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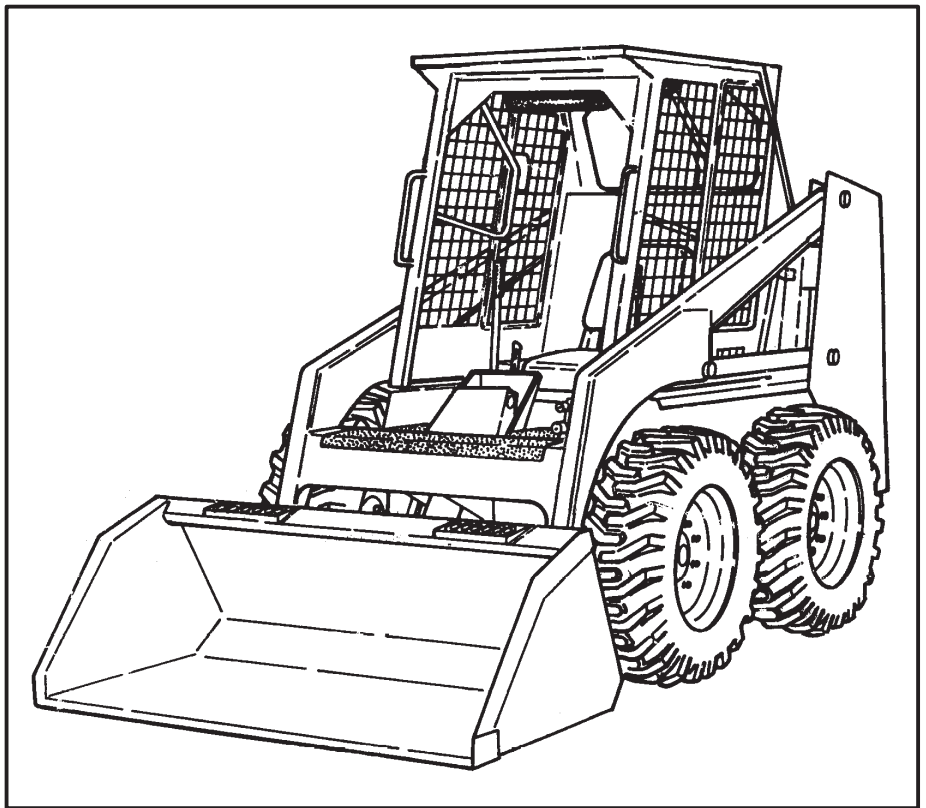
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3



Service Manual

540 (S/N 501012001 & Above)
543 (S/N 502412001 & Above)
543B (S/N 511111001 & Above)



MELROE
INGERSOLL-RAND

6566532 (11-94)

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MAINTENANCE SAFETY



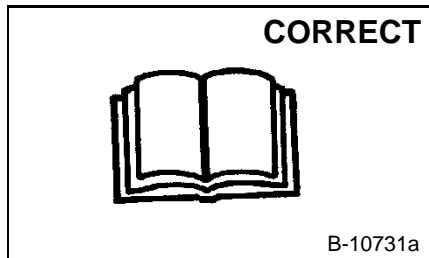
WARNING

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

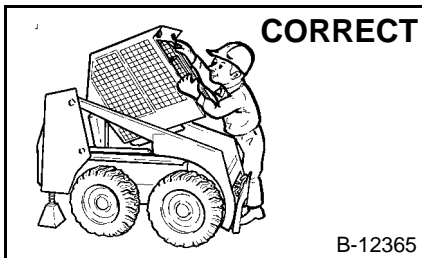


Safety Alert Symbol: This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.



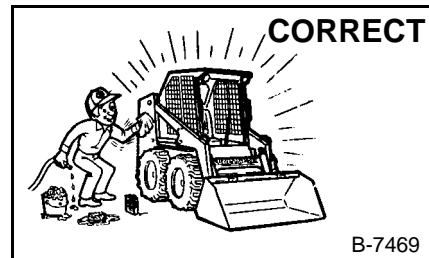
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Never service the Bobcat Skid-Steer Loader without instructions.



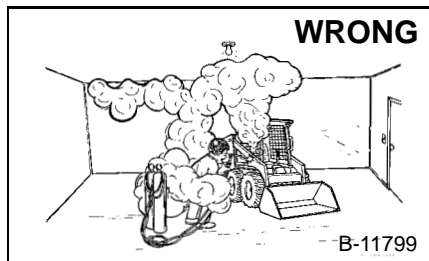
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Use the correct procedure to lift or lower operator cab.



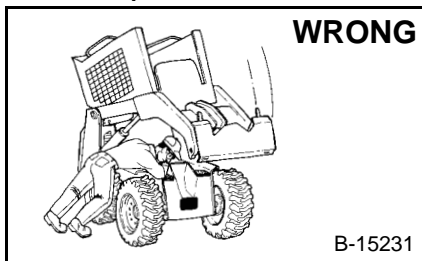
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Cleaning and maintenance are required daily.



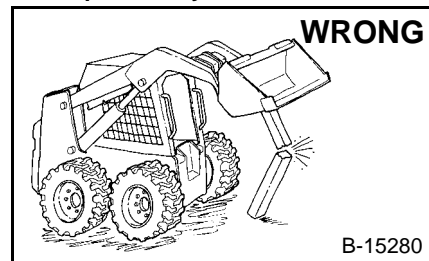
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- Have good ventilation when welding or grinding painted parts.
- Wear dust mask when grinding painted parts. Toxic dust and gas can be produced.
- Avoid exhaust fume leaks which can kill without warning. Exhaust system must be tightly sealed.



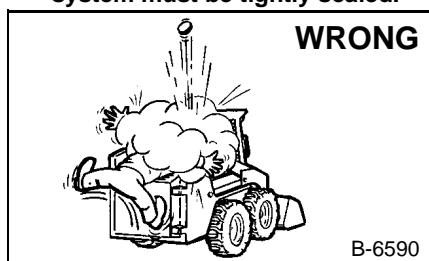
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Disconnecting or loosening any hydraulic tubeline, hose, fitting, component or a part failure can cause lift arms to drop. Do not go under lift arms when raised unless supported by an approved lift arm support device. Replace it if damaged.



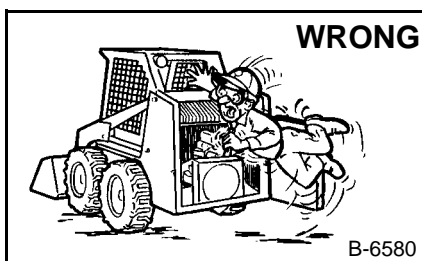
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- Never work on loader with lift arms up unless lift arms are held by an approved lift arm support device. Replace if damaged.
- Never modify equipment or add attachments not approved by Bobcat Company.



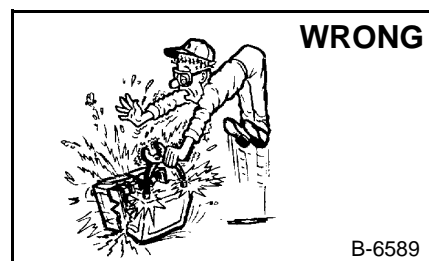
B-6590

- 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.



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.



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.

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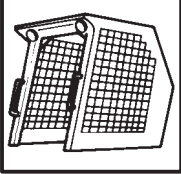


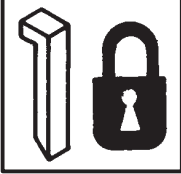
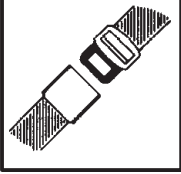
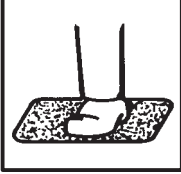
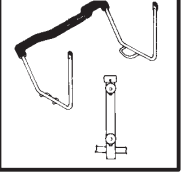
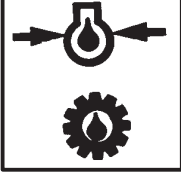
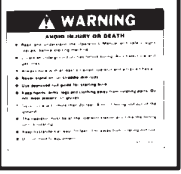

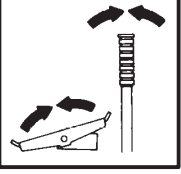
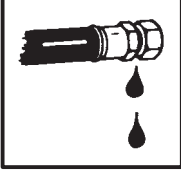



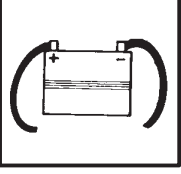
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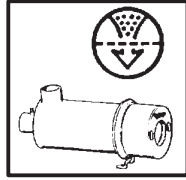
FOREWORD

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.

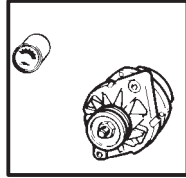
A general inspection of the following items must be made after the loader has had service or repair:

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

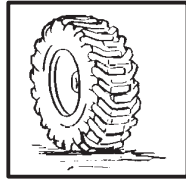
17. Inspect the air cleaner for damage or leaks. Check the condition of the element.



