

Product: Bobcat 453 Skid Steer Loader Service Repair Workshop Manual 515011001-515111001

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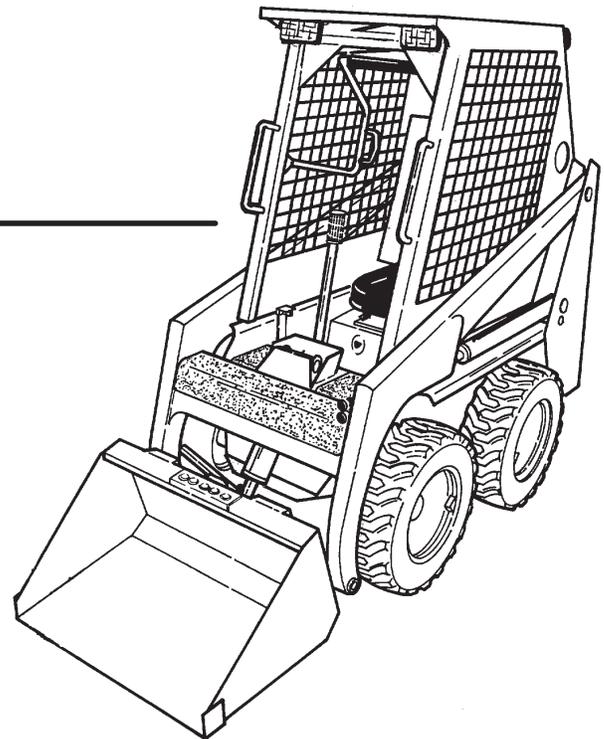
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Bobcat®

Service Manual

S/N 515011001 & Above
S/N 515111001 & Above



EQUIPPED WITH
BOBCAT INTERLOCK
CONTROL SYSTEM (BICS™)

Sample of manual. Download All 294 pages at:

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MAINTENANCE SAFETY



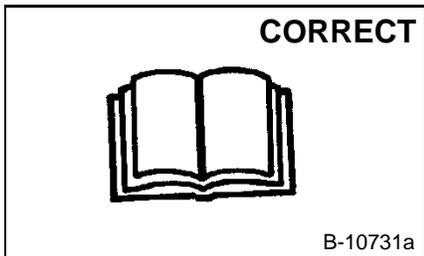
WARNING

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.

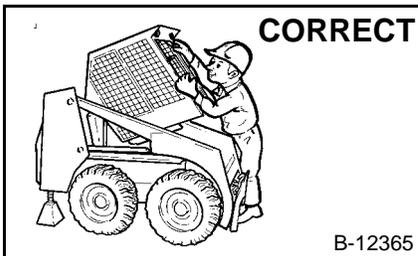
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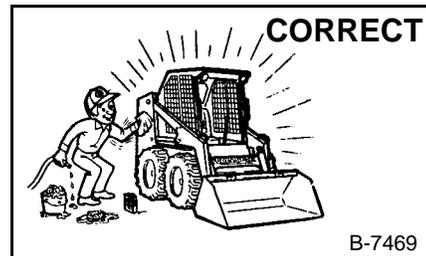
Safety Alert Symbol: This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.



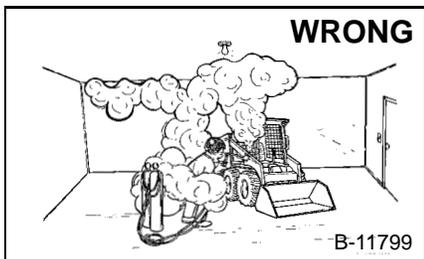
Never service the Bobcat Skid-Steer Loader without instructions.



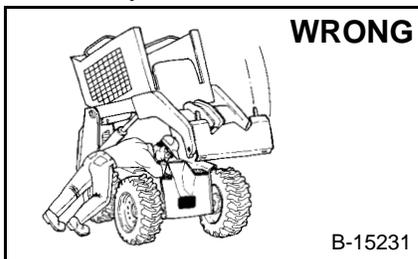
Use the correct procedure to lift or lower operator cab.



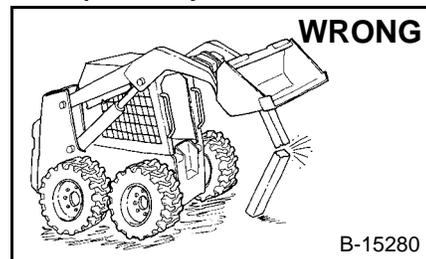
Cleaning and maintenance are required daily.



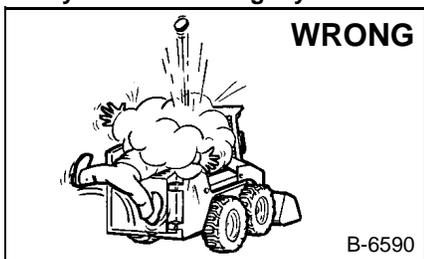
- Have good ventilation when welding or grinding painted parts.
- Wear dust mask when grinding painted parts. Toxic dust and gas can be produced.
- Avoid exhaust fume leaks which can kill without warning. Exhaust system must be tightly sealed.



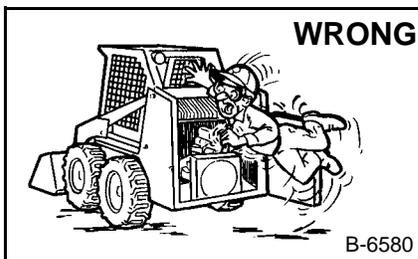
Disconnecting or loosening any hydraulic tubeline, hose, fitting, component or a part failure can cause lift arms to drop. Do not go under lift arms when raised unless supported by an approved lift arm support device. Replace it if damaged.



- 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.



Bobcat®



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**CALIFORNIA
PROPOSITION 65 WARNING**
Diesel engine exhaust and some of its
constituents are known to the State of California
to cause cancer, birth defects and other
reproductive harm.

**PREVENTIVE
MAINTENANCE**

**HYDRAULIC
SYSTEM**

**HYDROSTATIC
SYSTEM**

**DRIVE
SYSTEM**

**MAIN
FRAME**

**ELECTRICAL
SYSTEM**

**ENGINE
SERVICE**

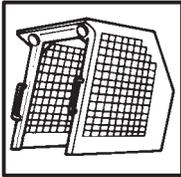
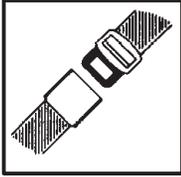
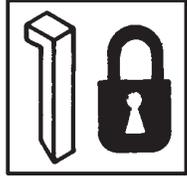
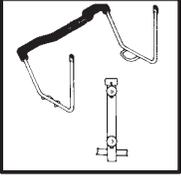
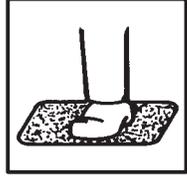
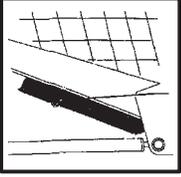
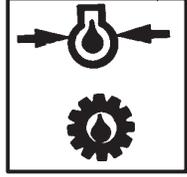
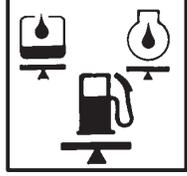
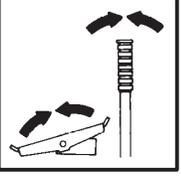
**SYSTEMS
ANALYSIS**

SPECIFICATIONS

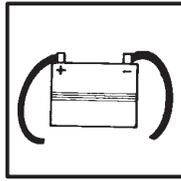
FOREWORD

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.

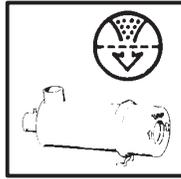
A general inspection of the following items must be made after the loader has had service or repair:

- | | | | |
|---|---|--|---|
| 1. Check that the ROPS/FOPS (Including sidescreens) is in good condition and is not modified. |  | 9. The parking brake must function correctly. |  |
| 2. Check that ROPS mounting hardware is tightened and is Melroe approved. |  | 10. Enclosure door latches must open and close freely. |  |
| 3. The seat belt must be correctly installed, functional and in good condition. |  | 11. Bob-Tach wedges and linkages must function correctly and be in good condition. |  |
| 4. The seat bar and pedal interlocks must be correctly adjusted, clean and lubricated. |  | 12. Safety treads must in good condition. |  |
| 5. Check lift arm support device, replace if damaged. |  | 13. Check for correct function of indicator lamps (Optional on some models). |  |
| 6. Machine signs must be legible and in the correct location. |  | 14. Check hydraulic fluid level, engine oil level and fuel supply. |  |
| 7. Steering levers and foot pedals must return to neutral. |  | 15. Inspect for fuel, oil or hydraulic fluid leaks. |  |
| 8. Check for correct function of the work lights. |  | 16. Lubricate the loader. |  |

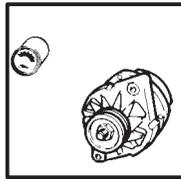
17. Check the condition of the battery and cables.



