



OPERATOR'S MANUAL
SKID STEER
410
SERIES 3
TIER 3



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BD07M308

Figure 11

1. ROPS CAB	5. REAR ACCESS DOOR
2. UPPER REAR ACCESS DOOR	6. REAR TIE DOWN LOCATIONS
3. REAR WORK LIGHT	7. LEFT DRIVE CHAIN ACCESS
4. REAR ROAD LIGHTS	8. LOW PROFILE - HEAVY DUTY BUCKET

Figure 12

BURN PREVENTION

- In order to reduce the risk of fires due to debris build-up in the engine compartment and elsewhere on your skid steer, it is recommended that you check the radiator, coolers and engine compartment for build up of debris, dirt and material that might impede cooling components.

WARNING: BATTERY ACID CAUSES SEVERE BURNS. Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing.

Antidote: **EXTERNAL** - Flush with water.

Antidote: **INTERNAL** - Drink large quantities of water or milk.

DO NOT induce vomiting. Seek medical attention immediately.



EYES - Flush with water for 15 minutes and seek medical attention immediately.

WARNING: BATTERIES PRODUCE EXPLOSIVE GASES. Keep sparks, flame, cigars and cigarettes away. Ventilate when charging or using in enclosed area. Always wear eye protection when working near batteries. Wash hands after handling. **KEEP OUT OF REACH OF CHILDREN.**

M144B

Figure 11

- When the battery electrolyte is frozen, the battery can explode if, you try to charge the battery, or you try to jump start and run the engine. To prevent the battery electrolyte from freezing, try to keep the battery at full charge. If you do not follow these instructions, you or others in the area can be injured.
- Hot coolant can spray out if the radiator cap is removed. To remove the radiator cap, let the cooling system cool, turn to the first notch, wait until the pressure is released, then remove the radiator cap.

HAZARDOUS CHEMICAL PRECAUTIONS

- If you are exposed to or come in contact with hazardous chemicals you can be seriously injured. The fluids, lubricants, paints, adhesives, coolants, etc., used with your machine can be hazardous.
- Before you service this machine and before you dispose of the old fluids and lubricants, always remember the environment. **DO NOT** put oil or fluids into the ground or into containers that can leak.
- Check with your local environmental or recycling center or your dealer for correct disposal information.

TRANSPORTING PRECAUTIONS

- Know the rules, laws, and safety equipment necessary for transporting this machine on a road or highway.

ROLL-OVER PROTECTIVE STRUCTURE

- Do **NOT** modify the ROPS in any manner. Unauthorized modifications such as welding, drilling, cutting, or adding attachments can weaken the structure and reduce your protection. You **MUST** replace the ROPS if it is subjected to roll-over, tip or fire damage. Do not attempt to repair.

FIRE EXTINGUISHER

- It is recommended that you have a fire extinguisher on your machine. Contact your dealer for the type and location of a fire extinguisher on this machine.

