



Caterpillar

Operator's Manual

950

Wheel Loader

**S/n 31K962, 43J2724,
73J2081, 81J3730 & Up**

or Call 800-443-0625



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CT-O-950 W/L

Operator's Manual

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Maintenance Recommendations

COOLING

CAUTION

Never add coolant to an overheated engine, allow the engine to cool first.

Measure the specific gravity of the antifreeze solution frequently in cold weather to assure adequate protection.

When permanent antifreeze and water solutions are used in the cooling system, the solution should be drained and replaced every 2000 service hours or 1 year.

When additions of cooling system inhibitor are made to the cooling system every 500 service hours or 3 months, it is not necessary to drain and refill yearly. The cooling system drain period can then be extended to 4000 service hours or 2 years.

Maintain a 3% concentration of Caterpillar Cooling System Inhibitor, or equivalent, in the cooling system regardless of antifreeze concentration.

Do not use Caterpillar Cooling System Inhibitor with Dowtherm 209 coolant.

If the machine is to be stored in, or shipped to, an area with freezing temperatures, the cooling system must either be protected to the lowest expected ambient temperature or drained completely.

NOTE

The engine cooling system is protected to -20°F (-29°C), with permanent-type antifreeze, when shipped from the factory.

Pure undiluted antifreeze will freeze at -10°F (-23°C).

Use clean water that is low in scale forming minerals, not softened water. Add Caterpillar Cooling System Inhibitor, or equivalent, to the water to provide corrosion protection.

Whenever draining and refilling the cooling system, always measure the coolant level when the engine reaches normal operating temperature.

Filling at over 5 gpm (19 liters/min) rate can cause air pockets in the cooling system.

When measuring the coolant level, inspect the radiator cap gasket. Replace the gasket if it is damaged.

Premix the antifreeze solution to provide protection to the lowest expected ambient temperature.

Operate with a thermostat in the cooling system year-round. Cooling system problems can arise without a thermostat.

FUEL

CAUTION

Fill the fuel tank at the end of each day of operation to drive out moist air and to prevent condensation. Do not fill the tank to the brim. The fuel expands when it gets warm and may overflow.

Water and sediment should be drained from the tank at the start of each shift or after the fuel tank has been filled and allowed to stand for 5 to 10 minutes.

If the engine fuel system is equipped with a water separator, drain any water from the water separator daily before starting the engine. Always drain the water from the separator before it becomes one-half full.

Frequent draining may be necessary in areas of high humidity or when the fuel supply is contaminated with water.

Drain water and sediment from the main fuel storage tank weekly, and before the tank is refilled. This will help prevent water or sediment from being pumped from the storage tank into the machine fuel tank.

Measure the fuel level with the dipstick in the fill opening.

After changing the fuel filter, always bleed the fuel system to remove air bubbles from the system.

AIR INTAKE

Inspect the air intake precleaner daily for accumulation of dust and debris.

Service the air cleaner when the RED band in the indicator locks in the visible position.

HYDRAULIC SYSTEM

CAUTION

Any make-up oil added to the hydraulic system must mix with the oil already in the tank. Use only petroleum products unless the system is equipped for use with special products.

If the hydraulic oil becomes cloudy, water or air is

entering the hydraulic system. Drain the fluid, purge the system*, and retighten all hydraulic suction line clamps. Water or air in the hydraulic system can cause pump failure.

*Contact your Caterpillar dealer for the correct purging procedure.

ELECTRICAL

CAUTION

When using an external electrical source to start the machines with direct electric starting, turn the disconnect switch off and remove the key before attaching any cable to the emergency starting receptacle.

When using jumper cables, be sure to connect in parallel: POSITIVE (+) to POSITIVE (+) and NEGATIVE (-) to NEGATIVE (-).

Do not allow the free end of the jumper cables to touch either machine. This helps to avoid sparks.

An emergency starting kit that facilitates starting from an external power source is available from your Caterpillar dealer. It provides a permanent receptacle, on the machine, to plug in a jumper cable. Two different cables are needed for auxiliary starting, to start from an operating machine, or to start from an auxiliary power pack.