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



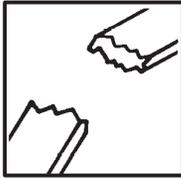
19. Check the electrical charging system.



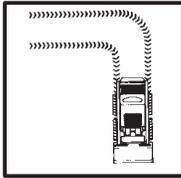
20. Check tires for wear and pressure.



21. Inspect for loose or broken parts or connections.



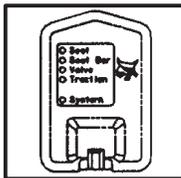
22. Operate the loader and check all functions.



23. Check for any field modification not completed.



24. Check for correct function of the Bobcat Interlock Control System (BICS™) before the machine is returned to the customer.



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





SAFETY INSTRUCTIONS

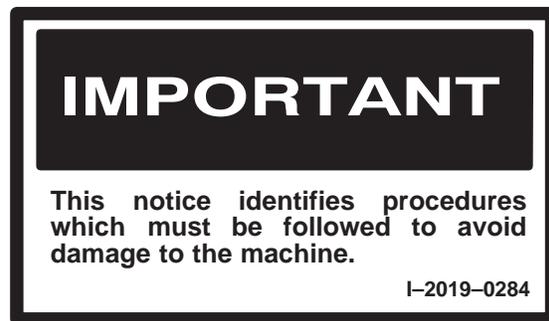
WARNING

Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance 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. Untrained operators and failure to follow instructions can cause injury or death.

W-2003-0199

The following publications provide information on the safe use and maintenance of the loader and attachments:

- The Delivery Report is used to assure that complete instructions have been given to the new owner and that the machine is in safe operating condition.
- The Operation & Maintenance Manual delivered with the loader gives operating information as well as routine maintenance and service procedures. It is a part of the loader and must stay with the machine when it is sold. Replacement Operation & Maintenance Manuals can be ordered from your Bobcat loader dealer.
- The loader has machine signs (decals) which instruct on the safe operation and care. The signs and their locations are shown in the Operation & Maintenance Manual. Replacement signs are available from your Bobcat loader dealer.
- The loader has a plastic Operator's Handbook fastened to the operator cab. Its brief instructions are convenient to the operator. The Handbook is available from your dealer in an English edition or one of many other languages. See your Bobcat dealer for more information on translated versions.
- The EMI Safety Manual (available in Spanish) delivered with the loader gives general safety information.
- The Service Manual and Parts Manual are available from your dealer for use by mechanics to do shop-type service and repair work.
- The Skid-Steer Loader Operator Training Course is available through your local dealer. This course is intended to provide rules and practices for correct operation of the Bobcat loader. The course is available in English and Spanish version.
- The Service Safety Training Course is available from your Bobcat dealer. This course provides information for safe and correct service procedures for Bobcat Skid-Steer loaders.
- The Bobcat Skid-Steer Loader Safety Video is available from your Bobcat Dealer.



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

SAFETY INSTRUCTIONS (Cont'd)

- Wear tight fitting clothing. Always wear safety glasses when maintaining or servicing loader. Safety glasses, hearing protection or loader special applications kit are required for some work. See your dealer for Melroe Safety equipment.
- Know where fire extinguisher and first aid kit are located and how to use them.
- Do not use the Bobcat loader where exhaust, arcs, sparks or hot components can contact flammable material, explosive dust or gases.
- The engine compartment and engine cooling system must be inspected every day and cleaned if necessary to prevent fire hazard and overheating.
- Check all electrical wiring and connections for damage. Keep the battery terminals clean and tight. Repair or replace any damaged part.
- Check fuel and hydraulic tubes, hoses and fittings for damage and leakage. Never use open flame or bare skin to check for leaks. Tighten or replace any parts that show leakage. Always clean fluid spills. Do not use gasoline or diesel fuel for cleaning parts. Use commercial nonflammable solvents.
- Follow any environmental safety regulations when disposing of used fluids such as engine oil, grease or anti-freeze.
- Do not use ether or starting fluids on engines which have glow plugs. These starting aids can cause explosion and injure you or bystanders.
- Always clean the loader and disconnect the battery before doing any welding. Cover rubber hoses, battery and all other flammable parts. Keep a fire extinguisher near the loader when welding. Have good ventilation when grinding or welding painted parts. Wear dust mask when grinding painted parts. Toxic dust or gas can be produced.
- Stop the engine and let it cool before adding fuel. No smoking!
- Use the procedure in the Operation & Maintenance or Service Manuals for connecting the battery.

A fire extinguisher is available from your local dealer. The fire extinguisher can be installed in the location shown [A].



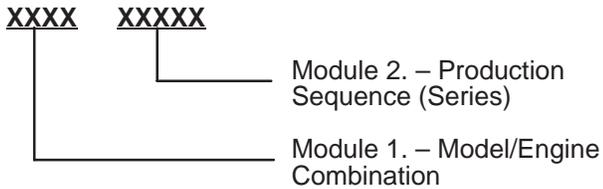
SERIAL NUMBER LOCATIONS

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 doing a specific service operation.

LOADER SERIAL NUMBER

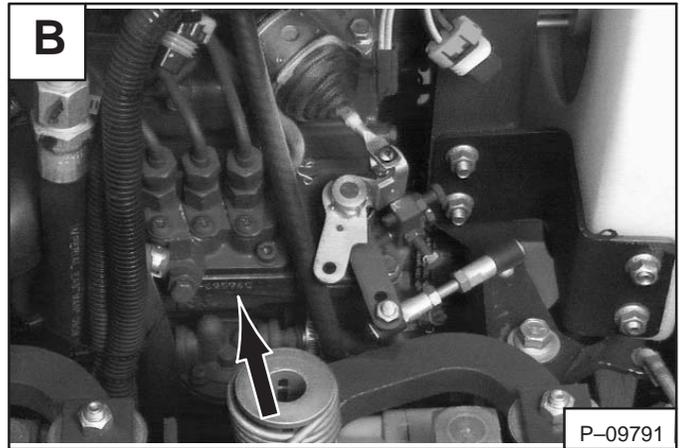
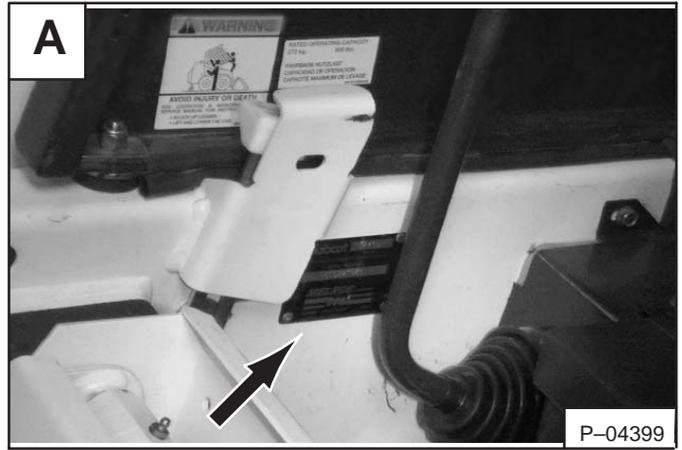
The loader serial number plate is located on the inside of the operator cab on the right fender and in front of the seat [A].

