



Bobcat®

Operation & Maintenance Manual

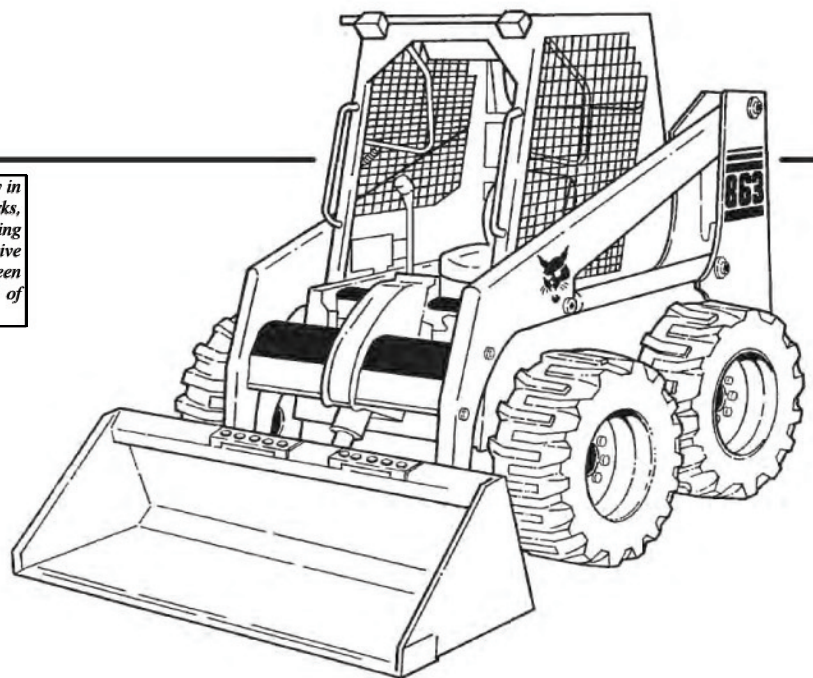
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**EQUIPPED WITH
BOBCAT INTERLOCK
CONTROL SYSTEM (BICS™)**



IR Bobcat®
Printed in U.S.A.

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OPTIONS AND ACCESSORIES

Bobcat loader Model 863 is equipped with the following Standard items:

- Bob-Tach
- Spark Arrestor Exhaust System (Turbo Charger)
- Lift Arm Support Device
- Operator Cab (with ROPS & FOPS Approval)
- Bobcat Interlock Control System (BICS™)
- Seat Belt
- Seat Bar
- Parking Brake
- Gauges/Warning Lights
- Glow Plug Preheat system
- Tires, 12–16.5, 10PR Bobcat Heavy Duty

Below is a list of some equipment available as a Factory Installed Option or as a Field Installed Accessory from your Bobcat Loader dealer. See your Bobcat dealer for other available accessories and attachments.

Tires

31 x 15.5–15, 8PR Ultra Grip Tread	Opt. & FA
8.25 x 15 Air Boss Segmented Tires	FA
12 x 16.5 Air Boss Segmented Tires	FA
8.00–16, Solid Tires	Opt. & FA
10 x 33, Bobcat Solid Tires	FA

Operator Cab

Sound Cab (Reduces Noise at Operator's Ear)	Opt.
Deluxe Cab	Opt. & FA
Operating Lights (Front & Rear)	Opt. & FA
Horn	FA
Back-up Alarm	Opt. & FA
Top Window	FA
Rear Window	FA
Cab Enclosure and Heater	Opt. & FA
Vinyl Cab Enclosure	FA
Hand Control Conversion	Opt. & FA
Cover Kit (Pedals Area)	FA
Cover Kit (Hydraulic Reservoir Area)	FA
Fire Extinguisher	FA
Flasher Lights	FA
Strobe or Rotating Beacon Light	FA
3" Seat Belt	FA
Special Applications Kit*	FA
Suspension Seat	Opt. & FA
Rear Window Wiper	FA
Large Operator Seat Bar Kit	FA

Opt. = Factory Installed Option
 FA = Field Accessory
 N/A = Not Available
 * Includes 1/2 inch Lexan Front Door; 1/4 inch Lexan Top & Rear Windows

