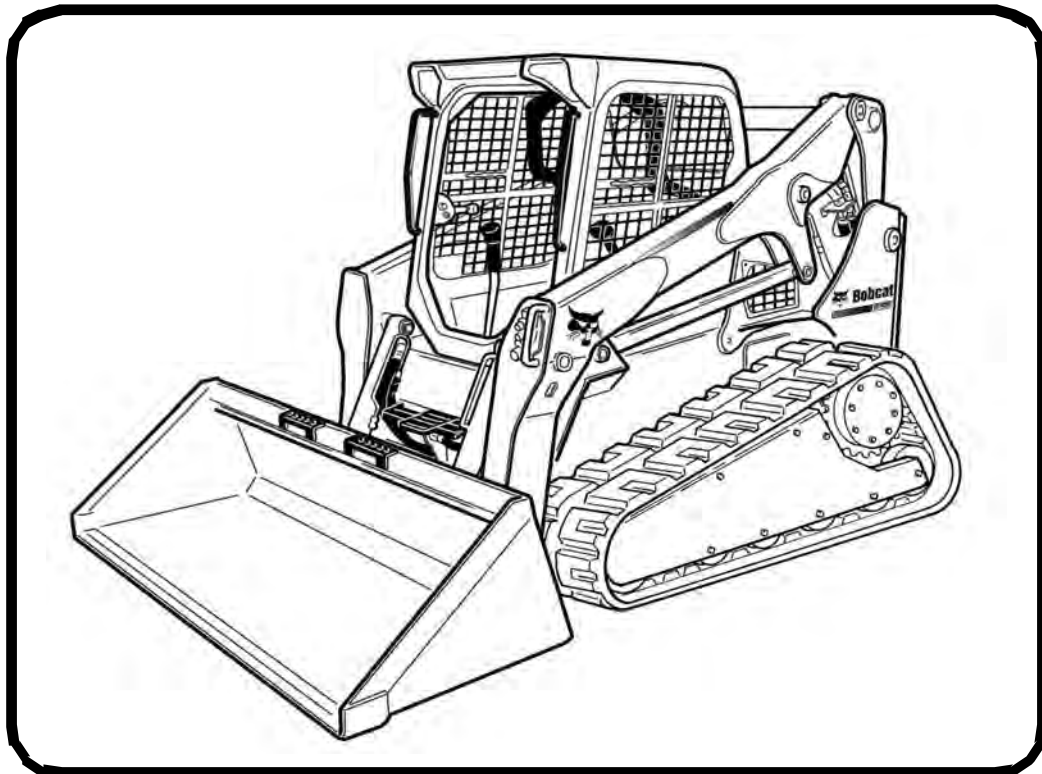




Bobcat®

Operation & Maintenance Manual T650 Compact Track Loader

S/N A3P011001 - A3P019999



EQUIPPED WITH
BOBCAT INTERLOCK
CONTROL SYSTEM (BICS™)



OPERATOR SAFETY WARNINGS



WARNING

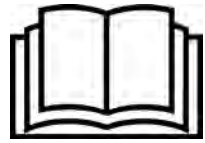
Operator must have instructions before operating the machine. Untrained operators can cause injury or death.

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.

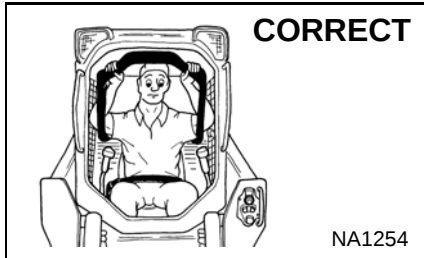
CORRECT



P-90216



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



CORRECT

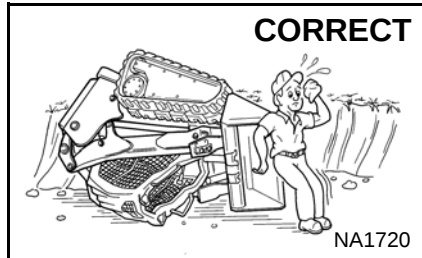
NA1254



Always use the seat bar and fasten seat belt snugly.



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

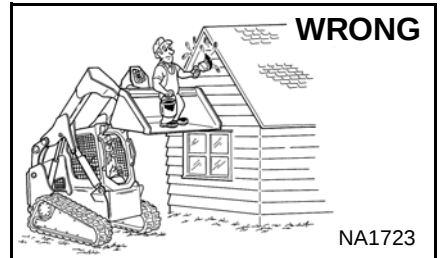


CORRECT

NA1720



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

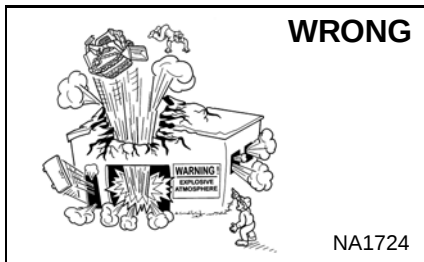


WRONG

NA1723



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

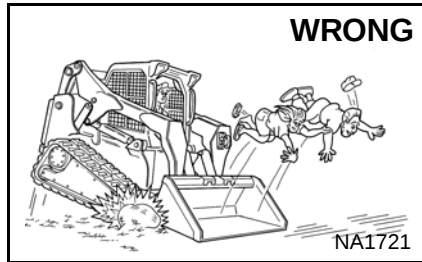


WRONG

NA1724



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



WRONG

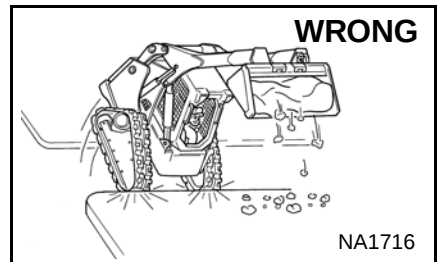
NA1721



Never carry riders.



Keep bystanders away from work area.



WRONG

NA1716



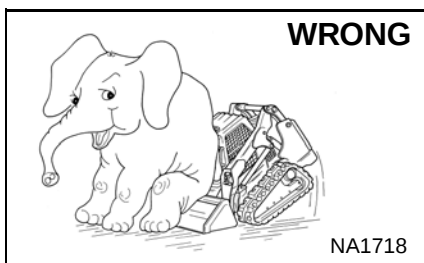
Always carry bucket or attachments as low as possible.



Do not travel or turn with lift arms up.



Load, unload, and turn on flat level ground.

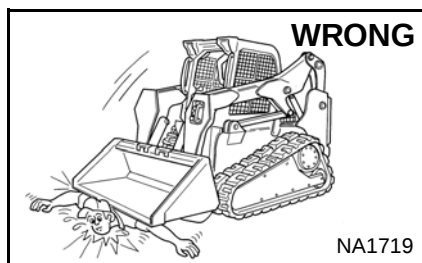


WRONG

NA1718



Never exceed Rated Operating Capacity.



WRONG

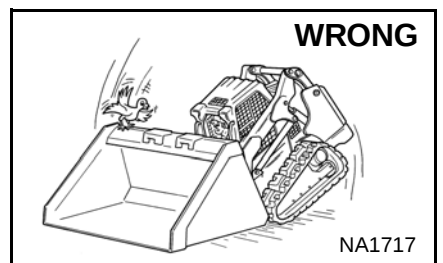
NA1719



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



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



WRONG

NA1717



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 dealer for information on the 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)

OSW69-0609



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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 Benelux SA
Drève Richelle 167
B-1410 Waterloo
BELGIUM



Bobcat®

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 ISO 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.

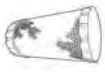
British Standards Institute (**BSI**) is the Certified Registrar Bobcat Company chose to assess the company's compliance with the ISO 9001 at Bobcat's manufacturing facilities in Gwinner, North Dakota (U.S.A.), Pontchâteau (France), and the Bobcat corporate offices (Gwinner, Bismarck, and West Fargo) 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.

CALIFORNIA PROPOSITION 65 WARNING

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

REGULAR MAINTENANCE ITEMS

	ENGINE OIL FILTER (6 Pack) 6678233		BATTERY 6665427
	FUEL FILTER 6667352		HYDRAULIC FILTER 7002734 (Hex Head Filter Cap) 7012314 (Square Head Filter Cap) 7248874 (Bolt-on Filter Cap)
	AIR FILTER, Outer 7008043		HYDRAULIC CHARGE FILTER 6692337 (Earlier Models) 6686926 (Later Models)
	AIR FILTER, Inner 7008044		HYDRAULIC FILL / BREATHER CAP 6727475
	ANTI-FREEZE, Propylene Glycol 6983128 - Premixed 6983129 - Concentrate		FLUID, Hydraulic / Hydrostatic 6903117 - (2.5 U.S. gal) 6903118 - (5 U.S. gal) 6903119 - (55 U.S. gal)
ENGINE OIL 7023080 SAE 15W40 - qt (12) 7023076 SAE 10W30 - qt (12) 6903109 SAE 30W - qt (12) 7023082 SAE 15W40 - 2.5 U.S. gal (2) 7023078 SAE 10W30 - 2.5 U.S. gal (2) 6903111 SAE 30W - 2.5 U.S. gal (2)		ENGINE OIL 7023081 SAE 15W40 - U.S. gal (6) 7023077 SAE 10W30 - U.S. gal (6) 6903110 SAE 30W - U.S. gal (6)	

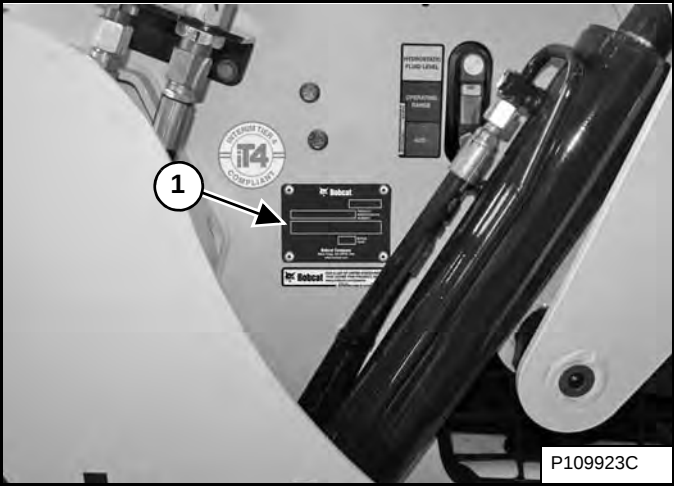
NOTE: Always verify Part Numbers with your Bobcat dealer.

