Surface material – Rocks and moisture of the surface material may drastically affect the machine's traction and machine's stability. Rocky surfaces may promote side slipping of the machine.

Slippage due to excessive loads – This may cause downhill tracks or downhill tires to dig into the ground, which will increase the angle of the machine.

Width of tracks or tires – Narrower tracks or narrower tires further increase the digging into the ground which causes the machine to be less stable.

Implements attached to the drawbar – This may decrease the weight on the uphill tracks. This may also decrease the weight on the uphill tires. The decreased weight will cause the machine to be less stable.

Height of the working load of the machine – When the working loads are in higher positions, the stability of the machine is reduced.

Operated equipment – Be aware of performance features of the equipment in operation and the effects on machine stability.

Operating techniques – Keep all attachments or pulled loads low to the ground for optimum stability.

Machine systems have limitations on slopes – Slopes can affect the proper function and operation of the various machine systems. These machine systems are needed for machine control.

Note: Operators with lots of experience and proper equipment for specific applications are also required. Safe operation on steep slopes may also require special machine maintenance. Refer to Lubricant Viscosities and Refill Capacities in this manual for the proper fluid level requirements and intended machine use. Fluids must be at the correct levels to ensure that systems will operate properly on a slope.

i08229294

Equipment Lowering with Engine Stopped

SMCS Code: 7000-II

Before lowering any equipment with the engine stopped, clear the area around the equipment of all personnel. The procedure to use will vary with the type of equipment to be lowered. Keep in mind most systems use a high pressure fluid or air to raise or lower equipment. The procedure will cause high pressure air, hydraulic, or some other media to be released in order to lower the equipment. Wear appropriate personal protective equipment and follow the established procedure in the Operation and Maintenance Manual, "Equipment Lowering with Engine Stopped" in the Operation Section of the manual.

i07600733

Sound Information and Vibration Information

SMCS Code: 7000

Sound Level Information

The declared dynamic operator sound pressure level is 80 dB(A) when "ISO 6396:2008" is used to measure the value for an enclosed cab. The measurement was conducted at 100% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds. The measurement was conducted with the cab doors and the cab windows closed. The cab was properly installed and maintained.

The declared exterior sound power level (LWA) is 99 dB(A) when the value is measured according to the dynamic test procedures and the conditions that are specified in "ISO 6395:2008". The measurement was conducted at 100% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds.

The declared sound levels listed above include both measurement uncertainty and uncertainty due to production variation.

Hearing protection may be needed when the machine is operated with an open operator station for extended periods or in a noisy environment. Hearing protection may be needed when the machine is operated with a cab that is not properly maintained or when the doors and windows are open for extended periods or in a noisy environment.

Sound Level Information for Machines in European Union Countries and in Countries that Adopt the "EU Directives"

The declared dynamic operator sound pressure level is 80 dB(A) when "ISO 6396:2008" is used to measure the value for an enclosed cab. The measurement was conducted at 100% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds. The measurement was conducted with the cab doors and the cab windows closed. The cab was properly installed and maintained.

The declared exterior sound power level (LWA) is 99 dB(A) when the value is measured according to the dynamic test procedures and the conditions that are specified in "ISO 6395:2008". The measurement was conducted at 100% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds.

The declared sound levels listed above include both measurement uncertainty and uncertainty due to production variation.

Sound Level Information for Machines in Eurasian Economic Union Countries

The declared dynamic operator sound pressure level is 80 dB(A) when "ISO 6396:2008" is used to measure the value for an enclosed cab. The measurement was conducted at 100% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds. The measurement was conducted with the cab doors and the cab windows closed. The cab was properly installed and maintained.

The declared exterior sound power level (LWA) is 99 dB(A) when the value is measured according to the dynamic test procedures and the conditions that are specified in "ISO 6395:2008". The measurement was conducted at 100% of the maximum engine cooling fan speed. The sound level may vary at different engine cooling fan speeds.

The declared sound levels listed above include both measurement uncertainty and uncertainty due to production variation.

"The European Union Physical Agents (Vibration) Directive 2002/44/EC"

Vibration Data for Track-Type Excavator

Information Concerning Hand/Arm Vibration Level

When the machine is operated according to the intended use, the hand/arm vibration of this machine is below 2.5 m/s².

Information Concerning Whole Body Vibration Level

This section provides vibration data and a method for estimating the vibration level for track-type excavators.

Note: Vibration levels are influenced by many different parameters. Many items are listed below.

- Operator training, behavior, mode and stress
- Job site organization, preparation, environment, weather and material
- Machine type, quality of the seat, quality of the suspension system, attachments and condition of the equipment

Safety Section
Sound Information and Vibration Information

It is not possible to get precise vibration levels for this machine. The expected vibration levels can be estimated with the information in Table 2 in order to calculate the daily vibration exposure. A simple evaluation of the machine application can be used.

Estimate the vibration levels for the three vibration directions. For typical operating conditions, use the average vibration levels as the estimated level. With an experienced operator and smooth terrain, subtract the Scenario Factors from the average vibration level in order to obtain the estimated vibration level. For aggressive operations and severe terrain, add the Scenario Factors to the average vibration level in order to obtain the estimated vibration level.

Note: All vibration levels are in meter per second squared.

Table 2

"ISO Reference Table A - Equivalent vibration levels of whole body vibration emission for earthmoving equipment."							
Machine Type	Typical Operating Activity	Vibration Levels			Scenario Factors		
		X axis	Y axis	Z axis	X axis	Y axis	Z axis
Track-Type Excavator	excavating	0,44	0,27	0,30	0,24	0,16	0,17
	hydraulic breaker application	0,53	0,31	0,55	0,30	0,18	0,28
	mining application	0,65	0,42	0,61	0,21	0,15	0,32
	transfer	0,48	0,32	0,79	0,19	0,20	0,23

Note: Refer to "ISO/TR 25398 Mechanical Vibration - Guideline for the assessment of exposure to whole body vibration of ride on operated earthmoving machines" for more information about vibration. This publication uses data that is measured by international institutes, organizations, and manufacturers. This document provides information about the whole body exposure of operators of earthmoving equipment. Refer to Operation and Maintenance Manual, SEBU8257, "The European Union Physical Agents (Vibration) Directive 2002/44/EC" for more information about machine vibration levels.

The Caterpillar suspension seat meets the criteria of "ISO 7096". This represents vertical vibration level under severe operating conditions.

Guidelines for Reducing Vibration Levels on Earthmoving Equipment

Properly adjust machines. Properly maintain machines. Operate machines smoothly. Maintain the conditions of the terrain. The following guidelines can help reduce the whole body vibration level:

1. Use the right type and size of machine, equipment, and attachments.
2. Maintain machines according to the manufacturer's recommendations.

- a. Tire pressures
- b. Brake and steering systems
- c. Controls, hydraulic system, and linkages
3. Keep the terrain in good condition.
 - a. Remove any large rocks or obstacles.
 - b. Fill any ditches and holes.
 - c. Provide machines and schedule time in order to maintain the conditions of the terrain.
4. Use a seat that meets "ISO 7096". Keep the seat maintained and adjusted.
 - a. Adjust the seat and suspension for the weight and the size of the operator.
 - b. Inspect and maintain the seat suspension and adjustment mechanisms.
5. Perform the following operations smoothly.
 - a. Steer
 - b. Brake
 - c. Accelerate.
 - d. Shift the gears.
6. Move the attachments smoothly.

7. Adjust the machine speed and the route in order to minimize the vibration level.
 - a. Drive around obstacles and rough terrain.
 - b. Slow down when it is necessary to go over rough terrain.
8. Minimize vibrations for a long work cycle or a long travel distance.
 - a. Use machines that are equipped with suspension systems.
 - b. Use the ride control system on track-type excavators.
 - c. If no ride control system is available, reduce speed in order to prevent bounce.
 - d. Haul the machines between workplaces.
9. Less operator comfort may be caused by other risk factors. The following guidelines can be effective in order to provide better operator comfort:
 - a. Adjust the seat and adjust the controls in order to achieve good posture.
 - b. Adjust the mirrors in order to minimize twisted posture.
 - c. Provide breaks in order to reduce long periods of sitting.
 - d. Avoid jumping from the cab.
 - e. Minimize repeated handling of loads and lifting of loads.
 - f. Minimize any shocks and impacts during sports and leisure activities.

Sources

The vibration information and the calculation procedure is based on "ISO/TR 25398 Mechanical Vibration - Guideline for the assessment of exposure to whole body vibration of ride on operated earthmoving machines". Harmonized data is measured by international institutes, organizations, and manufacturers.

This literature provides information about assessing the whole body vibration exposure of operators of earthmoving equipment. The method is based on measured vibration emission under real working conditions for all machines.

Check the original directive. This document summarizes part of the content of the applicable law. This document is not meant to substitute the original sources. Other parts of these documents are based on information from the United Kingdom Health and Safety Executive.

Refer to Operation and Maintenance Manual, SEBU8257, "The European Union Physical Agents (Vibration) Directive 2002/44/EC" for more information about vibration.

Consult your local Caterpillar dealer for more information about machine features that minimize vibration levels. Consult your local Caterpillar dealer about safe machine operation.

Use the following web site in order to find your local dealer:

Caterpillar, Inc.
www.cat.com

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Operator Station

SMCS Code: 7300; 7301; 7325

Any modifications to the inside of the operator station should not project into the operator space or into the space for the companion seat (if equipped). The addition of a radio, fire extinguisher, and other equipment must be installed so that the defined operator space and the space for the companion seat (if equipped) is maintained. Any item that is brought into the cab should not project into the defined operator space or the space for the companion seat (if equipped). 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 rollover.

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Guards (Operator Protection)

SMCS Code: 7000; 7150

There are different types of guards that are used to protect the operator. The machine and the machine application determine the type of guard that should be used.

A daily inspection of the guards is required in order to check for structures that are bent, cracked, or loose. Never operate a machine with a damaged structure.

The operator becomes exposed to a hazardous situation if the machine is used improperly or if poor operating techniques are used. This situation can occur even though a machine is equipped with an appropriate protective guard. Follow the established operating procedures that are recommended for your machine.

Rollover Protective Structure (ROPS), Falling Object Protective Structure (FOPS) or Tip Over Protection Structure (TOPS)

The ROPS/FOPS Structure (if equipped) on your machine is specifically designed, tested and certified for that machine. Any alteration or any modification to the ROPS/FOPS Structure could weaken the structure. This places the operator into an unprotected environment. Modifications or attachments that cause the machine to exceed the weight that is stamped on the certification plate also place the operator into an unprotected environment. Excessive weight may inhibit the brake performance, the steering performance and the ROPS. The protection that is offered by the ROPS/FOPS Structure will be impaired if the ROPS/FOPS Structure has structural damage. Damage to the structure can be caused by an overturn, a falling object, a collision, etc.

Do not mount items (fire extinguishers, first aid kits, work lights, etc) by welding brackets to the ROPS/FOPS Structure or by drilling holes in the ROPS/FOPS Structure. Welding brackets or drilling holes in the ROPS/FOPS Structures can weaken the structures. Consult your Cat dealer for mounting guidelines.

The Tip Over Protection Structure (TOPS) is another type of guard that is used on mini hydraulic excavators. This structure protects the operator in the event of a tipover. The same guidelines for the inspection, the maintenance and the modification of the ROPS/FOPS Structure are required for the Tip Over Protection Structure.

Other Guards (If Equipped)

Protection from flying objects and/or falling objects is required for special applications. Logging applications and demolition applications are two examples that require special protection.

A front guard needs to be installed when a work tool that creates flying objects is used. Mesh front guards that are approved by Caterpillar or polycarbonate front guards that are approved by Caterpillar are available for machines with a cab or an open canopy. On machines that are equipped with cabs, the windows should also be closed. Safety glasses are recommended when flying hazards exist for machines with cabs and machines with open canopies.

If the work material extends above the cab, top guards and front guards should be used. Typical examples of this type of application are listed below:

- Demolition applications
- Rock quarries

- Forestry products

Additional guards may be required for specific applications or work tools. The Operation and Maintenance Manual for your machine or your work tool will provide specific requirements for the guards. Refer to Operation Maintenance manual, "Demolition" for additional information. Consult your Cat dealer for additional information.

Product Information Section

General Information

i08755335

Specifications

SMCS Code: 7000

Intended Use

The intended use of this machine is for excavating with a bucket or working with approved work tools. The machine should be operated with the undercarriage in a stationary position since the upper structure is normally capable of 360 degree swing with mounted equipment. This machine can be used in object handling applications that are within the lift capacity of the machine. When this machine is used in object handling applications, ensure that the machine is properly configured and operated properly. Obey any local governmental regulations and regional governmental regulations. Only lift objects from approved lifting points and with approved lifting devices.

Expected Life

The expected life, defined as total machine hours, of this machine is dependent upon many factors including the machine owner's desire to rebuild the machine back to factory specifications. The expected life interval of this machine is 8,000 service hours. The expected life interval corresponds to the service hours to engine overhaul or replacement. Service hours to engine overhaul or replacement may vary based on overall machine duty cycle. At the expected life interval, remove the machine from operation and consult your Cat dealer for inspect, repair, rebuild, install remanufactured, install new components, or disposal options and to establish a new expected life interval. If a decision is made to remove this machine from service, refer to Operation and Maintenance Manual, "Decommissioning and Disposal". The following items are required to obtain an economical expected life of this machine:

- Perform regular preventive maintenance procedures as described in the Operation and Maintenance Manual.
- Perform machine inspections as described in the Operation and Maintenance Manual and correct any problems discovered.
- Perform system testing as described in the Operation and Maintenance Manual and correct any problems discovered.

- Ensure that machine application conditions comply with Caterpillar recommendations.
- Ensure that the operating weight does not exceed limits set by manufacturer.
- Ensure that all frame cracks are identified, inspected, and repaired to prevent further development.

Specification Data

One-Piece Boom

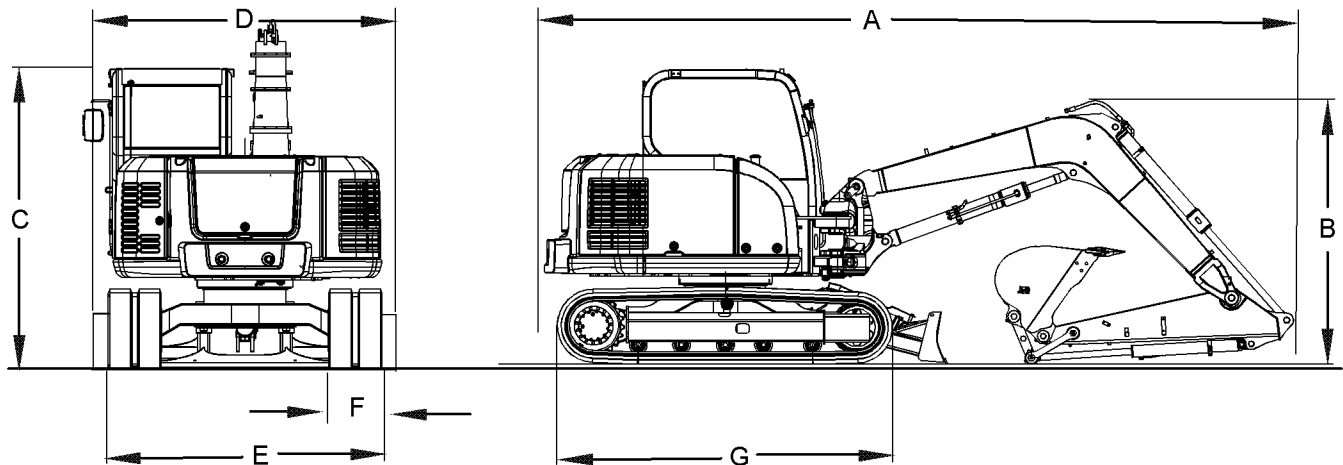


Illustration 38

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Table 3

308E2 CR Excavator ⁽¹⁾						
	Medium Stick (R1.67)			Long Stick (R2.21)		
Blade Width	2320 mm 7 ft 7 inch	2320 mm 7 ft 7 inch	2470 mm 8 ft 1 inch	2320 mm 7 ft 7 inch	2320 mm 7 ft 7 inch	2470 mm 8 ft 1 inch
Approximate Weight	8610 kg 18982 lb	8650 kg 19070 lb	8860 kg 19533 lb	8670 kg 19114 lb	8710 kg 19202 lb	8920 kg 19663 lb
Overall Length (A)	6490 mm 21 ft 3 inch	6490 mm 21 ft 3 inch	6490 mm 21 ft 3 inch	6450 mm 21 ft 2 inch	6450 mm 21 ft 2 inch	6450 mm 21 ft 2 inch
Boom Height (B)	2230 mm 7 ft 4 inch	2230 mm 7 ft 4 inch	2230 mm 7 ft 4 inch	2230 mm 7 ft 4 inch	2230 mm 7 ft 4 inch	2230 mm 7 ft 4 inch
Overall Height (C)	2550 mm 8 ft 4 inch	2550 mm 8 ft 4 inch	2550 mm 8 ft 4 inch	2550 mm 8 ft 4 inch	2550 mm 8 ft 4 inch	2550 mm 8 ft 4 inch
Overall Width (D)	2320 mm 7 ft 7 inch	2320 mm 7 ft 7 inch	2470 mm 8 ft 1 inch	2320 mm 7 ft 7 inch	2320 mm 7 ft 7 inch	2470 mm 8 ft 1 inch
Width of Track (E)	2320 mm 7 ft 7 inch	2320 mm 7 ft 7 inch	2470 mm 8 ft 1 inch	2320 mm 7 ft 7 inch	2320 mm 7 ft 7 inch	2470 mm 8 ft 1 inch
Width of Steel Track shoe (F)		450 mm 1 ft 5 inch	600 mm 1 ft 10 inch		450 mm 1 ft 5 inch	600 mm 1 ft 10 inch
Width of Rubber Track shoe (F)	450 mm 1 ft 5 inch			450 mm 1 ft 5 inch		
Length of Track (G)	2900 mm 9 ft 6 inch	2900 mm 9 ft 6 inch	2900 mm 9 ft 6 inch	2900 mm 9 ft 6 inch	2900 mm 9 ft 6 inch	2900 mm 9 ft 6 inch

⁽¹⁾ These specifications are for a machine that has a one-piece boom, a 1.67 m (5 ft 6 inch) stick, a 0.23 m³ (0.30 yd³) bucket, a 100 percent full fuel tank, and a blade with extra counter weight.

Table 4

308E2 CR Excavator ⁽¹⁾						
	Medium Stick (R1.67)			Long Stick (R2.21)		
Blade Width	2320 mm 7 ft 7 inch	2320 mm 7 ft 7 inch	2470 mm 8 ft 1 inch	2320 mm 7 ft 7 inch	2320 mm 7 ft 7 inch	2470 mm 8 ft 1 inch
Approximate Weight	8360 kg 18431 lb	8400 kg 18519 lb	8610 kg 18982 lb	8420 kg 18563 lb	8460 kg 18651 lb	8670 kg 19114 lb
Overall Length (A)	6380 mm 20 ft 10 inch	6380 mm 20 ft 10 inch	6380 mm 20 ft 10 inch	6340 mm 20 ft 8 inch	6340 mm 20 ft 8 inch	6340 mm 20 ft 8 inch
Boom Height (B)	2230 mm 7 ft 4 inch	2230 mm 7 ft 4 inch	2230 mm 7 ft 4 inch	2230 mm 7 ft 4 inch	2230 mm 7 ft 4 inch	2230 mm 7 ft 4 inch
Overall Height (C)	2550 mm 8 ft 4in	2550 mm 8 ft 4in	2550 mm 8 ft 4in	2550 mm 8 ft 4in	2550 mm 8 ft 4in	2550 mm 8 ft 4in
Overall Width (D)	2320 mm 7 ft 7 inch	2320 mm 7 ft 7 inch	2470 mm 8 ft 1 inch	2320 mm 7 ft 7 inch	2320 mm 7 ft 7 inch	2470 mm 8 ft 1 inch
Width of Track (E)	2320 mm 7 ft 7 inch	2320 mm 7 ft 7 inch	2320 mm 7 ft 7 inch	2320 mm 7 ft 7 inch	2320 mm 7 ft 7 inch	2320 mm 7 ft 7 inch
Width of Steel Track shoe (F)		450 mm 1 ft 5 inch	600 mm 1 ft 10 inch		450 mm 1 ft 5 inch	600 mm 1 ft 10 inch
Width of Rubber Track shoe (F)	450 mm 1 ft 5 inch			450 mm 1 ft 5 inch		
Length of Track (G)	2900 mm 9 ft 6 inch	2900 mm 9 ft 6 inch	2900 mm 9 ft 6 inch	2900 mm 9 ft 6 inch	2900 mm 9 ft 6 inch	2900 mm 9 ft 6 inch

⁽¹⁾ These specifications are for a machine that has a one-piece boom, a 1.67 m (5 ft 6 inch) stick, a 0.23 m³ (0.30 yd³) bucket, a 100 percent full fuel tank, and a blade with standard counter weight.

Consult your Cat dealer for specifications that are not included.

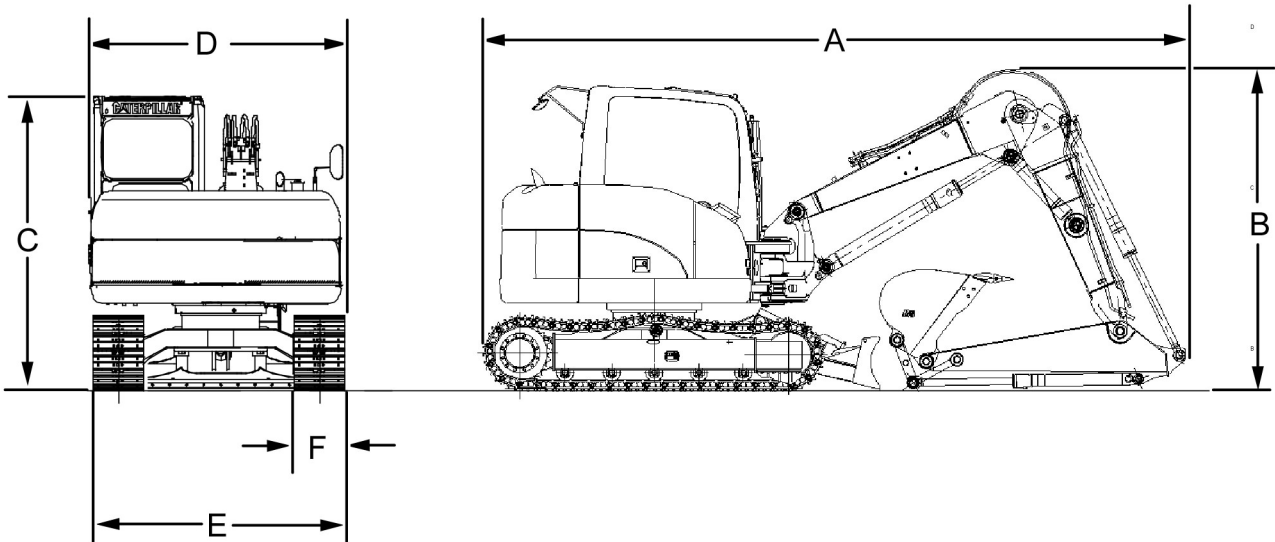
VA Boom

Illustration 39

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Table 5

308E2 VA Boom Excavator	
Blade Width	2320 mm 7 ft 7 inch
Approximate Weight	8700 kg 19180 lb
Overall Length (A)	5795 mm 19 ft
Boom Height (B)	2200 mm 7 ft 2 inch
Overall Height (C)	2550 mm 8 ft 4 inch
Overall Width (D)	2320 mm 7 ft 7 inch
Width of Track (E)	2320 mm 7 ft 7 inch
Width of Steel Track shoe (F)	450 mm 1 ft 5 inch
Width of Rubber Track shoe (F)	450 mm 1 ft 5 inch

Consult your Cat dealer for specifications that are not included.

Working Ranges

One-Piece Boom

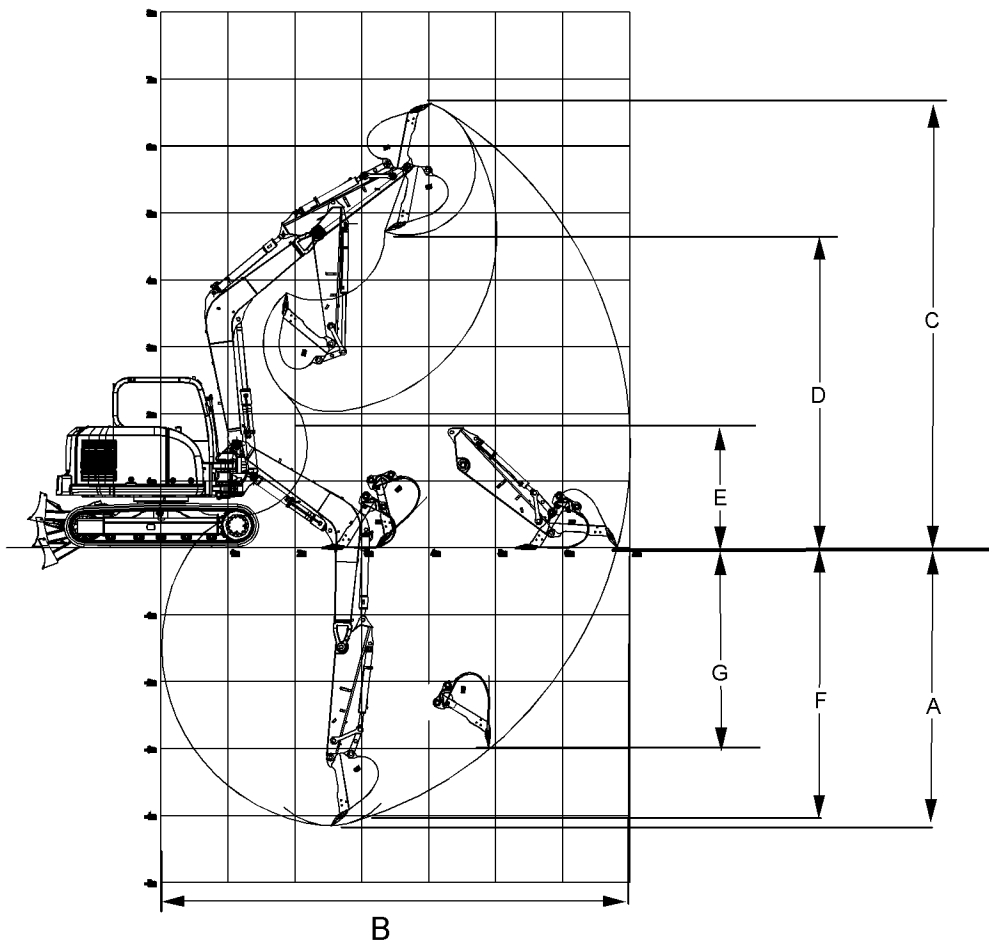


Illustration 40

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Table 6

308E2 CR Excavator ⁽¹⁾				
	Medium		Long	
	Steel Track	Rubber Track	Steel Track	Rubber Track
Bucket	0.23 m ³ (0.30 yd ³)			
Maximum Digging Depth (A)	4180 mm 13 ft 8 inch	4150 mm 13 ft 7 inch	4720mm 15 ft 5 inch	4690 mm 15 ft 4 inch
Maximum Reach at Ground Level (B)	6830 mm 22 ft 4 inch	6820 mm 22 ft 4 inch	7360 mm 24 ft 2 inch	7350 mm 24 ft 2 inch
Maximum Cutting Height (C)	6610 mm 21 ft 7 inch	6640 mm 21ft 8 inch	6960 mm 22 ft 9 inch	6990 mm 22 ft 10 inch
Maximum Loading Height (D)	4640 mm 15 ft 3 inch	4670 mm 15 ft 4 inch	4980 mm 16ft 4 inch	5010 mm 16 ft 5 inch

(continued)

Product Information Section
Specifications

(Table 6, contd)

Minimum Clearance of Bucket Teeth(E)	2010 mm 6 ft 6 inch	2030 mm 6 ft 7 inch	1560 mm 5 ft 2 inch	1580 mm 5 ft 2 inch
Maximum Digging Depth at 8 ft Flat (F)	3780 mm 12 ft 4 inch	3760 mm 12 ft 4 inch	4370 mm 14 ft 4 inch	4340 mm 14 ft 3 inch
Maximum Digging Depth (Vertical Wall) (G)	3000 mm 9 ft 9 inch	2980 mm 9 ft 8 inch	3570 mm 11 ft 8 inch	3550 mm 11 ft 7 inch

(1) These specifications are for a machine that has a one-piece boom, a 1.67 m (5 ft 6 inch) stick, a 0.23 m³ (0.30 yd³) bucket, a 100 percent full fuel tank, and a blade.

Working Ranges

VA Boom

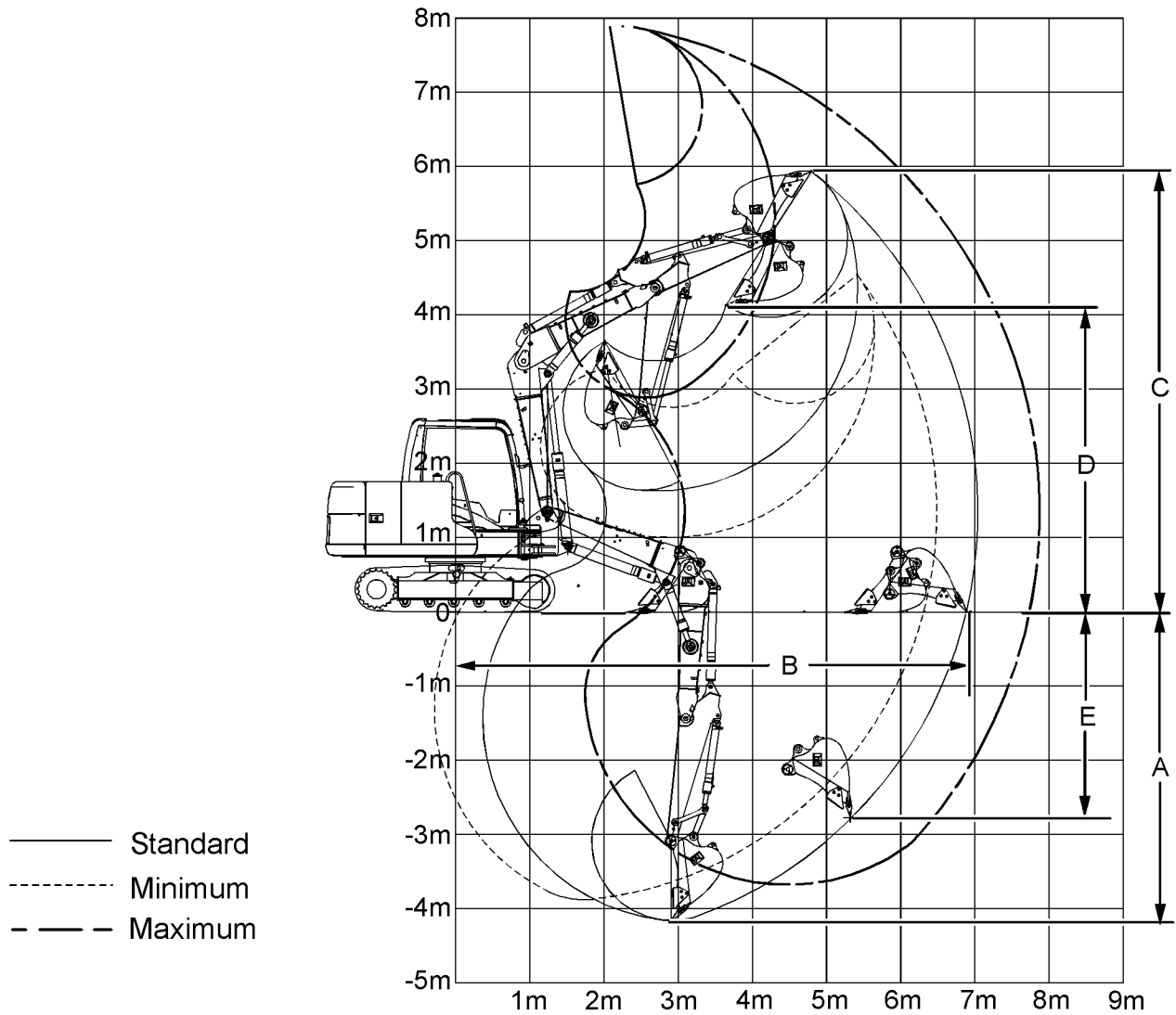


Illustration 41

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Table 7

308E2 VA Boom Excavator	
Stick	1.67 m 5 ft 6 inch
Bucket	0.23 m 0.30 yd ³
Maximum Digging Depth (A)	4290 mm 14 ft 1 inch
Maximum Reach at Ground Level (B)	6365 mm 20 ft 9 inch

(Table 7, contd)

308E2 VA Boom Excavator	
Maximum Cutting Height (C)	8000 mm 26 ft 2 inch
Maximum Loading Height (D)	6080 mm 20 ft

(continued)

(continued)

(Table 7, contd)

308E2 VA Boom Excavator	
Minimum Clearance of Bucket Teeth(E)	1100 mm 3 ft 6 inch
Maximum Digging Depth at 8 ft Flat (F)	3700 mm 12 ft 1 inch

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Boom/Stick/Bucket Combinations

SMCS Code: 6000; 6700

This machine can be equipped with various boom-stick-bucket combinations in order to meet the needs of various applications.

As a rule, use a bucket with a smaller capacity when you are using a longer stick and/or a longer boom. Conversely, use a bucket with a larger capacity when you are using a shorter stick and/or a shorter boom. This rule ensures better machine stability and protection against structural machine damage.

Note: The selection of a compatible boom-stick-bucket combination is a guide. Work tools, uneven ground conditions, soft ground conditions, or poor ground conditions have effects on machine performance. The operator is responsible for being aware of these effects.

Consult your Cat dealer for information on selecting the correct boom-stick-bucket combination.

The following tables show various compatible boom-stick-bucket combinations. Select an optimum combination according to the working conditions and according to the type of work that is being done.

Table 8

Heavy Duty Buckets ⁽¹⁾ Fill Factor = 100%											
Bucket Part Number	Width of Bucket	Weight	Capacity (ISO)	Standard Stick		Long Stick		Thumb Standard Stick		Thumb Long Stick	
				No Coupler	Coupler	No Coupler	Coupler	No Coupler	Coupler	No Coupler	Coupler
305-6813	326 mm (13 inch)	125 kg (276 lb)	0.10 m ³ (0.13 yd ³)	8695	7709	7060	6039	7738	6741	5778	4745
295-5951	463 mm (18 inch)	151 kg (333 lb)	0.15 m ³ (0.20 yd ³)	5623	4966	4533	3852	4985	4321	3679	2990
295-5952	619 mm (24 inch)	178 kg (392 lb)	0.23 m ³ (0.30 yd ³)	3550	3121	2839	2395	3134	2700	2282	1833
295-5953	768 mm (30 inch)	207 kg (456 lb)	0.31 m ³ (0.41 yd ³)	2540	2222	2013	1683	2231	1910	1599	1266
295-5954	912 mm (36 inch)	230 kg (507 lb)	0.39 m ³ (0.51 yd ³)	1960	1707	1541	1279	1715	1459	1212	947

⁽¹⁾ Max Material Density 1800 kg/m³

Product Information Section
Boom/Stick/Bucket Combinations

Table 9

Heavy-Duty Rock Buckets ⁽¹⁾ Fill Factor = 100%											
Bucket Part Number	Width of Bucket	Weight	Capacity (ISO)	Standard Stick		Long Stick		Thumb Standard Stick		Thumb Long Stick	
				No Coupler	Coupler	No Coupler	Coupler	No Coupler	Coupler	No Coupler	Coupler
295-5970	619 mm (24 inch)	178 kg (392 lb)	0.23 m ³ (0.30 yd ³)	3480	3052	2769	2325	3064	2631	2212	1763
295-5971	768 mm (30 inch)	207 kg (456 lb)	0.31 m ³ (0.41 yd ³)	2489	2171	1961	1632	2180	1858	1548	1214

(1) Max Material Density 1800 kg/m³

Table 10

Ditch Cleaning Buckets ⁽¹⁾ Fill Factor = 100%											
Bucket Part Number	Width of Bucket	Weight	Capacity (ISO)	Standard Stick		Long Stick		Thumb Standard Stick		Thumb Long Stick	
				No Coupler	Coupler	No Coupler	Coupler	No Coupler	Coupler	No Coupler	Coupler
311-6569 ⁽²⁾	1239 mm (49 inch)	216 kg (476 lb)	0.33 m ³ (0.43 yd ³)	2359	2060	1864	1554	2069	1767	1475	1162
311-6570 ⁽²⁾	1392 mm (55 inch)	235 kg (518 lb)	0.37 m ³ (0.48 yd ³)	2053	1786	1611	1335	1794	1525	1264	985
311-6571 ⁽²⁾	1544 mm (61 inch)	253 kg (558 lb)	0.42 m ³ (0.55 yd ³)	1765	1531	1376	1133	1538	1300	1071	825
310-2963	1500 mm (59 inch)	145 kg (320 lb)	0.24 m ³ (0.31 yd ³)	3539	3129	2858	2433	3141	2725	2324	1894
310-2965	1800 mm (71 inch)	166 kg (366 lb)	0.30 m ³ (0.39 yd ³)	2762	2433	2217	1876	2443	2110	1789	1445

(1) Max Material Density 1800 kg/m³

(2) Weight includes optional bolt-on cutting edge

Table 11

Mud Buckets ⁽¹⁾ Fill Factor = 100%											
Bucket Part Number	Width of Bucket	Weight	Capacity (ISO)	Standard Stick		Long Stick		Thumb Standard Stick		Thumb Long Stick	
				No Coupler	Coupler	No Coupler	Coupler	No Coupler	Coupler	No Coupler	Coupler
381-8999	1200 mm (47 inch)	271 kg (597 lb)	0.57 m ³ (0.75 yd ³)	1269	1096	982	803	1101	926	758	576
388-9666	1200 mm (47 inch)	296 kg (651 lb)	0.41 m ³ (0.54 yd ³)	1703	1463	1304	1055	1470	1226	993	740
388-9667	1500 mm (59 inch)	346 kg (761 lb)	0.52 m ³ (0.68 yd ³)	1247	1057	932	736	1063	871	687	487

(1) Max Material Density 1800 kg/m³

Table 12

Heavy Duty Buckets⁽¹⁾ With Extra Counterweight Fill Factor = 100%											
Bucket Part Number	Width of Bucket	Weight	Capacity (ISO)	Standard Stick		Long Stick		Thumb Standard Stick		Thumb Long Stick	
				No Coupler	Coupler	No Coupler	Coupler	No Coupler	Coupler	No Coupler	Coupler
305-6813	326 mm (13 inch)	125 kg (276 lb)	0.10 m ³ (0.13 yd ³)	9733	8759	7991	6979	8776	7791	6709	5685
295-5951	463 mm (18 inch)	151 kg (333 lb)	0.15 m ³ (0.20 yd ³)	6315	5666	5154	4479	5677	5021	4299	3617
295-5952	619 mm (24 inch)	178 kg (392 lb)	0.23 m ³ (0.30 yd ³)	4001	3578	3244	2804	3585	3157	2687	2241
295-5953	768 mm (30 inch)	207 kg (456 lb)	0.31 m ³ (0.41 yd ³)	2875	2561	2313	1987	2566	2249	1900	1569
295-5954	912 mm (36 inch)	230 kg (507 lb)	0.39 m ³ (0.51 yd ³)	2226	1974	1779	1521	1979	1728	1451	1187

(1) Max Material Density 1800 kg/m³

Table 13

Heavy-Duty Rock Buckets⁽¹⁾ With Extra Counterweight Fill Factor = 100%											
Bucket Part Number	Width of Bucket	Weight	Capacity (ISO)	Standard Stick		Long Stick		Thumb Standard Stick		Thumb Long Stick	
				No Coupler	Coupler	No Coupler	Coupler	No Coupler	Coupler	No Coupler	Coupler
295-5970	619 mm (24 inch)	178 kg (392 lb)	0.23 m ³ (0.30 yd ³)	3932	3508	3174	2734	3516	3087	2617	2172
295-5971	768 mm (30 inch)	207 kg (456 lb)	0.31 m ³ (0.41 yd ³)	2823	2509	2262	1935	2515	2197	1848	1518

(1) Max Material Density 1800 kg/m³

Table 14

Ditch Cleaning Buckets⁽¹⁾ With Extra Counterweight Fill Factor = 100%											
Bucket Part Number	Width of Bucket	Weight	Capacity (ISO)	Standard Stick		Long Stick		Thumb Standard Stick		Thumb Long Stick	
				No Coupler	Coupler	No Coupler	Coupler	No Coupler	Coupler	No Coupler	Coupler
311-6569 ⁽²⁾	1239 mm (49 inch)	216 kg (476 lb)	0.33 m ³ (0.43 yd ³)	2674	2378	2146	1839	2384	2085	1757	1447
311-6570 ⁽²⁾	1392 mm (55 inch)	235 kg (518 lb)	0.37 m ³ (0.48 yd ³)	2333	2070	1862	1589	2075	1808	1516	1239

(continued)

Product Information Section
Boom/Stick/Bucket Combinations

(Table 14, contd)

311 - 6571 ⁽²⁾	1544 mm (61 inch)	253 kg (558 lb)	0.42 m ³ (0.55 yd ³)	2013	1781	1598	1357	1785	1550	1293	1049
310 - 2963	1500 mm (59 inch)	145 kg (320 lb)	0.24 m ³ (0.31 yd ³)	3972	3566	3246	2824	3573	3163	2712	2285
310 - 2965	1800 mm (71 inch)	166 kg (366 lb)	0.30 m ³ (0.39 yd ³)	3108	2783	2527	2190	2789	2460	2100	1758

(1) Max Material Density 1800 kg/m³

(2) Weight includes optional bolt-on cutting edge

Table 15

Mud Buckets ⁽¹⁾ With Extra Counterweight Fill Factor = 100%											
Bucket Part Number	Width of Bucket	Weight	Capacity (ISO)	Standard Stick		Long Stick		Thumb Standard Stick		Thumb Long Stick	
				No Coupler	Coupler	No Coupler	Coupler	No Coupler	Coupler	No Coupler	Coupler
381 - 8999	1200 mm (47 inch)	271 kg (597 lb)	0.57 m ³ (0.75 yd ³)	1451	1280	1146	968	1283	1111	921	741
388 - 9666	1200 mm (47 inch)	296 kg (651 lb)	0.41 m ³ (0.54 yd ³)	1956	1719	1532	1285	1723	1484	1219	969
388-9667	1500 mm (59 inch)	346 kg (761 lb)	0.52 m ³ (0.68 yd ³)	1446	1259	1112	917	1262	1074	865	668

(1) Max Material Density 1800 kg/m³

VA Boom

Table 16

Heavy Duty Buckets ⁽¹⁾ With Extra Counterweight Fill Factor = 100%									
Bucket Part Number	Width of Bucket	Weight	Capacity (ISO)	Standard Stick			Thumb Standard Stick		
				No Coupler	Coupler (Manual)	Coupler (Hydraulic)	No Coupler	Coupler (Manual)	Coupler (Hydraulic)
305 - 6813	326 mm (13 inch)	144 kg (318 lb)	0.10 m ³ (0.13 yd ³)	10627	9737	9557	9322	8432	8252
295 - 5951	463 mm (18 inch)	153 kg (337 lb)	0.15 m ³ (0.20 yd ³)	7025	6432	6312	6155	5561	5441
295 - 5952	619 mm (24 inch)	178 kg (392 lb)	0.23 m ³ (0.30 yd ³)	4473	4086	4008	3905	3518	3440
295 - 5953	768 mm (30 inch)	207 kg (456 lb)	0.31 m ³ (0.41 yd ³)	3225	2938	2880	2804	2517	2459
295 - 5954	912 mm (36 inch)	230 kg (507 lb)	0.39 m ³ (0.51 yd ³)	2504	2276	2230	2170	1942	1895

(1) Max Material Density 1800 kg/m³

Table 17

Heavy-Duty Rock Buckets ⁽¹⁾ With Extra Counterweight Fill Factor = 100%									
Bucket Part Number	Width of Bucket	Weight	Capacity (ISO)	Standard Stick			Thumb Standard Stick		
				No Coupler	Coupler (Manual)	Coupler (Hydraulic)	No Coupler	Coupler (Manual)	Coupler (Hydraulic)
295-5970	619 mm (24 inch)	194 kg (428 lb)	0.23 m ³ (0.30 yd ³)	4403	4016	3938	3836	3449	3370
295-5971	768 mm (30 inch)	223 kg (492 lb)	0.31 m ³ (0.41 yd ³)	3173	2886	2828	2752	2465	2407

(1) Max Material Density 1800 kg/m³

Table 18

Ditch Cleaning Buckets ⁽¹⁾ With Extra Counterweight Fill Factor = 100%									
Bucket Part Number	Width of Bucket	Weight	Capacity (ISO)	Standard Stick			Thumb Standard Stick		
				No Coupler	Coupler (Manual)	Coupler (Hydraulic)	No Coupler	Coupler (Manual)	Coupler (Hydraulic)
311-6569 ⁽²⁾	1239 mm (49 inch)	198 kg (436 lb)	0.33 m ³ (0.43 yd ³)	3058	2788	2733	2662	2392	2338
311-6570 ⁽²⁾	1392 mm (55 inch)	233 kg (514 lb)	0.37 m ³ (0.48 yd ³)	2632	2391	2343	2279	2038	1990
311-6571 ⁽²⁾	1544 mm (61 inch)	251 kg (554 lb)	0.42 m ³ (0.55 yd ³)	2275	2063	2020	1964	1752	1710
310-2963	1500 mm (59 inch)	145 kg (320 lb)	0.24 m ³ (0.31 yd ³)	4424	4053	3978	3880	3509	3434
310-2965	1800 mm (71 inch)	166 kg (366 lb)	0.30 m ³ (0.39 yd ³)	3469	3172	3112	3034	2737	2677

(1) Max Material Density 1800 kg/m³

(2) Weight includes optional bolt-on cutting edge

Table 19

Mud Buckets ⁽¹⁾ With Extra Counterweight Fill Factor = 100%									
Bucket Part Number	Width of Bucket	Weight	Capacity (ISO)	Standard Stick			Thumb Standard Stick		
				No Coupler	Coupler (Manual)	Coupler (Hydraulic)	No Coupler	Coupler (Manual)	Coupler (Hydraulic)
381-8999	1200 mm (47 inch)	271 kg (597 lb)	0.57 m ³ (0.75 yd ³)	1642	1486	1454	1413	1257	1225
388-9666	1200 mm (47 inch)	296 kg (651 lb)	0.41 m ³ (0.54 yd ³)	2221	2004	1960	1903	1686	1642
388-9667	1500 mm (59 inch)	346 kg (761 lb)	0.52 m ³ (0.68 yd ³)	1655	1484	1450	1404	1233	1198

(1) Max Material Density 1800 kg/m³

i07078001

Lifting Capacities

SMCS Code: 7000

WARNING

Failure to comply to the rated load can cause possible personal injury or property damage. This includes the risk of unintended boom lowering. Review the rated load of a particular work tool before performing any operation. Make adjustments to the rated load as necessary for non-standard configurations.

Note: Lifting capacities are based upon a standard machine with the following conditions:

- lubricants
- full fuel tank
- rubber track
- cab
- 75 kg (165 lb) operator

Lifting capacities will vary with different work tools and attachments. Consult your Cat dealer regarding the lifting capacities for specific work tools and attachments.

Note: Lifting capacities should be used as a guide. Work tools, uneven ground conditions, soft ground conditions, or poor ground conditions have effects on lifting capacities. The operator is responsible for being aware of these effects.

Special hazards (toxic gases, ground conditions, etc.) require special precautions. The operator must determine whether special hazards exist in each application. The operator shall perform the appropriate steps to eliminate the hazard. The operator shall perform the appropriate steps to reduce the hazard.

For North American applications and European applications, the lifting capacities are defined by "ISO 10567 2007". The lifting capacities are defined as the lower value of 75% of the static tipping capacity or 87% of the hydraulic lift capacity.

Rated loads were calculated with a machine that was equipped with a standard bucket and no quick coupler. If other combinations of work tools are used, the difference between the weight of the work tool and/or quick coupler and the standard bucket must be subtracted from the rated load.

This machine may be equipped with a standard stick or with a long stick. Lifting capacities may vary between a standard stick and a long stick. Measure the distance on the stick between the boom hinge pin and the work tool hinge pin. This distance will tell you if the machine is equipped with a standard stick or with a long stick.

308E2

- A Medium Stick is approximately 1.67 m (5 ft 6 inch).
- A Long Stick is approximately 2.21 m (7 ft 4 inch).

Note: In European countries, regulations require a load sensing indicator and a boom and stick lowering control device if more than 1000 kg (2200 lb) is lifted during object handling applications. Regulations also require a load sensing indicator and a boom lowering control device if a moment that is greater than 40000 N·m (29500 lb ft) is created during object handling applications. If the machine is not equipped with these devices, even if the hydraulic lift capacity is capable, do not exceed a load of 1000 kg (2200 lb). Do not exceed a moment that is greater than 40000 N·m (29500 lb ft) in European object handling applications.

Note: In European countries, regulations require the blade to be equipped with a lock if the blade is used to increase stability. If a mechanism that locks the position of the blade is not installed, use the values that are given in the tables for the machine when the blade is up. If a mechanism that locks the position of the blade is installed, use the values that are given in the tables for the machine when the blade is down.

Standard Counterweight

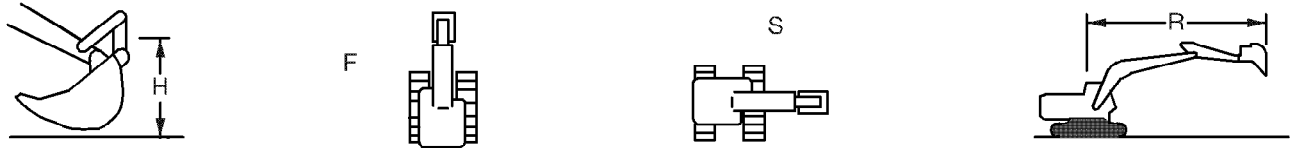


Illustration 42

g01055537

(H) Height
(F) Lifting capacity over the front of the machine or over the rear of the machine

(S) Lifting capacity over the side of the machine
(R) Reach

Medium Stick

Steel Track

Table 20

308E2CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 1.67 m (5 ft 6 inch) medium stick, a 0.23 m ³ (0.30 yd ³) bucket, a 2320 mm (92 inch) blade, 450 mm (18 inch) triple grouser track shoes, and a 1278 kg (2817 lb) standard counterweight ⁽¹⁾ The blade is in the UP position. All lifting capacities are in kilograms and pounds.										
H	R									
	2.0 m 6.7 ft		2.5 m 8.3 ft		3.0 m 10.0 ft		3.5 m 11.7 ft		4.0 m 13.3 ft	
	F	S	F	S	F	S	F	S	F	S
3.5 m 11.7 ft										1470 ⁽²⁾ 3180 ⁽²⁾
3.0 m 10.0 ft					2320 ⁽²⁾ 4780 ⁽²⁾		1980 ⁽²⁾ 4180 ⁽²⁾			1800 ⁽²⁾ 3850 ⁽²⁾
2.5 m 8.3 ft							2570 5530	2150 4640	2070 4460	1750 3770
2.0 m 6.7 ft							- 5290	- 4420	2010 4320	1690 3640
1.5 m 5.0 ft									1950 4190	1630 3520
1.0 m 3.3 ft									1910 4100	1590 3430
0.5 m 1.7 ft							2310 4970	1910 4120	1880 4040	1570 3370
0							2310 4960	1910 4100	1870 4010	1560 3340
-0.5 m -1.7 ft					3030 6480	2470 5300	2310 4960	1910 4110	1860 4000	1550 3330
-1.0 m -3.3 ft	3420 ⁽²⁾ 7750 ⁽²⁾		4310 9190	3440 7360	3030 6500	2480 5320	2320 4970	1920 4120	1860 4000	1550 3340
-1.5 m -5.0 ft	5340 ⁽²⁾ 11970 ⁽²⁾	5340 ⁽²⁾ 11490	4320 9230	3460 7400	3050 6540	2500 5360	2330 5000	1930 4150	1870 4020	1560 3360
-2.0 m -6.7 ft	4650 ⁽²⁾ 10710 ⁽²⁾		4350 9300	3490 7460	3080 6600	2520 5410	2350 5050	1950 4190	1890 4070	1580 3400
-2.5 m 8.3 ft	6100 ⁽²⁾ 12940	5480 11700	4400 9410	3530 7560	3120 6690	2560 5500	2390 5130	1990 4270	1930 4150	1610 3480
-3.0 m -10.0 ft			3490 ⁽²⁾ 7230 ⁽²⁾		2920 ⁽²⁾ 6000 ⁽²⁾	2620 5650				

(1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.

(2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 21

Table Continued					
H	R				
	4.5 m 15.0 ft	5.0 m 16.7 ft	5.5 m 18.3 ft	6.0 m 20.0 ft	Maximum Load Radius

(continued)

Product Information Section
Lifting Capacities

(Table 21, contd)

	F	S	F	S	F	S	F	S	F	S	m ft
5.5 m 18.3 ft									1110 ⁽¹⁾ 2380 ⁽¹⁾		4.60 14.77
5.0 m 16.7 ft	1230 ⁽¹⁾ 2750 ⁽¹⁾								1290 ⁽¹⁾ 2770 ⁽¹⁾	1270 2770 ⁽¹⁾	5.08 16.45
4.5 m 15.0 ft	12.70 ⁽¹⁾ 2840 ⁽¹⁾		1380 ⁽¹⁾ 3060 ⁽¹⁾	1300 2780					1310 2930	1120 2500	5.43 17.68
4.0 m 13.3 ft	1340 ⁽¹⁾ 2940 ⁽¹⁾		1410 ⁽¹⁾ 3130 ⁽¹⁾	1290 2760	1270 -	1080 -			1190 2650	1020 2260	5.69 18.59
3.5 m 11.7 ft	1480 ⁽¹⁾ 3230 ⁽¹⁾		1490 3200	1270 2730	1260 2700	1070 2300			1110 2470	950 2090	5.88 19.25
3.0 m 10.0 ft	1700 ⁽¹⁾ 3660 ⁽¹⁾	1490 3210	1470 3150	1250 2680	1250 2670	1060 2270			1040 2310	890 1960	6.07 19.85
2.5 m 8.3 ft	1710 3680	1450 3120	1440 3090	1220 2630	1230 2640	1040 2240	1060 -	900 -	1000 2200	840 1860	6.20 20.30
2.0 m 6.7 ft	1670 3590	1410 3040	1410 3030	1200 2570	1210 2590	1020 2200	1040 2240	880 1890	970 2130	810 1790	6.27 20.57
1.5 m 5.0 ft	1630 3500	1370 2960	1380 2970	1170 2510	1190 2550	1000 2150	1030 2210	870 1860	950 2090	800 1760	6.30 20.66
1.0 m 3.3 ft	1600 3430	1340 2890	1360 2920	1140 2460	1170 2510	990 2120	1020 2180	860 1840	950 2080	800 1750	6.27 20.58
0.5 m 1.7 ft	1570 3380	1320 2840	1340 2880	1130 2420	1160 2480	970 2090	1010 -	850 -	960 2110	810 1770	6.19 20.31
0	1560 3340	1300 2800	1330 2850	1110 2390	1150 2460	960 2070			990 2180	830 1830	6.05 19.86
-0.5 m -1.7 ft	1550 3330	1300 2790	1320 2830	1110 2380	1140 2450	960 2060			1040 2290	870 1920	5.86 19.21
-1.0 m -3.3 ft	1550 3330	1300 2790	1320 2830	1110 2380	1140 -	960 -			1120 2460	940 2070	5.60 18.33
-1.5 m -5.0 ft	1560 3350	1300 2800	1330 2850	1110 2400					1240 2740	1040 2300	5.25 17.18
-2.0 m -6.7 ft	1570 3390	1320 2840							1430 3180	1200 2680	4.81 15.66
-2.5 m 8.3 ft									1780 4010	1500 3370	4.21 13.62
-3.0 m -10.0 ft									2560 ⁽¹⁾ 5630 ⁽¹⁾	2240 5240	3.31 10.47

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 22

<p>308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 1.67 m (5 ft 6 inch) medium stick, a 0.23 m³ (0.30 yd³) bucket, a 2320 mm (92 inch) blade, 450 mm (18 inch) triple grouser track shoes, and a 1278 kg (2817 lb) standard counterweight ⁽¹⁾ The blade is in the DOWN position. All lifting capacities are in kilograms and pounds.</p>					
H	R				
	2.0 m 6.7 ft	2.5 m 8.3 ft	3.0 m 10.0 ft	3.5 m 11.7 ft	4.0 m 13.3 ft

(continued)

(Table 22, contd)

	F	S	F	S	F	S	F	S	F	S
3.5 m 11.7 ft									1470 ⁽²⁾ 3180 ⁽²⁾	
3.0 m 10.0 ft					2320 ⁽²⁾ 4780 ⁽²⁾		1980 ⁽²⁾ 4180 ⁽²⁾		1800 ⁽²⁾ 3850 ⁽²⁾	
2.5 m 8.3 ft							2660 ⁽²⁾ 5580 ⁽²⁾	2390 5150	2200 ⁽²⁾ 4680 ⁽²⁾	1940 4170
2.0 m 6.7 ft							- 7230 ⁽²⁾	- 4920	2640 ⁽²⁾ 5600 ⁽²⁾	1870 4040
1.5 m 5.0 ft									3050 ⁽²⁾ 6480 ⁽²⁾	1820 3910
1.0 m 3.3 ft									3360 ⁽²⁾ 7160 ⁽²⁾	1780 3820
0.5 m 1.7 ft							3870 ⁽²⁾ 9580 ⁽²⁾	2140 4610	3550 ⁽²⁾ 7600 ⁽²⁾	1750 3770
0							4500 ⁽²⁾ 9670 ⁽²⁾	2140 4590	3650 ⁽²⁾ 7830 ⁽²⁾	1740 3730
-0.5 m -1.7 ft					4140 ⁽²⁾ 9700 ⁽²⁾	2780 5950	4440 ⁽²⁾ 9570 ⁽²⁾	2140 4600	3660 ⁽²⁾ 7880 ⁽²⁾	1730 3720
-1.0 m -3.3 ft	3420 ⁽²⁾ 7750 ⁽²⁾		4370 ⁽²⁾ 10030 ⁽²⁾	3900 8330	4820 ⁽²⁾ 11300 ⁽²⁾	2790 5970	4320 ⁽²⁾ 9320 ⁽²⁾	2150 4610	3610 ⁽²⁾ 7770 ⁽²⁾	1740 3730
-1.5 m -5.0 ft	5340 ⁽²⁾ 11970 ⁽²⁾		4730 ⁽²⁾ 10280 ⁽²⁾	3910 8360	4960 ⁽²⁾ 10700 ⁽²⁾	2800 6010	4120 ⁽²⁾ 8880 ⁽²⁾	2160 4640	3470 ⁽²⁾ 7470 ⁽²⁾	1740 3750
-2.0 m -6.7 ft	4650 ⁽²⁾ 10710 ⁽²⁾		5570 ⁽²⁾ 11960 ⁽²⁾	3940 8430	4560 ⁽²⁾ 9790 ⁽²⁾	2830 6070	3810 ⁽²⁾ 8190 ⁽²⁾	2180 4690	3220 ⁽²⁾ 6900 ⁽²⁾	1760 3790
-2.5 m 8.3 ft	6100 ⁽²⁾ 12940		4770 ⁽²⁾ 10180 ⁽²⁾	3990 8540	3950 ⁽²⁾ 8420 ⁽²⁾	2870 6160	3320 ⁽²⁾ 7050 ⁽²⁾	2220 4760	2760 ⁽²⁾ 5790 ⁽²⁾	1800 3870
-3.0 m -10.0 ft			3490 ⁽²⁾ 7230 ⁽²⁾		2920 ⁽²⁾ 6000 ⁽²⁾					

- (1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
- (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 23

Table Continued											
H	R										
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S	F	S	m ft
5.5 m 18.3 ft									1110 ⁽¹⁾ 2380 ⁽¹⁾		4.60 14.77
5.0 m 16.7 ft	1230 ⁽¹⁾ 2750 ⁽¹⁾								1290 ⁽¹⁾ 2770 ⁽¹⁾		5.08 16.45
4.5 m 15.0 ft	12.70 ⁽¹⁾ 2840 ⁽¹⁾		1380 ⁽¹⁾ 3060 ⁽¹⁾	1380 ⁽¹⁾ 3040					1420 ⁽¹⁾ 3120 ⁽¹⁾	1230 2760	5.43 17.68

(continued)

Product Information Section
Lifting Capacities

(Table 23, contd)

4.0 m 13.3 ft	1340 ⁽¹⁾ 2940 ⁽¹⁾	1410 ⁽¹⁾ 3130 ⁽¹⁾	1400 3010	1500 ⁽¹⁾ -	1200 -			1430 ⁽¹⁾ 3140 ⁽¹⁾	1120 2500	5.69 18.59	
3.5 m 11.7 ft	1480 ⁽¹⁾ 3230 ⁽¹⁾	1500 ⁽¹⁾ 3290 ⁽¹⁾	1380 2970	1540 ⁽¹⁾ 3390 ⁽¹⁾	1190 2540			1460 ⁽¹⁾ 3200 ⁽¹⁾	1050 2320	5.88 19.25	
3.0 m 10.0 ft	1700 ⁽¹⁾ 3660 ⁽¹⁾	1650 3540	1640 ⁽¹⁾ 3560 ⁽¹⁾	1350 2910	1610 ⁽¹⁾ 3530 ⁽¹⁾	1170 2520		1470 ⁽¹⁾ 3230 ⁽¹⁾	980 2180	6.07 19.85	
2.5 m 8.3 ft	1950 ⁽¹⁾ 4200 ⁽¹⁾	1610 3450	1810 ⁽¹⁾ 3920 ⁽¹⁾	1330 2850	1730 ⁽¹⁾ 3760 ⁽¹⁾	1160 2480	1690 ⁽¹⁾ -	990 -	1480 ⁽¹⁾ 3260 ⁽¹⁾	940 2070	6.20 20.30
2.0 m 6.7 ft	2230 ⁽¹⁾ 4790 ⁽¹⁾	1560 3370	2000 ⁽¹⁾ 4320 ⁽¹⁾	1300 2790	1860 ⁽¹⁾ 4030 ⁽¹⁾	1140 2440	1770 ⁽¹⁾ 3870 ⁽¹⁾	980 2100	1520 ⁽¹⁾ 3340 ⁽¹⁾	910 2000	6.27 20.57
1.5 m 5.0 ft	2510 ⁽¹⁾ 5370 ⁽¹⁾	1530 3280	2190 ⁽¹⁾ 4720 ⁽¹⁾	1270 2740	1990 ⁽¹⁾ 4310 ⁽¹⁾	1120 2400	1860 ⁽¹⁾ 4050 ⁽¹⁾	970 2080	1570 ⁽¹⁾ 3450 ⁽¹⁾	890 1960	6.30 20.66
1.0 m 3.3 ft	2740 ⁽¹⁾ 5880 ⁽¹⁾	1490 3210	2360 ⁽¹⁾ 5080 ⁽¹⁾	1250 2700	2110 ⁽¹⁾ 4570 ⁽¹⁾	1100 2360	1940 ⁽¹⁾ 4220 ⁽¹⁾	960 2050	1650 ⁽¹⁾ 3620 ⁽¹⁾	890 1960	6.27 20.58
0.5 m 1.7 ft	2920 ⁽¹⁾ 6270 ⁽¹⁾	1470 3160	2500 ⁽¹⁾ 5390 ⁽¹⁾	1240 2670	2220 ⁽¹⁾ 4790 ⁽¹⁾	1080 2330	2010 ⁽¹⁾ -	950 -	1750 ⁽¹⁾ 3840 ⁽¹⁾	900 1980	6.19 20.31
0	3030 ⁽¹⁾ 6520 ⁽¹⁾	1450 3130	2600 ⁽¹⁾ 5600 ⁽¹⁾	1230 2650	2290 ⁽¹⁾ 4940 ⁽¹⁾	1070 2310			1880 ⁽¹⁾ 4140 ⁽¹⁾	930 2040	6.05 19.86
-0.5 m -1.7 ft	3080 ⁽¹⁾ 6630 ⁽¹⁾	1450 3110	2640 ⁽¹⁾ 5690 ⁽¹⁾	1230 2650	2310 ⁽¹⁾ 4980 ⁽¹⁾	1070 2300			2070 ⁽¹⁾ 4560 ⁽¹⁾	980 2150	5.86 19.21
-1.0 m -3.3 ft	3060 ⁽¹⁾ 6580 ⁽¹⁾	1450 3110	2630 ⁽¹⁾ 5650 ⁽¹⁾	1240 2680	2270 ⁽¹⁾ -	1070 -			2200 ⁽¹⁾ 4850 ⁽¹⁾	1050 2310	5.60 18.33
-1.5 m -5.0 ft	2950 ⁽¹⁾ 6340 ⁽¹⁾	1450 3130	2520 ⁽¹⁾ 5370 ⁽¹⁾						2300 ⁽¹⁾ 5070 ⁽¹⁾	1160 2560	5.25 17.18
-2.0 m -6.7 ft	2720 ⁽¹⁾ 5780 ⁽¹⁾	1470 3170							2410 ⁽¹⁾ 5320 ⁽¹⁾	1340 2980	4.81 15.66
-2.5 m 8.3 ft									2510 ⁽¹⁾ 5550 ⁽¹⁾	1660 3750	4.21 13.62
-3.0 m -10.0 ft									2560 ⁽¹⁾ 5630 ⁽¹⁾	2490 5630 ⁽¹⁾	3.31 10.47

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 24

308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 1.67 m (5 ft 6 inch) medium stick, a 0.23 m ³ (0.30 yd ³) bucket, a 2470 mm (97 inch) blade, 600 mm (24 inch) triple grouser track shoes, and a 1278 kg (2817 lb) standard counterweight ⁽¹⁾ The blade is in the UP position. All lifting capacities are in kilograms and pounds.										
H	R									
	2.0 m 6.7 ft		2.5 m 8.3 ft		3.0 m 10.0 ft		3.5 m 11.7 ft		4.0 m 13.3 ft	
	F	S	F	S	F	S	F	S	F	S
3.5 m 11.7 ft										1470 ⁽²⁾ 3180 ⁽²⁾
3.0 m 10.0 ft					2320 ⁽²⁾ 4780 ⁽²⁾		1980 ⁽²⁾ 4180 ⁽²⁾			1800 ⁽²⁾ 3850 ⁽²⁾
2.5 m 8.3 ft							2620 5580 ⁽²⁾	2210 4780	2110 4550	1800 3880

(continued)

(Table 24, contd)

2.0 m 6.7 ft								5400	4550	2050 4410	1740 3750
1.5 m 5.0 ft										1990 4280	1680 3630
1.0 m 3.3 ft										1950 4190	1640 3540
0.5 m 1.7 ft								2360 5080	1980 4250	1920 4130	1620 3490
0								2360 5060	1970 4240	1910 4100	1610 3460
-0.5 m -1.7 ft					3090 6610	2550 5470		2360 5070	1970 4240	1900 4090	1600 3440
-1.0 m -3.3 ft	3420 ⁽²⁾ 7750 ⁽²⁾		4370 ⁽²⁾ 9380	3550 7590	3100 6630	2560 5490		2370 5080	1980 420	1910 4090	1610 3450
-1.5 m -5.0 ft	5340 ⁽²⁾ 11970 ⁽²⁾	5340 ⁽²⁾ 11820	4410 9420	3560 7620	3120 6670	2570 5520		2380 5110	1990 4280	1910 4110	1610 3470
-2.0 m -6.7 ft	4650 ⁽²⁾ 10710 ⁽²⁾		4440 9490	3590 7680	3140 6730	2600 5580		2400 5160	2010 4330	1930 4160	1630 3510
-2.5 m 8.3 ft	6100 ⁽²⁾ 12940 ⁽²⁾	5640 12020	4490 9600	3630 7790	3180 6820	2640 5660		2440 5240	2050 4400	1970 4240	1660 3590
-3.0 m -10.0 ft			3490 ⁽²⁾ 7230 ⁽²⁾		2920 ⁽²⁾ 6000 ⁽²⁾	2700 5810					

- (1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
- (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 25

Table Continued											
H	R										
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S	F	S	M FT
5.5 m 18.3 ft										1110 ⁽¹⁾ 2380 ⁽¹⁾	4.60 14.77
5.0 m 16.7 ft	1230 ⁽¹⁾ 2750 ⁽¹⁾									1290 ⁽¹⁾ 2770 ⁽¹⁾	5.08 16.45
4.5 m 15.0 ft	12.70 ⁽¹⁾ 2840 ⁽¹⁾		1380 ⁽¹⁾ 3060 ⁽¹⁾	1340 2860						1340 2990	1150 2580 5.43 17.68
4.0 m 13.3 ft	1340 ⁽¹⁾ 2940 ⁽¹⁾		1410 ⁽¹⁾ 3130 ⁽¹⁾	1330 2840	1300	1120				1220 2710	1050 2330 5.69 18.59
3.5 m 11.7 ft	1480 ⁽¹⁾ 3230 ⁽¹⁾		1500 ⁽¹⁾ 3270	1310 2810	1290 2760	1110 2370				1140 2520	980 2160 5.88 19.25
3.0 m 10.0 ft	1700 ⁽¹⁾ 3660 ⁽¹⁾	1540 3300	1500 3220	1290 2770	1270 2730	1100 2350				1070 2360	920 2030 6.07 19.85
2.5 m 8.3 ft	1750 3760	1500 3220	1470 3160	1260 2710	1260 2690	1080 2310	1080	930		1020 2250	870 1920 6.20 20.30

(continued)

Product Information Section
Lifting Capacities

(Table 25, contd)

2.0 m 6.7 ft	1700 3670	1460 3130	1440 3100	1230 2650	1240 2650	1060 2270	1070 2290	910 1960	990 2180	840 1860	6.27 20.57
1.5 m 5.0 ft	1660 3580	1420 3050	1410 3040	1210 2590	1220 2610	1040 2230	1060 2260	900 1930	970 2140	830 1820	6.30 20.66
1.0 m 3.3 ft	1630 3510	1390 2980	1390 2980	1180 2540	1200 2570	1020 2190	1040 2240	890 1910	970 2140	830 1820	6.27 20.58
0.5 m 1.7 ft	1610 3460	1360 2930	1370 2940	1160 2500	1180 2540	1010 2460	1030 -	880 -	980 2160	840 1840	6.19 20.31
0	1590 3420	1350 2900	1360 2910	1150 2470	1170 2520	1000 2140			1010 2230	860 1900	6.05 19.86
-0.5 m -1.7 ft	1580 3400	1340 2880	1350 2900	1150 2460	1170 2510	990 2130			1060 2340	900 1990	5.86 19.21
-1.0 m -3.3 ft	1580 3400	1340 2880	1350 2900	1140 2460	1170 -	1000 -			1140 2520	970 2140	5.60 18.33
-1.5 m -5.0 ft	1590 3420	1350 2900	1360 2920	1150 2480					1260 2800	1080 2380	5.25 17.18
-2.0 m -6.7 ft	1610 3460	1370 2940							1460 3250	1240 2770	4.81 15.66
-2.5 m -8.3 ft									1820 4100	1540 3480	4.21 13.62
-3.0 m -10.0 ft									2560 ⁽¹⁾ 5630 ⁽¹⁾	2300 5400	3.31 10.47

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 26

308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 1.67 m (5 ft 6 inch) medium stick, a 0.23 m³ (0.30 yd³) bucket, a 2470 mm (97 inch) blade, 600 mm (24 inch) triple grouser track shoes, and a 1278 kg (2817 lb) standard counterweight⁽¹⁾ The blade is in the DOWN position. All lifting capacities are in kilograms and pounds.											
H	R										
	2.0 m 6.7 ft		2.5 m 8.3 ft		3.0 m 10.0 ft		3.5 m 11.7 ft		4.0 m 13.3 ft		
	F	S	F	S	F	S	F	S	F	S	
3.5 m 11.7 ft											1470 ⁽²⁾ 3180 ⁽²⁾
3.0 m 10.0 ft											1800 ⁽²⁾ 3850 ⁽²⁾
2.5 m 8.3 ft											2660 ⁽²⁾ 5580 ⁽²⁾ 2570 5530 2200 ⁽²⁾ 4680 ⁽²⁾ 2080 4480
2.0 m 6.7 ft											7230 ⁽²⁾ 5300 2640 ⁽²⁾ 5600 ⁽²⁾ 2020 4340
1.5 m 5.0 ft											3050 ⁽²⁾ 6480 ⁽²⁾ 1960 4220
1.0 m 3.3 ft											3360 ⁽²⁾ 7160 ⁽²⁾ 1920 4130
0.5 m 1.7 ft											3870 ⁽²⁾ 9580 ⁽²⁾ 2320 4980 3550 ⁽²⁾ 7600 ⁽²⁾ 1890 4070

(continued)

(Table 26, contd)

0							4500 9670 ⁽²⁾	2310 4970	3650 ⁽²⁾ 7830 ⁽²⁾	1880 4040
-0.5 m -1.7 ft					4140 ⁽²⁾ 9700 ⁽²⁾	3010 6450	4440 ⁽²⁾ 9570 ⁽²⁾	2320 4970	3660 ⁽²⁾ 7880 ⁽²⁾	1870 4030
-1.0 m -3.3 ft	3420 ⁽²⁾ 7750 ⁽²⁾		4370 ⁽²⁾ 10030 ⁽²⁾	4230 9040	4820 ⁽²⁾ 11300 ⁽²⁾	3020 6470	4320 ⁽²⁾ 9320 ⁽²⁾	2320 4990	3610 ⁽²⁾ 7770 ⁽²⁾	1880 4030
-1.5 m -5.0 ft	5340 ⁽²⁾ 11970 ⁽²⁾		4370 ⁽²⁾ 10280 ⁽²⁾	4250 9080	4960 ⁽²⁾ 10700 ⁽²⁾	3030 6500	4120 ⁽²⁾ 8880 ⁽²⁾	2340 5020	3470 ⁽²⁾ 7470 ⁽²⁾	1890 4050
-2.0 m -6.7 ft	4650 ⁽²⁾ 10710 ⁽²⁾		5570 ⁽²⁾ 11960	4280 9140	4560 ⁽²⁾ 9790 ⁽²⁾	3060 6560	3810 ⁽²⁾ 8190 ⁽²⁾	2360 5070	3220 ⁽²⁾ 6900 ⁽²⁾	1900 4100
-2.5 m 8.3 ft	6100 ⁽²⁾ 12940 ⁽²⁾		4770 ⁽²⁾ 10180 ⁽²⁾	4320 9250	3950 ⁽²⁾ 8420 ⁽²⁾	3100 6650	3320 ⁽²⁾ 7050 ⁽²⁾	2390 5140	2760 ⁽²⁾ 5790 ⁽²⁾	1940 4180
-3.0 m -10.0 ft			3490 ⁽²⁾ 7230 ⁽²⁾		2920 ⁽²⁾ 6000 ⁽²⁾					

(1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
 (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 27

Table Continued											
H	R										
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S	F	S	m ft
5.5 m 18.3ft										1110 ⁽¹⁾ 2380 ⁽¹⁾	4.60 14.77
5.0 m 16.7 ft	1230 ⁽¹⁾ 2750 ⁽¹⁾									1290 ⁽¹⁾ 2770 ⁽¹⁾	5.08 16.45
4.5 m 15.0 ft	12.70 ⁽¹⁾ 2840 ⁽¹⁾		1380 ⁽¹⁾ 3060 ⁽¹⁾							1420 ⁽¹⁾ 3120	1330 2960 5.43 17.68
4.0 m 13.3 ft	1340 ⁽¹⁾ 2940 ⁽¹⁾		1410 ⁽¹⁾ 3130 ⁽¹⁾		1500 ⁽¹⁾ -	1290 -				1430 ⁽¹⁾ 3140 ⁽¹⁾	1210 2690 5.69 18.59
3.5 m 11.7 ft	1480 ⁽¹⁾ 3230 ⁽¹⁾		1500 ⁽¹⁾ 3290 ⁽¹⁾	1500 ⁽¹⁾ 3230	1540 ⁽¹⁾ 3390 ⁽¹⁾	1280 2740				1460 ⁽¹⁾ 3200 ⁽¹⁾	1130 2500 5.88 19.25
3.0 m 10.0 ft	1700 ⁽¹⁾ 3660 ⁽¹⁾		1640 ⁽¹⁾ 3560 ⁽¹⁾	1480 3190	1610 ⁽¹⁾ 3530 ⁽¹⁾	1260 2710				1470 ⁽¹⁾ 3230 ⁽¹⁾	1060 2650 6.07 19.85
2.5 m 8.3 ft	1950 ⁽¹⁾ 4200 ⁽¹⁾	1730 3710	1810 ⁽¹⁾ 3920 ⁽¹⁾	1460 3130	1730 ⁽¹⁾ 3760 ⁽¹⁾	1250 2670	1690 ⁽¹⁾ -	1070 -		1480 ⁽¹⁾ 3260 ⁽¹⁾	1010 2240 6.20 20.30
2.0 m 6.7 ft	2230 ⁽¹⁾ 4790 ⁽¹⁾	1680 3620	2000 ⁽¹⁾ 4320 ⁽¹⁾	1430 3070	1860 ⁽¹⁾ 4030 ⁽¹⁾	1230 2630	1770 ⁽¹⁾ 3870 ⁽¹⁾	1060 2280		1520 ⁽¹⁾ 3340 ⁽¹⁾	980 2170 6.27 20.57
1.5 m 5.0 ft	2510 ⁽¹⁾ 5370 ⁽¹⁾	1640 3540	2190 ⁽¹⁾ 4720 ⁽¹⁾	1400 3010	1990 ⁽¹⁾ 4310 ⁽¹⁾	1210 2590	1860 ⁽¹⁾ 4050 ⁽¹⁾	1050 2250		1570 ⁽¹⁾ 3450 ⁽¹⁾	970 2130 6.30 20.66
1.0 m 3.3 ft	2740 ⁽¹⁾ 5880 ⁽¹⁾	1610 3470	2360 ⁽¹⁾ 5080 ⁽¹⁾	1380 2960	2110 ⁽¹⁾ 4570 ⁽¹⁾	1190 2550	1940 ⁽¹⁾ 4220 ⁽¹⁾	1040 220		1650 ⁽¹⁾ 3620 ⁽¹⁾	970 2120 6.27 20.58
0.5 m 1.7 ft	2920 ⁽¹⁾ 6270 ⁽¹⁾	1590 3420	2500 ⁽¹⁾ 5390 ⁽¹⁾	1360 2920	2220 ⁽¹⁾ 4790 ⁽¹⁾	1170 2520	2010 ⁽¹⁾ -	1030 -		1750 ⁽¹⁾ 3840 ⁽¹⁾	980 2150 6.19 20.31

(continued)

Product Information Section
Lifting Capacities

(Table 27, contd)

0	3030 ⁽¹⁾ 6520 ⁽¹⁾	1570 3380	2600 ⁽¹⁾ 5600 ⁽¹⁾	1340 2890	2290 ⁽¹⁾ 4940 ⁽¹⁾	1160 2500			1880 ⁽¹⁾ 4140 ⁽¹⁾	1010 2220	6.05 19.86
-0.5 m -1.7 ft	3080 ⁽¹⁾ 6630 ⁽¹⁾	1570 3370	2640 ⁽¹⁾ 5690 ⁽¹⁾	1340 2870	2310 ⁽¹⁾ 4980 ⁽¹⁾	1160 2490			2070 ⁽¹⁾ 4560 ⁽¹⁾	1060 2330	5.86 19.21
-1.0 m -3.3 ft	3060 ⁽¹⁾ 6580 ⁽¹⁾	1570 3370	2630 ⁽¹⁾ 5650 ⁽¹⁾	1340 2870	2270 ⁽¹⁾ -	1160 -			2200 ⁽¹⁾ 4850 ⁽¹⁾	1130 2500	5.60 18.33
-1.5 m -5.0 ft	2950 ⁽¹⁾ 6340 ⁽¹⁾	1570 3380	2520 ⁽¹⁾ 5370 ⁽¹⁾	1340 2900					2300 ⁽¹⁾ 5070 ⁽¹⁾	1250 2780	5.25 17.18
-2.0 m -6.7 ft	2720 ⁽¹⁾ 5780 ⁽¹⁾	1590 3430							2410 ⁽¹⁾ 5320 ⁽¹⁾	1450 3220	4.81 15.66
-2.5 m 8.3 ft									2510 ⁽¹⁾ 5550 ⁽¹⁾	1800 4040	4.21 13.62
-3.0 m -10.0 ft									2560 ⁽¹⁾ 5630 ⁽¹⁾		3.31 10.47

⁽¹⁾ The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Rubber Track

Table 28

308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 1.67 m (5 ft 6 inch) medium stick, a 0.23 m ³ (0.30 yd ³) bucket, a 2320 mm (92 inch) blade, 450 mm (18 inch) rubber track, and a 1278 kg (2817 lb) standard counterweight ⁽¹⁾										
The blade is in the UP position.										
All lifting capacities are in kilograms and pounds.										
H	R									
	2.0 m 6.7 ft		2.5 m 8.3 ft		3.0 m 10.0 ft		3.5 m 11.7 ft		4.0 m 13.3 ft	
	F	S	F	S	F	S	F	S	F	S
3.5 m 11.7 ft										1470 ⁽²⁾ 3180 ⁽²⁾
3.0 m 10.0 ft					2320 ⁽²⁾ 4780 ⁽²⁾		1980 ⁽²⁾ 4180 ⁽²⁾			1800 3850 ⁽²⁾
2.5 m 8.3 ft							2550 5500	2140 4620	2060 4430	1740 3750
2.0 m 6.7 ft							5260	4390	1990 4290	1680 3620
1.5 m 5.0 ft									1930 4160	1620 3500
1.0 m 3.3 ft									1890 4070	1580 3410
0.5 m 1.7 ft							2300 4930	1900 4090	1870 4010	1560 3350
0							2290 4920	1900 4080	1850 3980	1550 3320
-0.5 m -1.7 ft					3010 6430	2460 5270	2300 4920	1900 4080	1850 3970	1540 3310
-1.0 m -3.3 ft	3420 ⁽²⁾ 7750 ⁽²⁾		4280 9130	3420 7330	3010 6450	2470 5290	2300 4940	1910 4100	1850 3970	1540 3320
-1.5 m -5.0 ft	5340 ⁽²⁾ 11970 ⁽²⁾	5340 ⁽²⁾ 11440	4300 9170	3440 7360	3030 6490	2480 5330	2320 4970	1920 4120	1860 3990	1550 3340
-2.0 m -6.7 ft	4650 ⁽²⁾ 10710 ⁽²⁾		4330 9240	3470 7420	3060 6550	2510 5380	2340 5020	1940 4170	1880 4040	1570 3380
-2.5 m 8.3 ft	1600 ⁽²⁾ 12940 ⁽²⁾	5460 11640	4380 9350	3510 7530	3100 6640	2550 5470	2370 5100	1970 4250	1910 4120	1600 3460
-3.0 m -10.0 ft			3490 ⁽²⁾ 7230 ⁽²⁾		2920 ⁽²⁾ 6000 ⁽²⁾	2610 5620				

(1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
 (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 29

Table Continued					
H	R				
	4.5 m 15.0 ft	5.0 m 16.7 ft	5.5 m 18.3 ft	6.0 m 20.0 ft	Maximum Load Radius

(continued)

Product Information Section
Lifting Capacities

(Table 29, contd)

	F	S	F	S	F	S	F	S	F	S	m ft
5.5 m 18.3 ft									1110 ⁽¹⁾ 2380 ⁽¹⁾		4.60 14.77
5.0 m 16.7 ft	1230 ⁽¹⁾ 2750 ⁽¹⁾								1290 ⁽¹⁾ 2770		5.08 16.45
4.5 m 15.0 ft	1270 ⁽¹⁾ 2840 ⁽¹⁾		1380 ⁽¹⁾ 3060 ⁽¹⁾	1290 2770					1300 2910	1110 2490	5.43 17.68
4.0 m 13.3 ft	1340 ⁽¹⁾ 2940 ⁽¹⁾		1410 ⁽¹⁾ 3130 ⁽¹⁾	1280 2740	1260	1080			1180 2630	1010 2250	5.69 18.59
3.5 m 11.7 ft	1480 ⁽¹⁾ 3230 ⁽¹⁾		1480 3180	1270 2720	1250 2680	1070 2290			1100 2450	940 2080	5.88 19.25
3.0 m 10.0 ft	1700 ⁽¹⁾ 3660 ⁽¹⁾	1480 3190	1460 3130	1240 2670	1240 2650	1060 2260			1040 2290	880 1950	6.07 19.85
2.5 m 8.3 ft	1700 3660	1440 3110	1430 3070	1220 2610	1220 2620	1040 2220	1050	890	990 2180	840 1850	6.20 20.30
2.0 m 6.7 ft	1660 3560	1400 3020	1400 3010	1190 2550	1200 2570	1020 2180	1040 2220	880 1880	960 2110	810 1780	6.27 20.57
1.5 m 5.0 ft	1620 3480	1370 2940	1370 2950	1160 2500	1180 2530	1000 2140	1020 2190	860 1850	940 2040	790 1750	6.30 20.66
1.0 m 3.3 ft	1580 3410	1330 2870	1350 2900	1140 2440	1160 2490	980 2100	1010 2170	850 1830	940 2070	790 1740	6.27 20.58
0.5 m 1.7 ft	1560 3350	1310 2820	1330 2860	1120 2400	1150 2460	970 2070	1000	840	950 2090	800 1760	6.19 20.31
0	1550 3320	1300 2790	1320 2830	1110 2380	1140 2440	960 2050			980 2160	830 1820	6.05 19.86
-0.5 m -1.7 ft	1540 3300	1290 2770	1310 2810	1100 2360	1130 2430	950 2050			1030 2270	870 1910	5.86 19.21
-1.0 m -3.3 ft	1540 3300	1290 2770	1310 2810	1100 2360	1140	960			1110 2440	930 2060	5.60 18.33
-1.5 m -5.0 ft	1550 3320	1300 2790	1320 2830	1110 2380					1230 2710	1030 2290	5.25 17.18
-2.0 m -6.7 ft	1560 3360	1310 2830							1420 3160	1200 2660	4.81 15.66
-2.5 m 8.3 ft									1770 3990	1490 3350	4.21 13.62
-3.0 m -10.0 ft									2560 ⁽¹⁾ 5630 ⁽¹⁾	2220 5210	3.31 10.47

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 30

308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 1.67 m (5 ft 6 inch) medium stick, a 0.23 m³ (0.30 yd³) bucket, a 2320 mm (92 inch) blade, 450 mm (18 inch) rubber track, and a 1278 kg (2817 lb) standard counterweight ⁽¹⁾ The blade is in the DOWN position. All lifting capacities are in kilograms and pounds.					
H	R				
	2.0 m 6.7 ft	2.5 m 8.3 ft	3.0 m 10.0 ft	3.5 m 11.7 ft	4.0 m 13.3 ft

(continued)

(Table 30, contd)

	F	S	F	S	F	S	F	S	F	S
3.5 m 11.7 ft									1470 ⁽²⁾ 3180 ⁽²⁾	
3.0 m 10.0 ft					2320 ⁽²⁾ 4780 ⁽²⁾		1980 ⁽²⁾ 4180 ⁽²⁾		1800 ⁽²⁾ 3850 ⁽²⁾	
2.5 m 8.3 ft							2660 ⁽²⁾ 5580 ⁽²⁾	2370 5120	2200 ⁽²⁾ 4680 ⁽²⁾	1930 4150
2.0 m 6.7 ft							7230 ⁽²⁾	4890	2640 ⁽²⁾ 5600 ⁽²⁾	1860 4010
1.5 m 5.0 ft									3050 ⁽²⁾ 6480 ⁽²⁾	1810 3890
1.0 m 3.3 ft									3360 ⁽²⁾ 7160 ⁽²⁾	1770 3800
0.5 m 1.7 ft							3870 ⁽²⁾ 9580 ⁽²⁾	2130 4580	3550 ⁽²⁾ 7600 ⁽²⁾	1740 3740
0							4500 ⁽²⁾ 9670 ⁽²⁾	2130 4570	3650 ⁽²⁾ 7830 ⁽²⁾	1730 3710
-0.5 m -1.7 ft					4140 ⁽²⁾ 9700 ⁽²⁾	2760 5920	4440 ⁽²⁾ 9570 ⁽²⁾	2130 4570	3660 ⁽²⁾ 7880 ⁽²⁾	1720 3700
-1.0 m -3.3 ft	3420 ⁽²⁾ 7750 ⁽²⁾		4370 ⁽²⁾ 10030 ⁽²⁾	3880 8290	4820 ⁽²⁾ 11300 ⁽²⁾	2770 5940	4320 ⁽²⁾ 9320 ⁽²⁾	2140 4580	3610 ⁽²⁾ 7770 ⁽²⁾	1730 3710
-1.5 m -5.0 ft	5340 ⁽²⁾ 11970 ⁽²⁾		4730 ⁽²⁾ 10280 ⁽²⁾	3890 8320	4960 ⁽²⁾ 10700 ⁽²⁾	2790 5980	4120 ⁽²⁾ 8880 ⁽²⁾	2150 4610	3470 ⁽²⁾ 7470 ⁽²⁾	1740 3730
-2.0 m -6.7 ft	4650 ⁽²⁾ 10710 ⁽²⁾		5570 ⁽²⁾ 11960 ⁽²⁾	3920 8390	4560 ⁽²⁾ 9790 ⁽²⁾	2810 6040	3810 ⁽²⁾ 8190 ⁽²⁾	2170 4660	3220 ⁽²⁾ 6900 ⁽²⁾	1750 3770
-2.5 m 8.3 ft	6100 ⁽²⁾ 12940 ⁽²⁾		4770 ⁽²⁾ 10180 ⁽²⁾	3970 8500	3950 ⁽²⁾ 8420 ⁽²⁾	2850 6120	3320 ⁽²⁾ 7050 ⁽²⁾	2200 4740	2760 ⁽²⁾ 5790 ⁽²⁾	1790 3850
-3.0 m -10.0 ft			3490 ⁽²⁾ 7230 ⁽²⁾		2920 ⁽²⁾ 6000 ⁽²⁾	2920 6000 ⁽²⁾				

- (1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
- (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 31

Table Continued											
H	R										
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S	F	S	m ft
5.5 m 18.3 ft									1110 ⁽¹⁾ 2380 ⁽¹⁾		4.60 14.77
5.0 m 16.7 ft	1230 ⁽¹⁾ 2750 ⁽¹⁾								1290 ⁽¹⁾ 2770		5.08 16.45
4.5 m 15.0 ft	1270 ⁽¹⁾ 2840 ⁽¹⁾		1380 ⁽¹⁾ 3060 ⁽¹⁾	1380 ⁽¹⁾ 3050					1420 ⁽¹⁾ 3120 ⁽¹⁾	1230 2740	5.43 17.68

(continued)

Product Information Section
Lifting Capacities

(Table 31, contd)

4.0 m 13.3 ft	1340 ⁽¹⁾ 2940 ⁽¹⁾	1410 ⁽¹⁾ 3130 ⁽¹⁾	1410 3030	1500 ⁽¹⁾ -	1190 -			1430 ⁽¹⁾ 3140 ⁽¹⁾	1120 2490	5.69 18.59	
3.5 m 11.7 ft	1480 ⁽¹⁾ 3230 ⁽¹⁾	1500 ⁽¹⁾ 3230 ⁽¹⁾	1400 3000	1540 ⁽¹⁾ 3390	1180 2530			1460 ⁽¹⁾ 3200 ⁽¹⁾	1040 2310	5.88 19.25	
3.0 m 10.0 ft	1700 ⁽¹⁾ 3660 ⁽¹⁾	1640 3520	1640 ⁽¹⁾ 3560 ⁽¹⁾	1370 2950	1610 ⁽¹⁾ 3530 ⁽¹⁾	1170 2500		1470 ⁽¹⁾ 3230 ⁽¹⁾	980 2160	6.07 19.85	
2.5 m 8.3 ft	1950 ⁽¹⁾ 4200 ⁽¹⁾	1600 3440	1810 ⁽¹⁾ 3920 ⁽¹⁾	1350 2890	1730 ⁽¹⁾ 3760 ⁽¹⁾	1150 2470	1690 ⁽¹⁾ -	990 -	1480 ⁽¹⁾ 3260	930 2060	6.20 20.30
2.0 m 6.7 ft	2230 ⁽¹⁾ 4790 ⁽¹⁾	1560 3350	2000 ⁽¹⁾ 4320 ⁽¹⁾	1320 2830	1860 ⁽¹⁾ 4030 ⁽¹⁾	1130 2430	1770 ⁽¹⁾ 3870 ⁽¹⁾	980 21090	1520 ⁽¹⁾ 3340 ⁽¹⁾	900 1990	6.27 20.57
1.5 m 5.0 ft	2510 ⁽¹⁾ 5370 ⁽¹⁾	1520 3260	2190 ⁽¹⁾ 4720 ⁽¹⁾	1290 2770	1990 ⁽¹⁾ 4310 ⁽¹⁾	1110 2380	1860 ⁽¹⁾ 4050 ⁽¹⁾	960 2060	1570 ⁽¹⁾ 3450 ⁽¹⁾	890 1950	6.30 20.66
1.0 m 3.3 ft	2740 ⁽¹⁾ 5880 ⁽¹⁾	1480 3190	2360 ⁽¹⁾ 5080 ⁽¹⁾	1270 2720	2110 ⁽¹⁾ 4570 ⁽¹⁾	1090 2350	1940 ⁽¹⁾ 4220 ⁽¹⁾	950 2040	1650 ⁽¹⁾ 3620 ⁽¹⁾	890 1950	6.27 20.58
0.5 m 1.7 ft	2920 ⁽¹⁾ 6270 ⁽¹⁾	1460 3140	2500 ⁽¹⁾ 5390 ⁽¹⁾	1250 2680	2220 ⁽¹⁾ 4790 ⁽¹⁾	1080 2320	2010 ⁽¹⁾ -	940 -	1750 ⁽¹⁾ 3840 ⁽¹⁾	900 1970	6.19 20.31
0	3030 ⁽¹⁾ 6520 ⁽¹⁾	1450 3110	2600 ⁽¹⁾ 5600 ⁽¹⁾	1230 2650	2290 ⁽¹⁾ 4940 ⁽¹⁾	1070 2290			1880 ⁽¹⁾ 4140 ⁽¹⁾	920 2030	6.05 19.86
-0.5 m -1.7 ft	3080 ⁽¹⁾ 6630 ⁽¹⁾	1440 3090	2640 ⁽¹⁾ 5690 ⁽¹⁾	1230 2640	2310 ⁽¹⁾ 4980 ⁽¹⁾	1060 2290			2070 ⁽¹⁾ 4560 ⁽¹⁾	970 2130	5.86 19.21
-1.0 m -3.3 ft	3060 ⁽¹⁾ 6580 ⁽¹⁾	1440 3090	2630 ⁽¹⁾ 5650 ⁽¹⁾	1230 2640	2270 ⁽¹⁾ -	1070 -			2200 ⁽¹⁾ 4850 ⁽¹⁾	1040 2300	5.60 18.33
-1.5 m -5.0 ft	2950 ⁽¹⁾ 6340 ⁽¹⁾	1450 3110	2520 ⁽¹⁾ 5370 ⁽¹⁾	1240 2660					2300 ⁽¹⁾ 5070 ⁽¹⁾	1150 2550	5.25 17.18
-2.0 m -6.7 ft	2720 ⁽¹⁾ 5780 ⁽¹⁾	1460 3150							2410 ⁽¹⁾ 5320 ⁽¹⁾	1330 2960	4.81 15.66
-2.5 m 8.3 ft									2510 ⁽¹⁾ 5550 ⁽¹⁾	1660 3730	4.21 13.62
-3.0 m -10.0 ft									2560 ⁽¹⁾ 5630 ⁽¹⁾	2480 5630 ⁽¹⁾	3.31 10.47

⁽¹⁾ The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Long Stick

Product Information Section
Lifting Capacities

Steel Track

Table 32

308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 2.21 m (7 ft 3 inch) long stick, a 0.23 m ³ (0.30 yd ³) bucket, a 2320 mm (92 inch) blade, 450 mm (18 inch) triple grouser track shoes, and a 1278 kg (2817 lb) standard counterweight ⁽¹⁾											
The blade is in the UP position.											
All lifting capacities are in kilograms and pounds.											
H	R										
	2.0 m 6.7 ft		2.5 m 8.3 ft		3.0 m 10.0 ft		3.5 m 11.7 ft		4.0 m 13.3 ft		
	F	S	F	S	F	S	F	S	F	S	
2.5 m 8.3 ft							1830 ⁽²⁾ 3880 ⁽²⁾			1660 ⁽²⁾ 3560 ⁽²⁾	
2.0 m 6.7 ft									2040 4390	1720 3700	
1.5 m 5.0 ft									1970 4240	1650 3550	
1.0 m 3.3 ft									1910 4110	1590 3430	
0.5 m 1.7 ft							2290 4930	1890 4070	1870 4010	1550 3340	
0							2270 4870	1870 4020	1840 3950	1530 3280	
-0.5 m -1.7 ft					2940 6290	2390 5120	2260 4840	1860 3990	1820 3910	1510 3240	
-1.0 m -3.3 ft	2760 ⁽²⁾ 6230 ⁽²⁾		3550 ⁽²⁾ 8110 ⁽²⁾	3310 7090	2950 6310	2400 5140	2260 4840	1860 3990	1810 3890	1500 3230	
-1.5 m -5.0 ft	3940 ⁽²⁾ 8930 ⁽²⁾		4190 8940	3330 7130	2960 6340	2410 5160	2260 4850	1860 4000	1820 3900	1510 3230	
-2.0 m -6.7 ft	5290 ⁽²⁾ 11960 ⁽²⁾	5240 11160	4220 9010	3360 7190	2980 6380	2430 5210	2280 4880	1880 4030	1830 3920	1520 3250	
-2.5 m 8.3 ft	6890 ⁽²⁾ 14830	5290 11280	4260 9110	3400 7280	3010 6460	2460 5270	2300 4940	1900 4080	1850 3960	1530 3300	
-3.0 m -10.0 ft	6920 ⁽²⁾ 14530 ⁽²⁾	5370 11460	4320 9240	3450 7400	3060 6560	2500 5370	2340 5030	1940 4160	1880 4050	1570 3380	
-3.5 ft -11.7 ft			3740 ⁽²⁾ 7650 ⁽²⁾	3540 7600	3020 ⁽²⁾ 6160 ⁽²⁾	2570 5530					

⁽¹⁾ Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.

