

CX27B EXCAVATORS

OPERATOR'S MANUAL

Part Number: 87458477

CNH AMERICA LLC TECHNICAL MANUALS

Manuals are available from your Dealer for the operation, service, and repair of your machine. For prompt convenient service, contact your Dealer for assistance in obtaining the manuals for your machine.

Your Dealer can expedite your order for Operator's Manuals, Parts Catalogs, Service Manuals, and Maintenance records.

Always give the Machine Name, Model, and P.I.N. (Product Identification Number) or S.N. (Serial Number) of your machine so your Dealer can provide the correct manuals for your machine.

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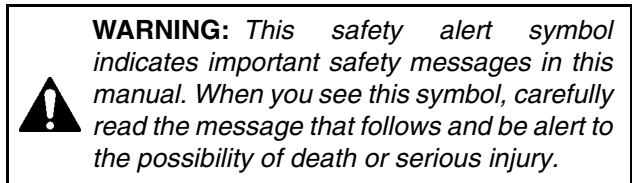
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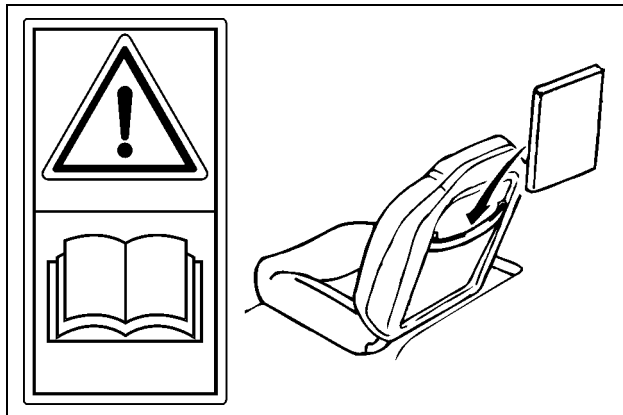
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SAFETY RULES



M171C

Most accidents involving machine operating and maintenance can be avoided by following basic safety rules and precautions. Read and understand all the safety messages in this manual, the safety manual and the safety signs on the machine before you operate or service the machine. See your dealer if you have any questions.



BC02N197

Figure 1

OPERATOR'S MANUAL STORAGE SPACE

READ THIS MANUAL COMPLETELY and make sure you understand the controls. All equipment has a limit. Make sure you understand the speed, brakes, steering, stability, and load characteristics of this machine before you start to operate this machine.

DO NOT remove this manual or the safety manual from the machine. See your dealer for additional manuals. Also see the manual information on the Title pages (first and second pages in front of the Table of Contents) of this manual.

The safety information given in this manual does not replace safety codes, insurance needs, federal, state, or local laws. Make sure that your machine has the correct equipment according to these rules or laws.




Additional safety messages are used in the text of the manual to show specific safety hazards.

IMPORTANT: *The safety messages in this chapter point out conditions which can happen during the normal operation and maintenance of your machine. These safety messages also give possible ways of dealing with these conditions.*

PERSONAL SAFETY

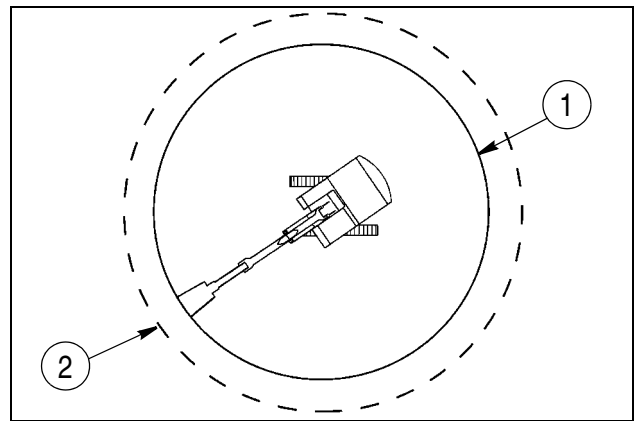
If Safety Decals on this machine are ISO two panel Pictorial, decals are defined as follows:

- The first panel indicates the nature of the hazard.
- The second panel indicates the appropriate avoidance of the hazard.
- Background color is YELLOW

Prohibition symbols such as   and  if used, are RED.

SAFETY AREA

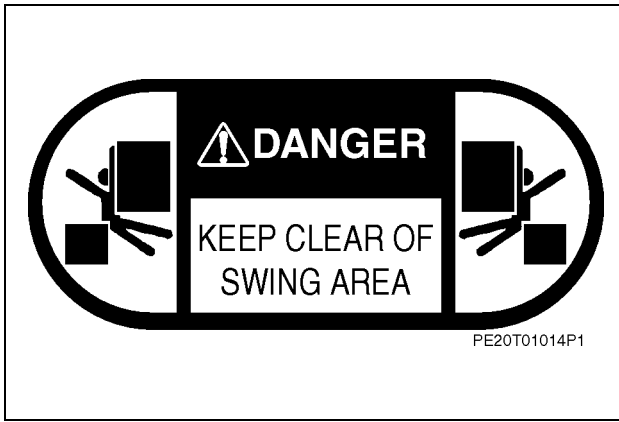
The safety area is the space necessary for the machine to operate at the maximum range of the tool is a full 360° swing plus 6 feet (2 metres).



