

# 921C Loader

## Operators Manual

Bur 6-6221

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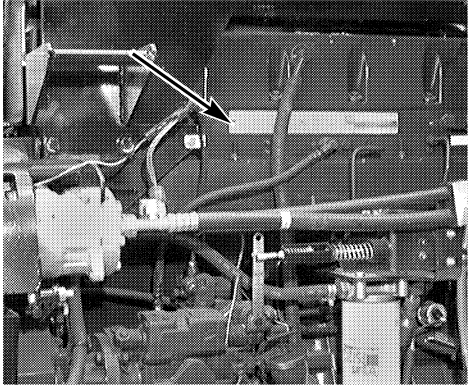
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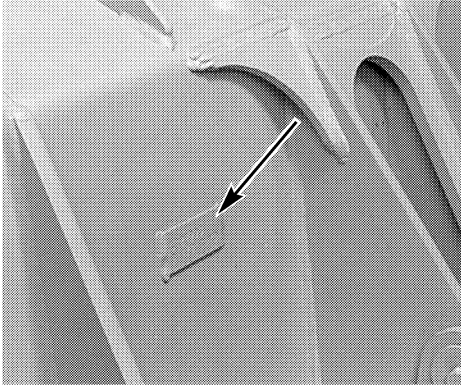
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### Engine



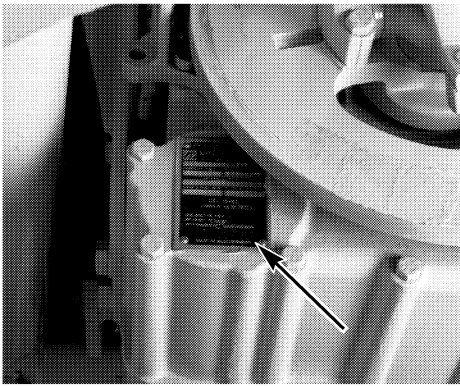
RD97F151

### Loader Bucket



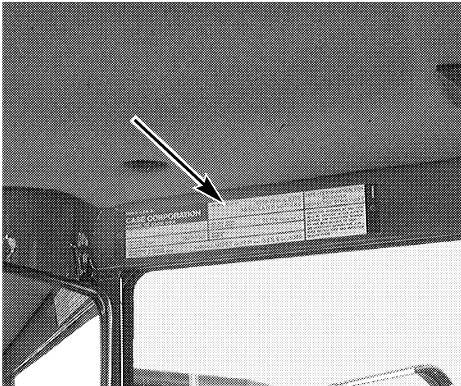
RP95K195

### Transmission



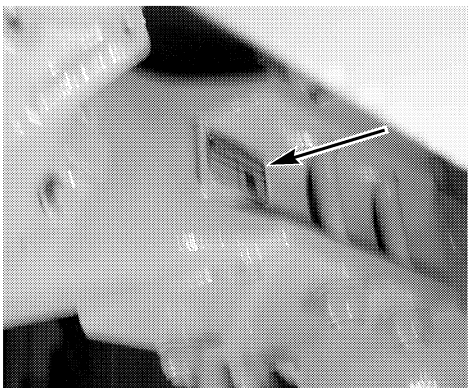
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### ROPS Cab and Canopy



RD98K304

### Axle



BD00B001

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## SAFETY/DECALS/HAND SIGNALS

- A fire can cause injury or death. Always have a fire extinguisher near or on the machine. Make sure the fire extinguisher is serviced according to the manufacturers instructions.
- Remove all trash or debris from the machine. Make sure that oily rags or other flammable materials are not stored on the machine.
- Check for fuel, oil, and hydraulic fluid leaks. Replace worn or damaged hoses or lines. After repairs are made, clean the machine before you operate.
- Starting fluid (ether) can explode and can cause injury or death. Do not breathe starting fluid vapors. Wear face protection when you remove or install a starting fluid container. Use starting fluid according to the instructions in this manual. See Cold Weather Starting in this manual.
- Keep the starting fluid (ether) container out of the reach of children.
- Before you discard an empty starting fluid (ether) container, use rubber gloves and push in on the valve in the end of the container to remove any pressure. Do not make a hole in the container and do not put the container in a fire.
- Do not store starting fluid (ether) containers in the operators area.
- If you weld, grind, or use a cutting torch on this machine, always remove the starting fluid (ether) container from the machine. Use compressed air to remove any ether fumes from the area.

## WHEELS AND TIRES SAFETY



**WARNING:** *DO NOT weld to wheel or rim when a tire is installed. Welding will cause an explosive air/gas mixture that will be ignited with high temperatures. This can happen to tires inflated or deflated. Removing air or breaking bead is not adequate. Tire MUST be completely removed from the rim prior to welding.*