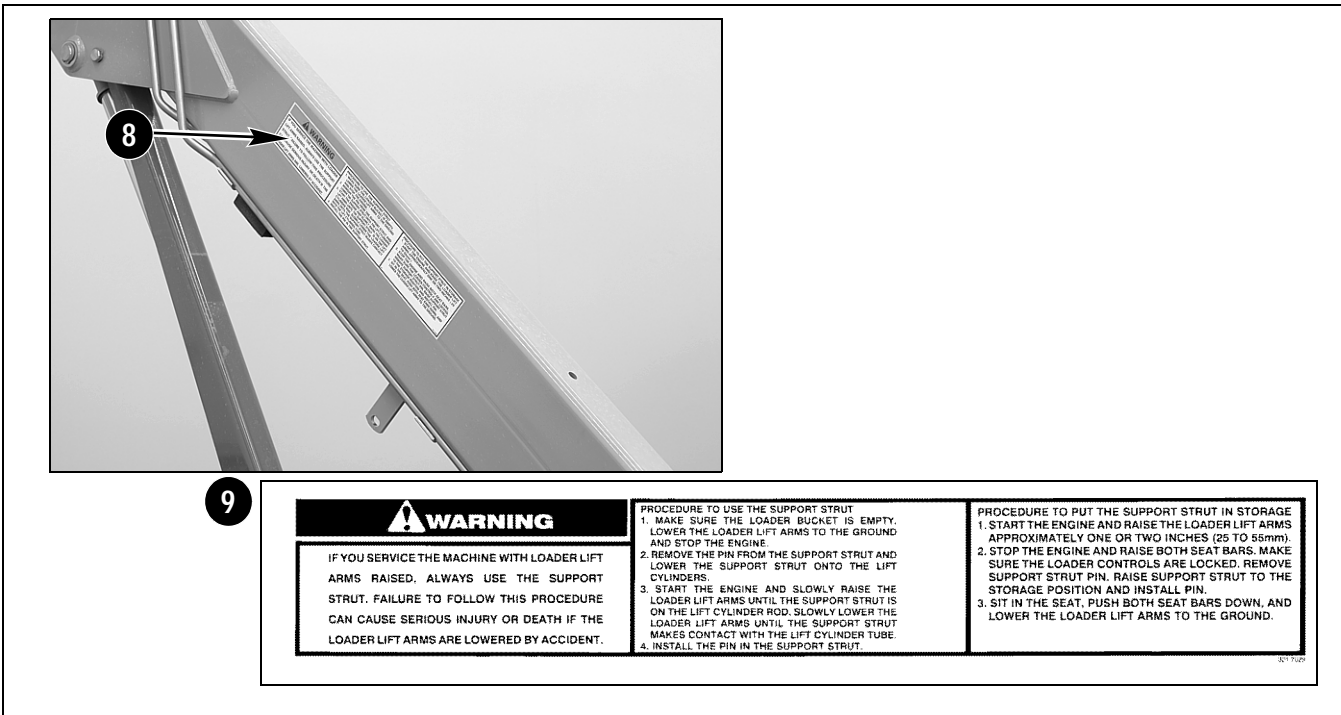


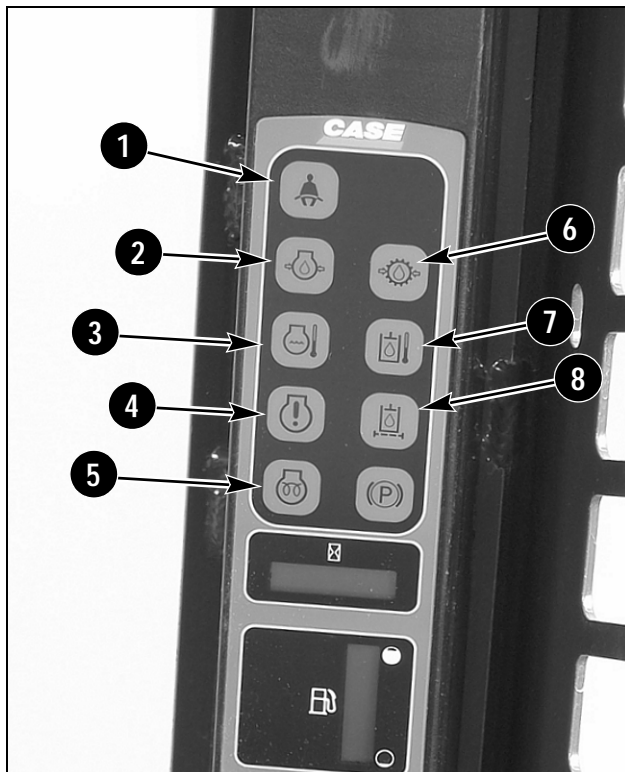
Figure 41

8. DECAL LOCATION IS ON INSIDE OF RIGHT LIFT ARM

9. 321-7029, NORTH AMERICA - **WARNING**: SERVICE PROCEDURES USING LIFT ARM SUPPORT STRUT AND INSTRUCTIONS


STANDARD INSTRUMENT PANEL WARNING LAMPS

These lamps assist the Operator in monitoring the functions of the various machine components. On initial start up these lamps, with the exception of the engine pre-heat lamp, will glow momentarily.




BD07K054

Figure 13

	<p>1. Seat Belt Reminder: This Red lamp flashes to remind the operator to place the restraint bar down into working position and fasten the seat belt.</p>
---	---


BS96H055

Figure 14

	<p>2. Engine Oil Pressure Lamp and Alarm: This Red warning lamp flashes and the alarm sounds if, with the engine running, there is no or low oil pressure in the engine. DO NOT RUN the engine if this warning lamp illuminates.</p>
---	--


BS99D060

Figure 15

	<p>3. Coolant Temperature Warning Lamp and Alarm: This Red warning lamp flashes and the alarm sounds if, with the engine running, the coolant temperature is too high. DO NOT RUN the engine if this warning lamp illuminates.</p>
---	--


BS96H053

Figure 16

	<p>4. Engine Malfunction Warning Lamp: This Yellow lamp will flash and the alarm will sound when the engine air filter becomes restricted and requires servicing. Service immediately.</p>
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BS07M318

Figure 17

	<p>5. Engine Pre-Heating Lamp: When the key is turned to RUN, the engine pre-heat light will illuminate. The engine pre-heat lamp will illuminate in all ambient conditions. For temperatures below 50 ° F (10 ° C), turn the key to the RUN position and wait until the lamp goes out before moving the switch to the START position. For temperatures above 50 ° F (10 ° C), turn the key directly to the START position.</p>
---	--

BC02N191


Figure 18

	<p>6. Hydraulic Charge Pressure Warning Lamp: This Red warning lamp will flash and the alarm sounds if there is no, or low oil pressure in the transmission. Do not run the machine if the warning lamp illuminates. This condition may cause the SAHR Park Brake to engage. If this condition exists, the Park Brake Lamp will also flash.</p>
--	---

BS99J181


Figure 19

IMPORTANT: *Low hydraulic charge pressure may cause engagement of the SAHR park brake. The Park Brake lamp and Charge Pressure Warning Lamp will flash and an audible alarm will sound, if this condition exists.*

	<p>7. Hydraulic Fluid Temperature Warning Lamp: This Red warning lamp will flash and the alarm will sound if the temperature of the hydraulic fluid becomes extreme. Do not work the machine if this condition exists.</p>
---	--

BC00B123

Figure 20

	<p>8. Hydraulic Filter Warning Lamp: This Yellow warning lamp will flash and the alarm will sound, if the engine is running and the hydraulic filter is restricted. Service immediately by replacing the filter.</p>
---	---

BC00B113

Figure 21

ANTI-THEFT OPERATION**LOCKING THE INSTRUMENT PANEL:**

Immediately after shutting off the engine the display will show LOCK? and the AUX OVERRIDE button will flash. Anti-Theft is set by pressing the AUX OVERRIDE button. The panel is now locked and LOCKd is displayed, restarting requires entering the code. If the AUX OVERRIDE button is not pressed the machine can be started with out a code. The panel does not automatically lock.

UNLOCKING THE INSTRUMENT PANEL:

1. Sit in the seat to power the instrument panel. The warning lamps will illuminate and there will be an audible beep.
2. Press the flashing POWER button, the display will show UNLOC followed by 00000 prompting the code.
3. Enter code by using multiple presses of the START button for 1, 2, 3, the AUX OVERRIDE button for 4, 5, 6, or the PARK button for 7, 8, 9, 0. Press the POWER button to save each digit and move to the next.
4. Press POWER after the 5th digit to enter code the engine preheat lamp will illuminate and the display will begin the 30 second countdown.

For temperatures below 50 ° F (10 ° C) wait until the Engine Pre-Heating lamp goes out and the count down is completed before pressing the START button to crank the engine. For temperatures above 50 ° F (10 ° C) press the START button to crank the engine.

If the incorrect code is entered ERROR is displayed followed by 00000 prompting the operator to enter the correct code.

CREATING CODES:

The panel can not be locked until a code is created. The Deluxe Instrument Panel has one owner code and up to ten user codes. The owner code will always unlock the panel and is the master code required to create or change owner and user codes.