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.

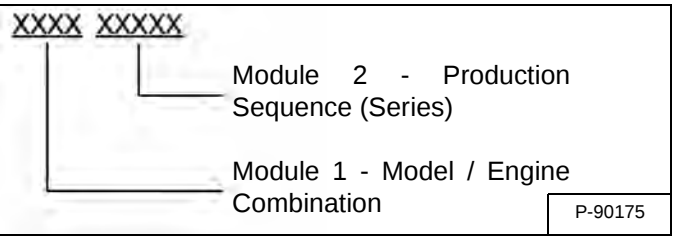
Loader Serial Number

Figure 1



The loader serial number plate (Item 1) [Figure 1] is located on the outside of the loader frame.

Figure 2

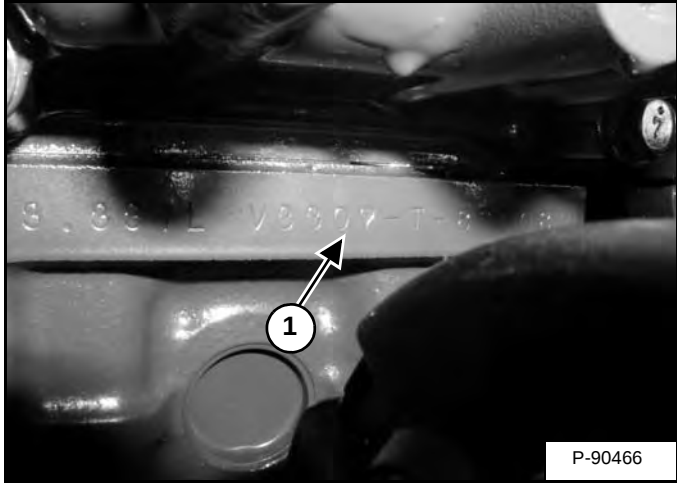


Explanation of loader Serial Number [Figure 2]:

- 1. The four digit Model / Engine Combination Module number identifies the model number and engine combination.
- 2. The five digit Production Sequence Number identifies the order which the loader is produced.

Engine Serial Number

Figure 3



The engine serial number is located on the side of the engine (Item 1) [Figure 3] behind the alternator.

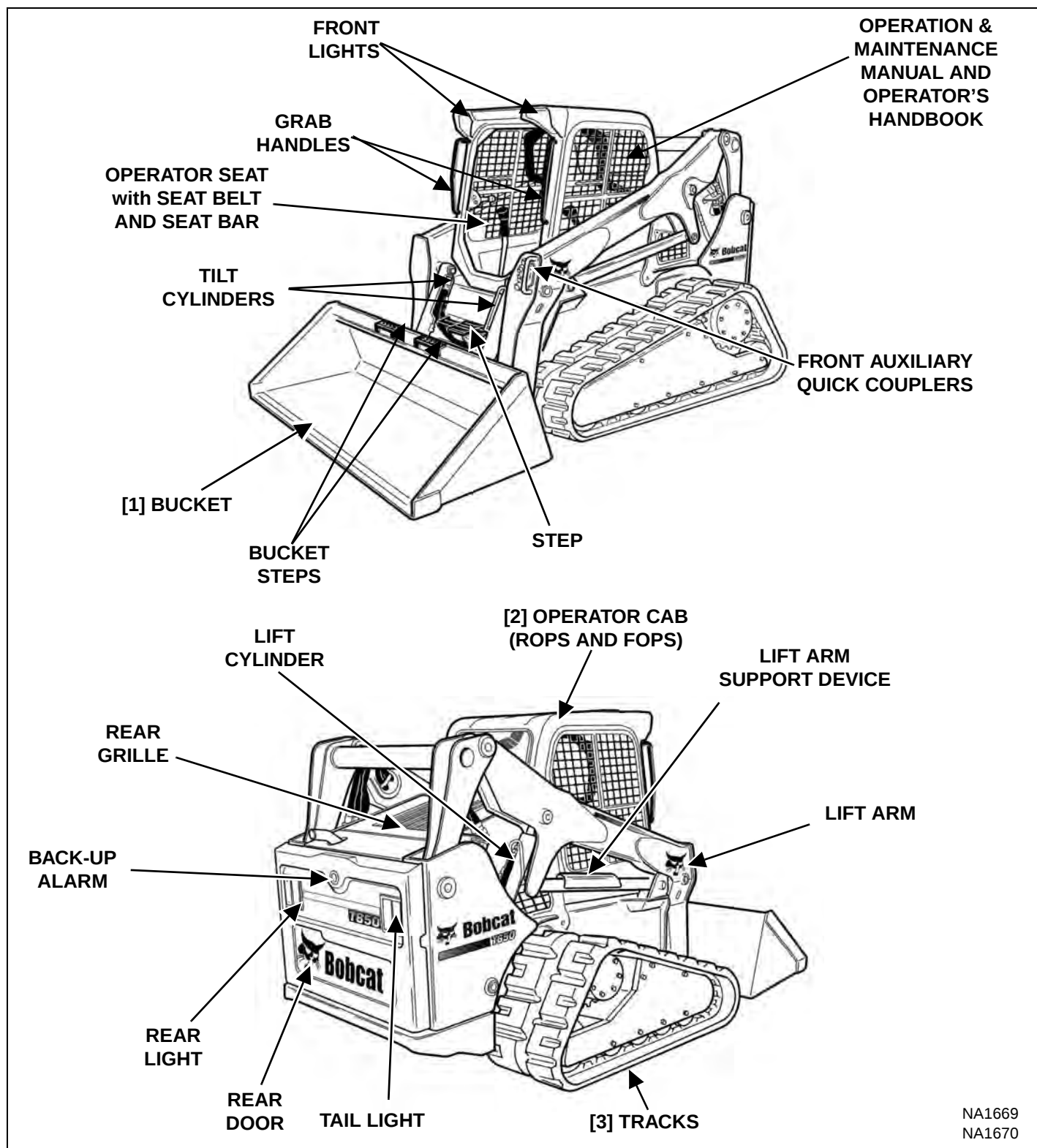
DELIVERY REPORT

Figure 4

The delivery report [Figure 4] 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.

LOADER IDENTIFICATION



NA1669
NA1670

- [1] BUCKETS - Several different buckets and other attachments are available for the Bobcat loader.
- [2] ROPS - Roll-Over Protective Structure per ISO 3471 and FOPS - Falling-Object Protective Structure per ISO 3449, Level I. Level II is available.
- [3] TRACKS - Optional tracks are available.

FEATURES, ACCESSORIES AND ATTACHMENTS

Standard Items

Model T650 Bobcat loaders are equipped with the following standard items:

- Access Covers
- Adjustable Suspension Seat
- Automatically Activated Glow Plugs
- Auxiliary Hydraulics
- Bobcat Interlock Control System (BICS™)
- Bob-Tach®
- Cab (includes: rear window and polycarbonate top window) ROPS and FOPS (Level I) Approved
- Engine / Hydraulic Systems Shutdown
- Front Horn / Back-up Alarm
- Instrumentation: Hourmeter, RPM, System Voltage; Engine Temperature and Fuel Gauges; Warning Lights
- Lift Arm Support Device
- Lights, Front and Rear
- Parking Brake
- Seat Bar
- Seat Belt
- Spark Arrester Muffler
- Tracks, Rubber - 320 mm (12.6 in)
- Turbo-Charger

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 and accessories.

- Adjustable Air Ride Suspension Seat
- Air Conditioning
- Air Deflector Kit
- Air Filter Precleaner
- Attachment Control Device (ACD) (7-Pin, 14-Pin)
- Auxiliary Hydraulic Coupler Guard
- Cab Accessory Harness
- Cab Door with Emergency Exit
- Cab Enclosure
- Cab Heater
- Cab Reseal Plug Kit
- Controls:
 - Advanced Control System (ACS)
(Selectable Foot Pedal or Hand Control)
 - Selectable Joystick Controls (SJC)
(Selectable 'ISO' or 'H' Pattern Control)
 - Standard Controls
- Counterweight Kit
- Deluxe Instrumentation Panel
- Deluxe Interior with Storage Compartments

Options And Accessories (Cont'd)

- Dual Steering Damper
- Engine Compartment Seal Kit
- Engine Heater
- Exhaust Purifying Muffler
- Extended Pedals
- Fire Extinguisher
- Foot Area Duct Kit
- FOPS Kit (Level II)
- FOPS Window Kit
- Forestry Door and Window Kit
- Four-Way Flashers (Also adds Turn Signal function)
- Front and Rear Light Guards
- Fuel Sediment Bowl Kit
- GPS System
- High-Flow Auxiliary Hydraulics
- Hydraulic Bucket Positioning (Includes On / Off Selection)
- Isolated Rear Pump Support
- Keyless Start
- Lift Cylinder Cushion Kit
- Lift Kit (Four-Point, Single-Point)
- Locking Fuel Cap
- Maintenance Platform
- Muffler Guard
- Power Bob-Tach®
- Radio
- Radio Remote Control
- Rear Auxiliary Hydraulics
- Rear Bumper Kit
- Rear Window Wiper
- Ride Control
- Rotating Beacon
- Seat Belt with 3-Point Restraint (Standard on Two-Speed Models)
- Seat Belt - 3 Inch Wide
- Seat Belt - Retractable
- Security Lock Kit (Locks for tailgate and rear grille)
- Sound Reduction Kit (Reduces noise at operator ear)
- Special Applications Kit
- Strobe Light
- Tilt Cylinder Guard Kit
- Tracks:
 - Rubber - 450 mm (17.7 in)
- Two-Speed Travel
- Undercarriage:
 - Roller Suspension™
 - Solid-Mounted
- Windows:
 - Externally Removable Rear Window
 - Polycarbonate Rear Window
 - Polycarbonate Side Windows
 - Side Windows

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

FEATURES, ACCESSORIES AND ATTACHMENTS (CONT'D)

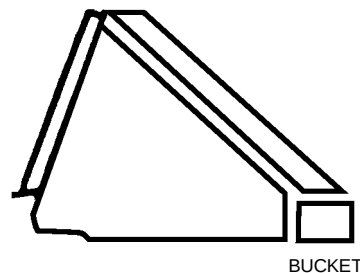
These and other attachments are approved for use on this model loader. Do not use unapproved attachments. Attachments not manufactured by Bobcat may not be approved.

