Bobcat®

Operation & Maintenance Manual

Dealer Copy -- Not for Resale

S70

Skid-Steer Loader

S/N A3W611001 & Above
S/N A3W711001 & Above
S/N B38V11001 & Above

6986660enUS (12-18) (R)

Printed in U.S.A.

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NA T4-K

OPERATOR SAFETY WARNINGS

WARNING

Operator must have instructions before operating the machine. Untrained operators can cause injury or death.

W-2001-0502

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

CORRECT

P-90216

Never use the loader without instructions. See machine signs (decals), Operation & Maintenance Manual, and Operator's Handbook.

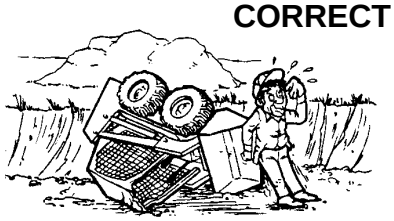
CORRECT

B-7403

Always use the seat bar and fasten seat belt snugly.

Always keep feet on the foot pedals or footrests when operating loader.

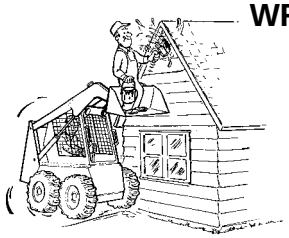
CORRECT



B-6582

Never use loader without operator cab with ROPS and FOPS approval. Fasten your seat belt.

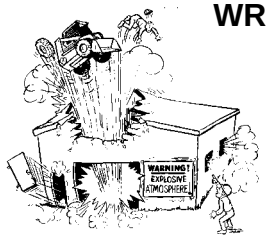
WRONG



B-13418

Never use loader as man lift or elevating device for personnel.

WRONG



B-6578

Do not use loader in atmosphere with explosive dust, explosive gas, or where exhaust can contact flammable material.

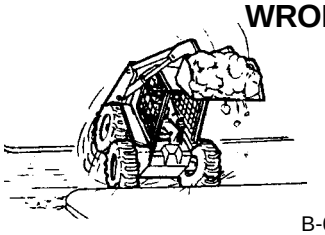
WRONG

B-6585

Never carry riders.

Keep bystanders away from work area.

WRONG



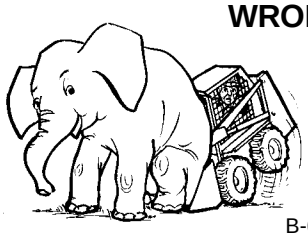
B-6595

Always carry bucket or attachments as low as possible.

Do not travel or turn with lift arms up.

Load, unload, and turn on flat level ground.

WRONG



B-6587

Never exceed Rated Operating Capacity.

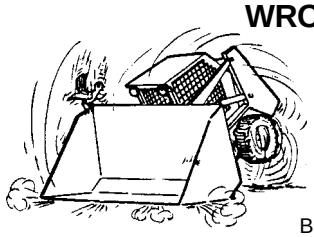
WRONG

B-6594

Never leave loader with engine running or with lift arms up.

To park, engage parking brake and put attachment flat on the ground.

WRONG



B-6591

Never modify equipment.

Use only attachments approved by Bobcat Company for this model loader.

SAFETY EQUIPMENT

The Bobcat® loader must be equipped with safety items necessary for each job. Ask your Bobcat dealer for information on the availability and safe use of attachments and accessories.

1. **SEAT BELT: Check belt fasteners and check for damaged webbing or buckle.**
2. **SEAT BAR: When up, it must lock the loader controls.**
3. **OPERATOR CAB (ROPS and FOPS): It must be on the loader with all fasteners tight.**
4. **OPERATOR'S HANDBOOK: Must be in the cab.**
5. **SAFETY SIGNS (DECALS): Replace if damaged.**
6. **SAFETY TREADS: Replace if damaged.**
7. **GRAB HANDLES: Replace if damaged.**
8. **LIFT ARM SUPPORT DEVICE: Replace if damaged.**
9. **PARKING BRAKE**
10. **BOBCAT INTERLOCK CONTROL SYSTEM (BICS)**

OSW03-0117

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CONTENTS

REFERENCE INFORMATION

Write the correct information for YOUR Bobcat loader in the spaces below. Always use these numbers when referring to your Bobcat loader.

Loader Serial Number _____

Engine Serial Number _____

NOTES:

_____

_____

_____

_____

YOUR BOBCAT DEALER:

_____

ADDRESS:

_____

PHONE:

_____

Bobcat Company
P.O. Box 128
Gwinner, ND 58040-0128
UNITED STATES OF AMERICA

Doosan Bobcat EMEA s.r.o.
U Kodetky 1810
263 12 Dobris
CZECH REPUBLIC

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FOREWORD

This Operation & Maintenance Manual was written to give the owner / operator instructions on the safe operation and maintenance of the Bobcat loader. READ AND UNDERSTAND THIS OPERATION & MAINTENANCE MANUAL BEFORE OPERATING YOUR BOBCAT LOADER. If you have any questions, see your Bobcat dealer. This manual may illustrate options and accessories not installed on your loader.

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BOBCAT COMPANY IS IS0 9001 CERTIFIED

ISO 9001 is an international standard that specifies requirements for a quality management system that controls the processes and procedures which we use to design, develop, manufacture, and distribute Bobcat products.

British Standards Institute (**BSI**) is the Certified Registrar Bobcat Company chose to assess the company's compliance with the ISO 9001 at Bobcat's manufacturing facilities in Gwinner, North Dakota (U.S.A.), Pontchâteau (France), and the Bobcat corporate offices (Gwinner, Bismarck, and West Fargo) in North Dakota. **TÜV Rheinland** is the Certified Registrar Bobcat Company chose to assess the company's compliance with the ISO 9001 at Bobcat's manufacturing facility in Dobris (Czech Republic). Only certified assessors, like BSI and TÜV Rheinland, can grant registrations.

ISO 9001 means that as a company we say what we do and do what we say. In other words, we have established procedures and policies, and we provide evidence that the procedures and policies are followed.

REGULAR MAINTENANCE ITEMS

	ENGINE OIL FILTER (6 Pack) 6657635		BREATHER CAP 7025626
	FUEL FILTER 6667352		BATTERY 7269859
 	AIR FILTER, Outer 6672467 AIR FILTER, Inner 6672468		FLUID, Hydraulic / Hydrostatic 6903117 - (2.5 U.S. gal) 6903118 - (5 U.S. gal) 6903119 - (55 U.S. gal)
	HYDROSTATIC FILTER 6677652		ANTI-FREEZE, Propylene Glycol 6983128 - Premixed 6983129 - Concentrate
ENGINE OIL 7023080 7023076 6903109 7023082 7023078 6903111	 SAE 15W40 CE/SG (12 qt) SAE 10W30 CE/SG (12 qt) SAE 30W CE/SG (12 qt) SAE 15W40 CE/SG (2.5 U.S. gal) SAE 10W30 CE/SG (2.5 U.S. gal) SAE 30W CE/SG (2.5 U.S. gal)	**ENGINE OIL** 7023081 7023077 6903110	 SAE 15W40 CE/SG (1 U.S. gal) SAE 10W30 CE/SG (1 U.S. gal) SAE 30W CE/SG (1 U.S. gal)

NOTE: Always verify Part Numbers with your Bobcat dealer.

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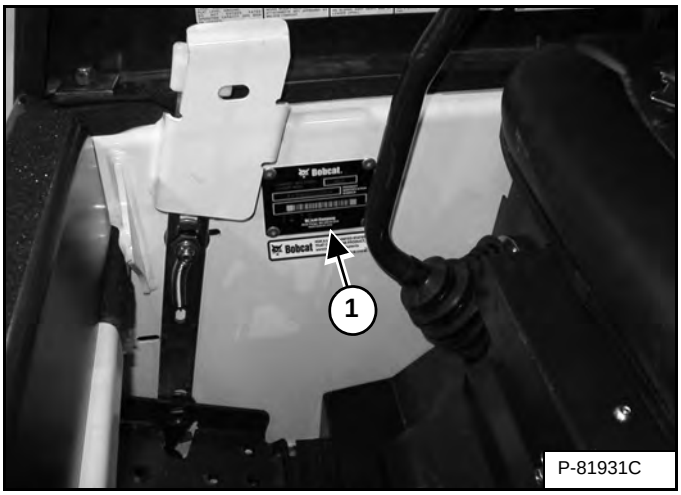
SERIAL NUMBER LOCATIONS

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

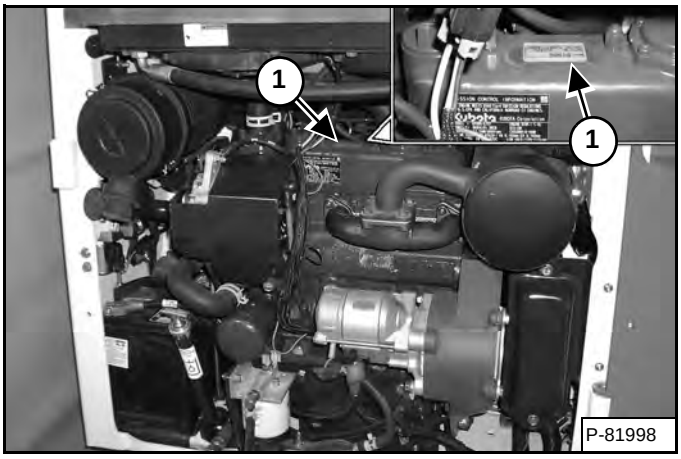
Figure 1



The loader serial number plate (Item 1) **[Figure 1]** is located inside the cab on the right-hand side.

Engine Serial Number

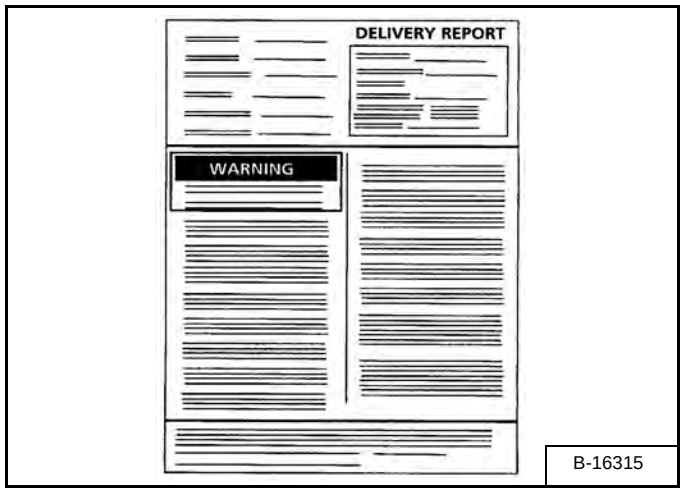
Figure 2



The engine serial number is located on top of the engine (Item 1) **[Figure 2]**.

DELIVERY REPORT

Figure 3



The delivery report **[Figure 3]** contains a list of items that must be explained or shown to the owner or operator by the dealer when the Bobcat loader is delivered.

The delivery report must be reviewed and signed by the owner or operator and the dealer.

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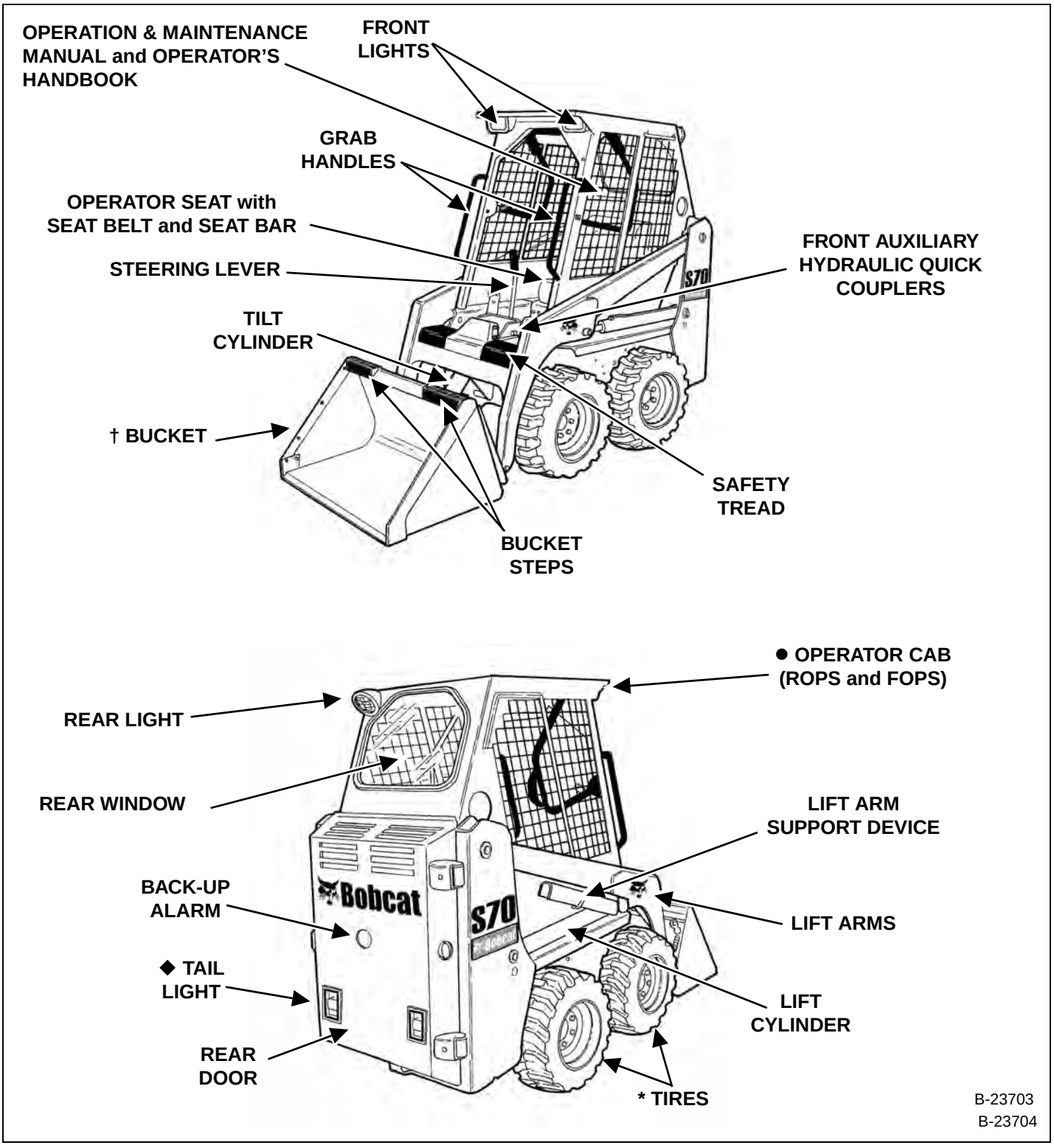

◆ OPTIONAL OR FIELD ACCESSORY (Not Standard Equipment).

* TIRES - Bobcats are base-equipped with standard tires.

† BUCKET - Several different buckets and other attachments are available for the Bobcat Loader.

● ROPS - Roll-Over Protective Structure per ISO 3471 and FOPS - Falling-Object Protective Structure per ISO 3449, Level I.

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FEATURES, ACCESSORIES AND ATTACHMENTS

Standard Items

Model S70 Bobcat loaders are equipped with the following standard items:

- Adjustable Cushion Seat
- Auxiliary Hydraulics, Front
- Bobcat Interlock Control System (BICS™)
- Bob-Tach®
- Front Horn / Back-up Alarm
- Instrumentation: Hourmeter, Engine Temperature and Warning Lights
- Lift Arm Support Device
- Lights, Front and Rear
- Operator Cab (ROPS and FOPS [Level I] Approved)
- Parking Brake
- Rear Window
- Seat Bar
- Seat Belt
- Spark Arrester Exhaust System
- Tires (Bobcat Standard Duty, 23 x 5.70 - 12, 4 PR)
- Work Lights - Rear

Options And Accessories

Below is a list of some equipment available from your Bobcat Loader dealer as Dealer and / or Factory Installed Accessories and Factory Installed Options. See your Bobcat dealer for other available options, accessories and attachments.

- Adjustable Suspension Seat
- Attachment Control Kit
- Cab Door
- Cab Enclosure
- Cab Heater
- Catalytic Exhaust Purifier
- Dual Steering Damper
- Engine Heater
- Extended Pedals
- GPS System
- Hydraulic Bucket Positioning (Includes On/Off Selection)
- Keyless Start
- Lift Kit (For lifting entire loader)
- Locking Fuel Cap and Cover
- Rear Stabilizer Kit
- Rental Kit (Monitors Temperature and Pressure [Engine Oil and Hydraulic Oil])
- Rotating Beacon
- Seat Belt - 3 in. Wide
- Sound Reduction Kit (Reduces noise at operator ear)
- Special Applications Kit
- Strobe Light
- Tires:
  Bobcat Heavy Duty, 23 x 8.50 - 12, 6 PR
- Tool Container
- Vinyl Cab Enclosure
- Warning Lights: Four-Way Flasher (Includes Direction Signals)
- Windows
  Externally Removable Rear Window
  Polycarbonate Rear Window
  Side Windows
  Top Window

Specifications subject to change without notice and standard items may vary.

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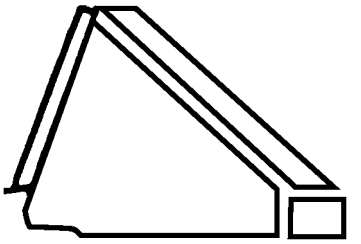
These and other attachments are approved for use on this model loader. Do not use unapproved attachments. Attachments not manufactured by Bobcat may not be approved.

The versatile Bobcat Loader quickly turns into a multi-job machine with a tight-fit attachment hook-up … from bucket to grapple to pallet fork to backhoe and a variety of other attachments.

See your Bobcat dealer for information about approved attachments and attachment Operation & Maintenance Manuals.

Increase the versatility of your Bobcat Loader with a variety of bucket styles and sizes.

Buckets Available


BUCKET

Many bucket styles, widths and different capacities are available for a variety of different applications. They include Construction & Industry, Low profile, Fertilizer and Snow, to name a few. See your Bobcat dealer for the correct bucket for your Bobcat Loader and application.

Attachments

- Angle Broom
- Auger
- Backhoe
- Blades
  - Utility Blade
  - V-Blade
- Boring Unit
- Buckets
- Digger
- Dumping Hopper
- Grapple
  - Industrial
  - Root
  - Utility
- Hydraulic Breaker
- Landplane
- Pallet Fork
- Scraper
- Snowblower
- Soil Conditioner
- Stump Grinder
- Sweeper
- Tiller
- Trencher
- Utility Forks
- Vibratory Plow
- X-Change™ Frame

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WARNING

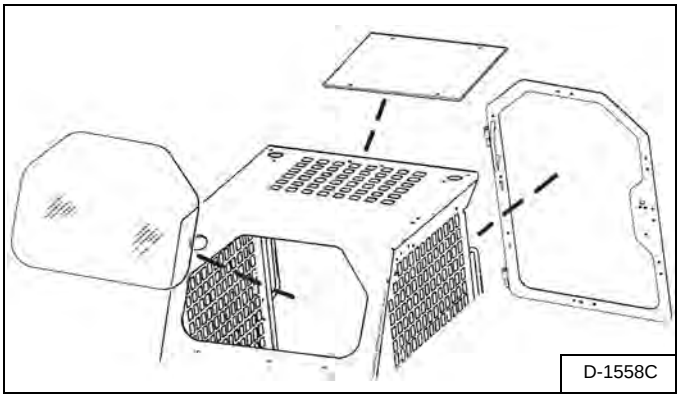
AVOID INJURY OR DEATH

Some attachment applications can cause flying debris or objects to enter front, top or rear cab openings. Install the Special Applications Kit to provide added operator protection in these applications.

W-2737-0508

Special Applications Kit

Figure 4



Available for special applications to restrict material from entering cab openings. Kit includes 12,7 mm (0.5 in) thick polycarbonate front door, 6,4 mm (0.25 in) thick polycarbonate top and rear windows **[Figure 4]**.

See your Bobcat dealer for availability.

Special Applications Kit Inspection And Maintenance

- Inspect for cracks or damage. Replace if required.
- Pre-rinse with water to remove gritty materials.
- Wash with a mild household detergent and warm water.
- Use a sponge or soft cloth. Rinse well with water and dry with a clean soft cloth or rubber squeegee.
- Do not use abrasive or highly alkaline cleaners.
- Do not clean with metal blades or scrapers.

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SAFETY AND TRAINING RESOURCES

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SAFETY INSTRUCTIONS

Before Operation

Carefully follow the operating and maintenance instructions in this manual.

The Bobcat loader is highly maneuverable and compact. It is rugged and useful under a wide variety of conditions. This presents an operator with hazards associated with off highway, rough terrain applications, common with Bobcat loader usage.

The Bobcat loader has an internal combustion engine with resultant heat and exhaust. All exhaust gases can kill or cause illness so use the loader with adequate ventilation.

The dealer explains the capabilities and restrictions of the Bobcat loader and attachment for each application. The dealer demonstrates the safe operation according to Bobcat instructional materials, which are also available to operators. The dealer can also identify unsafe modifications or use of unapproved attachments. The attachments and buckets are designed for a Rated Operating Capacity (some have restricted lift heights). They are designed for secure fastening to the Bobcat loader. The user must check with the dealer, or Bobcat literature, to determine safe loads of materials of specified densities for the machine - attachment combination.

The following publications and training materials provide information on the safe use and maintenance of the Bobcat machine and attachments:

- The Delivery Report is used to assure that complete instructions have been given to the new owner and that the machine and attachment is in safe operating condition.

- The Operation & Maintenance Manual delivered with the machine or attachment gives operating information as well as routine maintenance and service procedures. It is a part of the machine and can be stored in a container provided on the machine. Replacement Operation & Maintenance Manuals can be ordered from your Bobcat dealer.

- Machine signs (decals) instruct on the safe operation and care of your Bobcat machine or attachment. The signs and their locations are shown in the Operation & Maintenance Manual. Replacement signs are available from your Bobcat dealer.

- An Operator's Handbook is fastened to the operator cab of the loader. It's 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 AEM Safety Manual delivered with the machine gives general safety information.

- The Skid-Steer Loader Operating Training Course is available through your Bobcat dealer. This course is intended to provide rules and practices of correct operation of the Bobcat loader. The course is available in English and Spanish versions.

- Service Safety Training Courses are available from your Bobcat dealer. They provide information for safe and correct service procedures.

- See the PUBLICATIONS AND TRAINING RESOURCES Page in this manual or your Bobcat dealer for Service and Parts Manuals, printed materials, videos, or training courses available. Also check the Bobcat websites **Bobcat.com/training** or **Bobcat.com**

The dealer and owner / operator review the recommended uses of the product when delivered. If the owner / operator will be using the machine for a different application(s) he or she must ask the dealer for recommendations on the new use.

Call Before You Dig
Dial 811 (USA Only)
1-888-258-0808 (USA & Canada)

When you call, you will be directed to a location in your state / province, or city for information about buried lines (telephone, cable TV, water, sewer, gas, etc.).

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Safe Operation Is The Operator's Responsibility

Safety Alert Symbol

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

WARNING

Operator must have instructions before operating the machine. Untrained operators can cause injury or death.

W-2001-1285

IMPORTANT

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

I-2019-0284

DANGER

The signal word DANGER on the machine and in the manuals indicates a hazardous situation which, if not avoided, will result in death or serious injury.

D-1002-1107

WARNING

The signal word WARNING on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

W-2044-1107

The Bobcat loader and attachment must be in good operating condition before use.

Check all of the items on the Bobcat Service Schedule Decal under the 8-10 hour column or as shown in the Operation & Maintenance Manual.

Safe Operation Needs A Qualified Operator

For an operator to be qualified, he or she must not use drugs or alcoholic drinks which impair alertness or coordination while working. An operator who is taking prescription drugs must get medical advice to determine if he or she can safely operate a machine.

A Qualified Operator Must Do The Following:

Understand the Written Instructions, Rules and Regulations

- The written instructions from Bobcat Company include the Delivery Report, Operation & Maintenance Manual, Operator's Handbook, Safety Manual and machine signs (decals).
- Check the rules and regulations at your location. The rules may include an employer's work safety requirements. Regulations may apply to local driving requirements or use of a Slow Moving Vehicle (SMV) emblem. Regulations may identify a hazard such as a utility line.

Have Training with Actual Operation

- Operator training must consist of a demonstration and verbal instruction. This training is given by your Bobcat dealer before the product is delivered.
- The new operator must start in an area without bystanders and use all the controls until he or she can operate the machine and attachment safely under all conditions of the work area. Always fasten seat belt before operating.
- Operator Training Courses are available from your Bobcat dealer in English and Spanish. They provide information for safe and efficient equipment operation. Safety videos are also available.
- Service Safety Training Courses are available from your Bobcat dealer. They provide information for safe and correct service procedures.

Know the Work Conditions

- Know the weight of the materials being handled. Avoid exceeding the Rated Operating Capacity (ROC) of the machine. Material which is very dense will be heavier than the same volume of less dense material. Reduce the size of the load if handling dense material.
- The operator must know any prohibited uses or work areas, for example, he or she needs to know about excessive slopes.
- Know the location of any underground lines. Call local utilities or the TOLL FREE phone number found in the *Before Operation* section of this manual.
- Wear tight fitting clothing. Always wear safety glasses when doing maintenance or service. Safety glasses, respiratory equipment, hearing protection or Special Applications Kits are required for some work. See your Bobcat dealer about Bobcat safety equipment for your model.

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Avoid Silica Dust

Cutting or drilling concrete containing sand or rock containing quartz may result in exposure to silica dust. Do not exceed Permissible Exposure Limits (PEL) to silica dust as determined by OSHA or other job site Rules and Regulations. Use a respirator, water spray or other means to control dust. Silica dust can cause lung disease and is known to the state of California to cause cancer.

FIRE PREVENTION

Maintenance

The machine and some attachments have components that are at high temperatures 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 can cause a fire hazard. Clean often to avoid this accumulation. Flammable debris in the engine compartment is a potential fire hazard.

The operator's area, engine compartment and engine cooling system must be inspected every day and cleaned if necessary to prevent fire hazards and overheating.

All fuels, most lubricants and some coolant mixtures are flammable. Flammable fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire.

Operation

Do not use the machine where exhaust, arcs, sparks or hot components can contact flammable material, explosive dust or gases.

Electrical

Check all electrical wiring and connections for damage. Keep the battery terminals clean and tight. Repair or replace any damaged part or wires that are loose or frayed.

Battery gas can explode and cause serious injury. Use the procedure in the Operation & Maintenance Manual for connecting the battery and for jump starting. Do not jump start or charge a frozen or damaged battery. Keep any open flames or sparks away from batteries. Do not smoke in battery charging area.

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Hydraulic System

Check hydraulic tubes, hoses and fittings for damage and leakage. Never use open flame or bare skin to check for leaks. Hydraulic tubes and hoses must be properly routed and have adequate support and secure clamps. 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.

Fueling

Stop the engine and let it cool before adding fuel. No smoking! Do not refuel a machine near open flames or sparks. Fill the fuel tank outdoors.

Ultra Low Sulfur Diesel (ULSD) poses a greater static ignition hazard than earlier diesel formulations with higher Sulfur content. Avoid death or serious injury from fire or explosion. Consult with your fuel or fuel system supplier to ensure the delivery system is in compliance with fueling standards for proper grounding and bonding practices.

Starting

Do not use ether or starting fluids on any engine that has glow plugs or air intake heater. These starting aids can cause explosion and injure you or bystanders.

Use the procedure in the Operation & Maintenance Manual for connecting the battery and for jump starting.

Spark Arrester Exhaust System

The spark arrester exhaust system 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.

Check the spark arrester exhaust system regularly to make sure it is maintained and working properly. Use the procedure in the Operation & Maintenance Manual for cleaning the spark arrester muffler (if equipped).

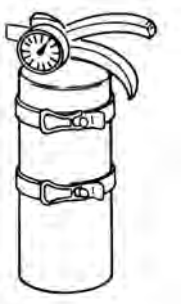
Welding And Grinding

Always clean the machine and attachment, disconnect the battery, and disconnect the wiring from the Bobcat controllers before welding. Cover rubber hoses, battery and all other flammable parts. Keep a fire extinguisher near the machine 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.

Dust generated from repairing nonmetallic parts such as hoods, fenders or covers can be flammable or explosive. Repair such components in a well ventilated area away from open flames or sparks.

Fire Extinguishers



Know where fire extinguishers and first aid kits are located and how to use them. Inspect the fire extinguisher and service the fire extinguisher regularly. Obey the recommendations on the instructions plate.

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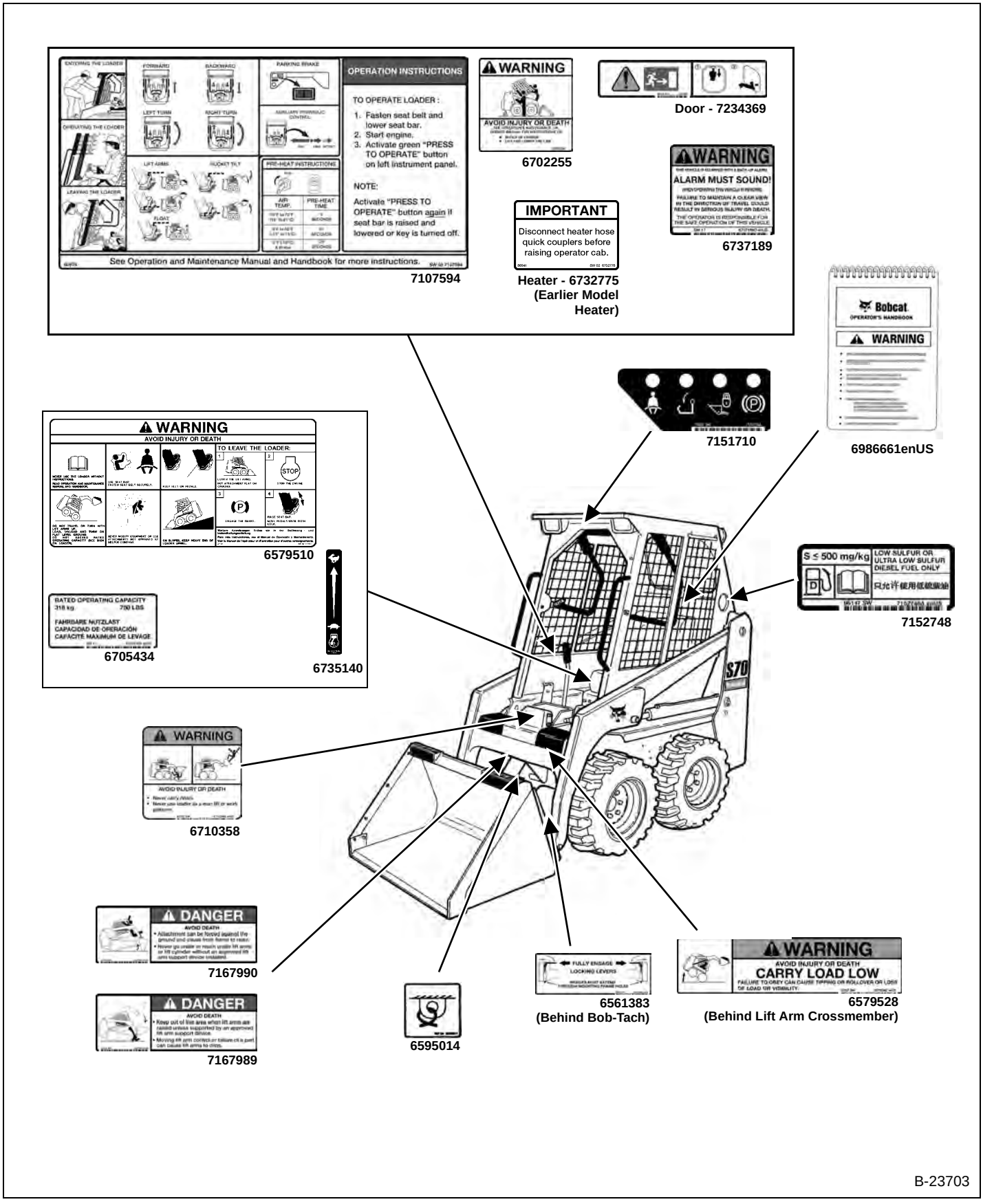
MACHINE SIGNS (DECALS)

Follow the instructions on all the Machine Signs (Decals) that are on the loader. Replace any damaged machine signs and be sure they are in the correct locations. Machine signs are available from your Bobcat loader dealer.



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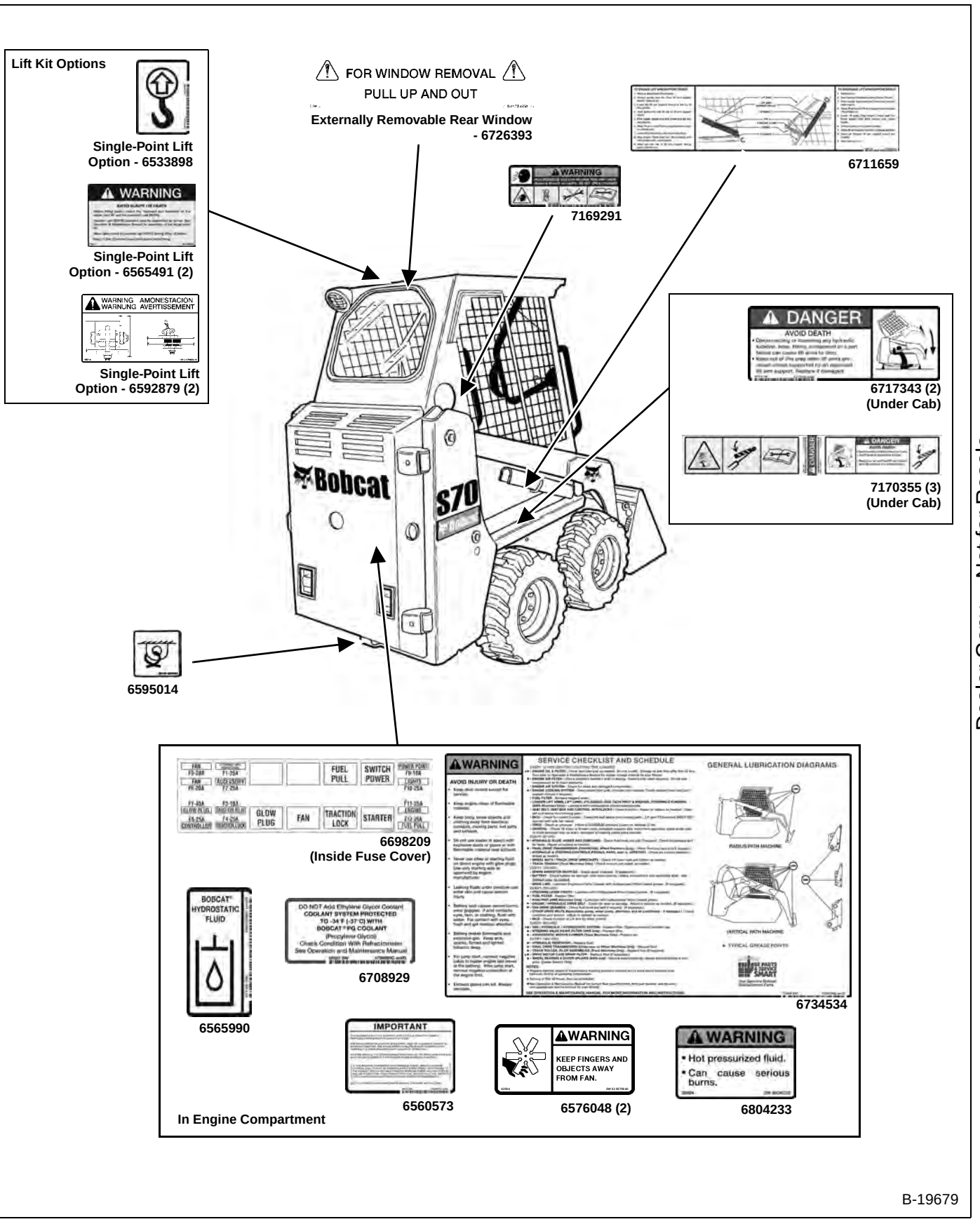
MACHINE SIGNS (DECALS) (CONT'D)

Follow the instructions on all the Machine Signs (Decals) that are on the loader. Replace any damaged machine signs and be sure they are in the correct locations. Machine signs are available from your Bobcat loader dealer.



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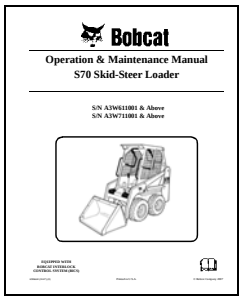
PUBLICATIONS AND TRAINING RESOURCES

The following publications are also available for your Bobcat loader. You can order them from your Bobcat dealer.

For the latest information on Bobcat products and the Bobcat Company, visit our website at **Bobcat.com/training** or **Bobcat.com**



OPERATION & MAINTENANCE MANUAL

6986660enUS

Complete instructions on the correct operation and the routine maintenance of your Bobcat loader.

OPERATOR'S HANDBOOK

6986661enUS

Gives basic operation instructions and safety warnings.

SAFETY MANUAL

6556500 (English and Spanish)

Gives basic safety procedures and warnings for your Bobcat loader.

OPERATOR SAFETY DVD

6904762 (English and Spanish)

DVD gives basic safety instructions for many Bobcat products including loaders.

SKID-STEER LOADER OPERATOR TRAINING COURSE

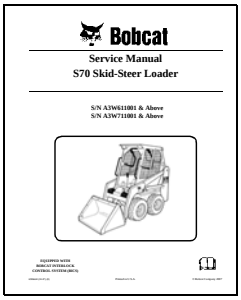
7249275 (English)
7249278 (Spanish)

Introduces operator to step-by-step basics of skid-steer loader operation.

SERVICE SAFETY TRAINING COURSE

7297250

Introduces service technicians to step-by-step basics of proper and safe maintenance and servicing procedures.



SERVICE MANUAL

6986662enUS

Complete maintenance instructions for your Bobcat loader.

LOADER SAFETY VIDEO

(Mobile device with quick response code application required)

Scan the code above to watch the loader safety video or view at **Bobcat.com/training**

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OPERATING INSTRUCTIONS

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INTENDED USE

This machine is classified as a Skid-Steer Loader as defined in ISO 6165. This machine has wheels or tracks and commonly a front mounted bucket for the principle intended functions of digging, moving, leveling, lifting, carrying, and loading loose materials such as earth, gravel, or crushed rock.

Additional Bobcat approved attachments allow this machine to perform other tasks described in the attachment Operation & Maintenance Manuals.

Examples of intended use include:

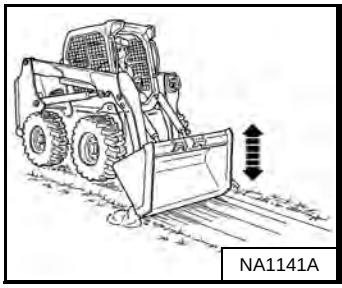
Digging


NA1139

Backfilling


NA1136

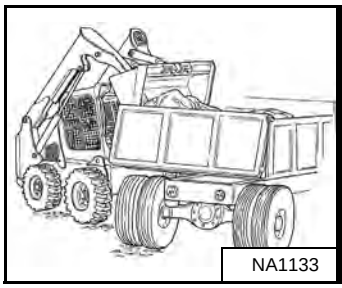
Leveling


NA1141A

Piling Material


NA9998

Loading Material


NA1133

Moving Palletized Loads


NA9997

⚠ WARNING

Load, unload and turn on flat level ground. Do not exceed Rated Operating Capacity (ROC) shown on sign (decal) in cab. Failure to obey warnings can cause the machine to tip or rollover and cause injury or death.

W-2056-1112

⚠ WARNING

Never dump over an obstruction, such as a post, that can enter the operator cab. The machine could tip forward and cause injury or death.

W-2057-0694

IMPORTANT

Never drive forward when the hydraulic control for lift arms is in float position.

I-2005-1285

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INSTRUMENT PANEL IDENTIFICATION

Left And Right Panels

Figure 5

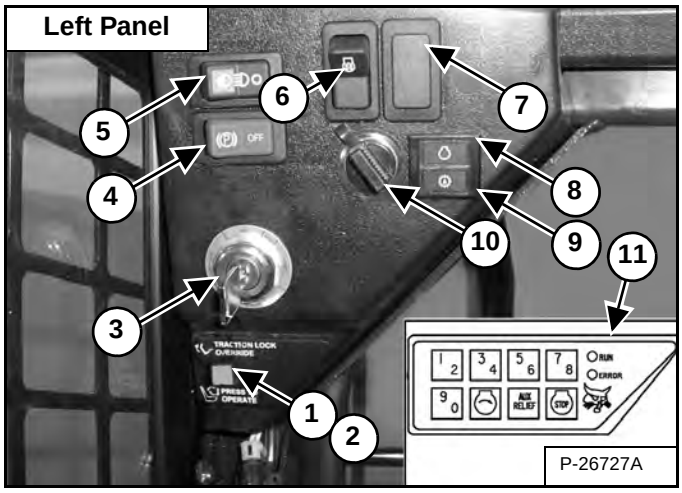
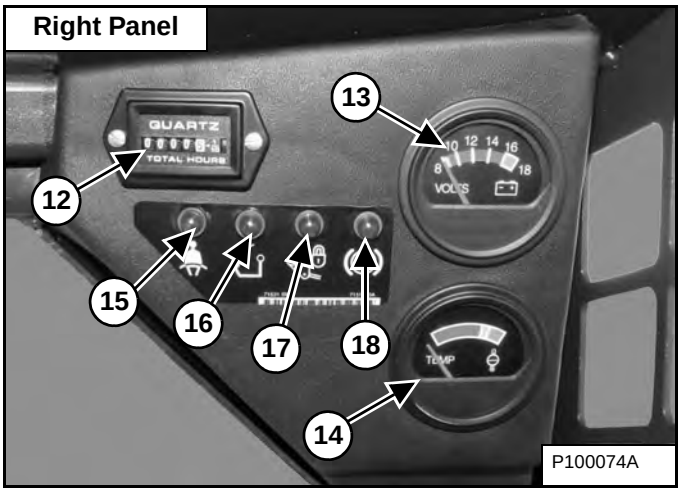


Figure 6



The table below shows the DESCRIPTION and FUNCTION / OPERATION for each of the instrument panel components.

REF.	DESCRIPTION	FUNCTION / OPERATION
1	TRACTION LOCK OVERRIDE BUTTON	*(Functions Only When The Seat Bar Is Raised, the Parking Brake Switch is OFF and the Engine Is Running.)* Allows you to use the steering levers to move the loader forward or backward when using the backhoe attachment. (See TRACTION LOCK OVERRIDE in this manual.) Engages auxiliary hydraulics.
2	PRESS TO OPERATE LOADER BUTTON	*(Functions Only When The Seat Bar Is Down.)* Activates BICS™ when the Seat Bar is down and operator is seated in the operating position. Engages auxiliary hydraulics.
3	KEY SWITCH	For starting and stopping the engine. (See Standard Key Panel in this manual.)
4	PARKING BRAKE	Press the left side of switch to engage; press right side to disengage.
5	LIGHT SWITCH	For FRONT work lights, “red” rear light, and REAR work light: Press the switch fully to the right to turn all lights OFF. Press the switch to the center position to turn on the FRONT work lights and “red” rear light. Press the switch fully to the left to turn on the FRONT work lights and REAR work light.
6	PREHEAT SWITCH	Press and hold to preheat the glow plugs to aid in cold temperature starting. (Earlier Models)
7	NOT USED	- - -
8	ENGINE WARNING LIGHT	Light is ON when engine oil pressure is low or coolant temperature is high. Stop the engine if the light comes ON.
9	TRANSMISSION WARNING LIGHT	Light is ON when transmission charge pressure is low, hydraulic filter needs replacement or fluid temperature is high. Stop the engine if the light comes ON.
10	POWER PLUG	Used to power 12 volt accessories.
11	KEYLESS PANEL	Optional Keyless Panel Kit. (See Keyless Start Panel in this manual.)
12	HOURMETER	Records the total operating hours of the loader.
13	VOLTMETER	Shows the condition of the battery and the rate of charge.
14	ENGINE TEMPERATURE GAUGE	Shows the engine coolant temperature.
15	SEAT BELT INDICATOR LIGHT	Light stays on for 45 seconds to remind operator to fasten seat belt.
16	SEAT BAR LIGHT	Light is ON when the seat bar is raised.
17	LIFT & TILT VALVE LIGHT	Light is ON when the lift and tilt functions can NOT be operated. Light is OFF when the seat bar is down, the key switch is in the ON position and the PRESS TO OPERATE LOADER Button is pressed. The lift and tilt functions can be operated when the light is OFF.
18	PARKING BRAKE LIGHT	Light is ON when the Parking Brake is engaged.

