

5

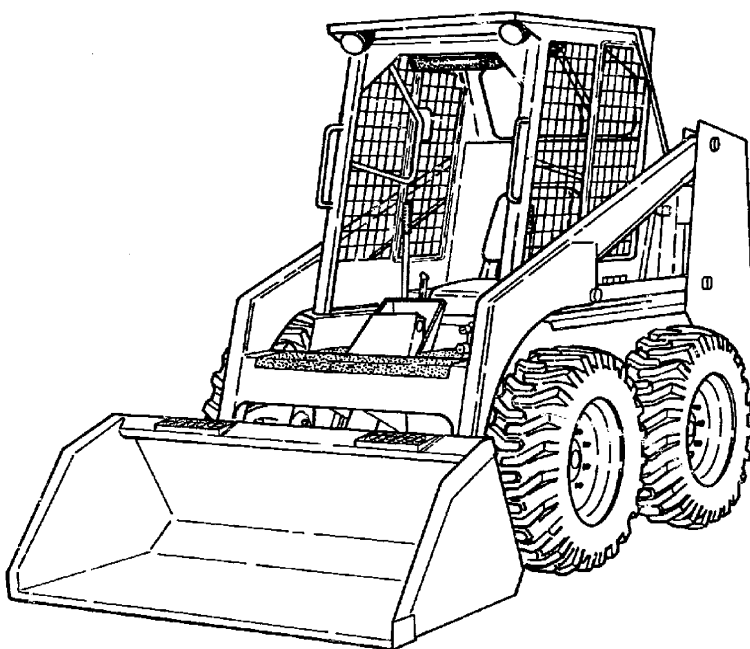
4

2

B



Service Manual



MELROE
INGERSOLL-RAND

6570791 (5-88)

Printed in U.S.A.



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MAINTENANCE SAFETY



WARNING

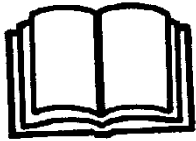
Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual, Operator's Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after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

W-2003-0903



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

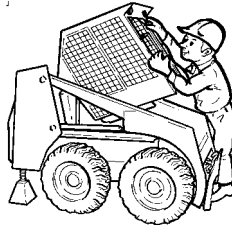
CORRECT



B-10731a

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

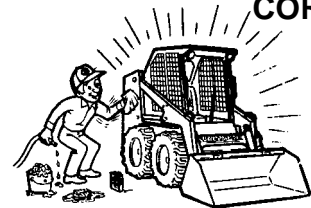
CORRECT



B-12365

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

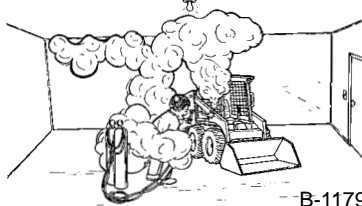
CORRECT



B-7469

- Cleaning and maintenance are required daily.

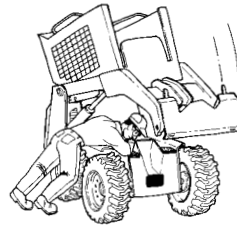
WRONG



B-11799

- 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.

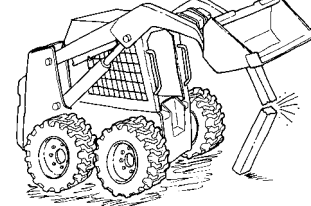
WRONG



B-15231

- 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.

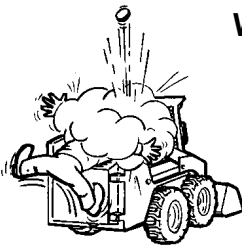
WRONG



B-15280

- 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.

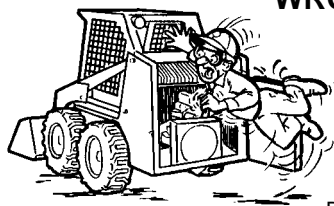
WRONG



B-6590

- 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.

WRONG



B-6580

- 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.

WRONG



B-6589

- 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.