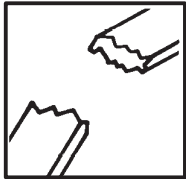
18. Check the electrical charging system.



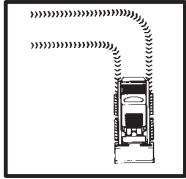
19. Check tires for wear and pressure.



20. Inspect for loose or broken parts or connections.



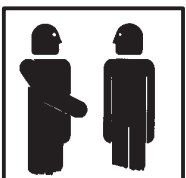
21. Operate the loader and check all functions.



22. Check for any field modification not completed.



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



SAFETY INSTRUCTIONS

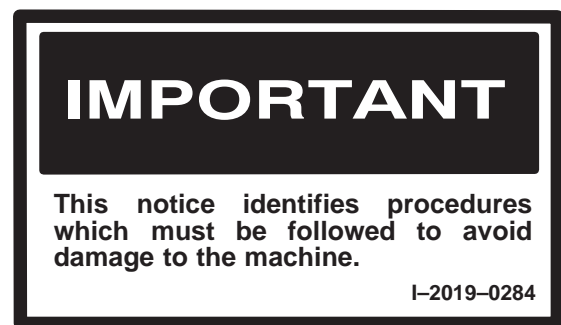
WARNING

Instructions are necessary before operating or servicing machine. Read 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. Failure to follow instructions can cause injury or death.

W-2003-0797

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 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].



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**PREVENTIVE
MAINTENANCE**

**HYDRAULIC
SYSTEM**

**HYDROSTATIC
SYSTEM**

**DRIVE
SYSTEM**

**MAIN
FRAME**

**ELECTRICAL
SYSTEM**

**ENGINE
SERVICE**

**TECHNICAL
DATA**

**ALPHABETICAL
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PREVENTIVE MAINTENANCE

PREVENTIVE MAINTENANCE

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WARNING

DO NOT service the Bobcat loader without instructions or taking the necessary safety precautions. Before working on the loader, see the warnings and instructions at the beginning of this Service Manual. After making the repair or adjustment, always check the function of the loader. Failure to obey warnings may cause injury or death.

PREVENTIVE MAINTENANCE

1-1 INTRODUCTION

The Preventive Maintenance Section of this Service Manual gives general maintenance procedure for the Bobcat loader. The other sections of the Service Manual will give the detailed description needed for disassembly and assembly and when replacement parts are needed.

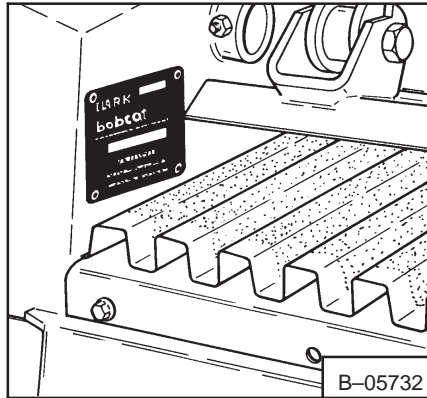


Fig. 1-1 Loader Serial Number

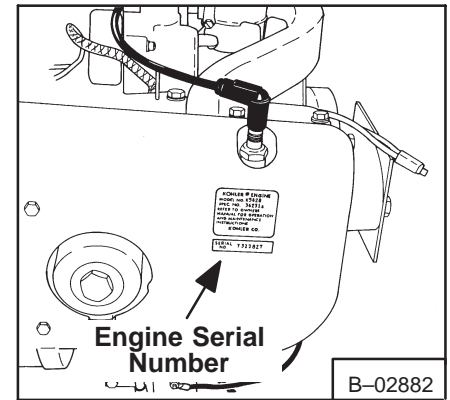


Fig. 1-2 Engine Serial Number (540)

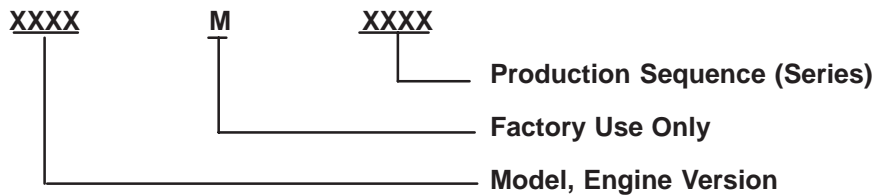
1-1.1 Serial Number Identification

It is important to make correct reference to the Serial Number of the Bobcat loader and/or engine when making repairs or ordering parts. It is possible that the present loaders do not use all the same parts as the earlier loaders. It is possible that different procedures are used for servicing repair.

1-1.2 Loader Serial Number

The Bobcat loader serial number plate location is on the inside of the left upright, above the grill (Fig. 1-1).

Explanation of the Serial Number:



1-2 SERVICE SCHEDULE

Maintenance work must be done at regular intervals. Failure to do so may result in damage to the Bobcat loader or the engine. The *SERVICE SCHEDULE* is a guide for correct maintenance of the Bobcat loader. **DO NOT** change this *Service Schedule* unless the frequency of service is increased when the Bobcat loader is operated in very hot, cold, dusty or corrosive conditions.



WARNING

DO NOT work on the loader with the lift arms in a raised position without support by a lift arm support device.

SERVICE SCHEDULE			HOURS						
540	543 543B	ITEM	SERVICE REQUIRED	8-10	50	100	250	500	1000
		Engine Air Cleaner	Check the condition indicator. Make inspection of the air cleaner system. Replace the element when the red ring shows in the indicator window.						
		Engine Oil	Check level and add oil as needed.						
		Engine Cooling System	Check and clean as needed (Including oil cooler grill).						
		Engine Coolant System	Check the coolant level and add as needed. Remove any debris from the radiator grill area.						
		Tires	Check for damage and check the tire pressure.						
		Operator Guard, Seat Belt and Seat Bar	Check the operator guard fastening bolts to make sure they are tight. Check the condition of the seat belt. Check the seat bar for correct operation.						
		Safety Signs (Decals)	Check for damaged decals. Replace any decals that are not there.						
		Pivot Points	Add lubricant to all fittings.						
		Hydraulic/Hydrostatic Fluid	Check the fluid level and add the recommended fluid as needed (See Section 8 for correct fluid).						
		Engine Oil and Filter	Change, fill with new clean oil according to oil specification chart and install new filter.						
		Battery	Check the battery cables and the battery water level.						
		Control Pedals and Steering Levers	Check both for correct operation. Make repairs and adjust as needed.						
		Bob-Tach	Check locking levers and wedges for condition and operation.						
		Brakes	Check operation. Make adjustment as needed.						
		Chaincase Fluid	Check level. Add fluid as needed.						
		Hydraulic/Hydrostatic Filter	Replace the filter element.						
		Spark Arrestor Muffler	Remove the plug and clean the spark chamber.						
		Engine Ignition System	Check the points and timing. Replace the spark plugs.						
		Engine Air Housing	Remove and clean housing and cooling fins.						
		Engine Air Cleaner System	Check system for leaks. Replace element as needed.						
		Engine Fuel Filter	Replace element.						
		U-Joint	Add grease to the U-joint.						
		Seat Bar	Lubricate the detent mechanism.						
		Steering Levers	Add grease to the pivot bearings.						
		Chaincase	Replace the fluid.						
		Hydraulic/ Hydrostatic System	Replace the fluid. Clean the inlet screen and vent.						

1-3 ENGINE SERVICE (General)

! WARNING

Stop, cool and clean the engine of flammable material. Never service or adjust machine with the engine running unless instructed to do so by the Service Manual.

Open the rear door to service the engine. Pull the door latch up (Fig. 1-5) and turn to the left to release the door latch (Fig. 1-6). The door can then be fully opened to get to the engine area.

See Section 5 for the Door Latch Adjustment.

! WARNING

Keep the rear door closed except for service. Make sure you close the door and fasten the latch tightly before operating the Bobcat loader.