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



Many bucket styles, widths and different capacities are available for a variety of different applications. They include Construction & Industrial, 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
 - Box Blade
 - Dozer Blade
 - Snow Blade
 - Snow V-Blade
- Breaker, Hydraulic
- Brush Saw
- Buckets
- Bucket Adapter
- Chipper
- Combination Bucket
- Concrete Mixer
- Concrete Pump
- Drop Hammer
- Dumping Hopper
- Flail Cutter
- Forks, Utility
- Grader
- Grapple; Industrial, Root, Utility
- Landplane
- Landscape Rake
- Mower
- Packer Wheel
- Pallet Fork
- Planer
- Rear Stabilizers
- Rebar Bender
- Rotary Cutter (Brushcat™)
- Scarifier
- Scraper
- Seeder
- Silt Fence Installer
- Snow Pusher

- Snowblower
- Sod Layer
- Soil Conditioner
- Spreader
- Stump Grinder
- Sweeper
- Three-Point Hitch Adapter
- Tiller
- Tree Spade
- Trench Compactor
- Trencher
- Utility Frame
- Vibratory Roller
- Water Kit
- Wheel Saw
- Whisker Push Broom
- X-Change™ Frame

High-Flow Attachments

The following attachments are approved for use on High-Flow machines. See your Bobcat dealer for an updated list of approved attachments.

- Auger
- Chipper
- Concrete Pump
- Flail Cutter
- Planer
- Rotary Cutter (Brushcat)
- Snowblower
- Soil Conditioner
- Stump Grinder
- Tiller
- Trencher
- Wheel Saw

FEATURES, ACCESSORIES AND ATTACHMENTS (CONT'D)

Special Applications Kit

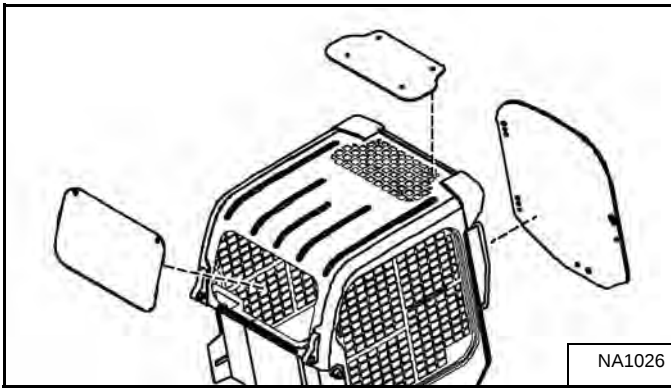
WARNING

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

Figure 5



Available for special applications to restrict material from entering cab openings. Kit includes 12,7 mm (0.5 in) thick polycarbonate front door and polycarbonate rear window [Figure 5].

Polycarbonate top window (standard item) must be installed for special applications to restrict material from entering cab openings.

See your Bobcat dealer for availability.

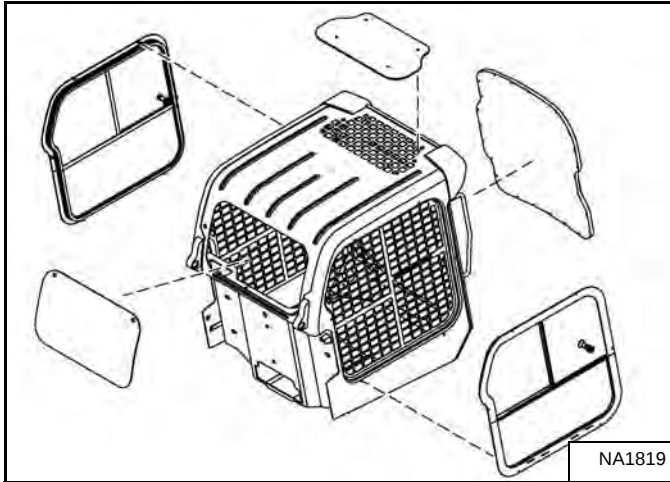
Special Applications Kit Inspection And Maintenance

- 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.

FEATURES, ACCESSORIES AND ATTACHMENTS (CONT'D)

Forestry Door And Window Kit

Figure 6



Must be used as part of the Forestry Applications Kit to prevent flying debris and objects from entering the loader. Kit includes 19,1 mm (0.75 in) thick laminated polycarbonate front door, polycarbonate side windows and polycarbonate rear window **[Figure 6]**.

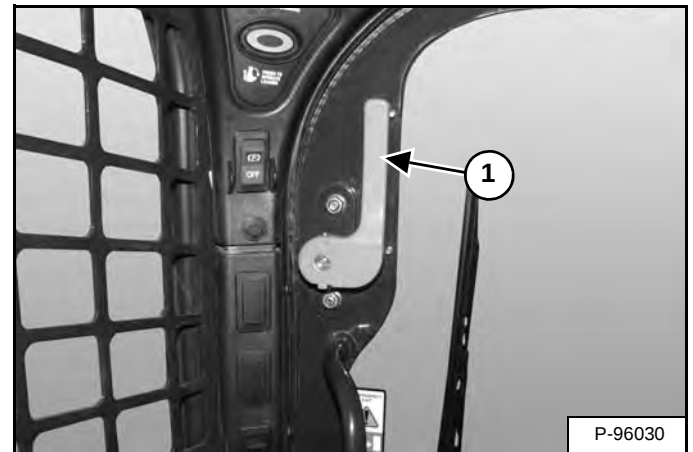
Polycarbonate top window (standard item) must be installed as part of the Forestry Applications Kit to restrict material from entering cab openings.

Forestry Door And Window Kit Inspection And Maintenance

- Inspect for cracks or damage. Replace if required.
- Order part number 7171104 if door frame is damaged and needs to be replaced.
- Order kit part number 7193293 if door polycarbonate is damaged and needs to be replaced.
- Prerinse 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.

Forestry Door Emergency Exit

Figure 7



- Inspect both emergency exit levers (Item 1) **[Figure 7]**, linkages and hardware for loose or damaged parts.
- Repair or replace if necessary.



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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 web sites www.training.bobcat.com or www.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.).

SI SSL-0913

SAFETY INSTRUCTIONS (CONT'D)

Safe Operation Is The Operator's Responsibility



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

W-2001-1285



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

I-2019-0284



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



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.

SI SSL-0913

SAFETY INSTRUCTIONS (CONT'D)

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.

SI SSL-0913

FIRE PREVENTION (CONT'D)

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).

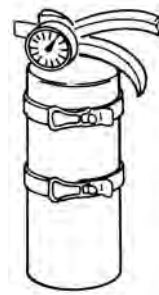
Welding And Grinding

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.

PUBLICATIONS AND TRAINING RESOURCES

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



OPERATION & MAINTENANCE MANUAL

6987171enUS

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



SAFETY MANUAL

6556500 (English and Spanish)

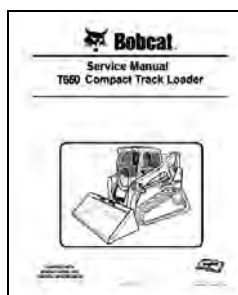
Gives basic safety procedures and warnings for your Bobcat loader.



SKID-STEER LOADER OPERATOR TRAINING COURSE

7249275 (English)
7249278 (Spanish)

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

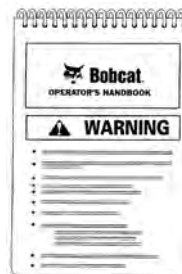


SERVICE MANUAL

6987172enUS

Complete maintenance instructions for your Bobcat loader.

For the latest information on Bobcat products and the Bobcat Company, visit our Web site at www.training.bobcat.com or www.bobcat.com.



OPERATOR'S HANDBOOK

6987175enUS

Gives basic operation instructions and safety warnings.



OPERATOR SAFETY DVD

6904762 (English and Spanish)

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



SKID-STEER LOADER SERVICE SAFETY TRAINING COURSE

6900641

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



LOADER SAFETY VIDEO

(Mobile device with quick response code application required)

Scan the code above to watch the loader safety video or view at www.training.bobcat.com.

MACHINE SIGNS (DECALS)

