

521D Loader
Operator's Manual

Bur 6-26371

CASE

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IDENTIFICATION NUMBERS

Write your machine Product Identification Number (P.I.N.) and Serial numbers on the lines provided below. If needed, give these numbers to your dealer when you need parts or information for your machine.

Make a record of the numbers. Keep the record and your Manufacturer's Statement of Origin in a safe place. If the machine is stolen, report the numbers to your local law enforcement agency.

MACHINE MODEL NUMBER _____

PRODUCT IDENTIFICATION NUMBER _____

ENGINE SERIAL NUMBER _____

TRANSMISSION MODEL AND SERIAL NUMBER _____

ROPS CAB OR CANOPY SERIAL NUMBER _____

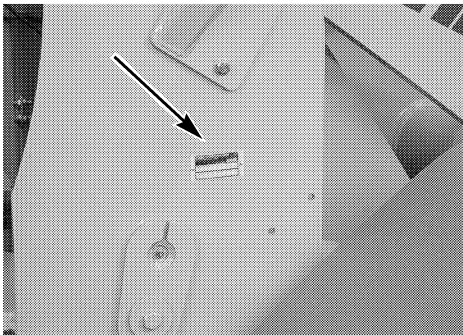
FRONT AXLE MODEL AND SERIAL NUMBER _____

REAR AXLE MODEL AND SERIAL NUMBER _____

BUCKET OR ATTACHMENT PART NUMBER _____

TRIM THIS EDGE

Product Identification Number (P.I.N.)



BD00M072

CASE CORPORATION		Made in U.S.A.
RACINE, WI 53404 U.S.A.		
Marca Registrada		CASE ®
Model Number		
Product Identification Number		

RB97D048

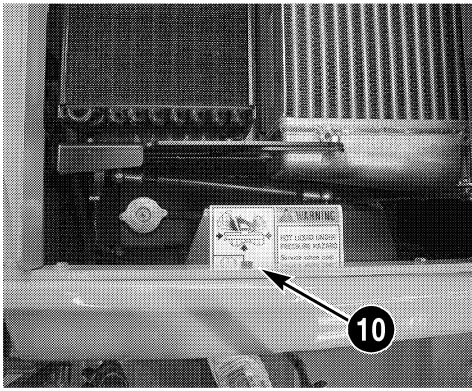
PARKING THE MACHINE

- When you park the machine and before you leave the operators area, always support or lower all attachments (loader, backhoe, etc.) to the ground, apply the parking brake, stop the engine, and remove the key.
- If you must temporarily park the machine on a hillside, put the front of the machine toward the bottom of the hill. Make sure the machine is behind an object that will not move. Put blocks in front of each wheel on the downhill side.
- Always face the machine and use the hand rails and steps when getting off. Do not rush and do not jump from the machine.

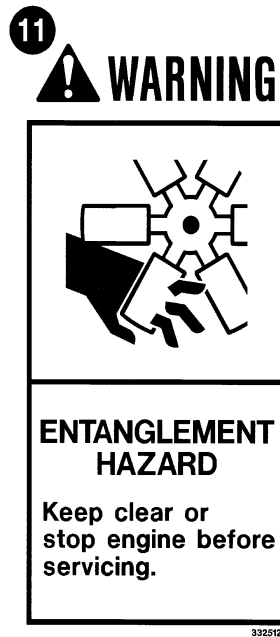
BURN PREVENTION

- Batteries contain sulfuric acid which can cause severe burns. Avoid contact with skin, eyes, or clothing. Antidote - EXTERNAL - Flush with water. 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. **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 with new batteries. Wash hands after handling. **KEEP OUT OF REACH OF CHILDREN.**
- Hot coolant can spray out if the radiator cap is removed too quickly. To remove the radiator cap, let the cooling system cool, turn the cap to the first notch, wait until the pressure is released, then remove the cap.
- 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, keep the battery at full charge. If you do not follow these instructions, you or others in the area can be injured.