Explanation of loader Serial Number:



ENGINE SERIAL NUMBER

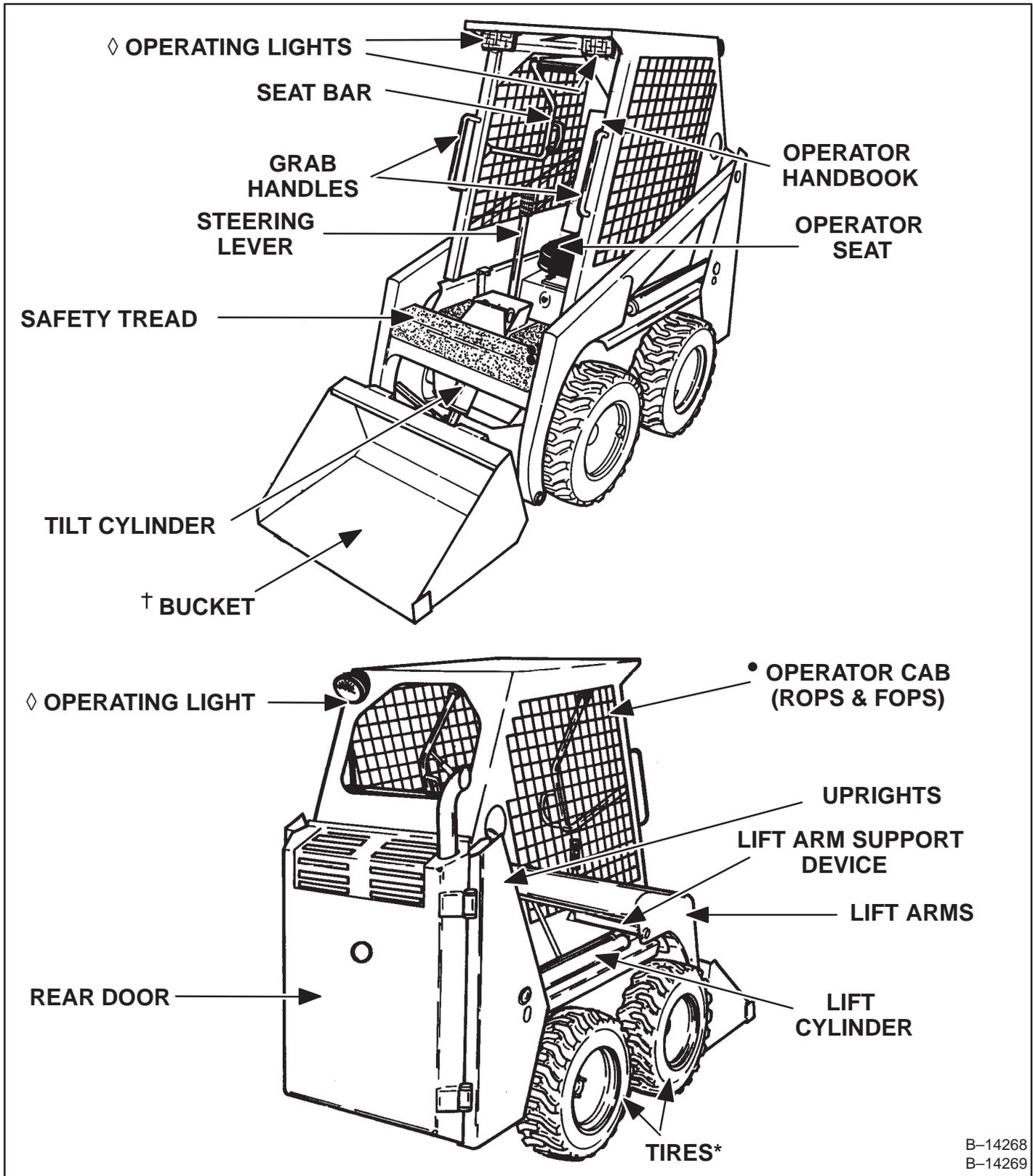
The engine serial number is located on the engine fuel injection pump. [B].



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. An explanation of the form must be given to the owner. Make sure it is filled out completely [C].

BOBCAT SKID STEER LOADER IDENTIFICATION



B-14268
B-14269

♦ FACTORY OPTION OR FIELD ACCESSORY (Not Standard Equipment)

* 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, per SAE J1040 and ISO 3471, and Falling Object Protective Structure per SAE J1043 and ISO 3449, Level I. The Bobcat loader is base-equipped with a standard operator cab as shown. Extra insulated cab is available as an option (Reduced noise level).

PREVENTIVE MAINTENANCE

PREVENTIVE MAINTENANCE

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SERVICE SCHEDULE

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

WARNING

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W-2003-1298

SERVICE SCHEDULE		HOURS					
ITEM	SERVICE REQUIRED	8-10	50	100	250	500	1000
Engine Air Cleaner	Empty the dust cup & replace the filter element as needed.						
Engine Oil	Check the oil level & add oil as needed.						
Engine Cooling System	Clean debris from oil cooler and radiator. Check coolant level in recovery tank and add as needed.						
Tires	Check the air pressure & for damaged tires.						
Indicators, Gauges & Lights (Opt.)	Check for correct operation of all indicators, gauges & lights (Opt.).						
Seat Belt and Seat Bar	Check the condition of seat belt. Check the seat bar & pedal interlocks for correct operation. Clean dirt and debris from moving parts.						
Safety Signs (Decals) and Safety Tread	Check for damaged signs and safety treads. Replace any signs or safety treads that are damaged or worn.						
Lift Arm and Bob-Tach Pivot Pin and Wedges	Lubricate with multi-purpose lithium based grease.						
Engine Fuel Filter	Remove the water from the filter.						
Hyd. Fluid, Hoses & Tubelines	Check fluid level & add as needed. Check for damage & leaks. Repair & replace as needed.						
Bobcat Interlock Control System (BICS™)	Check BICS™ System Controller functions. Clean dirt, debris or objects from under or behind seat as required.						
Battery	Check cables, connections & electrolyte level. Add distilled water as needed						
Control Pedals & Steering	Check for correct operation repair or adjust as needed.						
Bob-Tach	Check locking levers & wedges for condition & operation.						
Wheel Nuts	<input type="checkbox"/> Check for loose wheel nuts & tighten to 40-45 ft.-lbs. (54-61 Nm) torque.						
Parking Brake	Check operation.						
Alternator Belt	Check tension & adjust as needed.						
Engine Oil & Filter	Replace oil & filter. See engine <i>Oil Chart</i> .						
Hydraulic Filter Element	Replace filter element.						
Spark Arrestor Muffler	Clean the spark chamber.						
Drive Belt	Check drive belt for condition and tension.						
Steering Lever Pivots	Lubricate grease fittings and oil hole in the steering shaft.						
Engine Fuel Filter	Replace filter element.						
Hydraulic Reservoir Breather	Replace the breather cap.						
Final Drive Trans (Chaincase)	Replace the fluid.						
Hydraulic/Hydrostatic Reservoir	● Replace the fluid.						
Bobcat Interlock Control System (BICS™)	Check the lift arm by-pass control						

- 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

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W-2003-1298

LIFTING AND BLOCKING THE LOADER

Procedure

Always park the loader on a level surface.



WARNING

Put jackstands under the front axles 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.

W-2017-0286

Put a floor jack under the rear of the loader [B].

Lift the rear of the loader and install jackstands [B].

Put the floor jack under the front of the loader [C].

Lift the front of the loader and put jackstands under the loader frame.

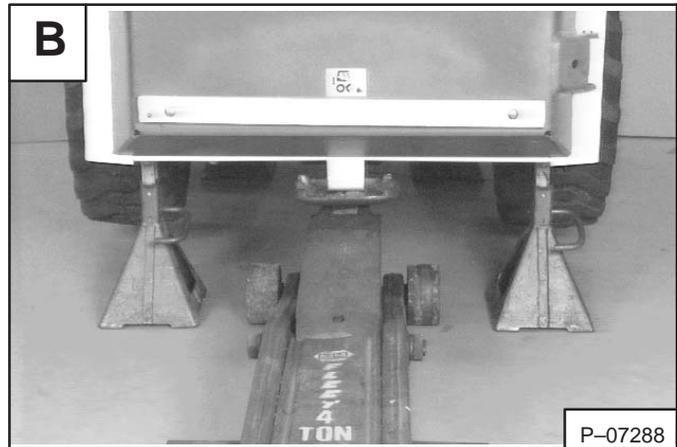
NOTE: Make sure the jackstands do not touch the tires.

A



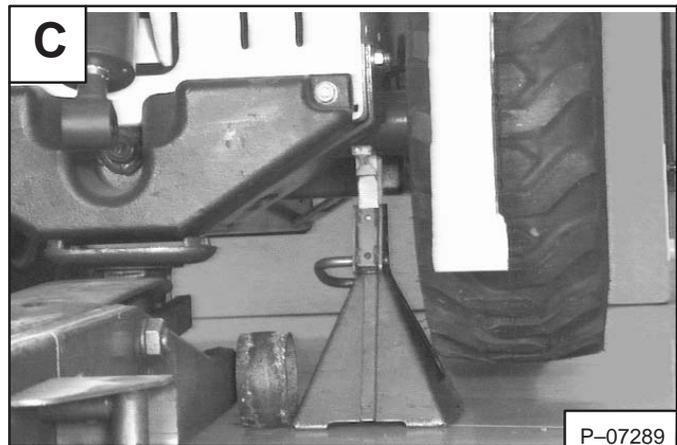
B-07023

B



P-07288

C



P-07289

TRANSPORTING THE LOADER

Procedure

Be sure the transport and towing vehicles are of adequate size and capacity.