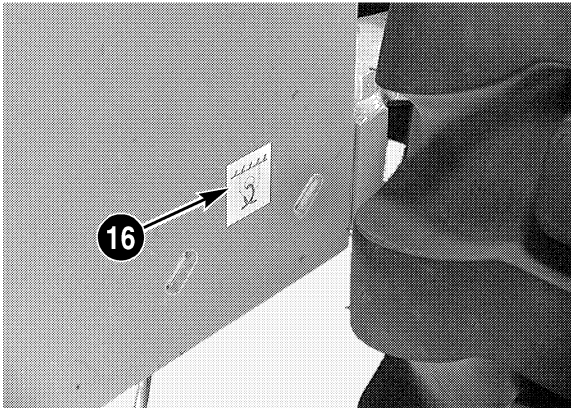
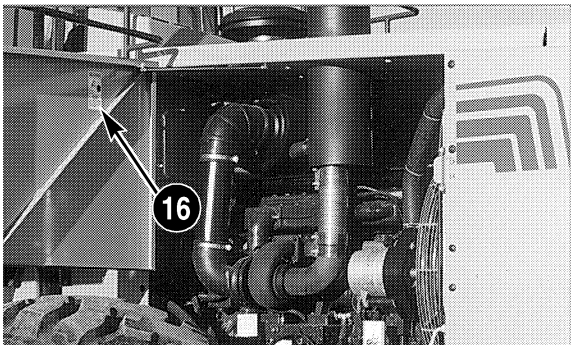
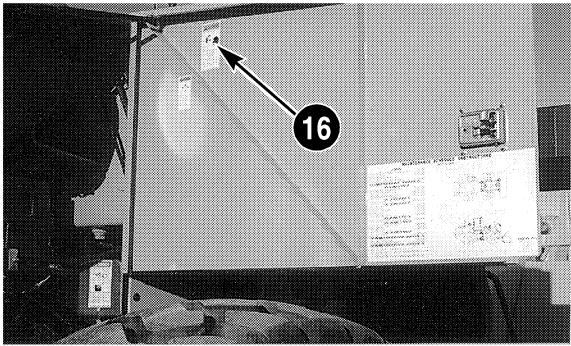
SB134



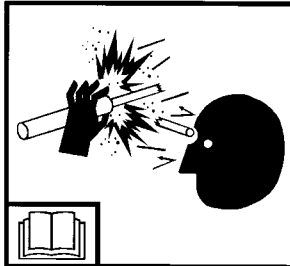
**WARNING:** *Explosive separation of the tire and/or rim parts can cause injury or death. When tire service is necessary, have a qualified tire mechanic service the tire.*

84-113

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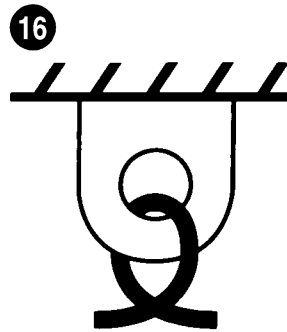
**16**  **WARNING**



**EXPLOSION  
HAZARD**  
Avoid surprise cylinder  
rod action and damage.  
Disassemble with rod  
fully extended.

335886A1

RP98N349 / RP98N352 / 335886A1

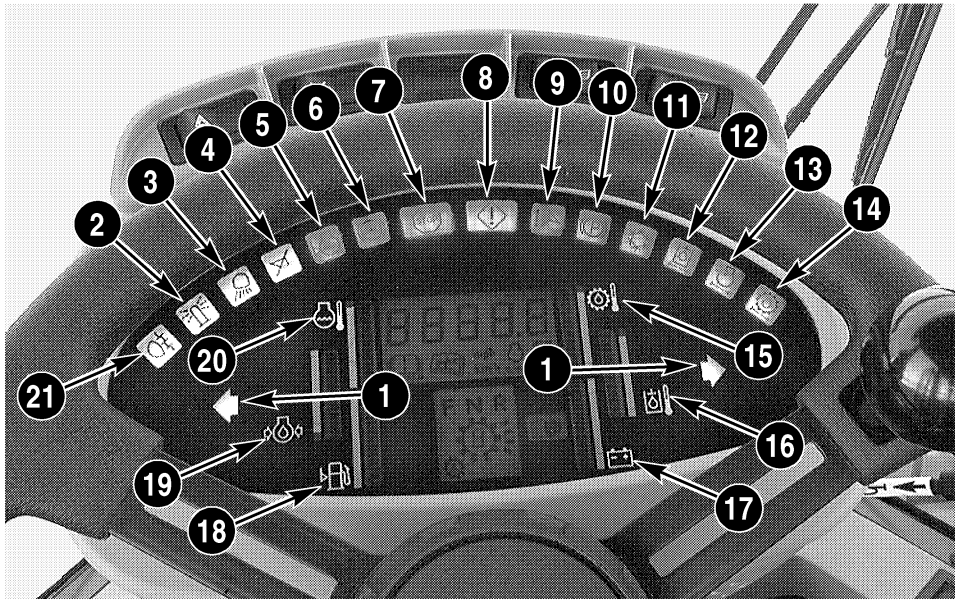


**MACHINE TIE DOWN**

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## INSTRUMENT PANEL INDICATORS



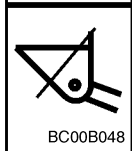
RD98K315

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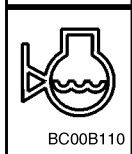
### 3. LAMP INDICATOR:

This indicator illuminates when the lamp are ON.



### 4. PILOT LOCKOUT INDICATOR

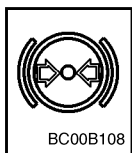
This indicator illuminates when the pilot lockout is actuated.



### 5. LOW COOLANT INDICATOR:

This indicator illuminates when the engine coolant is low. The alarm sounds continuously and the master indicator lamp will be red.