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BD00M062/329044A1

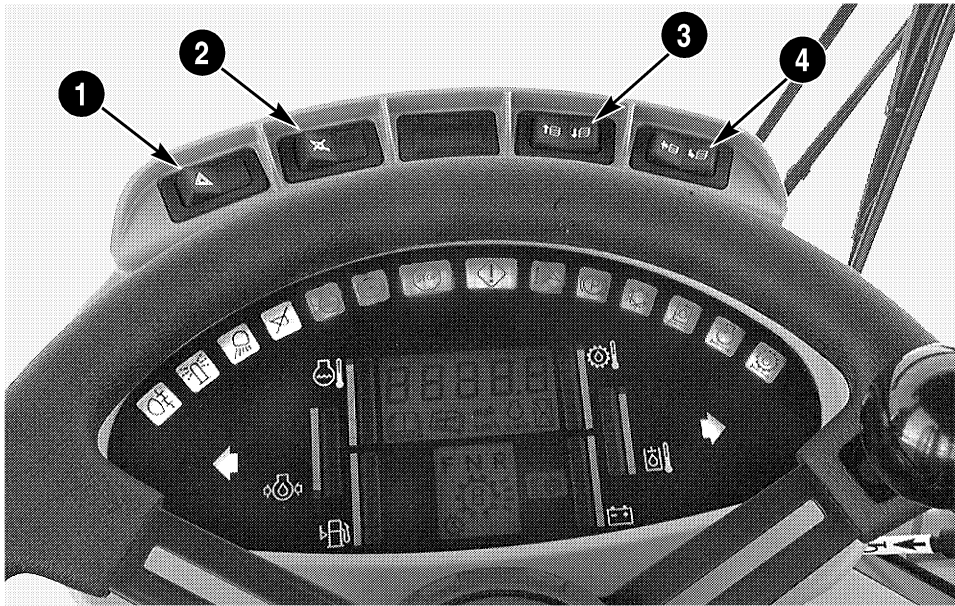


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BD00M005/332512A1

INSTRUMENT/CONTROLS

FRONT CONSOLE



RD98K315

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BC00B087

1. FOUR-WAY FLASHER SWITCH:

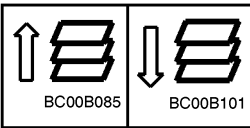
Push the LH side of the of the flasher switch to actuate the flashers. Push the RH side of the flasher switch for the OFF position.



BC00B048

2. PILOT CONTROL SWITCH:

Push on the LH side of the switch to disable the pilot controls, the pilot control lamp will illuminate when the hydraulic control levers are disabled. The loader linkage will stay in position when the pilot controls are disabled. Push on the RH side of the switch to actuate the pilot controls. The hydraulic control levers will now function.



BC00B085

BC00B101

3. UP/DOWN COUNT SWITCH:

Controls display, used with Program/Reset Switch (see Program Control in this manual for more information).



BS98M034

BS98M034

4. PROGRAM/RESET SWITCH:

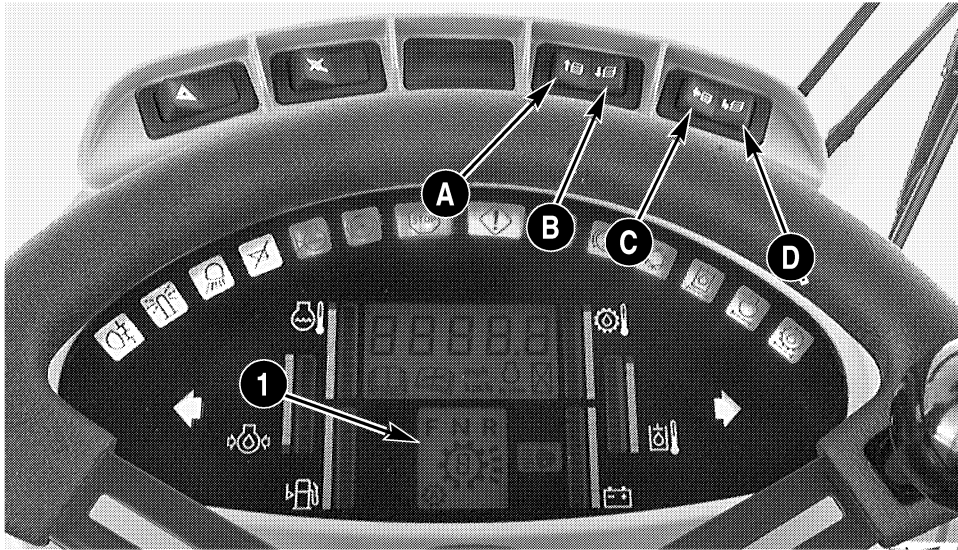
Control display, used with Up/Down Count Switch (see Program Control in this manual for more information).

INSTRUMENTS/CONTROLS

TRANSMISSION TEMPERATURE	High transmission temperature	<ol style="list-style-type: none"> 1. Idle machine and monitor temperature. 2. Clean cooler or Operate fan reverser. (If equipped) 3. Use a lower gear. 4. If condition persists, contact your dealer.
AIR CONDITIONING	High or Low air conditioning pressure.	<ol style="list-style-type: none"> 1. Turn air conditioning OFF. 2. Low outside temperature. 3. Servicing required. 4. If condition persists, contact your dealer.
AIR FILTER	High air filter restriction	<ol style="list-style-type: none"> 1. Clean air filter. 2. Replace primary and secondary filters. 3. If condition persists, contact your dealer.
TRANSMISSION FILTER	Transmission filter restriction.	<ol style="list-style-type: none"> 1. Replace transmission filter. 2. If condition persists, contact your dealer.
HYDRAULIC FILTER	Hydraulic filter restriction.	<ol style="list-style-type: none"> 1. Replace hydraulic filter. 2. If condition persists, contact your dealer.
ALTERNATOR	Alternator malfunction.	<ol style="list-style-type: none"> 1. Check electrical system. 2. Voltages are out of range. 3. Change operating procedure. 4. If condition persists, contact your dealer.
FUEL	Low fuel.	<ol style="list-style-type: none"> 1. Fill fuel tank within the next hour.

TRIM THIS EDGE

INFORMATION CENTER



RD98K316

A. UP COUNT
B. DOWN COUNT

C. PROGRAM
D. RESET

1. INFORMATION CENTER

You can display many of the machine functions on your **Programmable Information Center**. It can be programmed to display all functions, or only the functions that are important to you.

Here are the functions you may choose to see on your **Information Center**:

HOURMETER - Displays the accumulated running time of the engine in hours and tenths of an hour with an “hour glass” symbol.

NOTE: Machine hour can be checked with out the key switch being in the ON position, by pushing in and holding the right side of the program reset switch.

TACHOMETER - Displays the engine speed in revolutions per minute along with an “n/min” symbol.

SPEEDOMETER - Displays the ground speed in either kilometers per hour (km/h) or miles per hour (mph) along with either an “km/h or mph” symbol.

