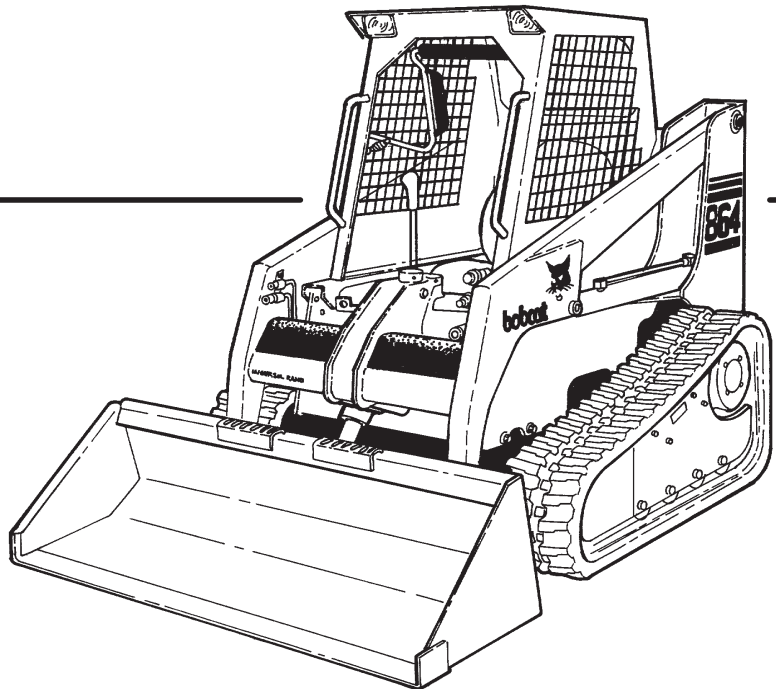




Service Manual

S/N 516911001 & Above



EQUIPPED WITH
BOBCAT INTERLOCK
CONTROL SYSTEM (BICS™)

MELROE
INGERSOLL-RAND



Product: Bobcat 864 High Flow Skid Steer Loader Service Repair Workshop Manual 516911001

Full Download: <https://www.arepairmanual.com/downloads/bobcat-864-high-flow>

[-skid-steer-loader-service-repair-workshop-manual-516911001/](https://www.arepairmanual.com/downloads/bobcat-864-high-flow-skid-steer-loader-service-repair-workshop-manual-516911001/)

Sample of manual. Download All 530 pages at:

<https://www.arepairmanual.com/downloads/bobcat-864-high-flow-skid-steer-loader-service-repair-workshop-manual-516911001/>

MAINTENANCE SAFETY



WARNING

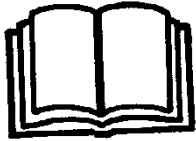
Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual, Operator's Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after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

W-2003-0903



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

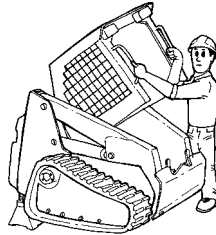
CORRECT



B-10731a

⚠ Never service the Bobcat Compact Track Loader without instructions.

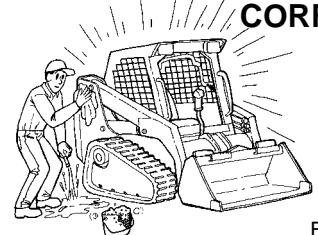
CORRECT



B-15248

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

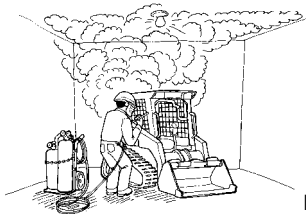
CORRECT



B-15247

⚠ Cleaning and maintenance are required daily.

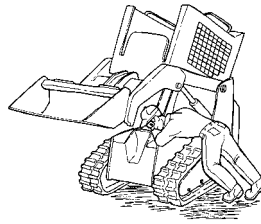
WRONG



B-15246

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

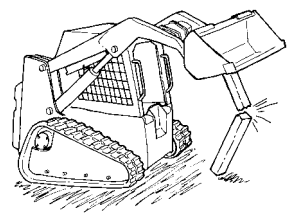
WRONG



B-15275

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

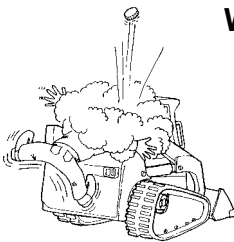
WRONG



B-15279

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

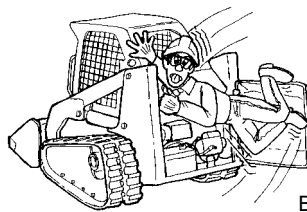
WRONG



B-15665

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

WRONG



B-15663

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

WRONG



B-6589

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

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

MSW06-0805



Bobcat®

ALPHABETICAL INDEX

ACTUATORS	10-1	FAN DRIVE TENSION PULLEY	7-1
ACTUATOR VOLTAGE TEST	10-1	FAN GEARBOX	7-1
A.H.C./PWM CONTROLLER	10-1	FLYWHEEL	7-1
A.H.C. HANDLE	10-1	FLYWHEEL HOUSING	7-1
A.H.C. STEERING LEVER	10-1	FRONT COVER	7-1
AIR CLEANER HOUSING	7-1	FRONT LIGHTS	6-1
AIR CLEANER SERVICE	7-1	FUEL INJECTOR	7-1
ALTERNATOR	6-1	FUEL INJECTION PUMP	7-1
ALTERNATOR BELT	6-1	FUEL SYSTEM	1-1
		FUEL TANK	5-1
BATTERY	6-1	GLOW PLUGS	7-1
BICS™	8-1	HANDLE CONTROL UNIT	10-1
BICS™ VALVE	2-1, 10-1	HANDLE CONTROL UNIT TEST	10-1
BLOWER FAN	7-1	HYDRAULIC CONNECTION SPECIFICATIONS	9-1
BLOWER HOUSING/FAN GEARBOX	7-1	HYDRAULIC CONTROL VALVE	2-1, 10-1
BICS™ SYSTEM CONTROLLER	8-1, 10-1	HYDRAULIC CYLINDER	2-1
BOB-TACH	5-1	HYDRAULIC FLUID RESERVOIR	2-1
BOSS® DIAGNOSTIC TOOL	8-1	HYDRAULIC PUMP	2-1
BOSS® INSTRUMENT PANEL	8-1	HYDRAULIC PUMP (Double Gear) 863H	2-1
BOSS® UNIT	8-1	HYDRAULIC SYSTEM INFORMATION	2-1
BRAKE BLOCK	4-1	HYDRAULIC/HYDROSTATIC FILTER HOUSING	2-1
BUCKET POSITION VALVE	2-1	HYDRAULIC/HYDROSTATIC FLUID SPECS	9-1
		HYDRAULIC/HYDROSTATIC SYSTEM	1-1
CAMSHAFT BEARINGS	7-1	HYDROSTATIC MOTOR	3-1
CHARGE PRESSURE	3-1	HYDROSTATIC PUMP	3-1
CHARGE PUMP	3-1	HYDROSTATIC SYSTEM INFORMATION	3-1
CONNECTING ROD	7-1	LIFT ARM BY-PASS CONTROL VALVE	2-1
CONTROL PEDALS	2-1	LIFT ARM BY-PASS CONTROL VALVE MOUNT BRACKET	2-1
CONTROL PANEL	3-1	LIFT ARMS	5-1
CONTROL ROD GUIDE BUSHING	7-1	LIFT ARM SUPPORT DEVICE	1-1
CRANKSHAFT	7-1	LIFT CYLINDER(S)	2-1
CRANKSHAFT GEAR MOUNTING BOLT	7-1	LIFTING AND BLOCKING THE LOADER	1-1
CROSSBAR LINKAGE	2-1	LOADER SPECIFICATIONS	9-1
CYLINDER HEAD	7-1	LUBRICATING THE LOADER	1-1
CYLINDER LINERS	7-1		
		MAIN RELIEF VALVE	2-1
DECIMAL & MILLIMETER EQUIVALENTS	9-1	MONITOR SERVICE CODE	8-1
DEUTZ ENGINE TOOLS	7-1	OIL COOLER	3-1, 7-1
DRIVE BELT	3-1	OPERATOR CAB	1-1 & 5-1
DRIVE BELT SHIELD	3-1	OPERATOR CAB GAS CYLINDER	5-1
DRIVE BELT TENSIONER PULLEY	3-1	OPERATOR SEAT	5-1
		PARKING BRAKE PEDAL	4-1
ELEC./HYD. CONTROLS REFERENCE	8-1	PEDAL INTERLOCK LINKAGE	2-1
ELECTRICAL SYSTEM INFORMATION	6-1	PISTON AND PISTON PIN	7-1
ENGINE	7-1	PWM CONTROL HANDLE	8-1
ENGINE COOLING SYSTEM	1-1	PWM ELECTRIC SOLENOID	8-1
ENGINE LUBRICATION SYSTEM	1-1	PWM MODULE	8-1
ENGINE MOUNTS	7-1	PWM TROUBLESHOOTING	8-1
ENGINE MUFFLER	7-1		
ENGINE SPECIFICATIONS	9-1	REAR AUXILIARY DEVERTER-864 STD. FLOW	2-1
ENGINE SPEED CONTROL	7-1	REAR COVER SEAL	7-1
ENGINE TORQUE	9-1	REAR DOOR	5-1
		REAR GRILL	5-1
		RECONDITIONING THE ENGINE	7-1
		RELAY SWITCHES	6-1
		REMOTE START SWITCH	1-1
		ROCKER ARM AND BRACKET	7-1
		RPM SENSOR	8-1