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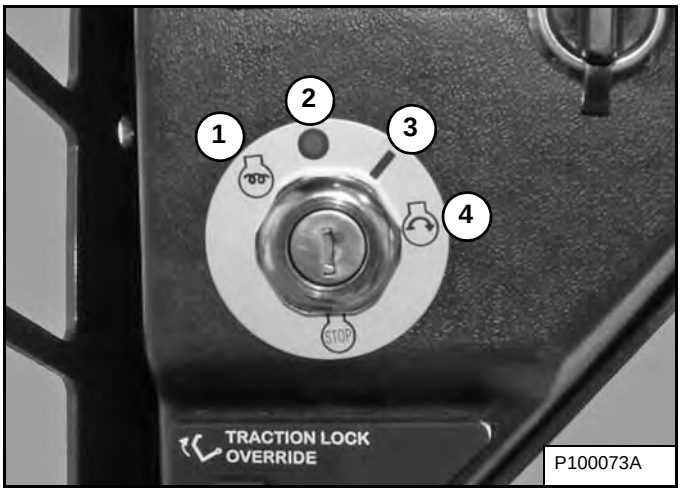
Standard Key Panel

Figure 7



The functions of the Key Switch **[Figure 7]** are:

1. **ENGINE PREHEAT:** Hold the key in this position to activate the glow pugs. (Earlier model loaders have a separate preheat switch and do not have this position.) (See Left And Right Panels on Page 21.)

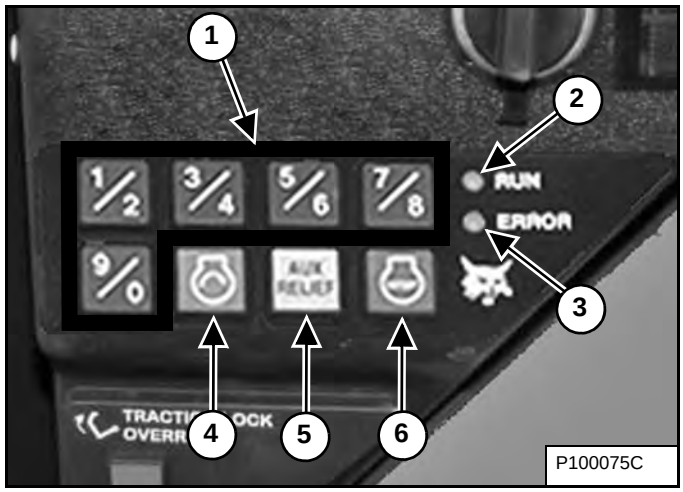
2. **STOP:** Stop the engine and turn the loader electrical system OFF.

3. **RUN:** Turn the loader electrical system ON.

4. **START:** Hold the key in this position to start the engine; release when engine starts.

Keyless Start Panel

Figure 8



The functions of the Keyless Start Panel **[Figure 8]** are:

1. **KEYPAD (Keys 1 through 0):** Used to enter a number code (password) to allow starting the engine.

2. **RUN LIGHT:** Light will be ON after the password has been correctly entered.

3. **ERROR LIGHT:** Light will be ON when an incorrect user / master password is entered. Three consecutive incorrect passwords will cause an error condition and a delay of one minute will be required before another start sequence can be attempted.

4. **START Button:** Press the start button until the engine starts.

5. **AUX. RELIEF / PREHEAT Button:** Press and hold to activate the glow plugs after the password has been entered.

6. **STOP Button:** Used to stop the engine and shut down the loader electrical system.

NOTE: When a Keyless Start Panel Kit is installed, the kit will be supplied with an Owner Password. Change the password to one that you will easily remember to prevent unauthorized use of your loader. Keep your password in a safe place for future needs. (The instructions included with the Keyless Start Panel will describe how to change the password. Keep this instruction for future reference.)

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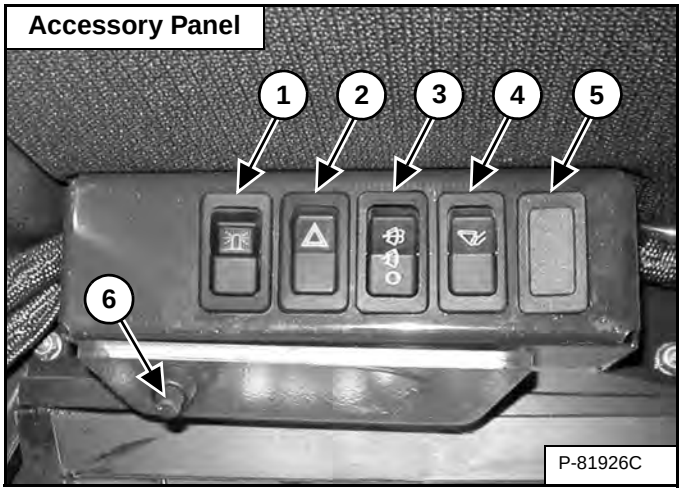
Option And Field Accessory Panel

Figure 9

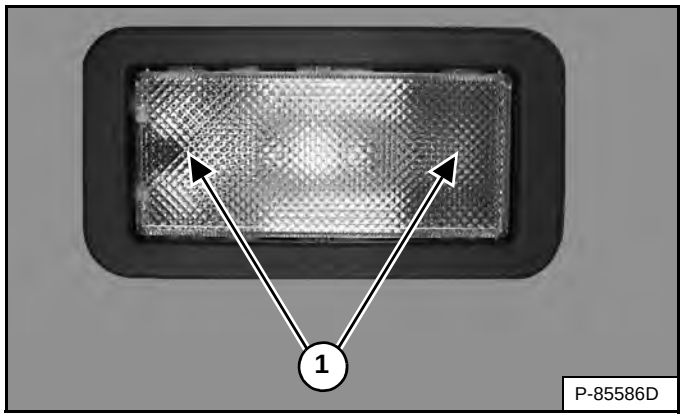


The side accessory panel is shown in **[Figure 9]**.

REF. NO.	DESCRIPTION	FUNCTION / OPERATION
1	ROTATING BEACON (Option) ***OR*** STROBE LIGHT (Option)	Press the top of the switch to turn ON; press bottom to turn OFF.
2	HAZARD LIGHTS (Option)	Press the top of the switch to turn the Hazard Lights ON; press bottom to turn OFF.
3	FRONT WINDSHIELD WIPER (Option)	Move the switch to the center position to turn ON; press bottom to turn OFF. Press and hold the top of switch for washer fluid.
4	HYDRAULIC BUCKET POSITIONING (Option)	The Bucket Positioning function will keep the bucket in approximately the same position as the lift arms are raised. Press the top of the switch to engage the Bucket Position function; press the bottom to disengage.
5	NOT USED	- - -
6	CAB LIGHT (Option) (Earlier Models)	Press the switch to turn ON, press again to turn OFF.

Later Model Cab Light (If Equipped)

Figure 10

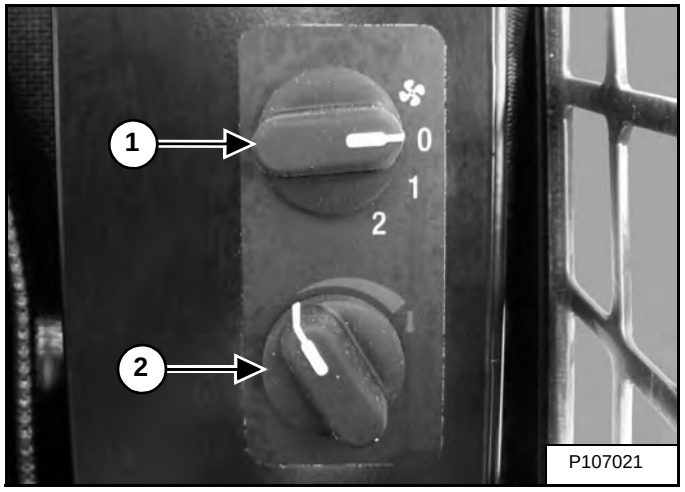


Push either side of the lens (Item 1) **[Figure 10]** to turn the light ON. Return the lens to the middle position to turn the light OFF.

Cab Heater Panel

This machine may be equipped with a Cab Heater.

Figure 11



The cab heater panel is shown in **[Figure 11]**.

REF. NO.	DESCRIPTION	FUNCTION / OPERATION
1	FAN MOTOR (Option)	Turn clockwise to increase fan speed; counterclockwise to decrease. There are three positions; OFF-1-2.
2	TEMPERATURE CONTROL (Option)	Turn clockwise to increase the temperature; counterclockwise to decrease.

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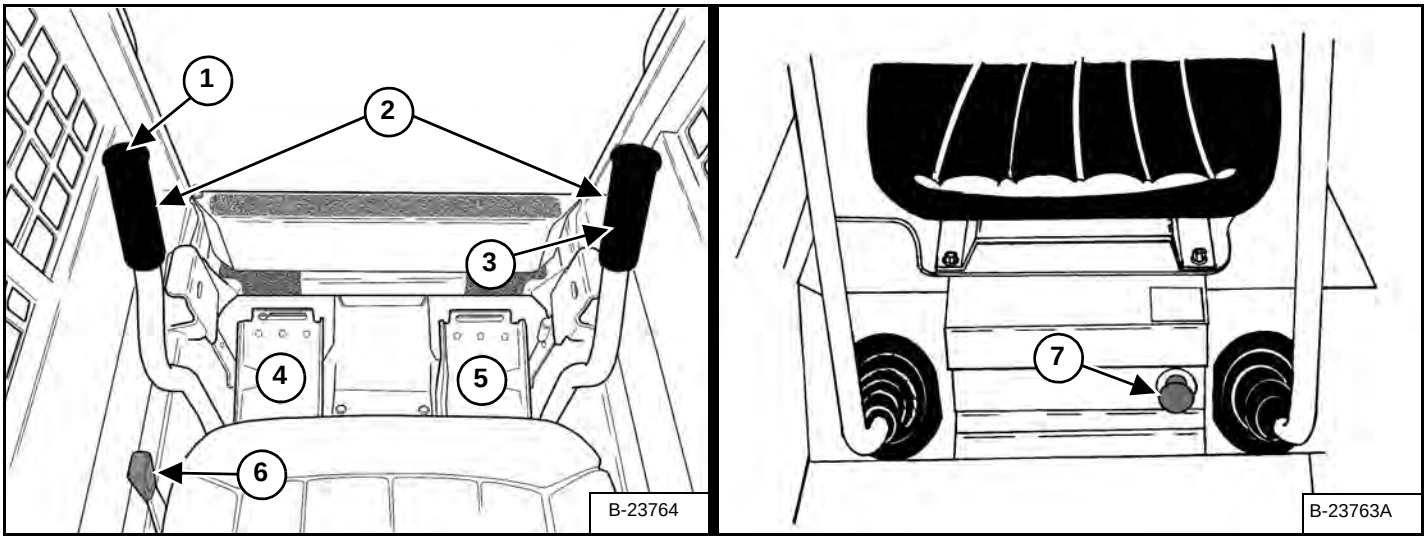
CONTROL IDENTIFICATION

Standard Controls

Figure 12



REF. NO.	DESCRIPTION	FUNCTION / OPERATION
* 1	FRONT HORN	Press the button to sound the front horn.
2	STEERING LEVERS	See DRIVING AND STEERING THE LOADER in this manual.
3	AUXILIARY HYDRAULICS CONTROL	See HYDRAULIC CONTROLS in this manual.
4	LIFT ARM PEDAL	See HYDRAULIC CONTROLS in this manual.
5	TILT PEDAL	See HYDRAULIC CONTROLS in this manual.
6	ENGINE SPEED CONTROL	See ENGINE SPEED CONTROL in this manual.
7	LIFT ARM BYPASS CONTROL	See LIFT ARM BYPASS CONTROL in this manual.

* Press the front switch to sound the front horn if equipped with deluxe hand grips.

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SEAT BAR RESTRAINT SYSTEM

Operation

Figure 13

The seat bar restraint system has a pivoting seat bar with armrests (Item 1) **[Figure 13]**.

⚠ 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 pedal controls and hands on steering levers.**

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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, the PRESS TO OPERATE LOADER button is activated, and the parking brake is released, 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. Both foot pedals will be locked when returned to the NEUTRAL position.

⚠ WARNING

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 the seat bar, move pedals until both lock.**
- **Move auxiliary hydraulic control lever out of detent position.**

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Operation

WARNING

AVOID INJURY OR DEATH

The Bobcat Interlock Control System (BICS™) must deactivate the lift, tilt and traction drive functions. If it does not, contact your dealer for service. DO NOT modify the system.

W-2151-1111

Figure 14

The Bobcat Interlock Control System (BICS™) has a pivoting seat bar with armrests (Item 1) **[Figure 14]**. The operator controls the use of the seat bar.

The BICS™ requires the operator to be seated in the operating position with the seat bar fully lowered before the lift, tilt, auxiliary hydraulics and traction functions can be operated. The seat belt must be fastened any time you operate the machine.

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 pedal controls and hands on steering levers.**

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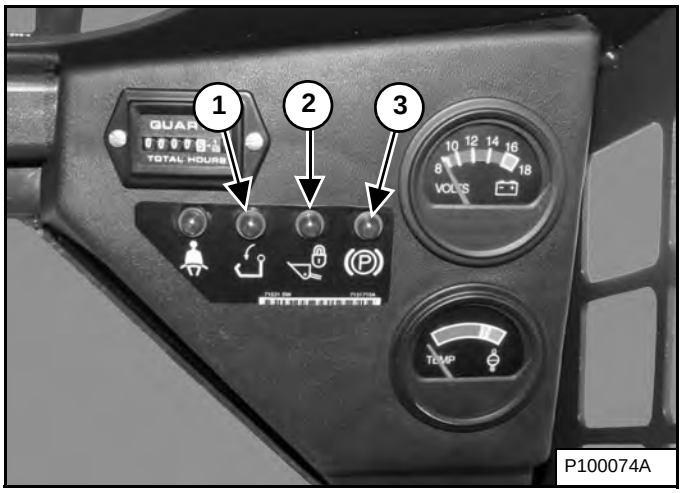
Figure 15



There are three display lights (Items 1, 2 and 3) **[Figure 15]** located on the right instrument panel that must be OFF to fully operate the machine.

When the seat bar is lowered, the engine is running, the PRESS TO OPERATE LOADER button is activated, and the parking brake is released, the lift, tilt, auxiliary hydraulics and traction drive functions can be operated.

When the seat bar is raised, the lift, tilt, auxiliary hydraulics and traction drive functions are deactivated.

WARNING

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 the seat bar, move pedals until both lock.**
- **Move auxiliary hydraulic control lever out of detent position.**

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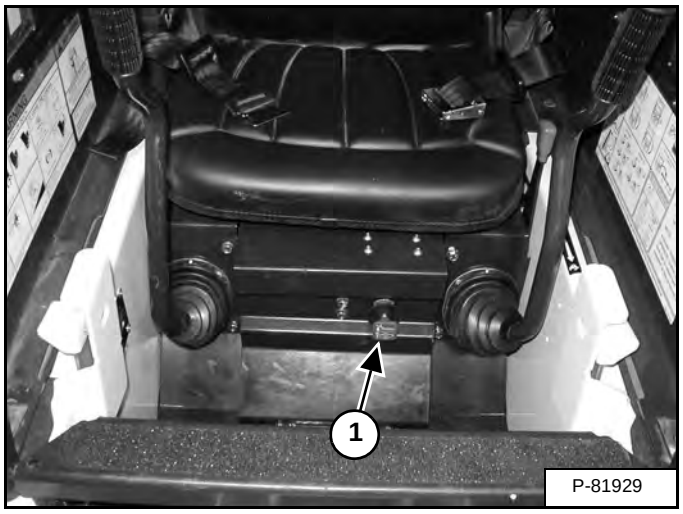
LIFT ARM BYPASS CONTROL

Operation

Figure 16



The lift arm bypass control (Item 1) **[Figure 16]** is used to lower the lift arms if the lift arms cannot be lowered during normal operations.

1. Sit in the operator seat.
2. Fasten the seat belt and lower the seat bar.
3. Turn the lift arm bypass knob (Item 1) **[Figure 16]** clockwise 1/4 turn.
4. Pull out and hold the knob until the lift arms lower.

PARKING BRAKE

Operation

Figure 17

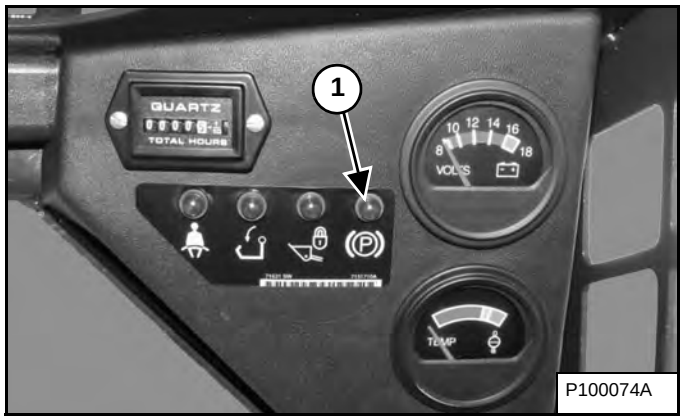
Press the left side of the switch (Item 1) **[Figure 17]** to engage the parking brake. The red light in the switch will turn on. The traction drive system will be locked.

Move steering levers or joystick(s) slowly forward and backward. The TRACTION lock must be engaged. See your Bobcat dealer for service if loader fails to stop.

Press the right side of the switch (Item 1) **[Figure 17]** to disengage the parking brake. The red light in the switch will turn off. The traction drive system will be unlocked.

NOTE: If the loader will not move when operator is in the operating position with the seat bar down and the parking brake disengaged and after the PRESS TO OPERATE LOADER button is pressed, move the steering levers either forward or backward a small amount to unlock the traction drive.

Figure 18



NOTE: The PARKING BRAKE LIGHT (Item 1) [Figure 18] on the right instrument panel will remain ON until the engine is started, the PRESS TO OPERATE LOADER button is pressed and the parking brake is disengaged.

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TRACTION LOCK OVERRIDE

Operation

Figure 19

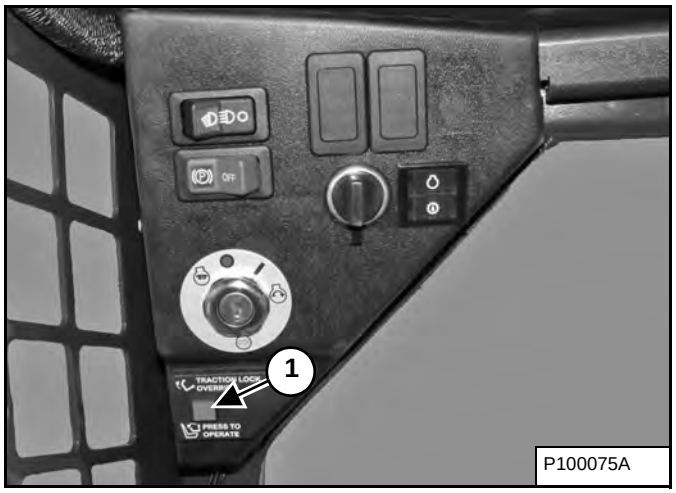
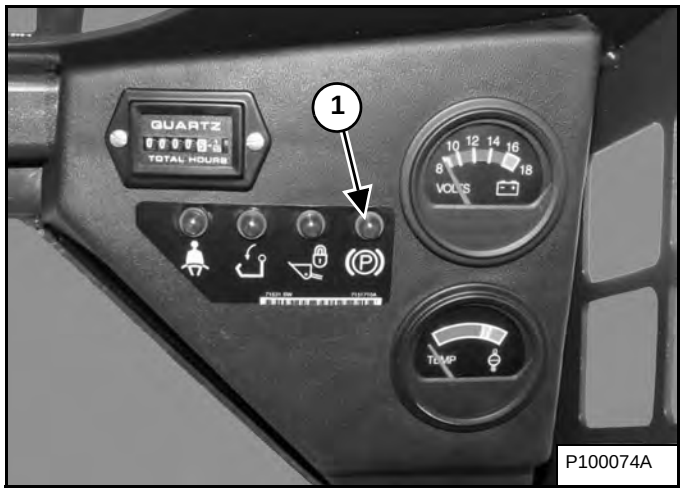


Figure 20



(Functions only when the seat bar is raised, the parking brake switch is OFF, and the engine is running.) There is a TRACTION LOCK OVERRIDE button (Item 1) **[Figure 19]** on the left instrument panel which will allow you to use the steering levers to move the loader forward and backward when using the backhoe attachment.

- Press the TRACTION LOCK OVERRIDE button once to unlock the brakes. The PARKING BRAKE light (Item 1) **[Figure 20]** will be OFF.

- Press the button a second time to lock the traction drive. The PARKING BRAKE light (Item 1) **[Figure 20]** will be ON.

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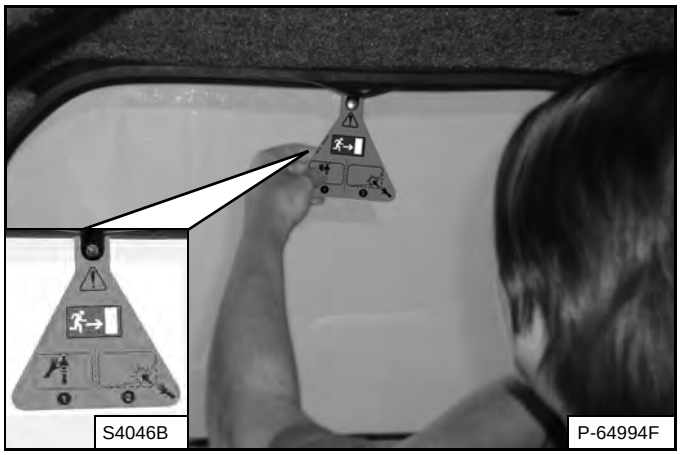
EMERGENCY EXIT

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

Rear Window

Figure 21



Pull the tag on the top of the rear window **[Figure 21]** to remove the rubber cord.

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

Figure 22

Exit through the rear of the operator cab **[Figure 22]**.

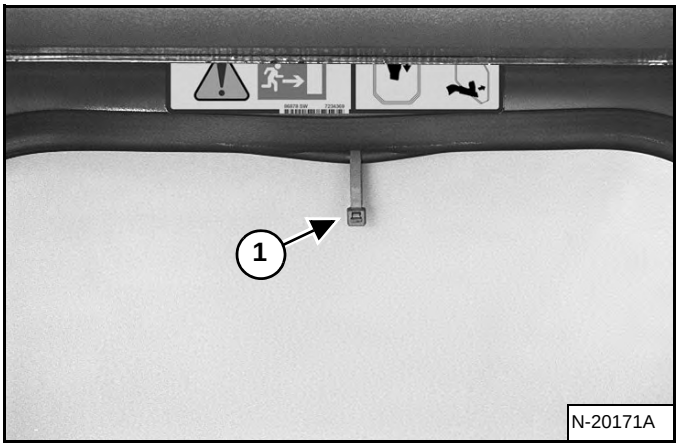
Front Door

This machine may be equipped with a Front Door.

NOTE: When an Operator Cab Enclosure Kit is installed, the window of the front door can be used as an emergency exit [Figure 23].

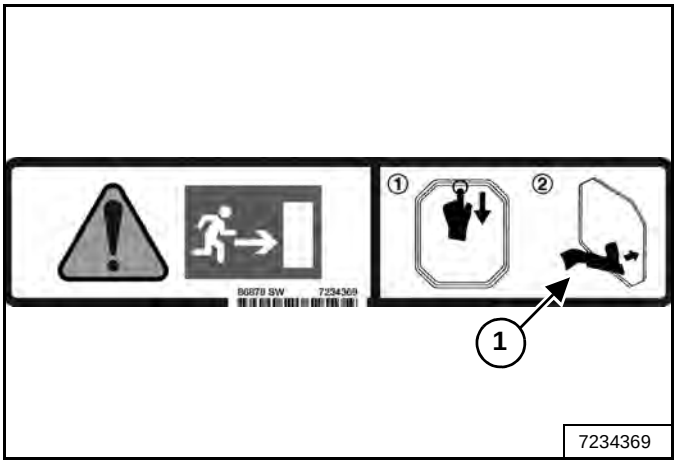
NOTE: If the loader has a Special Application Door Kit installed, the window of the front door is NOT an emergency exit.

Figure 23



Pull the plastic loop (Item 1) **[Figure 23]** at the top of the window in the front door to remove the rubber cord.

Figure 24



Push the window out with your foot at any corner of the window (Item 1) **[Figure 24]**.

Exit through the front door.

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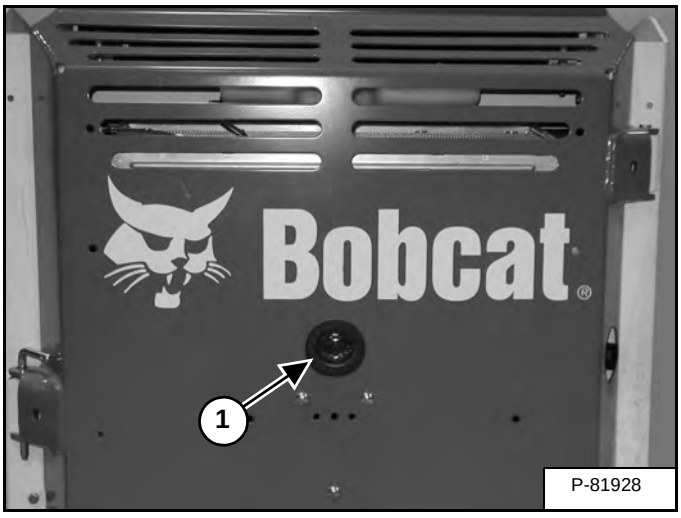
BACK-UP ALARM SYSTEM

Description

Figure 25



The back-up alarm (Item 1) **[Figure 25]** is located on the inside of the rear door.

A back-up alarm is not a substitute for looking to the rear when operating the loader in reverse, or for keeping bystanders away from the work area. Operators **must always** look in the direction of travel, including **reverse**, and must keep bystanders away from the work area, even though the loader is equipped with a back-up alarm.

Operators must be trained to **always** look in the direction of travel, **including when operating the loader in reverse** and to keep bystanders away from the work area. Other workers should be trained to **always** keep away from the operator's work area and travel path.

Operation

WARNING

AVOID INJURY OR DEATH

- **Always keep bystanders away from the work area and travel path.**
- **The operator must maintain a clear view of the direction of travel and look before and during machine movement.**
- **The back-up alarm must sound when operating the machine in the reverse direction.**

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The back-up alarm will sound when the operator moves both steering levers into the reverse position. Slight movement of the steering levers into the reverse position is required with hydrostatic transmissions, before the back-up alarm will sound.

If alarm does not sound or for adjustment instructions, see inspection and maintenance instructions for the back-up alarm system in the preventive maintenance section of this manual. (See BACK-UP ALARM SYSTEM on Page 69.)

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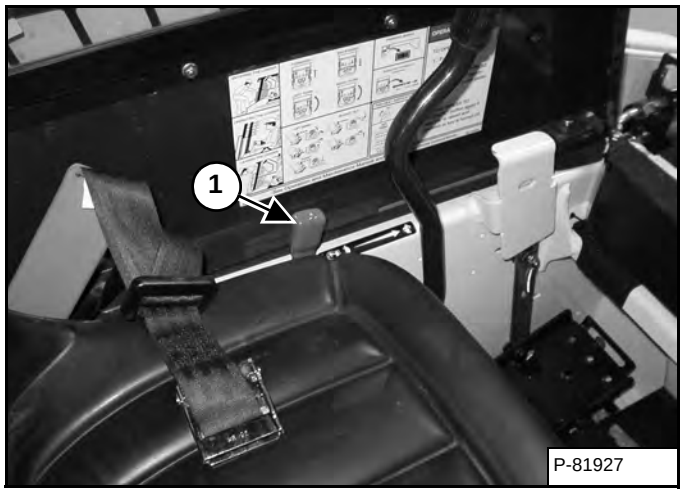
ENGINE SPEED CONTROL

Operation

Figure 26



The engine speed control lever is to the left of the operator seat (Item 1) **[Figure 26]**.

Move the lever forward to increase engine speed. Move backward to decrease engine speed.

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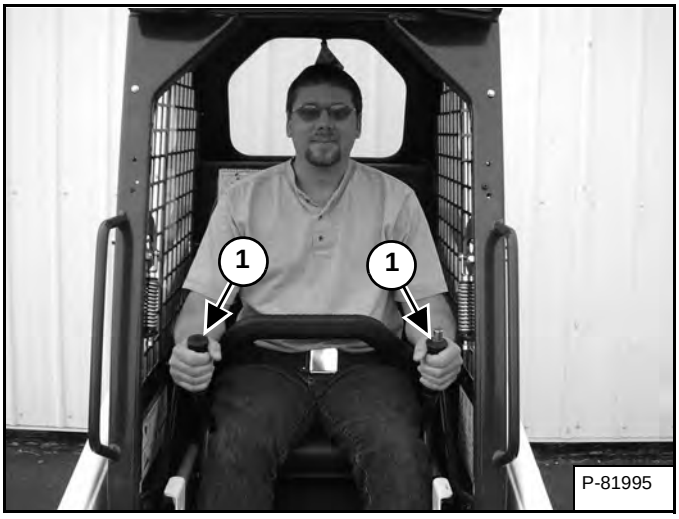
Figure 27



The control levers (Item 1) **[Figure 27]** are on the left and right side in front of the seat.

Move the levers smoothly. Avoid sudden starting and stopping.

⚠ 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 pedal controls and hands on steering levers.**

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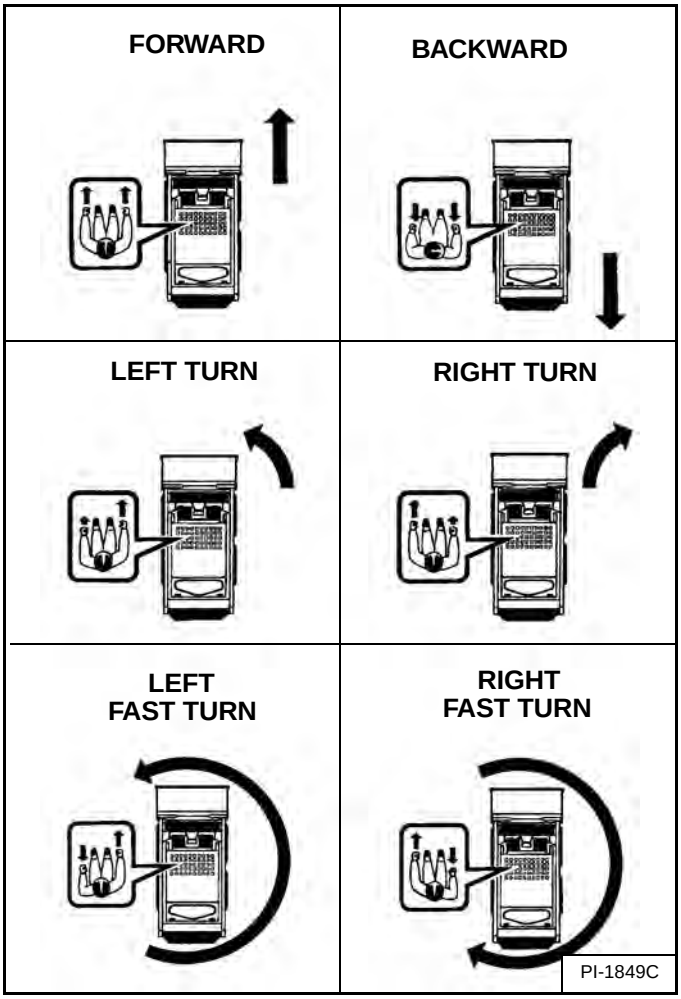
Figure 28



The levers control forward and backward travel and turning the loader **[Figure 28]**.

Forward Travel - Push both levers forward.

Backward Travel - Pull both levers backward.

Normal Turning - Move one lever farther forward than the other.

Fast Turning - Push one lever forward and pull the other lever backward.

STOPPING THE LOADER

Using The Control Levers

When the steering levers are moved to the NEUTRAL position, the hydrostatic transmission will act as a *service brake* to stop the loader.

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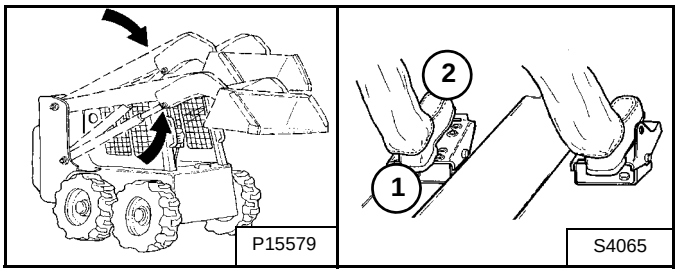
HYDRAULIC CONTROLS

Description

Two foot pedals control the hydraulic cylinders for the lift and tilt functions.

Put your feet on the pedals and KEEP THEM THERE any time you operate the loader.

Figure 29



Lift Arm Operation (Left Pedal)

Push the heel (Item 1) **[Figure 29]** of the pedal to raise the lift arms.

Push the toe (Item 2) **[Figure 29]** of the pedal to lower the lift arms.

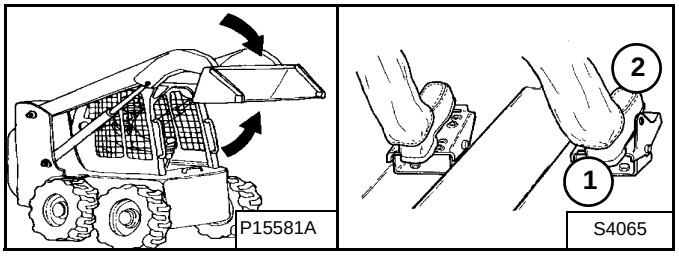
Lift Arm Float Position (Left Pedal)

Push the toe (Item 2) **[Figure 29]** of the pedal all the way forward until it locks into the float position.

Use the float position of the lift arms to level loose material while driving backward.

Raise the lift arms to disengage the float position.

Figure 30



Tilt Operation - (Right Pedal)

Push the heel (Item 1) **[Figure 30]** of the pedal to tilt the bucket backward.

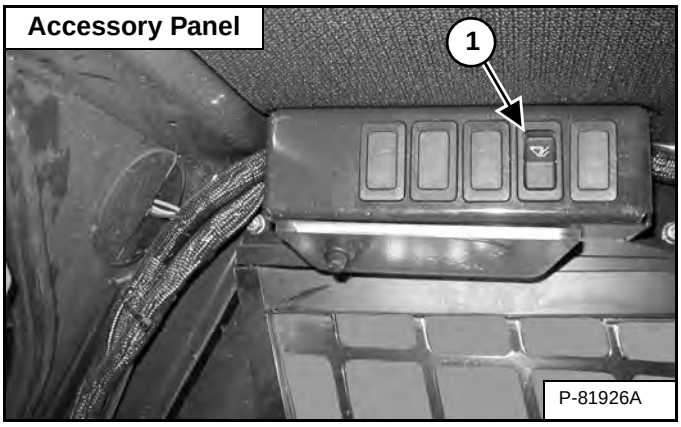
Push the toe (Item 2) **[Figure 30]** of the pedal to tilt the bucket forward.

Hydraulic Bucket Positioning

This machine may be equipped with Hydraulic Bucket Positioning.

The function of hydraulic bucket positioning is to keep the bucket in the same approximate position it is in before you begin raising the lift arms.

Figure 31

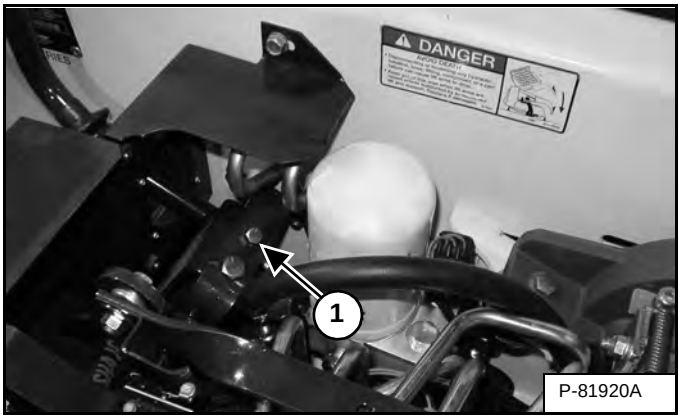


Press the top of the BUCKET POSITIONING switch (Item 1) **[Figure 31]** to engage the bucket positioning function. Press the bottom of the switch to disengage this function.

Bucket positioning functions only during upward lift cycle.

Auxiliary Hydraulic Control Lockout

Figure 32



Raise the operator cab. (See OPERATOR CAB on Page 71.)

Remove the auxiliary hydraulic control lockout bolt and nut (Item 1) **[Figure 32]** before using the auxiliary control for the first time.

Lower the operator cab. (See OPERATOR CAB on Page 71.)

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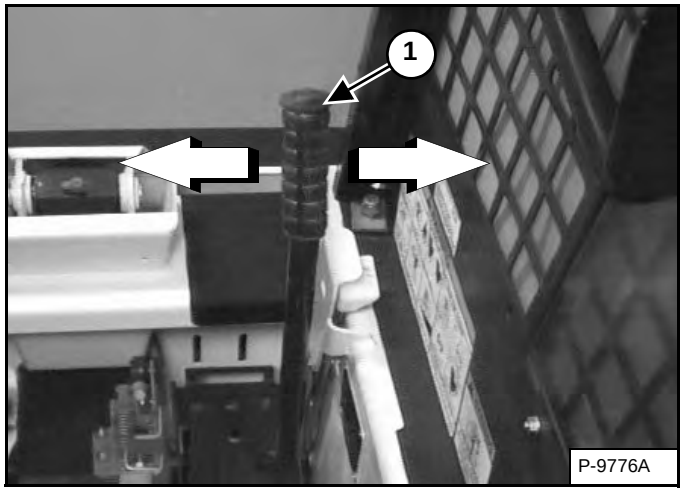
Front Auxiliary Hydraulics Operation

Variable Flow

Figure 33

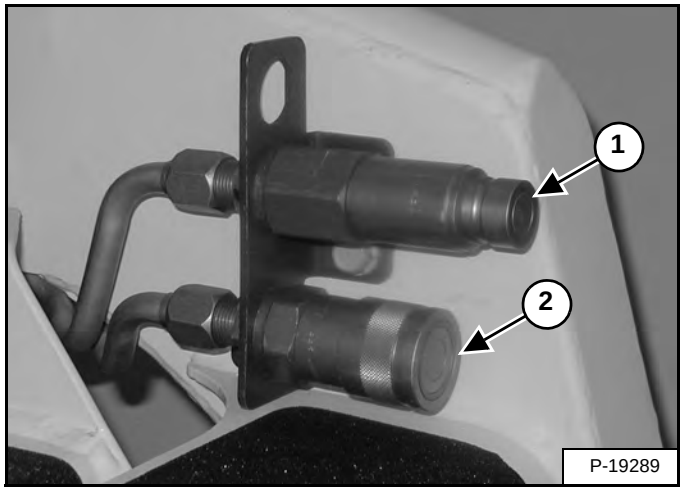


Variable Flow allows for slow-to-fast movement of auxiliary hydraulic functions.

The right steering lever (Item 1) **[Figure 33]** is also the control lever for the front auxiliary hydraulics (Auxiliary Hydraulic Control Lever).

Enter the loader, lower the seat bar, fasten seat belt, engage the parking brake and start the engine. Press the PRESS TO OPERATE LOADER button which will also engage the auxiliary hydraulics.

Figure 34



Move the Auxiliary Hydraulic Control Lever (Item 1) **[Figure 33]** to the left for auxiliary hydraulic oil flow to the front male coupler (Item 1) **[Figure 34]**. Hydraulic oil flow increases to the coupler as the lever is moved to the left.

Move the Auxiliary Hydraulic Control Lever (Item 1) **[Figure 33]** to the right for auxiliary hydraulic oil flow to the front female coupler (Item 2) **[Figure 34]**. Hydraulic oil flow increases to the coupler as the lever is moved to the right.

Continuous Flow

Continuous Flow allows for fast movement of auxiliary hydraulic functions.

Move the Auxiliary Hydraulic Control Lever fully to the right to put it into continuous flow (detent) position. This will allow continuous auxiliary hydraulic oil flow to the female coupler. Move the lever to the NEUTRAL position to stop auxiliary hydraulic oil flow

Move the lever out of the continuous flow (detent) position before leaving the operator's seat.

NOTE: When the operator is seated and raises the seat bar, the Auxiliary Hydraulic System will deactivate.

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Quick Couplers

⚠ WARNING

AVOID BURNS

Hydraulic fluid, tubes, fittings and quick couplers can get hot when running machine and attachments. Be careful when connecting and disconnecting quick couplers.

W-2220-0396

⚠ WARNING

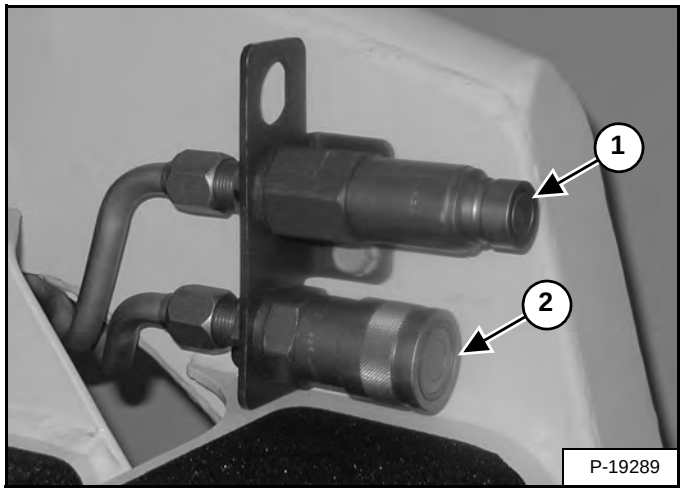
AVOID INJURY OR DEATH

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.

W-2072-0807

NOTE: Follow attachment hose routing instructions in the attachment Operation & Maintenance Manual.

Figure 35



To Connect: Remove dirt or debris from the surface of both the male (Item 1) and female couplers (Item 2) **[Figure 35]**, and from the outside diameter of the male coupler. Visually check the couplers for corroding, cracking, damage or excessive wear. If any of these conditions exist, the coupler(s) must be replaced.

Install the male coupler into the female coupler. Full connection is made when the ball release sleeve slides forward on the female coupler.

To Disconnect: Hold the male coupler. Retract the sleeve on the female coupler until the couplers disconnect.

Quick Coupler Troubleshooting

Dirty couplers are often thought to be faulty and are unnecessarily replaced instead of simply being cleaned. Keep quick couplers clean to provide reliable service. Always clean coupler faces before connecting. Allowing dirt and other contaminants to remain can cause premature wear to internal seals and sealing surfaces.

Leaking Couplers

- Leaks are often caused by contaminants that prevent proper sealing of the couplers or that dislocate internal seals.
- Repeatedly connect and disconnect leaking couplers to dislodge contaminants.

Couplers Stuck In Open Position

- A gritty feel when moving the outer sleeve of female couplers or a coupler that remains open when disconnected is evidence of contamination.
- Retract the sleeves on the female couplers and clean thoroughly while rotating the sleeve until all contamination has been removed.
- Immediately clean a coupler stuck in the open position to prevent further contamination and leaks.

Difficult To Connect And Disconnect Couplers

- Attachment hoses that are out of alignment with the loader couplers can cause abnormal wear and make it difficult to connect and disconnect couplers.
- Ensure attachment hoses are routed exactly as shown in the attachment Operation & Maintenance Manual to prevent permanent coupler damage.

