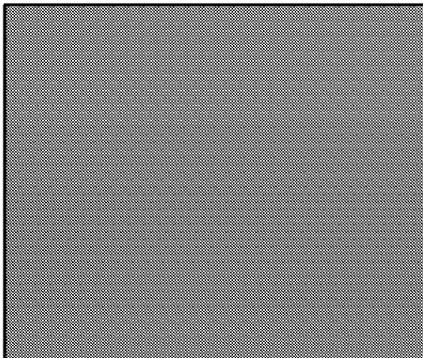


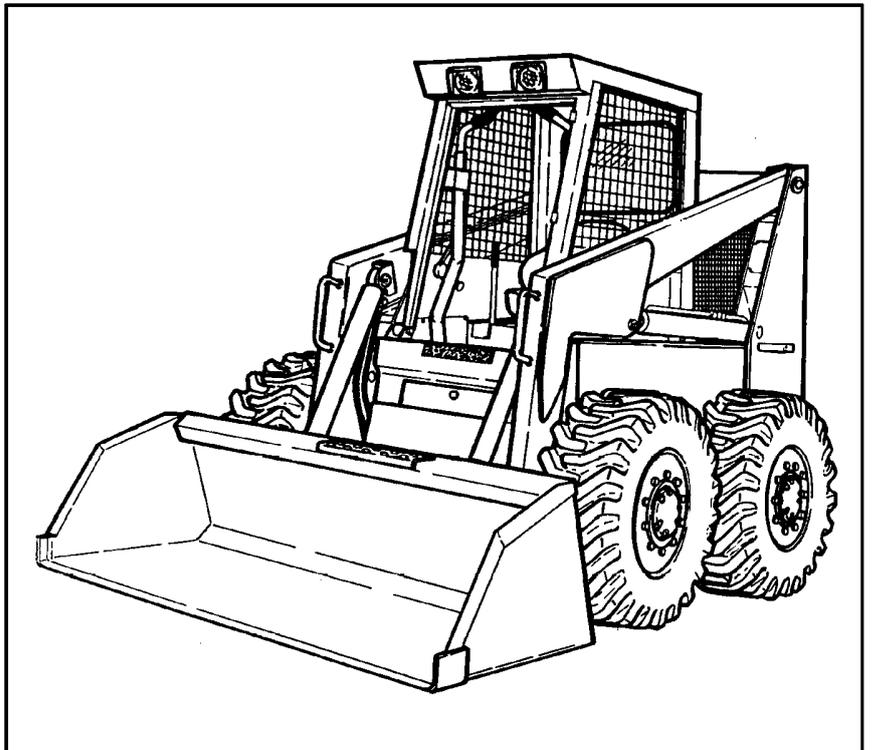
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Service Manual



MELROE
INGERSOLL-RAND

6570341 (2-87)

Printed in U.S.A.



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MAINTENANCE SAFETY



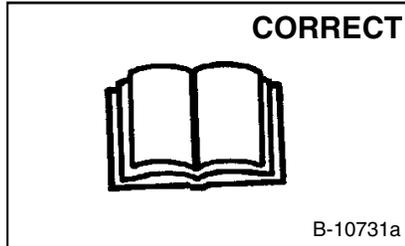
WARNING

Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual, Operator's Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

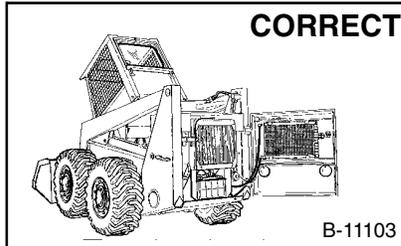
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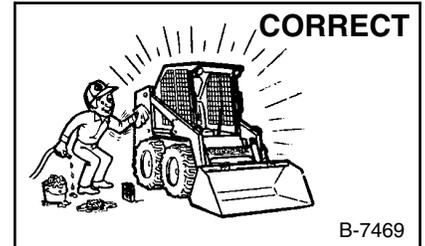
Safety Alert Symbol: This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.



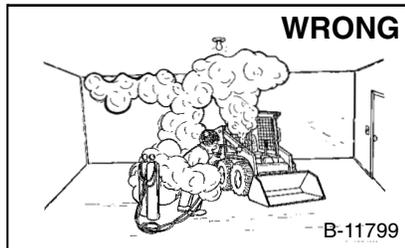
⚠ Never service the Bobcat Skid-Steer Loader without instructions.



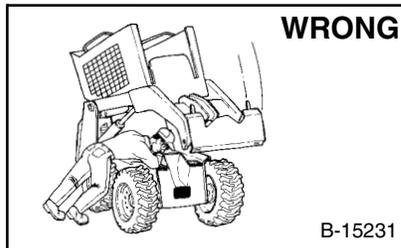
⚠ Use the correct procedure to lift or lower operator cab.