WARNING

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

W-2058-0494

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

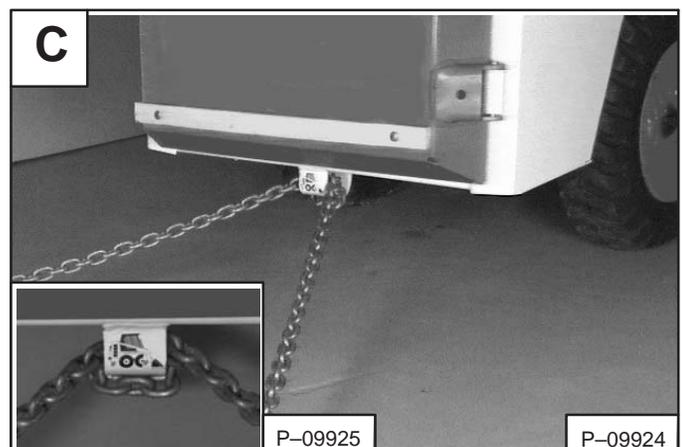
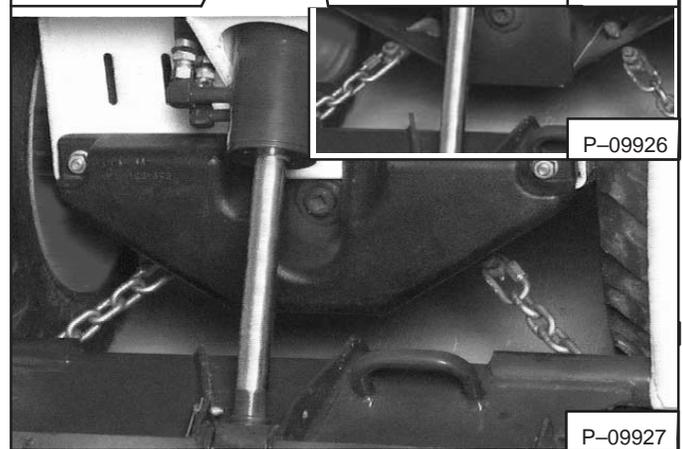
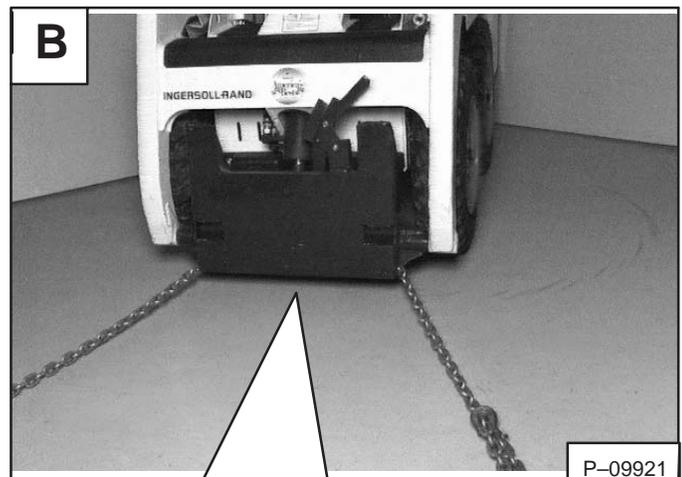
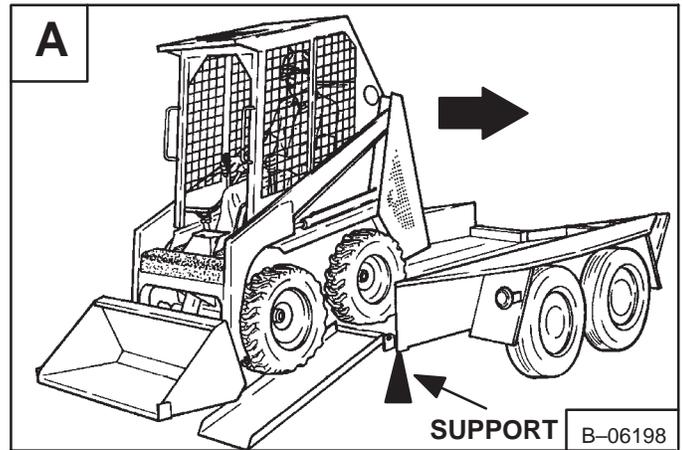
The rear of the trailer must be blocked or supported **[A]** when loading or unloading the loader to prevent the front end of the trailer from raising up.

Use the following procedure to fasten the Bobcat loader to the transport vehicle to prevent the loader from moving during sudden stops or when going up or down slopes **[B]**.

Fully lower any bucket or attachment. Stop the engine. Engage the parking brake.

Fasten chains at the front using the slots in the axle gussets **[B]**. Counterweight is removed (Inset) to show clarity. DO NOT operate with counterweight removed.

Fasten the rear of the loader as shown with a loop of chain through the tie down provided **[C]**.



TOWING THE LOADER

Procedure

To prevent damage to the loader's hydrostatic system, the loader must be towed only a short distance at slow speed. (Example: Moving the loader onto a transport vehicle).

Relief valve release tool set MEL1220 is available from your dealer. Tool must be installed before towing.

Raise the operator cab. (See Page 1–9 for the correct procedure.)

Clean the area around the hydrostatic pumps.

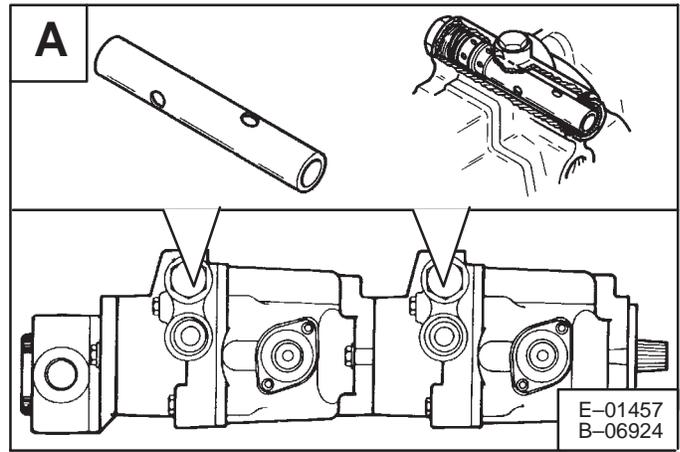
Remove the high pressure relief valve from one side of each hydrostatic pump **[A]** and install the relief valve tubes. Install the plugs and tighten.

The towing chain (or cable) must be rated at 1–1/2 times the weight of the loader. (See *SPECIFICATIONS* Page 9–1.)

Turn the key switch to ON and press the traction lock override button.

Tow the Bobcat at 2 MPH (3,2 km/hr) or less for not more than 25 feet (7,6 meters).

If the electrical system is not functioning, contact your Bobcat loader dealer. (Part of the brake system must be disassembled to move the loader.)

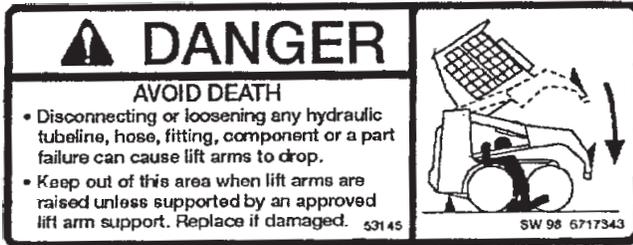


IMPORTANT

Do not push or pull the machine at more than 2 MPH (3,2 km/h) or for a distance of more than 25 feet (7,6 meters) with the towing tool in place.

I-2017-0389

LIFT ARM SUPPORT DEVICE



Engaging The Lift Arm Support Device

Put jackstands under the rear corners of the loader (Inset [A]).

Disconnect the spring from the lift arm support device retaining pin (Item 1) [A], hold the support device and remove the retaining pin.