Continued On Next Page

ALPHABETICAL INDEX (Cont'd)

SEAT BAR	5-1
SEAT BAR RESTRAINT SYSTEM	1-1
SEAT BAR SENSOR	8-1
SELECT VALVE 864H	2-1
SENDER AND SENSOR	8-1
SERVICE SCHEDULE	1-1
STANDARD INSTRUMENT PANEL	6-1
STANDARD TORQUE SPECS. FOR BOLTS	9-1
STARTER	6-1
STEERING LEVERS	3-1
STEERING LINKAGE	3-1
SWITCH HANDLE	10-1
TILT CYLINDER	2-1
TIMING BELT	7-1
TRACTION LOCK	8-1
TOWING THE BOBCAT LOADER	1-1
TORQUE SPECIFICATIONS FOR LOADER	9-1
TRACK	4-1
TRACK DAMAGE IDENTIFICATION	4-1
TRACK HOUSING	4-1
TRACK IDLER (Front & Rear)	4-1
TRACK ROLLER	4-1
TRANSPORTING THE LOADER	1-1
TROUBLESHOOTING	2-1, 3-1, 6-1, 7-1 & 10-1
TROUBLESHOOTING THE BOSS® & L.C.D. DISPLAY	8-1
TURBOCHARGER	7-1
U.S. TO METRIC CONVERSION	9-1
VALVE CLEARANCE	7-1
VALVE TIMING	7-1
WIRING SCHEMATICS	6-1, 10-1

CONTENTS

FOREWORD	ii
SAFETY INSTRUCTIONS	v
SERIAL NUMBER LOCATIONS	vii
DELIVERY REPORT	vii
BOBCAT LOADER IDENTIFICATION	viii
PREVENTIVE MAINTENANCE	1-1
HYDRAULIC SYSTEM	2-1
HYDROSTATIC SYSTEM	3-1
DRIVE SYSTEM	4-1
MAIN FRAME	5-1
ELECTRICAL SYSTEM	6-1
ENGINE SERVICE	7-1
SYSTEMS ANALYSIS	8-1
SPECIFICATIONS	9-1
ADVANCED HAND CONTROL SYSTEM	10-1

**PREVENTIVE
MAINTENANCE**

**HYDRAULIC
SYSTEM**

**HYDROSTATIC
SYSTEM**

**DRIVE
SYSTEM**

**MAIN
FRAME**

**ELECTRICAL
SYSTEM**

**ENGINE
SERVICE**

**SYSTEMS
ANALYSIS**

SPECIFICATIONS

**ADVANCED
HAND CONTROL
SYSTEM**

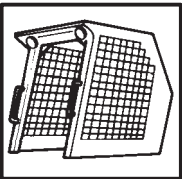


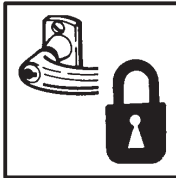
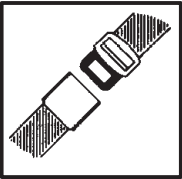
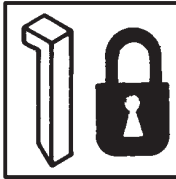
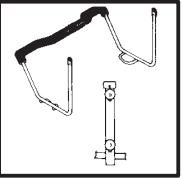
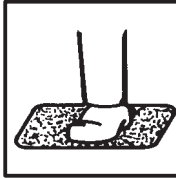
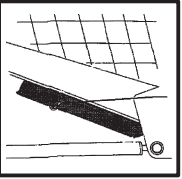
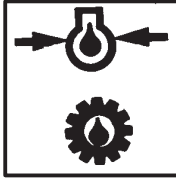


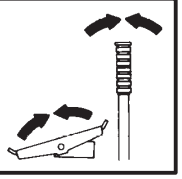
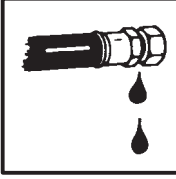


**CALIFORNIA
PROPOSITION 65 WARNING**

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

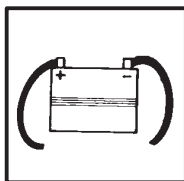
FOREWORD

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.

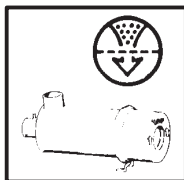
A general inspection of the following items must be made after the loader has had service or repair:

- | | | | |
|---|---|--|---|
| 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. |  |

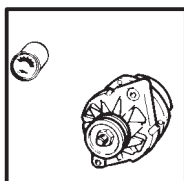
17. Check the condition of the battery and cables.



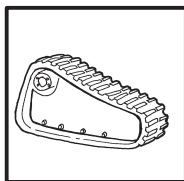
18. Inspect the air cleaner for damage or leaks. Check the condition of the element.



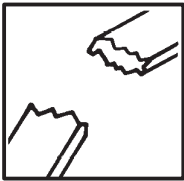
19. Check the electrical charging system.



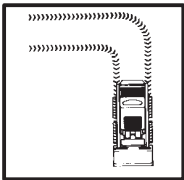
20. Check tracks for wear.



21. Inspect for loose or broken parts or connections.



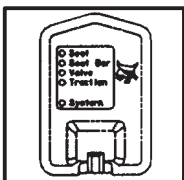
22. Operate the loader and check all functions.



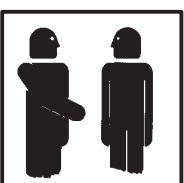
23. Check for any field modification not completed.



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-2003-0299

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.

WARNING

Warnings on the machine and in the manuals are for your safety. Failure to obey warnings can cause injury or death.

W-2044-1285

IMPORTANT

This notice identifies procedures which must be followed to avoid damage to the machine.

