



# Operation & Maintenance Manual

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## **950B Wheel Loader**

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31R1-UP  
63R1-6053  
65R1-3087  
22Z1-3188

## Important Safety Information

Most accidents involving product operation, maintenance and repair are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs. A person must be alert to potential hazards. This person should also have the necessary training, skills and tools to perform these functions properly.

**Improper operation, lubrication, maintenance or repair of this product can be dangerous and could result in injury or death.**

**Do not operate or perform any lubrication, maintenance or repair on this product, until you have read and understood the operation, lubrication, maintenance and repair information.**

Safety precautions and warnings are provided in this manual and on the product. If these hazard warnings are not heeded, bodily injury or death could occur to you or other persons.

The hazards are identified by the "Safety Alert Symbol" and followed by a "Signal Word" such as "WARNING" as shown below.



The meaning of this safety alert symbol is as follows:

**Attention! Become Alert! Your Safety is Involved.**

The message that appears under the warning, explaining the hazard, can be either written or pictorially presented.

Operation that may cause product damage are identified by NOTICE labels on the product and in this publication.

Caterpillar cannot anticipate every possible circumstance that might involve a potential hazard. The warning in this publication and on the product are therefore not all inclusive. If a tool, procedure, work method or operating technique not specifically recommended by Caterpillar is used, you must satisfy yourself that it is safe for you and others. You should also ensure that the product will not be damaged or made unsafe by the operation, lubrication, maintenance or repair procedures you choose.

The information, specifications, and illustrations in this publication are on the basis of information available at the time it was written. The specifications, torques, pressures, measurements, adjustments, illustrations, and other items can change at any time. These changes can affect the service given to the product. Obtain the complete and most current information before starting any job. Caterpillar dealers have the most current information available. For a list of the most current publication form numbers available, see the Service Manual Contents Microfiche, REG1139F.

# Foreword

This guide contains operation instructions and lubrication and maintenance information.

The operation section is a reference for the new operator and a refresher for the experienced one. Read — study — and keep it handy.

Illustrations guide the operator through correct procedures of checking, starting, operating and stopping the vehicle.

Operating techniques outlined in this publication are basic. Skill and techniques develop as the operator gains knowledge of the vehicle.

The maintenance section is a guide to equipment care. The illustrated, step-by-step instructions are grouped by servicing intervals. Topics without specific intervals are listed under "When Required." Topics in the "Lubrication and Maintenance Chart" are referenced to detailed instructions that follow.

Use the service meter to determine servicing intervals. Calendar intervals shown (daily, weekly, monthly, etc.) may be used instead of service meter intervals if they provide more convenient servicing schedules and approximate the indicated service meter reading.



Under extremely severe, dusty or wet operating conditions, more frequent lubrication than is specified in the "Lubrication and Maintenance Chart" may be necessary.

Perform service on topics at multiples of the original requirement. For example, at Every 500 Service Hours or 3 Months, also service those topics listed under Every 250 Service Hours or Monthly, Every 50 Service Hours or Weekly and Every 10 Service Hours or Daily.

Some photographs in this publication may show details or attachments that may be different from your vehicle. Some photographs show guards or covers removed for clear illustration, that need not be removed for routine lubrication and maintenance.

Continuing improvement and advancement of product design may have caused changes to your vehicle which are not included in this publication. Each publication is reviewed and revised, as required, to update and include such changes in later editions.

Whenever a question arises regarding your vehicle, or this publication, please consult your Caterpillar dealer for the latest available information.

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## Maintenance Section

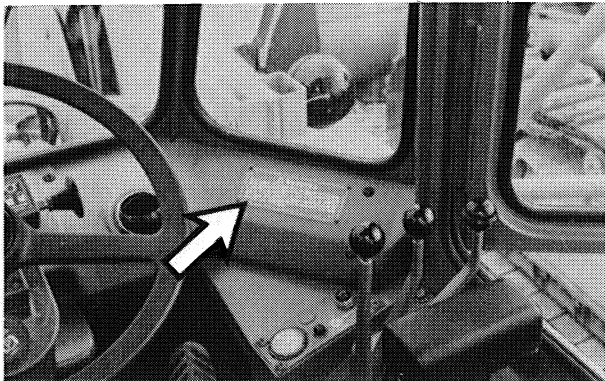
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# Safety