**NOTE:** *Stop the engine and add coolant to the radiator.*

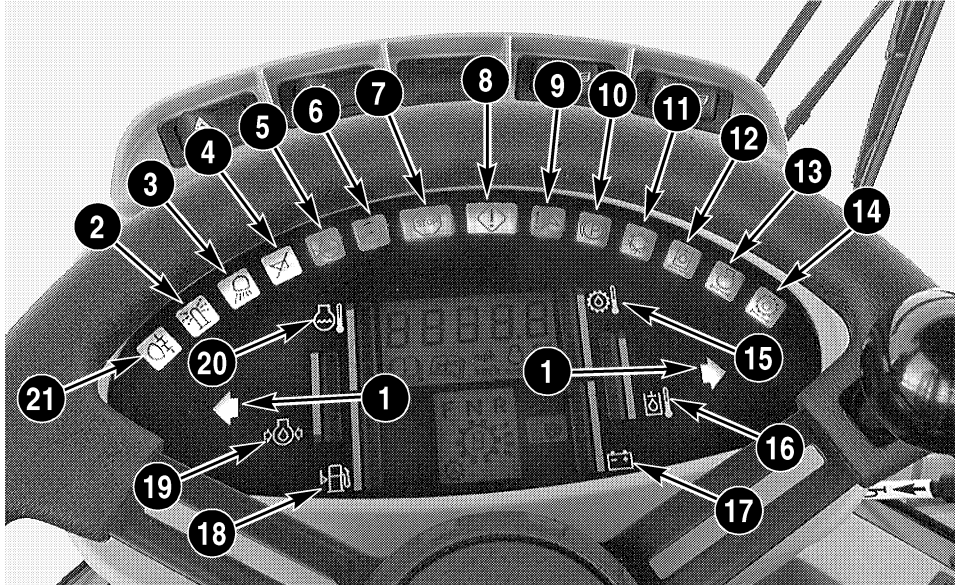


### 6. BRAKE PRESSURE INDICATOR:

This indicator illuminates when the brake system pressure is too low. The alarm sounds continuously and the stop master indicator will be red.

**NOTE:** *Stop the machine and correct the problem.*

## INSTRUMENT PANEL INDICATORS



RD98K315

### 18. FUEL LEVEL GAUGE:



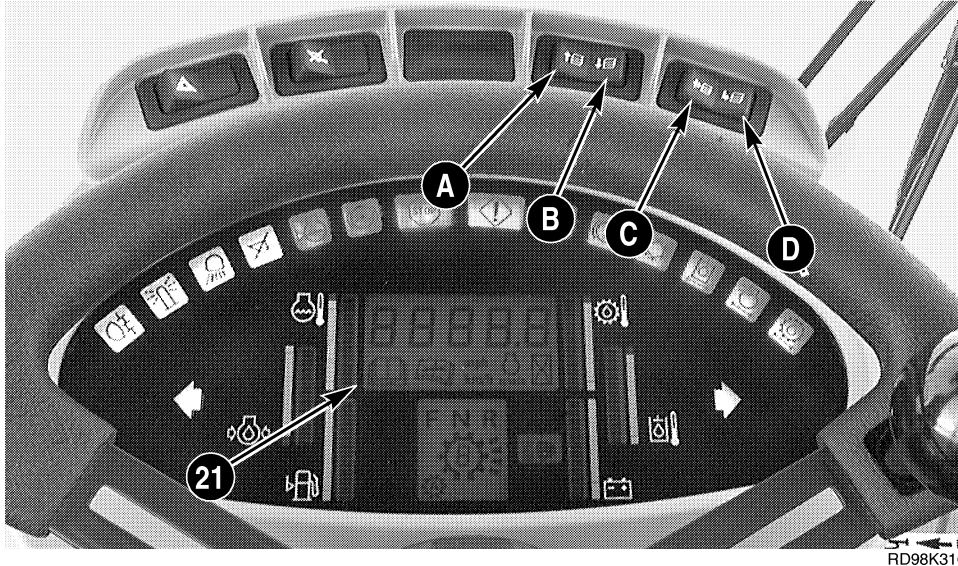
The Fuel Level Gauge indicates the fuel level. The fuel level is shown on the gauge with indicator bars. Normal operating range is in the green zone. When the tank is almost empty the bars move into the yellow zone and begin to flash, the warning alarm sounds for three seconds, and the caution master indicator turns yellow.

**NOTE:** The fuel level can be checked without the key switch being turned to the ON position, by pushing in and holding the right side of the program reset switch.

FUEL LEVEL GAUGE				
Gauge Indication	Condition	Master Indicator	Gauge Status	Alarm Status
5 percent and below	Fuel level low	Caution (Yellow)	Flashes	3 Seconds
5 percent and above	Fuel level normal			

TRIM THIS EDGE

## INFORMATION CENTER



Example: Location 072 will display the hours on the machine when the fault code in location 071 was written. Location 074 will display the hours on the machine when the fault code in location 073 was written.

**You can monitor a particular location without going into the programming mode by performing the following procedure:**

- Press the **program** (C) switch.
- Press the **up count** (A) switch until the location to be monitored is displayed.
- Return the **program/reset** (C, D) switch to the **OFF** (center) position.
- Press the **program/reset** switch again and wait for 5 seconds. The numbers on the display will change.
- Return the **program** switch program to the **OFF** (center) position.

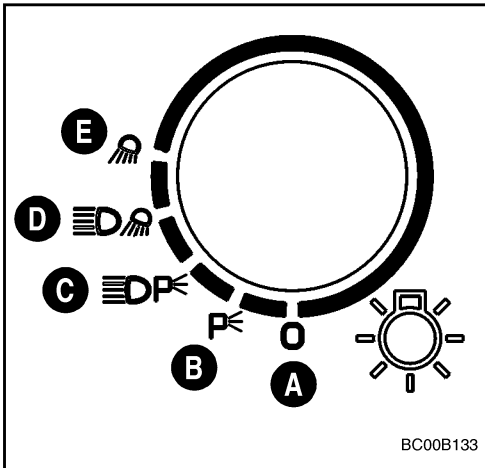
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**SIDE CONSOLE**



RD98K306



BC00B133

**7. LAMP SWITCH:**

The lamp switch has five positions:

A.OFF - Turn the switch completely counterclockwise for OFF.