BC02N198

Figure 2

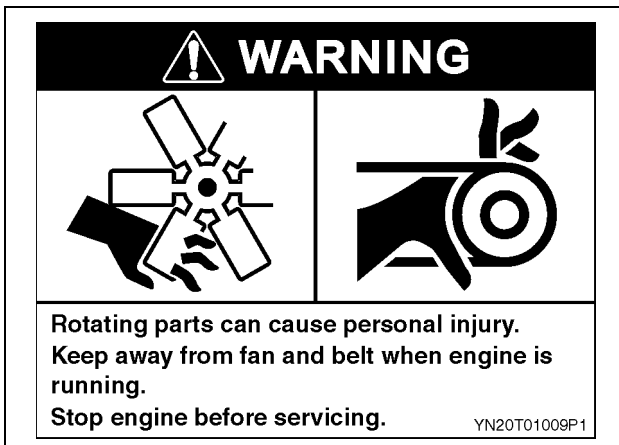
1. WORKING AREA
2. SAFETY AREA



PE20T01014P1 Figure 16

7. PART NUMBER PE20T01014P1

LOCATED ON RADIATOR COVER



YN20T01009P1 Figure 17

8. PART NUMBER YN20T01009P1

LOCATED ON THE ENGINE RADIATOR



YN20T01338P1 Figure 18

9. PART NUMBER YN20T01338P1

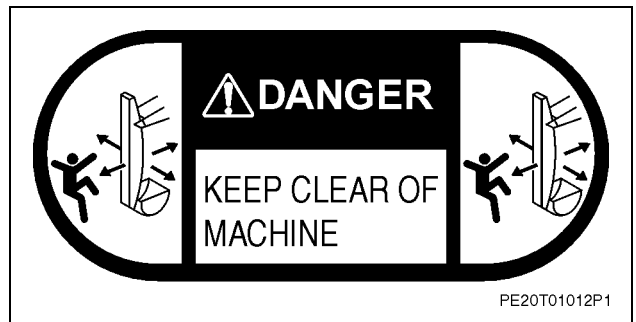
LOCATED ON THE BATTERY BOX COVER



2432T6110 Figure 19

10. PART NUMBER 2432T6110

LOCATED ON THE CRAWLER FRAME



PE20T01012P1 Figure 20

11. PART NUMBER PE20T01012P1

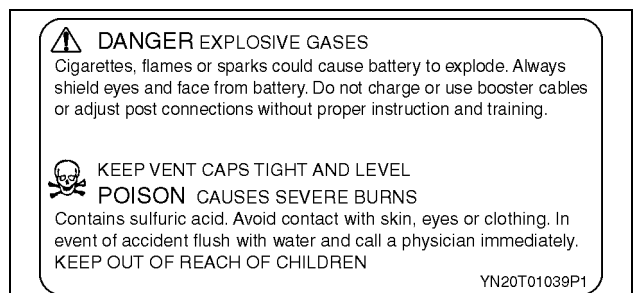
LOCATED ON BOTH SIDES OF THE ARM



PY20T01077P1 Figure 21

12. PART NUMBER PY20T01077P1

LOCATED ON SEAT STAND

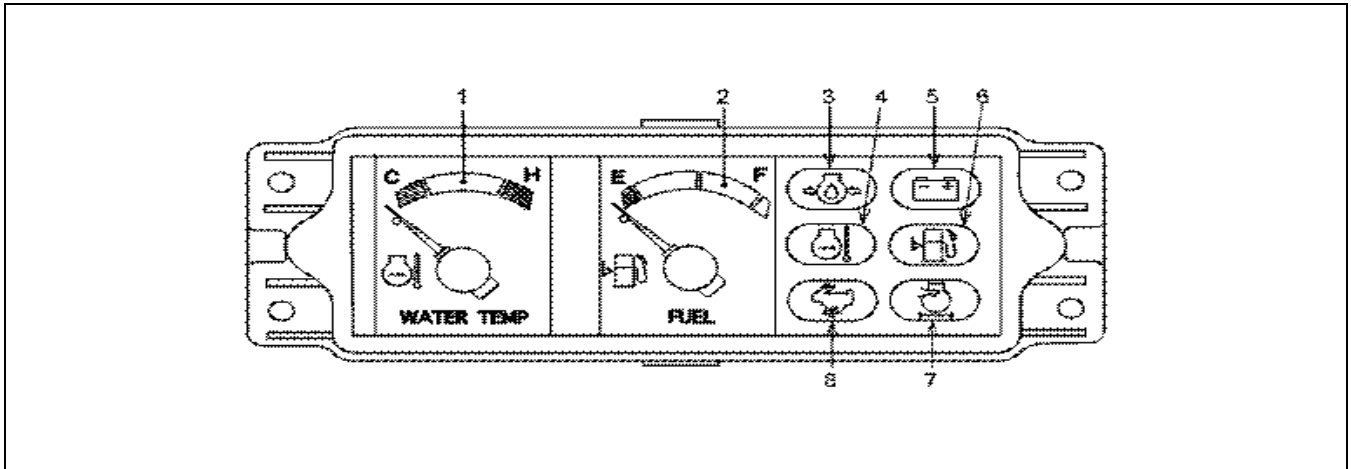


PY20T01069P1 Figure 22

13. PART NUMBER PY20T01069P1

LOCATED ON THE BATTERY BOX COVER

INSTRUMENT PANEL

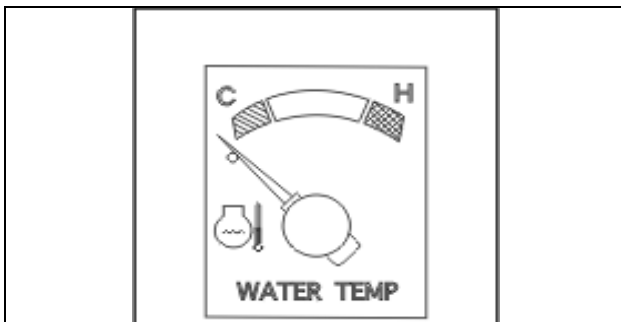


BS04H246

Figure 11

1. ENGINE COOLANT (WATER) TEMPERATURE INDICATOR
2. FUEL LEVEL INDICATOR
3. ENGINE OIL PRESSURE INDICATOR LAMP
4. COOLANT TEMPERATURE INDICATOR LAMP
5. BATTERY CHARGE/INDICATOR LAMP
6. LOW FUEL WARNING LAMP
7. AIR CLEANER CLOGGING LAMP
8. HIGH (2ND) TRAVEL SPEED LAMP