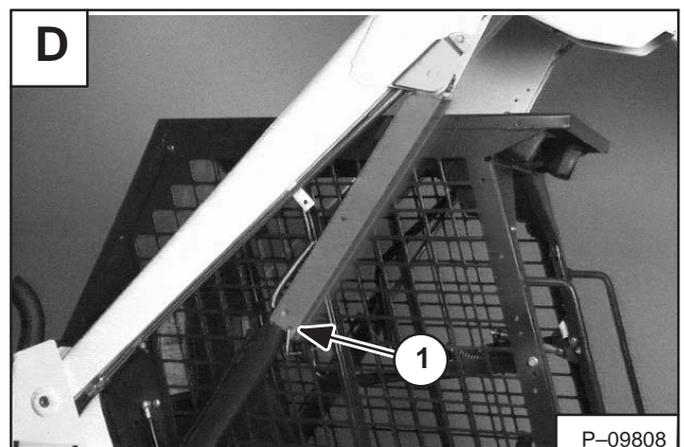
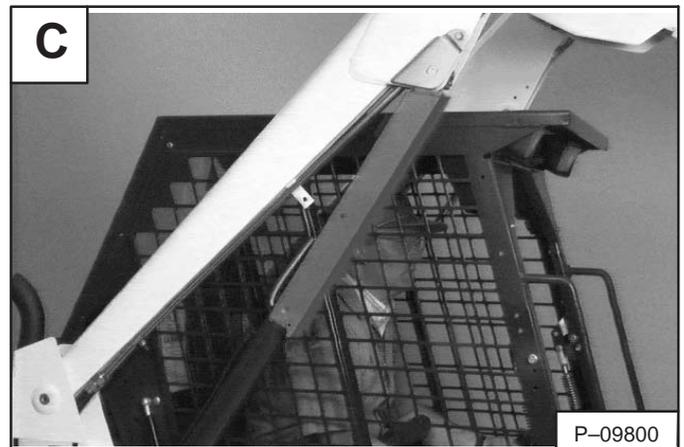
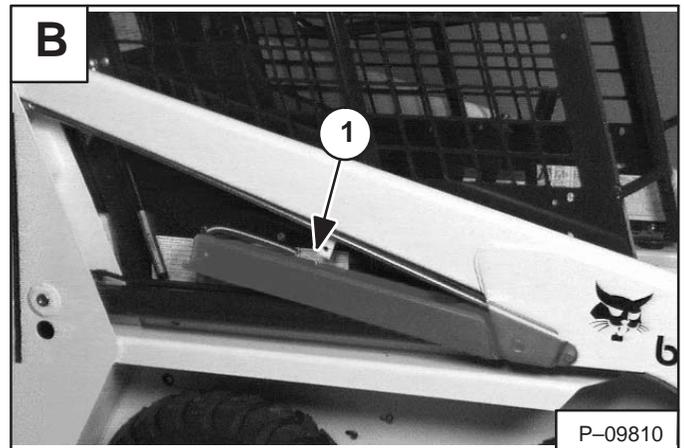
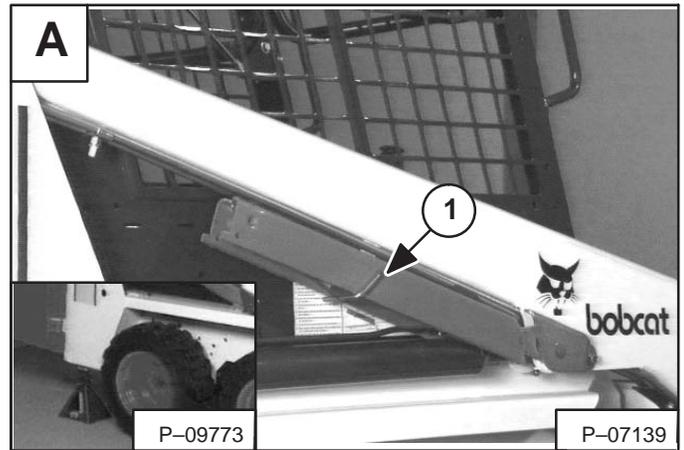
Lower the lift arm support device on top of the lift cylinder. Fasten the free end of the spring (Item 1) [B] to the lift arm support device so there will be no interference with the support device engagement.

With the operator in the seat, seat belt fastened and seat bar lowered, start the engine. Loader without seat sensors press the green *PRESS TO OPERATE* Button.

Raise the lift arms until the lift arm support device drops onto the lift cylinder rod [C].

Lower the lift arms slowly until the support device is held between the lift arm and the lift cylinder. Stop the engine. Raise the seat bar and move pedals until both pedals lock.

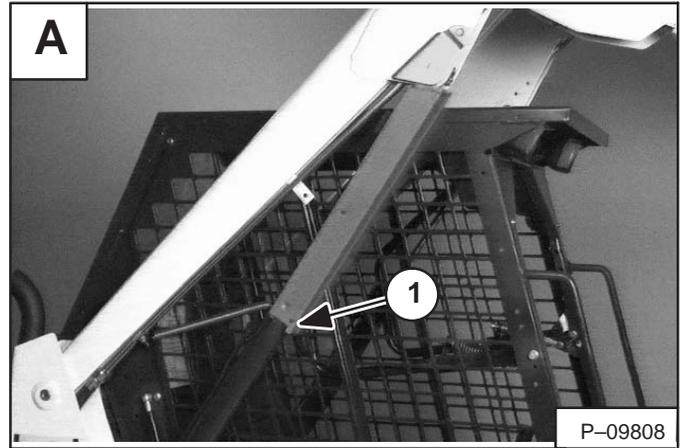
Install the retaining pin (Item 1) [D] into the rear of the lift arm support device below the cylinder rod.



LIFT ARM SUPPORT DEVICE (Cont'd)

Disengaging The Lift Arm Support Device

Remove the retaining pin (Item 1) [A] from the lift arm support device.



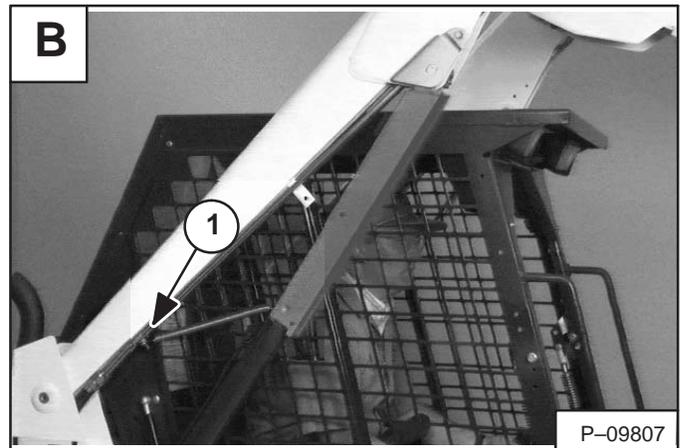
Connect the spring from the lift arm support device to the tubeline bracket (Item 1) [B] on the lift arms.

With the operator in the seat, seat belt fastened and seat bar lowered, start the engine. Loaders without seat sensor press the green *PRESS TO OPERATE* Button.

Raise the lift arms a small amount and the spring will lift the support device off the lift cylinder rod. Lower the lift arms. Stop the engine.

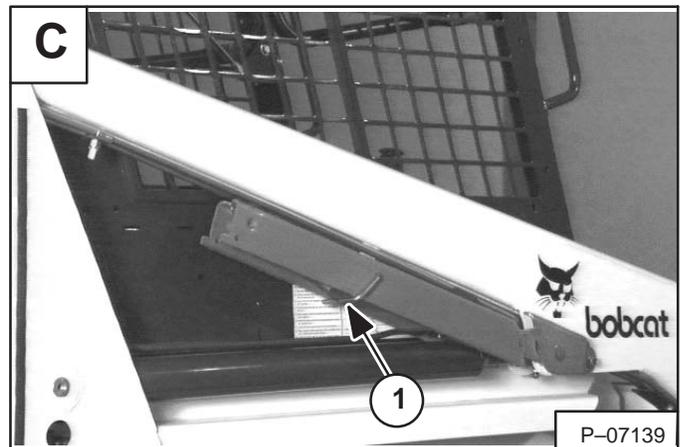
Raise the seat bar and move pedals until both pedals lock.

Disconnect the spring from the bracket.



Raise the support device into storage position and insert pin through lift arm support device and bracket (Item 1) [C].

Connect spring to pin [C].