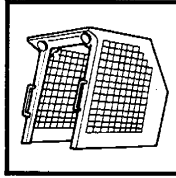
Bobcat®

FOREWORD

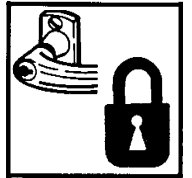
This manual is for the Bobcat loader mechanic. It provides necessary servicing and adjustment procedures for the Bobcat loader and its component parts and systems. Refer to the Operator's Manual for operating instructions, starting procedure, daily checks, etc.

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

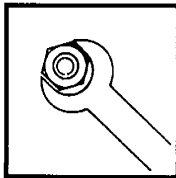
1. Check that the ROPS/FOPS (Including sidescreens) is in good condition and is not modified.



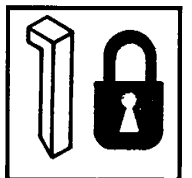
9. Enclosure door latches must open and close freely.



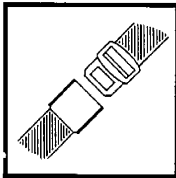
2. Check that ROPS mounting hardware is tightened and is Melroe approved.



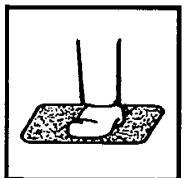
10. Bob-Tach wedges and linkage must function correctly and be in good condition.



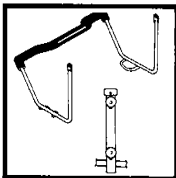
3. The seat belt must be correctly installed, functional and in good condition.



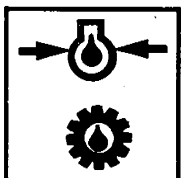
11. Safety treads must be in good condition.



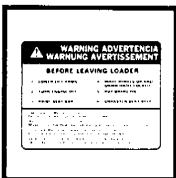
4. The seat bar and pedal locks must be correctly adjusted, clean and lubricated.



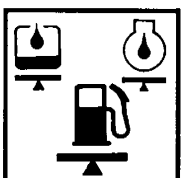
12. Check for correct function of indicator lamps (Optional on some models).



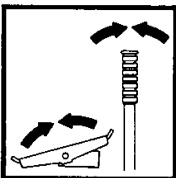
5. Machine signs must be legible and in the correct location.



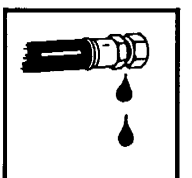
13. Check hydraulic fluid level, engine oil level and fuel supply.



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



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



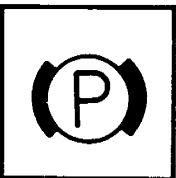
7. Check for correct function of the work lights.



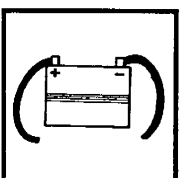
15. Lubricate the loader.



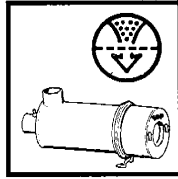
8. The parking brake must function correctly.



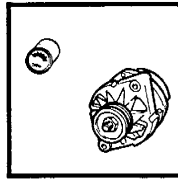
16. Check the condition of the battery and cables.



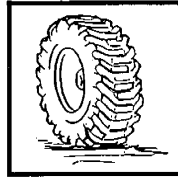
17. Inspect the air cleaner for damage or leaks. Check the condition of the element.



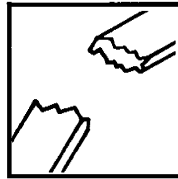
18. Check the electrical charging system.



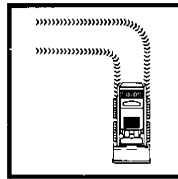
19. Check tires for wear and pressure.



20. Inspect for loose or broken parts or connections.



21. Operate the loader and check all functions.



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



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**PREVENTIVE
MAINTENANCE**

**HYDRAULIC
SYSTEM**

**HYDROSTATIC
SYSTEM**

**DRIVE
SYSTEM**

**MAIN
FRAME**

**ELECTRICAL
SYSTEM**

**ENGINE
SERVICE**

**TECHNICAL
DATA**

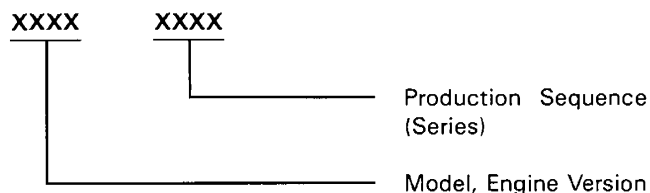


SERIAL NUMBER LOCATIONS

Always use the serial number of the loader 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 a specific service operation.