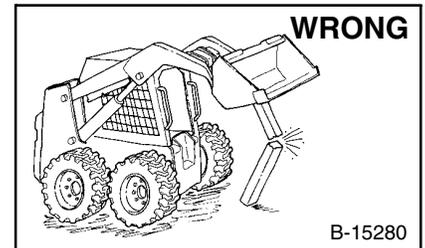
⚠ Cleaning and maintenance are required daily.



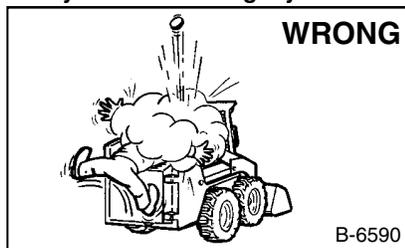
- ⚠ Have good ventilation when welding or grinding painted parts.
- ⚠ Wear dust mask when grinding painted parts. Toxic dust and gas can be produced.
- ⚠ Avoid exhaust fume leaks which can kill without warning. Exhaust system must be tightly sealed.



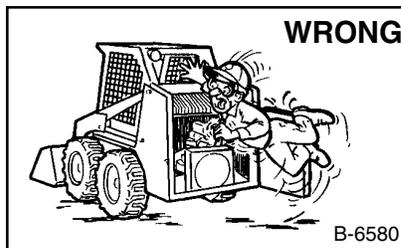
⚠ Disconnecting or loosening any hydraulic tubeline, hose, fitting, component or a part failure can cause lift arms to drop. Do not go under lift arms when raised unless supported by an approved lift arm support device. Replace it if damaged.



- ⚠ Never work on loader with lift arms up unless lift arms are held by an approved lift arm support device. Replace if damaged.
- ⚠ Never modify equipment or add attachments not approved by Bobcat Company.



- ⚠ Stop, cool and clean engine of flammable materials before checking fluids.
- ⚠ Never service or adjust loader with the engine running unless instructed to do so in the manual.
- ⚠ Avoid contact with leaking hydraulic fluid or diesel fuel under pressure. It can penetrate the skin or eyes.
- ⚠ Never fill fuel tank with engine running, while smoking or when near open flame.



- ⚠ Keep body, jewelry and clothing away from moving parts, electrical contact, hot parts and exhaust.
- ⚠ Wear eye protection to guard from battery acid, compressed springs, fluids under pressure and flying debris when engines are running or tools are used. Use eye protection approved for type of welding.
- ⚠ Keep rear door closed except for service. Close and latch door before operating the loader.



- ⚠ Lead-acid batteries produce flammable and explosive gases.
- ⚠ Keep arcs, sparks, flames and lighted tobacco away from batteries.
- ⚠ Batteries contain acid which burns eyes or skin on contact. Wear protective clothing. If acid contacts body, flush well with water. For eye contact flush well and get immediate medical attention.

Maintenance procedures which are given in the Operation & Maintenance Manual can be performed by the owner/operator without any specific technical training. Maintenance procedures which are **not** in the Operation & Maintenance Manual must be performed **ONLY BY QUALIFIED BOBCAT SERVICE PERSONNEL**. Always use **genuine Bobcat replacement parts**. The Service Safety Training Course is available from your Bobcat dealer.

MSW02-0805



Bobcat®

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**PREVENTIVE
MAINTENANCE**

**HYDRAULIC
SYSTEM**

**HYDROSTATIC
SYSTEM**

**DRIVE
SYSTEM**

**MAIN
FRAME**

**ENGINE
SERVICE**

**TECHNICAL
DATA**



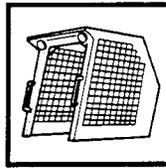
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FOREWORD

This manual is for the Bobcat loader mechanic. It provides necessary servicing and adjustment procedures for the Bobcat loader and its component parts and systems. Refer to the Operation & Maintenance Manual for operating instructions, starting procedure, daily checks, etc.

A general inspection of the following items must be made after the loader has had service or repair:

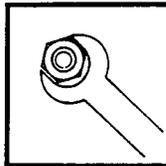
1. Check that the ROPS/FOPS (Including sidescreens) is in good condition and is not modified.



9. Enclosure door latches must open and close freely.



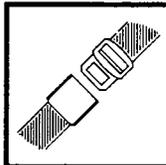
2. Check that ROPS mounting hardware is tightened and is Melroe approved.



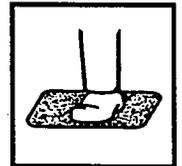
10. Bob-Tach wedges and linkages must function correctly and be in good condition.



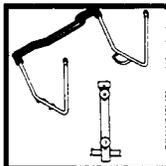
3. The seat belt must be correctly installed, functional and in good condition.