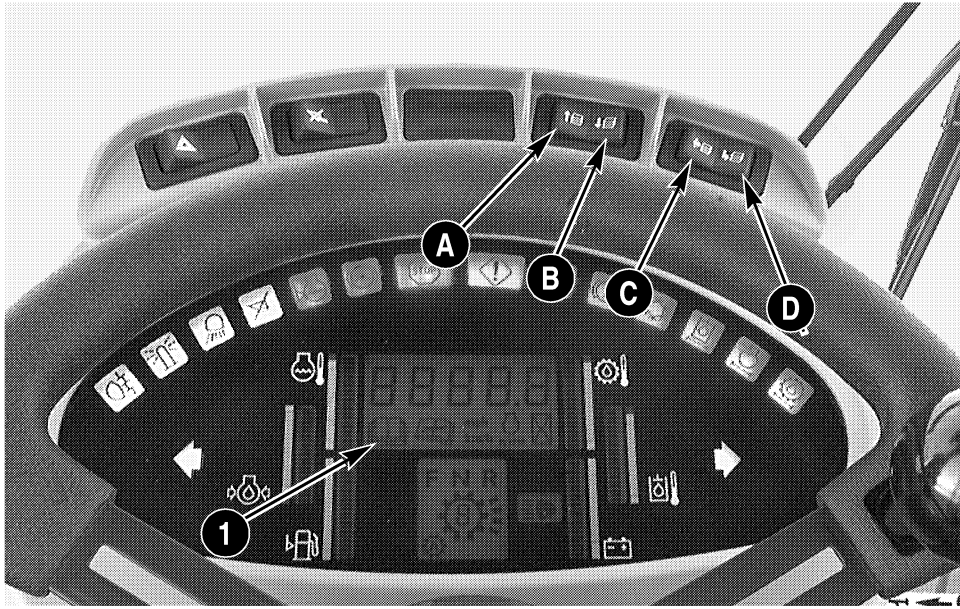
ENGINE COOLANT TEMPERATURE - Displays the engine coolant temperature in Celsius with the engine coolant temperature bar graph flashing.

ENGINE OIL PRESSURE - Displays the engine oil pressure in kilo pascals (kPa) with the engine oil pressure bar graph flashing.

FUEL LEVEL - Displays the fuel level in percent (%) remaining from a full tank with the fuel level bar graph flashing.

TRIM THIS EDGE

GAUGE DISPLAY



A. UP COUNT
B. DOWN COUNT

C. PROGRAM
D. RESET

TRIM THIS EDGE

To View a Selected Function On Your Display Center do the following:

- Press the **program** (C) switch (left side of the **program/reset** (C, D) switch).
- Press the **up count** (A) switch until the display reads the function of your choice (**000 - 009**).
- Return the **program/reset** (C, D) switch to **OFF** (center) position.

You will now see the function you've chosen.

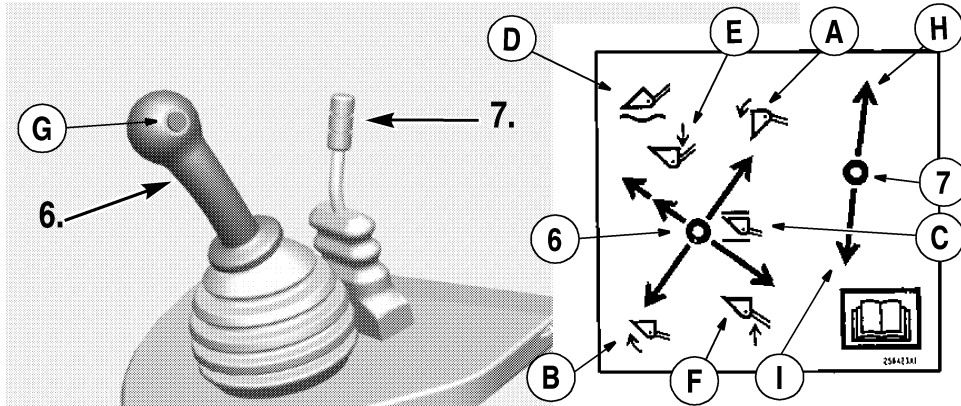
Example: Lets say you were interested in seeing the engine coolant temperature. You would do the following:

- Press the **program** (C) switch (left side of the program/reset switch).
- Press the **up count** (A) switch until the display reads **004**.
- Return the **program/reset** (C, D) switch to the **OFF** (center) position.

You will now see the engine coolant temperature on your **Display Center**.

The engine coolant temperature bar graph will flash indicating this is the function being displayed.

Three Spool - Two Levers



114/BS00B356

6. BUCKET AND LIFT ARM CONTROL

A. DUMP

B. ROLLBACK

C. HOLD: The loader arms and bucket will not move when the control lever is in the HOLD position. When released, the control lever will automatically return to the HOLD position. You must manually move the control lever from the FLOAT position to the HOLD position

D. FLOAT (Detent): This is a detent position. When in the FLOAT (Detent) position, the loader bucket can follow the level of the ground without movement of the control lever.