SETUP MENU:

1. Sit in the machine with the restraint bar in the up position and wait 30 seconds for the panel to power off (all lights on the panel will turn off).
2. Press and hold the AUX OVERRIDE button and PARK button at the same time for 5 seconds. The display will show SETUP.
3. To exit the SETUP menu press POWER at the EXIT display. Or press and hold the PARK button for 5 seconds; this can be done at any point in the SETUP menu.

OWNER CODE:

Once in the SETUP menu, press START to step to the LOCK menu. Press POWER to enter the LOCK menu.

TO CREATE OWNER CODE:

If no owner code exists, OWNCR (Owner Create) will be displayed followed by 00000. Write down the planned 5 digit code or use a code you already know.

IMPORTANT: *Once the code is created the panel can not be unlocked with out the code. If the panel can not be unlocked - contact your Dealer.*

1. Enter code by using multiple presses of the START button for 1, 2, 3, the AUX OVERRIDE button for 4, 5, 6 or the PARK button for 7, 8, 9, 0. Press the POWER button to save each digit and move to the next.
2. Press POWER after the 5th digit to save the code, the display will go blank and then show the code created. The panel will return to the SETUP menu.
3. Press START to step to the EXIT menu and press POWER to exit the SETUP menu The panel is not locked at this point.

TO MODIFY OWNER CODE:

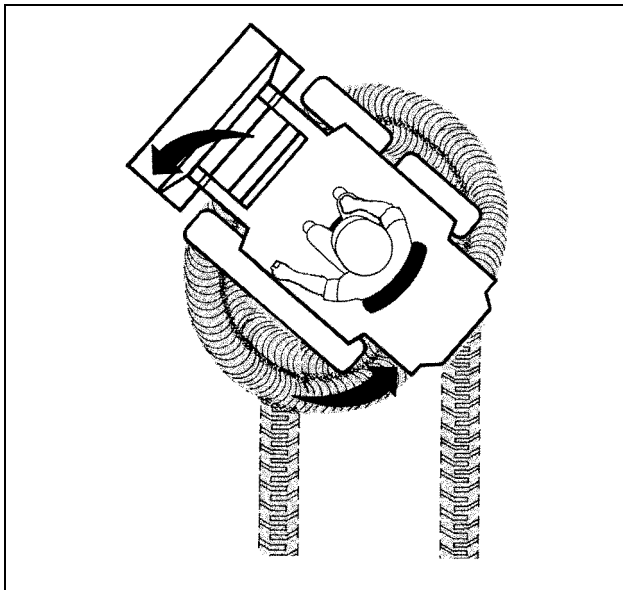
Once in the LOCK menu OWNER will be displayed. Press the POWER button to enter the OWNER menu. OPEN will be displayed followed by 00000.

1. Enter the current Owner Code by using multiple presses of the START button for 1, 2, 3, the AUX OVERRIDE button for 4,5, 6, or the PARK button for 7, 8, 9, 0. Press the POWER button to save each digit and move to the next.
2. Press POWER after the 5th digit to save the code. OWNCR will be displayed followed by the saved Owner Code.
3. Enter a new Owner Code to overwrite the existing code. The panel will return to the SETUP menu.
4. Press START to step to the EXIT menu and press POWER to exit the SETUP menu. The panel is not locked at this point.

USER CODES:

Once in the SETUP menu, press START to step to the LOCK menu. Press POWER to enter the LOCK menu.

TURNING A MACHINE WITH ISO PATTERN PILOT CONTROLS



BS06G035 Figure 84

PIVOT TURN - (POWER TO ONLY ONE SIDE)

To make a pivot turn left: From neutral, push the pilot control drive lever forward, slightly and then left toward 10:00.

To make a pivot turn right: From neutral, push the pilot control lever forward, slightly and then right toward 2:00.

To make a pivot turn reverse left: From neutral, pull the pilot control drive lever rearward, slightly and then right toward 4:00.

To make a pivot turn reverse right: From neutral, pull the pilot control drive lever rearward, slightly and then left toward 8:00.

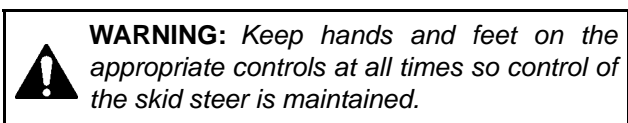


Figure 85

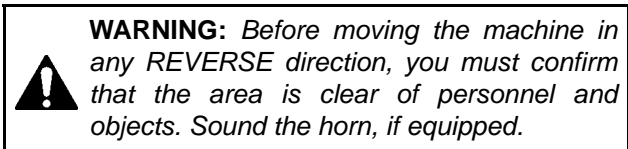
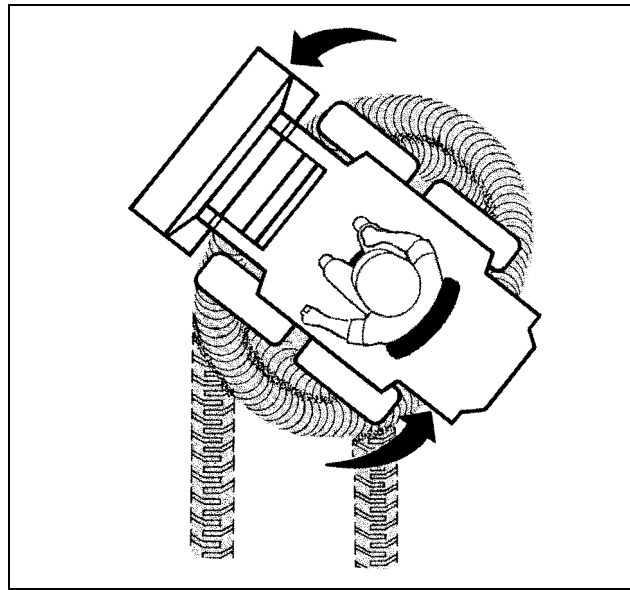


Figure 86

IMPORTANT: Although the machine will make sharp pivot and counter-rotation turns it is more efficient to turn through forward or reverse, gradually - when operating.