I-2019-0284



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

FIRE PREVENTION

The loader has several components that are at high temperature under normal operating conditions. The primary source of high temperatures is the engine and exhaust system. The electrical system, if damaged or incorrectly maintained, can be a source of arcs or sparks.

Flammable debris (leaves, straw, etc.) must be removed regularly. If flammable debris is allowed to accumulate, it will increase the fire hazard. The loader must be cleaned as often as necessary to avoid this accumulation. Flammable debris in the engine compartment is a fire hazard when the loader is parked with a hot engine.

The spark arrestor muffler is designed to control the emission of hot particles from the engine and exhaust system, but the muffler and the exhaust gases are still hot.

- 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.
- Do not use ether or starting fluids on this engine. It has 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 Manual for connecting the battery.
- Use the procedure in the Operation & Maintenance Manual for cleaning the spark arrestor muffler.
- Know where fire extinguishers and first aid kits are located and how to use them.

A fire extinguisher is available from your Bobcat 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 left upright, above the grill [A].

Explanation of loader Serial Number:

XXXX XXXXX



Module 2. – Production Sequence (Series)

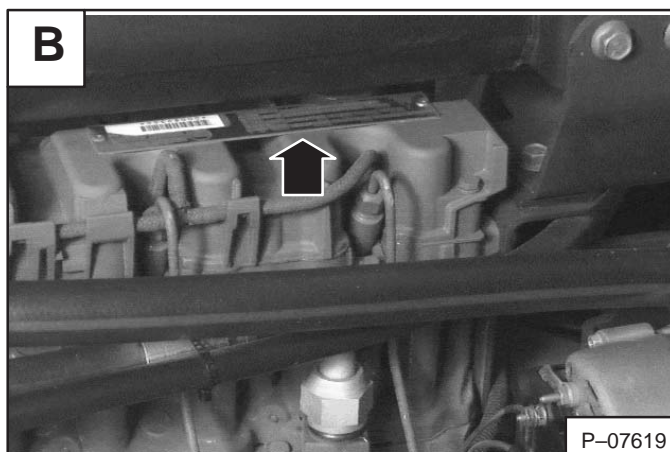
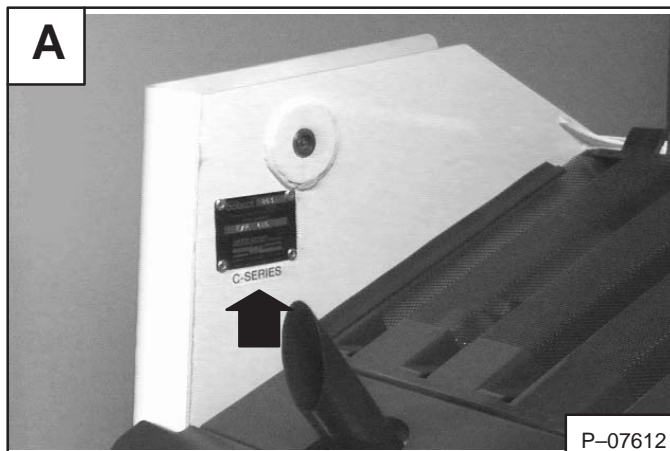
Module 1. – Model/Engine Combination

The four digit Model/Engine Combination module number identifies the model number and engine combination. This number (in parenthesis beside the model number) is used in the Service Manual to more easily identify the standard, optional and field accessory equipment included or available for each specific model.

The five digit Production Sequence Number identifies the order which the loader is produced.

ENGINE SERIAL NUMBER

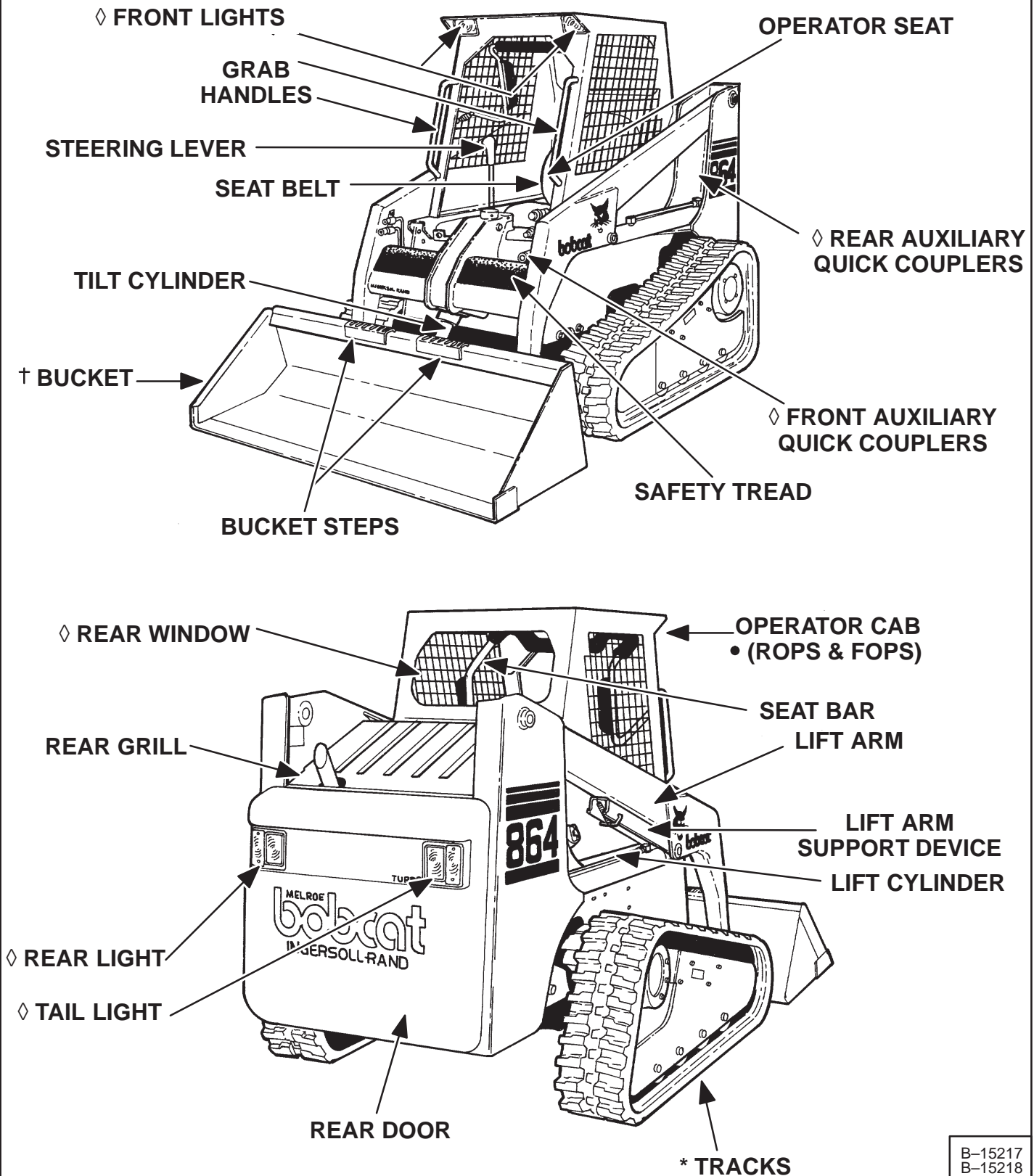
The serial number is located on the valve cover at the right side of the engine [B].



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 LOADER IDENTIFICATION



B-15217
B-15218

◇ OPTIONAL OR FIELD ACCESSORY (Not Standard Equipment)

† 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. Level II is available. The Bobcat loader is base-equipped with a standard operator cab as shown. Extra insulated cab is available as an option (Reduced noise level).