Specifications subject to change without notice

Instrumentation

Bobcat Operation Sensing System (BOSS®)	Opt.
Keyless Start System	FA

Hydraulics

Front Auxiliary Hydraulics	Opt. & FA
Rear Auxiliary Hydraulics	Opt. & FA
Hydraulic Bucket Positioning (Includes On/Off Selection)	Opt. & FA
Hi Flow Hydraulics	Opt. & FA

Other

Catalytic Exhaust Purifier	Opt. & FA
Engine Heater (Oil Pan)	Opt. & FA
Single Point Lift or Four Point Lift	FA
Locking Fuel Cap	FA
Radiator Screen Kit	FA
Rear Door Bumpers	FA
Tailgate Lock	FA
Tool Box	FA
Counterweight Kit	Opt. & FA

OPERATING INSTRUCTIONS

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OPERATING INSTRUCTIONS

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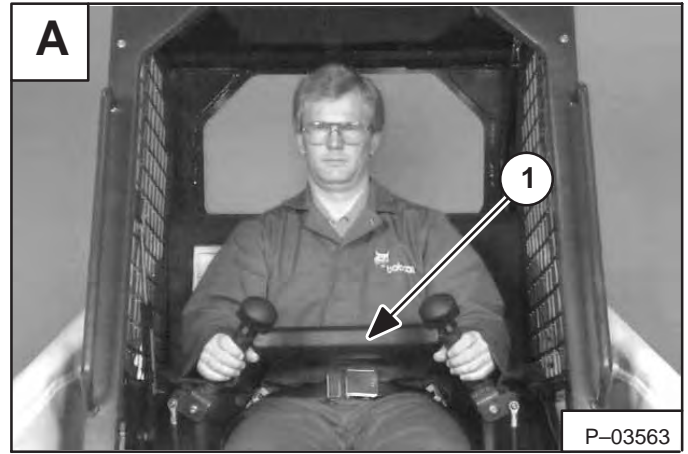
SEAT BAR RESTRAINT SYSTEM (MACHANICAL HAND CONTROLS)

The seat bar restraint system has a pivoting seat bar (Item 1) [A] with arm rests and has spring loaded interlocks for the lift and tilt control functions.

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 hand controls.

When the seat bar is up, the lift and tilt control functions are locked when returned to the NEUTRAL POSITION.



P-03563

! WARNING

AVOID INJURY OR DEATH

When operating the machine:

- Keep the seat belt fastened snugly.
- The seat bar must be lowered.
- Keep your feet on the foot rests.

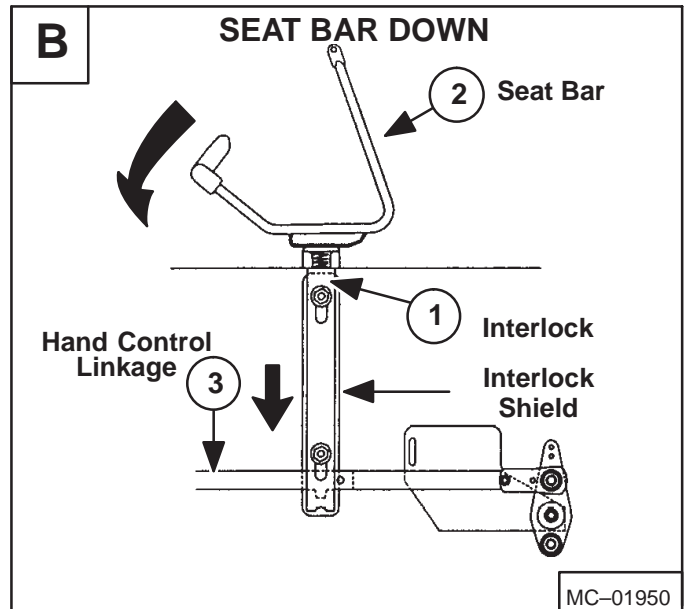
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Before you leave the operator's seat:

- Lower the lift arms, put the attachment flat on the ground.
- Stop the engine.
- Engage the parking brake.
- Raise seat bar, move hand controls until both lock.

The seat bar system must lock the lift and tilt control in neutral when the seat bar is up. Service the system if hand controls do not lock correctly.

W-2153-0594



MC-01950

The spring loaded interlocks (Item 1) [B] control the locking and unlocking functions of the hand controls.