B.PARK - Turn the switch to this position to illuminate the marker and tail lamps.

C.DRIVE - Turn the switch to this position to illuminate the console lamps, driving lamps, marker lamps and tail lamps.

D.ALL - Turn the switch to this position to illuminate the console lamps, driving lamps and flood lamps.

E. WORK - Turn the switch to this position to illuminate the console lamps and flood lamps.

TRIM THIS EDGE



RD98K268

**4. SLIDE ADJUSTMENT LEVER:**

Pull this lever up and adjust the seat forward or rearward as required. Release the lever to lock the seat in position.

**NOTE:** When adjusting the seat height for the first time or for a different operator. Sit in the operators seat, lift up momentarily on the height adjustment handle. The seat will automatically adjust to the operators weight. See height adjustment handle for final adjustments.

**5. HEIGHT ADJUSTMENT HANDLE:**

A. (Automatic Adjustment): With the operator sitting in the seat. Lift the handle UP and release. The seat will automatically adjust UP and then bleed off air pressure to the optimum air pressure for the weight of the operator.

B. (Manual Adjustment): The seat can be raised or lowered by increasing or decreasing the air pressure in the seat. Lift the handle UP to increase the air pressure. Push the handle DOWN to decrease the air pressure and lower the seat.



RD98K268

**6. SEAT DEPTH HANDLE:**

Lift handle up and move the cushion to the desired position. Release the handle to lock the cushion in position.

**7. SEAT CUSHION ANGLE ADJUSTMENT HANDLE:**

Lift up on the handle. Move the seat to the desired angle. Release the handle to lock the cushion angle.

TRIM THIS EDGE

## Starting the Engine

The ether cold start injects a measured amount of ether into the engine during cold weather starting.

1. See Starting the engine in this manual for the correct procedure to start the engine.
2. Turn the key switch to the ON position.
3. Push and release the cold start button to inject a measured amount of ether into the engine. The ether is only injected when the button is released. Only use ether to aid in starting the engine. Set the throttle position at 3/4 throttle to set the injection pump to cold start timing. Turn the key to the START position. When the engine starts, quickly move the throttle to 1/3 to 1/2 throttle to prevent damage to the engine. If the engine does not start after two attempts, check the supply of ether in the container.

**NOTE:** *The ether cold start system will operate only when the engine temperature is below 50°F (10°C).*

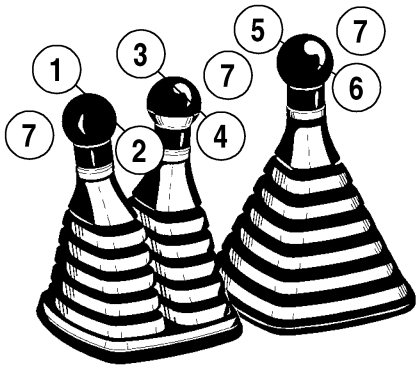


RD98K321

**IMPORTANT:** *Before you replace the ether container, read the instructions and warnings on the container.*

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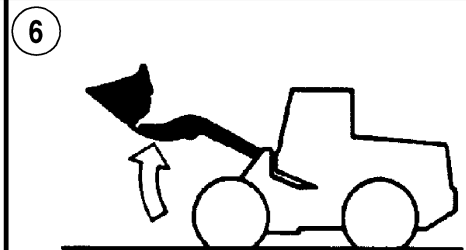
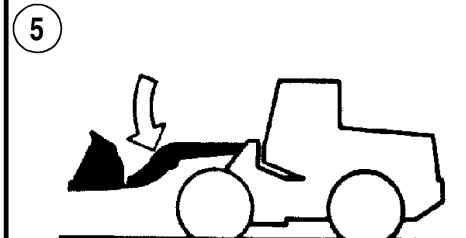
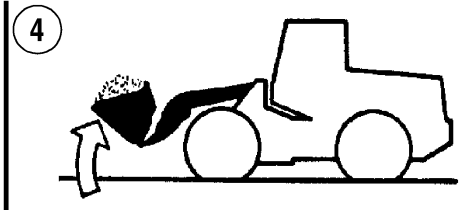
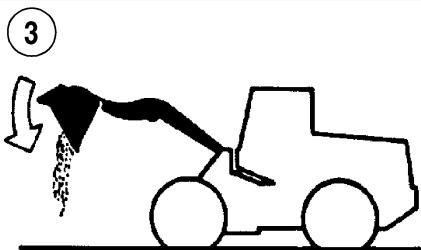
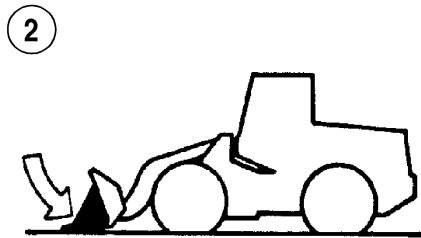
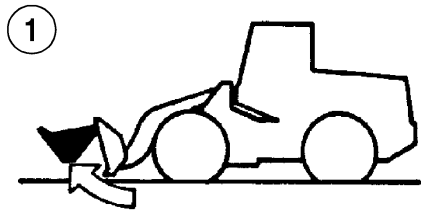
### Three Spool Valve - Three Control Levers - Optional Forestry Configuration



RB97F108

**NOTE:** This page shows the basic loader control lever positions. The Detent Switch for the loader functions is in the OFF position.

See Loader Function Switches in this manual for RETURN-TO-DIG, BUCKET HEIGHT CONTROL and RETURN-TO-TRAVEL/FLOAT switches.