When starting a machine with jumper cables, remove all caps from both batteries. Leave these off during the starting process to allow the venting of hydrogen gas.

Connect one cable to the ungrounded terminal of the battery of the machine to be started.

Connect the other end of this cable to the terminal of the same polarity [POSITIVE (+) to POSITIVE (+) and NEGATIVE (-) to NEGATIVE (-)] on the auxiliary battery.

Connect the second cable to the other terminal of the auxiliary battery.

Finally, connect the remaining cable end to the starter ground terminal.

Always make the last connection to the ground terminal. NEVER make the last connection to a battery terminal.

SCHEDULED OIL SAMPLING

Use Scheduled Oil Sampling to monitor machine condition and maintenance requirements.

Each oil sample should be taken when the oil is hot, and well mixed, to ensure that the sample is represen-

tative of the oil in that compartment or system.

Consult your Caterpillar dealer for complete information and assistance in establishing a Scheduled Oil Sampling program for your equipment.

GENERAL

CAUTION

Accumulated grease and oil on a machine is a fire hazard. Remove this debris with steam cleaning or high pressure water every 1000 hours or each time any significant quantity of oil is spilled on a machine.

When lubricating the drive shaft universal joints, use a lever-type hand-operated grease gun. Use of pressure air operated lubricating equipment may damage the seals.

NOTE

1 Newton-Meter (N·m) is approximately equal to 0.1 mkg.

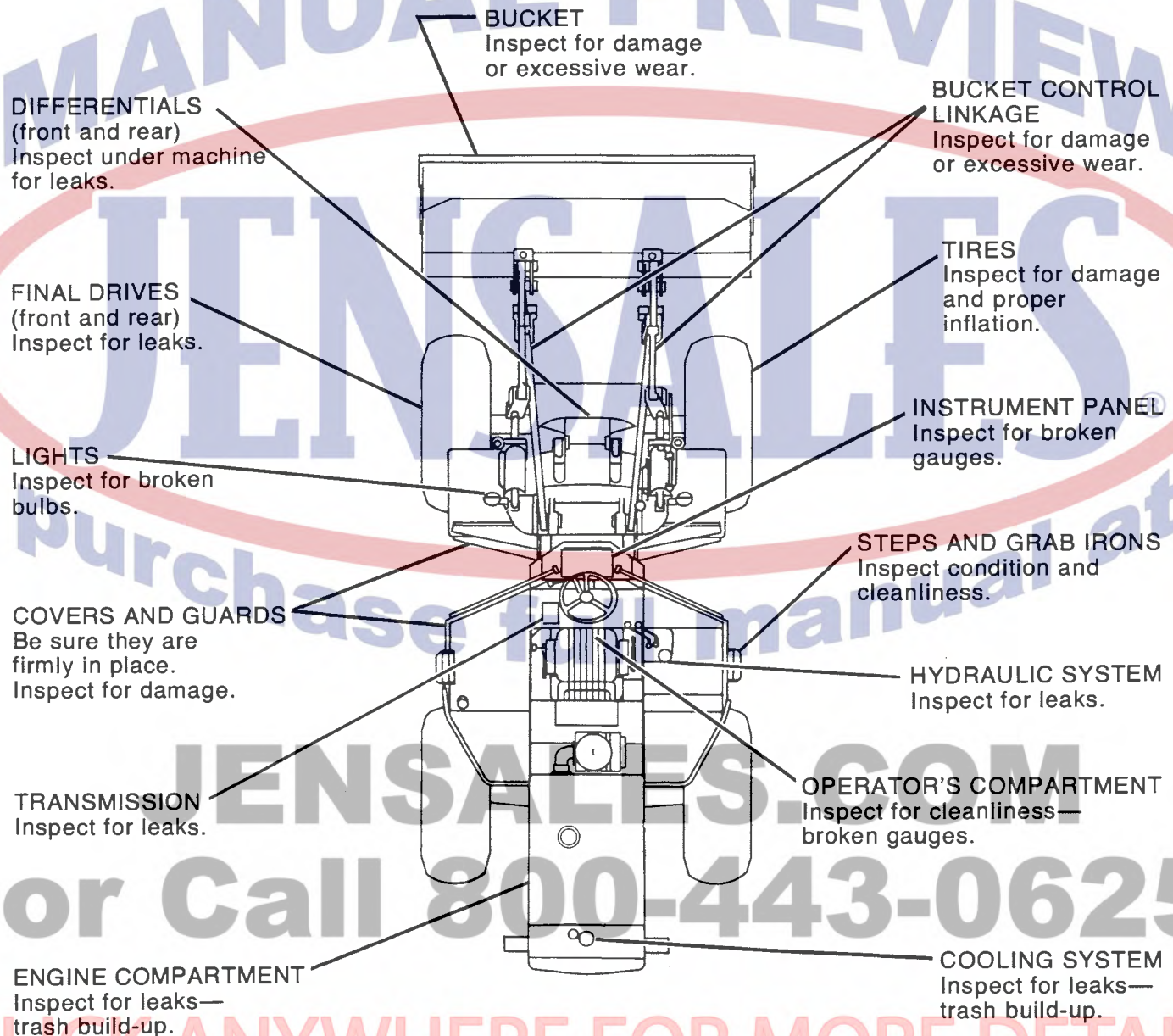
1 Kilopascal (kPa) is approximately equal to 0.01 bar (kg/cm²).