The interlocks (Item 1) [B] require the operator to lower the seat bar (Item 2) [B] which allows the operator to move the hand controls to control the lift and tilt functions.

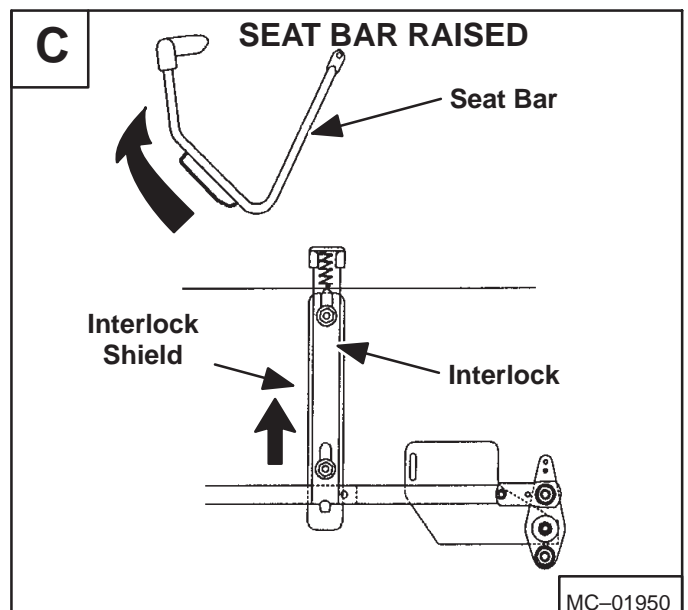
When the seat bar is lowered, it pushes the interlock (Item 1) [B] down on both sides, releasing the hand control linkages (Item 3) [B] from the interlocks.

The hand controls will pivot in both directions when the interlock is down.

When the seat bar is raised, spring forces raise the interlocks [C].

The hand controls will not function when the interlock is up.

Refer to *SEAT BAR RESTRAINT SYSTEM Inspecting The Seat Bar Page 46 and Maintaining The Seat Bar Page 46.*



MC-01950

STARTING THE ENGINE

! WARNING

When an engine is running in an enclosed area, fresh air must be added to avoid concentration of exhaust fumes. If the engine is stationary, vent the exhaust outside. Exhaust fumes contain odorless, invisible gases which can kill without warning [A].

W-2050-1285

AVOID INJURY OR DEATH

- Engines can have hot parts and hot exhaust gas. Keep flammable material away.
- Do not use machines in atmosphere containing explosive gas [A].

W-2051-1086

Normal Starting (Without BOSS®)

Adjust the seat position for comfortable operation of the foot pedals or hand controls and steering levers.

Fasten the seat belt snugly and adjust it so the buckle is centered between your hips.

Lower the seat bar [B].

Put the foot pedals or hand controls and steering levers in NEUTRAL POSITION (center) (Item 1) [C].

Set the engine speed control to the 1/2 SPEED position (Item 2) [C].

Turn the key switch to the ON POSITION. The engine and transmission warning lights will be ON when the key switch is on and the engine is stopped (Item 3) [C].

Turn the key switch to START POSITION (Item 4) [C] and release it when the engine starts. (See *Cold Temperature Starting* if the engine does not start.)

NOTE: Advanced Hand Controls Only: The hand controls must be in *neutral* before starting the engine. If the hand controls are not in *neutral*, the engine will start but lift and tilt hydraulic functions will not be able to be activated. Turn the key OFF and put hand controls in *neutral* position. Restart the engine.