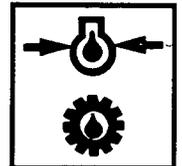
11. Safety treads must be in good condition.



4. The seat bar and pedal interlocks must be correctly adjusted, clean and lubricated.



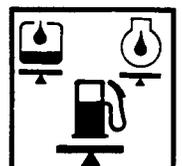
12. Check for correct function of indicator lamps (Optional on some models).



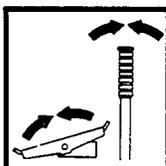
5. Machine signs must be legible and in the correct location.



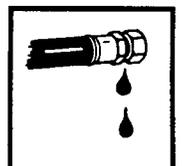
13. Check hydraulic fluid level, engine oil level and fuel supply.



6. Steering levers and foot pedals must return to neutral.



14. Inspect for fuel, oil or hydraulic fluid leaks.



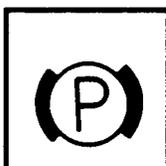
7. Check for correct function of the work lights.



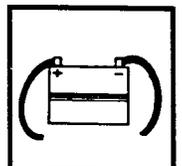
15. Lubricate the loader.



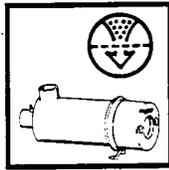
8. The parking brake must function correctly.



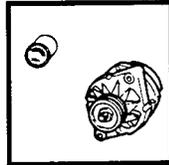
16. Check the condition of the battery and cables.



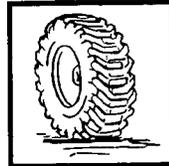
17. Inspect the air cleaner for damage or leaks. Check the condition of the element.



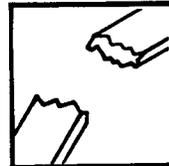
18. Check the electrical charging system.



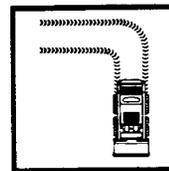
19. Check tires for wear and pressure.



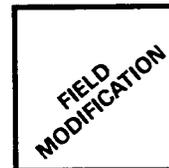
20. Inspect for loose or broken parts or connections.



21. Operate the loader and check all functions.



22. Check for any field modifications not completed.



Recommend to the owner that all necessary corrections be made before the machine is returned to service.



I. SAFETY INSTRUCTIONS

A. SAFETY IS YOUR RESPONSIBILITY

The Bobcat loader is a highly maneuverable and compact machine. In operation, it is rugged and useful under a wide variety of conditions. This presents an operator with hazards which are common for off highway, rough terrain applications but are not unique for use of the Bobcat loader. The Bobcat has an internal combustion engine with resultant heat and exhaust. All exhaust gases can kill so the Bobcat loader must be used with adequate ventilation. The Bobcat loader must not be used in an area with explosive dusts or gases or where the engine exhaust can contact flammable material.

The dealer recommends the capabilities and restrictions of the Bobcat loader and attachments for each application. The dealer demonstrates the safe operation of the Bobcat loader according to the manufacturer's instructional materials which are also available to all operator's. The dealer can also identify unsafe modifications or use of unapproved attachments. The attachments are designed for rated capacity and secure fastening to the Bobcat loader. The user must check with the dealer or manufacture's literature to identify safe loads of materials of specified densities.

The following publications provide information on the safe use of the Bobcat loader:

1. The Delivery Report is used to check whether complete instructions have been given to the new owner.
2. The Operator's Manual delivered with each Bobcat loader gives operating information as well as routine maintenance.
3. Every Bobcat loader has machine signs (or decals) which instruct on safe care and operation. The complete signs and their location are shown in the Operator's Manual. All signs are available from your Bobcat dealer.
4. The Service and Parts Manuals are available from your Bobcat dealer for use by mechanics to do shop-type service and repair work.
5. The Bobcat loader has a plastic Operator Handbook fastened to the operator cab. It has brief instructions always available to the operator.
6. The FIEI Manual gives general safety information.

B. BEFORE OPERATING THE BOBCAT LOADER



The Operator's Manual was written to give the owner/operator instructions on the safe operation and maintenance of the Bobcat loader. **READ AND UNDERSTAND THE OPERATOR'S MANUAL BEFORE OPERATING YOUR BOBCAT LOADER.** If you have any questions, see your local Bobcat dealer.

The Bobcat loader must be in good operating condition.

Check all of the items on the Service Schedule under the 8-10 hour column.



C. SAFE OPERATION NEEDS A QUALIFIED OPERATOR

A QUALIFIED OPERATOR* MUST DO THE FOLLOWING:

1. UNDERSTAND THE WRITTEN INSTRUCTIONS, RULES AND REGULATIONS

- a. The written instructions from Melroe Company include the delivery report, Bobcat loader operator's manual, FIEI manual, and machine signs (decals).
- b. Check the rules and regulations for your location. The rules may include an employer's work safety requirements. Regulations may identify a hazard such as utility supply line.