	Page Number
ENGINE COOLING SYSTEM	
Cleaning The Cooling System	1-18
ENGINE LUBRICATION SYSTEM	
Checking Engine Oil	1-17
Replacing The Oil And Filter	1-17
FUEL SYSTEM	
Filling the Fuel Tank	1-16
Fuel Filter	1-16
Fuel Specifications	1-16
Removing Air From The Fuel System	1-16
HYDRAULIC/HYDROSTATIC SYSTEM	
Checking And Adding Fluid	1-19
Hydraulic/Hydrostatic Filter Replacement	1-19
Replacing The Hydraulic Fluid	1-20
LIFT ARM SUPPORT DEVICE	
Disengaging The Lift Arm Support Device	1-9
Engaging The Lift Arm Support Device	1-8
LIFTING AND BLOCKING THE LOADER	
Procedure	1-4
LUBRICATING THE LOADER	
Procedure	1-21
OPERATOR CAB	
Description	1-12
Lowering The Operator Cab	1-13
Raising The Operator Cab	1-12
Emergency Exit	1-13
REMOTE START SWITCH	
Procedure	1-10
SEAT BAR RESTRAINT SYSTEM	
Description	1-14
Inspecting The Seat Bar	1-14
Maintaining The Seat Bar	1-14
SEAT BAR RESTRAINT SYSTEM (ADVANCED HAND CONTROLS)	
Description	1-15

Continued On Next Page

PREVENTIVE MAINTENANCE (Cont'd)

	Page Number
SERVICE SCHEDULE	
Chart	1-3
TOWING THE LOADER	
Procedure (Without Coupler)	1-6
Procedure (With Coupler)	1-7
TRANSPORTING THE BOBCAT LOADER	
Procedure	1-5

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 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

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).						
Seat Belt, Seat Bar and Pedal Interlocks	Check the condition of seat belt. Check the seat bar, and foot pedal interlocks for correct operation. Clean dirt and debris from moving parts.						
Bobcat Interlock Control System (BICS™)	Check BICS functions.						
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.						
Tracks	‡ Check for damaged tracks and correct tension.						
Fuel Filter	Remove the trapped water.						
Hyd. Fluid, Hoses & Tubelines	Check fluid level and add as needed. Check for damage and leaks. Repair and replace as needed.						
Battery	Check cables connections and electrolyte level. Add distilled water as needed.						
Foot Pedals or Hand Controls & Steering	Check for correct operation. Repair or adjust as needed.						
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.						
Hyd. Reservoir Breather Cap	Replace the reservoir breather cap.						
Hyd./Hydro. Filter	● Replace the filter element.						
Engine Oil and Filter	† Replace oil & filter. Use CD or better grade oil and Melroe filter.						
Hydraulic Reservoir	Clean or replace the fluid.						
Hydrostatic Motors	Clean or replace the case drain filters.						
Hydrostatic Motor Carrier	Replace oil. Use SAE 10W-40.						
Bobcat Interlock Control System (BICS™)	Check lift arm by-pass control.						
Fan Drive Gearbox	Check gear lubrication level.						
Engine Valves	∞ Adjust the engine valves.						
Track Rollers and Idlers	Replace oil. Use SAE 10W-40. (Rollers-70cc, Idlers-100cc)						
Engine Timing Belt	◇ Replace the timing belt and belt tensioner assy.						

● 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.

† Replace break-in filter and engine oil at 50 hours on a new loader; 100 hours thereafter.

∞ After the first 500 hours on new engine, adjust engine valves; 1000 hours thereafter. (See Page 7-1 for procedure.)

◇ Or every 5 years.

‡ Check every 8-10 hours for the first 50 hours. Then at 50 hour intervals.

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

Read the Removal & Installation, Disassembly & Assembly, etc. completely to become familiar with the procedure before beginning [A].

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 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 [C].

NOTE: Make sure the jackstands do not touch the tracks. Make sure tracks clear floor or any obstacles.

A



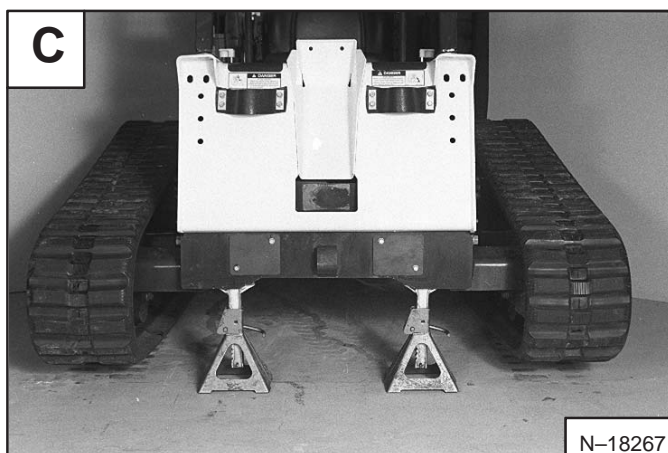
B-07023

B



N-18271

C



N-18267

TRANSPORTING THE BOBCAT LOADER

Procedure



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

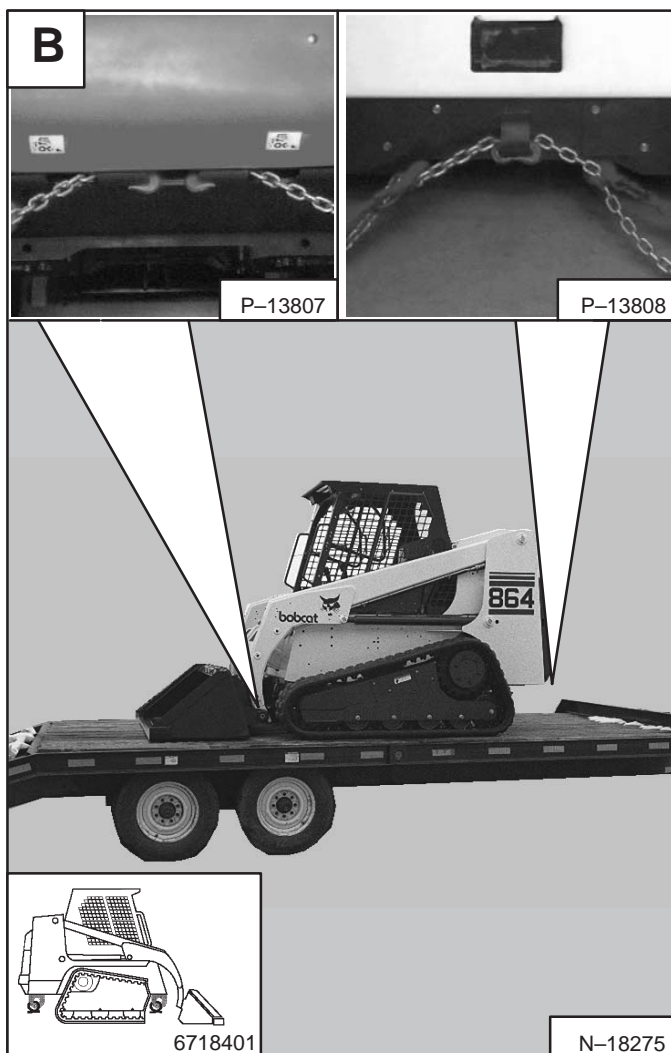
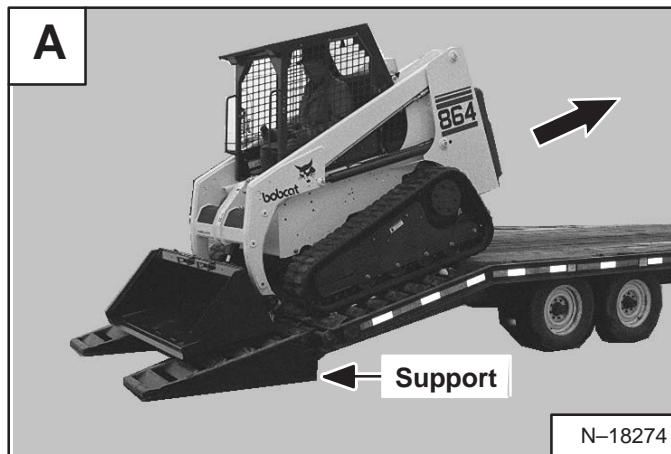
A loader with an empty bucket or no attachment must be loaded backward onto the transport vehicle [A].