⁽²⁾ The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 33

Table Continued													
H	R												
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		6.5 m 21.7 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S	F	S	F	S	m ft

(continued)

(Table 33, contd)

5.5 m 18.3 ft			990 ⁽¹⁾ -								1130 ⁽¹⁾ 2450 ⁽¹⁾	5.39 17.41	
5.0 m 16.7 ft			970 ⁽¹⁾ 2190 ⁽¹⁾	1110 ⁽¹⁾ -	1100 -						1180 2600 ⁽¹⁾	1010 2260	5.78 18.77
4.5 m 15.0 ft			1110 ⁽¹⁾ 2260 ⁽¹⁾	1130 ⁽¹⁾ 2510 ⁽¹⁾	1100 2360						1070 2380	910 2030	6.07 19.80
4.0 m 13.3 ft			1060 ⁽¹⁾ 2340 ⁽¹⁾	1160 ⁽¹⁾ 2580 ⁽¹⁾	1090 2330	1090 2320	920 1970				990 2200	840 1860	6.30 20.59
3.5 m 11.7 ft	1080 ⁽¹⁾ 2360 ⁽¹⁾		1160 ⁽¹⁾ 2540 ⁽¹⁾	1220 ⁽¹⁾ 2690 ⁽¹⁾	1080 2310	1080 2300	920 1950				930 2060	790 1740	6.47 21.18
3.0 m 10.0 ft	1290 ⁽¹⁾ 2800 ⁽¹⁾		1310 ⁽¹⁾ 2850 ⁽¹⁾	1260 2700	1250 2680	1060 2280	1070 2280	900 1930	920 -	770 -	890 1960	740 1650	6.60 21.62
2.5 m 8.3 ft	1560 ⁽¹⁾ 3360 ⁽¹⁾	1470 3150	1450 3110	1230 2640	123 2630	1040 2230	1050 2250	890 1900	910 1930	760 1620	850 1870	710 1570	6.72 22.03
2.0 m 6.7 ft	1680 3610	1420 3060	1410 3030	1200 2570	1200 2580	1020 2180	1030 2220	870 1870	900 1910	750 1600	820 1810	690 1520	6.79 22.27
1.5 m 5.0 ft	1630 3510	1380 2960	1380 2960	1160 2500	1180 2530	990 2130	1020 2180	850 1830	880 1890	740 1580	810 1780	680 1490	6.81 22.35
1.0 m 3.3 ft	1590 3420	1330 2870	1350 2890	1130 2430	1150 2480	970 2080	1000 2140	840 1790	870 1860	730 1560	810 1770	670 1480	6.79 22.27
0.5 m 1.7 ft	1560 3340	1300 2800	1320 2830	1110 2370	1130 2430	950 2040	980 2110	820 1760	860 1840	720 1540	810 1790	680 1490	6.72 22.04
0	1530 3290	1280 2740	1300 2790	1090 2330	1120 2400	930 2000	970 2080	810 1740	850 -	710 -	830 1830	690 1530	6.59 21.63
-0.5 m -1.7 ft	1510 3250	1260 2710	1280 2760	1070 2300	1110 2370	920 1980	960 2070	800 1720			870 1910	720 1590	6.42 21.05
-1.0 m -3.3 ft	1510 3230	1250 2690	1280 2740	1060 2290	1100 2360	920 1970	960 2070	800 1720			920 2030	7790 1690	6.19 20.27
-1.5 m -5.0 ft	1500 3230	1250 2690	1280 2740	1060 2290	1100 2370	920 1980					1000 2200	830 1840	5.89 19.27
-2.0 m -6.7 ft	1510 3250	1260 2710	1280 2760	1070 2300							1110 2470	930 2060	5.51 17.98
-2.5 m 8.3 ft	1530 3290	1280 2750	1310	1090							1300 2900	1090 2430	5.02 16.34
-3.0 m -10.0 ft											1630 3690	1360 3090	4.39 14.15
											2470 ⁽¹⁾ 5480 ⁽¹⁾	2050 4870	3.44 10.82

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 34

<p>308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 2.21 m (7 ft 3 inch) long stick, a 0.23 m³ (0.30 yd³) bucket, a 2320 mm (92 inch) blade, 450 mm (18 inch) triple grouser track shoes, and a 1278 kg (2817 lb) standard counterweight ⁽¹⁾ The blade is in the DOWN position. All lifting capacities are in kilograms and pounds.</p>					
H	R				
	2.0 m 6.7 ft	2.5 m 8.3 ft	3.0 m 10.0 ft	3.5 m 11.7 ft	4.0 m 13.3 ft

(continued)

Product Information Section
Lifting Capacities

(Table 34, contd)

	F	S	F	S	F	S	F	S	F	S
2.5 m 8.3 ft							1830 ⁽²⁾ 3880 ⁽²⁾		1660 ⁽²⁾ 3560 ⁽²⁾	
2.0 m 6.7 ft									2100 ⁽²⁾ 4480 ⁽²⁾	1900 4100
1.5 m 5.0 ft									2550 ⁽²⁾ 5430 ⁽²⁾	1840 3950
1.0 m 3.3 ft									2950 ⁽²⁾ 6290 ⁽²⁾	1780 3830
0.5 m 1.7 ft							4170 ⁽²⁾ 8910 ⁽²⁾	2120 4560	3250 ⁽²⁾ 6960 ⁽²⁾	1740 3730
0							4360 ⁽²⁾ 9340 ⁽²⁾	2100 4510	3460 ⁽²⁾ 7410 ⁽²⁾	1710 3670
-0.5 m -1.7 ft					660 ⁽²⁾ 8470 ⁽²⁾	2690 5770	4430 ⁽²⁾ 9520 ⁽²⁾	2090 4480	3570 ⁽²⁾ 7680 ⁽²⁾	1690 3630
-1.0 m -3.3 ft	2760 ⁽²⁾ 6230 ⁽²⁾		3550 ⁽²⁾ 8110 ⁽²⁾	3550 ⁽²⁾ 8050	4870 ⁽²⁾ 11240 ⁽²⁾	2700 5790	4420 ⁽²⁾ 9510 ⁽²⁾	2090 4480	3610 ⁽²⁾ 7760 ⁽²⁾	1890 3620
-1.5 m -5.0 ft	3940 ⁽²⁾ 8930 ⁽²⁾		4820 ⁽²⁾ 10960	3780 8090	5390 ⁽²⁾ 11580 ⁽²⁾	2710 5820	4330 ⁽²⁾ 9310 ⁽²⁾	2090 4490	3570 ⁽²⁾ 7680 ⁽²⁾	1690 3620
-2.0 m -6.7 ft	5290 ⁽²⁾ 11960 ⁽²⁾		6360 ⁽²⁾ 14050 ⁽²⁾	3810 8150	5100 ⁽²⁾ 10960 ⁽²⁾	2730 5860	4140 ⁽²⁾ 8900 ⁽²⁾	2110 4520	3450 ⁽²⁾ 7400 ⁽²⁾	1700 3650
-2.5 m 8.3 ft	6890 ⁽²⁾ 15700 ⁽²⁾	6110 13010	5950 ⁽²⁾ 12700 ⁽²⁾	3850 8240	4680 ⁽²⁾ 10020 ⁽²⁾	2760 5930	3840 ⁽²⁾ 8210 ⁽²⁾	2130 4570	3210 ⁽²⁾ 6850 ⁽²⁾	1720 3690
-3.0 m -10.0 ft	6920 ⁽²⁾ 14530 ⁽²⁾	6200 13200	5080 ⁽²⁾ 10750 ⁽²⁾	3910 8370	4060 ⁽²⁾ 8600 ⁽²⁾	2810 6030	3340 ⁽²⁾ 7070 ⁽²⁾	2170 4660	2760 ⁽²⁾ 5800 ⁽²⁾	1750 3770
-3.5 m -11.7 ft			3740 ⁽²⁾ 7650 ⁽²⁾		3020 ⁽²⁾ 6160 ⁽²⁾	2880 6160 ⁽²⁾				

(1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.

(2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 35

Table Continued													
H	R												
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		6.5 m 21.7 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S			F	S	m ft
5.5 m 18.3 ft			990 ⁽¹⁾								1130 ⁽¹⁾ 2450 ⁽¹⁾		5.39 17.41
5.0 m 16.7 ft			970 ⁽¹⁾ 2190 ⁽¹⁾		1110 ⁽¹⁾						1190 ⁽¹⁾ 2600 ⁽¹⁾	1120 2500	5.78 18.77
4.5 m 15.0 ft			1010 ⁽¹⁾ 2260 ⁽¹⁾		1130 ⁽¹⁾ 2510 ⁽¹⁾						1250 ⁽¹⁾ 2740 ⁽¹⁾	1010 2250	6.07 19.80
4.0 m 13.3 ft			1060 ⁽¹⁾ 2340 ⁽¹⁾	1160 ⁽¹⁾ 2580 ⁽¹⁾	1160 ⁽¹⁾ 2580	1260 ⁽¹⁾ 2790 ⁽¹⁾	1020 2190				1300 ⁽¹⁾ 2850 ⁽¹⁾	930 2070	6.30 20.59

(continued)

(Table 35, contd)

3.5 m 11.7 ft	1080 ⁽¹⁾ 2360 ⁽¹⁾	1160 ⁽¹⁾ 2540 ⁽¹⁾	1220 ⁽¹⁾ 2690 ⁽¹⁾	1190 2560	1290 ⁽¹⁾ 2860 ⁽¹⁾	1020 2170				1310 ⁽¹⁾ 2880 ⁽¹⁾	880 1940	6.47 21.18	
3.0 m 10.0 ft	1290 ⁽¹⁾ 2800 ⁽¹⁾	1310 ⁽¹⁾ 2850 ⁽¹⁾	1320 ⁽¹⁾ 2890 ⁽¹⁾	1180 2520	1350 ⁽¹⁾ 2970 ⁽¹⁾	1000 2150	1400 ⁽¹⁾	860		1330 ⁽¹⁾ 2920 ⁽¹⁾	830 1840	6.60 21.62	
2.5 m 8.3 ft	1560 ⁽¹⁾ 3360 ⁽¹⁾	1490 ⁽¹⁾ 3230 ⁽¹⁾	1360 2920	1450 ⁽¹⁾ 3160 ⁽¹⁾	1150 2480	1430 ⁽¹⁾ 3140 ⁽¹⁾	990 2120	1440 ⁽¹⁾ 3190 ⁽¹⁾	850 1820	1340 ⁽¹⁾ 2950 ⁽¹⁾	800 1760	6.72 22.03	
2.0 m 6.7 ft	1850 ⁽¹⁾ 3980 ⁽¹⁾	1580 3390	1700 ⁽¹⁾ 3670 ⁽¹⁾	1330 2850	1600 ⁽¹⁾ 3470 ⁽¹⁾	1130 2420	1540 ⁽¹⁾ 3350 ⁽¹⁾	970 2080	1510 ⁽¹⁾ 3310 ⁽¹⁾	840 1800	1370 ⁽¹⁾ 3010 ⁽¹⁾	770 1700	6.79 22.27
1.5 m 5.0 ft	2150 ⁽¹⁾ 4620 ⁽¹⁾	1530 3290	1910 ⁽¹⁾ 4120 ⁽¹⁾	1290 2780	1750 ⁽¹⁾ 3800 ⁽¹⁾	1110 2370	1650 ⁽¹⁾ 3590 ⁽¹⁾	950 2040	1580 ⁽¹⁾ 3460 ⁽¹⁾	830 1770	1410 ⁽¹⁾ 3100 ⁽¹⁾	760 1670	6.81 22.35
1.0 m 3.3 ft	2440 ⁽¹⁾ 5220 ⁽¹⁾	1490 3200	2120 ⁽¹⁾ 4560 ⁽¹⁾	1260 2710	1900 ⁽¹⁾ 4120 ⁽¹⁾	1080 2320	1760 ⁽¹⁾ 3820 ⁽¹⁾	940 2010	1660 ⁽¹⁾ 3620 ⁽¹⁾	820 1750	1460 ⁽¹⁾ 3220 ⁽¹⁾	760 1660	6.79 22.27
0.5 m 1.7 ft	2670 ⁽¹⁾ 5740 ⁽¹⁾	1450 3120	2300 ⁽¹⁾ 4950 ⁽¹⁾	1240 2650	2040 ⁽¹⁾ 4410 ⁽¹⁾	1060 2280	1860 ⁽¹⁾ 4030 ⁽¹⁾	920 1980	1730 ⁽¹⁾ 3760 ⁽¹⁾	810 1730	1540 ⁽¹⁾ 3390 ⁽¹⁾	760 1680	6.72 22.04
0	2850 ⁽¹⁾ 6130 ⁽¹⁾	1430 3070	2440 ⁽¹⁾ 5260 ⁽¹⁾	1210 2610	2150 ⁽¹⁾ 4650 ⁽¹⁾	1050 2250	1940 ⁽¹⁾ 4200 ⁽¹⁾	910 1950	1780 ⁽¹⁾	800	1640 ⁽¹⁾ 3610 ⁽¹⁾	780 1720	6.59 21.63
-0.5 m -1.7 ft	2970 ⁽¹⁾ 6390 ⁽¹⁾	1410 3030	2540 ⁽¹⁾ 5480 ⁽¹⁾	1200 2580	2230 ⁽¹⁾ 4810 ⁽¹⁾	1040 2220	1990 ⁽¹⁾ 4300 ⁽¹⁾	900 1940			1770 ⁽¹⁾ 3910 ⁽¹⁾	810 1790	6.42 21.05
-1.0 m -3.3 ft	3020 ⁽¹⁾ 6510 ⁽¹⁾	1400 3020	2590 ⁽¹⁾ 5580 ⁽¹⁾	1190 2560	2270 ⁽¹⁾ 4880 ⁽¹⁾	1030 2210	2000 ⁽¹⁾ 4300 ⁽¹⁾	900 1940			1900 ⁽¹⁾ 4200 ⁽¹⁾	860 1900	6.19 20.27
-1.5 m -5.0 ft	3010 ⁽¹⁾ 6480 ⁽¹⁾	1400 3010	2580 ⁽¹⁾ 5550 ⁽¹⁾	1190 2560	2240 ⁽¹⁾ 4800 ⁽¹⁾	1030 2220					1990 ⁽¹⁾ 4400 ⁽¹⁾	930 2060	5.89 19.27
-2.0 m -6.7 ft	920 ⁽¹⁾ 6250 ⁽¹⁾	1410 3030	2490 ⁽¹⁾ 5320 ⁽¹⁾	1200 2580							2090 ⁽¹⁾ 4630 ⁽¹⁾	1040 2310	5.51 17.98
-2.5 m -8.3 ft	2700 ⁽¹⁾ 5740 ⁽¹⁾	1430 3070	2230 ⁽¹⁾	1220							2210 ⁽¹⁾ 4890 ⁽¹⁾	1210 2710	5.02 16.34
-3.0 m -10.0 ft											2340 ⁽¹⁾ 5180 ⁽¹⁾	1520 3450	4.39 14.15
-3.5 m -11.7 ft											2470 ⁽¹⁾ 5480 ⁽¹⁾	2290 5440	3.44 10.82

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 36

<p>308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 2.21 m (7 ft 3 inch) long stick, a 0.23 m³ (0.30 yd³) bucket, a 2470 mm (97 inch) blade, 600 mm (24 inch) triple grouser track shoes, and a 1278 kg (2817 lb) standard counterweight (1)</p> <p>The blade is in the UP position.</p> <p>All lifting capacities are in kilograms and pounds.</p>											
H	R										
	2.0 m 6.7 ft		2.5 m 8.3 ft		3.0 m 10.0 ft		3.5 m 11.7 ft		4.0 m 13.3 ft		
	F	S	F	S	F	S	F	S	F	S	
2.5 m 8.3 ft							1830 ⁽²⁾ 3880 ⁽²⁾		1660 ⁽²⁾ 3560 ⁽²⁾		
2.0 m 6.7 ft									2080 4470	1770 3810	
1.5 m 5.0 ft									2010 4330	1700 3670	

(continued)

Product Information Section
Lifting Capacities

(Table 36, contd)

1.0 m 3.3 ft										1950 4200	1650 3540
0.5 m 1.7 ft							2340 5040	1960 4210	1910 4100	1600 3450	
0							2320 4980	1930 4150	1880 4030	1580 3390	
-0.5 m -1.7 ft					3000 6430	2470 5290	2310 4950	1920 4120	1860 4000	1560 3360	
-1.0 m -3.3 ft	2760 ⁽²⁾ 6230 ⁽²⁾		3550 ⁽²⁾ 8110 ⁽²⁾	3420 7310	3010 6440	2470 5300	2310 4950	1920 4120	1860 3980	1560 3340	
-1.5 m -5.0 ft	3940 ⁽²⁾ 8930 ⁽²⁾		4280 9130	3430 7350	3020 6470	2490 5330	2310 4960	1930 4130	1860 3990	1560 3340	
-2.0 m -6.7 ft	5290 ⁽²⁾ 11960 ⁽²⁾	5290 ⁽²⁾ 11490	4310 9200	3460 7410	3040 6520	2510 5380	2330 4990	1940 4160	1870 4010	1570 3370	
-2.5 m 8.3 ft	6890 ⁽²⁾ 15130	5440 11610	4350 9290	3500 7500	3080 6590	2530 5440	2350 5050	1960 4220	1890 4050	1590 3410	
-3.0 m -10.0 ft	6920 ⁽²⁾ 14530 ⁽²⁾	5520 11790	4410 9430	3560 7620	3120 6700	2580 5540	2390 5140	2000 4300	1920 4140	1620 3490	
-3.5 m -11.7 ft			3740 ⁽²⁾ 7650 ⁽²⁾	3640 7650 ⁽²⁾	3020 ⁽²⁾ 6160 ⁽²⁾	2650 5700					

- (1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
- (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 37

Table Continued													
H	R												
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		6.5 m 21.7 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S	F	S	F	S	m ft
5.5 m 18.3 ft			990 ⁽¹⁾ -								1130 ⁽¹⁾ 2450 ⁽¹⁾		5.39 17.41
5.0 m 16.7 ft			970 ⁽¹⁾ 2190 ⁽¹⁾		1110 ⁽¹⁾ -						1190 ⁽¹⁾ 2600 ⁽¹⁾	1040 2330	5.78 18.77
4.5 m 15.0 ft			1010 ⁽¹⁾ 2260 ⁽¹⁾		1130 ⁽¹⁾ 2510 ⁽¹⁾	1130 ⁽¹⁾ 2430					1090 2440	940 2090	6.07 19.80
4.0 m 13.3 ft			1060 ⁽¹⁾ 2340 ⁽¹⁾		1160 ⁽¹⁾ 2580 ⁽¹⁾	1130 2410	1110 2380	950 2040			1010 2250	870 1920	6.30 20.59
3.5 m 11.7 ft	1080 ⁽¹⁾ 2360 ⁽¹⁾		1160 ⁽¹⁾ 2540 ⁽¹⁾		1220 ⁽¹⁾ 2690 ⁽¹⁾	1110 2390	1100 2360	950 2020			950 2110	810 1800	6.47 21.18
3.0 m 10.0 ft	1290 ⁽¹⁾ 2800 ⁽¹⁾		1310 ⁽¹⁾ 2850 ⁽¹⁾	1300 2780	1280 2740	1100 2350	1090 2340	940 2000	940 -	800 -	910 2010	770 1710	6.60 21.62
2.5 m 8.3 ft	1560 ⁽¹⁾ 3360 ⁽¹⁾	1510 3250	1480 3170	1270 2720	1260 2690	1080 2300	1080 2300	920 1970	930 1980	790 1690	870 1920	740 1630	6.72 22.03
2.0 m 6.7 ft	1720 3690	1470 3150	1440 3100	1230 2650	1230 2640	1050 2250	1060 2270	900 1930	920 1960	780 1660	840 1860	720 1580	6.79 22.27

(continued)

(Table 37, contd)

1.5 m 5.0 ft	1670 3590	1420 3050	1410 3030	1200 2580	1210 2590	1030 2200	1040 2230	890 1900	910 1940	770 1640	830 1830	700 1550	6.81 22.35
1.0 m 3.3 ft	1630 3490	1380 2960	1380 2960	1170 2510	1180 2540	1000 2150	1020 2190	870 1860	890 1910	760 1620	830 1820	700 1540	6.79 22.27
0.5 m 1.7 ft	1590 3420	1350 2890	1350 2900	1140 2460	1160 2490	980 2110	1010 2160	850 1830	880 1890	750 1600	840 1840	710 1550	6.72 22.04
0	1570 3360	1320 2840	1330 2850	1120 2410	1140 2460	970 2080	1000 2140	840 1810	880 -	740 -	860 1880	720 1590	6.59 21.63
-0.5 m -1.7 ft	1550 3330	1310 2800	1320 2820	1110 2380	1130 2430	960 2050	990 2120	840 1790			890 1960	750 1650	6.42 21.05
-1.0 m -3.3 ft	1540 3310	1300 2790	1310 2810	1100 2370	1130 2420	950 2040	990 2120	830 1790			940 2080	800 1750	6.19 20.27
-1.5 m -5.0 ft	1540 3310	1300 2790	1310 2810	1100 2370	1130 2430	950 2050					1020 2260	860 1910	5.89 19.27
-2.0 m -6.7 ft	1550 3330	1300 2800	1320 2830	1110 2390							1140 2530	960 2140	5.51 17.98
-2.5 m 8.3 ft	1570 3370	1320 2840	1340 -	1130 -							1330 2970	1120 2510	5.02 16.34
-3.0 m -10.0 ft											1670 3780	1410 3190	4.36 14.15
											2470 ⁽¹⁾ 5480 ⁽¹⁾	2120 5020	3.44 10.82

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 38

<p>308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 2.21 m (7 ft 3 inch) long stick, a 0.23 m³ (0.30 yd³) bucket, a 2470 mm (97 inch) blade, 600 mm (24 inch) triple grouser track shoes, and a 1278 kg (2817 lb) standard counterweight ⁽¹⁾ The blade is in the DOWN position. All lifting capacities are in kilograms and pounds.</p>											
H	R										
	2.0 m 6.7 ft		2.5 m 8.3 ft		3.0 m 10.0 ft		3.5 m 11.7 ft		4.0 m 13.3 ft		
	F	S	F	S	F	S	F	S	F	S	
2.5 m 8.3 ft							1830 ⁽²⁾ 3880 ⁽²⁾		1660 ⁽²⁾ 3560 ⁽²⁾		
2.0 m 6.7 ft									2100 ⁽²⁾ 4480 ⁽²⁾	2050 4410	
1.5 m 5.0 ft									2550 ⁽²⁾ 5430 ⁽²⁾	1980 4260	
1.0 m 3.3 ft									2950 ⁽²⁾ 6290 ⁽²⁾	1920 4130	
0.5 m 1.7 ft							4170 ⁽²⁾ 8910 ⁽²⁾	2300 4940	3250 ⁽²⁾ 6960 ⁽²⁾	1880 4040	
0							4360 ⁽²⁾ 9340 ⁽²⁾	2270 4880	3460 ⁽²⁾ 7410 ⁽²⁾	1850 3980	
-0.5 m -1.7 ft					3660 ⁽²⁾ 8470 ⁽²⁾	2920 6270	4430 ⁽²⁾ 9520 ⁽²⁾	2260 4860	3570 ⁽²⁾ 7680 ⁽²⁾	1830 3940	

(continued)

Product Information Section
Lifting Capacities

(Table 38, contd)

- 1.0 m - 3.3 ft	2760 ⁽²⁾ 6230 ⁽²⁾		3550 ⁽²⁾ 8110 ⁽²⁾		4870 ⁽²⁾ 11240 ⁽²⁾	2930 6280	4420 ⁽²⁾ 9510 ⁽²⁾	2260 4850	3610 ⁽²⁾ 7760 ⁽²⁾	1830 3930
-1.5 m -5.0 ft	3940 ⁽²⁾ 8930 ⁽²⁾		4820 ⁽²⁾ 10960	4120 8800	5390 ⁽²⁾ 11580 ⁽²⁾	2940 6310	4330 ⁽²⁾ 9310 ⁽²⁾	2270 4870	3570 ⁽²⁾ 7680 ⁽²⁾	1830 3930
-2.0 m -6.7 ft	5290 ⁽²⁾ 11960 ⁽²⁾		6360 ⁽²⁾ 14050 ⁽²⁾	4140 8860	5100 ⁽²⁾ 10960 ⁽²⁾	2960 6360	4140 ⁽²⁾ 8900 ⁽²⁾	2280 4900	3450 ⁽²⁾ 7400 ⁽²⁾	1840 3950
-2.5 m 8.3 ft	6890 ⁽²⁾ 15700 ⁽²⁾	6700 14240	5950 ⁽²⁾ 12700 ⁽²⁾	4190 8950	4680 ⁽²⁾ 10020 ⁽²⁾	3000 6420	3840 ⁽²⁾ 8210 ⁽²⁾	2310 4950	3210 ⁽²⁾ 6850 ⁽²⁾	1860 4000
- 3.0 m - 10.0 ft	6920 ⁽²⁾ 14530 ⁽²⁾	6780 14430	5080 ⁽²⁾ 10750 ⁽²⁾	4240 9090	4060 ⁽²⁾ 8600 ⁽²⁾	3040 6530	3340 ⁽²⁾ 7070 ⁽²⁾	2340 5040	2760 ⁽²⁾ 5800 ⁽²⁾	1890 4080
-3.5 m -11.7 ft			3740 ⁽²⁾ 7650 ⁽²⁾		3020 ⁽²⁾ 6160 ⁽²⁾					

(1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.

(2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 39

Table Continued													
H	R												
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		6.5 m 21.7 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S			F	S	m ft
5.5 m 18.3 ft			990 ⁽¹⁾ -								1130 ⁽¹⁾ 2450 ⁽¹⁾		5.39 17.41
5.0 m 16.7 ft			970 ⁽¹⁾ 2190 ⁽¹⁾		1110 ⁽¹⁾ -						1190 ⁽¹⁾ 2600 ⁽¹⁾		5.78 18.77
4.5 m 15.0 ft			1010 ⁽¹⁾ 2260 ⁽¹⁾		1130 ⁽¹⁾ 2510 ⁽¹⁾						1250 ⁽¹⁾ 2740 ⁽¹⁾	1090 2420	6.07 19.80
4.0 m 13.3 ft			1060 ⁽¹⁾ 2340 ⁽¹⁾		1160 ⁽¹⁾ 2580 ⁽¹⁾		1260 ⁽¹⁾ 2790 ⁽¹⁾	1100 2360			1300 ⁽¹⁾ 2850 ⁽¹⁾	1010 2230	6.30 20.59
3.5 m 11.7 ft	1080 ⁽¹⁾ 2360 ⁽¹⁾		1160 ⁽¹⁾ 2540 ⁽¹⁾		1220 ⁽¹⁾ 2690 ⁽¹⁾		1290 ⁽¹⁾ 2860 ⁽¹⁾	1100 2340			1310 ⁽¹⁾ 2880 ⁽¹⁾	950 2100	6.47 21.18
3.0 m 10.0 ft	1290 ⁽¹⁾ 2800 ⁽¹⁾		1310 ⁽¹⁾ 2850 ⁽¹⁾		1320 ⁽¹⁾ 2890 ⁽¹⁾	1270 2720	1350 ⁽¹⁾ 2970 ⁽¹⁾	1080 2320	1400 ⁽¹⁾ -	930 -	1330 ⁽¹⁾ 2920 ⁽¹⁾	900 2000	6.60 21.62
2.5 m 8.3 ft	1560 ⁽¹⁾ 3360 ⁽¹⁾		1490 ⁽¹⁾ 3230 ⁽¹⁾	1460 3140	1450 ⁽¹⁾ 3160 ⁽¹⁾	1250 2670	1430 ⁽¹⁾ 3140 ⁽¹⁾	1070 2290	1440 ⁽¹⁾ 3190 ⁽¹⁾	920 1970	1340 ⁽¹⁾ 2950 ⁽¹⁾	870 1910	6.72 22.03
2.0 m 6.7 ft	1850 ⁽¹⁾ 3980 ⁽¹⁾	1700 3650	1700 ⁽¹⁾ 3670 ⁽¹⁾	1430 3070	1600 ⁽¹⁾ 3470 ⁽¹⁾	1220 2620	1540 ⁽¹⁾ 3350 ⁽¹⁾	1050 2250	1510 ⁽¹⁾ 3310 ⁽¹⁾	910 1950	1370 ⁽¹⁾ 3010 ⁽¹⁾	840 1850	6.79 22.27
1.5 m 5.0 ft	2150 ⁽¹⁾ 4620 ⁽¹⁾	1650 3540	1910 ⁽¹⁾ 4120 ⁽¹⁾	1400 3000	1750 ⁽¹⁾ 3800 ⁽¹⁾	1200 2570	1650 ⁽¹⁾ 3590 ⁽¹⁾	1030 2220	1580 ⁽¹⁾ 3460 ⁽¹⁾	900 1930	1410 ⁽¹⁾ 3100 ⁽¹⁾	830 1820	6.81 22.35
1.0 m 3.3 ft	2440 ⁽¹⁾ 5220 ⁽¹⁾	1610 3450	2120 ⁽¹⁾ 4560 ⁽¹⁾	1360 2930	1900 ⁽¹⁾ 4120 ⁽¹⁾	1170 2520	1760 ⁽¹⁾ 3820 ⁽¹⁾	1020 2180	1660 ⁽¹⁾ 3620 ⁽¹⁾	890 1900	1460 ⁽¹⁾ 3220 ⁽¹⁾	820 1810	6.79 22.27
0.5 m 1.7 ft	2670 ⁽¹⁾ 5740 ⁽¹⁾	1570 3380	2300 ⁽¹⁾ 4950 ⁽¹⁾	1340 2870	2040 ⁽¹⁾ 4410 ⁽¹⁾	1150 2470	1860 ⁽¹⁾ 4030 ⁽¹⁾	1000 2150	1730 ⁽¹⁾ 3760 ⁽¹⁾	880 1880	1540 ⁽¹⁾ 3390 ⁽¹⁾	830 1830	6.72 22.04
0	2850 ⁽¹⁾ 6130 ⁽¹⁾	1550 3320	2440 ⁽¹⁾ 5260 ⁽¹⁾	1320 2830	2150 ⁽¹⁾ 4650 ⁽¹⁾	1140 2440	1940 ⁽¹⁾ 4200 ⁽¹⁾	990 2130	1780 ⁽¹⁾	870 -	1640 ⁽¹⁾ 3610 ⁽¹⁾	850 1870	6.59 21.63

(continued)

(Table 39, contd)

-0.5 m -1.7 ft	2970 ⁽¹⁾ 6390 ⁽¹⁾	1530 3290	2540 ⁽¹⁾ 5480 ⁽¹⁾	1300 2800	2230 ⁽¹⁾ 4810 ⁽¹⁾	1130 2420	1990 ⁽¹⁾ 4300 ⁽¹⁾	980 2110			1770 ⁽¹⁾ 3910 ⁽¹⁾	890 1950	6.42 21.05
-1.0 m -3.3 ft	3020 ⁽¹⁾ 6510 ⁽¹⁾	1520 3270	2590 ⁽¹⁾ 5580 ⁽¹⁾	1300 2780	2270 ⁽¹⁾ 4880 ⁽¹⁾	1120 2400	2000 ⁽¹⁾ 4300 ⁽¹⁾	980 2110			1900 ⁽¹⁾ 4200 ⁽¹⁾	940 2070	6.19 20.27
-1.5 m -5.0 ft	3010 ⁽¹⁾ 6480 ⁽¹⁾	1520 3270	2580 ⁽¹⁾ 5550 ⁽¹⁾	1290 2780	2240 ⁽¹⁾ 4800 ⁽¹⁾	1120 2410					1990 ⁽¹⁾ 4400 ⁽¹⁾	1020 2240	5.89 19.27
-2.0 m -6.7 ft	920 ⁽¹⁾ 6250 ⁽¹⁾	1530 3290	2490 ⁽¹⁾ 5320 ⁽¹⁾	1300 2800							2090 ⁽¹⁾ 4630 ⁽¹⁾	1130 2510	5.51 17.98
-2.5 m 8.3 ft	2700 ⁽¹⁾ 5740 ⁽¹⁾	1550 3330	2230 ⁽¹⁾ -	1320 -							2210 ⁽¹⁾ 4890 ⁽¹⁾	1320 2940	5.02 16.34
-3.0 m -10.0 ft											2340 ⁽¹⁾ 5180 ⁽¹⁾	1650 3730	4.39 14.15
-3.5 m -11.7 ft											2470 ⁽¹⁾ 5480 ⁽¹⁾		3.44 10.82

⁽¹⁾ The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Product Information Section
Lifting Capacities

Rubber Track

Table 40

308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 2.21 m (7 ft 3 inch) Long stick, a 0.23 m ³ (0.30 yd ³) bucket, a 2320 mm (92 inch) blade, and 450 mm (18 inch) rubber track, and a 1278 kg (2817 lb) standard counterweight ⁽¹⁾											
The blade is in the UP position.											
All lifting capacities are in kilograms and pounds.											
H	R										
	2.0 m 6.7 ft		2.5 m 8.3 ft		3.0 m 10.0 ft		3.5 m 11.7 ft		4.0 m 13.3 ft		
	F	S	F	S	F	S	F	S	F	S	
2.5 m 8.3 ft							1830 ⁽²⁾ 3880 ⁽²⁾			1660 ⁽²⁾ 3560 ⁽²⁾	
2.0 m 6.7 ft									2030 4360	1710 3680	
1.5 m 5.0 ft									1960 4210	1640 3540	
1.0 m 3.3 ft									1900 4080	1590 3410	
0.5 m 1.7 ft							2280 4890	1880 4050	1850 3980	1540 3320	
0							2250 4830	1860 3990	1820 3920	1520 3260	
-0.5 m -1.7 ft					2920 6250	2380 5090	2240 4810	1850 3970	1810 3880	1500 3220	
-1.0 m -3.3 ft	2760 ⁽²⁾ 6230 ⁽²⁾		3550 ⁽²⁾ 8110 ⁽²⁾	3290 7050	2920 6260	2380 5110	2240 4800	1850 3960	1800 3860	1490 3210	
-1.5 m -5.0 ft	3940 ⁽²⁾ 8930 ⁽²⁾		4160 8880	3310 7090	2940 6290	2390 5130	2250 4820	1850 3980	1800 3870	1500 3210	
-2.0 m -6.7 ft	5290 ⁽²⁾ 11960 ⁽²⁾	5210 11100	4190 8950	3340 7150	2960 6340	2410 5180	2260 4850	1870 4010	1810 3890	1510 3230	
-2.5 m 8.3 ft	6890 ⁽²⁾	5260 11220	4230 9040	3380 7240	2990 6410	2440 5240	2280 4900	1890 4060	1830 3940	1520 3280	
-3.0 m -10.0 ft	6920 ⁽²⁾ 14530 ⁽²⁾	5340 11400	4290 9180	3430 7360	3040 6520	2490 5340	2320 4990	1920 4140	1870 4020	1560 3360	
-3.5 m -11.7 ft			3740 ⁽²⁾ 7650 ⁽²⁾	3520 7560	3020 ⁽²⁾ 6160 ⁽²⁾	2560 5500					

⁽¹⁾ Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.

⁽²⁾ The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 41

Table Continued													
H	R												
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		6.5 m 21.7 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S	F	S	F	S	m ft

(continued)

(Table 41, contd)

5.5 m 18.3 ft			990 ⁽¹⁾ -								1130 ⁽¹⁾ 2450 ⁽¹⁾	5.39 17.41	
5.0 m 16.7 ft			970 ⁽¹⁾ 2190 ⁽¹⁾	1110 ⁽¹⁾ -	1100 -						1170 2600 ⁽¹⁾	1000 2250	5.78 18.77
4.5 m 15.0 ft			1010 ⁽¹⁾ 2260 ⁽¹⁾	1130 ⁽¹⁾ 2510 ⁽¹⁾	1100 2340						1060 2370	900 2010	6.07 19.80
4.0 m 13.3 ft			1060 ⁽¹⁾ 2340 ⁽¹⁾	1160 ⁽¹⁾ 2580 ⁽¹⁾	1090 2320	1080 2310	920 1960				980 2180	830 1850	6.30 20.59
3.5 m 11.7 ft	1080 ⁽¹⁾ 2360 ⁽¹⁾		1160 ⁽¹⁾ 2540 ⁽¹⁾	1220 ⁽¹⁾ 2690 ⁽¹⁾	1070 2300	1070 2290	910 1940				920 2040	780 1730	6.47 21.18
3.0 m 10.0 ft	1290 ⁽¹⁾ 2800 ⁽¹⁾		1310 ⁽¹⁾ 2850 ⁽¹⁾	1250 2690	1240 2660	1060 2260	1060 2270	900 1920	910 -	770 -	880 1940	740 1640	6.60 21.62
2.5 m 8.3 ft	1560 ⁽¹⁾ 3360 ⁽¹⁾	1460 3140	1440 3080	1220 2620	1220 2610	1030 2220	1040 2230	880 1890	900 1920	760 1610	840 1860	710 1560	6.72 22.03
2.0 m 6.7 ft	1670 3590	1410 3040	1400 3010	1190 2550	1190 2560	1010 2170	1030 2200	870 1850	890 1900	750 1590	820 1800	680 1510	6.79 22.27
1.5 m 5.0 ft	1620 3490	1370 2490	1370 2940	1160 2480	1170 2510	990 2120	1010 2160	850 1820	880 1870	730 1570	800 1770	670 1480	6.81 22.35
1.0 m 3.3 ft	1580 3390	1330 2850	1340 2870	1120 2410	1150 2460	960 2070	990 2120	830 1780	860 1850	720 1540	800 1760	670 1470	6.79 22.27
0.5 m 1.7 ft	1540 3320	1290 2780	1310 2810	1100 2360	1130 2410	940 2020	980 2090	820 1750	850 1830	710 1520	810 1780	670 1480	6.72 22.04
0	1520 3260	1270 2730	1290 2770	1080 2320	1110 2380	930 1990	960 2070	810 1730	850 -	710 -	830 1820	690 1520	6.59 21.63
-0.5 m -1.7 ft	1500 3230	1250 2690	1270 2740	1070 2290	1100 2350	920 1970	960 2050	800 1710			860 1890	720 1580	6.42 21.05
-1.0 m -3.3 ft	1490 3210	1250 2670	1270 2720	1060 2270	1090 2340	910 1960	960 2050	800 1710			910 2010	760 1680	6.19 20.27
-1.5 m -5.0 ft	1490 3210	1240 2670	1270 2720	1060 2270	1090 2350	910 1960					990 2180	830 1820	5.89 19.27
-2.0 m -6.7 ft	1500 3230	1250 2690	1270 2740	1060 2290							1100 2450	920 2050	5.51 17.98
-2.5 m 8.3 ft	1520 3270	1270 2730	1300 -	1090 -							1290 2880	1080 2410	5.02 16.34
-3.0 m -10.0 ft											1620 3670	1360 3070	4.39 14.15
-3.5 m -11.7 ft											2460 5480 ⁽¹⁾	2040 4840	3.44 10.82

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 42

<p>308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 2.21 m (7 ft 3 inch) long stick, a 0.23 m³ (0.30 yd³) bucket, a 2320 mm (92 inch) blade, 450 mm (18 inch) rubber track, and a 1278 kg (2817 lb) standard counterweight (1) The blade is in the DOWN position. All lifting capacities are in kilograms and pounds.</p>					
H	R				
	2.0 m 6.7 ft	2.5 m 8.3 ft	3.0 m 10.0 ft	3.5 m 11.7 ft	4.0 m 13.3 ft

(continued)

Product Information Section
Lifting Capacities

(Table 42, contd)

	F	S	F	S	F	S	F	S	F	S
2.5 m 8.3 ft							1830 ⁽²⁾ 3880 ⁽²⁾		1660 ⁽²⁾ 3560 ⁽²⁾	
2.0 m 6.7 ft									2100 ⁽²⁾ 4480 ⁽²⁾	1890 4080
1.5 m 5.0 ft									2550 ⁽²⁾ 5430 ⁽²⁾	1830 3930
1.0 m 3.3 ft									2950 ⁽²⁾ 6290 ⁽²⁾	1770 3810
0.5 m 1.7 ft							4170 ⁽²⁾ 8910 ⁽²⁾	2110 4540	3250 ⁽²⁾ 6960 ⁽²⁾	1730 3710
0							4360 ⁽²⁾ 9340 ⁽²⁾	2090 4480	3460 ⁽²⁾ 7410 ⁽²⁾	1700 3650
-0.5 m -1.7 ft					3660 ⁽²⁾ 8470 ⁽²⁾	2680 5740	4430 ⁽²⁾ 9520 ⁽²⁾	2080 4460	3570 ⁽²⁾ 7680 ⁽²⁾	1680 3610
-1.0 m -3.3 ft	2760 ⁽²⁾ 6230 ⁽²⁾		3550 ⁽²⁾ 8110 ⁽²⁾	3550 ⁽²⁾ 8000	4870 ⁽²⁾ 11240 ⁽²⁾	2690 5760	4420 ⁽²⁾ 9510 ⁽²⁾	2070 4450	3610 ⁽²⁾ 7760 ⁽²⁾	1680 3600
-1.5 m -5.0 ft	3940 ⁽²⁾ 8930 ⁽²⁾		4820 ⁽²⁾ 10960 ⁽²⁾	3760 8050	5390 ⁽²⁾ 11580 ⁽²⁾	2700 5780	4330 ⁽²⁾ 9310 ⁽²⁾	2080 4460	3570 ⁽²⁾ 7680 ⁽²⁾	1680 3600
-2.0 m -6.7 ft	5290 ⁽²⁾ 11960 ⁽²⁾		6360 ⁽²⁾ 14050 ⁽²⁾	3790 8110	5100 ⁽²⁾ 10960 ⁽²⁾	2720 5830	4140 ⁽²⁾ 8900 ⁽²⁾	2090 4500	3450 ⁽²⁾ 7400 ⁽²⁾	1690 3620
-2.5 m 8.3 ft	6890 ⁽²⁾ 15700 ⁽²⁾	6080 12940	5950 ⁽²⁾ 12700 ⁽²⁾	3830 8200	4680 ⁽²⁾ 10020 ⁽²⁾	2750 5900	3840 ⁽²⁾ 8210 ⁽²⁾	2120 4550	3210 ⁽²⁾ 6850 ⁽²⁾	1710 3670
-3.0 m -10.0 ft	6920 ⁽²⁾ 14530 ⁽²⁾	6170 13130	5080 ⁽²⁾ 10750 ⁽²⁾	3890 8330	4060 ⁽²⁾ 8600 ⁽²⁾	2790 6000	3340 ⁽²⁾ 7070 ⁽²⁾	2150 4630	2760 ⁽²⁾ 5800 ⁽²⁾	1740 3750
-3.5 m -11.7 ft			3740 ⁽²⁾ 7650 ⁽²⁾		3020 ⁽²⁾ 6160 ⁽²⁾	2860 6160 ⁽²⁾				

(1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.

(2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 43

Table Continued													
H	R												
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		6.5 m 21.7 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S	F	S	F	S	m ft
5.5 m 18.3 ft			990 ⁽¹⁾ -								1130 ⁽¹⁾ 2450 ⁽¹⁾		5.39 17.41
5.0 m 16.7 ft			970 ⁽¹⁾ 2190 ⁽¹⁾		1110 ⁽¹⁾ -						1190 ⁽¹⁾ 2600 ⁽¹⁾	1110 2490	5.78 18.77
4.5 m 15.0 ft			1010 ⁽¹⁾ 2260 ⁽¹⁾		1130 ⁽¹⁾ 2510 ⁽¹⁾						1250 ⁽¹⁾ 2740 ⁽¹⁾	1000 2230	6.07 19.80
4.0 m 13.3 ft			1060 ⁽¹⁾ 2340 ⁽¹⁾		1160 ⁽¹⁾ 2580 ⁽¹⁾	1160 ⁽¹⁾ 2570	1260 ⁽¹⁾ 2790 ⁽¹⁾	1020 2180			1300 ⁽¹⁾ 2850 ⁽¹⁾	930 2050	6.30 20.59

(continued)

(Table 43, contd)

3.5 m 11.7 ft	1080 ⁽¹⁾ 2360 ⁽¹⁾	1160 ⁽¹⁾ 2540 ⁽¹⁾	1220 ⁽¹⁾ 2690 ⁽¹⁾	1190 2540	1290 ⁽¹⁾ 2860 ⁽¹⁾	1010 2160			1310 ⁽¹⁾ 2880 ⁽¹⁾	870 1930	6.47 21.18		
3.0 m 10.0 ft	1290 ⁽¹⁾ 2800 ⁽¹⁾	1310 ⁽¹⁾ 2850 ⁽¹⁾	1320 ⁽¹⁾ 2890 ⁽¹⁾	1170 2510	1350 ⁽¹⁾ 2970 ⁽¹⁾	1000 2140	1400 ⁽¹⁾ -	860 -	1330 ⁽¹⁾ 2920 ⁽¹⁾	830 1830	6.60 21.62		
2.5 m 8.3 ft	1560 ⁽¹⁾ 3360 ⁽¹⁾	1490 ⁽¹⁾ 3230 ⁽¹⁾	1350 2900	1450 ⁽¹⁾ 3160 ⁽¹⁾	1150 2460	1430 ⁽¹⁾ 3140 ⁽¹⁾	980 2100	1440 ⁽¹⁾ 3190 ⁽¹⁾	850 1810	1340 ⁽¹⁾ 2950 ⁽¹⁾	790 1750	6.72 22.03	
2.0 m 6.7 ft	1850 ⁽¹⁾ 3980 ⁽¹⁾	1570 3370	1700 ⁽¹⁾ 3670 ⁽¹⁾	1320 2830	1600 ⁽¹⁾ 3470 ⁽¹⁾	1120 2410	1540 ⁽¹⁾ 3350 ⁽¹⁾	970 2070	1510 ⁽¹⁾ 3310 ⁽¹⁾	840 1780	1370 ⁽¹⁾ 3010 ⁽¹⁾	770 1690	6.79 22.27
1.5 m 5.0 ft	2150 ⁽¹⁾ 4620 ⁽¹⁾	1520 3270	1910 ⁽¹⁾ 4120 ⁽¹⁾	1290 2760	1750 ⁽¹⁾ 3800 ⁽¹⁾	1100 2360	1650 ⁽¹⁾ 3590 ⁽¹⁾	950 2030	1580 ⁽¹⁾ 3460 ⁽¹⁾	820 1760	1410 ⁽¹⁾ 3100 ⁽¹⁾	760 1660	6.81 22.35
1.0 m 3.3 ft	2440 ⁽¹⁾ 5220 ⁽¹⁾	1480 3180	2120 ⁽¹⁾ 4560 ⁽¹⁾	1250 2690	1900 ⁽¹⁾ 4120 ⁽¹⁾	1080 2310	1760 ⁽¹⁾ 3820 ⁽¹⁾	930 2000	1660 ⁽¹⁾ 3620 ⁽¹⁾	810 1740	1460 ⁽¹⁾ 3220 ⁽¹⁾	750 1650	6.79 22.27
0.5 m 1.7 ft	2670 ⁽¹⁾ 5740 ⁽¹⁾	1440 3100	2300 ⁽¹⁾ 4950 ⁽¹⁾	1230 2640	2040 ⁽¹⁾ 4410 ⁽¹⁾	1060 2270	1860 ⁽¹⁾ 4030 ⁽¹⁾	920 1970	1730 ⁽¹⁾ 3760 ⁽¹⁾	800 1720	1540 ⁽¹⁾ 3390 ⁽¹⁾	760 1670	6.72 22.04
0	2850 ⁽¹⁾ 6130 ⁽¹⁾	1420 3050	2440 ⁽¹⁾ 5260 ⁽¹⁾	1210 2590	2150 ⁽¹⁾ 4650 ⁽¹⁾	1040 2230	1940 ⁽¹⁾ 4200 ⁽¹⁾	910 1940	1780 ⁽¹⁾ -	790 -	1640 ⁽¹⁾ 3610 ⁽¹⁾	780 1710	6.59 21.63
-0.5 m -1.7 ft	2970 ⁽¹⁾ 6390 ⁽¹⁾	1400 3010	2540 ⁽¹⁾ 5480 ⁽¹⁾	1190 2560	2230 ⁽¹⁾ 4810 ⁽¹⁾	1030 2210	1990 ⁽¹⁾ 4300 ⁽¹⁾	900 1930			1770 ⁽¹⁾ 3910 ⁽¹⁾	810 1780	6.42 21.05
-1.0 m -3.3 ft	3020 ⁽¹⁾ 6510 ⁽¹⁾	1400 3000	2590 ⁽¹⁾ 5580 ⁽¹⁾	1190 2550	2270 ⁽¹⁾ 4880 ⁽¹⁾	1020 2200	2000 ⁽¹⁾ 4300 ⁽¹⁾	900 1920			1900 ⁽¹⁾ 4200 ⁽¹⁾	860 1890	6.19 20.27
-1.5 m -5.0 ft	3010 ⁽¹⁾ 6480 ⁽¹⁾	1400 3000	2580 ⁽¹⁾ 5550 ⁽¹⁾	1190 2550	2240 ⁽¹⁾ 4800 ⁽¹⁾	1030 2200					1990 ⁽¹⁾ 4400 ⁽¹⁾	930 2050	5.89 19.27
-2.0 m -6.7 ft	2920 ⁽¹⁾ 6250 ⁽¹⁾	1400 3010	2490 ⁽¹⁾ 5320 ⁽¹⁾	1190 2570							2090 ⁽¹⁾ 4630 ⁽¹⁾	1040 2300	5.51 17.98
-2.5 m 8.3 ft	2700 ⁽¹⁾ 5740 ⁽¹⁾	1420 3060	2230 ⁽¹⁾ -	1220 -							2210 ⁽¹⁾ 4890 ⁽¹⁾	1210 2700	5.02 16.34
-3.0 m -10.0 ft											2340 ⁽¹⁾ 5180 ⁽¹⁾	1510 3430	4.39 14.15
-3.5 m -11.7 ft											2470 ⁽¹⁾ 5480 ⁽¹⁾	2280 5410	3.44 10.82

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Extra Counterweight

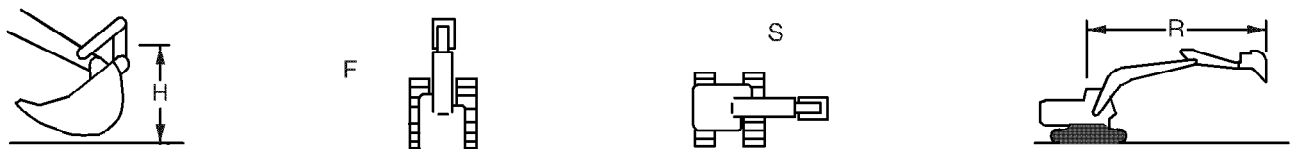


Illustration 43

g01055537

(H) Height
(F) Lifting capacity over the front of the machine or over the rear of the machine

(S) Lifting capacity over the side of the machine
(R) Reach

Medium Stick

Steel track

Table 44

308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 1.67 m (5 ft 6 inch) medium stick, a 0.23 m ³ (0.30 yd ³) bucket, a 2320 mm (92 inch) blade, 450 mm (18 inch) triple grouser track shoes, and a1530 kg (3373 lb) extra counterweight ⁽¹⁾										
The blade is in the UP position.										
All lifting capacities are in kilograms and pounds.										
H	R									
	2.0 m 6.7 ft		2.5 m 8.3 ft		3.0 m 10.0 ft		3.5 m 11.7 ft		4.0 m 13.3 ft	
	F	S	F	S	F	S	F	S	F	S
3.5 m 11.7 ft										1470 ⁽²⁾ 3180 ⁽²⁾
3.0 m 10.0 ft					2320 ⁽²⁾ 4780 ⁽²⁾		1980 ⁽²⁾ 4180 ⁽²⁾			1800 ⁽²⁾ 3850 ⁽²⁾
2.5 m 8.3 ft							2660 ⁽²⁾ 5580 ⁽²⁾	2340 5040	2200 ⁽²⁾ 4680 ⁽²⁾	1900 4100
2.0 m 6.7 ft							- 5740	- 4820	2180 4690	1840 3970
1.5 m 5.0 ft									2120 4560	1790 3850
1.0 m 3.3 ft									2080 4470	1750 3760
0.5 m 1.7 ft							2520 5420	2100 4510	2050 4410	1720 3700
0							2520 5400	2090 4500	2040 4380	1710 3670
-0.5 m -1.7 ft					3290 7040	2700 5800	2520 5410	2100 4500	2030 4370	1700 3660
-1.0 m -3.3 ft	3420 ⁽²⁾ 7750 ⁽²⁾		4370 ⁽²⁾ 9960	3750 8020	3300 7060	2710 5810	2530 5420	2100 4520	2040 4370	1710 3670
-1.5 m -5.0 ft	5340 ⁽²⁾ 11970 ⁽²⁾		4680 10000	3760 8050	3320 7100	2730 5850	2540 5450	2120 4550	2050 4390	1720 3690
-2.0 m -6.7 ft	4650 ⁽²⁾ 10710 ⁽²⁾		4710 10070	3790 8120	3340 7160	2750 5910	2560 5500	2140 4590	2060 4440	1730 3730
-2.5 m 8.3 ft	6100 ⁽²⁾ 12940	5940 12670	4760 10180 ⁽²⁾	3840 8220	3380 7260	2790 5990	2600 5580	2170 4670	2100 4520	1770 3810
-3.0 m -10.0 ft			3490 ⁽²⁾ 7230 ⁽²⁾		2920 ⁽²⁾ 6000 ⁽²⁾	2850 6000 ⁽²⁾				

(1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
 (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 45

Table Continued					
H	R				
	4.5 m 15.0 ft	5.0 m 16.7 ft	5.5 m 18.3 ft	6.0 m 20.0 ft	Maximum Load Radius

(continued)

Product Information Section
Lifting Capacities

(Table 45, contd)

	F	S	F	S	F	S	F	S	F	S	m ft
5.5 m 18.3 ft									1110 ⁽¹⁾ 2380 ⁽¹⁾		4.60 14.77
5.0 m 16.7 ft	1230 ⁽¹⁾ 2750 ⁽¹⁾								1290 ⁽¹⁾ 2770 ⁽¹⁾		5.08 16.45
4.5 m 15.0 ft	1270 ⁽¹⁾ 2840 ⁽¹⁾		1380 ⁽¹⁾ 3060 ⁽¹⁾	1380 ⁽¹⁾ 3030					1420 ⁽¹⁾ 3120 ⁽¹⁾	1220 2730	5.43 17.68
4.0 m 13.3 ft	1340 ⁽¹⁾ 2940 ⁽¹⁾		1410 ⁽¹⁾ 3130 ⁽¹⁾	1400 3010	1380 -	1180 -			1300 2890	1110 2480	5.69 18.59
3.5 m 11.7 ft	1480 ⁽¹⁾ 3230 ⁽¹⁾		1500 ⁽¹⁾ 3290 ⁽¹⁾	1390 2980	1370 2940	1180 2520			1220 2690	1040 2300	5.88 19.25
3.0 m 10.0 ft	1700 ⁽¹⁾ 3660 ⁽¹⁾	1620 3490	1600 3430	1370 2930	1360 2920	1160 2490			1140 2530	980 2160	6.07 19.85
2.5 m 8.3 ft	1860 4000	1580 3410	1570 3370	1340 2880	1340 2880	1150 2460	1160 -	990 -	1090 2410	930 2050	6.20 20.30
2.0 m 6.7 ft	1820 3900	1540 3320	1540 3310	1310 2820	1320 2840	1130 2420	1150 2450	970 2090	1060 2340	900 1990	6.27 20.57
1.5 m 5.0 ft	1780 3820	1510 3240	1510 3250	1280 2760	1300 2790	1110 2380	1130 2430	960 2060	1040 2300	890 1950	6.30 20.66
1.0 m 3.3 ft	1740 3750	1470 3170	1490 3190	1260 2710	1280 2760	1090 2340	1120 2400	950 2040	1040 2290	880 1950	6.27 20.58
0.5 m 1.7 ft	1720 3690	1450 3120	1470 3150	1240 2670	1270 2720	1080 2310	1110 -	940 -	1060 2330	900 1970	6.19 20.31
0	1700 3660	1440 3090	1450 3120	1230 2640	1260 2700	1070 2290			1090 2400	920 2030	6.05 19.86
-0.5 m -1.7 ft	1700 3640	1430 3070	1450 3110	1220 2630	1250 2700	1060 2280			1140 2520	970 2130	5.86 19.21
-1.0 m -3.3 ft	1700 3640	1430 3070	1450 3110	1220 2630	1260	1060			1230 2710	1040 2290	5.60 18.33
-1.5 m -5.0 ft	1700 3660	1440 3090	1450 3130	1230 2650					1360 3000	1150 2540	5.25 17.18
-2.0 m -6.7 ft	1720 3700	1450 3130							1560 3480	1320 2940	4.81 15.66
-2.5 m 8.3 ft									1940 4370	1640 3690	4.21 13.62
-3.0 m -10.0 ft									2560 ⁽¹⁾ 5630 ⁽¹⁾	2430 5630 ⁽¹⁾	3.31 10.47

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 46

308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 1.67 m (5 ft 6 inch) medium stick, a 0.23 m³ (0.30 yd³) bucket, a 2320 mm (92 inch) blade, 450 mm (18 inch) triple grouser track shoes, and a 1530 kg (3373 lb) extra counterweight ⁽¹⁾ The blade is in the DOWN position. All lifting capacities are in kilograms and pounds.					
H	R				
	2.0 m 6.7 ft	2.5 m 8.3 ft	3.0 m 10.0 ft	3.5 m 11.7 ft	4.0 m 13.3 ft

(continued)

(Table 46, contd)

	F	S	F	S	F	S	F	S	F	S
3.5 m 11.7 ft									1470 ⁽²⁾ 3180 ⁽²⁾	
3.0 m 10.0 ft					2320 ⁽²⁾ 4780 ⁽²⁾		1980 ⁽²⁾ 4180 ⁽²⁾		1800 ⁽²⁾ 3850 ⁽²⁾	
2.5 m 8.3 ft							2660 ⁽²⁾ 5580 ⁽²⁾	2580 5560	2200 ⁽²⁾ 4680 ⁽²⁾	2100 4520
2.0 m 6.7 ft							- 7230 ⁽²⁾	- 5330	2640 ⁽²⁾ 5600 ⁽²⁾	2030 4380
1.5 m 5.0 ft									3050 ⁽²⁾ 6480 ⁽²⁾	1980 4260
1.0 m 3.3 ft									3360 ⁽²⁾ 7160 ⁽²⁾	1940 4170
0.5 m 1.7 ft							3870 ⁽²⁾ 9580 ⁽²⁾	2340 5020	3550 ⁽²⁾ 7600 ⁽²⁾	1910 4110
0							4500 ⁽²⁾ 9670 ⁽²⁾	2330 5010	3650 ⁽²⁾ 7830 ⁽²⁾	1900 4080
-0.5 m -1.7 ft					4140 ⁽²⁾ 9700 ⁽²⁾	3020 6480	4440 ⁽²⁾ 9570 ⁽²⁾	2330 5010	3660 ⁽²⁾ 7880 ⁽²⁾	1890 4070
-1.0 m -3.3 ft	3420 ⁽²⁾ 7750 ⁽²⁾		4370 ⁽²⁾ 10030 ⁽²⁾	4220 9030	4820 ⁽²⁾ 11300 ⁽²⁾	3030 6500	4320 ⁽²⁾ 9320 ⁽²⁾	2340 5030	3610 ⁽²⁾ 7770 ⁽²⁾	1900 4080
-1.5 m -5.0 ft	5340 ⁽²⁾ 11970 ⁽²⁾		4730 ⁽²⁾ 10280 ⁽²⁾	4240 9070	4960 ⁽²⁾ 10700 ⁽²⁾	3050 6530	4120 ⁽²⁾ 8880 ⁽²⁾	2350 5060	3470 ⁽²⁾ 7470 ⁽²⁾	1910 4100
-2.0 m -6.7 ft	4650 ⁽²⁾ 10710 ⁽²⁾		5570 ⁽²⁾ 11960 ⁽²⁾	4270 9130	4560 ⁽²⁾ 9790 ⁽²⁾	3070 6590	3810 ⁽²⁾ 8190 ⁽²⁾	2380 5100	3220 ⁽²⁾ 6900 ⁽²⁾	1920 4140
-2.5 m 8.3 ft	6100 ⁽²⁾ 12940		4770 ⁽²⁾ 10180 ⁽²⁾	4320 9240	3950 ⁽²⁾ 8420 ⁽²⁾	3110 6680	3320 ⁽²⁾ 7050 ⁽²⁾	2410 5180	2760 ⁽²⁾ 5790 ⁽²⁾	1960 4220
-3.0 m -10.0 ft			3490 ⁽²⁾ 7230 ⁽²⁾		2920 ⁽²⁾ 6000 ⁽²⁾					

- (1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
- (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 47

Table Continued											
H	R										
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S	F	S	m ft
5.5 m 18.3 ft									1110 ⁽¹⁾ 2380 ⁽¹⁾		4.60 14.77
5.0 m 16.7 ft	1230 ⁽¹⁾ 2750 ⁽¹⁾								1290 ⁽¹⁾ 2770 ⁽¹⁾		5.08 16.45
4.5 m 15.0 ft	1270 ⁽¹⁾ 2840 ⁽¹⁾		1380 ⁽¹⁾ 3060 ⁽¹⁾						1420 ⁽¹⁾ 3120 ⁽¹⁾	1340 3000	5.43 17.68

(continued)

Product Information Section
Lifting Capacities

(Table 47, contd)

4.0 m 13.3 ft	1340 ⁽¹⁾ 2940 ⁽¹⁾		1410 ⁽¹⁾ 3130 ⁽¹⁾	1500 ⁽¹⁾ -	1300 -			1430 ⁽¹⁾ 3140 ⁽¹⁾	1230 2730	5.69 18.59	
3.5 m 11.7 ft	1480 ⁽¹⁾ 3230 ⁽¹⁾		1500 ⁽¹⁾ 3290 ⁽¹⁾	1500 ⁽¹⁾ 3270	1540 ⁽¹⁾ 3390 ⁽¹⁾	1300 2770		1460 ⁽¹⁾ 3200 ⁽¹⁾	1150 2540	5.88 19.25	
3.0 m 10.0 ft	1700 ⁽¹⁾ 3660 ⁽¹⁾		1640 ⁽¹⁾ 3560 ⁽¹⁾	1500 3230	1610 ⁽¹⁾ 3530 ⁽¹⁾	1280 2750		1470 ⁽¹⁾ 3230 ⁽¹⁾	1080 2390	6.07 19.85	
2.5 m 8.3 ft	1950 ⁽¹⁾ 4200 ⁽¹⁾	1740 3750	1810 ⁽¹⁾ 3920 ⁽¹⁾	1470 3170	1730 ⁽¹⁾ 3760 ⁽¹⁾	1260 2710	1690 ⁽¹⁾ -	1090 -	1480 ⁽¹⁾ 3260 ⁽¹⁾	1030 2270	6.20 20.30
2.0 m 6.7 ft	2230 ⁽¹⁾ 4790 (1)	1700 3660	2000 ⁽¹⁾ 4320 ⁽¹⁾	1450 3110	1860 ⁽¹⁾ 4030 ⁽¹⁾	1240 2670	1770 ⁽¹⁾ 3870 ⁽¹⁾	1080 2310	1520 ⁽¹⁾ 3340 ⁽¹⁾	1000 2200	6.27 20.57
1.5 m 5.0 ft	2510 ⁽¹⁾ 5370 ⁽¹⁾	1660 3580	2190 ⁽¹⁾ 4720 ⁽¹⁾	1420 3050	1990 ⁽¹⁾ 4310 ⁽¹⁾	1220 2630	1860 ⁽¹⁾ 4050 ⁽¹⁾	1070 2280	1570 ⁽¹⁾ 3450 ⁽¹⁾	980 2160	6.30 20.66
1.0 m 3.3 ft	2740 ⁽¹⁾ 5880 ⁽¹⁾	1630 3510	2360 ⁽¹⁾ 5080 ⁽¹⁾	1390 3000	2110 ⁽¹⁾ 4570 ⁽¹⁾	1210 2590	1940 ⁽¹⁾ 4220 ⁽¹⁾	1050 2260	1650 ⁽¹⁾ 3620 ⁽¹⁾	980 2160	6.27 20.58
0.5 m 1.7 ft	2920 ⁽¹⁾ 6270 ⁽¹⁾	1610 3460	2500 ⁽¹⁾ 5390 ⁽¹⁾	1380 2960	2220 ⁽¹⁾ 4790 ⁽¹⁾	1190 2560	2010 ⁽¹⁾ -	1040 -	1750 ⁽¹⁾ 3840 ⁽¹⁾	990 2190	6.19 20.31
0	3030 ⁽¹⁾ 6520 ⁽¹⁾	1590 3420	2600 ⁽¹⁾ 5600 ⁽¹⁾	1360 2930	2290 ⁽¹⁾ 4940 ⁽¹⁾	1180 2540			1880 ⁽¹⁾ 4140 ⁽¹⁾	1020 2250	6.05 19.86
-0.5 m -1.7 ft	3080 ⁽¹⁾ 6630 ⁽¹⁾	1590 3410	2640 ⁽¹⁾ 5690 ⁽¹⁾	1360 2910	2310 ⁽¹⁾ 4980 ⁽¹⁾	1180 2530			2070 ⁽¹⁾ 4560 ⁽¹⁾	1070 2370	5.86 19.21
-1.0 m -3.3 ft	3060 ⁽¹⁾ 6580 ⁽¹⁾	1590 3410	2630 ⁽¹⁾ 5650 ⁽¹⁾	1350 2910	2270 ⁽¹⁾ -	1180 ⁽¹⁾ -			2200 ⁽¹⁾ 4850 ⁽¹⁾	1150 2540	5.60 18.33
-1.5 m -5.0 ft	2950 ⁽¹⁾ 6340 ⁽¹⁾	1590 3420	2520 ⁽¹⁾ 5370 ⁽¹⁾	1360 2930					2300 ⁽¹⁾ 5070 ⁽¹⁾	1270 2810	5.25 17.18
-2.0 m -6.7 ft	2720 ⁽¹⁾ 5780 ⁽¹⁾	1610 3470							2410 ⁽¹⁾ 5230 ⁽¹⁾	1470 3260	4.81 15.66
-2.5 m 8.3 ft									2510 ⁽¹⁾ 5550 ⁽¹⁾	1810 4090	4.21 13.62
-3.0 m -10.0 ft									2560 ⁽¹⁾ 5630 ⁽¹⁾		3.31 10.47

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 48

308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 1.67 m (5 ft 6 inch) medium stick, a 0.23 m ³ (0.30 yd ³) bucket, a 2470 mm (97 inch) blade, 600 mm (24 inch) triple grouser track shoes, and a 1530 kg (3373 lb) extra counterweight (1)										
The blade is in the UP position.										
All lifting capacities are in kilograms and pounds.										
H	R									
	2.0 m 6.7 ft		2.5 m 8.3 ft		3.0 m 10.0 ft		3.5 m 11.7 ft		4.0 m 13.3 ft	
	F	S	F	S	F	S	F	S	F	S
3.5 m 11.7 ft										1470 ⁽²⁾ 3180 ⁽²⁾
3.0 m 10.0 ft					2320 ⁽²⁾ 4780 ⁽²⁾		1980 ⁽²⁾ 4180 ⁽²⁾			1800 ⁽²⁾ 3850 ⁽²⁾
2.5 m 8.3 ft							2660 ⁽²⁾ 5580 ⁽²⁾	2400 5170	2200 ⁽²⁾ 4680 ⁽²⁾	1960 4210

(continued)

(Table 48, contd)

2.0 m 6.7 ft							- 5810	- 4950	2220 4780	1890 4080
1.5 m 5.0 ft									2160 4650	1840 3960
1.0 m 3.3 ft									2120 4560	1800 3870
0.5 m 1.7 ft							2570 5530	2160 4650	2090 4500	1770 3820
0							2570 5510	2160 4630	2080 4470	1760 3790
-0.5 m -1.7 ft					3350 7180	2780 5960	2570 5510	2160 4640	2070 4460	1760 3780
-1.0 m -3.3 ft	3420 ⁽²⁾ 7750 ⁽²⁾		4370 ⁽²⁾ 10030 ⁽²⁾	3850 8240	3360 7200	2790 5980	2580 5530	2170 4650	2080 4460	1760 3780
-1.5 m -5.0 ft	5340 ⁽²⁾ 11970 ⁽²⁾		4730 ⁽²⁾ 10190	3870 8280	3380 7240	2800 6020	2590 5560	2180 4680	2090 4480	1770 3800
-2.0 m -6.7 ft	4650 ⁽²⁾ 10710 ⁽²⁾		4800 10260	3890 8340	3410 7300	2830 6070	2610 5610	2200 4730	2110 4530	1790 3840
-2.5 m 8.3 ft	6100 ⁽²⁾ 12940 ⁽²⁾	6090 12940 ⁽²⁾	4770 ⁽²⁾ 10180 ⁽²⁾	3940 8440	3450 7390	2870 6160	2650 5690	2230 4800	2140 4610	1820 3920
-3.0 m -10.0 ft			3490 ⁽²⁾ 7230 ⁽²⁾		2920 ⁽²⁾ 6000 ⁽²⁾					

- (1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
- (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 49

Table Continued											
H	R										
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S	F	S	M FT
5.5 m 18.3 ft									1110 ⁽¹⁾ 2380 ⁽¹⁾		4.60 14.77
5.0 m 16.7 ft	1230 ⁽¹⁾ 2750 ⁽¹⁾								1290 ⁽¹⁾ 2770 ⁽¹⁾		5.08 16.45
4.5 m 15.0 ft	1270 ⁽¹⁾ 2840 ⁽¹⁾		1380 ⁽¹⁾ 3060 ⁽¹⁾						1420 ⁽¹⁾ 3120 ⁽¹⁾	1260 2810	5.43 17.68
4.0 m 13.3 ft	1340 ⁽¹⁾ 2940 ⁽¹⁾		1410 ⁽¹⁾ 3130 ⁽¹⁾	1410 ⁽¹⁾ 3090	1410 -	1220 -			1330 2950	1150 2550	5.69 18.59
3.5 m 11.7 ft	1480 ⁽¹⁾ 3230 ⁽¹⁾		1500 ⁽¹⁾ 3290 ⁽¹⁾	1430 3060	1400 3000	1210 2590			1240 2750	1070 2370	5.88 19.25
3.0 m 10.0 ft	1700 ⁽¹⁾ 3660 ⁽¹⁾	1670 3590	1630 3490	1410 3020	1390 2980	1200 2570			1170 2580	1010 2230	6.07 19.85
2.5 m 8.3 ft	1890 4070	1630 3500	1600 3440	1380 2960	1370 2940	1180 2530	1180 -	1020 -	1120 2460	960 2120	6.20 20.30

(continued)

Product Information Section
Lifting Capacities

(Table 49, contd)

2.0 m 6.7 ft	1850 3980	1590 3420	1570 3370	1350 2900	1350 2900	1160 2490	1170 2510	1010 2160	1080 2390	930 2050	6.27 20.57
1.5 m 5.0 ft	1810 3900	1550 3340	1540 3310	1320 2840	1330 2850	1140 2450	1160 2480	990 2130	1070 2350	920 2020	6.30 20.66
1.0 m 3.3 ft	1780 3820	1520 3270	1520 3260	1300 2790	1310 2810	1120 2410	1140 2460	980 2100	1070 2350	910 2010	6.27 20.58
0.5 m 1.7 ft	1750 3770	1490 3220	1500 3220	1280 2750	1300 2780	1110 2380	1130	970	1080 2380	930 2040	6.19 20.31
0	1740 3740	1480 3180	1480 3190	1270 2720	1290 2760	1100 2360			1110 2450	950 2100	6.05 19.86
-0.5 m -1.7 ft	1730 3720	1470 3170	1480 3170	1260 2710	1280 2750	1100 2360			1170 2570	1000 2200	5.86 19.21
-1.0 m -3.3 ft	1730 3720	1470 3170	1480 3170	1260 2710	1280	1100			1250 2760	1070 2370	5.60 18.33
-1.5 m -5.0 ft	1740 3740	1480 3180	1480 3200	1270 2730					1380 3060	1180 2620	5.25 17.18
-2.0 m -6.7 ft	1760 3780	1500 3220							1600 3550	1360 3040	4.81 15.66
-2.5 m -8.3 ft									1980 4460	1690 3800	4.21 13.62
-3.0 m -10.0 ft									2560 ⁽¹⁾ 5630 ⁽¹⁾	2500 5630 ⁽¹⁾	3.31 10.47

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 50

308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 1.67 m (5 ft 6 inch) medium stick, a 0.23 m³ (0.30 yd³) bucket, a 2470 mm (97 inch) blade, 600 mm (24 inch) triple grouser track shoes, and a 1530 kg (3373 lb) extra counterweight ⁽¹⁾ The blade is in the DOWN position. All lifting capacities are in kilograms and pounds.											
H	R										
	2.0 m 6.7 ft		2.5 m 8.3 ft		3.0 m 10.0 ft		3.5 m 11.7 ft		4.0 m 13.3 ft		
	F	S	F	S	F	S	F	S	F	S	
3.5 m 11.7 ft										1470 ⁽²⁾ 3180 ⁽²⁾	
3.0 m 10.0 ft					2320 ⁽²⁾ 4780 ⁽²⁾		1980 ⁽²⁾ 4180 ⁽²⁾			1800 ⁽²⁾ 3850 ⁽²⁾	
2.5 m 8.3 ft							2660 ⁽²⁾ 5580 ⁽²⁾			2200 ⁽²⁾ 4680 ⁽²⁾	
2.0 m 6.7 ft							- 7230 ⁽²⁾	- 5720		2640 ⁽²⁾ 5600 ⁽²⁾	2180 4700
1.5 m 5.0 ft										3050 ⁽²⁾ 6480 ⁽²⁾	2120 4570
1.0 m 3.3 ft										3360 ⁽²⁾ 7160 ⁽²⁾	2080 4480
0.5 m 1.7 ft							3870 ⁽²⁾ 9580 ⁽²⁾	2520 5410		3550 ⁽²⁾ 7600 ⁽²⁾	2060 4420

(continued)

(Table 50, contd)

0							4500 ⁽²⁾ 9670 ⁽²⁾	2510 5400	3650 ⁽²⁾ 7830 ⁽²⁾	2040 4390
-0.5 m -1.7 ft					4140 ⁽²⁾ 9700 ⁽²⁾	3260 6980	4440 ⁽²⁾ 9570 ⁽²⁾	2510 5400	3660 ⁽²⁾ 7880 ⁽²⁾	2040 4380
-1.0 m -3.3 ft	3420 ⁽²⁾ 7750 ⁽²⁾		4370 ⁽²⁾ 10030 ⁽²⁾	4370 ⁽²⁾ 9760	4820 ⁽²⁾ 11300 ⁽²⁾	3270 7000	4320 ⁽²⁾ 9320 ⁽²⁾	2520 5410	3610 ⁽²⁾ 7770 ⁽²⁾	2040 4390
-1.5 m -5.0 ft	5340 ⁽²⁾ 11970 ⁽²⁾		4370 ⁽²⁾ 10280 ⁽²⁾	4580 9800	4960 ⁽²⁾ 10700 ⁽²⁾	3280 7040	4120 ⁽²⁾ 8880 ⁽²⁾	2540 5440	3470 ⁽²⁾ 7470 ⁽²⁾	2050 4410
-2.0 m -6.7 ft	4650 ⁽²⁾ 10710 ⁽²⁾		5570 ⁽²⁾ 11960	4610 9870	4560 ⁽²⁾ 9790 ⁽²⁾	3310 7100	3810 ⁽²⁾ 8190 ⁽²⁾	2560 5490	3220 ⁽²⁾ 6900 ⁽²⁾	2070 4450
-2.5 m 8.3 ft	6100 ⁽²⁾ 12940		4770 ⁽²⁾ 10180 ⁽²⁾	4660 9980	3950 ⁽²⁾ 8420 ⁽²⁾	3350 7190	3320 ⁽²⁾ 7050 ⁽²⁾	2590 5570	2760 ⁽²⁾ 5790 ⁽²⁾	2100 4530
-3.0 m -10.0 ft			3490 ⁽²⁾ 7230 ⁽²⁾		2920 ⁽²⁾ 6000 ⁽²⁾					

(1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
 (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 51

Table Continued											
H	R										
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S	F	S	m ft
5.5 m 18.3 ft									1110 ⁽¹⁾ 2380 ⁽¹⁾		4.60 14.77
5.0 m 16.7 ft	1230 ⁽¹⁾ 2750 ⁽¹⁾								1290 ⁽¹⁾ 2770 ⁽¹⁾		5.08 16.45
4.5 m 15.0 ft	12.70 ⁽¹⁾ 2840 ⁽¹⁾		1380 ⁽¹⁾ 3060 ⁽¹⁾						1420 ⁽¹⁾ 3120		5.43 17.68
4.0 m 13.3 ft	1340 ⁽¹⁾ 2940 ⁽¹⁾		1410 ⁽¹⁾ 3130 ⁽¹⁾		1500 ⁽¹⁾ -	1390 -			1430 ⁽¹⁾ 3140 ⁽¹⁾	1310 2920	5.69 18.59
3.5 m 11.7 ft	1480 ⁽¹⁾ 3230 ⁽¹⁾		1500 ⁽¹⁾ 3290 ⁽¹⁾		1540 ⁽¹⁾ 3390 ⁽¹⁾	1390 2970			1460 ⁽¹⁾ 3200 ⁽¹⁾	1230 2720	5.88 19.25
3.0 m 10.0 ft	1700 ⁽¹⁾ 3660 ⁽¹⁾		1640 ⁽¹⁾ 3560 ⁽¹⁾	1600 3430	1610 ⁽¹⁾ 3530 ⁽¹⁾	1360 2930			1470 ⁽¹⁾ 3230 ⁽¹⁾	1160 2560	6.07 19.85
2.5 m 8.3 ft	1950 ⁽¹⁾ 4200 ⁽¹⁾	1870 4010	1810 ⁽¹⁾ 3920 ⁽¹⁾	1580 3400	1730 3760 ⁽¹⁾	1360 2910	1690 ⁽¹⁾ -	1170 -	1480 ⁽¹⁾ 3260 ⁽¹⁾	1110 2440	6.20 20.30
2.0 m 6.7 ft	2230 ⁽¹⁾ 4790 ⁽¹⁾	1820 3930	2000 ⁽¹⁾ 4320 ⁽¹⁾	1550 3330	1860 ⁽¹⁾ 4030 ⁽¹⁾	1330 2870	1770 ⁽¹⁾ 3870 ⁽¹⁾	1160 2490	1520 ⁽¹⁾ 3340 ⁽¹⁾	1080 2370	6.27 20.57
1.5 m 5.0 ft	2510 ⁽¹⁾ 5370 ⁽¹⁾	1790 3840	2190 ⁽¹⁾ 4720 ⁽¹⁾	1520 3270	1990 ⁽¹⁾ 4310 ⁽¹⁾	1320 2830	1860 ⁽¹⁾ 4050 ⁽¹⁾	1150 2460	1570 ⁽¹⁾ 3450 ⁽¹⁾	1060 2330	6.30 20.66
1.0 m 3.3 ft	2740 ⁽¹⁾ 5880 ⁽¹⁾	1750 3770	2360 ⁽¹⁾ 5080 ⁽¹⁾	1500 3220	2110 ⁽¹⁾ 4570 ⁽¹⁾	1300 2790	1940 ⁽¹⁾ 4220 ⁽¹⁾	1130 2430	1650 ⁽¹⁾ 3620 ⁽¹⁾	1060 2330	6.27 20.58
0.5 m 1.7 ft	2920 ⁽¹⁾ 6270 ⁽¹⁾	1730 3720	2500 ⁽¹⁾ 5390 ⁽¹⁾	1480 3180	2220 ⁽¹⁾ 4790 ⁽¹⁾	1280 2760	2010 ⁽¹⁾ -	1120 -	1750 ⁽¹⁾ 3840 ⁽¹⁾	1070 2360	6.19 20.31

(continued)

Product Information Section
Lifting Capacities

(Table 51, contd)

0	3030 ⁽¹⁾ 6520 ⁽¹⁾	1710 3690	2600 ⁽¹⁾ 5600 ⁽¹⁾	1470 3150	2290 ⁽¹⁾ 4940 ⁽¹⁾	1270 2740			1880 ⁽¹⁾ 4140 ⁽¹⁾	1100 2430	6.05 19.86
-0.5 m -1.7 ft	3080 ⁽¹⁾ 6630 ⁽¹⁾	1710 3670	2640 ⁽¹⁾ 5690 ⁽¹⁾	1460 3140	2310 ⁽¹⁾ 4980 ⁽¹⁾	1270 2730			2070 ⁽¹⁾ 4560 ⁽¹⁾	1160 2550	5.86 19.21
-1.0 m -3.3 ft	3060 ⁽¹⁾ 6580 ⁽¹⁾	1710 3670	2630 ⁽¹⁾ 5650 ⁽¹⁾	1460 3140	2270 ⁽¹⁾ -	1270 -			2200 ⁽¹⁾ 4850 ⁽¹⁾	1240 2740	5.60 18.33
-1.5 m -5.0 ft	2950 ⁽¹⁾ 6340 ⁽¹⁾	1710 3690	2520 ⁽¹⁾ 5370 ⁽¹⁾	1470 3160					2300 ⁽¹⁾ 5070 ⁽¹⁾	1370 3030	5.25 17.18
-2.0 m -6.7 ft	2720 ⁽¹⁾ 5780 ⁽¹⁾	1730 3730							2410 ⁽¹⁾ 5320 ⁽¹⁾	1580 3510	4.81 15.66
-2.5 m 8.3 ft									2510 ⁽¹⁾ 5550 ⁽¹⁾	1950 4390	4.21 13.62
-3.0 m -10.0 ft									2560 ⁽¹⁾ 5630 ⁽¹⁾		3.31 10.47

⁽¹⁾ The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Rubber Track

Table 52

308E2CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 1.67 m (5 ft 6 inch) medium stick, a 0.23 m ³ (0.30 yd ³) bucket, a 2320 mm (92 inch) blade, 450 mm (18 inch) rubber track, and a 1530 kg (3373 lb) extra counterweight ⁽¹⁾										
The blade is in the UP position.										
All lifting capacities are in kilograms and pounds.										
H	R									
	2.0 m 6.7 ft		2.5 m 8.3 ft		3.0 m 10.0 ft		3.5 m 11.7 ft		4.0 m 13.3 ft	
	F	S	F	S	F	S	F	S	F	S
3.5 m 11.7 ft										1470 ⁽²⁾ 3180 ⁽²⁾
3.0 m 10.0 ft					2320 ⁽²⁾ 4780 ⁽²⁾		1980 ⁽²⁾ 4180 ⁽²⁾			1800 ⁽²⁾ 3850 ⁽²⁾
2.5 m 8.3 ft							2 660 ⁽²⁾ 5580 ⁽²⁾	2310 4990	2200 ⁽²⁾ 4680 ⁽²⁾	1890 4080
2.0 m 6.7 ft							- 5700	- 4790	2160 4660	1830 3950
1.5 m 5.0 ft									2110 4530	1780 3830
1.0 m 3.3 ft									2060 4440	1740 3740
0.5 m 1.7 ft							2510 5380	2090 4490	2040 4380	1710 3690
0							2500 5370	2080 4480	2020 4350	1700 3660
-0.5 m -1.7 ft					3270 7000	2690 5770	2500 5370	2090 4340	2020 4340	1700 3640
-1.0 m -3.3 ft	3420 ⁽²⁾ 7750 ⁽²⁾		4370 ⁽²⁾ 9900	3730 7980	32080 7020	2700 5780	2510 5390	2090 4490	2020 4340	1700 3650
-1.5 m -5.0 ft	5340 ⁽²⁾ 11970 ⁽²⁾		4660 9940	3740 8020	3300 7060	2710 5820	2520 5420	2110 4520	2030 4360	1710 3670
-2.0 m -6.7 ft	4650 ⁽²⁾ 10710 ⁽²⁾		4690 10010	3770 8080	3320 7120	2740 5880	2550 5470	2130 4570	2050 4410	1720 3710
-2.5 m 8.3 ft	1600 ⁽²⁾ 12940 ⁽²⁾	5910 12610	4740 10130	3820 8180	3360 7210	2780 5960	2580 5550	2160 4640	2080 4490	1760 3790
-3.0 m -10.0 ft			3490 ⁽²⁾ 7230 ⁽²⁾		2920 ⁽²⁾ 6000 ⁽²⁾	2840 6000 ⁽²⁾				

(1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
 (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 53

Table Continued					
H	R				
	4.5 m 15.0 ft	5.0 m 16.7 ft	5.5 m 18.3 ft	6.0 m 20.0 ft	Maximum Load Radius

(continued)

Product Information Section
Lifting Capacities

(Table 53, contd)

	F	S	F	S	F	S	F	S	F	S	m ft
5.5 m 18.3 ft									1110 ⁽¹⁾ 2380 ⁽¹⁾		4.60 14.77
5.0 m 16.7 ft	1230 ⁽¹⁾ 2750 ⁽¹⁾								1290 ⁽¹⁾ 2770		5.08 16.45
4.5 m 15.0 ft	1270 ⁽¹⁾ 2840 ⁽¹⁾		1380 ⁽¹⁾ 3060 ⁽¹⁾	1380 ⁽¹⁾ 3020					1410 3120 ⁽¹⁾	1220 2770	5.43 17.68
4.0 m 13.3 ft	1340 ⁽¹⁾ 2940 ⁽¹⁾		1410 ⁽¹⁾ 3130 ⁽¹⁾	1400 2990	1370 -	1180 -			1290 2870	1110 2460	5.69 18.59
3.5 m 11.7 ft	1480 ⁽¹⁾ 3230 ⁽¹⁾		1500 ⁽¹⁾ 3290 ⁽¹⁾	1380 2960	1370 2920	1170 2510			1210 2680	1030 2290	5.88 19.25
3.0 m 10.0 ft	1700 ⁽¹⁾ 3660 ⁽¹⁾	1620 3470	1590 3410	1360 2920	1350 2900	1160 2480			1140 2510	970 2150	6.07 19.85
2.5 m 8.3 ft	1850 3970	1580 3390	1560 3350	1330 2860	1330 2860	1140 2450	1150 -	980 -	1090 2400	930 2040	6.20 20.30
2.0 m 6.7 ft	1800 3880	1540 3300	1530 3290	1300 2800	1310 2820	1120 2400	1140 2440	970 2080	1050 2320	900 1980	6.27 20.57
1.5 m 5.0 ft	1760 3800	1500 3220	1500 3220	1280 2740	1290 2780	1100 2360	1120 2410	960 2080	1040 2280	880 1940	6.30 20.66
1.0 m 3.3 ft	1730 3720	1470 3150	1480 3170	1250 2690	1270 2740	1080 2330	1110 2390	940 2030	1040 2280	880 1930	6.27 20.58
0.5 m 1.7 ft	1710 3670	1440 3100	1460 3130	1230 2650	1260 2710	1070 2300	1100 -	940 -	1050 2310	890 1960	6.19 20.31
0	1690 3640	1430 3070	1440 3100	1220 2630	1250 2680	1060 2280			1080 2380	920 2020	6.05 19.86
-0.5 m -1.7 ft	1680 3620	1420 3050	1440 3090	1210 2610	1250 2680	1050 2270			1130 2500	960 2120	5.86 19.21
-1.0 m -3.3 ft	1680 3620	1420 -	1440 3090	1210 2610	1250 -	1060 -			1220 2690	1030 2280	5.60 18.33
-1.5 m -5.0 ft	1690 3640	1430 3070	1440 3110	1220 2630					1350 2980	1140 2530	5.25 17.18
-2.0 m -6.7 ft	1710 3680	1440 3110							1550 3460	1320 2930	4.81 15.66
-2.5 m 8.3 ft									1930 4350	1630 3670	4.21 13.62
-3.0 m -10.0 ft									2560 ⁽¹⁾ 5630 ⁽¹⁾	2410 5630 ⁽¹⁾	3.31 10.47

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 54

308E2CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 1.67 m (5 ft 6 inch) medium stick, a 0.23 m³ (0.30 yd³) bucket, a 2320 mm (92 inch) Blade, 450 mm (18 inch) rubber track, and a 1530 kg (3373 lb) extra counterweight ⁽¹⁾ The blade is in the DOWN position. All lifting capacities are in kilograms and pounds.					
H	R				
	2.0 m 6.7 ft	2.5 m 8.3 ft	3.0 m 10.0 ft	3.5 m 11.7 ft	4.0 m 13.3 ft

(continued)

(Table 54, contd)

	F	S	F	S	F	S	F	S	F	S
3.5 m 11.7 ft									1470 ⁽²⁾ 3180 ⁽²⁾	
3.0 m 10.0 ft					2320 ⁽²⁾ 4780 ⁽²⁾		1980 ⁽²⁾ 4180 ⁽²⁾		1800 ⁽²⁾ 3850 ⁽²⁾	
2.5 m 8.3 ft							2660 ⁽²⁾ 5580 ⁽²⁾	2570 5540	2200 ⁽²⁾ 4680 ⁽²⁾	2090 4500
2.0 m 6.7 ft							- 7230 ⁽²⁾	- 5310	2640 ⁽²⁾ 5600 ⁽²⁾	2020 4360
1.5 m 5.0 ft									3050 ⁽²⁾ 6480 ⁽²⁾	1970 4240
1.0 m 3.3 ft									3360 ⁽²⁾ 7160 ⁽²⁾	1930 4150
0.5 m 1.7 ft							3870 ⁽²⁾ 9580 ⁽²⁾	2330 5000	3550 ⁽²⁾ 7600 ⁽²⁾	1900 4090
0							4500 ⁽²⁾ 9670 ⁽²⁾	2320 4990	3650 ⁽²⁾ 7830 ⁽²⁾	1890 4060
-0.5 m -1.7 ft					4140 ⁽²⁾ 9700 ⁽²⁾	3010 6450	4440 ⁽²⁾ 9570 ⁽²⁾	2320 4990	3660 ⁽²⁾ 7880 ⁽²⁾	1880 4050
-1.0 m -3.3 ft	3420 ⁽²⁾ 7750 ⁽²⁾		4370 ⁽²⁾ 10030 ⁽²⁾	4200 8990	4820 ⁽²⁾ 11300 ⁽²⁾	3020 6470	4320 ⁽²⁾ 9320 ⁽²⁾	2330 5000	3610 ⁽²⁾ 7770 ⁽²⁾	1890 4050
-1.5 m -5.0 ft	5340 ⁽²⁾ 11970 ⁽²⁾		4730 ⁽²⁾ 10280 ⁽²⁾	4220 9020	4960 ⁽²⁾ 10700 ⁽²⁾	3030 6500	4120 ⁽²⁾ 8880 ⁽²⁾	2340 5030	3470 ⁽²⁾ 7470 ⁽²⁾	1900 4080
-2.0 m -6.7 ft	4650 ⁽²⁾ 10710 ⁽²⁾		5570 ⁽²⁾ 11960 ⁽²⁾	4250 9090	4560 9790 ⁽²⁾	3060 6560	3810 ⁽²⁾ 8190 ⁽²⁾	2360 5080	3220 ⁽²⁾ 6900 ⁽²⁾	1910 4120
-2.5 m 8.3 ft	6100 ⁽²⁾ 12940 ⁽²⁾		4770 ⁽²⁾ 10180 ⁽²⁾	4300 9200	3950 ⁽²⁾ 8420 ⁽²⁾	3100 6650	3320 ⁽²⁾ 7050 ⁽²⁾	2400 5160	2760 ⁽²⁾ 5790 ⁽²⁾	1950 4200
-3.0 m -10.0 ft			3490 ⁽²⁾ 7230 ⁽²⁾		2920 ⁽²⁾ 6000 ⁽²⁾					

- (1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
- (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 55

Table Continued											
H	R										
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S	F	S	m ft
5.5 m 18.3 ft									1110 ⁽¹⁾ 2380 ⁽¹⁾		4.60 14.77
5.0 m 16.7 ft	1230 ⁽¹⁾ 2750 ⁽¹⁾								1290 ⁽¹⁾ 2770		5.08 16.45
4.5 m 15.0 ft	1270 ⁽¹⁾ 2840 ⁽¹⁾		1380 ⁽¹⁾ 3060 ⁽¹⁾						1420 ⁽¹⁾ 3120 ⁽¹⁾	1340 2980	5.43 17.68

(continued)

Product Information Section
Lifting Capacities

(Table 55, contd)

4.0 m 13.3 ft	1340 ⁽¹⁾ 2940 ⁽¹⁾		1410 ⁽¹⁾ 3130 ⁽¹⁾		1500 ⁽¹⁾ -	1300 -			1430 ⁽¹⁾ 3140 ⁽¹⁾	1220 2710	5.69 18.59
3.5 m 11.7 ft	1480 ⁽¹⁾ 3230 ⁽¹⁾		1500 ⁽¹⁾ 3290 ⁽¹⁾	1500 ⁽¹⁾ 3240	1540 ⁽¹⁾ 3390 ⁽¹⁾	1290 2760			1460 ⁽¹⁾ 3200 ⁽¹⁾	1140 2530	5.88 19.25
3.0 m 10.0 ft	1700 ⁽¹⁾ 3660 ⁽¹⁾		1640 ⁽¹⁾ 3560 ⁽¹⁾	1490 3210	1610 ⁽¹⁾ 3530 ⁽¹⁾	1270 2730			1470 ⁽¹⁾ 3230 ⁽¹⁾	1070 2370	6.07 19.85
2.5 m 8.3 ft	1950 ⁽¹⁾ 4200 ⁽¹⁾	1740 3730	1810 ⁽¹⁾ 3920 ⁽¹⁾	1470 3150	1730 ⁽¹⁾ 3760 ⁽¹⁾	1260 2700	1690 ⁽¹⁾ -	1090 -	1480 ⁽¹⁾ 3260 ⁽¹⁾	1020 2260	6.20 20.30
2.0 m 6.7 ft	2230 ⁽¹⁾ 4790 ⁽¹⁾	1690 3640	2000 ⁽¹⁾ 4320 ⁽¹⁾	1440 3090	1860 ⁽¹⁾ 4030 ⁽¹⁾	1240 2660	1770 ⁽¹⁾ 3870 ⁽¹⁾	1070 2300	1520 ⁽¹⁾ 3340 ⁽¹⁾	990 2190	6.27 20.57
1.5 m 5.0 ft	2510 ⁽¹⁾ 5370 ⁽¹⁾	1650 3560	2190 ⁽¹⁾ 4720 ⁽¹⁾	1410 3030	1990 ⁽¹⁾ 4310 ⁽¹⁾	1220 2610	1860 ⁽¹⁾ 4050 ⁽¹⁾	1060 2270	1570 ⁽¹⁾ 3450 ⁽¹⁾	980 2150	6.30 20.66
1.0 m 3.3 ft	2740 ⁽¹⁾ 5880 ⁽¹⁾	1620 3490	2360 ⁽¹⁾ 5080 ⁽¹⁾	1390 2980	2110 ⁽¹⁾ 4570 ⁽¹⁾	1200 2580	1940 ⁽¹⁾ 4220 ⁽¹⁾	1050 2250	1650 ⁽¹⁾ 3620 ⁽¹⁾	980 2150	6.27 20.58
0.5 m 1.7 ft	2920 ⁽¹⁾ 6270 ⁽¹⁾	1600 3440	2500 ⁽¹⁾ 5390 ⁽¹⁾	1370 2940	2220 ⁽¹⁾ 4790 ⁽¹⁾	1180 2550	2010 ⁽¹⁾ -	1040 -	1750 ⁽¹⁾ 3840 ⁽¹⁾	990 2170	6.19 20.31
0	3030 ⁽¹⁾ 6520 ⁽¹⁾	1580 3410	2600 ⁽¹⁾ 5600 ⁽¹⁾	1350 2910	2290 ⁽¹⁾ 4940 ⁽¹⁾	1180 2530			1880 ⁽¹⁾ 4140 ⁽¹⁾	1020 2240	6.05 19.86
-0.5 m -1.7 ft	3080 ⁽¹⁾ 6630 ⁽¹⁾	1580 3390	2640 ⁽¹⁾ 5690 ⁽¹⁾	1350 2900	2310 ⁽¹⁾ 4980 ⁽¹⁾	1170 2520			2070 ⁽¹⁾ 4560 ⁽¹⁾	1070 2350	5.86 19.21
-1.0 m -3.3 ft	3060 ⁽¹⁾ 6580 ⁽¹⁾	1580 3390	2630 ⁽¹⁾ 5650 ⁽¹⁾	1350 2900	2270 ⁽¹⁾ -	1170 -			2200 ⁽¹⁾ 4850 ⁽¹⁾	1150 2530	5.60 18.33
-1.5 m -5.0 ft	2950 ⁽¹⁾ 6340 ⁽¹⁾	1580 3410	2520 ⁽¹⁾ 5370 ⁽¹⁾	1360 2920					2300 ⁽¹⁾ 5070 ⁽¹⁾	1260 2800	5.25 17.18
-2.0 m -6.7 ft	2720 ⁽¹⁾ 5780 ⁽¹⁾	1600 3450							2410 ⁽¹⁾ 5320 ⁽¹⁾	1460 3240	4.81 15.66
-2.5 m 8.3 ft									2510 ⁽¹⁾ 5550 ⁽¹⁾	1810 4070	4.21 13.62
-3.0 m -10.0 ft									2560 ⁽¹⁾ 5630 ⁽¹⁾		3.31 10.47

⁽¹⁾ The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Long Stick

Product Information Section
Lifting Capacities

Steel Tack

Table 56

308E2CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 2.21 m (7 ft 3 inch) long stick, a 0.23 m ³ (0.30 yd ³) bucket, a 2320 mm (92 inch) blade, 450 mm (18 inch) triple grouser track shoes, and a 1530 kg (3373 lb) extra counterweight ⁽¹⁾											
The blade is in the UP position.											
All lifting capacities are in kilograms and pounds.											
H	R										
	2.0 m 6.7 ft		2.5 m 8.3 ft		3.0 m 10.0 ft		3.5 m 11.7 ft		4.0 m 13.3 ft		
	F	S	F	S	F	S	F	S	F	S	
2.5 m 8.3 ft							1830 ⁽²⁾ 3880 ⁽²⁾			1660 ⁽²⁾ 3560 ⁽²⁾	
2.0 m 6.7 ft										2100 ⁽²⁾ 4480 ⁽²⁾	1870 4030
1.5 m 5.0 ft										2140 4610	1800 3890
1.0 m 3.3 ft										2080 4480	1750 3760
0.5 m 1.7 ft							2500 5380	2080 4470		2040 4380	1710 3670
0							2480 5320	2050 4410		2010 4320	1680 3610
-0.5 m -1.7 ft					3200 6860	2620 5620	2460 5290	2040 4390		1990 4280	1660 3570
-1.0 m -3.3 ft	2760 ⁽²⁾ 6230 ⁽²⁾		3550 ⁽²⁾ 8110 ⁽²⁾	3550 ⁽²⁾ 7690	3210 6870	2630 5630	2460 5290	2040 4380		1990 4260	1660 3560
-1.5 m -5.0 ft	3940 ⁽²⁾ 8930 ⁽²⁾		4550 9710	3640 7790	3220 6900	2640 5660	2470 5300	2050 4400		1990 4270	1660 3560
-2.0 m -6.7 ft	5290 ⁽²⁾ 11960 ⁽²⁾		4580 9780	3660 7850	3240 6950	2660 5700	2480 5330	2060 4430		2000 4290	1670 3590
-2.5 m 8.3 ft	6890 ⁽²⁾ 15700 ⁽²⁾	5750 12250	4620 9880	3700 7930	3280 7020	2690 5770	2510 5390	2080 4480		2020 4340	1690 3630
-3.0 m -10.0 ft	6920 ⁽²⁾ 14530 ⁽²⁾	5820 12430	4680 10020	3760 8060	3320 7130	2730 5870	25550 5470	2120 4560		2050 4420	1720 3710
-3.5 m -11.7 ft			3740 ⁽²⁾ 7650 ⁽²⁾		3020 6160 ⁽²⁾	2800 6030					

⁽¹⁾ Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.