TRIM THIS EDGE

BS00C008

- 1. CLAM OPEN (IF EQUIPPED)
- 2. CLAM CLOSED (IF EQUIPPED)

- 3. DUMP
- 4. ROLLBACK
- 5. LOWER
- 6. RAISE

**7** HOLD: The loader arms, bucket, and clam will not move when the control levers are in HOLD. When released, the control levers will return to HOLD automatically.

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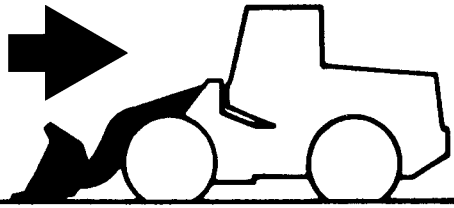
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## LOADER OPERATING TIPS

This Wheel Loader, with standard equipment and authorized attachments, is intended to be used for above ground level digging and general earthmoving purpose such as land leveling, truck loading, material rehandling and ditch cleaning. If the machine is to be used for lifting objects, make sure that the machine is properly equipped and follow the instructions and safety precautions in this manual.

### Leveling Operation

Always operate the machine in reverse when leveling the surface.

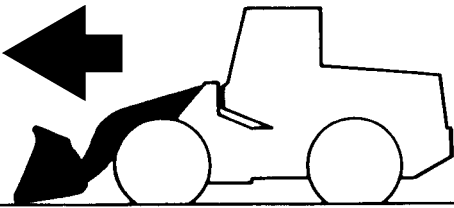


163L96

### Pushing Operation

When pushing material do not set the bucket dumping angle more than 20 degrees.

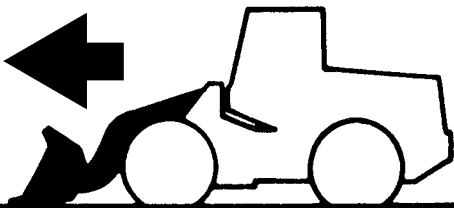
**IMPORTANT:** *The bucket MUST NOT be in the FULL DUMP position during the pushing operation.*



164L96

### Scraping Operation

When scraping hard or frozen surfaces the bucket must be level and flat to the surface. Operate the machine at a slow speed.



163L96

TRIM THIS EDGE



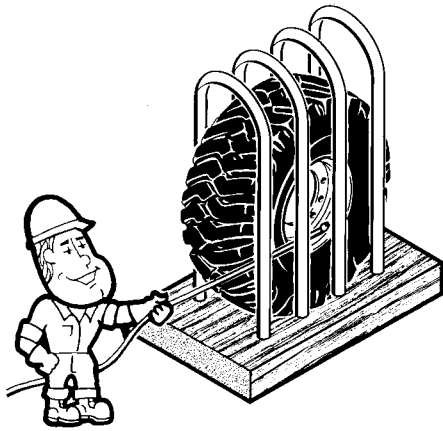
**WARNING: Impact Hazard** - *Bucket edge or teeth can catch on frozen surface or buried object during surface scraping operations. Before operation inspect the area for objects the bucket can catch on and mark them. During operation make sure the bottom of the bucket is level with the surface to be scraped. Operate the machine around the objects and at slow speed. Injury to the operator and damage to the machine can result if these precautions are not followed.*

M465

## Adding Air to the Tires

This procedure is only for adding air to the tire. If the tire has lost most or all of the air, do the following.

1. Before you add air, have the wheel correctly installed on the machine or put the wheel in a restraining device (tire inflation cage).



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2. Use an air hose with remote shutoff valve and a self-locking air chuck.
3. Stand BEHIND the tread of the tire and make sure ALL persons are away from the side of the tire before you start to add air.



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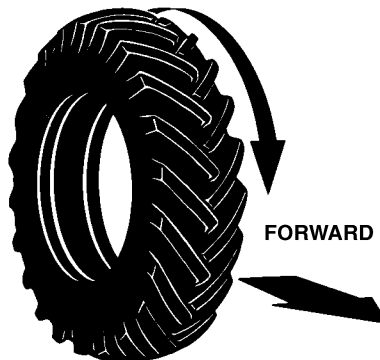
4. Inflate the tire to the recommended air pressure. DO NOT inflate the tire more than the recommended pressure given on the following page.

## Tire or Rim Service

Always have a qualified tire mechanic service the tires and rims for this machine. It is recommended that you have this mechanic inflate the tires. To prevent accidents, use a restraining device (tire inflation cage), correct equipment, and correct procedure. Explosive separation of the tire (single piece rim) or the tire and/or rim parts (multi-piece rim) can cause serious injury or death.

## Tire Tread Direction

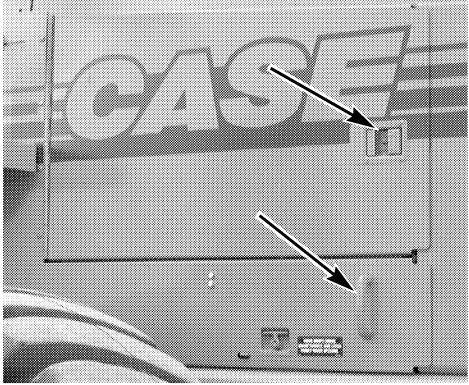
When the tire is installed on the wheel make sure the tire tread is in the direction shown.