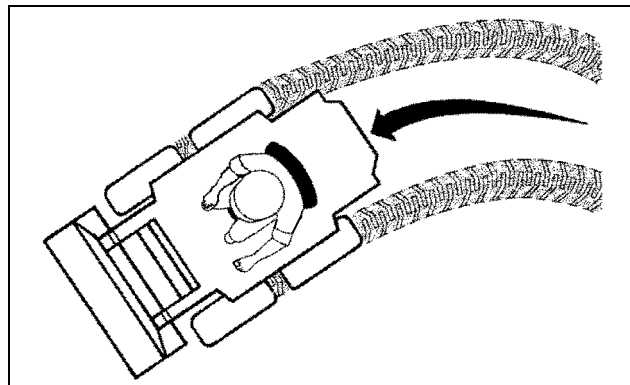


BS06G036 Figure 87

COUNTER-ROTATION TURN - (POWER TO BOTH SIDES - OPPOSING DIRECTIONS)

To counter-rotate left: Push the pilot control drive lever straight left toward the 9:00 position. The left drive will engage reverse as the right drive will engage forward.

To counter-rotate right: Push the pilot control drive lever straight right (inward) toward the 3:00 position. The right drive will engage reverse as the left drive will engage forward.



BS06G037 Figure 88

GRADUAL TURN - (POWER TO BOTH SIDES - SAME DIRECTION)

To make a gradual turn left: From neutral, push the pilot control drive lever forward and then slightly toward the 11:00 position.

To make a gradual turn right: From neutral, push the pilot control drive lever forward and then slightly toward the 1:00 position.

NO ENGINE POWER - LIFT ARM BYPASS CONTROL - H CONTROL MACHINES

In the event of loss of engine power, the lift arm/attachment may be lowered to the ground. This procedure requires pulling on the release handle (2) and, at the same time, activating the lift arm down control (1).

This control is located in the right storage tray just to the right of the Operator, while in the seat. It must be used in conjunction with the lift arm down control.

WARNING: Before attempting to bring the lift arm/attachment down on a machine that has lost engine power, alert personnel in the area of your intention. You must confirm that personnel and obstacles are clear before engaging the lift arm hydraulic bypass down control. Death or serious injury may result if these instructions are not followed.

Figure 121

Do not leave the seat, unfasten the seat belt or raise the restraint bar. Alert personnel in the area of your intentions, and confirm that personnel and obstacles are clear of the machine.



BD07K074 / BD07K120X

Figure 122

1. LIFT ARMS DOWN CONTROL ON H PATTERN MACHINE
2. LIFT ARMS HYDRAULIC BYPASS CONTROL HANDLE

This procedure is for emergency situation only and should not be used in day to day normal operations.

WARNING: Never exit the skid steer unless the lift arm and attachment are down resting on the ground or the lift arm is resting on the lift arm lock pins. Failure to comply could result in death or serious injury.

Figure 123

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12. Check the seat belt/seat switch for damage and proper operation. See page 5-17 in this manual.
13. Confirm that all controls operate freely and correctly.
14. Confirm that the drive control is correct and the machine does not creep. Contact your Dealer, if the machine does not remain stationary with the drive controls in neutral.
15. Confirm that the parking brake does hold the machine from movement when powered or on an incline.




WARNING: *You must repair or replace any items found to be malfunctioning or leaking **BEFORE** operating the machine.*

Figure 2

16. See the Quick Reference Lube/Maint. Chart on page 5-10 in this manual and do the items under 10 Hours or As Required.
17. Remove all dirt and debris from the foot control pedal area.


STARTING THE ENGINE

The Instrument Panel controls the fuel solenoid, preheat circuits and the lift arm and bucket control valve spool locks. When the operator sits in the seat the Instrument Panel will become active. Indicator lights will illuminate in sequence according to function, and electrical circuits will go through a self check.



WARNING: *Under no circumstance should ether, or any other starting fluid, be used on this machine. It is equipped with an Engine Pre-Heat Cold Start System. Fire, explosion, serious injury or death could result.*

Figure 3



WARNING: *Before you start the engine, read and understand the operator's manual and the safety decals for this machine. ALWAYS fasten the seat belt and place the restraint bar into the operating position (down). Make sure all personnel in the area are away from the machine. Sound the horn before starting to warn those around of your intention.*

Figure 4

1. Adjust the seat and fasten the seat belt. Make sure that all controls may be reached and you are able to move all controls to their full motion.
2. Pull the restraint bar down and make sure that all controls may be reached and you are able to move all control to their full motion.
3. Sound the horn to alert others of your intention.
4. Push the throttle forward approximately 25 mm (1 inch).
5. Turn the key switch to ON, or on keyless machines push the POWER button and monitor the instrument cluster lamps.
6. The engine pre-heat lamp will illuminate.
 - If the temperature is below 10° C (50° F) wait until the lamp goes out before resuming. This may be 30 seconds. Monitor the countdown in the display.
 - If the temperature is above 10° C (50° F) proceed directly to start.
7. If the skid steer is equipped with an auxiliary foot control, make sure the pedal is in neutral.
8. Turn the ignition key to START or on keyless systems press the START button. After the engine starts allow the key to return to RUN.

The engine must start within 30 seconds. If the engine does not start, allow the starter to cool for one minute and then begin the procedure again by turning the ignition key to OFF then ON again.

Do not operate the starter motor continuously for more than 30 seconds.

IMPORTANT: *If the machine is to be operated in consistently low temperatures contact your dealer for the correct oil.*

ALWAYS allow the engine and hydraulic system to warm up before applying a load.

9. After starting the engine monitor the indicator lights and confirm that machine functions are normal.

ENGINE SPEED

Do not run the engine at idle speed for long periods. This can cause a low operating temperature, which can cause acids and deposits in the engine oil. It is recommended that you run the engine at full throttle when operating conditions permit and when safe.