⁽²⁾ The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 57

Table Continued													
H	R												
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		6.5 m 21.7 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S	F	S	F	S	m ft

(continued)

(Table 57, contd)

5.5 m 18.3 ft			990 ⁽¹⁾ -								1130 ⁽¹⁾ 2450 ⁽¹⁾	5.39 17.41	
5.0 m 16.7 ft			970 ⁽¹⁾ 2190 ⁽¹⁾	1110 ⁽¹⁾ -							1190 ⁽¹⁾ 2600 ⁽¹⁾	1100 2480	5.78 18.77
4.5 m 15.0 ft			1110 ⁽¹⁾ 2260 ⁽¹⁾	1130 ⁽¹⁾ 2510 ⁽¹⁾							1170 2610	1000 2230	6.07 19.80
4.0 m 13.3 ft			1060 ⁽¹⁾ 2340 ⁽¹⁾	1160 ⁽¹⁾ 2580 ⁽¹⁾	1160 ⁽¹⁾ 2550	1190 2540	1010 2170				1080 2410	920 2050	6.30 20.59
3.5 m 11.7 ft	1080 ⁽¹⁾ 2360 ⁽¹⁾		1160 ⁽¹⁾ 2540 ⁽¹⁾	1220 ⁽¹⁾ 2690 ⁽¹⁾	1180 2530	1180 2520	1010 2150				1020 2260	870 1920	6.47 21.18
3.0 m 10.0 ft	1290 ⁽¹⁾ 2800 ⁽¹⁾		1310 ⁽¹⁾ 2850 ⁽¹⁾	1320 ⁽¹⁾ 2890 ⁽¹⁾	1170 2500	1170 2500	1000 2130	1010 -	850 -		980 2160	830 1830	6.60 21.62
2.5 m 8.3 ft	1560 ⁽¹⁾ 3360 ⁽¹⁾		1490 ⁽¹⁾ 3230 ⁽¹⁾	1340 2890	1340 2880	1140 2450	1150 2470	980 2100	1000 2130	850 1810	940 2070	790 1750	6.72 22.03
2.0 m 6.7 ft	1830 3930	1550 3340	1540 3310	1310 2820	1320 2820	1120 2400	1140 2430	960 2070	990 2110	840 1780	910 2010	770 1690	6.79 22.27
1.5 m 5.0 ft	1780 3830	1510 3240	1510 3230	1280 2740	1290 2770	1100 2350	1120 2400	950 2030	970 2090	820 1760	900 1970	760 1660	6.81 22.35
1.0 m 3.3 ft	1740 3730	1470 3150	1470 3170	1250 2680	1270 2720	1070 2300	1100 2360	930 1990	960 2060	810 1740	890 1970	750 1650	6.79 22.27
0.5 m 1.7 ft	1700 3660	1430 3080	1450 3110	1220 2620	1250 2680	1050 2260	1090 2330	920 1960	950 2040	800 1720	900 1990	760 1670	6.72 22.04
0	1680 3600	1410 3030	1430 3060	1200 2580	1230 2640	1040 2220	1070 2300	900 1940	950 -	790 -	920 2030	780 1710	6.59 21.63
-0.5 m -1.7 ft	1660 3570	1390 2990	1410 3030	1190 2550	1220 2620	1030 2200	1070 2290	900 1920			960 2120	810 1780	6.42 21.05
-1.0 m -3.3 ft	1650 3550	1380 2970	1400 3020	1180 2530	1210 2610	1020 2190	1060 2290	890 1920			1020 2240	860 1880	6.19 20.27
-1.5 m -5.0 ft	1650 3550	1380 2970	1400 3020	1180 2530	1220 2610	1020 2200					1100 2430	930 2050	5.89 19.27
-2.0 m -6.7 ft	1660 3570	1390 2990	1410 3040	1190 2550							1230 2720	1030 2290	5.51 17.98
-2.5 m 8.3 ft	1680 3610	1410 3030	1430 -	1210 -							1420 3180	1200 1680	5.02 16.34
-3.0 m -10.0 ft											1780 4040	1500 3400	4.39 14.15
-3.5 m -11.7 ft											2470 ⁽¹⁾ 5480 ⁽¹⁾	2240 5310	3.44 10.82

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 58

<p>308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 2.21 m (7 ft 3 inch) long stick, a 0.23 m³ (0.30 yd³) bucket, a 2320 mm (92 inch) blade, 450 mm (18 inch) triple grouser track shoes, and a 1530 kg (3373 lb) extra counterweight ⁽¹⁾ The blade is in the DOWN position. All lifting capacities are in kilograms and pounds.</p>					
H	R				
	2.0 m 6.7 ft	2.5 m 8.3 ft	3.0 m 10.0 ft	3.5 m 11.7 ft	4.0 m 13.3 ft

(continued)

Product Information Section
Lifting Capacities

(Table 58, contd)

	F	S	F	S	F	S	F	S	F	S
2.5 m 8.3 ft							1830 ⁽²⁾ 3880 ⁽²⁾		1660 ⁽²⁾ 3560 ⁽²⁾	
2.0 m 6.7 ft									2100 ⁽²⁾ 4480 ⁽²⁾	2070 4440
1.5 m 5.0 ft									2550 ⁽²⁾ 5430 ⁽²⁾	2000 4300
1.0 m 3.3 ft									2950 ⁽²⁾ 6290 ⁽²⁾	1940 4170
0.5 m 1.7 ft							4170 ⁽²⁾ 8910 ⁽²⁾	2320 4980	3250 ⁽²⁾ 6960 ⁽²⁾	1900 4080
0							4360 ⁽²⁾ 9340 ⁽²⁾	2290 4920	3460 ⁽²⁾ 7410 ⁽²⁾	1870 4020
-0.5 m -1.7 ft					3660 ⁽²⁾ 8470	2940 6300	4430 ⁽²⁾ 9520 ⁽²⁾	2280 4900	3570 ⁽²⁾ 7680 ⁽²⁾	1850 3980
-1.0 m -3.3 ft	2760 ⁽²⁾ 6230 ⁽²⁾		3550 ⁽²⁾ 8110 ⁽²⁾		4870 ⁽²⁾ 11240 ⁽²⁾	2940 6310	4420 ⁽²⁾ 9510 ⁽²⁾	2280 4890	3610 ⁽²⁾ 7760 ⁽²⁾	1850 3970
-1.5 m -5.0 ft	3940 ⁽²⁾ 8930 ⁽²⁾		4820 ⁽²⁾ 10960	4110 8790	5390 ⁽²⁾ 11580 ⁽²⁾	2960 6340	4330 ⁽²⁾ 9310 ⁽²⁾	2290 4910	3570 7680 ⁽²⁾	1850 3970
-2.0 m -6.7 ft	5290 ⁽²⁾ 11960 ⁽²⁾		6360 ⁽²⁾ 14050 ⁽²⁾	4140 8860	5100 ⁽²⁾ 10960 ⁽²⁾	2980 6390	4140 ⁽²⁾ 8900 ⁽²⁾	2300 4940	3450 ⁽²⁾ 7400 ⁽²⁾	1860 3990
-2.5 m 8.3 ft	6890 ⁽²⁾ 15700 ⁽²⁾	6610 14070	5950 ⁽²⁾ 12700 ⁽²⁾	4180 8950	4680 ⁽²⁾ 10020 ⁽²⁾	3010 6450	3840 ⁽²⁾ 8210 ⁽²⁾	2320 4990	3210 ⁽²⁾ 6850 ⁽²⁾	1880 4040
-3.0 m -10.0 ft	6920 ⁽²⁾ 14530 ⁽²⁾	6700 14260	5080 ⁽²⁾ 10750 ⁽²⁾	4240 9080	4060 ⁽²⁾ 8600 ⁽²⁾	3050 6550	3340 ⁽²⁾ 7070 ⁽²⁾	2360 5080	2760 ⁽²⁾ 5800 ⁽²⁾	1910 4120
-3.5 m -11.7 ft			3740 ⁽²⁾ 7650 ⁽²⁾		3020 ⁽²⁾ 6160 ⁽²⁾					

- (1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
- (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 59

Table Continued													
H	R												
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		6.5 m 21.7 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S			F	S	m ft
5.5 m 18.3ft			990 ⁽¹⁾ -								1130 ⁽¹⁾ 2450 ⁽¹⁾		5.39 17.41
5.0 m 16.7 ft			970 ⁽¹⁾ 2190 ⁽¹⁾		1110 ⁽¹⁾ -						1190 ⁽¹⁾ 2600 ⁽¹⁾		5.78 18.77
4.5 m 15.0 ft			1010 ⁽¹⁾ 2260 ⁽¹⁾		1130 ⁽¹⁾ 2510 ⁽¹⁾						1250 ⁽¹⁾ 2740 ⁽¹⁾	1100 2460	6.07 19.80
4.0 m 13.3 ft			1060 ⁽¹⁾ 2340 ⁽¹⁾		1160 ⁽¹⁾ 2580 ⁽¹⁾		1260 ⁽¹⁾ 2790 ⁽¹⁾	1120 2390			1300 2850 ⁽¹⁾	1020 2270	6.30 20.59

(continued)

(Table 59, contd)

3.5 m 11.7 ft	1080 ⁽¹⁾ 2360 ⁽¹⁾	1160 ⁽¹⁾ 2540 ⁽¹⁾		1220 ⁽¹⁾ 2690 ⁽¹⁾		1290 ⁽¹⁾ 2860 ⁽¹⁾	1110 2380			1310 ⁽¹⁾ 2880 ⁽¹⁾	960 2130	6.47 21.18	
3.0 m 10.0 ft	1290 ⁽¹⁾ 2800 ⁽¹⁾	1310 ⁽¹⁾ 2850 ⁽¹⁾		1320 ⁽¹⁾ 2890 ⁽¹⁾	1280 2750	1350 ⁽¹⁾ 2970 ⁽¹⁾	1100 2350	1400 ⁽¹⁾	950	1330 ⁽¹⁾ 2920 ⁽¹⁾	920 2030	6.60 21.62	
2.5 m 8.3 ft	1560 ⁽¹⁾ 3360 ⁽¹⁾	1490 ⁽¹⁾ 3230 ⁽¹⁾	1480 3180	1450 ⁽¹⁾ 3160 ⁽¹⁾	1260 2710	1430 ⁽¹⁾ 3140 ⁽¹⁾	1090 2320	1440 3190 ⁽¹⁾	940 2010	1340 ⁽¹⁾ 2950 ⁽¹⁾	880 1940	6.72 22.03	
2.0 m 6.7 ft	1850 ⁽¹⁾ 3980 ⁽¹⁾	1710 3680	1700 ⁽¹⁾ 3670 ⁽¹⁾	1450 3110	1600 ⁽¹⁾ 3470 ⁽¹⁾	1240 2650	1540 ⁽¹⁾ 3350 ⁽¹⁾	1070 2290	1510 3310 ⁽¹⁾	930 1980	1370 ⁽¹⁾ 3010 ⁽¹⁾	750 1880	6.79 22.27
1.5 m 5.0 ft	2150 ⁽¹⁾ 4620 ⁽¹⁾	1670 3580	1910 ⁽¹⁾ 4120 ⁽¹⁾	1410 3040	1750 ⁽¹⁾ 3800 ⁽¹⁾	1210 2600	1650 ⁽¹⁾ 3590 ⁽¹⁾	1050 2250	1580 ⁽¹⁾ 3460 ⁽¹⁾	920 1960	1410 ⁽¹⁾ 3100 ⁽¹⁾	840 1850	6.81 22.35
1.0 m 3.3 ft	2440 ⁽¹⁾ 5220 ⁽¹⁾	1620 3490	2120 ⁽¹⁾ 4560 ⁽¹⁾	1380 2970	1900 ⁽¹⁾ 4120 ⁽¹⁾	1190 2550	1760 ⁽¹⁾ 3820 ⁽¹⁾	1030 2220	1660 ⁽¹⁾ 3620 ⁽¹⁾	900 1940	1460 ⁽¹⁾ 3220 ⁽¹⁾	840 1850	6.79 22.27
0.5 m 1.7 ft	2670 ⁽¹⁾ 5740 ⁽¹⁾	1590 3420	2300 ⁽¹⁾ 4950 ⁽¹⁾	1360 2910	2040 ⁽¹⁾ 4410 ⁽¹⁾	1170 2510	1860 ⁽¹⁾ 4030 ⁽¹⁾	1020 2180	1730 3760 ⁽¹⁾	890 1920	1540 ⁽¹⁾ 3390 ⁽¹⁾	850 1860	6.72 22.04
0	2850 ⁽¹⁾ 6130 ⁽¹⁾	1570 3360	2440 ⁽¹⁾ 5260 ⁽¹⁾	1330 2870	2150 ⁽¹⁾ 4650 ⁽¹⁾	1150 2480	1940 ⁽¹⁾ 4200 ⁽¹⁾	1010 2160	1780 ⁽¹⁾ -	890 -	1640 ⁽¹⁾ 3610 ⁽¹⁾	870 1910	6.59 21.63
-0.5 m -1.7 ft	2970 ⁽¹⁾ 6390 ⁽¹⁾	1550 3330	2540 ⁽¹⁾ 5480 ⁽¹⁾	1320 2840	2230 ⁽¹⁾ 4810 ⁽¹⁾	1140 2450	1990 ⁽¹⁾ 4300 ⁽¹⁾	1000 2150			1770 ⁽¹⁾ 3910 ⁽¹⁾	900 1980	6.42 21.05
-1.0 m -3.3 ft	3020 ⁽¹⁾ 6510 ⁽¹⁾	1540 3310	2590 ⁽¹⁾ 5580 ⁽¹⁾	1310 2820	2270 ⁽¹⁾ 4880 ⁽¹⁾	1140 2440	2000 ⁽¹⁾ 4300 ⁽¹⁾	1000 2140			1900 ⁽¹⁾ 4200 ⁽¹⁾	950 2100	6.19 20.27
-1.5 m -5.0 ft	3010 ⁽¹⁾ 6480 ⁽¹⁾	1540 3310	2580 ⁽¹⁾ 5550 ⁽¹⁾	1310 2820	2240 ⁽¹⁾ 4800 ⁽¹⁾	1140 2450					1990 ⁽¹⁾ 4400 ⁽¹⁾	1030 2280	5.89 19.27
-2.0 m -6.7 ft	920 ⁽¹⁾ 6250 ⁽¹⁾	1550 3330	2490 ⁽¹⁾ 5320 ⁽¹⁾	1320 2840							2090 ⁽¹⁾ 4630 ⁽¹⁾	1150 2550	5.51 17.98
-2.5 m -8.3 ft	2700 ⁽¹⁾ 5740 ⁽¹⁾	1570 3370	2230 ⁽¹⁾ -	1340 -							2210 ⁽¹⁾ 4890 ⁽¹⁾	1330 2980	5.02 16.34
-3.0 m -10.0 ft											2340 ⁽¹⁾ 5180 ⁽¹⁾	1660 3770	4.39 14.15
-3.5 m -11.7 ft											2470 ⁽¹⁾ 5480 ⁽¹⁾		3.44 10.82

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 60

<p>308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 2.21 m (7 ft 3 inch) long stick, a 0.23 m³ (0.30 yd³) bucket, a 2470 mm (97 inch) blade, 600 mm (24 inch) triple grouser track shoes, and a 1530 kg (3373 lb) extra counterweight (1) The blade is in the UP position. All lifting capacities are in kilograms and pounds.</p>											
H	R										
	2.0 m 6.7 ft		2.5 m 8.3 ft		3.0 m 10.0 ft		3.5 m 11.7 ft		4.0 m 13.3 ft		
	F	S	F	S	F	S	F	S	F	S	
2.5 m 8.3 ft							1830 ⁽²⁾ 3880 ⁽²⁾		1660 ⁽²⁾ 3560 ⁽²⁾		
2.0 m 6.7 ft									2100 ⁽²⁾ 4480 ⁽²⁾	1920 4140	
1.5 m 5.0 ft									2180 4700	1860 4000	

(continued)

Product Information Section
Lifting Capacities

(Table 60, contd)

1.0 m 3.3 ft										2120 4570	1800 3870
0.5 m 1.7 ft								2550 5490	2140 4600	2080 4470	1760 3780
0								2530 5430	2120 4550	2050 4400	1730 3720
-0.5 m -1.7 ft						3270 7000	2700 5790	2520 5400	2100 4520	2030 4370	1720 3690
-1.0 m -3.3 ft	2760 ⁽²⁾ 6230 ⁽²⁾		3550 ⁽²⁾ 8110 ⁽²⁾	3550 ⁽²⁾ 7970	3270 7010	2700 5800	2510 5390	2100 4520	2030 4350	1710 3670	
-1.5 m -5.0 ft	3940 ⁽²⁾ 8930 ⁽²⁾		4640 9900	3740 8010	3290 7040	2720 5830	2520 5410	2110 4530	2030 460	1710 3680	
-2.0 m -6.7 ft	5290 ⁽²⁾ 11960 ⁽²⁾		4670 9970	3770 8070	3310 7090	2740 5870	2540 5440	2120 4560	2040 4380	1720 3700	
-2.5 m 8.3 ft	6890 ⁽²⁾ 15700 ⁽²⁾	5900 12580	4710 10070	3810 8160	3340 7160	2760 5940	2560 5500	2150 4610	2060 4420	1740 3740	
-3.0 m -10.0 ft	6920 ⁽²⁾ 14530 ⁽²⁾	5980 12760	4770 10200	3860 8280	3390 7260	2810 6030	2600 5580	2180 4690	2090 4510	1770 3820	
-3.5 m -11.7 ft			3740 ⁽²⁾ 7650 ⁽²⁾		3020 ⁽²⁾ 6160 ⁽²⁾	2880 6160 ⁽²⁾					

- (1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
- (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 61

Table Continued															
H	R												Maximum Load Radius		
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		6.5 m 21.7 ft						
	F	S	F	S	F	S	F	S	F	S	F	S		m ft	
5.5 m 18.3ft			990 ⁽¹⁾ -										1130 ⁽¹⁾ 2450 ⁽¹⁾	5.39 17.41	
5.0 m 16.7 ft			970 ⁽¹⁾ 2190 ⁽¹⁾		1110 ⁽¹⁾ -								1190 ⁽¹⁾ 2600 ⁽¹⁾	1140 2550	5.78 18.77
4.5 m 15.0 ft			1110 ⁽¹⁾ 2260 ⁽¹⁾		1130 ⁽¹⁾ 2510 ⁽¹⁾								1190 2660	1030 2290	6.07 19.80
4.0 m 13.3 ft			1060 ⁽¹⁾ 2340 ⁽¹⁾		1160 ⁽¹⁾ 2580 ⁽¹⁾		1210 2590	1050 2240					1110 2460	950 2120	6.30 20.59
3.5 m 11.7 ft	1080 ⁽¹⁾ 2360 ⁽¹⁾		1160 ⁽¹⁾ 2540 ⁽¹⁾		1220 ⁽¹⁾ 2690 ⁽¹⁾	1220 2610	1200 2580	1040 2220					1050 2310	900 1990	6.47 21.18
3.0 m 10.0 ft	1290 ⁽¹⁾ 2800 ⁽¹⁾		1310 ⁽¹⁾ 2850 ⁽¹⁾		1320 ⁽¹⁾ 2890 ⁽¹⁾	1200 2570	1190 2550	1030 2200	1030 -	880 -			1000 2200	850 1890	6.60 21.62
2.5 m 8.3 ft	1560 ⁽¹⁾ 3360 ⁽¹⁾		1490 ⁽¹⁾ 3230 ⁽¹⁾	1380 2970	1370 2930	1180 2530	1180 2520	1010 2170	1020 2180	870 1870			960 2110	820 1810	6.72 22.03
2.0 m 6.7 ft	1850 ⁽¹⁾ 3980 ⁽¹⁾	1600 3440	1570 3370	1350 2900	1340 2880	1150 2480	1160 2490	1000 2130	1010 2160	850 1850			930 2050	800 1750	6.79 22.27

(continued)

(Table 61, contd)

1.5 m 5.0 ft	1820 3900	1550 3340	1540 3300	1320 2830	1320 2830	1130 2420	1140 2450	980 2100	1000 2130	850 1820	920 2020	780 1720	6.81 22.35
1.0 m 3.3 ft	1770 3810	1510 3250	150 3230	1290 2760	1290 2780	1110 2380	1120 2410	960 2060	990 2110	840 1800	920 2010	780 1710	6.79 22.27
0.5 m 1.7 ft	1740 3730	1480 3180	1480 3170	1260 2710	1270 2730	1090 2330	1110 2380	950 2030	970 2090	830 1780	920 2030	190 1730	6.72 22.04
0	1710 3680	1450 3120	1460 3130	1240 2660	1260 2700	10700 2300	1100 2360	940 2010	970 -	820 -	950 2080	800 1770	6.59 21.63
-0.5 m -1.7 ft	1690 3640	1440 3090	1440 3100	123 2630	1250 2680	1060 2280	1090 2340	930 1990			980 2160	840 1840	6.42 21.05
-1.0 m -3.3 ft	1690 3620	1430 3070	1430 3080	1220 2620	1240 2670	1060 2270	1090 2340	930 1990			1040 2290	890 1950	6.19 20.27
-1.5 m -5.0 ft	1690 3620	1430 3070	1430 3080	1220 2620	1240 2670	1060 2270					1130 2490	960 2120	5.89 19.27
-2.0 m -6.7 ft	1690 3640	1440 3090	1440 3100	1230 2640							1250 2780	10770 2370	5.51 17.98
-2.5 m 8.3 ft	1710 3680	1450 3130	1460 -	1250 -							1450 3250	1240 2770	5.02 16.34
-3.0 m -10.0 ft											1820 4120	1550 3500	4.39 14.15
-3.5 m -11.7 ft											2470 ⁽¹⁾ 5480 ⁽¹⁾	2310 5460	3.44 10.82

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 62

<p>308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 2.21 m (7 ft 3 inch) long stick, a 0.23 m³ (0.30 yd³) bucket, a 2470 mm (97 inch) blade, 600 mm (24 inch) triple grouser track shoes, and a 1530 kg (3373 lb) extra counterweight ⁽¹⁾ The blade is in the DOWN position. All lifting capacities are in kilograms and pounds.</p>											
H	R										
	2.0 m 6.7 ft		2.5 m 8.3 ft		3.0 m 10.0 ft		3.5 m 11.7 ft		4.0 m 13.3 ft		
	F	S	F	S	F	S	F	S	F	S	
2.5 m 8.3 ft							1830 ⁽²⁾ 3880 ⁽²⁾		1660 ⁽²⁾ 3560 ⁽²⁾		
2.0 m 6.7 ft									2100 ⁽²⁾ 4480 ⁽²⁾		
1.5 m 5.0 ft									2550 ⁽²⁾ 5430 ⁽²⁾	2140 4610	
1.0 m 3.3 ft									2950 ⁽²⁾ 6290 ⁽²⁾	2090 4490	
0.5 m 1.7 ft							4170 ⁽²⁾ 8910 ⁽²⁾	2500 5370	3250 ⁽²⁾ 6960 ⁽²⁾	2040 4390	
0							4360 ⁽²⁾ 9340 ⁽²⁾	2470 5310	3460 ⁽²⁾ 7410 ⁽²⁾	2010 4330	
-0.5 m -1.7 ft					660 ⁽²⁾ 8470 ⁽²⁾	3170 6800	4430 ⁽²⁾ 9520 ⁽²⁾	2460 5280	3570 ⁽²⁾ 7680 ⁽²⁾	2000 4290	

(continued)

Product Information Section
Lifting Capacities

(Table 62, contd)

- 1.0 m - 3.3 ft	2760 ⁽²⁾ 6230 ⁽²⁾		3550 ⁽²⁾ 8110 ⁽²⁾		4870 ⁽²⁾ 11240 ⁽²⁾	3180 6820	4420 ⁽²⁾ 9510 ⁽²⁾	2460 5280	3610 ⁽²⁾ 7760 ⁽²⁾	1990 4280
-1.5 m -5.0 ft	3940 ⁽²⁾ 8930 ⁽²⁾		4820 ⁽²⁾ 10960	4450 9520	5390 ⁽²⁾ 11580 ⁽²⁾	3190 6850	4330 ⁽²⁾ 9310 ⁽²⁾	2470 5290	3570 ⁽²⁾ 7680 ⁽²⁾	1990 4280
-2.0 m -6.7 ft	5290 ⁽²⁾ 11960 ⁽²⁾		6360 ⁽²⁾ 14050 ⁽²⁾	4480 9590	5100 ⁽²⁾ 10960 ⁽²⁾	3210 6890	4140 ⁽²⁾ 8900 ⁽²⁾	2480 5330	3450 ⁽²⁾ 7400 ⁽²⁾	2000 4310
-2.5 m 8.3 ft	6890 ⁽²⁾ 15700 ⁽²⁾	6890 ⁽²⁾ 15350	5950 ⁽²⁾ 12700 ⁽²⁾	4520 9680	4680 ⁽²⁾ 10020 ⁽²⁾	3250 6960	3840 ⁽²⁾ 8210 ⁽²⁾	2500 5380	3210 ⁽²⁾ 6850 ⁽²⁾	2020 4350
- 3.0 m - 10.0 ft	6920 ⁽²⁾ 14530 ⁽²⁾		5080 ⁽²⁾ 10750 ⁽²⁾	4580 9810	4060 ⁽²⁾ 8600 ⁽²⁾	3290 7060	3340 ⁽²⁾ 7070 ⁽²⁾	2540 5460	2760 ⁽²⁾ 5800 ⁽²⁾	2060 4430
-3.5 m -11.7 ft			3740 ⁽²⁾ 7650 ⁽²⁾		3020 ⁽²⁾ 6160 ⁽²⁾					

- (1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
- (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 63

Table Continued													
H	R												
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		6.5 m 21.7 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S			F	S	m ft
5.5 m 18.3ft			990 ⁽¹⁾ -								1130 ⁽¹⁾ 2450 ⁽¹⁾		5.39 17.41
5.0 m 16.7 ft			970 ⁽¹⁾ 2190 ⁽¹⁾		1110 ⁽¹⁾ -						1190 ⁽¹⁾ 2600 ⁽¹⁾		5.78 18.77
4.5 m 15.0 ft			1010 ⁽¹⁾ 2260 ⁽¹⁾		1130 ⁽¹⁾ 2510 ⁽¹⁾						1250 ⁽¹⁾ 2740 ⁽¹⁾	1180 2630	6.07 19.80
4.0 m 13.3 ft			1060 ⁽¹⁾ 2340 ⁽¹⁾		1160 ⁽¹⁾ 2580 ⁽¹⁾		1260 ⁽¹⁾ 2790 ⁽¹⁾	1200 2570			1300 ⁽¹⁾ 2850 ⁽¹⁾	1100 2440	6.30 20.59
3.5 m 11.7 ft	1080 ⁽¹⁾ 2360 ⁽¹⁾		1160 ⁽¹⁾ 2540 ⁽¹⁾		1220 ⁽¹⁾ 2690 ⁽¹⁾		1290 ⁽¹⁾ 2860 ⁽¹⁾	1190 2550			1310 ⁽¹⁾ 2880 ⁽¹⁾	1040 2290	6.47 21.18
3.0 m 10.0 ft	1290 ⁽¹⁾ 2800 ⁽¹⁾		1310 ⁽¹⁾ 2850 ⁽¹⁾		1320 ⁽¹⁾ 2890 ⁽¹⁾		1350 ⁽¹⁾ 2970 ⁽¹⁾	1180 2530	1400 ⁽¹⁾ -	1020 -	1330 ⁽¹⁾ 2920 ⁽¹⁾	990 2190	6.60 21.62
2.5 m 8.3 ft	1560 ⁽¹⁾ 3360 ⁽¹⁾		1490 ⁽¹⁾ 3230 ⁽¹⁾		1450 ⁽¹⁾ 3160 ⁽¹⁾	1350 2900	1430 ⁽¹⁾ 3140 ⁽¹⁾	1170 2500	1440 ⁽¹⁾ 3190 ⁽¹⁾	1010 2160	1340 ⁽¹⁾ 2950 ⁽¹⁾	950 2100	6.72 22.03
2.0 m 6.7 ft	1850 ⁽¹⁾ 3980 ⁽¹⁾	1840 3950	1700 ⁽¹⁾ 3670 ⁽¹⁾	1550 3330	1600 ⁽¹⁾ 3470 ⁽¹⁾	1330 2850	1540 ⁽¹⁾ 3350 ⁽¹⁾	1150 2470	1510 ⁽¹⁾ 3310 ⁽¹⁾	1000 2140	1370 ⁽¹⁾ 3010 ⁽¹⁾	930 2040	6.79 22.27
1.5 m 5.0 ft	2150 ⁽¹⁾ 4620 ⁽¹⁾	1790 3850	1910 ⁽¹⁾ 4120 ⁽¹⁾	1520 3260	1750 ⁽¹⁾ 3800 ⁽¹⁾	1300 2800	1650 ⁽¹⁾ 3590 ⁽¹⁾	1130 2430	1580 ⁽¹⁾ 3460 ⁽¹⁾	990 2120	1410 ⁽¹⁾ 3100 ⁽¹⁾	910 2010	6.81 22.35
1.0 m 3.3 ft	2440 ⁽¹⁾ 5220 ⁽¹⁾	1750 3760	2120 ⁽¹⁾ 4560 ⁽¹⁾	1490 3190	1900 ⁽¹⁾ 4120 ⁽¹⁾	1280 2750	1760 ⁽¹⁾ 3820 ⁽¹⁾	1110 2390	1660 ⁽¹⁾ 3620 ⁽¹⁾	980 2090	1460 ⁽¹⁾ 3220 ⁽¹⁾	910 2000	6.79 22.27
0.5 m 1.7 ft	2670 ⁽¹⁾ 5740 ⁽¹⁾	1710 3680	2300 ⁽¹⁾ 4950 ⁽¹⁾	1460 3140	2040 ⁽¹⁾ 4410 ⁽¹⁾	1260 2710	1860 ⁽¹⁾ 4030 ⁽¹⁾	1100 2360	1730 ⁽¹⁾ 3760 ⁽¹⁾	970 2070	1540 ⁽¹⁾ 3390 ⁽¹⁾	920 2020	6.72 22.04
0	2850 ⁽¹⁾ 6130 ⁽¹⁾	1690 3630	2440 ⁽¹⁾ 5260 ⁽¹⁾	1440 3090	2150 ⁽¹⁾ 4650 ⁽¹⁾	1240 2670	1940 ⁽¹⁾ 4200 ⁽¹⁾	1090 2340	1780 ⁽¹⁾ -	960 -	1640 ⁽¹⁾ 3610 ⁽¹⁾	940 2070	6.59 21.63

(continued)

Product Information Section
Lifting Capacities

(Table 63, contd)

-0.5 m -1.7 ft	2970 ⁽¹⁾ 6390 ⁽¹⁾	1670 3590	2540 ⁽¹⁾ 5480 ⁽¹⁾	1430 3060	2230 ⁽¹⁾ 4810 ⁽¹⁾	1230 2650	1990 ⁽¹⁾ 4300 ⁽¹⁾	1080 2320			1770 ⁽¹⁾ 3910 ⁽¹⁾	980 2150	6.42 21.05
-1.0 m -3.3 ft	3020 ⁽¹⁾ 6510 ⁽¹⁾	1660 3570	2590 ⁽¹⁾ 5580 ⁽¹⁾	1420 3050	2270 ⁽¹⁾ 4880 ⁽¹⁾	1230 2640	2000 ⁽¹⁾ 4300 ⁽¹⁾	1080 2320			1900 ⁽¹⁾ 4200 ⁽¹⁾	1030 2270	6.19 20.27
-1.5 m -5.0 ft	3010 ⁽¹⁾ 6480 ⁽¹⁾	1660 3570	2580 ⁽¹⁾ 5550 ⁽¹⁾	1420 3050	2240 ⁽¹⁾ 4800 ⁽¹⁾	1230 2650					1990 ⁽¹⁾ 4400 ⁽¹⁾	1110 2460	5.89 19.27
-2.0 m -6.7 ft	920 ⁽¹⁾ 6250 ⁽¹⁾	1670 3590	2490 ⁽¹⁾ 5320 ⁽¹⁾	1430 3070							2090 ⁽¹⁾ 4630 ⁽¹⁾	1240 2750	5.51 17.98
-2.5 m 8.3 ft	2700 ⁽¹⁾ 5740 ⁽¹⁾	1690 3630	2230 ⁽¹⁾ -	1450 -							2210 ⁽¹⁾ 4890 ⁽¹⁾	1440 3210	5.02 16.34
-3.0 m -10.0 ft											2340 ⁽¹⁾ 5180 ⁽¹⁾	1790 4050	4.39 14.15
-3.5 m -11.7 ft											2470 ⁽¹⁾ 5480 ⁽¹⁾		3.44 10.82

⁽¹⁾ The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Rubber Track

Table 64

308E2 CRExcavator with a 3.39 m (11 ft 2 inch) reach boom, a 2.21 m (7 ft 3 inch) Long stick, a 0.23 m ³ (0.30 yd ³) bucket, a 2320 mm (92 inch) Blade, and 450 mm (18 inch) rubber track, and a 1530 kg (3373 lb) Extra counterweight ⁽¹⁾												
The blade is in the UP position.												
All lifting capacities are in kilograms and pounds.												
H	R											
	2.0 m 6.7 ft		2.5 m 8.3 ft		3.0 m 10.0 ft		3.5 m 11.7 ft		4.0 m 13.3 ft			
	F	S	F	S	F	S	F	S	F	S	F	S
2.5 m 8.3 ft								1830 ⁽²⁾ 3880 ⁽²⁾			1660 ⁽²⁾ 3560 ⁽²⁾	
2.0 m 6.7 ft										2100 ⁽²⁾ 4480 ⁽²⁾	1860 4010	
1.5 m 5.0 ft										2130 4580	1800 3870	
1.0 m 3.3 ft										2070 4450	1740 3740	
0.5 m 1.7 ft								2490 5340	2070 4450	2020 4350	1700 3650	
0								2460 5280	2040 4390	1990 4290	1670 3590	
-0.5 m -1.7 ft					3180 6820	2610 5590	2450 5260	2030 4360	1980 4250	1650 3560		
-1.0 m -3.3 ft	2760 ⁽²⁾ 6230 ⁽²⁾		3550 ⁽²⁾ 8110 ⁽²⁾	3550 ⁽²⁾ 7710	3190 6830	2610 5600	2450 5250	2030 4360	1970 4230	1650 3540		
-1.5 m -5.0 ft	3940 ⁽²⁾ 8930 ⁽²⁾		4520 9650	3620 7750	3200 6860	2620 5630	2450 5270	2040 4370	1970 4240	1650 3540		
-2.0 m -6.7 ft	5290 ⁽²⁾ 11960 ⁽²⁾		4550 9720	3650 7810	3220 6910	2640 5670	2470 5300	2050 4400	1980 4260	1660 3570		
-2.5 m 8.3 ft	6890 ⁽²⁾ 14640 ⁽²⁾	5720 12200	4590 9820	3690 7890	3260 6980	2670 5740	2490 5350	2070 4450	2000 4310	1680 3610		
-3.0 m -10.0 ft	6920 ⁽²⁾ 14530 ⁽²⁾	5800 12370	4660 9960	3740 8020	3300 7080	2720 5840	2530 5440	2110 4540	2040 4390	1710 3690		
-3.5 m -11.7 ft			3740 ⁽²⁾ 7650 ⁽²⁾		3020 ⁽²⁾ 6160 ⁽²⁾	2790 6000						

(1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
 (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 65

Table Continued													
H	R												
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		6.5 m 21.7 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S	F	S	F	S	m ft

(continued)

(Table 65, contd)

5.5 m 18.3 ft			990 ⁽¹⁾ -								1130 ⁽¹⁾ 2450 ⁽¹⁾	5.39 17.41	
5.0 m 16.7 ft			970 ⁽¹⁾ 2190 ⁽¹⁾		1110 ⁽¹⁾ -						1190 ⁽¹⁾ 2600 ⁽¹⁾	1100 2460	5.78 18.77
4.5 m 15.0 ft			1010 ⁽¹⁾ 2260 ⁽¹⁾		1130 ⁽¹⁾ 2510 ⁽¹⁾						1160 2590	990 2210	6.07 19.80
4.0 m 13.3 ft			1060 ⁽¹⁾ 2340 ⁽¹⁾		1160 ⁽¹⁾ 2580 ⁽¹⁾	1160 ⁽¹⁾ 2540	1180 2520	1010 2160			1080 2390	990 2210	6.30 20.59
3.5 m 11.7 ft	1080 ⁽¹⁾ 2360 ⁽¹⁾		1160 ⁽¹⁾ 2540 ⁽¹⁾		1220 ⁽¹⁾ 2690 ⁽¹⁾	1180 2520	1170 2510	1000 2140			1020 2250	860 1910	6.47 21.18
3.0 m 10.0 ft	1290 ⁽¹⁾ 2800 ⁽¹⁾		1310 ⁽¹⁾ 2850 ⁽¹⁾		1320 ⁽¹⁾ 2880	1160 2480	1160 2480	990 2120	1000 -	850 -	970 2140	820 1820	6.60 21.62
2.5 m 8.3 ft	1560 ⁽¹⁾ 3360 ⁽¹⁾		1490 ⁽¹⁾ 3230 ⁽¹⁾	1340 2870	1330 2860	1140 2440	1150 2450	980 2090	990 2120	840 1790	930 2050	790 1740	6.72 22.03
2.0 m 6.7 ft	1820 3900	1550 3320	1530 32090	1300 2800	1310 2800	1110 2390	1130 2420	960 2050	980 2100	830 1770	900 1990	760 1680	6.79 22.27
1.5 m 5.0 ft	1770 3800	1500 3220	1500 3210	1270 2730	1280 2750	1090 2340	1110 2380	940 2020	970 2070	820 1750	890 1960	750 1650	6.81 22.35
1.0 m 3.3 ft	1730 3710	1460 3140	1460 3140	1240 2660	1260 2700	1070 2290	1090 2340	920 1980	960 2050	810 1730	890 1950	750 1640	6.79 22.27
0.5 m 1.7 ft	1690 3630	1420 3060	1440 3090	1210 2610	1240 2660	1050 22550	1080 2310	910 1950	9505 2030	800 1710	900 1970	750 1660	6.72 22.04
0	1660 3580	1400 3010	1420 3040	1190 2560	1220 2620	1030 2210	1070 2290	900 1930	940 -	790 -	920 2020	770 1700	6.59 21.63
-0.5 m -1.7 ft	1650 3540	1380 2980	1400 3010	1180 2530	1210 2600	1020 2190	1060 2270	890 1910			950 2100	800 1770	6.42 21.05
-1.0 m -3.3 ft	1640 3520	1380 2960	1390 2990	1170 2520	1200 2590	1010 2180	1060 2270	890 1910			1010 2230	850 1870	6.19 20.27
-1.5 m -5.0 ft	1640 3520	1380 2960	1390 2990	1170 2520	1210 2590	1020 2180					1090 2410	920 2030	5.89 19.27
-2.0 m -6.7 ft	1650 3540	1380 2970	1400 3010	1180 2540							1220 2700	1030 2280	5.51 17.98
-2.5 m 8.3 ft	1670 3580	1400 3020	1420 -	1200 -							1410 3160	1190 2670	5.02 16.34
-3.0 m -10.0 ft											1770 4010	1490 3380	4.39 14.15
-3.5 m -11.7 ft											2470 ⁽¹⁾ 5480 ⁽¹⁾	2230 5280	3.44 10.82

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 66

<p>308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 2.21 m (7 ft 3 inch) Long stick, a 0.23 m³ (0.30 yd³) bucket, a 2320 mm (92 inch) Blade, and 450 mm (18 inch) rubber track, and a 1530 kg (3373 lb) Extra counterweight (1) The blade is in the DOWN position. All lifting capacities are in kilograms and pounds.</p>					
H	R				
	2.0 m 6.7 ft	2.5 m 8.3 ft	3.0 m 10.0 ft	3.5 m 11.7 ft	4.0 m 13.3 ft

(continued)

Product Information Section
Lifting Capacities

(Table 66, contd)

	F	S	F	S	F	S	F	S	F	S
2.5 m 8.3 ft							1830 ⁽²⁾ 3880 ⁽²⁾		1660 ⁽²⁾ 3560 ⁽²⁾	
2.0 m 6.7 ft									2100 ⁽²⁾ 4480 ⁽²⁾	2060 4420
1.5 m 5.0 ft									2550 ⁽²⁾ 5430 ⁽²⁾	190 4280
1.0 m 3.3 ft									2950 ⁽²⁾ 6290 ⁽²⁾	1930 4150
0.5 m 1.7 ft							4170 ⁽²⁾ 8910 ⁽²⁾	2300 4960	3250 ⁽²⁾ 6960 ⁽²⁾	1890 4060
0							4360 ⁽²⁾ 9340 ⁽²⁾	2280 4900	3460 ⁽²⁾ 7410 ⁽²⁾	1860 4000
-0.5 m -1.7 ft					3660 ⁽²⁾ 8470 ⁽²⁾	2920 6270	4430 ⁽²⁾ 9520 ⁽²⁾	2270 4870	3570 ⁽²⁾ 7680 ⁽²⁾	1840 3960
-1.0 m -3.3 ft	2760 ⁽²⁾ 6230 ⁽²⁾		3550 ⁽²⁾ 8110 ⁽²⁾		4870 ⁽²⁾ 11240 ⁽²⁾	2930 6280	4420 ⁽²⁾ 9510 ⁽²⁾	2270 4870	3610 ⁽²⁾ 7760 ⁽²⁾	1840 3950
-1.5 m -5.0 ft	3940 ⁽²⁾ 8930 ⁽²⁾		4820 ⁽²⁾ 10960 ⁽²⁾	4090 8750	5390 ⁽²⁾ 11580 ⁽²⁾	2940 6310	4330 ⁽²⁾ 9310 ⁽²⁾	2270 4880	3570 ⁽²⁾ 7680 ⁽²⁾	1840 3950
-2.0 m -6.7 ft	5290 ⁽²⁾ 11960 ⁽²⁾		6360 ⁽²⁾ 14050 ⁽²⁾	4120 8810	5100 ⁽²⁾ 10960 ⁽²⁾	2960 6350	4140 ⁽²⁾ 8900 ⁽²⁾	2290 4910	3450 ⁽²⁾ 7400 ⁽²⁾	1850 3970
-2.5 m 8.3 ft	6890 ⁽²⁾ 15700 ⁽²⁾	6580 14010	5950 ⁽²⁾ 12700 ⁽²⁾	4160 8900	4680 ⁽²⁾ 10020 ⁽²⁾	2990 6420	3840 ⁽²⁾ 8210 ⁽²⁾	2310 4970	3210 ⁽²⁾ 6850 ⁽²⁾	1870 4020
-3.0 m -10.0 ft	6920 ⁽²⁾ 14530 ⁽²⁾	6670 14200	5080 ⁽²⁾ 10750 ⁽²⁾	4220 9030	4060 ⁽²⁾ 8600 ⁽²⁾	3040 6520	3340 ⁽²⁾ 7070 ⁽²⁾	2350 5050	2760 ⁽²⁾ 5800 ⁽²⁾	1900 4100
-3.5 m -11.7 ft			3740 ⁽²⁾ 7650 ⁽²⁾		3020 ⁽²⁾ 6160 ⁽²⁾					

- (1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
- (2) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 67

Table Continued													
H	R												
	4.5 m 15.0 ft		5.0 m 16.7 ft		5.5 m 18.3 ft		6.0 m 20.0 ft		6.5 m 21.7 ft		Maximum Load Radius		
	F	S	F	S	F	S	F	S	F	S	F	S	m ft
5.5 m 18.3 ft			990 ⁽¹⁾ -								1130 ⁽¹⁾ 2450 ⁽¹⁾		5.39 17.41
5.0 m 16.7 ft			970 ⁽¹⁾ 2190 ⁽¹⁾		1110 ⁽¹⁾						1190 ⁽¹⁾ 2600 ⁽¹⁾		5.78 18.77
4.5 m 15.0 ft			1010 ⁽¹⁾ 2260 ⁽¹⁾		1130 ⁽¹⁾ 2510 ⁽¹⁾						1250 ⁽¹⁾ 2740 ⁽¹⁾	1090 2430	6.07 19.80
4.0 m 13.3 ft			1060 ⁽¹⁾ 2340 ⁽¹⁾		1160 ⁽¹⁾ 2580 ⁽¹⁾		1260 ⁽¹⁾ 2790 ⁽¹⁾	1110 2380			1300 ⁽¹⁾ 2850 ⁽¹⁾	1100 2440	6.30 20.59

(continued)

(Table 67, contd)

3.5 m 11.7 ft	1080 ⁽¹⁾ 2360 ⁽¹⁾		1160 ⁽¹⁾ 2540 ⁽¹⁾		1220 ⁽¹⁾ 2690 ⁽¹⁾		1290 ⁽¹⁾ 2860 ⁽¹⁾	1110 2360			1310 ⁽¹⁾ 2880 ⁽¹⁾	1020 2250	6.47 21.18
3.0 m 10.0 ft	1290 ⁽¹⁾ 2800 ⁽¹⁾		1310 ⁽¹⁾ 2850 ⁽¹⁾		1320 ⁽¹⁾ 2890 ⁽¹⁾	1280 2740	1350 ⁽¹⁾ 2970 ⁽¹⁾	1090 2340	1400 ⁽¹⁾ -	940 -	1330 ⁽¹⁾ 2920 ⁽¹⁾	960 2120	6.60 21.62
2.5 m 8.3 ft	1560 ⁽¹⁾ 3360 ⁽¹⁾		1490 ⁽¹⁾ 3230 ⁽¹⁾	1470 3160	1450 ⁽¹⁾ 3160 ⁽¹⁾	1260 2690	1430 ⁽¹⁾ 3140 ⁽¹⁾	10180 2310	1440 ⁽¹⁾ 3190 ⁽¹⁾	930 1990	1340 ⁽¹⁾ 2950 ⁽¹⁾	910 2020	6.72 22.03
2.0 m 6.7 ft	1850 ⁽¹⁾ 3980 ⁽¹⁾	1700 3670	1700 ⁽¹⁾ 3670 ⁽¹⁾	1440 3090	1600 ⁽¹⁾ 3470 ⁽¹⁾	1230 2640	1540 ⁽¹⁾ 3350 ⁽¹⁾	1060 2280	1510 ⁽¹⁾ 3310 ⁽¹⁾	920 1970	1370 ⁽¹⁾ 3010 ⁽¹⁾	880 1930	6.79 22.27
1.5 m 5.0 ft	2150 ⁽¹⁾ 4620 ⁽¹⁾	1660 3570	1910 ⁽¹⁾ 4120 ⁽¹⁾	1410 3020	1750 ⁽¹⁾ 3800 ⁽¹⁾	1210 2590	1650 ⁽¹⁾ 3590 ⁽¹⁾	1040 2240	1580 ⁽¹⁾ 3460 ⁽¹⁾	910 1950	1410 ⁽¹⁾ 3100 ⁽¹⁾	850 1870	6.81 22.35
1.0 m 3.3 ft	2440 ⁽¹⁾ 5220 ⁽¹⁾	1620 3480	2120 ⁽¹⁾ 4560 ⁽¹⁾	1370 2950	1900 ⁽¹⁾ 4120 ⁽¹⁾	1180 2540	1760 ⁽¹⁾ 3820 ⁽¹⁾	1030 2200	1660 ⁽¹⁾ 3620 ⁽¹⁾	900 1930	1460 ⁽¹⁾ 3220 ⁽¹⁾	840 1840	6.79 22.27
0.5 m 1.7 ft	2670 ⁽¹⁾ 5740 ⁽¹⁾	1580 3400	2300 ⁽¹⁾ 4950 ⁽¹⁾	1350 2900	2040 ⁽¹⁾ 4410 ⁽¹⁾	1160 2500	1860 ⁽¹⁾ 4030 ⁽¹⁾	1010 2170	1730 ⁽¹⁾ 3760 ⁽¹⁾	890 1900	1540 ⁽¹⁾ 3390 ⁽¹⁾	830 1830	6.72 22.04
0	2850 ⁽¹⁾ 6130 ⁽¹⁾	1560 3350	2440 ⁽¹⁾ 5260 ⁽¹⁾	1330 2850	2150 ⁽¹⁾ 4650 ⁽¹⁾	1150 2460	1940 ⁽¹⁾ 4200 ⁽¹⁾	1000 2150	1780 ⁽¹⁾ -	880 -	1640 ⁽¹⁾ 3610 ⁽¹⁾	840 1850	6.59 21.63
-0.5 m -1.7 ft	2970 ⁽¹⁾ 6390 ⁽¹⁾	1540 3310	2540 ⁽¹⁾ 5480 ⁽¹⁾	1310 2820	2230 ⁽¹⁾ 4810 ⁽¹⁾	1140 2440	1990 ⁽¹⁾ 4300 ⁽¹⁾	990 2130			1770 ⁽¹⁾ 3910 ⁽¹⁾	860 1900	6.42 21.05
-1.0 m -3.3 ft	3020 ⁽¹⁾ 6510 ⁽¹⁾	1530 3290	2590 ⁽¹⁾ 5580 ⁽¹⁾	1310 2810	2270 ⁽¹⁾ 4880 ⁽¹⁾	1130 2430	2000 ⁽¹⁾ 4300 ⁽¹⁾	990 2130			1900 ⁽¹⁾ 4200 ⁽¹⁾	900 1970	6.19 20.27
-1.5 m -5.0 ft	3010 ⁽¹⁾ 6480 ⁽¹⁾	1530 3290	2580 ⁽¹⁾ 5550 ⁽¹⁾	1310 2810	2240 ⁽¹⁾ 4800 ⁽¹⁾	1130 2430					1990 ⁽¹⁾ 4400 ⁽¹⁾	950 2090	5.89 19.27
-2.0 m -6.7 ft	2920 ⁽¹⁾ 6250 ⁽¹⁾	1540 3310	2490 ⁽¹⁾ 5320 ⁽¹⁾	1310 2830							2090 ⁽¹⁾ 4630 ⁽¹⁾	1030 2270	5.51 17.98
-2.5 m -8.3 ft	2700 ⁽¹⁾ 5740 ⁽¹⁾	1560 3350	2230 ⁽¹⁾ -	1340 -							2210 ⁽¹⁾ 4890 ⁽¹⁾	1140 2530	5.02 16.34
-3.0 m -10.0 ft											2340 ⁽¹⁾ 5180 ⁽¹⁾	1330 3750	4.39 14.15
-3.5 m -11.7 ft											2470 ⁽¹⁾ 5480 ⁽¹⁾	2460 5480 ⁽¹⁾	3.44 10.82

(1) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Standard Stick

Steel Track

Table 68

308E2 CR Excavator with a 3.39 m (11 ft 2 inch) reach boom, a 1.67 m (5 ft 6 inch) medium stick, a 0.23 m ³ (0.30 yd ³) bucket, a 2320 mm (92 inch) blade, 450 mm (18 inch) triple grouser track shoes, and a1530 kg (3373 lb) extra counterweight ⁽¹⁾ The blade is in the UP position. All lifting capacities are in kilograms and pounds.															
H	2.0 m 6.7 ft		3.0 m 10.0 ft		4.0 m 13.3 ft		5.0 m 16.7 ft		6.0 m 20.0 ft		Maximum Load Radius				
	F	S	F	S	F	S	F	S	F	S	F	S	m ft		
7.0 m 23.0 ft															
													2956	2.7	
6.0 m 19.7 ft			2144		1967								1149		4.7
			2064	2063	1862		1820	1218				1341	895	5.7	
4.0 m 13.3 ft					2096	2073	1806	1202	1661	828	1597	733	6.3		
							1234				650		5.4		
3.0 m 10.0 ft							2026	1143	1717	810	735	610	6.8		
			2440		1742	1741	1536	1217			677		5.7		
2.0 m 6.7 ft							2295	1063	1824	773	1252	567	7.0		
			4226	2546	2655	1647	1974	1141			752		5.7		
1.0 m 3.3 ft							2455	990	1900	735	1279	555	7.0		
			3051		5481	2343	3255	1522	2354	1070			902		5.5
0							2476	945	1904	707	1451	575	6.8		
	5691	4876	5620	2275	3529	1451	2476	1026			1218	1005	5.1		
- 1.0 m - 3.3 ft					3149	1329	2350	931	1858	701	1779	706	6.0		
	5846	4955	5511	2292	3511	1444					2183	1314	4.2		
- 2.0 m - 6.7 ft			3481	2251	2666	1365	1991	952			1208	755	5.9		
- 3.0 m - 10.0 ft					1790	1417									
											1125	1090	4.9		

⁽¹⁾ Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.

VA Boom

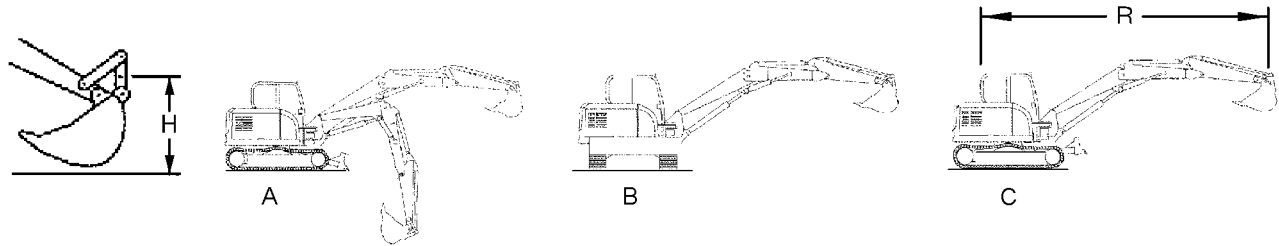


Illustration 44

g06110399

(H) Height

(A) VA Boom minimum / maximum reach

(B) Lifting capacity over the front of the
machine or over the rear of the machine(C) Lifting capacity over the side of the
machine

(R) Reach

Table 69

308E2 CR Excavator with a VA boom, a 1.67 m standard stick, a 0.23 m ³ bucket, a 2320 mm blade, 450 mm triple grouser track shoes, and a 1530 kg extra counterweight ⁽¹⁾ All lifting capacities are in kilograms										
H		R								
		2.0 m			3.0 m			4.0 m		
		A	B	C	A	B	C	A	B	C
7.0 m	I ⁽²⁾									
	II ⁽³⁾									
6.0 m	I ⁽²⁾									
	II ⁽³⁾				2144 ⁽⁴⁾			1967 ⁽⁴⁾		
5.0 m	I ⁽²⁾									
	II ⁽³⁾				2064 ⁽⁴⁾	2063 ⁽⁴⁾		1862 ⁽⁴⁾		
4.0 m	I ⁽²⁾									
	II ⁽³⁾						2096 ⁽⁴⁾		2073 ⁽⁴⁾	
3.0 m	I ⁽²⁾									
	II ⁽³⁾									
2.0 m	I ⁽²⁾				2440 ⁽⁴⁾			1742 ⁽⁴⁾	1741 ⁽⁴⁾	
	II ⁽³⁾									
1.0 m	I ⁽²⁾				4226 ⁽⁴⁾	3133	2546	2655 ⁽⁴⁾	1980	1647
	II ⁽³⁾									
0	I ⁽²⁾	3051 ⁽⁴⁾			5481 ⁽⁴⁾	2914	2343	3255 ⁽⁴⁾	1848	1522
	II ⁽³⁾									
- 1.0 m	I ⁽²⁾	5691 ⁽⁴⁾		4876	5620 ⁽⁴⁾	2840	2275	3529 ⁽⁴⁾	1774	1451
	II ⁽³⁾							3149	1645	1329
- 2.0 m	I ⁽²⁾	5846	6659	4955	5511 ⁽⁴⁾	2859	2292	3511 ⁽⁴⁾	1766	1444
	II ⁽³⁾				3481 ⁽⁴⁾	3204 ⁽⁴⁾	2251	2666 ⁽⁴⁾	1683	1365
- 3.0 m	I ⁽²⁾									
	II ⁽³⁾							1790 ⁽⁴⁾		1417

- (1) Lift capacities are based on "ISO 10567:2007" standards. The listed capacities do not exceed 87 percent of the hydraulic lifting capacity or 75 percent of the tipping capacity. Weight of all lifting accessories must be subtracted from the lifting capacities.
- (2) Variable Angle Boom at minimum reach
- (3) Variable Angle Boom at maximum reach
- (4) The lifting capacity is limited by the hydraulic capacity rather than the tipping load.

Table 70

Table Continued											
H		R									
		5.0 m			6.0 m			Maximum Load Radius			
		A	B	C	A	B	C	A	B	C	m ft
7.0 m	I ⁽²⁾										

(continued)

Product Information Section
Lifting Capacities

(Table 70, contd)

	II(3)							2956 ⁽⁴⁾			2.7
6.0 m	I(2)										
	II(3)							1149 ⁽⁴⁾			4.7
5.0 m	I(2)										
	II(3)	1820 ⁽⁴⁾	1447	1218				1341 ⁽⁴⁾	1079	895	5.7
4.0 m	I(2)							672 ⁽⁴⁾	672		4.9
	II(3)	1806 ⁽⁴⁾	1432	1202	1661 ⁽⁴⁾	998	828	1597	891	733	6.3
3.0 m	I(2)	1234 ⁽⁴⁾						650 ⁽⁴⁾			5.4
	II(3)	2026 ⁽⁴⁾	1370	1143	1717 ⁽⁴⁾	980	810	735 ⁽⁴⁾	736	610	6.8
2.0 m	I(2)	1536 ⁽⁴⁾			1217			677 ⁽⁴⁾			5.7
	II(3)	2295 ⁽⁴⁾	1287	1063	1824 ⁽⁴⁾	941	773	1252 ⁽⁴⁾	703	567	7.0
1.0 m	I(2)	1974 ⁽⁴⁾	1368	1141				752 ⁽⁴⁾			5.7
	II(3)	2455 ⁽⁴⁾	1211	990	1900 ⁽⁴⁾	902	735	1279 ⁽⁴⁾	689	555	7.0
0	I(2)	2354 ⁽⁴⁾	1294	1070				902 ⁽⁴⁾			5.5
	II(3)	2476 ⁽⁴⁾	1164	945	1904 ⁽⁴⁾	874	707	1451 ⁽⁴⁾	714	575	6.8
-1.0 m	I(2)	2476 ⁽⁴⁾	1248	1026				1218 ⁽⁴⁾		1005	5.1
	II(3)	2350 ⁽⁴⁾	1150	931	1858 ⁽⁴⁾	867	701	1779 ⁽⁴⁾	873	706	6.0
-2.0 m	I(2)							2183 ⁽⁴⁾	1604	1314	4.2
	II(3)	1991 ⁽⁴⁾	1171	952				1208 ⁽⁴⁾	926	755	5.9
-3.0 m	I(2)										
	II(3)							1125 ⁽⁴⁾		1090 ⁽⁴⁾	4.9

Identification Information

i08126056

Plate Locations and Film Locations

SMCS Code: 1000; 7000

The Product Identification Number (PIN) will be used to identify a powered machine that is designed for an operator to ride.

Caterpillar products such as engines, transmissions, and major attachments that are not designed for an operator to ride are identified by Serial Numbers.

For quick reference, record the identification numbers in the spaces that are provided below the illustration.

Product Identification Number (PIN) Plate

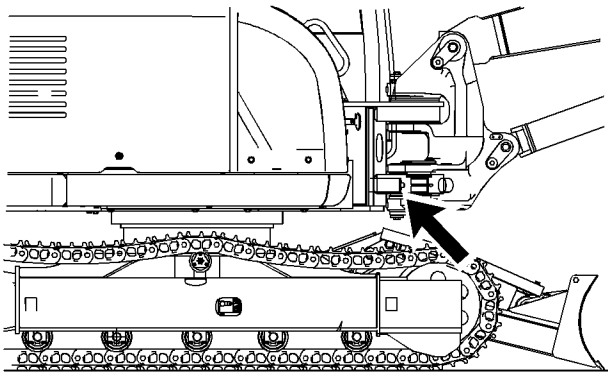


Illustration 45

g03350946

The PIN plate is positioned on the front of the machine, close to the operator compartment.

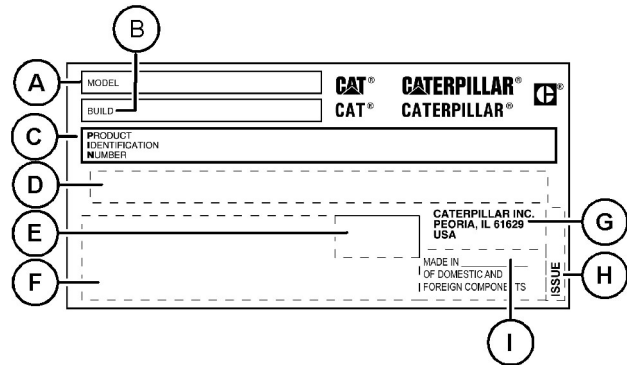


Illustration 46

g06201159

Manufacturer Name and Address _____

Model (A) _____

Build (B) _____

Product Identification Number (C) _____

Bar Code (D) _____

Month and Year of Manufacture Plate (If Required) (E) _____

Regional Certification Plate (If Required) (F) _____

Address of Manufacturer (G) _____

Issue (H) _____

Country of Origin Info Plate (If Required) (I) _____

Local regulation may require documentation of the month and/or year of manufacture in the Operation and Maintenance Manual. Comply with these regulations

European Union

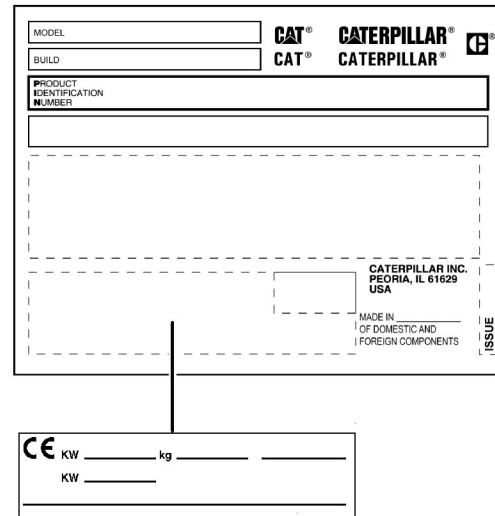


Illustration 47

g06201193

This plate is positioned on the bottom left side of the plate for the PIN.

Note: The CE plate is on machines that are certified to the European Union requirements that were effective at that time.

For machines compliant to 2006/42/EC, the following information is stamped onto the CE plate. For quick reference, record this information in the spaces that are provided below.

- Engine Power Primary Engine (kW) _____

Product Information Section
Plate Locations and Film Locations

- Engine Power for Additional Engine (kW) (If Equipped) _____
- Typical Machine Operating Weight for European Market (kg) _____
- Year of Construction _____
- Machine Type _____

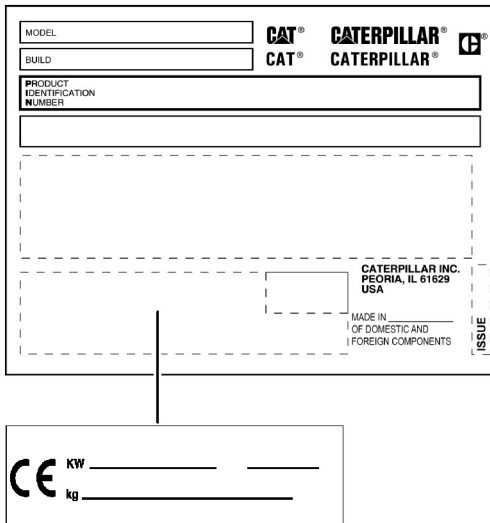


Illustration 48

g06201198

This plate is positioned on the bottom left side of the plate for the PIN.

Note: The CE plate is on machines that are certified to the European Union requirements that were effective at that time.

For machines compliant to 98/37/EC and 89/392/EEC, the following information is stamped onto the CE plate. For quick reference, record this information in the spaces that are provided below.

- Engine Power Primary Engine (kW) _____
- Typical Machine Operating Weight for European Market (kg) _____
- Year _____

For manufacturer name and address and the country of origin, see the PIN plate.

Eurasian Economic Union

For machines compliant to the Eurasian Economic Union requirements, the EAC plate is positioned on or near the Product Identification Number (PIN) plate (see Product Information Section of the machine Operation and Maintenance Manual). The EAC plate is placed on machines certified to the Eurasian Economic Union requirements effective at the time of market entry.

Note: One of the below plates may be installed on the machine.



Illustration 49

g06094564

If equipped, the Month and Year of Manufacture are on the PIN plate.

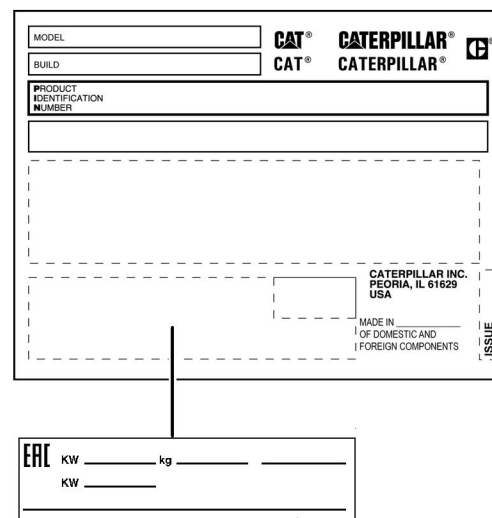


Illustration 50

g06532250

If equipped, the following information is stamped onto the EAC plate. For quick reference, record this information in the spaces provided below.

- Primary Engine Power (kW) _____
- Additional Engine Power (kW) _____
- Typical Machine Operating Weight for Eurasian Economic Union (kg) _____
- Month and Year of Manufacture _____
- Machine Type _____

Manufacturer Information

Manufacturer:

Caterpillar Inc.,
100 N.E. Adams Street
Peoria, Illinois 61629, USA

Entity authorized by the manufacturer at the territory of Eurasian Economic Union:

Caterpillar Eurasia LLC
75, Sadovnicheskaya Emb.
Moscow 115035, Russia

Engine Serial Number

This label is located on the top of the engine.

Engine Serial Number _____

Sound Certification Film

If equipped, this label is located on the cab door.

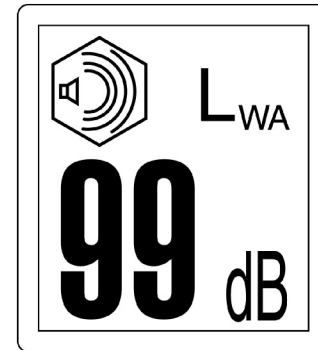


Illustration 51

g02519577

If equipped, the certification label is used to verify the environmental sound certification of the machine to the requirements of the European Union. The value that is listed on the label indicates the guaranteed exterior sound power level L_{WA} at the time of manufacture for the conditions that are specified in "2000/14/EC".

i08756279

Emissions Certification Film

SMCS Code: 1000; 7000; 7405

Consult your Cat dealer for an Emission Control Warranty Statement.

The emission certification film is located on the engine or inside the engine enclosure.

Declaration of Conformity

SMCS Code: 1000; 7000

Table 71

An EC or EU Declaration of Conformity document was provided with the machine if it was manufactured to comply with specific requirements for the European Union. In order to determine the details of the applicable Directives, review the complete EC or EU Declaration of Conformity provided with the machine. The extract shown below from an EC or EU Declaration of Conformity for machines that are declared compliant to "2006/42/EC" applies only to those machines originally "CE" marked by the manufacturer listed and which have not since been modified.

Original EC or EU DECLARATION OF CONFORMITY

Manufacturer: Caterpillar Inc., 100 N.E. Adams Street, Peoria, Illinois 61629, USA

Person authorized to compile the Technical File and to communicate relevant part (s) of the Technical File to the Authorities of European Union Member States on request:

Standards & Regulations Manager, Caterpillar France S.A.S 40,
Avenue Leon-Blum, B.P. 55, 38041 Grenoble Cedex 9, France

I, the undersigned, _____, hereby certify that the construction equipment specified hereunder

Description:	Generic Denomination:	Earth-moving Equipment
	Function:	Hydraulic Excavator
	Model/Type:	308E2CR
	Serial Number:	
	Commercial Name:	Caterpillar

Fulfills all the relevant provisions of the following Directives

Directives	Notified Body	Document No.
2000/14/EC amended by 2005/88/EC, Note (1)		
2006/42/EC	N/A	
2004/108/EC	N/A	
2014/30/EU	N/A	

Note (1) Annex - ____ Guaranteed Sound Power Level - ____ dB (A)
 Representative Equipment Type Sound Power Level - ____ dB (A)
 [Engine Power per ____ - ____ kW Rated engine speed - ____ rpm
 Technical Documentation accessible through person listed above authorized to compile the Technical File

Done at:

Signature

Date:

Name/Position

Note: The above information was correct as of **February 2012**, but may be subject to change, please refer to the individual declaration of conformity issued with the machine for exact details.

Operation Section

Before Operation

i04021647

Mounting and Dismounting

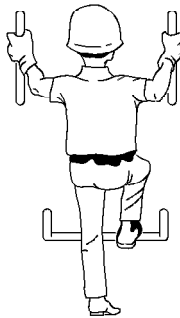
SMCS Code: 6700; 7000

Illustration 52

g00037860

Typical example

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 steps and handholds. Make all necessary repairs.

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 mount a moving machine. Do not 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.

Machine Access System Specifications

The machine access system has been designed to meet the intent of the technical requirements in "ISO 2867 Earth-moving Machinery – Access Systems". The access system provides for operator access to the operator station and to conduct the maintenance procedures described in Maintenance section.

Alternate Exit

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

i09759436

Daily Inspection

SMCS Code: 1000; 6319; 6700; 7000

NOTICE

Accumulated grease and oil on an engine is a fire hazard.

Remove this debris with steam cleaning or high pressure water each time any significant quantity of oil (or other fluid) is spilled on or near the engine.

Wipe clean all fittings, caps and plugs before servicing.

For maximum service life of the machine, perform a thorough daily inspection before you mount the machine and before you start the engine.

Perform the following procedures on a daily basis.

- Operation and Maintenance Manual, "Bucket Lifting Eye - Inspect"
- Operation and Maintenance Manual, "Cooling System Level - Check"
- Operation and Maintenance Manual, "Engine Oil Level - Check"
- Operation and Maintenance Manual, "Fuel System Water Separator - Drain"
- Operation and Maintenance Manual, "Fuel Tank Water and Sediment - Drain"
- Operation and Maintenance Manual, "Hydraulic System Oil Level - Check"
- Operation and Maintenance Manual, "Indicators and Gauges - Test"
- Operation and Maintenance Manual, "Seat Belt - Inspect"

Operation Section
Daily Inspection

- Operation and Maintenance Manual, “Track Adjustment - Inspect”
- Operation and Maintenance Manual, “Track Adjustment - Adjust”
- Operation and Maintenance Manual, “Travel Alarm - Test”
- Operation and Maintenance Manual, “Undercarriage - Check”

Refer to the Maintenance Section for the detailed procedures. Refer to the Maintenance Interval Schedule for a complete list of scheduled maintenance.

Note: Watch closely for leaks. If you observe a leak, find the source of the leak and correct the leak. If you suspect a leak or you observe a leak, check the fluid levels more frequently.

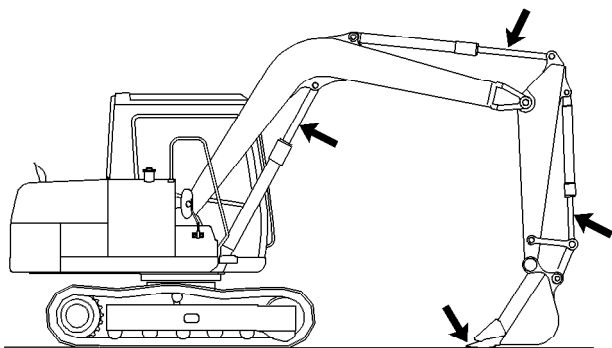


Illustration 53

g00419328

Inspect the attachment control linkage, and attachment cylinders for damage or excessive wear. Make any necessary repairs.

Inspect couplers and attachments for damage or excessive wear. Remove any debris. Make any necessary repairs.

Inspect the lights for broken bulbs and for broken lenses. Replace any broken bulbs and any broken lenses.

Inspect the engine compartment for any trash buildup. Remove any trash buildup from the engine compartment.

Inspect the cooling system for any leaks, for faulty hoses and for any trash buildup. Correct any leaks. Remove any trash from the radiator.

Inspect all of the belts for the engine attachments. Replace any belts that are worn, frayed, or broken.

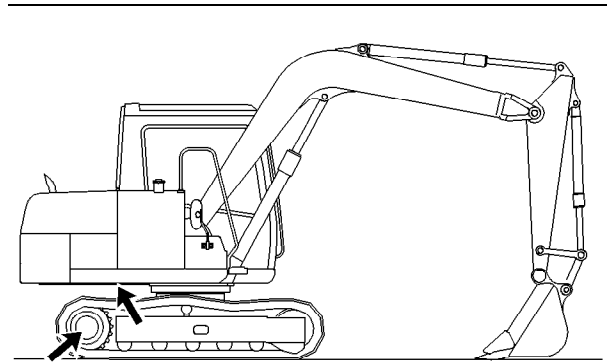


Illustration 54

g00419334

Inspect the hydraulic system for leaks. Inspect the tank, cylinder rod seals, hoses, tubes, plugs, connections, and fittings. Correct any leaks in the hydraulic system.

Inspect the final drives for leaks. Make any necessary repairs.

Inspect the swing drive for leaks.

Make sure that all covers and guards are securely attached. Inspect the covers and the guards for damage.

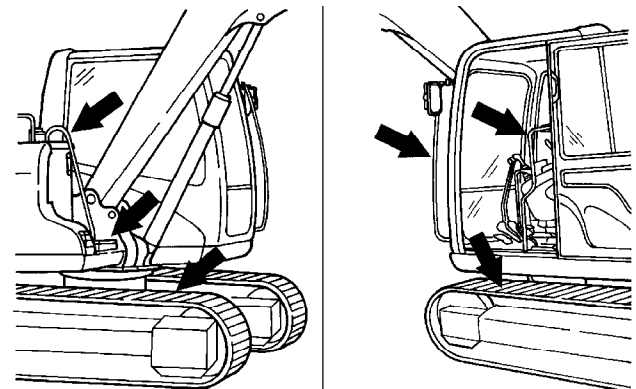


Illustration 55

g00732408

Inspect the steps, the walkways, and the handholds. Clean the steps, the walkways, and the handholds. Make any necessary repairs.

Inspect the operator compartment for trash buildup. Check for trash buildup under the floorplate and on the crankcase guard. Keep these areas clean.

Adjust the mirrors in order to achieve the best visibility.

Machine Operation

i04767589

Alternate Exit

SMCS Code: 7310

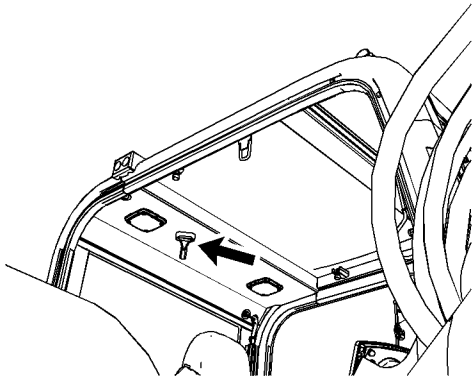


Illustration 56

g02864486



Alternate Exit – The rear window serves as an alternate exit.



Break Glass – Perform the following procedure in order to exit through the rear window. A hammer is mounted on the rear roof of the cab. Strike the rear window with the hammer in order to break the glass. Climb through the opening of the rear window in order to exit the cab.

Note: Do not use the alternate exit except in an emergency situation.

i07212681

Seat

SMCS Code: 5258-025; 7312-025; 7324; 7327

Put the hydraulic lockout control (lever) in the LOCKED position. For further details on this procedure, refer to Operation and Maintenance Manual, "Hydraulic Lockout Control". Perform this procedure before you adjust the seat. Also perform this procedure before you adjust the seat and the console as a unit. This will prevent any possibility of unexpected movement of machine.

Adjust the seat at the beginning of each work period and adjust the seat when you change operators.

Always use the seat belt when you operate the machine.

The seat should be adjusted so that full travel of the controls is allowed.

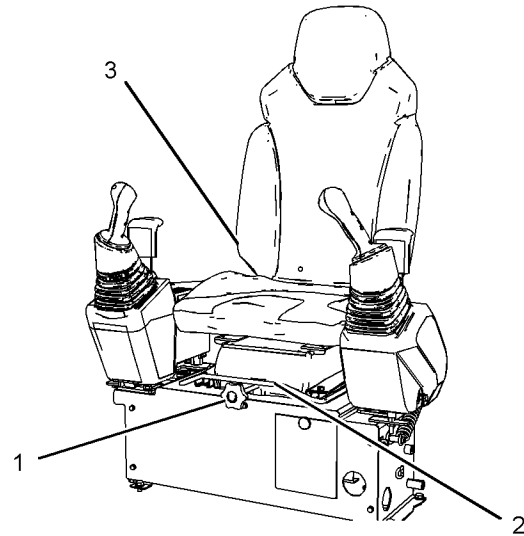


Illustration 57

g02869981

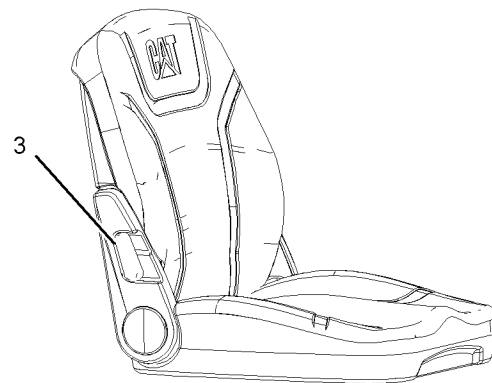


Illustration 58

g01193061

Pull up on fore/aft lever (2). Slide the seat forward to the desired position or slide the seat backward to the desired position. Release the fore/aft lever to lock the seat into position.

To adjust the seat back tilt to the desired position, pull up on lever (3). Release lever (3) when the seat back tilt is in the desired position.

Turn the knob (1) clockwise to increase the stiffness of the suspension. Turn the knob counterclockwise to decrease the stiffness on the suspension.

Air Suspension Seat (If Equipped)

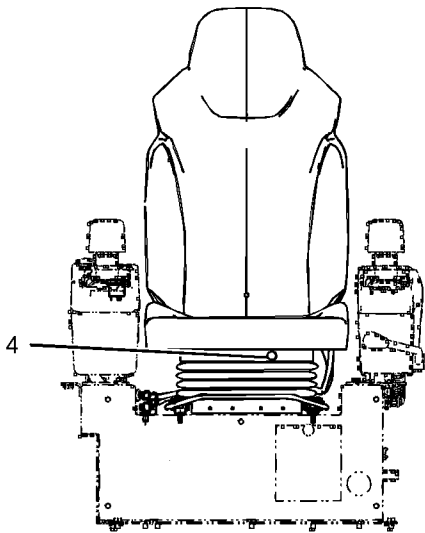


Illustration 59

g02869985



Seat Adjustment

Push in knob (4) to increase the stiffness of the suspension. Pull the knob to decrease the stiffness of the suspension.

Note: The engine start switch key must be in the ON position to increase the stiffness of the seat.

Seat Heater (If Equipped)

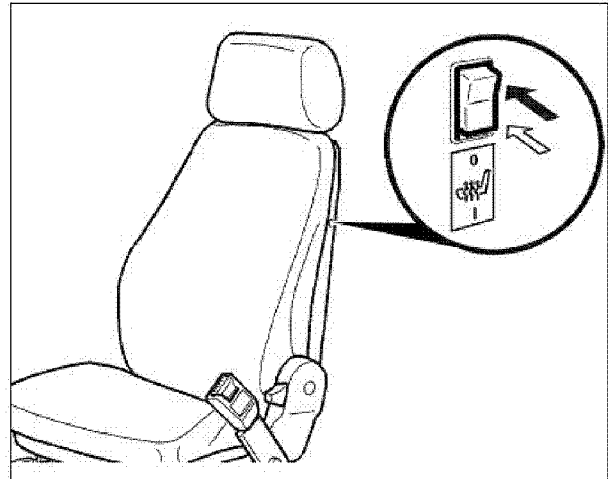


Illustration 60

g01590858

Seat Heater – Press the switch to turn on or turn off the seat heater. Press the top of the switch to switch OFF the Seat heater. Press the switch bottom of the switch to switch ON the Seat heater. Refer to the illustration 60 .

WARNING

Heat-induced burns can occur when some people use a seat heater. Do not use the seat heater if you have a reduced ability to sense temperature changes, a reduced ability to feel pain, or have sensitive skin.

Note: Consult your Cat dealer for further information.

i02014437

Seat Belt

SMCS Code: 7327

S/N: FJX1–Up

S/N: TMX1–Up

Note: This machine was equipped with a seat belt when the machine was shipped from Caterpillar. At the time of installation, the seat belt and the instructions for installation of the seat belt meet the SAE J386 standards. See your Caterpillar dealer for all replacement parts.

Always check the condition of the seat belt and the condition of the mounting hardware before you operate the machine.

Seat Belt Adjustment

Adjust both ends of the seat belt. The seat belt should be snug but comfortable.

Lengthening the Seat Belt

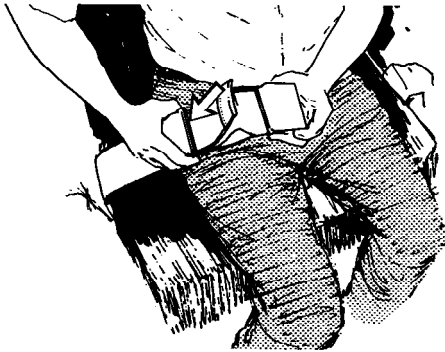


Illustration 61

g00100709

1. Unfasten the seat belt.

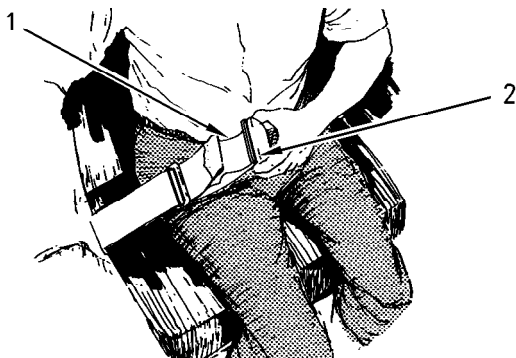


Illustration 62

g00932817

2. To remove the slack in outer loop (1), rotate buckle (2). This will free the lock bar. This permits the seat belt to move through the buckle.
3. Remove the slack from the outer belt loop by pulling on the buckle.
4. Loosen the other half of the seat belt in the same manner. If the seat belt does not fit snugly with the buckle in the center, readjust the seat belt.

Shortening the Seat Belt

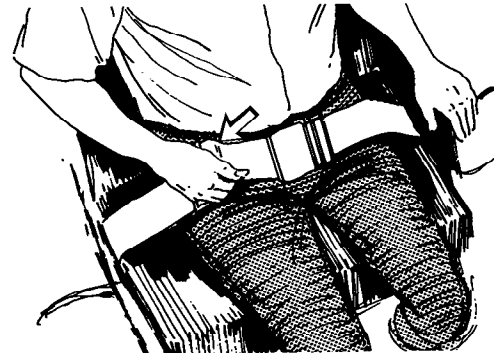


Illustration 63

g00100713

1. Fasten the seat belt. Pull out on the outer belt loop in order to tighten the seat belt.
2. Adjust the other half of the seat belt in the same manner.
3. If the seat belt does not fit snugly with the buckle in the center, readjust the seat belt.

Fastening The Seat Belt

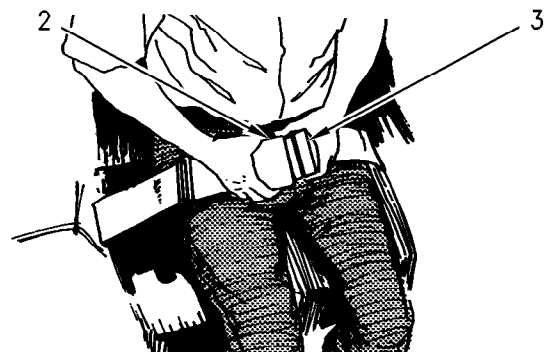


Illustration 64

g00932818

Fasten the seat belt catch (3) into the buckle (2). Make sure that the seat belt is placed low across the lap of the operator.

Releasing The Seat Belt

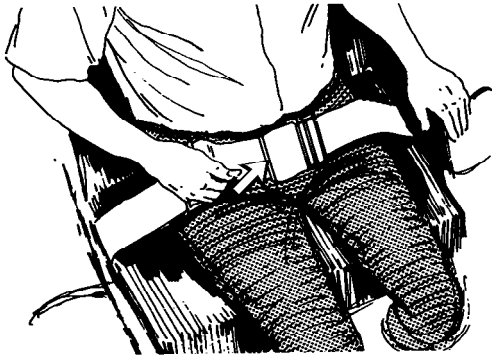


Illustration 65

g00100717

Pull up on the release lever. This will release the seat belt.

Extension of the Seat Belt

WARNING

When using retractable seat belts, do not use seat belt extensions, or personal injury or death can result.

The retractor system may or may not lock up depending on the length of the extension and the size of the person. If the retractor does not lock up, the seat belt will not retain the person.

Longer, non-retractable seat belts and extensions for the non-retractable seat belts are available.

Caterpillar requires only non-retractable seat belts to be used with a seat belt extension.

Consult your Caterpillar dealer for longer seat belts and for information on extending the seat belts.

i05439349

Diesel Particulate Filter Regeneration

SMCS Code: 108F

General Information

Regeneration is the removal of soot from the Diesel Particulate Filter (DPF). Active and passive regeneration are used to regenerate the DPF. The DPF traps both soot and ash. The soot is removed during regeneration. The ash is removed through a cleaning process. Refer to the Operation and Maintenance Manual, "Diesel Particulate Filter - Clean/Replace" for more information on the service of the DPF.

Modes of Regeneration

Passive – Passive Regeneration occurs when the exhaust temperature is high enough for regeneration to occur. Passive regeneration may occur unnoticed by the operator. No operator action is required. Operating the machine above mid throttle and under load allows for passive regeneration during normal operation. Low idle and low load applications will have lower exhaust temperatures, where passive regeneration is not possible.

Active – An active regeneration is a late injection of fuel into the combustion chamber, which sufficiently raises the exhaust temperature for an active regeneration. The engine ECM uses multiple inputs from the engine to determine when an active regeneration is needed. All applications, even high load, will require active regenerations. However, active regeneration will not occur as frequently as low idle and low load applications

There will be a slight change in the exhaust noise during an active regeneration. Active regenerations may require increased engine speed. The active regeneration may take up to 30 minutes to complete.

When an active regeneration is required with the hydraulic lockout control lever in the LOCKED position, the engine speed may be increased by the ECM.

When an active regeneration is required and the machine is being operated below the active regeneration threshold, the DPF alert indicator may illuminate. The operator can increase the engine speed to high idle with the Engine Speed Control Dial. An active regeneration will occur and the DPF light will turn off.

Note: If increasing the engine speed is not acceptable, the operator can allow a parked regeneration. In order for a parked regeneration to occur. Bring the machine to a stop. Move the hydraulic lockout control lever to the LOCKED position and set the engine speed to low idle. Do not operate the hydraulic controls. If those conditions are met for approximately 2 minutes, the ECM will slowly increase the engine speed and an active regeneration will begin. After completing the active regeneration the engine speed will slowly decrease back down to low idle.

The following chart describes the alert indicators and what actions, if any, the operator needs to perform in order to allow an active regeneration.

Warning Symbols and Alerts



(A) Engine Emissions System (DPF)

**(B) Alert****(C) Audible Alarm**

Table 72

Warning Symbol	Warning Message	Machine Action	Operator Action
None	None	If the hydraulic lockout control lever is in the LOCKED position, the ECM may increase the engine speed.	No action required
(A)	(A) Increase Engine Speed recommended	If the machine is operated and the engine speed is below high idle, the DPF light may illuminate.	Increase the engine speed to high idle. High idle is position 10 on the engine speed dial. The DPF light will turn OFF. Continue to operate the machine.
(A) + (B)	(A) Parked Regeneration Required	The engine will derate until an active regeneration is completed	Stop the machine.. Move the hydraulic lockout control lever to the LOCKED position. The ECM will automatically increase the engine speed. The regeneration may take up to 30 minutes.
	(B) Parked Regeneration Required		
(A) + (B) + (C)	(A) Dealer Service Required	Engine will remain derated.	A regeneration can only be done through Cat Electronic Technician (ET), by an authorized Cat dealer. Consult your local Cat dealer immediately. If the engine is run through these warning indicators, the DPF will require servicing and may require replacement. Engine damage can occur.
	(B) Dealer Service Required		

i06759614

Operator Controls

SMCS Code: 7300; 7301; 7451**Note:** Your machine may not be equipped with all the controls that are described in this topic.