2. HAVE TRAINING WITH ACTUAL OPERATION

- a. Operator training must consist of a demonstration and verbal instruction. This training is given by the Bobcat dealer before the Bobcat loader is delivered.
- b. The new operator should start in an area without bystanders and use all the controls until he can control the Bobcat loader at full use under the conditions of his work area.

3. KNOW THE WORK CONDITIONS

- a. For each material to be handled, the operator must know how to avoid exceeding the rated operating capacity of the Bobcat loader. For example he must know whether he can safely take a full load or part load of a bucket.
- b. The operator must know any prohibited uses or work areas for the Bobcat loader. For example, he needs to know about excessive slopes.

* For an operator to be qualified, he must not use drugs or alcoholic drinks which change his alertness or coordination while working. An operator who is taking prescription drugs must get medical advice on whether or not he can safely operate a machine.

II. FIRE PREVENTION

The Bobcat loader has several components which are at high temperature under normal operating conditions. The primary source of high temperature is the engine and exhaust system. The electrical system, if damaged or incorrectly maintained, can be a source of arcs or sparks. These conditions make it necessary to avoid applications where explosive dust or gases can be ignited by arcs, sparks or heat.

Flammable debris (leaves, straw, etc.) must be removed regularly. If flammable debris is allowed to accumulate, it will increase the condition for fire hazard. The Bobcat loader must be cleaned as often as necessary to avoid this accumulation. Flammable debris in the engine compartment is a fire hazard when the Bobcat loader is parked with a hot engine. The muffler is designed to control the emission of hot particles from the engine and exhaust system, but the muffler and the exhaust gases are still hot.

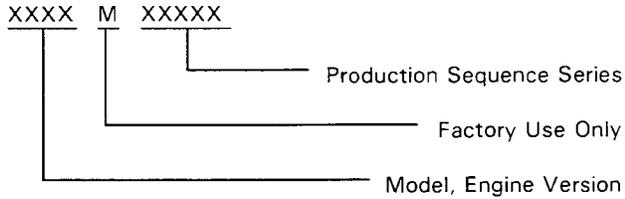
1. Do not use the Bobcat loader in applications where explosive dust or gases can be ignited by arcs, sparks, hot components or exhaust gases.
2. The operator cab, engine compartment and engine cooling system must be inspected every day and cleaned if necessary to prevent fire hazard and overheating.
3. Check all electrical wiring and connections for damage. Keep the battery terminals clean and tight. Repair or replace any damaged part.
4. Check for damage and leakage at all the fuel, oil and hydraulic tubes, hoses and fittings. Tighten or replace any that show leakage. Always clean fluid spills.
5. Use ether or starting fluids only when approved by the engine manufacturer. Do not use ether or starting fluids on any engine that has glow plugs. These starting aids can explode and injure bystanders.
6. Always clean the Bobcat loader before doing any welding. Cover rubber hoses, battery and all other flammable parts. Keep a fire extinguisher near the Bobcat loader when welding.
7. Stop the engine and let it cool before adding fuel. No Smoking.
8. Use the procedure in Operator's Manual for connecting and charging batteries.

III. SERIAL NUMBER LOCATIONS

Always use the serial number when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to use a different procedure in doing a specific service operation.

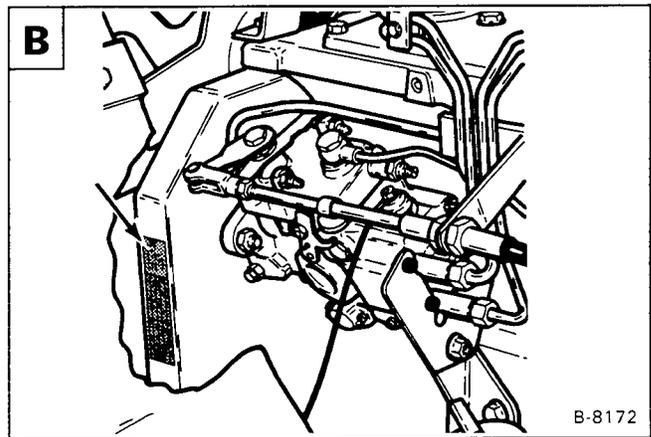
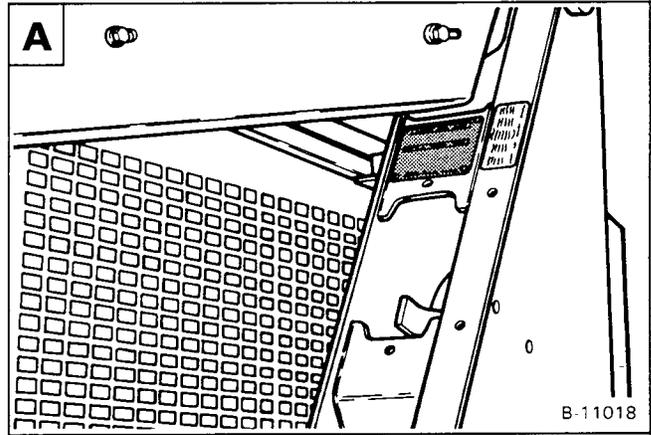
LOADER SERIAL NUMBER

The Bobcat loader serial number plate location is inside front of the left upright, below the lift arm **A**.