E. LOWER

F. RAISE

G. DOWNSHIFT

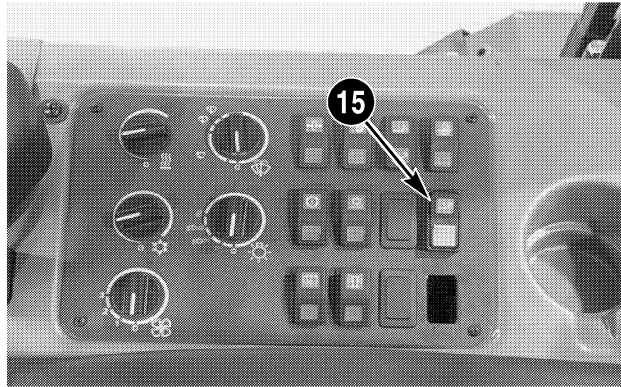
7. AUXILIARY CONTROL

H. AUXILIARY FUNCTION

I. AUXILIARY FUNCTION

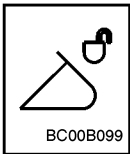
TRIM THIS EDGE

SIDE CONSOLE



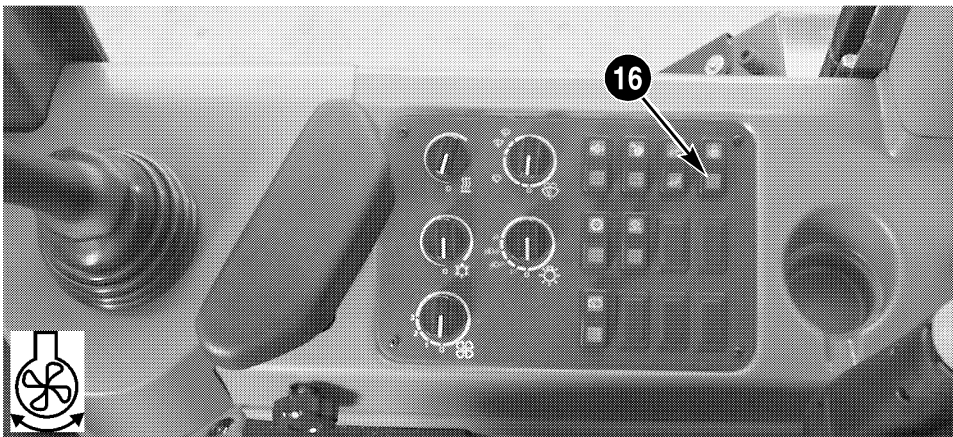
BD00N030

15. COUPLER PIN ENGAGE SWITCH:



BC00B099

Slide the locking plate towards the center of the switch, push down on the top of the switch to RETRACT the pins. The switch lamp will illuminate when the pins are retracted. The switch will lock in the PIN EXTENDED position after the bottom of the switch has been pressed and the PINS EXTENDED.

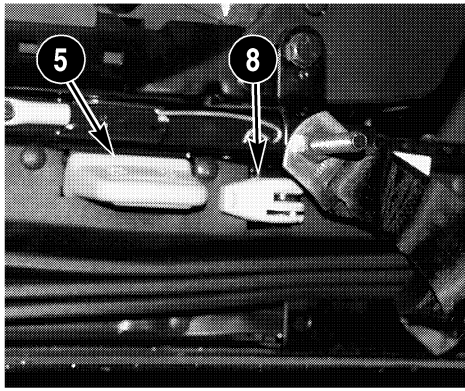


BS00M473

16. FAN REVERSER SWITCH (If equipped)

To use the fan reverser let the machine idle in neutral. Depress the fan reverser switch and depress the throttle to high idle for a minimum of 10 seconds or until debris stops blowing out of the coolers. Return the machine to an idle and then release the fan reverser switch.

TRIM THIS EDGE



RD00B010

8. DAMPENING ADJUSTMENT LEVER:

The dampening adjustment lever has four positions from soft to hard. The first adjustment is with the small end of the adjustment lever pointing toward the front of the seat, as shown. The other three adjustments can be obtained by rotating the small end of the adjustment lever out away from the seat. Each of the adjustments has a slight detent. The suspension can be adjusted to various operating conditions.

SEAT BELT



RD97F225



RD97F225

1. Pull belt from holder. Fasten the belt end into the right-hand buckle.

2. To release the seat belt, push the red button on the buckle.

NOTE: Make sure the belt end and buckle are securely fastened. Do not pull out the right-hand buckle.



WARNING: Securely fasten your seat belt. Your machine is equipped with a ROPS cab or ROPS canopy for your protection. The seat belt can help insure your safety if it is used and maintained. Never wear a seat belt loosely or with slack in the belt system. Never wear the belt in a twisted condition or pinched between the seat structural members.

M437

TRIM THIS EDGE

Booster Battery Connections to Machine Batteries (Jump Start)



WARNING: Batteries contain acid and explosive gas. Explosion can result from sparks, flames or wrong cable connections. To connect the jumper cables correctly to the battery of this machine, see the correct method shown on this page. Failure to follow these instructions can cause serious injury or death.

SA006



WARNING: Battery explosion and/or damage to electrical components can result from improper connection of booster batteries or charger. Connect positive to positive and negative to negative. Externally, battery acid can cause burns and blindness, and taken internally it is poison.

M146B

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

IMPORTANT: The machine may only be Jump Started from the **LEFT** side of the machine.

NOTE: Make sure the batteries are not frozen. Do not use batteries that have been frozen. Replace the batteries if the batteries have been frozen.

1. Open the rear hood. Sit in the operators seat and have the other person make the connections.
2. If using jumper batteries, make sure the jumper batteries are 24 volts.
3. If using another machine for power, make sure the two machines, DO NOT touch.
4. Connect the positive (+) jumper cable to the positive (+) battery terminals first.
5. Connect the negative (-) jumper cable to the negative (-) terminal on the jumper batteries or the other machine. Connect the other end of the negative (-) jumper cable to a good frame ground away from the batteries.
6. Start the engine according to the instructions in this manual. See Starting the Engine in this manual.
7. Have the other person disconnect the jumper cables in the reverse order that the jumper cables were connected in. Close the rear hood.