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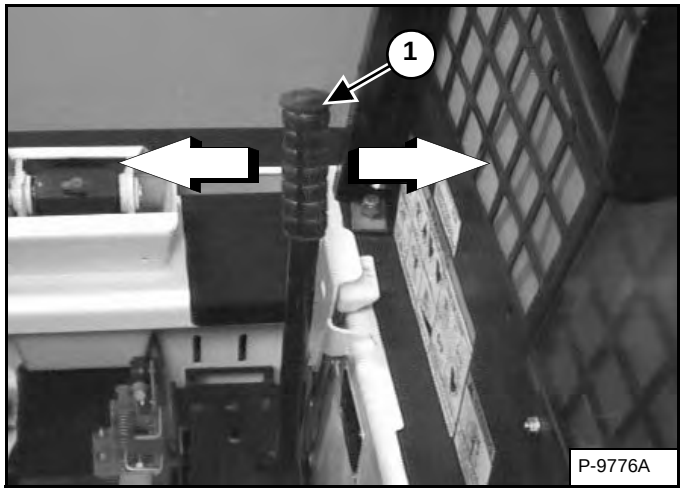
Relieve Auxiliary Hydraulic Pressure (Loader And Attachment)

Hydraulic pressure in the auxiliary hydraulic system can make it difficult to engage quick couplers to an attachment.

Loader:

1. Turn the key to the ON position or press RUN button but do not start the engine. Press the PRESS TO OPERATE LOADER Button.

Figure 36



2. Move the Auxiliary Hydraulic Control Lever (Item 1) **[Figure 36]** left and right to release auxiliary hydraulic oil pressure. Turn key to OFF position or press STOP button.

Attachments:

1. Follow procedure above to release pressure in the loader.

2. Connect male coupler from attachment to female coupler of the loader then repeat procedure above. This will release pressure in the attachment.

3. Connect the female coupler from the attachment to the male coupler of the loader.

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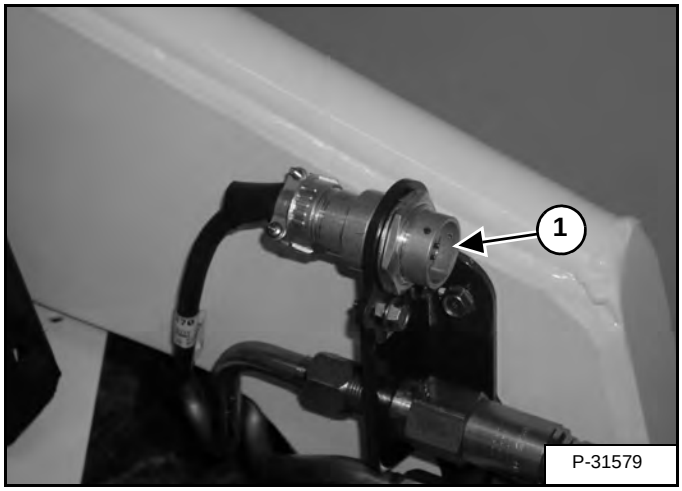
ATTACHMENT CONTROL DEVICE (ACD)

This machine may be equipped with an Attachment Control Device.

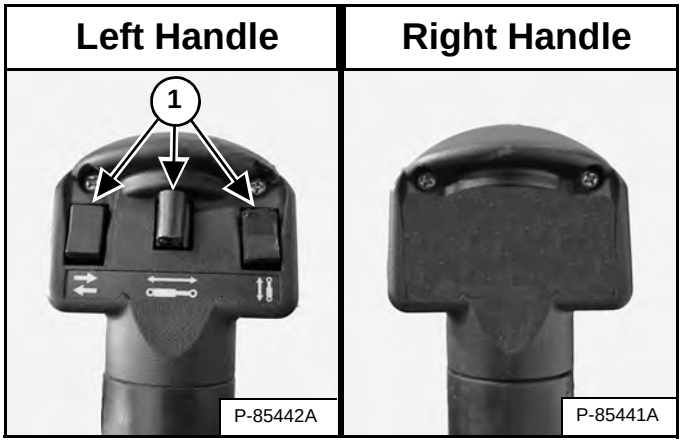
Description

Figure 37



Connect the attachment electrical harness to the attachment control device (Item 1) **[Figure 37]**.

Figure 38



Additional switches (Item 1) **[Figure 38]** on the left steering lever handle are used to control some attachment functions through the attachment control device.

See the appropriate attachment Operation & Maintenance Manual for control details.

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Figure 39

Dealer Copy -- Not for Resale

Daily Inspection And Maintenance

Maintenance work must be done at regular intervals. Failure to do so will result in excessive wear and early failures. The Service Schedule **[Figure 39]** is a guide for correct maintenance of the Bobcat Loader. It is located inside the rear door of the loader and also in the MACHINE SIGN TRANSLATION section of this manual. (See Service Schedule (6734534) on Page 107.)

- Engine oil level.
- Hydraulic / hydrostatic fluid level.
- Engine Air Filter - Check Air System for Damage or Leaks.
- Engine coolant system - check system for damage or leaks.
- Operator cab and cab mounting hardware.
- Seat belt.
- Seat Bar and Control interlocks.
- Bobcat Interlock Control System (BICS™).
- Front Horn and Back-up Alarm - Check for proper function.
- Grease Pivot Pins (Lift Arms, Bob-Tach, Cylinders, Bob-Tach Wedges).
- Tires - Check for Wear, Damage, Correct Air Pressure.
- Fuel Filter - Remove Trapped Water.
- Loose or Broken Parts - Repair or Replace as Necessary.
- Safety Treads and Safety Signs (Decals) - Replace as necessary.
- Lift Arm Support Device - Replace if damaged.
- Indicators and Lights.
- Clean Foot Pedal Area.
- Monitor Instrument Panel for fuel level, coolant temperature and air cleaner condition.

⚠ WARNING

Operator must have instructions before operating the machine. Untrained operators can cause injury or death.

W-2001-0502

NOTE: Fluids such as engine oil, hydraulic fluid, coolant, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. See local, state and federal regulations for correct disposal.

IMPORTANT

PRESSURE WASHING DECALS

- **Never direct the stream at a low angle toward the decal that could damage the decal causing it to peel from the surface.**
- **Direct the stream at a 90 degree angle and at least 300 mm (12 in) from the decal. Wash from the center of the decal toward the edges.**

I-2226-0910

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Entering The Loader

Figure 40

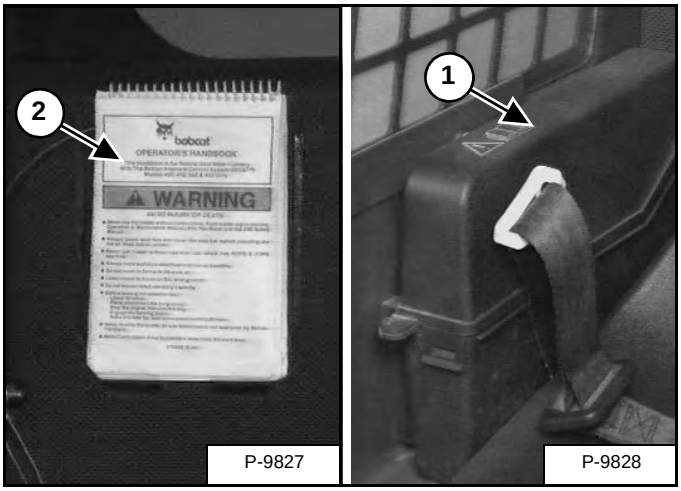
Use the bucket or attachment steps, grab handles, and safety treads (on the loader lift arms and frame) to get on and off the loader, maintaining a 3-point contact at all times **[Figure 40]**. DO NOT JUMP!

Safety treads are installed on the Bobcat Loader to provide a slip resistant surface for getting on and off the loader.

Keep the safety treads clean and replace them when damaged. Replacement treads are available from your Bobcat dealer.

Operation & Maintenance Manual And Operator's Handbook Locations

Figure 41



Read and understand the Operation & Maintenance Manual (Item 1) and the Operator's Handbook (Item 2) **[Figure 41]** before operating the loader.

The Operation & Maintenance Manual and other manuals can be kept in a container (Item 1) **[Figure 41]** provided on the right side of the operator seat.

⚠ WARNING

AVOID INJURY OR DEATH

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-2003-0807

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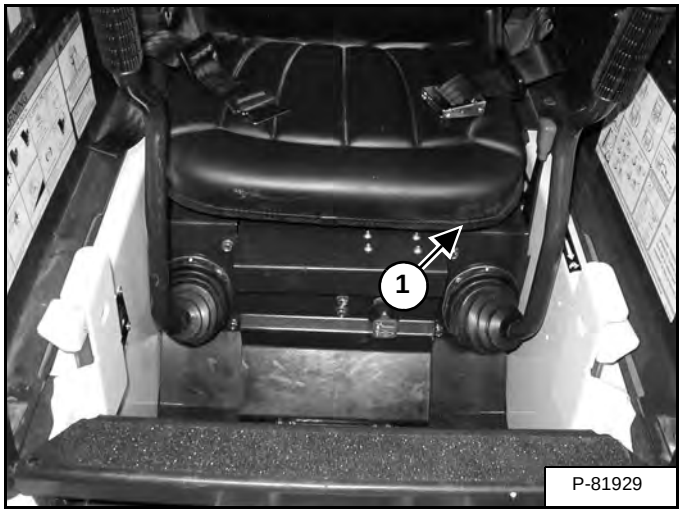
Seat Adjustment

Standard Seat

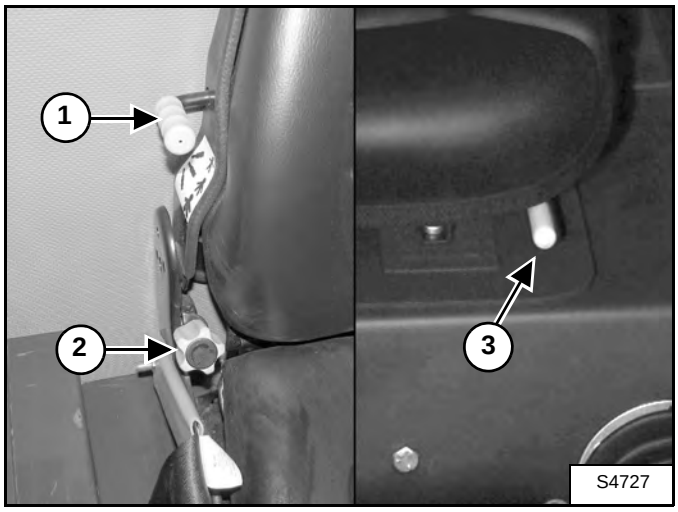
Figure 42



Use the lever (Item 1) **[Figure 42]** to adjust the position of the seat for comfortable operation of the loader controls.

Adjustable Cushion Seat

Figure 43



Use the lever (Item 1) and knob (Item 2) **[Figure 43]** to adjust the position of the seat for comfortable operation of the loader controls.

The lever (Item 1) sets the seat cushion for the weight of the operator. The knob (Item 2) **[Figure 43]** sets the angle of the seat back.

The lever (Item 3) **[Figure 43]** adjusts the fore / aft position of the seat.

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Seat Belt Adjustment

WARNING

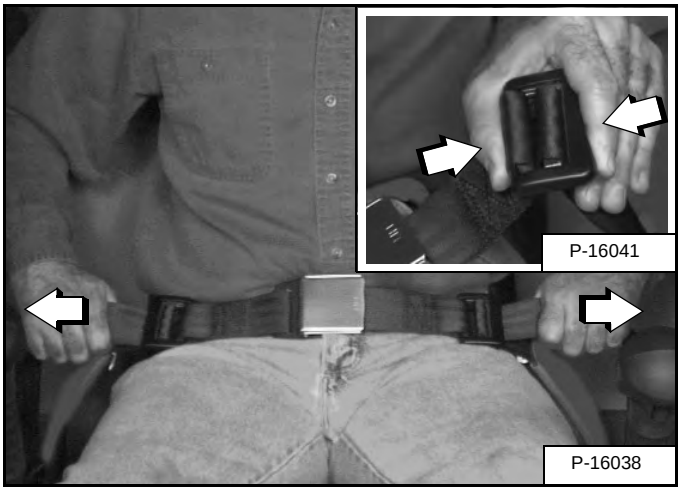
AVOID INJURY OR DEATH

When operating the machine:

- **Keep the seat belt fastened snugly.**
- **The seat bar must be lowered.**
- **Keep your feet on the pedal controls and hands on steering levers.**

W-2046-0108

Figure 44



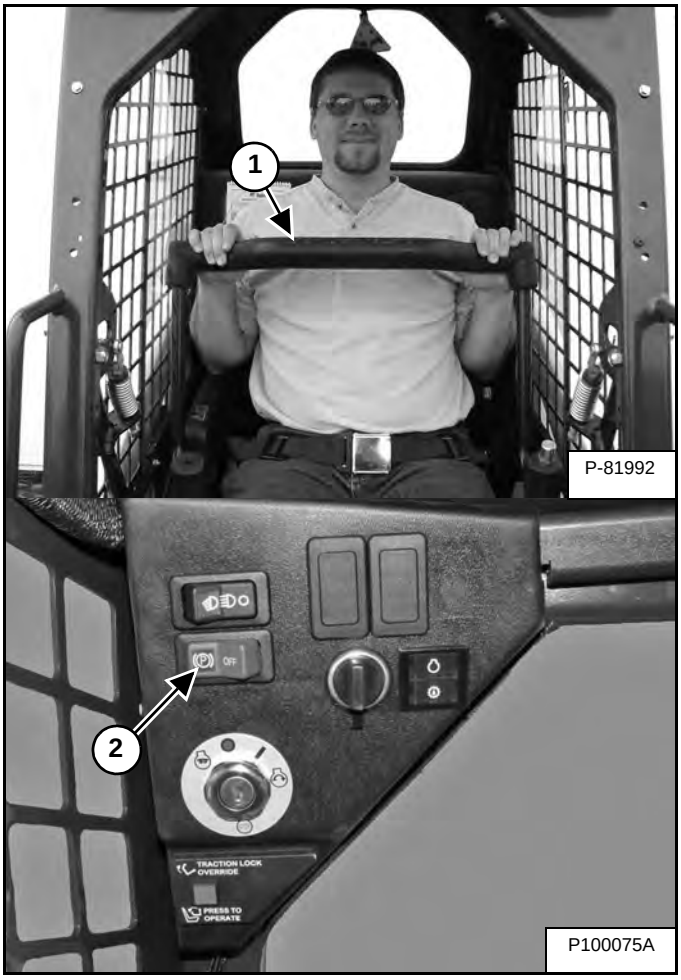
Squeeze both seat belt adjusters to release and lengthen each half of the seat belt **[Figure 44]**.

Fasten the seat belt.

Pull the ends of the belt through the belt adjusters so that the seat belt is snug and the buckle is centered between your hips **[Figure 44]**.

Seat Bar

Figure 45



Lower the seat bar (Item 1) and engage the parking brake (Item 2) **[Figure 45]**.

Put the foot pedals and steering levers in NEUTRAL position.

NOTE: Keep your hands on the steering levers and your feet on the foot pedals while operating the loader.

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 pedal controls and hands on steering levers.**

W-2046-0108

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Standard Key Panel

WARNING

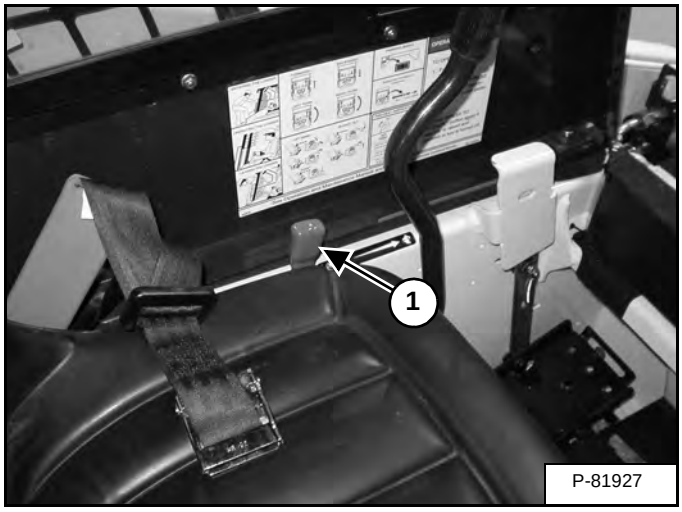
AVOID SERIOUS INJURY OR DEATH

- **Engines can have hot parts and hot exhaust gas. Keep flammable material away.**
- **Do not use machines in atmosphere containing explosive dust or gases.**

W-2051-0212

Perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 40.)

Figure 46



Move the engine speed control lever (Item 1) **[Figure 46]** to the mid position.

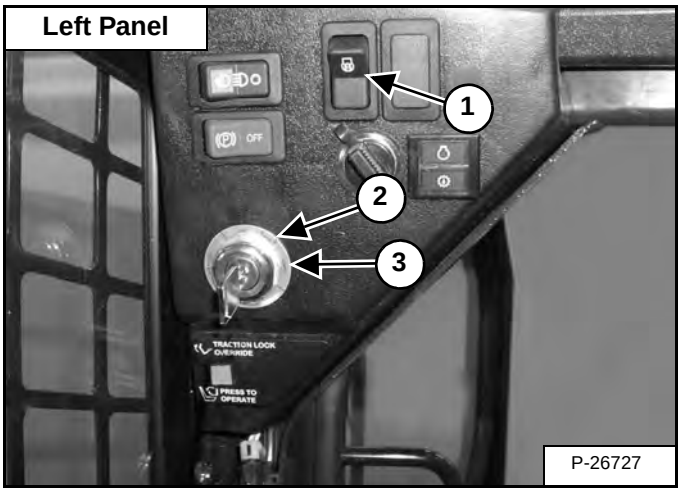
WARNING

AVOID INJURY OR DEATH

- **Fasten seat belt, start and operate only from the operator's seat.**
- **Never wear loose clothing when working near machine.**

W-2135-1108

Figure 47



Earlier Models With Preheat Switch (Item 1)

If the temperature is cold, turn the key switch to the RUN position (Item 2) **[Figure 47]** but do not start the engine.

Press and hold the top of the preheat switch (Item 1) **[Figure 47]**. Release the switch to stop engine preheat. A decal in the operator cab and the table below show suggested preheat times.

AMBIENT AIR TEMPERATURE	PREHEAT TIME
21°C and Above (70°F and Above)	None Required
10 - 21°C (50 - 70°F)	5 Seconds
-18 - 10°C (0 - 50°F)	15 Seconds
-18°C and Below (0°F and Below)	25 Seconds

NOTE: You can hold the preheat switch for up to 25 seconds at a time while cranking.

Turn the key switch to the START position (Item 3) **[Figure 47]** and continue to crank for up to one minute or until the engine starts.

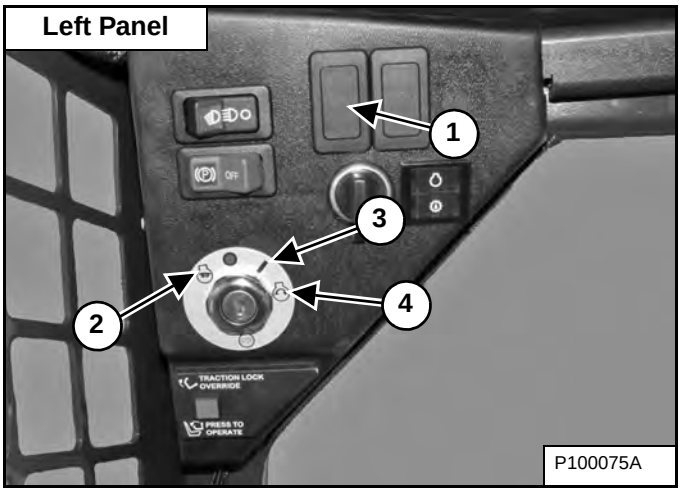
Release the key when the engine starts. It will return to the RUN position (Item 2) **[Figure 47]**.

Dealer Copy -- Not for Resale

Standard Key Panel (Cont'd)

All Models

Figure 48



Later Models Without Preheat Switch (Item 1)

If the temperature is cold, turn the key switch to the PREHEAT position (Item 2) **[Figure 48]**.

Release the key switch to stop engine preheat. A decal in the operator cab and the table below show suggested preheat times.

AMBIENT AIR TEMPERATURE	PREHEAT TIME
21°C and Above (70°F and Above)	None Required
10 - 21°C (50 - 70°F)	5 Seconds
-18 - 10°C (0 - 50°F)	15 Seconds
-18°C and Below (0°F and Below)	25 Seconds

Turn the key switch to the START position (Item 4) **[Figure 48]** and continue to crank for up to one minute or until the engine starts.

Release the key when the engine starts. It will return to the RUN position (Item 3) **[Figure 48]**.

Figure 49

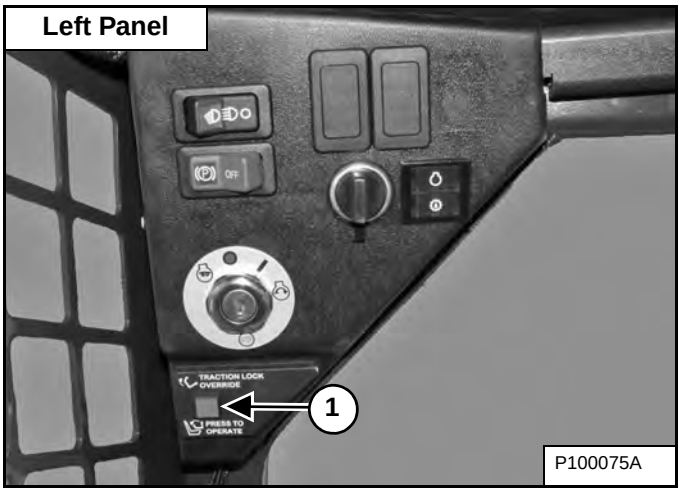
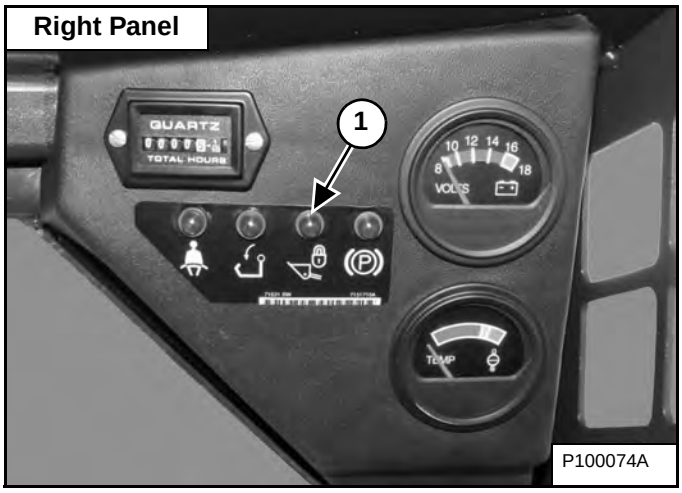


Figure 50



Press the PRESS TO OPERATE LOADER button (Item 1) **[Figure 49]** to activate the BICS™ and to perform hydraulic and loader functions. The Lift & Tilt Valve light (Item 1) **[Figure 50]** will be OFF when the BICS™ is active.

⚠ WARNING

AVOID INJURY OR DEATH

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.

W-2050-0807

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Keyless Start Panel

WARNING

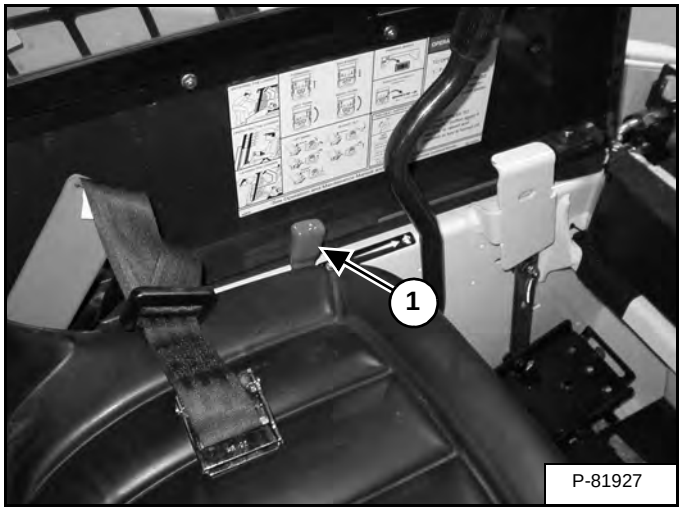
AVOID SERIOUS INJURY OR DEATH

- **Engines can have hot parts and hot exhaust gas. Keep flammable material away.**
- **Do not use machines in atmosphere containing explosive dust or gases.**

W-2051-0212

Perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 40.)

Figure 51



Move the engine speed control lever (Item 1) **[Figure 51]** to the mid position.

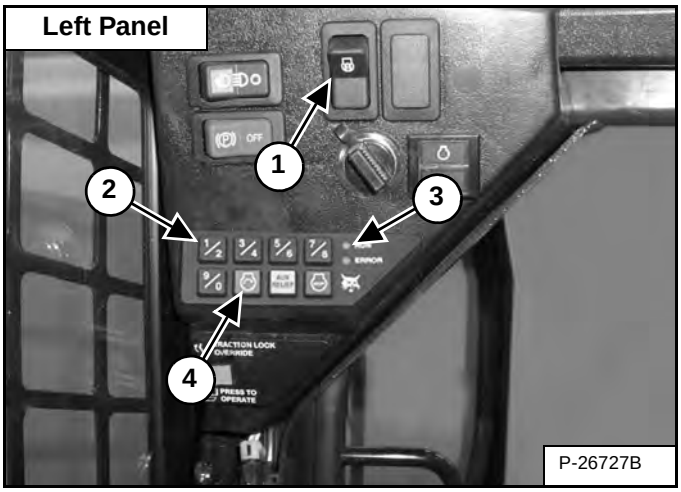
WARNING

AVOID INJURY OR DEATH

- **Fasten seat belt, start and operate only from the operator's seat.**
- **Never wear loose clothing when working near machine.**

W-2135-1108

Figure 52



Earlier Models With Preheat Switch (Item 1)

Enter the password / user code on the keypad (Item 2), the RUN light (Item 3) **[Figure 52]** will illuminate.

If the temperature is cold, press and hold the top of the preheat switch (Item 1) **[Figure 52]**. Release the switch to stop engine preheat.

A decal in the operator cab and the table below show suggested preheat times.

AMBIENT AIR TEMPERATURE	PREHEAT TIME
21°C and Above (70°F and Above)	None Required
10 - 21°C (50 - 70°F)	5 Seconds
-18 - 10°C (0 - 50°F)	15 Seconds
-18°C and Below (0°F and Below)	25 Seconds

NOTE: You can hold the preheat switch for up to 25 seconds at a time while cranking.

Press the start button (Item 4) **[Figure 52]** and continue to crank for up to one minute or until the engine starts.

Release the start button when the engine starts.

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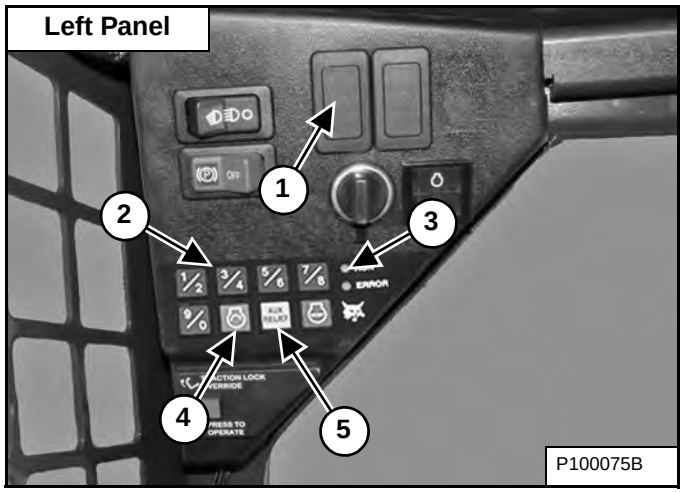
Keyless Start Panel (Cont'd)

All Models

Figure 53



Later Models Without Preheat Switch (Item 1)

Enter the password / user code on the keypad (Item 2), the RUN light (Item 3) **[Figure 53]** will illuminate.

If the temperature is cold, press and hold the AUX. RELIEF / Preheat button (Item 5) **[Figure 53]**. Release the button to stop engine preheat.

A decal in the operator cab and the table below show suggested preheat times.

AMBIENT AIR TEMPERATURE	PREHEAT TIME
21°C and Above (70°F and Above)	None Required
10 - 21°C (50 - 70°F)	5 Seconds
-18 - 10°C (0 - 50°F)	15 Seconds
-18°C and Below (0°F and Below)	25 Seconds

NOTE: You can hold the AUX. RELIEF / Preheat button for up to 25 seconds at a time while cranking.

Press the start button (Item 4) **[Figure 53]** and continue to crank for up to one minute or until the engine starts.

Release the start button when the engine starts.

Figure 54

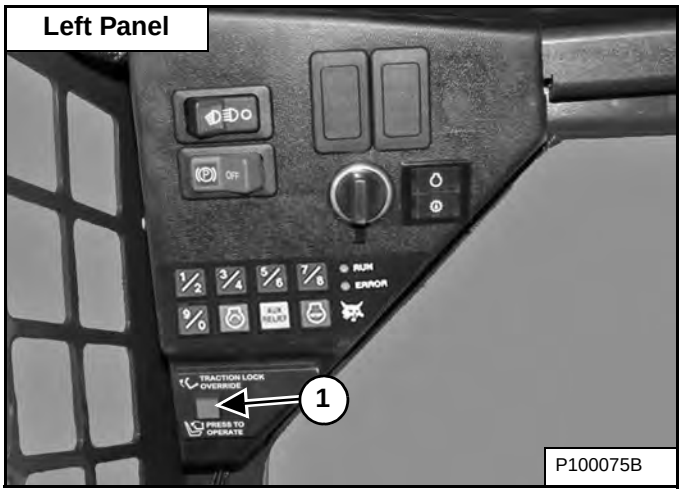
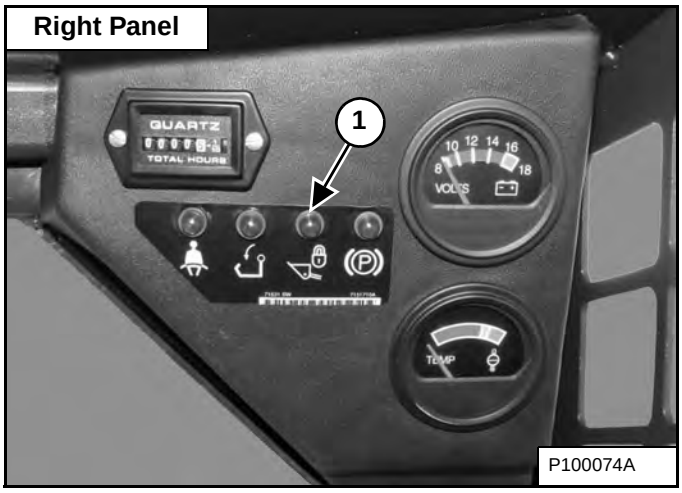


Figure 55



Press the PRESS TO OPERATE LOADER button (Item 1) **[Figure 54]** to activate the BICS™ and to perform hydraulic and loader functions. The Lift & Tilt Valve light (Item 1) **[Figure 55]** will be OFF when the BICS™ is active.

⚠ WARNING

AVOID INJURY OR DEATH

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.

W-2050-0807

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Cold Temperature Starting

WARNING

EXPLOSION CAN CAUSE SERIOUS INJURY, DEATH OR SEVERE ENGINE DAMAGE

DO NOT use ether or starting fluid with glow plug or air intake heater systems.

W-2071-0415

If the temperature is below freezing perform the following to make starting the engine easier:

- Replace the engine oil with the correct type and viscosity for the anticipated starting temperature (See Engine Oil Chart on Page 79.)
- Make sure the battery is fully charged.
- Install an engine heater, available from your local Bobcat dealer.

Warming The Hydraulic / Hydrostatic System

IMPORTANT

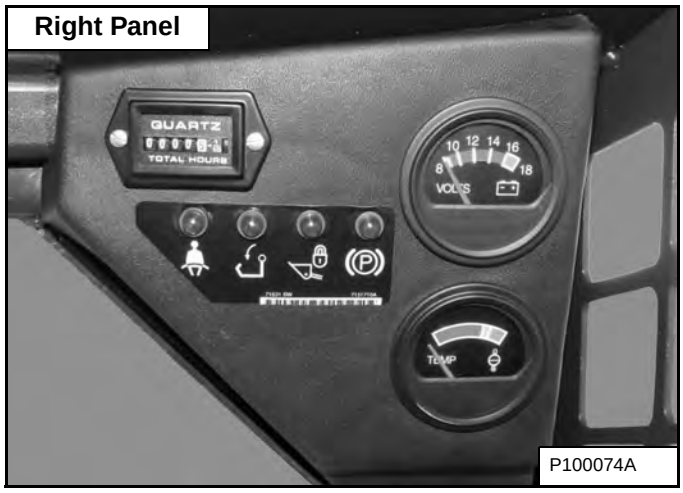
When the temperature is below -30°C (-20°F), hydrostatic oil must be warmed before starting. The hydrostatic system will not get enough oil at low temperatures and will be damaged. Park the machine in an area where the temperature will be above -18°C (0°F) if possible.

I-2007-0910

Let the engine run for a minimum of 5 minutes to warm the engine and hydrostatic transmission fluid before operating the loader.

Right Panel

Figure 56



Frequently monitor the temperature gauge and BICS™ lights **[Figure 56]**. All BICS™ lights must be off to operate the loader. (See BOBCAT INTERLOCK CONTROL SYSTEM (BICS™) on Page 63.)

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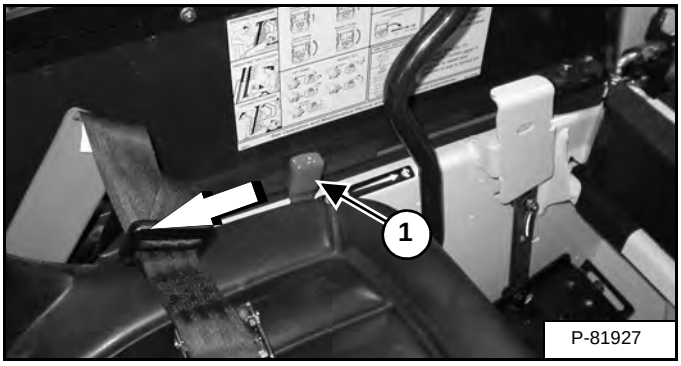
STOPPING THE ENGINE AND LEAVING THE LOADER

Procedure

Stop the Bobcat Loader on level ground.

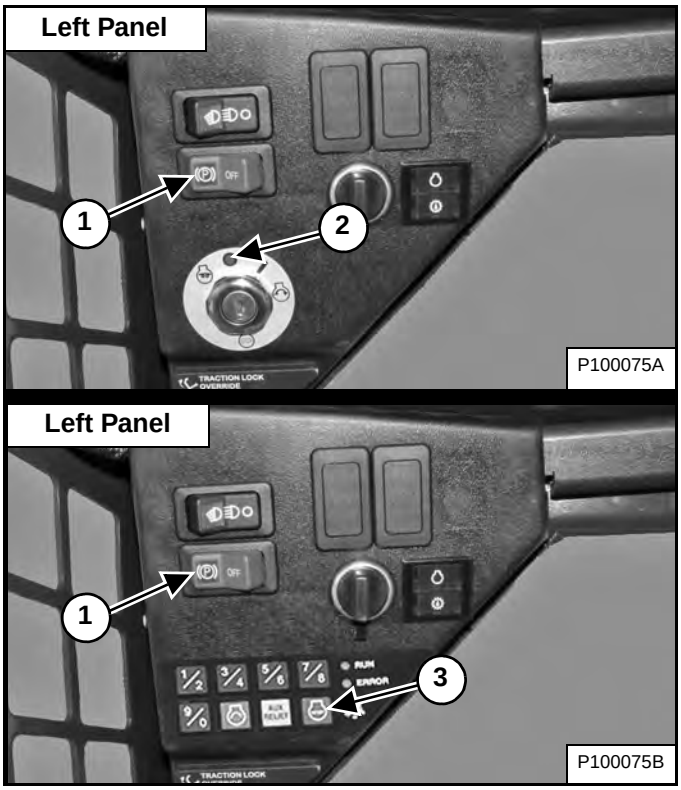
Lower the lift arms fully and put the attachment flat on the ground.

Figure 57



Pull the engine speed control lever (Item 1) **[Figure 57]** fully backward to decrease the engine speed.

Figure 58



Turn the key switch to the OFF position (Item 2) or press the STOP button (Item 3) **[Figure 58]**.

Engage the parking brake by pressing the left side of the parking brake switch (Item 1) **[Figure 58]**.

Raise the seat bar and make sure the lift and tilt functions are deactivated. Move the pedals until they both lock.

Move auxiliary hydraulic control lever out of detent position.

Unbuckle the seat belt.

Remove the key from the switch to prevent operation of the loader by unauthorized personnel. (Standard Key Panel only.)

Figure 59

Exit the loader using grab handles, safety tread and steps (maintaining a 3-point contact) **[Figure 59]**.

⚠ WARNING

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 the seat bar, move pedals until both lock.**
- **Move auxiliary hydraulic control lever out of detent position.**

W-2164-0108

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Choosing The Correct Bucket

⚠ WARNING

AVOID INJURY OR DEATH

Never use attachments or buckets which are not approved by Bobcat Company. Buckets and attachments for safe loads of specified densities are approved for each model. Unapproved attachments can cause injury or death.

W-2052-0907

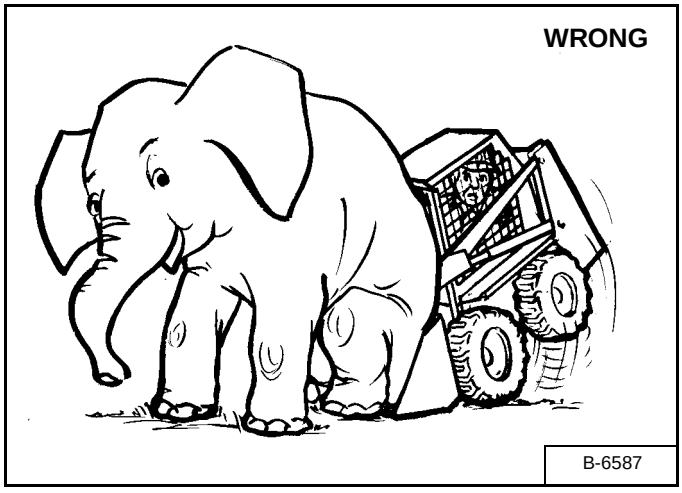
NOTE: Warranty is void if non-approved attachments are used on the Bobcat Loader.

The dealer can identify, for each model loader, the attachments and buckets approved by Bobcat. The buckets and attachments are approved for Rated Operating Capacity (ROC) and for secure fastening to the Bob-Tach.

The ROC for this loader is shown on a decal in the operator cab. (See Performance on Page 119.)

The ROC is determined by using a standard bucket, and material of normal density, such as dirt or dry gravel. If longer buckets are used, the load center moves forward and reduces the ROC. If very dense material is loaded, the volume must be reduced to prevent overloading.

Figure 60



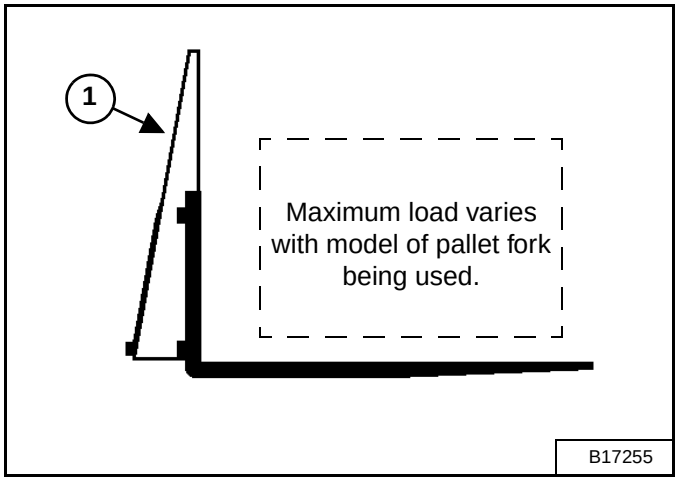
Exceeding the ROC **[Figure 60]** can cause the following problems:

- Steering the loader may be difficult.
- Tires will wear faster.
- There will be a loss of stability.
- The life of the Bobcat Loader will be reduced.

Use the correct bucket size for the type and density of material being handled. For safe handling of materials and avoiding machine damage, the attachment (or bucket) should handle a full load without going over the ROC for the loader. Partial loads make steering more difficult.

Pallet Forks

Figure 61



The maximum load to be carried when using a pallet fork is shown on a decal located on the pallet fork frame (Item 1) **[Figure 61]**.

See your Bobcat dealer for more information about pallet fork inspection, maintenance and replacement. See your Bobcat Loader dealer for ROC when using a pallet fork and for other available attachments.

⚠ WARNING

AVOID INJURY OR DEATH

Do not exceed Rated Operating Capacity (ROC). Excessive load can cause tipping or loss of control.

W-2053-0903

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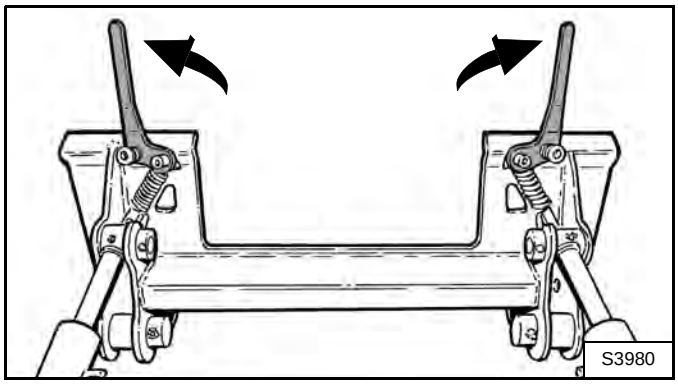
Installing And Removing The Attachment

The Bob-Tach is used for fast changing of buckets and attachments. See the appropriate attachment Operation & Maintenance Manual to install other attachments.

Installing

Figure 62

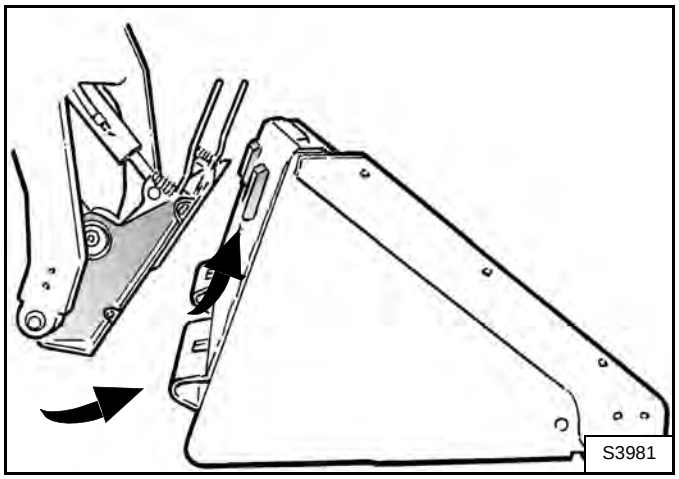


Pull the Bob-Tach levers all the way up **[Figure 62]**.

Enter the loader and perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 40.) Start the engine.

Lower the lift arms and tilt the Bob-Tach slightly forward.

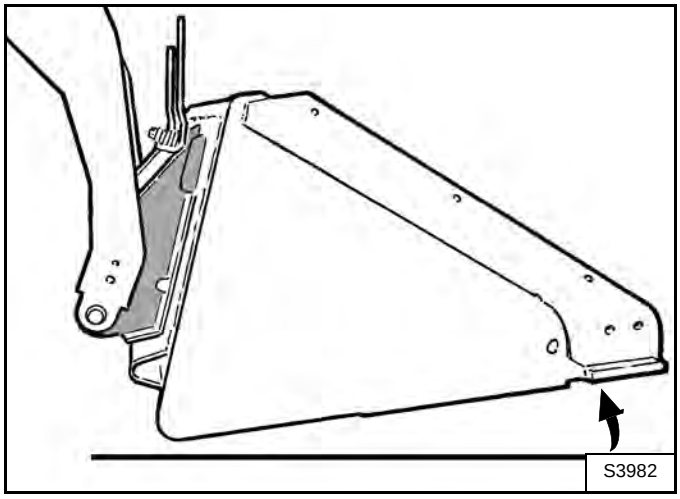
Figure 63



Disengage the parking brake and drive the loader forward until the top edge of the Bob-Tach is completely under the top flange of the bucket **[Figure 63]** (or other attachment).

NOTE: Make sure the Bob-Tach levers do not hit the bucket (or other attachment).