## Warning Plates & Decals

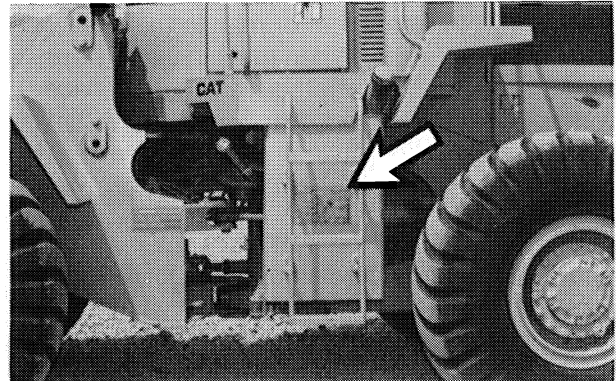
There are several specific warning signs on your vehicle. Their exact location and description of the hazard are reviewed in this section. Please take the time to familiarize yourself with these signs.

**WARNING** Do not operate this machine unless you have read and understand the instructions in the Operation Guide. Improper machine operation is dangerous and could result in injury or death. The Operation Guide is in holder located in operator's compartment or on seat back. Contact any Caterpillar dealer for a replacement guide. Proper operation is your responsibility.



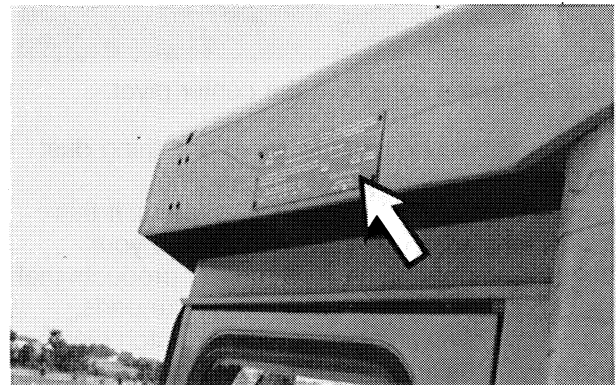
Located in the cab.

**WARNING** Lubrication, maintenance or repair of this machine can be dangerous unless performed properly. Each person must satisfy himself that he has the necessary skill and information, proper tools and equipment, and that his work method is safe and correct. Caterpillar dealers are available to provide service and information.



Located on the vehicle platform.

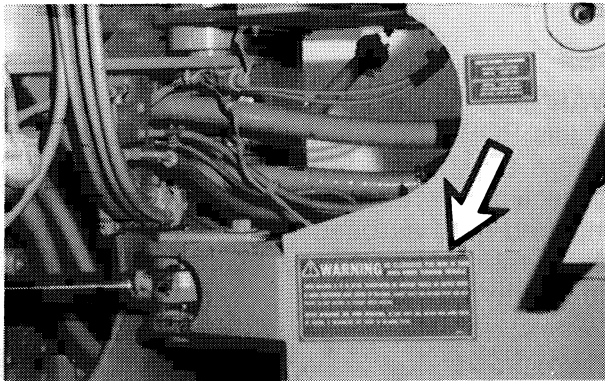
**WARNING:** To avoid possible weakening of this ROPS, consult a Caterpillar dealer before altering this ROPS in any way. The protection offered by this ROPS will be impaired if it has been subjected to structural damage or has been involved in an overturn incident.



Located on the ROPS.

**WARNING** No clearance for man in this area when turning vehicle. When machine is to be lifted, transported on another vehicle or service work is being performed near center of machine: Connect safety rod between front and rear frames to keep machine in straight ahead position.

Before operation and when operating: Be sure safety rod, located near lower center of machine, is disconnected and pinned to retaining plates.



Located on the vehicle at the center pivot.

Caution should be used to avoid breathing dust that may be generated when handling components containing asbestos fibers. If this dust is inhaled, it can be hazardous to your health. Components in Caterpillar products that may contain asbestos fibers are brake pads, brake band and lining assemblies, clutch plates and some gaskets. The asbestos used in these components is usually bound in a resin or sealed in some way. Normal handling is not hazardous as long as airborne dust which contains asbestos is not generated.

If dust which may contain asbestos is present, there are several common sense guidelines that should be followed.

- 1.** Never use compressed air for cleaning.
- 2.** Use vacuum or wet methods for cleanup.
- 3.** Use exhaust ventilation on permanent machining jobs.