LOADER SERIAL NUMBER

The Bobcat loader serial number plate location is inside the left upright, above the grill **A**.

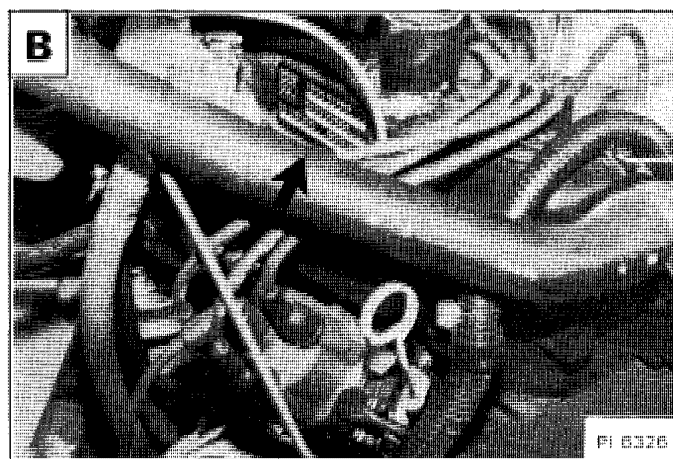
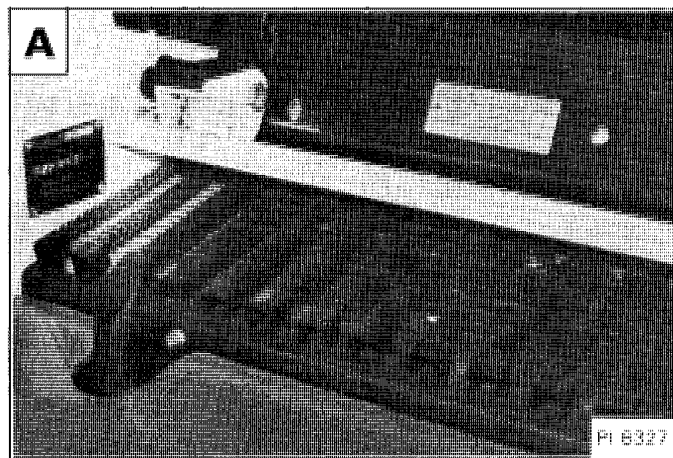


ENGINE SERIAL NUMBER LOCATION

The engine serial number is located on the rocker arm cover **B**.

NOTE: The five main bearing VSG-411 first production date was April 21, 1992. This date code is 2D21. Any engines with this date code or later has five main bearings.