ENGINE SERIAL NUMBER LOCATION

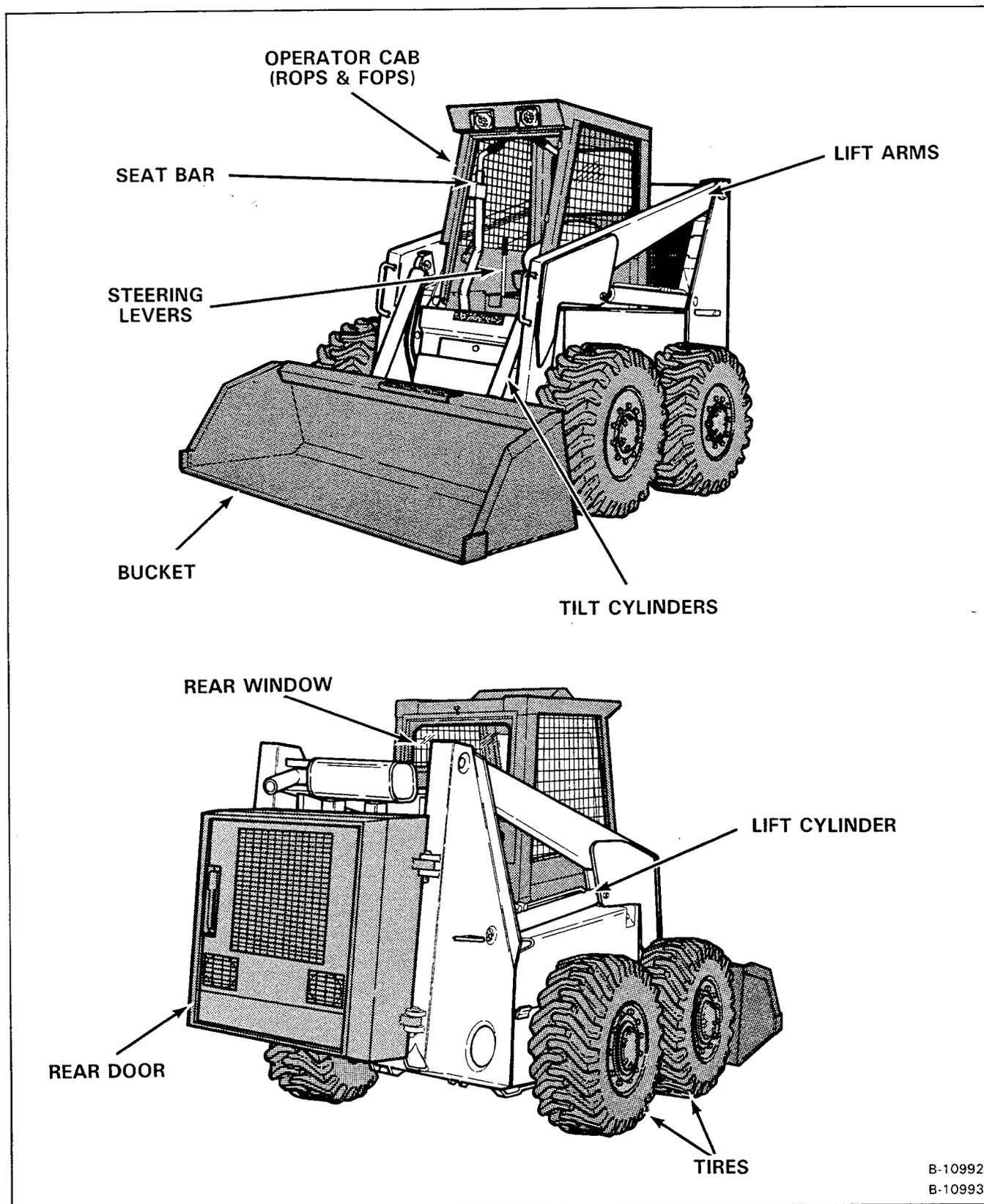
The engine serial number is located on the right side of the engine block **B**.



IV. DELIVERY REPORT

The Delivery Report must be filled out by the dealer and signed by the owner or operator when the Bobcat loader is delivered **C**. An explanation of the form must be given to the owner. Make sure it is filled out completely.