Operation Section
Operator Controls

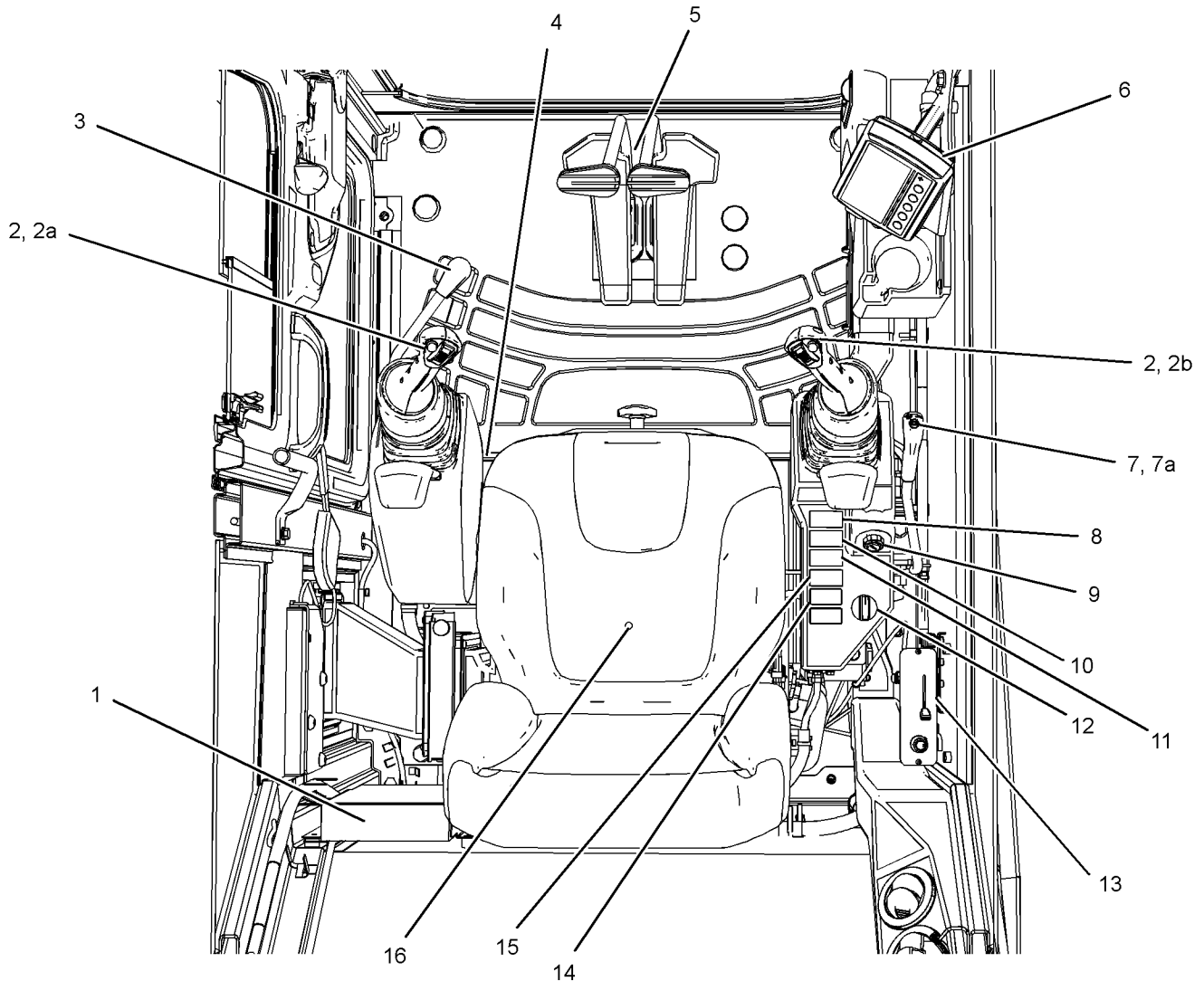


Illustration 66

g02867816

For machines FJX1-3999 and TMX1-Up

- | | | |
|-------------------------------|---|---|
| (1) Radio (If Equipped) | (6) Monitoring System | (11) Wiper/Washer |
| (2) Joystick Controls | (7) Dozer Blade Control | (12) Engine Speed Control |
| (2a) Swing Boom Control | (7a) Travel Speed Control | (13) Air Conditioning and Heater Control |
| (2b) Horn | (8) Work Light Switch | (14) Seat Heater (If Equipped) |
| (3) Hydraulic Lockout Control | (9) Engine Start Switch | (15) Overload Warning Cancel Switch (If Equipped) |
| (4) Service Hour Meter | (10) Travel Alarm Cancel Switch (If Equipped) | (16) Operator's Seat |

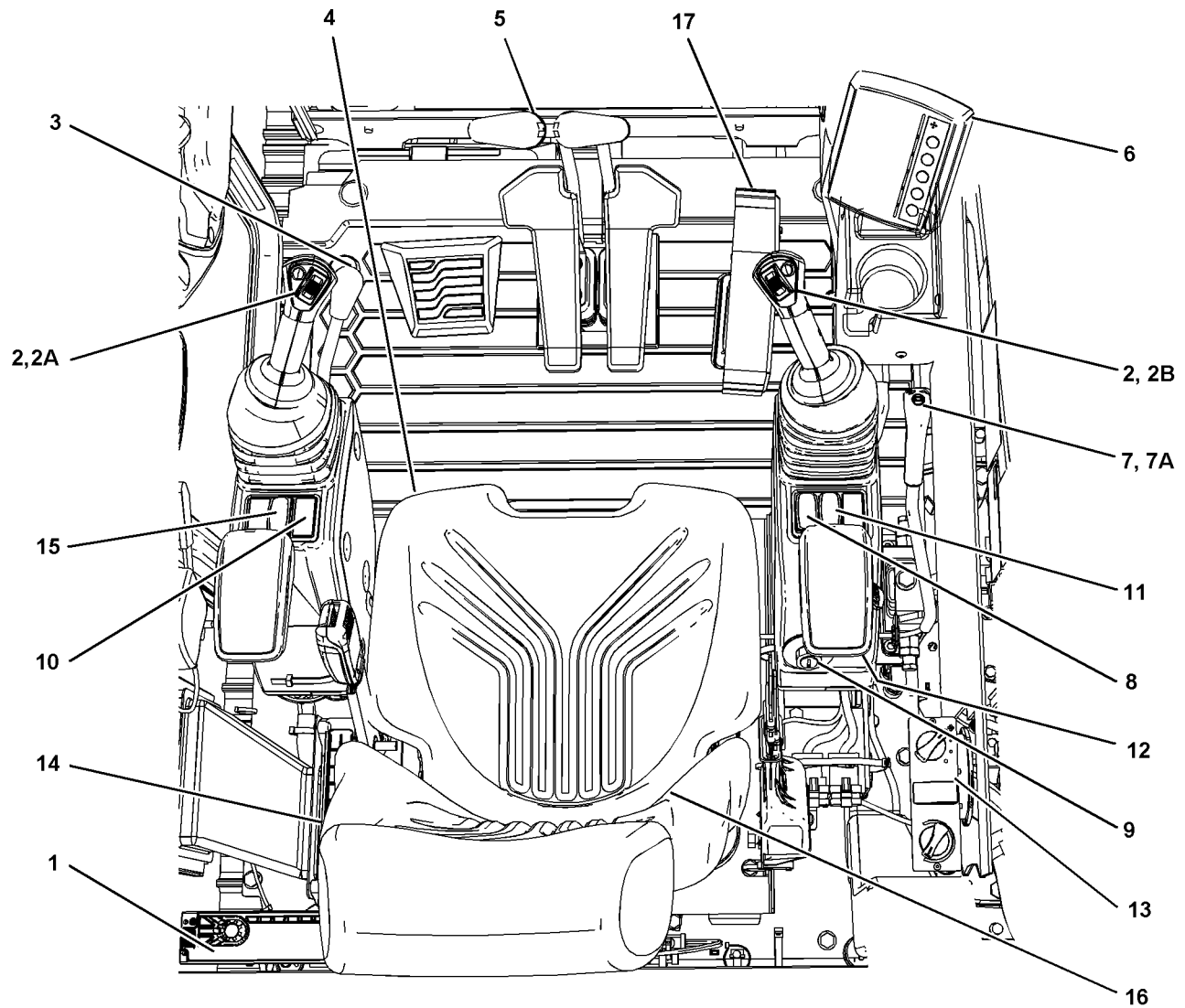


Illustration 67

g06109740

For machines W8S1–Up
For machines FJX4000–Up

- | | | |
|-------------------------------|---|---|
| (1) Radio (If Equipped) | (6) Monitoring System | (11) Wiper/Washer |
| (2) Joystick Controls | (7) Dozer Blade Control | (12) Engine Speed Control |
| (2a) Swing Boom Control | (7a) Travel Speed Control | (13) Air Conditioning and Heater Control |
| (2b) Horn | (8) Work Light Switch | (15) Overload Warning Cancel Switch (If Equipped) |
| (3) Hydraulic Lockout Control | (9) Engine Start Switch | (16) Operator's Seat |
| (4) Service Hour Meter | (10) Travel Alarm Cancel Switch (If Equipped) | (17) VA Boom Control Pedal (If Equipped) |

Radio (1)

This machine may be equipped with a radio. For more information, refer to Operation and Maintenance Manual, "Radio".

Joystick Controls (2)

The joystick control is used to control the functions of the work tools. For more information on the individual functions of the joysticks, refer to Operation and Maintenance Manual, "Joystick Controls".

Swing Boom Control (2a)

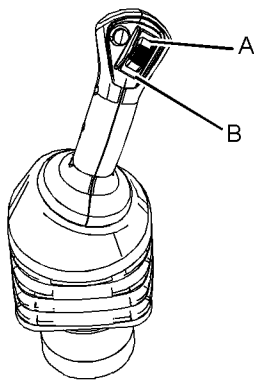


Illustration 68

g02792322



Swing Right (A) – Move the switch that is on top of the left joystick upward to swing the boom to the right.



Swing Left (B) – Move the switch that is on top of the left joystick downward to swing the boom to the left.

Horn (2b)

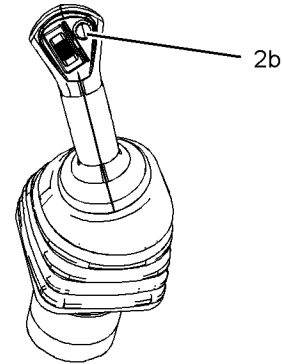


Illustration 69

g02870659



Horn (2b) – The horn button is located on the right side joystick. Depress the horn button to sound the horn. Use the horn for alerting personnel or for signaling personnel.

Hydraulic Lockout Control (3)

WARNING

Deactivation of the hydraulic controls does not prevent the blade, boom swing, or auxiliary circuit functions from moving under gravity or other external forces. Gravity or other external forces can move the blade, boom swing, or auxiliary circuit functions suddenly if a hydraulic control lever is moved.

Personal injury or death may occur from sudden machine movement.



Locked – Pull the hydraulic lockout control upward to the RAISED position to deactivate the hydraulic controls.

Make sure that the hydraulic lockout control is in the RAISED position before you exit the machine.

Note: Be sure to put the hydraulic lockout control in the RAISED position when starting the engine. The engine start switch will not function if the hydraulic lockout control is in the LOWERED position.



Unlocked – Push the hydraulic lockout control downward to the **LOWERED** position. When the left console is in the **LOWERED** position, the hydraulic controls are operable.

Service Hour Meter (4)

The service hour meter is located below the left side of the operators seat.



Service Hour Meter – This display indicates the total operating hours of the engine. Use the display to determine the service hour maintenance intervals.

Travel Controls (5)

Note: Normal steering occurs when the operator station is facing the blade. The travel lever information given below is for when the blade is in front of the operator station. Reverse steering occurs when the blade is behind the operator station. The directional functions and the steering will be reversed.

When you travel, make sure that the blade is in front of the operator station.

When the travel levers or the foot controls (if equipped) are moved in the forward direction, the machine will always travel toward the blade. When the travel levers or the foot controls (if equipped) are moved in the reverse direction, the machine will always travel away from the blade.

If you move a travel lever or foot control (if equipped) farther in the forward direction, the forward travel speed will increase. If you move a travel lever or foot control (if equipped) farther in a backward direction, the reverse travel speed will increase.

Move both of the travel levers or foot controls (if equipped) equally in the same direction to travel in a straight line.

Note: You should not attempt any grade that is steeper than 30 degrees. In steep downhill operation, carefully operate the travel levers.

Right Travel Lever

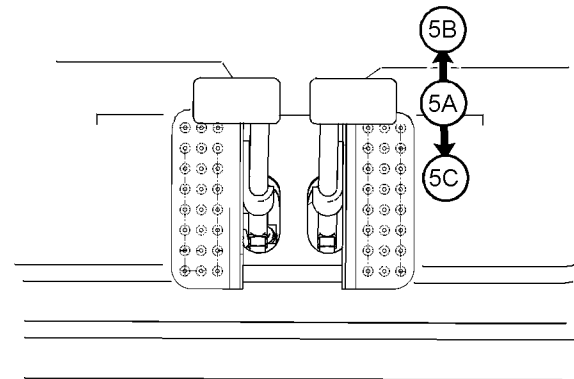


Illustration 70

g02792324

STOP (5A) – Release the right travel lever to stop the right track.

FORWARD (5B) – Move the right travel lever forward to operate the right track in a forward direction.

REVERSE (5C) – Move the right travel lever backward to operate the right track in a reverse direction.

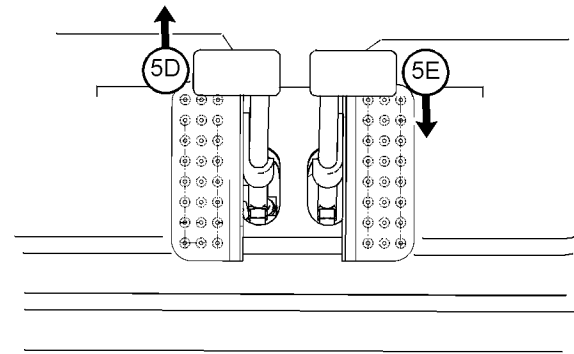


Illustration 71

g02792325

Spot Right Turn – Move the right travel lever (5E) backward. Move the left travel lever (5D) forward at the same time. This will turn the machine quickly to the right.

Pivot Right Turn – Moving the left travel lever (5D) forward will turn the machine to the right.

Left Travel Lever

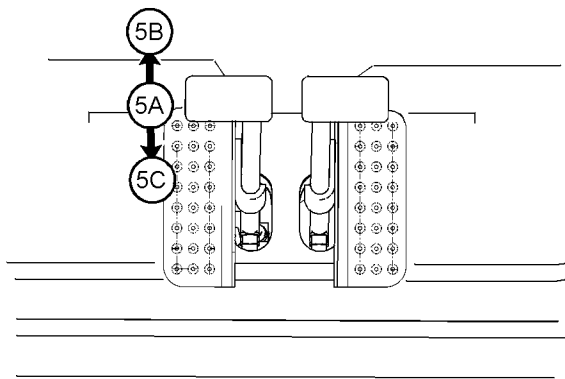


Illustration 72

g02792326

STOP (5A) – Release the left travel lever to stop the left track.

FORWARD (5B) – Move the left travel lever forward to operate the left track in a forward direction.

REVERSE (5C) – Move the left travel lever backward to operate the left track in a reverse direction.

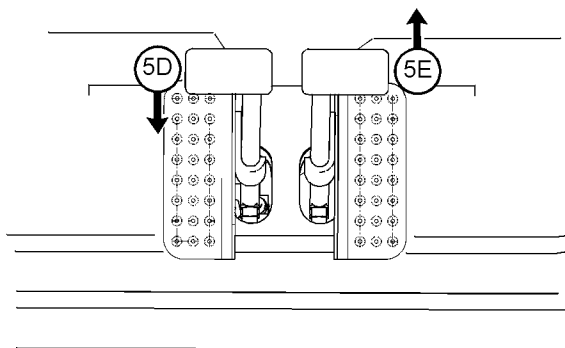


Illustration 73

g02792327

Spot Left Turn – Move the left travel lever (5D) backward. Moving the right travel lever (5E) forward at the same time will turn the machine quickly to the left.

Pivot Left Turn – Moving the right travel lever (5E) forward will turn the machine to the left.

Monitoring System (6)

The machine gauges and alert indicators are located in the monitoring panel.

Refer to Operation and Maintenance Manual, “Monitoring System” for more information.

Dozer Blade Control (7)



Float – Push the lever forward to the detent position. The blade will lower to the ground. The blade will float with the contour of the ground. The lever will remain in the FLOAT position until the lever is removed from the detent position. After the lever is removed from the detent position, the lever will return to the HOLD position.



Lower – Push the lever forward to lower the blade. The lever will return to the HOLD position when you release the lever. The blade will remain in the selected position.

Hold – The lever will return to the HOLD position when the lever is released from the RAISED or LOWERED position.



Raise – Pull the lever backward to raise the blade. The lever will return to the HOLD position when you release the lever. The blade will remain in the selected position.

Travel Speed Control (7a)

Use the switch to change the travel speed.



Low – Move the switch to this position to travel at low speed.



High – Move the switch to this position to travel at a high speed.

Travel always at a slow speed on slopes. Travel always at a slow speed on rough ground.

Work Light Switch (8)

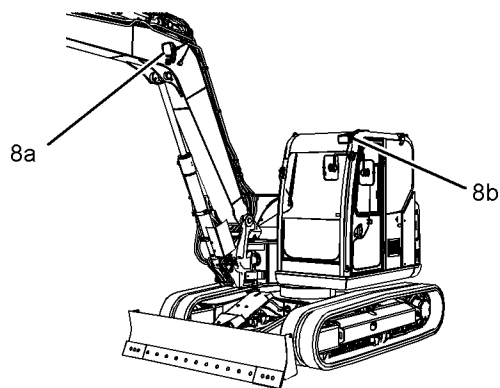


Illustration 74

g02874564



Lights – Press the top of the switch to turn on the work light that is located on the boom and the work light that is located on the cab. Press the bottom of the light switch to turn off the work lights.

Engine Start Switch (9)

NOTICE

To start the engine, be sure to put the hydraulic activation control lever in the LOCKED position. If the lever is in the UNLOCKED position, the engine start switch will not function.

Note: Be sure to put the console for the hydraulic lockout control in the RAISED position when you are starting the engine. The engine will not start if the console for the hydraulic lockout control is in the LOWERED position.



OFF – Insert the engine start switch key only from the OFF position and remove the engine start switch key only from the OFF position. In the OFF position, there is no power to most electrical circuits in the cab.

Turn the engine start switch key to the OFF position to stop the engine.



ON – Turn the engine start switch key to the ON position. Hold the key in this position to activate the glow plugs. The indicator for the glow plugs will light on the instrument panel.



START – Turn the engine start switch key clockwise to the START position to crank the engine. Release the engine start switch key after the engine starts and the engine start switch key returns to the ON position.

Note: If the engine fails to start, the engine start switch key must be returned to the OFF position to attempt to start the engine again.

Travel Alarm Cancel Switch (If Equipped) (10)



Travel Alarm Cancel Switch – This switch is used to stop the travel alarm from sounding. Press the switch to stop the alarm. The indicator lamp will turn on.

Note: The travel alarm is located under the hydraulic tank. The travel alarm will sound when the travel lever or the travel pedal is activated.

Window Wiper/Washer Switch (11)

NOTICE

If the wiper does not operate with the switch in the ON position, turn the switch off immediately. Check the cause. If the switch remains on, motor failure can result.

Machines that are equipped with a cab have a window wiper as standard equipment. The window wiper/washer switch is located in the rear of the cab on the left side.



Window Wiper – Push the switch to the MIDDLE position to turn on the wiper. Push the bottom of the switch to turn off the wiper.

NOTICE

If the washer is used continuously for more than 20 seconds or used when no washer solution comes out, motor failure can result.



Window Washer – Push the switch downward to spray washer fluid onto the window. Release the switch to stop the flow of washer fluid. The switch will return to the middle position.

Engine Speed Control (12)



Engine Speed – Turn the engine speed dial to control the engine speed (engine rpm). Select the desired position from the ten available positions. The selected position of the engine speed dial is indicated on the electronic monitor panel.



Decrease – Turn the engine speed dial counterclockwise to decrease the engine speed (engine rpm).



Increase – Turn the engine speed dial clockwise to increase the engine speed (engine rpm).

Air Conditioning and Heating Control (13)

The heater/air conditioner provides comfort for the operator that is working under various temperature conditions. For more information on the air conditioning and heating controls, refer to Operation and Maintenance Manual, “Air Conditioning and Heating Control”.

Overload Warning Device (14) (If Equipped)

The switch for the overload warning device is located on the left console.



Overload Warning Device – In lifting applications, the overload warning device activates a buzzer when there is an unstable load condition. When this occurs, the bucket load should be reduced or the stick should be moved inward.

ON – Push the front side of the switch to deactivate the overload warning device.

OFF – Push the back side of the switch to activate the overload warning device.

Seat Heater (15) (If Equipped)

WARNING

Preexisting skin conditions can be aggravated by continued use of the seat heater. If skin condition worsens, discontinue use of the seat heater.



Seat Heater – In cold weather, the seat heater can be activated to improve operator comfort.



ON – Push down on the top of the seat heater switch to activate the seat heater.



OFF – Push down on the bottom of the seat heater switch to deactivate the seat heater.

NOTICE

Do not leave any heavy item or object with a sharp point on the seat.

Do not cover the seat or seat back with a blanket, seat cushion or any other similar covering. The seat heater can be over heated. Be sure to remove any spills on the seat and thoroughly dry the spill.

Note: The thermostat in the seat heater deactivates when the temperature in the cab is above 10°C (50°F). The seat heater will not operate when the thermostat is deactivated.

Operators Seat (16)

The operators seat has various adjustments to meet a wide range of operators. For more information, refer to Operation and Maintenance Manual, “Seat”.

VA Boom Control Pedal (17) (If Equipped)

WARNING

Do not operate the boom adjustment foot pedal while roading the machine. Boom movement can cause personal injury or death.

NOTICE

When digging at a low depth with a VA boom there is a possibility the VA boom cylinder could hit the front of the machine. Always check for interference with the VA boom cylinder in order to prevent machine damage.

Push down on the rear of the pedal in order to retract the boom.

Push down on the front of the pedal in order to extend the boom.

Refer to Operation and Maintenance Manual, “VA Boom Controls” for more information.

i06599681

Battery Disconnect Switch (If Equipped)

SMCS Code: 1411-B11

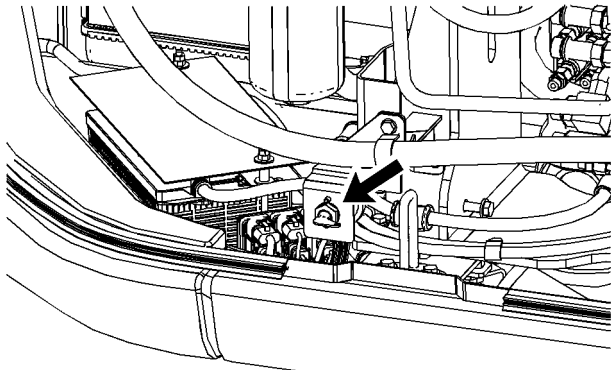


Illustration 75

g06039792

The battery disconnect switch is on the right side of the machine behind the right side access door.

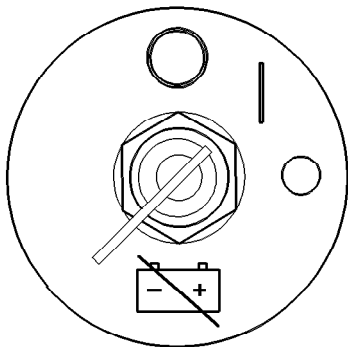


Illustration 76

g00406959

ON – To activate the electrical system, insert the disconnect switch key and turn the battery disconnect switch clockwise. The battery disconnect switch must be turned to the ON position before you start the engine.

OFF – To deactivate the electrical system, turn the battery disconnect switch counterclockwise to the OFF position.

The battery disconnect switch and the engine start switch perform different functions. The entire electrical system is disabled when you turn the battery disconnect switch to the OFF position. The battery remains connected to the electrical system when you turn the engine start switch to the OFF position.

Turn the battery disconnect switch to the OFF position and remove the key when you service the electrical system or any other machine components.

NOTICE

Never move the battery disconnect switch to the OFF position while the engine is operating. Serious damage to the electrical system could result.

To ensure that no damage to the engine occurs, verify that the engine is fully operational before cranking the engine. Do not crank an engine that is not fully operational.

Perform the following procedure to check the battery disconnect switch for proper operation:

1. With the battery disconnect switch in the ON position, verify that electrical components in the operator compartment are functioning. Verify that the hour meter is displaying information. Verify that the engine will crank.
2. Turn the battery disconnect switch to the OFF position.
3. Verify that the following items are not functioning: electrical components in the operator compartment, hour meter, and engine cranking. If any of the items continue to function with the battery disconnect switch in the OFF position, consult your Caterpillar dealer.

i09603786

Product Link

SMCS Code: 7490; 7606

Note: Your machine may be equipped with the Cat[®] Product Link™ system.

The Cat Product Link communication device utilizes cellular and/or satellite technology to communicate equipment information. This information is communicated to Caterpillar, Cat dealers, and Caterpillar customers. The Cat Product Link communication device uses Global Positioning System (GPS) satellite receivers.

The capability of two-way communication between the equipment and a remote user is available with the Cat Product Link communication device. The remote user can be a dealer or a customer.

Data Broadcasts

Data concerning this machine, the condition of the machine, and the operation of the machine is being transmitted by Cat Product Link to Caterpillar and/or Cat dealers. The data is used to serve the customer better and to improve upon Cat products and services. The information transmitted may include: machine serial number, machine location, and operational data, including but not limited to: fault codes, emissions data, fuel usage, service meter hours, software, and hardware version numbers and installed attachments.

Caterpillar and/or Cat dealers may use this information for various purposes. Refer to the following list for possible uses:

- Providing services to the customer and/or the machine
- Checking or maintaining Cat Product Link equipment
- Monitoring the health of the machine or performance
- Helping maintain the machine and/or improve the efficiency of the machine
- Evaluating or improving Cat products and services
- Complying with legal requirements and valid court orders
- Performing market research
- Offering the customer new products and services

Caterpillar may share some or all the collected information with Caterpillar affiliated companies, dealers, and authorized representatives. Caterpillar will not sell or rent collected information to any other third party and will exercise reasonable efforts to keep the information secure. Caterpillar recognizes and respects customer privacy. For more information, please contact your local Cat dealer.

Operation in a Blast Site for Product Link Radios

WARNING

This equipment is equipped with a Cat® Product Link communication device. When electric detonators are being used for blasting operations, radio frequency devices can cause interference with electric detonators for blasting operations which can result in serious injury or death. The Product Link communication device should be deactivated within the distance mandated under all applicable national or local regulatory requirements. In the absence of any regulatory requirements Caterpillar recommends the end user perform their own risk assessment to determine safe operating distance.

Refer to your products Operation and Maintenance Manual Supplement, “Regulatory Compliance Information” for more information.

For information regarding the methods to disable the Cat Product Link communication device, please refer to your specific Cat Product Link manual listed below:

- Operation and Maintenance Manual, SEBU8142, “Product Link - PL121, PL321, PL522, and PL523”
- Operation and Maintenance Manual, SEBU8832, “Product Link PLE702, PLE602, PLE601, PL641, PL631, PL542, PL240, PL241, PL243, PL141, PL131, PL161, PL083 and PL042 Systems”

Note: If no radio disable switch is installed and the equipment will be operating near a blast zone, a Product Link radio disable switch may be installed on the equipment. The switch will allow the Cat Product Link communication device to be shut off by the operator from the equipment control panel. For more details and installation procedures, refer to the following:

- Special Instruction, REHS7339, “Installation Procedure for Product Link PLE640 Systems”
- Special Instruction, REHS8850, “Installation Procedure for the Elite Product Link PLE601, PLE641, and PLE631 Systems”
- Special Instruction, SEHS0377, “Installation Procedure for the Product Link PL131, PL141, and PL161 Systems”

- Special Instruction, REHS9111, “Installation Procedure for the Pro Product Link PL641 and PL631 Systems”
- Special Instruction, M0098124, “Installation Procedure for Pro Product Link PL243 Cellular Radio Systems”
- Special Instruction, M0109130, “Installation Procedure for the Elite Product Link PLE602, PLE602p, PLE702, PLE643, PLE643p, and PL743 Systems”
- Special Instruction, M0111437, “Installation Procedure for the Elite Product Link PLE602, PLE602p, PLE702, PLE683, PLE683p, and PL783 Systems”

i07362318

Monitoring System

SMCS Code: 7451; 7490

NOTICE

When the monitor provides a warning, immediately check the monitor and perform the required action or maintenance as indicated by the monitor.

The monitor indicator does not guarantee that the machine is in a good condition. Do not use the monitor panel as the only method of inspection. Maintenance and inspection of the machine must be performed on a regular basis. See the Maintenance Section of this Operation and Maintenance Manual.

i04768805

Power Receptacle (If Equipped)

SMCS Code: 1436; 7451

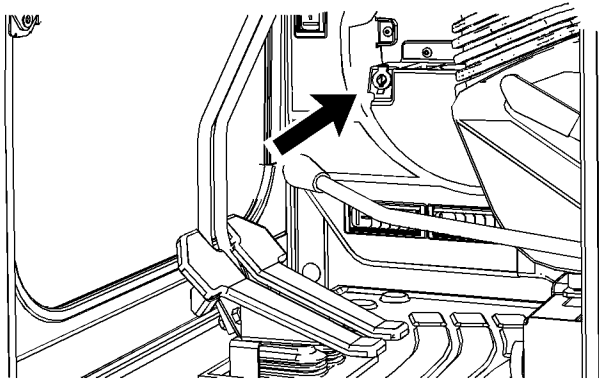


Illustration 77

g02867116

Power Receptacle – A 12V power receptacle is located on the right side console. This power receptacle can be used for powering automotive electrical equipment or accessories. Remove the cap before use.

General Information

NOTICE

When the monitor provides a warning, immediately check the monitor and perform the required action or maintenance as indicated by the monitor.

The monitor indicator does not guarantee that the machine is in a good condition. Do not use the monitor panel as the only method of inspection. Maintenance and inspection of the machine must be performed on a regular basis. See the Maintenance Section of this Operation and Maintenance Manual.

Operation Section
Monitoring System

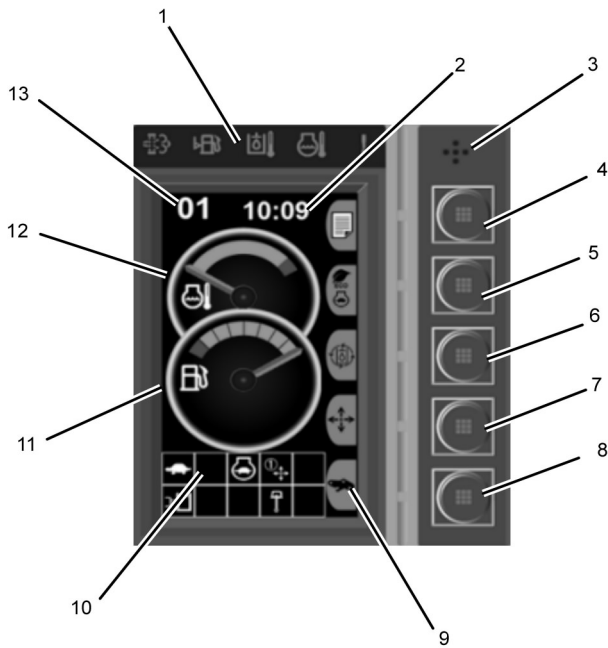


Illustration 78 g02957617

For machines FJX1-3999 and TMX1-Up

- (1) Action Lamp
- (2) Clock
- (3) Action Alarm
- (4) Main Menu
- (5) Work Mode
- (6) Continuous Flow
- (7) Pattern Changer
- (8) Aux. Flow Control (If Hydraulic Quick Coupler is not equipped)
- (9) Button Indicator
- (10) Status Icons
- (11) Fuel Level Gauge
- (12) Coolant Temperature Gauge
- (13) Engine Speed Dial Indicator

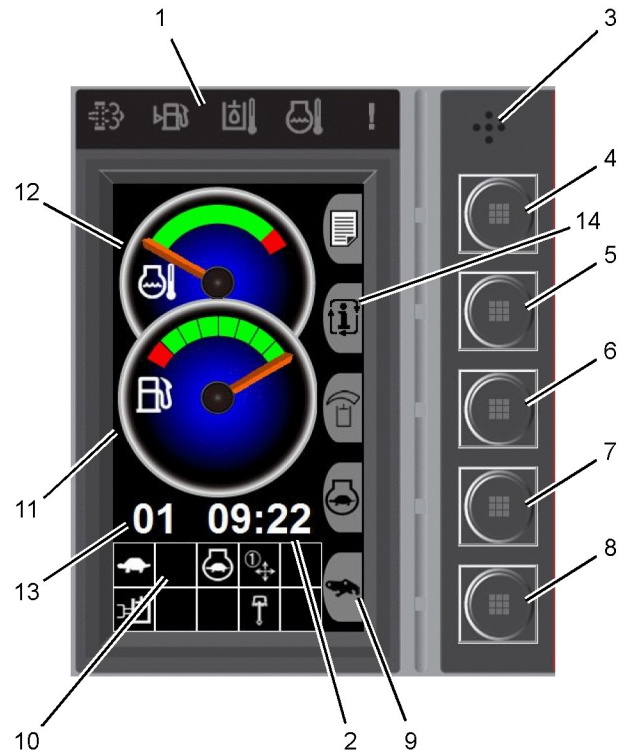


Illustration 79 g06040299

For machines FJX4000-Up

- (1) Action Lamp
- (2) Clock
- (3) Action Alarm
- (4) Main Menu
- (5) Work Mode
- (6) Continuous Flow
- (7) Pattern Changer
- (8) Aux. Flow Control (If Hydraulic Quick Coupler is not equipped)
- (9) Button Indicator
- (10) Status Icons
- (11) Fuel Level Gauge
- (12) Coolant Temperature Gauge
- (13) Engine Speed Dial Indicator
- (14) "I" Button - site reference (Power On Demand, Courtesy Light, Rear View Camera, Auto Engine Shut Off)

Note: Button #5 will be the Quick Coupler control if the hydraulic quick coupler lines are installed from the factory. All five top-level buttons can be changed by changing the "shortcut" icons.

Status Icons

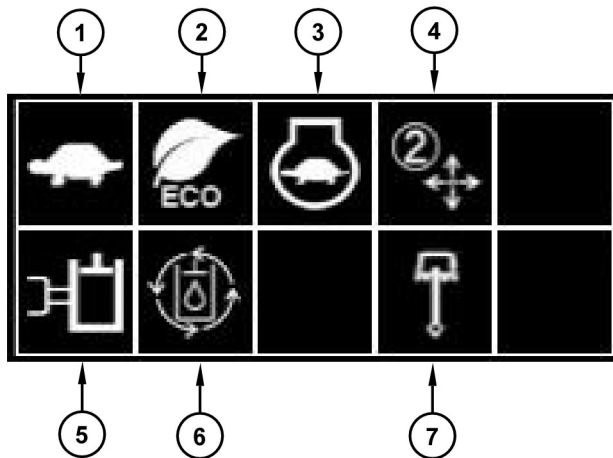


Illustration 80

g03694691

- (1) Low Speed (turtle) or High Speed (rabbit)
- (2) Economy Mode (if equipped)
- (3) Auto Engine Idle
- (4) Pattern Changer selection
- (5) Work-tool select (this symbol is **user define**)
- (6) Continuous Flow
- (7) Left roller switch selection, Boom Swing, or Second Auxiliary (if equipped)

Prestart Monitoring Function

Turn the engine start switch to the ON position.

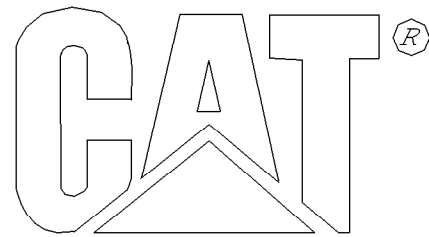


Illustration 81

g00928810

After approximately one second, Illustration 81 appears in the display and the alert indicator turns on.

The coolant temperature, the fuel level, and the position of the engine speed dial are now indicated.

The service hours for the filters are checked first. Then, the service hours for the fluids are checked. If a filter or a fluid is over the recommended change interval, "CHECK FLTR/FLUID INFO" appears on the display. Refer to Operation and Maintenance Manual, "Maintenance Interval Schedule" for more information. This message will disappear after 5 seconds.

Warning Operation

The monitoring system provides three warning categories.

- The first warning category requires only operator awareness. This type of warning will be indicated by a message on the display screen.
- The second warning category requires a change to the machine operation or a change to the maintenance of the machine. This type of warning will be indicated by a message on the display screen and by a blinking of the Action Lamp.
- The third warning category requires immediate shutdown of the engine. This type of warning will be indicated by a message on the display screen, by a blinking of the Action Lamp and Action Alarm.

If multiple warnings are present in the system, the most important problem is shown first. Press the right key or press the left key to view all the warnings that are present in the machine. If no keys are pressed within 5 seconds, the display will return to the most important problem.

Note: The menu is still functional by pressing the menu key.

Warning Category 1

In this category, only a warning will be shown in the display screen. This category alerts the operator that the machine system needs attention. Failure of these systems will not endanger the operator. Failure of these systems will not cause serious damage to the machine components.



“BATTERY VOLTAGE IRREGULAR” – The electrical charging system is malfunctioning. Check the electrical components of the charging circuit immediately. Perform any necessary repairs.



“FUEL LEVEL LOW” – The fuel in the tank is low on fuel. Refill the fuel tank.

Warning Category 2



“COOLANT TEMP HIGH” – The coolant temperature is too high. Stop operating the machine and run the engine at low idle until the coolant temperature decreases to the correct level. If the warning stays on during low idle, stop the engine. Check the coolant level and check the radiator for debris. Refer to **Operation and Maintenance Manual, “Cooling System Coolant Level - Check”**. Check the fan drive belts for the water pump. Refer to **Operation and Maintenance Manual, “Belts - Inspect/Adjust/Replace”**. Make any necessary repairs.



“HYD OIL TEMP HIGH” – The hydraulic oil temperature is too high. Stop operating the machine and run the engine at low idle until the hydraulic oil temperature decreases to the correct level. If the warning stays on during low idle, stop the engine. Check the hydraulic oil level and check the hydraulic oil cooler for debris. Perform any necessary repairs as soon as possible.



“ECM ERROR” – The ECM has malfunctioned. Contact your Cat Dealer.



“MONITOR ERROR” – The monitor has malfunctioned. Contact your Cat Dealer.



“SERVICE REQUIRED” – The machine has detected a malfunction. Contact your Cat Dealer.

Warning Category 3



“ENG OIL PRESS LOW” – The engine oil pressure is too low. Stop the machine immediately. Stop the engine and investigate the cause of the problem. Do not operate the machine until the cause of the problem has been corrected.

Other Messages

Miscellaneous



“NOT CONFIGURED” – This is a general warning that indicates that a machine component needs to be configured.



“NOT CALIBRATED” – This is a general warning that indicates that a machine component needs to be calibrated.



Glow Plug – This indicator will appear in the message display when the engine start switch is in the ON position.

Security System Password Entry

Turn the key to ON and the monitoring system boots up. The password needs to be put into the monitor so the monitor may shift to the default screen outside the moratorium of the security system.

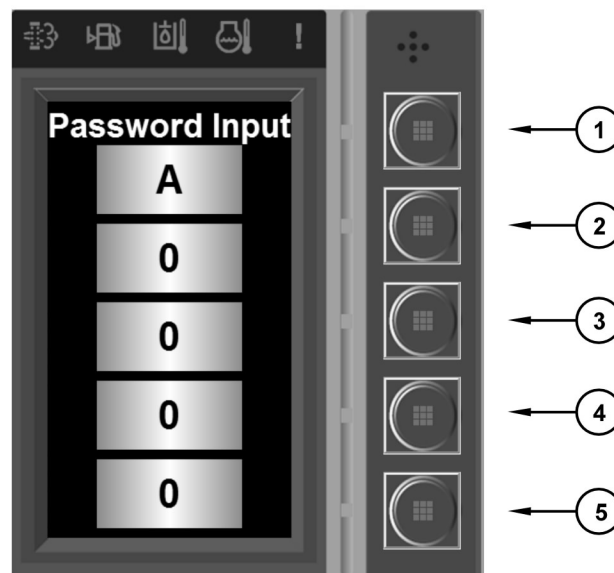


Illustration 82

g02920837

1. Press the button 1 (4). Press the button 2 (5). Press the button 3 (6). Press the button 4 (7). Press the button 5 (8) to select the desired character.

Note: The password is alphanumeric. With button 1, you can choose “A” to “E”. With button 2 through button 5, you can choose “0” to “9”.

Note: When the machine leaves the factory, the owner password is initially set as A1234.

2. After you enter five characters, the monitoring system checks the password. If the password is correct, you will have access to the default display.
3. If the password is incorrect, or, if you do not operate the button during the Security Time Delay, “A0000” will be displayed. Retry the password entry.

Note: Consult your Cat dealer if you forget your password.

Main Menu (Menu Description)



Illustration 83

g02920757

1. Push the menu button 1 when the default display is active.
2. The “MAIN MENU” will be displayed with the seven following menu options: Setting, Control mode, Work tool, Maintenance information, Performance information, Service, and Security system (Owner Mode Only). For more information on these menus, refer to the respective descriptions below.
3. Press button 2 or button 4 to highlight the desired menu. Press button 3 to open the desired menu.

Note: Press button 5 or button 1 to exit this menu and return to the default display.

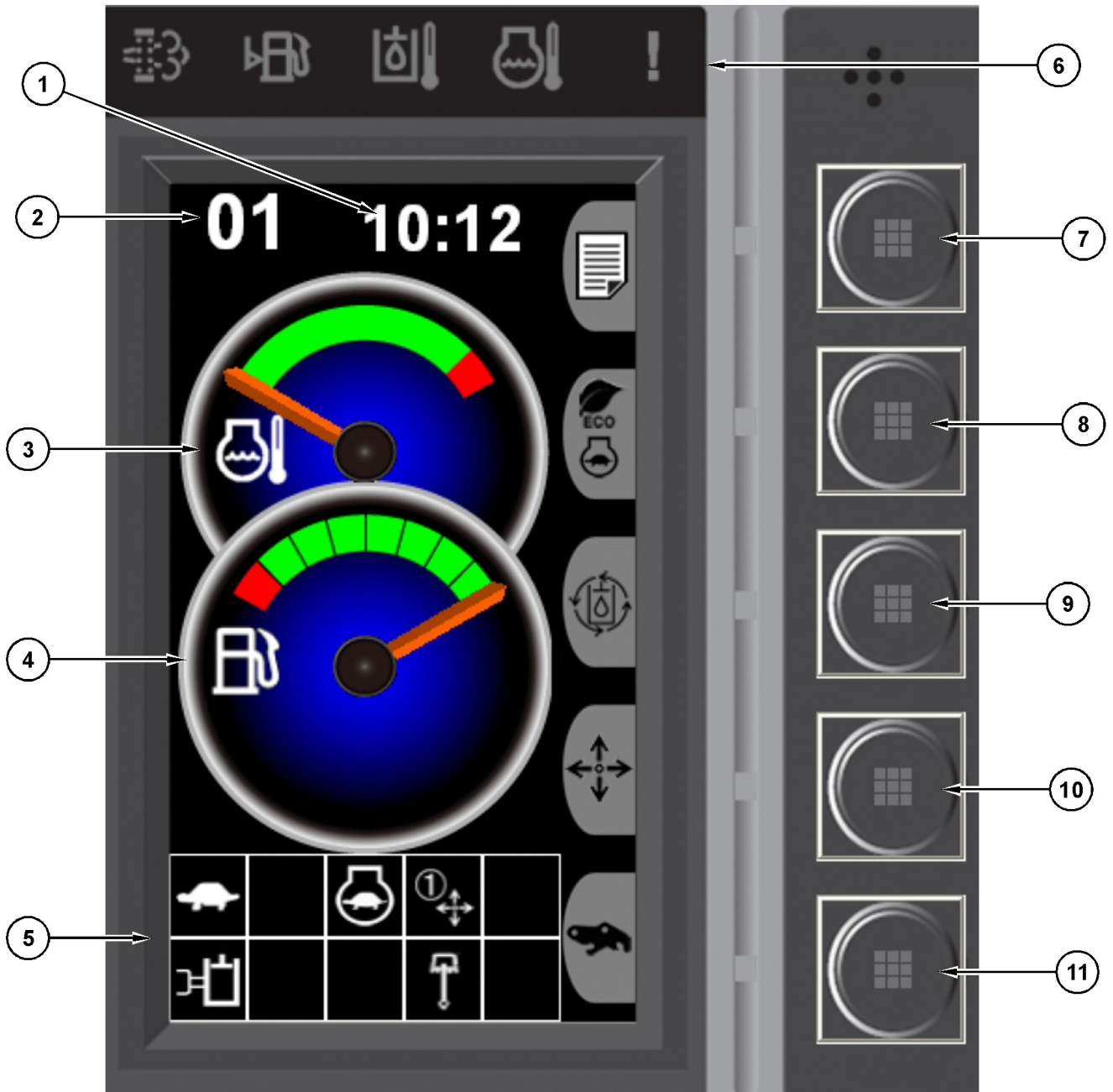


Illustration 84

For machines FJX1-3999 and TMX1-Up

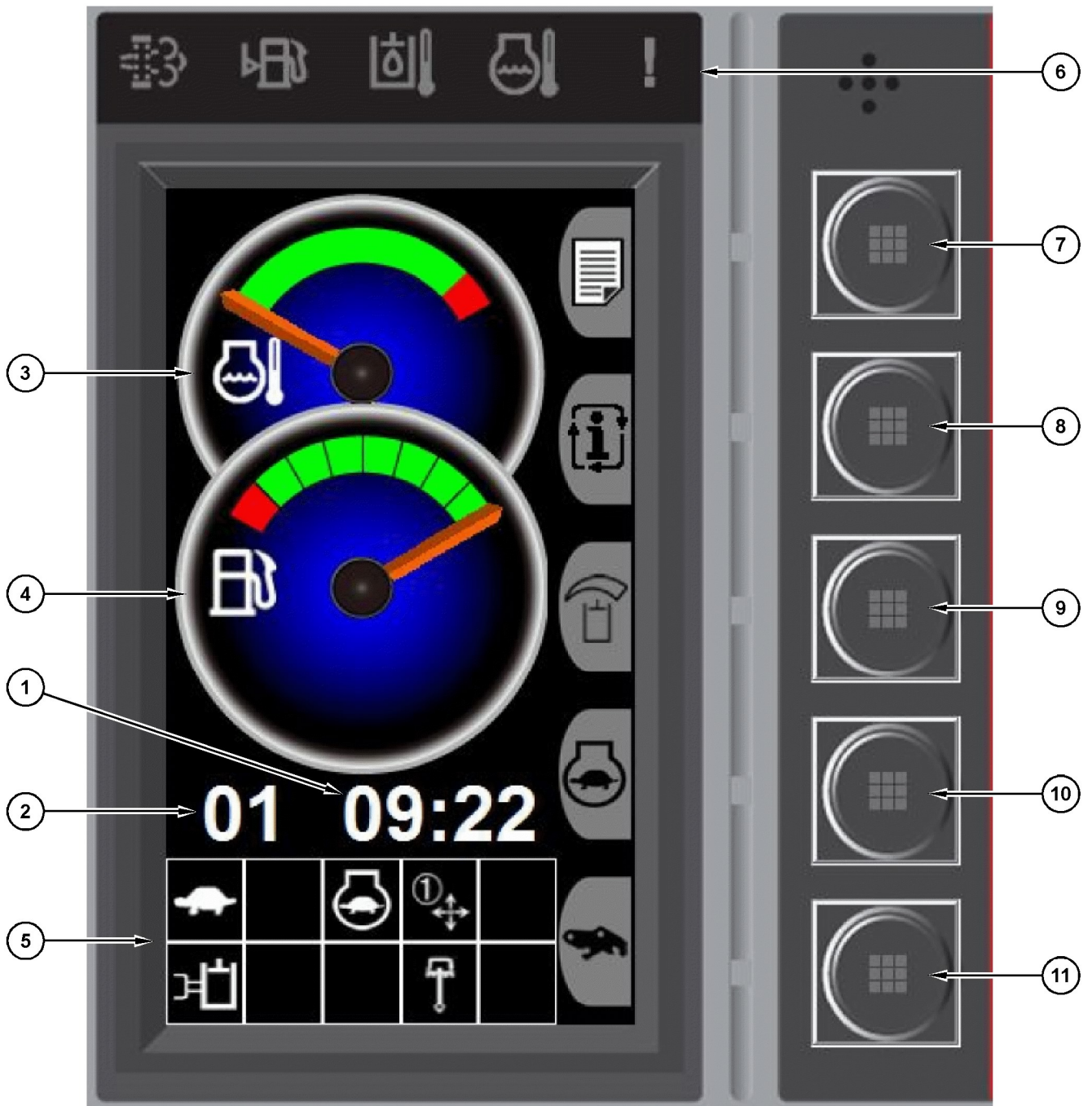


Illustration 85
For machines FJX4000-Up

Operation Section
Monitoring System

(1)24 HR CLOCK - The time can be adjusted in the service menu

(2)ENGINE RPM - Indicates the engine RPM from 1 to 10. The engine RPM is changed on the rotary dial next to the ignition.

(3)COOLANT TEMPERATURE GAUGE - Indicates the machine coolant temperature. The exact temp can be found in the performance info.

(4)FUEL GAUGE - Indicates the fuel level in the tank. The exact percentage can be found in the performance info.

(5)STATUS ICONS

(6)ACTION LAMPS - Hydraulic oil temp, coolant temp, fuel low, and service required.

(7)MAIN MENU - Press this button to get to settings, control mode, work tool, maintenance and performance info, security system and service settings.

(8)WORK MODE - Press this button to change the Eco mode and Auto Engine idle settings (on/off).

(9)CONTINUOUS FLOW - Press this button to Enable or Disable continuous flow. When turned on, continuous flow must then be engaged by using the roller switch on the right-hand joystick.

(10)PATTERN CHANGER - This button changes between Excavator and Backhoe loader pattern.

(11)AUXILIARY FLOW CONTROL - Press this button to change the auxiliary flow from a setting of 1 to 15. * (If equipped with Hydraulic Coupler from the factory, see (Work Tool, Auxiliary Flow Adjust) to adjust the auxiliary flow).

Status Icons

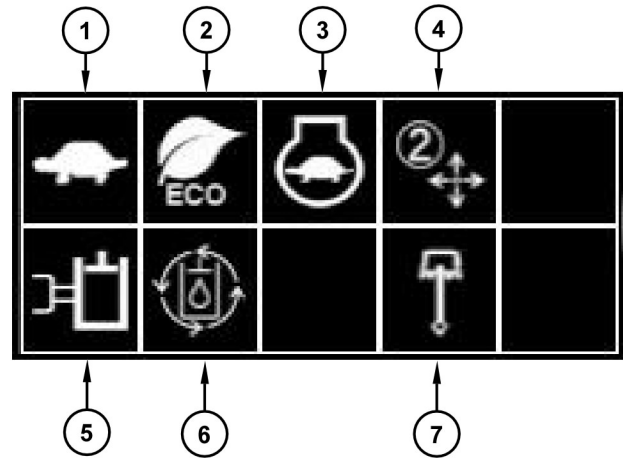


Illustration 86

g03694691

- (1) Low Speed (turtle) High Speed (rabbit)
- (2) Economy Mode (if equipped)
- (3) Auto Engine Idle
- (4) Pattern Changer selection
- (5) Work-tool-select (this symbol will change according to the tool chosen)
- (6) Continuous Flow
- (7) Left roller switch selection (Boom Swing or Second Auxiliary if equipped)

Settings Menu

The "SETTING" menu allows the operator to change the various machine settings.

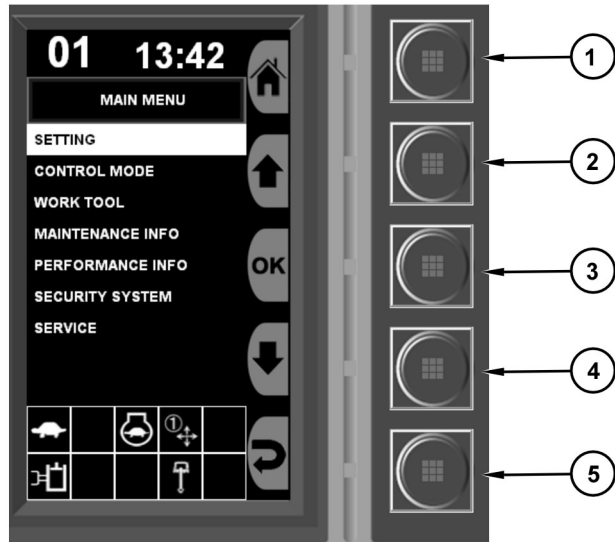


Illustration 87

g02920996

1. Press button 1.
2. Press button 2 or button 4 to highlight the "SETTING" menu. Press button 3.

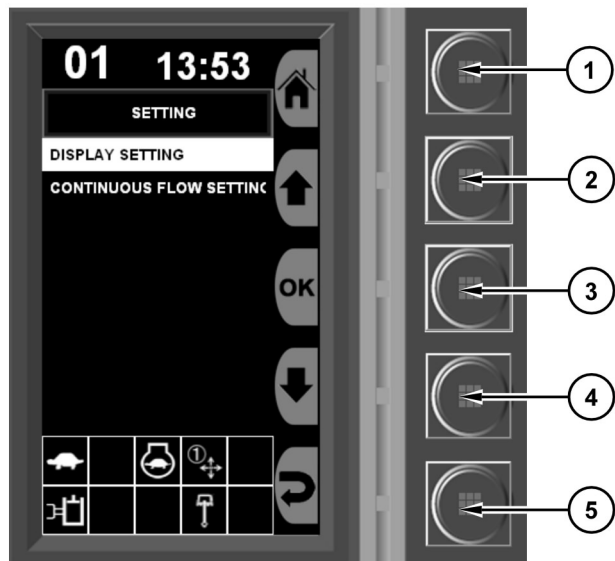


Illustration 88

g02921077

3. The "SETTING" menu will be displayed with two new menu options: Display setting and Continuous flow setting. For more information on these menus, refer to the respective descriptions below.
4. Press button 2 or button 4 to highlight the desired menu. Press button 3 to open the desired menu.

Note: Press button 1 to return to the default display.

Adjust the Clock

The clock can be set to any time on a 24 hr format.

Note: Change the clock by following these steps:

(Step 1) Press the top button for main menu. Select setting, Display Setting, then Clock adjust.

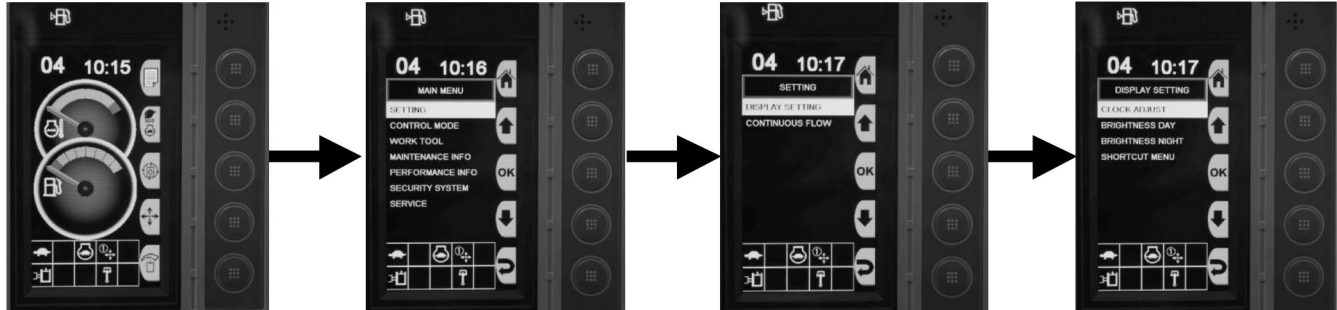


Illustration 89

g02919856

(Step 2) Adjust the clock to the desired time by using the arrows and press OK.



Illustration 90

g02919936

Change the Shortcut Buttons

The monitor comes with preset shortcuts for each button. These buttons can be changed to be a shortcut for several different features.

Note: Change the shortcuts to the customers preference by following these steps:

(Step 1) Press the top button for main menu. Select setting, Display Setting, then Shortcut Menu.



Illustration 91

g02919996

(Step 2) Choose one of the options from the list to set up a shortcut and press OK.



Illustration 92

g02920122

(Step 3) Choose the button you would like this option to be a pre-set for and press OK.



Illustration 93

g02920139

Control Mode Menu

The "CONTROL MODE" menu allows the operator to change the various control modes.

1. Press button 1.

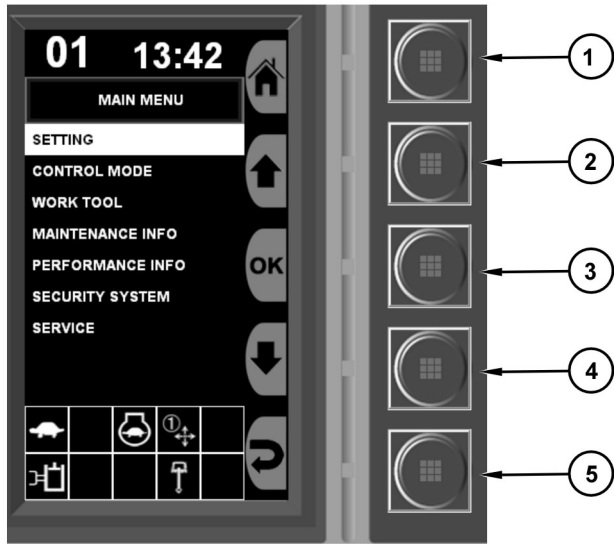


Illustration 94

g02920996

2. Press button 2 or button 4 to highlight the "CONTROL MODE" menu. Press button 3.

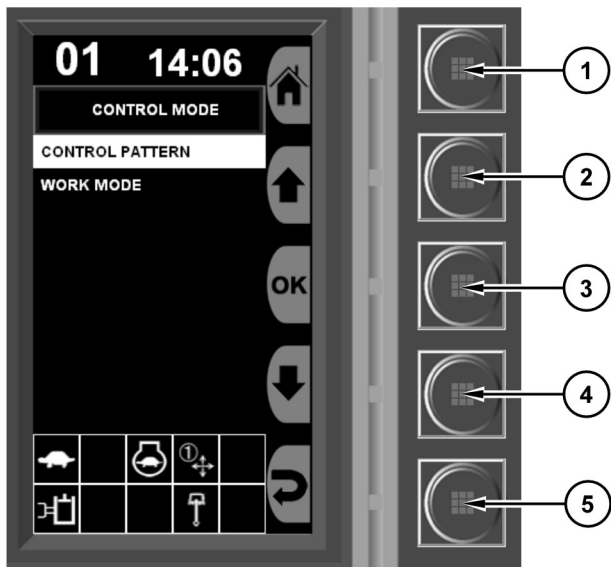


Illustration 95

g02921177



Illustration 96

g02958137

3. The “CONTROL MODE” menu will be displayed with the two following menu options: Control-pattern and Work-mode-select: Auto Idle Mode or Economy Mode. For more information on these menus, refer to the respective descriptions.
4. Press button 2 or button 4 to highlight the desired menu. Press button 3 to open the desired menu.

Note: Press button 1 to return to the default display.

Work Tool Menu

The “WORK TOOL” menu allows the operator to change the various work tool settings.

1. Press button 1.

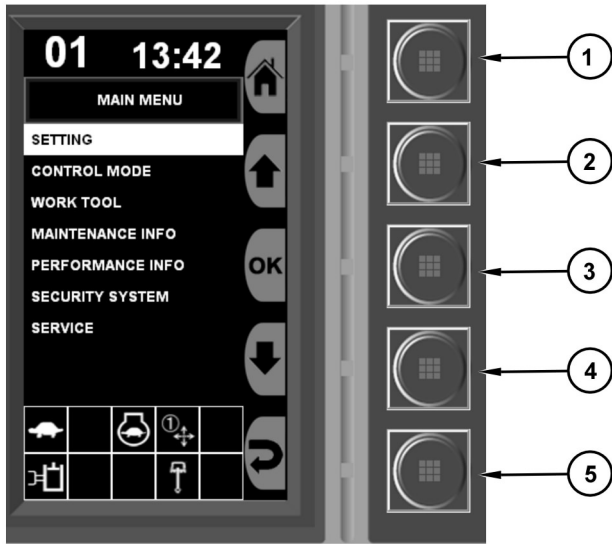


Illustration 97

g02920996



Illustration 99

g02963797

2. Press button 2 or button 4 to highlight the “WORK TOOL” menu. Press button.

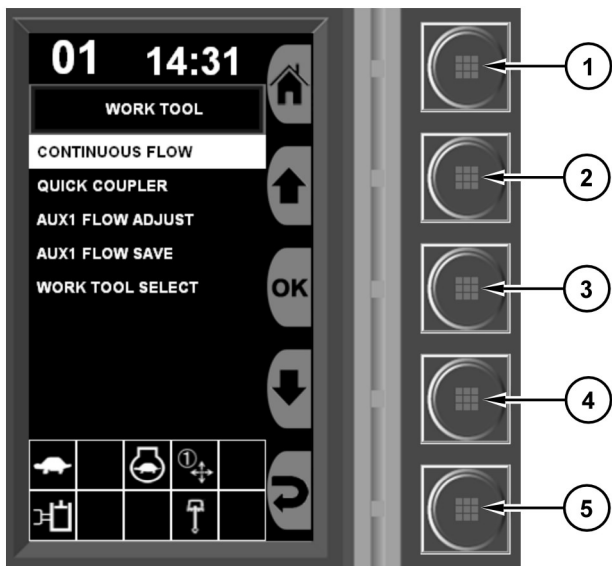


Illustration 98

g02921277

3. The “WORK TOOL” menu will be displayed with the five following menu options: **Continuous flow**, **Quick coupler**, **Auxiliary 1 Flow Adjust**, **Auxiliary 1 Flow Save** and **Work-tool-select**.

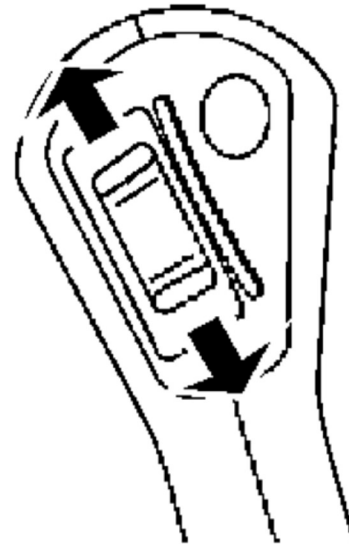


Illustration 100

g02963898

4. **Continuous Flow:** Select Continuous Flow ON or Continuous Flow OFF. Continuous Flow "ON": The operator controls the modulation and the "ON" and "OFF" function with the switch on the right-hand joystick. To set continuous flow, hold the switch to the desired modulation until continuous flow turns on. Once the continuous flow begins, release the switch. Continuous flow will stop operating when the switch is moved or the hydraulic lockout is lifted, and when the machine is turned off.

5. The **Auxiliary 1** Flow Adjust can be set between 1 and 15. Press button 2 to increase the flow. Press button 4 to decrease the flow then press OK.



Illustration 101 g02964799

6. **Auxiliary 1** Save: When the "user define" tool is selected, the Auxiliary Flow can be saved to any desired setting. To save the **Auxiliary flow**, follow these steps:



Illustration 102 g02964877

a. Press main menu and go to Work Tool

Note: The "User Define" work tool is now saved at the desired flow and will remain at that setting until changed.



Illustration 103 g02964956

b. Go to **Auxiliary 1** Flow Adjust, Set flow, Press **OK**, go to Auxiliary Flow Save and press **OK**.



Illustration 104 g02965297

7. Select Work Tool Select



Illustration 105

g02965317



Illustration 106

g06295603

8. Select Work Tool

Table 73

Default Settings	Flow
Auger	15
Brushcutter	15
Compactor Plate	15
Hammer	10
Shear	12
Thumb	12
Tilting Bucket	12
Tilting Coupler	12
User Define	"User Define"

Note: To set "User Define": choose "User Define". Set **Auxiliary 1** Flow Adjust . Save **Auxiliary1** Flow Save. Press **OK**.

Quick Coupler

The quick coupler allows the operator to switch buckets or work tools without leaving the cab.

1. With the "WORK TOOL" menu open use the arrow buttons to scroll down to the "QUICK COUPLER" menu item and press the "OK" button.



Illustration 107

g03850520

2. Press the arrow button to unlock the wedge.



Illustration 108

g03852145

3. Press the “UNLOCK FRONT” arrow button.
4. Lift the boom from the bucket or work tool and place into position on the new bucket or work tool.
5. Press the “LOCK WEDGE” arrow button. The bucket or work tool should be locked and the display will return to the main screen.

Maintenance Information Menu

The “MAINTENANCE INFO” menu allows the operator to view the current hours of use and the recommended change intervals for various system components. The intervals can also be reset.

1. Press button 1.

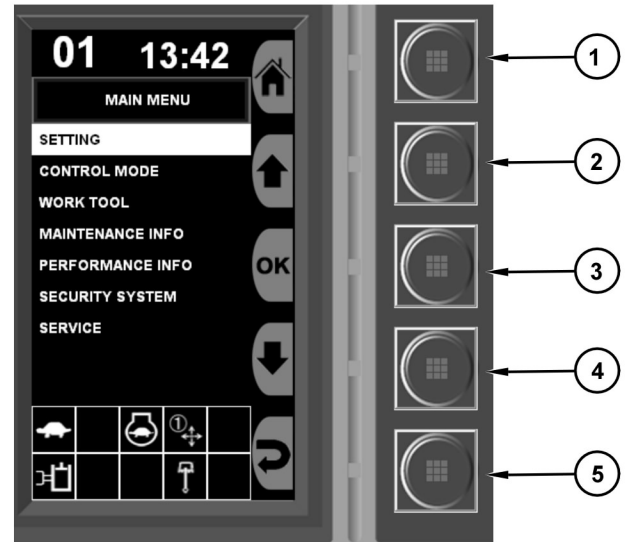


Illustration 109

g02920996

2. Press button 2 or button 4 to highlight the “MAINTENANCE INFO” menu. Press button 3.

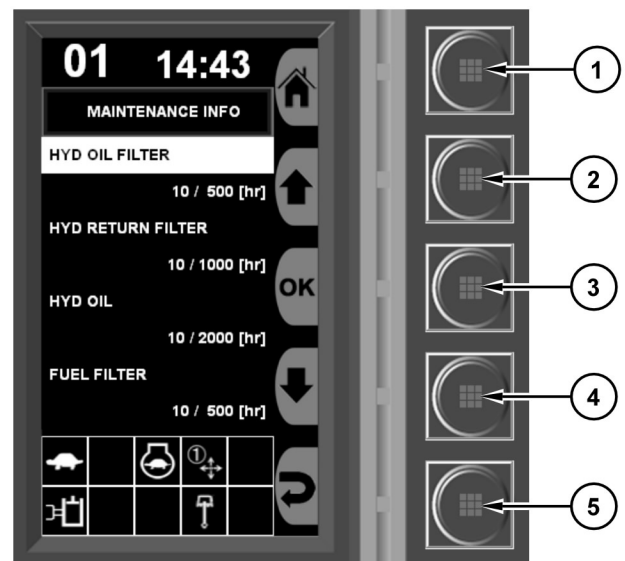


Illustration 110

g02921296

3. A list of system components will be displayed. Press button 2 or button 4 to scroll through the list. For each of the system components, the current hours of use will be displayed. If the component has a recommended change interval, the recommended interval will be displayed to the right of the current hours of use.
4. To reset the maintenance hours, highlight the system component and press button 3.



Illustration 111

g03831575

5. Press "Reset".

Note: Press button 1 to return to the default display or button 5 to return to the Main Menu.

Performance Information Menu

The "PERFORMANCE" menu allows the operator to view measurements of various system components.

1. Press button 1.

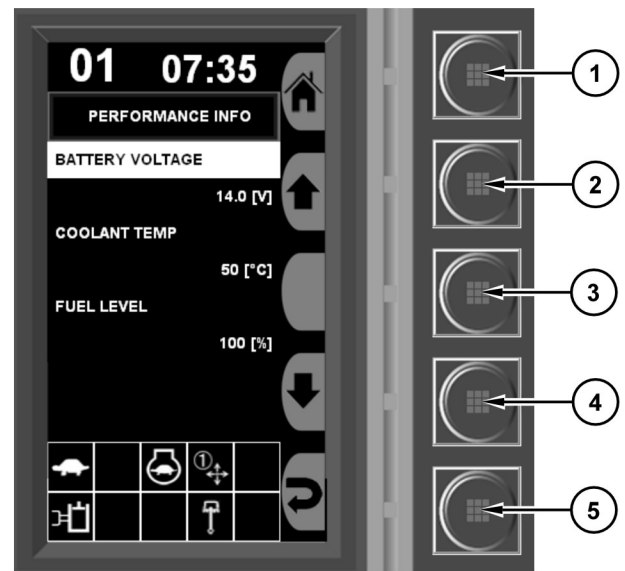


Illustration 113

g02922636

3. The "PERFORMANCE INFO" menu will be displayed with a list of system components and measurements.

4. Press button 2 or button 4 to scroll through the list.

Note: Press button 1 to return to the default display or button 5 to return to the Main Menu.

Service Menu

Enable additional users with different passwords

Up to five additional users can be installed with individual passwords. The additional passwords can be given to rental customers, jobsite foremen, superintendents, and additional operators.

Enable additional users by following these steps:

(Step 1) Press the top button for "Main Menu". Highlight "Service" press OK and enter FFF2.

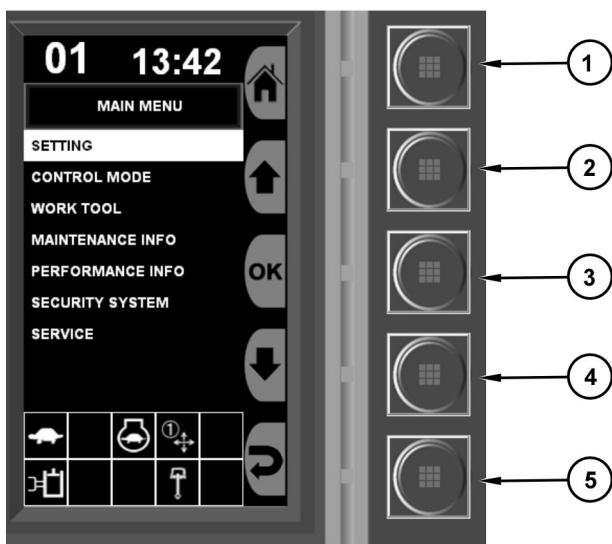


Illustration 112

g02920996

2. Press button 2 or button 4 to highlight the "PERFORMANCE INFO" menu. Press button 3.

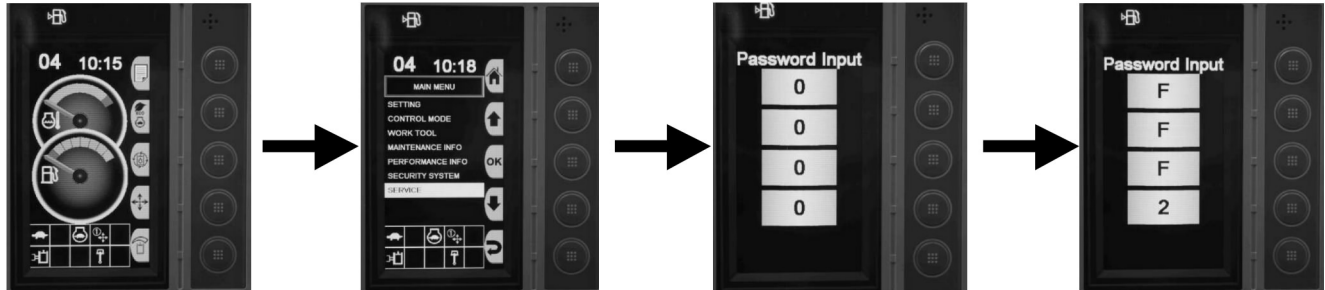


Illustration 114

g02919721

(Step 2) Highlight "Security System" and press OK, highlight "user 1" and press OK and press OK for two more screens as shown below:

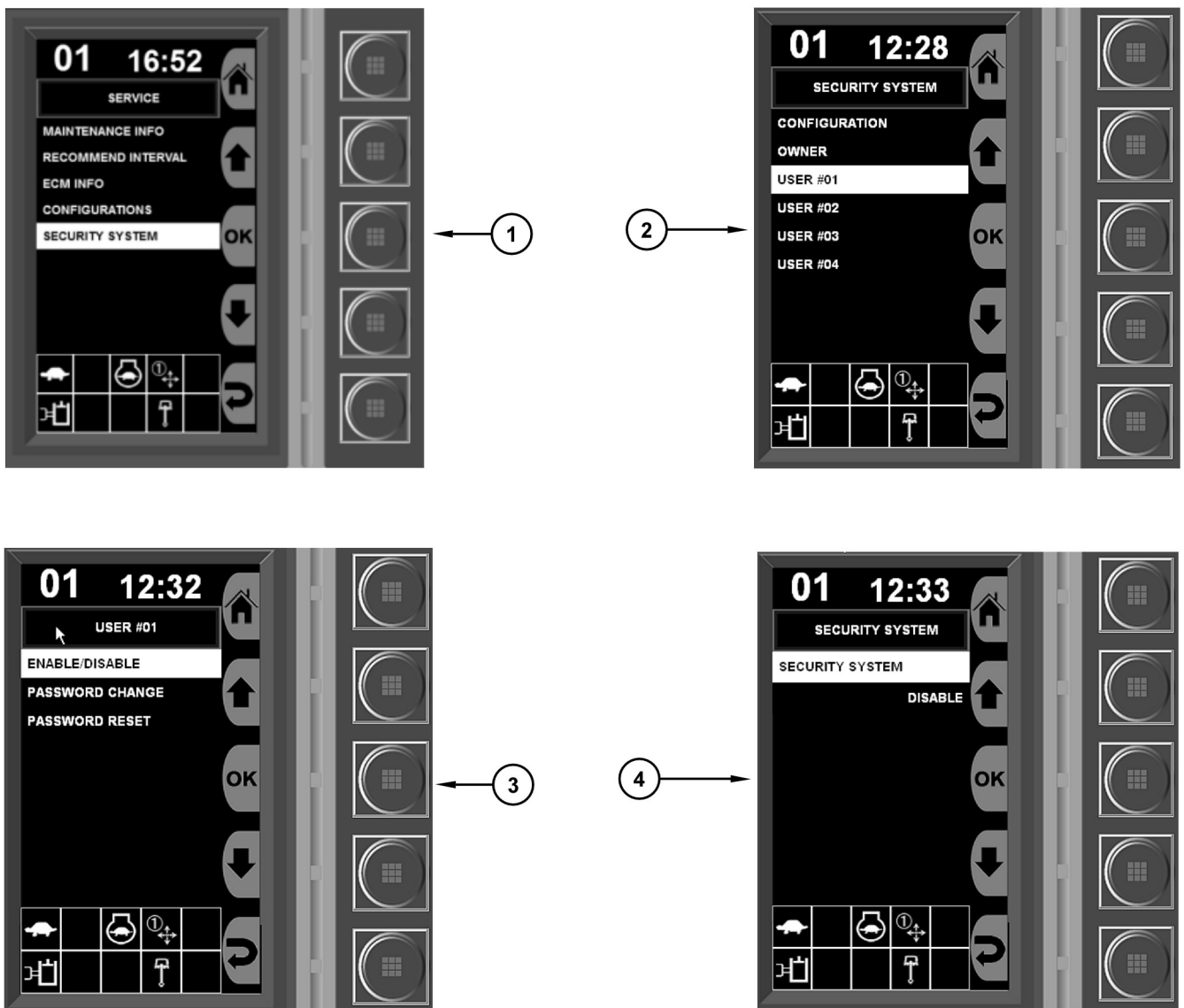


Illustration 115

g02918118

(Step 3) Press OK next to "enable" to enable User 1.



Illustration 116

g02918859

User 1 is now enabled. The default password is B1234. You can then set each individual user password as long as you have started the machine by using the owner password.

Note: Follow the same steps to set up additional users 2 to 5, and to disable users as desired.

Change the User Password

The default user password is B1234 for user1, C1234 for user2, D1234 for user3, E1234 for user4, and F1234 for user5. The owner password always begins with the letter A. The 4-digit PIN can be changed to any numbers between 0 to 9.

(Step 1) Press the top button for "Main Menu".
Highlight "Service" press OK and enter FFF2.



Illustration 117

g02918999

(Step 2) Highlight "Security System" and press OK,
highlight "user 1" and press OK.

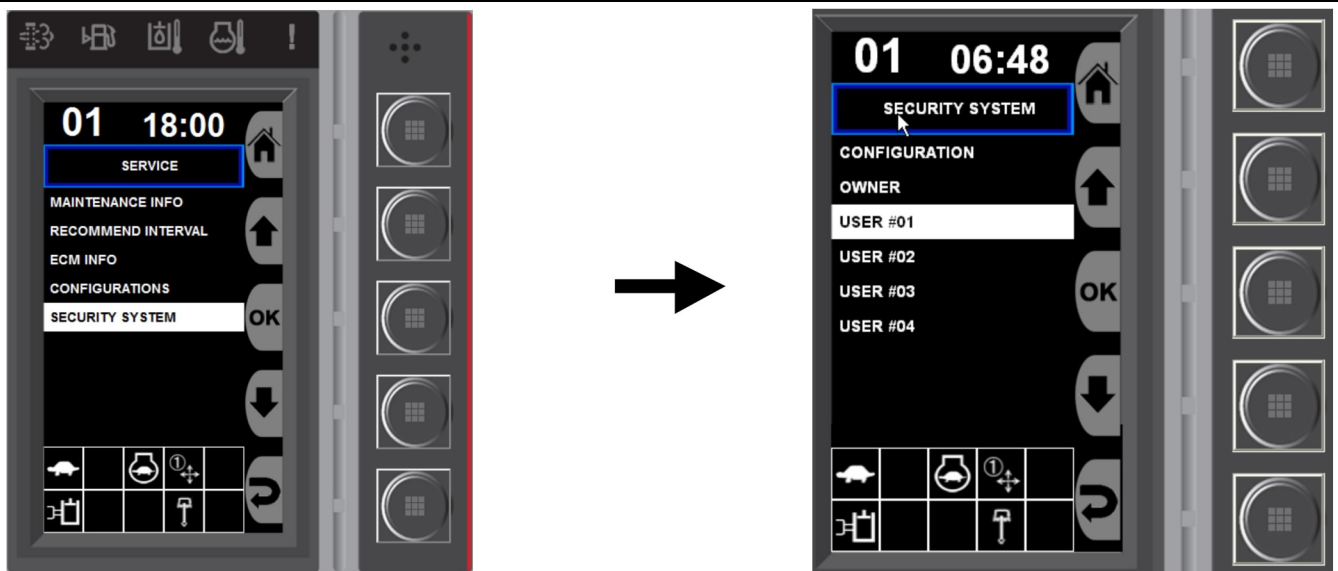


Illustration 118

g02985056



Illustration 119

g02985079

(Step 3) Highlight "Password Change" and press OK. Then change each digit to the desired password and press OK each time.



Illustration 120

g02919676

(Step 4) You will need to confirm the password after changing to ensure that the incorrect button was not hit.

Note: Remember this password. If the user password is forgotten, the owner can change as desired. To change the user password, Log in to the machine with the owner password and redo the steps above.

Service Password Entry

When you try to access certain menus, you will be prompted to enter a password. Follow this procedure to enter the password.

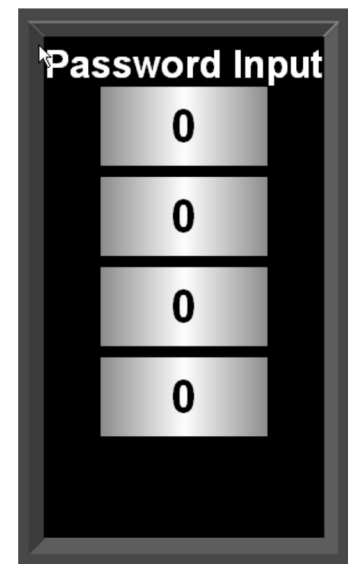


Illustration 121

g02922742

1. Press button 1 through button 4 to select the desired character.

Note: When the machine leaves the factory, the password is initially set as FFF2.

Security System

The new E series MHE's come with a standard password protected Anti-theft device. The system is disabled on machines from the factory to prevent locking the machine during delivery. This system can be installed by following a few simple steps.

Install the security system

(1) Press the top button for MAIN MENU. Highlight **Service** and press OK and enter FFF2 for the password .

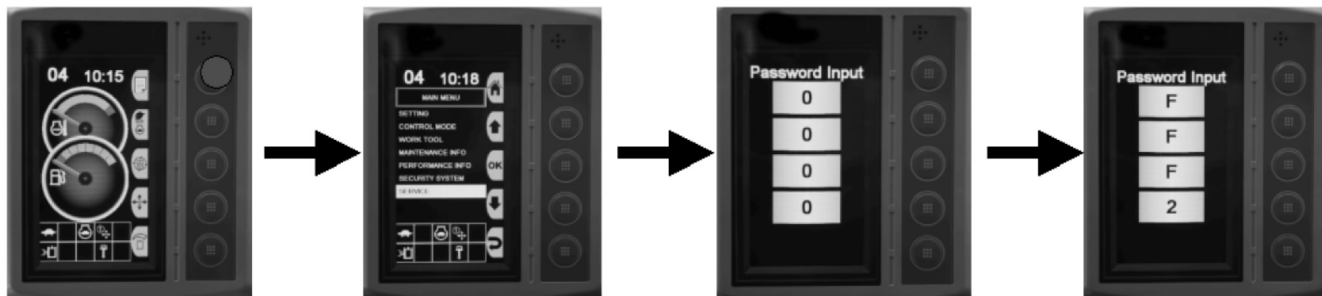


Illustration 122

g02915676

(2) Highlight "Security System" and press OK on the next two screens.

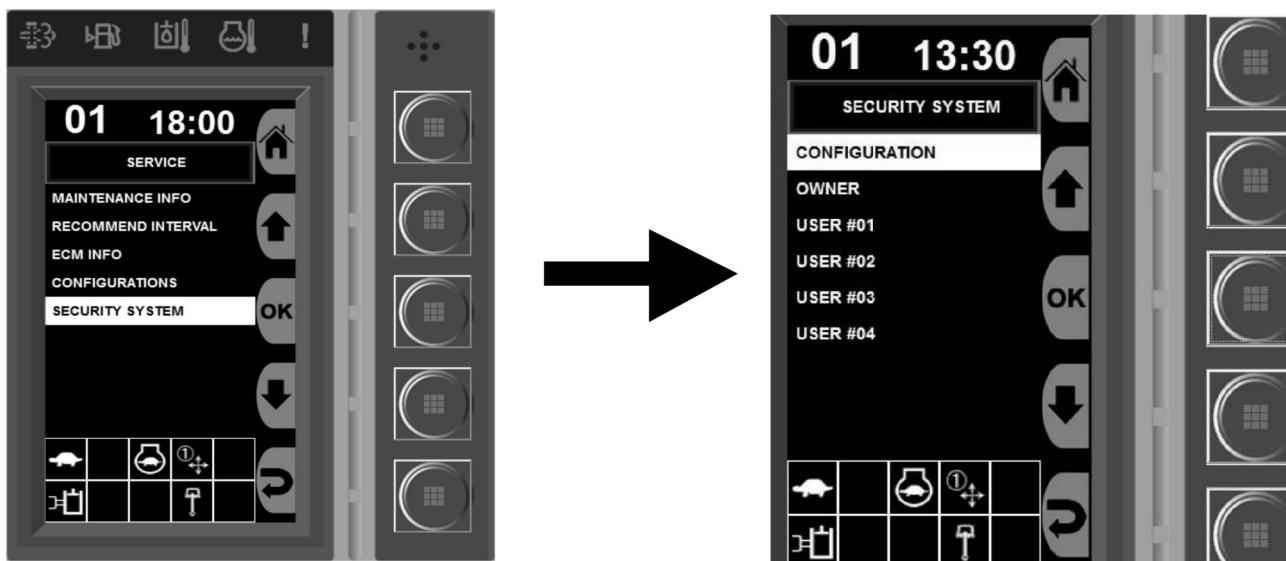


Illustration 123

g02917777

(3) Press the button next to "installed". Press the HOME KEY to go back to the main screen.



Illustration 124

g02915837

The Security System is now installed. The default owner password from the factory is A1234.

Note: When the security system is installed, only the owner can enter Service mode, change passwords, enable users, change clock settings, and reset maintenance intervals.

Change the Owner Security System Password

The default owner password is A1234. The owner password always begins with the letter A. The 4-digit PIN can be changed to any numbers between 0 and 9.

Note: The 4-digit password can be changed by following these steps

(1) Press the top button for main menu. Highlight "Security System" and press OK.



Illustration 125

g02915858

(2) Highlight "Password Change" and press OK.



Illustration 126

g02915879

(3) Change each digit to the desired password and press OK each time.



Illustration 127

g02915898

(4) You will need to confirm the password after changing to ensure that you did not hit the incorrect button.

Note: The password must be delivered. The only way to change the password is to flash a "wash" file through Electronic Technician. After using the wash file, the owner password will default back to A1234.

When switching off the machine, if the Security System is installed, the monitor will display options.



Illustration 128

g06040727

For machines FJX1–3999 and TMX1–Up, three options will be available.

- (1) Choose "1 Minute" and there will be a one minute delay before the machine engages the Security System. During this time, the key may be re-engaged and the machine will restart.
- (2) Choose "60 Minutes" and there will be a one hour delay before the Security System engages. During this time you can re-engage the key and the machine will start.
- (3) Choose "Unlimited" and the Security System will not engage.

Note: If the Security System is not engaged, no screen will appear.



(Step 2) Once in the “Service” menu, select “Configurations”, “Auto Shut Off Set”, and “Auto Engine Shut-Off Time” as shown below:

Illustration 129

g06040732

For machines FJX4000–Up two options will be available.

(1) Choose “1 Minute” and there will be a one minute delay before the machine engages the Security System. During this time, the key may be re-engaged and the machine will restart.

(2) Choose “Unlimited” and the Security System will not engage.

Note: If the Security System is not engaged, no screen will appear.

Adjust Auto Engine Shut-Off Time

For machines FJX4000–Up

Machine is equipped with auto engine shut-off feature. This feature will automatically shut-off the engine after sitting idle for a predetermined length of time. Machine will not shut-off while hydraulics are active (arm bar in down position).

Auto engine shut off time is adjustable in one minute increments.

Note: Change the length of time by following these steps:

(Step 1) From the “Main Menu”, gain access to the “Service” menu. Refer to “Service Password Entry”.

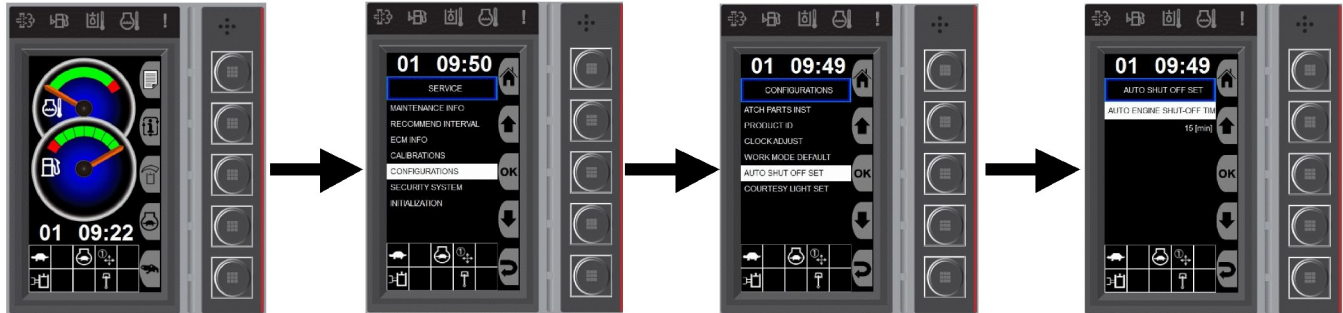


Illustration 130

g06040345

(Step 3) Adjust the setting to the desired time by using the arrows and press “OK” .

(Step 1) From the “Main Menu” , gain access to the “Service” menu. Refer to “Service Password Entry”.

(Step 2) Once in the “Service” menu, select “Configurations” , “Courtesy Light Set” , and “Courtesy Light Delay” as shown below:



Illustration 131

g06040347

Adjust Courtesy Light Delay Time

For machines FJX4000–Up

The courtesy light delay time can be adjusted in one second increments.

This feature allows the exterior boom and cab lights to illuminate the job site for a preset time.

Note: Change the length of time by following these steps:



Illustration 132

g06040372

(Step 3) Adjust the setting to the desired time by using the arrows and press “OK” .

Power on Demand provides optimal efficiency and performance at all times. This automatic system ensures fuel efficiency through appropriate engine rating to meet all operational needs as required while traveling and primary auxiliary function.



Illustration 133

g06040375

Rear View Camera

For machines FJX4000–Up

Rear view camera allows optimal vision while traveling and during machine setup in tight spaces.

Power On Demand

For machines FJX4000–Up



Illustration 134

g06040699



Illustration 136

g06040704



Illustration 135

g06040702

Site Reference

For machines FJX4000–Up

The Site Reference System is accessed through the COMPASS monitor and provides the pitch and roll (in degrees) of the machine. This feature aids in grading and trenching applications.



Illustration 137

g06040679

Site reference screen

i04768944

Fuel Transfer Pump (Refueling) (If Equipped)

SMCS Code: 1256

Use the following procedure to pump fuel and store hose.

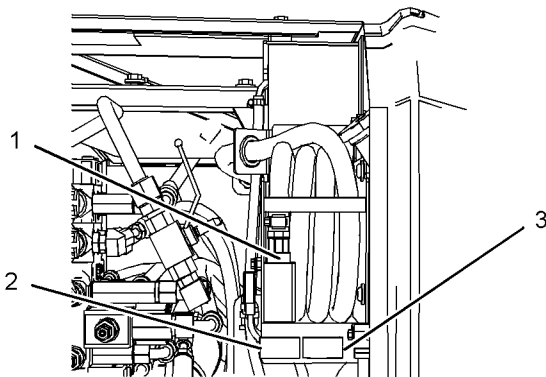


Illustration 138

g02867797

Open the access cover on the right side of the machine.

The electric refueling pump pumps fuel into the fuel tank.

NOTICE

Do not continuously operate the refueling pump for more than 30 minutes. Do not operate the refueling pump more than a few seconds without fuel. Pump damage can result.



On – Push the switch in order to activate the refueling pump.



Off – Push the switch in order to deactivate the refueling pump.

1. Remove the cap from the fuel tank.
2. Properly insert the free end of suction hose (1) into a container of fuel.
3. Press power switch (2) in order to activate the refueling pump.
4. Push switch (3) in order to supply the fuel to the tank. When the tank is full, the pump stops refueling.
5. After refueling, install the cap on to the fuel tank.
6. Make sure that excess fuel is drained from suction hose (1) before storing the suction hose.
7. When you store suction hose (1), wind the hose on the bar. Secure the hose end in place.

NOTICE

To prevent hose damage, do not coil the hose in a tight radius.

8. Close the access cover.

i06259786

Radio (If Equipped)

SMCS Code: 7338

An AM/FM radio may be installed in the right side instrument panel.

Operation Section
If Equipped

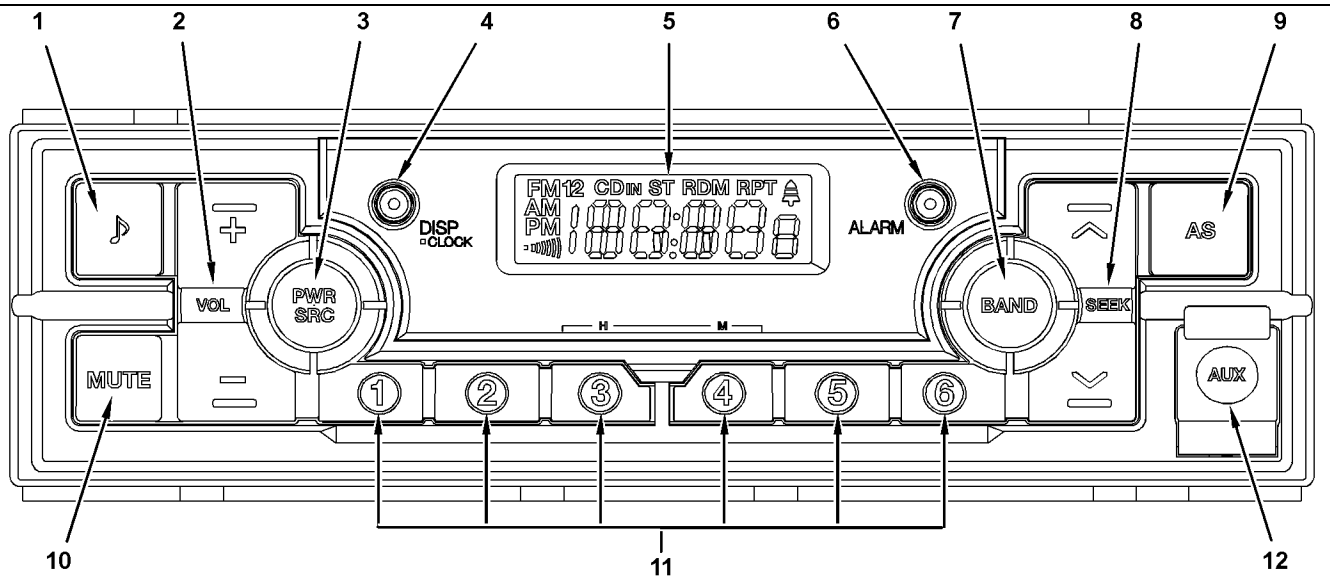


Illustration 139

g02831713

- | | | |
|--------------------------|-----------------------|-----------------------|
| (1) Tone button | (5) Radio display | (9) Auto Store button |
| (2) Volume control | (6) Alarm button | (10) Mute button |
| (3) PWR/SRC button | (7) AM/FM band button | (11) Preset buttons |
| (4) Display/Clock button | (8) Tune button | (12) Auxiliary input |

Note: When the machine is in operation turn down the volume of the radio.

Note: The battery disconnect switch and the engine start switch must be in the ON position in order for the radio to function.

Tone Button (1) – In order to adjust the sound effects and tone, press button (1) and select bass “BA”, treble “TR”, or balance “BA”. Use volume control (2) in order to make adjustments.

Volume Control (2) – Press “+” in order to increase the volume. Press “-” in order to decrease the volume.

PWR/SRC Button (3) – Press the PWR/SRC button in order to turn on the power. Press and hold the PWR/SRC button for 2 seconds in order to turn off the power. With the power on, press the PWR/SRC button in order to change the operation mode to either “RADIO”, “AU1(AUX1)”, or AU2(AUX2).

Display/Clock Button (4) – Press this button once in order to select the desired display in radio display (5). Press and hold this button for 2 seconds in order to switch to the clock setting mode. Use the preset button “3” in order to adjust the hour and preset button “4” in order to adjust the minute. Press the display/clock button again in order to return to the radio display.

Radio Display (5) – Displays information such as the clock, station, and band.

Alarm Button (6) – Press this button once in order to turn the alarm on or off. An alarm indicator will appear in the radio display when the alarm is on.

Press and hold this button for 2 seconds in order to switch to alarm setting mode. Use the preset button “3” in order to adjust the hour and preset button “4” in order to adjust the minute. Press the alarm button again in order to return to the radio display. During the alarm, there will be a beep for 3 minutes, press the alarm button once in order to stop the alarm.

AM/FM Band Button (7) – Press this button in order to switch between FM1, FM2, AM1, or AM2 while in radio mode.

Tune Button (8) – In order to select a radio station manually, press “+” or “-”. In order to select a radio station automatically, press and hold “+” or “-”.

Auto Store Button (9) – Press this button in order to store good reception stations with automatically as one of the 6 preset buttons.