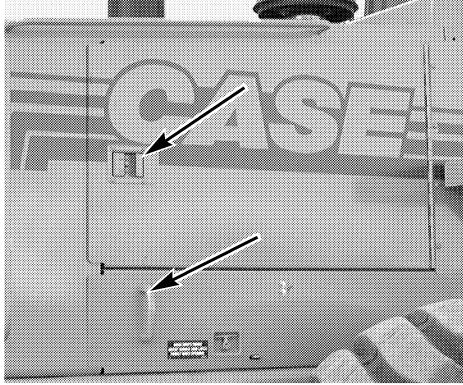
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## ACCESS DOORS

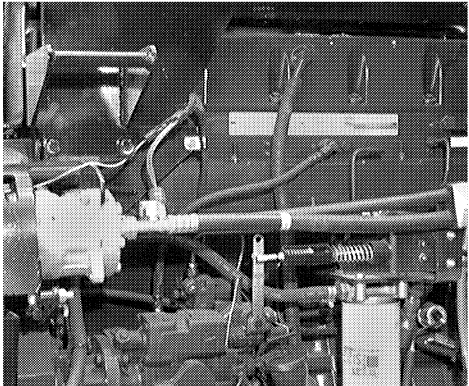


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RD97F166

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10. Fill the turbocharger oil lines with oil.
  - A. Disconnect the wire (Shown) from the injection pump solenoid. This will prevent the engine from starting.
  - B. Turn the key switch to the START and actuate the starter for 10 to 30 seconds.
  - C. Connect the wire to the injection pump solenoid.

11. Start the engine and run at idle speed. Check the engine oil filter for leaks. After two minutes, stop the engine, wait for 2 or 3 minutes, and check the engine oil level with the dipstick.
12. Close the engine access doors.

### Systemgard Lubrication Analysis Program

The normal engine oil change interval is every 250 hours of operation or once a year whichever occurs first. Operating conditions, quality of the engine oil and sulphur content of the fuel can change this interval. It is recommended to use the Systemgard Lubrication Analysis Program. See your dealer.



**WARNING:** *Never drain oil or remove oil filter while engine is running.*

CM107



**WARNING:** *Replace all covers or guards after servicing or cleaning the machine. NEVER operate the machine with covers or guards removed.*

CM115

TRIM THIS EDGE

## Removing Water and Sediment from the Fuel System

Drain the water for the fuel filter after every 50 hours of operation. Drain the water and sediment from the fuel tank after every 500 hours of operation.

1. Turn the drain valve on the fuel filter counterclockwise 2 or 3 turns and drain the water from the fuel filter.



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2. Close the drain valve.
3. Use a large enough container and drain water and sediment from the fuel tank. Dispose of water and sediment properly.

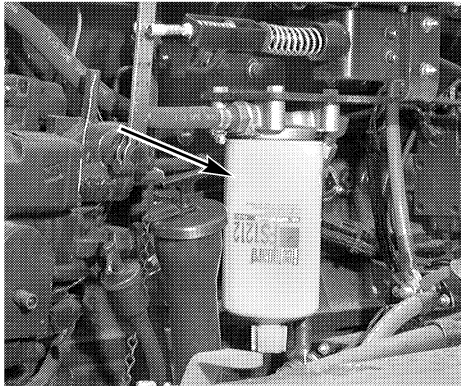


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## Fuel Filter

Replace the fuel filter after every 250 hours of operation.

1. Clean the filter head and the outside of the fuel filter.



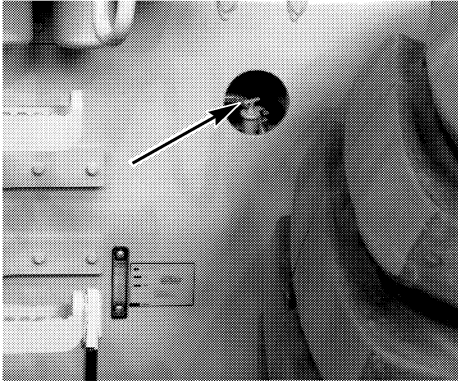
RD97F147

2. Turn the filter counterclockwise and remove the filter. Discard the filter.
3. Apply a thin layer of clean oil to the gasket on the new filter.
4. Install the filter. Use your hands to tighten the filter 1/2 to 3/4 turn after the filter makes contact with the filter head.

**IMPORTANT:** *Do not use a filter wrench when installing a new filter.*

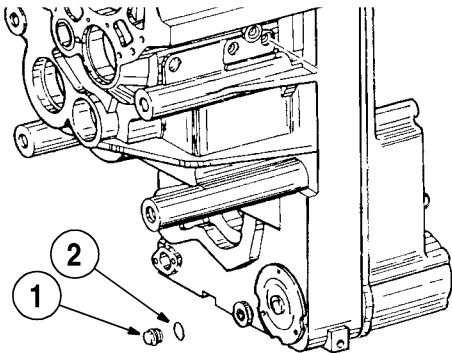
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4. Remove the filler tube plug.



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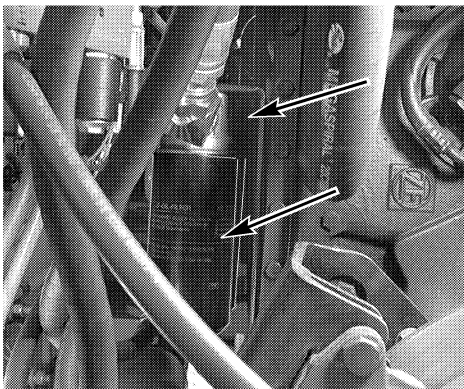
5. Remove the drain plug and drain the oil from the transmission.