OPERATOR CAB

Description

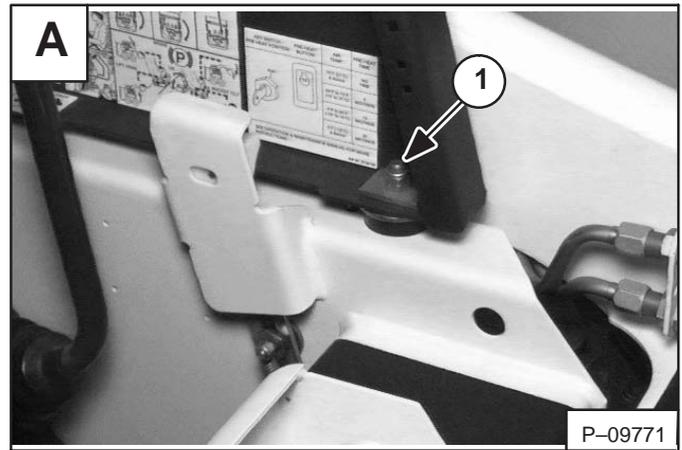
The Bobcat loader has an operator cab (ROPS and FOPS) as standard equipment to protect the operator from rollover and falling objects. Check with your dealer if the operator cab has been damaged. The seat belt must be worn for roll over protection.

ROPS/FOPS Roll Over Protective Structure per SAE J1040 and ISO 3471, and Falling Object Protective Structure per SAE J1043 and ISO 3449, Level 1.

Level 1 – Protection from falling bricks, small concrete blocks and hand tools encountered in operations such as highway maintenance, landscaping, and other construction site services.

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

The operator cab fastening nuts (Item 1) [A] must be tightened to 40–50 ft.-lbs. (54–68 Nm) torque.



WARNING

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

W-2014-0895

Raising The Operator Cab

Stop the loader on a level surface. Put the lift arms all the way down.

Install jackstands under the rear of the loader frame [B].

Open the rear door. (See *REAR DOOR* Page .)

If the lift arms must be up while raising the cab, install the lift arm support device. (See *Engaging The Lift Arm Support Device* Page 1–7.)

Remove the two fasteners (Item 1) [A] at the front (both sides) of the operator cab.

Stand on the ground. Lift slowly until operator cab is all the way up [B].

The operator cab will lock in the raised position.

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

OPERATOR CAB (Cont'd)

Lowering The Operator Cab

Hold the operator cab. Release the locking mechanism by pushing the lever (Item 1) [A] inward from the locked position (Item 2) [A] and turning the lever until it stays in the unlocked position [B].



WARNING

The cab must be held to prevent falling while hand is in access hole.

W-2205-0695

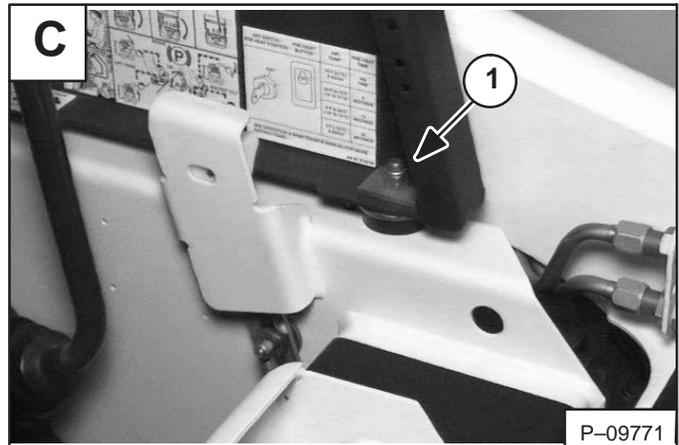
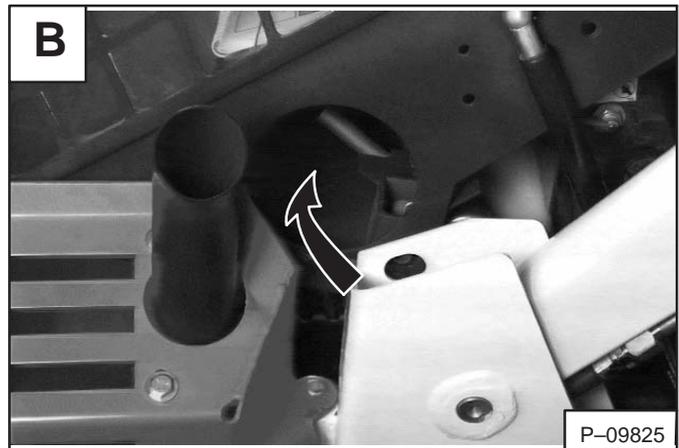
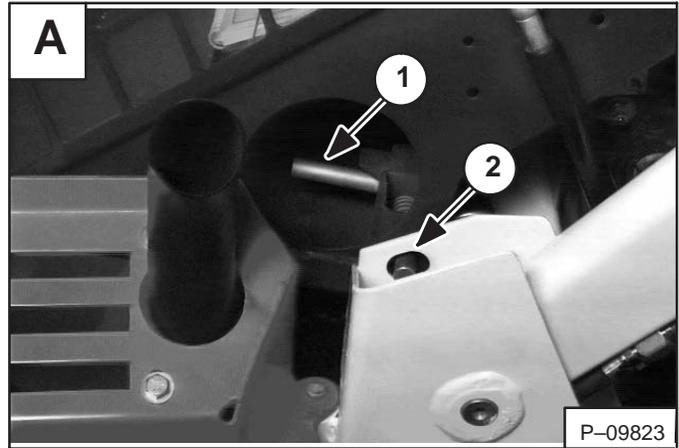
REMOVE YOUR HAND FROM THE HOLE BEFORE LOWERING THE OPERATOR CAB

Stand on the ground and pull down on the operator cab.

Avoid slippery surfaces when lowering the cab.

NOTE: Guide the operator cab over the fastening bolts to prevent thread damage.

Install the cab washers and nuts. Tighten the nuts (Item 1) [C] (both sides) to 40–50 ft.-lbs. (54–68 Nm) torque.



OPERATOR CAB (Cont'd)

Emergency Exit

The front opening on the operator cab and rear window provide exits.

Pull on the tag at the top of the rear window to remove the rubber cord [A].

Push the rear window out of the rear of the operator cab.



Exit through the rear of the operator cab [B].



SEAT BAR RESTRAINT SYSTEM

Description

The seat bar restraint system has a pivoting seat bar with arm rests and has spring loaded interlocks for the lift and tilt control pedals. The operator controls the use of the seat bar. The seat bar in the down position helps to keep the operator in the seat. The interlocks require the operator to lower the seat bar in order to operate the foot pedal controls. When the seat bar is up, the lift and tilt pedals are locked when returned to the neutral position.



Inspecting The Seat Bar

Sit in the seat and fasten the seat belt. Engage the parking brake. Pull the seat bar all the way down. Start the engine. Loaders without seat sensors press the green *PRESS TO OPERATE* Button. Operate each foot pedal to check both the lift and tilt functions. Raise the lift arms until the bucket is about 2 feet (600 mm) off the ground.

Raise the seat bar, try to move each pedal. The pedals must be firmly locked in neutral position. There must be no motion of the tilt (bucket) or the lift arms when the pedals are pushed.

Pull the seat bar down, Loaders without seat sensors press the green *PRESS TO OPERATE* Button and lower the lift arms. Operate the lift pedal. While the lift arms are going up, raise the seat bar and the lift arms should stop.

Lower the seat bar, Loaders without seat sensors press the green *PRESS TO OPERATE* Button, lower the lift arms and put the bucket flat on the ground. Stop the engine. Raise the seat bar and operate the foot pedals to be sure that the pedals are firmly locked in the neutral position. Unbuckle the seat belt.