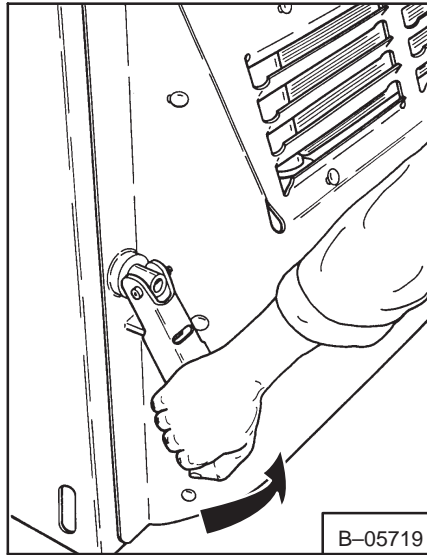


Fig. 1-5 Opening Door Latch

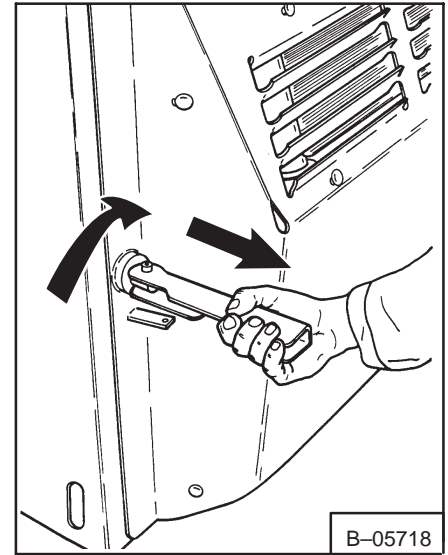


Fig. 1-6 Opening Rear Door

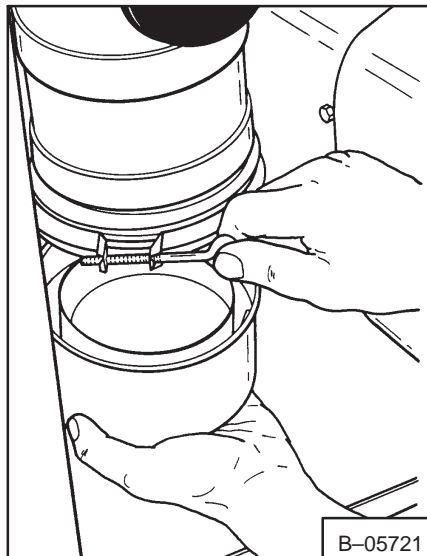


Fig. 1-7 Air Cleaner Cup (540)

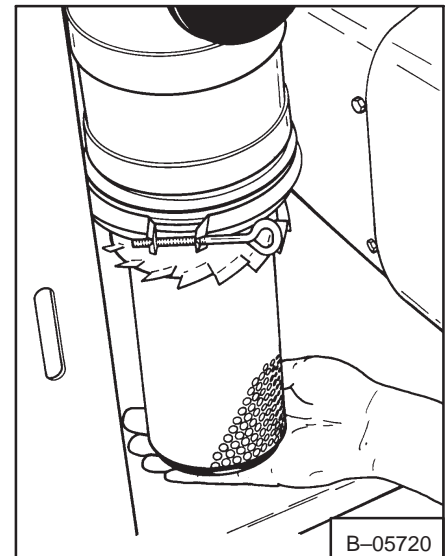


Fig. 1-8 Air Cleaner Element (540)

1-3.1 Air Cleaner Service (540)

It is important to service the air cleaner at regular intervals for good engine performance and long service life.

Service the air cleaner as follows:

1. Open the rear door.
2. Remove the dust cup and clean every day (Fig. 1-7).
3. Make replacement of the element only when the red ring shows in condition indicator window (Fig. 1-9).
4. Clean the inside of the filter housing so that the element has a smooth surface to contact at the seal. Check the filter housing for holes from corrosion, especially if the Bobcat loader is used in fertilizer application.

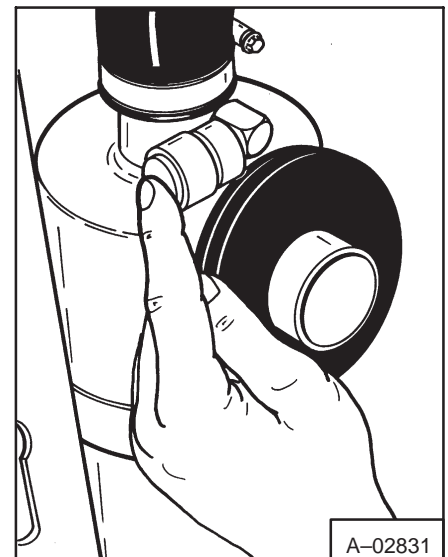


Fig. 1-9 Condition Indicator (540)

Install the new filter element (Fig. 1–8, Page 1–3) and tighten the wing nut.

Install the dust cup and tighten the clamp (Fig. 1–7, Page 1–3).

Push the button at the condition indicator (Fig. 1–9, Page 1–3) to remove the red ring.

Check to make sure that all the hoses and clamps are tight.

1–3.2 Air Cleaner Service (543)

It is important to service the air cleaner at regular intervals for good engine performance and long service life.

Service the air cleaner as follows:

Remove the dust cup and clean every day [A].

Make replacement of the element only when it becomes necessary. The large air cleaner element (outer) must be replaced when the red ring shows in the window of the condition indicator. DO NOT remove the inner filter.

NOTE: Before changing the air cleaner element, push the button on the condition indicator (Fig. A, Page 1–5), start the engine and if the red ring still shows, then do the following procedure.

Remove the wing nut and remove the outer filter element [B].

Make sure the inside of the filter housing has a smooth surface for the seal to make contact. Check the filter housing for holes from corrosion, especially if the Bobcat loader is used in corrosive application.

Install the outer filter element [B]. Only replace the inner filter element under the following conditions [C].

- Replace the inner filter element every third time the outer filter is replaced.
- Replace the inner filter element when the red ring still shows in the condition indicator window after the outer filter is replaced.

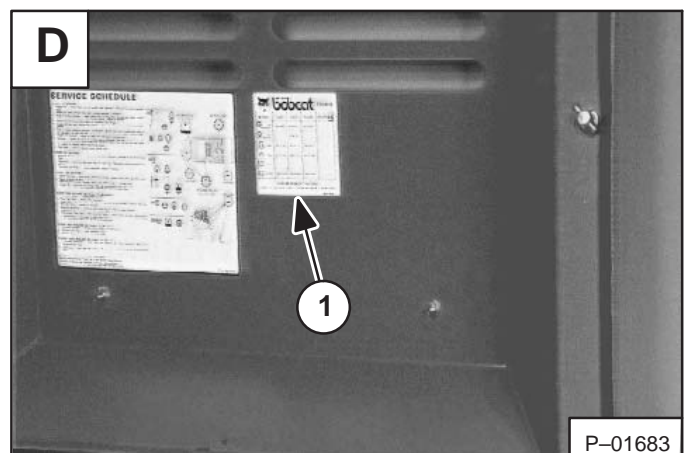
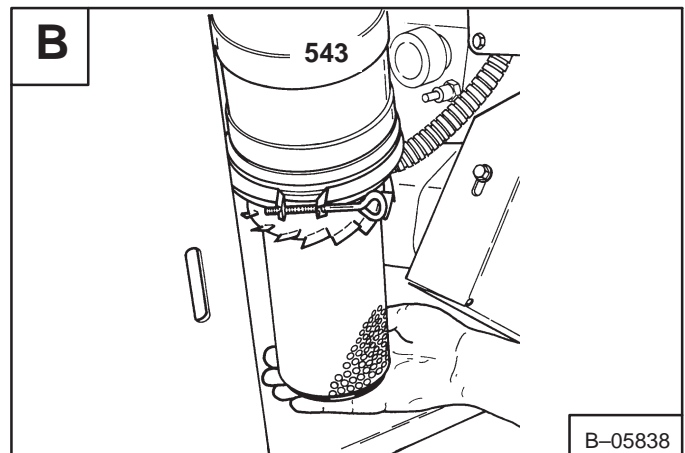
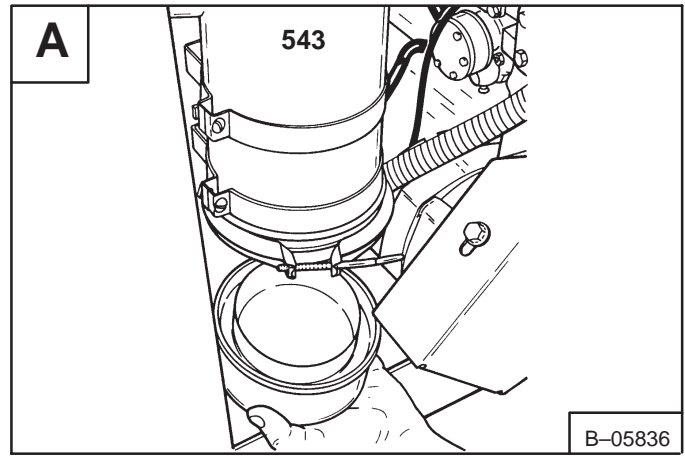
543B: Record the operating hours of the loader on the decal (Item 1) [D] inside the rear door.

Install the dust cup and tighten the clamp [A].

Push the button at the condition indicator (Fig. A, Item 1, Page 1–5) to remove the red ring from the window.

Check that the hoses and clamps are tight.

Install the dust cup and tighten the clamp [A].



1-3.3 Fuel System



WARNING

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

W-2063-0887

Use 85 octane regular or unleaded gasoline in the engine of the 540 Bobcat loader.

Use number 2 diesel fuel in the engine of the 543 Bobcat loader. During very cold temperature conditions, number 1 fuel is recommended.