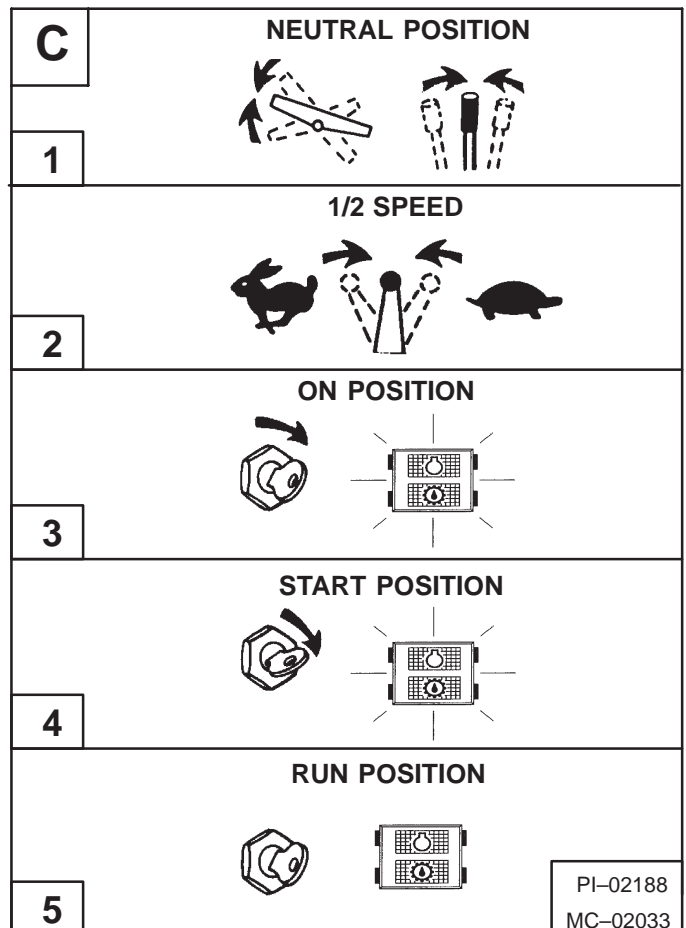
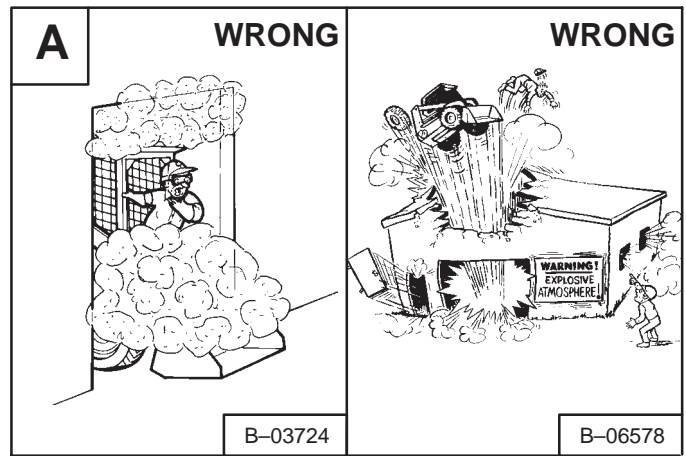
IMPORTANT

Do not engage the starter for longer than 15 seconds at a time. Longer use can damage the starter by overheating. Cool the starter for one minute between uses.

I-2034-0284

When you release the key, it will return to the RUN POSITION (Item 5) [C].

STOP THE ENGINE IF THE WARNING LIGHTS DO NOT GO OFF.



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OPERATING PROCEDURES (FOOT PEDALS) (Cont'd)

Backfilling

Lower the lift arms and put the cutting edge of the bucket on the ground. Drive forward to the edge of the hole to push the material into the hole [A].

Tilt the bucket forward as soon as it is past the edge of the hole [A].

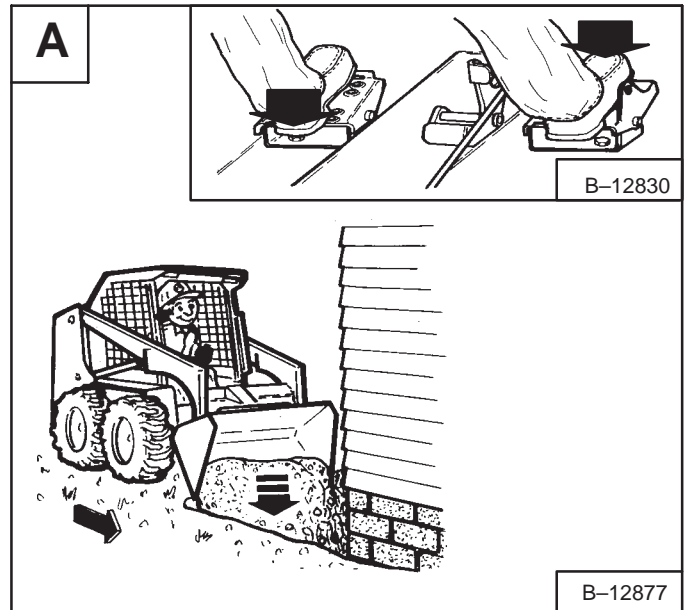
If necessary, raise the lift arms to empty the bucket.