IMPORTANT: *Turbocharged Engines: If the engine stalls during normal operation, start the engine immediately. This will prevent damage to the turbocharger.*

Mounting an Attachment With the Hydraulic Mounting Plate

The operator may efficiently change a lift arm mounted attachment, while remaining in the operator's seat, with this optional mounting plate.



Figure 34

1. HYDRAULIC ATTACHMENT MOUNTING PLATE SWITCH (LOCATED ON THE LEFT CAB UPRIGHT SWITCH PANEL)

The top or unlock portion of the switch will illuminate red when pushed.

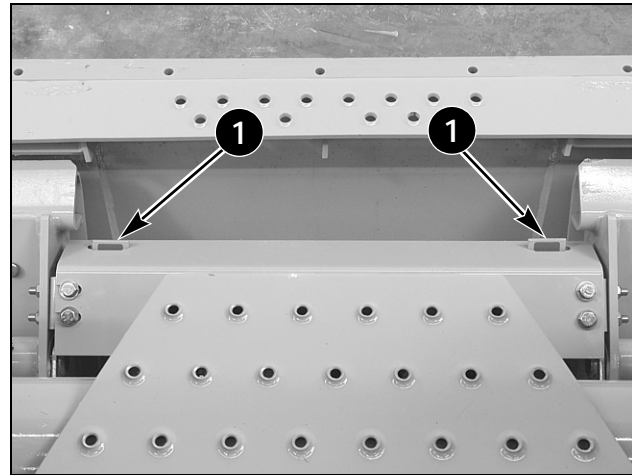
Activating the coupler pins is a two step procedure to remove or release a bucket.

Read these instructions carefully and practice in a safe area until you are familiar with the process.

IMPORTANT: Use the function which best fits the attachment requirement. If you have any questions about mounting or dismounting attachments contact your Dealer.

Lock Pin Indicators

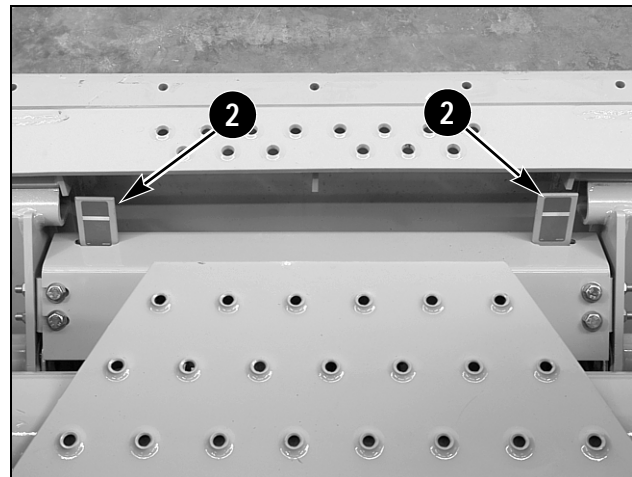
The lock pin indicators show the operator which position the pins are in.



BD07N221

Figure 35

1. LOCK PIN INDICATORS IN THE GREEN OR LOCKED POSITION



BD07N223

Figure 36

2. LOCK PIN INDICATOR IN THE UNLOCK POSITION - RED SHOWN AT THE BOTTOM OF THE FLAG

IMPORTANT: The Lock Pin Indicators only show the position of the coupler pins. They **DO NOT** confirm that correct attachment has been made.

The operator must safely confirm that the coupler pins are engaged correctly.

WARNING: You must confirm that the bucket or attachment is mounted correctly to the machine **before** operating. Death or serious injury may result if you do not follow these instructions.

Figure 37

BOOSTER BATTERY CONNECTION TO MACHINE BATTERY

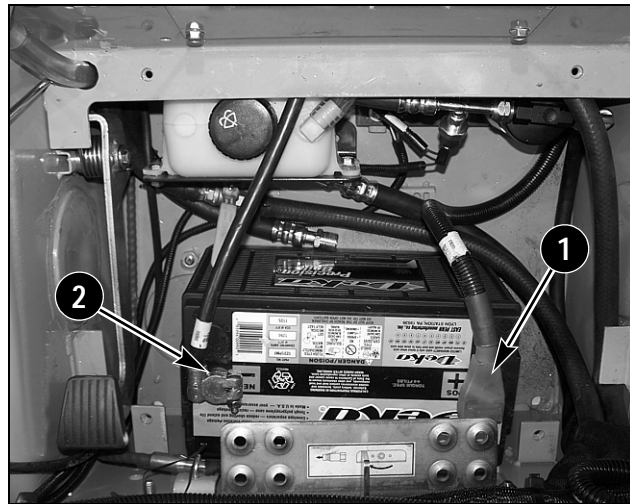


WARNING: Batteries produce explosive gases. Keep sparks, flame, and cigarettes away. Ventilate when charging or using in an enclosed space. Always shield eyes when working near batteries.

Figure 76

Two persons are required for this procedure. Make sure the person making the connection is wearing face protection.

1. Sit in the operators seat and have the other person make the connections. Make sure the booster battery is 12 volts.
2. If using another machine for power, make sure the two machines do not touch.
3. Connect the positive (+) jumper cable to the positive (+) battery terminal.
4. Connect the negative (-) jumper cable to a good frame ground away from the battery.
5. See Starting the Engine in this manual and use the correct procedure to start the engine. Have the other person disconnect the negative (-) jumper cable first and the positive (+) jumper cable last.



BD07M249

Figure 77

1. POSITIVE (+) JUMPER CABLE (RED COVER)
2. NEGATIVE (-) JUMPER CABLE



BD07N462

Figure 78

3. NEGATIVE (-) REMOTE POST
4. POSITIVE (+) REMOTE POST

MOVING A DISABLED MACHINE



WARNING: Death or serious injury may result when you attempt to tow a disabled machine incorrectly.

Figure 79

IMPORTANT: *Towing the Skid Steer is not recommended.* If your machine is disabled, you must make a judgment if the machine can be moved without more damage. If possible, repair the machine at the job site. This machine may be severely damaged if towing or moving is attempted incorrectly. Contact your Dealer if the machine is disabled.