RB97G074J

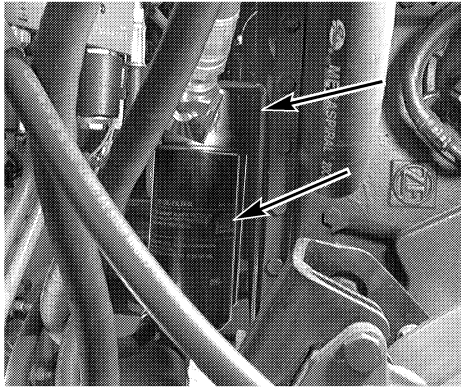
1. DRAIN PLUG      2. O-RING

6. Remove the transmission filters. Discard the old transmission filters.



RD97F152

7. Install the filter as shown. Make sure the filter is SEATED against the filter base.



RD97F152

8. Remove the breather. Clean the breather with solvent and dry with compressed air. Be sure to wear face protection when using compressed air.

9. Install the breather.

10. Install the drain plug. Put new oil into the transmission. See Transmission Service Specifications in this manual.

11. Check the oil level in the sight gauge.

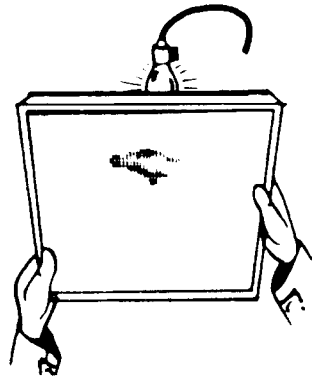
12. Start the engine and check for oil leaks around the filters and drain plug.

13. Increase the transmission oil temperature to operating temperature and check the oil level again.

14. Stop the engine and return the transport/service link to the OPERATING position.

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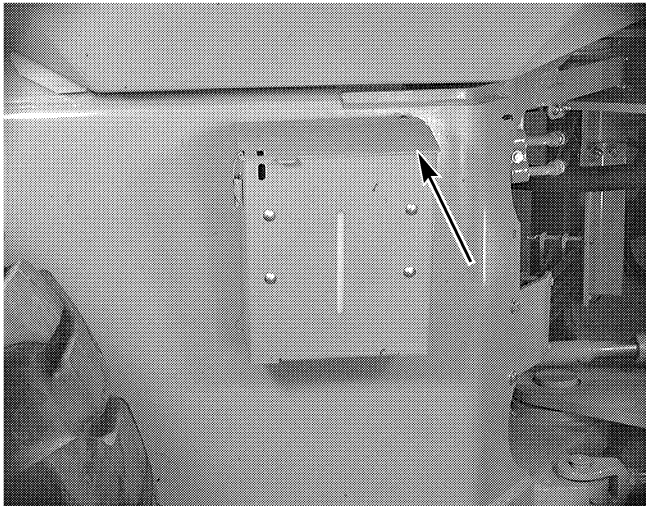
6. Use a light and inspect the element for holes or splits in the pleats. Check for damage to the metal parts and rubber gasket.



789L94

**NOTE:** *If the element is not to be used for some time, wrap the element with paper for storage.*

## WINDSHIELD WASHER RESERVOIR (If Equipped)



RD98K286

The windshield washer reservoir is located on the frame below the cab on the Right Hand side. To add washer fluid, pull the cap up.

**IMPORTANT:** *When the ambient temperature decreases to 0°C (32°F) and below, always use an antifreeze type washer solution.*

TRIM THIS EDGE

7. Turn the key switch to the OFF position. The secondary steering motor should stop.
8. If Steps 2 through 6 function properly, the secondary steering system is operating correctly. Repair the secondary steering system if the secondary steering system does not operate correctly.
9. Restart the engine and allow the batteries to recharge for a minimum of 10 minutes.

## PARKING BRAKE CHECK

**NOTE:** Test the parking brake at a maximum of 250 hours.

Before you operate the machine periodically test the parking brake functions.



TRIM THIS EDGE

1. To release the park brake, all the following are required:
  - A. Push the Park Brake switch to the release position.
  - B. Service brake depressed indicating brake lights.
  - C. Transmission shifter positioned from N to F or R for a second, and back to N.
  - D. Adequate service brake pressure to stop the machine.
2. To engage the park brake, any of the following is required:
  - A. Loss of service brake pressure in both axles.
  - B. Loss of system electrical power (key OFF).
  - C. Park Brake switch in engaged position.
3. To test these functions:
  - A. Start on a clear level surface.

## ROLL-OVER PROTECTIVE STRUCTURE

Your machine has a Roll-Over Protective Structure (ROPS). A ROPS label shows the serial number of the ROPS, gross weight, approval, regulation, and model numbers of the machine. See Identification Numbers in this manual.

Before you operate this machine, always make sure that the ROPS and operator's seat belts are correctly installed.

### Seat Belt

The seat belt is an important part of your ROPS. You must wear the seat belt at all times when you operate the machine.

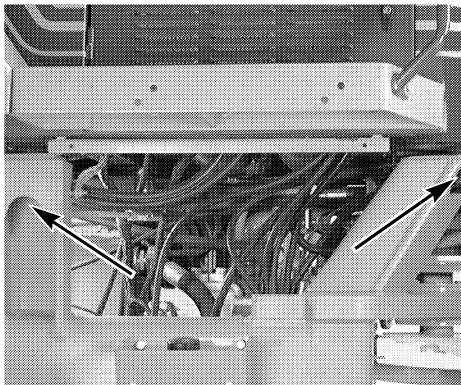
1. Keep the seat belts away from objects that can damage the seat belts.
2. Check the seat belts for damage. Replace all parts that are damaged.
3. Make sure that the mounting bolts of the seat belts are tight. See Torque Specifications for Seat in this manual.
4. Keep the seat belts clean. Wash the seat belts only in soap and water.
5. Do not put the seat belts in bleach or dye. You will make the seat belts weak.