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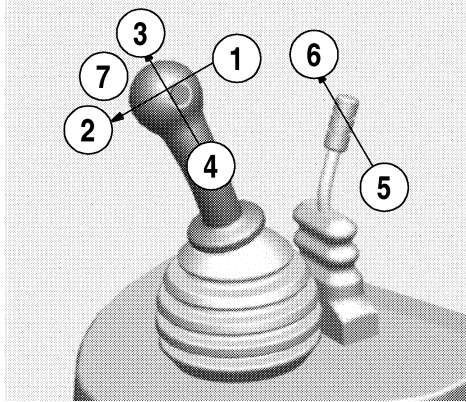
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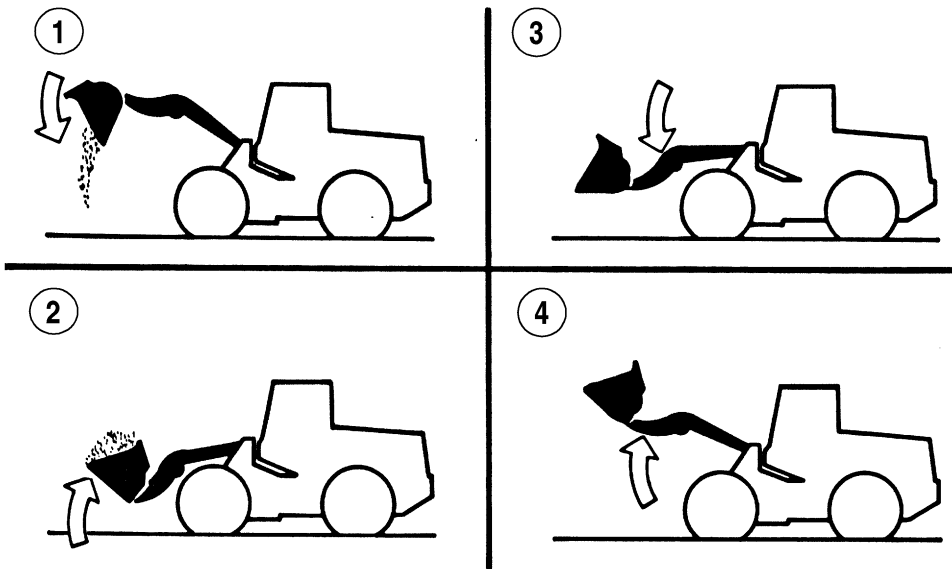
THREE SPOOL VALVE - TWO CONTROL LEVERS



414

NOTE: This page shows the basic 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

- 1. DUMP BUCKET
- 2. ROLLBACK BUCKET
- 5. 5-6.) AUXILLARY FUNCTION

- 3. LOWER LIFT ARMS
- 4. RAISE LIFT ARMS

B1119A88

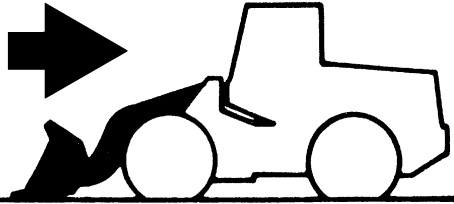
6. 7.) **HOLD:** THE LOADER ARMS AND BUCKET WILL NOT MOVE WHEN THE CONTROL LEVERS ARE IN **HOLD**. WHEN RELEASED, THE CONTROL LEVERS WILL RETURN TO **HOLD** AUTOMATICALLY.

LOADER OPERATING TIPS

This Wheel Loader, with standard equipment and authorized attachments, is intended to be used for above ground level digging and general earth moving 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.

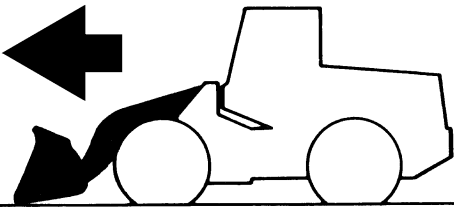


163L96

Pushing Operation

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

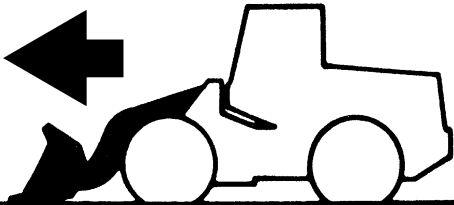
IMPORTANT: *The bucket MUST NOT be in the FULL DUMP position during the pushing operation.*



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



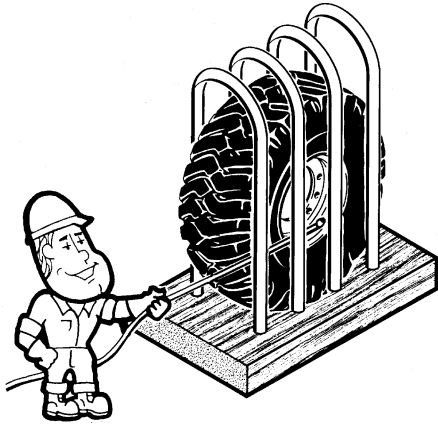
WARNING: Impact Hazard - *Bucket edge or teeth can catch on frozen surface or buried object during surface scraping operations. Before operation inspect the area for objects the bucket can catch on and mark them. During operation make sure the bottom of the bucket is level with the surface to be scraped. 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).