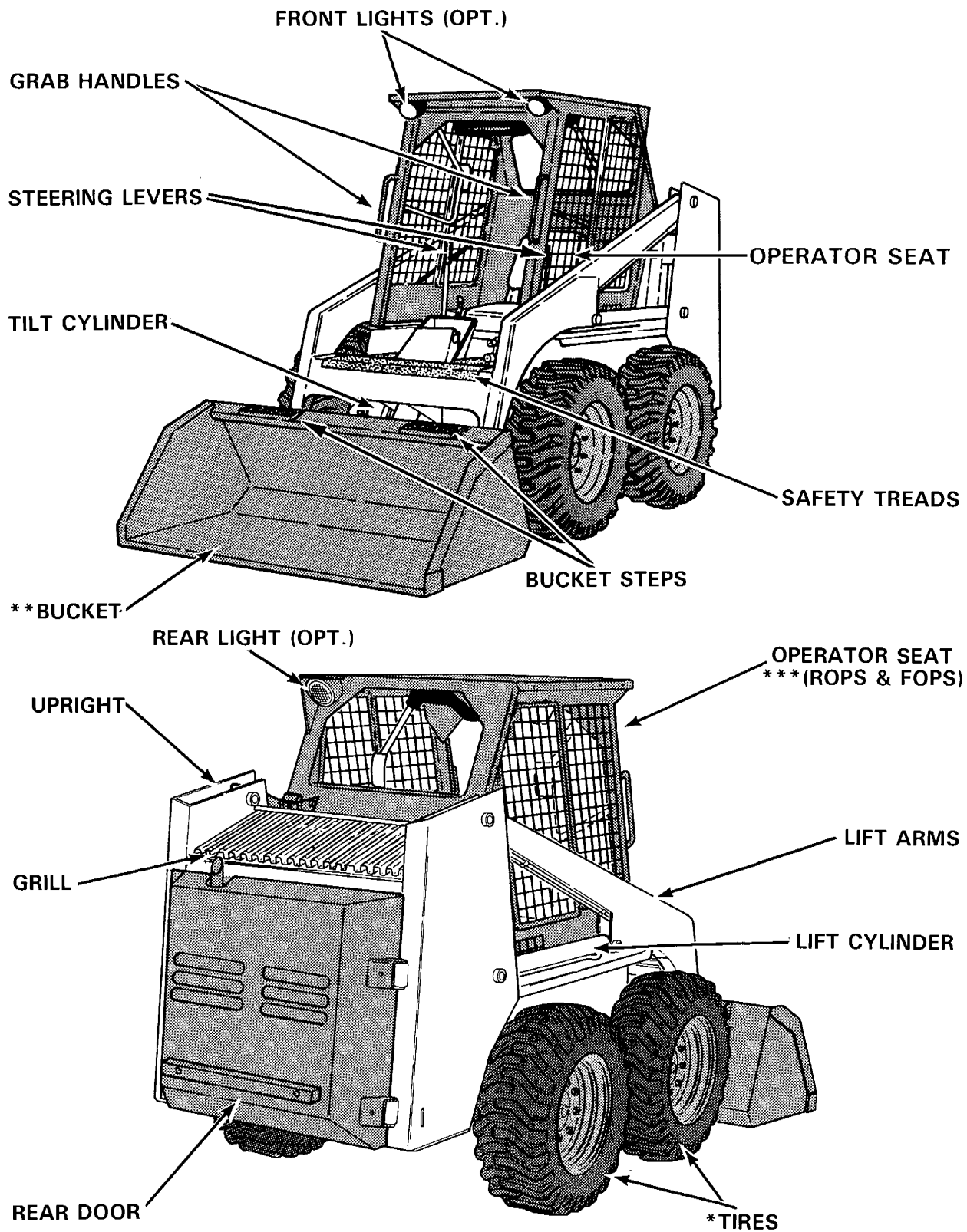
EXAMPLE: 2D21
 2-1992
 D-Spril (E-May, F-June, etc.)
 21- 21st Day



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 should be given to the owner. Make sure it is filled out completely.

BOBCAT LOADER IDENTIFICATION



B-7377
B-12388

- * TIRES — Flotation tires (Optional) are shown. Bobcats are base-equipped with standard tires.
- ** BUCKET — Several different buckets and other attachments are available for the Bobcat loader.
- *** ROPS, FOPS — Roll-Over Protective Structure, Falling Object Protective Structure.

PREVENTIVE MAINTENANCE

PREVENTIVE MAINTENANCE

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SERVICE SCHEDULE

Maintenance work must be done at regular intervals. Failure to do so may result in excessive wear and early failures. The Service Schedule is a guide for correct maintenance of the Bobcat loader.



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.