**4.** Wear an approved respirator if there is no other way to control the dust.

**5.** Follow environmental rules and regulations for disposal of asbestos.

**6.** Avoid areas where asbestos particles may be in the air.

### General



Wear a hard hat, protective glasses, and other protective equipment as required by job conditions.

Do not wear loose clothing or jewelry that can catch on controls or other parts of the vehicle.

Keep the vehicle, especially the deck and all steps, free of foreign material. Secure all loose items such as lunch boxes, tools, etc.

Know the hand signals and who gives them. Accept signals from one person only.

Make sure that clearance flags, lights and other required warnings are on the vehicle when roading.

Know your stopping distance at any given speed. Regulate the travel speed accordingly. Do not coast.

Vehicle bounce affects the steering control. Slow down on rough roads.

Road the vehicle in forward direction only, not in reverse.



Install the antipivot link before working in the center pivot area.

Report all needed repairs immediately.

### Mounting and Dismounting

Climb on and off the vehicle only where steps and/or hand holds are provided.



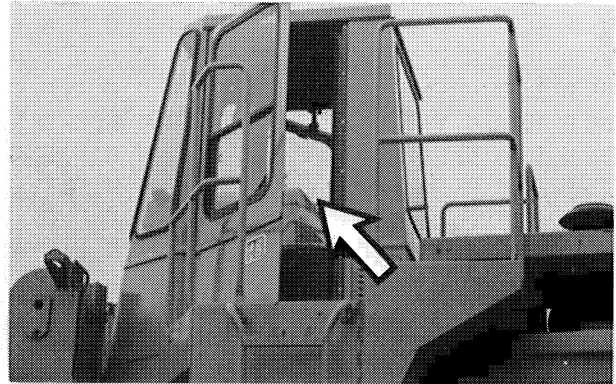
Use both hands, and face the vehicle when mounting and dismounting.

Never get on or off a moving vehicle.  
Never jump off a vehicle.

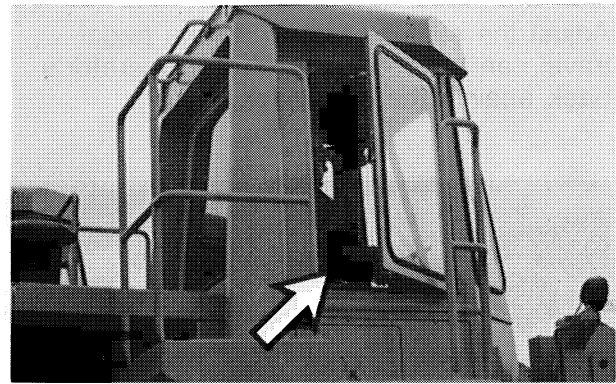
Do not try to climb onto the vehicle while carrying tools or supplies. Use a hand line to pull equipment up onto the platform.

Always lower all equipment before dismounting.

### Cab Entrance

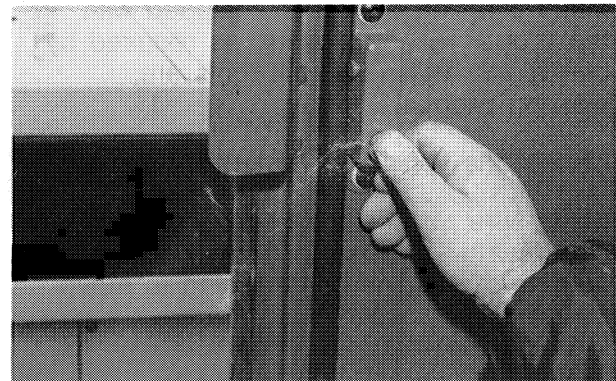


If the vehicle has a cab, enter through the left hand door only.



The door on the right side of the cab serves as an emergency exit. Use it, if the left hand door is blocked.

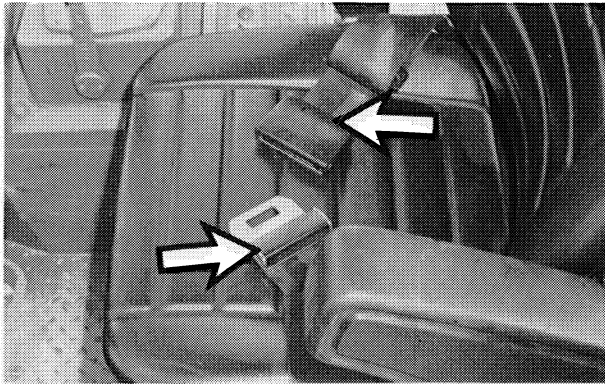
The emergency door, on the right hand side of the cab, can be opened from the inside only.