Figure 64



Tilt the Bob-Tach backward until the cutting edge of the bucket (or other attachment) is slightly off the ground **[Figure 64]**. This will cause the bucket frame to fit up against the front of the Bob-Tach.

⚠ WARNING

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 the seat bar, move pedals until both lock.**
- **Move auxiliary hydraulic control lever out of detent position.**

W-2164-0108

Stop the engine, engage the parking brake, raise the seat bar, unfasten the seat belt and exit the loader.

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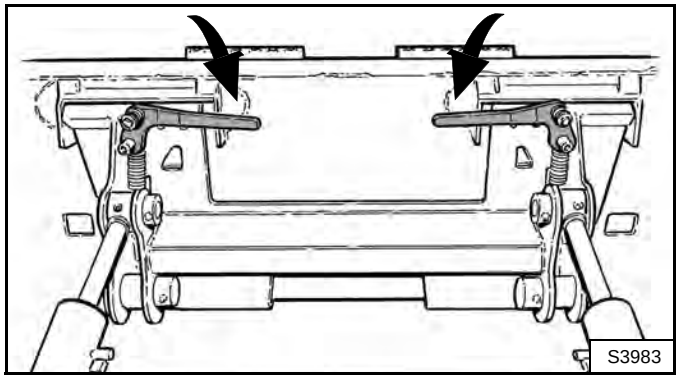
Installing And Removing The Attachment (Cont'd)

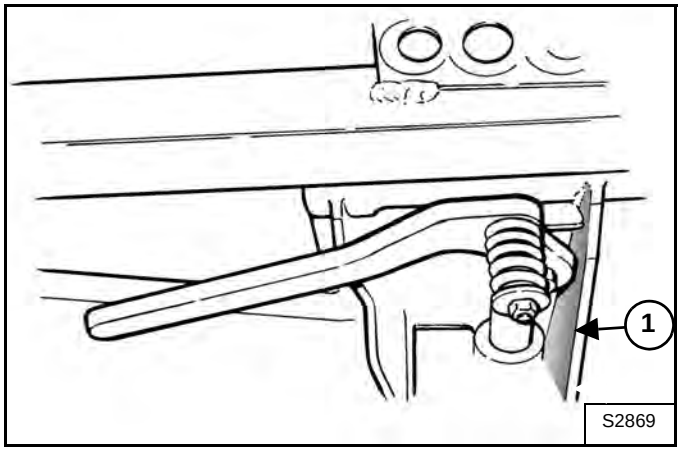
Installing (Cont'd)

Figure 65



Push down on the Bob-Tach levers until they are fully engaged in the locked position **[Figure 65]**.

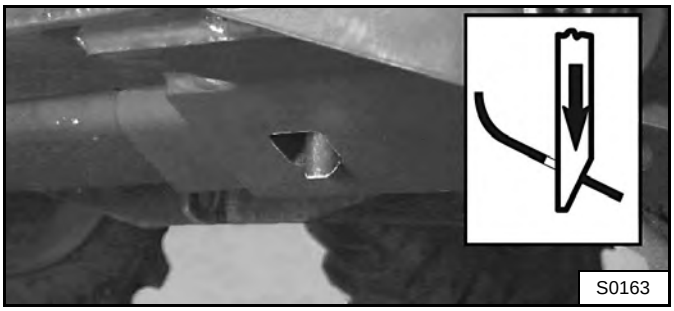
Figure 66



The levers must contact the frame at the shaded areas (Item 1) **[Figure 66]** (wedges fully extended).

If the levers do not engage in the locked position, contact your Bobcat dealer for maintenance.

Figure 67



The wedges must extend through the holes in the mounting frame of the bucket (or attachment) and touch the lower edge of these holes, securely fastening the bucket to the Bob-Tach **[Figure 67]**.

WARNING

AVOID INJURY OR DEATH

The Bob-Tach wedges must extend through the holes in the attachment mounting frame. Levers must be fully down and locked. Failure to secure wedges can allow attachment to come off.

W-2715-0208

If the attachment is hydraulically controlled, connect the hydraulic hoses of the attachment to the loader (See Quick Couplers on Page 35.) You may need to release hydraulic pressure before connecting the quick couplers. (See Relieve Auxiliary Hydraulic Pressure (Loader And Attachment) on Page 36.)

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Installing And Removing The Attachment (Cont'd)

Removing

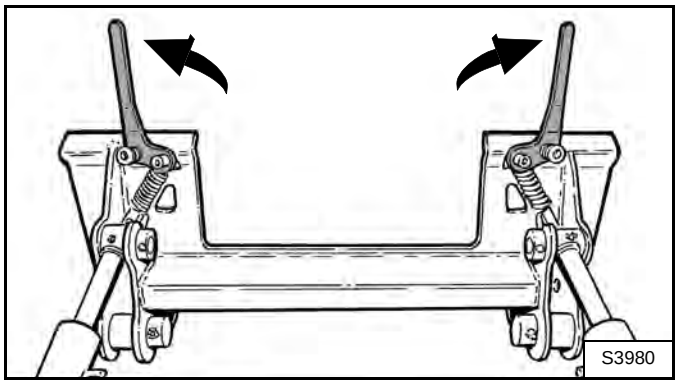
- Lower the lift arms, put the attachment flat on the ground and lower or close the hydraulic equipment.
- If the attachment is hydraulically controlled (Combination bucket, backhoe, etc.): stop the engine and relieve hydraulic pressure in the auxiliary circuit (See Relieve Auxiliary Hydraulic Pressure (Loader And Attachment) on Page 36.)
- Stop the engine, engage the parking brake, raise the seat bar, unfasten the seat belt and exit the loader.
- Disconnect the hydraulic hoses from the attachment.

⚠ WARNING

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 the seat bar, move pedals until both lock.**
- **Move auxiliary hydraulic control lever out of detent position.**

W-2164-0108

Figure 68



Pull the Bob-Tach levers all the way up **[Figure 68]**.

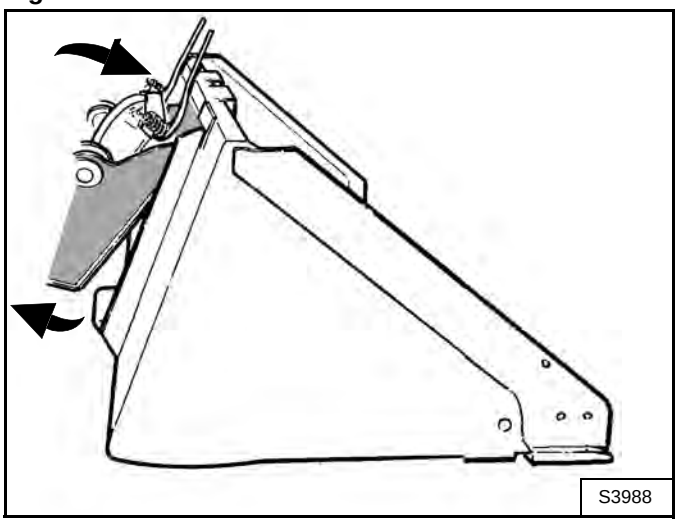
⚠ WARNING

Bob-Tach levers have spring tension. Hold lever tightly and release slowly. Failure to obey warning can cause injury.

W-2054-1285

Enter the loader and perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 40.) Start the engine and disengage the parking brake.

Figure 69



Tilt the Bob-Tach forward while backing the loader away from the bucket or attachment **[Figure 69]**.

NOTE: In muddy conditions or to prevent the attachment from freezing to the ground, put the attachment on planks or blocks before removing it from the machine.

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OPERATING PROCEDURE

Inspect The Work Area

Before beginning operation, inspect the work area for unsafe conditions.

Look for sharp drop-offs or rough terrain. Have underground utility lines (gas, electrical, water, sewer, irrigation, etc.) located and marked.

Remove objects or other construction material that could damage the loader or cause personal injury.

Always check ground conditions before starting your work:

- Inspect for signs of instability such as cracks or settlement.
- Be aware of weather conditions that can affect ground stability.
- Check for adequate traction if working on a slope.

Basic Operating Instructions

Always warm the engine and hydrostatic system before operating the loader.

IMPORTANT

Machines warmed up with moderate engine speed and light load have longer life.

I-2015-0284

Operate the loader with engine at full speed for maximum horsepower. Move the steering levers only a small amount to operate the loader slowly.

New operators must operate the loader in an open area without bystanders. Operate the controls until the loader can be handled at an efficient and safe rate for all conditions of the work area.

Operating Near An Edge Or Water

Keep the loader as far back from the edge as possible and the loader wheels perpendicular to the edge so that if part of the edge collapses, the loader can be moved back.

Always move the loader back at any indication the edge may be unstable.

⚠ WARNING

MACHINE TIPPING OR ROLLOVER CAN CAUSE SERIOUS INJURY OR DEATH

- **Keep the lift arms as low as possible.**
- **Do not travel or turn with the lift arms up.**
- **Turn on level ground. Slow down when turning.**
- **Go up and down slopes, not across them.**
- **Keep the heavy end of the machine uphill.**
- **Do not overload the machine.**
- **Check for adequate traction.**

W-2018-1112

Driving On Public Roads

When operating on a public road or highway, always follow local regulations. For example: Slow Moving Vehicle Sign or direction signals may be required.

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Operating With A Full Bucket

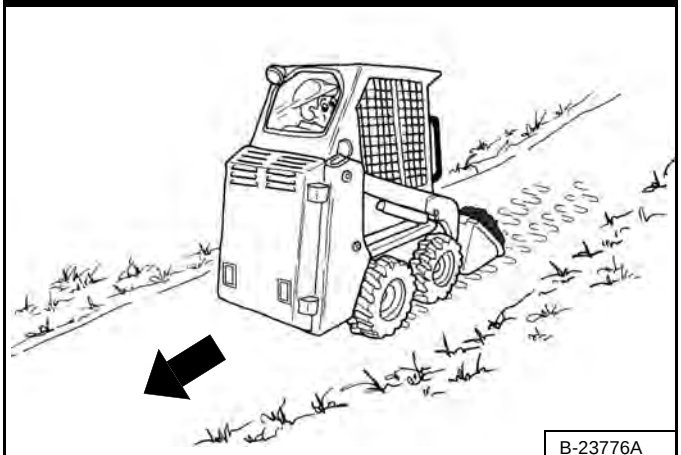
Figure 70

WITH BUCKET FULL

Going Up Slope

Figure 71

WITH BUCKET FULL



Going Down Slope

With a full bucket, go up or down the slope with the bucket (heavy end) toward the top of the slope **[Figure 70]** and **[Figure 71]**.

Operating With An Empty Bucket

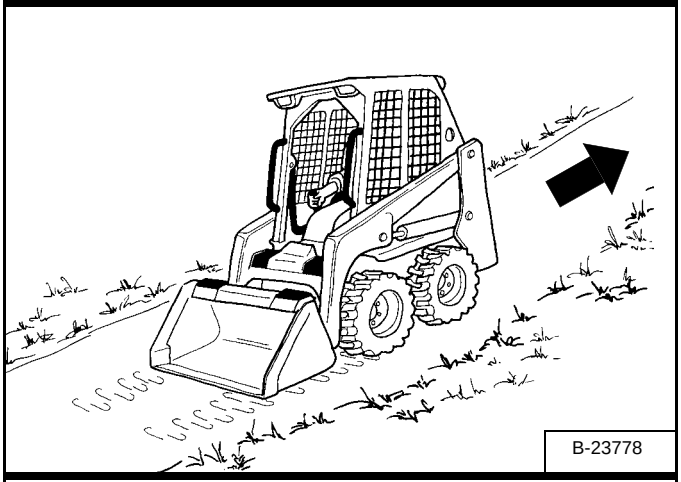
Figure 72

WITH BUCKET EMPTY

Going Down Slope

Figure 73

WITH BUCKET EMPTY



Going Up Slope

With an empty bucket, go up or down the slope with the back of the loader (heavy end) toward the top of the slope **[Figure 72]** and **[Figure 73]**.

Raise the bucket only high enough to avoid obstructions on rough ground.

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TOWING THE LOADER

Procedure

Because of the design of the loader, there is not a recommended towing procedure.

- The loader can be lifted onto a transport vehicle.
- The loader can be skidded a short distance to move for service (EXAMPLE: Move onto a transport vehicle.) without damage to the hydrostatic system. (The wheels will not turn.) There might be slight wear to the tires when the loader is skidded.

The towing chain (or cable) must be rated at 1.5 times the weight of the loader. (See Performance on Page 119.)

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LIFTING THE LOADER

Single-Point Lift

WARNING

AVOID INJURY OR DEATH

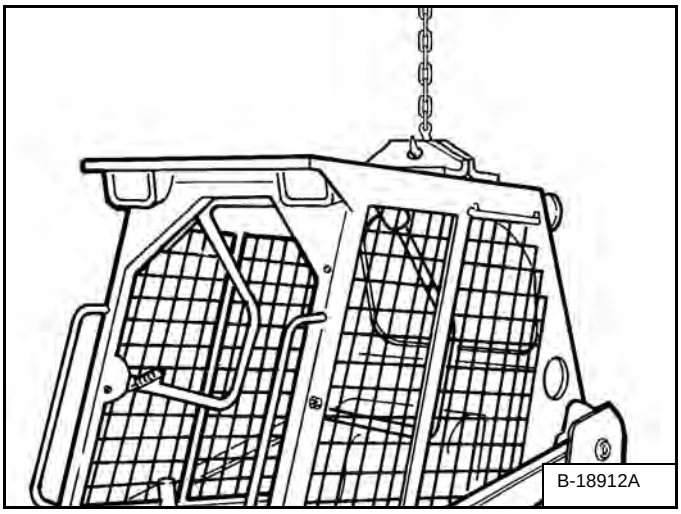
- **Before lifting, check fasteners on single point lift and operator cab.**
- **Assemble front cab fasteners as shown in this manual.**
- **Never allow riders in the cab or bystanders within 5 m (15 ft) while lifting the machine.**

W-2007-0910

The loader can be lifted with the Single-Point Lift which is available as a kit from your Bobcat Loader dealer.

The Single-Point Lift, supplied by Bobcat, is designed to lift and support the Bobcat Loader without affecting rollover and falling object protection features of the operator cab.

Figure 74



Attach lift to lift eye **[Figure 74]**.

NOTE: Be sure the lifting equipment is of adequate size and capacity for the weight of the loader. (See Performance on Page 119.)

TRANSPORTING THE LOADER ON A TRAILER

Loading And Unloading

WARNING

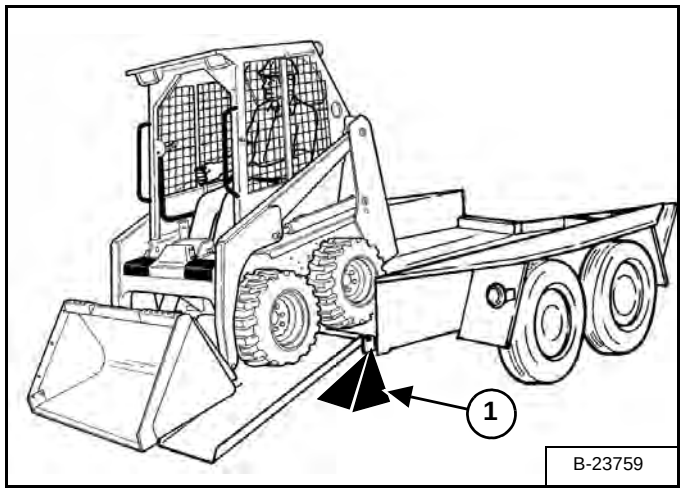
AVOID SERIOUS INJURY OR DEATH

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-2058-0807

Be sure the transport and towing vehicles are of adequate size and capacity for the weight of the loader. (See Performance on Page 119.)

Figure 75



A loader with an empty bucket or no attachment must be loaded backward onto the transport vehicle **[Figure 75]**.

The rear of the trailer must be blocked or supported (Item 1) **[Figure 75]** when loading or unloading the loader to prevent the front end of the trailer from raising up.

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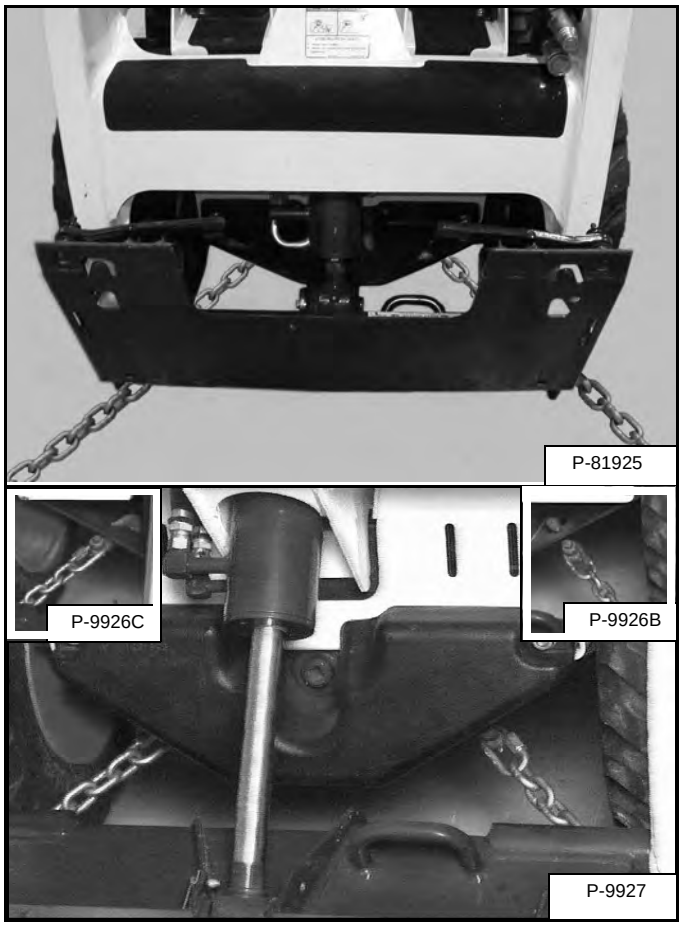
Fastening

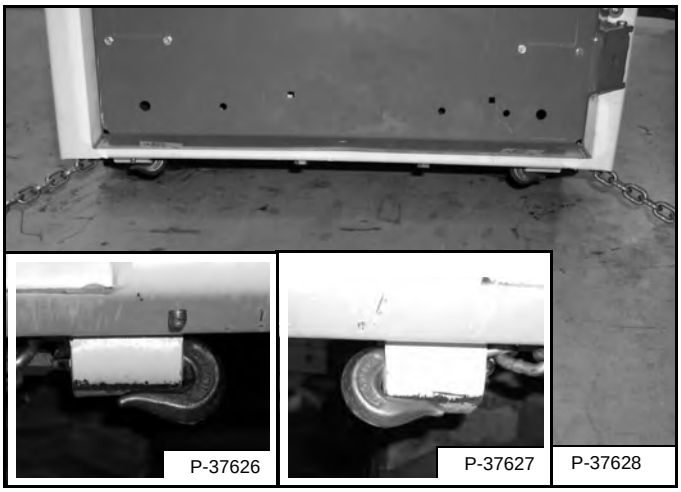
Figure 76



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 **[Figure 76]**.

- Lower the bucket or attachment to the floor.
- Stop the engine.
- Engage the parking brake.
- Install chains at the front tie down positions **[Figure 76]**.
- Fasten each end of the chain to the transport vehicle.

Figure 77



- Install chains at the rear tie down positions **[Figure 77]**.
- Fasten each end of the chain to the transport vehicle.

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PREVENTIVE MAINTENANCE

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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-2003-0807

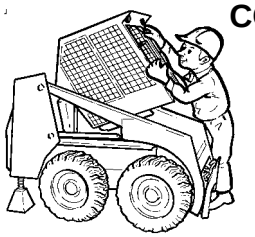
Safety Alert Symbol: This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.

CORRECT

P-90216

Never service the Bobcat Skid-Steer Loader without instructions.

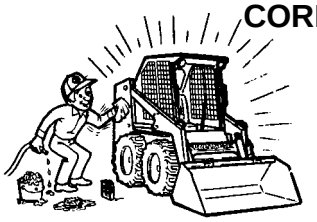
CORRECT



B-12365

Use the correct procedure to lift or lower operator cab.

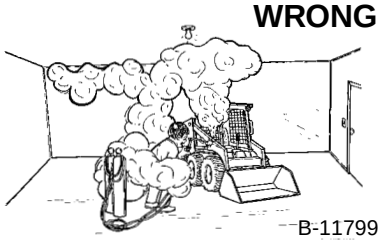
CORRECT



B-7469

Cleaning and maintenance are required daily.

WRONG



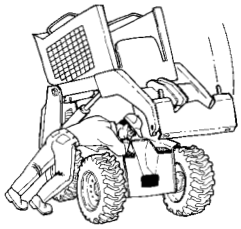
B-11799

Have good ventilation when welding or grinding painted parts.

Wear dust mask when grinding painted parts. Toxic dust and gas can be produced.

Avoid exhaust fume leaks which can kill without warning. Exhaust system must be tightly sealed.

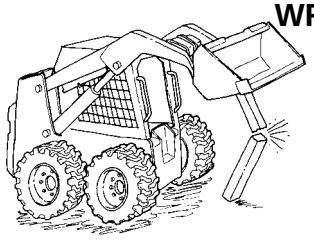
WRONG



B-15231

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

WRONG

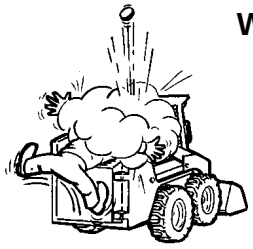


B-15280

Never work on loader with lift arms up unless lift arms are held by an approved lift arm support device. Replace if damaged.

Never modify equipment or add attachments not approved by Bobcat Company.

WRONG



B-6590

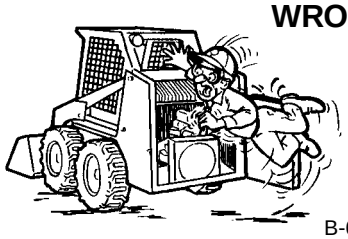
Stop, cool and clean engine of flammable materials before checking fluids.

Never service or adjust loader with the engine running unless instructed to do so in the manual.

Avoid contact with leaking hydraulic fluid or diesel fuel under pressure. It can penetrate the skin or eyes.

Never fill fuel tank with engine running, while smoking or when near open flame.

WRONG



B-6580

Keep body, jewelry and clothing away from moving parts, electrical contact, hot parts and exhaust.

Wear eye protection to guard from battery acid, compressed springs, fluids under pressure and flying debris when engines are running or tools are used. Use eye protection approved for type of welding.

Keep rear door closed except for service. Close and latch door before operating the loader.

WRONG

B-6589

Lead-acid batteries produce flammable and explosive gases.

Keep arcs, sparks, flames and lighted tobacco away from batteries.

Batteries contain acid which burns eyes or skin on contact. Wear protective clothing. If acid contacts body, flush well with water. For eye contact flush well and get immediate medical attention.

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

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SERVICE SCHEDULE

Chart

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, 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-2003-0807

SERVICE SCHEDULE		HOURS						
ITEM	SERVICE REQUIRED	8-10	50	100	150	■ 250	■ 500	■ 1000
Engine Oil	Check the oil level and add as needed. Do not overfill.							
Engine Air Filter and Air System	Check condition indicator. Service only when required. Check for leaks and damaged components.							
Engine Cooling System	Clean debris from oil cooler, radiator and e. Check coolant level COLD and add premixed coolant as needed.							
Fuel Filter	Remove the trapped water.							
Lift Arms, Cylinders, Bob-Tach Pivot Pins and Wedges	Lubricate with multipurpose lithium based grease.							
Tires	Check for damaged tires and correct air pressure. Inflate to MAXIMUM pressure shown on sidewall of tire.							
Seat Bar, Control Interlocks, Seat Belt	Check the condition of seat belt. Check the sear bar and control interlocks for correct operation. Clean dirt and debris from moving parts.							
Front Horn / Back-up Alarm	Check for proper function.							
Bobcat Interlock Control Systems (BICS™)	Check for correct function. Lift and Tilt functions MUST NOT operate with seat bar raised. See details in this Manual.							
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 the cab.							
Indicators and Lights	Check for correct operation of all indicators and lights.							
Heater Filter (If Equipped)	Clean or replace filter as needed.							
Hydraulic Fluid, Hoses and Tubelines	Check fluid level and add as needed. Check for damage and leaks. Repair or replace as needed.							
Final Drive Trans. (Chaincase)	Check oil level and add oil as needed.							
Parking Brake, Foot Pedals and Steering Levers	Check for correct operation. Repair or adjust as needed.							
Wheel Nuts	Check for loose wheel nuts and tighten to correct torque. (See TIRE MAINTENANCE in this manual.)	❑						
Battery	Check cables and connections.							
Spark Arrester Muffler	Empty Spark Chamber.							
Engine Oil and Filter	Replace oil and filter.		✳					
Alternator Belt	Check tension and adjust as needed.							
Fuel Filter	Replace filter element.							
Steering Shaft	Grease fittings.							
Engine / Hydro. Drive Belt	Check for wear or damage. Adjust or replace as needed.		❍					
Bobcat Interlock Control System (BICS™)	Check the function of the lift arm bypass control.							
Hydraulic Reservoir Breather Cap	Replace the reservoir breather cap.							
Hyd./Hydro. Filter	Replace the filter element.		●					
Final Drive Trans. (Chaincase)	Replace the fluid.							
Hydraulic Reservoir	Replace the fluid.							
Coolant	Replace the coolant	Every 2 years						

❑ **Check every 8 - 10 hours for the first 50 hours, then as scheduled.**

✳ **First oil and filter change must occur at 50 hours, then as scheduled.**

❍ **Inspect new belt after first 50 hours, then as scheduled.**

● **Replace the hydraulic / hydrostatic filter element after the first 50 hours; thereafter when the transmission warning light comes ON while operating or as scheduled.**

■ **Or every 12 months.**

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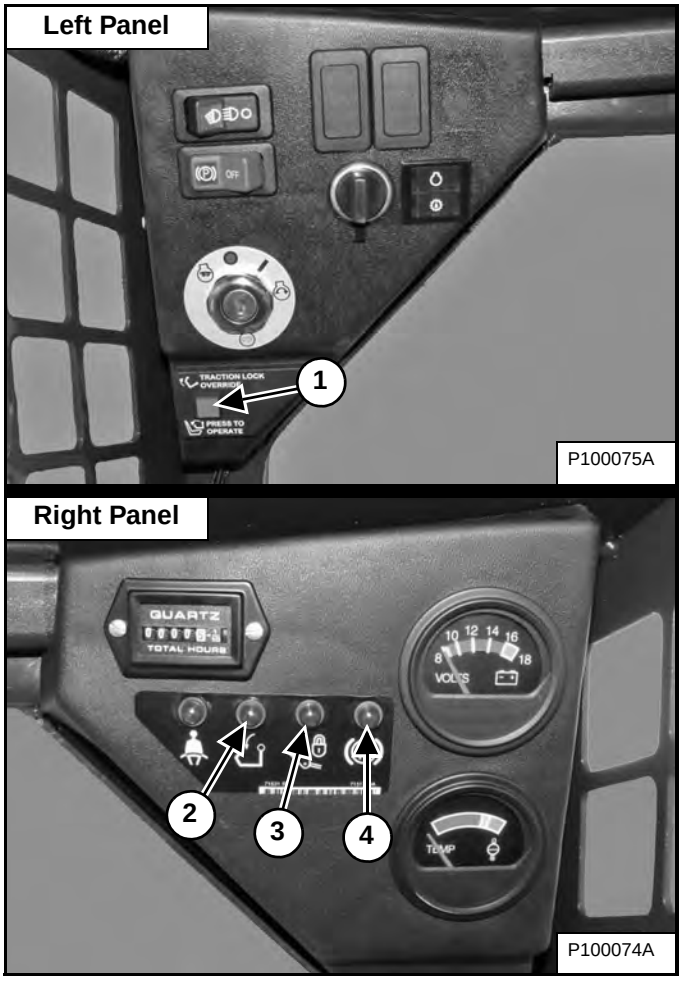
BOBCAT INTERLOCK CONTROL SYSTEM (BICS™)

Perform the procedures on flat level ground and make sure the area is clear of bystanders.

Inspecting The BICS™ (Engine STOPPED - Key ON)

Figure 78



1. Sit in the operator's seat, fasten the seat belt, turn the key ON (Keyless Start Panel - enter the password / user code on the keypad), lower the seat bar and disengage the parking brake. Press the PRESS TO OPERATE LOADER button (Item 1). The three BICS™ lights (Items 2, 3 and 4) on the right instrument panel must be OFF (SEAT BAR, LIFT & TILT VALVE, and PARKING BRAKE) **[Figure 78]**.

2. Raise the seat bar fully. The three BICS™ lights (Items 2, 3 and 4) **[Figure 78]** on the right instrument panel must be ON (SEAT BAR, LIFT & TILT VALVE, and PARKING BRAKE).

NOTE: Record what lights are blinking (if any) and the number of light flashes.

Inspecting The Seat Bar Sensor (Engine RUNNING)

3. Fasten the seat belt, lower the seat bar and make sure the parking brake is engaged.

4. Start the engine and operate at low idle. Press the PRESS TO OPERATE LOADER button. While raising the lift arms, raise the seat bar fully. The lift arms must stop. Repeat using the tilt function.

Inspecting The Traction Lock And Parking Brake (Engine RUNNING)

5. Fasten seat belt, lower the seat bar, disengage the parking brake and press the PRESS TO OPERATE LOADER button. Raise the seat bar fully and move the steering levers slowly forward and backward. The traction drive system will be locked.

6. Fasten seat belt, lower the seat bar and press the PRESS TO OPERATE LOADER button. Engage the parking brake and move the steering levers slowly forward and backward. The traction drive system will be locked. See your Bobcat dealer for service if loader fails to stop.

NOTE: The PARKING BRAKE light on the left instrument panel will remain ON until the engine is started, the PRESS TO OPERATE LOADER button is pressed and the parking brake is disengaged.

Inspecting The Lift Arm Bypass Control

7. Raise the lift arms 2 m (6 ft) off the ground. Stop the engine. Turn the lift arm bypass control knob clockwise 1/4 turn. Pull out and hold the knob until the lift arms slowly lower.

⚠ WARNING

AVOID INJURY OR DEATH

The Bobcat Interlock Control System (BICS™) must deactivate the lift, tilt, traction drive and front auxiliary hydraulic functions. If it does not, contact your dealer for service. DO NOT modify the system.

W-2689-0813

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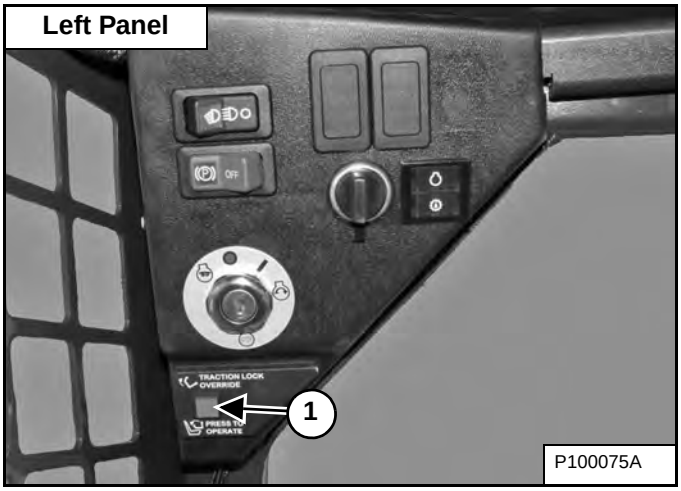
Inspecting Deactivation Of The Auxiliary Hydraulics System

Perform the procedures on flat level ground and make sure the area is clear of bystanders.

Engine Starting

Figure 79



8. Install an attachment with hydraulic connections. (See Installing And Removing The Attachment on Page 50.) Perform the pre-starting procedure. (See PRE-STARTING PROCEDURE on Page 40.) Fasten the seat belt, lower the seat bar and make sure the parking brake is engaged. Start the engine. Move the Auxiliary Hydraulic Control Lever to the left or the right. (See Front Auxiliary Hydraulics Operation on Page 34.). There will not be hydraulic oil flow to the attachment.

   Press the PRESS TO OPERATE LOADER button (Item 1) **[Figure 79]** and then engage the auxiliary hydraulics. The auxiliary hydraulic oil will flow to the attachment.

Engine Running

9. Install an attachment with hydraulic connections. (See Installing And Removing The Attachment on Page 50.) Perform the pre-starting procedure. (See PRE-STARTING PROCEDURE on Page 40.) Fasten the seat belt, lower the seat bar and make sure the parking brake is engaged. Start the engine. Press the PRESS TO OPERATE LOADER button (Item 1) **[Figure 79]**. Move the Auxiliary Hydraulic Control Lever to the left or the right. The auxiliary hydraulic oil will flow to the attachment. (See Front Auxiliary Hydraulics Operation on Page 34.) Raise the seat bar. The auxiliary hydraulic oil flow to the attachment will STOP.

⚠ WARNING

AVOID INJURY OR DEATH

The Bobcat Interlock Control System (BICS™) must deactivate the lift, tilt, traction drive and front auxiliary hydraulic functions. If it does not, contact your dealer for service. DO NOT modify the system.

W-2689-0813

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SEAT BAR RESTRAINT SYSTEM

Description

The seat bar restraint system has a pivoting seat bar with armrests.

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 foot pedals have mechanical interlocks for the lift and tilt functions. The mechanical interlocks require the operator to lower the seat bar in order to operate the foot pedal controls.

When the seat bar is down, the PRESS TO OPERATE LOADER button is activated and the engine is running, the lift, tilt and traction drive functions can be operated.

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

Inspecting

Sit in the seat and fasten the seat belt. Engage the parking brake. Pull the seat bar all the way down. Start the engine. Press the PRESS TO OPERATE LOADER button.

Operate the hydraulic controls to check that both the lift and tilt functions operate correctly. Raise the lift arms until the attachment is about 600 mm (2 ft) off the ground.

Raise the seat bar. Move the hydraulic controls. Pedals must be firmly locked in the NEUTRAL position. There must be no motion of the lift arms or tilt (attachment) when the controls are moved.

Lower the seat bar, press the PRESS TO OPERATE LOADER button, lower the lift arms. Operate the lift control. While the lift arms are going up, raise the seat bar. The lift arms must stop.

Lower the seat bar, press the PRESS TO OPERATE LOADER button, lower the lift arms and put the attachment flat on the ground. Stop the engine. Raise the seat bar. Operate the foot pedals to be sure they are firmly locked in the NEUTRAL position.

⚠ WARNING

The seat bar system must deactivate the lift and tilt control functions when the seat bar is up. See your Bobcat dealer for service if hydraulic controls do not deactivate.

W-2465-0111

Maintaining

See the service schedule for correct service interval. (See SERVICE SCHEDULE on Page 62.)

Figure 80

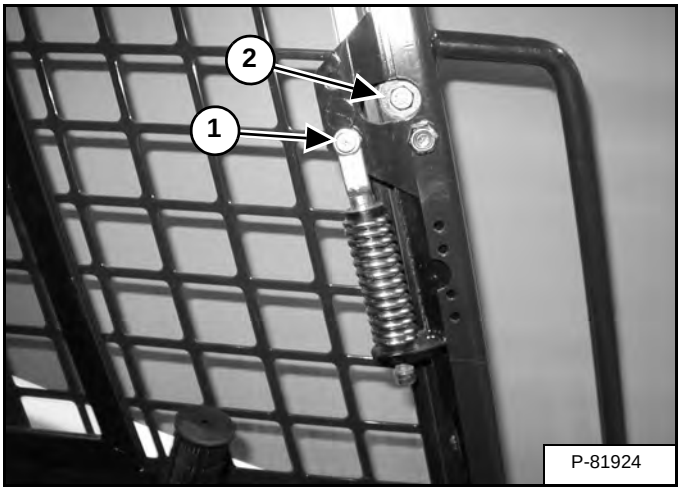
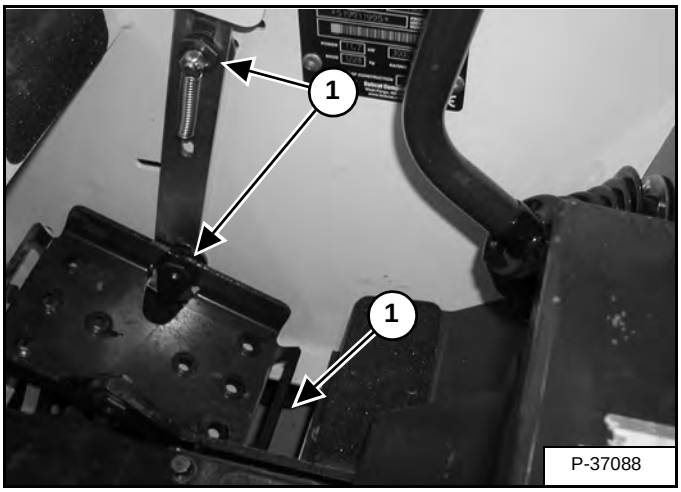


Figure 81



Use compressed air to clean any debris or dirt from the pivot parts (Item 1) **[Figure 80]** and **[Figure 81]**. Do not lubricate. Inspect all mounting hardware. The correct bolt torque is 34 - 38 N•m (25 - 28 ft-lb) for the seat bar pivot (Item 2) **[Figure 80]**.

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 Bobcat replacement parts.

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SEAT BELT

Inspection And Maintenance

WARNING

Failure to properly inspect and maintain the seat belt can cause lack of operator restraint resulting in serious injury or death.

W-2466-0703

Check the seat belt daily for correct function.

Inspect the seat belt system thoroughly yearly or more often if the machine is exposed to severe environmental conditions or applications.

The seat belt system should be repaired or replaced if it shows cuts, fraying, extreme or unusual wear, significant discolorations due to ultraviolet (UV) rays from the sun, dusty/dirty conditions, abrasion to the seat belt webbing, or damage to the buckle, latch plate, retractor (if equipped), or hardware.

The items below are referenced in **[Figure 82]**.

1. Check the seat belt webbing. If the system is equipped with a retractor, pull the webbing completely out and inspect the full length of the webbing. Look for cuts, wear, fraying, dirt and stiffness.

2. Check the buckle and latch for proper function. Make sure latch plate is not excessively worn, deformed or buckle is not damaged.

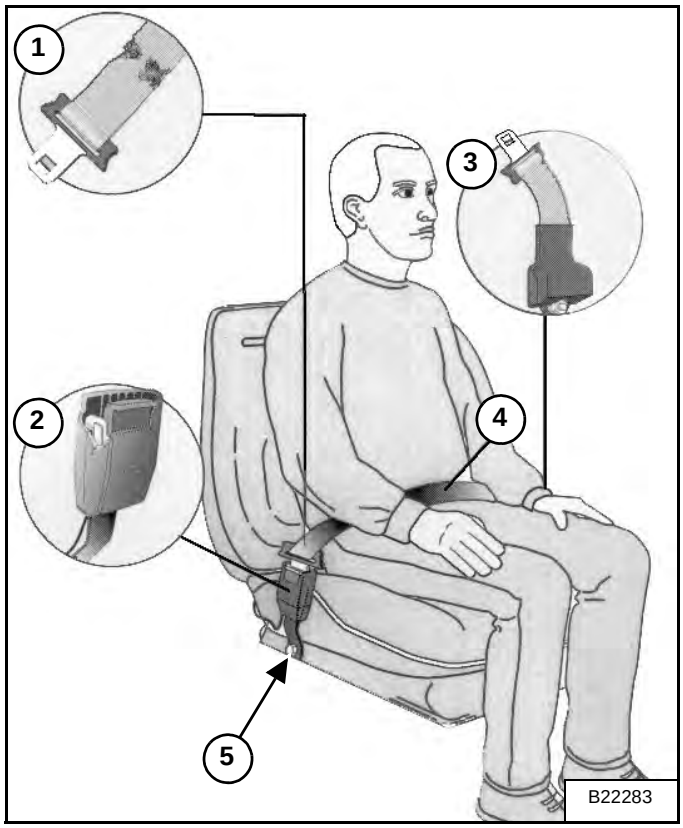
3. Check the retractor web storage device (if equipped) by extending the seat belt webbing to determine if it extends and retracts the webbing correctly.

4. Check webbing in areas exposed to ultraviolet (UV) rays from the sun or extreme dust or dirt. If the original color of the webbing in these areas is extremely faded and / or the webbing is packed with dirt, the webbing strength may have weakened.

5. Check the hardware on both sides of the seat. Hardware should be tight. Hardware must not be missing, rusted, corroded, or damaged.

See your Bobcat dealer for approved seat belt system replacement parts for your machine.

Figure 82



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LIFT ARM SUPPORT DEVICE

Installing

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.

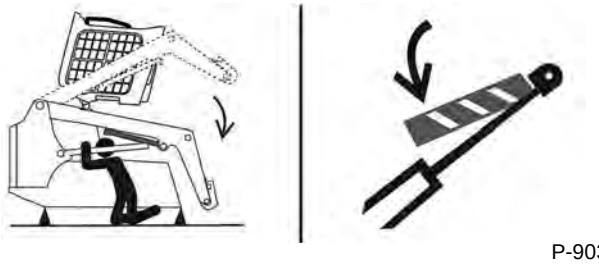
⚠ WARNING

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

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-2572-0407

⚠ DANGER



P-90328

AVOID DEATH

- **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.**

D-1009-0409

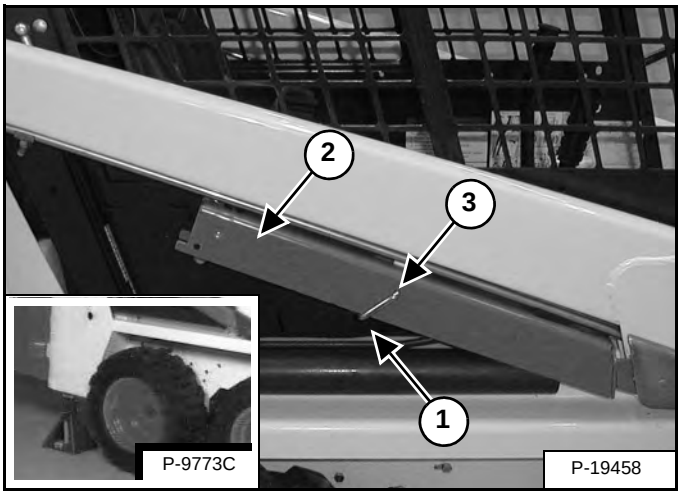
Remove the attachment from the loader. (See Installing And Removing The Attachment on Page 50.)

⚠ WARNING

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

W-2014-0895

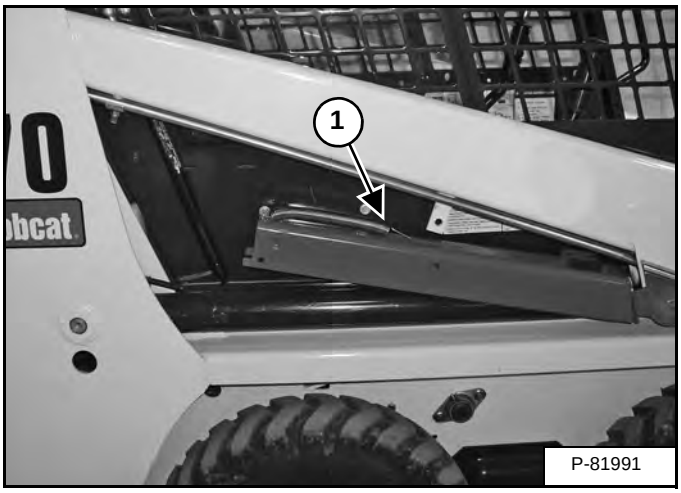
Figure 83



Put jackstands under the rear corners of the loader frame (Inset) **[Figure 83]**.

Disconnect the spring (Item 1) from the lift arm support device retaining pin, Support the lift arm support device (Item 2) with your hand and remove the retaining pin (Item 3) **[Figure 83]**.

Figure 84



Lower the lift arm support device to the top of the lift cylinder. Hook the free end of the spring (Item 1) **[Figure 84]** to the lift arms support device so there will be no interference with the support device engagement.