1. ENGINE WATER (COOLANT) TEMPERATURE INDICATOR



BS04H247

Figure 12

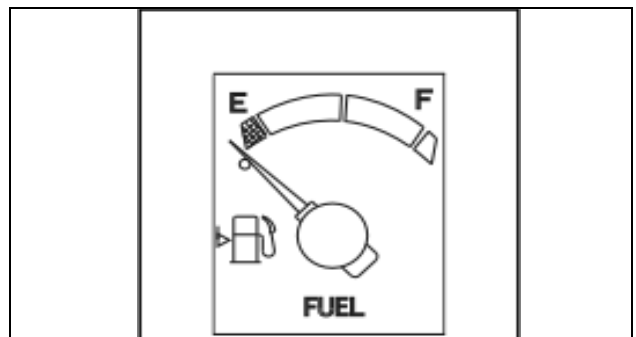
The indicator functions when the key switch is in the ON position.

This indicator is divided into three zones:

- 2 - Red Zone: Hot
- 1 - White Zone: Normal operating temperature
- 3 - Blue Zone: Cold

IMPORTANT: *If the needle is in the red zone, move the machine to a safe location, lower the attachment to the ground, slow engine to idle until water temperature returns to the white zone, normal operating temperature.*

1. FUEL LEVEL INDICATOR



BS04H248

Figure 13

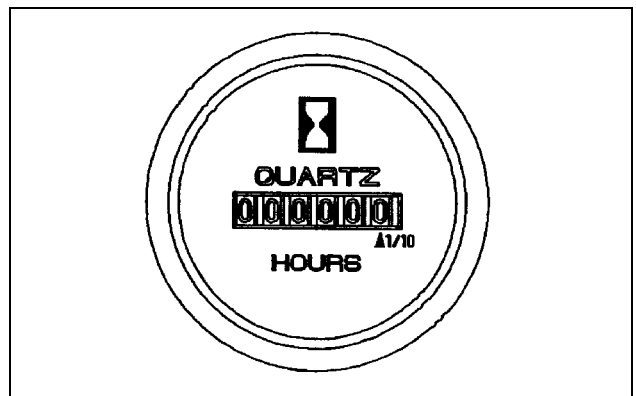
This indicates the level of fuel in the fuel reservoir. The indicator functions when the key switch is in the ON position. Normally the needle will take time to move up to the correct fuel level after turning the key switch to the ON position.

F indicates a Full reservoir.

E indicates an Empty reservoir

When the indicator needle moves closer to the E (Empty) zone, fuel needs to be added in the reservoir.

2. HOURMETER



BS04H259

Figure 14

The hourmeter indicates the total time the engine has run.