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

Be sure the transport and towing vehicles are of adequate size and capacity (See *SPECIFICATIONS* Section Page 9-1, for weight of loader.)

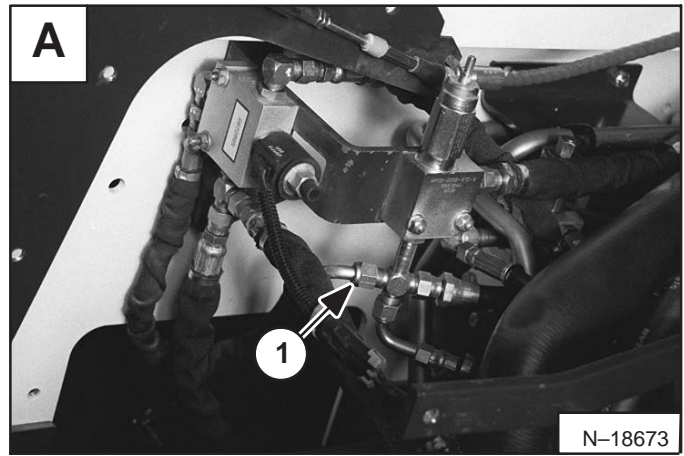
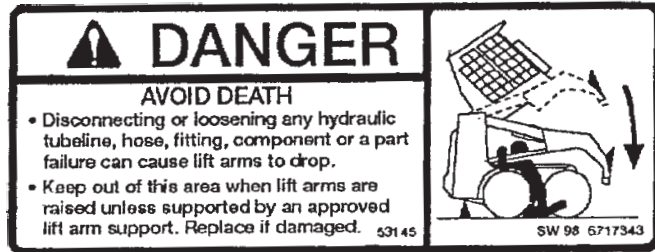
Use the following procedure to fasten the Bobcat loader to the transport vehicle to prevent the loader from moving during sudden stops or when going up or down slopes [B].

Lower the bucket or attachment to the floor. Stop the engine. Engage the parking brake. Install chains at the front and rear loader tie down positions [B]. Fasten each end of the chain to the transport vehicle.



TOWING THE LOADER

Procedure (Without Coupler)



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

Remove the hydraulic hose (Item 1) **[A]** from the lift arm by-pass valve.

Cap the fitting on the lift arm by-pass valve.

Connect a Port-a-Power to the hydraulic hose (Item 1) **[A]**.


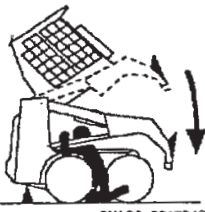
Operate the Port-a-Power to 400 PSI (2758 kPa) to release the brake.


Lower the operator cab and tow the loader.

Before operating the loader again, disconnect the Port-a-Power and connect all hydraulic hoses.

TOWING THE LOADER (Cont'd)

Procedure (With Coupler)

 DANGER	
AVOID DEATH	
<ul style="list-style-type: none">• Disconnecting or loosening any hydraulic tubeline, hose, fitting, component or a part failure can cause lift arms to drop.• Keep out of this area when lift arms are raised unless supported by an approved lift arm support. Replace if damaged.	
53145	SW 98 6717343

 WARNING
<p>Never work on a machine with the lift arms up unless the lift arms are secured by an approved 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.</p>
W-2059-0598

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

Disengage the parking brake solenoid valve by pushing **IN** on the red Traction Lock By-Pass Knob (Item 1) **[A]** and turning it **1/4 TURN counterclockwise**. The knob will come out to release the solenoid valve.

Connect a Port-a-Power to the coupler (Item 1) **[B]**.

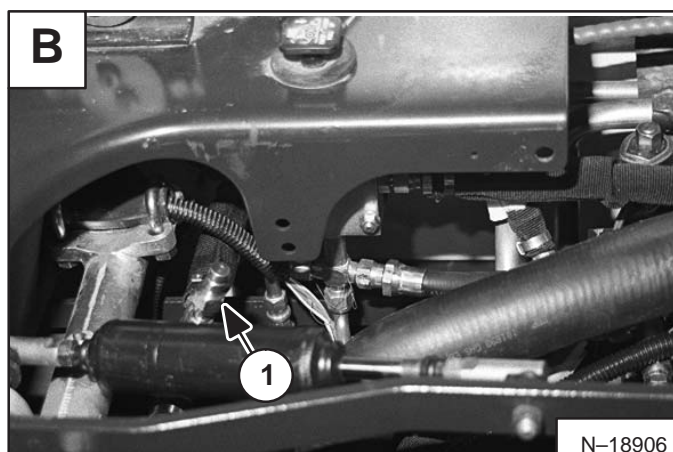
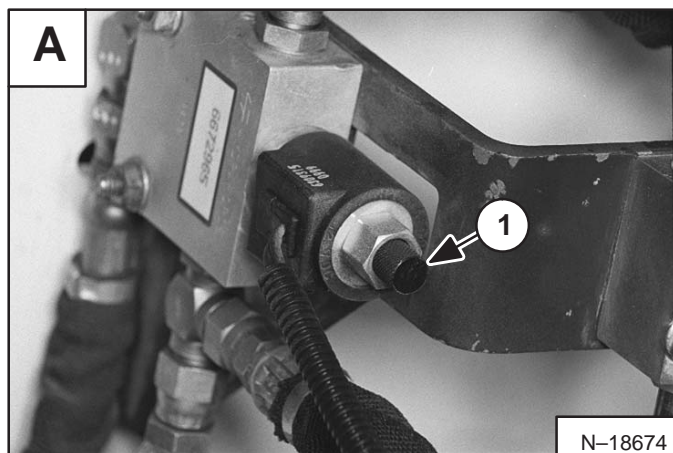
Operate the Port-a-Power to 400 PSI (2758 kPa) to release the brake **[C]**.

Lower the operator cab and tow the loader.

Before operating the loader again, disconnect the Port-a-Power.

Engage the parking brake solenoid valve, by pushing **IN** on the red Traction Lock By-Pass Knob (Item 1) **[A]** and turning it **1/4 TURN clockwise**.

 WARNING
<p>Unexpected loader movement. Can cause serious injury or death.</p>
<p>Push in and turn red Traction Lock By-Pass Knob clockwise to engaged position before operating loader.</p>
<p>Read Operation & Maintenance Manual for more instructions.</p>
6803932



LIFT ARM SUPPORT DEVICE



WARNING

Never work on a machine with the lift arms up unless the lift arms are secured by an approved 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-2059-0598

Engaging The 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 procedure to install the lift arm support device:

Install jackstands under the rear of the loader frame.

Disconnect the spring from the pin (Item 1) [A]. Hold the lift arm support device (Item 2) [A] up and remove the 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 it does not interfere with the support device engagement.

Sit in the seat, fasten the seat belt and lower the seat bar.