W-2003-1285

SERVICE SCHEDULE		HOURS					
ITEM	SERVICE REQUIRED	8-10	50	100	250	500	1000
Engine Oil	Check oil level and add oil as needed.	■					
Engine Air Cleaner	Empty the dust cup and replace the filter element, as needed.	■					
Engine Coolant System	Clean debris from shrouds and grills. Check coolant level in recovery tank and add coolant as needed.	■					
Tires	Check for damaged tires and correct air pressure.	■					
Seat Belt & Seat Bar	Check the condition of seat belt. Check the seat bar for correct operation.	■					
Safety Signs & Safety Tread	Check for damaged signs (decals) and safety tread. Replace if worn or damaged.	■					
Indicator & Lights	Check for correct operation of all indicators and lights.	■					
Operator Cab	Check the fastening bolts, washer and nuts. Check the condition of cab.	■					
Lift Arm & Bob-Tach Pivot Pins	Add grease to the fittings until the extra grease shows.	■					
Engine Oil & Filter	Replace oil and filter.		■				
Battery	Check cables and water level.		■				
Hydraulic Fluid, Tubelines & Hoses	Check fluid level and add as needed. Check for damage, leaks and repair or replace as needed.		■				
Control Pedals & Steering	Check for correct operation. Make repairs or adjustments as needed.		■				
Wheel Nuts	* Check for loose wheel nuts and tighten to 105-115 ft.-lbs. (142-156 Nm) torque.		■				
Parking Brake	Check operation. Make adjustment as needed.		■				
Alternator Belt	Check tension and adjust as needed.		■				
Spark Arrestor Muffler	Clean the spark chamber.			■			
Governor Oil Level	Check level, if low, add oil.			■			
Seat Bar	Grease pivot as needed.				■		
Steering Shaft Pivots	Grease two fittings. Add oil to steering shaft.				■		
Hydraulic/Hydrostatic Filter	# Replace the filter element.				■		
U-Joint	Grease three fittings with correct grease.				■		
Final Drive Trans. (Chaincase)	Check fluid level and add as needed.				■		
Engine Ignition System	Check the timing. Replace the spark plugs.				■		
Fuel Filter	Replace the filter element.					■	
Hydraulic/Hydrostatic Reservoir	Replace the reservoir breather cap.					■	
Final Drive Trans. (Chaincase)	Replace the fluid.						■
Hydraulic/Hydrostatic Reservoir	Replace the fluid.						■

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

Also replace hydraulic/hydrostatic filter element when the transmission warning light stays on for five minutes after the fluid is at operating temperature.

■ Or every 12 Months



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.

W-2003-1285

LIFTING AND BLOCKING THE BOBCAT LOADER

Procedure

Always park the loader on a level surface.



WARNING

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

W-2017-0286

Put the floor jack under the rear of the loader.

Lift the rear of the loader and install jack stands **B**.

Put the floor jack under the front of the loader.

Lift the front of the loader and put jack stands under the axle tubes **C**.

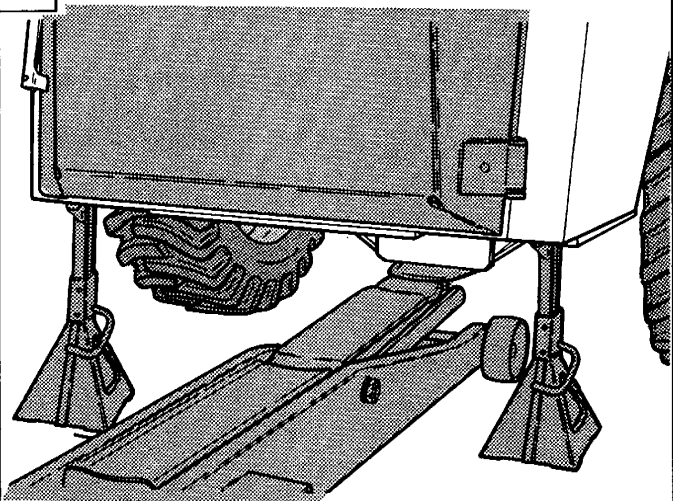
NOTE: Make sure the jack stands do not touch the tires.