To add fuel to the tank [B] or [C], use the following procedure:

Use a clean, approved safety container to add the fuel.

The engine must be *stopped* and cool.

Add fuel only in an area that has free movement of air and no sparks. NO SMOKING [D].

Use only clean fuel of the correct specifications.

Tighten the cap, (Item 1) [B] or [C], on the fuel tank.

540 Bobcat Loader:

There is a fuel filter, (Item 2) [B] in the fuel line by the fuel shut-off valve. The fuel filter must be replaced every 250 hours of loader operation.

See Section 7A for the correct replacement procedure.

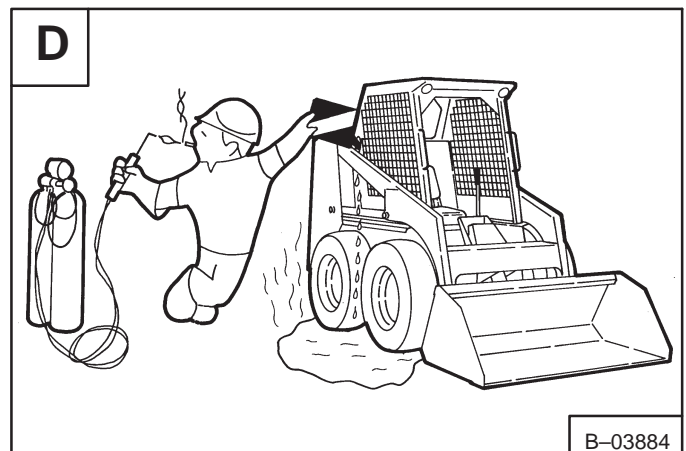
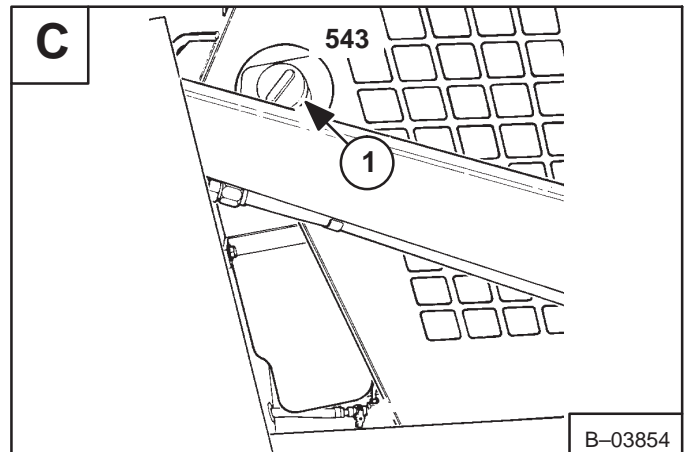
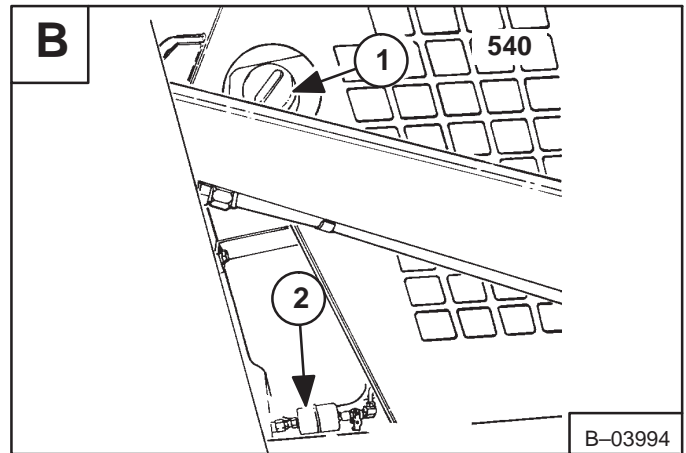
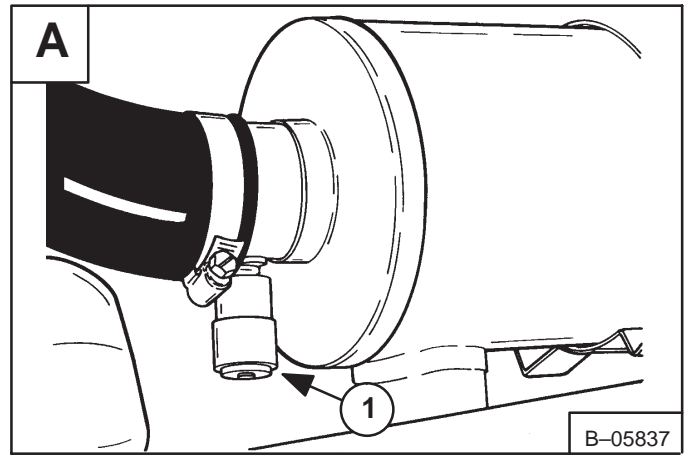
543 Bobcat Loader:

There is a fuel filter located on the left side of the engine. The fuel filter must be replaced every 250 hours of the loader operation.

See Section 7B for the correct replacement procedure.

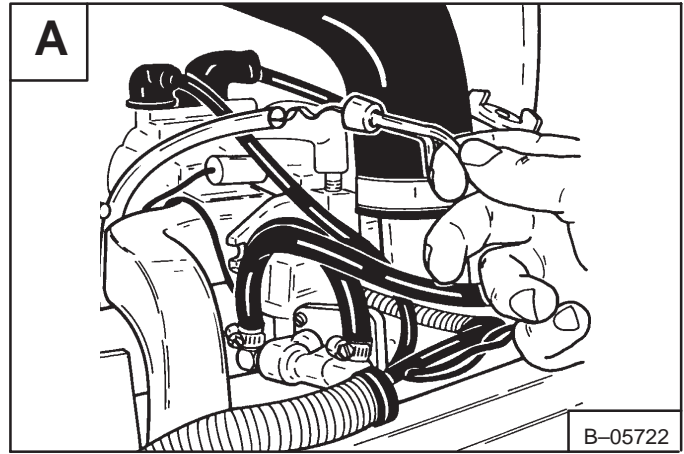
1-3.4 Engine Lubrication System

Check the oil level each day.

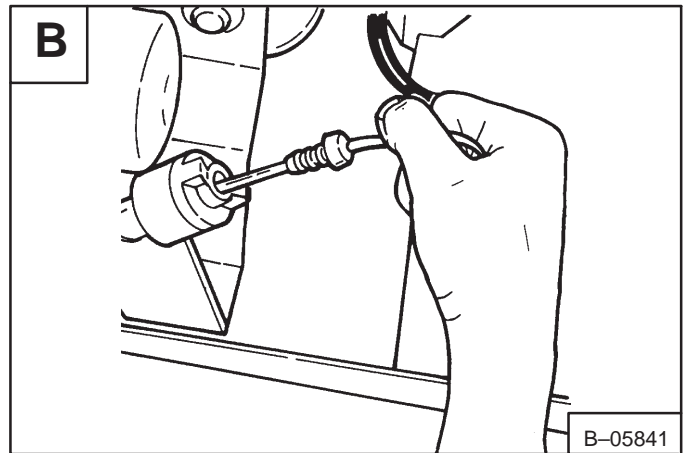


To check the oil level, stop the engine, open the rear door and remove the dipstick [A] & [B].

NOTE: 543 Only: The dipstick may indicate an incorrect level of oil when first removed. Always (1) remove the dipstick, (2) wipe the dipstick, (3) insert dipstick again and (4) re-check the oil level.



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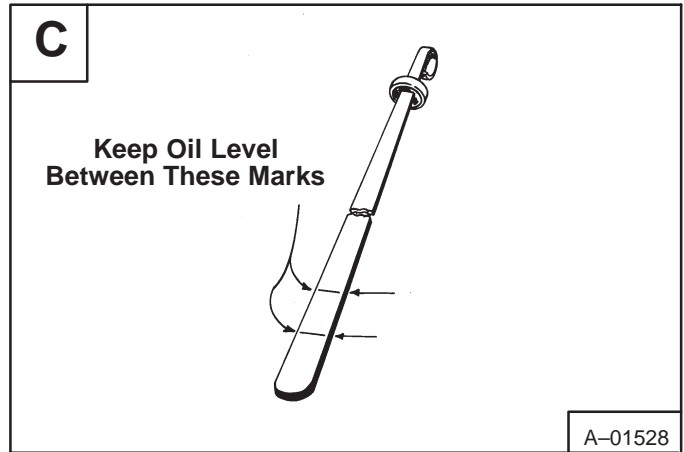


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Keep the oil level between the marks on the dipstick [C]. DO NOT fill above the top mark. Use a good quality motor oil that meets API Service Classification of SE, SF, CC, CD or CE (See the chart below).