V. BOBCAT LOADER IDENTIFICATION



TIRES — Standard tires are shown. Other tires are available.

BUCKET — Several different buckets and other attachments are available for the loader.

ROPS, FOPS — Roll-Over Protective Structure, Falling Object Protective Structure.

PREVENTIVE MAINTENANCE



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Procedure	1-7



bobcat

SERVICE SCHEDULE

The service schedule is a guide for correct maintenance of the Bobcat loader that must be done regularly. Always use these service intervals unless very hot, cold, dusty or corrosive operating conditions make it necessary to increase the frequency of service. Failure to do so will cause damage to the loader or the engine.



Instructions are necessary before operating or servicing machine. Read Operator's Manual, Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repair or service. Failure to follow instructions can cause injury or death.

W-2003-1285

SERVICE SCHEDULE		HOURS					
ITEM	SERVICE REQUIRED	10	50	100	200	600	1000
Engine Oil	Check & add oil as needed.						
Engine Coolant System	Check level & add coolant as needed.						
Air Cleaner Indicator	Replace filter when red ring shows in window.						
Fuel Water Trap	Remove water & sediment as needed.						
Loader Pivot Areas	Add grease to the fittings						
Tires	Check for damage & add air as needed.						
Hydraulic Reservoir Fluid	Check fluid level & add fluid as needed.						
General	Check for damage, leaks, loose or broken parts.						
Safety Treads, Safety Signs, Seat Belt	Check for damage & replace if damaged or missing.						
Seat Bar	Check for proper function, adjust as needed.						
Wheel Nuts	*Check torque & tighten to 240-300 ft.-lbs. (325-407 Nm) torque.						
Battery & Cables	Check battery water level & add as needed. Clean cable ends & cover with grease.						
Steering Levers & Foot Pedals	Lubricate with grease.						
Final Drive Chaincase	Check fluid level & add as needed.						
Engine Oil	Change oil & replace filter.						
Planetary Axles	Check fluid level & add as needed.						
Axle Housing Nuts	Check & tighten to correct torque.						
Final Drive Chain	Check tension & adjust as needed.						
Primary (10 Micron) Hydraulic Filter	Replace filter element. Replace more often if red ring shows in window.						
Secondary Hyd. Filters	Replace the two filters.						
Clutch Shaft Pivot	Add grease to the fitting.						
Fuel Filters	Replace filter elements & remove air from the system.						
Coolant System	Check anti-freeze concentration. Protect to -34°F (-37°C) year around.						
Crankcase Vent Tube	Remove & clean.						
Reduction Gearcase	Check level & add oil as needed.						
Hydraulic Reservoir	Pull skid plate. Remove oil plug to remove condensation. Add fluid as needed.						
Coolant System	Remove the coolant. Clean & fill with clean coolant.						
Reduction Gearcase	Remove oil & fill to check plug level.						
Final Drive Chaincase	Remove oil & fill to check plug level.						
100 Mesh Screen	Clean the screen.						
Hydraulic Fluid	Remove fluid & fill to check plug level.						
Fuel Strainer	Remove the strainer & clean.						
In-Line Fuel Filter	Replace the filter.						

* Check the wheel nut torque every 8 hours for the first 24 hours of operation.

PREVENTIVE MAINTENANCE



WARNING

Instructions are necessary before operating or servicing machine. Read Operator's Manual, Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Failure to follow instructions can cause injury or death.

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A



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LIFTING AND BLOCKING THE BOBCAT LOADER

Procedure

Always park the loader on a level surface.



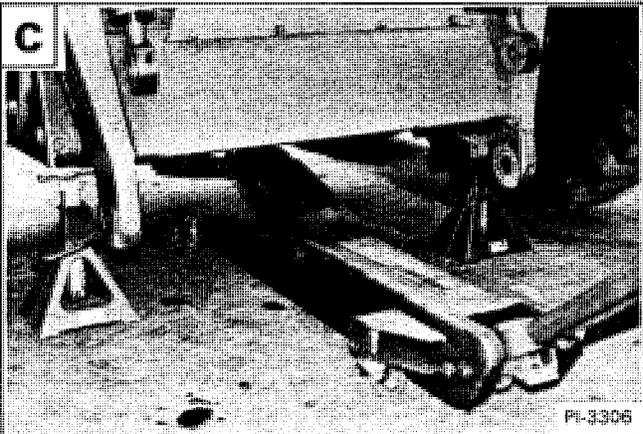
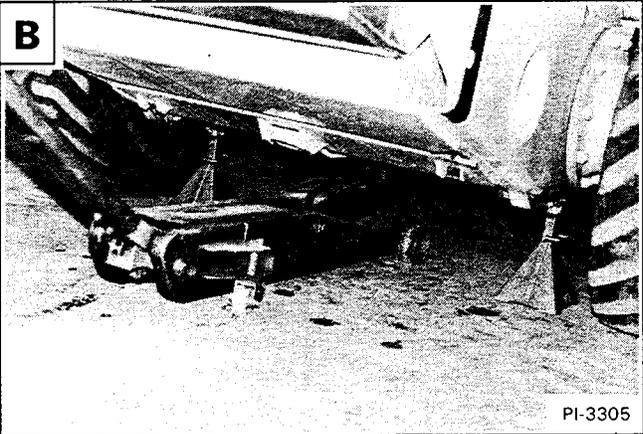
WARNING