PARKING THE BOBCAT LOADER

Stop the Bobcat loader on level ground.

Lower the lift arms fully and put the attachment flat on the ground.

Pull the engine speed control lever all the way backward. Turn the key switch to the OFF POSITION.



WARNING

AVOID INJURY OR DEATH

Before you leave the operator's seat:

- Lower the lift arms, put the attachment flat on the ground.
- Stop the engine.
- Engage the parking brake.
- Raise seat bar, move pedals until both lock.

W-2045-1086

Engage the parking brake.

Lift the seat bar and make sure the foot pedals are in the locked position.

Unbuckle the seat belt. Remove the key from the switch to prevent operation of the loader by unauthorized personnel.

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

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

SERVICE SCHEDULE		HOURS					
ITEM	SERVICE REQUIRED	8-10	50	250	500	1000	3000
Engine Oil	Check the oil level and add oil as needed.						
Engine Air Filter and Air System	Check condition indicator or display panel. Service only when required. Check for leaks and damaged components.						
Engine Cooling System	Clean debris from oil cooler radiator & grill. Check coolant level cold, add premixed coolant as needed.						
Lift Arms, Cyl., Bob-Tach Pivot Pins and Wedges	Lubricate with multi-purpose lithium based grease (12 places).						
Tires	Check for damaged tires and correct air pressure.						
Seat Belt, Seat Bar & Pedal Interlocks or Hand Control Interlocks	Check the condition of seat belt. Check the seat bar and foot pedal interlocks or hand control interlocks for correct operation. Clean dirt and debris from moving parts.						
Bobcat Interlock Control System (BICS™)	Check BICS™ functions. Clean dirt, debris or objects from under or behind seat and around brake pedal as required.						
Safety Signs and Safety Treads	Check for damaged signs (decals) and safety treads. Replace any signs or safety treads that are damaged or worn.						
Operator Cab	Check the fastening bolts, washers and nuts. Check the condition of cab.						
Fuel Filter	Remove trapped water.						
Hyd. Fluid, Hoses and Tubelines	Check fluid level & add as needed. Check for damage & leaks. Repair or replace as needed.						
Final Drive Trans.(Chaincase)	Check oil level.						
Battery	Check cables, connections and electrolyte level. Add distilled water as needed.						
Foot Pedals or Hand Controls and Steering	Check for correct operation. Repair or adjust as needed.						
Wheel Nuts	☐ Check for loose wheel nuts and tighten to 105-115 ft.-lbs. (142-156 Nm) torque.						
Parking Brake	Check operation of the brake.						
Alternator Belt	Check tension and adjust as needed.						
Engine/Hydro. Drive Belt	* Check for wear or damage. Check idler arm stop.						
Fuel Filter	Replace filter element.						
Steering Shaft	Grease three fittings.						
Hydraulic Reservoir Breather Cap	Replace the reservoir breather cap.						
Hyd./Hydro. Filter	● Replace the filter element.						
Engine Oil and Filter	† Replace oil and filter. Use CD or better grade oil and Bobcat filter.						
Final Drive Trans.	Replace the oil in the chaincase.						
Hydraulic Reservoir	Clean or replace the fluid.						
Hydraulic Motors	Clean or replace the case drain filters.						
Bobcat Interlock Control System (BICS™)	Check lift arm by-pass control.						
Fan Drive Gearbox	Check gear lube level.						
Engine Valves	∞ Adjust the engine valves.						
Engine Timing Belt	◇ Replace the timing belt and belt tensioner assy.						

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

● Also replace hydraulic/hydrostatic filter element when the transmission warning light comes ON.

■ Or every 12 months.

* Inspect the new belt after first 50 hours.

† First oil and filter change must occur at 50 hours, 500 hours thereafter.

∞ After the first 500 hours on new engine, adjust engine valves; 1000 hours thereafter. (See Service Manual for procedure.)

◇ Or every 5 years.

LIFT ARM SUPPORT DEVICE

Maintenance and service work can be done with the lift arms lowered. If the lift arms are raised, use the following procedures to engage and disengage an approved lift arm support device:

WARNING

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

W-2059-0991

WARNING

Service lift arm support device if damaged or if parts are missing. Using a damaged lift arm support or with missing parts can cause lift arms to drop causing injury or death.