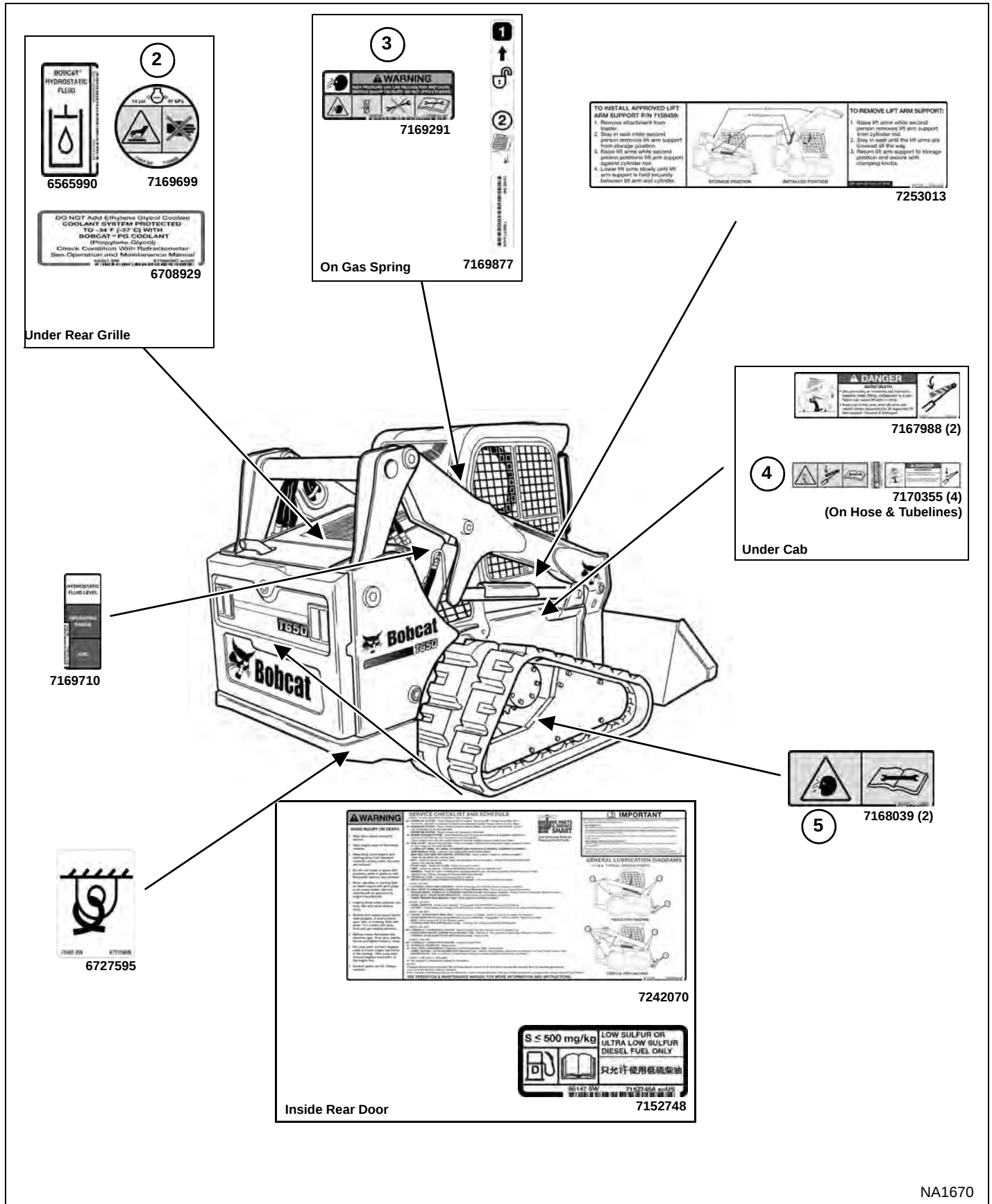
Follow the instructions on all the Machine Signs (Decals) that are on the loader. Replace any damaged machine signs and be sure they are in the correct locations. Machine signs are available from your Bobcat loader dealer.

Standard and ACS 7168136	SJC 7168144	SJC 7168023	SJC 7168024	SJC 7168114	Standard and ACS 7168138	Door 7168025	
3-Point Seatbelt 7184346	Roller Suspension Undercarriage 7193875	Solid-Mounted Undercarriage 7168017	Door Gas Spring 7170360	Door Gas Spring 7169291	Standard and ACS 7168272		
Inside Cab							

7167993	6561383 (Behind Bob-Tach)	7167990	7167996	7167989	Single-Point Lift 6533898 (2)	Single-Point Lift 7142141 (2)	Single-Point Lift 7168021 (2)	Four-Point Lift 7167996	Four-Point Lift 7168019
								Lift Kit Options	

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.



NA1670

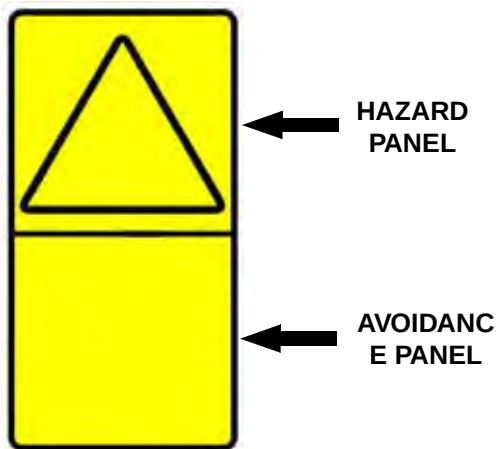


MACHINE SIGNS (DECALS) (CONT'D)

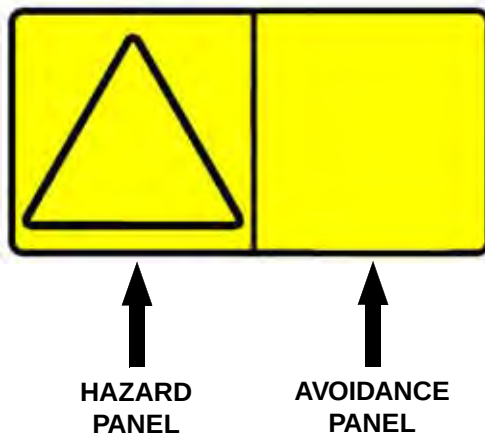
Pictorial Only Safety Signs

Safety signs are used to alert the equipment operator or maintenance person to hazards that may be encountered in the use and maintenance of the equipment. The location and description of the safety signs are detailed in this section. Please become familiarized with all safety signs installed on the machine / attachment.

Vertical Configuration



Horizontal Configuration



The format consists of the hazard panel(s) and the avoidance panel(s):

Hazard panels depict a potential hazard enclosed in a safety alert triangle.

Avoidance panels depict actions required to avoid the hazards.

A safety sign may contain more than one hazard panel and more than one avoidance panel.

NOTE: See the numbered MACHINE SIGNS (DECALS) on Page 22 and MACHINE SIGNS (DECALS) (CONT'D) on Page 23 for the machine location of each correspondingly numbered pictorial only decal.

1. High Range Speeds (7184346)

This safety sign is located in the operator cab on loaders equipped with a seat belt with 3-point restraint.



**HITTING OBSTRUCTIONS AT HIGH RANGE SPEEDS
CAN CAUSE SERIOUS INJURY OR DEATH**
Fasten shoulder belt for additional restraint when
operating at high range speeds.

W-2754-0908

2. Hot Pressurized Fluid (7169699)

This safety sign is located on the engine coolant tank cap.



**HOT PRESSURIZED FLUID CAN CAUSE
SERIOUS BURNS**

- Never open hot.
- OPEN SLOWLY.

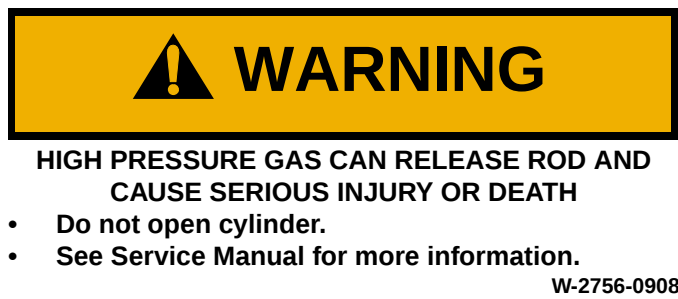
W-2755-0908

MACHINE SIGNS (DECALS) (CONT'D)

Pictorial Only Safety Signs (Cont'd)

3. High Pressure Gas (7169291)

This safety sign is located on the gas spring component(s) supporting the cab and also on the front door option.



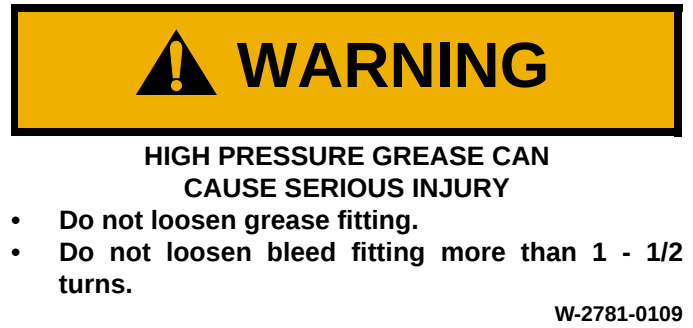
4. Lift Arm Crushing (7170355)

This safety sign is located on certain hoses or tubelines inside the loader frame underneath the operator cab.



5. Flying Debris or Objects (7168039)

This safety sign is located on track loader undercarriages near the grease cylinder tensioning fittings.



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INSTRUMENT PANEL IDENTIFICATION

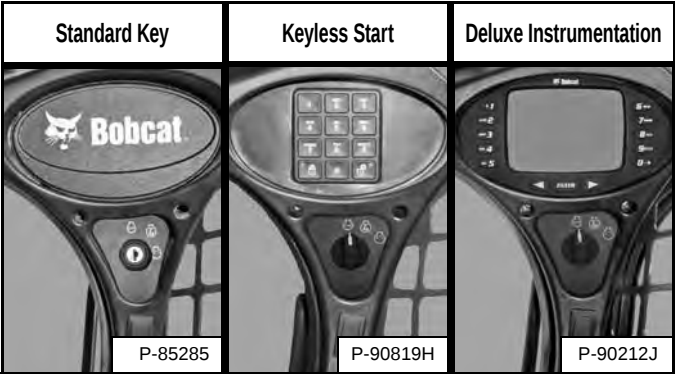
Overview

Figure 8



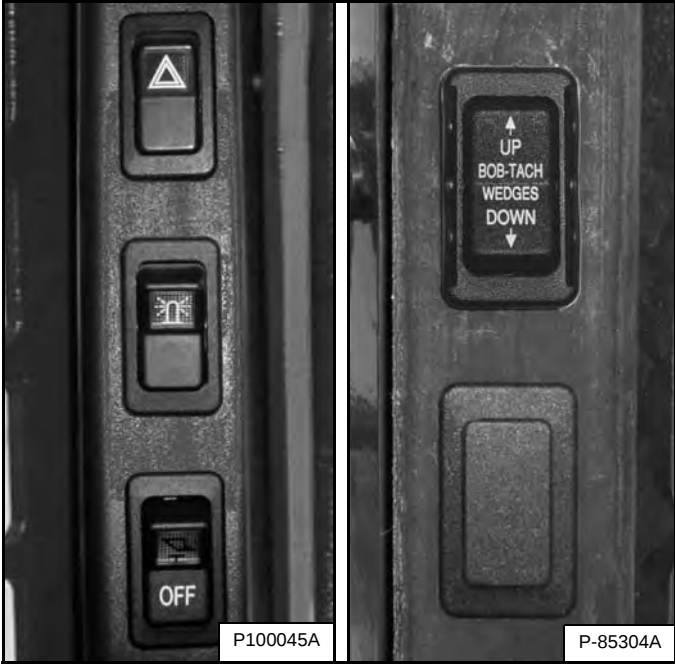
The left panel [Figure 8] is described in more detail. (See Left Panel (Earlier Models) on Page 32.) or (See Left Panel (Later Models) on Page 34.)