Push the button to open the emergency door. The door opens to the outside only.

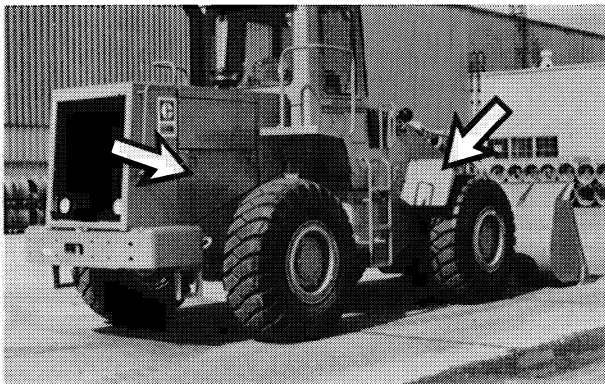
# Safety

## Preparing to Start the Engine



Inspect the seat belt, the buckle and all mounting hardware. Replace the belt or any damaged hardware. Tighten any loose mounting hardware.

Adjust the seat so that full brake pedal travel can be obtained with the operator's back against the seat back.



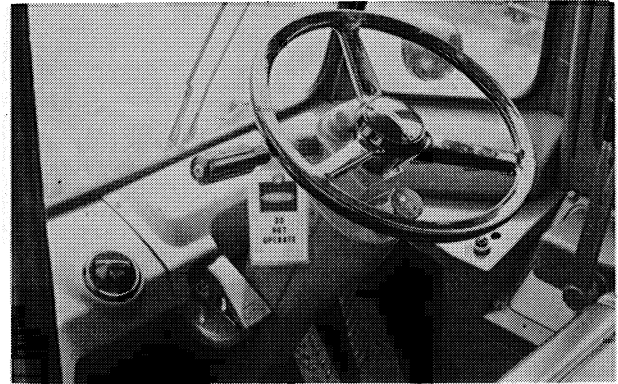
Make certain all protective guards and covers are secured in place.

Make sure the vehicle is equipped with the proper lighting system, as required by conditions. Make sure all lights are working properly.

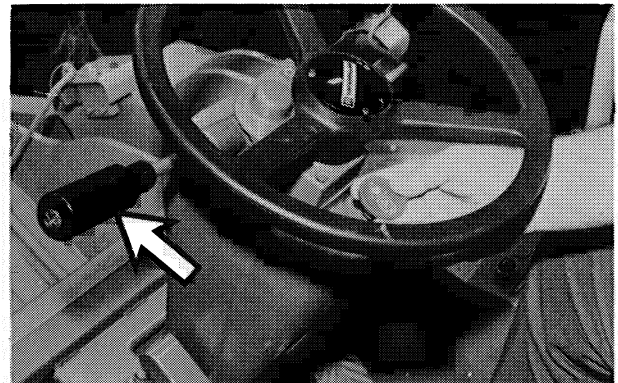
Inspect the vehicle for potential hazards.

Make sure no one is working on, underneath, or close to the vehicle before starting the engine or beginning to move the vehicle.

## Starting the Engine

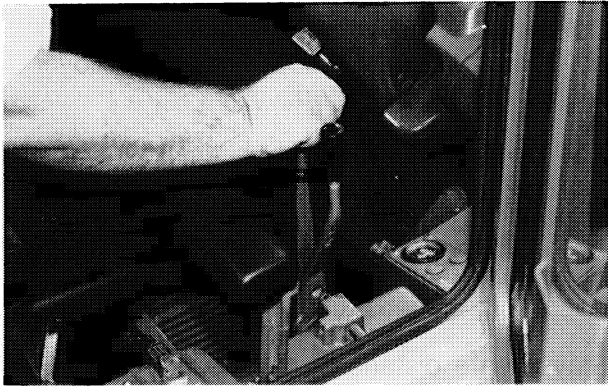


Do not start the engine or move any of the controls, if there is a warning, "DO NOT OPERATE" or similar tag attached to the controls or the starter switch. These tags, Form SEHS7332, are available from your Caterpillar dealer.



Shift the transmission control lever to neutral and engage the parking brake before starting the engine.