Chapter 4

OPERATING INSTRUCTIONS

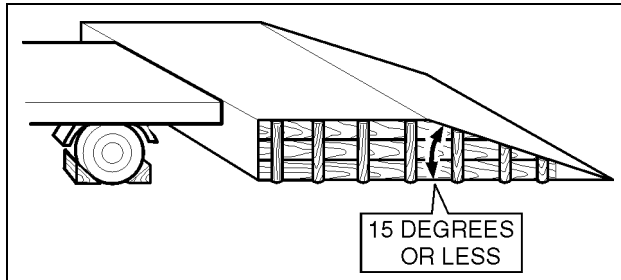
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NOTE: In the normal travel position, the operator has the travel reduction gears or final drives to the rear of the upperstructure. If the upperstructure is turned 180° from this position the travel lever functions are reversed.

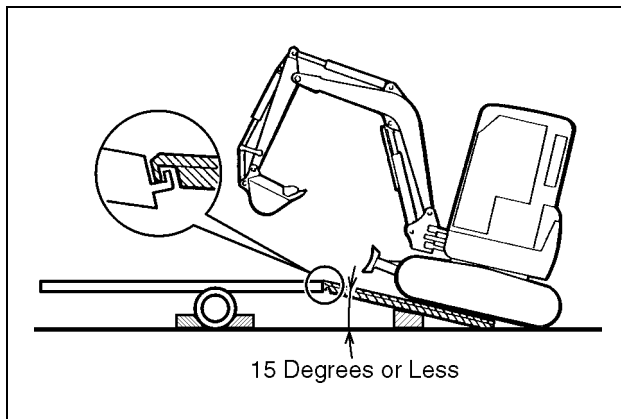
Make sure you know the safety rules and regulations before transporting the machine. Make sure both trailer and machine are fitted with the right safety equipment.

1. Place blocks in front and behind the trailer wheels.
2. Raise the dozer blade. (if equipped).



BC02N401

Figure 23

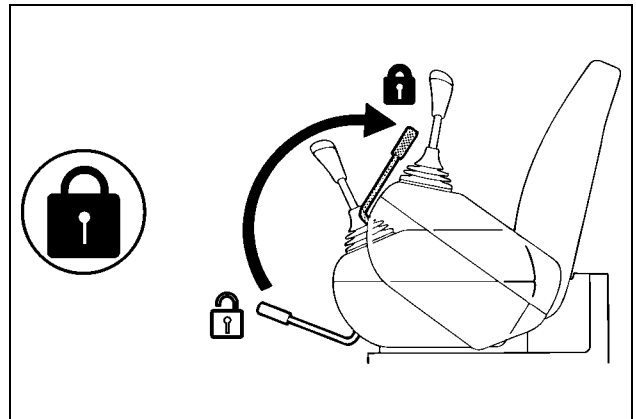


BC02N393

Figure 24

3. Place the machine in line with the truck or trailer, with the travel reduction gears towards the rear of the machine.
4. Raise the attachment and bring it to about twenty centimeters above the ramp.
5. When moving from the ramps onto the truck or trailer bed, raise the boom slightly as soon as the attachment touches the truck or trailer to bring the machine level and then move forward until the machine is resting entirely on the truck or trailer.
6. When the machine is completely on the truck or trailer, raise the attachment slightly and swing the upperstructure to bring the attachment around to the access ramp side.
7. Place the machine completely in front of the truck or trailer.

8. Lower the attachment and the dozer blade (if equipped) to the floor of the truck or trailer.

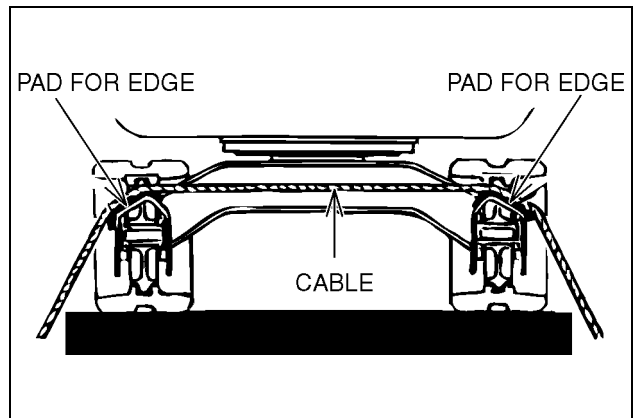


BC02N365

Figure 25

Figure 26

9. Shut down the engine, remove the starter switch key, raise the function cancellation lever.
10. Make sure that the control function cancellation lever is in the raised position (Locked).
11. Make sure all control levers are set in the NEUTRAL position.
12. Make sure that all doors, hoods and access panels are correctly locked.