W-2271-1197

Engaging The Lift Arm Support Device

Disconnect the spring from the lift arm support device retaining pin (Item 1) [A]. Support the lift arm support device (Item 2) [A] with your hand and remove the retaining pin.

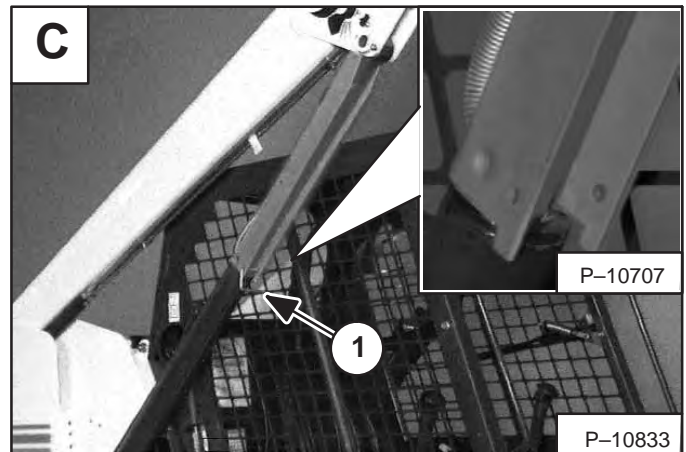
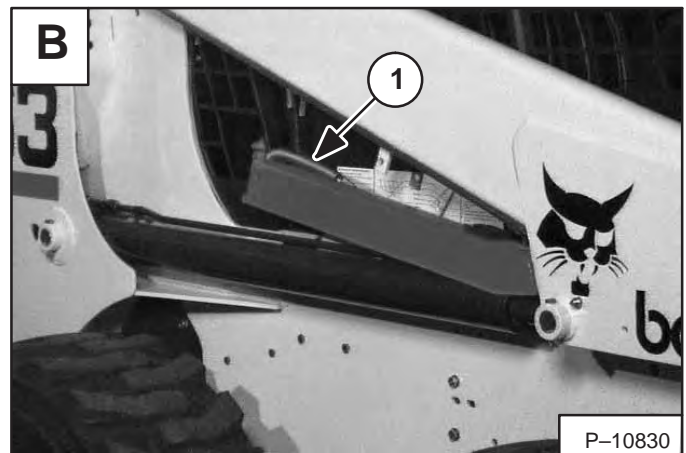
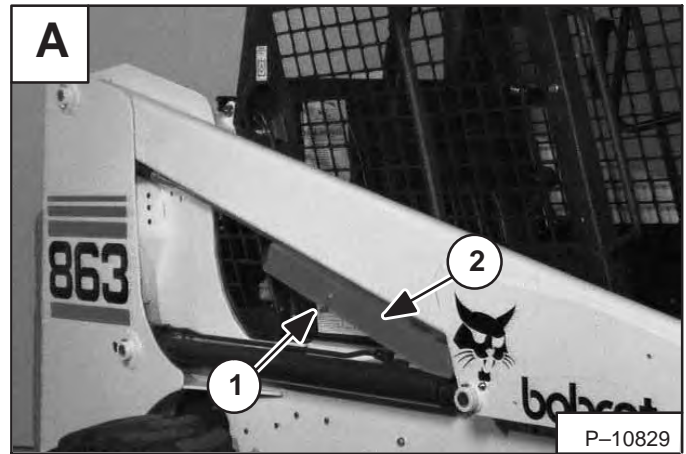
Lower the lift arm support device on top of the lift cylinder. Hook the free end of the spring (Item 1) [B] to the lift arm support device so there will be no interference with the support device engagement.

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

Raise the lift arms, until the lift arm support device drops onto the lift cylinder rod (Inset) [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 pin (Item 1) [C] into the rear of the lift arm support device below the cylinder rod.



ENGINE COOLING SYSTEM

Check the cooling system every day to prevent over-heating, loss of performance or engine damage.

Engine oil is used to provide both engine lubrication and cooling. No anti-freeze/water mixture is used for engine cooling.

It is important to check the engine oil level every day to maintain adequate engine lubrication and also engine cooling.

When engine oil is changed, only the oil in the engine oil pan and filter is replaced. Approximately 7 quarts (6.6 liters) of oil remains in the cooling system (hoses and radiator).