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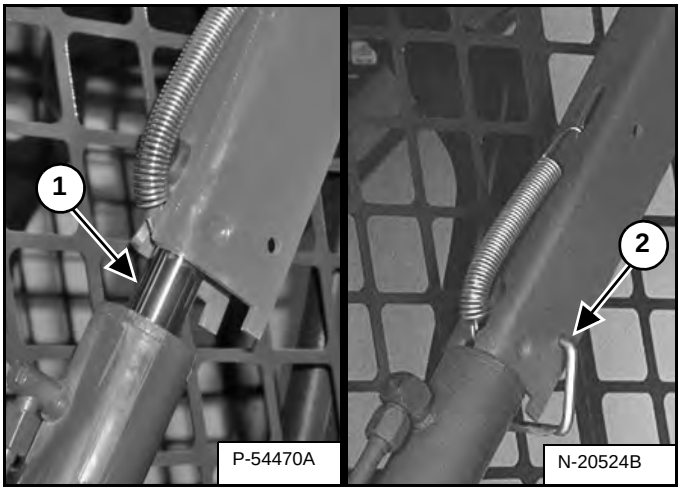
LIFT ARM SUPPORT DEVICE (CONT'D)

Installing (Cont'd)

With the operator in the seat, seat belt fastened and seat bar lowered, start the engine, press the PRESS TO OPERATE LOADER button.

Figure 85



Raise the lift arms until the lift arm support device drops onto the lift cylinder rod (Item 1) **[Figure 85]**.

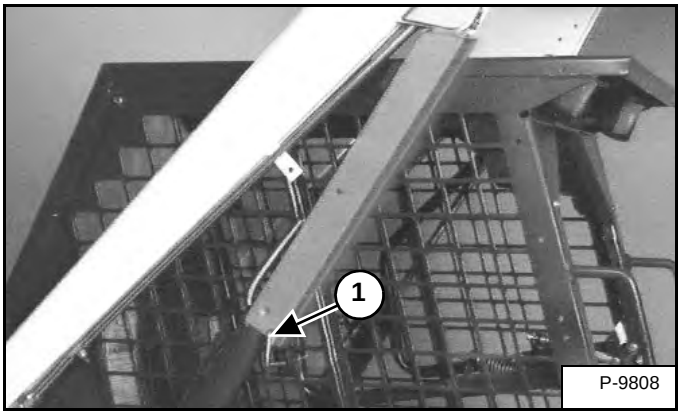
Lower the lift arms slowly until the support device is held between the lift arm and the lift cylinder.

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

Install pin (Item 2) **[Figure 85]** into the rear of the lift arm support device below the cylinder rod.

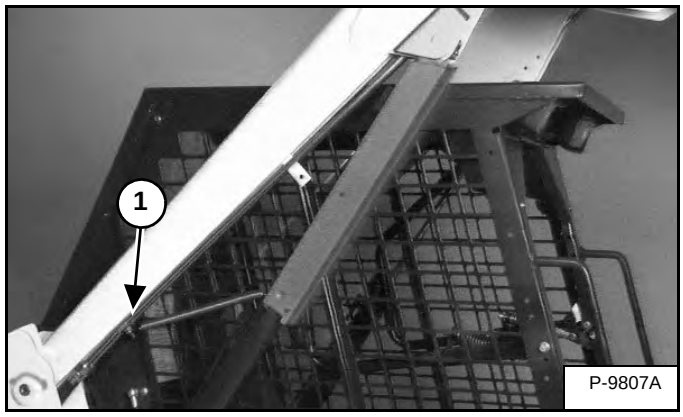
Removing

Figure 86



Remove the retaining pin (Item 1) **[Figure 86]** from the lift arm support device.

Figure 87



Connect the spring from the lift arm support device to the tubeline bracket (Item 1) **[Figure 87]** on the lift arms.

With the operator in the seat, seat belt fastened and seat bar lowered, start the engine, press the PRESS TO OPERATE LOADER button.

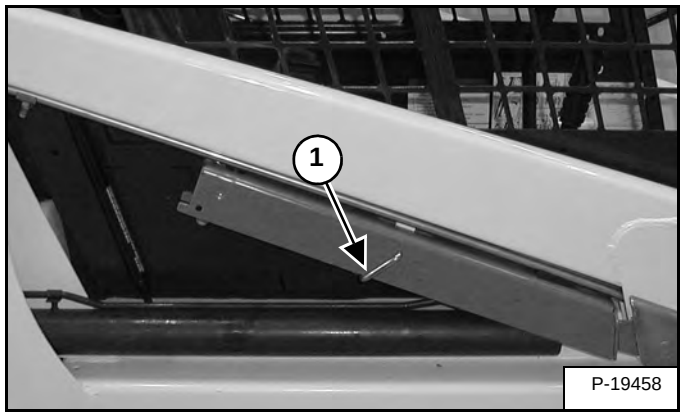
Raise the lift arms a small amount. The spring will lift the support device off the lift cylinder rod.

Lower the lift arms and stop the engine.

Raise the seat bar, disconnect the seat belt and move the pedals until both pedals lock.

Disconnect the spring from the bracket.

Figure 88



Raise the support device into storage position and insert the pin through the lift arm support device and bracket (Item 1) **[Figure 88]**.

Connect the spring to the pin **[Figure 88]**

Remove the jackstands.

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BACK-UP ALARM SYSTEM

Description

The back-up alarm will sound when the operator moves both steering levers into the reverse position. Slight movement of the steering levers into the reverse position is required with hydrostatic transmissions, before the back-up alarm will sound.

Inspecting

Figure 89

P-81923

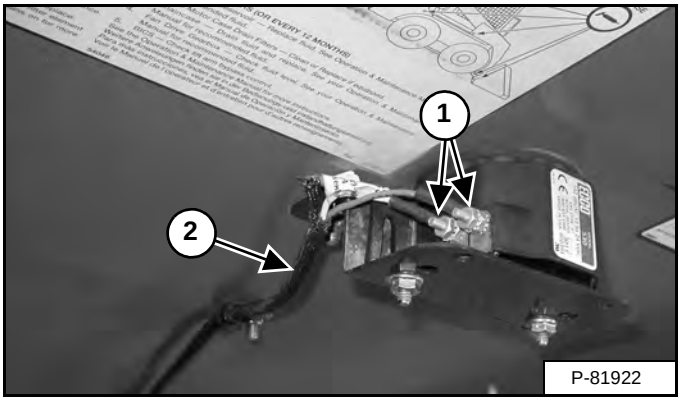
Inspect for damaged or missing back-up alarm decal (Item 1) **[Figure 89]**. Replace if required.

Sit in the seat and fasten the seat belt. Engage the parking brake. Pull the seat bar all the way down. Start the engine. Press the PRESS TO OPERATE LOADER button. Disengage the parking brake.

Move both steering levers into the reverse position. The back-up alarm must sound when all wheels are moving in reverse.

The back-up alarm is located on the inside of the rear door.

Figure 90



Inspect the back-up alarm electrical connections (Item 1) **[Figure 90]**, wire harness (Item 2) **[Figure 90]** and back-up alarm switches (Item 1) **[Figure 91]** or **[Figure 92]** for tightness and damage. Repair or replace any damaged components.

If the back-up alarm switches require adjustment, (See Adjusting Switch Position on Page 70.)

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BACK-UP ALARM SYSTEM (CONT'D)

Adjusting Switch Position

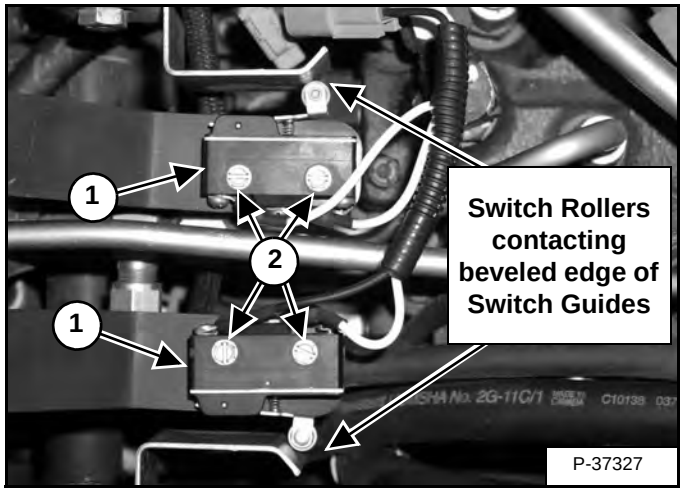
Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 48.)

Raise the operator cab. (See OPERATOR CAB on Page 71.)

Earlier Models

Place the steering levers in the NEUTRAL position.

Figure 91

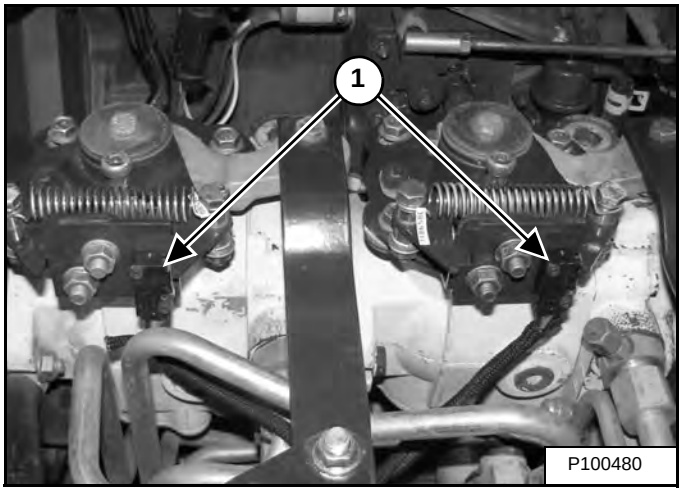


Loosen the screws (Item 2) securing the back-up alarm switches (Item 1) **[Figure 91]**.

Position the back-up alarm switch rollers so that they just make contact with the beveled edge of the switch guides without compressing the switch springs. Torque the screws (Item 2) **[Figure 91]** securing the switches to the bracket to 1,6 - 2,1 N•m (14 - 19 in-lb).

Later Models

Figure 92



The back-up alarm switches (Item 1) **[Figure 92]** are located on the hydrostatic pump controls.

NOTE: The back-up alarm switches on later model loaders do not require adjustment. See your Bobcat dealer for service if your back-up alarm does not sound.

All Models

Lower the operator cab. (See Lowering on Page 72.)

Inspect back-up alarm system for proper function. (See Inspecting on Page 69.)

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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. The seat belt must be worn for rollover protection.

Check the cab, mounting, and hardware for damage. Never modify the cab. Replace the cab and hardware if damaged. See your Bobcat dealer for parts.

ROPS - Roll-Over Protective Structure per ISO 3471 and FOPS - Falling-Object Protective Structure per ISO 3449, Level I.

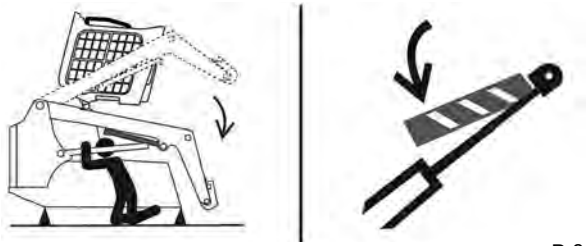
Level I - Protection from falling bricks, small concrete blocks, and hand tools encountered in operations such as highway maintenance, landscaping, and other construction sites.

⚠ WARNING

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

W-2069-0200

⚠ DANGER



P-90328

AVOID DEATH

- **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.**

D-1009-0409

Raising

Always stop the engine before raising or lowering the cab.

Stop the loader on a level surface and lower the lift arms. If the lift arms must be up while raising the operator cab, install the lift arm support device. (See LIFT ARM SUPPORT DEVICE on Page 67.)

⚠ WARNING

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

W-2014-0895

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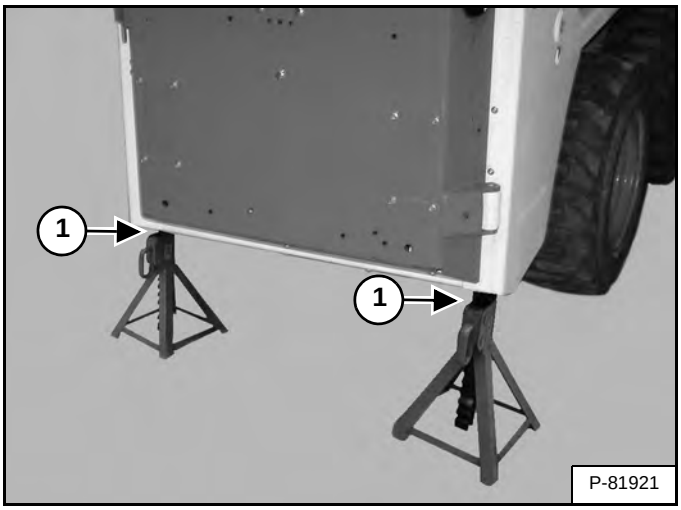
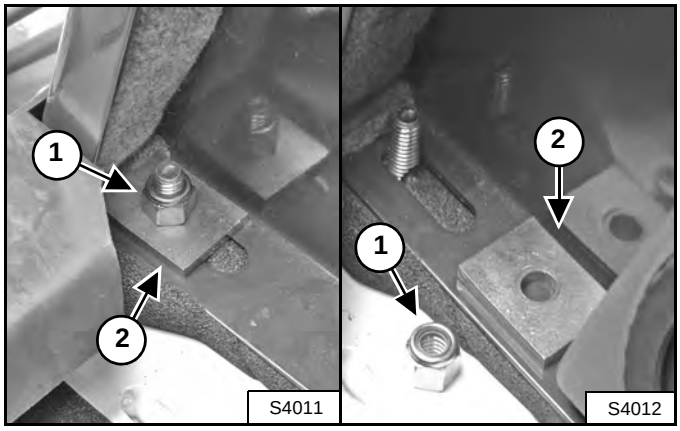
Raising (Cont'd)

Figure 93



Install jackstands (Item 1) **[Figure 93]** under the rear corners of the loader frame.

Figure 94



Remove the nut and plate (Items 1 and 2) **[Figure 94]** on the inside front corner of the cab (both sides).

Figure 95

Lift on the grab handle and bottom of the operator cab slowly until the cab is all the way up and the latching mechanism engages **[Figure 95]**.

Lowering

⚠ WARNING

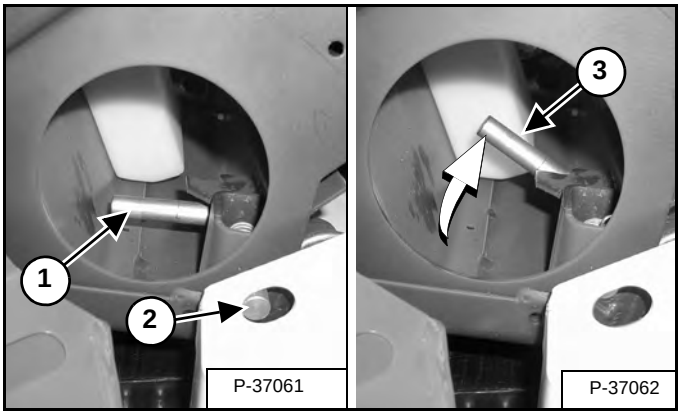
AVOID INJURY OR DEATH

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

W-2205-1207

Always stop the engine before raising or lowering the cab.

Figure 96



Hold the operator cab. Release the locking mechanism by pushing the lever (Item 1) in from the locked position (Item 2) and turning the lever until it stays in the unlocked position (Item 3) **[Figure 96]**.

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Lowering (Cont'd)

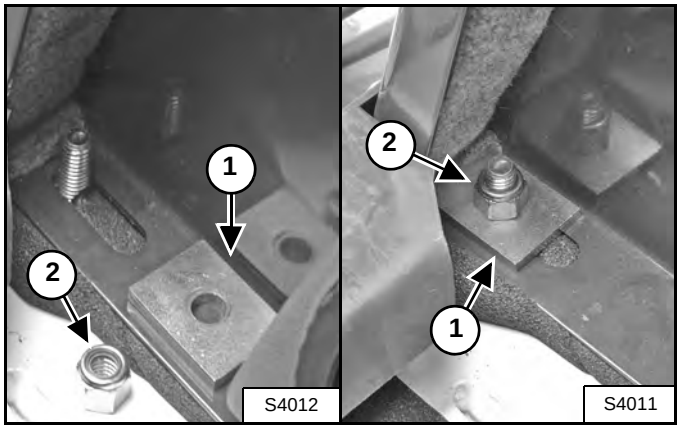
REMOVE YOUR HAND FROM THE HOLE BEFORE LOWERING THE OPERATOR CAB.

Stand on the ground and pull the cab down. Avoid slippery surfaces. Use both hands to lower the cab all the way down.

NOTE: The weight of the cab increases when equipped with options and accessories such as cab door, heater, etc. In these cases, the cab may need to be raised slightly from the latch to be able to release the latch.

NOTE: Always use the grab handles (once you can reach them) to lower the cab.

Figure 97



Install the plates and nuts (Items 1 and 2) **[Figure 97]** (both sides).

Tighten the nuts to 54 - 61 N•m (40 - 45 ft-lb) torque.

Remove the jackstands.

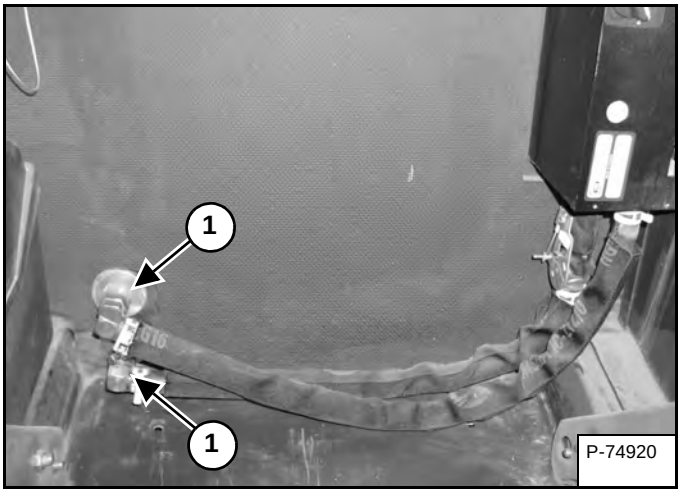
If Equipped With A Heater, Do The Following:

Earlier Model Heater

NOTE: The heater hose connectors will disconnect when the cab is raised. The heater hose connectors must be reconnected for the heater to work after the cab is lowered and secured.

Move the seat as far forward as needed to access the heater hose connectors that are located at the rear of the cab.

Figure 98



From behind the operator's seat, push the two heater quick connectors (Item 1) **[Figure 98]** into the heater couplers.

Later Model Heater

The heater hoses are routed through the rear wall of the cab behind the heater and will remain connected while raising and lowering the cab.

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REAR DOOR (TAILGATE)

Opening And Closing

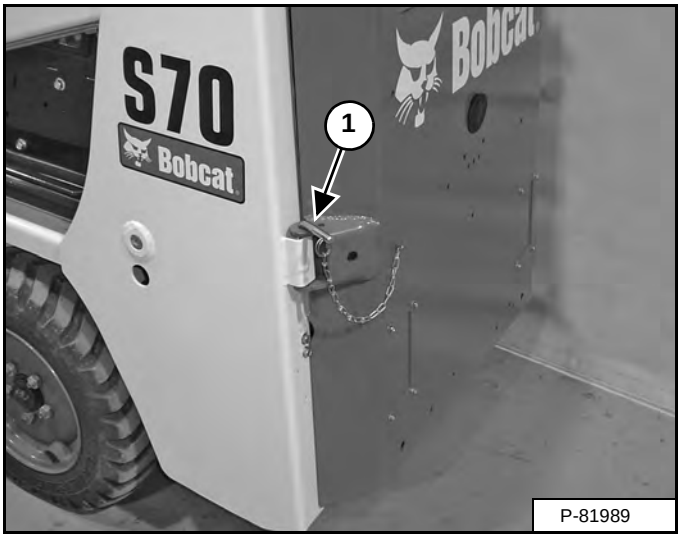
WARNING

AVOID INJURY OR DEATH

Never service or adjust the machine when the engine is running unless instructed to do so in the manual.

W-2012-0497

Figure 99



Remove the latch pin (Item 1) **[Figure 99]** and pull the rear door open.

Open the rear door for engine service.

WARNING

Keep the rear door closed when operating the machine. Failure to do so could seriously injure a bystander.

W-2020-1285

Close the rear door before operating the loader.

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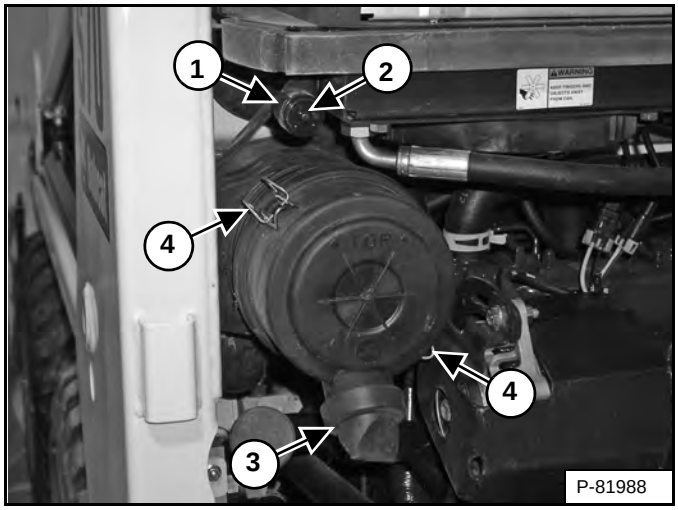
Replacing Filter Elements

Figure 100



Replace the large (outer) filter element only when the red ring shows in the window of the condition indicator (Item 1) **[Figure 100]**.

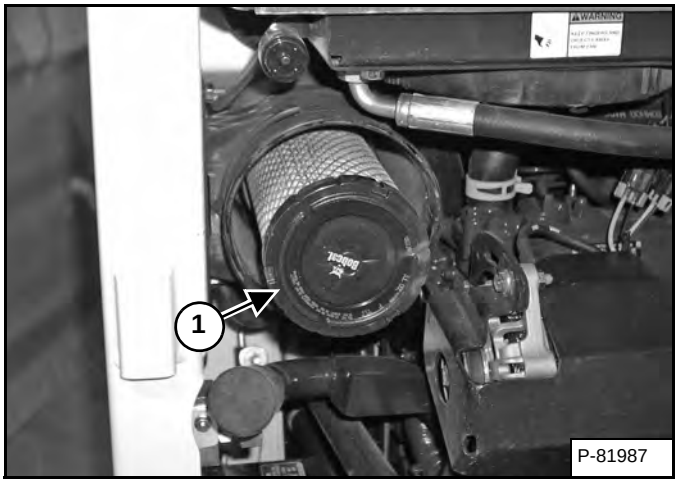
NOTE: Before replacing the filter element, push the button on the condition indicator (Item 2) [Figure 100]. Start the engine. If the red ring does not show, do not replace the filter element.

Outer Filter

Open the evacuator valve (Item 3) **[Figure 100]** to get rid of large particles of dust and dirt.

Remove the dust cover by lifting the latches (Item 4) **[Figure 100]**.

Figure 101



Pull the element straight out (Item 1) **[Figure 101]**.

Install a new outer element.

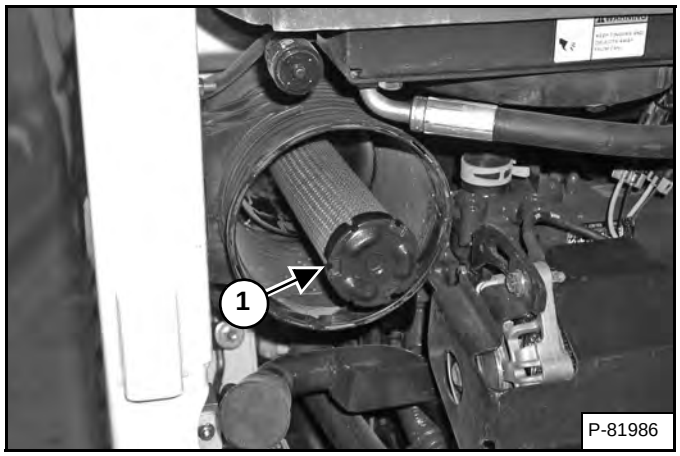
Install the dust cover **[Figure 100]**.

Check the air intake hose and the air cleaner housing for damage. Make sure all connections are tight.

Inner Filter

Replace the inner filter every third time the outer filter is replaced or when the red ring still shows in the indicator window after the outer filter has been replaced.

Figure 102



Remove the inner filter (Item 1) **[Figure 102]**.

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

Install a new inner element.

Install the outer element.

Install the dust cover **[Figure 100]**.

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FUEL SYSTEM

Fuel Specifications

NOTE: Contact your local fuel supplier to receive recommendations for your region.

At a minimum, low sulfur diesel fuel must be used in this machine. Low sulfur is defined as 500 mg/kg (500 ppm) sulfur maximum.

U.S. Standard (ASTM D975)

Use only clean, high quality diesel fuel, Grade Number 2-D or Grade Number 1-D.

Ultra low sulfur diesel fuel may also be used in this machine. Ultra low sulfur is defined as 15 mg/kg (15 ppm) sulfur maximum.

The following is one suggested blending guideline that should prevent fuel gelling during cold temperatures:

TEMPERATURE	GRADE 2-D	GRADE 1-D
Above -9°C (+15°F)	100%	0%
Down to -21°C (-5°F)	50%	50%
Below -21°C (-5°F)	0%	100%

NOTE: Biodiesel blend fuel may also be used in this machine. Biodiesel blend fuel must contain no more than five percent biodiesel mixed with ultra low sulfur petroleum based diesel. This biodiesel blend fuel is commonly marketed as B5 blended diesel fuel. B5 blended diesel fuel must meet ASTM specifications.

E.U. Standard (EN590)

Use only clean, high quality diesel fuel that meets the specifications listed below:

- Low sulfur diesel fuel defined as 500 mg/kg (500 ppm) sulfur maximum.
- Diesel fuel with cetane number of 51.0 and above.

Clean, high quality diesel fuel that meets the EN590 specification may also be used.

NOTE: Biodiesel blend fuel may also be used in this machine. Biodiesel blend fuel must contain no more than seven percent biodiesel mixed with ultra low sulfur petroleum based diesel. This biodiesel blend fuel is commonly marketed as B7 blended diesel fuel. B7 blended diesel fuel must meet EN590 specifications.

Biodiesel Blend Fuel

Biodiesel blend fuel has unique qualities that should be considered before using in this machine:

- Cold weather conditions can lead to plugged fuel system components and hard starting.
- Biodiesel blend fuel is an excellent medium for microbial growth and contamination which can cause corrosion and plugging of fuel system components.
- Use of biodiesel blend fuel may result in premature failure of fuel system components, such as plugged fuel filters and deteriorated fuel lines.
- Shorter maintenance intervals may be required, such as cleaning the fuel system and replacing fuel filters and fuel lines.
- Using biodiesel blended fuels containing more than five percent biodiesel can affect engine life and cause deterioration of hoses, tubelines, injectors, injector pump and seals.

Apply the following guidelines if biodiesel blend fuel is used:

- Ensure the fuel tank is as full as possible at all times to prevent moisture from collecting in the fuel tank.
- Ensure that the fuel tank cap is securely tightened.
- Biodiesel blend fuel can damage painted surfaces, remove all spilled fuel from painted surfaces immediately.
- Drain all water from the fuel filter daily before operating the machine.
- Do not exceed engine oil change interval. Extended oil change intervals can cause engine damage.
- Before vehicle storage; drain the fuel tank, refill with 100% petroleum diesel fuel, add fuel stabilizer and run the engine for at least 30 minutes.

NOTE: Biodiesel blend fuel does not have long term stability and should not be stored for more than three months.

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Filling The Fuel Tank

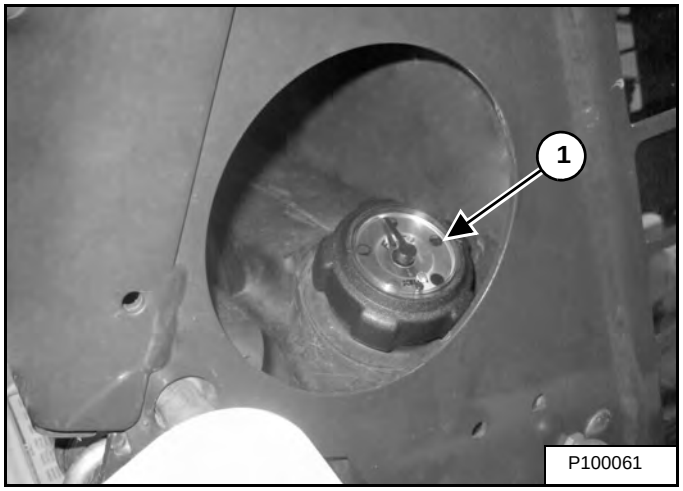
WARNING

AVOID INJURY OR DEATH

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

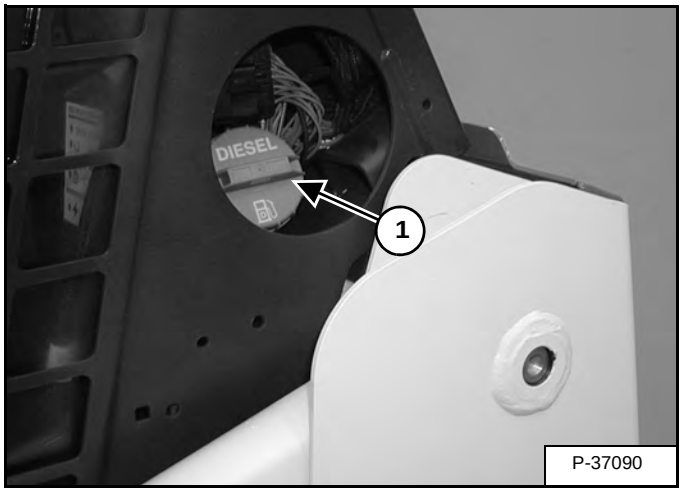
W-2063-0807

Figure 103



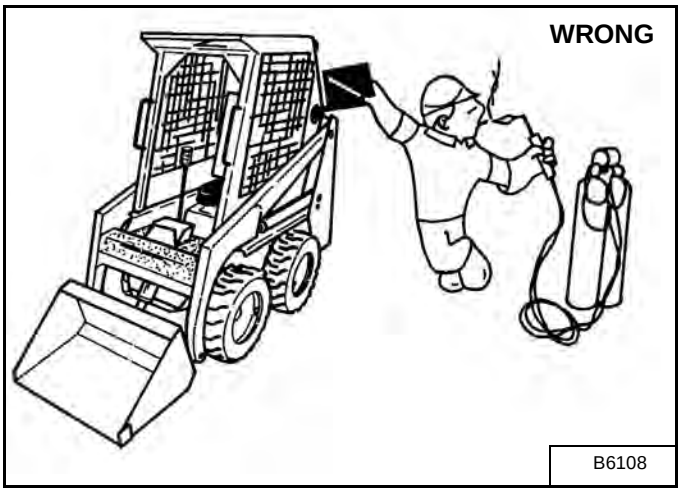
The fuel gauge (Item 1) **[Figure 103]** is located on the right side of the loader.

Figure 104



Remove the fill cap (Item 1) **[Figure 104]**.

Figure 105



Use a clean, approved safety container to add fuel of the correct specification. Add fuel only in an area that has free movement of air and no open flames or sparks. *NO SMOKING!* **[Figure 105]**.

Install and tighten the fuel fill cap (Item 1) **[Figure 104]**.

WARNING

AVOID INJURY OR DEATH

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.

W-2103-0508

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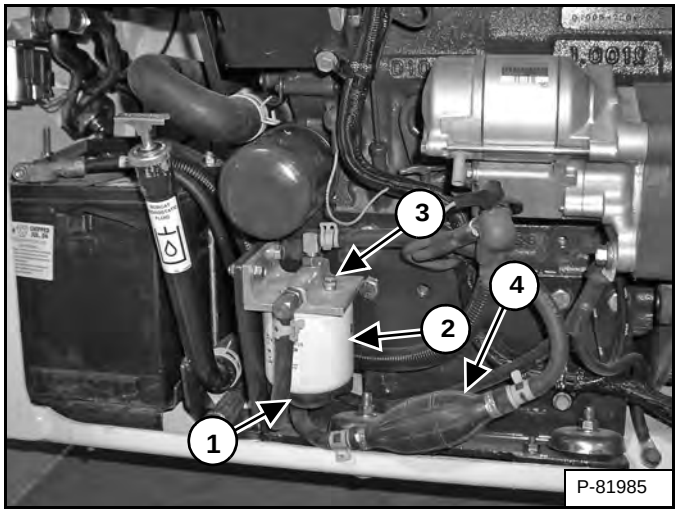
Fuel Filter

For the service interval for removing water from, or replacing the fuel filter (See SERVICE SCHEDULE on Page 62.)

Removing Water

Figure 106



Loosen the drain (Item 1) **[Figure 106]** at the bottom of the filter element to remove water from the filter.

Replacing Element

Remove the filter element (Item 2) **[Figure 106]**.

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

Remove air from the fuel system. (See Removing Air From The Fuel System below.)

Removing Air From The Fuel System

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

Open the vent (Item 3) **[Figure 106]** on the fuel filter housing.

⚠ WARNING

AVOID INJURY OR DEATH

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.

W-2072-0807

Squeeze the hand pump (priming bulb) (Item 4) **[Figure 106]** until there are no air bubbles exiting the vent.

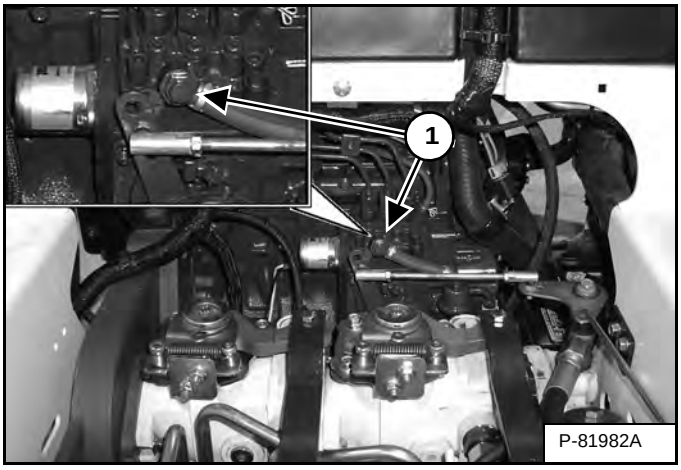
Close the vent (Item 3) **[Figure 106]** on the fuel filter housing.

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

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

Put jackstands under rear of the frame and raise operator cab. (See Raising on Page 71.)

Figure 107



Open the valve (Item 1) **[Figure 107]** on the injector pump and squeeze the hand pump (Item 4) **[Figure 106]** several times until fuel comes from the valve.

Close the valve.

Lower the operator cab. (See Lowering on Page 72.)

Remove jackstands.

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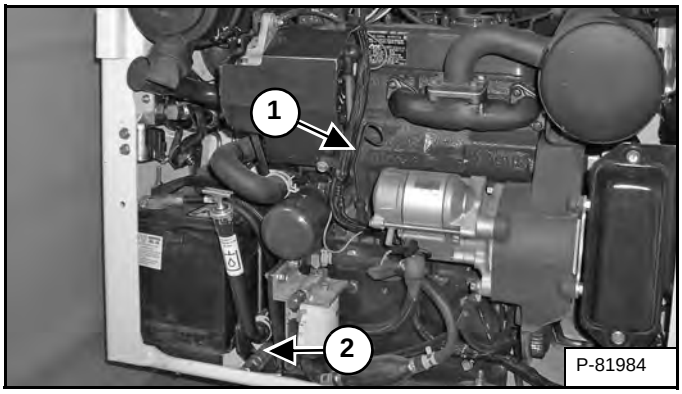
Checking And Adding Engine Oil

Check the engine oil level every day before starting the engine for the work shift.

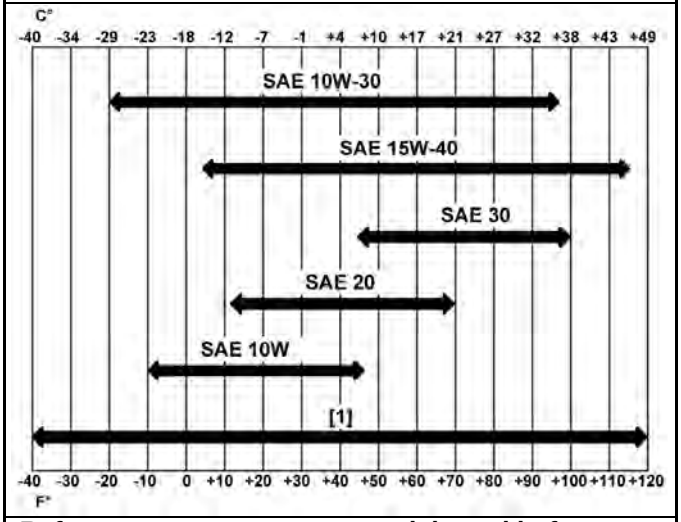
Figure 108



Park the machine on level ground. Open the rear door and remove the dipstick (Item 1) **[Figure 108]**. Keep the oil level between the marks on the dipstick. Do not overfill.

Engine Oil Chart

Figure 109

ENGINE CRANKCASE OIL
Recommended SAE Viscosity Number

Refer to temperature range anticipated before next oil change
Must use API Category CI-4 or better, or ACEA E7 or better
Do not use API Category FA-4 engine oil
[1] Bobcat Synthetic Oil – SAE 5W-40

Bobcat engine oils are recommended for use in this machine. If Bobcat engine oil is not available, use a good quality engine oil that meets API Service Category of CI-4 or better, or ACEA E7 or better **[Figure 109]**.

IMPORTANT

AVOID ENGINE DAMAGE

Use of API Service Category FA-4 engine oil is not approved and may cause irreversible damage to the engine.

I-2384-0916

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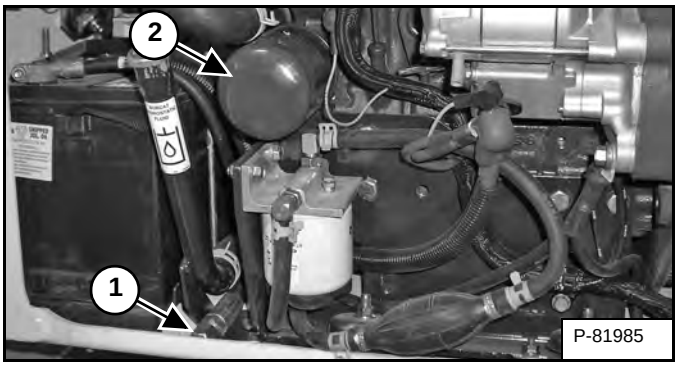
Removing And Replacing Oil And Filter

For the service interval for replacing the engine oil and filter (See SERVICE SCHEDULE on Page 62.)

Run the engine until it is at operating temperature. Stop the engine.

Open the rear door and remove the drain hose (Item 2) **[Figure 108]** from its storage position.

Figure 110



Remove the oil drain cap (Item 1) **[Figure 110]** and drain the oil into a container. Recycle or dispose of used oil in an environmentally safe manner.

Remove the oil filter (Item 2) **[Figure 110]** and clean the filter housing surface.

Use genuine Bobcat filter only. Put oil on the new filter gasket, install the filter and hand tighten.

Install and tighten the oil drain cap and return the drain hose to the stored position.

Remove the fill cap and put oil in the engine. For the correct quantity (See Capacities on Page 121.) Do not overfill.

Start the engine and let it run for several minutes. Stop the engine and check for leaks at the filter.

Add oil as needed if it is not at the top mark on the dipstick. Install the dipstick and close the rear door.

⚠ WARNING

AVOID INJURY OR DEATH

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.

W-2103-0508

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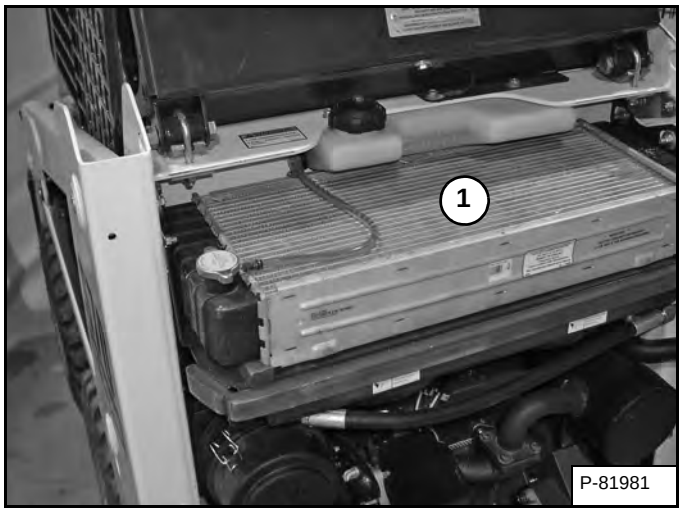
ENGINE COOLING SYSTEM

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

Cleaning

Open the rear door.

Figure 111



Use low air pressure or water pressure to clean the top of the radiator (Item 1) **[Figure 111]**.

Check the cooling system for leaks.

Close the rear door.

Checking Level

Open the rear door.

⚠ WARNING

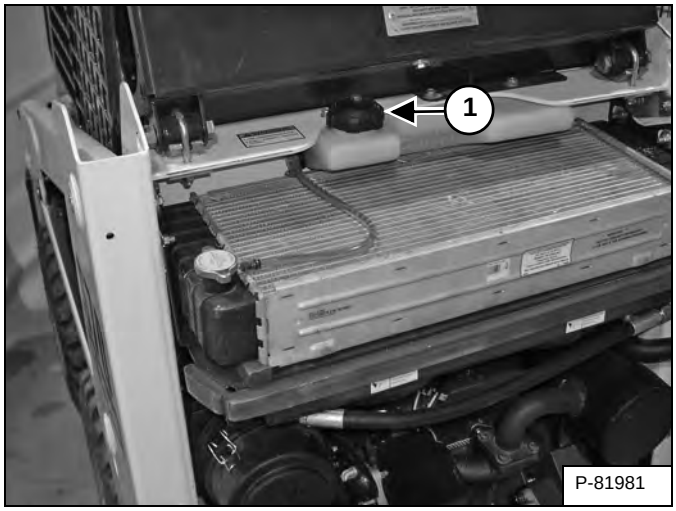
AVOID INJURY OR DEATH

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-2019-0907

Figure 112



Remove the coolant fill cap (Item 1) **[Figure 112]**. Check the coolant level. The level markers are on the tank. Coolant must be at the bottom marker when the engine is cold and on the top marker when hot.

Use a refractometer to check the condition of propylene glycol in your cooling system.

Close the rear door before operating the loader.

IMPORTANT

AVOID ENGINE DAMAGE

Always use the correct ratio of water to antifreeze.

Too much antifreeze reduces cooling system efficiency and may cause serious premature engine damage.

Too little antifreeze reduces the additives which protect the internal engine components; reduces the boiling point and freeze protection of the system.

Always add a premixed solution. Adding full strength concentrated coolant can cause serious premature engine damage.

I-2124-0497

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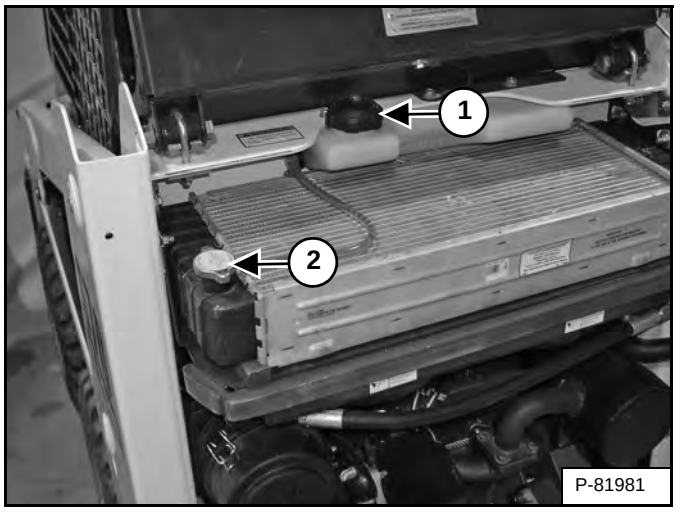
Removing And Replacing Coolant

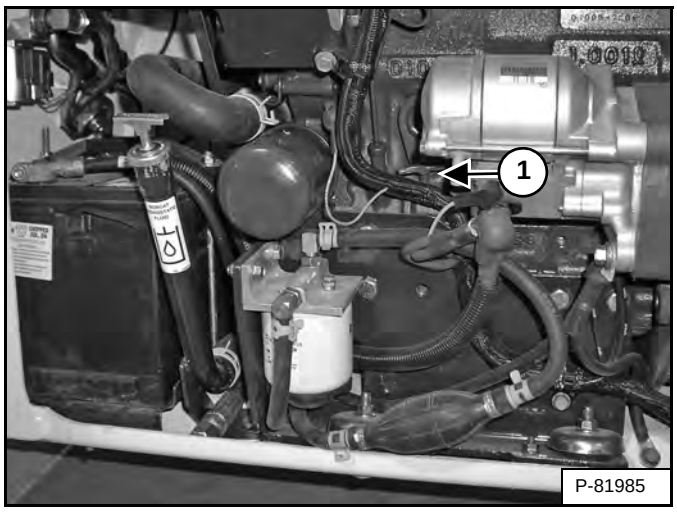
Open the rear door.