Mute Button (10) – Press this button to turn off the sound immediately. “MUTE” will appear in the radio display. Press this button again in order to return to normal operation.

Preset Buttons (11) – Use tune button (8) in order to select a desired radio station to store. Press and hold one of the preset buttons for 2 seconds in order to store the station in the preset memory.

Auxiliary Input (12) – An external input jack is provided in order to allow playback of sound and music from an external device. Use PWR/SRC button (3) in order to select “AU1”.

Radio Reception Area

This unit is set up to receive the following type of reception area frequencies:

- U.S. Standard
- Other Countries
- Europe Standard

Selecting the Radio Reception Area

Note: All station preset memory will be lost once the reception area is changed.

Press AM/FM band selector (2) and select the desired radio band.

U.S. Standard

While pressing tone button (1), press and hold the number "1" preset button for longer than 2 seconds.

Other Countries

While pressing tone button (1), press and hold the number "2" preset button for longer than 2 seconds.

Europe Standard

While pressing tone button (1), press and hold the number "3" preset button for longer than 2 seconds.

i04808962

Air Conditioning and Heating Control

SMCS Code: 7304; 7320; 7337

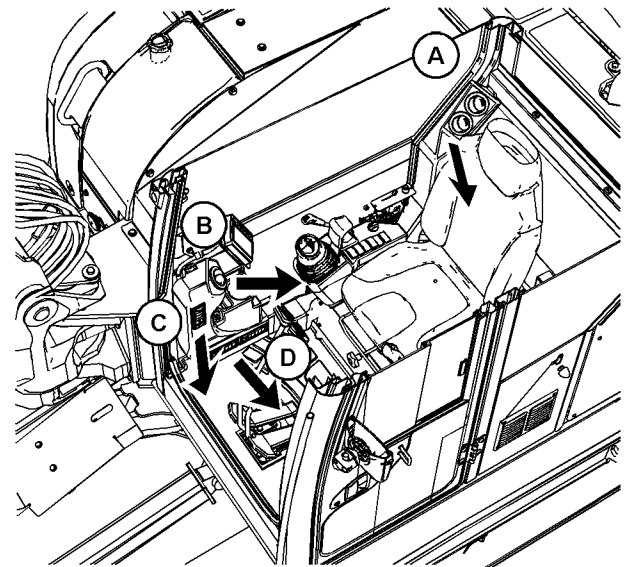


Illustration 140

g02867216

- (A) Vent for upper body
- (B) Vent for face
- (C) Defroster vent
- (D) Floor vent

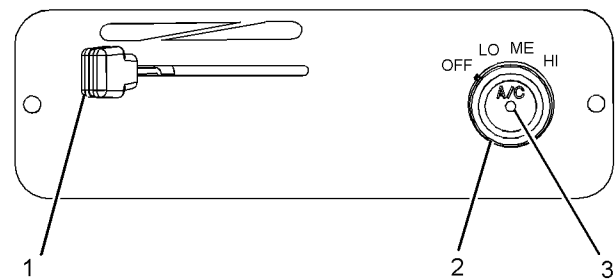


Illustration 141

g02933236

- (1) Temperature control lever
- (2) On/Off and fan speed switch
- (3) Compressor switch

Temperature Control

Lever (1) controls the temperature. Move the lever to the right in order to increase the temperature. Move the lever to the left in order to decrease the temperature.

Fan Control

On/Off and Fan Speed Switch (2) – This knob controls the air conditioning, the heater, and fan speed.

“OFF” – Move the knob to this position in order to turn off the air conditioning and the heater.

“LO” – Turn the switch to this position in order to operate the fan at low speed.

“ME” – Turn the switch to this position in order to operate the fan at medium speed.

“HI” – Turn the switch to this position in order to operate the fan at high speed.

Air Conditioning Control (If Equipped)

“A/C” On/Off Switch (3) – Push the switch in order to turn on the compressor or push the switch in order to turn off the compressor. In humid conditions, the compressor may be used to remove moisture from the air in the cab. **In cool weather, operate the compressor weekly in order to prevent leakage of the refrigerant gas. Weekly operation will help to maintain the compressor in optimum working order.**

i04768445

Mirror (If Equipped)

SMCS Code: 7319

WARNING

Adjust all mirrors as specified in the Operation and Maintenance Manual. Failure to heed this warning can lead to personal injury or death.

WARNING

When you are adjusting the mirrors, failure to use the proper access systems for machine maintenance could result in slipping and falling which could result in personal injury or death. Be sure to use the proper access systems for machine maintenance when you are adjusting the mirrors.

Note: Your machine may not be equipped with all of the mirrors that are described in this topic.

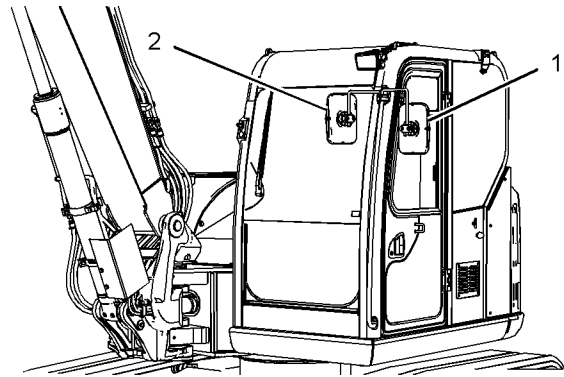


Illustration 142

g02866108

- (1) Left side rear view mirror
- (2) Left side front mirror

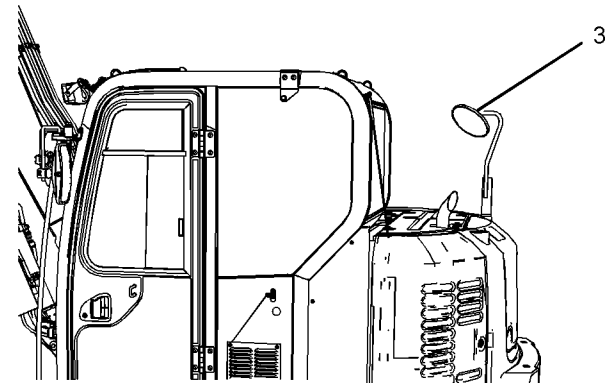


Illustration 143

g02866110

- (3) Rear mirror

Mirrors provide additional visibility around your machine. Make sure that the mirrors are in proper working condition and that the mirrors are clean. Adjust all mirrors at the beginning of each work period and adjust the mirrors when you change operators. Always adjust the mirrors for maximum visibility around your machine.

Appropriate job site organization is also recommended in order to minimize visibility hazards. For more information regarding job site organization refer to this Operation and Maintenance Manual, "Visibility Information"

Modified Machines or machines that have additional equipment or attachments may influence your visibility.

Mirror Adjustment

- Park the machine on a level surface.
- Lower the work tool to the ground.
- Move the hydraulic lockout control to the LOCKED position. For further details on this procedure, refer to Operation and Maintenance Manual, "Operator Controls".
- Stop the engine.
- Adjust rear view mirrors in order to provide visibility behind the machine at a maximum distance of 30 m (98 ft) from the rear corners of the machine.

Note: You may need to use hand tools in order to adjust certain types of mirrors.

Left Side Rear View Mirror (1)

If equipped, adjust the left side rear view mirror (1) so the left side of the machine can be seen from the operator seat.

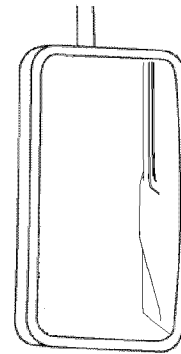


Illustration 144

g01626201

Left Side Front Mirror (2)

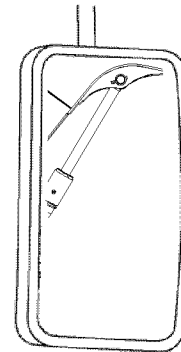


Illustration 145

g01625754

(2) Left side front mirror

The left side front mirror (2) can be used to increase the visibility to the front right side on the machine.

Operation Section
Window (Front)

If equipped, adjust the left side front mirror (2) so that the front right area of the machine can be seen from the operator seat.

Rear Mirror (3)

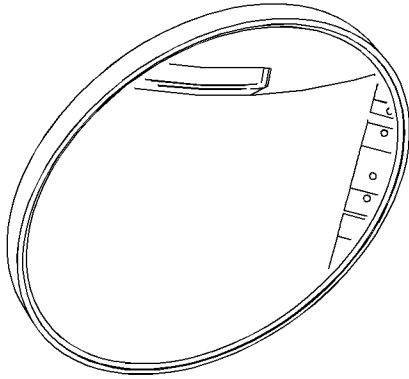


Illustration 146

g01586416

Rear view mirror

If equipped, adjust the mirror (3) so the rear of the machine can be seen from the operator seat.

i04768560

Window (Front)

SMCS Code: 7310-FR

To provide full ventilation inside the cab, the upper window and the lower window can be fully opened.

WARNING

When opening or closing the windows, be extra careful to prevent any personal injury. The hydraulic lockout control must be in the **LOCKED** position in order to prevent any possibility of sudden movement of the machine due to inadvertent contact with the hydraulic control(s).

Do not change the position of the window until the following items have been done:

- Park the machine on a level surface.
- Lower the work tool to the ground.
- Move the hydraulic lockout control to the **LOCKED** position.
- Stop the engine.

Perform Step 1 through Step 4 in order to open the upper window.

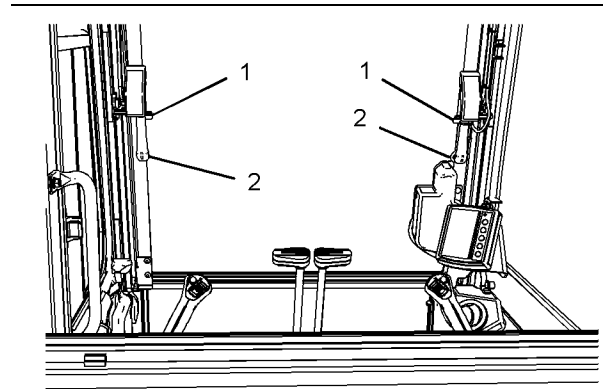


Illustration 147

g02866496

1. Release both latches (1) on the sides of the front window in order to release the front window.
2. Hold both grips (2) that are provided on the front window frame. Move the front window upward into the **STOWED** position until the auto-lock latch is engaged.

Perform the steps that follow in order to close the upper window.

3. Use latches (1) in order to unlock the front window when the front window is in the **STOWED** position.
4. Securely hold grips (2), and slowly pull the front window downward until the front window locks in the **DOWN** position.
5. **Perform Steps 6 through 8 in order to open the lower window and close the lower window.**

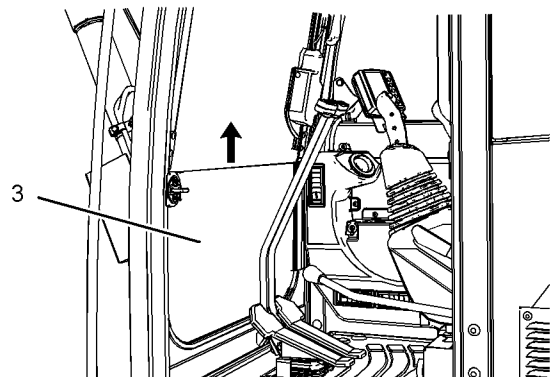


Illustration 148

g02866577

6. Raise the lower window out of the window frame.

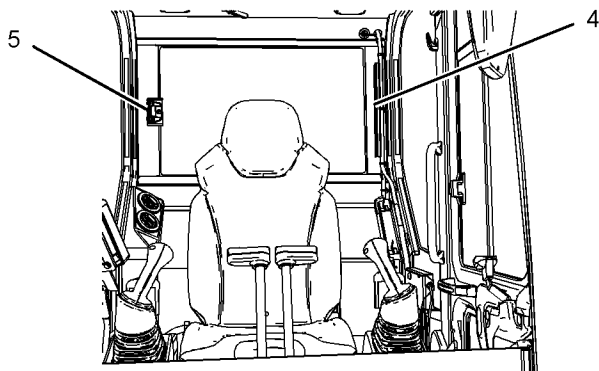


Illustration 149 g02866596

7. Store the lower window in the holder that is located in the rear of the cab. To store the lower window, locate one side of the lower window into bracket (4). Secure the opposite side of the lower window with catch (5).
8. To close the lower window, reverse the procedure that is used for opening the lower window.

Note: The lower window is curved. The lower window can only be positioned one way in the holders.

i04764037

Cab Door

SMCS Code: 7308

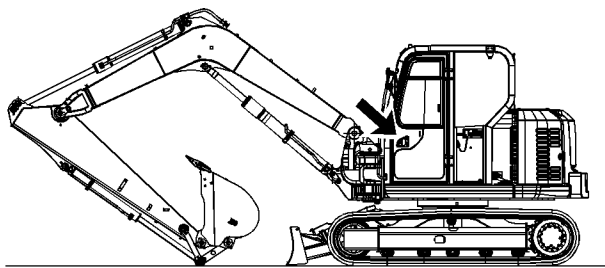


Illustration 150 g02858996

In order to open the cab door from the outside of the cab, pull outward on the door handle.

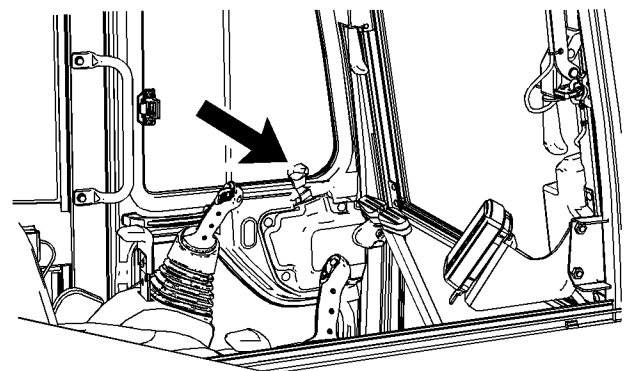


Illustration 151 g02858997

In order to open the cab door from the inside of the cab, push forward on the lever for the cab door latch.

For additional ventilation, open the cab door all the way in order to engage the catch on the exterior wall of the cab.

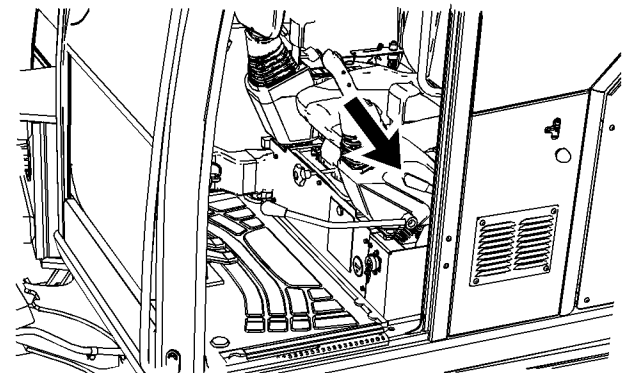


Illustration 152 g02858998

In order to release the cab door from the catch, pull downward on the cab door release lever.

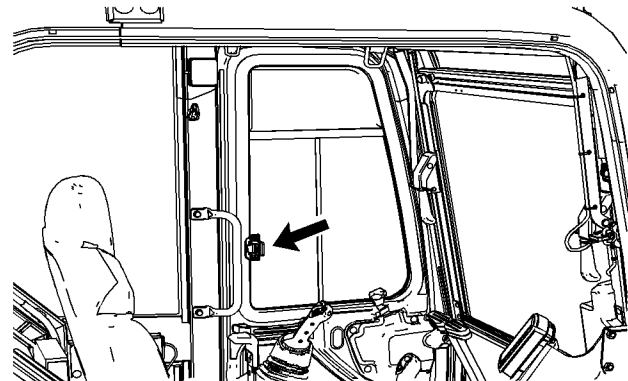


Illustration 153 g02858999

In order to open a window, release the window latch, and then slide the window to the desired position.

i05259234

Joystick Controls

SMCS Code: 5705

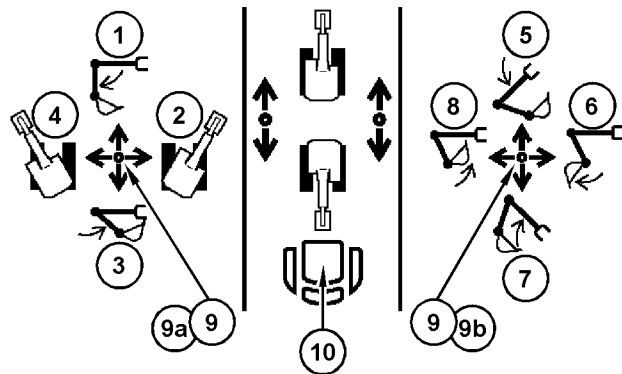


Illustration 154

g02792207

- (1) STICK OUT
- (2) SWING RIGHT
- (3) STICK IN
- (4) SWING LEFT
- (5) BOOM LOWER
- (6) BUCKET DUMP
- (7) BOOM RAISE
- (8) BUCKET CLOSE
- (9) HOLD
- (9a) BOOM SWING / SECOND AUXILIARY SWITCH (IF EQUIPPED)
- (9b) HORN
- (10) Seat

⚠ WARNING

The Fine Swing Control delays the engagement of the swing parking brake.

If the machine is operating on a slope with the Fine Swing Control in the ON position, the swing motion may become uncontrollable which could result in property damage, personal injury or death.

Turn the Fine Swing Control to the OFF position when the machine is operating on a slope.

When you release the joysticks from any position, the joysticks will return to HOLD position (9). Movement of the upper structure will stop unless the fine swing control (if equipped) is ON. When the fine swing control is ON, the swing parking brake will not activate until 6.5 seconds after the joystick control for the swing function returns to the HOLD position.

Two functions may be performed at the same time by moving a joystick diagonally.

The machine control pattern is initially set at the factory to the SAE system, as shown. The pattern on the left pertains to the left joystick and the pattern on the right pertains to the right joystick.

The machine control pattern can be varied. Refer to Operation and Maintenance Manual, "Joystick Controls Alternate Patterns" for more information.

i06781431

VA Boom Controls (If Equipped)

SMCS Code: 5461-VAR

⚠ WARNING

Do not operate the boom adjustment foot pedal while roading the machine. Boom movement can cause personal injury or death.

NOTICE

When digging at a low depth with a VA boom there is a possibility the VA boom cylinder could hit the front of the machine. Always check for interference with the VA boom cylinder in order to prevent machine damage.

The VA boom extends the working range of the machine by hydraulically increasing or reducing the angle of the boom. The VA boom is equipped with a hydraulic check valve to prevent the boom from falling in case a hydraulic line breaks.

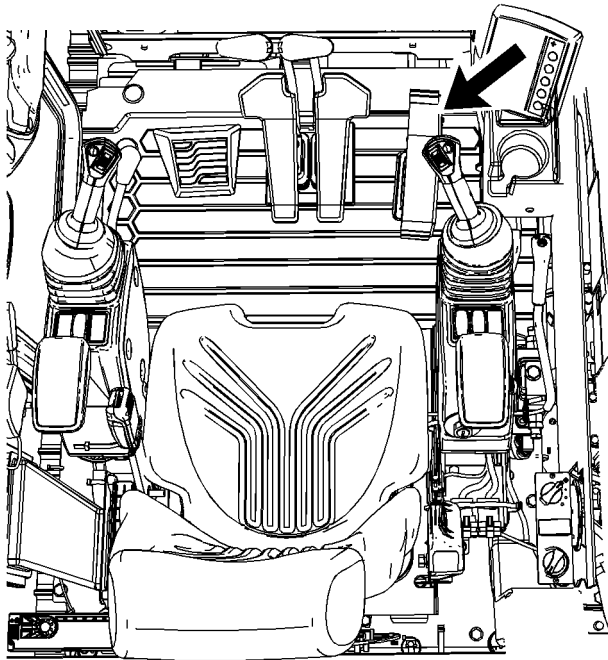


Illustration 155

g06112208

The VA boom pedal is located on the right side of the cab.



VA Boom EXTEND – Push down on the front of the pedal in order to extend the boom.



VA Boom RETRACT – Push down on the rear of the pedal in order to retract the boom.

i07992133

Work Tool Control

SMCS Code: 6700

Auxiliary lines are equipped with coupler assemblies. Wipe all coupler assemblies before you connect the work tools. The auxiliary lines must be relieved of pressure to connect the coupler assemblies to the work tool. Relieve the pressure in the auxiliary hydraulic lines by performing the following steps:

1. Operate the machine to charge the accumulator.
2. Lower implements to the ground.
3. Turn off the engine and turn the key switch to the START position without starting the engine.

4. Ensure that the Hydraulic Lockout control is in the UNLOCKED position to provide function to the hydraulic circuits.
5. Actuate the auxiliary circuit in both directions several times.

Note: Pressure can build up in the auxiliary lines if the attachment is not coupled/uncoupled immediately after the pressure has been released.

One-Way Flow

The following information pertains to work tools that require hydraulic oil flow in one direction. Hydraulic hammers are an example of work tools that require hydraulic oil flow in one direction.

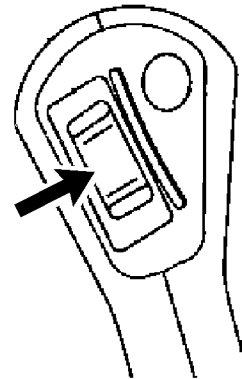


Illustration 156

g02792266

Right joystick thumb wheel

Variable Speed – Move the thumb wheel downward to activate the work tool. Move the thumb wheel further to increase the speed of the work tool.

Hammer Control

Hydraulic Hammer ON – Push the right joystick switch upward to activate the hydraulic hammer.

Hydraulic Hammer OFF – Release the right joystick switch to deactivate the hydraulic hammer.

Two-Way Flow

The following information pertains to work tools that require hydraulic oil flow in two directions. These work tools can also be equipped with a rotate circuit. Hydraulic shears, pulverizers, crushers, and grapples are examples of work tools that require hydraulic oil flow in two directions.

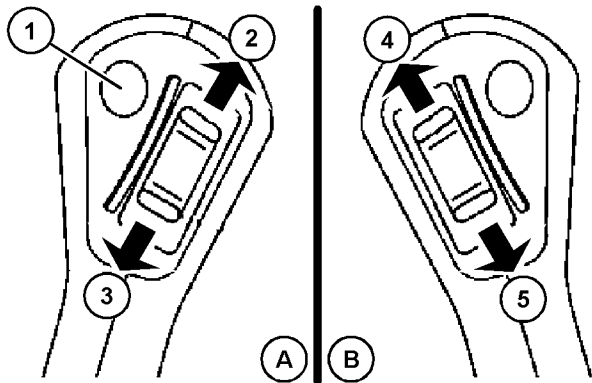


Illustration 157

g02792306

(A) Left joystick
(B) Right joystick

Press button (1) once to activate the second auxiliary flow control. Press button (1) again to deactivate the second auxiliary flow control.

The second auxiliary flow control must be activated to operate the following controls.



(2) ROTATE CLOCKWISE – Move the thumb wheel upward to rotate the work tool clockwise.



(3) ROTATE COUNTERCLOCKWISE – Move the thumb wheel downward to rotate the work tool counterclockwise.



(4) CLOSE – Move the thumb wheel upward to close the work tool.



(5) OPEN – Move the thumb wheel downward to open the work tool.

Continuous Flow

Note: The continuous flow can be enabled and disabled through the monitoring system. Refer to Operation and Maintenance Manual, “Monitoring System” for additional information.

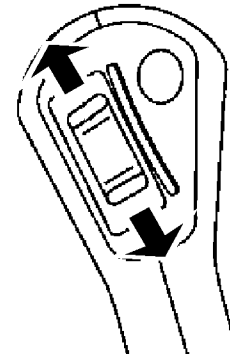


Illustration 158

g02793487

The operator controls the modulation and the “ON” and “OFF” function with the switch on the right-hand joystick. To set continuous flow, hold the switch to the desired modulation until continuous flow turns on. Once the continuous flow begins, release the switch. Continuous flow will stop operating when the switch is moved or the hydraulic lockout is lifted, and when the machine is turned off.

Work Tool Flow Mode Control

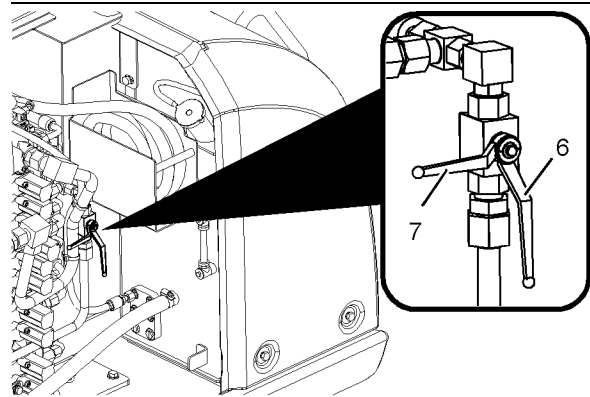


Illustration 159

g03352686

The valve for work tool flow mode control is located on the right side of the machine. Open the right side access cover to gain access to the valve for work tool flow mode control.



One-Way Flow (6) – Move work tool flow control lever to this position when one-way flow is required.



Two-Way Flow (7) – Move work tool flow control lever to this position when two-way flow is required.

Adjustable Primary Auxiliary Valves

(If Equipped)

This feature enables the ability to adjust pressures allowing for customized and improved performance of work tools.

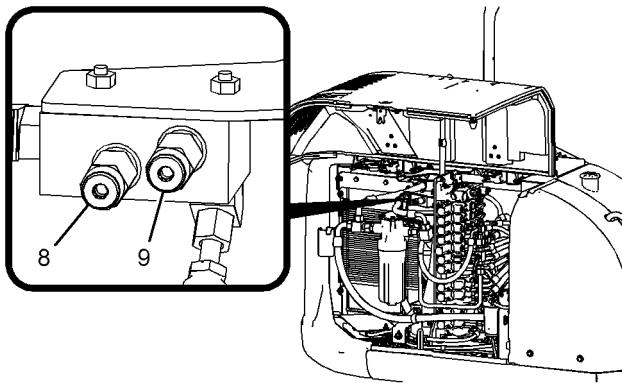


Illustration 160

g06040974

The auxiliary relief valves are located behind the main control valve on the right side of the machine.

If the machine is equipped with a thumb attachment, pressures can be adjusted to prevent the bucket overcoming the thumb.

Relief valve (8) relieves the head end of the thumb cylinder circuit.

Relief valve (9) relieves the rod end of the thumb cylinder circuit.

i04660569

Joystick Controls Alternate Patterns

SMCS Code: 5059; 5137

WARNING

Check if control pattern 1 (Standard) or control pattern 2 (Alternate) is selected before operating the machine.

Refer to Operation and Maintenance Manual.

Failure to understand control functions could result in injury or death.

The machine control pattern can be changed through the monitoring system. Refer to Operation and Maintenance, "Monitoring System" for more information.

Alternate Joystick Control Pattern

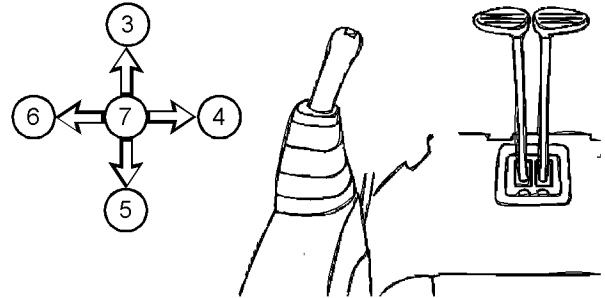


Illustration 161

g01193186

Left hand joystick



BOOM LOWER (3) – Move the joystick to this position in order to lower the boom.



SWING RIGHT (4) – Move the joystick to this position in order to swing the upper structure to the right.



BOOM RAISE (5) – Move the joystick to this position in order to raise the boom.



SWING LEFT (6) – Move the joystick to this position in order to swing the upper structure to the left.

HOLD (7) – When you release the joystick from any position, the joystick will return to the HOLD position. Movement of the structure will stop.

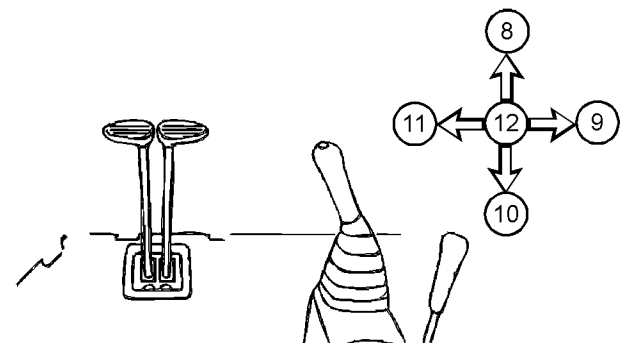


Illustration 162

g01193187

Right hand joystick

Operation Section
Joystick Controls Alternate Patterns



STICK OUT (8) – Move the joystick to this position in order to move the stick outward.



BUCKET DUMP (9) – Move the joystick to this position in order to dump the bucket or the work tool.



STICK IN (10) – Move the joystick to this position in order to move the stick inward.



BUCKET CLOSE (11) – Move the joystick to this position in order to close the bucket or the work tool.

HOLD (12) – When you release the joystick from any position, the joystick will return to the HOLD position. Movement of the structure will stop.

Two functions may be performed at the same time by moving the joysticks diagonally.

Engine Starting

i05269766

Engine Starting

SMCS Code: 1000; 1090; 1456; 7000

WARNING

Do not spray ether into engine when using thermal starting aid to start engine. Personal injury and machine damage could result. Follow procedure in the Operation and Maintenance Manual.

NOTICE

The engine start switch must be in the ON position and the engine must be running in order to maintain electrical functions and hydraulic functions. This procedure must be followed in order to prevent serious machine damage.

1. Move the hydraulic lockout control (lever) to the LOCKED position.
 2. Move the joysticks to the HOLD position.
 3. Turn the engine start switch to the ON position.
During cold weather, leave the engine start switch in the ON position for 10 seconds in order to preheat the glow plugs.
- Note:** It is not necessary to preheat the glow plugs on a warm engine.
4. All of the indicators on the monitor panel should be activated and the action alarm should sound for approximately 2.5 seconds. If any of the indicators are not activated or if the action alarm does not sound, check the electrical system. Make any necessary repairs before you start the engine.

Note: For more information on the monitoring system, refer to Operation and Maintenance Manual, "Monitoring System".

If any fluid levels are too low, add the corresponding fluid to the specified level. Add the fluid before you start the engine.

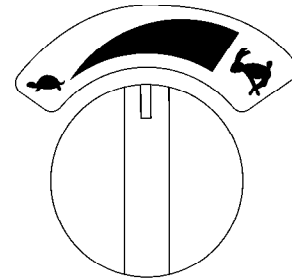


Illustration 163

g00817952

5. Turn the engine speed dial to the MEDIUM SPEED position.
6. Before you start the engine, check for the presence of bystanders or maintenance personnel. Ensure that all personnel are clear of the machine. Briefly sound the horn before you start the engine.

NOTICE

If the engine fails to start after 10 seconds, disengage the starter. Wait 30 seconds before cranking again.

Do not crank the engine for more than 20 seconds. Cranking the engine for more than 20 seconds may cause damage to the engine and/or hydraulic system.

7. Turn the engine start switch to the START position.
8. Release the engine start switch key after the engine starts.
9. If the engine does not start, turn the key to the OFF position. Repeat step 7 and step 8.

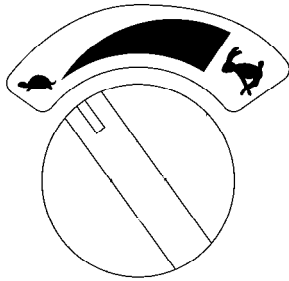


Illustration 164

g00817961

- 10.** Once the engine is started, turn the engine speed dial counterclockwise to the LOW SPEED position in order to allow the engine to warm up. Refer to Operation and Maintenance Manual, “Engine and Machine Warm-Up”.

i07011934

Engine and Machine Warm-Up

SMCS Code: 1000; 7000

NOTICE

Keep engine speed low and do not operate until the message "Warm-Up Mode Power Derate" on the monitor goes out. If it does not go out within thirty seconds, stop the engine and investigate the cause before starting again. Failure to do so, can cause engine damage.

NOTICE

Always run the engine at low idle for at least ten minutes before performing any other operations in cold conditions or each time the engine oil and oil filter are changed in order to protect your engine and hydraulic components.

NOTICE

Depending on the ambient temperature, in order to prevent the machine operation with high speed without sufficient lubrication at the turbo bearing, the engine speed may be set to low speed and the hydraulic power minimized for a pre-determined time after the engine starts. Refer to turbo protection feature.

The engine may automatically change speeds when the machine is stationary and idling in cold ambient temperature for an extended time.

Hydraulic System

WARNING

When you cycle the machine controls, the machine can move suddenly. Contact between the machine and external objects or ground personnel can result in serious injury or death. Before you cycle the machine controls, the machine should be located in an unobstructed, hazard-free work area that is away from external objects and ground personnel.

1. Make sure that the area is clear of personnel and equipment.

Note: The hydraulic lockout control must be in the UNLOCKED position before the hydraulic controls will function.

2. Allow the engine to warmup at low idle for at least 5 minutes. Engage the work tool controls and disengage the work tool controls. This will speed up the warmup of the hydraulic components.

When you idle the machine for warmup, observe the following recommendations:

- If the temperature is greater than 0°C (32°F), warm up the engine for approximately 15 minutes.
- If the temperature is less than 0°C (32°F), warm up the engine for approximately 30 minutes.
- If the temperature is less than -18°C (0°F) or if hydraulic functions are sluggish, additional time may be required.

NOTICE

The hydraulic oil temperature should be higher than 25 °C (77 °F) before performing work with the machine. Make sure that the warm-up procedure is performed.

If the hydraulic oil temperature is less than 25 °C (77 °F) and the machine is operated abruptly, serious damage to the hydraulic components may occur.

Note: The recommended operating temperature of the hydraulic fluid for this machine is 55 °C (131 °F).

3. To warmup the hydraulic oil, turn the engine speed dial to the medium engine speed.

4. Run the engine for approximately 5 minutes and move the joystick intermittently from the BUCKET DUMP position to the HOLD position. Do not hold the joystick in the BUCKET DUMP position with the bucket cylinder fully extended for more than 10 seconds.

This allows the oil to attain relief pressure, which causes the oil to warmup more rapidly.

5. Turn the engine speed dial to the maximum engine speed and repeat Step 4.
6. Cycle all controls to circulate warm oil through all hydraulic cylinders and all hydraulic lines, and through the swing motor and travel motors.
7. Observe the gauges and the indicators frequently during the operation.

Turbo Protection



Turbo Protection Power Derate – After an engine start, the engine speed will be set to low speed and the hydraulic power limited for a time period . During this period, the monitor displays the message "Warm-Up Mode Power Derate". (Maximum is around 30 seconds). After the turbo bearing lubrication is sufficient, the engine speed goes to the setting dial speed and the monitor stops to display the message.

Operation

i06759629

Operation Information

SMCS Code: 7000

WARNING

The bucket can interfere with the cab on machines equipped with a VA boom or a one piece boom with a long stick.

Know the machine's linkage movement extremes. Keep bucket and other work tools away from the cab at all times to avoid personal injury.

Some work tools can swing in all directions. Personal injury may result if the work tool swings into the cab or into a person in the work area.

The VA cylinder can interfere with the raised stabilizer. Know the linkage movement extremes and keep the VA cylinder away from raised stabilizers at all times to avoid possible personal injury.

Know the maximum height and reach of your machine. Serious injury or death by electrocution can occur if the machine or the work tools are not kept a safe distance from electrical power lines. Keep the distance at least 3000 mm (118 inch) plus an additional 10 mm (0.4 inch) for each 1000 volts over 50000 volts.

Note: The machine must function satisfactorily in the anticipated ambient temperature limits that are encountered during operation. The standard machine configuration is intended for use within an ambient temperature range of -18°C (0°F) to 43°C (109°F). Special configurations for different ambient temperatures may be available. Consult your Caterpillar dealer for additional information on special configurations of your machine.

Make sure that no personnel are on the machine or near the machine in order to prevent any personal injury. Keep the machine under control at all times in order to prevent injury.

Reduce the engine speed when you maneuver the machine in tight quarters and when you drive over an incline.

Select the necessary travel speed range before you drive downgrade. Do not change the travel speed range while you drive downhill.

Use the same travel speed on a downgrade and on an upgrade.

When you travel for any distance, keep the stick inward and carry the boom in a low position.

When you drive up a steep grade, keep the boom as close to the ground as possible.

When you travel uphill or you travel downhill, keep the boom on the uphill side of the machine.

1. Adjust the operator seat.
2. Fasten the seat belt.

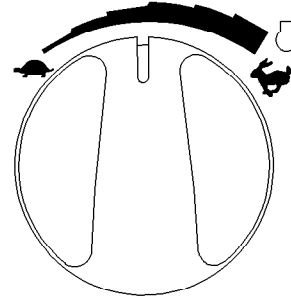


Illustration 165

g00732198

3. Turn the engine speed dial to the operating range.
4. Move the hydraulic lockout control to the UNLOCKED position.

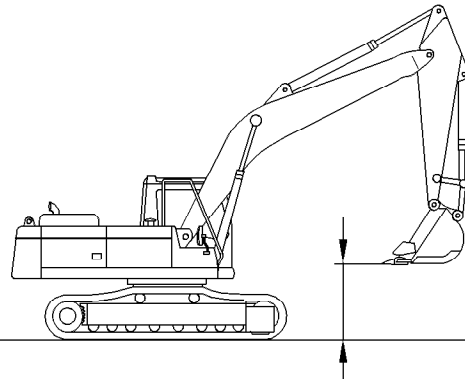


Illustration 166

g00101463

5. Raise the boom enough in order to provide sufficient ground clearance.
6. Select the desired travel speed by operating the travel speed control switch.
7. Make sure that the position of the upper structure and of the undercarriage is known before you move the machine. The drive sprockets should be at the rear of the machine.

Note: The directional steering controls will operate normally if the drive sprockets are at the rear of the machine and the idlers are at the front of the machine and under the cab. When the sprockets are under the cab, the travel controls will operate backward.

8. Turn the engine speed dial in order to increase the engine speed (rpm) to the desired speed.
9. Push both travel levers forward at the same time in order to travel forward. If both travel levers are pushed farther, the travel speed at the selected engine speed (rpm) will be faster.

Note: If the machine does not operate or if the machine does not travel in a straight line, consult your Caterpillar dealer.

10. See Operation and Maintenance Manual, "Operator Controls" for information about spot turning and about pivot turns.
11. When you make turns in soft material, travel in a forward direction occasionally in order to clear the tracks.
12. Slowly move both of the travel levers or both of the travel pedals to the CENTER position in order to stop the machine.

Lifting Objects

If the machine is equipped with the CE plate per requirements for the European Union, used to lift objects, then the machine must be equipped with the optional boom lowering control valve and an overload warning device.

A fit for purpose test was completed in order to confirm that a properly equipped machine meets the requirements of the European Union Machinery Directive "2006/42/EC" for lifting objects.

The overload warning device (if equipped) must be adjusted for the bucket linkage and bucket size that is installed on the machine. Adjust the overload warning device for proper operation.

The setting for the overload warning device (if equipped) should be checked by an authorized dealer.

i00059294

Frozen Ground Conditions

SMCS Code: 7000

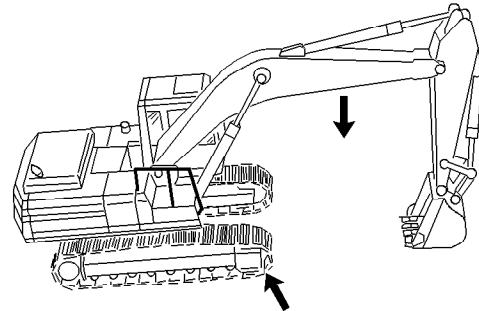


Illustration 167

g00101468

To free the tracks from frozen ground, swing the boom to the front of the machine. Use boom down pressure to free the idler end of the machine.

Swing the boom to the rear of the machine. Use boom down pressure to free the sprocket end of the machine.

i05259249

Equipment Lowering with Engine Stopped

SMCS Code: 7000

Machines without a Boom Lowering Control Valve

To lower the boom, place the hydraulic activation control lever in the UNLOCKED position. Move the joystick to the BOOM LOWER position. If the accumulator is still charged, the boom will lower.

If the boom does not lower, the accumulator is empty. Use the following method to lower the boom.

WARNING

Be sure no one is under or near the work tools before manually lowering the boom. Keep all personnel away from the boom drop area when lowering the boom with the engine stopped in order to avoid possible personal injury.

⚠ WARNING

Personal injury can result from oil under high pressure.

DO NOT allow high pressure oil to contact skin.

Wear appropriate protective equipment while working with high pressure oil systems.

Note: Refer to Operation and Maintenance Manual, "General Hazard Information" for information on Containing Fluid Spillage.

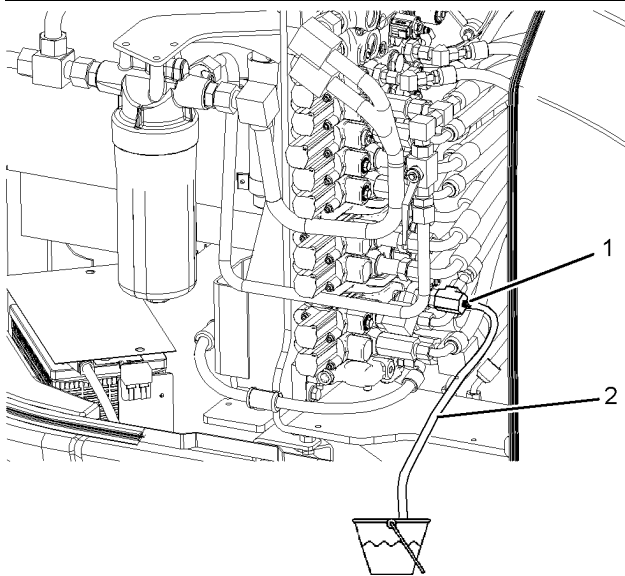


Illustration 168

g03348039

1. Open the access door on the right side of the machine.
2. Connect hose (2) to boom manual lowering valve (1).
3. Slowly open boom manual lowering valve (1) by a maximum of 1/2 turn in order to lower the boom. Drain hydraulic oil into a suitable container.
4. Make sure that the work tool has lowered all the way to the ground. Tighten boom manual lowering valve (1) to a torque of $13 \pm 2 \text{ N}\cdot\text{m}$ ($9 \pm 1 \text{ lb ft}$).
5. Make the necessary repairs before you operate the machine.
6. Check the level of the hydraulic fluid. Refer to Operation and Maintenance Manual, "Hydraulic System Oil Level-Check".

7. Close the access door.

Machines with a Boom Lowering Control Valve

If the engine is stopped or the hydraulic system is disabled, the operator can still lower the boom. Use the following procedure if the machine is equipped with a boom lowering control valve:

⚠ WARNING

Boom load may cause cylinder oil pressure to reach relief pressure of the boom lowering control device when the boom is supported by one cylinder. Boom can lower suddenly, causing possible injury or death.

To avoid possible injury or death, be sure no one is under or near the work tool before manually lowering the boom.

Keep all personnel away from the boom drop area when lowering the boom with the engine stopped.

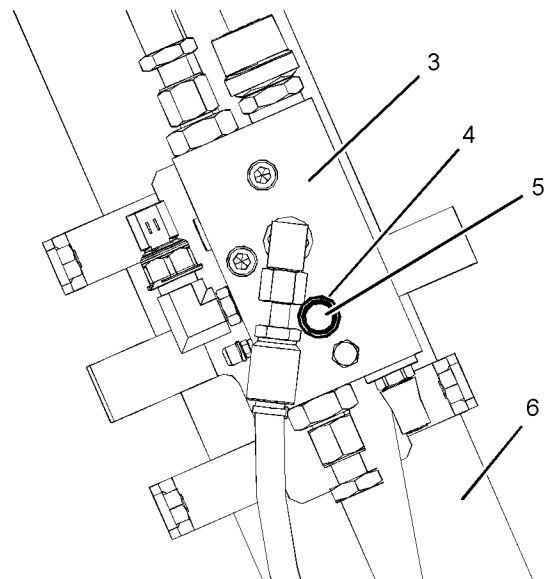


Illustration 169

g03348040

- (3) Boom lowering control valve
- (4) Locknut
- (5) Set screw
- (6) Boom

Note: The boom lowering control valve is at the base of the boom cylinder. The boom lowering control device allows the operator to manually lower the boom if the engine is stopped. The boom lowering control device also prevents a sudden drop of the boom if there is an oil leak in the hydraulic line of the boom.

1. Loosen locknut (3).
2. Slowly, turn set screw (5) counterclockwise until the boom begins to lower onto the ground.

Note: Once the boom begins to lower, stop turning set screw (5).

3. After the boom has lowered completely onto the ground, turn set screw (5) back to the original position.
4. Tighten locknut (4).
5. Make any necessary repairs before placing the excavator back into service.

Note: Consult your Caterpillar dealer for further information.

Blade (If Equipped)

In order to lower the blade, place the hydraulic lockout control in the UNLOCKED position. Move the blade control lever to the BLADE LOWER position. If the accumulator is still charged, the blade will lower.

If the blade does not lower, the accumulator is empty. The blade will need to be blocked in the raised position until the engine can be started again.

Additional instructions can be found in the service manual and/or consult your Cat dealer.

Operating Techniques

i05125989

Operating Technique Information

SMCS Code: 7000

WARNING

Know the maximum height and the maximum reach of your machine. Serious injury or death by electrocution can occur if the machine or the work tools are not kept a safe distance from electrical power lines. Keep a distance of at least 3000 mm (118 inch) plus an additional 10 mm (0.4 inch) for each 1000 volts over 50000 volts.

For safety, one of the following may require a greater distance:

- Local codes
- State codes
- Requirements of the job site

NOTICE

When swinging into a ditch, do not use the ditch to stop the swinging motion. Inspect the machine for damage if the boom is swung into a bank or an object.

Repeated stopping by an object can cause structural damage if the boom is swung into a bank or an object.

With certain boom-stick-bucket combinations, the bucket or worktool can hit the cab and/or the front structure of the machine. Always check for interference when first operating a new bucket or a new work tool. Keep the bucket or work tool away from the cab and away from the front structure during operation.

Whenever the tracks of the machine raise off the ground while digging, lower the machine back to the ground smoothly. **DO NOT DROP OR CATCH IT WITH THE HYDRAULICS.** Damage to the machine can result.

With certain combinations of work tools, the third pedal can have different functions. Always check the function of the third pedal before you use the third pedal.

Know the location of any buried cables. Mark the locations clearly before you dig.

Consult your Caterpillar dealer for special work tool tips that are available for use in severe applications.

Move the machine whenever the position for operating the machine is not efficient. The machine can be moved forward or backward during the operating cycle.

When you operate the machine in close places, utilize the bucket or the other work tool in order to perform the following functions:

- Pushing the machine
- Pulling the machine
- Lifting the tracks

Use a comfortable travel speed while you operate the machine.

Operating efficiency can be increased by using more than one machine control to perform a task.

Never swing a load over a truck cab or workers.

Position the truck so that material can be loaded from the rear of the truck or from the side of the truck. Load the truck evenly so that the rear axles are not overloaded.

An oversize bucket or a bucket that is equipped with side cutters should not be used in rocky material. These types of buckets slow down the cycle. Damage to the bucket and to other machine components could result.

Restricted Operation

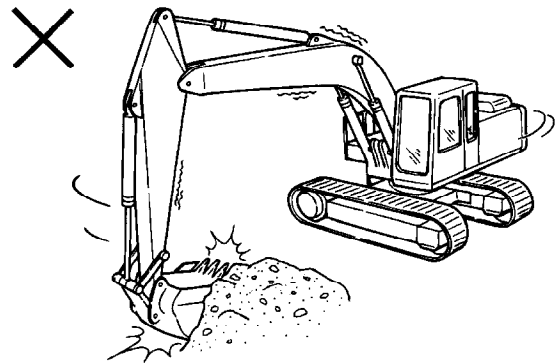


Illustration 170

g00529436

Do not use the swing force to perform the following operations:

- Soil compaction
- Ground breaking
- Demolition

Do not swing the machine while the bucket tips are in the soil.

These operations will damage the boom, the stick, and the work tool and the operations will reduce the life of the equipment.

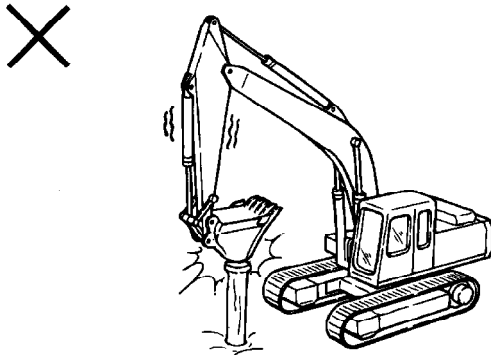


Illustration 171

g00529457

Do not use the dropping force of the bucket or work tool as a hammer. This will bring excessive force on the rear of the machine. Possible damage to the machine could result.

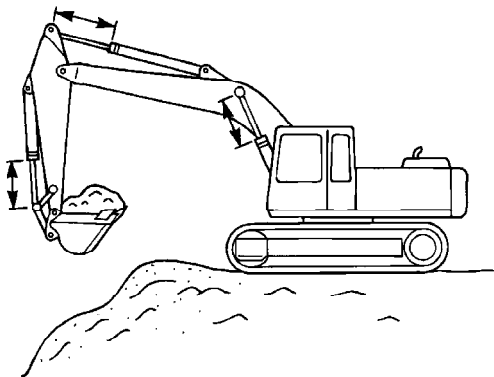


Illustration 172

g00529458

If the cylinder is operated at the end of the stroke during operations, excessive force will occur on the stopper on the inside of the cylinder. This will reduce the life of the cylinder and structures. To avoid this problem, always leave a small margin of play when the cylinder is operated.

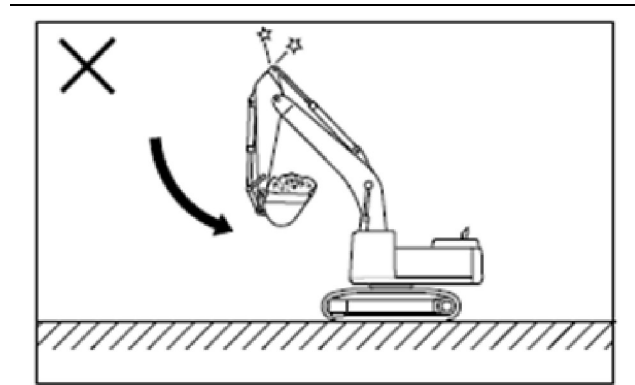


Illustration 173

g03286378

If the stick IN function is operated at full speed with a fully loaded bucket or heavy work tool attachment to the end of the cylinder stroke, excessive force will occur inside the stick cylinder. This action will reduce the life of the stick cylinder. To avoid this problem, always operate a stick IN function with moderate speed towards the end of cylinder stroke.

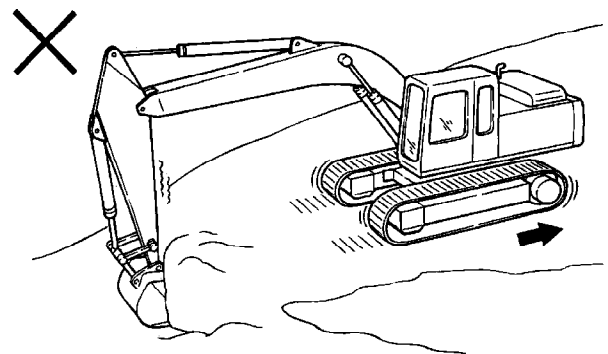


Illustration 174

g00529459

While the bucket is in the ground, do not use the travel force for any excavation. This operation will cause excessive force on the rear of the machine.

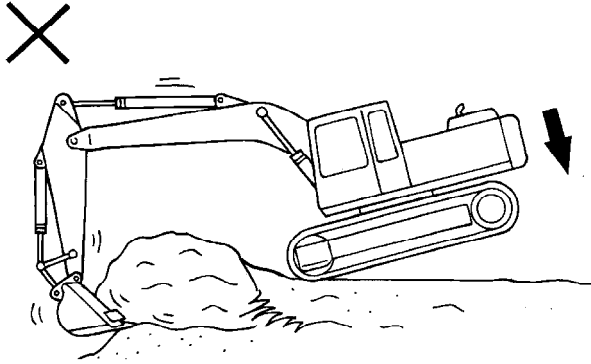


Illustration 175

g00529460

Do not use the dropping force of the rear of the machine for excavation. This operation will damage the machine.

Operating Precaution

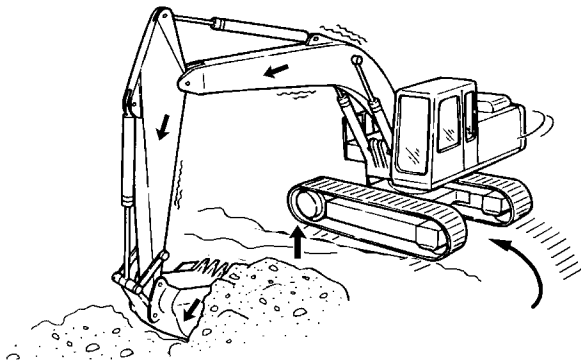


Illustration 176

g01250228

NOTICE

Do not allow the machine to swing from the force of traveling when you use the bucket, the stick, or the boom to assist in travel. If the force from traveling causes the machine to swing, damage may occur to the swing motor and to the swing drive.

Do not use the force of the bucket, the stick, or the boom to assist in turning the machine while the machine is traveling. This technique is referred to as "jump steering". This technique will damage the swing motor and the swing brake.

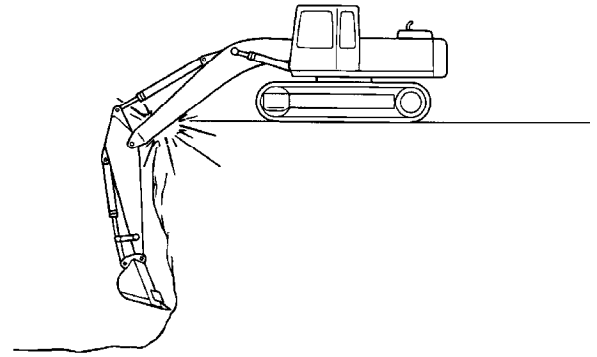


Illustration 177

g00529462

When deep holes are dug, do not lower the boom so that the bottom side of the boom touches the ground.

When deep holes are dug, do not allow the boom to interfere with the tracks.

i05032265

Travel in Water and Mud

SMCS Code: 7000-V6

NOTICE

When working in or around any body of water, around a stream or river, or in conditions of heavy mud, be careful that the swing bearing, the swing drive gear, and the swivel joint do not dip into water, mud, sand, or gravel. If the swing bearing dips into water, mud, sand, or gravel, immediately grease the swing bearing until the used grease leaks from the outer circle of the swing bearing. Failure to carry out this procedure may cause premature wear in the swing bearing.

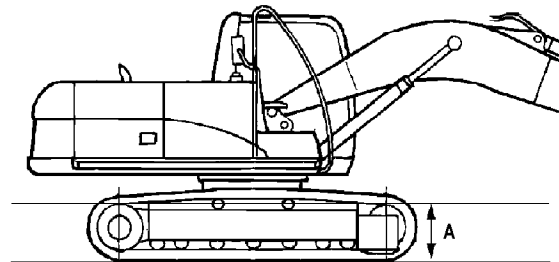


Illustration 178

g00807842

Depth of water to the center of the track carrier roller

The following guidelines pertain to travel across water and travel through mud, sand, or gravel.

The machine can travel across a river only under the following conditions:

- The bed of the river is flat.
- The flow of the river is slow.
- The machine dips into the water only to the center of the track carrier roller (dimension A).

NOTICE

Do not allow the fan on the engine to contact the water while the machine travels through the water. Do not allow the fan on the engine to contact the water during a swing while the machine is in the water. Damage to the fan may occur if the fan contacts the water.

While you cross the river, carefully confirm the depth of the water with the bucket. Do not move the machine into an area that has a water depth that is greater than Dimension A.

The machine may sink gradually on soft ground. Therefore, you should frequently check the height of the undercarriage from ground level and the depth of water on the ground.

Check the swing gear by looking through the port for inspection that is on the upper frame. If there is water in the swing gear, contact your Cat dealer for the required maintenance on the swing gear.

After you travel through water, carefully clean the machine in order to remove any salt, sand, or other foreign matter.

Procedure for Removing the Machine from Water or Mud

NOTICE

Do not allow the machine to swing from the force of traveling when you use the bucket, the stick, or the boom to assist in travel. If the force from traveling causes the machine to swing, damage may occur to the swing motor and to the swing drive.

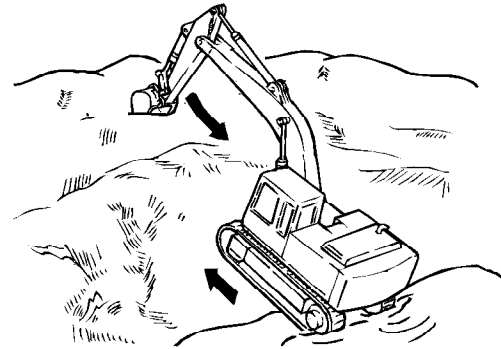


Illustration 179

g00808148

1. You may not be able to move the machine by using the travel controls only. In this case use both the travel control levers/pedals and the stick to pull the machine out of the water or ground.
-

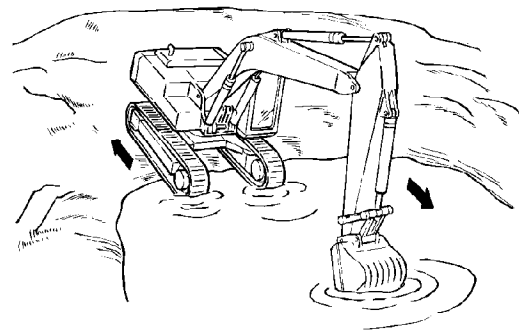


Illustration 180

g00808151

2. The machine may slip because of a steep slope. The procedure in Step 1 may not work. In this case, first rotate the upper structure by 180°. Then use both the travel control levers/pedals and the stick to move the machine up the slope.

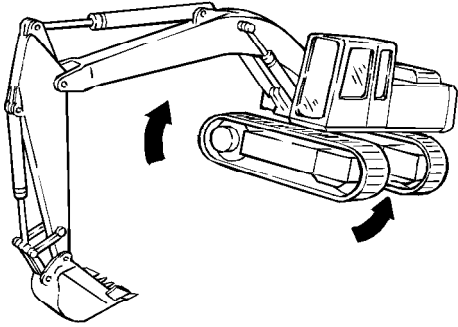


Illustration 181

g00808152

3. It may be impossible to travel because the bottom of the frame comes into contact with the ground or the undercarriage is clogged with mud or gravel. In this case, operate the boom and the stick together. Raise the track and rotate the track forward and backward in order to remove the mud and the gravel.

i08504177

Boom, Stick and Bucket Operation

SMCS Code: 7000

Digging

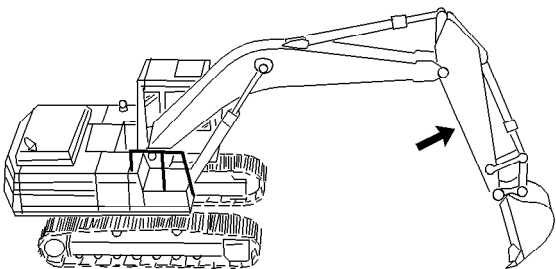


Illustration 182

g00101523

1. Position the stick at a 70 degree angle to the ground.

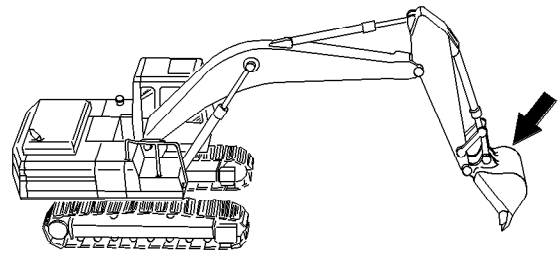


Illustration 183

g00101525

2. Position the bucket cutting edge at a 120 degree angle to the ground. Maximum breakout force can now be exerted with the bucket.

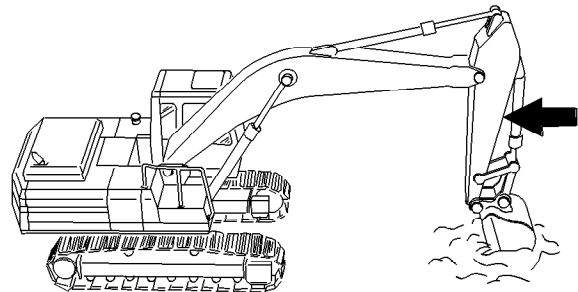


Illustration 184

g00101526

3. Move the stick toward the cab and keep the bucket parallel to the ground.

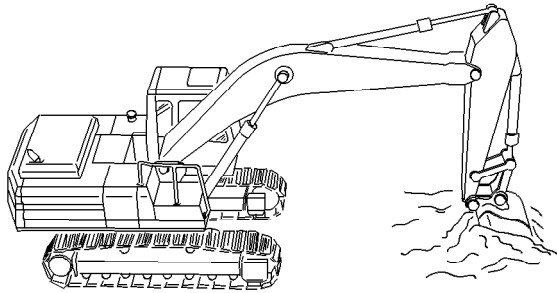


Illustration 185

g00101527

4. If the stick stops due to the load, raise the boom and/or perform a curl in order to adjust the depth of the cut.
5. To apply the greatest force at the cutting edge, decrease the down pressure as you move the stick toward the cab.
6. Maintain a bucket attitude that ensures a continuous flow of material into the bucket.
7. Continue the pass in a horizontal direction so that material peels into the bucket.

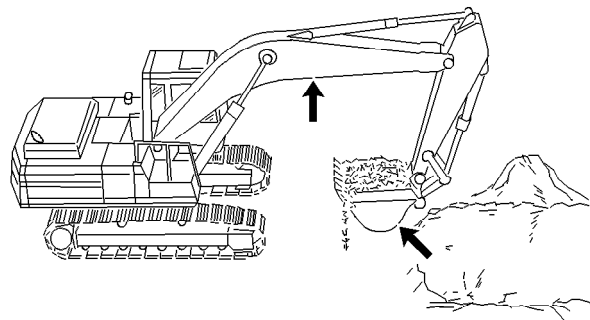


Illustration 186

g00101528

8. Close the bucket and raise the boom when the pass has been completed.

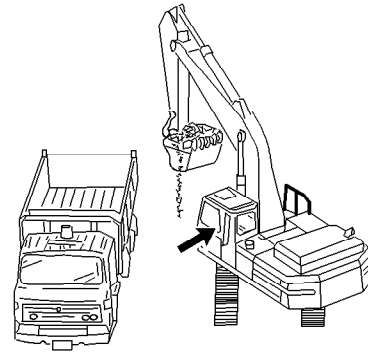


Illustration 187

g00101529

9. Engage the swing control when the bucket is clear of the excavation.

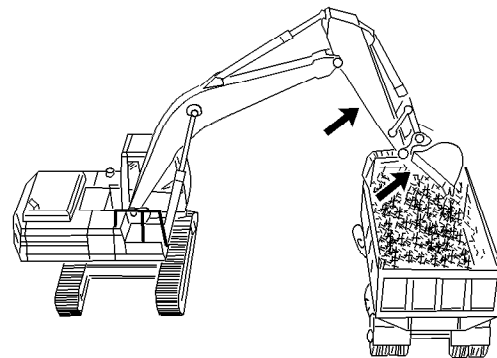


Illustration 188

g00101530

10. To dump a load, move the stick outward and open the bucket in a smooth motion.

Lifting Objects

WARNING

To prevent injury, do not exceed the rated load capacity of the machine. If the machine is not on level ground, load capacities will vary.

NOTICE

Damage to bucket cylinder, bucket or linkage could result if slings are placed incorrectly.

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

Regional regulations may require the use of an overload warning device and boom and stick lowering control valves when used to lift objects.

Operation Section
Boom, Stick and Bucket Operation

Japan regulations require some machines to use a shovel crane configuration in order to lift certain objects.

Contact your Cat dealer for additional information.

Short slings will prevent excessive load swing.

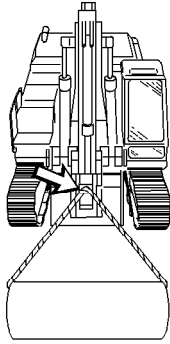


Illustration 189

g00101531

Use the lifting eye that is provided on the linkage to lift objects.

If the lifting eye is used, the connection must be made with a sling or with a shackle.

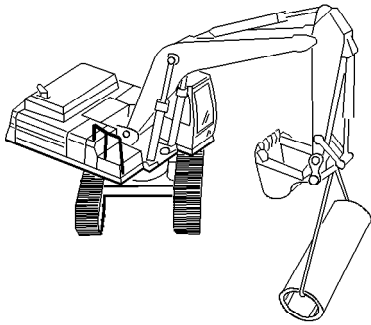


Illustration 190

g00101532

An unstable condition can exist if a load exceeds the machine load rating or if a heavy load is swung over an end or over a side.

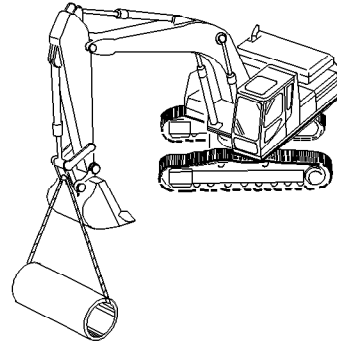


Illustration 191

g00101533

The most stable lifting position is over a corner of the machine.

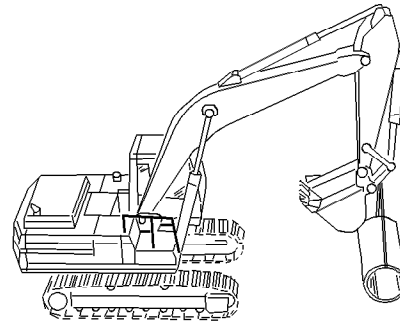


Illustration 192

g00101534

For the best stability, carry a load close to the machine and to the ground.

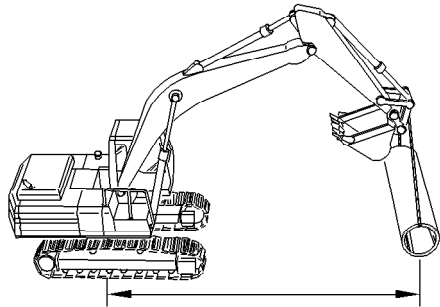


Illustration 193

g00101535

Lift capacity decreases as the distance from the swing centerline is increased.

Machines that are Equipped with a Long Reach Configuration

Machines with a long reach configuration require larger swing drift than standard machines when stopping, because inertial force in time of swing is large. Taking this into account, adjustments are made in timing for applying the swing brakes and speed of swinging.

Machines with a long reach configuration could be damaged and stability of the machine would be adversely affected if a control was suddenly operated, because inertial force of work tool is large.

i05505856

Quick Coupler Operation (Mechanical Pin Grabber Quick Coupler (If Equipped))

SMCS Code: 6129; 6522; 7000

NOTICE

The vibration caused by extensive use of a hydraulic hammer as well as the added weight of certain demolition tools such as shears, crushers, and pulverizers may cause premature wear and decreased service life of the coupler.

Be sure to inspect the coupler daily for cracks, bent components, or wear when operating with any of the above work tools.

General Operation

The quick coupler is used to change work tools, with minimal effort on the operators part. The quick coupler can be used with a broad range of buckets and work tools. Each work tool must have a set of pins in order for the quick coupler to work properly.

The work tools are held onto the quick coupler by two independent locking mechanisms. The work tool rear pin locking mechanism consists of a wedge that is actuated by a mechanical threaded actuator. This actuator provides a positive lock and is adjustable to ensure a rigid, tight interface between the work tool and the quick coupler. Additionally, a fully independent locking system exists on the front pin of the work tool. This system is spring applied, ensuring that the work tool is locked immediately after the front pin of the work tool is seated. Always ensure that both locking mechanisms are working properly before using the quick coupler.

Installation

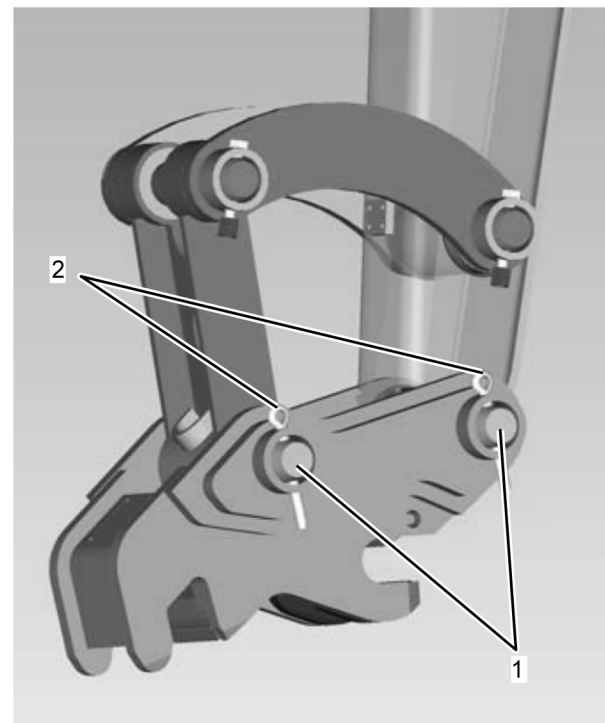


Illustration 194

g02869245

1. The quick coupler comes with two linkage pins (1) for installation on the machine. Lubricate the linkage pins (1) and pin bores before assembly on the machine.
2. Install the coupler and the linkage pins (1).

3. Install the cotter pins (2).

Coupling the Work Tool

WARNING

Improper attachment of work tools could result in serious injury or death.

Do not operate this machine until you have positive indication that the locking mechanisms are fully engaged. Check for engagement by:

- Visually confirm the engagement of the work tool. Ensure that both the front and rear pin locking mechanisms for the work tool are locked and secure the work tool to the quick coupler.
- Visually confirm positive indication of the ISO Engagement indicator, if equipped.
- Retract the bucket cylinder and drag the work tool on the ground.
- Visually confirm that there is no movement between the work tool and the quick coupler.

WARNING

Place the work tool or bucket in a safe position before engaging the quick coupler. Ensure that the work tool or bucket is not carrying a load.

Serious injury or death may result from engaging the work tool or bucket when it is in an unstable position or carrying a load.

WARNING

Crush injury. Could cause serious injury or death. Always confirm that the quick coupler is engaged onto the pins. Read the Operator's Manual.

NOTICE

With certain work tool combinations, including quick couplers, the work tool can hit the cab or the front of the machine. Always check for interference when first operating a new work tool.

1. Start the engine. Retract the bucket cylinder, positioning the quick coupler front locking mechanism over the front pin of the work tool.

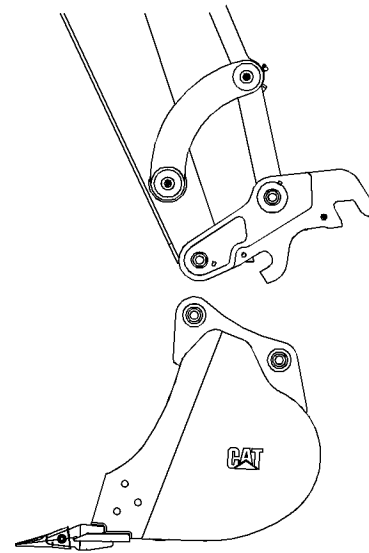


Illustration 195

g02163290

2. Align the quick coupler front locking mechanism over the front pin of the work tool. Extend the stick cylinder until the automatic front locking mechanism of the quick coupler engages and secures the front pin of the work tool.

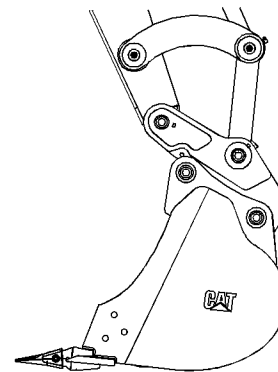


Illustration 196

g02163292

3. Extend the bucket cylinder in order to rotate the quick coupler toward the work tool until the quick coupler contacts the rear pin of the work tool. Position the work tool so that the work tool is slightly above the ground, with the front pin of the work tool higher than the rear pin of the work tool. If the work tool is a bucket, verify that the cutting edge is slightly higher than the bottom of the bucket. Stop the engine.

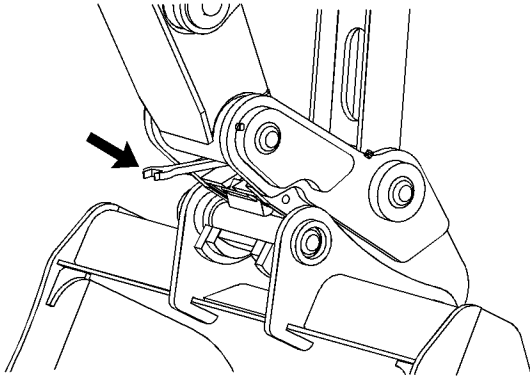


Illustration 197

g02165065

4. Using the supplied wrench, if equipped, and insert the ratcheting end onto the hex drive mechanism. Turn the ratchet in a clockwise direction in order to tighten the rear locking mechanism.
5. In order to verify the engagement of the work tool, perform the following procedure:
 - a. Visually confirm the engagement of the work tool. Ensure that both the work tool front and rear pin locking mechanisms are locked and securing the work tool to the coupler.
 - b. Retract the bucket cylinder and drag the work tool on the ground.
 - c. Visually confirm that there is no movement between the work tool and the quick coupler.

Uncoupling the Work Tool

WARNING

Place the work tool or bucket in a safe position before disengaging the coupler. Disengaging the coupler will release the work tool or bucket from control of the operator.

Serious injury or death may result from disengaging the work tool or bucket when it is in an unstable position or carrying a load.

NOTICE

Auxiliary hoses for work tools must be disconnected before the Hydraulic Quick Coupler is disengaged.

Pulling the work tool with the auxiliary hoses could result in damage to the host machine or the work tool.

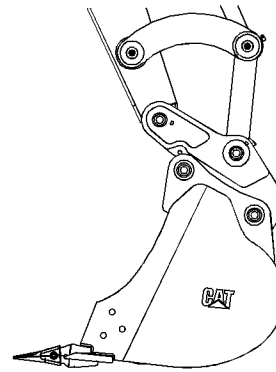


Illustration 198

g02163292

1. In order to unlock the coupler, position the work tool so that the work tool is slightly above the ground, with the front pin of the work tool higher than the rear pin of the work tool. If the work tool is a bucket, verify that the cutting edge is slightly higher than the bottom of the bucket. Other work tools may need to be lowered to the ground. Stop the engine.

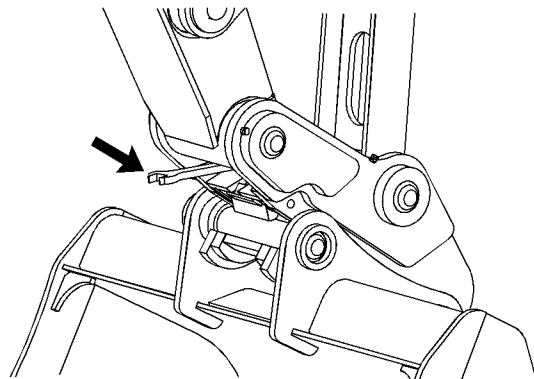


Illustration 199

g02165065

2. Using the supplied wrench, if equipped, and insert the ratcheting end onto the hex drive mechanism. Turn the wrench in a counterclockwise direction in order to release the rear locking mechanism.

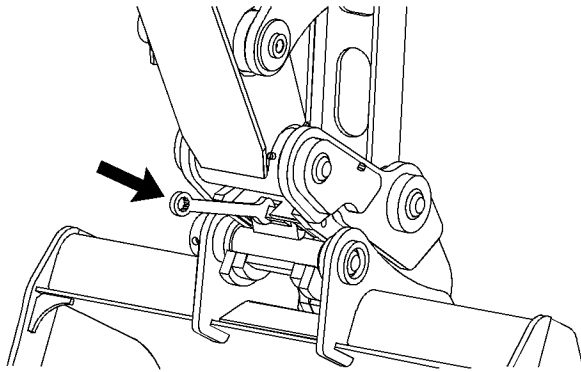


Illustration 200

g02165068

3. Using the supplied wrench, if equipped, and insert the open wrench end onto the front lock actuator. Push down on the wrench to rotate the front lock into an unlocked, detent position.
4. Start the engine. Lower the work tool to the ground.
5. Retract the bucket cylinder in order to rotate the quick coupler away from the work tool until the quick coupler disengages the rear pin of the work tool.
6. Move the stick away from the work tool in order to release the quick coupler from the front pin of the work tool. The front locking mechanism will automatically reset. The quick coupler is now ready to engage the next work tool.

Quick Coupler use with a Bucket that is Reversed

NOTICE

When some Cat buckets are used in the reverse position, it can be more difficult to couple the bucket and uncouple the bucket than in the normal position.

Care must be taken to ensure that the position of the boom, stick, and bucket are aligned to ensure smooth coupling. The coupler must be in position between the bucket bosses.

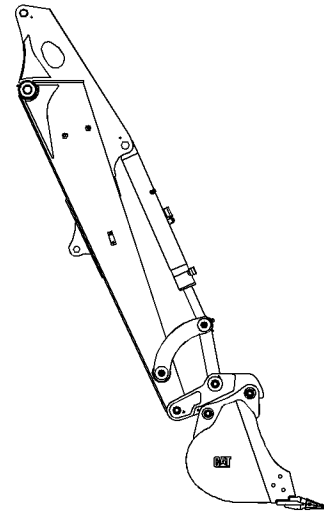


Illustration 201

g02163425

1. Follow the same steps for coupling and uncoupling the work tool in order to operate the coupler with a bucket that is reversed. Refer to "Coupling the Work Tool" and "Uncoupling the Work Tool" for the proper procedure.

i06014398

Quick Coupler Operation (Dual Lock Tilt Coupler (If Equipped))

SMCS Code: 6129; 6522; 7000

The quick coupler is used to change work tools while the operator remains in the cab. The quick coupler can be used with a broad range of buckets and work tools. Each work tool must have a set of pins in order for the quick coupler to work properly. The Dual Lock Tilt Quick Coupler also allows the work tool to rotate through a 180 degree arc.

The work tools are held onto the quick coupler by two independent locking mechanisms. The work tool rear pin locking mechanism consists of a hydraulically driven wedge. If pressure is lost, a check valve in the hydraulic cylinder traps oil to ensure that the lock remains in place. Additionally, a fully independent locking system exists on the front pin of the work tool. This system is spring applied and hydraulically released, ensuring that the work tool is locked immediately after the front pin of the work tool is seated. Always ensure that the hydraulic system and the locking mechanisms are working properly before using the quick coupler.

WARNING

Improper attachment of work tools could result in serious injury or death.

Do not operate this machine until you have positive indication that the locking mechanisms are fully engaged. Check for engagement by:

- Visually confirm the engagement of the work tool. Ensure that both the front and rear pin locking mechanisms for the work tool are locked and secure the work tool to the quick coupler.
- Visually confirm positive indication of the ISO Engagement indicator, if equipped.
- Retract the bucket cylinder and drag the work tool on the ground.
- Visually confirm that there is no movement between the work tool and the quick coupler.

WARNING

Place the work tool or bucket in a safe position before engaging the quick coupler. Ensure that the work tool or bucket is not carrying a load.

Serious injury or death may result from engaging the work tool or bucket when it is in an unstable position or carrying a load.

WARNING

Crush injury. Could cause serious injury or death. Always confirm that the quick coupler is engaged onto the pins. Read the Operator's Manual.

NOTICE

Before beginning installation, operating of machine, or repair of the Dual Lock Tilt Coupler:

The Dual Lock Tilt Coupler should only be used to perform tasks for which it was designed. Abusing the product and/or using it for purposes for which it was not intended can expose the operator and others to hazards as well as result in damage to the Dual Lock Tilt Coupler, carrier and/or other attachments.

Modification to the Dual Lock Tilt Coupler is done at the owner's risk and may void warranty.

NOTICE

The buzzer will not sound when the switch is in the lock position. The position of the switch does not confirm that the quick coupler locking system is properly engaged with the attachment pins. Visually confirm positive indication of the ISO Engagement Indicator, if equipped. A physical test is required by dragging the work tool on the ground to confirm that the coupler pins are engaged.

NOTICE

Always confirm that the buzzer sounds when the switch is in the unlock position. If no sound is heard while in this condition, ensure that the work tool is placed in a stable and safe position. Turn off the engine. Consult your Cat dealer.

NOTICE

With certain work tool combinations, including quick couplers, the work tool can hit the cab or the front of the machine. Always check for interference when first operating a new work tool.

Quick Coupler Operation

Refer to Operation and Maintenance Manual, "Quick Coupler Operation (Hydraulic Pin Grabber Quick Coupler)" for coupling and uncoupling the work tools.

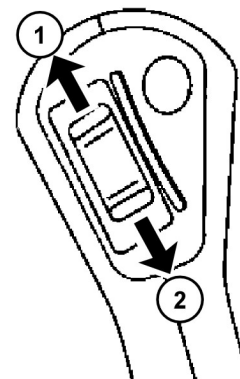


Illustration 202

g03774098

Actuate Tilt Coupler to the Right (1) – Push the thumb wheel on the right joystick upward in order to tilt the coupler to the right.

Actuate Tilt Coupler to the Left (2) – Push the thumb wheel on the right joystick downward in order to tilt the coupler to the left.

DO NOT actuate angling of the coupler while in the process of digging. Angle actuation should be performed while the coupler is in the air and not engaged in material.

DO NOT operate the Dual Lock Tilt Coupler unless it is fully connected to a host machine. Auxillary lines must be connected at all times to provide pressure relief.

i07395897

Quick Coupler Operation (Pin Lock (If Equipped))

SMCS Code: 6129; 6522; 7000

Installation

NOTICE

The vibration caused by extensive use of a hydraulic hammer as well as the added weight of certain demolition tools such as shears, crushers, and pulverizers may cause premature wear and decreased service life of the coupler.

Be sure to inspect the coupler daily for cracks, bent components, or wear when operating with any of the above work tools.

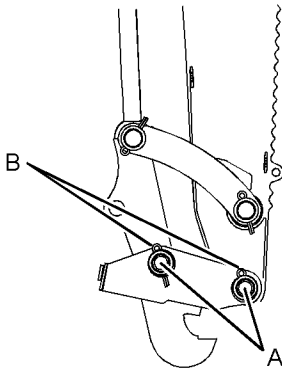


Illustration 203

g02878242

1. The quick coupler is installed using linkage pins (A) that come with the machine. Lubricate linkage pins (A) and the pin bores before assembly on the machine.
2. Install the coupler and linkage pins (A).

3. Install cotter pins (B).

Securing the Work Tool

WARNING

Improper attachment of work tools could result in injury or death.

Do not operate this machine until you have positive indication that the coupler pins are fully engaged. Check for engagement by:

1. Position the work tool on the ground.
2. Apply slight down pressure on the work tool.
3. Retract and extend the stick cylinder in order to push the work tool against the ground. Visually confirm that there is no movement between the coupler and the work tool.

Position the work tool on a level surface.

1. Start the engine.

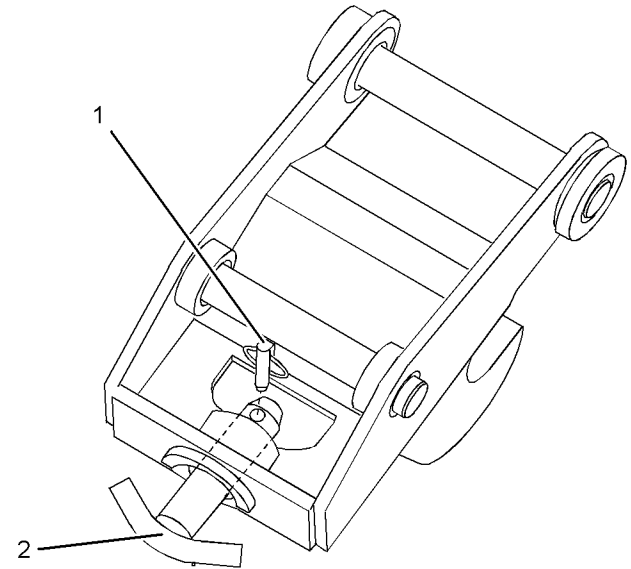


Illustration 204

g01488634

2. Remove lock pin (1) and quick coupler pin (2) from the quick coupler.
3. Retract the work tool cylinder. Position the open hook on the quick coupler over the top pivot pin of the work tool.

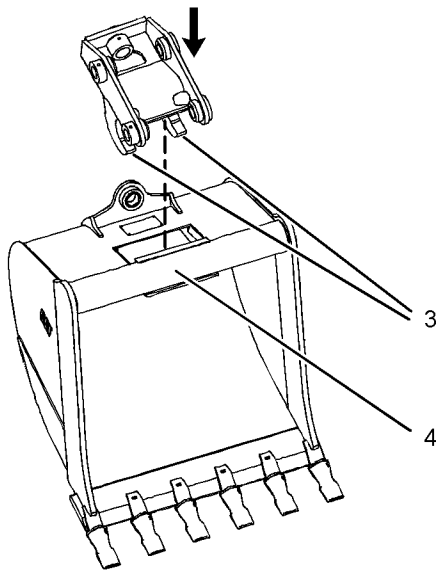


Illustration 205

g02883722

4. Move the stick inward and lower the stick until hooks (3) engage top pivot pin (4) of the work tool.

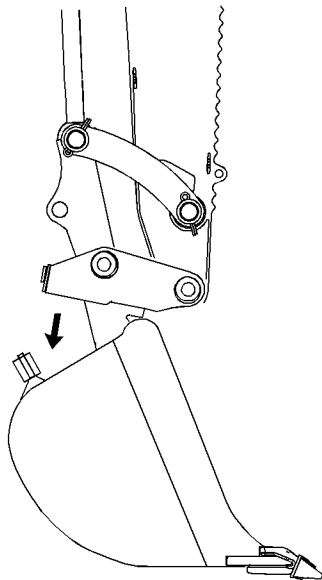


Illustration 206

g01488635

5. Extend the work tool cylinder to rotate the quick coupler toward the work tool. Line up the pin receiver of the work tool with the pin receiver of the quick coupler. Stop the engine.
6. Fully insert quick coupler pin (2) into the pin receiver of the quick coupler and the work tool.

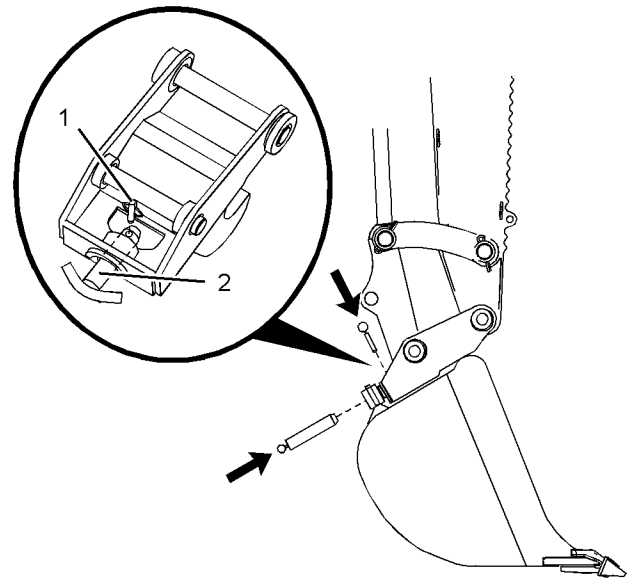


Illustration 207

g01488639

7. Fully insert lock pin (1) into quick coupler pin (2).
8. To verify the engagement of the work tool, perform the following procedure.
 - a. Start the engine. Retract and extend the stick cylinder to push the work tool against the ground.
 - b. Ensure that there is no movement between the work tool and the quick coupler.
 - c. Visually confirm the engagement of the work tool.

Releasing the Work Tool

⚠ WARNING

Disengaging the coupler pins will release the work tool from control of the operator.

Serious injury or death may result from disengaging the work tool when it is in an unstable position or carrying a load.

Place the work tool in a safe position before disengaging the coupler pins.

1. Lower the work tool onto a level surface. Make sure that the work tool is in full contact with the ground.
2. Remove the lock pin from the quick coupler pin.
3. Remove the quick coupler pin from the quick coupler.

4. Rotate the quick coupler out of the top pivot pin of the work tool.

i07396465

Quick Coupler Operation (CW (Single Lock) Quick Coupler (If Equipped))

SMCS Code: 6129; 6522; 7000

NOTICE

The vibration caused by extensive use of a hydraulic hammer and the added weight of certain demolition tools such as shears, crushers, and pulverizers may cause premature wear and decreased service life of the coupler.

Be sure to inspect the coupler daily for cracks, bent components, or wear when operating with any work tools.

General Operation

The CW coupler is used to change work tools quickly. The quick coupler can be used with a broad range of buckets and work tools.

Installation Procedure

WARNING

Personal injury or death can result from improperly checking for a leak.

Always use a board or cardboard when checking for a leak. Escaping air or fluid under pressure, even a pin-hole size leak, can penetrate body tissue causing serious injury, and possible death.

If fluid is injected into your skin, it must be treated immediately by a doctor familiar with this type of injury.

Note: Hydraulic oil may be trapped in the lines if the hydraulic lines are plugged or if the hydraulic lines are connected. The trapped oil may be under pressure. Use care when you open the hydraulic lines.

Note: The quick coupler must be controlled by the excavator's hydraulic system.

Perform this procedure as described in the following steps:

Ensure that the quick coupler is compatible with the host machine. For more information, consult your Caterpillar dealer.

To provide a stable operating condition, the host machine must be on flat, level ground. The host machine must be blocked to prevent inadvertent movement.

The quick coupler must be supported to prevent inadvertent movement. Position the quick coupler to prevent unnecessary climbing and unnecessary bending.

Optimum alignment of the bores will prevent the use of unnecessary force when you install the pins. Never check the alignment of the bores with your fingers. Use the proper tools to check the alignment of the bores.

A retaining pin can fly out when the retaining pin is struck with force. The area must be clear of people when you drive retaining pins.

When you strike objects, chips and other debris can fly. Before you strike any object, make sure that no one can be injured by the flying debris. Always wear appropriate PPE, including safety glasses.

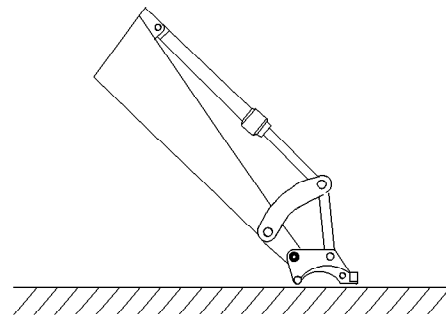


Illustration 208

g00741430

1. Position the quick coupler on the ground in front of the host machine. Make sure that the wedge faces away from the host machine.
2. Install the mounting pins.
3. Lubricate all the mounting points.
4. Connect the hydraulic lines to the quick coupler (if equipped).
5. After mounting the quick coupler on the excavator, or after working on the quick coupler hydraulic system, it is necessary to purge all the air from the cylinder and the control system. Refer to the "Hydraulic System Air Purge" for additional information.

Quick Coupler Removal Procedure

1. Lay the quick coupler flat on the ground.

2. Release the pressure from the hydraulic lines (if equipped).
 - a. Extend the wedge to the UNLOCKED position.
 - b. Stop the engine on the host machine. Turn the ignition to OFF.
 - c. Turn the ignition to the ON position without starting the engine.
 - d. Move the hydraulic control levers repeatedly through the full range of motion. This will release any pressure that may be present in the hydraulic system. Actuate the quick coupler using the machine control monitor. Cycle through locking and unlocking the quick coupler several times to release trapped hydraulic pressure within the quick coupler circuit.
 - e. The wedge should begin to move inward due to the spring force.
 - f. Turn the ignition to the OFF position.
 - g. Release the pressure in the host machine's hydraulic tank.

WARNING

Personal injury or death can result from improperly checking for a leak.

Always use a board or cardboard when checking for a leak. Escaping air or fluid under pressure, even a pin-hole size leak, can penetrate body tissue causing serious injury, and possible death.

If fluid is injected into your skin, it must be treated immediately by a doctor familiar with this type of injury.

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting, and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, PERJ1017, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat® products.

Dispose of all fluids according to local regulations and mandates.

3. Place a suitable container below the hydraulic fittings to catch any hydraulic oil that may escape. Slowly disconnect the hydraulic lines. Plug the ends of the hydraulic lines or connect the hydraulic lines.

4. Dispose of the hydraulic oil in a suitable manner.
5. Remove the pins from the quick coupler.

Daily Inspection

WARNING

Personal injury or death can result from improperly checking for a leak.

Always use a board or cardboard when checking for a leak. Escaping air or fluid under pressure, even a pin-hole size leak, can penetrate body tissue causing serious injury, and possible death.

If fluid is injected into your skin, it must be treated immediately by a doctor familiar with this type of injury.

NOTICE

Accumulated grease and oil on a work tool is a fire hazard.

Remove debris with steam cleaning or high pressure water at any time a significant quantity of oil is spilled on the work tool.

Note: If major repairs to the quick coupler are required, consult your Caterpillar dealer.

1. For the maximum service life of the work tool, make a thorough daily inspection before you mount a work tool to the host machine.
2. Inspect the quick coupler for the following conditions: loose bolts, oil leaks, broken parts, missing parts and cracked components. Check the overall condition of the quick coupler. Check the overall condition of the hydraulic system.
3. Inspect the warning signs and labels. Replace warning signs or labels that are missing. Replace warning signs or labels when you cannot read the warning signs or labels.
4. If equipped, inspect the condition of the hydraulic lines and the hydraulic fittings.
5. Check the mounting pins for the quick coupler.
6. Inspect the bolts for the wedge when you remove the wedge.
7. Check the lifting device, if equipped. If damage is present, do not use the lifting device. Contact your Caterpillar dealer for repairs.
8. Perform all repairs before you put the quick coupler into service.

9. Perform an UNLOCK and LOCK cycle of the wedge to provide a smooth operation of the wedge. This procedure is for the quick coupler with hydraulic coupling only.

Operation

Coupling the Work Tool

WARNING

Place the work tool or bucket in a safe position before engaging the quick coupler. Ensure that the work tool or bucket is not carrying a load.

Serious injury or death may result from engaging the work tool or bucket when it is in an unstable position or carrying a load.

WARNING

Crush injury. Could cause serious injury or death. Always confirm that the quick coupler is engaged onto the pins. Read the Operator's Manual.

Reference: For more information on connecting the quick coupler to the host machine, contact your dealer for special instructions.

Quick Coupler with Hydraulic Coupling

WARNING

Place the work tool or bucket in a safe position before engaging the quick coupler. Ensure that the work tool or bucket is not carrying a load.

Serious injury or death may result from engaging the work tool or bucket when it is in an unstable position or carrying a load.

NOTICE

The buzzer will not sound when the switch is in the lock position. The position of the switch does not confirm that the quick coupler locking system is properly engaged with the attachment pins. Visually confirm positive engagement of the locking system. A physical test is required by dragging the work tool on the ground to confirm that the coupler is properly engaged with the work tool.

NOTICE

Always confirm that the buzzer sounds when the switch is in the unlock position. If no sound is heard while in this condition, ensure that the work tool is placed in a stable and safe position. Turn off the engine. Consult your Cat dealer.

NOTICE

With certain work tool combinations, including quick couplers, the work tool can hit the cab or the front of the machine. Always check for interference when first operating a new work tool.

1. Verify that the wedge is in the unlocked position. If the wedge is not extended, extend the bucket cylinder. Then, extend the wedge.

WARNING

Ensure that the wedge is extended before coupling the work tool. Severe damage may occur. Failing to extend the wedge before coupling the work tool could result in a poorly coupled work tool or an uncoupled work tool.

Serious injury or death may result from an improperly coupled work tool.