B790490R

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.



B4039288T

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.



B770164R

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FLUIDS AND LUBRICANTS - 521D**Engine Crankcase**

Oil Capacity - with filter change 11.3 liters (12 U.S. Quarts)
 Specifications See Engine Lubrication in this manual

Cooling System

Capacity 34.1 liters (9.0 U.S. Gal.)
 Specifications 50% water and 50% Ethylene Glycol

Fuel Tank

Capacity 189.3 liters (50 U.S. Gallons)
 Specifications See Diesel Fuel System in this manual

Hydraulic/Brake System

Reservoir Refill Capacity with filter change 68.5 liters (18 U.S. Gal.)
 Total System Capacity 113.6 liters (30 U.S. Gal.)
 Specification MS-1209, Hy-Tran Ultra®

Transmission

Refill Capacity - with filter change 7.8 liters (8 U.S. Quarts)
 Total System Capacity 25.6 liters (27 U.S. Quarts)
 Specifications Case No. 1 Engine Oil (SAE 15W-40)

Axles: Front and Rear

Capacity (each axle) 20.4 liters (21.5 U.S. Quarts)
 The above amount includes Limited Slip Additive 2.4 liters (2.5 Quarts)
 Specifications Case 135H EP gear lubricant (SAE 85W-140)

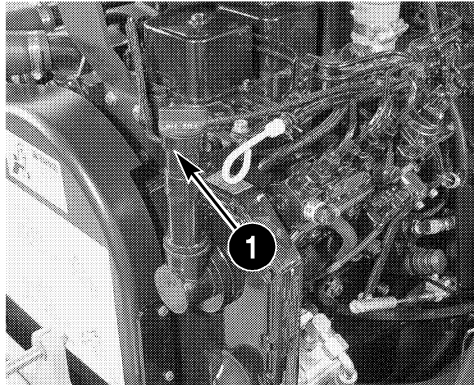
Grease Fittings

Quantity As Required
 Specifications Case Molydisulfide Grease

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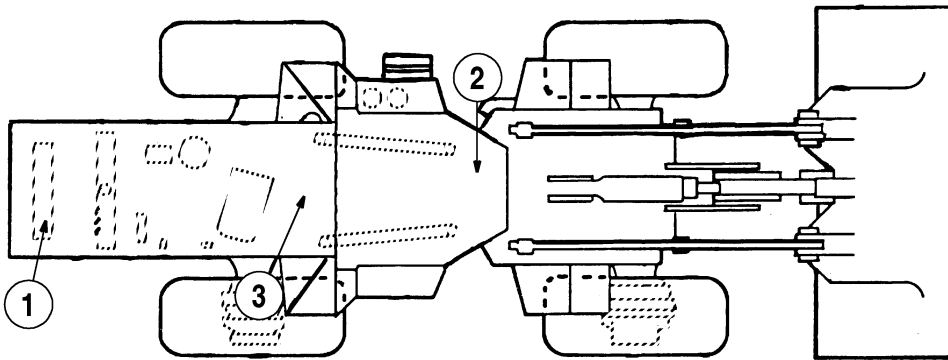
FLUID LEVELS

10 Hours



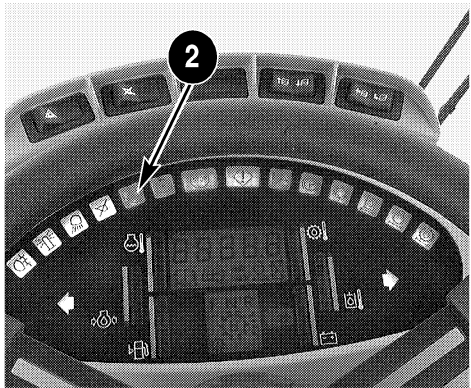
RD98A190

1. ENGINE OIL CASE NO. 1 ENGINE OIL (SAE 15W-40)



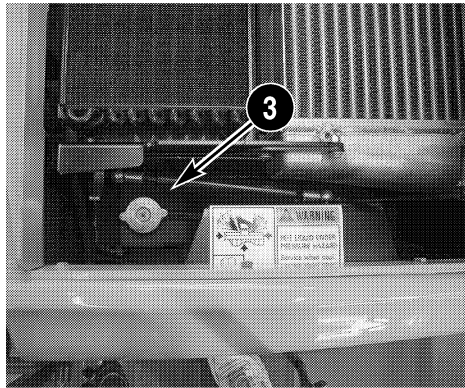
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RD98K315

2. RADIATOR COOLANT LEVEL
ETHYLENE GLYCOL AND WATER

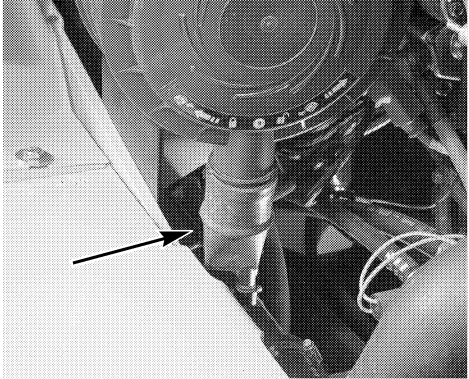


BD00M062

3. RADIATOR
ETHYLENE GLYCOL AND WATER

Dust Valve

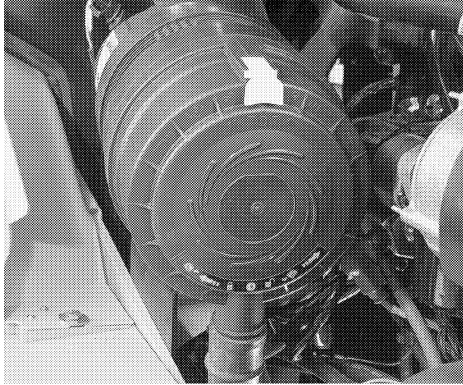
Check the dust valve. Make sure there is no obstruction inside the valve.