A



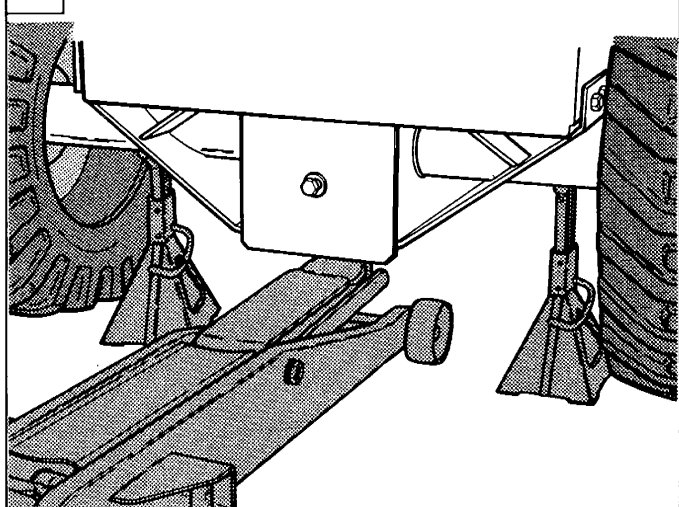
B-7023

B



B-9331

C



B-9843

LIFT ARM STOP

Procedure

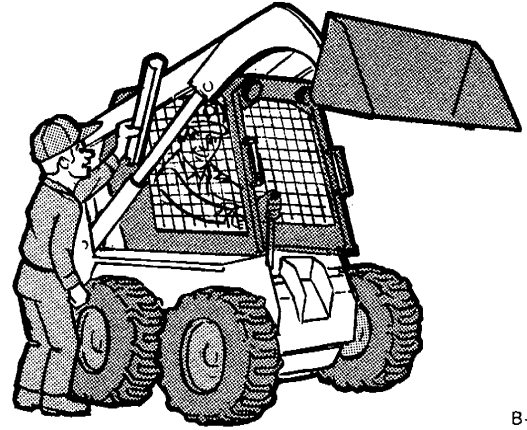


WARNING

Before the cab or the lift arms are raised for service, jack stands must be put under the rear corners of the frame. Failure to use jack stands may allow the machine to tip backwards causing injury or death.

W-2014-1285

A



B-6581

One person must stay in the operator cab with the seat belt fastened and the seat bar lowered, while the second person installs a Melroe approved lift arm stop over the rod of one lift cylinder **A**.

Start the engine and raise the lift arms. Have a second person install the lift arm stop over the rod of one lift cylinder.

The lift arm stop must be tight against the cylinder rod.

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



WARNING

Never work on a machine with the lift arms up unless the lift arms are secured by a lift arm stop. Failure to use an approved lift arm stop can allow the lift arms or attachment to fall and cause injury or death.

W-2059-0487

TRANSPORTING THE BOBCAT LOADER

Procedure

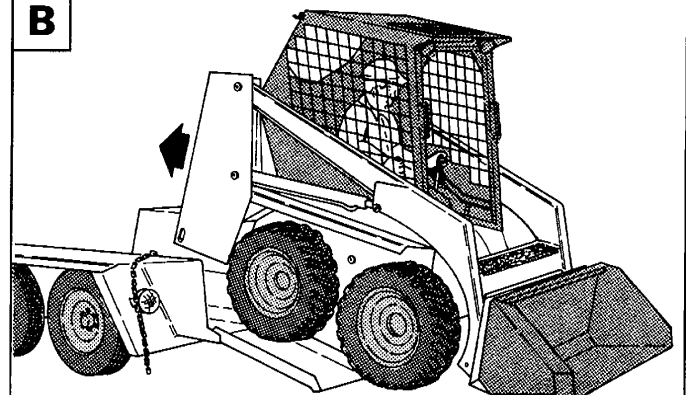


WARNING

Steel loading ramps are needed to support the weight of the machine when loading onto a transport vehicle. Wood ramps can break and cause personal injury.

W-2058-0887

B



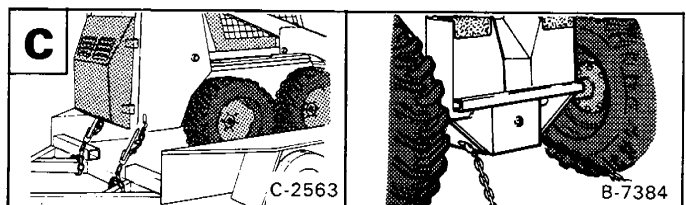
B-2668R

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

Use the following procedure to fasten the loader to the transport vehicle to prevent the loader from moving during sudden stops or when going up and down slopes **C**.

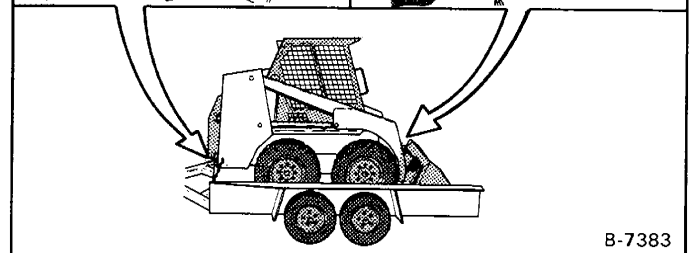
1. Lower the attachment (or bucket) to the floor of the transport vehicle.
2. Engage the parking brake. Install the chains to the front and rear of the loader as shown in figure **C**.