BC02N394

Figure 27

13. Use blocks and cables to fasten the machine and the attachment to the truck or trailer.

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COOLANT SOLUTION

Put only ethylene-glycol coolant solution in the cooling system. Use good quality ethylene-glycol that has a high boiling point, with no additives to prevent leakage. Do not use non-approved anti-rust additives. Anti-rust additives and ethylene-glycol can mix and work against each other, thereby reducing anti-corrosion protection, forming deposits in the cooling system and causing damage to the cooling system and radiator.

Contact your Dealer who will supply you with the suitable coolant solution.

ANTI-FREEZE/ANTI-CORROSION

Use anti-freeze in all seasons to protect the cooling system from corrosion and all risk of freezing.

For areas where the ambient temperature is over -36°C (-33°F), use a blend of 50% ethylene-glycol based anti-freeze.

For areas where the temperature is below -36°C (-33°F), it is advisable to use a blend of 40% water and 60% anti-freeze.

FUEL

Use diesel fuel suitable for the ambient temperature conditions (ASTM-D-975).

Use fuel which is to ASTM (American Society for Testing and Materials) D975 standard.

Use grade No. 2 fuel. The use of other types of fuel can result in a loss of power of the engine and may cause high fuel consumption.

In cold weather, it is tentatively approved to use a mixture of fuels No. 1 and No. 2. Consult your fuel supplier.

If the temperature falls below the fuel cloud point (point at which wax begins to form) the wax crystals will cause power loss or will prevent the engine from starting.

In cold weather, fill the fuel tank at the end of the day's work, in order to prevent the formation of condensation.

FUEL STORAGE

Long storage can lead to the accumulation of impurities and condensation in the fuel. Engine trouble can often be traced to the presence of water in the fuel.

The storage tank must be placed outside and the temperature of the fuel should be kept as low as possible. Drain off water and impurities regularly.

HYDRAULIC FLUID

Case Akcela Hy-Tran Ultra hydraulic fluid is specially designed for high pressure applications and for the Case hydraulic system.

TRANSMISSION COMPONENT OIL

Extreme pressure oil used for enclosed transmission components.

135H EP 85W-140

GREASE

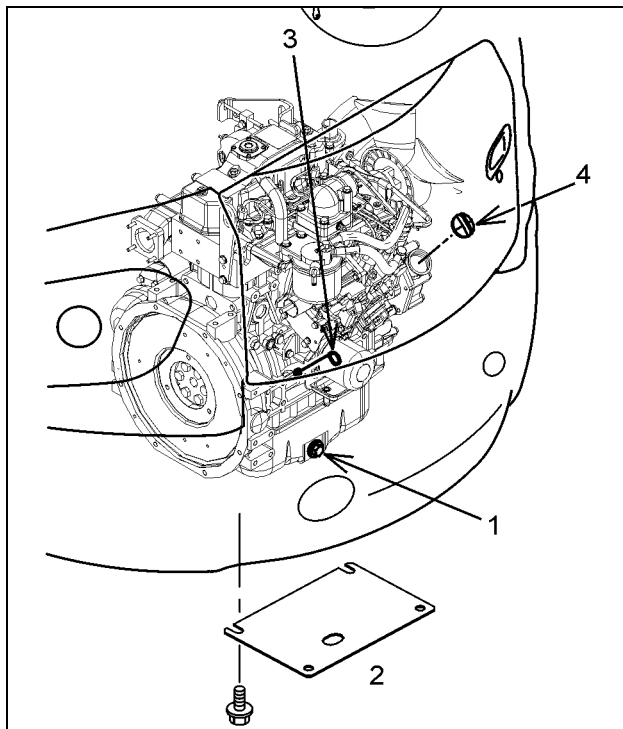
The type of grease to use depends on ambient temperature.

251H EP

ENVIRONMENT

Before carrying out any maintenance operation on this machine and before disposing of used fluids or lubricants, always think of the environment. Never throw oil or fluid on the ground and never place it in leaking receptacles.

Contact your local Dealer to obtain information on the correct method of disposing of these lubricants.