Figure 113



Remove the coolant fill cap (Item 1) **[Figure 113]**.

Figure 114



Connect a hose to the engine block drain valve (Item 1) **[Figure 114]** (located below the starter). Open the drain valve and drain the coolant into a container.

After all the coolant is removed, close the drain valve and remove the hose.

NOTE: Fluids such as engine oil, hydraulic fluid, coolant, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. See local, state and federal regulations for correct disposal.

Mix new coolant in a separate container. (See Capacities on Page 121.)

NOTE: The loader is factory filled with propylene glycol coolant (purple color). DO NOT mix propylene glycol with ethylene glycol.

Remove the radiator cap (Item 2) **[Figure 113]** and fill the radiator with premixed coolant, 47% water and 53% propylene glycol. Reinstall the radiator cap.

The correct mixture of coolant to provide a -37°C (-34°F) freeze protection is 5 L propylene glycol mixed with 4,4 L of water **OR** 1 U.S. gal propylene glycol mixed with 3.5 qt of water.

Fill the recovery tank with premixed coolant until it is at the lower marker on the tank.

Use a refractometer to check the condition of propylene glycol in your cooling system and replace the coolant fill cap (Item 1) **[Figure 113]**.

Run the engine until it is at operating temperature. After stopping the engine, let it cool down and check the coolant level again. Add coolant as needed.

Close the rear door.

IMPORTANT

AVOID ENGINE DAMAGE
Always use the correct ratio of water to antifreeze.

Too much antifreeze reduces cooling system efficiency and may cause serious premature engine damage.

Too little antifreeze reduces the additives which protect the internal engine components; reduces the boiling point and freeze protection of the system.

Always add a premixed solution. Adding full strength concentrated coolant can cause serious premature engine damage.

I-2124-0497

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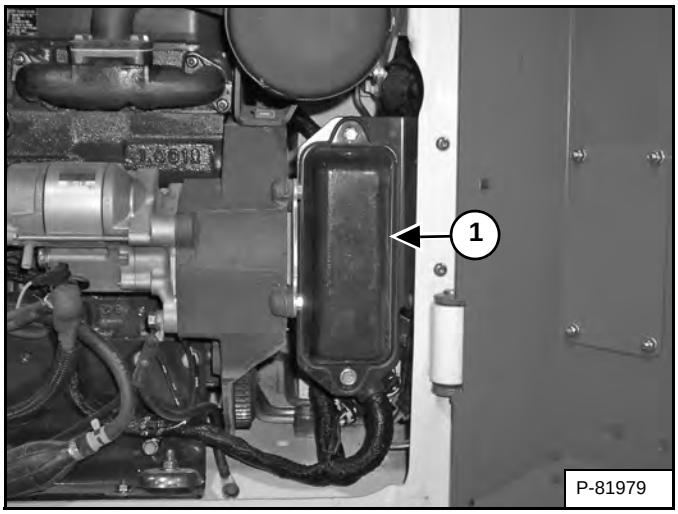
ELECTRICAL SYSTEM

Description

The loader has a 12 volt, negative ground alternator charging system. The electrical system is protected by fuses located in the engine compartment. The fuses will protect the electrical system when there is an electrical overload. The reason for the overload must be found before starting the engine again.

Fuse And Relay Location / Identification

Figure 115

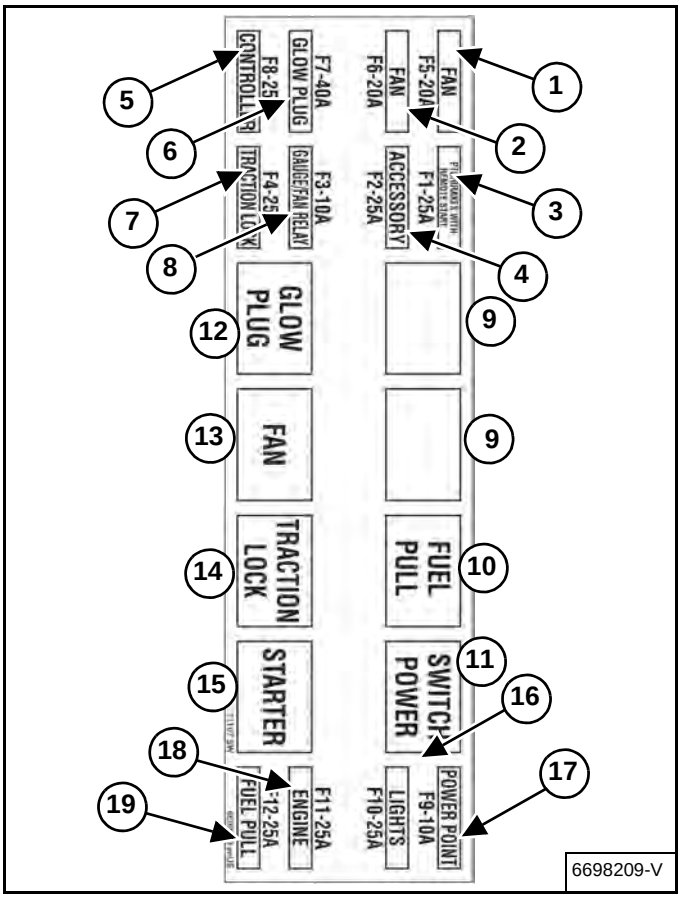


The electrical system is protected from overload by fuses and relays under the fuse panel cover (Item 1) **[Figure 115]**. A decal is inside the cover to show location and amperage ratings.

Figure 116

Remove the cover to check or replace the fuses **[Figure 116]**.

Figure 117



There is a decal **[Figure 117]** inside the fuse panel cover which shows location and size of fuses. Description and amperage ratings (or relays) are also shown below.

REF.	DESCRIPTION	AMPS	REF.	DESCRIPTION	AMPS
1	Fan	20	10	Fuel Solenoid	R
2	Fan	20	11	Switched Power	R
3	BICS / Brakes / Remote Start	25	12	Glow Plug	R
4	Accessory Back-up Alarm	25	13	Fan	R
5	Controller	25	14	Traction Lock	R
6	Glow Plug	40	15	Starter	R
7	Traction Lock	25	16	Lights	25
8	Gauge / Fan Relay	10	17	Power Point	10
9	Not Used	R	18	Engine / Horn	25
			19	Fuel Solenoid	25

R = Relay

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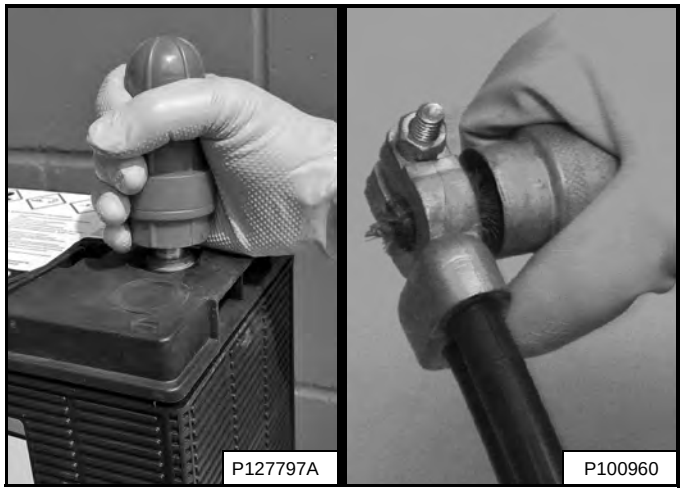
Battery Maintenance

See the SERVICE SCHEDULE for the correct service interval. (See SERVICE SCHEDULE on Page 62.)

The Bobcat brand battery supplied with your machine is sealed and does not require watering. Proper charging and storage are important to maximize the life of all batteries.

Figure 118



Simple steps for reliability and long battery life:

- Keep battery posts and terminals clean **[Figure 118]**.
- Keep terminals tight.
- Remove corrosion from battery and terminals with sodium bicarbonate (baking soda) and water solution.
- Put Bobcat Battery Saver or grease on the battery terminals and cable ends to prevent corrosion.
- Operate the machine for at least 15 minutes to recover from the battery drain caused by engine start up whenever practical.
- Maintain the battery charge level. This is a key factor for long battery life.
- Charge a severely discharged battery with a battery charger instead of relying on the machine charging system. (See Battery Charging on Page 85.)
- Check the battery state of charge every 30 days on machines that are not frequently used. (See Battery Testing on Page 85.)

⚠ WARNING

AVOID INJURY OR DEATH

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.

W-2065-0807

Maintaining Battery Charge Level

All batteries will self-discharge over time. This machine has features that require battery power even when the machine is not being used. Use of a quality battery maintainer is highly recommended to ensure that your machine is ready to start when you need it and avoid costly battery replacement.

Battery Maintainers

Use a good quality battery maintainer to keep the battery above 12.4 volts for machines that are not frequently used. Batteries below 12.4 volts must first be charged using a battery charger. Solar maintainers should have a minimum capacity of 10 watts to be effective.

Battery Service During Machine Storage

Remove the battery if storing the machine for an extended period of time. Fully charge the battery. Store the battery in a cool dry place above freezing and boost charge periodically. If battery removal is not desired, a good quality battery maintainer must be used to compensate for battery self-discharge and parasitic loads from machine controllers, accessories, and features such as connected machine intelligence.

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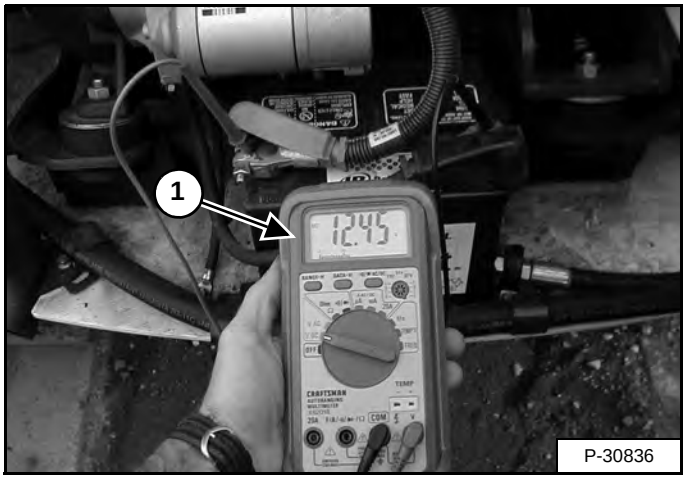
Battery Testing

Figure 119



The simplest and most common check to determine battery state of charge is to use a digital multimeter or voltmeter (Item 1) **[Figure 119]**.

A battery found below 12.4 volts must be charged to 100% charge per the battery charger's recommendation. **Allow at least 60 minutes after operating the machine or charging the battery to get an accurate reading.**

If the reading is less than 12.4 volts after the battery has been charged for several hours, see your Bobcat dealer to have a more thorough battery test performed.

The freezing point of battery electrolyte is dependent on the battery state of charge. Keeping the battery voltage above 12.4 volts will help prevent batteries from freezing, even at extremely low temperatures.

If the battery freezes, the internal grid may be damaged and the case will be distorted or cracked. If this happens, dispose of the battery according to local regulations.

Battery Charging

A battery charger designed for 12 volt charging systems is recommended. Follow the battery charger manufacturer's instructions to charge the battery to 12.6 volts (100% charge). Batteries should be charged at room temperature to avoid an undercharge or overcharge condition. Never attempt to charge a frozen battery.

The following table can be used to identify the approximate amount of time required to charge a discharged battery. Allow at least 60 minutes after operating the machine or charging the battery to get an accurate reading.

BATTERY VOLTAGE	STATE OF CHARGE	CHARGER MAXIMUM RATE		
		30 Amps	20 Amps	10 Amps
12.6 V	100%	READY TO USE		
12.4 V	75%	0.9 hr.	1.3 hr.	2.5 hr.
12.2 V	50%	1.9 hr.	2.7 hr.	5.1hr.
12.0 V	25%	2.9 hr.	4.3 hr.	7.8 hr.
11.8 V	0%	4.0 hr.	5.7 hr.	10.7 hr.

NOTE: Use a good quality automatic charger to avoid battery damage from overcharging.

⚠ WARNING

BATTERY GAS CAN EXPLODE AND CAUSE SERIOUS INJURY OR DEATH

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

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

W-2066-0910

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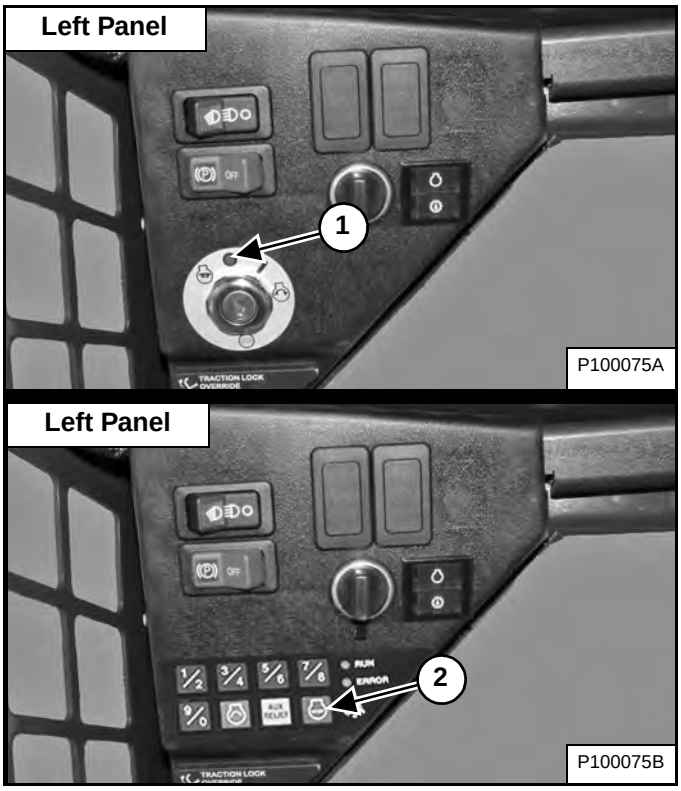
Using A Booster Battery (Jump Starting)

If it is necessary to use a booster battery to start the engine, BE CAREFUL! There must be one person in the operator's seat and one person to connect and disconnect the battery cables.

Figure 120



The key switch (Item 1) must be in the OFF position or the STOP button (Item 2) **[Figure 120]** must be pressed. The booster battery must be 12 volt.

⚠ WARNING

BATTERY GAS CAN EXPLODE AND CAUSE SERIOUS INJURY OR DEATH

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

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

W-2066-0910

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Using A Booster Battery (Jump Starting) (Cont'd)

⚠ WARNING

AVOID INJURY OR DEATH

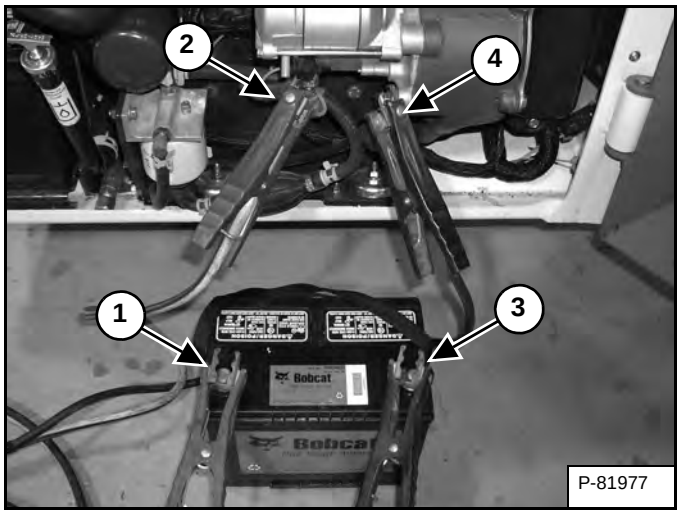
Batteries contain acid which burns eyes and skin on contact. Wear goggles, protective clothing and rubber gloves to keep acid off body.

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.

W-2065-0807

Figure 121



Connect the end of the first cable to the positive (+) terminal (Item 1) of the booster battery. Connect the other end of the same cable to the positive terminal (Item 2) **[Figure 121]** on the loader starter.

Connect the end of the second cable to the negative (-) terminal (Item 3) of the booster battery. Connect the other end of the same cable (Item 4) **[Figure 121]** to the engine.

NOTE: Keep cables away from moving parts.

Start the engine. (See STARTING THE ENGINE on Page 43.)

After the engine has started, remove the negative (-) cable (Item 4) **[Figure 121]** first.

Remove the cable from the positive terminal (Item 2) **[Figure 121]**.

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.**

I-2023-1285

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Removing And Installing Battery

⚠ WARNING

AVOID INJURY OR DEATH

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

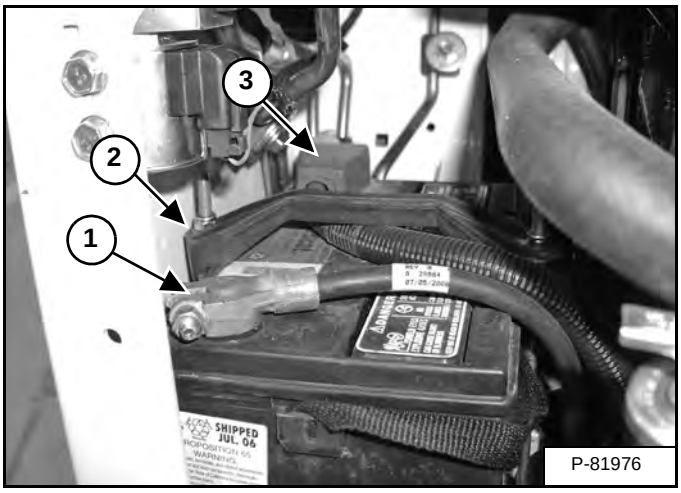
In case of acid contact, wash immediately with water. In case of eye contact get prompt medical attention and wash eye with clean, cool water for at least 15 minutes.

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

W-2065-0807

Open the rear door.

Figure 122



Disconnect the negative (-) battery cable (Item 1) **[Figure 122]**.

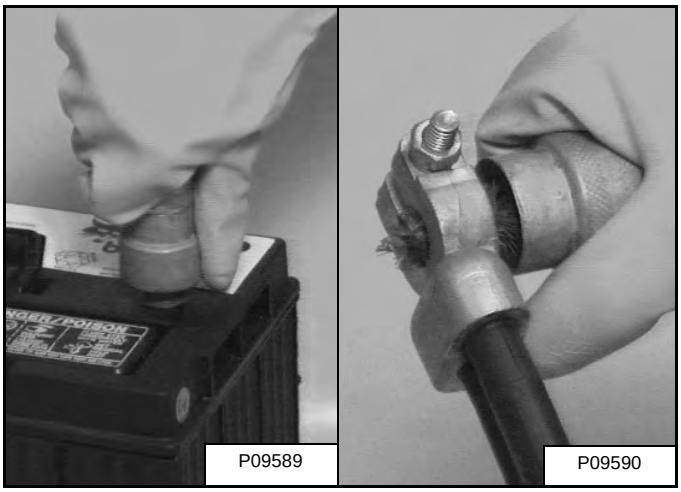
Remove the battery hold-down clamp (Item 2) **[Figure 122]**.

Disconnect the positive (+) cable (Item 3) **[Figure 122]** from the battery.

Remove the battery from the loader.

NOTE: When removing or installing the battery in the loader, do not touch any metal parts with the battery terminals.

Figure 123



Always clean the battery terminals and cable ends when installing a new or used battery **[Figure 123]**.

NOTE: Always connect the negative (-) cable last and remove it first to prevent sparks.

Connect the positive (+) battery cable. Tighten the nut to 5,4 – 6,8 N•m (4 – 5 ft-lb) torque.

Install and tighten the battery hold-down clamp.

Connect the negative (-) battery cable. Tighten the nut to 5,4 – 6,8 N•m (4 – 5 ft-lb) torque.

Close the rear door before operating the loader.

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Checking And Adding Fluid

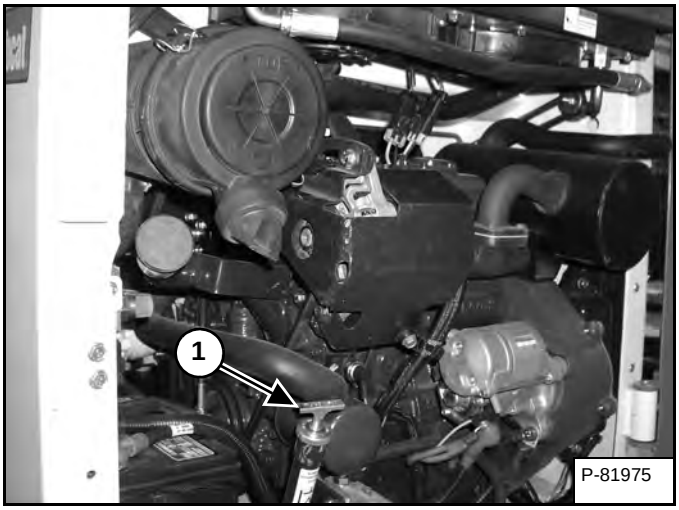
Check the hydraulic / hydrostatic fluid level every day before starting the work shift.

Park the loader on a level surface.

Lower the lift arms and tilt the Bob-Tach fully back.

Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 48.)

Figure 124



Remove the dipstick (Item 1) **[Figure 124]** and allow the oil level to stabilize for 10 - 15 seconds. Install the dipstick and remove to check the fluid level.

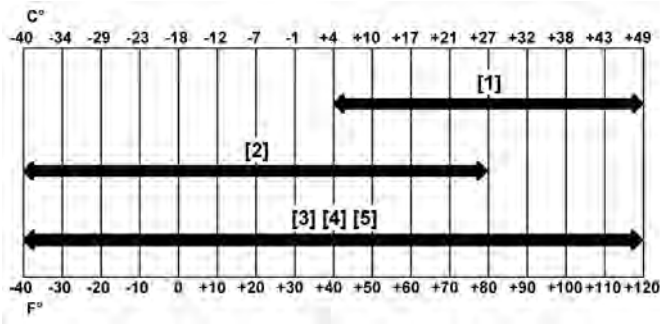
NOTE: Hydraulic oil level in the dipstick tube must be allowed to stabilize before it is checked or the dipstick may incorrectly indicate a low fluid condition.

If fluid is needed, add fluid through the dipstick / fill tube.

Hydraulic / Hydrostatic Fluid Chart

Figure 125

HYDRAULIC / HYDROSTATIC FLUID RECOMMENDED ISO VISCOSITY GRADE (VG) AND VISCOSITY INDEX (VI)



TEMPERATURE RANGE ANTICIPATED DURING MACHINE USE

[1] VG 100; Minimum VI 130
[2] VG 46; Minimum VI 150
[3] BOBCAT All-Season Fluid
[4] BOBCAT Synthetic Fluid
[5] BOBCAT Biodegradable Hydraulic / Hydrostatic Fluid (Unlike biodegradable fluids that are vegetable based, Bobcat biodegradable fluid is formulated to prevent oxidation and thermal breakdown at operating temperatures.)

Use only recommended fluid in the hydraulic system **[Figure 125]**. (See Hydraulic System on Page 120.)

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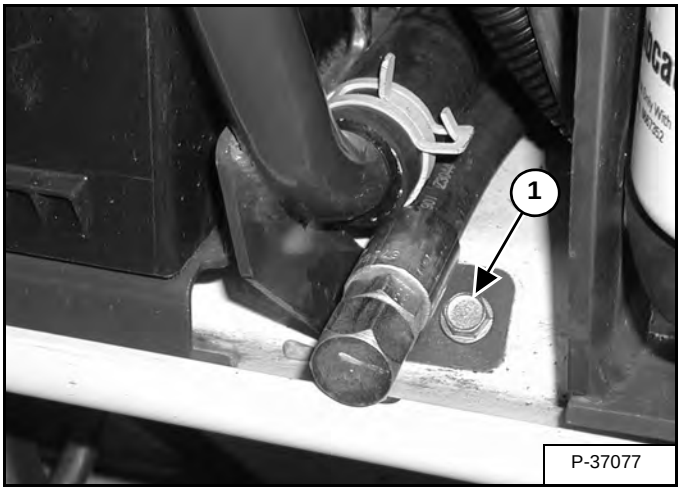
Removing And Replacing Hydraulic Fluid

For the correct service interval (See SERVICE SCHEDULE on Page 62.)

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

Always replace the hydraulic / hydrostatic filter whenever the hydraulic fluid is replaced. (See Removing And Replacing Hydraulic / Hydrostatic Filter on Page 91.)

Figure 126



Remove the bolt (Item 1) **[Figure 126]** from the dipstick / fill tube mounting bracket.

Figure 127

Remove the dipstick from the hydraulic fill tube and rotate the tube down into a container **[Figure 127]** to drain the reservoir.

NOTE: Fluids such as engine oil, hydraulic fluid, coolant, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. See local, state and federal regulations for correct disposal.

After the hydraulic fluid is completely drained, rotate the hydraulic fill tube back to the original position and reinstall the bolt (Item 1) **[Figure 126]** to the fill tube mounting bracket.

Fill the hydraulic system with the correct amount and type of hydraulic fluid. (See Hydraulic / Hydrostatic Fluid Chart on Page 89.) and (See Capacities on Page 121.)

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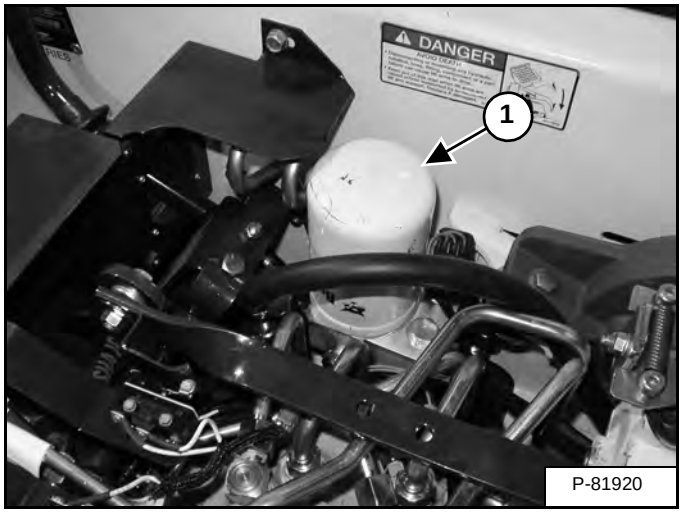
Removing And Replacing Hydraulic / Hydrostatic Filter

For the correct service interval (See SERVICE SCHEDULE on Page 62.)

Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 48.)

Raise the operator cab. (See Raising on Page 71.)

Figure 128



Remove the filter (Item 1) **[Figure 128]**.

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

Put clean oil on the seal of the new filter element. Install and hand tighten the filter element.

⚠ WARNING

AVOID INJURY OR DEATH

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.

W-2103-0508

Lower the operator cab. (See Lowering on Page 72.)

Start the engine and operate the loader hydraulic controls.

Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 48.)

Check for leaks at the filter.

⚠ WARNING

AVOID INJURY OR DEATH

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.

W-2072-0807

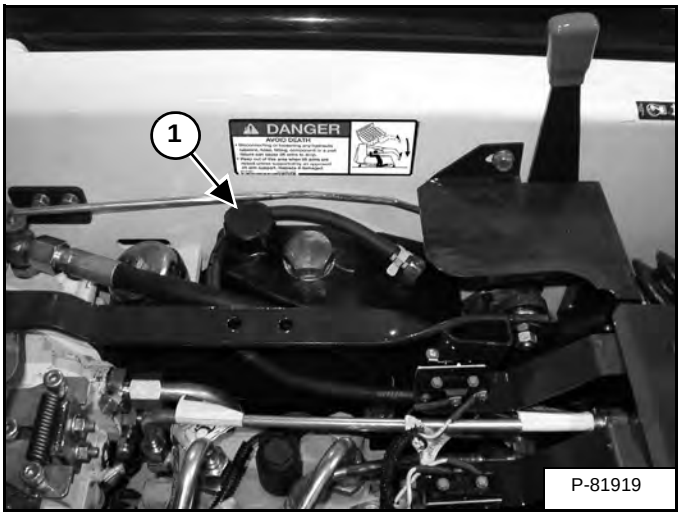
Check fluid level and add as needed. (See Checking And Adding Fluid on Page 89.)

Breather Cap

Replace the breather cap at the correct service interval. (See SERVICE SCHEDULE on Page 62.)

Raise the cab. (See Raising on Page 71.)

Figure 129



Thoroughly clean the area around the breather cap.

Remove the breather cap (Item 1) **[Figure 129]** and discard.

Install new breather cap.

Lower the cab. (See Lowering on Page 72.)

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SPARK ARRESTER MUFFLER

Cleaning Procedure

See the SERVICE SCHEDULE for service interval for cleaning the spark arrester muffler. (See SERVICE SCHEDULE on Page 62.)

Do not operate the loader with a defective exhaust system.

IMPORTANT

This machine is factory equipped with a U.S.D.A. Forestry Service approved spark arrester exhaust system.

The spark arrester muffler, if equipped, must be cleaned to keep it in working condition. The spark arrester muffler must be serviced by dumping the spark chamber every 100 hours of operation.

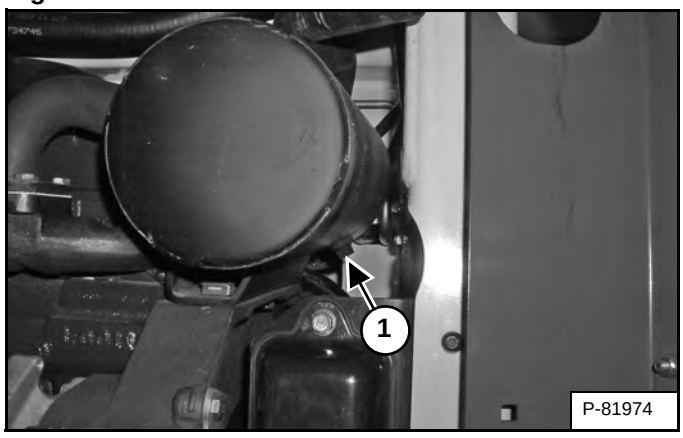
On some models, the turbocharger functions as the spark arrester and must operate correctly for proper spark arrester function.

If this machine is operated on flammable forest, brush, or grass covered land, it must be equipped with a spark arrester 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. Refer to local laws and regulations for spark arrester requirements.

I-2284-0111

Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 48.) Open the rear door.

Figure 130



Remove the plug (Item 1) **[Figure 130]** from the bottom of the muffler.

WARNING

When the engine is running during service, the driving and steering controls must be in neutral and the parking brake engaged. Failure to do so can cause injury or death.

W-2006-1209

Start the engine and run for about 10 seconds while a second person, wearing safety goggles, holds a piece of wood over the outlet of the muffler. This will force contaminants out through the cleanout hole.

Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 48.)

Install and tighten the plug to 24 N•m (18 ft-lb) torque. Close the rear door.

WARNING

AVOID INJURY OR DEATH

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.

W-2050-0807

WARNING

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

W-2011-1285

WARNING

Never use machine in atmosphere with explosive dust or gases or where exhaust can contact flammable material. Failure to obey warnings can cause injury or death.

W-2068-1285

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Wheel Nuts

Figure 131

See the SERVICE SCHEDULE for the service interval to check the wheel nuts **[Figure 131]**. (See SERVICE SCHEDULE on Page 62.)

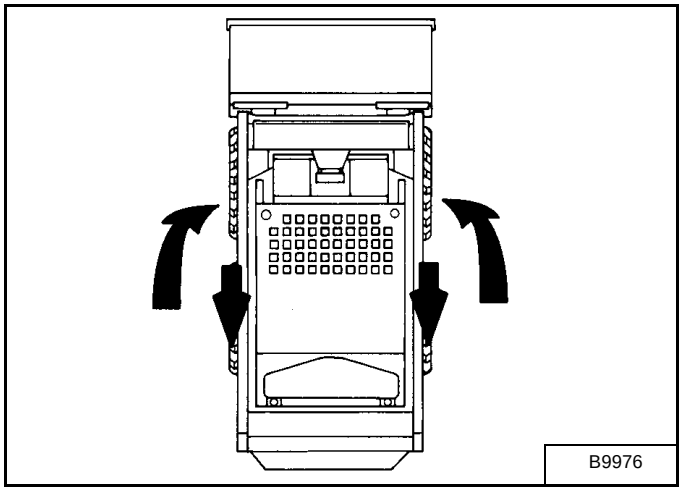
When installing wheel nuts, tighten to 217 N•m (160 ft-lb) torque.

When checking wheel nut torque, set the torque wrench to 190 N•m (140 ft-lb) to prevent over-tightening.

Rotating

Check the tires regularly for wear, damage and pressure. Inflate tires to the maximum pressure shown on the sidewall of the tire.

Figure 132



Rear tires usually wear faster than front tires. To keep tire wear even, move the front tires to the rear and rear tires to the front **[Figure 132]**.

It is important to keep all tires the same size. If different sizes are used, each tire will be turning at a different rate and cause excessive wear. The tread bars of all the tires must face the same direction.

Recommended tire pressure must be maintained to avoid excessive tire wear and loss of stability and handling capability. Check for the correct pressure before operating the loader.

Mounting

Tires are to be repaired only by an authorized person using the proper procedures and safe equipment.

Tires and rims must always be checked for correct size before mounting. Check rim and tire bead for damage.

The rim flange must be cleaned and free of rust.

The tire bead and rim flange must be lubricated with a rubber lubricant before mounting the tire.

Avoid excessive pressure which can rupture the tire and cause serious injury or death.

During inflation of the tire, check the tire pressure frequently to avoid over inflation.

⚠ WARNING

AVOID INJURY OR DEATH

Do not inflate tires above specified pressure. Failure to use correct tire mounting procedure can cause an explosion which can result in injury or death.

W-2078-1007

IMPORTANT

Inflate tires to the MAXIMUM pressure shown on the sidewall of the tire. DO NOT mix brands of tires used on the same machine.

I-2057-1010

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FINAL DRIVE TRANSMISSION (CHAINCASE)

Checking And Adding Oil

The chaincase contains the final drive sprockets and chains. Use the same type of oil as the hydraulic / hydrostatic system.

Park the loader on a level surface.

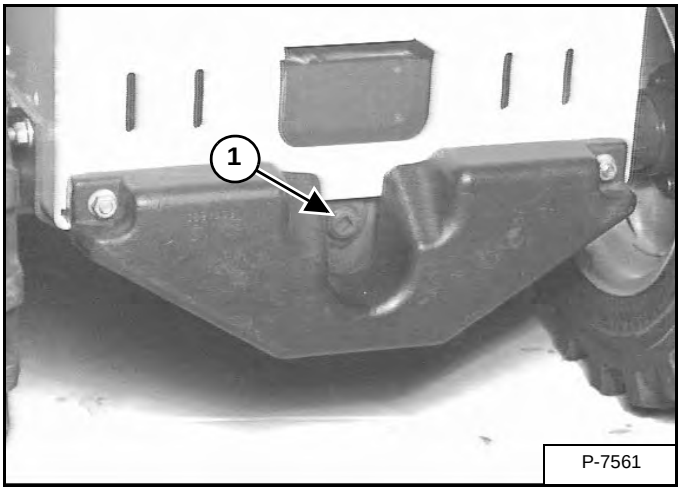
Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 48.)

Install jackstands under the rear corners of the loader frame.

Enter the loader and raise the loader lift arms. Install the Lift Arm Support Device. (See LIFT ARM SUPPORT DEVICE on Page 67.)

Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 48.)

Figure 133



Remove the check plug (Item 1) **[Figure 133]** from the front of the chaincase housing.

If oil can be reached with the tip of your finger through the hole, the oil level is correct.

If the level is low, add lubricant through the check plug hole until the oil flows from the hole.

Install and tighten the plug.

Lower the lift arms. (See LIFT ARM SUPPORT DEVICE on Page 67.)

Remove jackstands.

Removing And Replacing Oil

Park the loader on a level surface.

Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 48.)

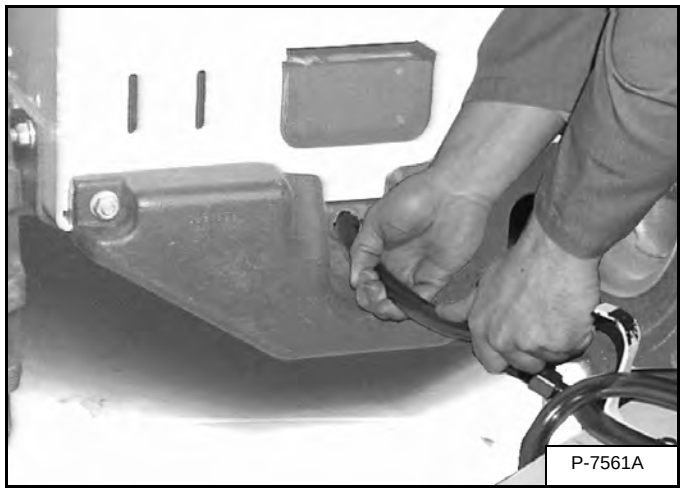
Install jackstands under the rear corners of the loader frame.

Enter the loader and raise the loader lift arms. Install the Lift Arm Support Device. (See LIFT ARM SUPPORT DEVICE on Page 67.)

Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 48.)

Remove the check plug (Item 1) **[Figure 133]** from the front of the chaincase housing.

Figure 134



Use a pump to suction the oil from the chaincase **[Figure 134]**.

Recycle or dispose of the used oil in an environmentally safe manner.

Add new oil until the oil flows from the hole.

Install and tighten the plug.

Lower the lift arms. (See LIFT ARM SUPPORT DEVICE on Page 67.)

Remove jackstands.

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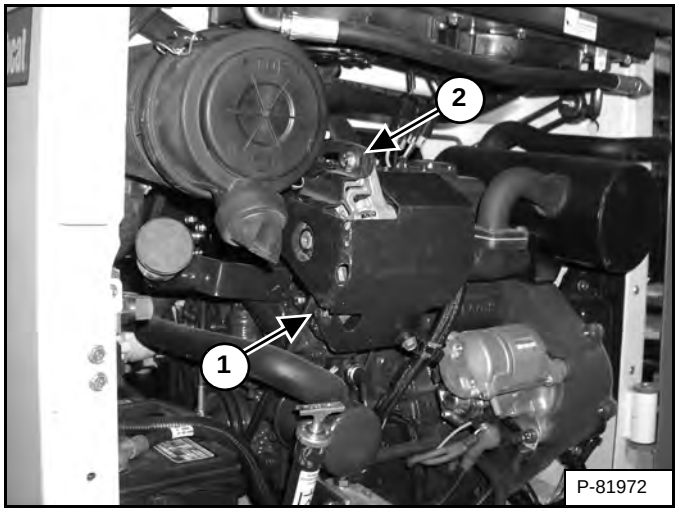
ALTERNATOR BELT

Belt Adjustment

Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 48.)

Open the rear door. (See REAR DOOR (TAILGATE) on Page 74.)

Figure 135



Loosen the alternator mounting bolt (Item 1) **[Figure 135]**.

Loosen the adjustment bolt (Item 2) **[Figure 135]**.

The tension is correct with 6 mm (1/4 in) belt movement at mid span when 67 N (15 lb) force is applied to the belt.

Tighten the adjustment bolt and mounting bolt.

Close the rear door.

Belt Replacement

Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 48.)

Open the rear door. (See REAR DOOR (TAILGATE) on Page 74.)

Loosen the alternator mounting and adjustment bolts (Items 1 and 2) **[Figure 135]** and loosen the belt all the way.

Remove the belt and install a new belt.

The tension is correct with 6 mm (1/4 in) belt movement at mid span when 67 N (15 lb) force is applied to the belt.

Tighten the adjustment bolt and mounting bolt.

Close the rear door.

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DRIVE BELT

Belt Adjustment

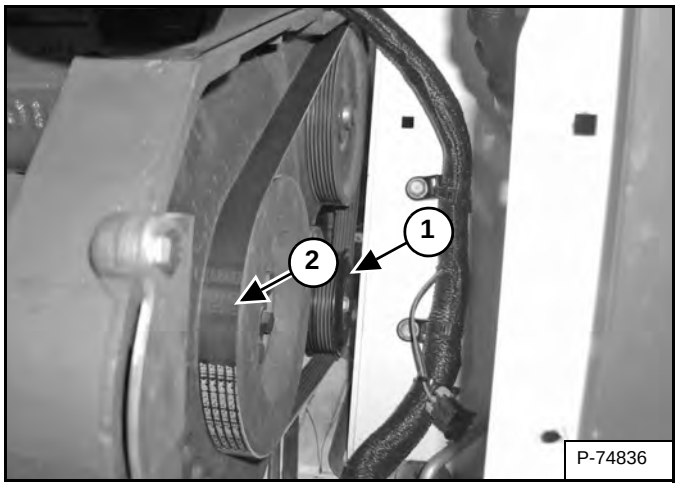
The drive belt does not need adjustment. The belt has a spring loaded idler which is constantly adjusted.

Belt Replacement

Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 48.)

Open the rear door and disconnect the negative (-) cable from the battery.

Figure 136



Use a socket wrench (without socket) to move the spring loaded belt tensioner (Item 1) **[Figure 136]** upward.

While holding the spring loaded belt tensioner up, you can remove the drive belt (Item 2) **[Figure 136]**.

Carefully lower the spring loaded belt tensioner to its stop.

Install a new drive belt by reversing the above procedure.

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LUBRICATING THE LOADER

Lubrication Locations

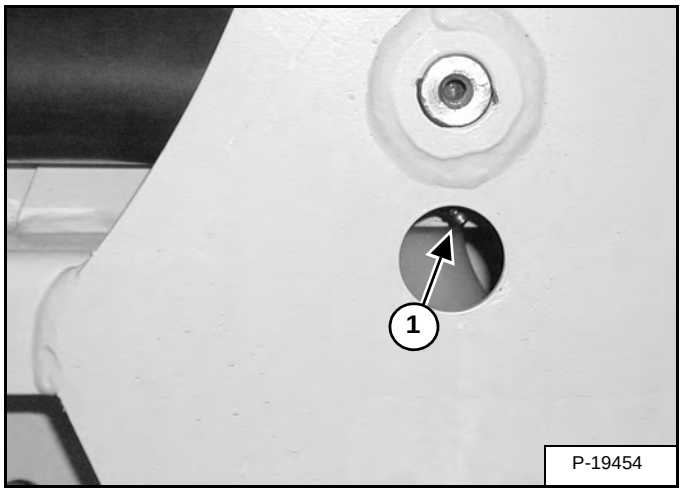
Lubricate the loader as specified for the best performance of the loader. (See SERVICE SCHEDULE on Page 62.)

Record the operating hours each time you lubricate the Bobcat Loader.

Always use a good quality lithium based multipurpose grease when you lubricate the loader. Apply the lubricant until extra grease shows.