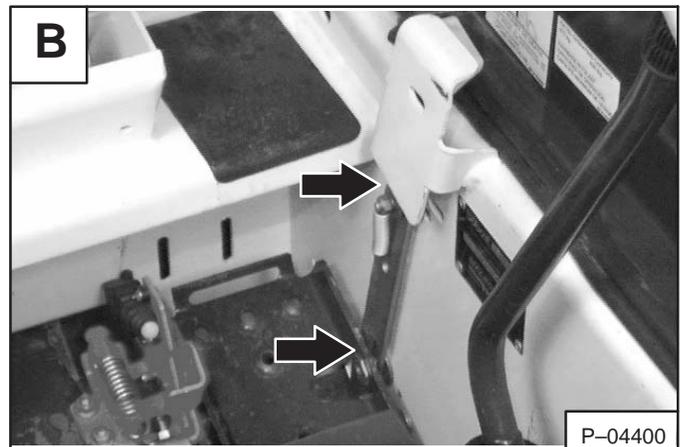
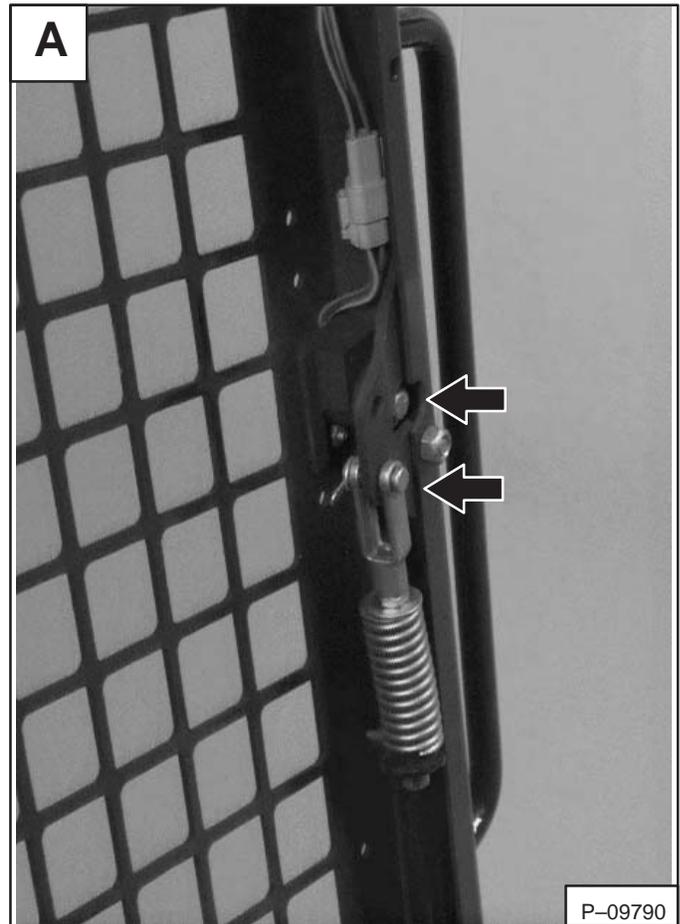
Maintaining The Seat Bar

See the *SERVICE SCHEDULE* Page 1-3 and on the loader for correct service interval.

Clean any debris or dirt from the moving parts **[A]** & **[B]**.

Inspect the linkage bolts and nuts for tightness. The correct torque is 25-28 ft.-lbs. (34-38 Nm).

If the seat bar system does not function correctly, check for free movement of each linkage part. Check for excessive wear. Adjust pedal control linkage. Replace parts that are worn or damaged. Use only genuine Melroe replacement parts.



AIR CLEANER SERVICE

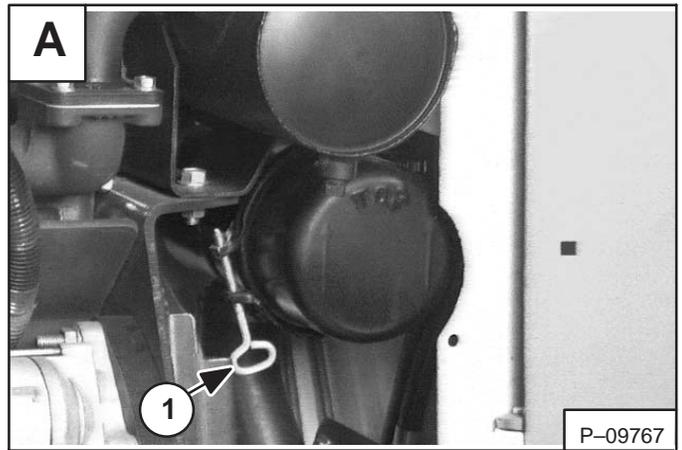
Replacing Filter Element

See the *SERVICE SCHEDULE* Page 1–3 for the interval to service the air cleaner system.

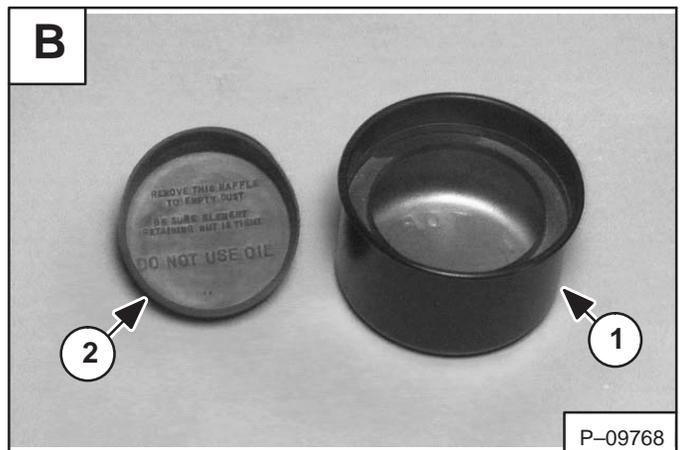
Check the air intake hose for damage. Check the air cleaner housing for damage. Check to make sure all connections are tight.

Service the air cleaner as follows:

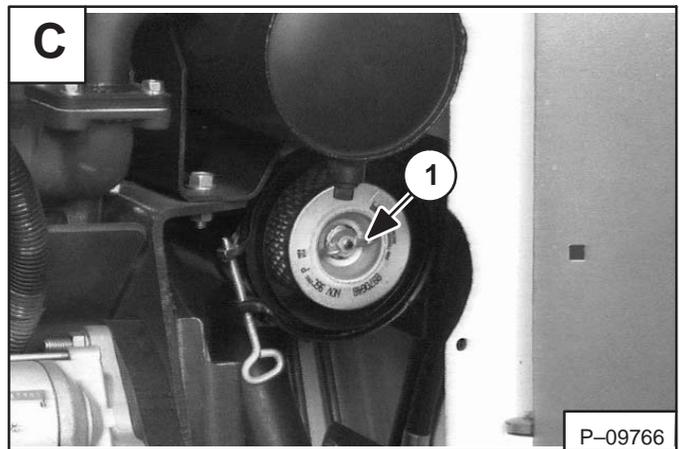
Loosen the wing nut (Item 1) [A].



Remove the cover (Item 1) [B], remove the dust cup (Item 2) [B]. Empty the debris from the dust cover.



Remove the wing nut (Item 1) [C] from the air filter.

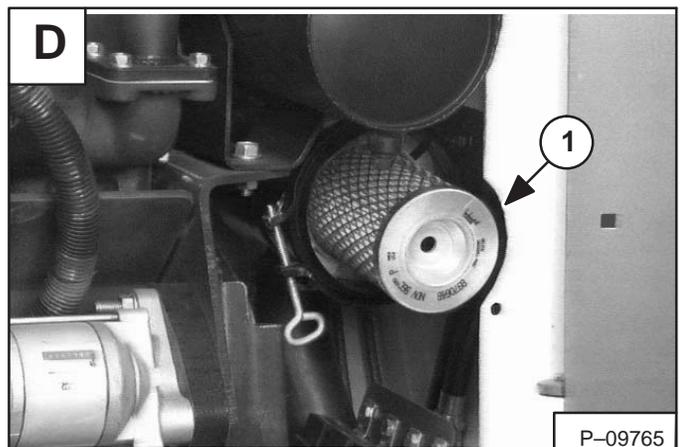


Remove the air filter (Item 1) [D].

NOTE: Make sure all sealing surfaces are free of dirt and debris.

Install a new air filter using the wing nut.

Install the dust cup and cover.



FUEL SYSTEM

Fuel Specifications

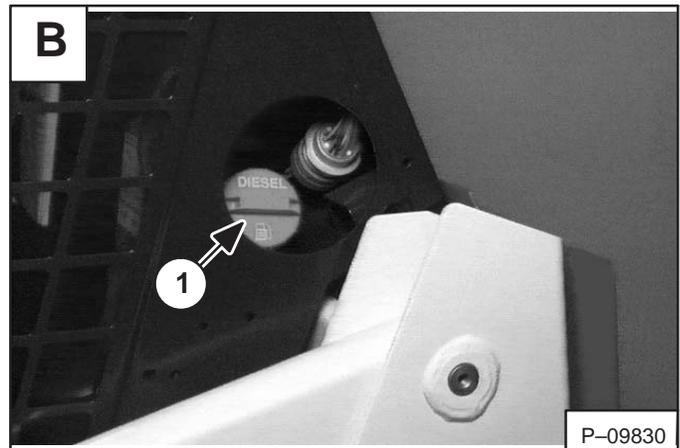
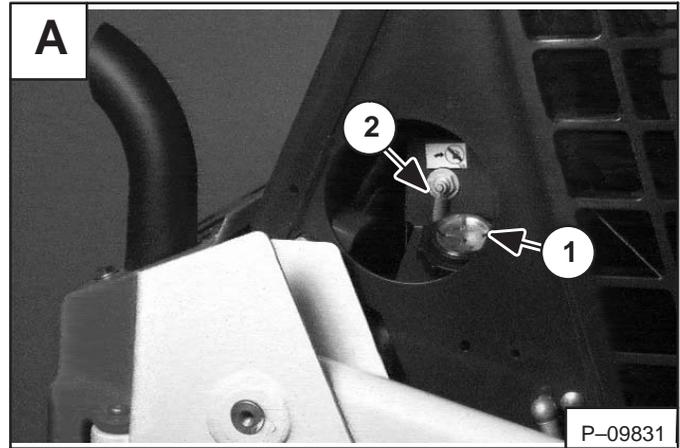
Use only clean, high quality diesel fuel, Grade No. 2 or Grade No. 1.