When changing engine oil, follow the procedures carefully for correct quantity.

Cleaning The Cooling System

Raise the rear grill [A].

Use air pressure or water pressure to clean the top of the hydraulic/hydrostatic oil cooler (Item 1) [A].

Remove the hair pin (Item 1) [B] (both sides) so the oil cooler can be raised.

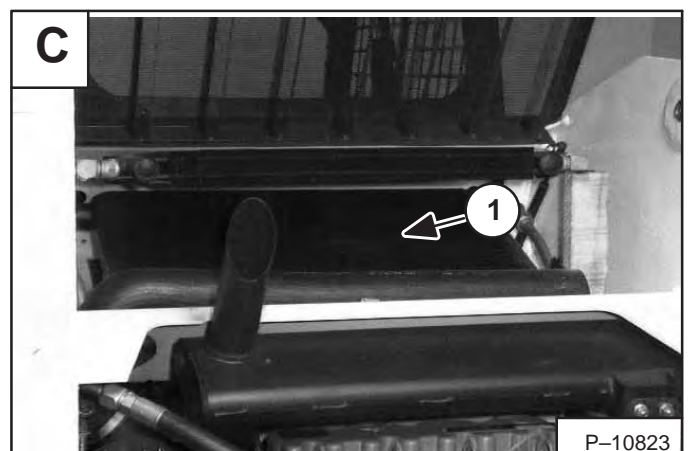
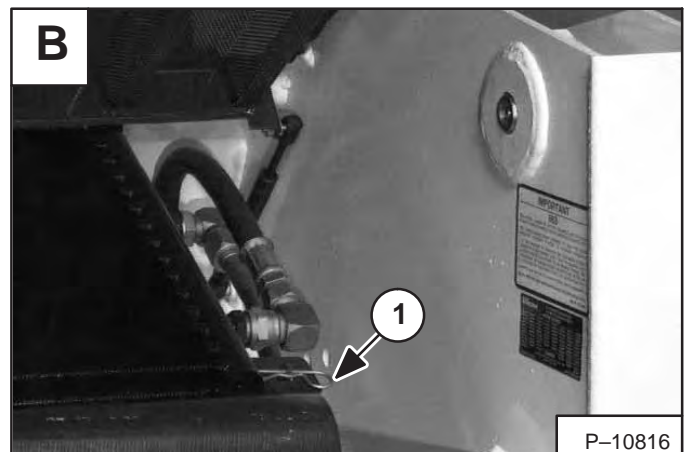
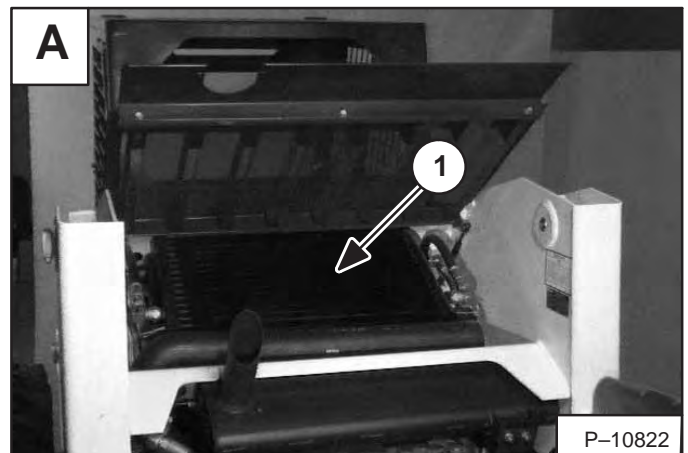
Raise the oil cooler. Use air pressure or water pressure to clean the top of the engine oil cooler (Item 1) [C].

WARNING

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- When fluids are under pressure.
- Flying debris or loose material is present.
- Engine is running.
- Tools are being used.

W-2019-1285



HYDRAULIC/HYDROSTATIC SYSTEM (Cont'd)

Replacing The Hydraulic Fluid

See the *SERVICE SCHEDULE* Page 41 for the correct service interval.

Replace the fluid if it becomes contaminated or after major repair.

Remove the fill cap. Remove the screen from the reservoir [A]. Wash the screen in clean solvent and air dry.

NOTE: Be sure the rubber gasket is installed on the fill cap.