BD00M008

Primary (Outer) Element

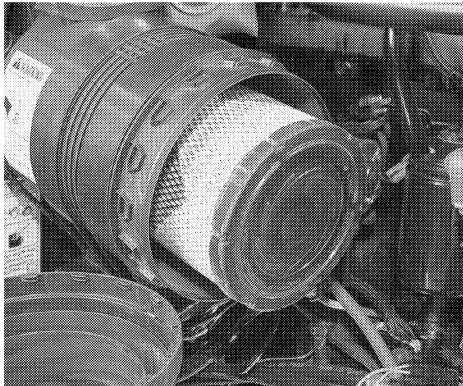
1. Open the hood and pull the yellow lock tab out.



BD00M009

2. Rotate the end cap counterclockwise to unlock.

NOTE: *If there is a large amount of dust inside the end cover, check dust valve for proper operation*



BD00M011

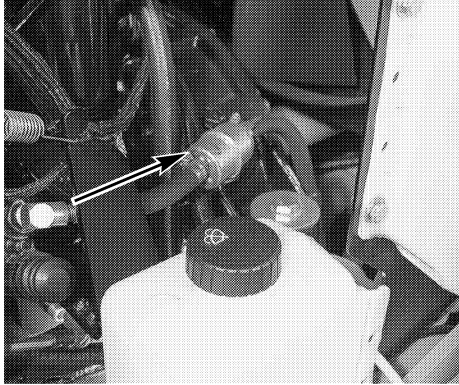
3. Carefully remove the primary (outer) element.

TRIM THIS EDGE

In-Line Fuel Filter

Replace the in-line fuel filter every 500 hours. To replace the filter do the following:

1. Loosen the nut or hose clamp (as equipped) at each end of the filter. Remove the filter from the fuel line.
2. Install a new filter. Make sure the arrow on the filter points toward the primer pump.
3. Use the primer pump to prime the system. Check for leakage.
4. Start the engine and check again for leakage.
5. See Removing Water and/or Sediment on Page 173.

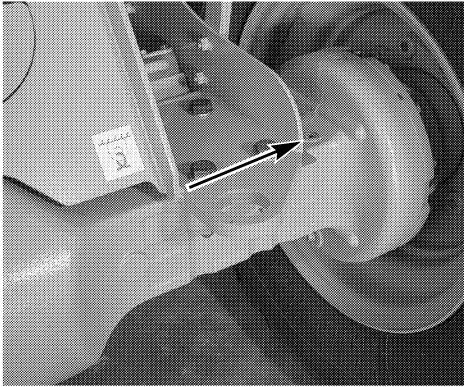


BD00M091

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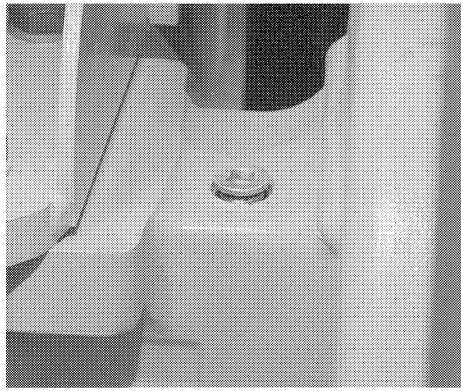
Axle Planetary and Center Bowl

1. Park the machine on a level surface. Apply the parking brake and stop the engine.
2. Remove the axle dipstick and clean area thoroughly. Check the level.



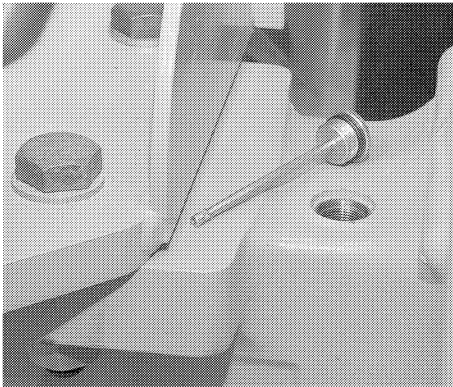
BD00M042

1. OIL LEVEL CHECK.



BD00N074

IMPORTANT: Axle level must be checked by placing dipstick level in hole but not threading down.



BD00N073

2. ADD OIL AS REQUIRED.

TRIM THIS EDGE

TRANSMISSION CLUTCH CALIBRATION

Transmission clutch calibration ensures optimum shifting of the transmission. Make sure of the following before proceeding with transmission clutch calibration.

- A. The parking brake has been tested.
- B. The transmission oil is warm.
- C. The engine idle speed is correct.
- D. The transmission is in neutral.
- E. The parking brake is applied.

Do the following procedure to calibrate the transmission clutches:

1. Put the transmission in manual shift mode and the gear selector in 3rd gear neutral.
2. Press the program switch.
3. Press the up-count switch until the display reads 011.
4. Return the program switch to the center position.
5. Press the up-count switch twice so the display reads 02.