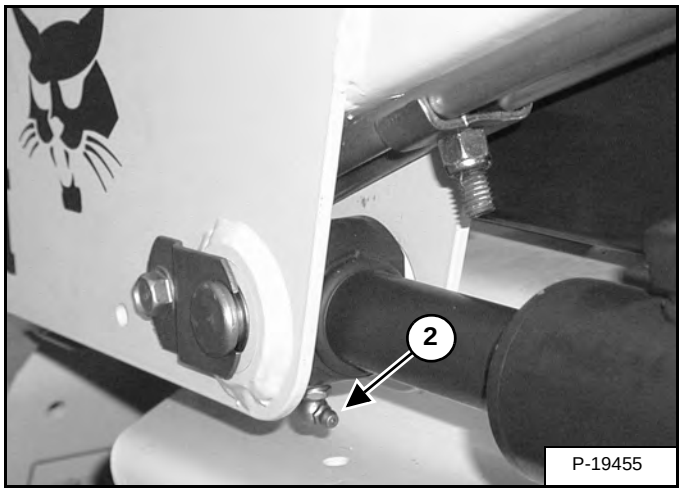
Lubricate the following locations on the loader:

Figure 137



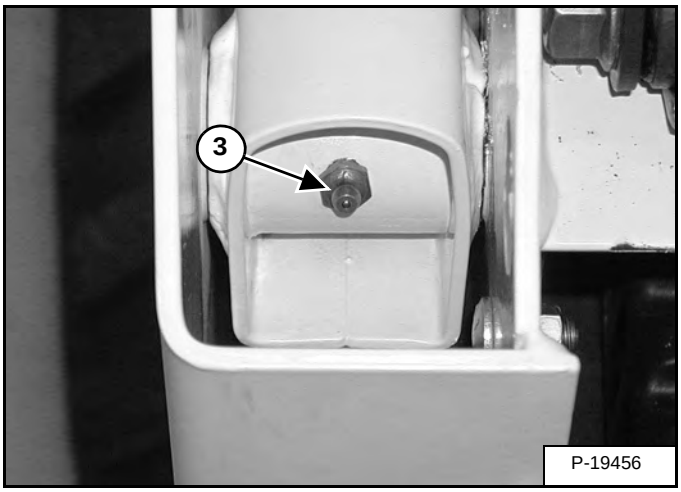
1. Base End Lift Cylinder (Both Sides) **[Figure 137]**.

Figure 138



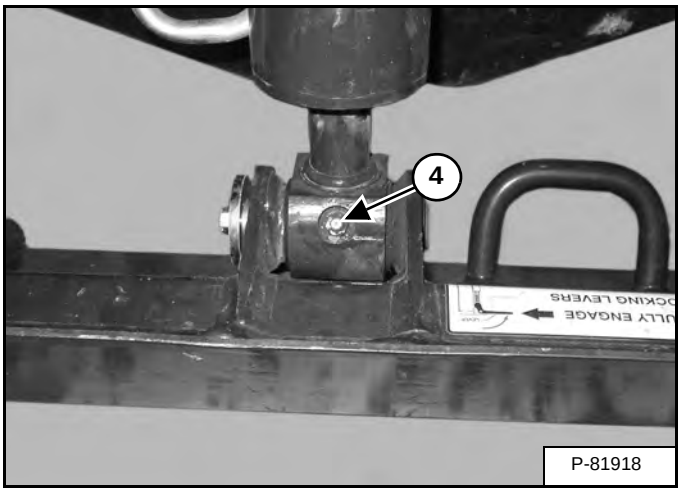
2. Rod End Lift Cylinder (Both Sides) **[Figure 138]**.

Figure 139



3. Lift Arm Pivot Pin (Both Sides) **[Figure 139]**.

Figure 140



4. Rod End Tilt Cylinder **[Figure 140]**.

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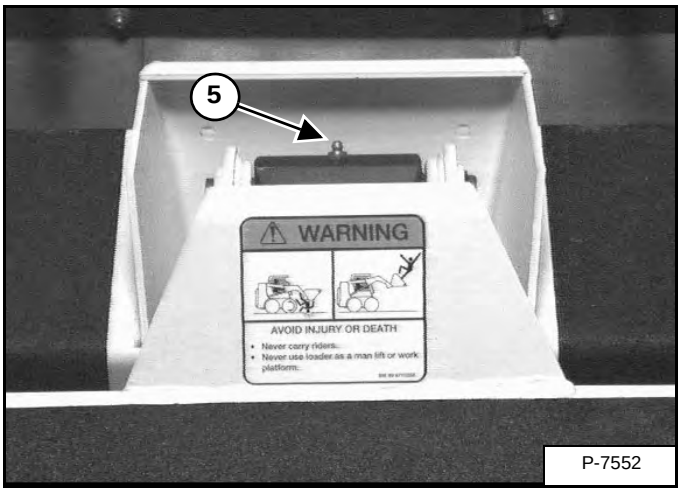
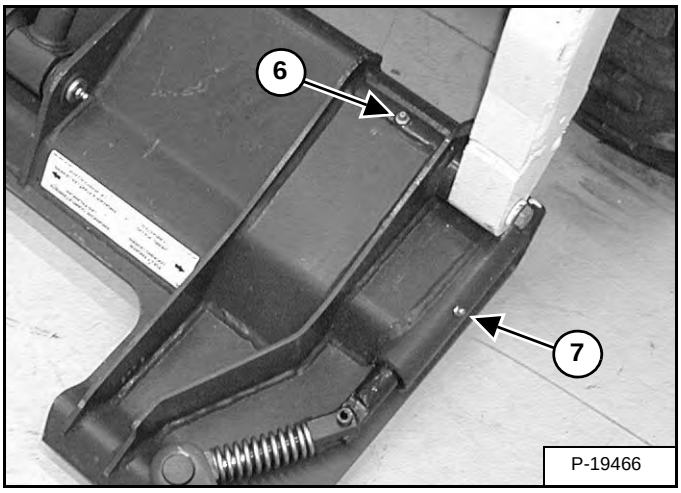
Lubrication Locations (Cont'd)

Figure 141



5. Base End Tilt Cylinder **[Figure 141]**.

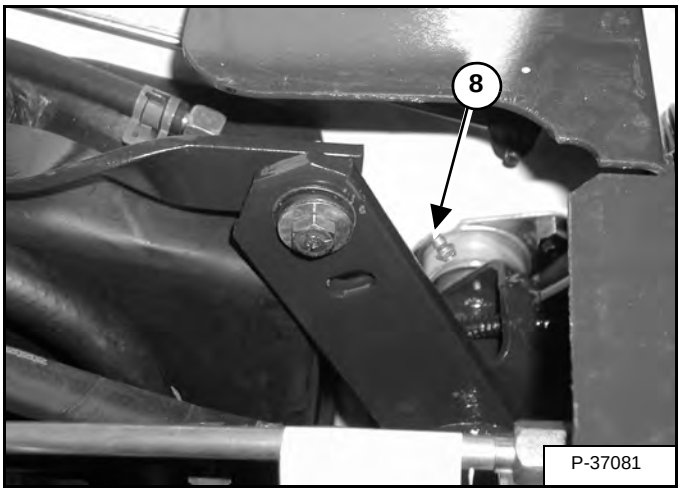
Figure 142



6. Bob-Tach Pivot Pin (Both Sides) **[Figure 142]**.

7. Bob-Tach Wedge (Both Sides) **[Figure 142]**.

Figure 143



8. 250 Hours: Steering shaft pivot bearings (Both Sides) **[Figure 143]**.

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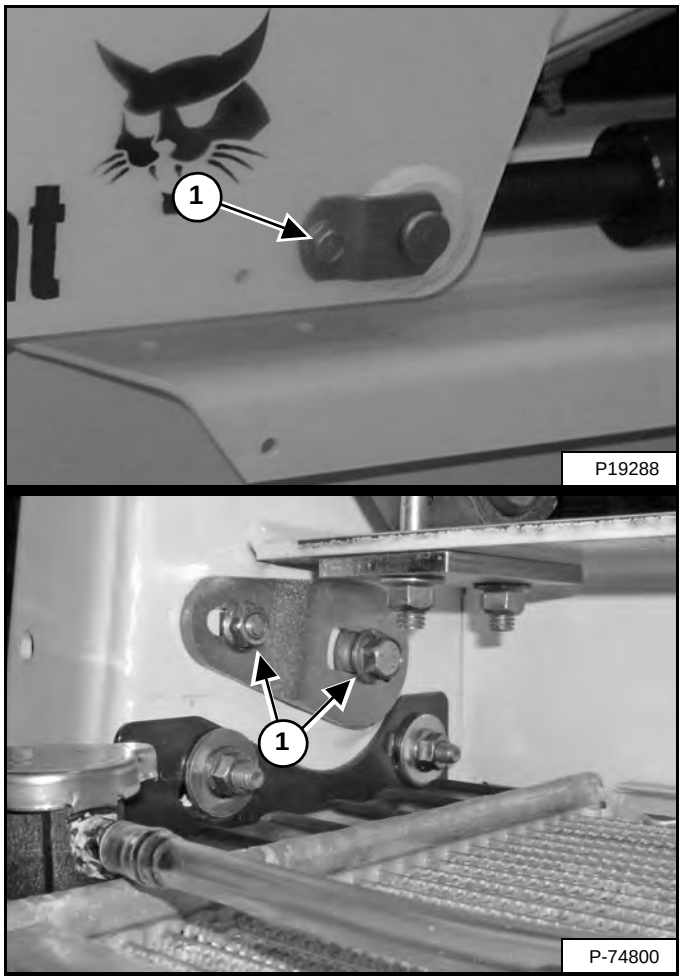
PIVOT PINS

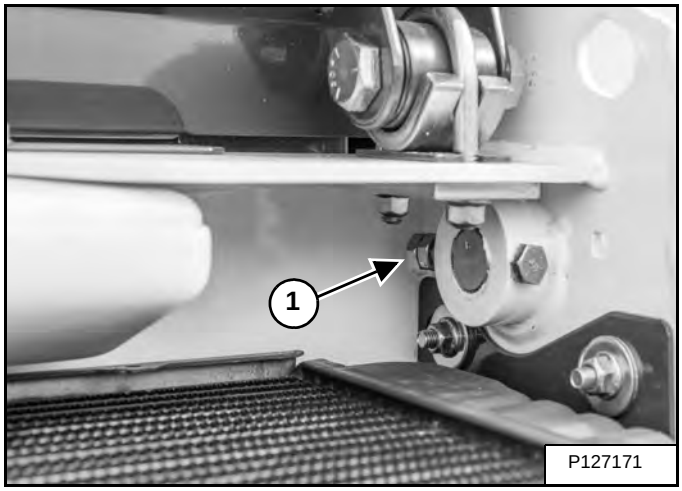
Inspection And Maintenance

Figure 144



All lift arm and cylinder pivots have a large pin held in position with a retainer bolt and lock nut (Item 1) **[Figure 144]**.

Figure 145



Some pivot pins use a bolt with double nut (Item 1) **[Figure 145]**. Do not tighten the first nut all the way. Tighten the two nuts together to the specified torque. The bolt should be free to turn.

Figure 146

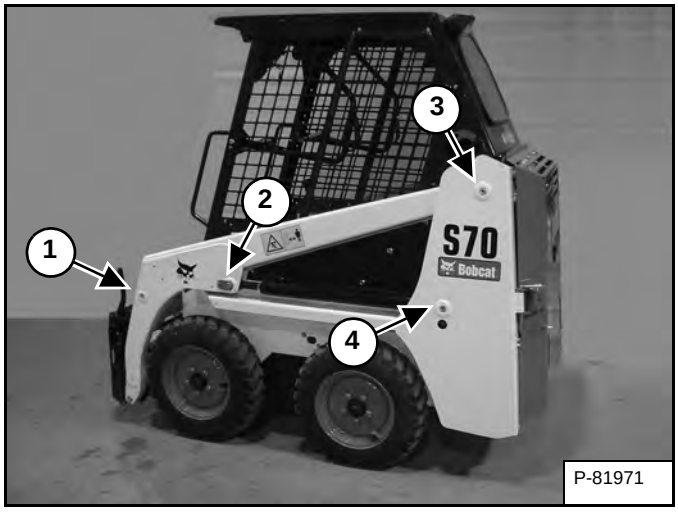
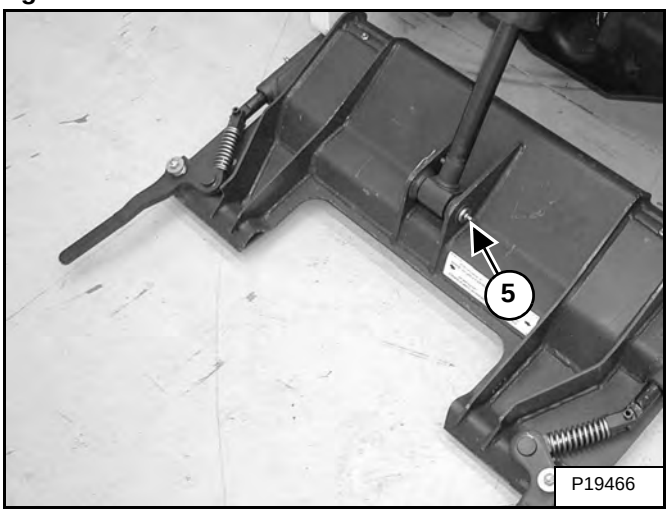


Figure 147



Check the following pivot pins (Items 1 - 5) **[Figure 146]** and **[Figure 147]**.

Repeat for (Items 1 - 4) **[Figure 146]** on the opposite side of the loader.

Tighten to 48 - 54 N•m (35 - 40 ft-lb) torque.

Do not over tighten.

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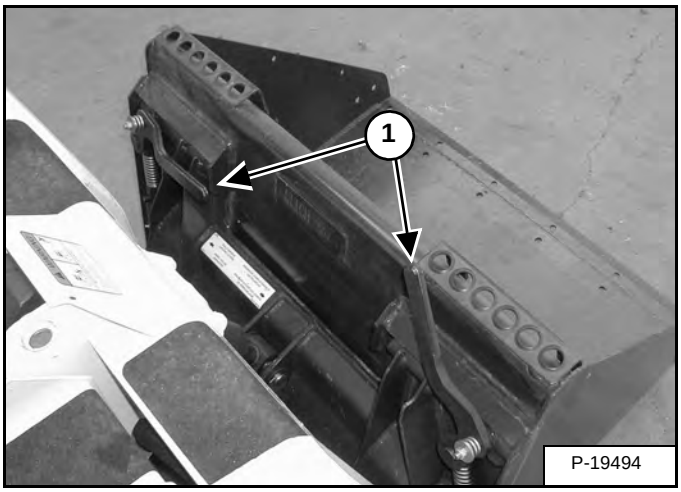
Figure 148



Move the Bob-Tach levers (Item 1) **[Figure 148]** down to engage the wedges.

The levers and wedges must move freely.

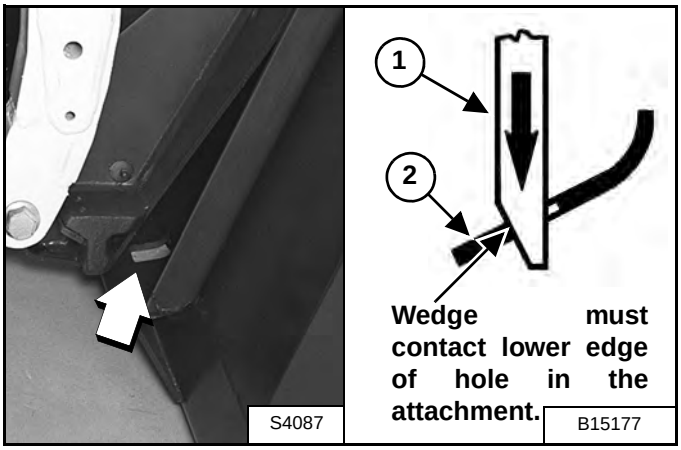
⚠ WARNING

AVOID INJURY OR DEATH

The Bob-Tach wedges must extend through the holes in the attachment mounting frame. Levers must be fully down and locked. Failure to secure wedges can allow attachment to come off.

W-2715-0208

Figure 149

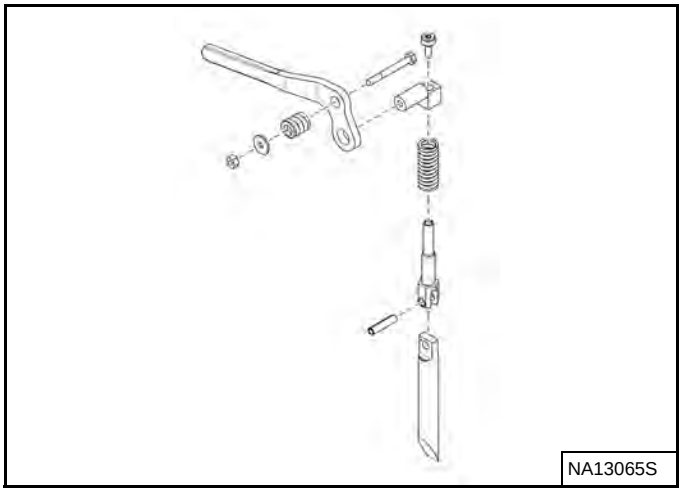


The wedges (Item 1) must extend through the holes in the attachment mounting frame (Item 2) **[Figure 149]**.

The spring loaded wedge (Item 1) **[Figure 149]** must contact the lower edge of the hole in the attachment (Item 2).

If the wedge does not contact the lower edge of the hole **[Figure 149]**, the attachment will be loose and can come off the Bob-Tach.

Figure 150



Inspect the mounting frame on the attachment and Bob-Tach, linkages and wedges for excessive wear or damage **[Figure 150]**. Replace any parts that are damaged, bent or missing. Keep all fasteners tight.

Look for cracked welds. Contact your Bobcat dealer for repair or replacement parts.

Lubricate the wedges. (See SERVICE SCHEDULE on Page 62.) and (See LUBRICATING THE LOADER on Page 97.)

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LOADER STORAGE AND RETURN TO SERVICE

Storage

Sometimes it may be necessary to store your Bobcat loader for an extended period of time. Below is a list of items to perform before storage.

- Thoroughly clean the loader including the engine compartment.
- Lubricate the loader.
- Replace worn or damaged parts.
- Park the loader in a dry protected shelter.
- Lower the lift arms all the way and put the bucket flat on the ground.
- Put blocks under the frame to remove weight from the tires.
- Put grease on any exposed cylinder rods.
- Put fuel stabilizer in the fuel tank and run the engine a few minutes to circulate the stabilizer to the pump and fuel injectors.
- Drain and flush the cooling system. Refill with premixed coolant.
- Replace all fluids and filters (engine, hyd. / hydro.).
- Replace air cleaner, heater and air conditioning filters.
- Put all controls in NEUTRAL position.
- Remove the battery. Be sure the electrolyte level is correct then charge the battery. Store it in a cool dry place above freezing temperatures and charge it periodically during storage.
- Cover the exhaust pipe opening.
- Tag the machine to indicate that it is in storage condition.

Return To Service

After the Bobcat loader has been in storage, it is necessary to follow a list of items to return the loader to service.

- Check the engine and hydraulic oil levels; check coolant level.
- Install a fully charged battery.
- Remove grease from exposed cylinder rods.
- Check all belt tensions.
- Be sure all shields and guards are in place.
- Lubricate the loader.
- Check tire inflation and remove blocks from under frame.
- Remove cover from exhaust pipe opening.
- Start the engine and let run for a few minutes while observing the instrument panels and systems for correct operation.
- Operate machine, check for correct function.
- Stop the engine and check for leaks. Repair as needed.

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TROUBLESHOOTING

The following information identifies loader problems which can occur most often. Service procedures for correcting loader problems can be found in this manual on the pages indicated. Some procedures are marked DS (Dealer Service) and must be performed only by qualified Bobcat service personnel.

⚠ 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 pedal controls or footrests and hands on the controls.**

W-2261-0909

Troubleshooting The Engine

PROBLEM	CAUSE	CORRECTION
Engine will not turn over with starter.	Battery has low charge.	Charge battery and find cause for loss of charge.
	Cables loose or dirty.	Clean and tighten battery cables.
	Damaged starter, solenoid or wiring	Check the starting circuit.
Engine turns with starter, but is difficult to start.	Wrong starting procedure.	Use correct starting procedure.
	No fuel in tank.	Add fuel.
	Dirt or water in fuel system.	Perform maintenance as needed.
	Damaged fuel pump.	Make repairs as needed.
	Fuel filter is dirty.	Install new filter.
	Hole in fuel line.	Make repairs as needed.
	Wrong oil in engine.	See Oil Specification
	Engine has lost compression.	Recondition the engine.
	Engine has overheated.	Check cooling system.
	Poor fuel quality.	Use fresh, good quality fuel.
Engine has little power or runs rough.	Dirt, water or air in fuel system.	Clean and repair as needed.
	Engine has overheated.	Check cooling system
	Governor adjustment is wrong.	Check and make adjustment if needed.
	Dirty air cleaner filter.	Check air cleaner, replace filter as needed.
	Engine has lost compression	Recondition the engine.
Engine overheats.	Cooling system is dirty. Air flow restricted.	Clean cooling system
	Engine shrouding damaged or missing.	Repair or replace.
	Engine is overloaded.	Run at full rpm

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Troubleshooting The Hydraulic System

PROBLEM	CAUSE	CORRECTION
No hydraulic action.	No hydraulic fluid.	Check fluid level and add as needed.
	Pedals are disconnected.	Check linkage. Repair as needed.
	Relief valve is damaged.	Replace the relief valve.
	Hydraulic pump is damaged.	Check pump and replace as needed.
	Hydraulic fluid is too thick. (cold temperature)	Let engine run to warm the hydraulic fluid.
Hydraulic action is rough.	Hydraulic fluid level is low.	Check fluid level and add as needed.
Hydraulic action is slow.	Pedal is hitting floor or debris under pedal.	Check adjustment. Remove dirt.
	Cylinders leak internally.	Check condition of cylinders and repair as needed.
	Hydraulic pump is damaged.	Check pump and replace as needed.
	Control valve is damaged	Check valve and repair as needed.
	Hydraulic fluid is too thick. (cold temperature)	Let engine run to warm the hydraulic fluid.
Hydraulic cylinders leak fluid.	Damage to cylinder rods or seals.	Repair cylinders.
No hydraulic flow to the front auxiliary hydraulic couplers.	Auxiliary hydraulic interlock valve closed.	Check auxiliary hydraulic interlock valve and solenoid for proper function. Repair or replace as needed.

Troubleshooting The Hydrostatic System

PROBLEM	CAUSE	CORRECTION
No drive on both sides.	Hydraulic fluid is low.	Check fluid level. Add as needed.
	10 Micron filter is damaged.	Replace filter.
	Damaged gear pump.	Check condition of gear pump and replace if bad.
No drive on one side.	Hydrostatic system is damaged.	Check hydrostatic system.
	Control linkage is disconnected.	Repair linkage.
Machine pulls to one side.	Wrong tire pressure.	Check all tires
	Steering linkage interference.	Check steering linkage
	Damaged hydrostatic pump / motor.	Check system.
Machine moves when levers are in NEUTRAL.	Steering linkage out of adjustment.	Adjust steering linkage.
System is overheating.	Hydraulic fluid level is low.	Check fluid level.
	Plugged filter.	Install new filter element.
	Low charge pressure.	Check bypass valve.
	Bobcat is overloaded.	Use correct size attachment and run engine at full rpm.
	Hydrostatic transmission damaged.	Check hydrostatic system.

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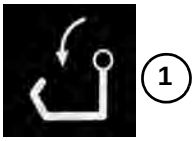
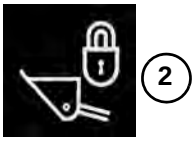
BOBCAT INTERLOCK CONTROL SYSTEM (BICS™)

Troubleshooting

The following list shows the probable causes when the BICS™ lights are off or flashing and the associated service codes. (See TROUBLESHOOTING on Page 103.)

Indicator Light	Light ON	Light OFF	Effect on Operation of Loader when Light is ON
 1	Seat Bar is up.	Seat Bar is down.	Lift and tilt functions will not operate.
 2	Control valve cannot be used.	Control valve can be used.	Lift and tilt functions will not operate.
 3	Loader cannot be moved forward and backward.	Loader can be moved forward and backward.	Loader cannot be moved forward and backward.

Viewing Diagnostic Service Codes

The Seat Bar Light (Item 1), Valve Light (Item 2) and Parking Brake Light (Item 3) will flash to indicate SERVICE CODES. These lights may flash while the engine is running or with the engine OFF and the key ON.

NOTE: Multiple SERVICE CODES and / or abnormal symptoms can be caused by a corroded or loose ground. Check grounds and both battery connections.

The list below contains SERVICE CODES. These codes help analyze monitored functions of your Bobcat loader. Some service procedures must be performed ONLY BY QUALIFIED BOBCAT SERVICE PERSONNEL.

Indicator Light	LED	Function	Failure
1	Seat Bar - 2 Flashes	Seat Sensor	Out of Range Low
		8 Volt Sensor Supply	Out of Range Low
1	Seat Bar - 3 Flashes	Seat Sensor	Out of Range High
		8 Volt Sensor Supply	Out of Range High
2	Valve - 2 Flashes	Hydraulic Lock Valve Solenoid	Short to Battery
2	Valve - 3 Flashes	Hydraulic Lock Valve Solenoid	Short to Ground
2	Valve - 4 Flashes	Hydraulic Lock Valve Solenoid	Open Circuit
3	Parking Brake - 1 Flash	Traction Lock Hold Solenoid	Open Circuit
3	Parking Brake - 2 Flashes	Traction Lock Hold Solenoid	Short to Battery
3	Parking Brake - 3 Flashes	Traction Lock Hold Solenoid	Short to Ground
3	Parking Brake - 4 Flashes	Traction Lock Pull Output	Open Circuit
3	Parking Brake - 5 Flashes	Traction Lock Pull Output	Error On
		Traction Pull Relay	Error On
3	Parking Brake - 6 Flashes	Traction Lock Pull Output	Error Off
		Traction Pull Relay	Error Off

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MACHINE SIGN TRANSLATIONS

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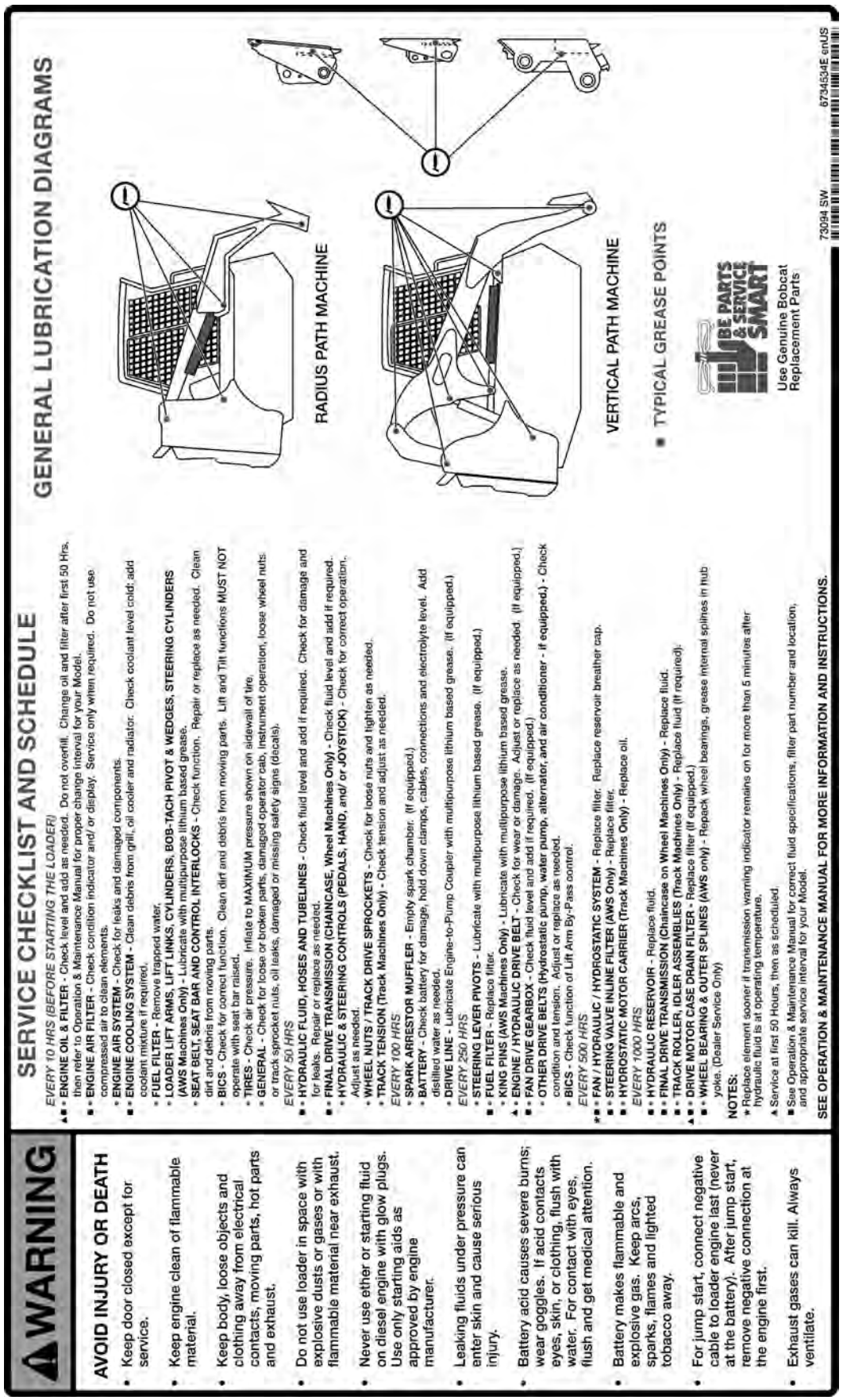

⚠WARNING

AVOID INJURY OR DEATH

- Keep door closed except for service.
- Keep engine clean of flammable material.
- Keep body, loose objects and clothing away from electrical contacts, moving parts, hot parts and exhaust.
- Do not use loader in space with explosive dusts or gases or with flammable material near exhaust.
- Never use ether or starting fluid on diesel engine with glow plugs. Use only starting aids as approved by engine manufacturer.
- Leaking fluids under pressure can enter skin and cause serious injury.
- Battery acid causes severe burns; wear goggles. If acid contacts eyes, skin, or clothing, flush with water. For contact with eyes, flush and get medical attention.
- Battery makes flammable and explosive gas. Keep arcs, sparks, flames and lighted tobacco away.
- For jump start, connect negative cable to loader engine last (never at the battery). After jump start, remove negative connection at the engine first.
- Exhaust gases can kill. Always ventilate.

SERVICE CHECKLIST AND SCHEDULE

EVERY 10 HRS (BEFORE STARTING THE LOADER)

▲■ • **ENGINE OIL & FILTER** - Check level and add as needed. Do not overfill. Change oil and filter after first 50 Hrs, then refer to Operation & Maintenance Manual for proper change interval for your Model.

■ • **ENGINE AIR FILTER** - Check condition indicator and/ or display. Service only when required. Do not use compressed air to clean elements.

• **ENGINE AIR SYSTEM** - Check for leaks and damaged components.

■ • **ENGINE COOLING SYSTEM** - Clean debris from grill, oil cooler and radiator. Check coolant level cold; add coolant mixture if required.

• **FUEL FILTER** - Remove trapped water.

• **LOADER LIFT ARMS, LIFT LINKS, CYLINDERS, BOB-TACH PIVOT & WEDGES, STEERING CYLINDERS (AWS Machines Only)** - Lubricate with multipurpose lithium based grease.

• **SEAT BELT, SEAT BAR AND CONTROL INTERLOCKS** - Check function. Repair or replace as needed. Clean dirt and debris from moving parts.

• **BICS** - Check for correct function. Clean dirt and debris from moving parts. Lift and Tilt functions MUST NOT operate with seat bar raised.

• **TIRES** - Check air pressure. Inflate to MAXIMUM pressure shown on sidewall of tire.

• **GENERAL** - Check for loose or broken parts, damaged operator cab, instrument operation, loose wheel nuts or track sprocket nuts, oil leaks, damaged or missing safety signs (decals).

EVERY 50 HRS

■ • **HYDRAULIC FLUID, HOSES AND TUBELINES** - Check fluid level and add if required. Check for damage and for leaks. Repair or replace as needed.

■ • **FINAL DRIVE TRANSMISSION (CHAINCASE, Wheel Machines Only)** - Check fluid level and add if required.

• **HYDRAULIC & STEERING CONTROLS (PEDALS, HAND, and/ or JOYSTICK)** - Check for correct operation. Adjust as needed.

• **WHEEL NUTS / TRACK DRIVE SPROCKETS** - Check for loose nuts and tighten as needed.

• **TRACK TENSION (Track Machines Only)** - Check tension and adjust as needed.

EVERY 100 HRS

• **SPARK ARRESTOR MUFFLER** - Empty spark chamber. (If equipped.)

• **BATTERY** - Check battery for damage, hold down clamps, cables, connections and electrolyte level. Add distilled water as needed.

• **DRIVE LINE** - Lubricate Engine-to-Pump Coupler with multipurpose lithium based grease. (If equipped.)

EVERY 250 HRS

• **STEERING LEVER PIVOTS** - Lubricate with multipurpose lithium based grease. (If equipped.)

■ • **FUEL FILTER** - Replace filter.

• **KING PINS (AWS Machines Only)** - Lubricate with multipurpose lithium based grease.

▲ • **ENGINE / HYDRAULIC DRIVE BELT** - Check for wear or damage. Adjust or replace as needed. (If equipped.)

■ • **FAN DRIVE GEARBOX** - Check fluid level and add if required. (If equipped.)

• **OTHER DRIVE BELTS (Hydrostatic pump, water pump, alternator, and air conditioner - if equipped.)** - Check condition and tension. Adjust or replace as needed.

• **BICS** - Check function of Lift Arm By-Pass control.

EVERY 500 HRS

*■ • **FAN / HYDRAULIC / HYDROSTATIC SYSTEM** - Replace filter. Replace reservoir breather cap.

■ • **STEERING VALVE INLINE FILTER (AWS Only)** - Replace filter.

■ • **HYDROSTATIC MOTOR CARRIER (Track Machines Only)** - Replace oil.

EVERY 1000 HRS

■ • **HYDRAULIC RESERVOIR** - Replace fluid.

■ • **FINAL DRIVE TRANSMISSION (Chaincase on Wheel Machines Only)** - Replace fluid.

■ • **TRACK ROLLER, IDLER ASSEMBLIES (Track Machines Only)** - Replace fluid (If required).

▲■ • **DRIVE MOTOR CASE DRAIN FILTER** - Replace filter (If equipped.)

■ • **WHEEL BEARING & OUTER SPLINES (AWS only)** - Repack wheel bearings, grease internal splines in hub yoke. (Dealer Service Only)

NOTES:

* Replace element sooner if transmission warning indicator remains on for more than 5 minutes after hydraulic fluid is at operating temperature.

▲ Service at first 50 Hours, then as scheduled.

■ See Operation & Maintenance Manual for correct fluid specifications, filter part number and location, and appropriate service interval for your Model.

SEE OPERATION & MAINTENANCE MANUAL FOR MORE INFORMATION AND INSTRUCTIONS.

GENERAL LUBRICATION DIAGRAMS

RADIUS PATH MACHINE

VERTICAL PATH MACHINE

■ TYPICAL GREASE POINTS

BE PARTS & SERVICE SMART

Use Genuine Bobcat Replacement Parts

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Service Schedule (Cont'd) (6734534)

⚠ ADVERTENCIA

EVITE LESIONES O LA MUERTE

- Mantenga la puerta cerrada, excepto para efectuar el servicio.
- Mantenga el motor libre de materiales inflamables.
- Mantenga el cuerpo, los objetos sueltos y la ropa alejados de los contactos eléctricos, las piezas en movimiento, las piezas calientes y los escapes.
- No utilice la cargadora en espacios que contengan polvo, gases explosivos o material inflamable cerca del escape.
- Nunca utilice éter o líquido de arranque en un motor con bujías incandescentes. Utilice sólo los aditivos para el arranque aprobados por el fabricante del motor.
- Las fugas de líquido bajo presión pueden penetrar la piel y provocar lesiones graves.
- El ácido de la batería produce quemaduras graves; use anteojos protectores. Si el ácido entra en contacto con los ojos, la piel o la ropa, enjuague con agua. En caso de entrar en contacto con los ojos, enjuáguelos y solicite atención médica de inmediato.
- La batería genera gas inflamable y explosivo. Mantenga alejados los arcos, las chispas, las llamas y el tabaco encendido.
- Para realizar un puente de arranque, conecte en último lugar el cable negativo al motor de la cargadora (nunca a la batería). Después del puente de arranque, retire en primer lugar la conexión negativa del motor.
- Los gases del escape pueden ser letales. Ventile siempre.

LISTA DE CONTROL Y PROGRAMA DEL SERVICIO DE MANTENIMIENTO

CADA 10 HORAS (ANTES DE ENCENDER EL CARGADOR)

▲■• **ACEITE Y FILTRO DEL MOTOR:** controle el nivel de aceite y agregue más cantidad si es necesario.
No sobrecargue. Cambie el aceite y el filtro luego de las primeras 50 horas. Luego, consulte el Manual de funcionamiento y mantenimiento para ver la frecuencia de mantenimiento apropiada para el modelo de su máquina.
■• **FILTRO DE AIRE DEL MOTOR:** controle el indicador de estado y/o la pantalla. Repare sólo cuando sea necesario.
No utilice aire comprimido para limpiar los elementos.
■• **SISTEMA DE AIRE DEL MOTOR:** verifique si hay pérdidas o componentes dañados.
■• **SISTEMA DE ENFRIAMIENTO DEL MOTOR:** limpie y elimine la suciedad que haya en la parrilla, en el refrigerante de aceite y en el radiador. Verifique el nivel de frío del refrigerante y agregue la cantidad necesaria.
• **FILTRO DEL COMBUSTIBLE:** retire el agua que quede acumulada.
• ■• **BRAZOS DE ELEVACIÓN, CONECTORES DE ELEVACIÓN, CILINDROS, PIVOTE Y CUÑAS BOB-TACH, Y CILINDROS DE DIRECCIÓN DEL CARGADOR** (sólo en máquinas con sistema AWS): lubrique con engrasador multiuso a base de litio.
• **CINTURÓN DE SEGURIDAD, APOYABRAZOS Y SEGUROS DE CONTROL:** verifique si funcionan correctamente.
Repare o reemplace según sea necesario. Limpie la suciedad y los desechos de las piezas en movimiento.
• **SISTEMA DE ENCLAVAMIENTO DE CONTROLES BOBCAT (BICS):** verifique si funcione correctamente. Limpie la suciedad y los desechos de las piezas en movimiento. Cuando se utilicen las funciones de elevación e inclinación, NO SE DEBE trabajar con la barra del asiento elevada.
• **NEUMÁTICOS:** verifique la presión del aire. Infle los neumáticos a la presión MÁXIMA, como se muestra en el lateral del neumático.
• **GENERAL:** verifique que no haya partes sueltas o rotas, que la cabina del operador no se encuentre dañada, el funcionamiento de los instrumentos y que las tuercas de las ruedas o las tuercas del engranaje de tracción no estén flojas.
Controle también las fugas de aceite y la señalización de seguridad dañada o faltante (etiquetas).

CADA 50 HORAS:

■• **FLUIDO HIDRÁULICO, MANGUERAS Y TUBOS:** controle el nivel de fluido y agregue según sea necesario.
Verifique que no haya daños ni fugas. Repare o reemplace según sea necesario.
■• **TRANSMISIÓN FINAL** (sólo en los **GUARDACADENAS** de máquinas con ruedas): controle el nivel del fluido y agregue según sea necesario.
- **CONTROLES DE DIRECCIÓN HIDRÁULICA (PEDALES, CONTROLES MANUALES y/o PALANCA DE MANDO):** verifique si funcionan correctamente. Ajuste según sea necesario.
- **TUERCAS DE RUEDAS / ENGRANAJES DE TRANSMISIÓN DE LA TRACCIÓN:** verifique que las tuercas no estén sueltas y ajústelas según sea necesario.
• **TENSIÓN DE LA BANDA DE TRACCIÓN** (Sólo en máquinas de tracción): verifique la tensión y ajuste según sea necesario.

CADA 100 HORAS:

• **SILENCIADOR PARACHISPAS:** vacíe la cámara de chispas (si corresponde).
• **BATERÍA:** verifique la batería por daños, grapas de sujetones, cables, conexiones y nivel de electrolitos.
Agregue agua destilada según sea necesario.
• **LÍNEA DE TRANSMISIÓN:** lubrique con engrasador multiuso a base de litio (si corresponde).

CADA 250 HORAS:

■• **PIVOTES DE LA PALANCA DE DIRECCIÓN:** lubrique con engrasador multiuso a base de litio (si corresponde)
■• **FILTRO DEL COMBUSTIBLE:** reemplace el filtro.
■• **PIVOTES DE DIRECCIÓN** (Sólo en máquinas con sistema AWS): lubrique con engrasador multiuso a base de litio.
▲• **MOTOR / CORREA IMPULSORA HIDRÁULICA:** controle que no estén gastados o dañados.
Ajuste o reemplace según sea necesario (si corresponde).
■• **CAJA DE ENGRANAJES DEL VENTILADOR:** controle el nivel de fluido y agregue según sea necesario (si corresponde).
• **OTROS CINTURONES DE SEGURIDAD** (Bomba hidrostática, bomba de agua, alternador y aire acondicionado, si corresponde). - Verifique la condición y la tensión. Ajuste o reemplace según sea necesario.
- **SISTEMA DE ENCLAVAMIENTO DE CONTROLES BOBCAT (BICS):** verifique el funcionamiento del control de derivación del brazo de elevación.

CADA 500 HORAS:

■• **VENTILADOR / SISTEMA HIDRÁULICO / HIDROSTÁTICO:** reemplace el filtro. Reemplace la cubierta del respiradero del depósito.
■• **FILTRO DE ENTRADA DE LA VÁLVULA DE DIRECCIÓN** (sólo en máquinas con sistema AWS): reemplace el filtro.
■• **PORTADOR DEL MOTOR HIDROSTÁTICO** (sólo en máquinas de tracción): reemplace el aceite.

CADA 1000 HORAS:

■• **DEPÓSITO HIDRÁULICO:** reemplace el fluido.
■• **TRANSMISIÓN FINAL** (sólo en los guardacadenas de máquinas con ruedas): reemplace el fluido.
■• **RODILLO DE TRACCIÓN, CONJUNTO DE RODILLOS AUXILIARES** (sólo en máquinas de tracción): reemplace el fluido (si corresponde).
▲■• **FILTRO DE DRENAJE DE LA CAJA DEL MOTOR DE TRANSMISIÓN:** reemplace el filtro (si corresponde).
■• **COJINETES DE LAS RUEDAS Y RANURAS EXTERIORES** (sólo en máquinas con sistema AWS): vuelva a untar grasa en los cojinetes de las ruedas y lubrique las ranuras externas en la horquilla del cubo. (Sólo servicio de mantenimiento del distribuidor)

NOTAS:

* Reemplace el elemento cuanto antes si el indicador de advertencia de la transmisión permanece encendido durante más de 5 minutos luego de que el fluido hidráulico haya alcanzado la temperatura de funcionamiento.
▲ Realice un servicio de mantenimiento después de las primeras 50 horas y, luego, según el programa.
■ Consulte el Manual de funcionamiento y mantenimiento acerca de las especificaciones de fluidos, los números de piezas de filtros y las ubicaciones, así como la frecuencia apropiada para realizar el mantenimiento a su modelo de máquina.

CONSULTE EL MANUAL DE FUNCIONAMIENTO Y MANTENIMIENTO PARA OBTENER MÁS INFORMACIÓN E INSTRUCCIONES.