Figure 9



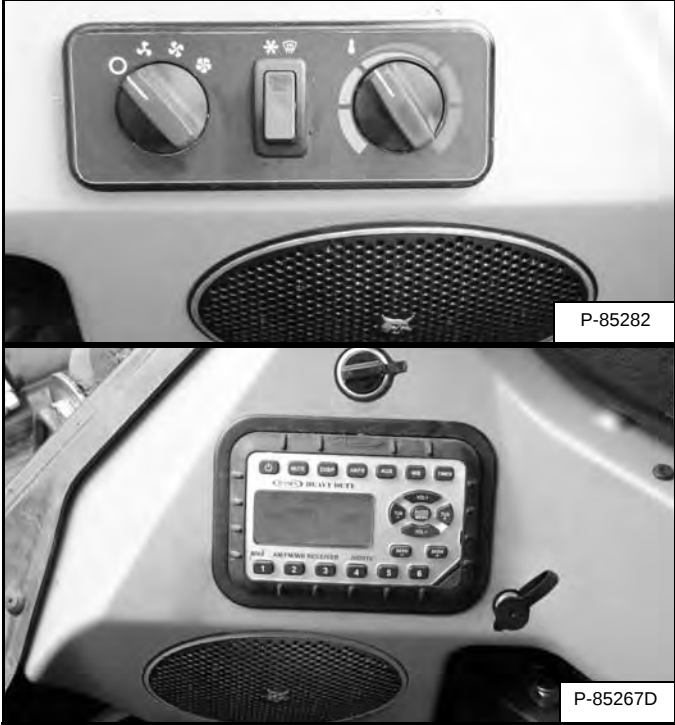
The right panel [Figure 9] is described in more detail. (See Right Panel (Standard Key Panel) on Page 37.), (See Right Panel (Keyless Start Panel) on Page 38.) or (See Right Panel (Deluxe Instrumentation Panel) on Page 39.)

Figure 10



The left and right switch panels [Figure 10] are described in more detail. (See Left Switch Panel on Page 41.) and (See Right Switch Panel on Page 41.)

Figure 11



The left and right side lower panels [Figure 11] are described in more detail. (See Left Side Lower Panel on Page 42.) and (See Right Side Lower Panel on Page 42.)

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Left Panel (Earlier Models)

Figure 12



The left instrument panel [Figure 12] is the same for Standard Key Panel, Keyless Start Panel and Deluxe Instrumentation Panel equipped machines.

The table on the facing page shows the DESCRIPTION and FUNCTION / OPERATION for each of the components of the left panel.

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Left Panel (Earlier Models) (Cont'd)

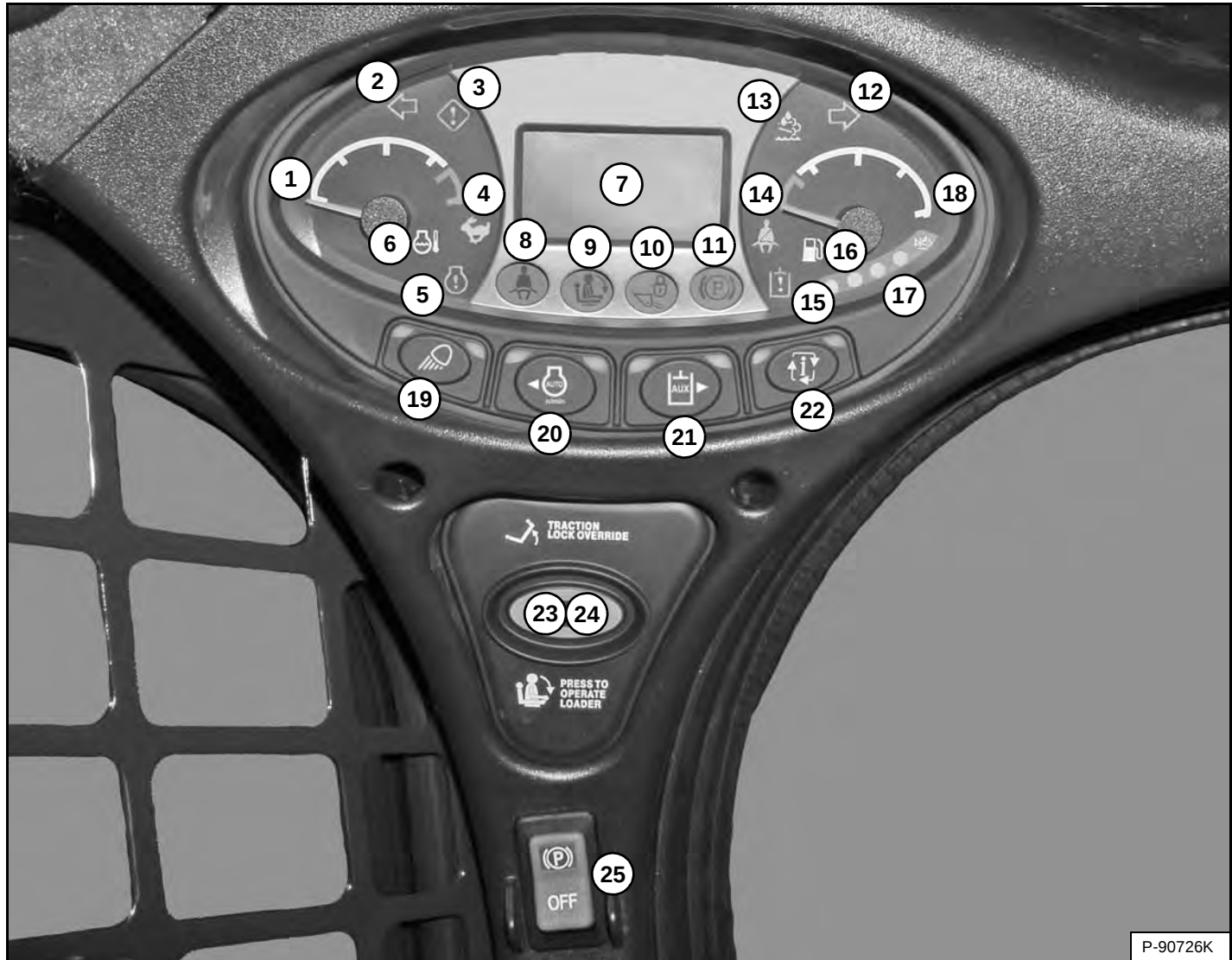
REF. NO.	DESCRIPTION	FUNCTION / OPERATION
1	ENGINE TEMPERATURE GAUGE	Shows the engine coolant temperature.
2	LEFT TURN SIGNAL (Option)	Indicates left turn signals are ON.
3	GENERAL WARNING	Malfunction with one or more machine functions. (See Service Codes*)
4	TWO-SPEED (Option)	High range selected.
5	ENGINE MALFUNCTION	Engine malfunction or failure. (See Service Codes*)
6	ENGINE COOLANT TEMPERATURE	Engine coolant temperature high or sensor error.
7	DISPLAY SCREEN	Displays information. (See Display Screen in this manual.)
8	SEAT BELT	Instructs operator to fasten seat belt. Remains lit for 45 seconds.
9	SEAT BAR	The light comes on when the seat bar is UP.
10	LIFT & TILT VALVE	The light comes on when the lift and tilt functions cannot be operated.
11	PARKING BRAKE	The light comes on when the loader cannot be driven.
12	RIGHT TURN SIGNAL (Option)	Indicates right turn signals are ON.
13	SHOULDER BELT (Option)	Instructs operator to fasten shoulder belt when operating in high range. Remains lit while in high range.
14	HYDRAULIC SYSTEM MALFUNCTION	Hydraulic system malfunction or failure. (See Service Codes*)
15	FUEL	Fuel level low or sensor error.
16	FUEL GAUGE	Shows the amount of fuel in the tank.
17	LIGHTS	Press once for FRONT work lights and REAR taillights. (Left green LED will light.) Press a second time to add REAR work lights. (Left and right green LEDs will light.) Press a third time to turn all lights off. (Left and right green LEDs will be off.)
		Press and hold five seconds to display software version in display screen.
18	HIGH-FLOW (Option)	Press once to engage the HIGH-FLOW auxiliary hydraulics. (Left green LED will light.) Press a second time to disengage.
19	AUXILIARY HYDRAULICS	Press once to activate the auxiliary hydraulic system. (Left green LED will light.) Press a second time to deactivate the system.
20	INFORMATION	Cycles through (after each button press): • Hourmeter (On startup) • Engine rpm • Battery voltage • Maintenance clock (Press and hold for seven seconds when displayed to reset the maintenance clock.) • Service codes*
21	TRACTION LOCK OVERRIDE	Functions only when the seat bar is raised and the engine is running. Press once to unlock the brakes. Allows you to use the steering levers or joystick(s) to move the loader forward or backward when using the backhoe attachment. (See TRACTION LOCK OVERRIDE in this manual.) Press a second time to lock the brakes.
22	PRESS TO OPERATE LOADER	Press to activate the BICS™ when the seat bar is down and operator is seated in operating position. Button will light.
		Press and hold three seconds to access Drive Response and Steering Drift Compensation adjustment menus. (See DRIVE RESPONSE and STEERING DRIFT COMPENSATION in this manual.)
23	PARKING BRAKE (Standard on all loaders)	Press the top to engage the Parking Brake. Press the bottom to disengage. (See PARKING BRAKE in this manual.)

* See SYSTEM SETUP AND ANALYSIS for Service Code description. (See DIAGNOSTIC SERVICE CODES on Page 199.)

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Left Panel (Later Models)

Figure 13



The left panel **[Figure 13]** is the same for all machines regardless of options and accessories.

REF. NO.	DESCRIPTION	FUNCTION / OPERATION
1	ENGINE TEMPERATURE GAUGE	Shows the engine coolant temperature.
2	LEFT TURN SIGNAL (Option)	Indicates left turn signals are ON.
3	GENERAL WARNING	Malfunction with one or more machine functions. (See Service Codes*)
4	TWO-SPEED (Option)	High range selected.
5	ENGINE MALFUNCTION	Engine malfunction or failure. (See Service Codes*)
6	ENGINE COOLANT TEMPERATURE	Engine coolant temperature high or sensor error.
7	DISPLAY SCREEN	Displays information. (See Display Screen in this manual.)
8	SEAT BELT	Instructs operator to fasten seat belt. Remains lit for 45 seconds.
9	SEAT BAR	The light is on when the seat bar is UP.
10	LIFT AND TILT VALVE	The light is on when the lift and tilt functions cannot be operated.
11	PARKING BRAKE	The light is on when the loader cannot be driven.