The following is one suggested blending guideline which should prevent fuel gelling problems:

Temp. F°/C°	No. 2	No. 1
+15°(-9°)	100%	0%
Down to -20°/-29°	50%	50%
Below -20°/-29°	0%	100%

We recommend an operator contact their fuel supplier for local recommendations.

The fuel gauge (Item 1) [A] and the fuel shut off valve (Item 2) [A] are located on the right side of the loader.



! WARNING

Stop and cool the engine before adding fuel. NO SMOKING! Failure to obey warnings can cause an explosion or fire.

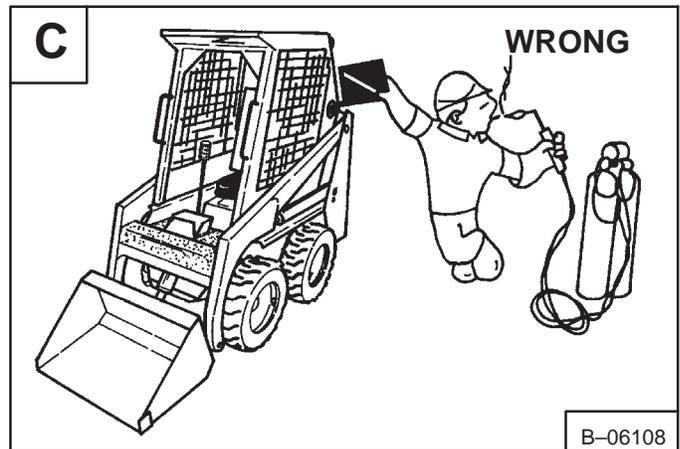
W-2063-0887

Filling The Fuel Tank

Remove the fuel fill cap (Item 1) [B].

Use a clean, approved safety container to add fuel of the correct specifications. Add fuel only in an area that has free movement of air and no open flames or sparks. NO SMOKING [B].

Install and tighten the fuel fill cap (Item 1) [B].



! WARNING

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire which can result in injury or death.

W-2103-1285

FUEL SYSTEM (Cont'd)

WARNING

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire which can result in injury or death.

W-2103-1285

Fuel Filter

Drain Water:

See the *SERVICE SCHEDULE* Page 1-3 for the service interval when to remove the water from the fuel filter.

Turn the fuel shut-off valve (Item 1) [A] clockwise to shut off the fuel supply.

Loosen the drain (Item 1) [B] at the bottom of the filter element to drain the water from the filter. Close the drain.

Open the shut-off valve (Item 1) [A] to turn on the fuel supply.

Replace Fuel Filter:

See the *SERVICE SCHEDULE* Page 1-3 for the service interval when to replace the fuel filter.

Clean the area around the fuel filter.

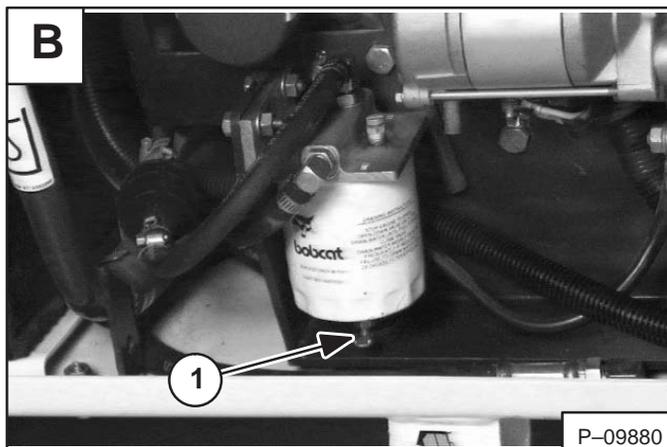
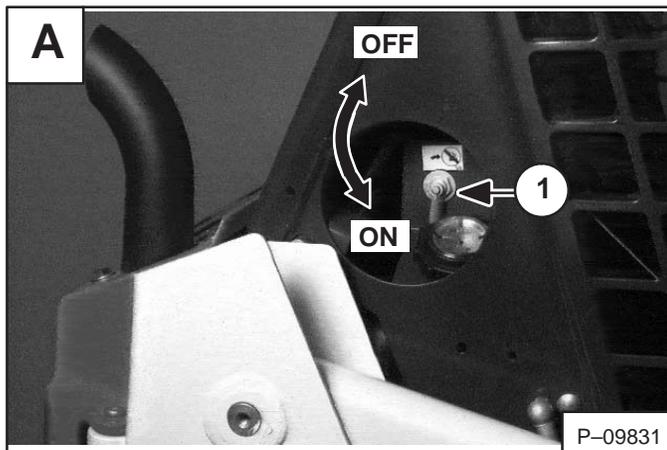
Close the shut-off valve (Item 1) [A].

Remove the fuel filter [B].

NOTE: Be sure the filter gasket is removed with the old fuel filter.

Install the new filter element hand tight.

Open the shut-off valve (Item 1) [A].



Removing Air From The Fuel System

After replacing the fuel filter element or when the fuel tank has run out of fuel, the air must be removed from the fuel system before starting the engine.

Open the rear door. The engine must be cool.

Open the vent plug (Item 1) [A].

Operate the hand pump (priming bulb) (Item 2) [A] until fuel flows from the vent plug with no air bubbles.

Close the vent plug.

With the operator in the seat, seat belt fastened and seat bar lowered, and parking brake engaged, start the engine.

NOTE: If engine fails to start, remove air from the fuel injection pump as follows:

Put jackstands under the rear of the frame. (See Page 1-4.)

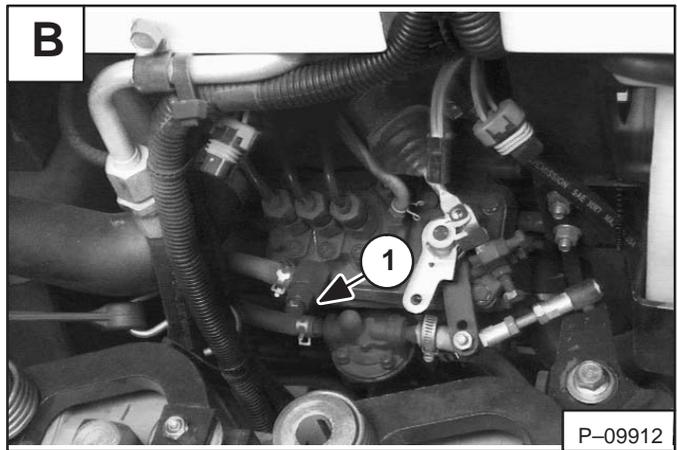
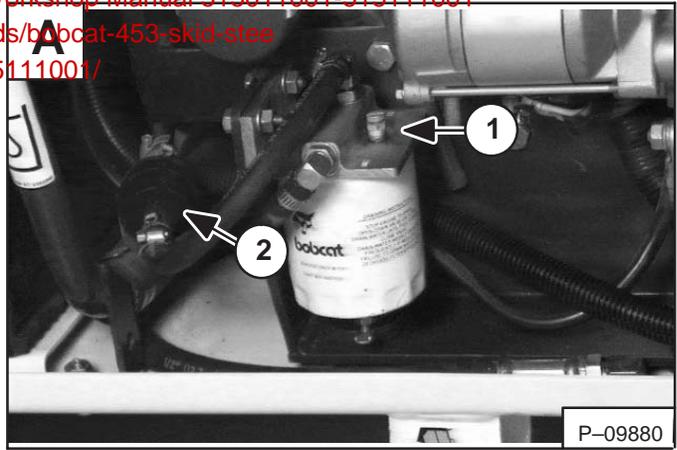
Raise the operator cab. (See Page 1-9.)

Open the valve (Item 1) [B] on the injector pump and squeeze the hand pump several times until fuel flows from the valve.

Close the valve (Item 1) [B].

Lower the operator cab. (See Page 1-10.)

Start the engine.



 **WARNING**

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire which can result in injury or death.

W-2103-1285