Put jackstands under the front and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

NOTE: Make sure the jackstands that are used to support the loader are rated for the load capacity of the loader weight (See Specifications, Section 8).

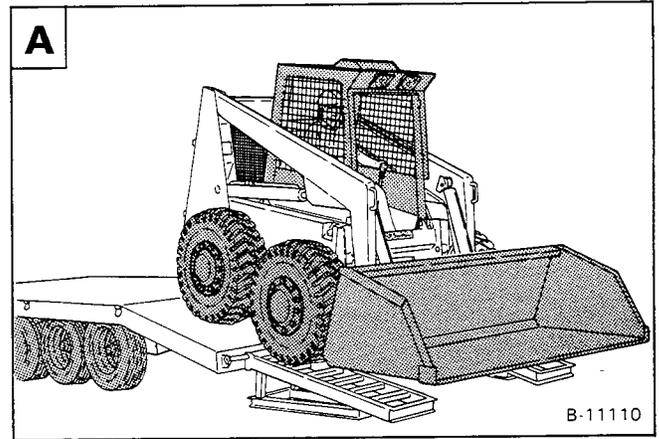
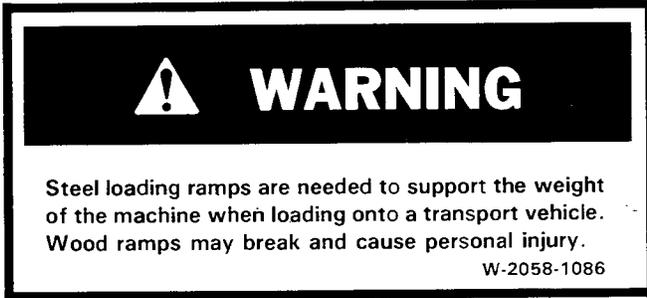
Put the floor jack under the rear of the loader. Lift the loader and install the jackstands **B**.

Put the floor jack under the front of the loader. Lift the front of the loader and put jackstands under the loader frame **C**.



TRANSPORTING THE BOBCAT LOADER

Procedure



NOTE: Make sure the rated load capacity of the transport vehicle is adequate for the loader weight (See Specifications in Section 8.)

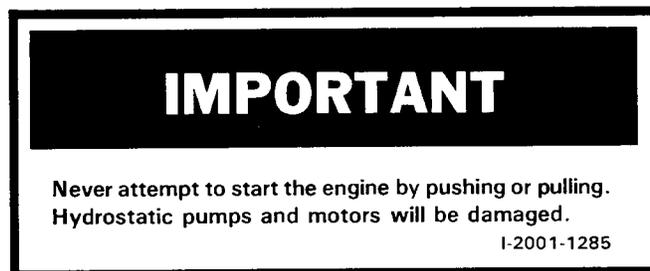
A loader with an empty bucket or no attachment must be loaded backwards onto the transport vehicle **A**.

Use the following procedure to fasten the Bobcat loader to the transport vehicle:

1. Lower the bucket or attachment to the floor. Stop the engine.
2. Engage the Brake/Clutch pedal.
3. Install chains at the front and rear of the loader to prevent it from moving during sudden stops or when going up or down slopes.

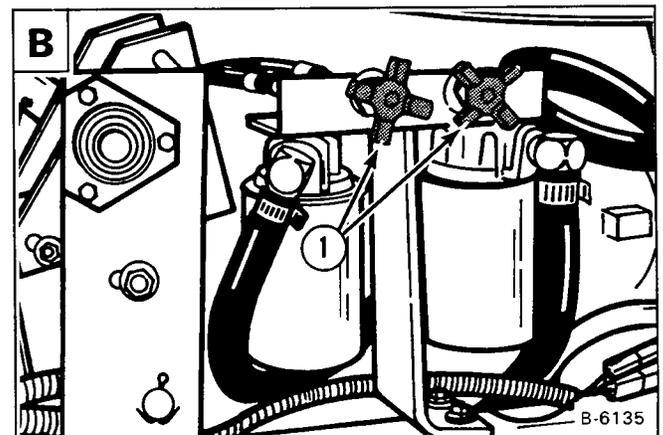
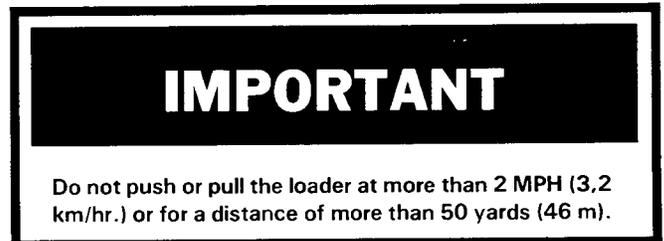
TOWING THE BOBCAT LOADER