BD07N241

Figure 25

12. Use the cab entry hand holds and tip the cab forward as shown. Depending on the configuration and options on the machine, it may be necessary to use a helper.

13. Confirm that the cab support latch is engaged.



BD07K005

Figure 26

1. LOADER LIFT ARM SUPPORT STRUT

LOADER LIFT ARMS RAISED WITH SUPPORT STRUT IN POSITION, CAB TILTED WITH CAB SUPPORT LATCH IN MAINTENANCE POSITION

14. To return the cab to the working position, reverse the procedure.

EVERY 10 HOURS OR DAILY

HYDRAULIC RESERVOIR OIL LEVEL CHECK

Specification API CI-4, SAE 10W-30 Engine Oil



WARNING: Fire Hazard: Do not smoke while filling the hydraulic reservoir. Do not fill near open flames.

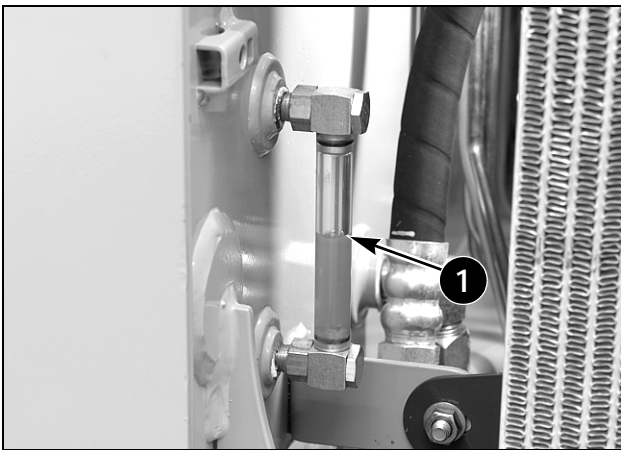
M476

IMPORTANT: When servicing the reservoir it is vital to prevent contamination. Clean the components and all areas around the components to help reduce the risk of contamination.

Check the hydraulic reservoir oil level daily, before beginning operation and or every 10 hours of operation. Check the level with the lift arm down on the ground.

The hydraulic oil filler and sight gauge are located behind the rear access door and to the left of the radiator.

1. Park the machine on a firm, level surface with safe access all around.
2. Lower the loader arms to the down position.
3. Open the rear access doors.

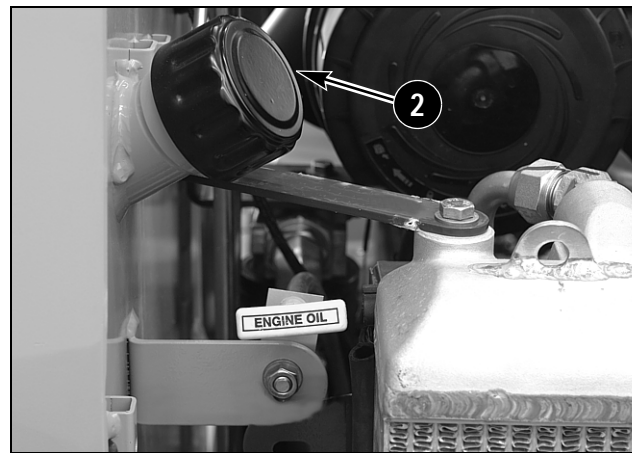


BD07K009

Figure 43

1. HYDRAULIC OIL LEVEL SIGHT GAUGE

The hydraulic oil should be to the midpoint of the sight gauge, as shown above.



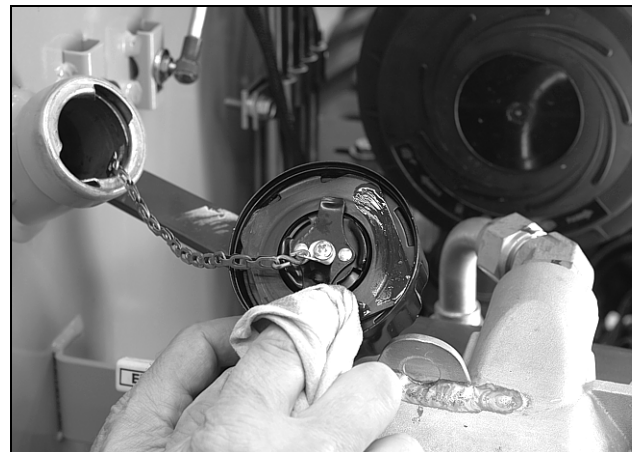
BD07K007

Figure 44

2. HYDRAULIC OIL FILLER CAP

If oil needs to be added:

1. Clean the filler cap and the area around the cap to reduce the risk of contamination.
2. Slowly turn the filler cap counterclockwise but Do Not remove the cap until pressure is relieved.
3. Remove the filler cap and add oil as required.



BD07K010

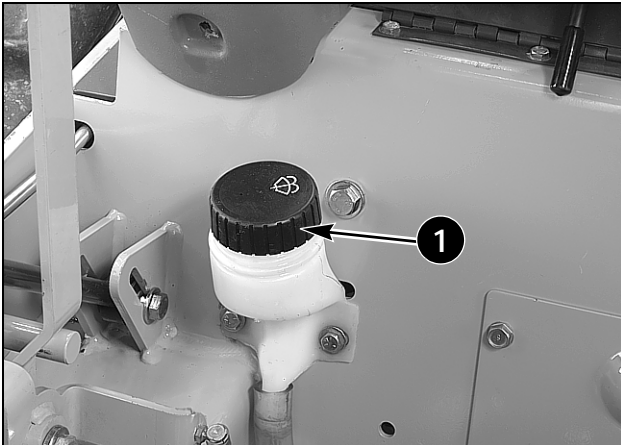
Figure 45

4. Apply a small amount of clean oil to the filler cap seal and install the filler cap.

EVERY 250 HOURS

WINDSHIELD WASHER FLUID LEVEL

Every 250 hours check the windshield washer fluid level.