DIAGRAMAS GENERALES DE LUBRICACIÓN

MÁQUINA DE TRAYECTORIA RADIAL

MÁQUINA DE TRAYECTORIA VERTICAL

● PUNTOS DE ENGRASE HABITUALES

BE PARTS & SERVICE SMART
Utilice piezas originales
Bobcat de repuesto

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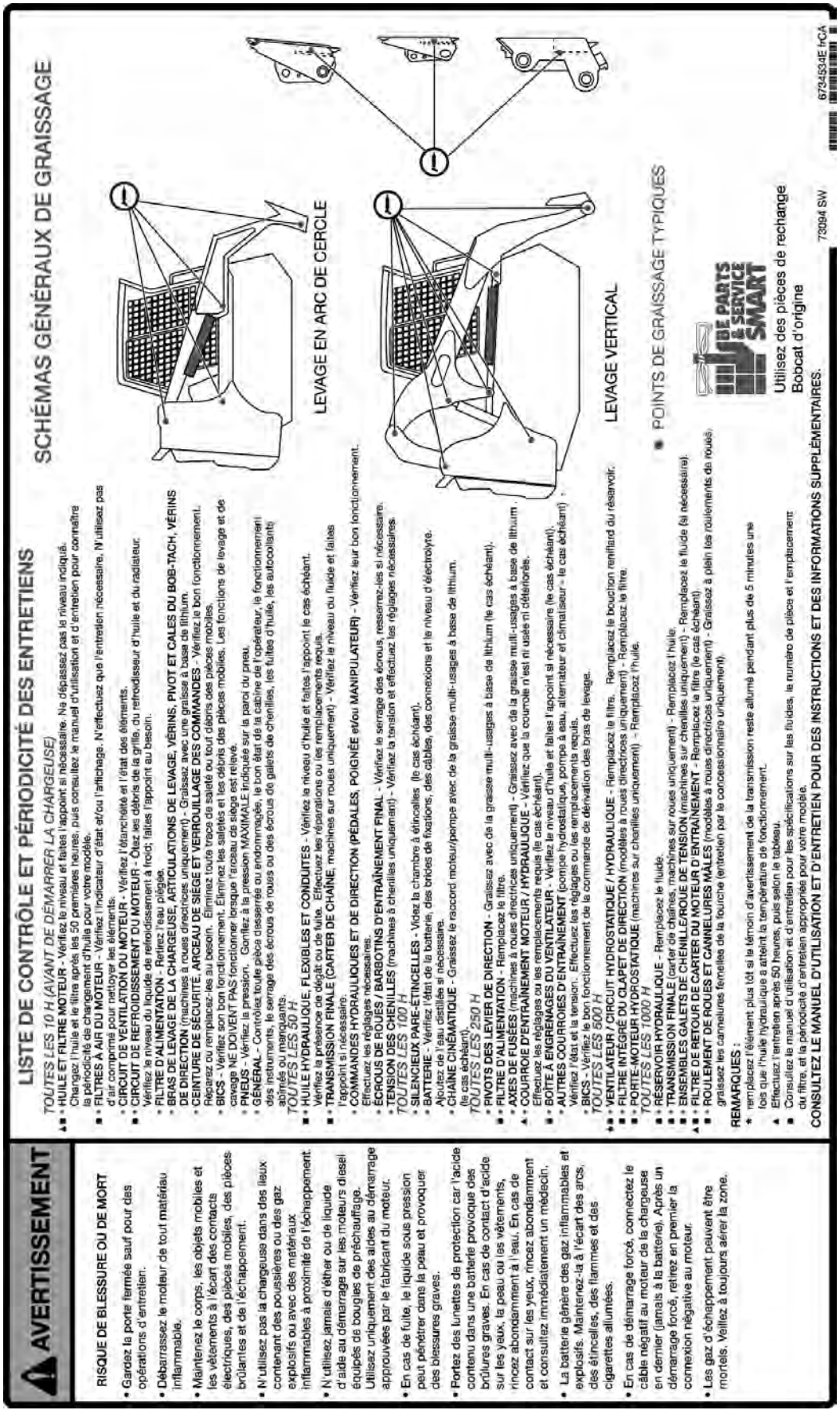
Service Schedule (Cont'd) (6734534)



AVERTISSEMENT

RISQUE DE BLESSURE OU DE MORT

- Gardez la porte fermée sauf pour des opérations d'entretien.
- Débarrassez le moteur de tout matériau inflammable.
- Maintenez le corps, les objets mobiles et les vêtements à l'écart des contacts électriques, des pièces mobiles, des pièces brûlantes et de l'échappement.
- N'utilisez pas la chargeuse dans des lieux contenant des poussières ou des gaz explosifs ou avec des matériaux inflammables à proximité de l'échappement.
- N'utilisez jamais d'éther ou de liquide d'aide au démarrage sur les moteurs diesel équipés de bougies de préchauffage. Utilisez uniquement des aides au démarrage approuvées par le fabricant du moteur.
- En cas de fuite, le liquide sous pression peut pénétrer dans la peau et provoquer des blessures graves.
- Portez des lunettes de protection car l'acide contenu dans une batterie provoque des brûlures graves. En cas de contact d'acide sur les yeux, la peau ou les vêtements, rincez abondamment à l'eau. En cas de contact sur les yeux, rincez abondamment et consultez immédiatement un médecin.
- La batterie génère des gaz inflammables et explosifs. Maintenez-la à l'écart des arcs, des étincelles, des flammes et des cigarettes allumées.
- En cas de démarrage forcé, connectez le câble négatif au moteur de la chargeuse en dernier (jamais à la batterie). Après un démarrage forcé, retirez en premier la connexion négative au moteur.
- Les gaz d'échappement peuvent être mortels. Veillez à toujours aérer la zone.

LISTE DE CONTRÔLE ET PÉRIODICITÉ DES ENTRETIENS

TOUTES LES 10 H (AVANT DE DÉMARRER LA CHARGEUSE)

▲■ • **HUILE ET FILTRE MOTEUR** - Vérifiez le niveau et faites l'appoint si nécessaire. Ne dépassez pas le niveau indiqué. Changez l'huile et le filtre après les 50 premières heures, puis consultez le manuel d'utilisation et d'entretien pour connaître la périodicité de changement d'huile pour votre modèle.

■ • **FILTRES À AIR DU MOTEUR** - Vérifiez l'indicateur d'état et/ou l'affichage. N'effectuez que l'entretien nécessaire. N'utilisez pas d'air comprimé pour nettoyer les éléments.

• **CIRCUIT DE VENTILATION DU MOTEUR** - Vérifiez l'étanchéité et l'état des éléments.

■ • **CIRCUIT DE REFROIDISSEMENT DU MOTEUR** - Ôtez les débris de la grille, du refroidisseur d'huile et du radiateur. Vérifiez le niveau du liquide de refroidissement à froid; faites l'appoint au besoin.

• **FILTRE D'ALIMENTATION** - Retirez l'eau piégée.

• **BRAS DE LEVAGE DE LA CHARGEUSE, ARTICULATIONS DE LEVAGE, VÉRINS, PIVOT ET CALES DU BOB-TACH, VÉRINS DE DIRECTION** (machines à roues directrices uniquement) - Graissez avec une graisse à base de lithium.

• **CEINTURE DE SÉCURITÉ, ARCEAU DE SIÈGE ET VERROUILLAGE DES COMMANDES** - Vérifiez le bon fonctionnement. Réparez ou remplacez-les au besoin. Éliminez toute trace de saleté ou tout débris des pièces mobiles.

• **BICS** - Vérifiez son bon fonctionnement. Éliminez les saletés et les débris des pièces mobiles. Les fonctions de levage et de cavage NE DOIVENT PAS fonctionner lorsque l'arceau de siège est relevé.

• **PNEUS** - Vérifiez la pression. Gonflez à la pression MAXIMALE indiquée sur la paroi du pneu.

• **GÉNÉRAL** - Contrôlez toute pièce desserrée ou endommagée, le bon état de la cabine de l'opérateur, le fonctionnement des instruments, le serrage des écrous de roues ou des écrous de galets de chenilles, les fuites d'huile, les autocollants abîmés ou manquants.

TOUTES LES 50 H

■ • **HUILE HYDRAULIQUE, FLEXIBLES ET CONDUITES** - Vérifiez le niveau d'huile et faites l'appoint le cas échéant. Vérifiez la présence de dégât ou de fuite. Effectuez les réparations ou les remplacements requis.

■ • **TRANSMISSION FINALE (CARTER DE CHAÎNE, machines sur roues uniquement)** - Vérifiez le niveau du fluide et faites l'appoint si nécessaire.

• **COMMANDES HYDRAULIQUES ET DE DIRECTION (PÉDALES, POIGNÉE et/ou MANIPULATEUR)** - Vérifiez leur bon fonctionnement. Effectuez les réglages nécessaires.

• **ÉCROUS DE ROUES / BARBOTINS D'ENTRAÎNEMENT FINAL** - Vérifiez le serrage des écrous, resserrez-les si nécessaire.

• **TENSION DES CHENILLES** (machines à chenilles uniquement) - Vérifiez la tension et effectuez les réglages nécessaires.

TOUTES LES 100 H

• **SILENCIEUX PARE-ÉTINCELLES** - Videz la chambre à étincelles (le cas échéant).

• **BATTERIE** - Vérifiez l'état de la batterie, des brides de fixations, des câbles, des connexions et le niveau d'électrolyte. Ajoutez de l'eau distillée si nécessaire.

• **CHAÎNE CINÉMATIQUE** - Graissez le raccord moteur/pompe avec de la graisse multi-usages à base de lithium. (le cas échéant)

TOUTES LES 250 H

• **PIVOTS DES LEVIER DE DIRECTION** - Graissez avec de la graisse multi-usages à base de lithium (le cas échéant).

■ • **FILTRE D'ALIMENTATION** - Remplacez le filtre.

• **AXES DE FUSÉES** (machines à roues directrices uniquement) - Graissez avec de la graisse multi-usages à base de lithium.

▲ • **COURROIE D'ENTRAÎNEMENT MOTEUR / HYDRAULIQUE** - Vérifiez que la courroie n'est ni usée ni détériorée. Effectuez les réglages ou les remplacements requis (le cas échéant).

■ • **BOÎTE À ENGRENAGES DU VENTILATEUR** - Vérifiez le niveau d'huile et faites l'appoint si nécessaire (le cas échéant).

• **AUTRES COURROIES D'ENTRAÎNEMENT** (pompe hydrostatique, pompe à eau, alternateur et climatiseur - le cas échéant) - Vérifiez l'état et la tension. Effectuez les réglages ou les remplacements requis.

• **BICS** - Vérifiez le bon fonctionnement de la commande de dérivation des bras de levage.

TOUTES LES 500 H

■ • **VENTILATEUR / CIRCUIT HYDROSTATIQUE / HYDRAULIQUE** - Remplacez le filtre. Remplacez le bouchon reniflard du réservoir.

■ • **FILTRE INTÉGRÉ DU CLAPET DE DIRECTION** (modèles à roues directrices uniquement) - Remplacez le filtre.

■ • **PORTE-MOTEUR HYDROSTATIQUE** (machines sur chenilles uniquement) - Remplacez l'huile.

TOUTES LES 1000 H

■ • **RÉSERVOIR HYDRAULIQUE** - Remplacez le fluide.

■ • **TRANSMISSION FINALE** (carter de chaînes, machines sur roues uniquement) - Remplacez l'huile.

■ • **ENSEMBLES GALETS DE CHENILLE/ROUE DE TENSION** (machines sur chenilles uniquement) - Remplacez le fluide (si nécessaire).

▲■ • **FILTRE DE RETOUR DE CARTER DU MOTEUR D'ENTRAÎNEMENT** - Remplacez le filtre (le cas échéant).

■ • **ROULEMENT DE ROUES ET CANNELURES MÂLES** (modèles à roues directrices uniquement) - Graissez à plein les roulements de roues, graissez les cannelures femelles de la fourche (entretien par le concessionnaire uniquement).

REMARQUES :

* remplacez l'élément plus tôt si le témoin d'avertissement de la transmission reste allumé pendant plus de 5 minutes une fois que l'huile hydraulique a atteint la température de fonctionnement.

▲ Effectuez l'entretien après 50 heures, puis selon le tableau.

■ Consultez le manuel d'utilisation et d'entretien pour les spécifications sur les fluides, le numéro de pièce et l'emplacement du filtre, et la périodicité d'entretien appropriée pour votre modèle.

CONSULTEZ LE MANUEL D'UTILISATION ET D'ENTRETIEN POUR DES INSTRUCTIONS ET DES INFORMATIONS SUPPLÉMENTAIRES.

SCHÉMAS GÉNÉRAUX DE GRAISSAGE

LEVAGE EN ARC DE CERCLE

LEVAGE VERTICAL

● POINTS DE GRAISSAGE TYPIQUES

BE PARTS & SERVICE SMART

Utilisez des pièces de rechange Bobcat d'origine

73094 SW

6734534E frCA

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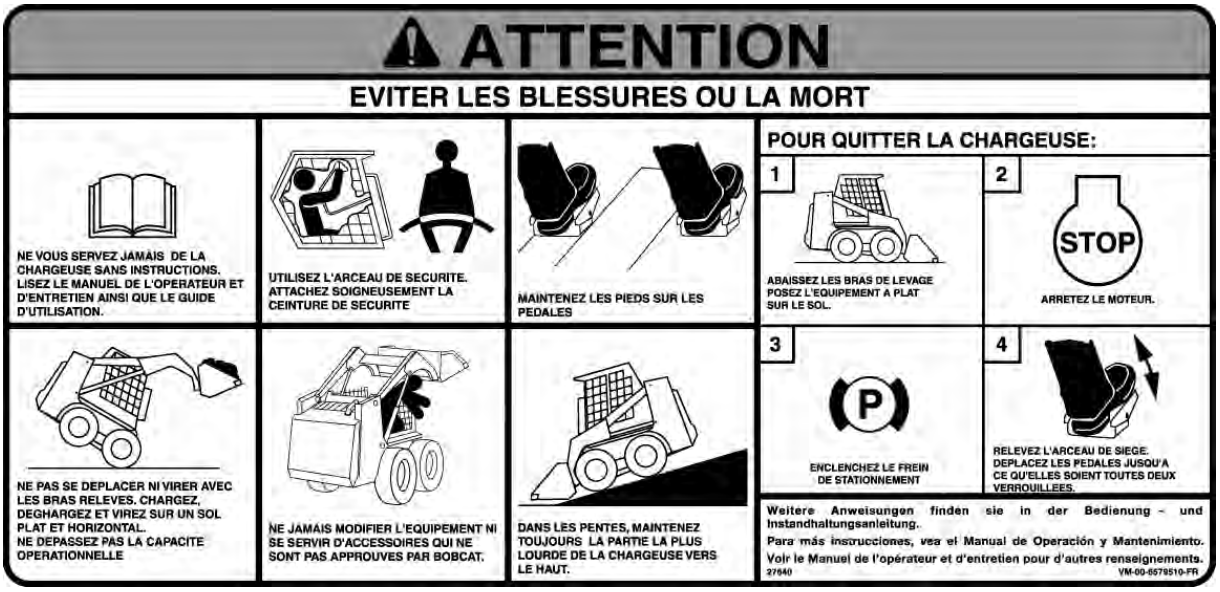
MACHINE SIGN TRANSLATIONS (CONT'D)

Warning (6579510)



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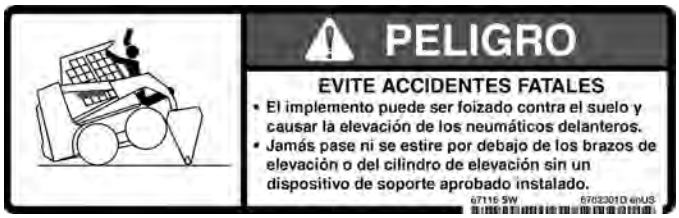
MACHINE SIGN TRANSLATIONS (CONT'D)

Danger (6702301)



Danger (6702302)

Danger (6717343)

Warning (6579528)

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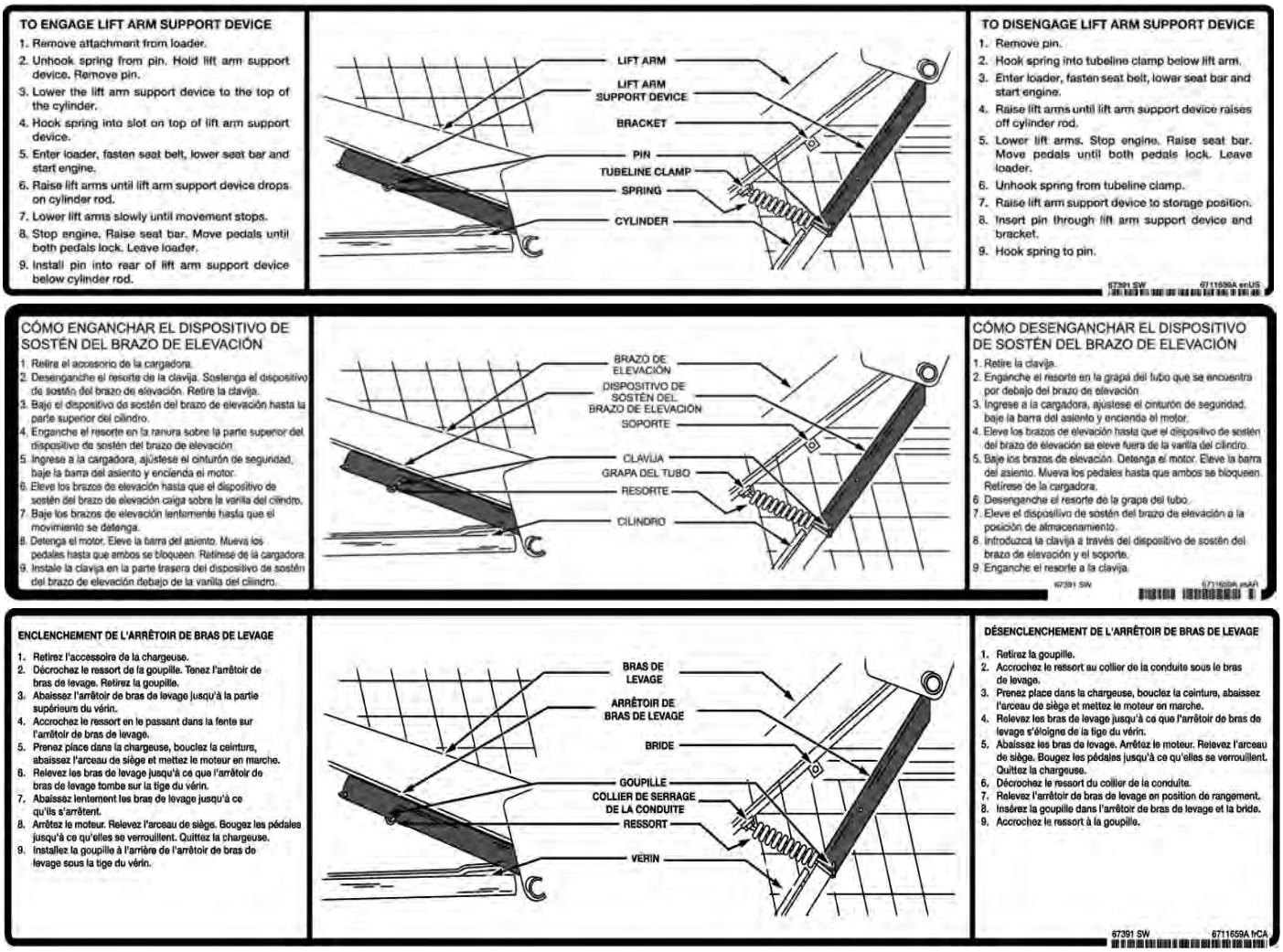
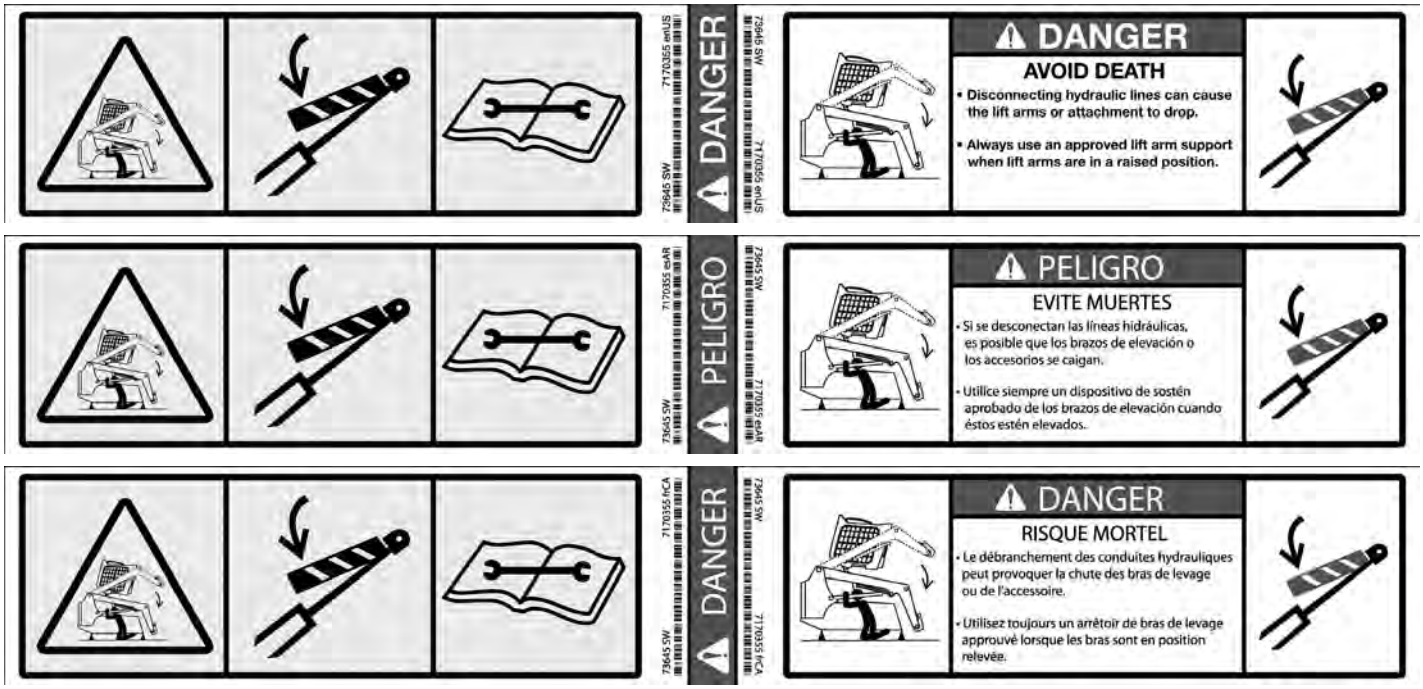
MACHINE SIGN TRANSLATIONS (CONT'D)

Lift Arm Support Device (6711659)



Danger (7170355)



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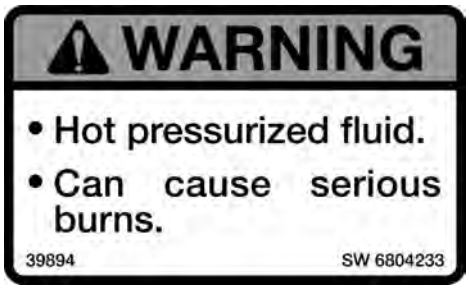
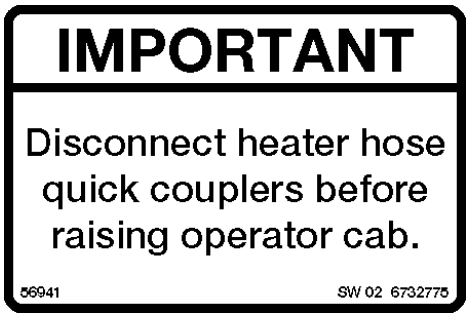
Warning (6737189)

Warning (6804233)



Warning (6576048)

Important (6732775)



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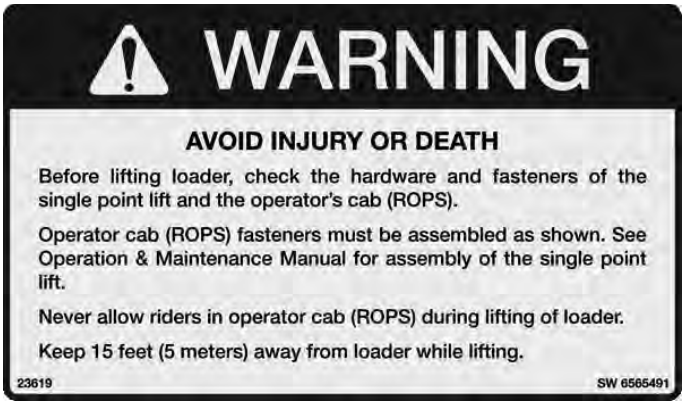
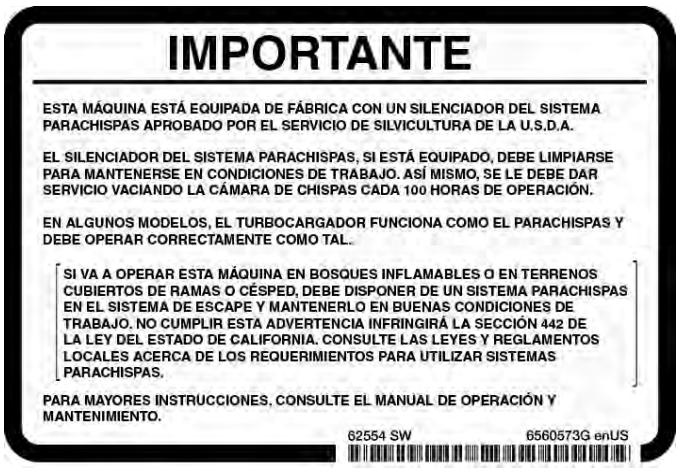
Warning (6565491)



Important (6560573)



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Warning (6710358)

Warning (6702255)

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MACHINE SIGN TRANSLATIONS (CONT'D)

Warning (6577754)

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SPECIFICATIONS

Certain specification(s) are based on engineering calculations and are not actual measurements. Specification(s) are provided for comparison purposes only and are subject to change without notice. Specification(s) for your individual Bobcat equipment will vary based on normal variations in design, manufacturing, operating conditions, and other factors.

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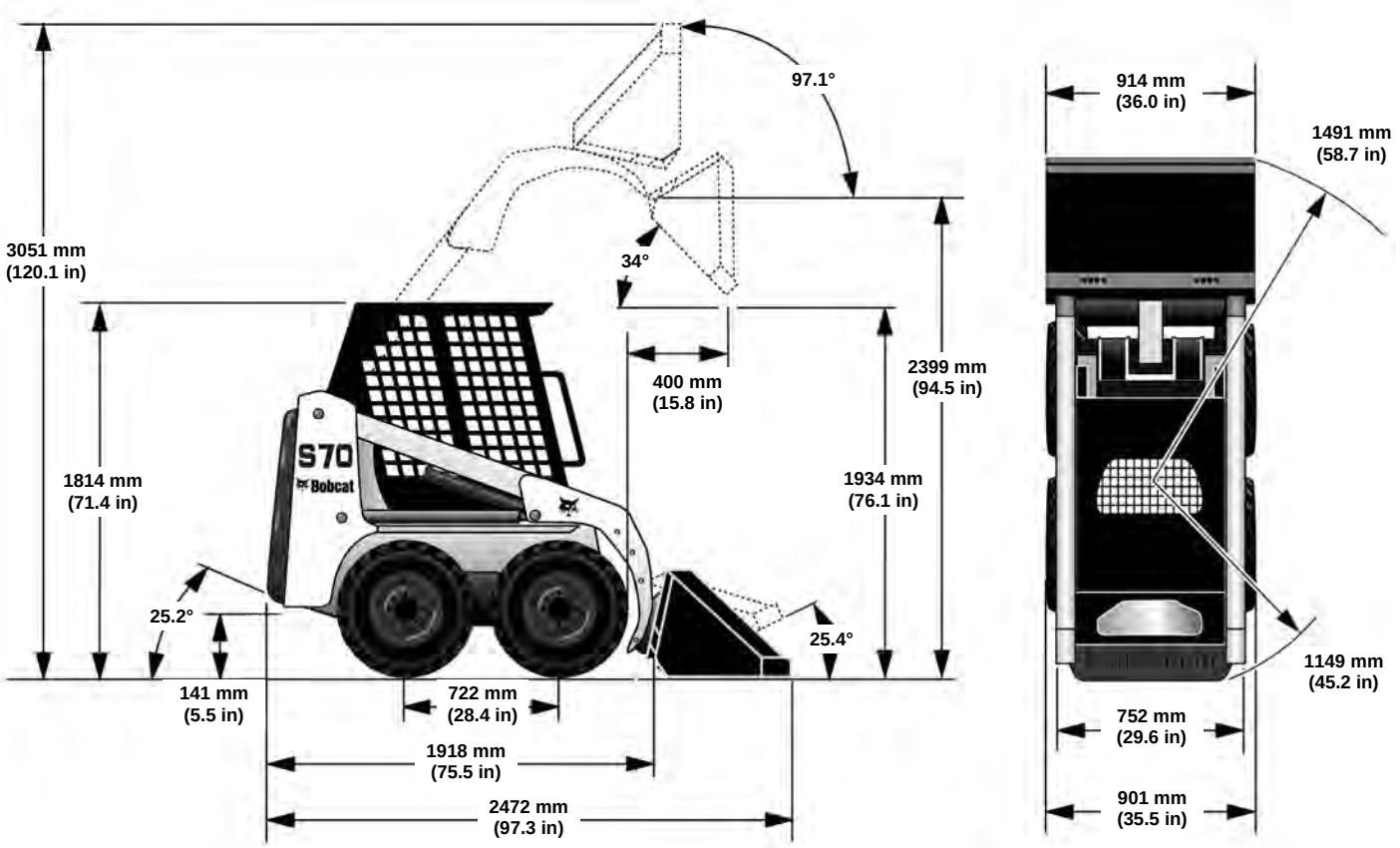
(S70) LOADER SPECIFICATIONS

Machine Dimensions

- Dimensions are given for loader equipped with standard tires and 36 in. dirt bucket and may vary with other bucket types.
- Where applicable, specification conform to SAE or ISO standards and are subject to change without notice.



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Changes of structure or weight distribution of the loader can cause changes in control and steering response and can cause failure of the loader parts.

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(S70) LOADER SPECIFICATIONS (CONT'D)

Performance

Rated Operating Capacity	318 kg (700 lb)
Tipping Load	686 kg (1512 lb)
Operating Weight	1268 kg (2795 lb)
SAE Breakout Force - Lift - Tilt	8607 N (1935 lb) 8674 N (1950 lb)
Travel Speed	0 - 9,8 km/h (0 - 6.1 mph)
Push Force	9519 N (2140 lb)

Engine

Make / Model:	
– A3W611001 & Above	Kubota® / D1005-E3B-BC-3 Tier 4
– A3W711001 & Above	Kubota® / D1005-E3B-BC-3 Tier 4
– B38V11001 & Above	Kubota® / D1005-E4B-BC-3 Tier 4 NRTC
Fuel / Cooling	Diesel / Liquid
Horsepower:	
– ISO 9249 / SAE J1349 Net	16,8 kW (22.5 hp) @ 3000 rpm
– ISO 14396	17,2 kW (23.1 hp) @ 3000 rpm
– SAE J1995 Gross	17,5 kW (23.5 hp) @ 3000 rpm
Torque (SAE J1349 Gross)	62,8 N•m (45.6 ft-lb) @ 2200 rpm
Number of Cylinders	Three
Displacement	1001,0 cm^3 (61.08 in^3)
Bore / Stroke	76,0 mm / 73,6 mm (2.99 in / 2.90 in)
Lubrication	Gear Pump Pressure System with Filter
Crankcase Ventilation	Closed Breathing
Air Cleaner	Dry replaceable paper cartridge with separate safety element
Ignition	Diesel Compression
Air Induction	Naturally Aspirated
Low Idle	1125 - 1175 rpm
High Idle	3125 - 3175 rpm
Engine Coolant	Propylene Glycol / Water Mixture

Drive System

Main Drive	Hydrostatic 4 wheel drive
Transmission	Infinitely variable tandem hydrostatic piston pumps, driving two fully reversing hydrostatic motors.
Final Drive	Pre-stressed #60 HS endless roller chain (no master link) and sprockets in sealed chaincase with oil lubrication (Chains do not require periodic adjustments) Two chains per side with no idler sprocket
Total Engine to Wheel Reduction	31.25:1
Axle Size	37,6 mm (1.50 in), Heat treated
Wheel Bolts	Five - 9/16 in. Wheel bolts fixed to axle hubs

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(S70) LOADER SPECIFICATIONS (CONT'D)

Controls

Vehicle Steering	Direction and speed controlled by two hand operated steering levers.
Loader Hydraulics - Lift and Tilt - Front Auxiliary Hydraulics (Std.)	 Controlled by separate foot pedals. Controlled by lateral movement of the right hand steering lever.
Engine	Hand lever speed control, key type start switch or optional keyless start, and optional engine shutdown (Rental Kit).
Starting Aid	Glow Plug - Automatically activated by Key Switch or Keyless instrumentation.
Service Brake	Two independent hydrostatic systems controlled by two hand operated steering levers.
Secondary Brake	One of the hydrostatic transmissions.
Parking Brake (Standard)	Mechanical disc, manually operated switch on front instrument panel.

Hydraulic System

Pump Type	Engine driven gear type
Pump Capacity	33,7 L/min (8.9 U.S. gpm) @ 3150 engine rpm
Filters	Full flow replaceable, 10 micron synthetic media element
System Relief at Quick Couplers	20,7 MPa (207 bar) (3000 psi)
Hydraulic Cylinders Bore Diameter: Lift Cylinder (2) Tilt Cylinder (1) Rod Diameter: Lift Cylinder (2) Tilt Cylinder (1) Stroke: Lift Cylinder (2) Tilt Cylinder (1)	Double acting; Tilt cylinder has cushioning feature on dump and rollback 50,8 mm (2.00 in) 76,2 mm (3.00 in) 31,8 mm (1.25 in) 31,8 mm (1.25 in) 555,5 mm (21.87 in) 268,2 mm (10.56 in)
Control Valve	3-Spool, open center type with spring detent for lift float and detent auxiliary hydraulic spool
Fluid Lines	SAE standard tubelines, hoses and fittings.
Fluid Type	BOBCAT FLUID, Hydraulic / Hydrostatic 6903117 - (2.5 U.S. gal) 6903118 - (5 U.S. gal) 6903119 - (55 U.S. gal)
Hydraulic Function Time: Raise Lift Arms Lower Lift Arms Bucket Dump Bucket Rollback	 3.6 Seconds 2.7 Seconds 2.1 Seconds 1.7 Seconds

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Electrical

Alternator	Belt driven, 65 amperes ventilated
Battery	12 volt, 650 cold cranking amperes @ -18°C (0°F) 115 minute reserve capacity at 25 amperes
Starter	12 volt, gear type, 2,7 kW (3.62 hp)
Instrumentation	**Gauges:** Hourmeter, Engine Coolant Temperature, Voltmeter, and Fuel Level (on tank). **Warning lights:** Engine Warning, Transmission Warning, and Seat Belt. **Indicators:** BICS™ Functions.

Capacities

Engine Cooling System	5,7 L (6.0 qt)
Fuel	24,6 L (6.5 U.S. gal)
Engine Lubrication with Filter	3,7 L (3.9 qt)
Hydraulic / Hydrostatic Reservoir	5 L (5.3 qt)
Hydraulic / Hydrostatic System	15,1 L (4.0 U.S. gal)
Chaincase Reservoir	11,4 L (3.0 U.S. gal)

Tires

Standard Duty (Standard)	23 x 5.70 - 12, 4 Ply Rating
Heavy Duty (Option)	23 x 8.50 - 12, 6 Ply Rating
Recommended Pressure	Inflate tires to MAXIMUM pressure shown on the side wall of the tire. DO NOT mix brands of tires used on the same loader.

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WARRANTY

Bobcat Loaders

Bobcat Company warrants to its authorized dealers and authorized dealers of Bobcat Equipment Ltd., who in turn warrant to the owner, that each new Bobcat loader with a delivery date on or after January 1, 2019 will be free from proven defects in material and workmanship with respect to (i) all components of the product except as otherwise specified herein for twenty-four (24) months, or a total of 2000 hours of use, whichever occurs first, (ii) the drive belt from the hydrostatic pump to the engine, for thirty six (36) months, provided that after the initial twelve month warranty period, such warranty shall be limited to parts only and does not include labor, (iii) tracks and Bobcat brand tires, for twelve (12) months on a prorated basis based on the remaining depth of the track or tire at the time any defect is discovered, (iv) Bobcat brand batteries, for an initial twelve (12) month warranty period and for an additional twelve (12) months thereafter, Bobcat Company shall reimburse a fixed portion of the cost of replacing the battery as designated by Bobcat in the event of a proven defect and (v) auxiliary hydraulic quick couplers for six (6) months or 200 hours of use, whichever occurs first. The foregoing time periods shall all commence after delivery by the authorized Bobcat dealer to the original buyer.

During the warranty period, the authorized Bobcat dealer shall repair or replace, at Bobcat Company's option, without charge for parts and labor, any part of the Bobcat product except as otherwise specified herein which fails because of defects in material or workmanship. The owner shall provide the authorized Bobcat dealer with prompt written notice of the defect and allow reasonable time for repair or replacement. Bobcat Company may, at its option, require failed parts to be returned to the factory. Travel time of mechanics and transportation of the Bobcat product to the authorized Bobcat dealer for warranty work are the responsibility of the owner. The remedies provided in this warranty are exclusive.

This warranty does not cover replacement of scheduled service items such as oil, filters, tune-up parts, and other high-wear items. This warranty does not cover damages resulting from abuse, accidents, alterations, use of the Bobcat product with any accessory or attachment not approved by Bobcat Company, air flow obstructions, or failure to maintain or use the Bobcat product according to the instructions applicable to it.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES AND CONDITIONS, EXCEPT THE WARRANTY OF TITLE. BOBCAT COMPANY DISCLAIMS ALL OTHER WARRANTIES AND CONDITIONS, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL BOBCAT COMPANY OR THE AUTHORIZED BOBCAT DEALER BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, LOSS OR INTERRUPTION OF BUSINESS, LOST PROFITS, OR LOSS OF MACHINE USE, WHETHER BASED ON CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY, STATUTE OR OTHERWISE, EVEN IF BOBCAT COMPANY OR THE AUTHORIZED BOBCAT DEALER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE TOTAL LIABILITY OF BOBCAT COMPANY AND THE AUTHORIZED BOBCAT DEALERS WITH RESPECT TO THE PRODUCT AND SERVICES FURNISHED HEREUNDER SHALL NOT EXCEED THE PURCHASE PRICE OF THE PRODUCT UPON WHICH SUCH LIABILITY IS BASED.

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In this emissions limited warranty, the term "Manufacturer" means Kubota Corporation as the holder of the U.S. Environmental Protection Agency (U.S. EPA) Certificate of Conformity and California Executive Order for the vehicle. The emission control limited warranty is in addition to the standard limited warranty for your vehicle.

Your Bobcat dealer is authorized to perform all warranty and service repairs on your diesel engine. To locate a Bobcat dealer, visit www.bobcat.com or call 1-800-743-4340.

KUBOTA Corporation

FEDERAL & CALIFORNIA EMISSION CONTROL SYSTEMS LIMITED WARRANTY for NON-ROAD ENGINES (CI)

The U.S. Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and KUBOTA Corporation are pleased to explain the Federal and California Emission Control System Warranty on your non-road engine. In California, new heavy duty off-road engines must be designed, built and equipped to meet California's stringent anti-smog standards adopted by the Air Resources Board pursuant to its authority in Chapter 1 and 2, Part 5, Division 26 of the California Health and Safety Code. In other states of the U.S.A., new non-road engines subject to the provisions of 40 CFR 1039 subpart A must be designed, built and equipped, at the time of sale, to meet the U.S. EPA regulations for nonroad engines.

KUBOTA must warrant the emission control system on your Compression Ignition engine for the period of time listed below provided there has been no abuse, vandalism, neglect, improper maintenance or unapproved modifications to your engine. This emission warranty is applicable in all states of the U.S.A., its provinces and territories regardless of whether an individual state, province, or territory has enacted warranty provisions that differ from the Federal warranty provisions. This emission warranty is also applicable in all provinces and territories of CANADA.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, KUBOTA will repair your engine at no cost to you, including diagnosis (if the diagnostic work is performed at an authorized dealer), parts and labor.

EMISSION DESIGN AND DEFECT WARRANTY COVERAGE

The emissions warranty period for the engine begins on the original date of sale to the initial purchaser and continues for each subsequent purchaser for the period mentioned below.

The emissions warranty period for all engines rated under 19kW (25Hp) is 2000 hours of operation or two (2) years of use, whichever first occurs.

The emissions warranty period for constant speed engines rated under 37kW (50Hp) with rated speeds greater than or equal to 3000 rpm is 2000 hours of operation or two (2) years of use, whichever first occurs.

The emissions warranty period for all other engines not already listed is 3000 hours of operation or five (5) years of use, whichever first occurs.

If any emission related part on your engine is defective, the part will be repaired or replaced by KUBOTA free of charge.

OWNER'S WARRANTY RESPONSIBILITIES

(a) As the engine owner, you are responsible for the performance of the required maintenance listed in your KUBOTA operator's manual. KUBOTA recommends that you retain all receipts covering maintenance on your engine, but KUBOTA cannot deny a warranty claim solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

(b) As the engine owner, you should be aware, however, that KUBOTA may deny your warranty coverage if your engine or a part has failed due to abuse, vandalism, neglect, improper maintenance or unapproved modifications.

(c) Your engine is designed to operate on Ultra Low Sulfur Diesel Fuel only. Use of any other fuel may result in your engine no longer operating in compliance with Federal or California's emissions requirements.

(d) You are responsible for presenting your engine to the nearest dealer or service station authorized by KUBOTA when a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

(e) If you have any questions regarding your warranty rights and responsibilities or the location of the nearest authorized dealer or distributor, you should contact: KUBOTA ENGINE AMERICA CORPORATION, Service department at 1-800-532-9808, EEWRI@kubotaengine.com or KUBOTA TRACTOR CORPORATION, National Service Department at 1-800-558-2682, KubotaEmissionsWarranty@kubota.com or KUBOTA CANADA LTD at (905) 294-7477.

COVERAGE

KUBOTA warrants to the initial purchaser and each subsequent purchaser that your engine will be designed, built and equipped, at the time of sale, to meet all applicable regulations. KUBOTA also warrants to the initial purchaser and each subsequent purchaser that your engine shall be free from defects in materials and workmanship which cause the engine to fail to conform to applicable regulations for the period mentioned above from the original date of sale.

KUBOTA shall remedy warranty defects at any authorized KUBOTA engine dealer or warranty station. Any authorized work done at an authorized dealer or warranty station shall be free of charge to the owner if such work determines that a warranted part is defective. Any KUBOTA approved or equivalent replacement part (including any KUBOTA approved aftermarket part) may be used for any warranty maintenance or repairs on emission related parts, and must be provided free of charge to the owner if the part is still under warranty.

KUBOTA is liable for damages to other engine components caused by the failure of a warranted part still under warranty. The use of replacement parts not equivalent to the original parts may impair the effectiveness of your engine emission control system. If such a replacement part is used in the repair or maintenance of your engine, and KUBOTA determines it is defective or causes a failure of a warranted part, your claim for repair of your engine may be denied.

Listed below are the parts covered by the Federal and California Emission Control Systems Warranty. Some parts listed below may require scheduled maintenance and are warranted up to the first scheduled replacement point for that part. The warranted parts are (if applicable):

1) Air-Induction System
   a) Intake Manifold
   b) Turbocharger System
   c) Charge Air Cooling System (Intercooler)
2) Catalyst or Thermal Reactor System
   a) Catalytic converter
   b) Exhaust manifold
3) Fuel Injection System
   a) Fuel Supply Pump
   b) Injector
   c) Injection Pipe
   d) Common Rail
   e) Smoke Puff Limiter
   f) Speed Timer
   g) Cold Advance Timer
   h) Injection Pump
4) Electronic Control System
   a) ECU
   b) Engine Speed / Timing Sensor
   c) Accelerator Position Sensor
   d) Coolant Temperature Sensor
   e) Atmospheric Pressure Sensor
   f) Intake Pressure Sensor
   g) Intake Manifold Temperature Sensor
   h) Intake Air Flow Sensor
   i) Common Rail Pressure Sensor
5) Exhaust Gas Recirculation System
   a) EGR Valve
   b) EGR Cooler
   c) EGR Valve Opening Rate Sensor
6) Particulate Controls
   a) Any device used to capture particulate emissions.
   b) Any device used in the regeneration of the particulate control device.
   c) Control Device Enclosures and Manifolding
   d) Diesel Particulate Filter Temperature Sensor
   e) Differential Pressure Sensor
7) Miscellaneous Items
   a) Closed Breather System
   b) Hoses*, Clamps*, Fittings, Tubing*
   c) Gaskets, Seals
   d) Kubota supplied engine Wiring Harnesses
   e) Kubota supplied engine Elec. Connectors
   f) Air Cleaner Element*, Fuel Filter Element*
   g) Emission Control Information Labels

*Warranty period is equivalent to manufacturer's recommended first replacement interval as stated in the applicable model's operator's manual and/or service (workshop) manual.

MAINTENANCE REQUIREMENTS

The owner is responsible for the performance of the required maintenance as defined by KUBOTA in the operator's manual.

LIMITATIONS

This Emission Control System Warranty shall not cover any of the following;

(a) Repair or replacement required because of misuse or neglect, improper maintenance, repairs improperly performed or replacements not conforming to KUBOTA specifications that adversely affect performance and/or durability, and alteration or modifications not recommended or approved in writing by KUBOTA.

(b) Replacement of parts and other services and adjustments necessary for required maintenance at and after the first scheduled replacement point.

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ALPHABETICAL INDEX

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WARNING: Cancer and Reproductive Harm.

For more information go to www.P65Warnings.ca.gov.

WARNING: Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information go to www.P65warnings.ca.gov/diesel.

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