At this time, 2 00 00 will begin flashing in the display center.

- After one second, the Clutch Calibration Main Code status will be displayed in the 3rd and 4th spaces (2 XX 00 - the XX represents the 3rd and 4th spaces).

- The Modulation Cycle Number will be displayed in the 1st and 2nd spaces (2 00 XX - the XX represents the 1st and 2nd spaces).
- During Clutch Calibration, the Clutch Calibration Main Code will change from 01 to 07 as the process is completed. The code 07 will indicate that the process is complete and the Information Center will return to normal working status.
- If any of the Clutch Calibration parameters are incorrect, the display center will stop flashing and display the Clutch Calibration Main Code in the 1st, 2nd, 3rd, and 4th spaces.

In the event, the code in the 3rd and 4th spaces will be 09 to 14 and will indicate the process that the calibration was in when it was aborted.

The 1st and 2nd spaces will produce the Clutch Calibration Sub-Code, which is the code that will inform the operator of the reason process was aborted.

6. After completing the clutch calibration procedure, turn the engine off for 15 seconds to set the calibration in the controller.

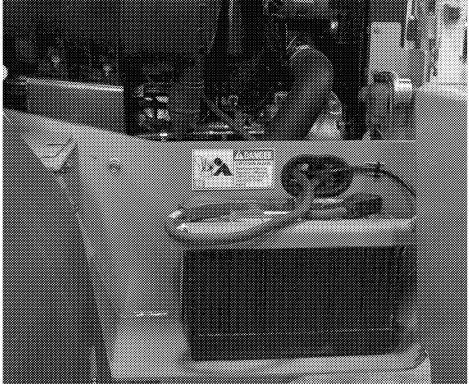
NOTE: See *Clutch Calibration Main Code and Clutch Calibration Sub-Code on the following page.*

TRIM THIS EDGE

Bucket Height Control Minor Adjustment

1. Park the machine on a level surface. Lower the loader bucket to the floor.
2. Apply the parking brake and stop the engine.
3. Loosen the rear actuator.
4. To increase the dump height, move the actuator down in the slot. To decrease the dump height, move the actuator up.
5. Tighten the actuator.
6. Start the engine and pull the lift control lever to the RAISE detent position. When the loader arms stop moving, check the dump height.

TRIM THIS EDGE

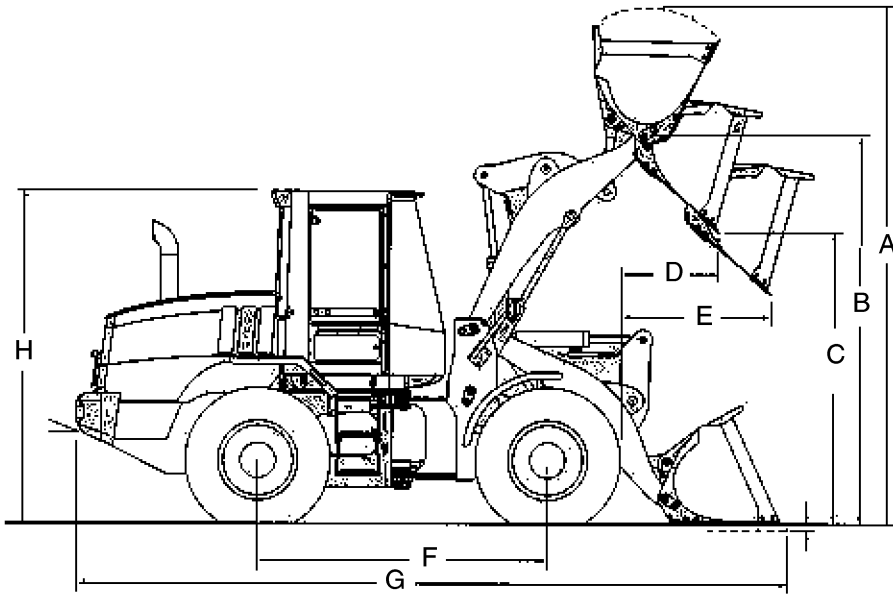


BD00N050

IMPORTANT: *Machine must be Jump Started from the **LEFT** side only!*

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OPERATING DATA AND DIMENSIONS



B0769A88

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**Machines with 1.72 m³ (2.25 yd³)
General Purpose Bucket W/Bolt-On Edge**

Tipping load, machine straight	7 738 kg (17 060 bs)
Tipping load, 40 degree turn	6 483 kg (14 293 bs)
A. Overall operating height, fully raised	4 686 mm (184.5 in)
B. Height to bucket hinge pin, fully raised	3 610 mm (142.1 in)
C. Dump height, 45 degree dump, full height	2 660 mm (104.7 in)
Dump angle at full height	45 degree
D. Bucket reach, 45 degree dump, full height	932 mm (36.7 in)
E. Bucket reach, 45 degree dump, 2134 mm (7 foot) dump height	1 334 mm (52.5 in)
F. Wheel Base	2 750 mm (108.3 in)
G. Overall Length	6 636 mm (261.3 in)
H. Overall height to top of ROPS cab.....	3 173 mm (124.9 in)

Specifications taken with 17.5 R25 XTLA tires, ROPS cab with heater and air conditioning, 1 088 kg (2400 lb) rear counterweight, fenders, standard batteries, lamps, full fuel tank, and a 80 kg (175 lb) operator. Specifications per SAE J732, J1234, J695, J742 and J818.

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