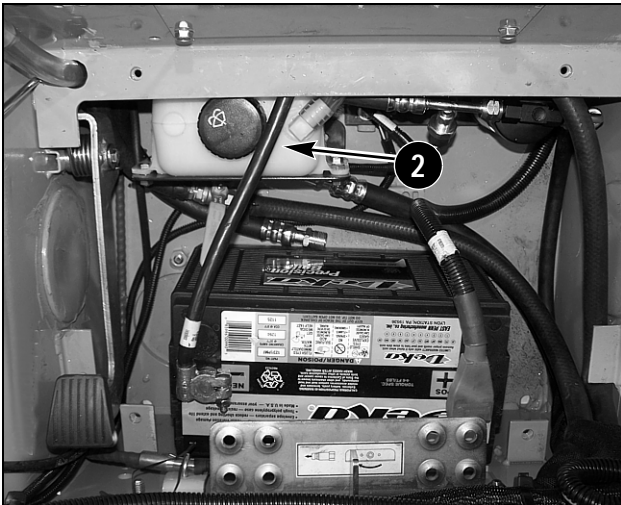


BD07N244

Figure 73

1. WINDSHIELD WASHER FLUID FILL LOCATION (MOUNTED ON THE HEEL PLATE)

The windshield washer fluid reservoir is located under the floor plate. The fill location is mounted on the heel plate within easy reach.



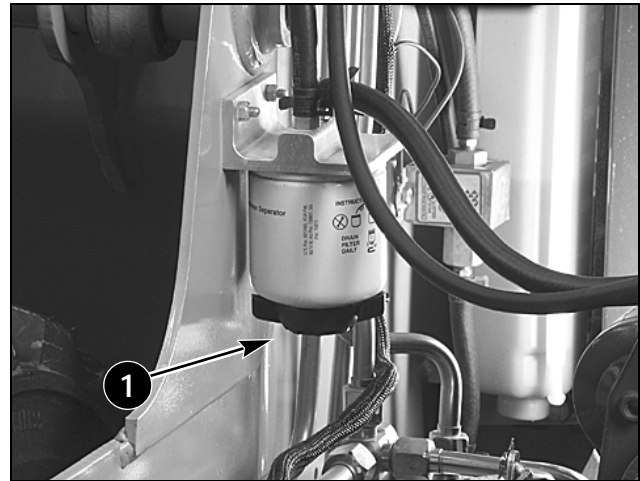
BD07M249

Figure 74

2. WINDSHIELD WASHER RESERVOIR

DRAIN WATER FROM THE FUEL FILTER

Check for water in the fuel filter after every 250 hours of operation.



BD04N055

Figure 75

1. FUEL FILTER DRAIN VALVE

Turn the drain valve on the fuel filter clockwise 2 or 3 turns and drain the fuel. If water is found in the filter, the fuel tank should be checked as well.

SPARK ARRESTER MUFFLER SERVICE

This procedure must be performed when the machine is cold and in a well ventilated area.

Remove the plug on the muffler. Allow particles to drain. A wire brush may be used to clear particles.

Start the engine and idle in neutral. Alternate between low and high idle to clear the muffler of debris build up.

Turn the engine OFF and allow the muffler to cool.

NOTE: *This procedure should not bring a cold engine up to operating temperature. Do not allow the procedure time to warm up the engine.*

Install the drain plug.

EVERY 1000 HOURS

DRAIN AND FLUSH THE RADIATOR

Drain and flush the cooling system every 2000 hours or every year. Clean the system and replace the coolant if the coolant becomes dirty or has the color of rust.

DO NOT remove the radiator cap if the coolant is hot. This procedure is to be performed only when the engine components and coolant are cool.

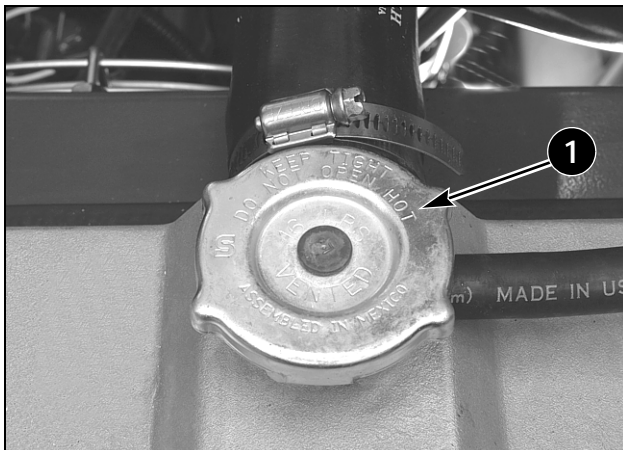
WARNING: Hot coolant can spray out if radiator cap is removed. To remove radiator cap:

Let system cool, turn to first notch, then wait until all pressure is released.

Scalding can result from fast removal of radiator cap.

Check and service engine cooling system according to maintenance instructions.