2. Ensure that the mounting bracket of the work tool is in line with the host machine. The work tool must be facing the host machine. The mounting bracket must be at the top of the work tool.

Coupling a Bucket

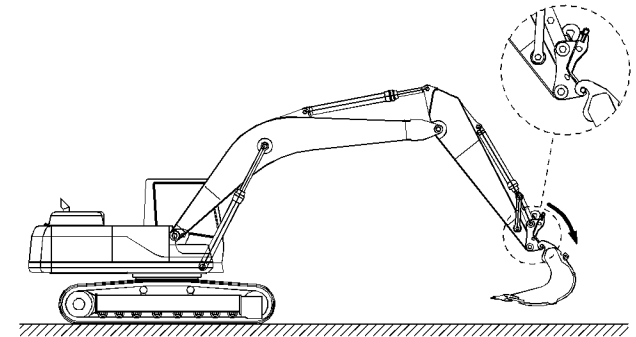


Illustration 209

g01285027

1. Hook the forward pivot of the quick coupler into the hooks of the mounting bracket.

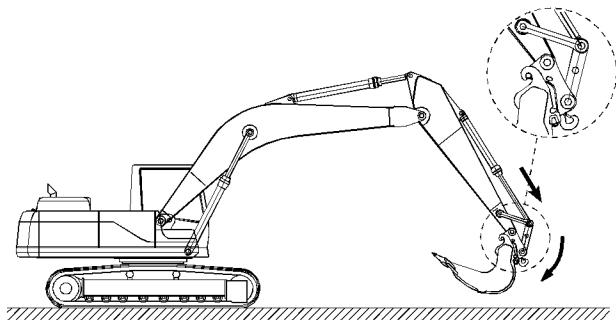


Illustration 210

g01285038

2. Select "UNLOCK" on the monitor display and confirm that the buzzer is sounding with an intermittent pattern of one beep per second. If no sound is heard while in this condition, ensure that the work tool is placed in a stable and safe position. Turn off the engine. Consult your Cat dealer. Extend the bucket cylinder until the coupler contacts the work tool.
3. Tilt the quick coupler against the work tool by extending the bucket cylinder.
4. Select "LOCK" on the monitor display and the beep will stop and the rear lock (wedge) will slide back into place. The monitor will return to the home screen.
5. Visually confirm that the wedge has engaged the work tool hook and is properly locked. If this visual confirmation cannot be performed from the machine cab due to obstruction, lighting, etc., place the machine in a safe state, exit the cab, and visually confirm proper engagement at the quick coupler.

WARNING

Inspect the quick coupler engagement before operating the machine.

Serious injury or death may result from improperly engaged coupler.

NOTICE

Visually confirm that the quick coupler engagement system is properly locked to the work tool. Confirm that the wedge has engaged the work tool hook and is properly locked.

6. Verify the engagement of the quick coupler and the work tool.

- a. Place the work tool on the ground.
- b. Apply pressure to the work tool against the ground.
- c. Drag the work tool forward and backward.

Quick Coupler with Mechanical Coupling

WARNING

Place the work tool or bucket in a safe position before engaging the quick coupler. Ensure that the work tool or bucket is not carrying a load.

Serious injury or death may result from engaging the work tool or bucket when it is in an unstable position or carrying a load.

1. Ensure that the work tool mounting bracket is in line with the host machine. The work tool must be facing the host machine. The mounting bracket must be at the top of the work tool.

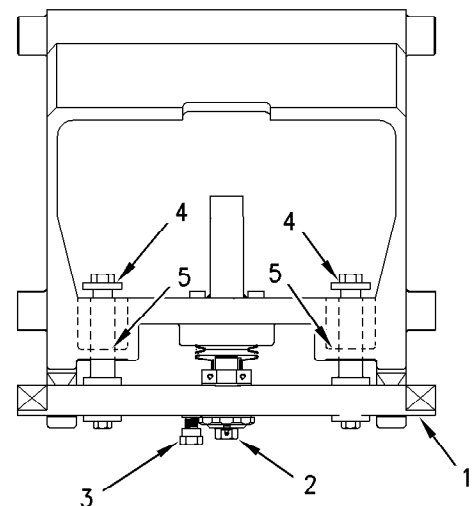


Illustration 211

g00928845

2. To move wedge (1) to the UNLOCKED position, perform the following steps:

Operation Section
CW (Single Lock) Quick Coupler (If Equipped)

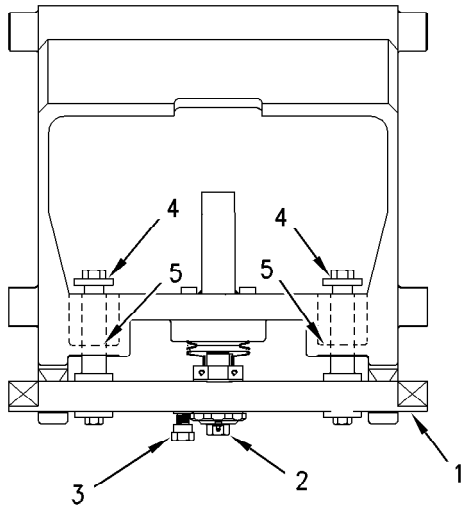


Illustration 212

g00928845

- Loosen lock bolt (3) until you can turn spindle (2).

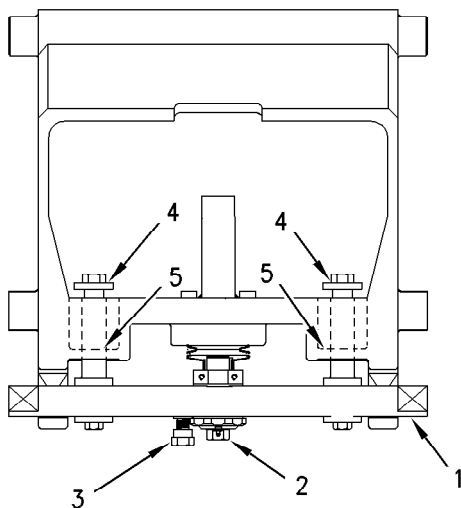


Illustration 213

g00928845

- Turn spindle (2) until the bolts (4) lightly contact the coupler (5).
- Position the coupler with the wedge in an UPWARD position.

Coupling a Bucket

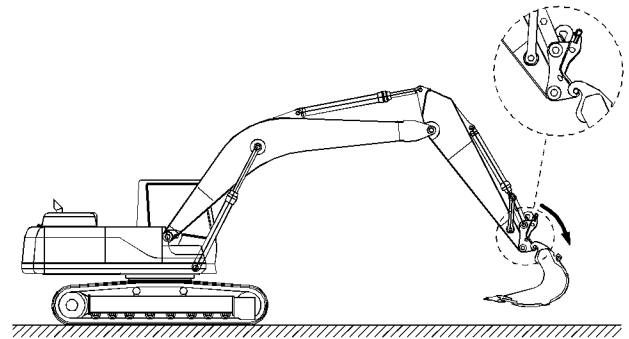


Illustration 214

g01285027

- Hook the front pivots into the hooks of the mounting bracket on the work tool.

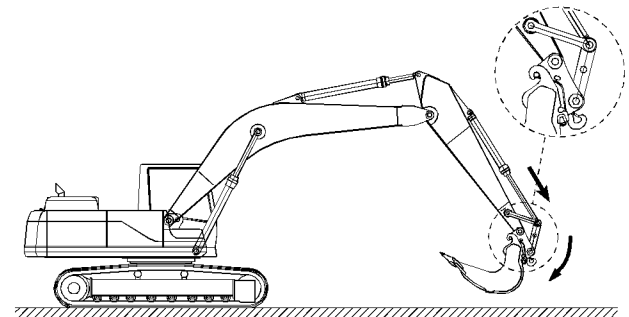


Illustration 215

g01285038

- Tilt the quick coupler against the work tool by extending the bucket cylinder. Stop the engine of the host machine.
 - Turn the spindle inward. Tighten the spindle.
- Note:** If necessary, tighten the spindle until the next notch is aligned with the locking bolt.
- Tighten the locking bolt.

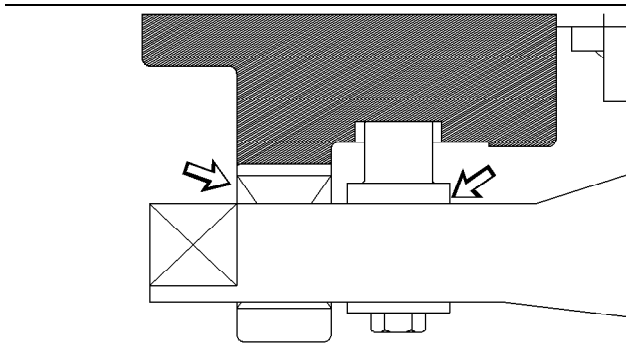


Illustration 216

g00583309

5. Ensure that there is a visible space between the wedge and the quick coupler frame. If there is not a space, the mounting bracket or the quick coupler may be damaged.

! WARNING

Inspect the quick coupler engagement before operating the machine.

Serious injury or death may result from improperly engaged coupler.

6. Verify the engagement of the quick coupler and the work tool.
 - a. Place the work tool on the ground.
 - b. Apply pressure to the work tool against the ground.
 - c. Drag the work tool forward and backward.

Uncoupling the Work Tool

Use the following steps to prepare the quick coupler for uncoupling.

NOTICE

Auxiliary hoses for work tools must be disconnected before the Hydraulic Quick Coupler is disengaged.

Pulling the work tool with the auxiliary hoses could result in damage to the host machine or the work tool.

1. Disconnect any auxiliary hoses from the work tool (if equipped).
2. Ensure that the work tool is clear of the ground.
3. Fully extend the bucket cylinder. Extend the stick cylinder until the wedge is pointing downward. The load is now released from the wedge.

Quick Coupler with Hydraulic Coupling

! WARNING

Place the work tool or bucket in a safe position before disengaging the coupler. Disengaging the coupler will release the work tool or bucket from control of the operator.

Serious injury or death may result from disengaging the work tool or bucket when it is in an unstable position or carrying a load.

1. Extend the wedge cylinder.
2. Select UNLOCK on the monitor display and confirm that the buzzer is sounding with an intermittent pattern of one beep per second. If no sound is heard while in this condition, ensure that the work tool is placed in a stable and safe position. Turn off the engine. Consult your Cat dealer.
3. Retract the bucket cylinder until the coupler is no longer in contact with the work tool. The work tool is now suspended by the front pivot.
4. Place the work tool on the ground.
5. Unhook the quick coupler from the mounting bracket.

Quick Coupler with Mechanical Coupling

! WARNING

Place the work tool or bucket in a safe position before disengaging the coupler. Disengaging the coupler will release the work tool or bucket from control of the operator.

Serious injury or death may result from disengaging the work tool or bucket when it is in an unstable position or carrying a load.

1. Stop the engine of the host machine.
2. Loosen the locking bolt until you can turn the spindle.
3. Turn the spindle outward. If necessary, strike the wedge with a hammer to release the wedge.
4. Retract the bucket cylinder. The work tool will be suspended by the front pivot.
5. Place the work tool on the ground.
6. Unhook the quick coupler from the mounting bracket.

Lifting Loads

WARNING

Lifting loads with the quick coupler is only permitted when there is no work tool attached. Lifting loads when there is a work tool attached may result in serious injury or death.

NOTICE

If used to lift loads, then the excavator must comply with the requirements for lifting machinery. These are given in standard EN 474-5. For more information, consult your Caterpillar dealer.

Note: When you lift loads with the lifting yoke or the lifting hook, the wedge must be retracted or the wedge must be removed from the coupler.

Lifting Hook (If Equipped)

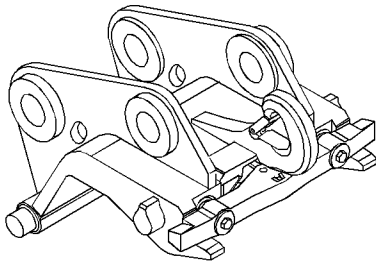


Illustration 217

g03219216

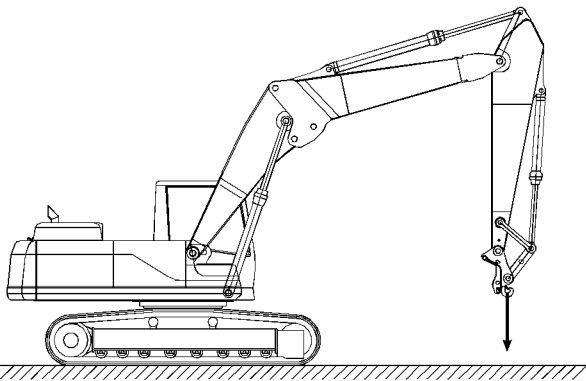


Illustration 218

g01285467

1. Fully extend the bucket cylinder.
2. Make sure that the wedge has been retracted or that the wedge has been removed.

WARNING

Use an appropriate lifting device that is rated for the specific load. Failure to do so can result in serious injury or death.

3. Fasten an appropriate chain, cable, or a lifting strap to the lifting hook. Do not perform any lifting operations if the safety latch is missing. Do not perform any lifting operations if the safety latch is damaged. Contact your supplier.

Lifting Objects

WARNING

To prevent injury, do not exceed the rated load capacity of the machine. If the machine is not on level ground, load capacities will vary.

The quick coupler and attached lifting hook have unique rated load capacities. Each capacity is marked on the corresponding component. Do not exceed the maximum capacity of any component used in a lifting operation. Quick coupler capacities are listed in the table below:

Table 74

Quick Coupler Rated Capacities ⁽¹⁾	
Quick Coupler Model	Rated Capacity
CW05	600 kg (1322 lb)
CW10	1400 kg (3086 lb)

⁽¹⁾ Capacities rated in accordance with EN 474-1:2006+A4:2013 Annex E and ASS 1418.8-2008 standards

Refer to the load charts in the Operation and Maintenance Manual of the host machine. Use the load charts and account for the mass of the work tool. Calculate the load capacity relative to the location of the lifting point on your specific host machine.

Use a sling or a shackle to attach to the lifting point and lift the object. The sling or the shackle must have a rated capacity that is greater than the mass of the load.

If the machine is equipped with the CE plate per requirements for the European Union, and used to lift objects, then the machine must be equipped with the optional boom and stick lowering control valves and an overload warning device.

A fit for purpose test was completed to confirm that a properly equipped machine meets the requirements of the European Union Machinery Directive "2006/42/EC" for lifting objects.

The setting for the overload warning device should be checked by an authorized dealer.

i07451017

Quick Coupler Operation (Hydraulic Pin Grabber Quick Coupler (If Equipped))

SMCS Code: 6129; 6522; 7000

NOTICE

The vibration caused by extensive use of a hydraulic hammer as well as the added weight of certain demolition tools such as shears, crushers, and pulverizers may cause premature wear and decreased service life of the coupler.

Be sure to inspect the coupler daily for cracks, bent components, or wear when operating with any of the above work tools.

General Operation

The quick coupler is used to change work tools while the operator remains in the cab. The quick coupler can be used with a broad range of buckets and work tools. Each work tool must have a set of pins in order for the quick coupler to work properly.

The work tools are held onto the quick coupler by two independent locking mechanisms. The work tool rear pin locking mechanism consists of a hydraulically driven wedge. If pressure is lost, a check valve in the hydraulic cylinder traps oil to ensure that the lock remains in place. Also, a fully independent locking system exists on the front pin of the work tool. This system is spring applied and hydraulically released, ensuring that the work tool is locked immediately after the front pin of the work tool is seated. Always ensure that the hydraulic system and the locking mechanisms are working properly before using the quick coupler.

Installation

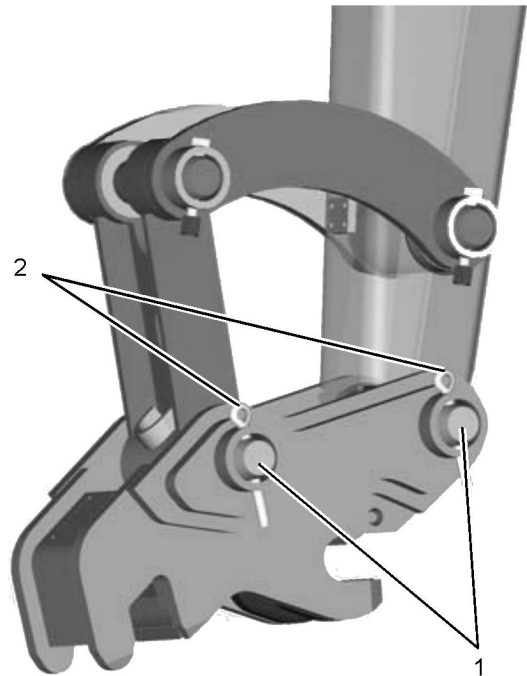


Illustration 219

g06294044

1. The quick coupler comes with two linkage pins (1) for installation on the machine. Lubricate the linkage pins (1) and pin bores before assembly on the machine.
2. Install the coupler and the linkage pins (1).

3. Install the cotter pins (2).

Quick Coupler Operation

Coupling the Work Tool

WARNING

Improper attachment of work tools could result in serious injury or death.

Do not operate this machine until you have positive indication that the locking mechanisms are fully engaged. Check for engagement by:

- Visually confirm the engagement of the work tool. Ensure that both the front and rear pin locking mechanisms for the work tool are locked and secure the work tool to the quick coupler.
- Visually confirm positive indication of the ISO Engagement indicator, if equipped.
- Retract the bucket cylinder and drag the work tool on the ground.
- Visually confirm that there is no movement between the work tool and the quick coupler.

WARNING

Place the work tool or bucket in a safe position before engaging the quick coupler. Ensure that the work tool or bucket is not carrying a load.

Serious injury or death may result from engaging the work tool or bucket when it is in an unstable position or carrying a load.

WARNING

Crush injury. Could cause serious injury or death. Always confirm that the quick coupler is engaged onto the pins. Read the Operator's Manual.

NOTICE

The buzzer will not sound when the switch is in the lock position. The position of the switch does not confirm that the quick coupler locking system is properly engaged with the attachment pins. Visually confirm positive indication of the ISO Engagement Indicator, if equipped. A physical test is required by dragging the work tool on the ground to confirm that the coupler pins are engaged.

NOTICE

Always confirm that the buzzer sounds when the switch is in the unlock position. If no sound is heard while in this condition, ensure that the work tool is placed in a stable and safe position. Turn off the engine. Consult your Cat dealer.

NOTICE

With certain work tool combinations, including quick couplers, the work tool can hit the cab or the front of the machine. Always check for interference when first operating a new work tool.

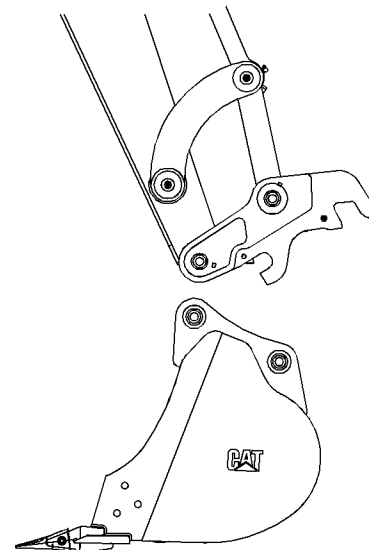


Illustration 220

g02163290

1. Align the quick coupler front locking mechanism over the front pin of the work tool. Extend the stick cylinder until the automatic front locking mechanism of the quick coupler engages and secures the front pin of the work tool.

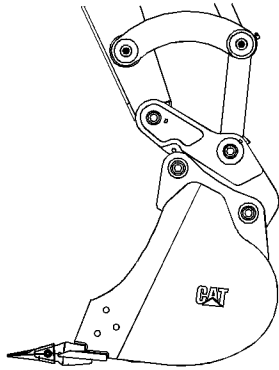


Illustration 221

g02163292

2. Select "UNLOCK" on the monitor display and confirm that the buzzer is sounding with an intermittent pattern of one beep per second. If no sound is heard while in this condition, ensure that the work tool is placed in a stable and safe position. Turn off the engine. Consult your Cat dealer. Extend the bucket cylinder until the rear of the quick coupler is rotated toward the work tool and contacts the work tool rear pin. Position the work tool so that it is slightly above the ground, with the front pin of the work tool higher than the rear pin of the work tool. If the work tool is a bucket, verify that the cutting edge is slightly higher than the bottom of the bucket.
3. Select "LOCK" on the monitor display. The buzzer will no longer sound. The monitor will return to the home screen.

Note: To ensure proper function of the locking wedge, stalling a function such as blade or bucket may be required to provide sufficient hydraulic flow to the locking mechanism.

WARNING

Crush injury. Could cause serious injury or death. Always confirm that the quick coupler is engaged onto the pins. Read the Operator's Manual.

4. Hold the control lever for the bucket cylinder in the EXTEND position for 5 seconds.
5. To verify the engagement of the work tool, perform the following procedure:

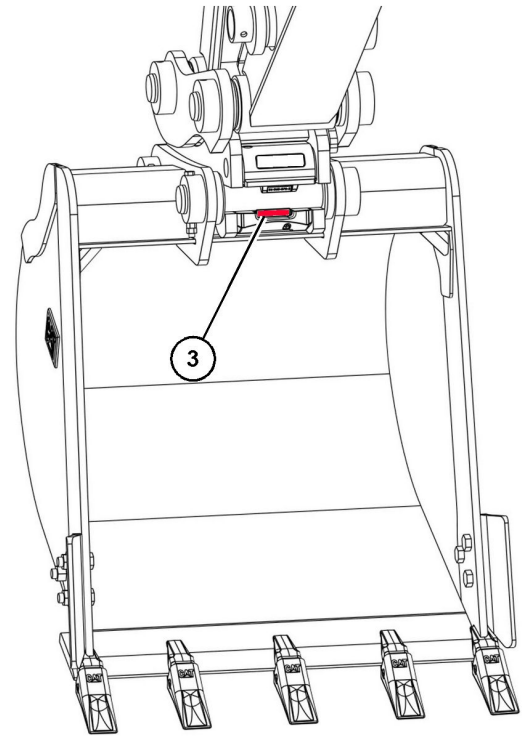


Illustration 222

g06222081

- a. Visually confirm the engagement of the work tool. Ensure that both the work tool front and rear pin locking mechanisms are locked and securing the work tool to the coupler.
- b. Visually confirm positive indication of the ISO Engagement indicator (3), if equipped.
- c. Retract the bucket cylinder and drag the work tool on the ground.
- d. Visually confirm that there is no movement between the work tool and the quick coupler.

NOTICE

Back drag the work tool on the ground to ensure the quick coupler is properly locked.

Do Not strike the work tool on the ground to ensure the quick coupler is properly locked. Striking the work tool on the ground will result in damage to the coupler cylinder.

Reference: "Quick Coupler" within the "Monitoring System" section of this manual.

Uncoupling the Work Tool

WARNING

Place the work tool or bucket in a safe position before disengaging the coupler. Disengaging the coupler will release the work tool or bucket from control of the operator.

Serious injury or death may result from disengaging the work tool or bucket when it is in an unstable position or carrying a load.

NOTICE

Auxiliary hoses for work tools must be disconnected before the Hydraulic Quick Coupler is disengaged.

Pulling the work tool with the auxiliary hoses could result in damage to the host machine or the work tool.

NOTICE

Always confirm that the buzzer sounds when the switch is in the unlock position. If no sound is heard while in this condition, ensure that the work tool is placed in a stable and safe position. Turn off the engine. Consult your Cat dealer.

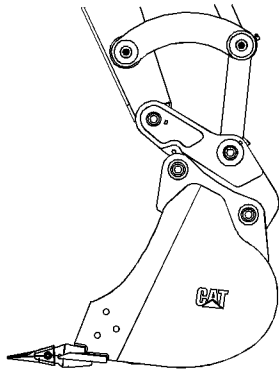


Illustration 223

g02163292

1. To unlock the coupler, position the work tool so that it is slightly above the ground, with the front pin of the work tool higher than the rear pin of the work tool. If the work tool is a bucket, verify that the cutting edge is slightly higher than the bottom of the bucket.
2. Select "UNLOCK" on the monitor display. Confirm that the buzzer is sounding with an intermittent pattern of one beep per second. If no sound is heard while in this condition, ensure that the work tool is placed in a stable and safe position. Turn off the engine. Consult your Cat dealer.

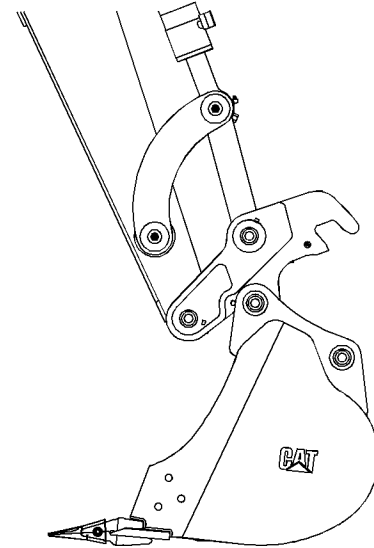


Illustration 224

g02163415

3. Retract the bucket cylinder, ensuring that the work tool rear pin locking mechanism is unlocked. The rear of the quick coupler should be rotated away from the work tool. Place the work tool in a stable and safe position on the ground.

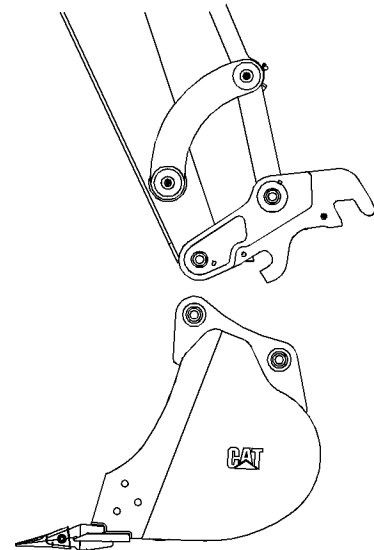


Illustration 225

g02163290

4. Within the 10-second time period, retract the stick cylinder until the quick coupler is disengaged from the work tool. Ensure that the work tool is in a stable and safe storage position on the ground.

5. Select "LOCK" on the monitor display. The buzzer will no longer sound. The monitor will return to the home screen.

Reference: "Quick Coupler" within the "Monitoring System" section of this manual.

Coupling a Bucket that is Reversed

NOTICE

When some Cat buckets are used in the reverse position, it can be more difficult to couple the bucket and uncouple the bucket than in the normal position.

Care must be taken to ensure that the position of the boom, stick, and bucket are aligned to ensure smooth coupling. The coupler must be in position between the bucket bosses.

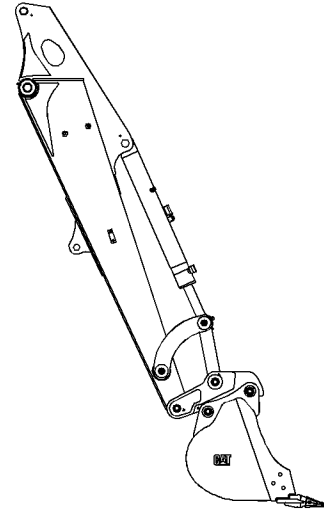


Illustration 226

g02163425

1. Follow the same steps for coupling and uncoupling the work tool to operate the coupler with a bucket that is reversed. Refer to "Coupling the Work Tool" and "Uncoupling the Work Tool" for the proper procedure.

i07322676

Hammer Operation (If Equipped)

SMCS Code: 5705-WTL

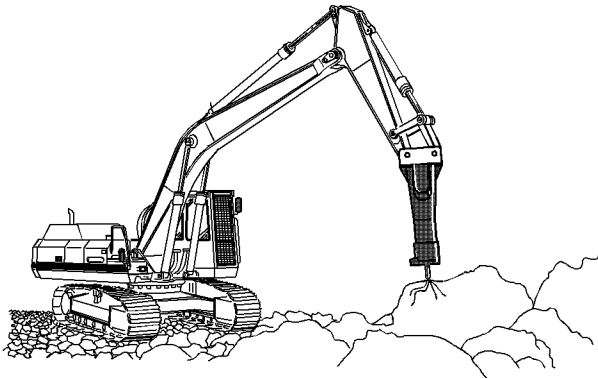


Illustration 227

g01876560

NOTICE

Use only a hydraulic hammer that is recommended by Caterpillar.

The use of a hydraulic hammer that is not recommended by Caterpillar could result in structural damage to the host machine.

Consult your Cat dealer for information on recommended hydraulic hammers.

Note: The hydraulic temperature sensor and alarm in the 308E2 machine is specifically designed to monitor the hydraulic temperature of the machine. The hydraulic temperature of the work tool is not monitored. The operator needs to understand the work tool's hydraulic temperature working range and not rely on the machine hydraulic temperature sensor to monitor the work tool's hydraulic temperature. This is especially true where the work tool hydraulic temperature range is less than that of the machine.

Only use the hydraulic hammer to break rocks, concrete, and other hard objects. Before you start hydraulic hammer operation, place the machine on a level, stable surface.

Before you start hydraulic hammer operation, close the front window. Caterpillar recommends the installation of a window guard on the front window for protection from flying debris.

NOTICE

In order to avoid structural damage to the host machine or the hydraulic hammer, comply with the following:

Do not attempt to break rocks or concrete by burying the hammer tool completely into the rocks or concrete.

Do not apply a prying force to the hammer tool in order to remove the hammer tool from the material.

Do not allow the hydraulic hammer to continuously operate at one location and for more than 15 seconds. Change the location of the hydraulic hammer and repeat the procedure. Failure to change the location of the hydraulic hammer could cause the hydraulic oil to overheat. Overheated hydraulic oil could cause damage to the accumulator.

Stop the hydraulic hammer immediately if the jumper lines are pulsating violently. This indicates that the accumulator nitrogen charge is lost. Consult your Caterpillar dealer for the necessary repair.

NOTICE

Do not use the dropping force of the hydraulic hammer to break rocks or other hard objects. This could cause structural damage to the machine.

Do not use the sides or back of the hydraulic hammer to move rocks or other hard objects. Doing this could cause damage not only to the hammer but to stick or boom cylinder.

Do not operate the hydraulic hammer with any of the cylinders fully retracted or extended. Doing this could cause structural damage to the machine, resulting in reduced machine life.

Do not use the hydraulic hammer to lift an object.

Do not operate the hydraulic hammer while the stick is vertical to the ground. This could allow the stick cylinder to vibrate excessively.

Operate the attachment control levers carefully in order to keep the hydraulic hammer's tool from hitting the boom.

Do not operate the hydraulic hammer under water unless the hydraulic hammer is properly equipped. Operating the hydraulic hammer under water could cause serious damage to the machine hydraulic system. Consult your Caterpillar dealer for information on underwater operation.

Do not operate the hydraulic hammer with the upper structure sideways to the undercarriage. Before you start hydraulic hammer operation, place the upper structure in the recommended positions that are shown in illustration 228. Any other operating positions could make the machine unstable. Any other operating positions could place excessive loads on the undercarriage.

Refer to the following for any additional questions about the operation and care of your Caterpillar hydraulic hammer: Operation and Maintenance Manual, SEBU7346, "Hydraulic Hammers", Operation and Maintenance Manual, HEPU9000, "Hydraulic Hammers" and Decal, SMEU7397, "Hammer Operation/Maintenance".

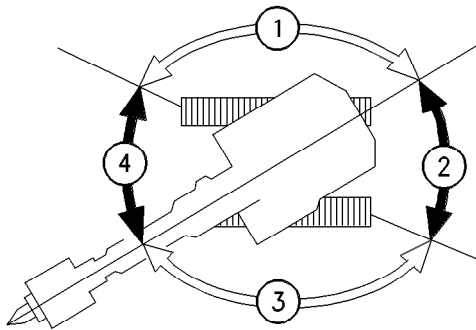


Illustration 228

g00101503

- (1) Incorrect working position
- (2) Correct working position
- (3) Incorrect working position
- (4) Correct working position

i01582993

Blade Operation

SMCS Code: 6060

NOTICE

Avoid hitting or moving rocks using the blade. Blade and cylinder damage could occur.

When using the blade as outrigger, be sure to support the machine with the edge of the blade against the ground. When curling the front attachment, do not allow the bucket to hit the blade.

During digging operation, do not allow the boom cylinder to contact the blade edge. When no blade operation is needed, operate with the bucket on the opposite side of the machine from the blade.

Do not swing the upper structure with cab door and/or upper structure covers opened. An opened door and/or cover can hit the blade when the blade is in the raised position while the machine is swinging.

Parking

i01871055

Stopping the Machine

i04176310

SMCS Code: 7000

WARNING

Leaving the machine unattended when the engine is running may result in personal injury or death. Before leaving the machine operator station, neutralize the travel controls, lower the work tools to the ground and deactivate all work tools, and place the lever for the hydraulic lockout control in the LOCKED position.

Note: There may be regulations that define the requirements for the operator and/or support personnel to be present when the engine is running.

Park on a level surface. If the machine must be parked on a grade, chock the tracks securely.

Note: The swing parking brake is automatically applied when the machine is stopped. The swing parking brake is released when the engine is running and the joystick is activated.

1. Turn the engine speed dial counterclockwise in order to reduce engine speed.

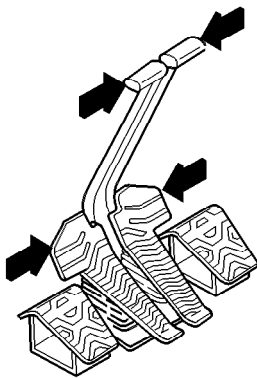


Illustration 229

g00560313

2. Release the travel levers/pedals in order to stop the machine.
3. Lower the work tool to the ground. Apply a slight downward pressure.
4. Move the hydraulic lockout control to the LOCKED position.

Freezing Conditions

SMCS Code: 7000

If freezing temperatures are expected, remove the mud and the dirt from each track roller frame. Park the machine on wood planks. Use the following procedure to clean each track roller frame.

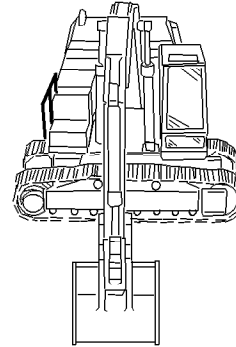


Illustration 230

g00101644

1. Position the boom over one side of the machine.
2. Use boom down pressure in order to lift the track on one side off the ground. Operate the track in the forward direction. Then operate the track in reverse. Continue this procedure until the maximum amount of material is thrown off the track.
3. Lower the track onto the wood planks.
4. Repeat the procedure for the other track.
5. Clean the area around the carrier rollers and around the track rollers.
6. Lower the work tool onto a wood plank in order to prevent the work tool from touching the ground.

i05259486

Stopping the Engine

SMCS Code: 1000; 7000

NOTICE

Stopping the engine immediately after it has been working under load can result in overheating and accelerated wear of engine components.

Refer to the following procedure to allow the engine to cool and to prevent excessive temperatures in the turbocharger housing, which could cause oil coking problems.

1. Stop the machine and lower the work tool to the ground.
2. Move the hydraulic lockout control to the LOCKED position.
3. Run the engine at low idle for 5 minutes.
4. Turn the engine start switch to the OFF position and remove the engine start switch key.

Engine Stop Control

Turn the engine start switch to the OFF position. If the engine does not stop, perform the following procedure.

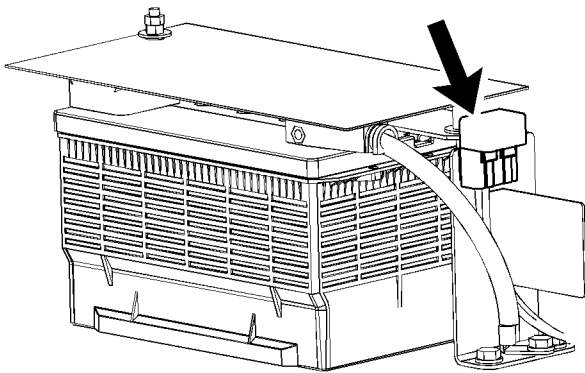


Illustration 231

g03348098

1. Open the engine access door.
2. Open the fuse cover located on the right side of the battery and remove the fuse marked "STOP" .

Note: Do not operate the machine again until the malfunction has been corrected.

3. Close the engine access door.

i06599477

Leaving the Machine

SMCS Code: 7000

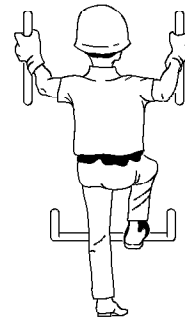


Illustration 232

g00037860

1. Use the steps and the hand holds when you dismount. When you dismount, face the machine and use both hands.
2. Inspect the engine compartment for debris. Clean out any debris to avoid a fire hazard.
3. Remove all flammable debris from the front bottom guard through the access doors to reduce a fire hazard. Discard the debris properly.
4. Always turn the battery disconnect switch to the OFF position before leaving the machine (if equipped).
5. If the machine will not be operated for a month or more, remove the battery disconnect switch key (if equipped).
6. Turn off all lights (courtesy lights will remain ON for set time).
7. Lock all compartments.

i07735116

Machine Storage and Specified Storage Period

SMCS Code: 7000

Machine Storage

The Safety Section of this Operation and Maintenance Manual contains storage information for fuels, lubricants, and ether (if equipped).

The Operation Section of this Operation and Maintenance Manual contains information for short-term storage of this machine, including engine shutdown, parking, and instructions for leaving the machine.

For detailed steps on long-term storage refer to Special Instruction, SEHS9031, "Storage Procedure for Caterpillar Products".

Specified Storage Period

The specified storage period of this machine is 1 year.

After the specified storage period has expired, consult your Cat dealer for inspect, repair, rebuild, install remanufactured, or install new components, and disposal options, and to establish a new specified storage period.

If a decision is made to remove the machine from service, refer to Decommissioning and Disposal for further information.

Transportation Information

i04764033

Shipping the Machine

SMCS Code: 7000; 7500

WARNING

Put travel speed control switch in low position before descending a slope and loading or unloading on trailer. Machine control may be adversely affected. Personal injury can result from sudden change in machine control

Investigate the travel route for overpass clearances. Make sure that there will be adequate clearance for the machine.

Before you load the machine onto the trailer, remove ice, snow, or other slippery material from the loading dock and from the truck bed. This will prevent the machine from sliding while the machine is being loaded. This will also keep the machine from moving in transit.

Note: Obey all laws that govern the characteristics of a load (height, weight, width, and length). Observe all regulations that govern wide loads.

Choose the flattest ground when you load the machine or when you unload the machine.

1. Before you load the machine, chock the trailer wheels or the rail car wheels.
2. When you use loading ramps, make sure that the loading ramps have adequate length, adequate width, adequate strength, and an adequate slope.
3. Maintain the slope of the loading ramps within 15 degrees of the ground.
4. Position the machine so that the machine can drive straight up the loading ramps. The final drives should be toward the rear of the machine.
Do not operate the joysticks while the machine is on the loading ramps.
5. When you drive over the loading ramp joint areas, maintain the balance point of the machine.
6. Lower the work tool to the bed or to the floor of the transport machine.

NOTICE

Do not allow the chrome surface of the bucket cylinder rod to touch any part of the trailer. Damage to the rod can occur from impact with the trailer during transport.

Refer to Operation and Maintenance, "Specifications" for shipping specifications.

Machine With A Long Stick That Has Two Pin Holes

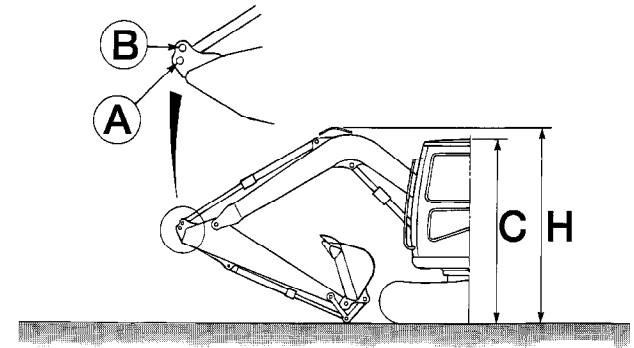


Illustration 233

g00425898

Table 75

Position of Pin Hole	Boom Height (H)	Height of Cab (C)
(A)	2.96 m (9 ft 8 inch)	2.55 m (8 ft 4 inch)
(B)	2.23 m (7 ft 4 inch)	2.55 m (8 ft 4 inch)

Make the following changes before shipping the machine.

The 2.21 m (7 ft 3 inch) long stick with two pin holes is designed to offer minimum transportation height.

Use pin hole (B) in machine transportation. Use pin hole (A) for machine operation.

NOTICE

Never use pinhole (B) for operation. Incorrect boom longstick-bucket combination could cause the bucket to hit the cab.

Use the following procedure to connect the stick cylinder rod to pin hole (B).

1. Fully extend the stick cylinder and the bucket cylinder. Lower the boom to the ground.
2. Remove the linkage pin from pin hole (A).

- Align the pin hole of the stick cylinder rod with pin hole (B). Insert the linkage pin into pin hole (B). Use the linkage pin that was removed in Step 2.

i04764032

Securing the Machine

SMCS Code: 7000

Comply with any laws that govern the characteristics of a load (length, width, height, and weight).

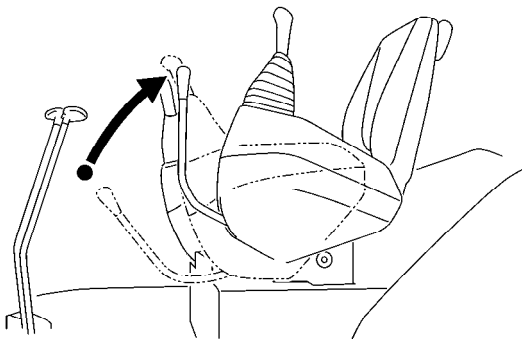


Illustration 234

g00817901

- Move the hydraulic lockout control (lever) to the LOCKED position.
- Turn the engine start switch to the OFF position in order to stop the engine. Remove the engine start switch key.
- Lock the door and the access covers.

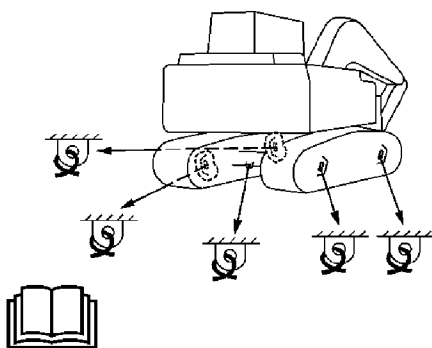


Illustration 235

g02858958

- Chock the tracks and secure the machine with tie-downs. Make sure that you use the proper rated wire cable.

Use the holes on each end of the blade and on the lower frame.

Install tie-downs on the swing boom in order to prevent the boom from shifting.

Securely fasten all loose parts and all removed parts to the trailer or to the rail car.

i04764031

Mirror Installation

SMCS Code: 7319

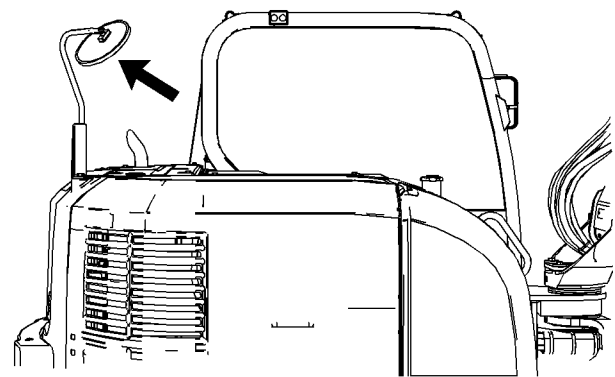


Illustration 236

g02858957

Before you transport the machine, remove the rearview mirror.

After you transport the machine, install the rearview mirror to the proper position.

i04764030

Lifting and Tying Down the Machine

SMCS Code: 7000; 7500

Lifting the machine

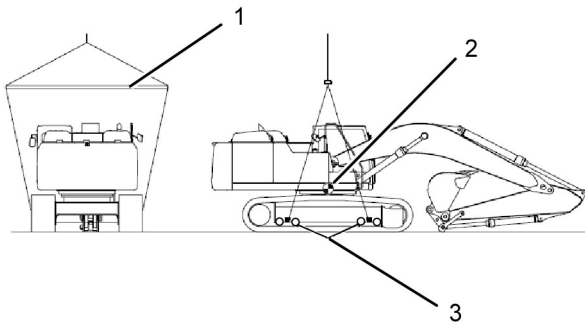


Illustration 237

g02532316

- (1) Slings
- (2) Center of gravity
- (3) Rollers



Proper lifting points are marked on the machine by this decal.

The weight and the instructions that are given herein describe the machine as the machine is manufactured by Caterpillar.

Refer to the Operation and Maintenance, "Specifications" for specific weight information.

1. Use proper rated cables and slings for lifting. The crane should be positioned so that the machine is lifted parallel to the ground.
2. To prevent contact with the machine, lifting cables should have sufficient length.
3. Move the hydraulic lockout control to the LOCKED position.
4. Thread the cable between the first and second rollers at each end of the track.
5. Do not use the foot step as a lifting point.
6. If the full length roller guard is equipped, remove the guard.

Operation Section
Lifting and Tying Down the Machine

7. Apply the proper protector to prevent machine/wire damage and slippage. Make sure that the rollers are not affected by the load.

Tying Down the Machine

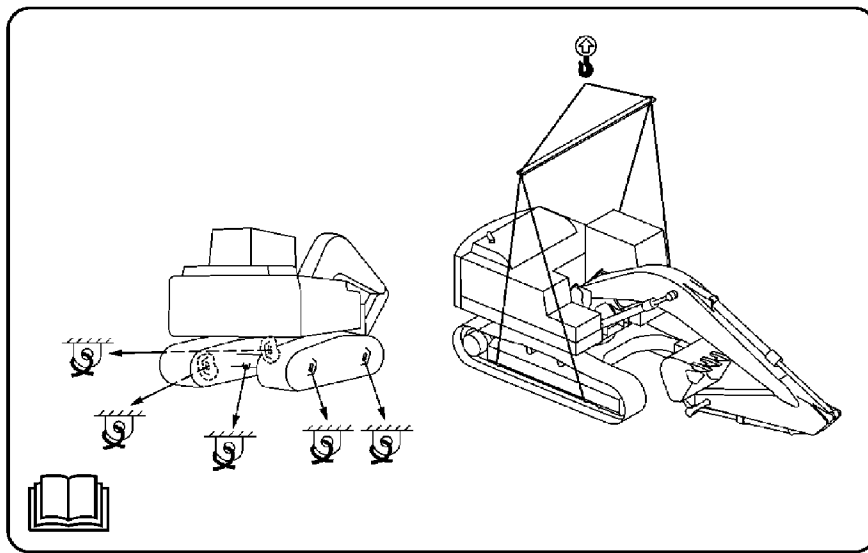


Illustration 238

g02858956

Proper tie-down points are marked on the machine by this decal.

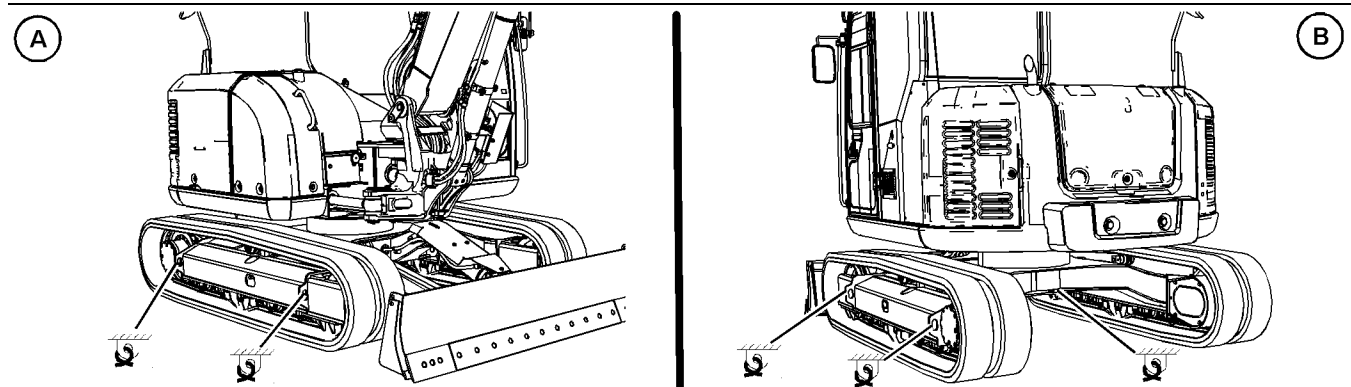


Illustration 239

g02881056

(A) Right side

(B) Left side and rear



Tie Down Point – in order to tie down the machine, attach the tie-downs to the tie down points.

The weight and the instructions that are given herein describe the machine as the machine is manufactured by Caterpillar.

Refer to the Operation and Maintenance, “Specifications” for specific weight information.

1. Use proper rated cables and shackles for tying down the machine.

2. Use the rear eyes and the front eyes that are provided on the lower frame to fasten tie-downs. Use corner protectors for sharp corners.
3. Move the hydraulic lockout control to the LOCKED position.

4. If there is a requirement of diagonal lashing for tying down, use the proper tie-down point on the lower frame. Set the lashing angle which is on the longitudinal axis of the machine and the cable, at 30 to 50 degrees.

Lifting the Machine Segments

Bucket

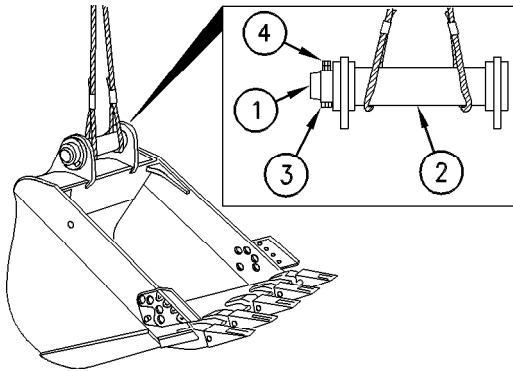


Illustration 240

g00115251

(1) Pin. (2) Sleeve. (3) Bolts. (4) Nuts.

Install pin (1) and install sleeve (2) in the brackets of the bucket. The previous illustration indicates the method to secure pin (1) with bolts (3) and nuts (4). Fasten two proper rated wire cables to pin (1).

Towing Information

i05240220

Towing the Machine

SMCS Code: 7000

WARNING

Personal injury or death could result when towing a disabled machine incorrectly.

Block the machine to prevent movement before final drives are disengaged. The machine can roll free if it is not blocked. With final drives disengaged, the machine cannot be stopped or steered.

Follow the recommendations below, to properly perform the towing procedure.

Relieve the hydraulic tank and line pressure before any disassembly.

Even after the machine has been turned off, the hydraulic oil can still be hot enough to burn. Allow the hydraulic oil to cool before draining.

NOTICE

To tow the machine, both final drives must be disengaged.

Do not operate the travel motors with the final drives disengaged. Damage could result.

These towing instructions are for moving a disabled machine for a short distance at low speed. Move the machine at a speed of 2 km/h (1.2 mph) or less to a convenient location for repair. Always haul the machine if long distance moving is required.

Shields must be provided on both machines. This will protect the operator if the tow line or the tow bar breaks.

Do not allow an operator to be on the machine that is being towed.

Before you tow the machine, make sure that the tow line or the tow bar is in good condition. Do not use a wire rope that is kinked, twisted, or damaged. Make sure that the tow line or the tow bar has enough strength for the towing procedure that is involved. The strength of the tow line or of the tow bar should be at least 150 percent of the gross weight of the towed machine. This requirement is for a disabled machine that is stuck in the mud and for being towed on a grade.

Do not use a chain for pulling a disabled machine. A chain link can break. This may cause personal injury. Use a wire rope with ends that have loops or rings. Put an observer in a safe position in order to watch the pulling procedure. The observer can stop the procedure if the wire rope starts to break. Stop pulling whenever the towing machine moves without moving the towed machine.

During towing, do not allow anyone to step between the towing and the towed machines.

Do not allow the wire rope to be straddled while the machine is being towed.

Keep the tow line angle to a minimum. Do not exceed a 30 degree angle from the straight ahead position.

Avoid towing the machine on a slope.

Quick machine movement could overload the tow line or the tow bar. This could cause the tow line or the tow bar to break. Gradual, steady machine movement will be more effective.

Prior to releasing the brake of the final drive, firmly lock both tracks in order to prevent the machine from moving suddenly. When the machine is ready to be towed, release the brake of the final drive. Refer to Operation and Maintenance Manual, "Final Drive Sun Gear Removal".

Normally, the towing machine should be as large as the disabled machine. Make sure that the towing machine has enough brake capacity, enough weight, and enough power. The towing machine must be able to control both machines for the grade that is involved and for the distance that is involved.

Provide sufficient control and sufficient braking when you are moving a disabled machine downhill. This may require a larger towing machine or additional machines that are connected to the rear of the disabled machine. This will prevent the machine from rolling away out of control.

All situation requirements cannot be listed. Minimal towing machine capacity is required on smooth, level surfaces. Maximum towing machine capacity is required on an incline or on a surface that is in poor condition.

Do not tow a loaded machine.

Consult your Cat dealer for the equipment that is necessary for towing a disabled machine.

Retrieval and Towing of Machine

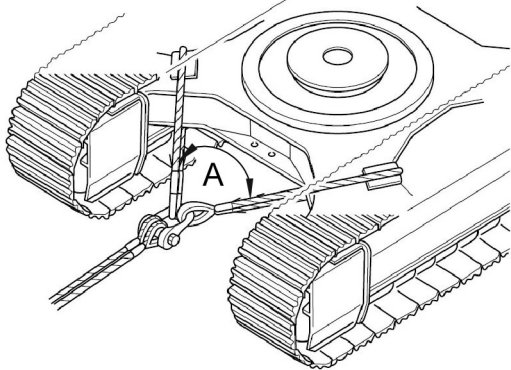


Illustration 241

g02533437

Note: Shackles must be used for towing the machine. The wire rope should be horizontal and straight to the track frame.

Install a properly rated wire rope to the lower frame of the towing machine and the lower frame of the towed machine. The permissible force for the lower frame is 100 percent of the gross weight of the towed machine.

Note: In order to prevent damage to the wire rope or the lower frame of the machines, use protective sleeves on the corners of the lower frame.

Retrieve the disabled machine carefully. The applied load for each wire rope should be equal. The angle (A) between each wire rope should be 60 degree maximum. Operate the machine at a low speed.

Lightweight Towing

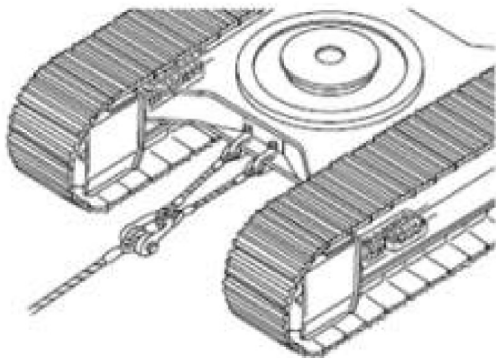


Illustration 242

g03342415

Shackles must be used for towing the machine. The wire rope should be horizontal and straight to the track frame.

Install a properly rated wire rope to the lower frame of the towing machine and the lower frame of the towed machine. Operate the machine at a low speed.

i01410874

Final Drive Sun Gear Removal

SMCS Code: 4050

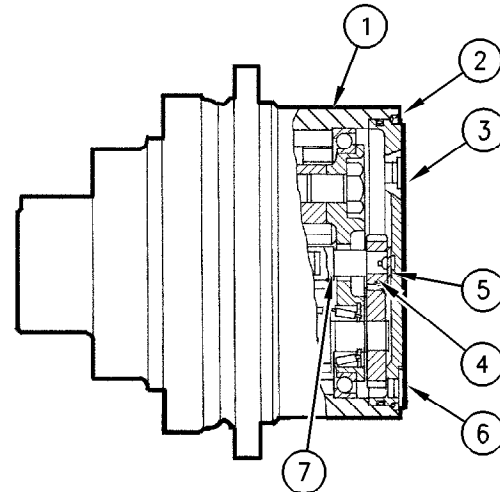


Illustration 243

g00742711

- (1) Hub
- (2) Ring
- (3) Cover
- (4) Sun gear
- (5) Ring
- (6) Plug
- (7) Shaft

1. Thoroughly clean the area around the final drive. Make sure that you also clean the track shoes that are positioned above the final drive.
2. Remove three plugs(6). Drain the final drive oil into a suitable container. See Operation and Maintenance Manual, "Final Drive Oil - Change" for the procedure.
3. Remove ring (2) with a screwdriver.
4. Install three bolts into the holes for plugs (6). The bolts should have pipe threads.
5. Pull cover (3) off hub (1).
6. Remove ring (5).
7. Remove sun gear (4) from shaft (7).
8. Install cover (3) and ring (2) by using all of plugs (6) that were removed previously.

9. Fill the final drive with clean oil. See Operation and Maintenance Manual, "Final Drive Oil - Change" for the procedure.
10. Repeat the procedure for the other final drive.

 **WARNING**

Without the sun gear in place, the brakes are ineffective. Personal injury or death could result. Provide other means to hold or stop the machine.

Engine Starting (Alternate Methods)

i02016499

Engine Starting with Jump Start Cables

SMCS Code: 1000; 7000

WARNING

Failure to properly service the batteries may cause personal injury.

Prevent sparks near the batteries. They could cause vapors to explode. Do not allow the jump start cable ends to contact each other or the machine.

Do not smoke when checking battery electrolyte levels.

Electrolyte is an acid and can cause personal injury if it contacts skin or eyes.

Always wear eye protection when starting a machine with jump start cables.

Improper jump start procedures can cause an explosion resulting in personal injury.

Always connect the battery positive (+) to battery positive (+) and the battery negative (-) to battery negative (-).

Jump start only with an energy source with the same voltage as the stalled machine.

Turn off all lights and accessories on the stalled machine. Otherwise, they will operate when the energy source is connected.

NOTICE

When jump starting the engine with another machine, make sure that the machines do not touch. This could prevent damage to engine bearings and electrical circuits.

Severely discharged maintenance free batteries do not fully recharge from the alternator after jump starting. The batteries must be charged to proper voltage with a battery charger. Many batteries thought to be unusable are still rechargeable.

Use only equal voltage for starting. Check the battery and starter voltage rating of your machine. Use only the same voltage for jump starting. Use of a welder or higher voltage damages the electrical system.

Refer to Special Instruction, SEHS7633, "Battery Test Procedure" available from your Caterpillar dealer, for complete testing and charging information.

1. Lower the equipment to the ground. Move all controls to the HOLD position. Move the hydraulic lockout control (lever) to the LOCKED position.
2. Turn the start switch on the stalled machine to the OFF position. Turn off all accessories.
3. Move the machine that is being used as an electrical source near the stalled machine so that the jump start cables reach the stalled machine.
Do not allow the machines to contact each other.
4. Stop the engine of the machine that is being used as an electrical source. If you are using an auxiliary power source, turn off the charging system.
5. Ensure that battery caps on both machines are tight and correctly placed. Ensure that batteries in the stalled machine are not frozen. Make sure that the batteries have enough electrolyte.

Note: The positive terminal of the 12 volt system of the source and the negative terminal of the 12 volt system of the source must be identified correctly before the jumper cables are connected. The positive terminal of the 12 volt system of the discharged battery must be identified correctly before the jumper cables are connected.

Operation Section
 Engine Starting with Jump Start Cables

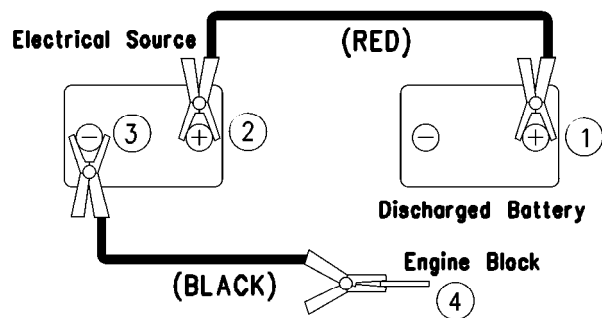


Illustration 244

g00818210

6. The positive ends of the jump start cable are red. Connect one positive end of the jump start cable to positive cable terminal (1) of the discharged battery.
 Do not allow the positive cable clamps to contact any metal except for the battery terminals.
7. Connect the other positive end of the jump start cable to positive cable terminal (2) of the electrical source.
8. Connect one negative end of the jump start cable to negative cable terminal (3) of the electrical source.
9. Finally, connect the other negative end of the jump start cable to engine block (4) of the stalled machine. Do not connect the jump start cable to the battery post. Do not allow the jump start cables to contact the battery cables, the fuel lines, the hydraulic lines, or any moving parts.
10. Start the engine of the machine that is being used as an electrical source or energize the charging system on the auxiliary power source.
11. Wait at least two minutes before you attempt to start the stalled machine. This will allow the batteries in the stalled machine to partially charge.
12. Attempt to start the stalled engine. See Operation and Maintenance Manual, "Engine Starting" for the correct starting procedure.
13. Immediately after you start the stalled engine, disconnect the jump start cables in reverse order.

Maintenance Section

Maintenance Access

i05221044

Access Door and Cover Locations

SMCS Code: 726A-CH

Engine Access Door

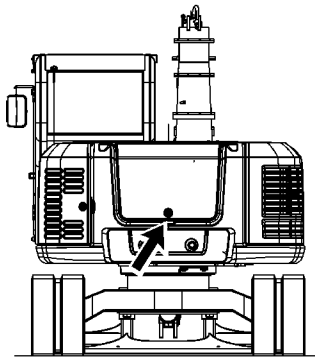


Illustration 245

g02819198

Left Access Door

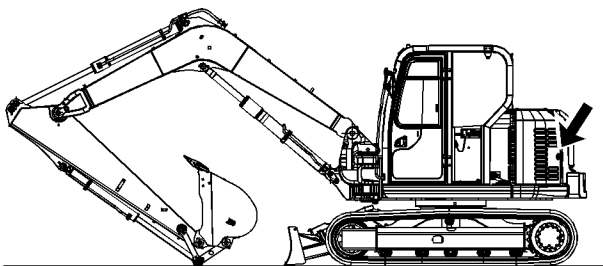


Illustration 246

g02819438

Right Access Door

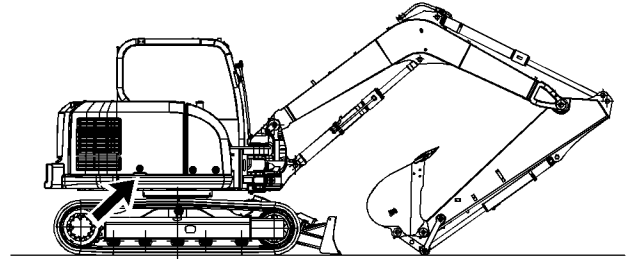


Illustration 247

g02819537

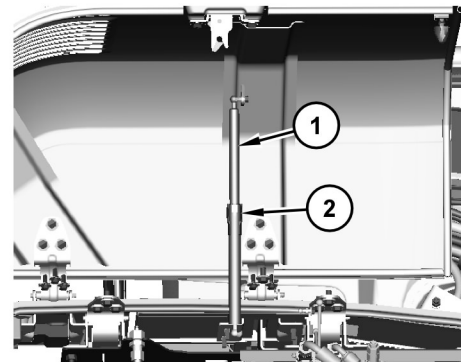


Illustration 248

g03337573

1. Unlatch the right access door and fully open.

Note: When opening right-hand access door make sure gas spring (1) locks into place.

⚠ WARNING

Operation of the Push Button Release for the Access Door

When closing the access door, only operate the push-button release by hand.

Failure to remove hands from the push-button release before closing the access door could result in personal injury.

Be sure to remove hands from the push-button release before completely closing the access door.

2. In order to close the right-hand access door, press push-button release (2) in order to unlock the gas spring.

3. Release the push button and slowly close the right-hand access door.

Front Access Cover

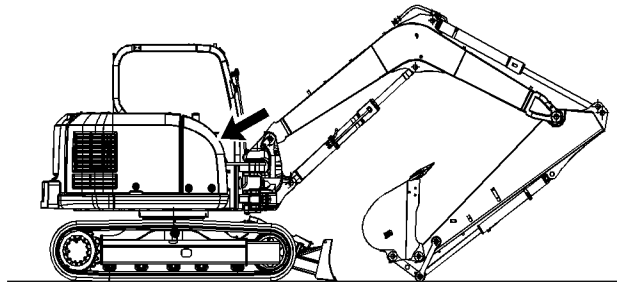


Illustration 249

g02819538

Lubricant Viscosities and Refill Capacities

i05264290

Lubricant Viscosities

SMCS Code: 7581

General Information for Lubricants

When you are operating the machine in temperatures below -20°C (-4°F), refer to Special Publication, SEBU5898, "Cold Weather Recommendations". This publication is available from your Cat dealer.

Refer to the "Lubricant Information" section in the latest revision of the Special Publication, SEBU6250, "Caterpillar Machine Fluids Recommendations" for a list of Cat engine oils and for detailed information. This manual may be found on the Web at Safety.Cat.com.

The footnotes are a key part of the tables. Read ALL footnotes that pertain to the machine compartment in question.

Selecting the Viscosity

In order to select the proper oil for each machine compartment, refer to the "Lubricant Viscosity for Ambient Temperature" table. Use the oil type AND oil viscosity for the specific compartment at the proper ambient temperature.

The proper oil viscosity grade is determined by the minimum ambient temperature (the air in the immediate vicinity of the machine). Measure the temperature when the machine is started and while the machine is operated. In order to determine the proper oil viscosity grade, refer to the "Min" column in the table. This information reflects the coldest ambient temperature condition for starting a cold machine and for operating a cold machine. Refer to the "Max" column in the table for operating the machine at the highest temperature that is anticipated. Unless specified otherwise in the "Lubricant Viscosities for Ambient Temperatures" tables, use the highest oil viscosity that is allowed for the ambient temperature.

Machines that are operated continuously should use oils that have a higher oil viscosity. The oils that have the higher oil viscosity will maintain the highest possible oil film thickness. Refer to "General Information for Lubricants" article, "Lubricant Viscosities" tables, and any associated footnotes. Consult your Cat dealer if additional information is needed.

NOTICE

Not following the recommendations found in this manual can lead to reduced performance and compartment failure.

Engine Oil

Cat oils have been developed and tested in order to provide the full performance and life that has been designed and built into Cat engines.

Cat DEO-ULS or oils that meet the Cat ECF-3 specification and the API CJ-4 are required for use in the applications listed below. Cat DEO-ULS and oils meeting Cat ECF-3 specification and the API CJ-4 and ACEA E9 oil categories have been developed with limited sulfated ash, phosphorus, and sulfur. These chemical limits are designed to maintain the expected aftertreatment devices life, performance, and service interval. If oils meeting the Cat ECF-3 specification and the API CJ-4 specifications are not available, oils meeting ACEA E9 may be used. ACEA E9 oils meet the chemical limits designed to maintain aftertreatment device life. ACEA E9 oils are validated using some but not all ECF-3 and API CJ-4 standard engine performance tests. Consult your oil supplier when considering use of an oil that is not Cat ECF-3 or API CJ-4 qualified.

Failure to meet the listed requirements will damage aftertreatment-equipped engines and can negatively impact the performance of the aftertreatment devices. The Diesel Particulate Filter (DPF) will plug sooner and require more frequent DPF ash service intervals.

Typical aftertreatment systems include the following:

- Diesel Particulate Filters (DPF)
- Diesel Oxidation Catalysts (DOC)

Other systems may apply.

Table 76

Lubricant Viscosities for Ambient Temperatures						
Compartment or System	Oil Type and Performance Requirements	Oil Viscosities	°C		°F	
			Min	Max	Min	Max
Engine Crankcase	Cat DEO-ULS Cold Weather	SAE 0W-40	-40	40	-40	104
	Cat DEO-ULS	SAE 10W-30	-18	40	0	104
		SAE 15W-40	-9.5	50	15	122

Hydraulic Systems

Refer to the “Lubricant Information” section in the latest revision of the Special Publication, SEBU6250, “Caterpillar Machine Fluids Recommendations” for detailed information. This manual may be found on the Web at Safety.Cat.com.

The following are the preferred oils for use in most Cat machine hydraulic systems:

- Cat HYDO Advanced 10 SAE 10W
- Cat HYDO Advanced 30 SAE 30W
- Cat BIO HYDO Advanced

Cat HYDO Advanced fluids have a 50% increase in the standard oil drain interval for machine hydraulic systems (3000 hours versus 2000 hours) over second and third choice oils when you follow the maintenance interval schedule for oil filter changes and for oil sampling that is stated in the Operation and Maintenance Manual for your particular machine. 6000 hour oil drain intervals are possible when using S·O·S Services oil analysis. Consult your Cat dealer for details. When switching to Cat HYDO Advanced fluids, cross contamination with the previous oil should be kept to less than 10%.

Second choice oils are listed below.

- Cat MTO
- Cat DEO
- Cat DEO-ULS
- Cat TDTO
- Cat TDTO Cold Weather
- Cat TDTO-TMS
- Cat DEO-ULS SYN
- Cat DEO SYN
- Cat DEO-ULS Cold Weather

Table 77

Lubricant Viscosities for Ambient Temperatures						
Compartment or System	Oil Type and Performance Requirements	Oil Viscosities	°C		°F	
			Min	Max	Min	Max
Hydraulic System	Cat HYDO Advanced 10 Cat TDTO	SAE 10W	-20	50	-4	122
	Cat HYDO Advanced 30 Cat TDTO	SAE 30	10	50	50	122
	Cat BIO HYDO Advanced	"ISO 46" Multi-Grade	-30	50	-22	122
	Cat MTO Cat DEO-ULS Cat DEO	SAE10W-30	-20	40	-4	104
	Cat DEO-ULS Cat DEO	SAE15W-40	-15	50	5	122
	Cat TDTO-TMS	Multi-Grade	-15	50	5	122
	Cat DEO-ULS SYN Cat DEO SYN	SAE 5W-40	-30	40	-22	104
	Cat DEO-ULS Cold Weather	SAE0W-40	-40	40	-40	104
	Cat TDTO Cold Weather	SAE 0W-20	-40	40	-40	104

Other Fluid Applications

Table 78

Lubricant Viscosities for Ambient Temperatures						
Compartment or System	Oil Type and Performance Requirements	Oil Viscosity Grade	°C		°F	
			Min	Max	Min	Max
Final Drives	Cat TDTO Cat TDTO-TMS Cat TDTO SYN Cold Weather commercial TO-4	SAE 0W-20	-40	0	-40	32
		SAE 0W-30	-40	10	-40	50
		SAE 5W-30	-30	10	-22	50
		SAE 10W	-30	0	-22	32
		SAE 30	-25	25	-13	77
		SAE 50	-15	50	5	122
		Cat TDTO-TMS	-30	25	-22	77
Track Roller Frame Recoil Spring and Pivot Shaft Bearings	Cat TDTO Cat TDTO-TMS Cat TDTO SYN Cold Weather commercial TO-4	SAE 0W-20	-40	0	-40	32
		SAE 0W-30	-40	10	-40	50
		SAE 5W-30	-35	0	-31	32
		SAE 10W	-30	0	-22	32
		SAE 30	-20	25	-4	77
		SAE 40	-10	40	14	104
		SAE 50	0	50	32	122
Cat TDTO-TMS	-25	25	-13	77		

(continued)

Maintenance Section
Lubricant Viscosities

(Table 78, contd)

Lubricant Viscosities for Ambient Temperatures						
Compartment or System	Oil Type and Performance Requirements	Oil Viscosity Grade	°C		°F	
			Min	Max	Min	Max
Track Idlers and Track Rollers	Cat DEO (single grade)	SAE 30	-20	25	-4	77
	Cat DEO SYN Cat DEO-ULS SYN Cat ECF-1-a Cat ECF-2 Cat ECF-3 API CF	SAE 5W-40	-35	40	-31	104

Special Lubricants

Grease

In order to use a non-Cat grease, the supplier must certify that the lubricant is compatible with Cat grease.

Each pin joint should be flushed with the new grease. Ensure that all old grease is removed. Failure to meet this requirement may lead to failure of a pin joint.

Table 79

Recommended Grease						
Compartment or System	Grease Type	NLGI Grade	°C		°F	
			Min	Max	Min	Max
External Lubrication Points	Cat Advanced 3Moly	NLGI Grade 2	-20	40	-4	104
	Cat Ultra 5Moly	NLGI Grade 2	-30	50	-22	122
		NLGI Grade 1	-35	40	-31	104
		NLGI Grade 0	-40	35	-40	95
	Cat Arctic Platinum	NLGI Grade 0	-50	20	-58	68
	Cat Desert Gold	NLGI Grade 2	-20	60	-4	140
	Cat Multipurpose Grease	NLGI Grade 2	-30	40	-22	104

Reference: Refer to Special Publication, SEBU6250, “Caterpillar Machine Fluids Recommendations” for additional information about grease. This manual may be found on the Web at Safety.Cat.com.

Diesel Fuel Recommendations

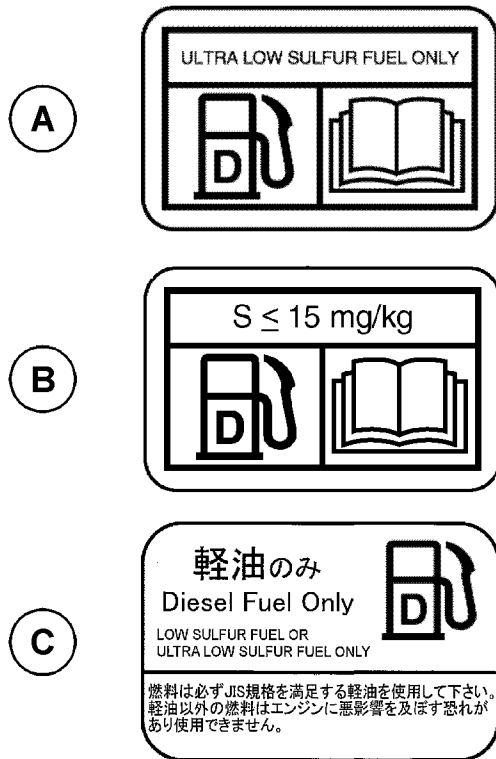


Illustration 250

g03353395

- (A) NACD film
(B) EAME film
(C) Japan film

Diesel fuel must meet “Caterpillar Specification for Distillate Fuel” and the latest versions of “ASTM D975” or “EN 590” in order to ensure optimum engine performance. Refer to Special Publication, SEBU6250, “Caterpillar Machine Fluids Recommendations” for the latest fuel information and for Cat fuel specification. This manual may be found on the Web at Safety.Cat.com.

NOTICE

Ultra Low Sulfur Diesel (ULSD) fuel 0.0015 percent (≤ 15 ppm (mg/kg)) sulfur is required by regulation for use in engines certified to nonroad Tier 4 standards (U.S. EPA Tier 4 certified) and that are equipped with exhaust aftertreatment systems.

European ULSD 0.0010 percent (≤ 10 ppm (mg/kg)) sulfur fuel is required by regulation for use in engines certified to European nonroad Stage IIIB and newer standards and are equipped with exhaust aftertreatment systems.

Misfueling with fuels of higher sulfur level can have the following negative effects:

- Shorten the time interval between aftertreatment device service intervals (cause the need for more frequent service intervals)
- Adversely impact the performance and life of aftertreatment devices (cause loss of performance)
- Reduce regeneration intervals of aftertreatment devices
- Reduce engine efficiency and durability.
- Increase the wear.
- Increase the corrosion.
- Increase the deposits.
- Lower fuel economy
- Shorten the time period between oil drain intervals (more frequent oil drain intervals).
- Increase overall operating costs.

Failures that result from the use of improper fuels are not Caterpillar factory defects. Therefore the cost of repairs would not be covered by a Caterpillar warranty.

Caterpillar does not require the use of ULSD in off road and machine applications that are not Tier 4/ Stage IIIB certified engines. ULSD is not required in engines that are not equipped with after treatment devices. For Tier 4/Stage IIIB/Stage IV certified engines always follow operating instructions. Fuel tank inlet labels are installed in order to ensure that the correct fuels are used.

Refer to Special Publication, SEBU6250, “Caterpillar Machine Fluids Recommendations” for more details about fuels, lubricants, and Tier 4 requirements. This manual may be found on the Web at Safety.Cat.com.

Fuel Additives

Cat Diesel Fuel Conditioner and Cat Fuel System Cleaner are available for use when needed. These products are applicable to diesel and biodiesel fuels. Consult your Cat dealer for availability.

Biodiesel

Biodiesel is a fuel that can be made from various renewable resources that include vegetable oils, animal fat, and waste cooking oil. Soybean oil and rapeseed oil are the primary vegetable oil sources. In order to use any of these oils or fats as fuel, the oils or fats are chemically processed (esterified). The water and contaminants are removed.

U.S. distillate diesel fuel specification “ASTM D975-09a” includes up to B5 (5 percent) biodiesel. Currently, any diesel fuel in the U.S. may contain up to B5 biodiesel fuel.

European distillate diesel fuel specification “EN 590” includes up to B5 (5 percent) and in some regions up to B7 (7 percent) biodiesel. Any diesel fuel in Europe may contain up to B5 or in some regions up to B7 biodiesel fuel.

Note: The diesel portion used in the biodiesel blend must be Ultra Low Sulfur Diesel (15 ppm sulfur or less, per “ASTM D975”). In Europe the diesel fuel portion used in the biodiesel blend must be sulfur free diesel (10 ppm sulfur or less, per “EN 590”). The final blend must have 15 ppm sulfur or less.

Note: Up to B7 biodiesel blend level is acceptable for use in SSL and CTL engines.

When biodiesel fuel is used, certain guidelines must be followed. Biodiesel fuel can influence the engine oil, aftertreatment devices, non-metallic, fuel system components, and others. Biodiesel fuel has limited storage life and has limited oxidation stability. Follow the guidelines and requirements for engines that are seasonally operated and for standby power generation engines.

In order to reduce the risks associated with the use of biodiesel, the final biodiesel blend and the biodiesel fuel used must meet specific blending requirements.

All the guidelines and requirements are provided in the latest revision of Special Publication, SEBU6250, “Caterpillar Machine Fluids Recommendations”. This manual may be found on the Web at Safety.Cat.com.

Coolant Information

The information provided in this “Coolant Recommendation” section should be used with the “Lubricants Information” provided in the latest revision of Special Publication, SEBU6250, “Caterpillar Machine Fluids Recommendations”. This manual may be found on the Web at Safety.Cat.com.

The following two types of coolants may be used in Cat diesel engines:

Preferred – Cat ELC (Extended Life Coolant)

Acceptable – Cat DEAC (Diesel Engine Antifreeze/Coolant)

NOTICE

Never use water alone as a coolant. Water alone is corrosive at engine operating temperatures. In addition, water alone does not provide adequate protection against boiling or freezing.

i05956666

Capacities (Refill)**SMCS Code:** 1000; 7000

Table 80

Approximate Refill Capacities				
Component or System		Liters	US gal	Recommended Type
Fuel Tank		125	33	Refer to Operation and Maintenance Manual, "Lubricant Viscosities".
Cooling System		14	3.7	
Coolant Reservoir		1	0.26	
Engine Crankcase with Filter		11	3.0	
Hydraulic System ⁽¹⁾		51	13.5	
Each Final Drive		1	0.26	
		kilograms	pounds	
Swing Gear		3.9	8.6	Refer to Operation and Maintenance Manual, "Lubricant Viscosities".
Refrigerant ⁽²⁾	S/N: FJX	1.3	2.87	R-134a
	S/N: TMX	0.7	1.5	
		milliliters	ounces	
Refrigerant Oil ⁽²⁾		200	6.8	Polyalkylene Glycol (PAG) Oil

(1) The amount of hydraulic fluid that is needed to refill the hydraulic system after performing Operation and Maintenance Manual, "Hydraulic System Oil - Change"

(2) Refer to Service Manual, "Air Conditioning and Heating R-134a for All Caterpillar Machines" for additional information

i07445339

S·O·S Information**SMCS Code:** 1000; 1348; 3080; 4050; 5050; 7000; 7542-008

S·O·S Services is a highly recommended process for Cat customers to use in order to minimize owning and operating cost. Customers provide oil samples, coolant samples, and other machine information. The dealer uses the data in order to provide the customer with recommendations for management of the equipment. In addition, S·O·S Services can help determine the cause of an existing product problem.

Refer to Special Publication, SEBU6250, "Caterpillar Machine Fluid Recommendations" for detailed information concerning S·O·S Services.

The effectiveness of S·O·S Services is dependent on timely submission of the sample to the laboratory at recommended intervals.

Refer to the Operation and Maintenance Manual, "Maintenance Interval Schedule" for a specific sampling location and a service hour maintenance interval.

Consult your Cat dealer for complete information and assistance in establishing an S·O·S program for your equipment.

Maintenance Support

i09847075

Prepare the Machine for Maintenance

SMCS Code: 1000; 7000

Refer to the following procedure before you perform any maintenance to the machine.

WARNING

Personal injury can result from hydraulic oil pressure and hot oil.

Hydraulic oil pressure can remain in the hydraulic system after the engine has been stopped. Serious injury can be caused if this pressure is not released before any service is done on the hydraulic system.

Make sure all of the attachments have been lowered, oil is cool before removing any components or lines. Remove the oil filler cap only when the engine is stopped, and the filler cap is cool enough to touch with your bare hand.

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting, and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, PERJ1017, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat® products.

Dispose of all fluids according to local regulations and mandates.

Note: Permit only one operator on the machine. Keep all other personnel away from the machine or in view of the operator.

1. Park the machine on a dry, level, solid surface that is free of any debris.

Note: The surface must be solid enough to support the weight of the machine and any tooling that is used to support the machine.

2. Engage the parking brake. Place wheel blocks in front and behind the wheels or tracks.
3. Lower all work tools to the ground.
4. Stop the engine.

5. Release the pressure in the hydraulic system. Refer to Operation and Maintenance Manual, "System Pressure Release" for more information.

Perform a visual inspection first. If the visual checks are completed but the problem has not been identified, perform operational checks. If the problem has not been identified, perform instrument tests. This procedure will help to identify system problems.

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Service Interval Chart

SMCS Code: 7000

The service interval chart is located inside the operator station.

Refer to this Operation and Maintenance Manual, "Maintenance Interval Schedule" for the correct maintenance intervals and procedures that are specific to your machine.

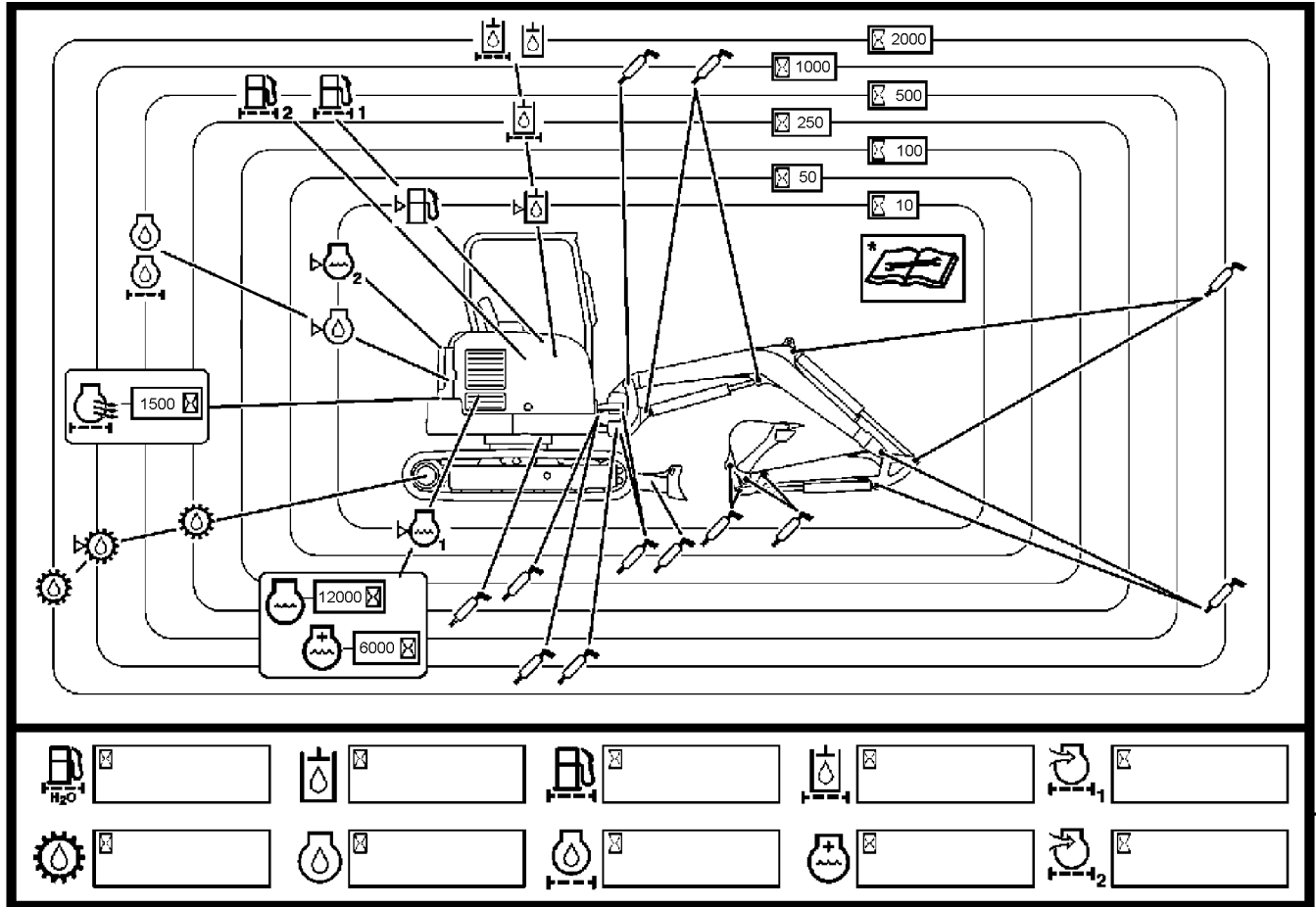
















Illustration 251

g03350030

-  **Service hour interval** – Hourly interval in which a maintenance procedure should be performed.
-  **Coolant additive** – Add cooling system coolant extender (ELC).
-  **Coolant level** – Check the coolant level.
-  **Cooling system coolant** – Change the ELC (Extended Life Coolant) .
-  **Engine air filter primary element** – Clean or replace the primary air filter element.
-  **Engine air filter secondary element** – Replace the secondary air filter element.
-  **Engine breather element** – Replace the engine breather element.

-  **Engine oil level** – Check the engine oil level.
-  **Engine oil** – Change the engine oil.
-  **Engine oil filter** – Change the engine oil filter.
-  **Final drive oil level** – Check the final drive oil level.
-  **Final drive oil** – Change the final drive oil.
-  **Fuel level** – Check the fuel level.
-  **Fuel system filter** – Replace the fuel system filters.



Grease zerk – Lubricate the designated locations.



Hydraulic oil level – Check the hydraulic oil level.



Hydraulic oil – Change the hydraulic oil.



Hydraulic oil filter – Change the hydraulic oil filter.

i08694322

System Pressure Release

SMCS Code: 1250-553-PX; 1300-553-PX; 1350-553-PX; 5050-553-PX; 6700-553-PX; 7540-553-PX

WARNING

Personal injury or death can result from sudden machine movement.

Sudden movement of the machine can cause injury to persons on or near the machine.

To prevent injury or death, make sure that the area around the machine is clear of personnel and obstructions before operating the machine.

Coolant System

WARNING

Pressurized system: Hot coolant can cause serious burn. To open cap, stop engine, wait until radiator is cool. Then loosen cap slowly to relieve the pressure.

To relieve the pressure from the coolant system, turn off the machine. Allow the cooling system pressure cap to cool. Remove the cooling system pressure cap slowly in order to relieve pressure.

Hydraulic System

The release of hydraulic pressure in a hydraulic circuit is required before service is performed to that hydraulic circuit. Release the pressure in the following hydraulic circuits before any hydraulic lines are disconnected or removed from that hydraulic circuit.

- Boom hydraulic circuit
- Stick hydraulic circuit
- Bucket hydraulic circuit

- Swing hydraulic circuit
- Travel hydraulic circuit
- Attachment hydraulic circuits (if equipped)
- Pilot hydraulic circuit
- Return hydraulic circuit

Note: Refer to the Disassembly and Assembly Manual for additional information concerning service of the components of specific hydraulic circuits.

Release Of Hydraulic Pressure From A Single Hydraulic Circuit

WARNING

Personal injury can result from hydraulic oil pressure and hot oil.

Hydraulic oil pressure can remain in the hydraulic system after the engine has been stopped. Serious injury can be caused if this pressure is not released before any service is done on the hydraulic system.

Make sure all of the work tools have been lowered to the ground, and the oil is cool before removing any components or lines. Remove the oil filler cap only when the engine is stopped, and the filler cap is cool enough to touch with your bare hand.

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting, and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, PERJ1017, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat® products.

Dispose of all fluids according to local regulations and mandates.

Perform the following Steps in order to release the hydraulic pressure from a single hydraulic circuit of the main hydraulic system.

1. Position the machine on level ground.

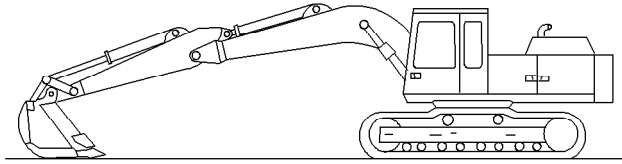


Illustration 252

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2. Fully retract the stick cylinder rod. Adjust the position of the bucket so that the bucket is parallel to the ground. Lower the boom until the bucket is flat on the ground. Refer to Illustration 252 .
 3. Shut off the engine.
 4. Turn the engine start switch to the ON position without starting the engine.
 5. Place the hydraulic activation control lever in the UNLOCKED position.
 6. Move only the joysticks or the pedals of the hydraulic circuit that requires service to the FULL STROKE positions. This will release the high pressure only in that single hydraulic circuit. This will also release any pressure that might be present in the pilot hydraulic circuit.
- Note:** If the desired hydraulic circuit that requires service requires the activation of a switch for operation, activate the necessary switches for the operation of the hydraulic circuit.
7. Place the hydraulic activation control lever in the LOCKED position.
 8. Turn the engine start switch to the OFF position.
 9. Slowly loosen the filler plug on the hydraulic tank and release the pressure from the hydraulic tank. Leave the filler plug loose for a minimum of 45 seconds. This will release the pressure that may be present in the return hydraulic circuit.
 10. Tighten the filler plug on the hydraulic tank to the specified torque.
 11. The pressure in the single hydraulic circuit that requires service is now released and lines and components can be disconnected or removed from that hydraulic circuit.

Release Of Hydraulic Pressure From Multiple Hydraulic Circuits

WARNING

Personal injury can result from hydraulic oil pressure and hot oil.

Hydraulic oil pressure can remain in the hydraulic system after the engine has been stopped. Serious injury can be caused if this pressure is not released before any service is done on the hydraulic system.

Make sure all of the work tools have been lowered to the ground, and the oil is cool before removing any components or lines. Remove the oil filler cap only when the engine is stopped, and the filler cap is cool enough to touch with your bare hand.

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting, and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, PERJ1017, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat® products.

Dispose of all fluids according to local regulations and mandates.

Perform the following Steps in order to release the hydraulic pressure from multiple hydraulic circuits of the main hydraulic system.

1. Position the machine on level ground.

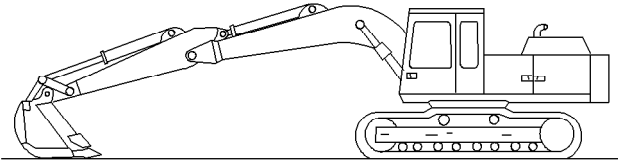


Illustration 253

g00666865

2. Fully retract the stick cylinder rod. Adjust the position of the bucket so that the bucket is parallel to the ground. Lower the boom until the bucket is flat on the ground. Refer to Illustration 253 .
 3. Shut off the engine.
 4. Turn the engine start switch to the ON position without starting the engine.
 5. Place the hydraulic activation control lever in the UNLOCKED position.
 6. Move only the joysticks or the pedals of the hydraulic circuit that requires service to the FULL STROKE positions. This will release the high pressure only in that hydraulic circuit. This will also release any pressure that might be present in the pilot hydraulic circuit.
- Note:** If the hydraulic circuit that requires service requires the activation of a switch for operation, activate the necessary switches for the operation of the hydraulic circuit.
7. Place the hydraulic activation control lever in the LOCKED position.
 8. Start the engine.
 9. Place the hydraulic activation control lever in the UNLOCKED position. **Do not move any joysticks or pedals from the NEUTRAL position during this step. Do not activate any switches during this Step.**
 10. Return the hydraulic activation control lever to the LOCKED position.
 11. Shut off the engine.
 12. Repeat Steps 4 through 11 for each additional hydraulic circuit that requires service.

13. After releasing the hydraulic pressure in each of the desired hydraulic circuits, place the hydraulic activation control lever in the LOCKED position.
14. Turn the engine start switch to the OFF position.
15. Slowly loosen the filler plug on the hydraulic tank and release the pressure. Leave the filler plug loose for a minimum of 45 seconds. This will release the pressure that may be present in the return hydraulic circuit.
16. Tighten the filler plug on the hydraulic tank to the specified torque.
17. The pressure in the multiple hydraulic circuits that require service is now released and lines and components can be disconnected or removed from those hydraulic circuits.

i07746333

Welding on Machines and Engines with Electronic Controls

SMCS Code: 1000; 7000

Do not weld on any protective structure. If it is necessary to repair a protective structure, contact your Cat dealer.

Proper welding procedures are necessary to avoid damage to the electronic controls and to the bearings. When possible, remove the component that must be welded from the machine or the engine and then weld the component. If you must weld near an electronic control on the machine or the engine, temporarily remove the electronic control to prevent heat related damage. The following steps should be followed to weld on a machine or an engine with electronic controls.

1. Turn off the engine. Place the engine start switch in the OFF position.
2. If equipped, turn the battery disconnect switch to the OFF position. If there is no battery disconnect switch, remove the negative battery cable at the battery.

NOTICE

Do NOT use electrical components (ECM or sensors) or electronic component grounding points for grounding the welder.

- 3.** Clamp the ground cable from the welder to the component that will be welded. Place the clamp as close as possible to the weld. Make sure that the electrical path from the ground cable to the component does not go through any bearing. Use this procedure to reduce the possibility of damage to the following components:

 - Bearings of the drive train
 - Hydraulic components
 - Electrical components
 - Other components of the machine
- 4.** Protect any wiring harnesses and components from the debris and the spatter which is created from welding.
- 5.** Use standard welding procedures to weld the materials together.

i09847217

Maintenance Interval Schedule

SMCS Code: 7000

Ensure that all safety information, warnings, and instructions are read and understood before any operation or any maintenance procedures are performed.

The user is responsible for the performance of maintenance. All adjustments, the use of proper lubricants, fluids, filters, and the replacement of components due to normal wear and aging are included. Failure to adhere to proper maintenance intervals and procedures may result in diminished performance of the product and/or accelerated wear of components.

Use mileage, fuel consumption, service hours, or calendar time, WHICH EVER OCCURS FIRST, to determine the maintenance intervals. Products that operate in severe operating conditions may require more frequent maintenance. Refer to the maintenance procedure for any other exceptions that may change the maintenance intervals.

Note: Before each consecutive interval is performed, all maintenance from the previous interval must be performed.

The following guidelines should be followed if the service hours are not met:

Items listed between 10 and 100 service hours should be performed at least every 3 months.

Items listed between 250 and 500 service hours should be performed at least every 6 months.

Items listed between 1000 service hours and 2500 service hours should be performed at least every year.