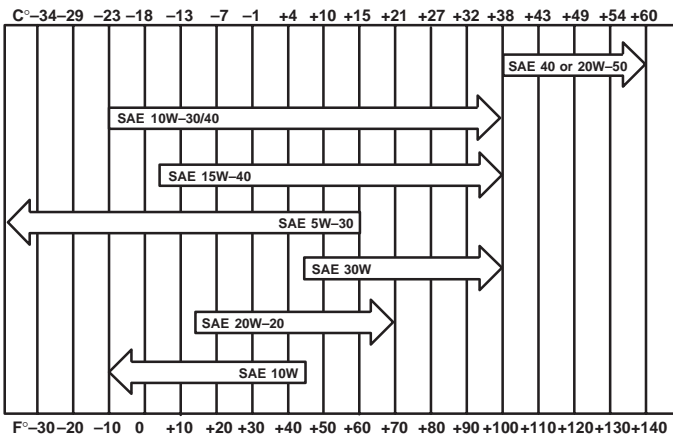
1-3.5 Replacement of the Engine Oil and Filter

Replace the engine oil and filter every 50 hours of loader operation.



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RECOMMENDED SAE VISCOSITY NUMBER (LUBRICATION OILS FOR ENGINE CRANKCASE)



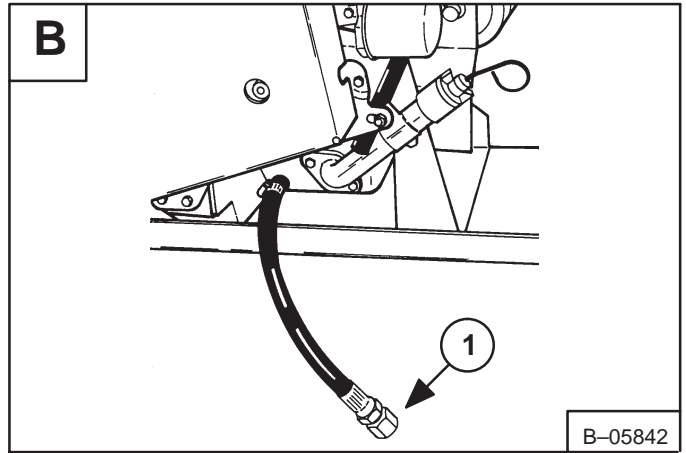
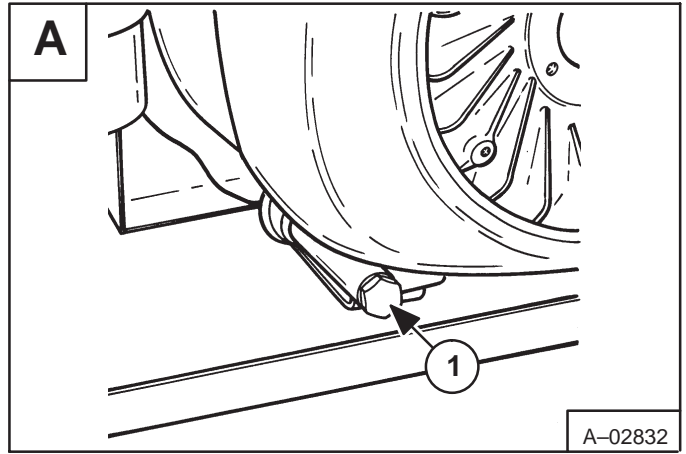
TEMPERATURE RANGE ANTICIPATED BEFORE NEXT OIL CHANGE
 (GASOLINE: USE API CLASSIFICATION SE OR SF)
 (DIESEL: USE API CLASSIFICATION CC OR CD)

NOTE: Do not use multi viscosity oils in gasoline engine unless ambient temperature is below 32° F.

To replace the engine oil and filter, use the following procedure:

Run the engine until it is at operating temperature. Stop the engine. Open the rear door.

Remove the drain plug (Item 1) **[A]** or **[B]**. Drain the oil into a container.



1. Remove the oil filter. (Fig. 1-21 or Fig. 1-22.)
2. Clean the filter housing surface.
3. Install the drain plug. Remove the fill cap. Add the correct amount of oil to the engine (See the Oil Chart for the correct oil).
4. Start the engine and let it run for several minutes. Stop the engine. Check the oil level. Add oil if the level is not at the top mark on the dipstick.

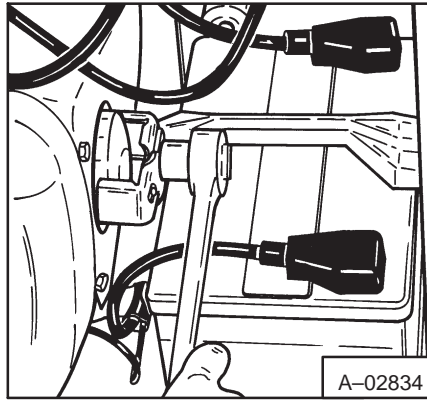


Fig. 1-21 Engine Oil Filter (540)

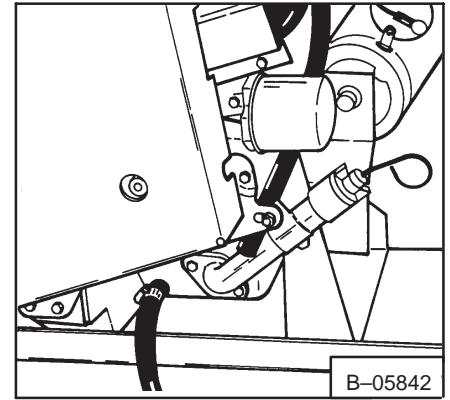


Fig. 1-22 Engine Oil Filter (543)

1-3.6 Engine Cooling System (540)

The oil cooler grill and engine cylinder cooling fins must be kept clean and free of debris or overheating will result.

⚠ WARNING

Use safety goggles when using air pressure to clean the grill area. **DO NOT** use cold water on a hot engine.

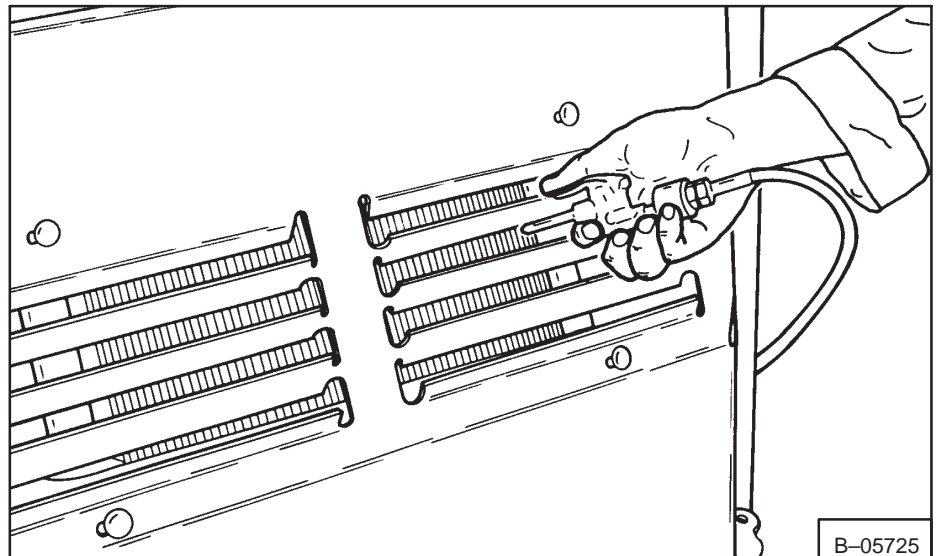


Fig. 1-23 Cleaning Rear Door Grill

Use air pressure or water to clean the oil cooler (Fig. 1-23).

Remove the shrouding on the engine to clean the cooling fins. Make sure to wear safety goggles when using air pressure or water spray for cleaning the fins.

Use a brush and scraper tool to remove the hard deposits on the cooling fins (Fig. 1-24).

NOTE: The oil cooler can be removed for better cleaning.

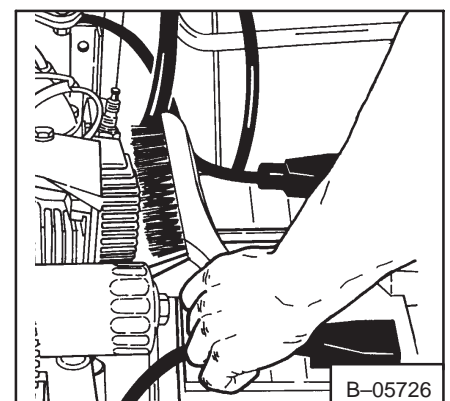


Fig. 1-24 Cleaning Cooling Fins

Make sure to replace all the covers and shrouding after cleaning the engine.

IMPORTANT

Never operate the engine with any of the covers or shrouding removed.

1-3.7 Engine Cooling System (543)

The radiator grill area must be kept clean and free of debris or overheating of the engine will result [C].