Also replace the two hydrostatic motor case drain filters thoroughly after a major repair.

Raise the operator cab. (See *Raising the Operator Cab* Page 42.)

Disconnect the hose (Item 1) [B] from the hydraulic fluid reservoir and drain the fluid into a container.

Replace both hydrostatic motor case drain filters (Item 1) [C].

Install the case drain filters and tighten all the hoses.

Replace the two hydraulic/hydrostatic filter elements. (See Page 70.)

Add the correct fluid to the reservoir until the fluid level is between the marks on the dipstick. (See Page 70.) DO NOT fill above the top mark on the dipstick.

WARNING

Hydraulic fluid escaping under pressure can have sufficient force to enter a person's body by penetrating the skin and cause serious injury and possibly death if proper medical treatment by a physician familiar with this injury is not received immediately.

W-2145-0290

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.

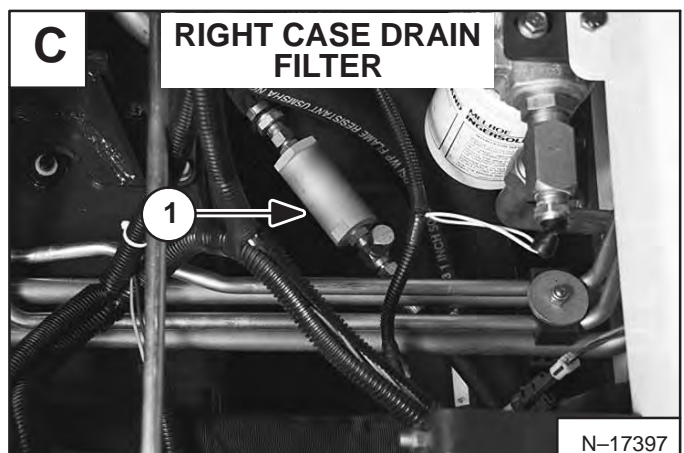
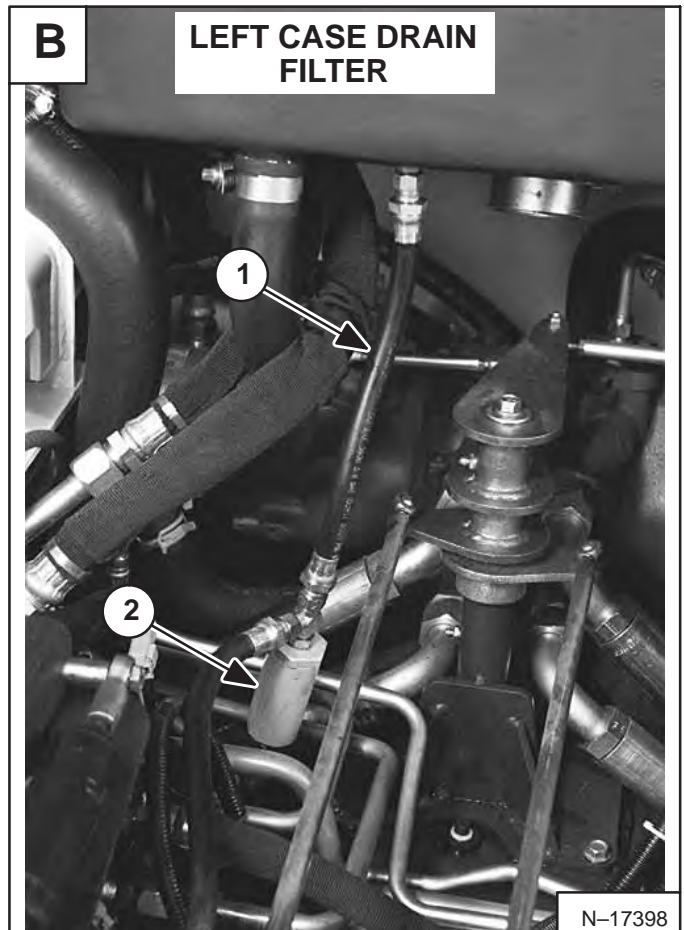
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Lower the operator cab.

Start the engine and operate the loader hydraulic controls.

Stop the engine and check for leaks.

Check the fluid level in the reservoir and add as needed.



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**MACHINE SIGN
TRANSLATIONS**

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