When Required

“ Battery - Recycle“	239
“ Battery or Battery Cable - Inspect/Replace“	240
“ Blade Cutting Edges - Inspect/Replace“	242
“ Bucket Tips - Inspect/Replace“	247
“ Cab Air Filter (Fresh Air) - Clean/Replace“	250
“ Engine Air Filter Element - Clean/Replace“	255
“ Engine Air Filter Secondary Element - Replace“	259
“ Fuel System - Prime“	267
“ Fuel Tank Cap and Strainer - Clean“	269
“ Fuses - Replace“	271

“ Fuses - Replace“	270
“ Hydraulic Tank Screen - Clean“	278
“ Oil Filter - Inspect“	282
“ Quick Coupler - Clean/Inspect“	283
“ Radiator Core - Clean“	284
“ Track Adjustment - Adjust“	291
“ Track Adjustment - Adjust“	290
“ Window Washer Reservoir - Fill“	294
“ Window Wiper - Inspect/Replace“	295
“ Windows - Clean“	295

Every 10 Service Hours or Daily for First 100 Hours

“ Blade Linkage - Lubricate“	242
“ Boom and Stick Linkage - Lubricate“	243

Every 10 Service Hours or Daily

“ Air Cleaner Dust Valve - Clean/Inspect“	239
“ Air Conditioner/Cab Heater Filter (Recirculation) - Inspect/Replace“	239
“ Bucket Linkage - Lubricate“	247
“ Cooling System Coolant Level - Check“	253
“ Engine Air Filter Service Indicator - Inspect“	259
“ Engine Oil Level - Check“	260
“ Fuel System Water Separator - Drain“	268
“ Fuel Tank Water and Sediment - Drain“	269
“ Hydraulic System Oil Level - Check“	277
“ Indicators and Gauges - Test“	280
“ Seat Belt - Inspect“	285
“ Thumb - Lubricate“	289
“ Track Adjustment - Inspect“	293
“ Travel Alarm - Test“	293

“ Undercarriage - Check“ 294

Every 10 Service Hours or Daily for Machines Used in Severe Applications

“ Blade Linkage - Lubricate“ 242

Every 50 Service Hours

“ Blade Linkage - Lubricate“ 242

“ Quick Coupler - Lubricate“ 284

“ Quick Coupler - Lubricate“ 283

“ Swing Frame Pin - Lubricate“ 287

Every 100 Service Hours

“ Swing Gear - Lubricate“ 287

Every 100 Service Hours or 2 Weeks for Machines Used in Severe Applications

“ Boom and Stick Linkage - Lubricate“ 243

Initial 250 Service Hours

“ Final Drive Oil - Change“ 264

“ Hydraulic System Oil Filter (Return) - Replace“ 276

Every 250 Service Hours

“ Belts - Inspect/Adjust“ 240

“ Condenser (Refrigerant) - Clean“ 250

“ Cooling System Coolant Sample - Obtain“ 254

“ Engine Oil Sample - Obtain“ 262

“ Final Drive Oil Sample - Obtain“ 266

“ Quick Coupler - Check“ 282

“ Swing Bearing - Lubricate“ 286

Initial 500 Hours (for New Systems, Refilled Systems, and Converted Systems)

“ Cooling System Coolant Sample - Obtain“ 254

Every 500 Service Hours

“ Boom, Stick, and Frame - Inspect“ 245

“ Engine Air Filter Element - Clean/Replace“ 255

“ Engine Oil and Filter - Change“ 262

“ Fuel Lift Pump Strainer - Replace“ 266

“ Fuel System Primary Filter (Water Separator) Element - Replace“ 267

“ Hydraulic System Oil Sample - Obtain“ 278

“ Lifting Hook - Inspect“ 280

Every 600 Service Hours of Continuous Hammer Use

“ Hydraulic System Oil - Change“ 273

“ Hydraulic System Oil Filter (Return) - Replace“ 276

Every 1000 Service Hours

“ Battery - Clean“ 239

“ Battery Hold-Down - Tighten“ 240

“ Belts - Replace“ 241

“ Boom and Stick Linkage - Lubricate“ 243

“ Boom and Stick Linkage - Lubricate“ 244

“ Boom Swing Cylinder Pins - Lubricate“ 243

“ Engine Valve Lash - Check“ 264

“ Final Drive Oil Level - Check“ 265

“ Rollover Protective Structure (ROPS) - Inspect“ 285

Every 1000 Service Hours of Partial Hammer Use (50% of Service Hours)

“ Hydraulic System Oil - Change“ 273

“ Hydraulic System Oil Filter (Return) -
Replace” 276

Every 1500 Service Hours

“ Engine Crankcase Breather - Replace” 260

Every 2000 Service Hours

“ Engine Air Filter Secondary Element -
Replace” 259

“ Final Drive Oil - Change” 264

“ Hydraulic System Oil - Change” 273

“ Hydraulic System Oil Filter (Return) -
Replace” 276

“ Receiver Dryer (Refrigerant) - Replace” 285

“ Swing Gear and Bearing - Inspect” 288

Every Year

“ Cooling System Coolant Sample - Obtain” 254

Every 3000 Service Hours

“ Diesel Particulate Filter - Clean” 255

Every 3 Years After Date of Installation or Every 5 Years After Date of Manufacture

“ Seat Belt - Replace” 286

Every 6000 Service Hours or 3 Years

“ Cooling System Coolant Extender (ELC) -
Add” 252

Every 12 000 Service Hours or 6 Years

“ Cooling System Coolant (ELC) - Change” 250

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Air Cleaner Dust Valve - Clean/Inspect

SMCS Code: 1051-571-VL

1. Open the left side access door.

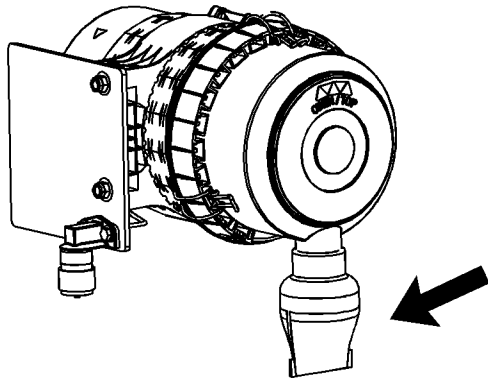


Illustration 254

g03350217

2. Check the dust valve after every 10 service hours or at the end of each day. Actuate the valve by squeezing the lips of the valve in order to remove any accumulated debris. Collect the debris into a suitable container.
3. Close the left side access door.

i04723738

Air Conditioner/Cab Heater Filter (Recirculation) - Inspect/Replace

SMCS Code: 1054-510-A/C; 1054-040-A/C

NOTICE

An air recirculation filter element plugged with dust will result in decreased performance and service life to the air conditioner or cab heater.

To prevent decreased performance, clean the filter element, as required.

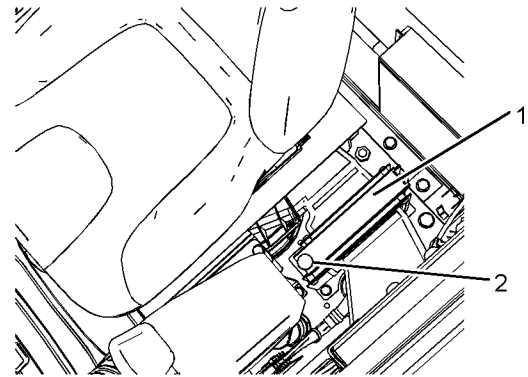


Illustration 255

g02825316

The recirculation filter is on the left side of the operator seat.

1. To remove the filter element, remove cover bolt (2) and cover (1).
2. To remove the filter, pull the filter up towards the operator seat.
3. Refer to Operation and Maintenance Manual, "General Hazard Information" before using pressure air to clean the air filter element.
4. Clean the filter element with a maximum of 200 kPa (30 psi) pressure air.
5. After you clean the filter element, inspect the filter element. If the filter element is damaged or badly contaminated, use a new filter element. Make sure that the filter element is dry.

i00934864

Battery - Clean

SMCS Code: 1401-070

Clean the battery surface with a clean cloth. Keep the terminals clean and keep the terminals coated with petroleum jelly. Install the post cover after you coat the terminal post with petroleum jelly.

i08316356

Battery - Recycle

SMCS Code: 1401-561

Always recycle a battery. Never discard a battery.

Always return used batteries to one of the following locations:

- A battery supplier
- An authorized battery collection facility

- Recycling facility

i07476193

i00934872

Battery Hold-Down - Tighten

SMCS Code: 7257

Tighten the hold-downs for the battery in order to prevent the batteries from moving during machine operation.

i01999587

Battery or Battery Cable - Inspect/Replace

SMCS Code: 1401; 1401-040; 1401-561; 1401-510; 1402-510; 1402-040

WARNING

Personal injury can result from battery fumes or explosion.

Batteries give off flammable fumes that can explode. Electrolyte is an acid and can cause personal injury if it contacts the skin or eyes.

Prevent sparks near the batteries. Sparks could cause vapors to explode. Do not allow jumper cable ends to contact each other or the engine. Improper jumper cable connections can cause an explosion.

Always wear protective glasses when working with batteries.

1. Turn the engine start switch key to the OFF position. Turn all of the switches to the OFF position. Remove the key.
2. Disconnect the negative battery cable at the battery.
3. Disconnect the positive battery cable at the battery.
4. Disconnect the battery cables from the machine if new cables are needed.
5. Make necessary repairs or replace the battery.
6. Connect the battery cables to the machine if the battery cables were removed.
7. Connect the positive battery cable of the battery.
8. Connect the negative battery cable of the battery.
9. Install the key into the engine start switch.

Belts - Inspect/Adjust

SMCS Code: 1357-040; 1357-025; 1397-040; 1397-025

If a new belt is installed, check the belt adjustment after 30 minutes of operation. A belt is considered used after 30 minutes of operation.

Belts

1. Stop the engine to inspect the belt.
2. Open the engine access door. Refer to Operation and Maintenance Manual, "Access Doors and Covers".

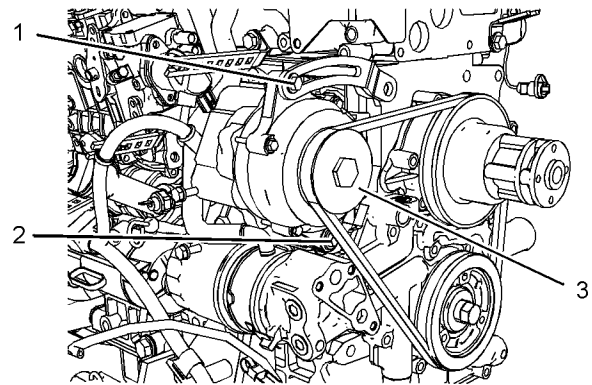


Illustration 256

g02869658

- (1) Adjusting bolt
- (2) Adjusting bolt
- (3) Alternator

3. Inspect the condition of the belt and the adjustment of the belt. The belt should deflect 10 mm (0.39 inch) to 12 mm (0.47 inch) when applying approximately 98 N (22 lb) of pressure. This measurement should be taken between the alternator pulley and the crankshaft pulley.
4. If the deflection is not correct, loosen alternator mounting bolt (1) and (2). Move alternator (3) to adjust the belt tension.
5. When the adjustment is correct, tighten bolt (1) to a torque of $25.5 \pm 1.5 \text{ N}\cdot\text{m}$ ($18.8 \pm 1.1 \text{ lb}\cdot\text{ft}$). Tighten bolt (2) to a torque of $52.5 \pm 3 \text{ N}\cdot\text{m}$ ($38.7 \pm 2.2 \text{ lb}\cdot\text{ft}$).

6. Recheck the belt deflection.

Air Conditioner (if equipped)

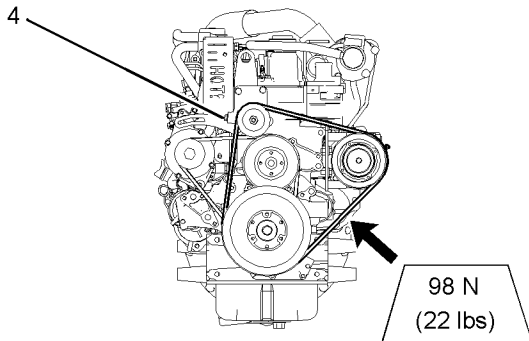


Illustration 257

g03484137

(4) Adjusting bolt

1. Apply approximately 98 N (22 lb) of force midway between the crankshaft pulley and the compressor pulley.
2. Measure the deflection of the belt. The belt should deflect 7 to 10 mm (1/4 to 3/8 inch).
3. If the deflection is not correct, turn adjusting bolt (4) to adjust the belt tension.
4. When the adjustment is correct, tighten adjustment bolt (4) to a torque of $15 \pm 3 \text{ N}\cdot\text{m}$ ($11 \pm 2.2 \text{ lb ft}$).
5. Check the deflection again.
6. Close the engine hood.

i07477629

Belts - Replace

SMCS Code: 1357-510; 1397-510

1. Stop the engine to replace belt.
2. Open the engine access door. Refer to Operation and Maintenance Manual, Access Doors and Covers.

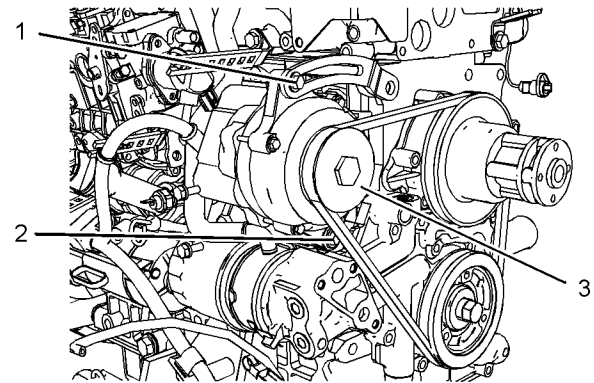


Illustration 258

g02869658

(1) Adjusting bolt
(2) Adjusting bolt
(3) Alternator

3. Loosen adjusting bolts (1) and (2), decrease tension in belt.
4. Remove belt.
5. Install new belt. Be sure that the belt is fully seated on the pulleys.
6. Apply approximately 98 N (22 lb) of force midway between the crankshaft pulley and the compressor pulley.
7. Measure the deflection of the belt. The belt should deflect 10 to 12 mm (25/64 to 15/32 inch).
8. If the deflection is not correct, move alternator (3) to adjust the belt tension.
9. When the deflection is correct, tighten bolt (1) to a torque of $25.5 \pm 1.5 \text{ N}\cdot\text{m}$ ($18.8 \pm 1.1 \text{ lb ft}$). Tighten bolt (2) to a torque of $52.5 \pm 3 \text{ N}\cdot\text{m}$ ($38.7 \pm 2.2 \text{ lb ft}$).

Air Conditioner (if equipped)

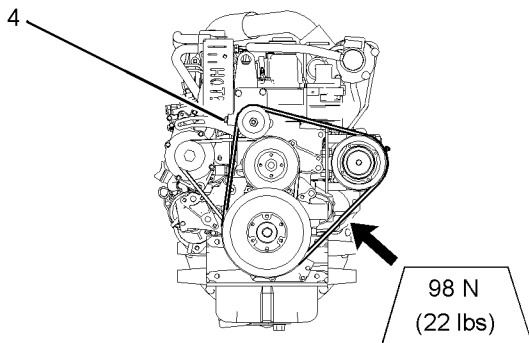


Illustration 259

g03484137

(4) Adjusting bolt

1. Loosen adjusting bolt (4), decrease tension in belt.
2. Remove belt.
3. Install new belt. Be sure that the belt is fully seated on the pulleys.
4. Apply approximately 98 N (22 lb) of force midway between the crankshaft pulley and the compressor pulley.
5. Measure the deflection of the belt. The belt should deflect 7 to 10 mm (1/4 to 3/8 inch).
6. If the deflection is not correct, turn adjusting bolt (4) to adjust the belt tension.
7. When the deflection is correct, tighten adjustment bolt (4) to a torque of $15 \pm 3 \text{ N}\cdot\text{m}$ ($11 \pm 2.2 \text{ lb ft}$).
8. Close the engine hood.

i01914958

Blade Cutting Edges - Inspect/Replace

SMCS Code: 6801

WARNING

Personal injury or death can result from a falling blade.

Block the blade before changing the cutting edges and the end bits.

Check the cutting edge of the blade and the end bits of the blade for wear. If any of the parts have signs of unusual wear or damage, replace the part.

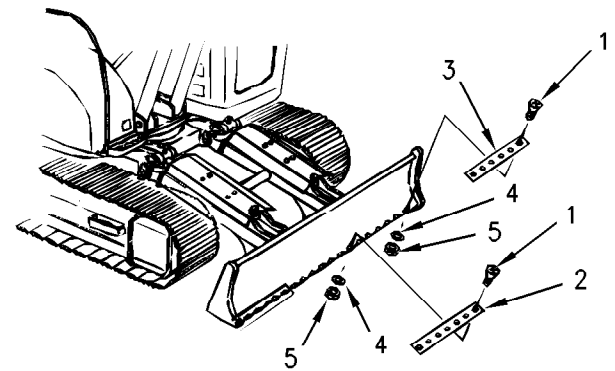


Illustration 260

g00997509

1. Raise the blade and place blocking underneath the blade.
2. Lower the blade onto the blocking.
3. Remove bolts (1), washers (4) and nuts(5).
4. Remove cutting edge (2) and end bits (3).
5. Clean the surface between the cutting edge and the end bits.
6. Turn the cutting edge and/or the end bits upside-down if those edges are not worn.
7. If both sides of the cutting edge and the end bits are worn, replace the parts with new parts.
8. Install the new parts or the rotated parts with bolts (1). Tighten the bolts to a torque of $270 \pm 40 \text{ N}\cdot\text{m}$ ($200 \pm 30 \text{ lb ft}$).
9. Raise the blade and remove the blocking.
10. Lower the blade to the ground.
11. After a few hours of operation, tighten bolts (1) to the torque that is specified in Step 8.

i02055581

Blade Linkage - Lubricate

SMCS Code: 6060-086

Note: Caterpillar recommends the use of 5% molybdenum grease for lubricating the blade linkage. Refer to Special Publication, SEBU6250, "Caterpillar Machine Fluids Recommendations" for more information on molybdenum grease.

Wipe all fittings before you apply lubricant.

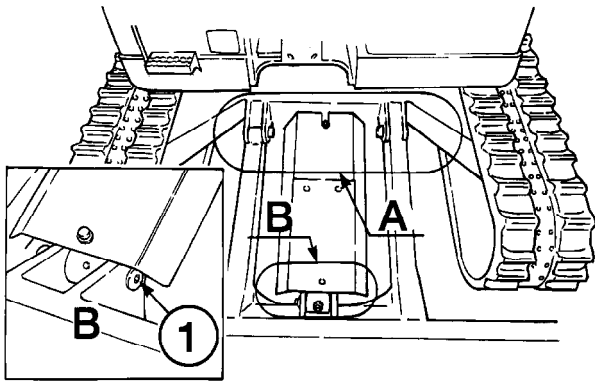


Illustration 261

g00413980

1. Apply lubricant through fitting (1). This fitting is located on the head end of the blade cylinder.
2. Apply lubricant through fitting (2). This fitting is located on the rod end of the blade cylinder.

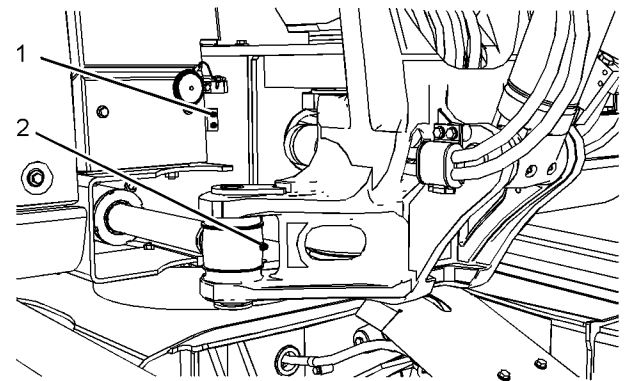


Illustration 263

g02847999

3. Apply lubricant to grease fitting (1) for the head end of the boom swing cylinder.
4. Apply lubricant to grease fitting (2) for the rod end of the boom swing cylinder.

i04760753

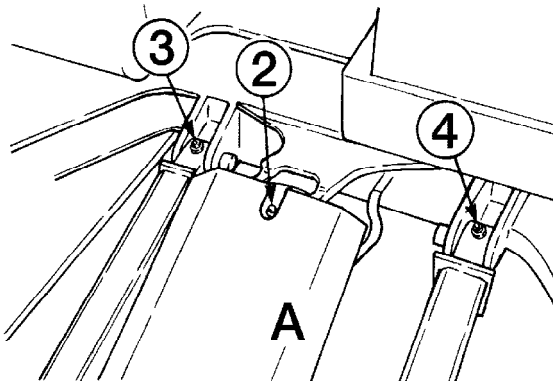


Illustration 262

g00413982

3. Apply lubricant through fitting (3) and through fitting (4). These fittings are located on the bar that supports the blade.

i04751473

Boom Swing Cylinder Pins - Lubricate

SMCS Code: 5105-086

1. Lower all work tools to the ground.
2. Wipe all grease fittings before you lubricate the grease fittings.

Boom and Stick Linkage - Lubricate

SMCS Code: 6501-086; 6502-086

Note: Cat recommends the use of 5% molybdenum grease for lubricating the boom, stick, and bucket control linkage. Refer to Special Publication, SEBU6250, "Caterpillar Machine Fluids Recommendations" for more information on molybdenum grease.

Apply lubricant through all fittings after operation under water.

Wipe all fittings before you apply lubricant.

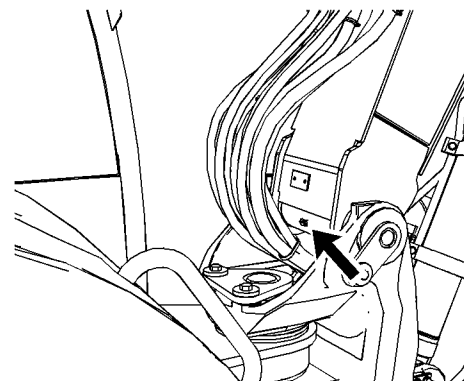


Illustration 264

g02854658

1. Apply lubricant through the fitting at the base of the boom.

Maintenance Section
 Boom and Stick Linkage - Lubricate

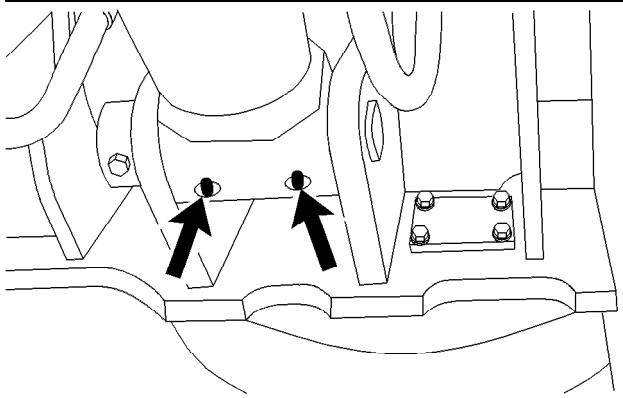


Illustration 265

g00411721

2. Apply lubricant through the fittings at the base of the boom cylinder.

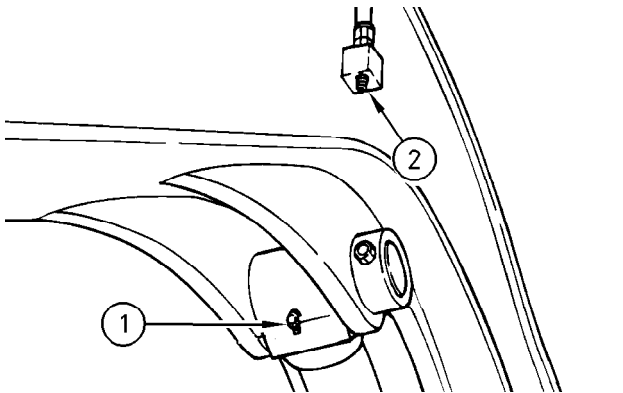


Illustration 266

g00746217

3. Apply lubricant through fitting (1). This fitting is located on the rod end of the boom cylinder.
4. Apply lubricant through fitting (2). This fitting is located on the head end of the stick cylinder.

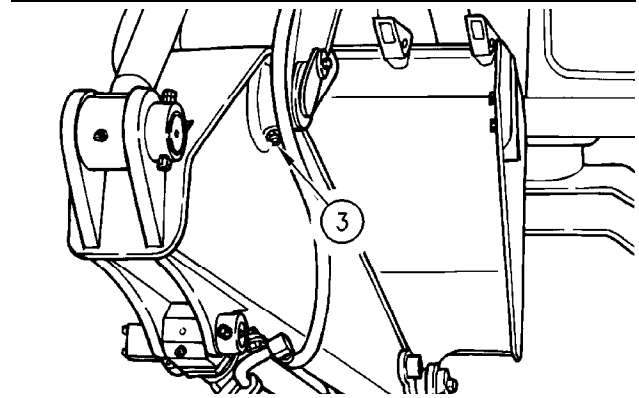


Illustration 267

g00746218

5. Apply lubricant through fitting (3). This fitting is located at the junction of the boom and the stick.

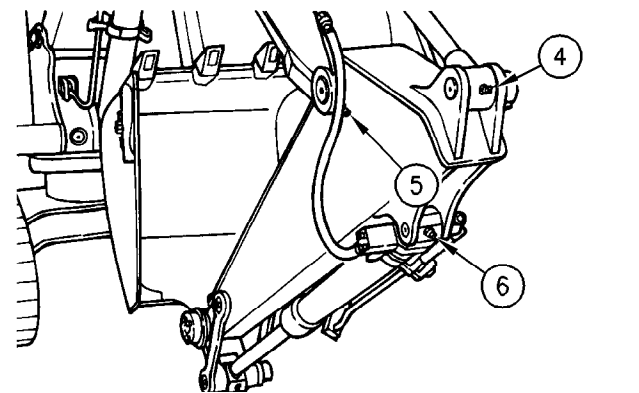


Illustration 268

g00746219

6. Apply lubricant through fitting (4). This fitting is located on the rod end of the stick cylinder.
7. Apply lubricant through fitting (5). This fitting is located at the junction of the boom and the stick.
8. Apply lubricant through fitting (6). This fitting is located on the head end of the bucket cylinder.

i06781479

Boom and Stick Linkage - Lubricate

(VA Boom (If Equipped))

SMCS Code: 6501-086; 6502-086

Wipe all fittings before you apply lubricant.

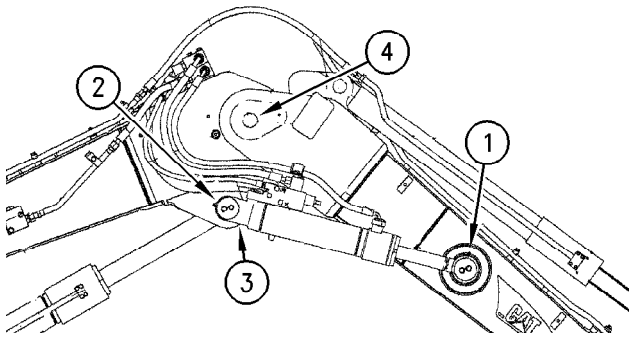


Illustration 269

g00754710

1. Apply lubricant through fitting (1) and fitting (2). These fittings are located on the VA Boom cylinder.
2. Apply lubricant through fitting (3). This fitting is located on the boom cylinder.
3. Apply lubricant through fitting (4). This fitting is located at the junction of the stub boom and the fore boom.

i04742142

Boom, Stick, and Frame - Inspect

SMCS Code: 6501; 6502; 6506

All earthmoving equipment is prone to a high degree of wear. Regular inspections for structural damage are necessary.

The interval between these inspections depends on the factors that follow.

- The age of the machine
- The severity of the application
- The loads that have been carried on the machine
- The amount of routine servicing that has been carried out

If the machine has been involved in any accident, the machine must be inspected thoroughly. Inspect the machine regardless of the date of the last inspection.

The machine must be clean before the machine is inspected.

Proper repair of frames and structures requires specific knowledge of the following subjects.

- Materials that have been used to manufacture the frame members

- Frame member construction
- Repair techniques that are recommended by the manufacturer.

Consult your Cat dealer if repairs are necessary. Your Cat dealer is qualified to carry out repairs on your behalf.

All repairs should be carried out by a Cat dealer. If you carry out your own repairs, contact your Cat dealer for advice about proper repair techniques.

Particular attention should be given to all welded structures. The following items should be thoroughly inspected for cracks and for defects:

- Boom
- Stick
- Blade (if equipped)
- Lifting points
- Upper frame
- Lower frame

NOTICE

The areas highlighted are of particular importance but other areas must not be neglected. The entire structure must be carefully examined.

Boom

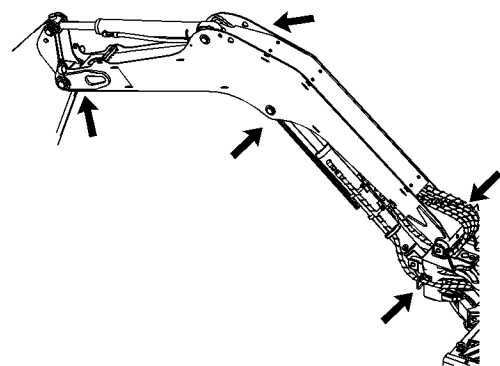


Illustration 270

g01425291

Typical example

Check all welded joints and check the mounting points for the cylinder.

Stick

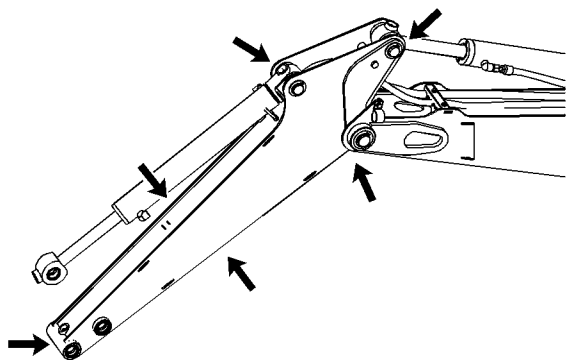


Illustration 271 g01425293
 Typical example

Check all welded joints and check the mounting points for the cylinder.

Blade

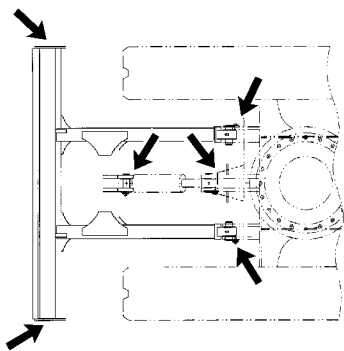


Illustration 272 g01425286
 Typical example

If equipped with a blade, check the welded joints and check the mounting points for the cylinder.

Lifting Points

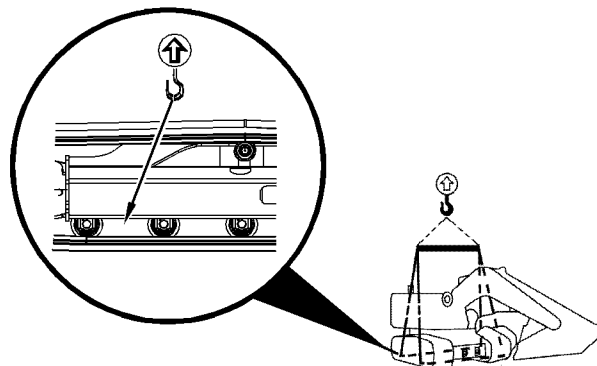


Illustration 273 g02839940
 Typical example

Check the approved lifting points carefully. Check the welds. Check that the plates are not excessively bent. Check that the lifting holes are not deformed.

Upper Frame

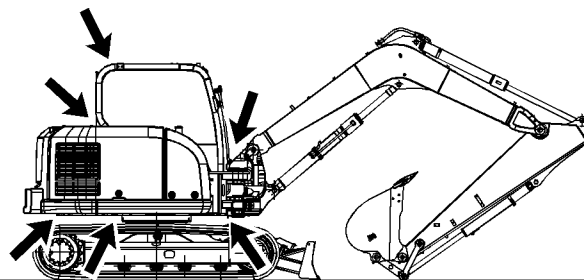


Illustration 274 g02839956
 Typical example

Check for damaged panels. Specifically look for any damage to the cab that might invalidate the certification. The cab is a safety device that must be maintained in good condition. Check for loose hardware or missing hardware.

Lower Frame

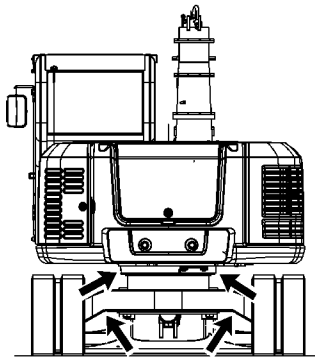


Illustration 275

g02839959

Typical example

Check the weld joints in the lower structure. Check for loose hardware or missing hardware. Check the ring of bolts that secure the swing gear.

i01942324

Bucket Linkage - Lubricate

SMCS Code: 6513-086

Note: Caterpillar recommends the use of 5% molybdenum grease for lubricating the bucket linkage. Refer to Special Publication, SEBU6250, "Caterpillar Machine Fluids Recommendations" for more information on grease.

Wipe all fittings before you apply lubricant.

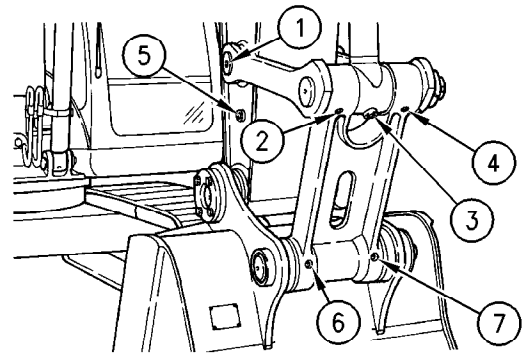


Illustration 276

g00682908

Note: Completely fill all cavities of the bucket control linkage with grease when you initially install a bucket.

1. Apply lubricant through fittings for the linkages (1), (2), (3), and (4).
2. Apply lubricant through fittings for the bucket (5), (6), and (7).

Note: Service the above fittings after you operate the bucket under water.

i02420572

Bucket Tips - Inspect/Replace

SMCS Code: 6805-040; 6805-510

WARNING

Personal injury or death can result from bucket falling.

Block the bucket before changing bucket tips or side cutters.

Bucket Tips

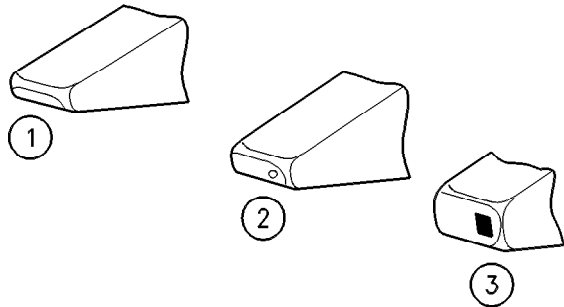


Illustration 277

g00101352

- (1) Usable
 (2) Replace this bucket tip.
 (3) Overworn

Check the bucket tips for wear. If the bucket tip has a hole, replace the bucket tip.

1. Remove the pin from the bucket tip. The pin can be removed by one of the following methods.
 - Use a hammer and a punch from the retainer side of the bucket to drive out the pin.
 - Use a Pin-Master. Follow Step 1a through Step 1c for the procedure.

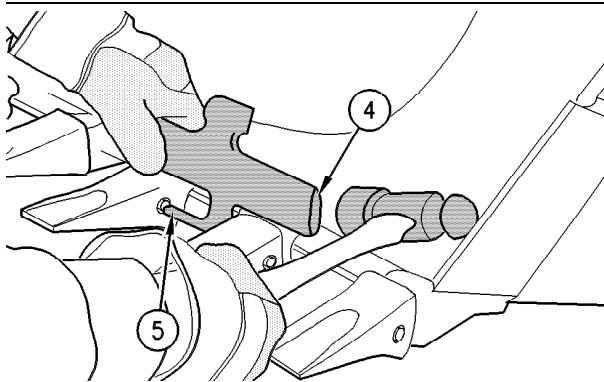


Illustration 278

g00590670

- (4) Back of Pin-Master
 (5) Extractor

- a. Place the Pin-Master on the bucket tip.
- b. Align extractor (5) with the pin.
- c. Strike the Pin-Master at the back of the tool (4) and remove the pin.

Note: Discard the old pin and the retainer assembly. When you change tips, use a new pin and a new retainer assembly. Refer to the appropriate parts manual for your machine.

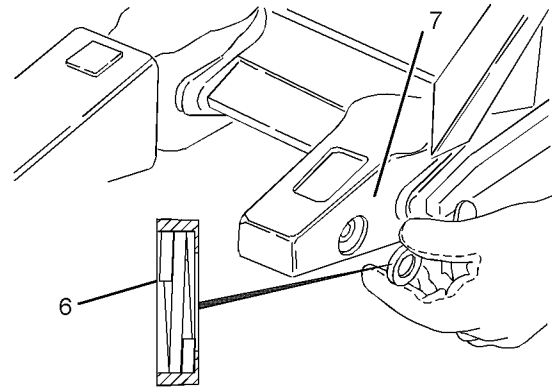


Illustration 279

g01194448

- (6) Retainer assembly
 (7) Adapter

2. Clean the adapter and the pin.
3. Fit retainer assembly (6) into the counterbore that is in the side of adapter (7). Make sure that the face of the retainer assembly with the marking "OUTSIDE" is visible.

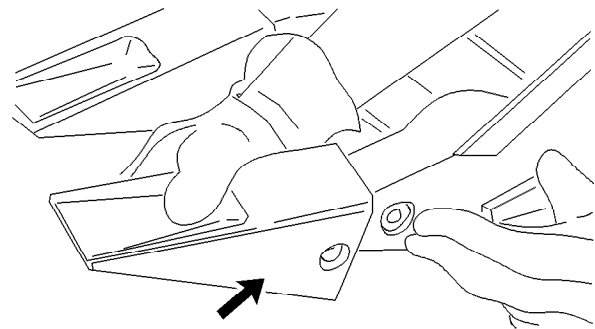


Illustration 280

g00101359

4. Install the new bucket tip onto the adapter.

Note: The bucket tips can be rotated by 180 degrees in order to allow the tip to wear evenly. You may also move the tips from the outside teeth to the inside teeth. Check the tips often. If wear is present on the tips, rotate the tips. The outside teeth generate the most wear.

5. Drive the pin through the bucket tip. The pin can be installed by using one of the following methods:

- From the same side of the retainer, drive the pin through the bucket tip, the retainer assembly, and the adapter.
- Use a Pin-Master. Follow Step 5a through Step 5e for the procedure.

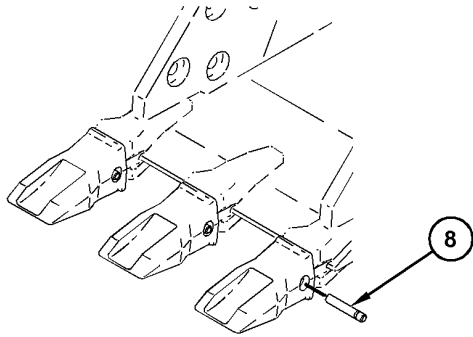


Illustration 281

g01209166

(8) Pin

- Insert pin (8) through the bucket tip.

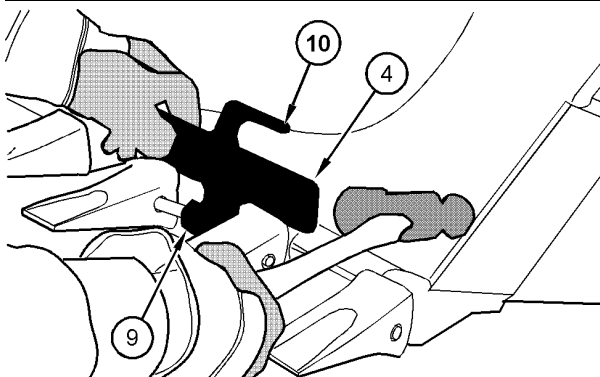


Illustration 282

g01209140

(4) Back of Pin-Master
(9) Pin holder
(10) Pin setter

- Place the Pin-Master over the bucket tips so that the pin will fit into the counterbore of the pin holder (9).
- Strike the Pin-Master with a hammer at the back of the tool (4) in order to insert the pin.
- Slide pin holder (9) away from the pin and rotate the tool slightly in order to align pin setter (10) with the pin.

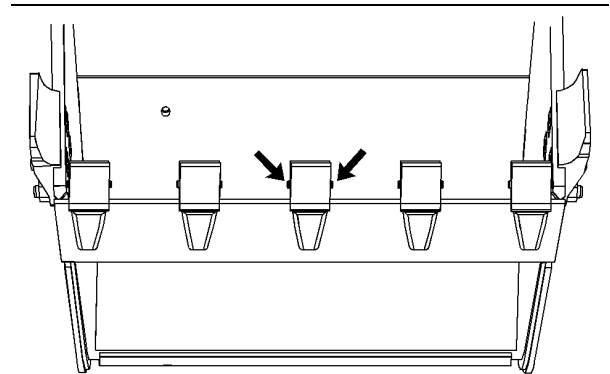


Illustration 283

g01209159

Final assembly of pin into bucket tip.

- Strike the end of the tool until the pin is fully inserted.

Side Cutters

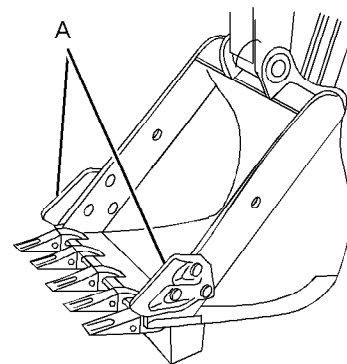


Illustration 284

g01092808

Bucket With Side Cutters

(A) Side cutters

- Remove the mounting bolts and the side cutters.
- Clean the mounting surface of the side plate on the bucket and of the side cutter. Remove any burrs or protrusions on the mating surfaces.

Note: Some side cutters may be rotated for additional wear.

- Install the side cutter.

Note: Certain bolts may require thread compound.

- Hand tighten the bolts.

5. Torque the mounting bolts to the correct specification.

i05508817

Cab Air Filter (Fresh Air) - Clean/Replace

SMCS Code: 7342-070; 7342-510

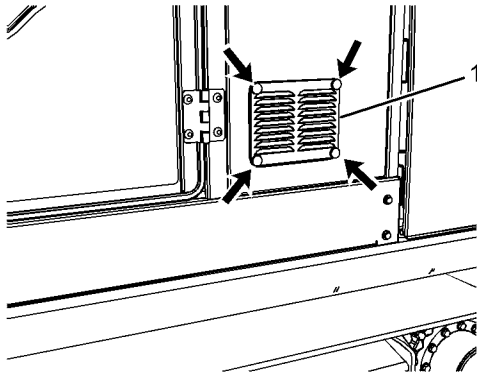


Illustration 285

g03485493

The cab air filter is located on the left side of the cab.

1. Loosen the four knobs in order to remove the air filter panel.
2. Remove air filter panel (1).
3. Clean the air filter with a maximum of 200 kPa (30 psi) pressure air.
4. After you clean the air filter, inspect the air filter. If the air filter is damaged or badly contaminated, use a new air filter.
5. Install the air filter panel and tighten the knobs.

i05262379

Condenser (Refrigerant) - Clean

SMCS Code: 1805-070

NOTICE

If excessively dirty, clean condenser with a brush. To prevent damage or bending of the fins, do not use a stiff brush.

Repair the fins if found defective.

1. Open the access door on the right side of the machine.

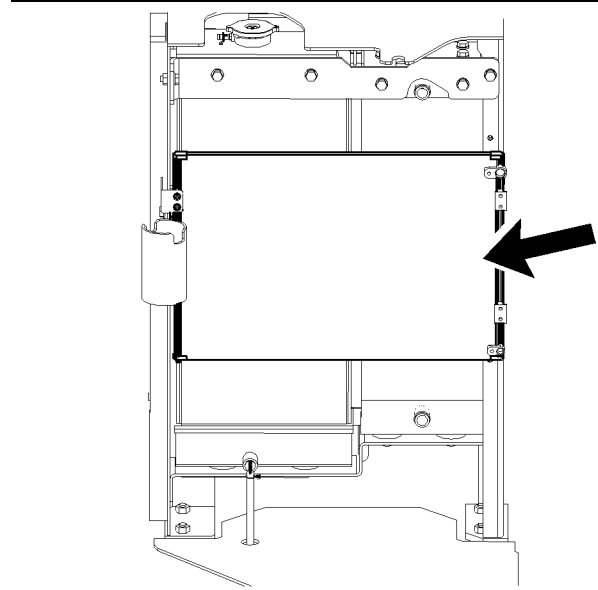


Illustration 286

g03350225

2. Inspect the condenser for debris. Clean the condenser, if necessary.
3. Use clean water to wash off all dust and dirt from the condenser.
4. Close the access door.

i09847005

Cooling System Coolant (ELC) - Change

SMCS Code: 1350-044

NOTICE

Do not change the coolant until you read and understand the cooling system information in Special Publication, SEBU6250, "Caterpillar Machine Fluids Recommendations".

Failure to do so could result in damage to the cooling system components.

NOTICE

Mixing ELC with other products will reduce the effectiveness of the coolant.

This could result in damage to cooling system components.

If Caterpillar products are not available and commercial products must be used, make sure they have passed the Caterpillar EC-1 specification for pre-mixed or concentrate coolants and Caterpillar Extender.

Note: This machine was filled at the factory with Caterpillar Extended Life Coolant.

If the coolant in the machine is changed to Extended Life Coolant from another type of coolant, see Special Publication, SEBU6250, "Caterpillar Machine Fluids Recommendations".

1. Prepare the machine for maintenance. Refer to Operation and Maintenance Manual, "Prepare the Machine for Maintenance" for more information.
2. Open the right side access door.

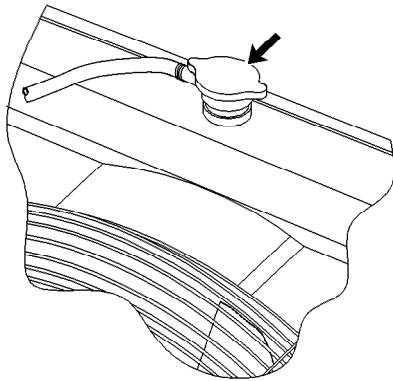


Illustration 287

g00544510

3. Slowly loosen the pressure cap that is on the radiator in order to release pressure from the cooling system.
4. Remove the pressure cap.

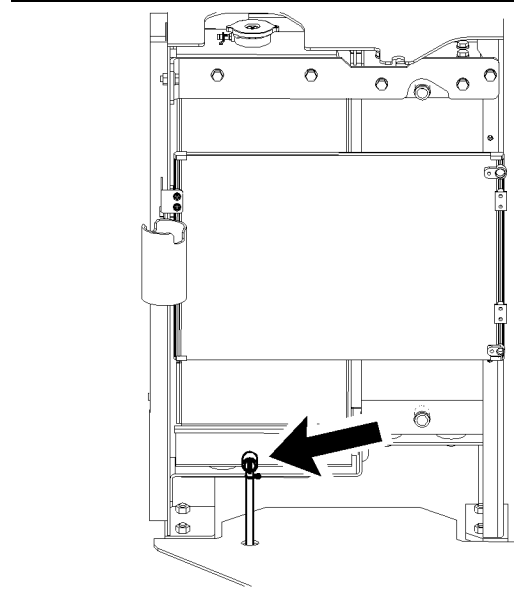


Illustration 288

g03350251

Note: Refer to Operation and Maintenance Manual, "General Hazard Information" for information that pertains to containing fluid spillage.

5. Open the drain valve and allow the coolant to drain into a suitable container. The drain valve is located on the bottom of the radiator.
6. Flush the cooling system. Follow Step 6a through Step 6h in order to properly flush the cooling system.
 - a. Close the drain valve.
 - b. Fill the cooling system with clean water.
 - c. Install the pressure cap.
 - d. Start the engine and run the engine until the engine reaches operating temperature.
 - e. Stop the engine and allow the engine to cool.
 - f. Loosen the pressure cap slowly in order to relieve any pressure in the cooling system.
 - g. Open the drain valve that is underneath the radiator and allow the coolant to drain into a suitable container.
 - h. Flush the radiator with clean water until the draining water is transparent.
7. Close the drain valve.
8. Add the Extended Life Coolant. Refer to the following topics:
 - Special Publication, SEBU6250, "Caterpillar Machine Fluids Recommendations"

Maintenance Section
Cooling System Coolant Extender (ELC) - Add

- Operation and Maintenance Manual, "Capacities (Refill)"

i04744931

- Start the engine. Operate the engine without the cooling system pressure cap until the water temperature regulator opens and the coolant level stabilizes.
- If equipped, turn on cab heat to the MAXIMUM position to open the heater valve and to allow the heater core and lines to fill. Run engine at low idle for 10 minutes.
- Maintain the coolant level within 13 mm (.5 inches) of the bottom of the filler pipe.
- Inspect the gasket of the cooling system pressure cap. If the gasket is damaged, replace the pressure cap.
- Install the cooling system pressure cap.
- Stop the engine.
- Open the engine access door.

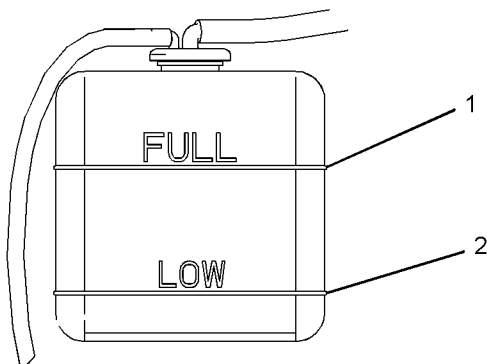


Illustration 289

g02841877

- "FULL"
- "LOW"

- Check the coolant reservoir. Maintain the coolant level between "FULL" mark (1) and "LOW" mark (2).
- If additional coolant is necessary, remove the reservoir cap and add the appropriate coolant solution.
- Install the reservoir cap.
- Close the engine access cover. Close the right side access door.

Cooling System Coolant Extender (ELC) - Add

SMCS Code: 1352; 1353; 1395

WARNING

Personal injury can result from hot coolant, steam and alkali.

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

Remove cooling system pressure cap slowly to relieve pressure only when engine is stopped and cooling system pressure cap is cool enough to touch with your bare hand.

Do not attempt to tighten hose connections when the coolant is hot, the hose can come off causing burns.

Cooling System Coolant Additive contains alkali. Avoid contact with skin and eyes.

Use Caterpillar Extended Life Coolant (ELC) when you add coolant to the cooling system. See Special Publication, SEBU6250, "Caterpillar Machine Fluids Recommendations" for all cooling system requirements.

Use a Coolant Conditioner Test Kit in order to check the concentration of the coolant.

NOTICE

Mixing ELC with other products will reduce the effectiveness of the coolant.

This could result in damage to cooling system components.

If Caterpillar products are not available and commercial products must be used, make sure they have passed the Caterpillar EC-1 specification for pre-mixed or concentrate coolants and Caterpillar Extender.

Note: This machine was filled at the factory with Caterpillar Extended Life Coolant.

- Park the machine on level ground.
- Stop the engine.
- Open the engine access door.

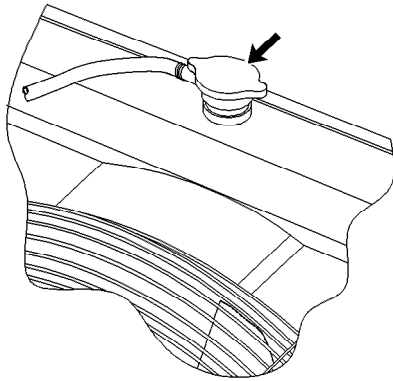


Illustration 290

g00544510

4. Make sure that the cooling system has cooled down. Loosen the cooling system pressure cap slowly in order to relieve system pressure. Remove the pressure cap.

Note: Refer to Operation and Maintenance Manual, "General Hazard Information" for information on containing fluid spillage.

5. It may be necessary to drain some coolant from the radiator so that Caterpillar Extender can be added to the cooling system.

Note: Always discard drained fluids according to local regulations.

6. Add Caterpillar Extended Life Coolant (ELC) to the cooling system. Refer to the following topics for the proper amount of Caterpillar Extender:

- Special Publication, SEBU6250, "Caterpillar Machine Fluids Recommendations"
- Operation and Maintenance Manual, "Capacities (Refill)"

7. Inspect the gasket of the cooling system pressure cap. If the gasket is damaged, replace the pressure cap.

8. Install the cooling system pressure cap.

9. Close the engine access door.

i04745029

Cooling System Coolant Level - Check

SMCS Code: 1350-040; 1350-535-FLV; 1395-535-FLV

1. Open the engine access door.

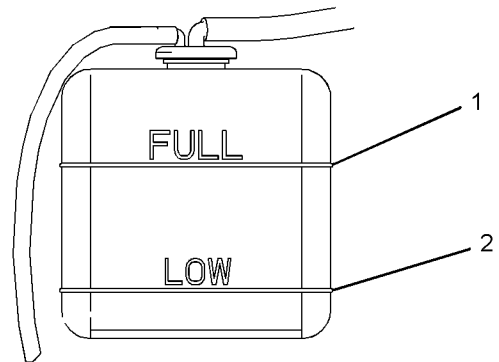


Illustration 291

g02841877

- (1) "FULL"
- (2) "LOW"

2. Check the coolant level of the coolant reservoir. Maintain the coolant level between the "FULL" mark and the "LOW" mark.

If the reservoir is empty, use steps 2a through 2g.

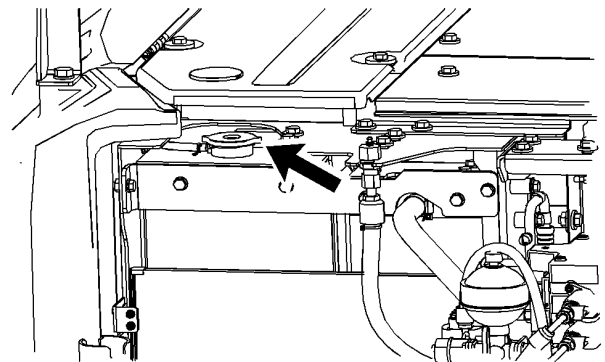


Illustration 292

g02842576

- a. Slowly loosen the cooling system pressure cap in order to relieve system pressure. Remove the pressure cap.

Note: Refer to Operation and Maintenance Manual, "General Hazard Information" for information on containing fluid spillage.

- b. Add the appropriate coolant solution to the cooling system. Refer to the following topics:

- Special Publication, SEBU6250, "S·O·S Coolant Analysis"
- Operation and Maintenance Manual, "Capacities (Refill)"

- c. Start the engine. Operate the engine without the cooling system pressure cap until the water

temperature regulator opens and the coolant level stabilizes.

- d. Maintain the coolant level within 13 mm (0.5 inch) of the bottom of the radiator filler pipe.

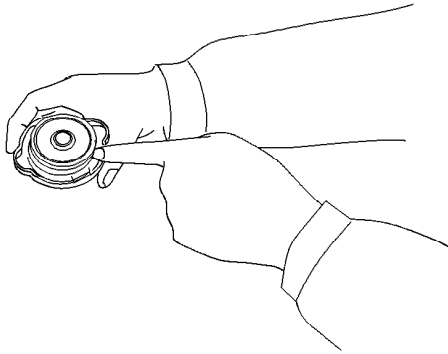


Illustration 293

g00102170

- e. Inspect the gasket of the cooling system pressure cap. If the gasket is damaged, replace the pressure cap.
- f. Install the cooling system pressure cap.
- g. Stop the engine.

Note: Refer to Operation and Maintenance Manual, "General Hazard Information" for information on Containing Fluid Spillage.

3. If additional coolant is necessary, remove the reservoir cap and add the appropriate coolant solution.
4. Install the reservoir cap.
5. Close the engine hood.

i08132758

Cooling System Coolant Sample - Obtain

SMCS Code: 1395-554; 1395-008

WARNING

Personal injury can result from hot coolant, steam and alkali.

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

Remove filler cap slowly to relieve pressure only when engine is stopped and radiator cap is cool enough to touch with your bare hand.

Do not attempt to tighten hose connections when the coolant is hot, the hose can come off causing burns.

Cooling System Conditioner contains alkali. Avoid contact with skin and eyes.

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting, and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, PERJ1017, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat[®] products.

Dispose of all fluids according to local regulations and mandates.

NOTICE

Always use a designated pump for oil sampling, and use a separate designated pump for coolant sampling. Using the same pump for both types of samples may contaminate the samples that are being drawn. This contaminate may cause a false analysis and an incorrect interpretation that could lead to concerns by both dealers and customers.

The cooling system coolant should be sampled and monitored with regular frequency. The samples should be analyzed per the following guidelines:

- **Level 1 analysis: Every 250 hours**
- **Level 2 analysis: Every 6000 hours**

Note: For cooling systems filled with Cat ELC (Extended Life Coolant), only Level 2 sampling is required. All other coolants require Level 1 sampling.

Note: A level 1 analysis may indicate the need for a Level 2 analysis.

Note: A Level 2 analysis is required after 500 hours of operation following any of these changes:

- The cooling system is new
- The cooling system has been refilled
- The cooling system has been converted to a new coolant

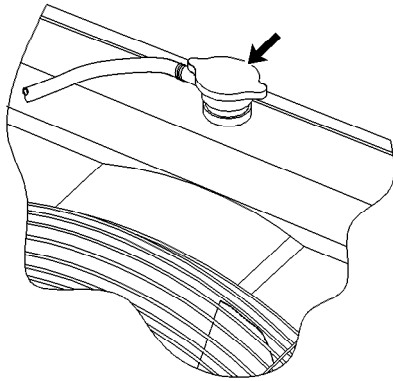


Illustration 294

g00544510

Obtain the sample of the coolant as close as possible to the recommended sampling interval. To receive the full effect of S-O-S analysis, establish a consistent trend of data. To establish a pertinent history of data, perform consistent samplings that are evenly spaced. Supplies for collecting samples can be obtained from your Cat® dealer.

Note: Operate the engine at low idle to warm the coolant. Keep the engine operating to obtain an accurate sample.

Use the following guidelines for proper sampling of the coolant:

- Complete the information on the label for the sampling bottle before you begin to take the samples.
- Keep the unused sampling bottles stored in plastic bags.
- Obtain coolant samples directly from the coolant sample port. You should not obtain the samples from any other location.
- Keep the lids on empty sampling bottles until you are ready to collect the sample.

- Place the sample in the mailing tube immediately after obtaining the sample to avoid contamination.
- Never collect samples from expansion bottles.
- Never collect samples from the drain for a system.

For additional information about coolant analysis, see Special Publication, SEBU6250, "Caterpillar Machine Fluids Recommendations" or consult your Cat dealer.

i08778225

Diesel Particulate Filter - Clean (Emission Related Component)

SMCS Code: 108F-070; 1091-070

Prepare the machine for maintenance. Refer to Operation and Maintenance Manual, "Prepare the Machine for Maintenance" for more information.

Consult your Cat dealer when the DPF needs to be cleaned.

The approved Caterpillar DPF maintenance procedure requires that one of the following actions be taken when the DPF needs to be cleaned:

- The DPF from your machine can be replaced with a new DPF
- The DPF from your machine can be replaced with a remanufactured DPF
- The DPF from your machine can be cleaned by your local authorized Cat dealer, or a Caterpillar approved DPF cleaning machine, and reinstalled

Note: To maintain emissions documentation, the DPF that is removed from the machine when the DPF is cleaned must be reinstalled on the same machine.

Note: A specific ash service regeneration must be performed before removing a DPF that will be cleaned. All three scenarios listed above require a reset of the ash monitoring system in the engine ECM.

i07476126

Engine Air Filter Element - Clean/Replace

SMCS Code: 1054-510; 1054-070

NOTICE

Service the air cleaner only with the engine stopped. Engine damage could result.

Maintenance Section
 Engine Air Filter Element - Clean/Replace

The primary filter element can be used up to six times if the element is properly cleaned and if the element is properly inspected. When the primary filter element is cleaned, check for rips or tears in the filter material. The primary filter element should be replaced at least one time per year. This replacement should be performed regardless of the number of cleanings.

1. Open the left side access door.
2. Start the engine.

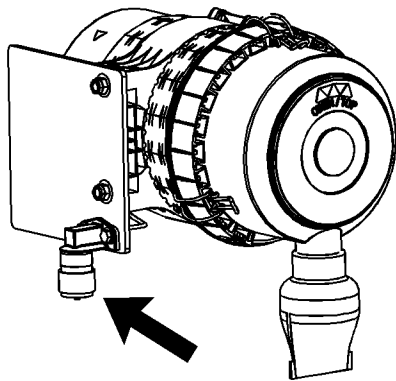


Illustration 295

g03350257

3. Service the air cleaner if the yellow piston in the filter element indicator moves into the red zone.
4. Stop the engine.

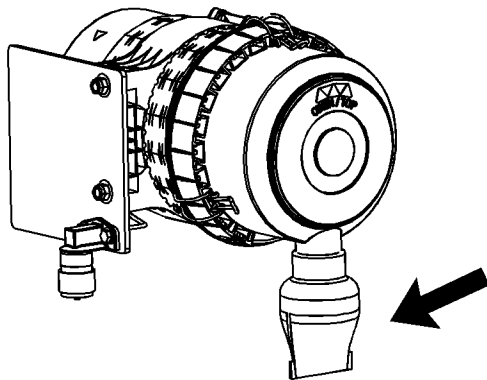


Illustration 296

g03350217

5. Squeeze the outlet tube slightly to purge the dirt from the outlet tube.

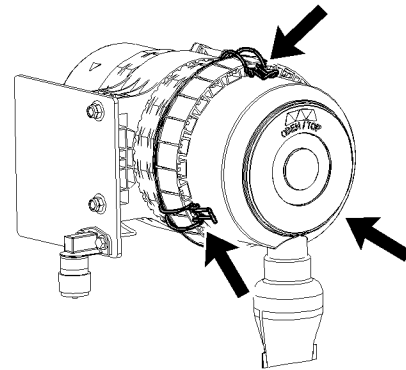


Illustration 297

g03350260

6. Loosen the three cover latches and remove the air cleaner cover.

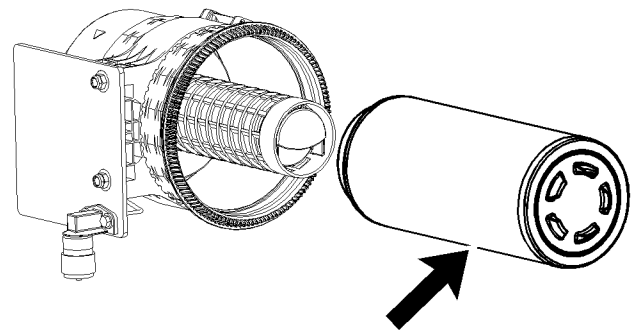


Illustration 298

g03350264

7. Remove the primary filter element from the air cleaner housing.
8. Clean the air cleaner cover.
9. Inspect the O-ring seal on the air cleaner cover. Replace the O-ring seal if the O-ring seal is worn or damaged.
10. Cover the opening of the air inlet to the engine.
11. Clean the inside of the air cleaner housing.
12. Clean the primary filter element and inspect the filter element.

Note: Refer to "Cleaning Primary Air Filter Elements".

13. Install the clean primary filter element.

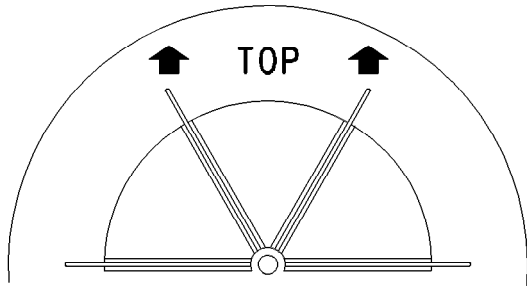


Illustration 299

g00103800

14. Install the air cleaner cover. The arrows on the front must point upward. Close the latches securely.
15. Reset the filter indicator by pushing in the reset button on top of the indicator.
16. Install a new primary filter element if one of the following problems occurs after starting the engine.
 - The piston of the air filter indicator moves into the red zone.
 - The color of the exhaust smoke is black.

Note: The primary filter can be cleaned up to six times. Replace the filter after 1 year.

17. Close the left side access door.

Cleaning Primary Air Filter Elements

NOTICE

Caterpillar recommends certified air filter cleaning services available at participating Caterpillar dealers. The Caterpillar cleaning process uses proven procedures to assure consistent quality and sufficient filter life.

Observe the following guidelines if you attempt to clean the filter element:

Do not tap or strike the filter element in order to remove dust.

Do not wash the filter element.

Use low pressure compressed air in order to remove the dust from the filter element. Air pressure must not exceed 207 kPa (30 psi). Direct the air flow up the pleats and down the pleats from the inside of the filter element. Take extreme care in order to avoid damage to the pleats.

Do not use air filters with damaged pleats, gaskets, or seals. Dirt entering the engine will cause damage to engine components.

The primary air filter element can be used up to six times if the element is properly cleaned and if the element is properly inspected. When the primary air filter element is cleaned, check for rips or tears in the filter material. The primary air filter element should be replaced at least one time per year. This replacement should be performed regardless of the number of cleanings.

NOTICE

Do not clean the air filter elements by bumping or tapping. This could damage the seals. Do not use elements with damaged pleats, gaskets, or seals. Damaged elements will allow dirt to pass through. Engine damage could result.

Visually inspect the primary air filter elements before cleaning. Inspect the air filter elements for damage to the seal, the gaskets, and the outer cover. Discard any damaged air filter elements.

There are two common methods that are used to clean primary air filter elements:

- Pressurized air
- Vacuum cleaning

Pressurized Air

Pressurized air can be used to clean primary air filter elements that have not been cleaned more than two times. Pressurized air will not remove deposits of carbon and oil. Use filtered, dry air with a maximum pressure of 207 kPa (30 psi).

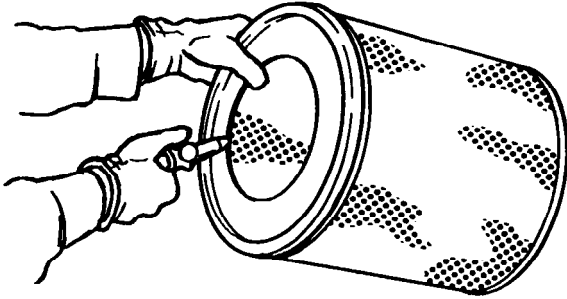


Illustration 300

g00281692

Note: When the primary air filter elements are cleaned, always begin with the clean side (inside) to force dirt particles toward the dirty side (outside).

Aim the hose so that the air flows inside the element along the length of the filter to help prevent damage to the paper pleats. Do not aim the stream of air directly at the primary air filter element. Dirt could be forced further into the pleats.

Vacuum Cleaning

Vacuum cleaning is another method for cleaning primary air filter elements which require daily cleaning because of a dry, dusty environment. Cleaning with pressurized air is recommended prior to vacuum cleaning. Vacuum cleaning will not remove deposits of carbon and oil.

Inspecting the Primary Air Filter Elements

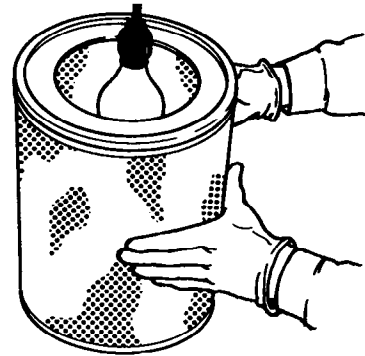


Illustration 301

g00281693

Inspect the clean, dry primary air filter element. Use a 60 watt blue light in a dark room or in a similar facility. Place the blue light in the primary air filter element. Rotate the primary air filter element. Inspect the primary air filter element for tears and/or holes. Inspect the primary air filter element for light that may show through the filter material. If it is necessary to confirm the result, compare the primary air filter element to a new primary air filter element that has the same part number.

Do not use a primary air filter element that has any tears and/or holes in the filter material. Do not use a primary air filter element with damaged pleats, gaskets, or seals. Discard damaged primary air filter elements.

Storing Primary Air Filter Elements

If a primary air filter element that passes inspection will not be used, the primary air filter element can be stored for future use.

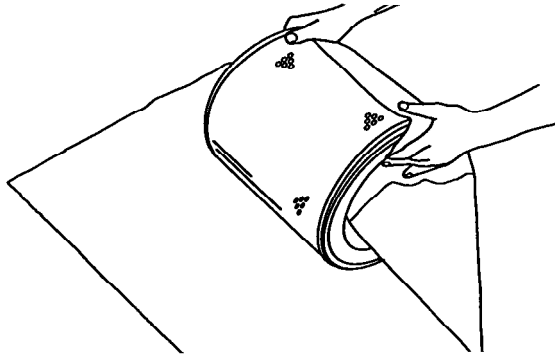


Illustration 302

g00281694

Do not use paint, a waterproof cover, or plastic as a protective covering for storage. An airflow restriction may result. To protect against dirt and damage, wrap the primary air filter elements in Volatile Corrosion Inhibited (VCI) paper.

Place the primary air filter element into a box for storage. For identification, mark the outside of the box and mark the primary air filter element. Include the following information:

- Date of cleaning
- Number of cleanings

Store the box in a dry location.

i04754300

Engine Air Filter Secondary Element - Replace

SMCS Code: 1054-510

NOTICE

Always replace the secondary filter element. Never attempt to reuse the element by cleaning.

The secondary filter element should be replaced at the time the primary element is serviced for the third time.

NOTICE

The filter should be kept in service for no longer than one year.

NOTICE

Always leave the secondary filter element in place while you clean the air cleaner housing.

1. Open the left side access door.
2. Remove the air cleaner housing cover.

3. Remove the primary filter element. Refer to Operation and Maintenance Manual, "Engine Air Filter Primary Element - Clean/Replace".

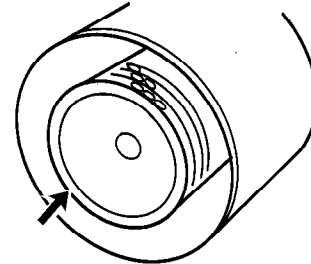


Illustration 303

g00470240

4. Remove the secondary filter element. Pull out in order to remove the element.
5. Cover the air inlet opening. Clean the inside of the air cleaner housing.
6. Install a new secondary filter element. Push the element firmly in order to properly seat the element. Write the date on the element.
7. Install the primary filter element and the air cleaner housing cover.
8. Close the left side access door.

i05262470

Engine Air Filter Service Indicator - Inspect

SMCS Code: 7452-040-DJ

NOTICE

Service the air cleaner only with the engine stopped. Engine damage could result if the air cleaner is serviced while the engine is running.

Maintenance Section
Engine Crankcase Breather - Replace

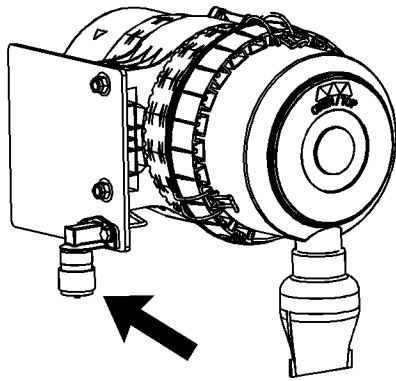


Illustration 304

g03350257

1. Open the left side access door.
2. Start the engine.
3. Run the engine at high idle.
4. If the piston in the engine air filter service indicator enters the red zone, service the air cleaner.
5. Stop the engine.

Note: See the Operation and Maintenance Manual, "Engine Air Filter Element - Clean/Replace".

6. Close the left side access door.

i05505451

Engine Crankcase Breather - Replace

SMCS Code: 1317-510

1. Open the engine access door at the rear of the machine. Refer to Operation and Maintenance Manual, "Access Doors and Covers".

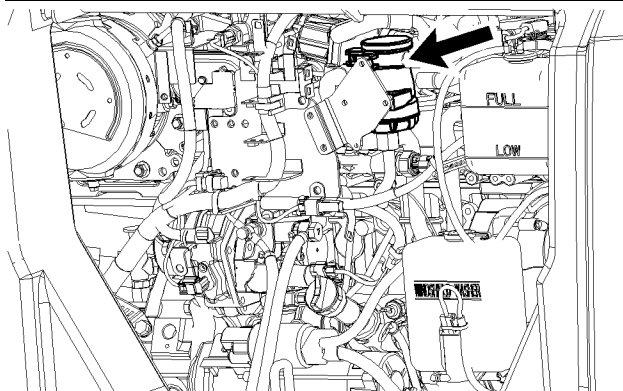


Illustration 305

g03350175

Engine crankcase breather location

2. The engine crankcase breather is located in the engine compartment on the right-hand side of engine. A replaceable filter element is located inside of the engine crankcase breather.

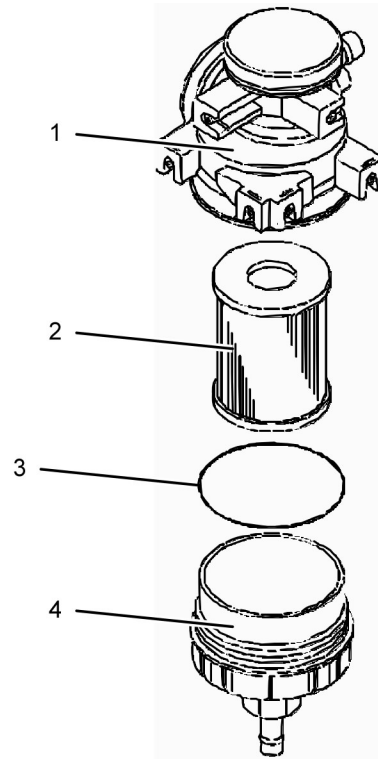


Illustration 306

g03353279

Engine Crankcase Breather

- (1) Housing
- (2) Filter Element
- (3) O-ring
- (4) Cover

3. Remove cover (4) and remove filter element (2).
4. Clean housing (1) and cover (4).
5. Inspect O-ring for damage. Replace if necessary.
6. Install a new filter element and Install cover (4).
7. Close the engine access door.

i04756129

Engine Oil Level - Check

SMCS Code: 1000-535

NOTICE

Do not overfill the crankcase. Engine damage can result.

Park the machine on level ground. The oil level should only be checked after the engine has been stopped for at least 30 minutes.

Check the oil level while the engine is stopped. Do not check the oil level while the engine is running.

1. Open the engine access door.

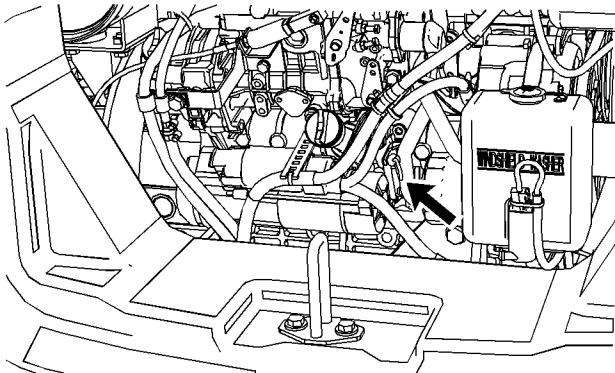


Illustration 307

g02849164

2. Remove the dipstick and wipe off the oil.
3. Reinsert the dipstick.
4. Remove the dipstick and check the oil level on the dipstick.

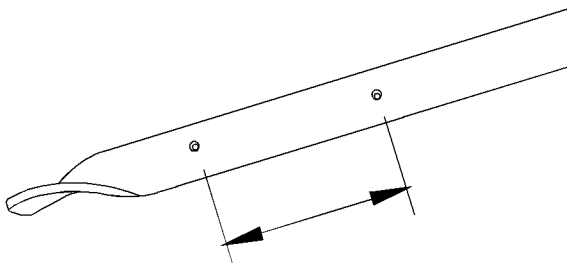


Illustration 308

g02849169

5. Maintain the oil level between the marks on the dipstick.

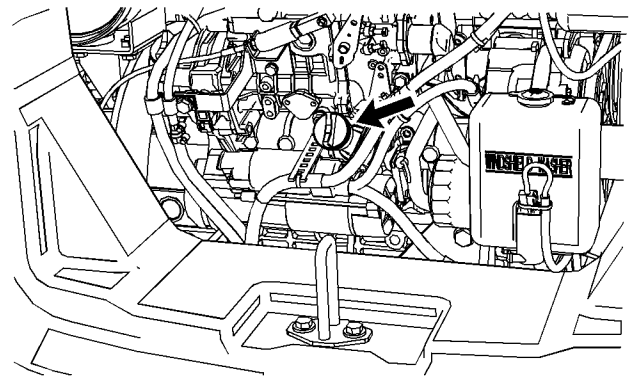


Illustration 309

g02849195

Note: Refer to Operation and Maintenance Manual, "General Hazard Information" for information on Containing Fluid Spillage.

6. Remove the oil filler plug in order to add oil, if necessary. Refer to Operation and Maintenance Manual, "Capacities (Refill)", and Operation and Maintenance Manual, "Lubricant Viscosities" for more information.

Note: If the oil is deteriorated or badly contaminated, change the oil regardless of the maintenance interval.

7. Clean the oil filler plug.
8. Install the oil filler plug.
9. Close the engine hood.

i04756494

Engine Oil Sample - Obtain

SMCS Code: 1000; 1000-008; 1348-554-SM; 1348-008; 7542-008; 7542-554-OC; 7542-554-SM

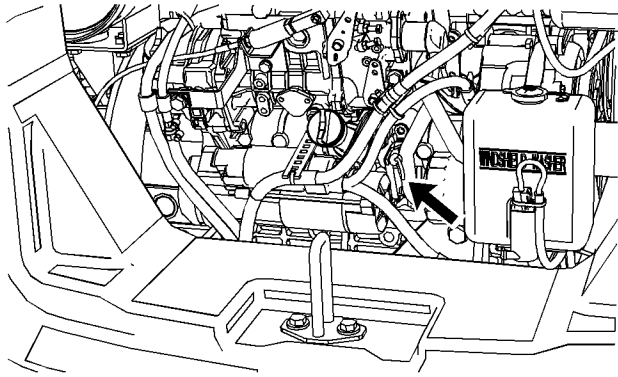


Illustration 310

g02849164

Obtain the oil sample of the engine oil through the opening for the dipstick.

Refer to Special Publication, SEBU6250, "S·O·S Oil Analysis" for information that pertains to obtaining a sample of the engine oil. Refer to Special Publication, PEGJ0047, "How To Take A Good Oil Sample" for more information about obtaining a sample of the engine oil.

i07476099

Engine Oil and Filter - Change

SMCS Code: 1318-510

WARNING

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

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting, and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, PERJ1017, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat® products.

Dispose of all fluids according to local regulations and mandates.

The normal oil change interval for the machine is Every 500 Service Hours or every year when the following conditions are met:

- Use an engine oil in the Operation and Maintenance Manual, "Lubricant Viscosities".
- Cat filters are used.
- The altitude does not exceed 2300 m (7545 ft).

An oil change interval of Every 250 Service Hours or every 6 months is required when the following conditions occur:

- Not using a recommended engine oil in the Operation and Maintenance Manual, "Lubricant Viscosities".
- Cat filters are not used.
- The altitude exceeds 2300 m (7545 ft).

Refer to the results of the S·O·S oil analysis to determine if the oil change interval should be decreased. Consult your Cat Dealer for detailed information regarding the optimum oil change interval.

Note: If the sulfur content in the fuel is greater than 1.5% by weight, use an oil that has a TBN of 30 and reduce the oil change interval by one-half.

Park the machine on a level surface. Stop the engine.

Note: Drain the crankcase while the oil is warm. This allows waste particles that are suspended in the oil to drain. As the oil cools, the waste particles will settle to the bottom of the crankcase. The particles will not be removed by draining the oil and the particles will recirculate in the engine lubrication system with the new oil.

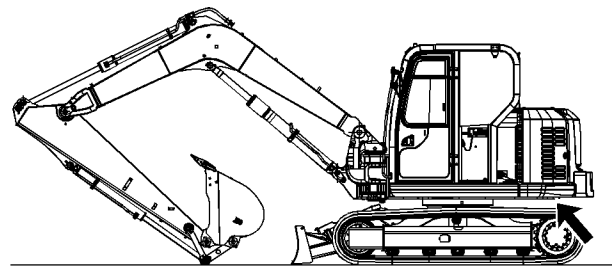


Illustration 311

g02854656

1. Open the crankcase access cover that is under the rear of the machine. Remove the bolts that secure the access cover.

Note: Refer to Operation and Maintenance Manual, "General Hazard Information" for information on Containing Fluid Spillage.

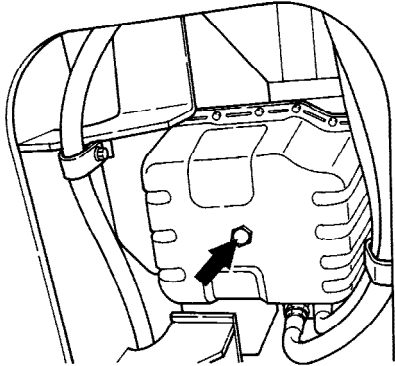


Illustration 312

g00740812

2. Remove the crankcase drain plug. Allow the oil to drain into a suitable container.

Note: Discard any drained fluids according to local regulations.

3. Clean the drain plug and install the drain plug.
4. Install the crankcase access cover.
5. Open the engine hood.

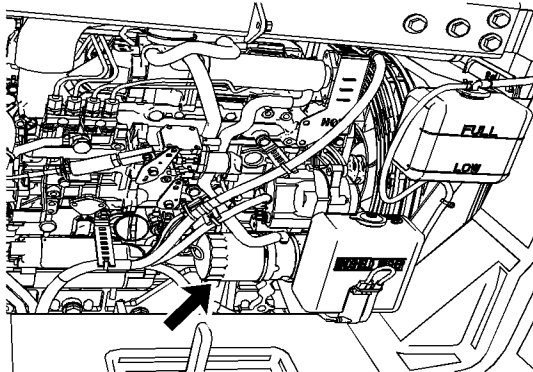


Illustration 313

g02854657

6. Remove the oil filter. Refer to Operation and Maintenance Manual, "Oil Filter - Inspect". Discard the used oil filter properly.

7. Clean the filter housing base. Make sure that all the former filter gasket is removed.

Note: This oil filter is a cartridge type filter. This type of filter cannot be reused.

Note: Always discard used filters according to local regulations.

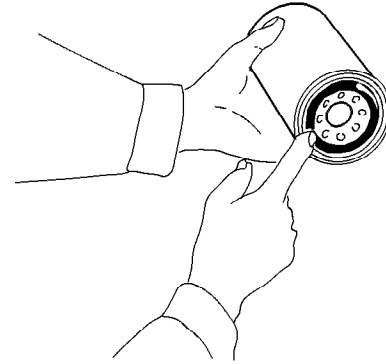


Illustration 314

g00101634

8. Apply a thin coat of engine oil to the gasket of the new filter.

9. Install the new filter by hand. When the gasket contacts the filter base, turn the filter by 270 degrees more. This will tighten the filter sufficiently.

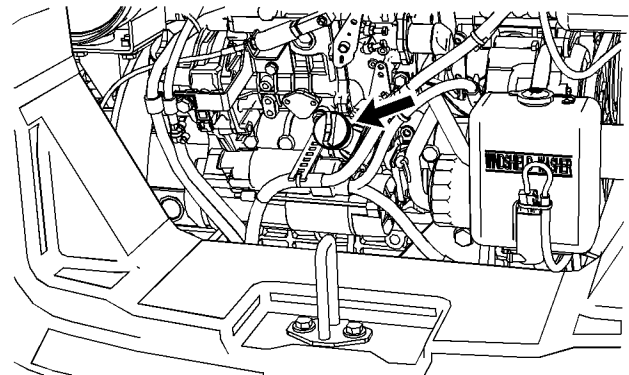


Illustration 315

g02849195

10. Remove the oil filler plug.

11. Fill the crankcase with new oil. Refer to Operation and Maintenance Manual, "Capacities (Refill)" and Operation and Maintenance Manual, "Lubricant Viscosities".

NOTICE

Do not under fill or overfill engine crankcase with oil. Either condition can cause engine damage.

12. Clean the oil filler plug and install the oil filler plug.

13. Start the engine and allow the oil to warm.

14. Check the engine for leaks.

15. Stop the engine.

Maintenance Section
Engine Valve Lash - Check

16. Wait for 30 minutes to allow the oil to drain back into the crankcase.

i08826302

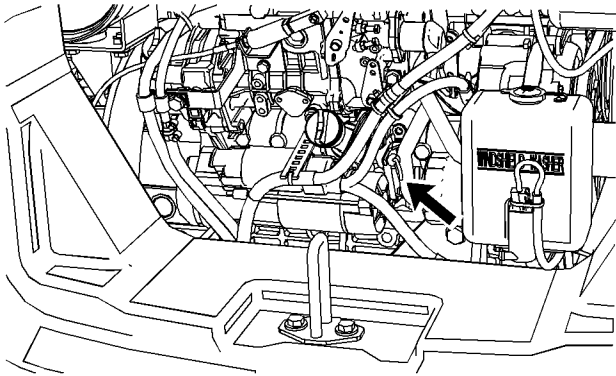


Illustration 316

g02849164

17. Remove the dipstick and wipe off the oil.
18. Reinsert the dipstick.
19. Remove the dipstick and check the oil level on the dipstick.

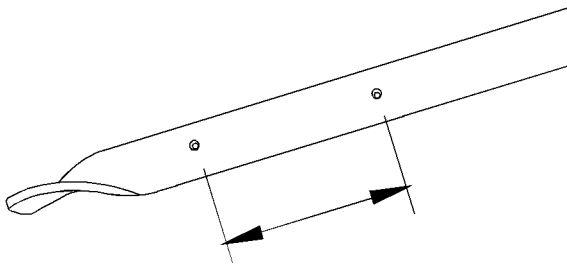


Illustration 317

g02849169

20. Maintain the oil between the marks on the dipstick.
21. Close the engine hood.

Engine Valve Lash - Check

SMCS Code: 1102-535; 1102; 1102-082; 1105-025; 1105-535; 1121-535; 1209; 1209-082; 1209-535; 7527

WARNING

Ensure that the engine cannot be started while this maintenance is being performed. To help prevent possible injury, do not use the starting motor to turn the flywheel.

Hot engine components can cause burns. Allow additional time for the engine to cool before measuring/adjusting valve lash clearance.

NOTICE

Only qualified service personnel should perform this maintenance. Refer to the Systems Operation/Testing and Adjusting Manual, "Valve Lash and Valve Bridge Adjustment" article or consult your Caterpillar dealer for the complete valve lash adjustment procedure.

Operation of Caterpillar engines with improper valve adjustments can reduce engine efficiency. This reduced efficiency could result in excessive fuel usage and/or shortened engine component life.

Refer to Service Manual, KENR9881, "C3.3B System Operation and Testing and Adjusting" in order to perform the complete procedure for the valve lash adjustment.

i05505790

Final Drive Oil - Change

SMCS Code: 4050-044-FLV

WARNING

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

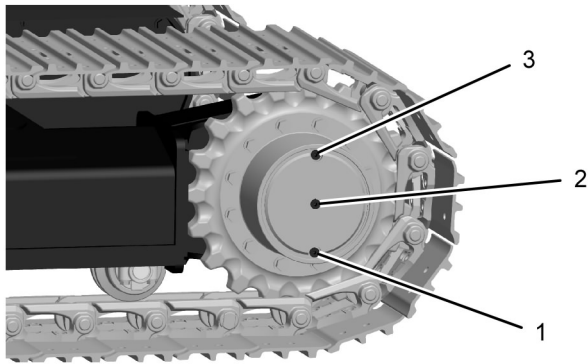


Illustration 318

g03483619

- (1) Oil drain plug
- (2) Oil level plug
- (3) Oil filler plug

1. Position one final drive so that oil drain plug (1) is at the bottom.

Note: Refer to Operation and Maintenance Manual, “General Hazard Information” for information on containing fluid spillage.

2. Remove oil drain plug (1), level plug (2), and filler plug (3). Allow the oil to drain into a suitable container.
3. Clean the plugs and inspect the plugs. Replace a worn plug or a damaged plug.
4. Apply pipe sealant to oil drain plug (1), level plug (2), and filler plug (3).
5. Install drain plug (1).
6. Add oil through the opening of filler plug (3).

Note: Overfilling the final drive will cause the seals to move out of place in the travel motor. Hydraulic oil or water may then enter the final drive and contaminate the final drive.

7. Fill the final drive to the bottom of the opening for level plug (2). Refer to Operation and Maintenance Manual, “Lubricant Viscosities” and Operation and Maintenance Manual, “Capacities (Refill)”.
8. Install level plug (2) and filler plug (3).
9. Perform Step 1 to Step 8 on the other final drive. Do not combine the oil for the final drives in the same container. The oil from the final drives must be kept separate for the check that is performed in Step 15.
10. Completely remove any oil that has spilled.
11. Start the engine and allow the final drives to operate through several cycles.

12. Stop the engine.
13. Check the oil level.
14. Maintain the oil level to the bottom of the opening for level plug (2).
15. Check the drained oil for metal chips or for particles. If there are any chips or particles, consult your Caterpillar dealer.

Note: Dispose of drained fluids according to local regulations.

i05505792

Final Drive Oil Level - Check

SMCS Code: 4050-535-FLV

WARNING

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

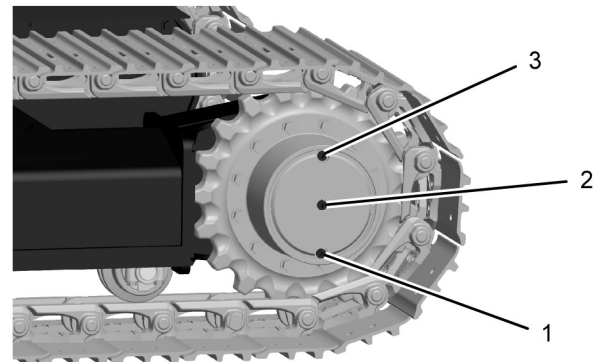


Illustration 319

g03483619

- (1) Oil drain plug
- (2) Oil level plug
- (3) Oil filler plug

1. Position one final drive so that oil drain plug (1) is at the bottom.

Note: Refer to Operation and Maintenance Manual, “General Hazard Information” for information on Containing Fluid Spillage.

2. Remove oil level plug (2).
3. Check the oil level. The oil should be near the bottom of the opening of level plug (2).
4. Add oil through the opening of filler plug (3), if necessary.

Maintenance Section
Final Drive Oil Sample - Obtain

Note: Overfilling the final drive will cause the seals to move out of place in the travel motor. Hydraulic oil or water may then enter the final drive and contaminate the final drive.

5. Clean oil level plug (2) and filler plug (3).
6. Apply pipe sealant to oil level plug (2) and filler plug (3).
7. Install oil level plug (2).
8. Install oil filler plug (3).
9. Repeat the procedure for the other final drive.

i05505794

Final Drive Oil Sample - Obtain

SMCS Code: 4011-008; 4050-008; 4050-SM; 7542-008

! WARNING

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

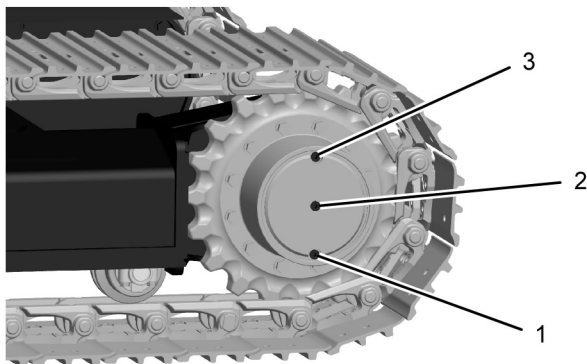


Illustration 320

g03483619

- (1) Oil drain plug
- (2) Oil level plug
- (3) Oil filler plug

1. Position the final drive so that oil drain plug (1) is at the bottom.
2. Remove oil level plug (2).
3. Obtain a sample of the final drive oil through the hole for the oil level plug.
4. Install oil level plug (2).

Refer to Special Publication, SEBU6250, "S·O·S Oil Analysis" for more information on obtaining a sample of the final drive oil. For additional information about taking an oil sample, refer to Special Publication, PEGJ0047, "How To Take A Good Oil Sample".

i05262187

Fuel Lift Pump Strainer - Replace

SMCS Code: 1256-510-STR; 1256

! WARNING

Personal injury or death may result from failure to adhere to the following procedures.

Fuel leaked or spilled onto hot surfaces or electrical components can cause a fire.

Clean up all leaked or spilled fuel. Do not smoke while working on the fuel system.

Turn the disconnect switch OFF or disconnect the battery when changing fuel filters.

NOTICE

Do not fill the fuel filters with fuel before installing the fuel filters. The fuel will not be filtered and could be contaminated. Contaminated fuel will cause accelerated wear to fuel system parts.

The fuel lift pump strainer is located behind the access door on the right side of the machine.

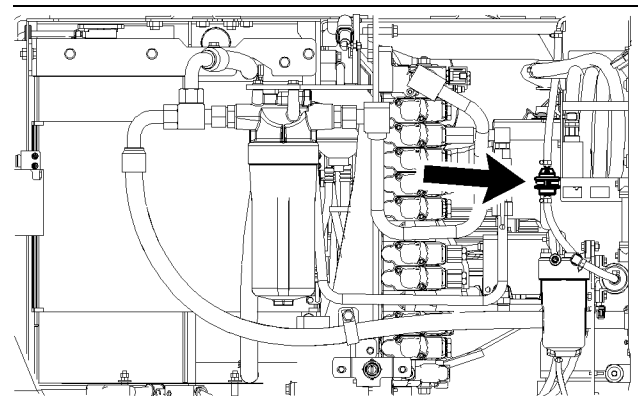


Illustration 321

g03351455

1. Open the right side access door.
2. Disconnect the hoses from the strainer and remove the strainer.
3. Replace the strainer.
4. Reconnect the hoses.
5. Close the access door.

i04664265

i05262502

Fuel System - Prime

SMCS Code: 1250-548

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting, and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, PERJ1017, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat® products.

Dispose of all fluids according to local regulations and mandates.

Note: The volume of air in the water separator is small. Usually, priming is not necessary if only the water separator element has been changed.

1. This machine is equipped with an automatic electric fuel priming pump.
2. Turn the key start switch to the ON position. The priming pump will start automatically and run for 2 minutes. System will usually prime within 1 minute.

Note: Additional priming may be needed if you are priming because of the following circumstances:

- The engine will not start.
- The engine starts but the engine continues to misfire.
- The engine starts but the engine continues to emit smoke.
- The engine has run out of fuel.
- The fuel injectors have been removed from the engine.

Fuel System Primary Filter (Water Separator) Element - Replace

SMCS Code: 1263-510-FQ

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting, and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, PERJ1017, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat® products.

Dispose of all fluids according to local regulations and mandates.

Note: This unit has a dual purpose. The element serves as a water separator and a fuel filter.

1. Open the access door on the right side of the machine. Refer to Operation and Maintenance Manual, "Access Doors and Covers".

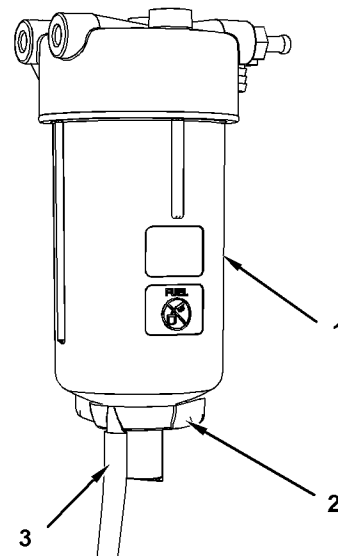


Illustration 322

g03353357

- (1) Filter Housing
- (2) Drain Valve
- (3) Drain Hose

2. Open the drain on the fuel filter (2). Allow the water and fuel to drain into a suitable container.

Maintenance Section
Fuel System Water Separator - Drain

Note: One half to one full turn will fully open the valve.

3. Close the drain valve by hand. Do not tighten the drain valve with a tool. Damage to the valve or to the seals may occur.
4. Rotate the fuel filter housing counterclockwise to remove.
5. Clean the mounting base for the fuel filter.
6. Clean the housing for the fuel filter.
7. Lubricate the seal with clean fuel. Install the new fuel filter and housing onto the mounting base. Rotate clockwise in order to fasten the fuel filter to the mounting base. Hand tighten until the lip of the housing is in contact with the mounting base.

Note: Do not prefill the filter with fuel. Contamination of the fuel system may occur.

8. Prime the fuel system in order to fill the fuel filter with fuel. Refer to Operation and Maintenance Manual, "Fuel System Priming Pump - Operate".
9. Close the access door.

i05262503

Fuel System Water Separator - Drain

SMCS Code: 1263

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting, and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, PERJ1017, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat® products.