Figure 19

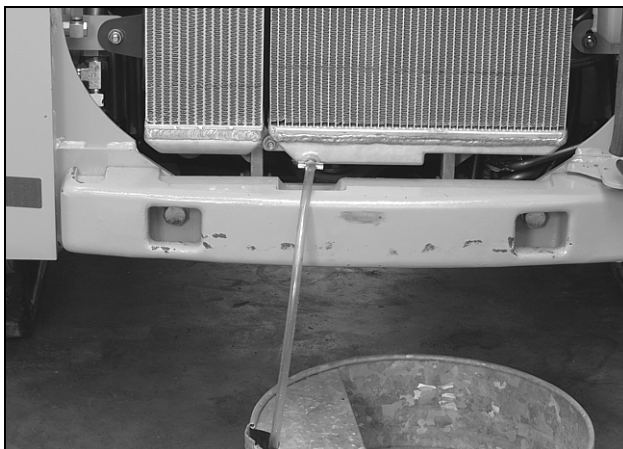


BD07K057

Figure 20

1. RADIATOR CAP / NEVER TOUCH OR REMOVE UNTIL COOL TO THE TOUCH

1. Remove the radiator cap.



BD07K058

Figure 21

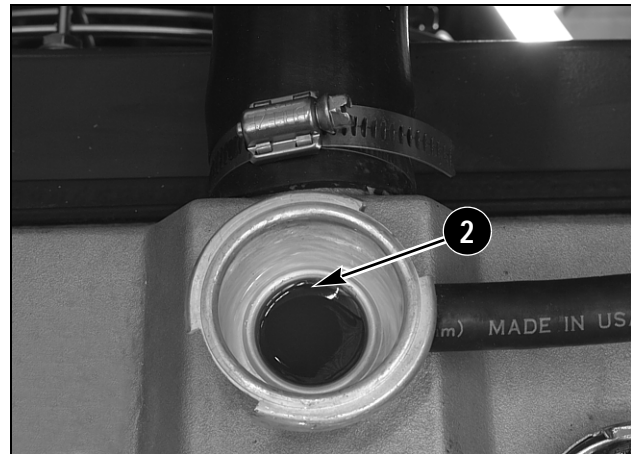
2. RADIATOR DRAIN VALVE AND SUITABLE CONTAINER

2. Attach a hose to the radiator drain valve, as shown, and run to a suitable container that will hold at least 18 litres or (19.3 qts.).

3. Open the radiator valve and drain.

After all coolant is removed:

1. Close the radiator drain valve.
2. Add a cleaning solution to the cooling system and fill the system with clean water. Follow the directions included with the cleaning solution.
3. After draining the solution flush with clean water.



BD07K059

Figure 22

3. RADIATOR FILL LINE

4. Fill the cooling system, with the proper mixture of water and ethylene glycol, until the coolant level is just to the overflow tube.

5. Install the radiator cap.

6. Fill the coolant reservoir up to the ADD mark.

7. Start the engine and increase the temperature of the engine coolant. Once the coolant is at operating temperature, stop the engine and allow to cool.

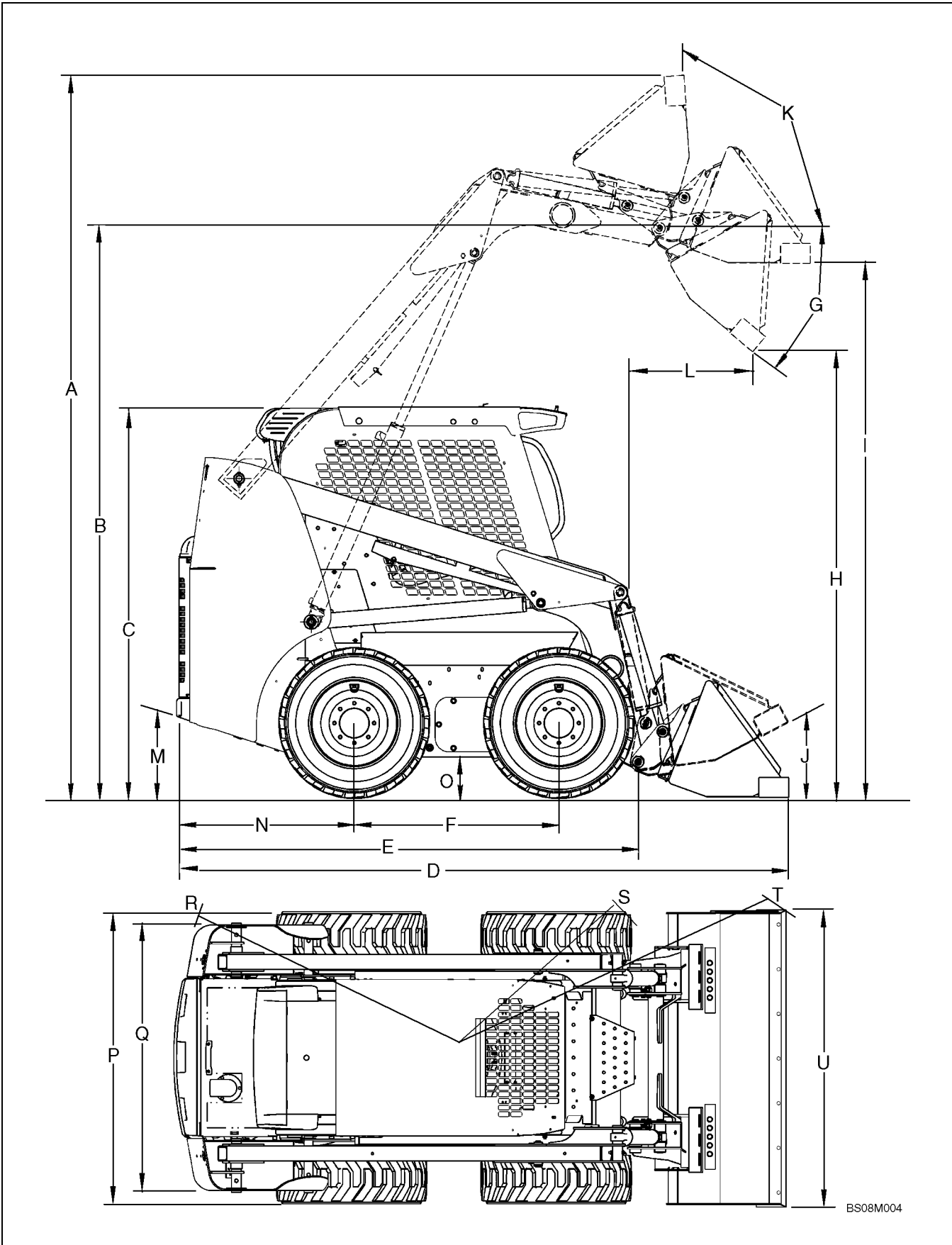
8. Check the coolant level at the reservoir only. DO NOT remove the radiator cap. Add coolant to the reservoir, if necessary.

9. Check the hoses, elbows and system for leaks.

Refill the cooling system with a 50-50 mixture of a permanent type anti-freeze, water and premixed with 5% inhibitor to provide increased protection from corrosion.

NOTES

OPERATING DATA AND DIMENSIONS



BS08M004

Figure 1

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