The cooling system has a coolant recovery tank. The location of the tank is on the right upright in the engine compartment [A]. Check the coolant level every day at the coolant recovery tank. Correct level of the recovery tank is 1/3 full when the engine is cold and 2/3 full when the engine is operating temperature.

Add coolant at the recovery tank only.

NOTE: Protect the cooling system from freezing temperatures by adding 50/50 (PRE-MIXED) mixture of ethylene glycol and water to the cooling system.

Removing the coolant from the Cooling System, use the following procedure:



WARNING

Stop engine and allow to cool before adding coolant or you can be burned.

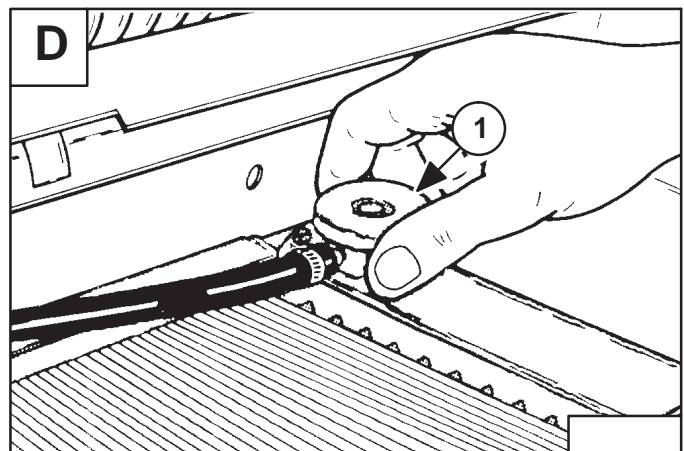
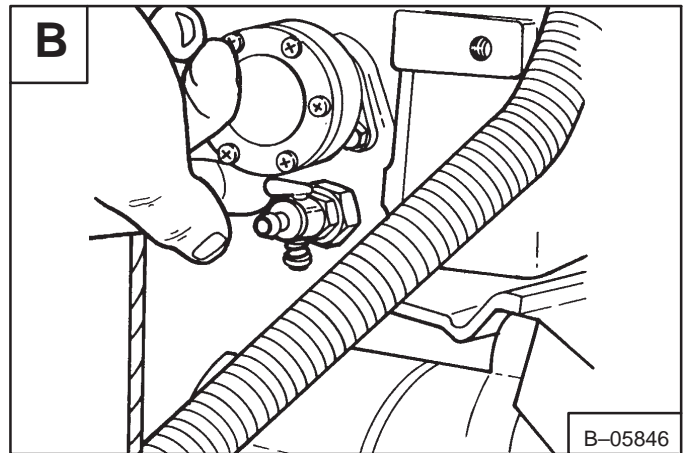
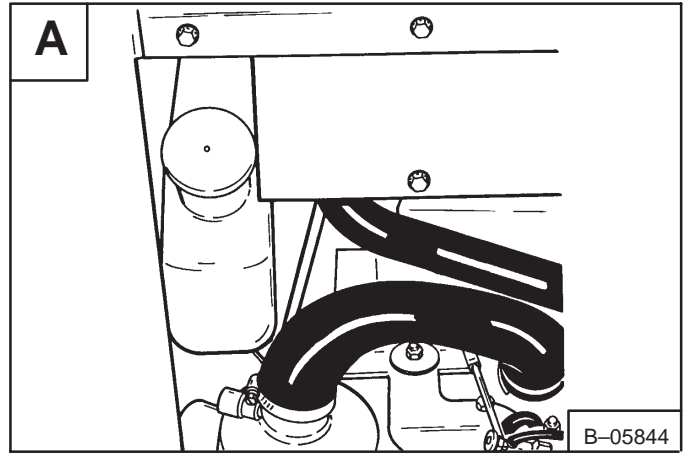
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The valve to remove the coolant is on the left side of the engine block [B].

Connect a hose to the valve or use a funnel to keep coolant from getting into the engine compartment.

Remove the rear grill.

Remove the radiator cap (Item 1) [D]. The grill must be removed.



Turn the valve so that the lever is toward the outlet of the valve.

To fill the cooling system:

1. Close the drain valve **[B]** (Page 1–8).
2. Mix 50% water and 50% anti-freeze.
3. Fill the radiator completely and install the radiator cap.
4. Install the grill.
5. Fill the coolant recovery tank 1/3 full.

1–4 ELECTRICAL SYSTEM

1–4.1 Electrical System Service

1. Check the battery cables and make sure they are clean and tight. Check the water level of the battery. Remove any acid or corrosion from the battery and cables with a sodium bicarbonate and water solution (Fig. 1–28). Cover the battery terminals and cable ends with grease.
2. Check the tension of the alternator belt (See Section 6 for the correct procedure)
3. Check all wires for being broken.

NOTE: The warning lights (on the dash panel) will come ON when the key switch is turned ON. When the engine is started, the warning lights must go OFF. If they do not, stop the engine and find the problem.

1–4.2 Using an Extra Battery (Booster Starting)


 WARNING	<p>Keep arcs, sparks, flames and lighted tobacco away from batteries. When <i>jumping</i> from booster battery make final connection (negative) at engine frame.</p> <p>Do not jump start or charge a frozen or damaged battery. Warm battery to 60°F. (16°C.) before connecting to a charger. Unplug charger before connecting or disconnecting cables to battery. Never lean over battery while boosting, testing or charging.</p> <p>Battery gas can explode and cause serious injury.</p> <p>W-2066-1296</p>
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Fig. 1–28 Cleaning the Battery



WARNING

Batteries contain acid which burns eyes and skin on contact. Wear goggles, protective clothing and rubber gloves to keep acid off body.

In case of acid contact, wash immediately with water. In case of eye contact get prompt medical attention and wash eye with clean, cool water for at least 15 minutes.

If electrolyte is taken internally drink large quantities of water or milk! DO NOT induce vomiting. Get prompt medical attention.

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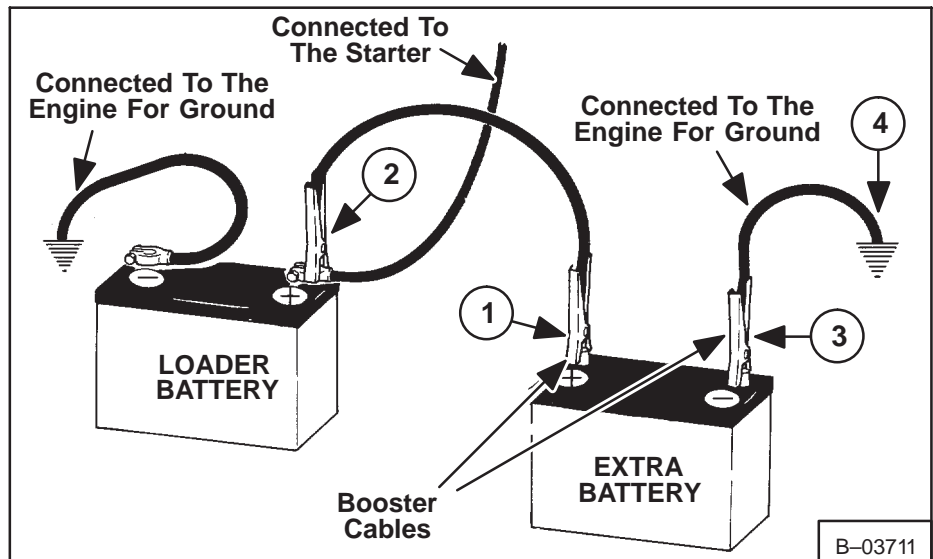


Fig. 1-29 Connecting the Extra Battery

If it is necessary to use an extra battery to start the engine. BE CAREFUL! This is a two-person operation. There must be one person in the operator's seat and one person to connect and disconnect the battery cables.

1. The ignition must be in the OFF position.
2. The battery to be used must be of the same voltage.
3. Battery terminals have identification marks. The positive terminal is marked (+) and the negative terminal is marked (-).
4. The negative terminal (-) of the battery must be connected to the engine.



WARNING

Keep arcs, sparks, flames and lighted tobacco away from batteries. When *jumping* from booster battery make final connection (negative) at engine frame.

Do not jump start or charge a frozen or damaged battery. Warm battery to 60°F. (16°C.) before connecting to a charger. Unplug charger before connecting or disconnecting cables to battery. Never lean over battery while boosting, testing or charging.

Battery gas can explode and cause serious injury.

W-2066-1296

5. Connect the end of the first cable to the positive terminal (+) of the booster (Fig. 1-29, Item 1). Connect the other end of the same cable to the positive terminal (+) of the loader battery (Fig. 1-29, Item 2).
6. Connect the end of the second cable to the negative terminal (-) of the booster battery (Fig. 1-29, Item 3). Connect the other end of the second cable to the engine (Fig. 1-29, Item 4). DO NOT connect the cable directly to the negative terminal (-) of the loader battery. Connecting the cable directly to the battery can cause a spark and destroy the battery and cause personal injury.
7. Keep the cables away from the fans and belts.