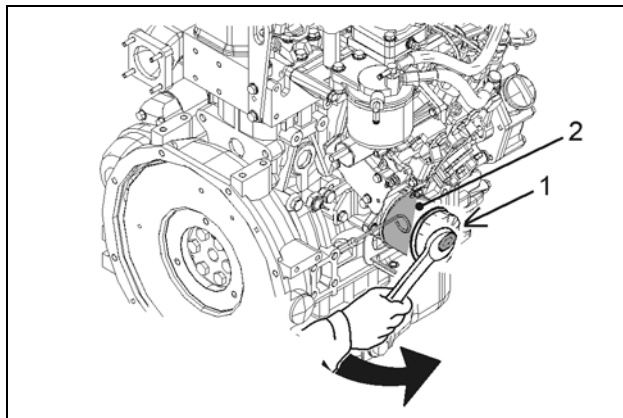


BS04H262

Figure 15

1. DRAIN PLUG (ENGINE OIL)
2. ACCESS COVER (ENGINE OIL)
3. DIP STICK (ENGINE OIL)
4. FILL CAP (ENGINE OIL)

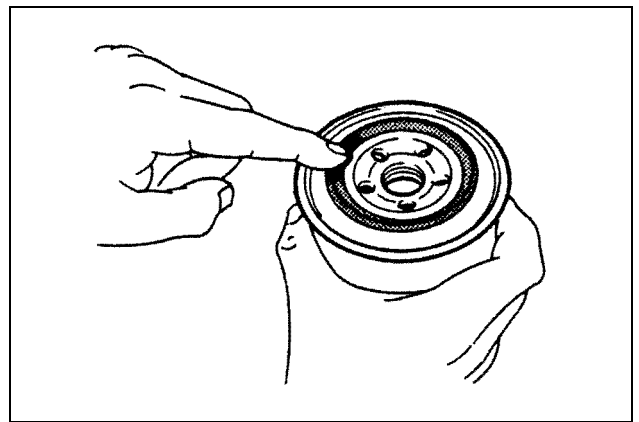
6. Install the drain plug.



BS04H216

Figure 16

7. Use a wrench (1) to rotate the oil filter (2) counterclockwise to loosen the oil filter. Remove the oil filter (2).



BC02N232

Figure 17

8. Coat the seal of the new filter with a light film of engine oil.

9. Install the new filter. Turn the filter until the seal comes into contact with the filter head by hand. Then tighten an additional 1/2 to 2/3 turn.

IMPORTANT: Do not use a filter wrench to tighten the filter. Excessive tightening can damage the filter and the seals.

10. Fill the engine with new engine oil. Install the filler cap.

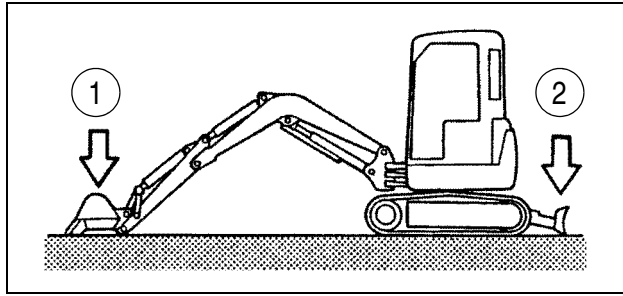
11. Run the engine for a few minutes and check that there are no leaks. Stop the engine.

12. Install the access cover below the engine oil drain plug.

13. Check the oil level and add additional oil if necessary.

IMPORTANT: Always wait approximately ten minutes to allow the oil to return to the reservoir before checking the oil level.

HYDRAULIC RESERVOIR ACCESS

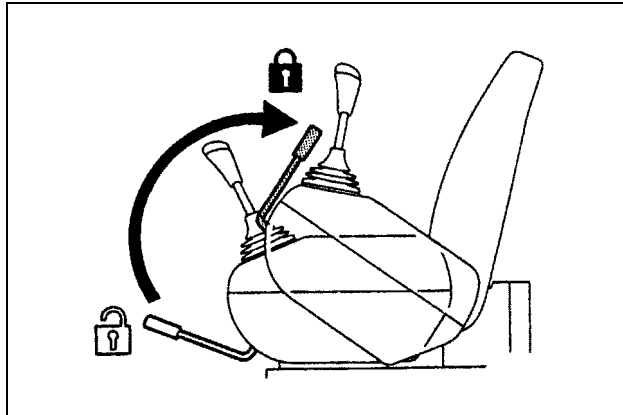


BC02N240

Figure 30

- 1. BUCKET
- 2. DOZER BLADE

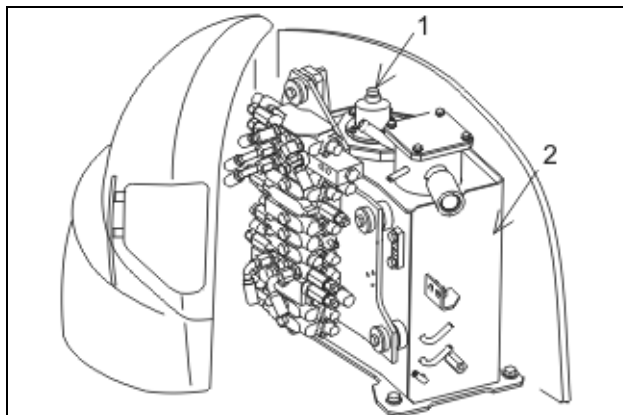
1. Place the machine on flat and level ground.
2. Fully retract the arm cylinder and bucket cylinder. Lower the boom and put the bucket on the ground.
3. Lower the dozer blade to the ground.
4. Stop the engine.