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 foot pedals until both lock.

Exit the cab.

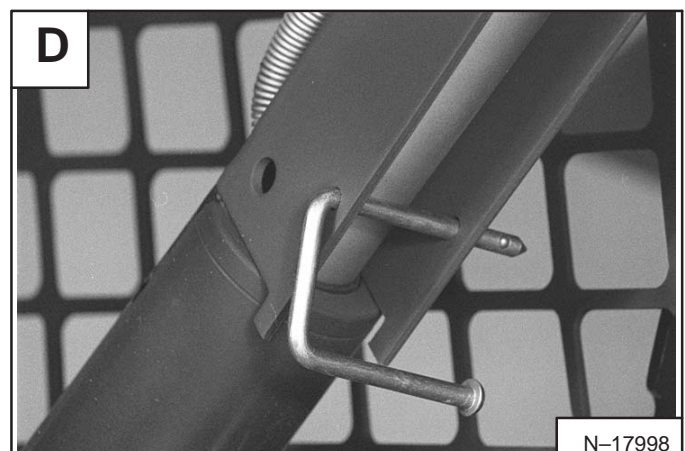
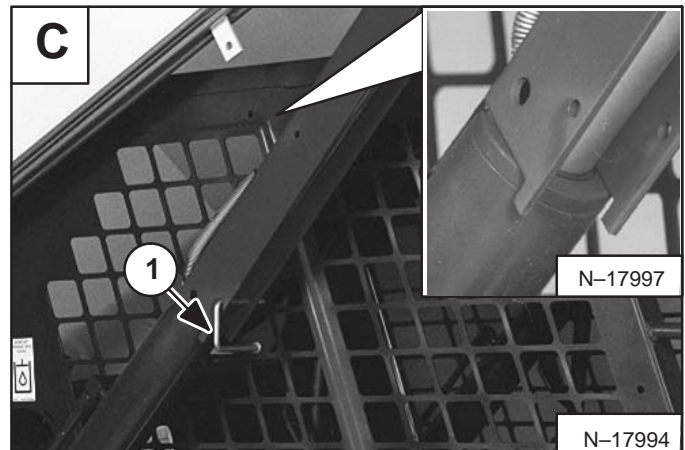
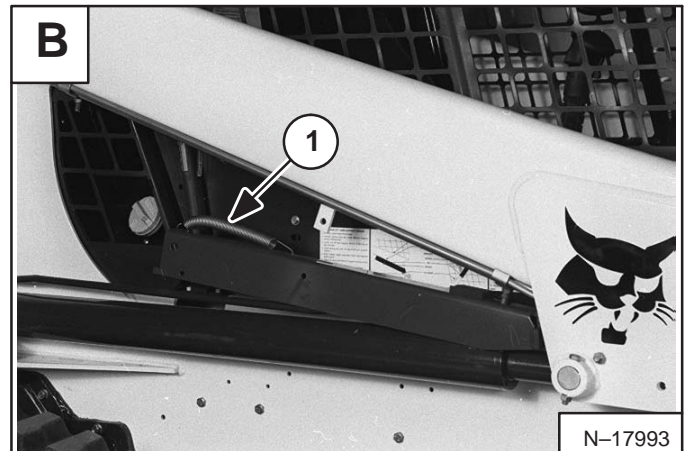
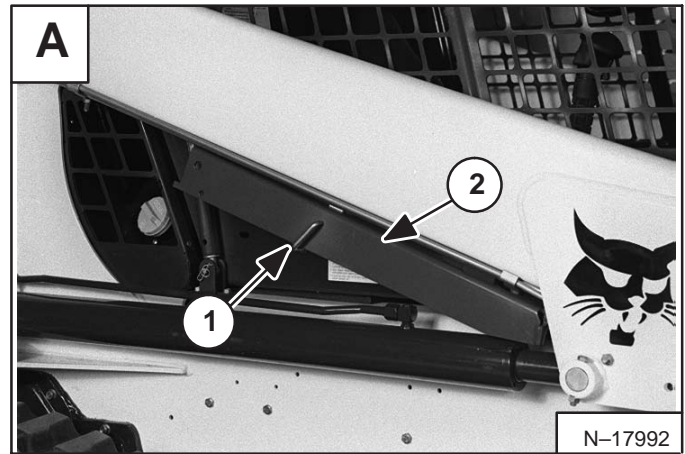
Install pin (Item 1) [D] into the rear of the lift arm support device below the cylinder rod.



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



LIFT ARM SUPPORT DEVICE (Cont'd)

Disengaging The Lift Arm Support Device

Remove the pin from the lift arm support device.

Connect the spring (Item 1) **[A]** from the lift arm support device to the bracket below the lift arms.

Enter the cab.

Sit in the seat, fasten the seat belt and lower the seat bar.

Start the engine.

Raise the lift arms a small amount and the spring will lift the support device off the lift cylinder rod **[A]**.

Lower the lift arms.

Stop the engine.

Raise the seat bar.

(Foot Pedal controls) Move both pedals until both lock.

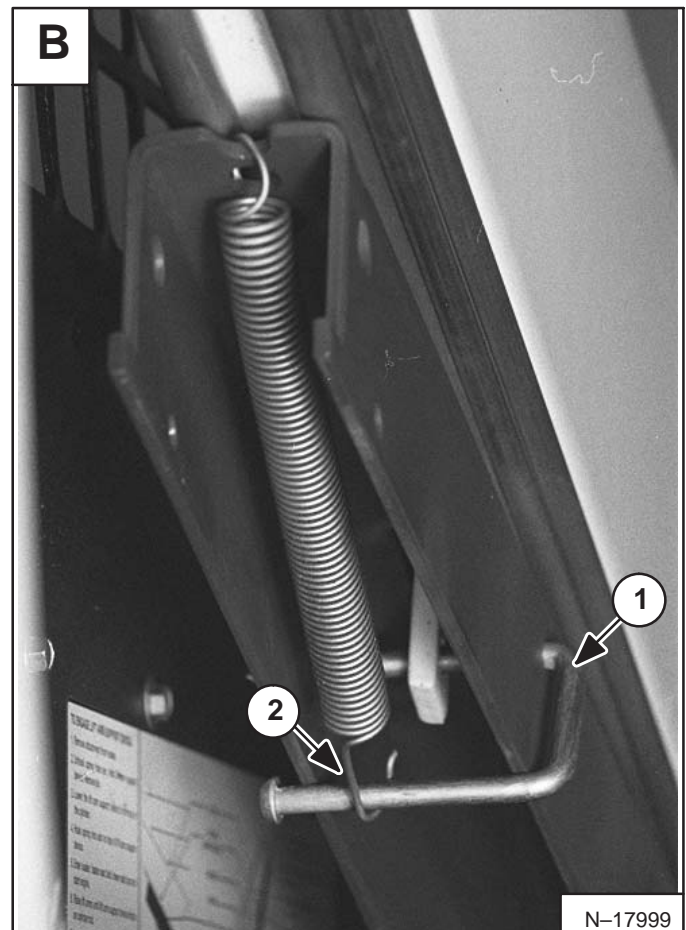
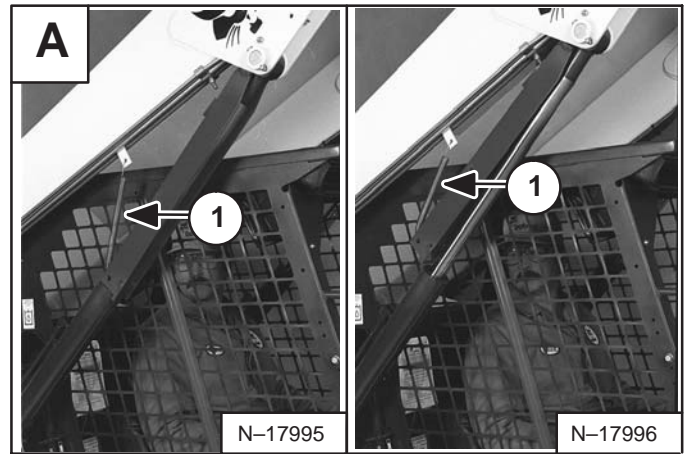
(Advanced Hand Controls) Move the hand controls to the NEUTRAL POSITION to make sure that both lift and tilt functions are deactivated.