### Maintenance and Inspection of ROPS

After the first 20 hours of operation and after every 500 hours of operation, do the following:

1. Check the torque of the ROPS mounting bolts. If necessary, tighten the bolts to the correct torque. See torque specifications on this page.
2. Check the operators seat and the mounting parts for the seat belt. Tighten the bolts to the correct torque. See Torque Specifications in this manual. Replace parts that have wear or damage.
3. Check for cracks, rust, or holes in the ROPS and ROPS parts. Age, weather, and accidents can cause damage to the ROPS and ROPS parts. If you have any doubt about the ROPS system, see your dealer.

### Torque Specifications for ROPS Cab and ROPS Canopy



**RD97F234**  
**ROPS CAB AND ROPS CANOPY MOUNTING BOLTS (BOTH SIDES), TIGHTEN TO 786 TO 840 Nm (580 TO 62 POUND-FEET)**

**NOTE:** *Torque specifications are for clean, dry threads.*

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# ELECTRICAL SYSTEM

## Battery Safety



**WARNING:** Before you service a battery, always wear face protection, protective gloves and protective clothing. Battery acid or battery explosion can cause serious injuries.

SA046



**WARNING:** Battery acid causes severe burns. Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote - **EXTERNAL:** flush with water. **INTERNAL:** drink large quantities of water or milk. Follow with milk of magnesia, beaten egg or vegetable oil. Call physician immediately. **EYES:** flush with water for 15 minutes and get prompt medical attention.

SB032



**WARNING:** When the battery electrolyte is frozen, the battery can explode if, (1) you try to charge the battery, or (2) 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.

SA033



**WARNING:** Sparks or flame can cause hydrogen gas in a battery to explode. To prevent an explosion, do the following:

1. When you disconnect the battery cables, always disconnect the negative (1) battery cable first.
2. When you connect the battery cables, always connect the negative (-) cable last.
3. Do not short circuit the battery posts with metal items.
4. Do not weld, grind, or smoke near a battery.

SB034

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## BATTERY SERVICE

**NOTE:** The electrical system in this machine is 24 volts. Each battery is 12 volts.

Before you service components of the electrical system, always disconnect the **NEGATIVE (-)** battery cable.

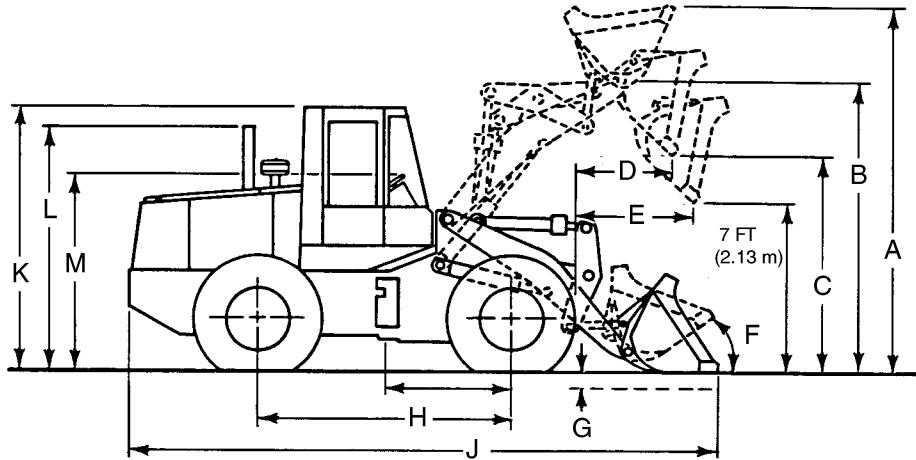
Do not run the engine with the battery cables disconnected or with the alternator wires disconnected.

Before you use an electric welder, disconnect the alternator wires, instrument cluster, and turn the master disconnect switch to **OFF**.

Do not use a steam cleaner or cleaning solvent to clean the alternator.

## OPERATING DATA AND DIMENSIONS 921C

Specifications taken with 26.5 x 25, 20 PR, L3 tires, ROPS cab with heater, 2177 kg (4,800 pound) rear counterweight, fenders, standard battery, lights, full fuel, and a 80 kg (175 pound) operator. Specifications per SAE J732, J1234, J742, and J818.



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### Machines with 3.63 m<sup>3</sup> (4.75 yd<sup>3</sup>) General Purpose Bucket

Tipping load, machine straight .....	19 643 kg (43 305 pounds)
Tipping load, 40 degree turn .....	15 675 kg (34 558 pounds)
A. Overall operating height, fully raised .....	5 635 mm (18 foot 5.9 inch)
B. Height to bucket hinge pin, fully raised .....	4 284 mm (14 foot 0.7 inch)
C. Dump height, 45 degree dump, full height .....	3 146 mm (10 foot 3.9 inch)
D. Bucket reach, 45 degree dump, full height .....	1 096 mm (3 foot 7.2 inch)
E. Bucket reach, 45 degree dump, 7 foot (2134 mm) dump height .....	1 747 mm (5 foot 8.8 inch)
Dump angle at full height .....	50 degree
F. Bucket rollback at ground line .....	39 degree
G. Digging Depth, bucket flat .....	30 mm (1.2 inch)
H. Wheel Base .....	3 404 mm (134 inch)
Tread width .....	2 210 mm (87 inch)
J. Overall length (without bucket teeth) .....	8 555 mm (28 foot 0.8 inch)
K. Overall height to top of ROPS cab .....	3 571 mm (11 foot 8.6 inch)
L. Height to top of exhaust pipe .....	3 383 mm (11 foot 1.2 inch)
M. Height to top of steering wheel .....	2 837 mm (9 foot 3.7 inch)
SAE operating weight .....	22 961 kg (50 621 pounds)
Turning angle from center .....	40 degree

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