C



C-2563

B-7384



B-7383

OPERATOR CAB

Operator Cab Fasteners

The Bobcat loader has an operator cab (ROPS and FOPS) as standard equipment to protect the operator from rollover and falling objects.

Check with your dealer if the operator cab has been damaged.



WARNING

Never modify operator cab by welding, grinding, drilling holes or adding attachments unless instructed to do so by Melroe Company. Changes to the cab can cause loss of operator protection from rollover and falling objects, and result in injury or death.

W-2069-1285

The operator cab fastening bolts and nuts must be tight **A**. Tighten the bolts and nuts to 65-70 ft.-lbs. (89-94 Nm) torque.

Raising and Lowering the Operator Cab

Stop the loader on a level surface. Put the lift arms down. If the lift arms are up while raising the cab, install a lift arm stop (Page 1—3).



WARNING

Before the cab or the lift arms are raised for service, jack stands must be put under the rear corners of the frame. Failure to use jack stands may allow the machine to tip backwards causing injury or death.

W-2014-1285

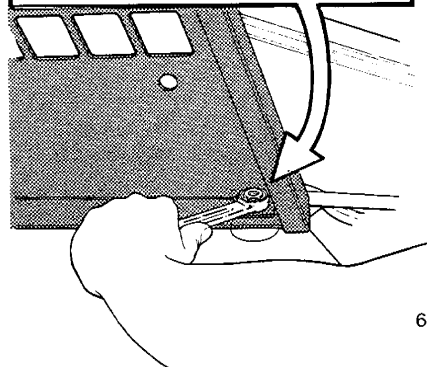
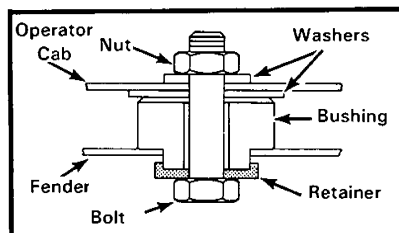
Remove the two fasteners (including the washers and plates) at the front corners of the operator cab **A**.

Installation: Tighten the bolts and nuts to 65-70 ft.-lbs. (89-94 Nm) torque.

If the lift arms are down, stand beside the loader and lift on the top of the cab and the handle. Slowly lift until the cab is all the way up **B**. Reverse the procedure to lower the operator cab.

If the lift arms are held up by a lift arm stop, stand in front of the loader. Lift on the handle and the bottom of the operator cab slowly until the cab is all the way up **C**. Reverse the procedure to lower the operator cab.

A



6565933

C-2599

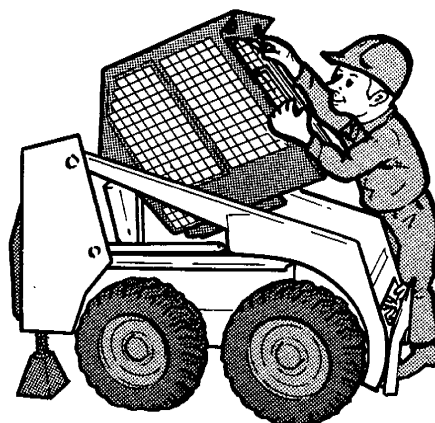


WARNING

Both sets of fasteners at the front of the operator cab (ROPS) must be assembled as shown in this Service Manual. Failure to secure ROPS correctly can cause injury or death.

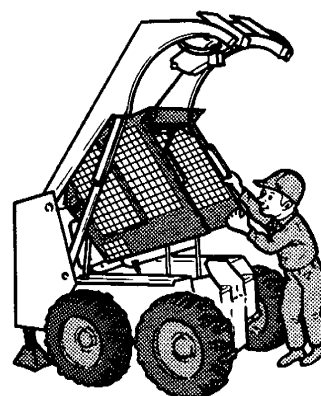
W-2005-1285

B



B-12365

C



B-7463

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