Procedure



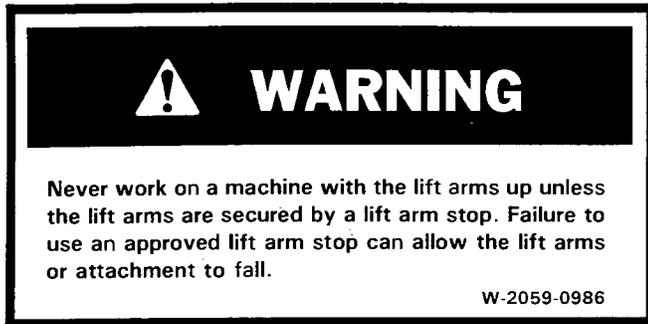
A loader that will not start or has transmission problems may be moved for a short distance (50 yards) if necessary. Tow valves (Item 1) are located on the top of the left side tank under the fender **B**. Open the tow valves before moving the loader.

NOTE: Close the tow valves after servicing. The loader will not operate with the valves open.



LIFT ARM STOP

Procedure



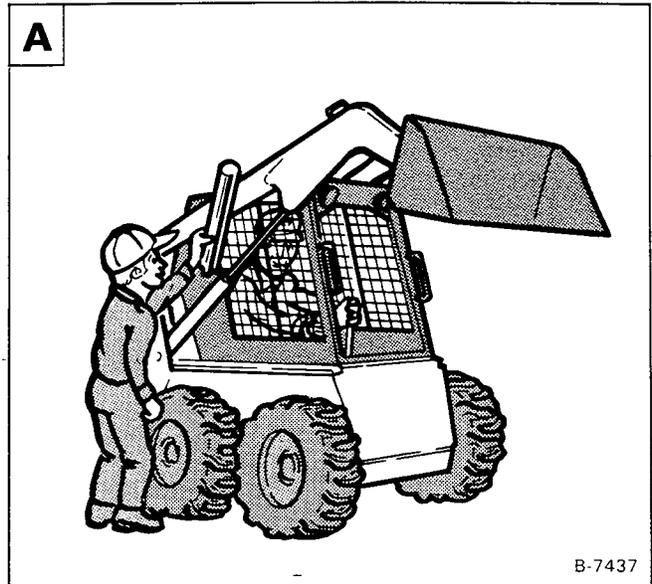
NOTE: Lift arm stops are available from your Bobcat dealer.

One person must stay in the operator's seat, with the seat belt fastened and the seat bar lowered, while another person installs the lift arm stop.

Start the engine and raise the lift arms all the way up.

Have a second person install the lift arm stop over the rod of one lift cylinder **A**.

Lower the lift arms slowly until the stop is held between the lift arm and lift cylinder.

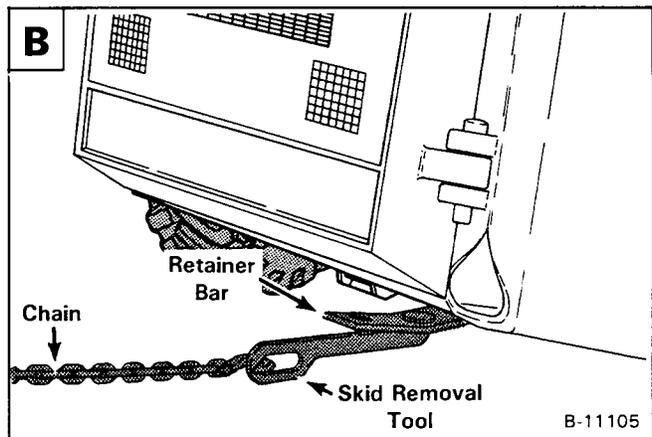


SKID PLATE

Removal and Installation

To open the skid plate and clean under the engine area, use the following procedure:

1. Remove the bolt from the retaining bar at the rear of the skid plate.
2. Install the removal tool on the skid plate **B**.
3. Fasten a chain to the tool and fasten the other end to a solid support.
4. Slowly move the loader forward until the skid plate is fully open against the stop.
5. After cleaning or making repairs, close the skid plate by turning the loader around and slowly moving in the opposite direction until the skid plate is closed. Install the bolt and tighten.



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