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Left Panel (Later Models) (Cont'd)

REF. NO.	DESCRIPTION	FUNCTION / OPERATION
12	RIGHT TURN SIGNAL (Option)	Indicates right turn signals are ON.
13	DIESEL PARTICULATE FILTER (DPF) / DIESEL EXHAUST FLUID (DEF)	Not used.
14	SHOULDER BELT (Option)	Instructs operator to fasten shoulder belt when operating in high range. Remains lit while in high range.
15	HYDRAULIC SYSTEM MALFUNCTION	Hydraulic system malfunction or failure. (See Service Codes*)
16	FUEL	Fuel level low or sensor error.
17	DIESEL EXHAUST FLUID (DEF) LEVEL	Not used.
18	FUEL GAUGE	Shows the amount of fuel in the tank.
19	LIGHTS	Press once for FRONT work lights and REAR taillights. (Left green LED lights.) Press a second time to add REAR work lights. (Left and right green LEDs light.) Press a third time to turn all lights off. (Left and right green LEDs off.)
		Press and hold 5 seconds to display software version in display screen.
20	AUTO IDLE	Not used.
		Move cursor to the left inside the DISPLAY SCREEN when using certain INFORMATION button menus.
21	AUXILIARY HYDRAULICS without high-flow option	Press once to activate the auxiliary hydraulic system. (Left green LED lights.) Press a second time to deactivate the system.
	AUXILIARY HYDRAULICS with high-flow option	Press once to activate the auxiliary hydraulic system. (Left green LED lights.) Press a second time to engage the HIGH-FLOW auxiliary hydraulics. (Left and right green LEDs light.) Press a third time to deactivate auxiliary hydraulics. (Left and right green LEDs off.)
		Move cursor to the right inside the DISPLAY SCREEN when using certain INFORMATION button menus.
22	INFORMATION	Cycles through (after each button press): • Hourmeter (On startup) • Engine rpm • Battery voltage • Drive response menu • Steering drift compensation menu • Maintenance clock (Press and hold 7 seconds when displayed to reset the maintenance clock.) • Service codes*
23	TRACTION LOCK OVERRIDE	Functions only when the seat bar is raised and the engine is running. Press once to unlock the brakes. Allows you to use the steering levers or joystick(s) to move the loader forward or backward when using the backhoe attachment. (See TRACTION LOCK OVERRIDE in this manual.) Press a second time to lock the brakes.
24	PRESS TO OPERATE LOADER	Press to activate the BICS™ when the seat bar is down and operator is seated in operating position. Button will light.
25	PARKING BRAKE (Standard on all loaders)	Press the top to engage the Parking Brake. Press the bottom to disengage. (See PARKING BRAKE in this manual.)

* This manual contains a table with Service Code descriptions. (See DIAGNOSTIC SERVICE CODES on Page 199.)

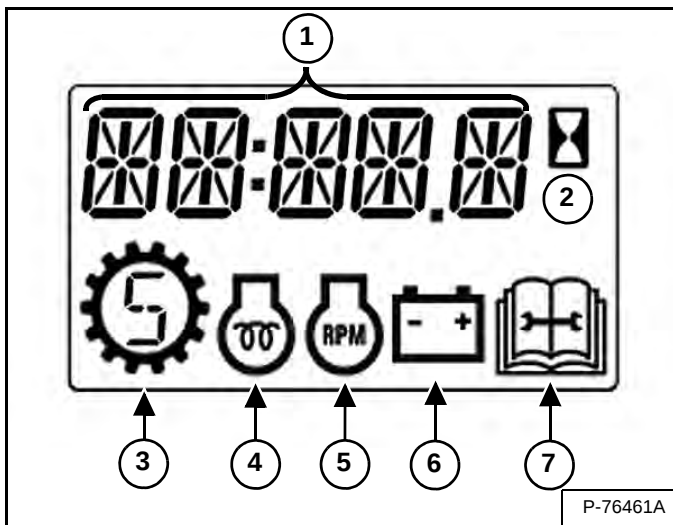
INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Display Screen

The display screen can display the following information:

- Operating hours.
- Engine revolutions per minute (rpm).
- Speed management setting.
- Maintenance clock countdown.
- Battery voltage.
- Service codes.
- Engine preheat countdown.
- Steering drift compensation setting.
- Drive response setting.

Figure 14



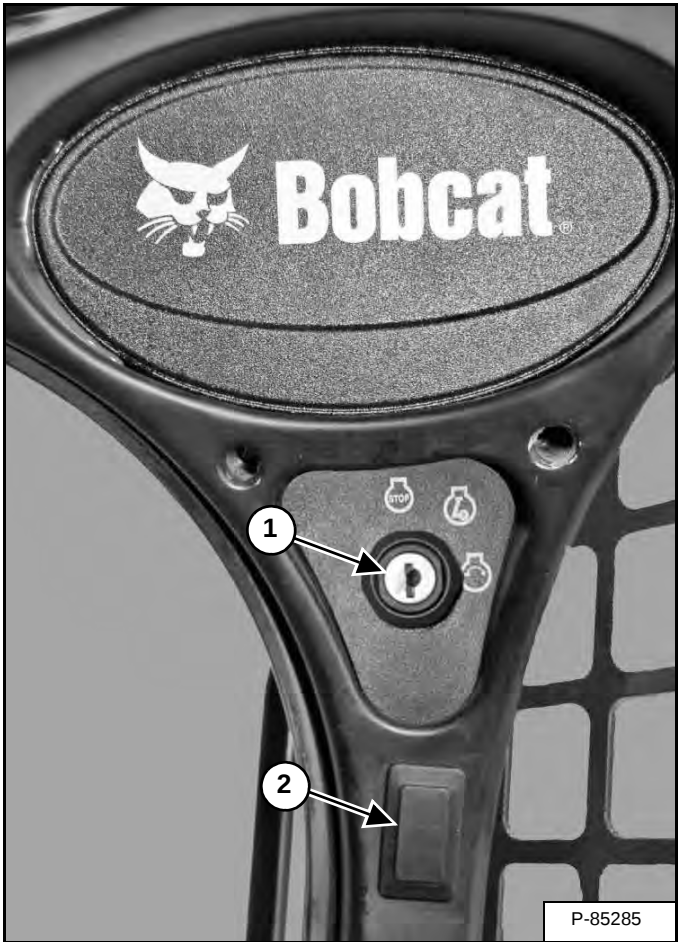
The display screen is shown in **[Figure 14]**. The data display will show operating hours upon startup.

1. **Data Display**
2. **Hourmeter**
3. **Speed Management**
4. **Engine Preheat**
5. **Engine Revolutions Per Minute**
6. **Battery / Charging Voltage**
7. **Service**

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Right Panel (Standard Key Panel)

Figure 15



This machine may be equipped with a Standard Key Panel [Figure 15].

The Standard Key Panel has a key switch (Item 1) [Figure 15] used to turn the loaders electrical system on and off, and to start and stop the engine.

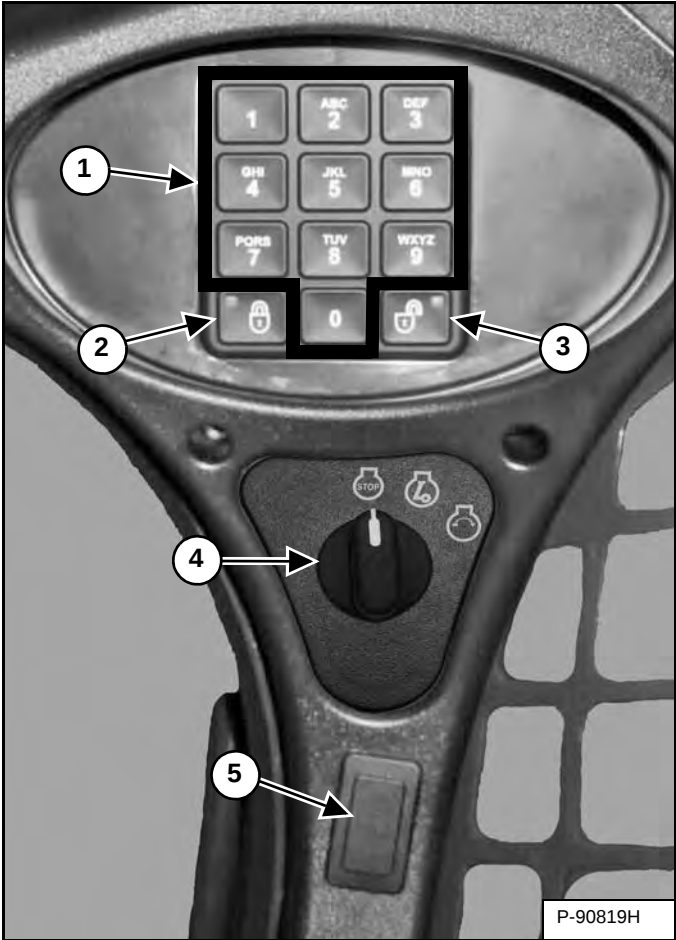
The switch location (Item 2) [Figure 15] can have different functions depending on machine configuration. See the following table for more information.

REF.	DESCRIPTION	FUNCTION / OPERATION
	ADVANCED CONTROL SYSTEM (ACS) (Option)	Press the top to select Hand Controls; bottom to select Foot Controls.
	SELECTABLE JOYSTICK CONTROLS (SJC) (Option)	Press the top to select 'ISO' Control Pattern; bottom to select 'H' Control Pattern.
	FOUR-WAY FLASHER LIGHTS (Option)	Press the top to turn lights ON; bottom to turn OFF.
	ROTATING BEACON (Option) or STROBE LIGHT (Option)	Press the top to turn light ON; bottom to turn OFF.