NOTE: The operator must be in the operator's seat and have the seat belt fastened.

8. Start the engine.
9. After the engine has started, remove the cable connected to the engine (Fig. 1-29, Item 4).
10. Then remove the cable from the loader battery post positive terminal (+) (Fig. 1-29, Item 2).

IMPORTANT

Damage to the alternator can occur if:

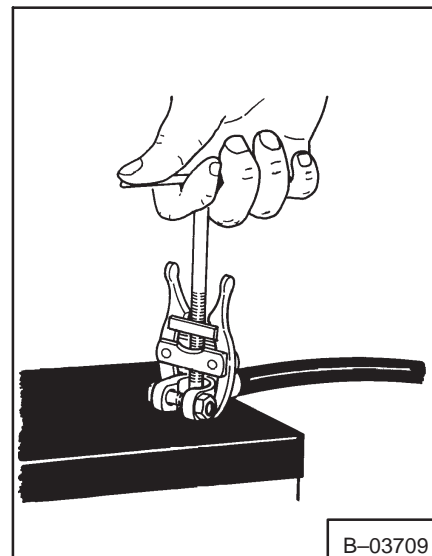
- Engine is operated with battery cables disconnected.
- Battery cables are connected when using a fast charger or when welding on the loader. (Remove both cables from the battery.)
- Extra battery cables (booster cables) are connected wrong.

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1-4.3 Installing New Battery

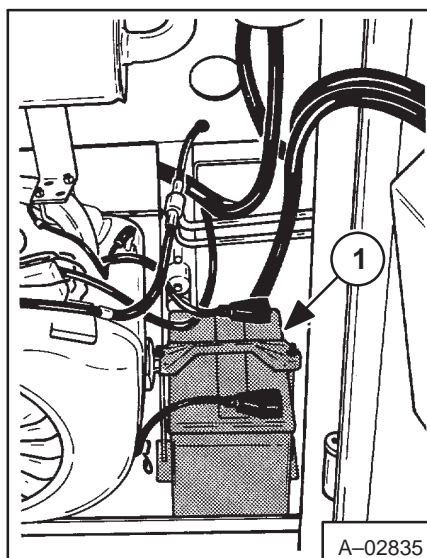
NOTE: See Section 6 Paragraph 6-3.1 and 6-3.3 for more information on removing and replacing batteries.

1. Remove the negative battery cable from the battery first, using a cable puller (Fig. 1-30). Remember the position of the battery cables so you can connect the cables correctly when installing the battery.
2. Remove the battery holddown (Fig. 1-31, Item 1) or (Fig. 1-32, Item 1). Remove the battery from the compartment.
3. Clean the terminal posts (Fig. 1-33) or the new battery and the ends of the battery cables.
4. Install the new battery in the battery compartment.
5. Install the holddown clamp.
6. Install the positive battery cable first and tighten. Connect the negative cable last to prevent sparks.



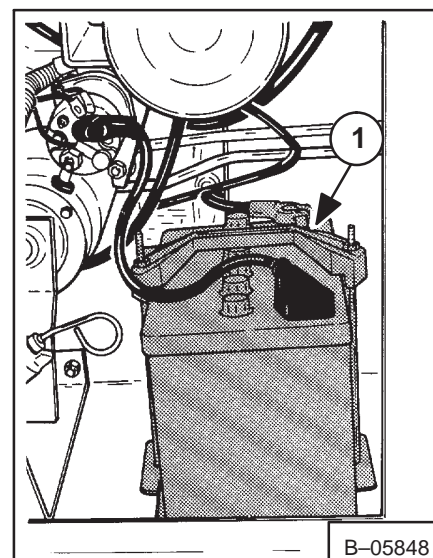
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Fig. 1-30 Removing Battery Cable



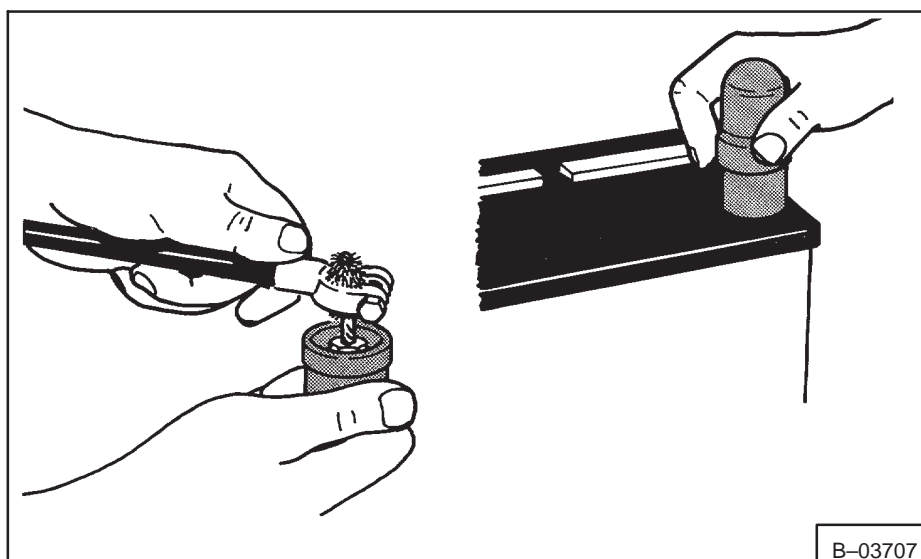
A-02835

Fig. 1-31 Battery Location (540)



B-05848

Fig. 1-32 Battery Location (543)



B-03707

Fig. 1-33 Cleaning Battery Terminals

1-5 SPARK ARRESTOR MUFFLER

The spark arrestor muffler must be cleaned every 100 hours of loader operation.

⚠ WARNING

Stop engine and allow the muffler to cool before cleaning the spark chamber. Wear safety goggles. Failure to obey can cause serious injury.

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1. Open the rear door.
2. Remove the plug at the bottom of the muffler (Fig. 1-34 & 1-35).

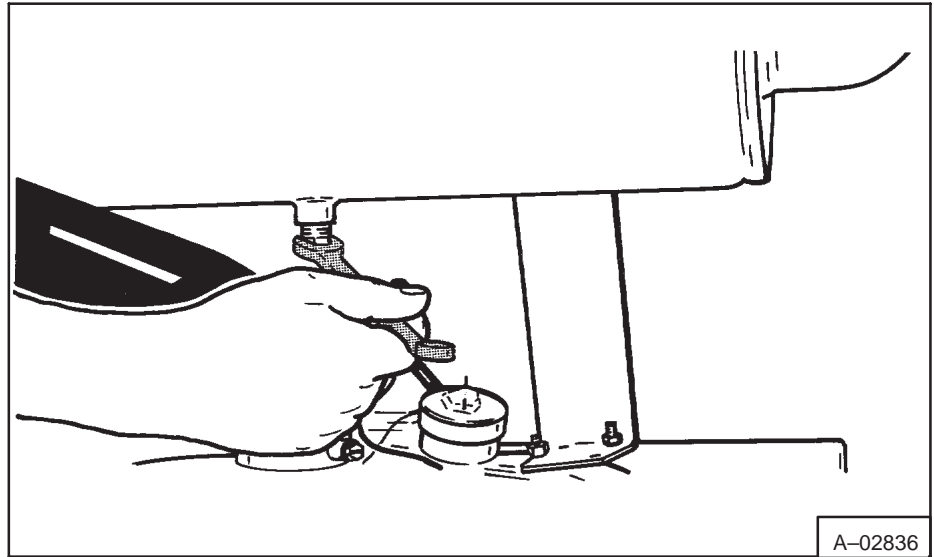


Fig. 1-33 Cleaning Battery Terminals

⚠ WARNING

DO NOT run the engine in an area that has materials that can cause combustion. Wear safety goggles.

W-2309-0398

3. Hold a block of wood over the outlet of the muffler.
4. Start the engine and run it about 10 seconds.
5. Stop the engine and install the plug.
6. Close the rear door.

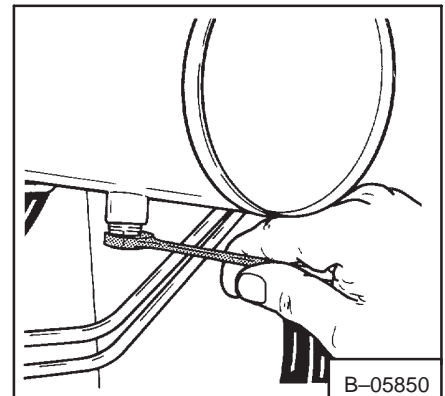


Fig. 1-35 Spark Arrestor Muffler (543)

This loader is factory equipped with a U.S.D.A. Forestry Service approved spark arrestor muffler. It is necessary to do maintenance on this spark arrestor muffler to keep it in working condition. The spark arrestor muffler must be serviced by dumping the spark chamber every 100 hours of operation.