Exit the cab.

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) **[B]**.

Connect spring to pin (Item 2) **[B]**.



REMOTE START SWITCH

Procedure

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

MEL1429 A – Remote Start Switch

The Remote Start Switch is required when the service technician is adjusting the steering linkage, checking the hydraulic/hydrostatic system.

Lift and block the loader. (See Page 1–4.)

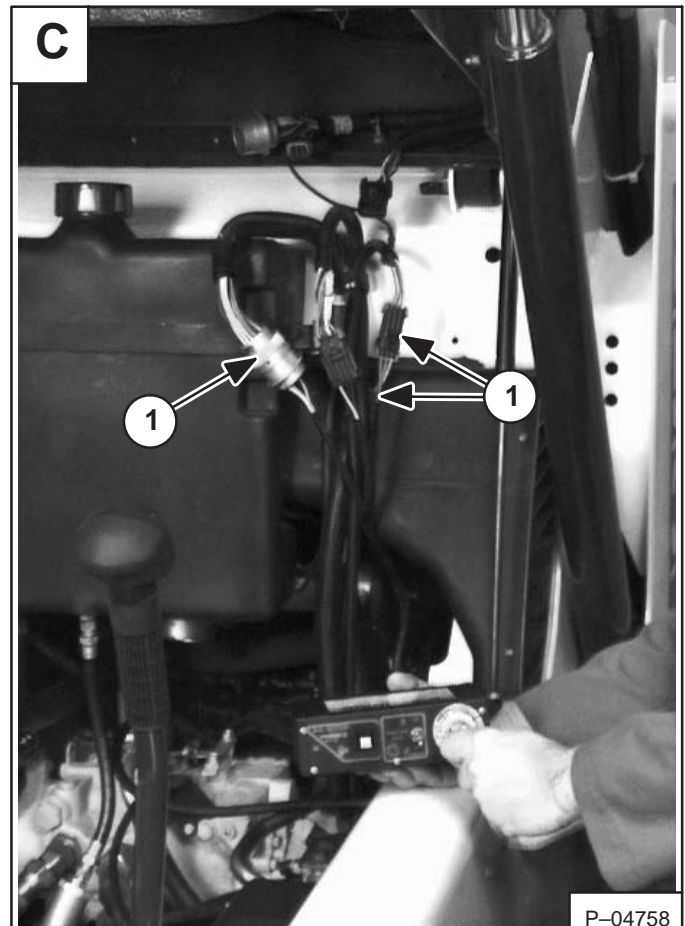
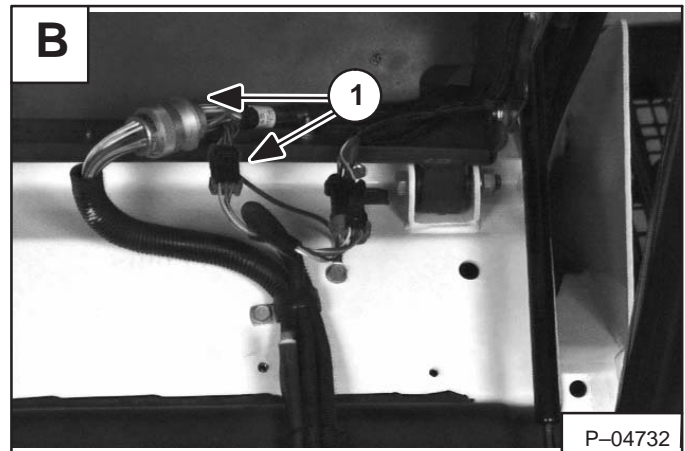
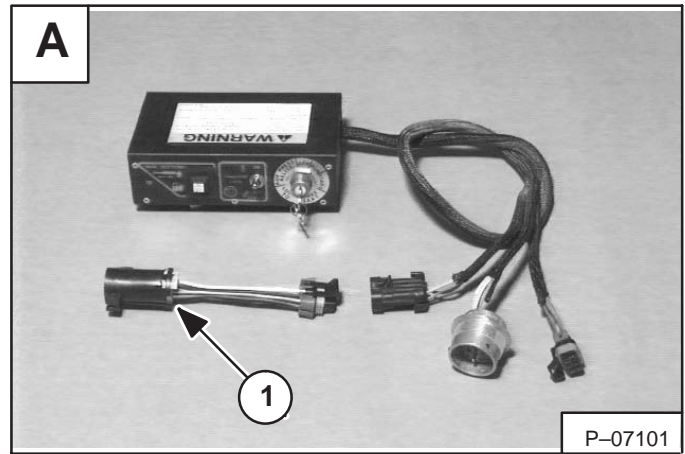
Raise the lift arms and install an approved lift arm support device. (See Page 1–7.)

Raise the operator cab. (See Page 1–11.)

NOTE: On current model loaders, the connector on the BICS harness is round (7-pin) connector, not a rectangular (8-pin) connector. Use the adapter harness (Item 1) [A] to connect the remote start switch to the loader harness.

Disconnect the operator cab wire harness (Item 1) [B] from the engine wire harness.

Connect the remote start switch to the engine harness connectors (Item 1) [C].



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



WARNING

Never work on a machine with the lift arms up unless the lift arms are secured by an approved 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.

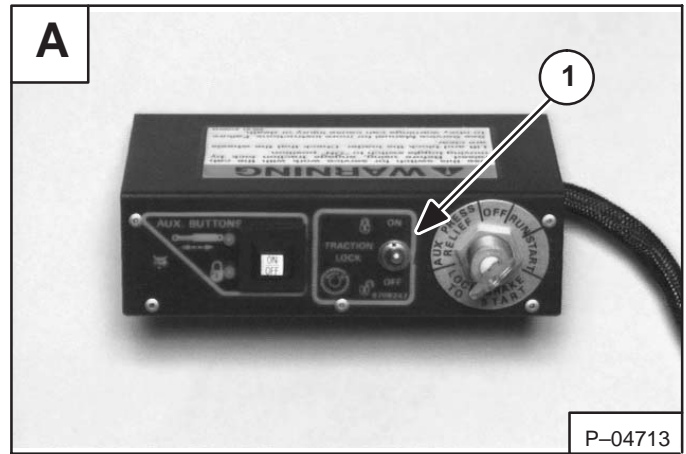
W-2059-0598

REMOTE START SWITCH (Cont'd)

Procedure (Cont'd)

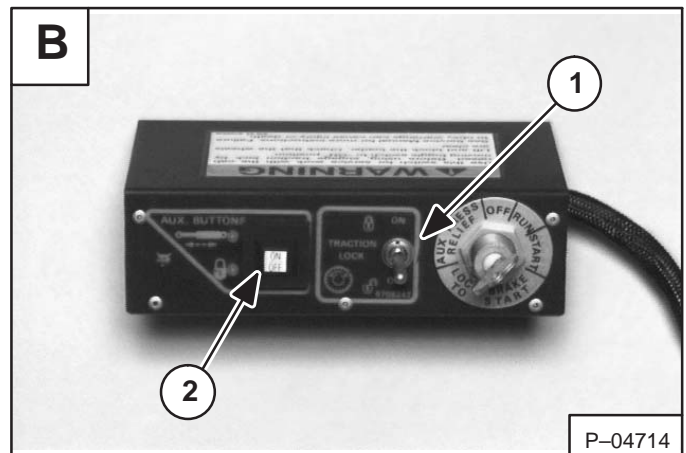
Put the traction lock override switch (Item 1) **[A]** in the ON position so the traction function is locked. The wheels are not able to turn.