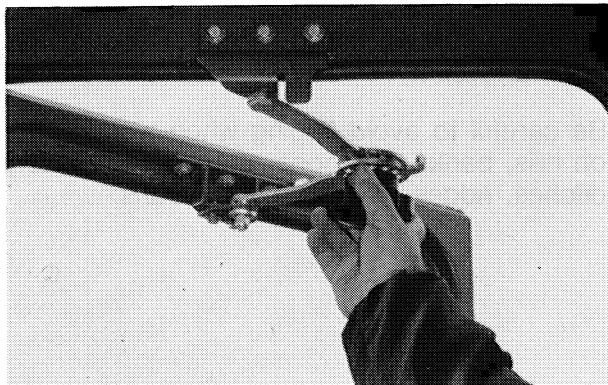
Lower all implements and move all controls to hold before starting the engine.

Start and run the engine in a well ventilated area only. In an enclosed area, vent the engine exhaust to the outside.

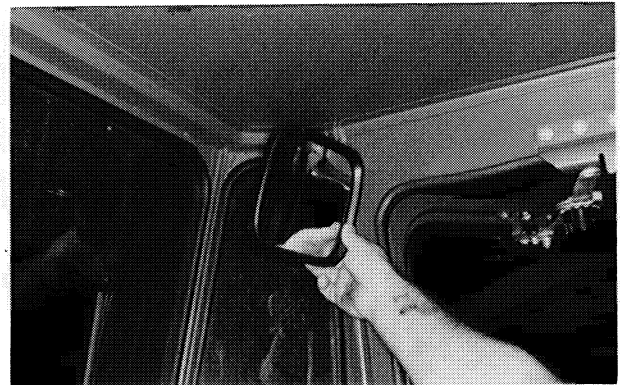
### **Preparing to Operate**

Clear all personnel from the vehicle and the area.

Clear all obstacles from the path of the vehicle. Beware of hazards such as wires and ditches.



Clean all windows. Secure the doors and windows in either the open or shut position.

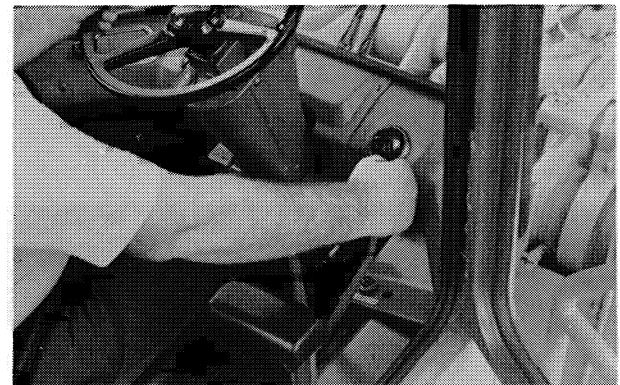


Adjust the rear view mirrors for best vision.

Make sure the vehicle horn, the backup alarm, and all other warning devices are working properly.

Fasten the seat belt securely.

Check for proper operation of all controls and protective devices while moving slowly in an open area.



Test all controls before starting to work.

## Safety



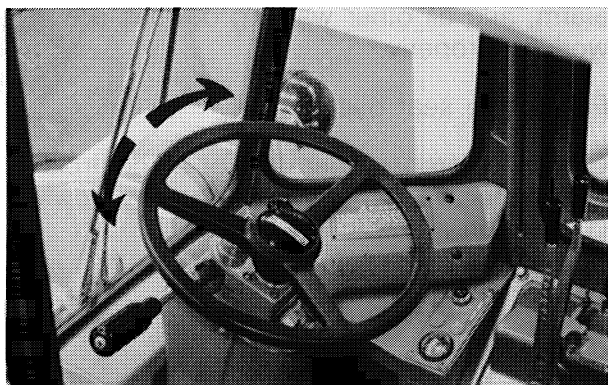
Be sure that all brakes are operating properly.

Do not allow riders on the vehicle unless an additional seat, a seat belt and rollover protection are provided.

The operator must satisfy himself that no one will be endangered before moving the vehicle.

Report any needed repairs, noted during operation, immediately.

Stay a safe distance from the edge of cliffs, from overhangs, slide areas and from other vehicles.



Test the right and left steering.



Carry the implements close to the ground, approximately 40 cm (15 inches) above ground level.

## Operating



Operate the controls only while seated.  
Operate the controls only with the engine running.

Be careful to avoid tipping when working on hills, banks or slopes, and when crossing ditches, ridges or other obstructions.