IMPORTANT

If this machine is operated on flammable forest, brush or grass covered land, it must be equipped with a spark arrestor attached to the exhaust system and maintained in working order. Failure to do so will be in violation of California State Law, Section 4442 PRC.

Make reference to local laws and regulations for spark arrestor requirements.

I-2022-0595

1-6 HYDRAULIC/HYDROSTATIC SYSTEM

Be careful when repairing hydraulic/hydrostatic system. Hydraulic pressure can drive hydraulic fluid through the skin. Never check for leaks in a hydraulic system with your bare hands. Use a piece of wood or piece of cardboard [A].

If the skin is penetrated by a fluid under pressure, consult a qualified medical service.

WARNING

Diesel fuel or hydraulic fluid under pressure can penetrate skin or eyes, causing serious injury or death. Fluid leaks under pressure may not be visible. Use a piece of cardboard or wood to find leaks. Do not use your bare hand. Wear safety goggles. If fluid enters skin or eyes, get immediate medical attention from a physician familiar with this injury.

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NOTE: For more information on the Hydraulic System, see Section 2 and for more information on the Hydrostatic System see Section 3.

1-6.1 Replacing The Hydraulic Filter Element

The tools listed will be needed to do the following procedure:

MEL1183 – Filter Wrench

Replace the hydraulic filter element every 100 hours of loader operation.

To replace the filter element, use the following procedure:

Stop the engine. Open the rear door.

Clean the area around the filter housing.

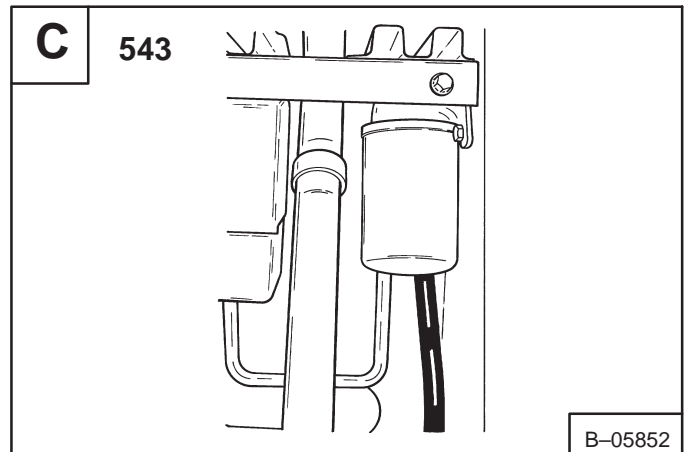
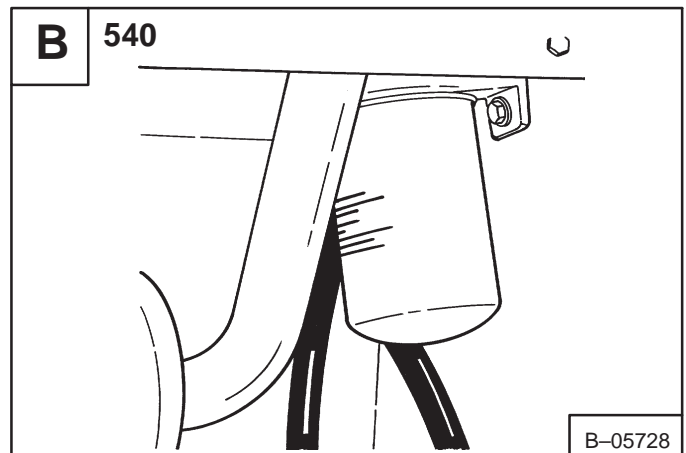
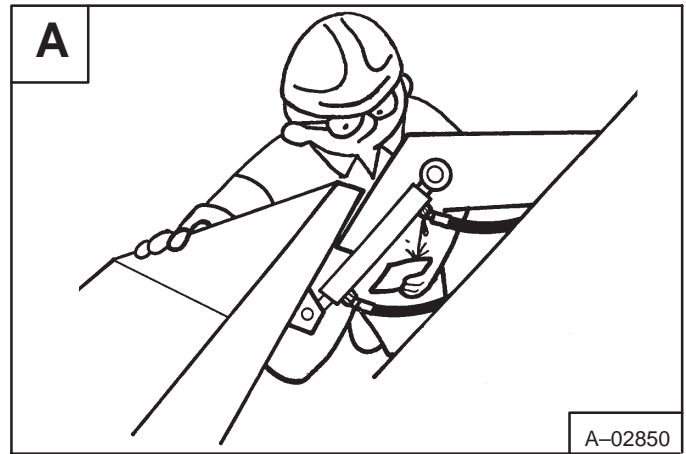
Remove the filter element [B] or [C] with the filter wrench.

Clean the surface of the filter housing head where the filter element seal contacts the filter housing.

Lubricate the rubber gasket with fluid.

Install the filter element and hand tighten only.

Operate the loader and check for leaks at the filter.





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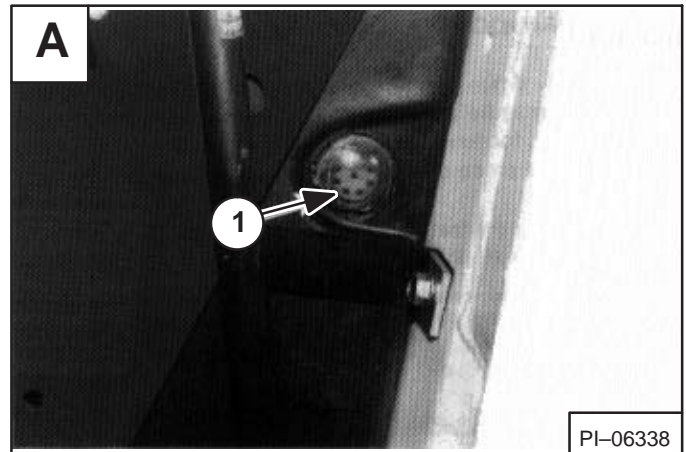
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1-6.2 Checking & Adding Hydraulic/Hydrostatic Fluid

Put the loader on a level surface, lower the lift arms and tilt the Bob-Tach fully back. Stop the engine.

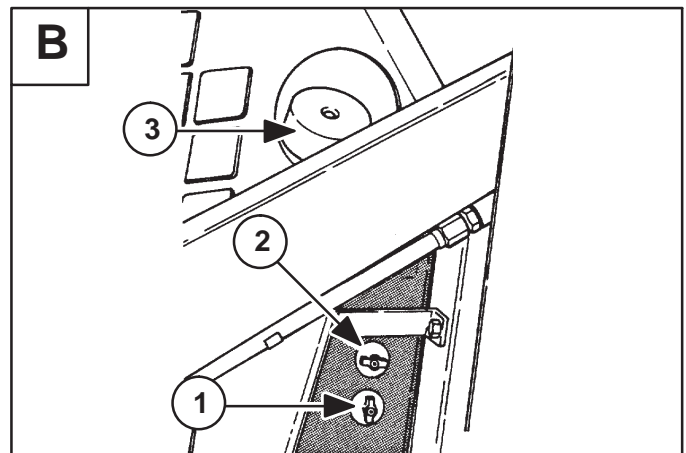
If your loader is equipped with a sight gauge, hydraulic fluid must show in sight gauge **[A]** (Item 1).



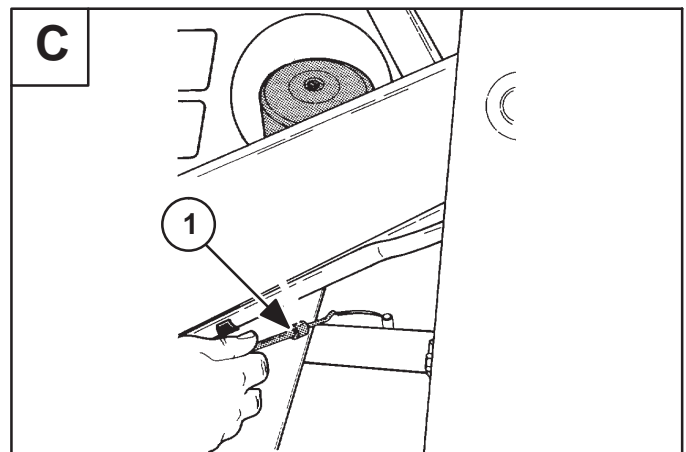
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If your loader is equipped with two check plugs, open the bottom check plug on the side of the reservoir **[B]** (Item 1). The level is good if the level of fluid is between the bottom and top check plug. If no fluid flows, close the check plug.

Open the top check plug **[B]** (Item 2). Remove the fill cap **[B]** (Item 3). Add fluid until it flows from the top check plug. Close the check plug and install the fill cap.



If your loader is equipped with a dipstick, remove the dipstick at the side of the reservoir **[C]** (Item 1). The fluid level is good if the fluid level is between the top and bottom mark on the dipstick.



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