Turn the key to the right and start the engine.



Move the traction lock override switch (Item 1) **[B]** to the OFF position so the traction function is unlocked. The wheels are now able to turn.

The auxiliary mode switch (Item 2) **[B]** is used to turn the front auxiliary quick couplers ON and OFF during relief pressure and flow tests.



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.



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

ROPS/FOPS – Roll-Over Protection Structure per SAE J1040 and ISO 3471, and Falling Object Protective Structure per SAE J1043 and ISO 3449, Level I. Level II is available.

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

LEVEL II – Protection from falling trees, rocks; for machines involved in site clearing, overhead demolition or forestry.

Raising The Operator Cab

Stop the loader on a level surface. Lower the lift arms. If the lift arms must be up while raising the operator cab, install the lift arm support device. (See Page 1-7.)

Loosen the nut (both sides) at the front corner of the operator cab **[A]**.

Remove the nut and plate (both sides) **[B]**.

Lift on the grab handle and bottom of the operator cab. Raise slowly until the cab latching mechanism engages and the cab is all the way up **[C]**.

IMPORTANT

Use care when raising or lowering the operator cab to prevent damaging the shaft of the lift lock by-pass valve.

I-2070-0495



OPERATOR CAB (Cont'd)

Lowering The Operator Cab

NOTE: Make sure the seat bar is fully raised or lowered when lowering the cab.

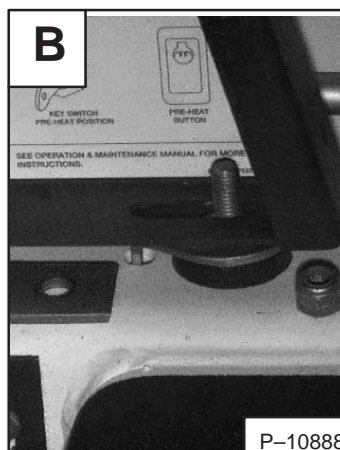
Push the rear window out of the rear of the operator cab.

Pull down on the bottom of the operator cab until it stops at the latching mechanism. Release the latching mechanism and pull the cab all the way down **[A]**.



Install the plate and nut (both sides) **[B]**.

Tighten the nuts to 40–50 ft.-lbs. (54–68 Nm) torque.



Emergency Exit

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

To exit through the rear window, use the following procedure:

Pull on the tag on the top of the rear window to remove the rubber cord **[C]**.



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

Exit through the rear of the operator cab **[D]**.



OPERATOR CAB (Cont'd)

Emergency Exit (Cont'd)

NOTE: When an Operator Cab Enclosure Kit (optional) is installed, the window of the front door can be used as an emergency exit [A].

Pull the plastic loop at the top of the window in the front door.

Push the window out with your foot.

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.



WARNING

AVOID INJURY OR DEATH

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

W-2105-1285

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. 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 foot pedal. Pedals must be firmly locked in neutral position. There must be no motion of the lift arms or tilt (bucket) when the pedals are pushed.

Pull the seat bar down, lower the lift arms. Operate the lift pedals. While the lift arms are going up, raise the seat bar and the lift arms should stop.

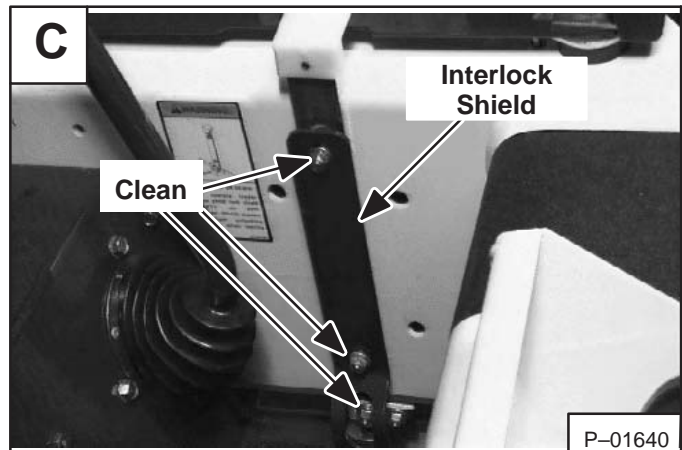
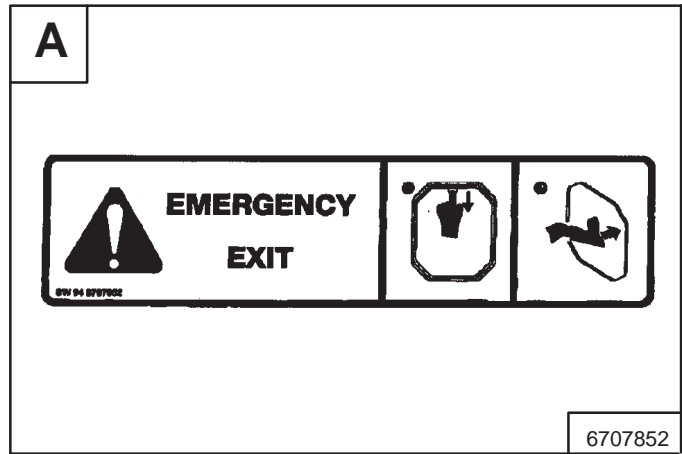
Lower the seat bar, lower the lift arms and place the bucket flat on the ground. Stop the engine. Raise the seat bar and operate the foot pedals to be sure that the pedals are firmly locked in the neutral position. Unbuckle the seat belt.

Maintaining The Seat Bar

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

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





WARNING

AVOID INJURY OR DEATH

Never operate loader without pedal lock shield 6705474 on both interlocks. Shields prevent foot from unlocking interlocks when leaving loader seat.

W-2162-1194

SEAT BAR RESTRAINT SYSTEM (ADVANCED HAND CONTROLS)

Description

The seat bar restraint system has a pivoting seat bar (Item 1) [A] with arm rests.

The operator controls the use of the seat bar. The seat bar in the down position helps to keep the operator in the seat.

When the seat bar is down, and the green *PRESS TO OPERATE* Button is activated, the lift, tilt, and traction drive functions can be operated.

When the seat bar is up, the lift, tilt, and traction drive functions are deactivated.



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.

W-2179-0694

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 the hand controls to the **NEUTRAL POSITION** to make sure that both lift and tilt functions are deactivated.

The seat bar system must deactivate the lift and tilt control functions when the seat bar is up. Service the system if hand controls do not deactivate.

W-2302-0698

See *SEAT BAR RESTRAINT SYSTEM Inspection & Maintenance*, Page 1-13.

FUEL SYSTEM

Fuel Specifications

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

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.

Filling the Fuel Tank



WARNING

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

W-2063-0887

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

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 [A].

Fuel Filter

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

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

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

To replace the fuel filter element, use a filter wrench to remove the filter element [C].

Clean the area around the filter housing. Put oil on the seal of the new filter element. Install the fuel filter, and hand tighten. Remove the air from the fuel system.

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 prior to starting the engine.

Loosen the air vent plug (Item 2) [C] at the top of the fuel filter.

Operate the priming bulb (Item 3) [C] until fuel flows from the vent.

Tighten the air vent plug.