BC02N239

Figure 31

5. Pull the safety lock lever up into the locked position.



BS04H215

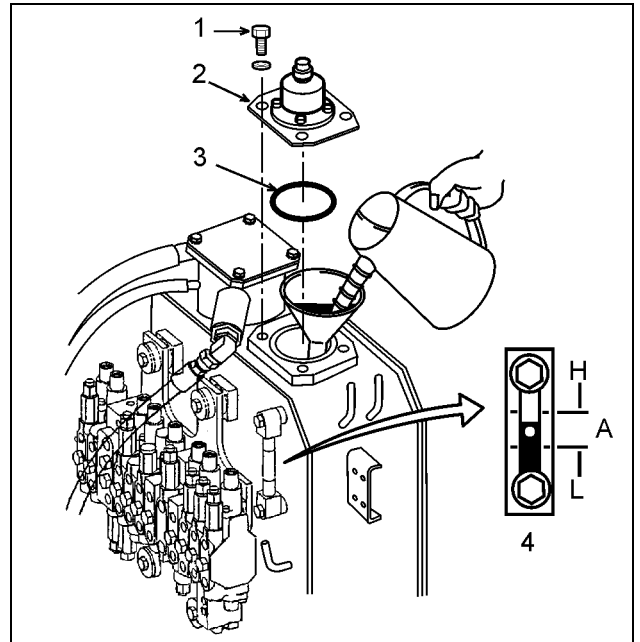
Figure 32

- 1. RUBBER CAP (AIR BREATHER)
- 2. HYDRAULIC RESERVOIR

6. Open the cover for the hydraulic reservoir and use the support rod to hold the cover in position.

CHECKING HYDRAULIC FLUID LEVEL

1. To access the hydraulic reservoir, see Hydraulic Reservoir Access and do steps 1 through 5.



BS04J029

Figure 33

Hydraulic Fluid Temperatures	
L Level (Before Operation)	10 to 30°C (50 to 86°F)
H Level (Normal Operation)	50 to 80°C (122 to 176°F)

2. Check the sight gauge on the side of the hydraulic reservoir.
 - A. See Hydraulic Fluid Temperature chart.
 - B. The fluid must be located between the H and L marks on the sight gauge.
 - C. If the fluid level is below the L mark, go to step 3 to add hydraulic fluid.
 - D. If the hydraulic fluid level is correct, go to step 10.

Chapter 6

MAINTENANCE AND ADJUSTMENTS

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FAN AND ALTERNATOR DRIVE BELT

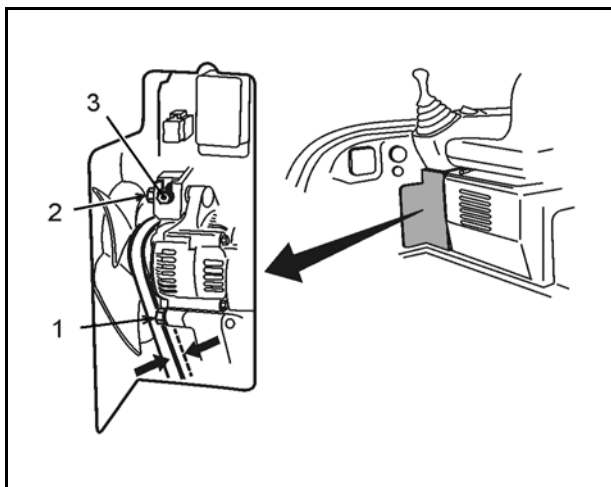
MAINTENANCE SPECIFICATIONS

Visual check Every 10 hours or every day
 Check fan belt tension Every 250 hours
 Belt deflection 8 to 10 mm (0.2 to 0.4 in)

CHECKING DRIVE BELT

Check the fan belt for correct tension, wear, and damage. Wrong belt tension may cause battery charge failure, engine overheating, or additional belt wear. Too much tension may cause belt or bearing damage.

Apply a force of 10 kg (22 lb) to the center of the belt between the pulleys. This will be the deflection.



BS04H214 Figure 25

- 1. ATTACHING BOLT 3. ADJUSTING BOLT
- 2. ADJUSTING BOLT

IMPORTANT: *If the engine runs with the drive belt loose, the drive belt can slip and cause the engine to overheat or the battery to receive insufficient charge.*

WARNING: *Rotating parts can cause personal injury. Keep away from fan and belt when engine is running. make sure to stop engine before servicing.*

CE-NA000

INSPECTING AND CLEANING THE MACHINE

MAINTENANCE SPECIFICATIONS

Inspect and clean Periodically

Or whenever oil or grease has been spilled on the machine. Clean off with steam or a high pressure water jet.

Look for any leaks and check the condition of all pipes and hoses.

Take the opportunity during this operation to make a visual check of all the welded components (in case of appearance of cracks), the attachment linkages and check the teeth and tooth tips for correct retention and for wear.

CHECKING FOR CYLINDER LEAKAGE

A cylinder rod should be slightly oily. Check that there are no leaks after a period of work, when the whole hydraulic system is at normal operating temperature.