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Right Panel (Keyless Start Panel)

Figure 16



- 1. **Keypad (keys 1 through 0):** Used to enter a number code (password) to allow starting the engine. An asterisk will show in the left panel display screen for each key press.
- 2. **LOCK Key:** Used to lock keypad. The lock key will display a red light to indicate a password is required to start the loader. (See Password Lockout Feature on Page 209.)
- 3. **UNLOCK Key:** Used to unlock keypad. The unlock key will display a green light to indicate the loader can be started without a password. (See Password Lockout Feature on Page 209.)
- 4. **Key Switch:** Used to turn the loaders electrical system on and off, and to start and stop the engine.

The switch location (Item 5) [Figure 16] can have different functions depending on machine configuration. See the following table for more information.

REF.	DESCRIPTION	FUNCTION / OPERATION
	ADVANCED CONTROL SYSTEM (ACS) (Option)	Press the top to select Hand Controls; bottom to select Foot Controls.
	SELECTABLE JOYSTICK CONTROLS (SJC) (Option)	Press the top to select 'ISO' Control Pattern; bottom to select 'H' Control Pattern.
	FOUR-WAY FLASHER LIGHTS (Option)	Press the top to turn lights ON; bottom to turn OFF.
	ROTATING BEACON (Option) or STROBE LIGHT (Option)	Press the top to turn light ON; bottom to turn OFF.

Figure 17

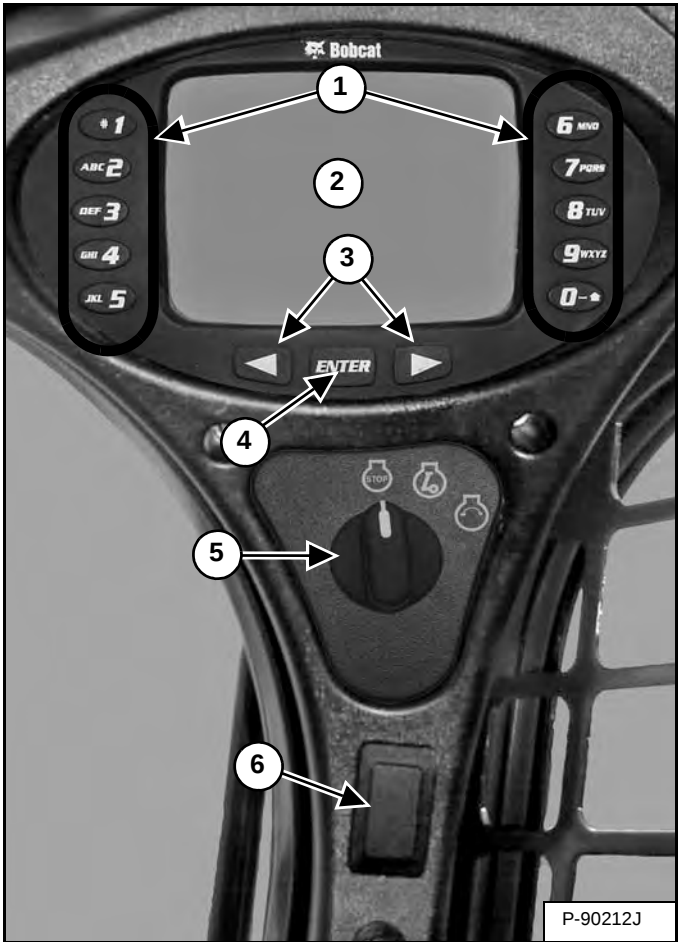


Earlier models used a push button switch assembly [Figure 17] instead of a key switch.

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Right Panel (Deluxe Instrumentation Panel)

Figure 18



This machine may be equipped with a Deluxe Instrumentation Panel [Figure 18].

1. **Keypad (1 through 0):** The keypad has two functions:
 - To enter a number code (password) to allow starting the engine.
 - To enter a number as directed for further use of the display screen.
2. **Display Screen:** The Display Screen is where all system setup, monitoring and error conditions are displayed.
3. **Scroll Buttons:** Used to scroll through display screen choices.
4. **ENTER Button:** Used to make selections on the display screen.
5. **Key Switch:** Used to turn the loaders electrical system on and off, and to start and stop the engine.

The switch location (Item 6) [Figure 18] can have different functions depending on machine configuration. See the following table for more information.

REF.	DESCRIPTION	FUNCTION / OPERATION
	ADVANCED CONTROL SYSTEM (ACS) (Option)	Press the top to select Hand Controls; bottom to select Foot Controls.
	SELECTABLE JOYSTICK CONTROLS (SJC) (Option)	Press the top to select 'ISO' Control Pattern; bottom to select 'H' Control Pattern.
	FOUR-WAY FLASHER LIGHTS (Option)	Press the top to turn lights ON; bottom to turn OFF.
	ROTATING BEACON (Option) or STROBE LIGHT (Option)	Press the top to turn light ON; bottom to turn OFF.

Figure 19



Earlier models used a push button switch assembly [Figure 19] instead of a key switch.

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Right Panel (Deluxe Instrumentation Panel) (Cont'd)

Figure 20



The first screen you will see on your new loader will be as shown in [Figure 20].

When this screen is on the display you can enter the password and start the engine or change the default language.

NOTE: Your new loader (with Deluxe Instrumentation Panel) will have an Owner Password. Your dealer will provide you with this password. Change the password to one that you will easily remember to prevent unauthorized use of your loader. (See Changing The Owner Password on Page 210.) Keep your password in a safe place for future needs.

Change Language:

Press the left or right scroll button to cycle through the languages. The language that is stopped on will be the default language used for the deluxe instrumentation panel [Figure 20].

The language can be changed at any time. (See CONTROL PANEL SETUP on Page 206.)

Enter The Password:

Use the numbers on the keypad to enter the password, then press the **[ENTER]** button. A symbol will appear on the display screen for each number entered [Figure 20]. The left scroll button can be used to backspace if an incorrect number is entered.

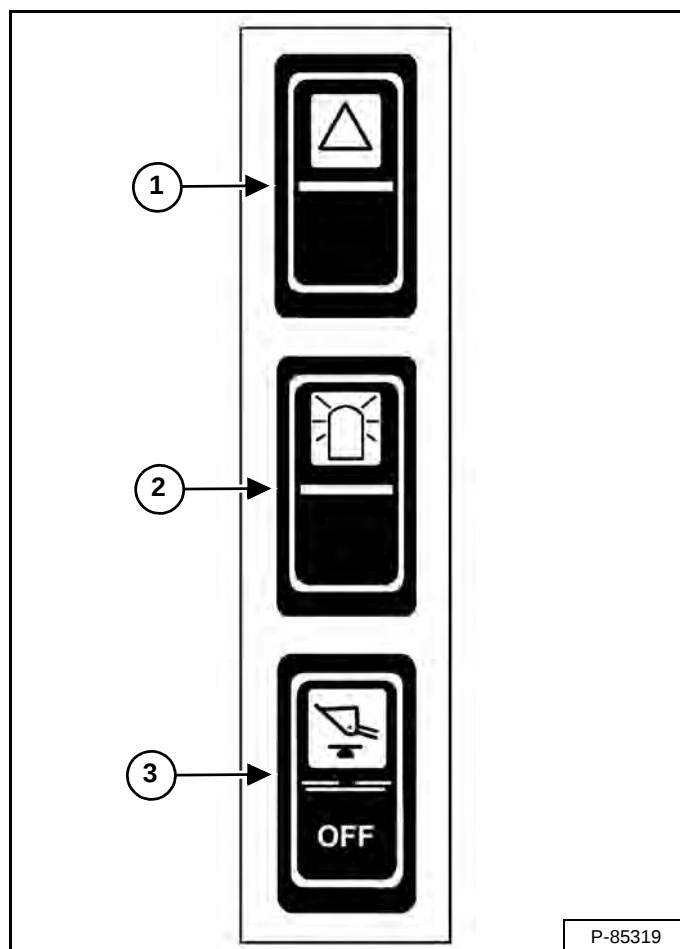
If the correct password is not entered, **[INVALID PASSWORD TRY AGAIN]** will appear on the display screen and the password will have to be reentered.

See CONTROL PANEL SETUP for further description of screens to setup the system for your use. (See CONTROL PANEL SETUP on Page 206.)

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Left Switch Panel

Figure 21

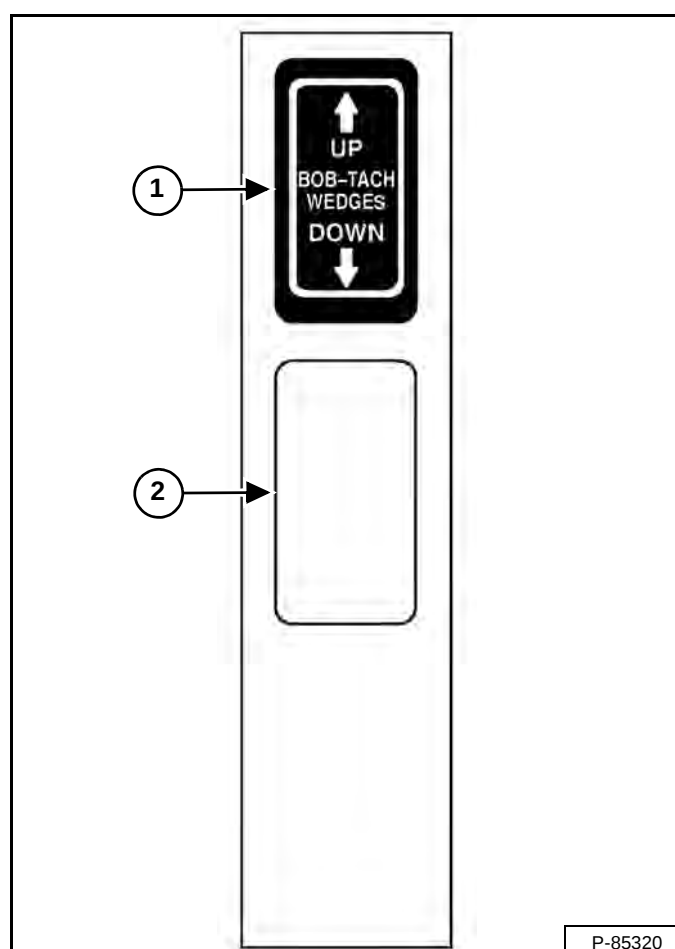


This machine may be equipped with a Left Switch Panel [Figure 21].