Dispose of all fluids according to local regulations and mandates.

The fuel system water separator is located behind the fuel tank on the right side of the machine.

1. Open the access door on the right side of the machine. Refer to Operation and Maintenance Manual, "Access Doors and Covers".

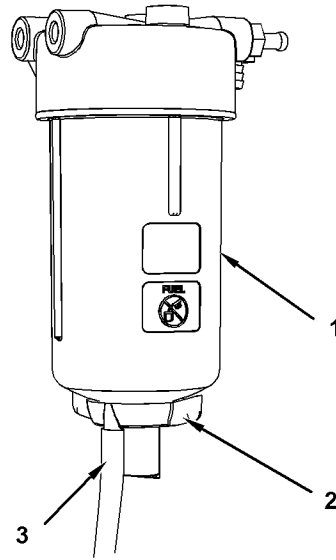


Illustration 323

g03353357

- (1) Filter Housing
(2) Drain Valve
(3) Drain Hose

2. Insert the drain hose (3) into a suitable container. Loosen the drain valve on the bottom of the housing.

Note: One half turn to one full turn will fully open the valve.

3. Tighten the drain valve by hand. Do not tighten the drain valve with a tool. Damage to the valve or to the seals may occur.
4. Close the access door.
5. Dispose of the water and sediment according to local regulations.

i01407838

Fuel Tank Cap and Strainer - Clean

SMCS Code: 1273-070-STR

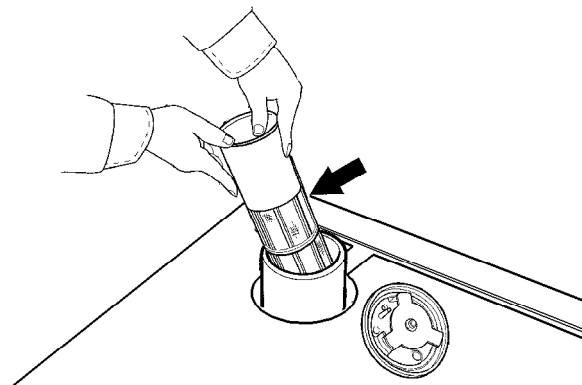


Illustration 324

g00740953

1. Remove the fuel cap and the fuel fill screen.

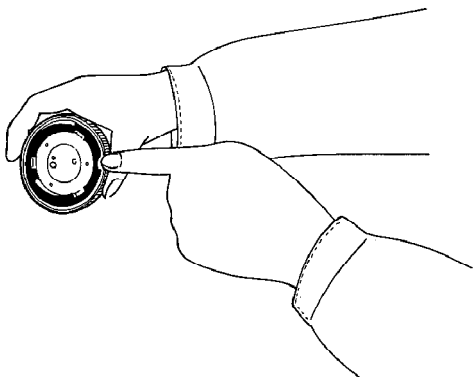


Illustration 325

g00104238

2. Inspect the cap. Replace the cap if the cap is damaged.

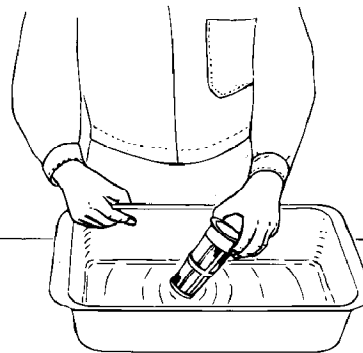


Illustration 326

g00104239

3. Wash the fuel fill screen in a clean, nonflammable solvent and dry the fuel fill screen.
4. Install the fuel fill screen.
5. Put a light coating of fuel oil on the cap gasket.
6. Install the fuel cap.

i04758306

Fuel Tank Water and Sediment - Drain

SMCS Code: 1273-543

1. Open the access door on the right side of the machine.

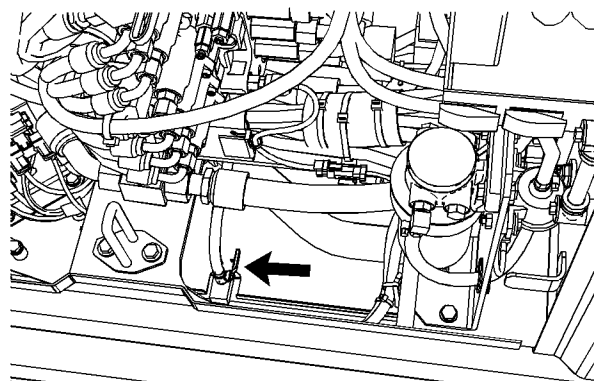


Illustration 327

g02850226

Note: Refer to Operation and Maintenance Manual, "General Hazard Information" for information on Containing Fluid Spillage.

2. Open the drain valve that is located in the engine compartment on the right side of the machine. Allow the water and the sediment to drain into a suitable container.

Note: Discard the drained fluids according to local regulations.

3. Close the drain valve.
4. Close the access door.

Fill the Fuel Tank

You can now add fuel to the fuel tank, if necessary. Remove the fuel tank cap and pump fuel through the opening.

Make sure that you lock the fuel tank cap after the refueling is complete.

i05367727

Fuses - Replace

SMCS Code: 1417-510

S/N: TMX1-Up

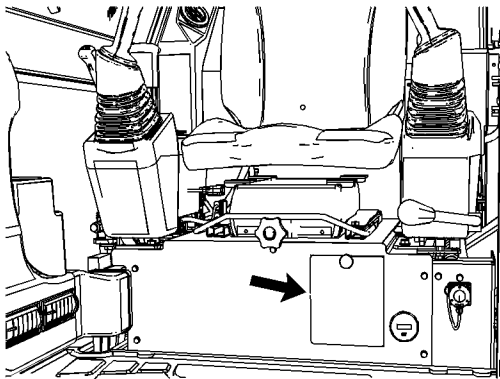


Illustration 328

g02850819

The fuse panel is located inside the access cover below the operators seat. Open the access cover for fuse access.



Fuses – Fuses protect the electrical system from damage that is caused by overloaded circuits. Change a fuse if the element separates. If the element of a new fuse separates, check the circuit and/or repair the circuit.

NOTICE

Always replace fuses with the same type and capacity fuse that was removed. Otherwise, electrical damage could result.

NOTICE

If it is necessary to replace fuses frequently, an electrical problem may exist.

Contact your Cat dealer.

To replace a fuse, use a puller that is stored in the fuse panel. The following spare fuses are contained in the fuse panel:

- 5 Amp
- 10 Amp
- 15 Amp
- 20 Amp
- 30 Amp

The following list identifies the circuits that are protected by each fuse. The amperage for each fuse is included with each circuit.

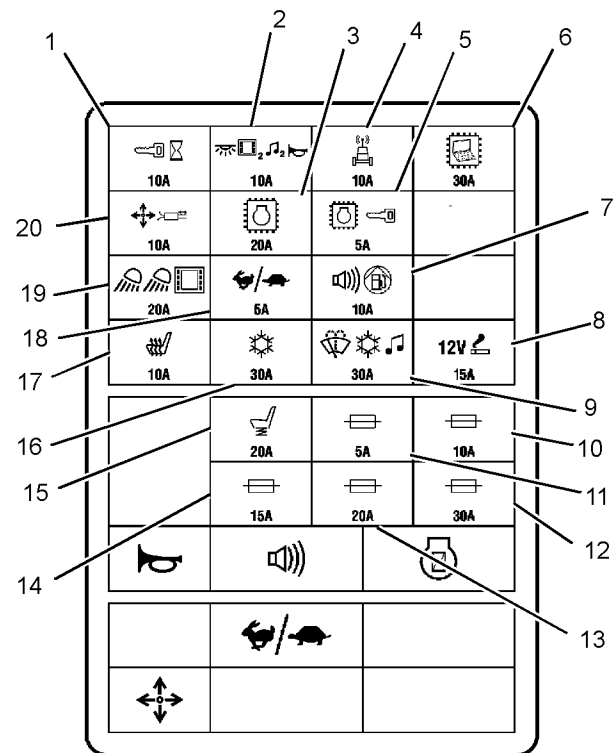


Illustration 329

g03397142

(1) Engine Start Switch and Service Hour Meter – 10 Amp

(2) Dome Lamp, Radio, Monitor, Horn – 5 Amp

(3) Governor Control – 15 Amp

(4) Product Link – 10 Amp

(5) Engine Stop Solenoid – 10 Amp

- (6) Computer ECM and Electronic Technician – 30 Amp
- (7) Travel Alarm and Fuel Pump – 10 Amp
- (8) Power Socket – 15 Amp
- (9) Radio, Window Wiper, Window Washer, and Air Conditioner/Heater – 30 Amp
- (10) Spare – 10 Amp
- (11) Spare – 5 Amp
- (12) Spare – 30 Amp
- (13) Spare – 20 Amp
- (14) Spare – 15 Amp
- (15) Seat - Ride Dampening Adjustment – 20 Amp
- (16) Air Conditioner – 30 Amp
- (17) Seat Heater – 10 Amp
- (18) Speed Select – 5 Amp
- (19) Boom Lamp, Cab Lamp, and Monitor – 20 Amp
- (20) Pattern Changer Solenoid – 10 Amp

Relays

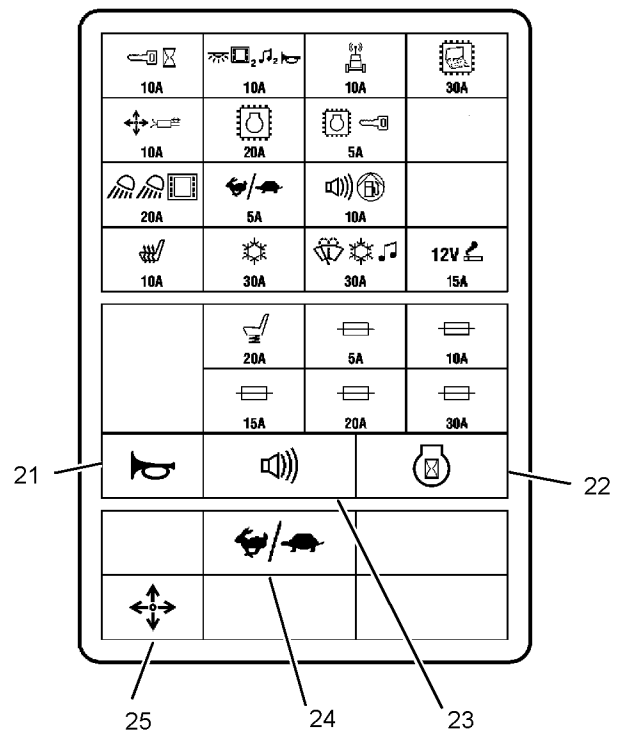


Illustration 330

g03397143

- (21) Horn – Relay
- (22) Service Meter – Relay
- (23) Travel Alarm – Relay
- (24) Travel Speed – Relay
- (25) Pattern Changer – Relay

i05440575

Fuses - Replace

SMCS Code: 1417-510

S/N: W8S1-Up

S/N: FJX1-Up

Maintenance Section
Fuses - Replace

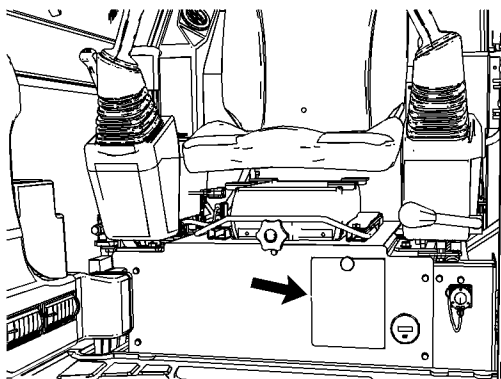


Illustration 331

g02850819

The fuse panel is located inside the access cover below the operators seat. Open the access cover for fuse access.



Fuses – Fuses protect the electrical system from damage that is caused by overloaded circuits. Change a fuse if the element separates. If the element of a new fuse separates, check the circuit and/or repair the circuit.

NOTICE

Always replace fuses with the same type and capacity fuse that was removed. Otherwise, electrical damage could result.

NOTICE

If it is necessary to replace fuses frequently, an electrical problem may exist.

Contact your Cat dealer.

To replace a fuse, use a puller that is stored in the fuse panel. The following spare fuses are contained in the fuse panel:

- 10 Amp
- 15 Amp
- 20 Amp
- 30 Amp

The following list identifies the circuits that are protected by each fuse. The amperage for each fuse is included with each circuit.

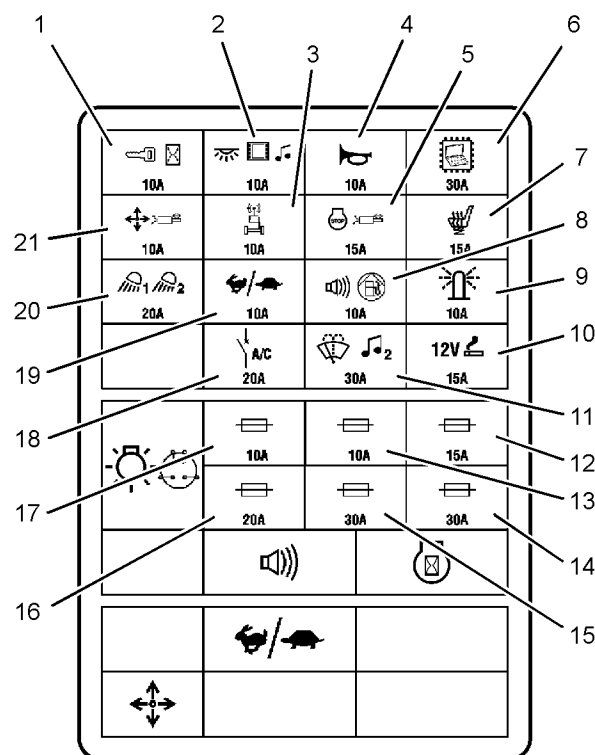


Illustration 332

g03432997

- (1) Engine Start Switch and Service Hour Meter – 10 Amp
- (2) Dome Lamp, Radio, Monitor – 10 Amp
- (3) Product Link – 10 Amp
- (4) Horn – 10 Amp
- (5) Engine ECM Key ON – 15 Amp
- (6) Computer ECM and Electronic Technician – 30 Amp
- (7) Seat Heater and Ride Dampening – 15 Amp
- (8) Travel Alarm and Fuel Pump – 20 Amp
- (9) Beacon – 10 Amp
- (10) Power Socket – 15 Amp
- (11) Radio and Window Wiper – 30 Amp
- (12) Spare – 15 Amp
- (13) Spare – 10 Amp
- (14) Spare – 30 Amp
- (15) Spare – 30 Amp
- (16) Spare – 20 Amp
- (17) Spare – 10 Amp
- (18) Air Conditioner – 20 Amp

- (19) Travel Speed – 10 Amp
- (20) Boom Lamp and Cab Lamp – 20 Amp
- (21) Pattern Changer Solenoid – 10 Amp

i05263538

Relays

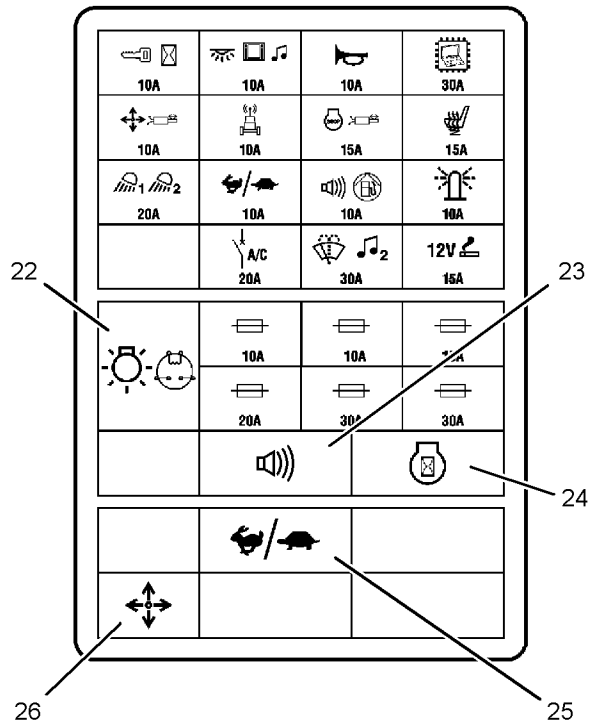


Illustration 333

g03433048

- (22) Back Up Alarm Lamp – Relay
- (23) Travel Alarm – Relay
- (24) Service Meter – Relay
- (25) Travel Speed – Relay
- (26) Pattern Changer – Relay

Hydraulic System Oil - Change

SMCS Code: 5056-044

Procedure to Change the Hydraulic Oil

⚠ WARNING

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

Note: When Cat HYDO Advanced 10 hydraulic oil is used, the hydraulic oil change interval is 3000 service hours or 18 months. When Cat HYDO Advanced 10 hydraulic oil is not used, the normal interval of 3000 hours is decreased to 2000 service hours or 1 year. S·O·S services may extend the oil change to a longer interval. Consult your Cat dealer for details.

1. Park the machine on level ground. Lower the work tool to the ground with the stick in the vertical position.
2. Open the access door on the right side of the machine.

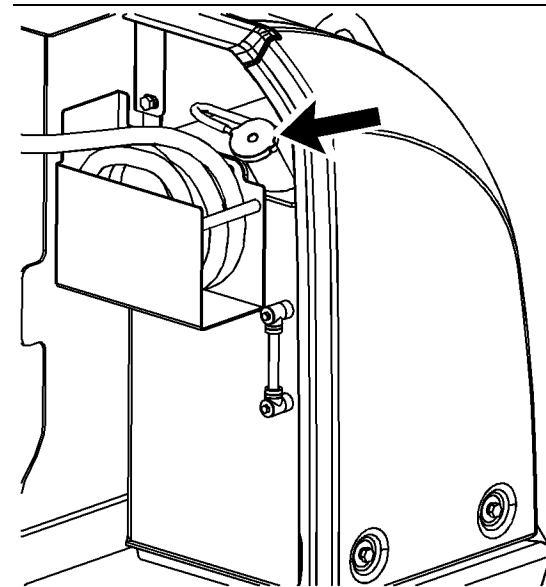


Illustration 334

g03350573

3. Clean the area thoroughly in order to keep dirt out of the screen cover. Clean the area thoroughly in order to keep dirt out of the pressure cap.

Maintenance Section
Hydraulic System Oil - Change

4. Relieve the internal pressure from the hydraulic tank by loosening the pressure cap. After the pressure is relieved, remove the pressure cap.

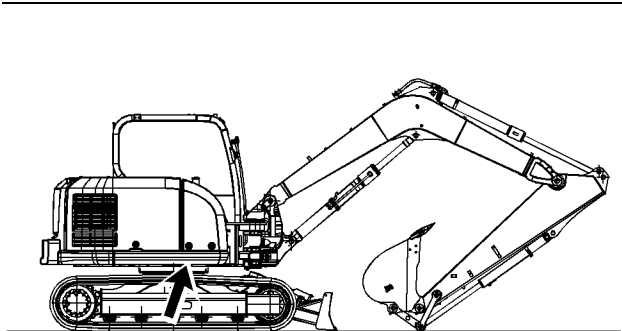


Illustration 335

g02858776

5. The oil drain valve is located under the hydraulic tank.
6. Remove the hydraulic tank access cover that is located under the upper structure. This will allow access to the drain valve.

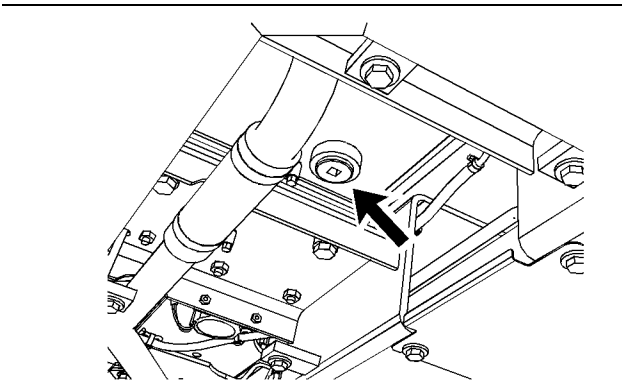


Illustration 336

g02858777

Note: Refer to Operation and Maintenance Manual, "General Hazard Information" for information on Containing Fluid Spillage.

7. Remove the oil drain valve plug.

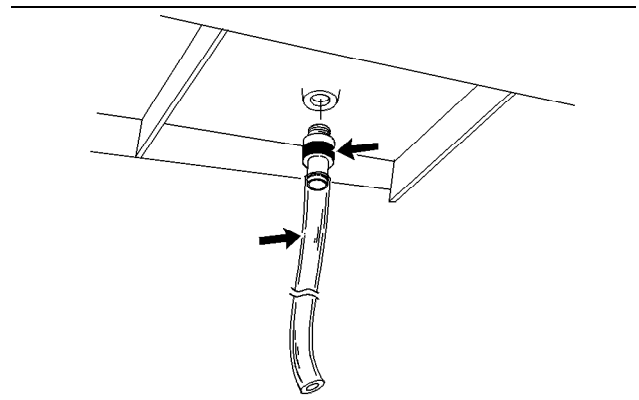


Illustration 337

g00293719

8. Install a swivel hose with clear plastic tubing in order to open the drain valve. Drain the oil into a suitable container.
9. Remove the swivel hose in order to close the drain valve.
10. Inspect the O-ring. Replace the O-ring if wear or damage is evident.
11. Clean the drain plug. Install the drain plug.
12. Remove the front access cover that is located on the right side of the machine.

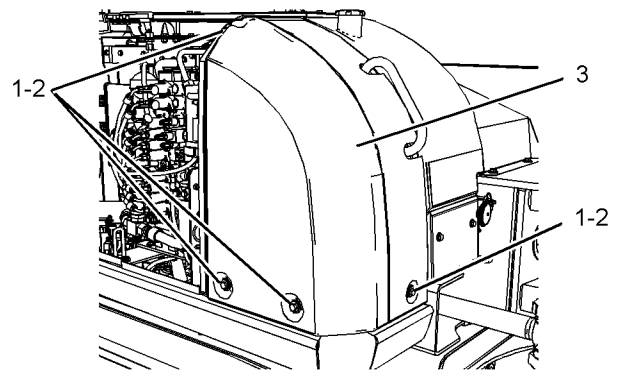


Illustration 338

g02858277

13. Remove four bolts (1) and four washers (2) in order to remove cover (3).
14. Clean the pump, the hydraulic lines, and the hydraulic tank.

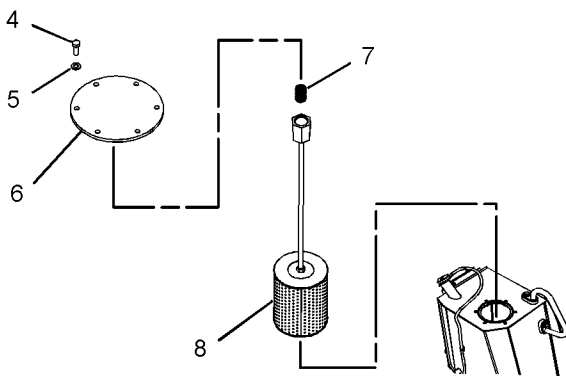


Illustration 339

g03350607

- (4) Bolts
- (5) Washers
- (6) Cover
- (7) Spring
- (8) Screen

15. Remove bolts (4), washers (5), and cover (6).

Note: Dispose of used filters and used fluids according to local regulations.

Note: Do not allow spring (7) to fall into the tank.

16. Remove spring (7) and screen (8).

Note: Refer to Operation and Maintenance, "General Hazard Information" for information on containing fluid spillage.

17. Wash the screen in a clean nonflammable solvent. Allow the screen to dry. Inspect the screen. Replace the screen, if the screen is damaged.

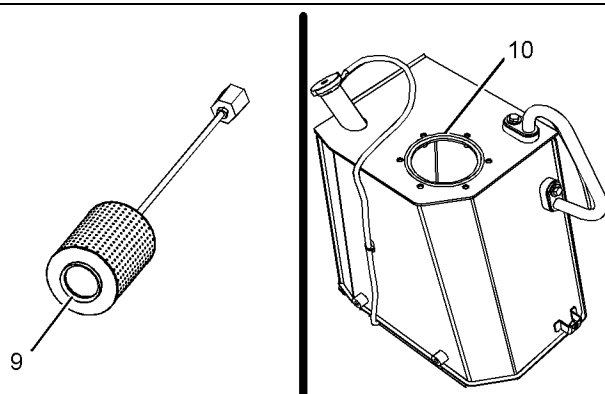


Illustration 340

g03350612

- (9) O-ring seal
- (10) O-ring seal

18. Remove O-ring seal (9) from the old screen.

19. Inspect O-ring seals (9) and (10). Replace the O-ring seals if wear or damage is evident.

20. Install O-ring seal (9) on screen (8).

21. Install screen (8) and spring (7). Then install cover (6), washers (5), and bolts (4).

Note: Make sure that the O-ring seals and the spring are properly positioned during installation.

22. Fill the hydraulic system oil tank. Refer to Operation and Maintenance Manual, "Capacities (Refill)".

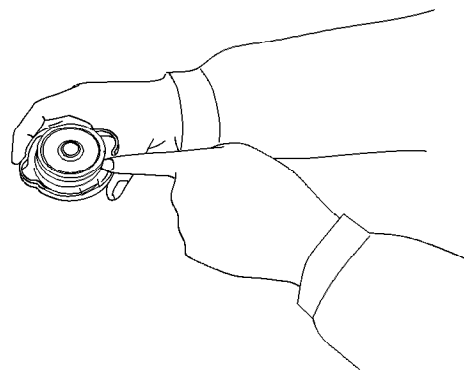


Illustration 341

g00101462

23. Inspect the pressure cap. Clean the pressure cap. Replace the pressure cap if damage is evident.

24. Install the pressure cap.

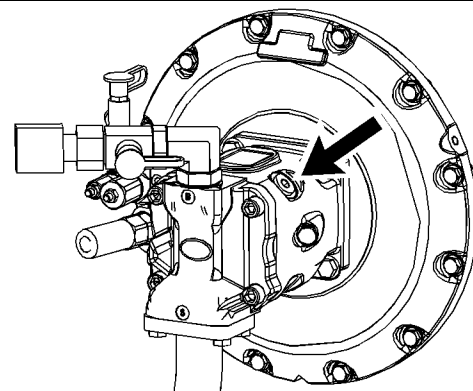


Illustration 342

g03350646

Note: Make no attempt to start the engine until the pump has been filled with hydraulic oil. Serious damage to the hydraulic components can result.

Maintenance Section
Hydraulic System Oil Filter (Return) - Replace

25. When the hydraulic oil has been replaced, the air must be removed from the hydraulic oil system. Use the following procedure to remove the air from the hydraulic oil system.
 - a. Stop the engine.
 - b. Slowly loosen the pressure cap on the top of the hydraulic tank.
 - c. Slowly loosen the vent plug on the top of the hydraulic pump.
 - d. Leave the plug loose until hydraulic oil starts to flow out of the plug. This indicates that the air has been released from the hydraulic system.
 - e. Install the vent plug to a torque of 19 to 23 N·m (14 to 17 lb ft).
 - f. If necessary, add hydraulic oil through the opening for the pressure cap.
 - g. Tighten the pressure cap securely.
26. Install the front access cover that is located on the right side of the machine.
27. Install the hydraulic tank access cover that is located under the upper structure.
28. Start the engine. Operate the engine at idling speed for 5 minutes.
29. Operate the joysticks in order to circulate the hydraulic oil. Lower the work tool to the ground so that the stick is vertical to the ground. Stop the engine.

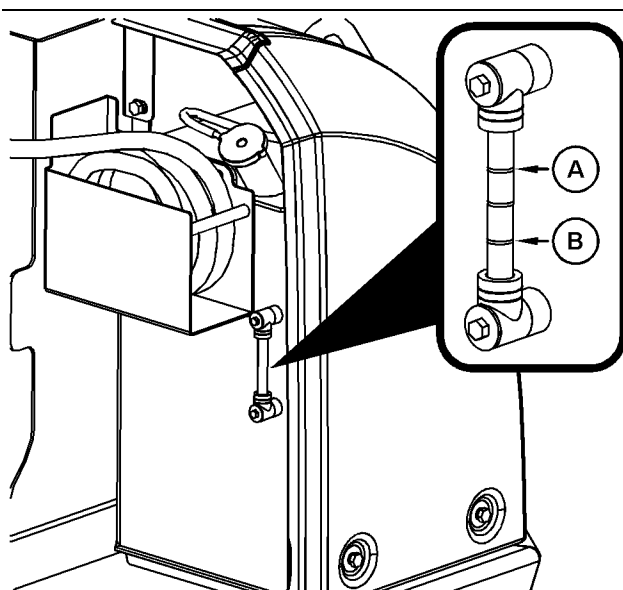


Illustration 343

g03350647

- (A) High temperature range
(B) Low temperature range

30. Maintain the oil level between the marks on the sight gauge in the appropriate temperature range.
31. Close the access door on the right side of the machine.

i05263981

Hydraulic System Oil Filter (Return) - Replace

SMCS Code: 5068-510-RJ

⚠ WARNING

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

Note: Refer to Operation and Maintenance Manual, "General Hazard Information" for information on Containing Fluid Spillage.

1. Park the machine on level ground. Lower the work tool to the ground with the stick in the vertical position.
2. Open the access door on the right side of the machine.

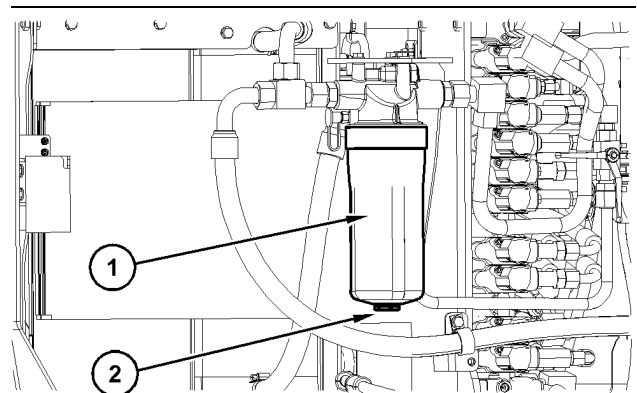


Illustration 344

g03350763

3. Clean the area around the filter in order to keep dirt out of the filter base.
4. Remove drain plug (2) and allow the oil to drain out of the housing.
5. After all the oil has been removed, install drain plug (2).
6. Remove filter housing (1). Dispose of the used filter according to local regulations.

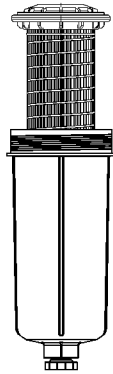


Illustration 345

g02157806

7. Remove the filter from the housing.
8. Clean the filter housing and the base.
9. Install the new filter element into the housing.
10. Apply a thin coat of oil to the gasket of the filter.
11. Install filter housing (1) by hand until the filter housing contacts the base.
12. Close the access door.
13. Drive the machine slowly for 10 minutes to 15 minutes. Move each cylinder evenly through several cycles.
14. Return the machine to the service position. Check the machine for oil leaks.
15. Stop the engine and check the hydraulic system oil level. See Operation and Maintenance Manual, "Hydraulic System Oil Level - Check"

i05264139

Hydraulic System Oil Level - Check

SMCS Code: 5050-535

NOTICE

Never remove the fill/vent plug from the hydraulic tank if the oil is hot.

Air can enter the system and cause pump damage.

1. Park the machine on level ground. Lower the work tool to the ground with the stick in the vertical position.
2. Open the access door on the right side of the machine.

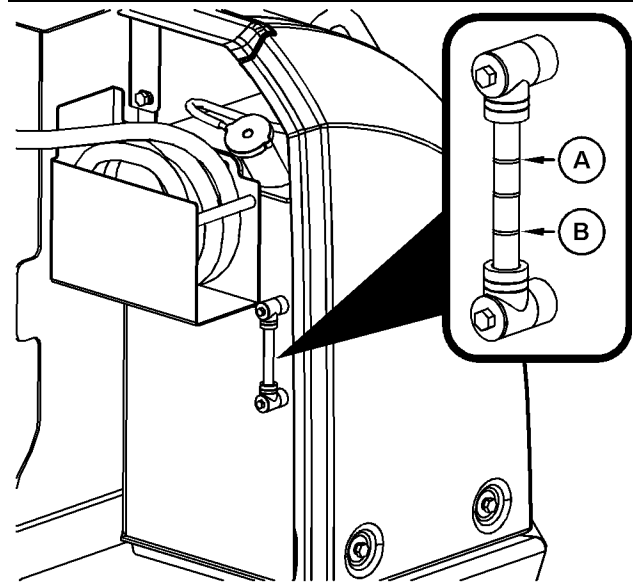


Illustration 346

g03350647

- (A) High temperature range
(B) Low temperature range

3. For a cold machine, maintain the hydraulic oil level in the low temperature range. For a machine that is at normal operating temperature, maintain the hydraulic oil level in the high temperature range.
4. Perform Step 4a through Step 4d if the oil level is low.

Note: Refer to Operation and Maintenance Manual, "General Hazard Information" for information on Containing Fluid Spillage.

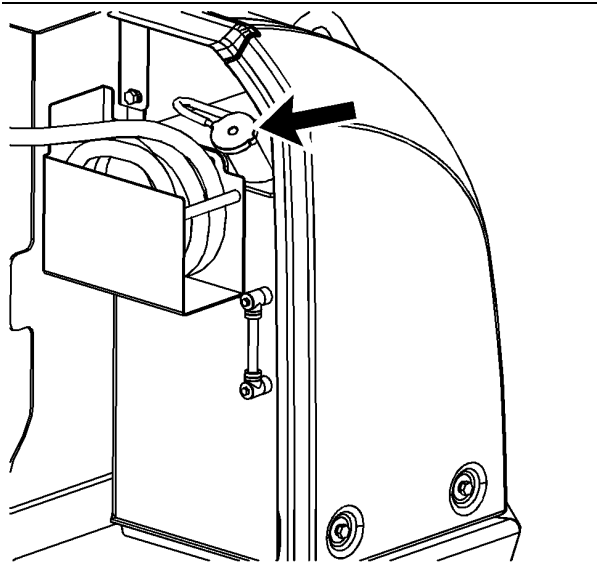


Illustration 347

g03350573

- a. Relieve the internal pressure from the hydraulic tank by loosening the pressure cap. After the pressure is relieved, remove the pressure cap.
- b. Add hydraulic oil to the tank through the opening for the pressure cap.

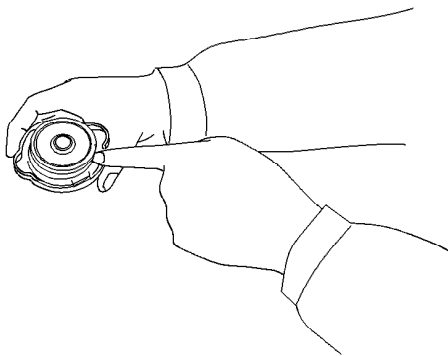


Illustration 348

g00101462

- c. Inspect the pressure cap. Replace the cap if damage is evident.
- d. Clean the pressure cap and install the cap.

i05264148

Hydraulic System Oil Sample - Obtain

SMCS Code: 5050-008-OC; 5095-SM; 5095-008; 7542; 7542-008

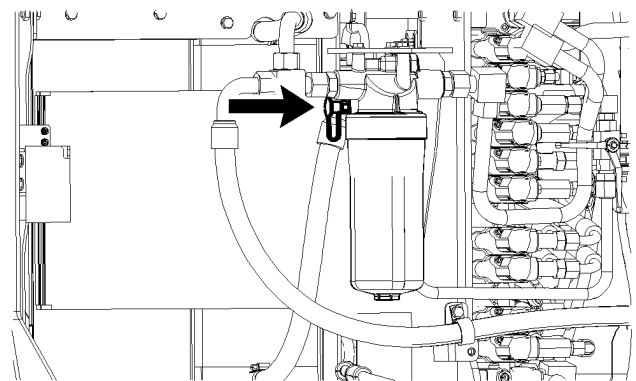


Illustration 349

g03350881

Park the machine on level ground. Lower the bucket to the ground with the stick in the vertical position.

Obtain a sample of the hydraulic oil through the sampling valve. The sampling valve for the hydraulic oil is located near the hydraulic return filter on the right side of the machine.

Refer to Special Publication, SEBU6250, "S·O·S Oil Analysis" for information that pertains to obtaining a sample of the hydraulic oil. Refer to Special Publication, PEGJ0047, "How To Take A Good Oil Sample" for more information about obtaining a sample of the hydraulic oil.

i05264204

Hydraulic Tank Screen - Clean

SMCS Code: 5056-070-Z3

WARNING

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

1. Park the machine on level ground. Lower the work tool to the ground with the stick in the vertical position.
2. Open the access door on the right side of the machine.

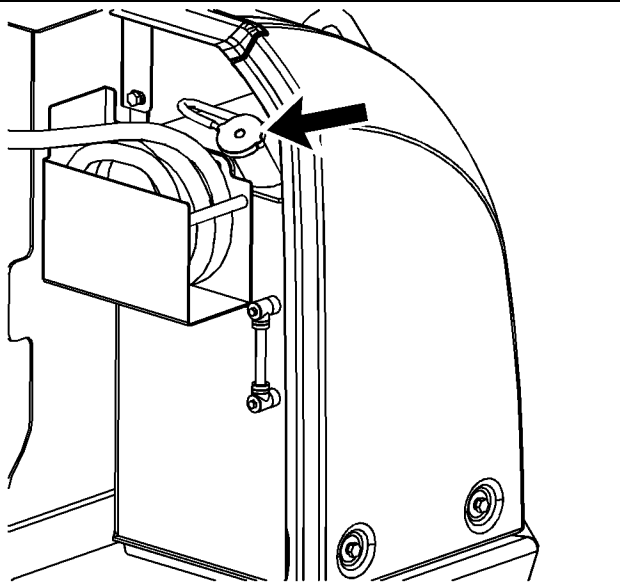


Illustration 350

g03350573

3. Clean the area thoroughly in order to keep dirt out of the screen cover. Clean the area thoroughly in order to keep dirt out of the pressure cap.
4. Relieve the internal pressure from the hydraulic tank by loosening the pressure cap. After the pressure is relieved, remove the pressure cap.
5. Remove the front access cover that is located on the right side of the machine.

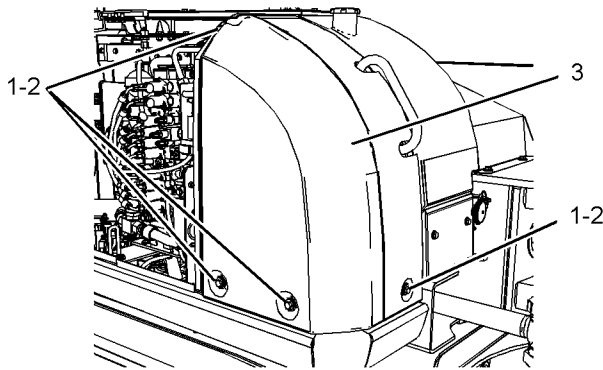


Illustration 351

g02858277

6. Remove four bolts (1) and four washers (2) in order to remove cover (3).
7. Clean the pump, the hydraulic lines, and the hydraulic tank.

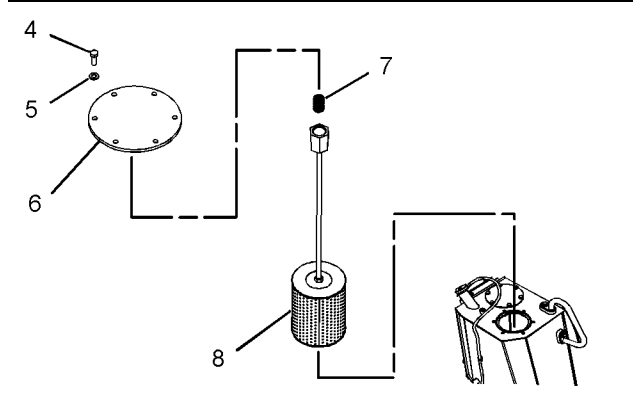


Illustration 352

g02859016

- (4) Bolts
- (5) Washers
- (6) Cover
- (7) Spring
- (8) Screen

8. Remove bolts (4), washers (5), and cover (6).

Note: Dispose of used filters and used fluids according to local regulations.

Note: Do not allow spring (7) to fall into the tank.

9. Remove spring (7) and screen (8).

Note: Refer to Operation and Maintenance, "General Hazard Information" for information on containing fluid spillage.

10. Wash the screen in a clean nonflammable solvent. Allow the screen to dry. Inspect the screen. Replace the screen, if the screen is damaged.

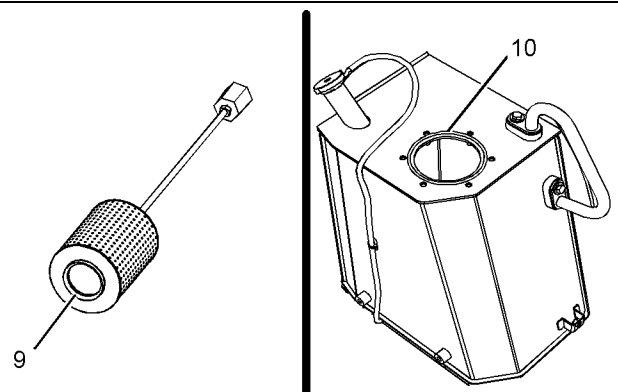


Illustration 353

g03350612

- (9) O-ring seal
- (10) O-ring seal

11. Remove O-ring seal (9) from the old screen.

12. Inspect O-ring seals (9) and (10). Replace the O-ring seals if wear or damage is evident.
13. Install O-ring seal (9) on screen (8).
14. Install screen (8) and spring (7). Then install cover (6), washers (5), and bolts (4).

Note: Make sure that the O-ring seals and the spring are properly positioned during installation.

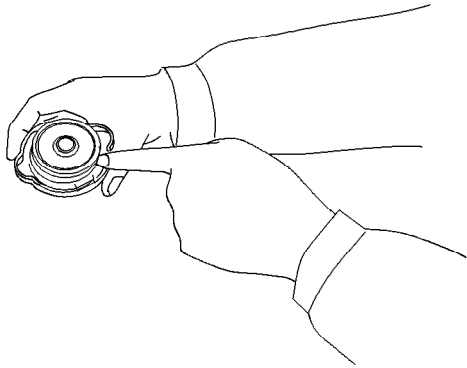


Illustration 354

g00101462

15. Inspect the pressure cap. Clean the pressure cap. Replace the pressure cap if damage is evident.
16. Install the pressure cap.
17. Close the access door on the right side of the machine.

i03753191

Indicators and Gauges - Test

SMCS Code: 7450-081; 7490-081

1. Look for broken lenses on the gauges, broken indicator lights, broken switches, and other broken components in the cab.
2. Start the engine.
3. Look for inoperative gauges.
4. Turn on all machine lights. Check for proper operation.
5. Move the machine forward. Release the travel levers and the travel pedals. The machine should stop.
6. Stop the engine.
7. Make any repairs that are required before operating the machine.

i07203750

Lifting Hook - Inspect

SMCS Code: 6459-040

Note: Designate a person to inspect the hook frequently. The designated person should inspect the hook prior to operation and during operation. The designated person will determine if the conditions that are found are a hazard. The designated person will determine if a more detailed inspection is required.

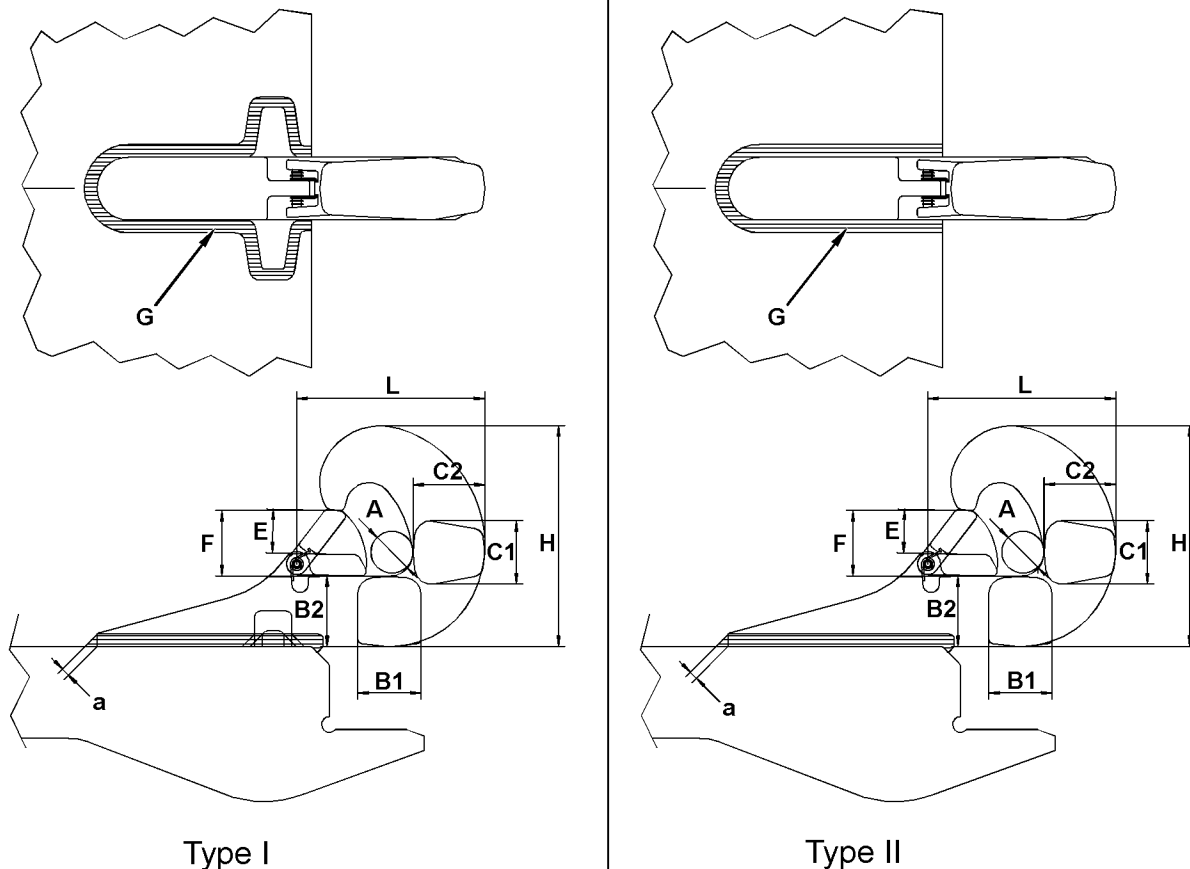


Illustration 355

g01540013

(A) Maximum diameter of bar
(B1) Nominal width of bottom
(B2) Nominal height of bottom
(C1) Nominal width of front

(C2) Nominal height of front
(E) Actual throat clearance
(F) Full throat clearance
(G) Required height of weld (a)

(H) Nominal height of hook
(L) Nominal length of hook

1. Inspect the hook for any distortion such as bends in the hook or twists in the hook.
2. Inspect the dimensions of the throat (E) and (F). An increase in the dimensions of the throat must not exceed 5% of the original dimensions of the throat. Refer to Illustration 355 for the dimensions of the throat.
3. Inspect the hook for wear. An increase in the nominal dimensions (B1), (B2), (C1), (C2), (H), and (L) of the hook must not exceed 10% of the original nominal dimensions of the hook. Refer to Illustration 355 for the nominal dimensions of the hook.
4. Inspect the hook for cracks, nicks, or gouges.
5. Ensure that the latch properly engages. Inspect the latch for any damage. Ensure that the latch is not malfunctioning.

Note: Before continuing to operate the hook, the hook must be repaired or replaced if any of the above conditions exist. Refer to Special Instruction, REHS3357, "Procedure for Installation or Replacement of a Lifting Hook or a Lifting Yoke on Certain Quick Couplers" for additional information.

i02106227

Oil Filter - Inspect

SMCS Code: 1308-507; 5068-507

Inspect a Used Filter for Debris

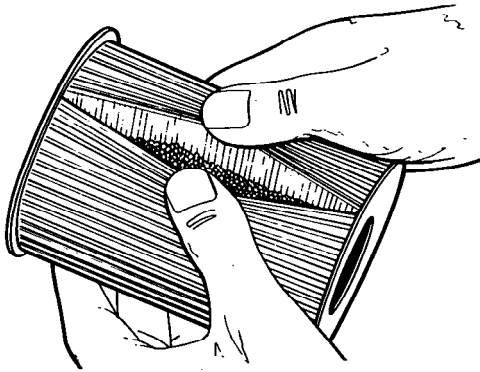


Illustration 356

g00100013

The element is shown with debris.

Use a filter cutter to cut the filter element open. Spread apart the pleats and inspect the element for metal and for other debris. An excessive amount of debris in the filter element can indicate a possible failure.

If metals are found in the filter element, a magnet can be used to differentiate between ferrous metals and nonferrous metals.

Ferrous metals can indicate wear on steel parts and on cast iron parts.

Nonferrous metals can indicate wear on the aluminum parts of the engine such as main bearings, rod bearings, or turbocharger bearings.

Small amounts of debris may be found in the filter element. This could be caused by friction and by normal wear. Consult your Caterpillar dealer in order to arrange for further analysis if an excessive amount of debris is found.

Using an oil filter element that is not recommended by Caterpillar can result in severe engine damage to engine bearings, to the crankshaft, and to other parts. This can result in larger particles in unfiltered oil. The particles could enter the lubricating system and the particles could cause damage.

i01819738

Quick Coupler - Check

SMCS Code: 6129-535; 6700-535

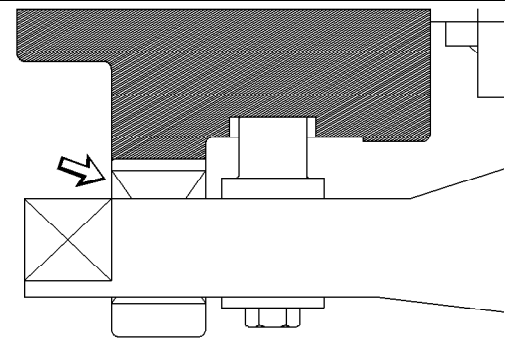


Illustration 357

g00584367

1. Ensure that there is a visible space between the wedge and the quick coupler frame. If there is no space, the mounting bracket or the quick coupler may be damaged or worn. Contact your Caterpillar dealer.

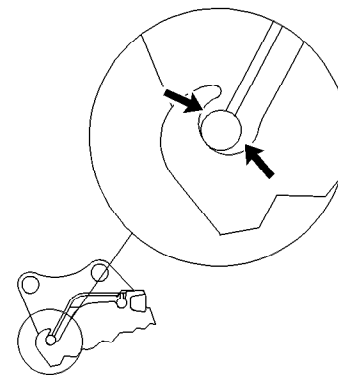


Illustration 358

g00584389

2. Check if there is play between the quick coupler and the mounting bracket. Contact your Caterpillar dealer.

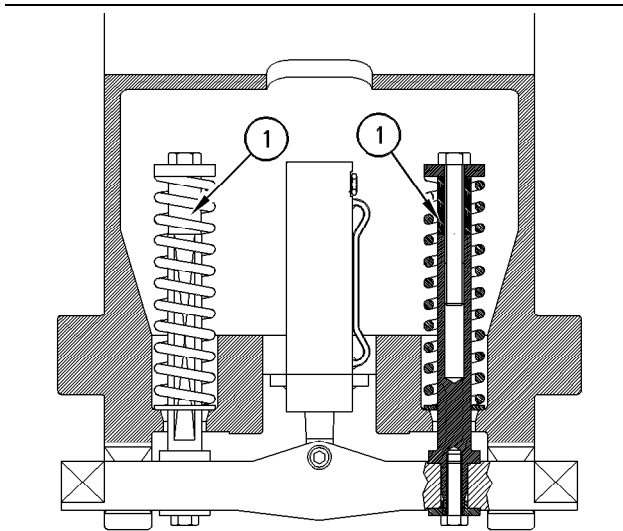


Illustration 359

g00584390

3. Visually inspect the shafts (1). The shafts (1) must be straight. Replace the shafts (1) if the shafts are bent.

i02166325

Quick Coupler - Clean/Inspect

SMCS Code: 6129-070; 6129-040

! WARNING

Personal injury or death can result from improperly checking for a leak.

Always use a board or cardboard when checking for a leak. Escaping air or fluid under pressure, even a pin-hole size leak, can penetrate body tissue causing serious injury, and possible death.

If fluid is injected into your skin, it must be treated immediately by a doctor familiar with this type of injury.

Note: Do not weld on the quick coupler without consulting your Caterpillar dealer.

Note: Clean the quick coupler prior to inspection in order to properly inspect the quick coupler.

Note: Refer to Operation and Maintenance Manual, "Daily Inspection" for additional information.

1. Inspect the hydraulic lines and the hydraulic fittings for damage or for wear. Repair any worn components or replace any worn components. Repair any leaking components.

2. Inspect the locking pins that secure the quick coupler to the host machine.
3. Inspect the steel material of the quick coupler for cracks.
4. Inspect the warning signs and labels. Replace warning signs or labels that are missing. Replace warning signs or labels when you cannot read the warning signs or labels. Refer to Operation and Maintenance Manual, "Safety Messages" for additional information.

i05815772

Quick Coupler - Lubricate (Mechanical Pin Grabber Quick Coupler (If Equipped))

SMCS Code: 6129-086

1. Release the work tool from the quick coupler. Ensure that the work tool is in a stable and safe storage position on the ground. Refer to Operation and Maintenance Manual, "Quick Coupler Operation - Mechanical Pin Grabber Quick Coupler" for the proper procedure.

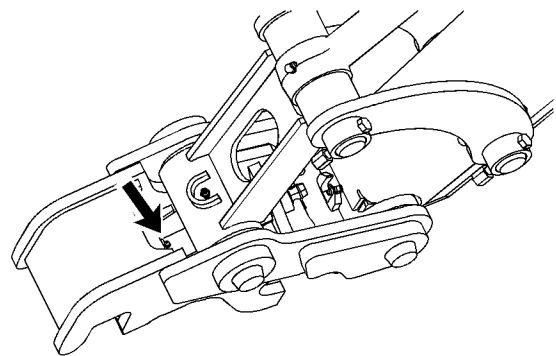


Illustration 360

g03681390

2. Wipe off the fitting before you lubricate the fitting.
3. Apply grease to the fitting of the quick coupler.
4. Check that all pin retainers are in place and that all bolts and nuts are tight.
5. Check the full operation of all the moving parts within the quick coupler. Repair or replace immediately if required.
6. Check that there is no material buildup around the rear locking mechanism, threaded actuator, or wedge plate. Check that there is no material buildup around the front locking mechanism.

7. Check the quick coupler for cracks, bent components, or wear.

i05815789

Quick Coupler - Lubricate (Hydraulic Pin Grabber Quick Coupler (If Equipped))

SMCS Code: 6129-086

1. Uncouple the work tool from the quick coupler. Ensure that the work tool is in a stable and safe storage position on the ground. Refer to Operation and Maintenance Manual, "Quick Coupler Operation - Hydraulic Pin Grabber Quick Coupler" for the proper procedure.

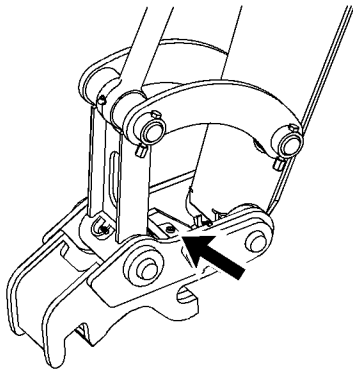


Illustration 361

g03681395

2. Wipe off the fittings before you lubricate the fitting.
3. Apply grease to the fittings of the quick coupler.
4. Check that all pin retainers are in place and that all bolts and nuts are tight, including the hydraulic cylinder mounting bolts.
5. Check the hydraulic hoses and fittings for any leaks, damage, or wear. Replace immediately if required.
6. Check the full operation of all the moving parts within the quick coupler. Repair or replace immediately if required.
7. Check that there is no material buildup around the rear locking mechanism, cylinder, or wedge plate. Check that there is no material buildup around the front locking mechanism.
8. Check the quick coupler for cracks, bent components, or wear.

i05264214

Radiator Core - Clean

SMCS Code: 1353-070

1. Open the right side access cover.

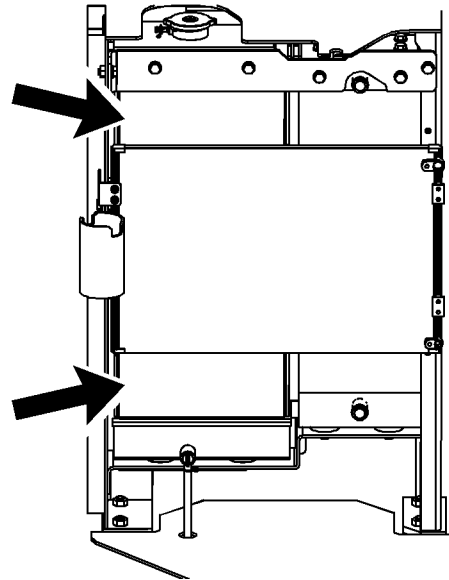


Illustration 362

g03350919

2. Inspect the radiator core for dust or debris.
3. You can use compressed air, high-pressure water, or steam to remove dust and other debris from the radiator fins. However, the use of compressed air is preferred.
4. Close the right side access cover.

i08192239

i05252973

Receiver Dryer (Refrigerant) - Replace

SMCS Code: 7322-710; 7322-510

WARNING

Personal injury can result from contact with refrigerant.

Contact with refrigerant can cause frost bite. Keep face and hands away to help prevent injury.

Protective goggles must always be worn when refrigerant lines are opened, even if the gauges indicate the system is empty of refrigerant.

Always use precaution when a fitting is removed. Slowly loosen the fitting. If the system is still under pressure, release it slowly in a well ventilated area.

Personal injury or death can result from inhaling refrigerant through a lit cigarette.

Inhaling air conditioner refrigerant gas through a lit cigarette or other smoking method or inhaling fumes released from a flame contacting air conditioner refrigerant gas, can cause bodily harm or death.

Do not smoke when servicing air conditioners or wherever refrigerant gas may be present.

Use a certified recovery and recycling cart to properly remove the refrigerant from the air conditioning system.

NOTICE

If the refrigerant system has been open to the outside air (without being plugged) for more than 30 minutes, the receiver-dryer must be replaced. Moisture will enter an open refrigerant system and cause corrosion which will lead to component failure.

Prepare the machine for maintenance. Refer to Operation and Maintenance Manual, "Prepare the Machine for Maintenance".

Refer to Service Manual, "Air Conditioning and Heating R-134a for All Caterpillar Machines" for the proper procedure to change the receiver-dryer assembly and for the procedure to reclaim the refrigerant gas.

Rollover Protective Structure (ROPS) - Inspect

SMCS Code: 7323-040; 7325-040

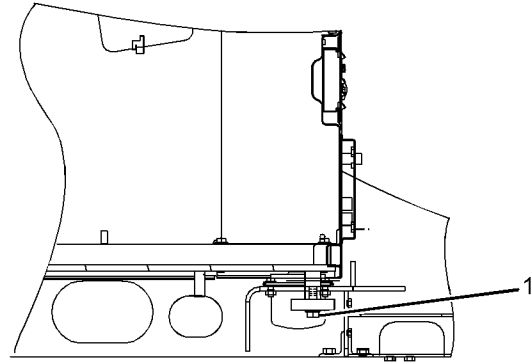


Illustration 363

g01961918

Consult your Caterpillar dealer for repair of any cracks in the ROPS.

Inspect the ROPS for loose bolts or for damaged bolts. Replace any damaged bolts or missing bolts with original equipment parts only. Tighten the M24 bolt (1) to $425 \pm 50 \text{ N}\cdot\text{m}$ ($315 \pm 40 \text{ lb}\cdot\text{ft}$).

Consult your Cat dealer for inspection of any potential damage or repair of any damage to any operator protective structure. (Including ROPS, FOPS, TOPS, OPS, and OPG) Refer to Special Instruction, SEHS6929, "Inspection, Maintenance, and Repair of Operator Protective Structures (OPS) and Attachment Installation Guidelines for All Earthmoving Machinery"

i04423622

Seat Belt - Inspect

SMCS Code: 7327-040

Always inspect the condition of the seat belt and the condition of the seat belt mounting hardware before you operate the machine. Replace any parts that are damaged or worn before you operate the machine.

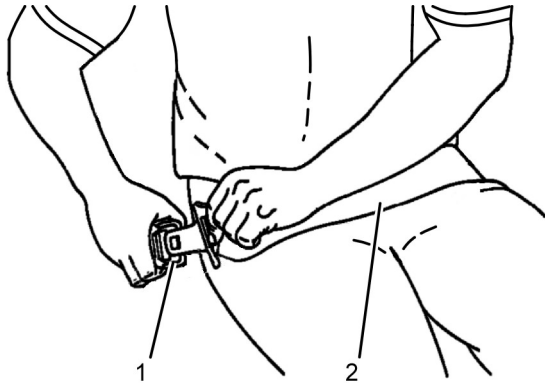


Illustration 364

g02620101

Typical example

Inspect buckle (1) for wear or for damage. If the buckle is worn or damaged, replace the seat belt.

Inspect seat belt (2) for webbing that is worn or frayed. Replace the seat belt if the webbing is worn or frayed.

Inspect all seat belt mounting hardware for wear or for damage. Replace any mounting hardware that is worn or damaged. Make sure that the mounting bolts are tight.

If your machine is equipped with a seat belt extension, also perform this inspection procedure for the seat belt extension.

Contact your Cat dealer for the replacement of the seat belt and the mounting hardware.

Note: The seat belt should be replaced within 3 years of the date of installation. A date of installation label is attached to the seat belt retractor and buckle. If the date of installation label is missing, replace belt within 3 years from the year of manufacture as indicated on belt webbing label, buckle housing, or installation tags (non-retractable belts).

i06891605

Seat Belt - Replace**SMCS Code:** 7327-510

The seat belt should be replaced within 3 years of the date of installation. A date of installation label is attached to the seat belt retractor and buckle. If the date of installation label is missing, replace belt within 3 years from the year of manufacture as indicated on belt webbing label, buckle housing, or installation tags (non-retractable belts).

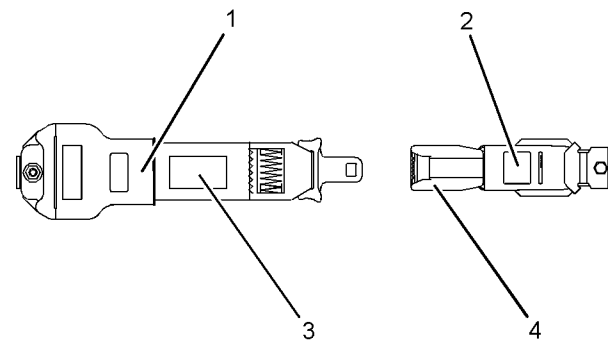


Illustration 365

g01152685

Typical Example

- (1) Date of installation (retractor)
- (2) Date of installation (buckle)
- (3) Year of manufacture (tag) (fully extended web)
- (4) Year of manufacture (underside) (buckle)

Consult your Cat dealer for the replacement of the seat belt and the mounting hardware.

Determine age of new seat belt before installing on seat. A manufacture label is on belt webbing and imprinted on belt buckle. Do not exceed install by date on label.

Complete seat belt system should be installed with new mounting hardware.

Date of installation labels should be marked and affixed to the seat belt retractor and buckle.

Note: Date of installation labels should be permanently marked by punch (retractable belt) or stamp (non-retractable belt).

If your machine is equipped with a seat belt extension, also perform this replacement procedure for the seat belt extension.

i04760749

Swing Bearing - Lubricate**SMCS Code:** 7063-086

Wipe the fittings before lubricating the swing bearings.

i04759228

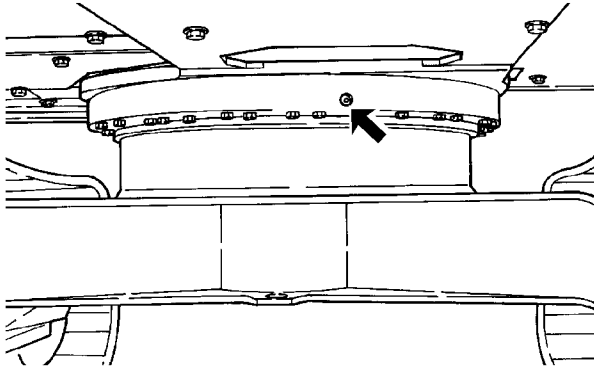


Illustration 366

g02854636

One fitting is on the front of the swing bearing and one fitting is on the rear of the swing bearing.

Apply lubricant through the fittings until the lubricant overflows the bearing seals.

i04752171

Swing Frame Pin - Lubricate

SMCS Code: 6506-086; 6507-086

1. Lower all work tools to the ground.
2. Wipe all grease fittings before you lubricate the grease fittings.

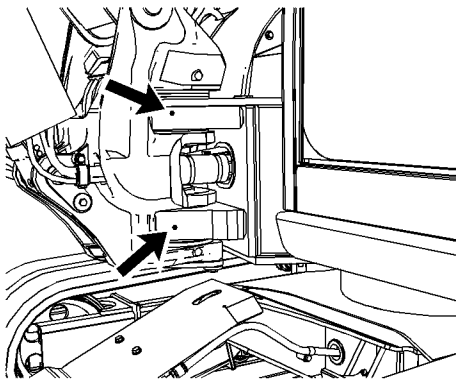


Illustration 367

g02848616

3. Apply lubricant to the grease fittings for the swing frame.

Swing Gear - Lubricate

SMCS Code: 7063-086

NOTICE

Improper lubrication can cause damage to machine components.

To avoid damage, make sure that the proper amount of grease is applied to the swing drive.

When the amount of grease in the compartment becomes too large, the agitation loss becomes large, thereby accelerating grease deterioration.

Grease deterioration can cause damage to the pinion gear of the swing drive and swing internal gear.

Not enough grease will result in poor gear lubrication.

Wipe all of the fittings before you apply lubricant.

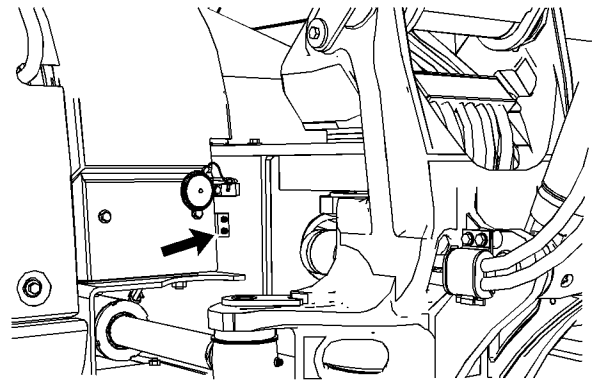


Illustration 368

g02852846

1. Add lubricant through fitting.

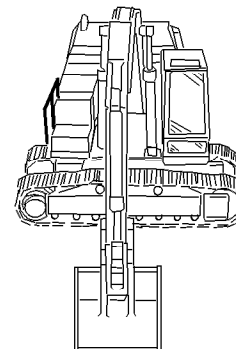


Illustration 369

g00101644

2. Raise the boom and turn the upper structure by 90 degrees. Lower the bucket to the ground.

3. Repeat Step 1 at every 90 degrees in 4 places.

i04759263

Swing Gear and Bearing - Inspect

SMCS Code: 7063-040

NOTICE

Improper lubrication can cause damage to machine components.

To avoid damage, make sure that the proper amount of grease is applied to the swing drive.

When the amount of grease in the compartment becomes too large, the agitation loss becomes large, thereby accelerating grease deterioration.

Grease deterioration can cause damage to the pinion gear of the swing drive and swing internal gear.

Not enough grease will result in poor gear lubrication.

Remove the inspection cover that is located near the swing motor. Inspect the lubricant.

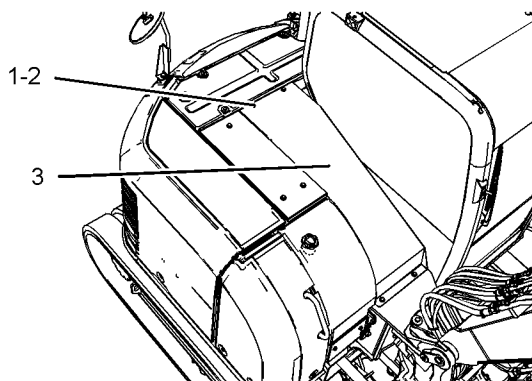


Illustration 370

g02853277

1. Remove four bolts (1) and washers (2).
2. Remove cover (3).

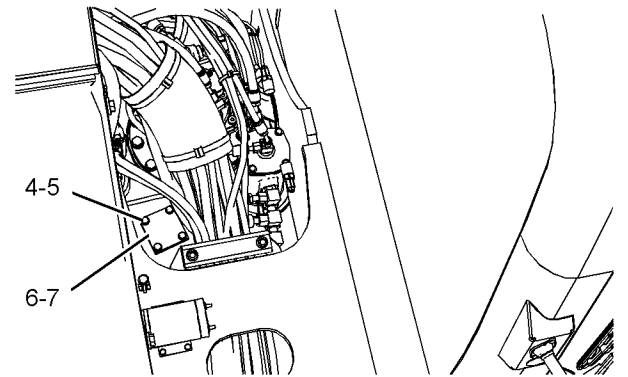


Illustration 371

g02853024

3. Remove bolts (4) and washers (5).

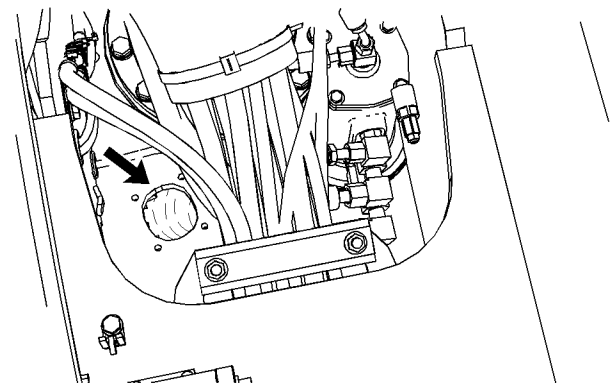


Illustration 372

g02853556

4. Remove cover (6) and gasket (7).
5. Inspect the gasket. Replace the gasket if damage is evident.
6. Check the level of grease. The level of grease is correct when:
 - Waves of grease are present from the rotating swing drive pinion.
 - The grease is evenly distributed on the floor of the pan.

Note: Smearred or waveless areas are evidence for a lack of grease.

Note: Add grease, as needed. Remove grease, as needed. Too much grease will result in the deterioration of the grease because of excessive movement of the grease. Too little grease will result in poor lubrication of the swing gear.

Refer to Operation and Maintenance Manual, "Capacities (Refill)" for the size of the pan.

7. Check for contamination and for discolored lubricant.
8. If the lubricant is contaminated or discolored with water, change the lubricant.

Note: Refer to Operation and Maintenance Manual, "Swing Gear - Lubricate" for the lubricating procedure.

9. Install the gasket and all covers.

i02972095

Thumb - Lubricate (If Equipped)

SMCS Code: 6547-086

Standard Thumb

1. Lower all work tools to the ground.
2. Wipe off the fittings before you lubricate the fittings.

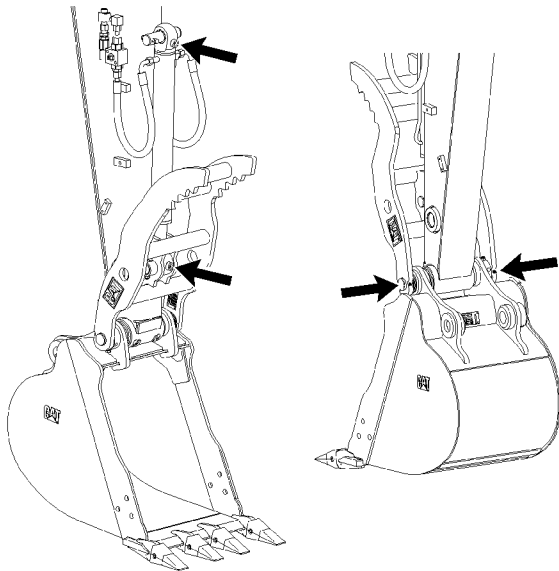


Illustration 373

g01499873

typical example of a standard thumb

3. Apply grease to the fittings.

There are lubrication fittings on each end of the cylinder and fittings on each side of the thumb.

4. Check the overall condition of the thumb. Look for the following conditions: loose bolts, worn parts, broken parts, missing parts and damaged parts. Make any necessary repairs.

Progressive Link Thumb

1. Lower all work tools to the ground.
2. Wipe off the fittings before you lubricate the fittings.

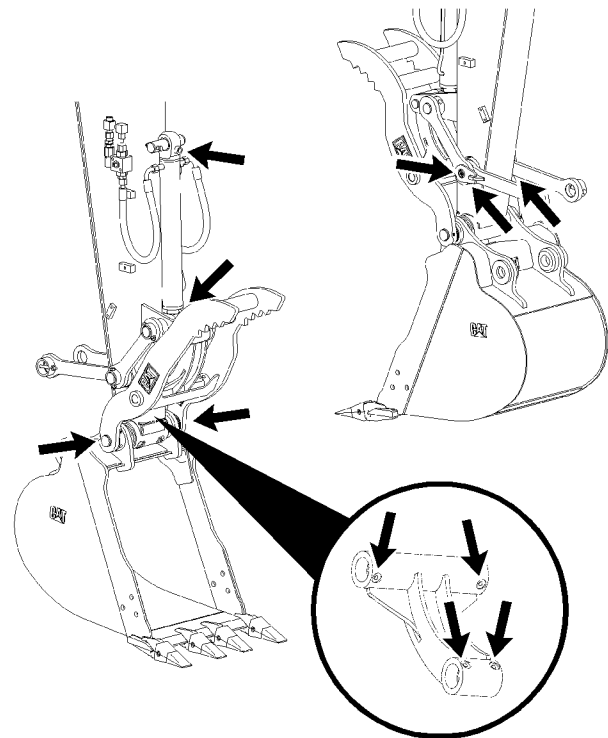


Illustration 374

g01501813

Typical example of a progressive link thumb

3. Apply grease to the fittings.

There are lubrication fittings in the following locations: each end of the cylinder, each side of the thumb, both of the side links, the pin and four fittings on the progressive link.

4. Check the overall condition of the thumb. Look for the following conditions: loose bolts, worn parts, broken parts, missing parts and damaged parts. Make any necessary repairs.

i05647259

Track Adjustment - Adjust

SMCS Code: 4170-025

WARNING

Personal injury or death can result from grease under pressure.

Grease coming out of the relief valve under pressure can penetrate the body causing injury or death.

Do not watch the relief valve to see if grease is escaping. Watch the track or track adjustment cylinder to see if the track is being loosened.

Loosen the relief valve one turn only.

If track does not loosen, close the relief valve and contact your Caterpillar dealer.

NOTICE

Keeping the track properly adjusted will increase the service life of the track and drive components.

Note: The track tension must be adjusted according to the current operating conditions. Keep the track as slack as possible if the soil is heavy.

Measuring Track Tension

1. Operate the machine in the direction of the idlers.

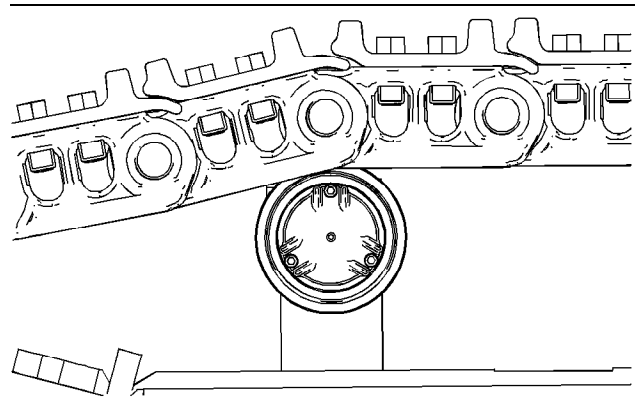


Illustration 375

g01103855

2. Stop with one track pin directly over the front carrier roller. Park the machine and turn off the engine.

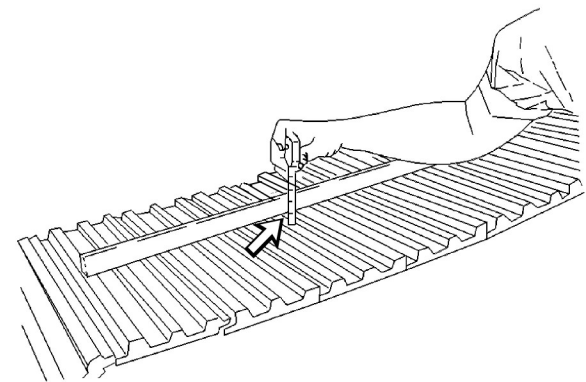


Illustration 376

g03472827

3. Place a straight edge on top of the track grousers between the front carrier roller and the idler. The straight edge should be long enough to reach from the front carrier roller to the idler.

Note: If your machine is equipped with three carrier rollers, place a straight edge on the tracks between the carrier rollers. The straight edge should be long enough to reach from one carrier roller to another carrier roller.

4. Measure the maximum amount of sag in the track. The sag is measured from the highest point of the track grouser to the bottom of the straight edge. A track that is properly adjusted will have a sag of 40.0 to 55.0 mm (1.57 to 2.17 inch).

5. If the track is too tight, or if the track is too loose, adjust the track tension according to the appropriate procedure below.

Adjusting Track Tension

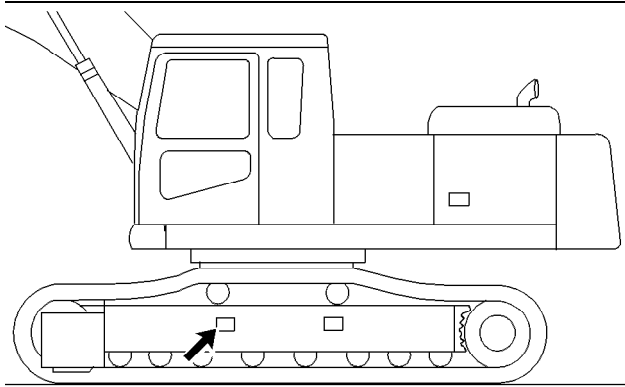


Illustration 377

g00270405

Typical example

The track adjuster is located on the track frame.

Tightening the Track

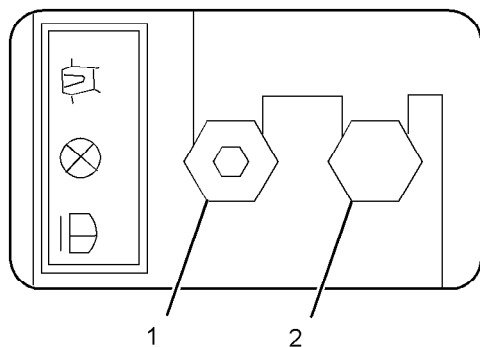


Illustration 378

g01091134

- (1) Grease fitting
(2) Relief valve

Wipe the fitting before you add grease.

1. Add grease through grease fitting (1) until the correct track tension is reached.
2. Operate the machine back and forth in order to equalize the pressure.
3. Check the amount of sag. Adjust the track, as needed.

Loosening the Track

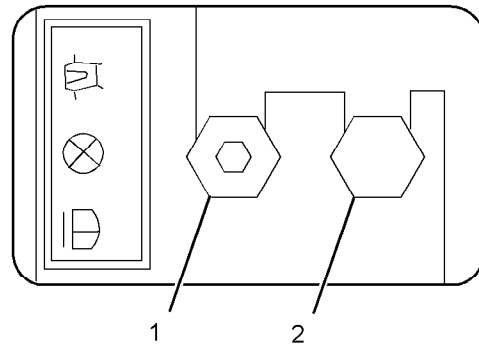


Illustration 379

g01091134

- (1) Grease fitting
(2) Relief valve

1. Loosen relief valve (2) carefully until the track begins to loosen. One turn should be the maximum.
2. Tighten relief valve (2) to $34 \pm 5 \text{ N}\cdot\text{m}$ ($25 \pm 4 \text{ lb ft}$) when the desired track tension is reached.
3. Operate the machine back and forth in order to equalize the pressure.
4. Check the amount of sag. Adjust the track, as needed.

i08029349

Track Adjustment - Adjust

SMCS Code: 4170-025

⚠ WARNING

Personal injury or death can result from grease under pressure.

Grease coming out of the relief valve under pressure can penetrate the body causing injury or death.

Do not watch the relief valve to see if grease is escaping. Watch the track or track adjustment cylinder to see if the track is being loosened.

Loosen the relief valve one turn only.

If track does not loosen, close the relief valve and contact your Caterpillar dealer.

NOTICE

Keeping the track properly adjusted will increase the service life of the track and drive components.

Note: The track tension must be adjusted according to the current operating conditions. Keep the track as slack as possible if the soil is heavy.

Measuring Track Tension

1. Swing the upper structure so that the upper structure is perpendicular to the tracks.
2. Lower the bucket to the ground.
3. Raise the blade fully.
4. Apply gradual downward pressure with the boom until the track is lifted off the ground.
5. Block the machine by using the appropriate blocks and lower the frame onto the blocks.

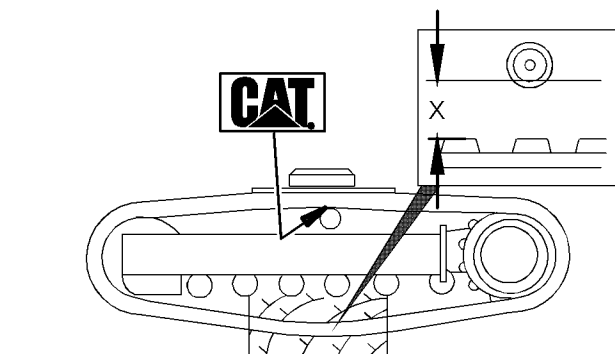


Illustration 380

g03766738

6. Operate the track until the “CAT” symbol that is on the track is above the track carrier roller.
7. Measure the distance between the track and the machined surface of the track roller. For rubber tracks, dimension (X) should be 30 to 40 mm (1.2 to 1.6 inch). For steel tracks, dimension (X) should be 50 to 60 mm (2.0 to 2.4 inch). Adjust the tension on the track until dimension (X) is reached.
8. Tighten the tension of the track. Refer to Operation and Maintenance Manual, “Track Adjustment - Adjust” for the correct procedure.

9. Repeat Step 1 through Step 8 for the other track.

Adjusting Track Tension

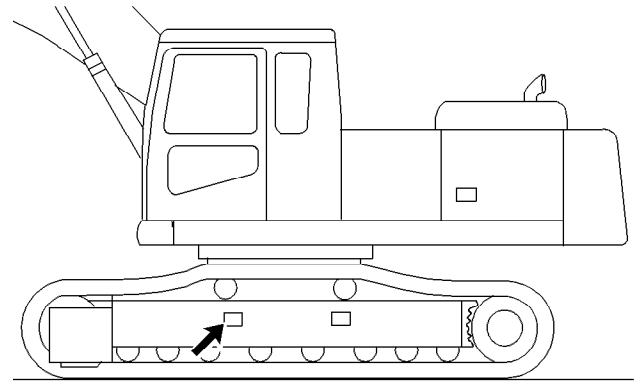


Illustration 381

g00270405

Typical example

The track adjuster is on the track frame.

Tightening the Track

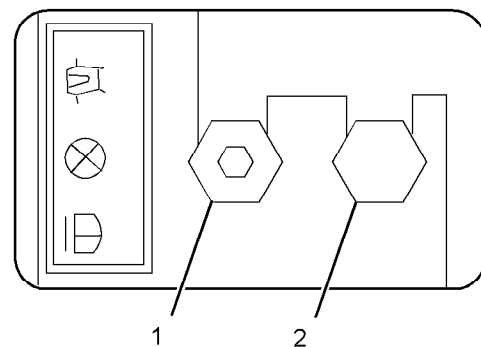


Illustration 382

g01091134

- (1) Grease fitting
(2) Relief valve

Wipe the fitting before you add grease.

1. Add grease through grease fitting (1) until the correct track tension is reached.
2. Operate the machine back and forth to equalize the pressure.
3. Check the amount of sag. Adjust the track, as needed.

If the correct adjustment cannot be achieved, consult your Cat dealer.

Loosening the Track

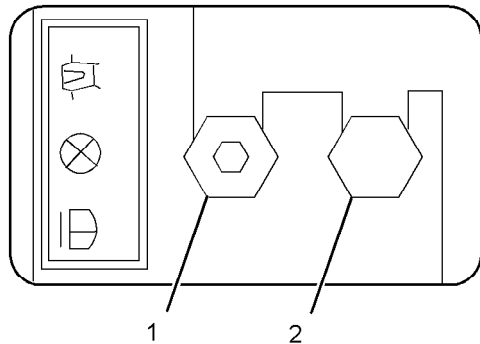


Illustration 383

g01091134

- (1) Grease fitting
(2) Relief valve

1. Loosen relief valve (2) carefully until the track begins to loosen. One turn should be the maximum.
2. Tighten relief valve (2) to $34 \pm 5 \text{ N}\cdot\text{m}$ ($25 \pm 4 \text{ lb ft}$) when the desired track tension is reached.
3. Operate the machine back and forth to equalize the pressure.
4. Check the amount of sag. Adjust the track, as needed.

If the correct adjustment cannot be achieved, consult your Cat dealer.

Storage of Rubber Belt Tracks (If Equipped)

If a rubber track needs to be stored for an extended time, store the rubber track in a well ventilated area that is not exposed to direct sunlight. The tracks should be operated monthly while the tracks are in storage. If the rubber track is not stored on a machine, do not roll the track in a small radius.

Break in Period for the Rubber Track (If Equipped)

A rubber track that has been replaced requires a break-in period of 200 service hours. Adjust the track in 50-hour intervals during the break-in period.

i01590290

Track Adjustment - Inspect

SMCS Code: 4170-040

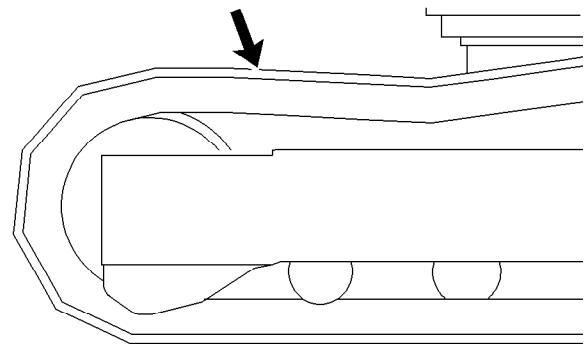


Illustration 384

g00824541

Check the track adjustment. Check the track for wear and for excessive dirt buildup.

If the track appears to be too tight or too loose, refer to Operation and Maintenance Manual, "Track Adjustment - Adjust".

i04748850

Travel Alarm - Test (If Equipped)

SMCS Code: 7429-081

Move the machine in order to test the travel alarm.

1. Start the engine. Move the hydraulic lockout control to the UNLOCKED position.

Maintenance Section
Undercarriage - Check

2. Raise the work tool in order to avoid any obstacles. Make sure that there is adequate overhead clearance.

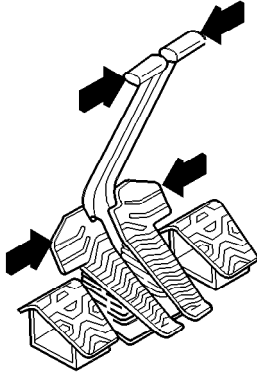


Illustration 385

g00560313

3. Use the travel levers or the travel pedals to move the machine forward. The travel alarm should sound.
4. Release the travel levers and the travel pedals in order to stop the machine.
5. Use the travel levers and the travel pedals to move the machine backward. The travel alarm should sound.

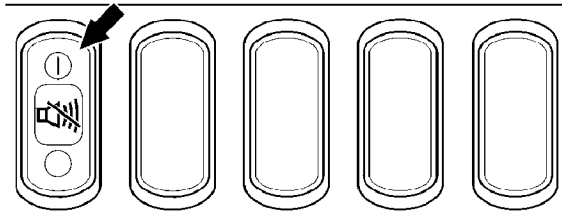


Illustration 386

g02845760

6. Push the alarm cancel switch. The travel alarm should shut off.
7. Stop the machine. Lower the work tool. Move the hydraulic lockout control to the LOCKED position. Stop the engine.

i00854400

Undercarriage - Check

SMCS Code: 4150-535

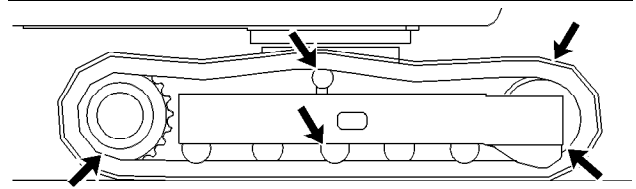


Illustration 387

g00425258

1. Check the carrier rollers, the track rollers, and the idler wheels for possible leakage.
2. Check the surface of the track, the carrier rollers, the track rollers, the idler wheels, the track shoes, and the drive sprockets. Look for signs of wear and loose mounting bolts.
3. Listen for any abnormal noises while you are moving slowly in an open area.
4. If abnormal wear exists or abnormal noises or leaks are found, consult your Caterpillar dealer.

i04745953

Window Washer Reservoir - Fill

SMCS Code: 7306-544-KE

NOTICE

When operating in freezing temperatures, use Caterpillar or any commercially available nonfreezing window washer solvent.

1. Open the engine access door.

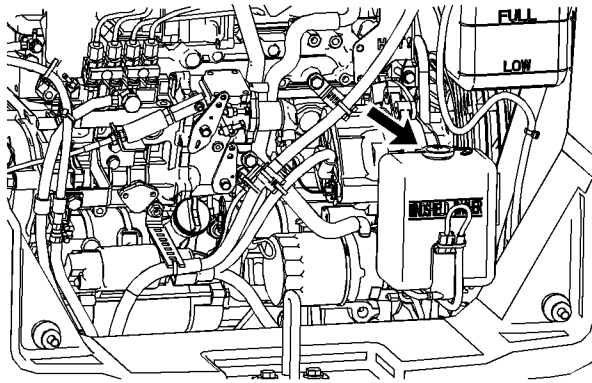


Illustration 388

g02843319

2. Remove the filler cap.
3. Fill the window washer reservoir with washer fluid through the filler opening.
4. Install the filler cap.
5. Close the engine access door.
6. The window washer nozzles can be adjusted so that the washer fluid will be sprayed in the desired direction.

i01258249

Window Wiper - Inspect/Replace

SMCS Code: 7305-510; 7305-040

Inspect the condition of the wiper blades. Replace the wiper blades if the wiper blades are worn or damaged or if streaking occurs.

i05867976

Windows - Clean

SMCS Code: 7310-070; 7340-070

Clean the outside of the windows from the ground, unless handholds are available.

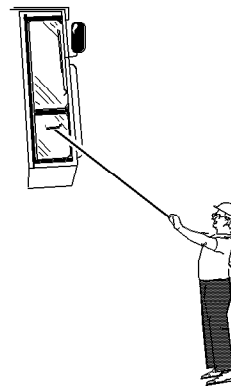


Illustration 389

g00566124

Typical example

Cleaning Methods

Aircraft Window Cleaner

Apply the cleaner with a soft cloth. Rub the window with moderate pressure until all the dirt is removed. Allow the cleaner to dry. Wipe off the cleaner with a clean soft cloth.

Soap and Water

Use a clean sponge or a soft cloth. Wash the windows with a mild soap or with a mild detergent. Also use plenty of lukewarm water. Rinse the windows thoroughly. Dry the windows with a moist chamois or with a moist cellulose sponge.

Stubborn Dirt and Grease

Wash the windows with a good grade of naphtha, of isopropyl alcohol, or of Butyl Cellosolve. Then, wash the windows with soap and with water.

Polycarbonate Windows (If equipped)

Special care is needed in order to clean polycarbonate windows.

Wash polycarbonate windows with mild soap and warm water that does not exceed 50° C (122° F). Use a soft sponge, or damp cloth. Never use a dry cloth or paper towels on polycarbonate windows. Rinse the windows with a sufficient amount of clean cold water.

Note: Naphtha or kerosene can be used in order to remove labels, films, paint, or marking pen from polycarbonate windows.

Note: Do not use abrasive, or highly alkaline cleaners. Do not use sharp instruments, such as squeegees or razor blades on polycarbonate windows. Do not clean polycarbonate windows in the hot sun or at elevated temperatures.

Warranty Section

Warranty Information

i04758056

Emissions Warranty Information

SMCS Code: 1000

Refer to the "KUBOTA Corporation FEDERAL & CALIFORNIA EMISSION CONTROL SYSTEMS LIMITED WARRANTY for NON-ROAD ENGINES (CI)" for details.

Reference Information Section

Reference Materials

i08292374

Reference Material

SMCS Code: 1000; 7000

Additional literature regarding your product may be purchased from your local Cat dealer or by visiting publications.cat.com. Use the product name, sales model, and serial number to obtain the correct information for your product.

publications.cat.com

i08292382

Decommissioning and Disposal

SMCS Code: 1000; 7000

When the product is removed from service, local regulations for the product decommissioning will vary. Disposal of the product will vary with local regulations.

Improperly disposing of waste can threaten the environment. Obey all local regulations for the decommissioning and disposal of materials.

Utilize appropriate personal protective equipment when decommissioning and disposing product.

Consult the nearest Cat dealer for additional information. Including information for component remanufacturing and recycling options.

i09756411

Caterpillar Approved Work Tools

SMCS Code: 6700; 7007

NOTICE

Use only work tools that are recommended by Caterpillar. The use of work tools that are not recommended by Caterpillar could damage your machine. Consult your Cat[®] dealer for information on recommended work tools.

The following work tools have been approved by Caterpillar. Refer to Operation and Maintenance Manual for each work tool for proper operation, maintenance, and servicing of the work tools.

Using work tools of other manufactures, or work tools which have been released for other excavators, can reduce the machines output and stability. Work tools of other manufactures can also damage the machine and cause injuries to the operator or other personnel.

Always compare the weight of the work tool and maximum payload of work tool with the indications in the lift capacity table. Never exceed the maximum payload stated in the lift capacity table.

Table 81

Caterpillar Approved Work Tools	
Work Tool	308E2 CR Mini Hydraulic Excavator
Buckets	(1)
Quick Coupler	Hydraulic Dual Lock Pin Grabber Quick Coupler
	Manual Dual Lock Pin Grabber Quick Coupler
	Manual Tilting Pin Lock Quick Coupler
	Manual Pin Grabber Quick Coupler
Thumbs	Hydraulic Thumbs (pin-on bucket)
	Hydraulic Thumbs (coupler)
	Stiff-Link Thumbs (pin-on bucket)
	Stiff-Link Thumbs (coupler)
	Progressive-Link Thumbs (pin-on bucket)
	Progressive-Link Thumbs (coupler)
Auger	A26B Auger
Vibratory Plate Compactor	CVP40 CVP55
Shank	Ripper Shank
Flail Mower	HMF210
Mulcher	HM208
Mulcher	HM210
Cold Planer	PC35 PC45
	DC-12 B
Compaction Wheel	DC-18 B
	DC-24 B
	DC-36 B
Hammer	B6
	B8

(1) Refer to "Boom/Stick/Bucket Combinations" for more information.

Refer to Operation and Maintenance Manual, "Maintenance Interval Schedule" for more information.

This list was completed at the time of publication. There may be additional work tools that have been approved since that time. Consult your Cat[®] dealer for an updated list of approved work tools.

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Product and Dealer Information

Note: For product identification plate locations, see the section "Product Identification Information" in the Operation and Maintenance Manual.

Delivery Date: _____

Product Information

Model: _____

Product Identification Number: _____

Engine Serial Number: _____

Transmission Serial Number: _____

Generator Serial Number: _____

Attachment Serial Numbers: _____

Attachment Information: _____

Customer Equipment Number: _____

Dealer Equipment Number: _____

Dealer Information

Name: _____ Branch: _____

Address: _____

Dealer Contact

Phone Number

Hours

Sales: _____

Parts: _____

Service: _____

SEBU9004
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