1. Wipe clean the rod and bearing on the cylinder to be cleaned.
2. Operate normally for five or ten minutes.
3. Extend the cylinder rod.
4. Carry out the leak test.

ROD APPEARANCE	TEST	CONCLUSION
Dry	Slight traces of oil when a piece of paper is wiped over 20 cm (7.8 in) of the rod.	Normal
Slightly greasy	Paper remains stuck to rod when run over rod.	Normal
Oily	Paper remains stuck when placed on rod.	Normal
Very oily or weeping	Each time the cylinder rod is extended, a ring of oil can be seen on the rod.	See your Dealer
Leakage	Each time the rod retracts, the excess oil drips from the gland.	

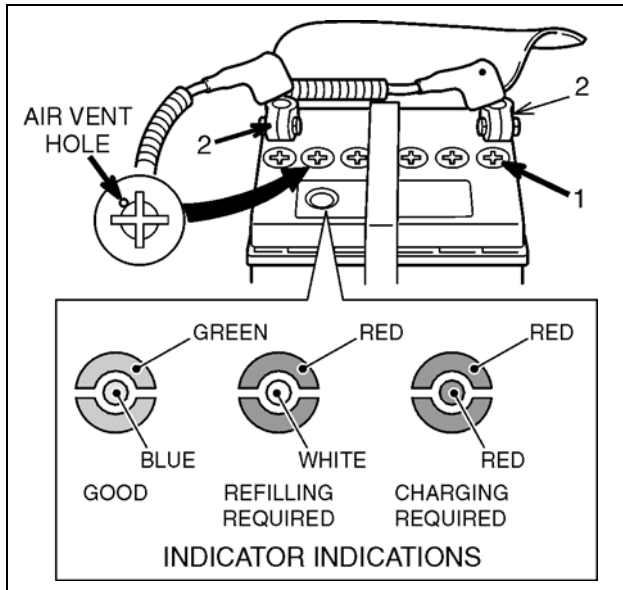
CHECK FOR BATTERY FLUID LEVEL AND SPECIFIC GRAVITY

The battery fluid easily decreases with high temperature in summer season.

Check the battery fluid level in the morning before starting operation.

Continuous use of the battery with low fluid lowers battery performance.

Check for the battery fluid level periodically, and if insufficient, refill the battery with distilled water before the engine start-up (before charging battery).



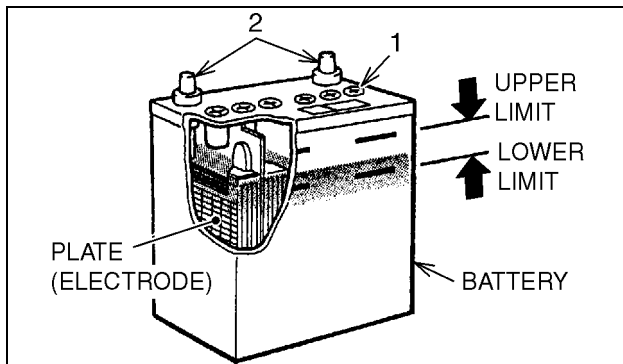
BC02N305

Figure 3

- 1. CAP
- 2. TERMINAL

Check the indicator on the battery, and always keep it at a green color. Red color means insufficient battery fluid or battery charging.

1. Set the safety lock lever to the LOCKED position, then stop the engine.
2. Remove the rear left-hand access panel and open the cover under the seat. The battery is located under the left operating box.



BC02N306

Figure 4

- 1. CAP
- 2. TERMINALS

3. Remove the caps (1) of each cell to check the fluid level.
4. If battery fluid level is low, refill the cell with distilled water up to the specified level 10 - 15 mm (0.4 - 0.6 in) above the plate.
5. Make sure the air vent holes in the caps (1) are clean and securely tighten the caps (1).
6. If the terminals (2) are dirty, wash with warm water, then install it to the position applying grease or spraying rust preventive solution. If the terminal is oxidized, polish it with a wire brush or emery paper.

When it is difficult to obtain enough cranking speed at the engine start-up, check the battery fluid for its specific gravity. If it is insufficient, re-charging is required for the battery. Standard specific gravity for battery fluid 1.28 (at 20°C or 68°F).

NOTE: Measure the specific gravity of battery fluid with a gravimeter. The measured value varies depending on the ambient temperature.

REPLACING A BATTERY

REMOVAL

1. Remove the terminal sleeves, disconnect the cable (negative terminal) then the cable (positive terminal).
2. Remove the nuts, the washers and the angle iron.
3. Remove the battery.
4. Clean the battery compartment.

INSTALLATION

1. Install a new battery. Clean the cables and battery terminals and coat them with grease.
2. Install the angle iron, the washers and tighten the nuts.
3. Connect the cable (positive terminal), the cable (negative terminal) then install the terminal sleeves.

WARNING: Do not invert battery terminals. Connect positive cable ends to positive (+) terminals and negative cable ends to negative terminals (-).

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