Drain moisture and sediment from the air reservoir at the beginning of each day of operation.

Wipe all fittings, caps and plugs before servicing.

Walk-Around Inspection

For your own safety, and maximum service life of the vehicle, a thorough walk-around inspection should be made before mounting the machine to start the engine. Look around and under the machine for such items as loose bolts, trash build-up, oil or coolant leaks, condition and inflation of tires, condition of bucket and linkage.



LUBRICATION AND MAINTENANCE CHART

ITEM	SERVICE	LUBRICANT	PAGE NO.
			WHEN REQUIRED
④⑦ Water Separator	Change element if frozen, dirty or torn		54
④⑧ Seat Belts	Inspect—replace if damaged. Seat belt must be replaced at least every 3 years		55
④⑨ Front and Rear Differentials and Final Drives ⁽²⁾	Inspect lubricant level if leakage develops or is suspected	CD/TO-2	56
⑤⑩ Transmission ⁽¹⁾⁽²⁾	Inspect lubricant level if leakage develops or is suspected	CD/TO-2	57
⑤① Fuses and Circuit Breaker	Replace fuses if elements are broken—re-set circuit breaker		57
⑤② Air Intake System	Service when RED band in indicator locks in visible position		58
⑤③ Windshield Wiper and Washer	Inspect condition of wiper blades if streaking develops—refill washer reservoir		61
⑤④ Fuel System	Change filter when fuel gauge registers OUT with engine running		62
⑤⑤ Air Conditioner	Wash filter elements if poor cooling is experienced		65
⑤⑥ Cooling System	Drain and clean when engine overheats or solution is dirty		66
⑤⑦ Cooling System Relief Cap	Clean or replace if engine overheats or coolant loss is observed		67
⑤⑧ Bucket Teeth	Inspect condition—replace if worn or damaged		68
⑤⑨ Ripper Tips	Inspect condition—replace if worn or damaged		69
⑥⑩ Cutting Edge	Change before wear occurs on edge support		71

⁽¹⁾Change oil anytime it becomes thick and dark.

⁽²⁾Check frequently if any signs of leakage develop or are suspected.

⁽³⁾Normal change interval when sulphur content is 0.4% or less. When sulphur content is 0.4% to 1.0%, reduce oil change interval one-half. When sulphur content is above 1.0%, reduce oil change to one-fourth the normal interval.

Key to Lubricants:

CD/TO-2 -Engine Service Classification **CD** oils that meet Caterpillar Oil Test No. TO-2 requirements.

CD -Engine Service Classification **CD** (MIL-L-2104C).

CC -Engine Service Classification **CC** (MIL-L-2104B or MIL-L-46152).

LO -**CD, CC CD/TO-2**

HYDO -LO or certified Industrial-type Hydraulic Oils

MPL -GL-5 (MIL-L-2105B)

MPG -Multipurpose-type Grease

BF -Hydraulic Brake Fluid, SAE J1703e

or Call 800-443-0625

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