REF. NO.	DESCRIPTION	FUNCTION / OPERATION
1	FOUR-WAY FLASHER LIGHTS (Option)	Press the top to turn lights ON; bottom to turn OFF.
2	ROTATING BEACON (Option) <i>or</i> STROBE LIGHT (Option)	Press the top to turn light ON; bottom to turn OFF.
3	HYDRAULIC BUCKET POSITIONING (Option)	Press the top to engage Hydraulic Bucket Positioning; bottom to disengage.

Right Switch Panel

Figure 22



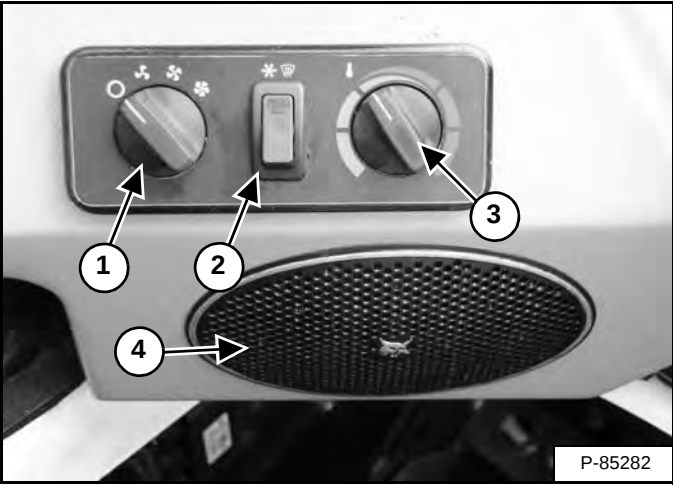
This machine may be equipped with a Right Switch Panel [Figure 22].

REF. NO.	DESCRIPTION	FUNCTION / OPERATION
1	POWER BOB-TACH (Option)	Press and hold the up arrow to disengage the Bob-Tach wedges. Press and hold the down arrow to engage the Bob-Tach wedges into the attachment mounting frame holes.
2	NOT USED	- - -

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Left Side Lower Panel

Figure 23

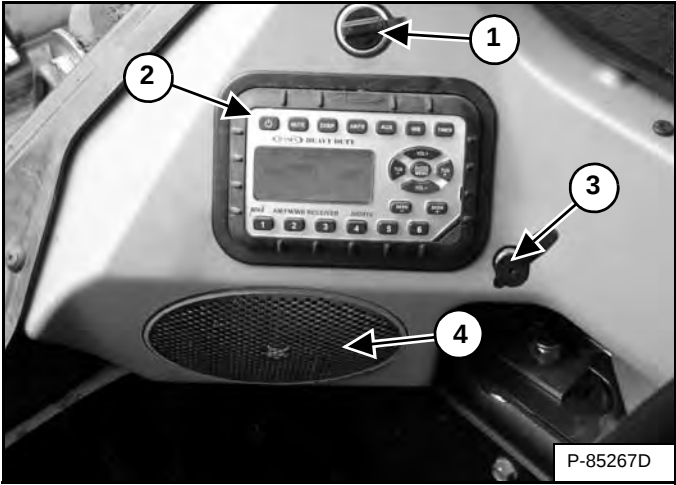


This machine may be equipped with a Left Side Lower Panel [Figure 23].

REF. NO.	DESCRIPTION	FUNCTION / OPERATION
1	FAN MOTOR (Option)	Turn clockwise to increase fan speed; counterclockwise to decrease. There are four positions; OFF-1-2-3.
2	AIR CONDITIONING / DEFROST SWITCH (Option)	Press top of switch to start; bottom to stop. Switch will light when started. Fan Motor (Item 1) must be ON for A/C to operate.
3	TEMPERATURE CONTROL (Option)	Turn clockwise to increase the temperature; counterclockwise to decrease.
4	SPEAKER (Option)	Left speaker used with optional radio.

Right Side Lower Panel

Figure 24



This machine may be equipped with a Right Side Lower Panel [Figure 24].

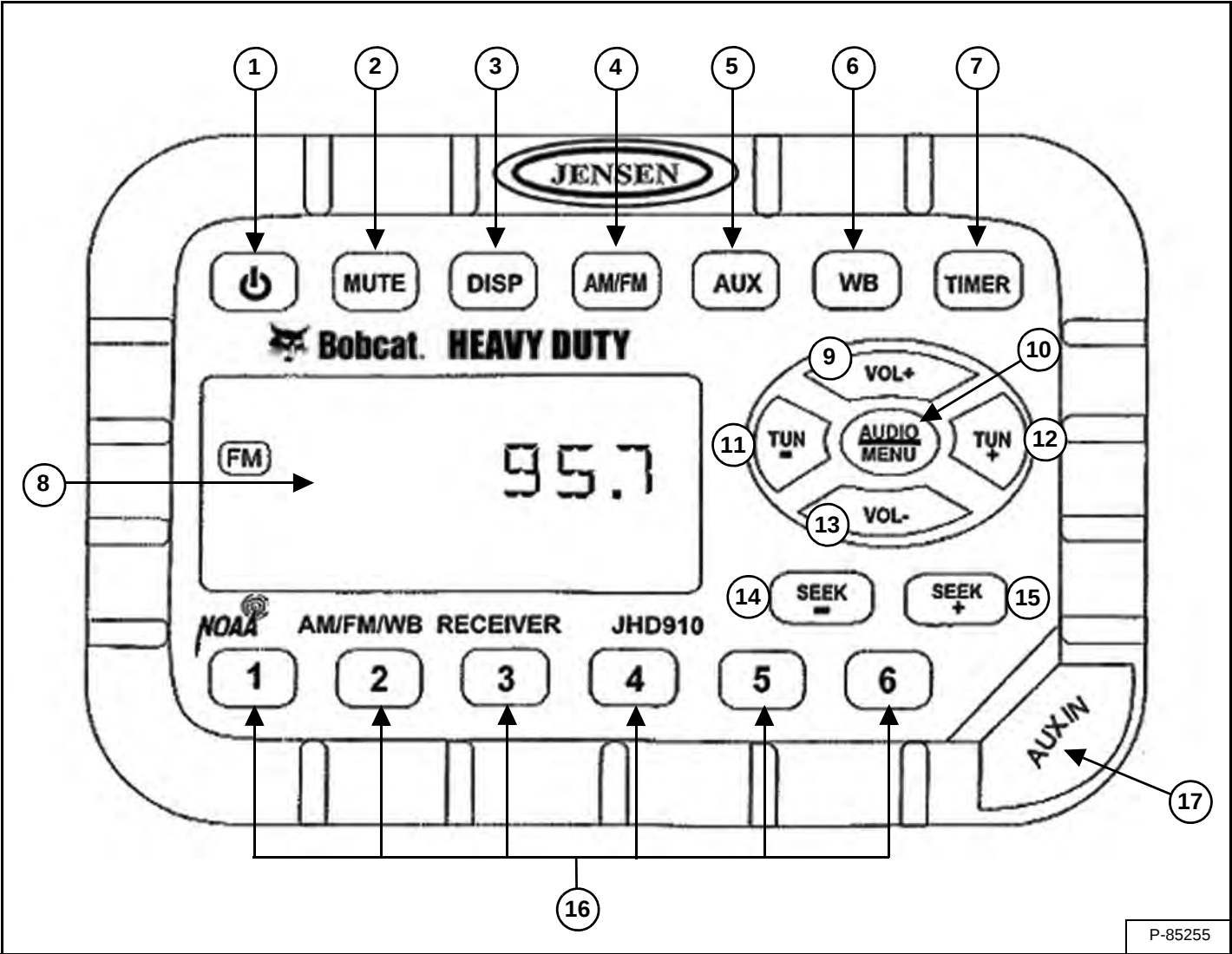
REF. NO.	DESCRIPTION	FUNCTION / OPERATION
1	POWER PORT (Option)	Provides a 12 volt receptacle for accessories.
2	RADIO (Option)	See Radio in this manual.
3	HEADPHONE JACK (Option)	Used to connect headphones to the optional radio output. Automatically silences speakers when used.
4	SPEAKER (Option)	Right speaker used with optional radio.

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Radio

This machine may be equipped with a Radio.

Figure 25



The table on the next page shows the DESCRIPTION and FUNCTION / OPERATION for each of the controls of the radio [Figure 25].

NOTE: See DISPLAY in the table for clock setting instructions.

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Radio (Cont'd)

REF. NO.	DESCRIPTION	FUNCTION / OPERATION
1	POWER	Press to turn ON; press again to turn OFF.
2	MUTE	Press to mute audio output; [MUTE] will appear in display screen; press again to turn OFF.
3	DISPLAY	Press to toggle between function mode (showing tuner frequency, auxiliary input, weather band information or timer) and clock mode. Press and hold to enter clock setting mode; use FREQUENCY DOWN button to adjust hours and FREQUENCY UP button to adjust minutes; normal operation will resume automatically.
4	BAND	Press to select tuner mode. Press to cycle through 2 AM (MW) bands and 3 FM bands.
5	AUXILIARY	Press to select Auxiliary Input mode. Portable audio device (MP3 player, etc.) must be attached to auxiliary input jack.
6	WEATHER BAND	Press to select weather band; use FREQUENCY UP and FREQUENCY DOWN buttons to adjust to the clearest station. The weather alert feature, if activated, will automatically switch from the current function to the weather band if a weather warning is received. See AUDIO / MENU ADJUSTMENT in this table.
7	TIMER	Press to access timer mode. Press to start the timer function; press again to stop timer; press again to resume timer or press and hold to reset timer and exit from timer mode.
8	DISPLAY SCREEN	Displays the time, frequency and activated functions.
9	VOLUME UP	Adjusts volume up; current volume (0 - 40) will appear briefly in display screen.
10	AUDIO / MENU ADJUSTMENT	AUDIO ADJUSTMENT: Press to cycle through bass, treble and balance settings; use VOLUME UP and VOLUME DOWN to adjust when desired option is displayed; normal operation will resume automatically. MENU ADJUSTMENT: Press and hold for three seconds to enter menu adjustment settings; press to cycle through the following settings; use VOLUME UP and VOLUME DOWN to adjust when desired option is displayed; normal operation will resume automatically. • Beep Confirm (On or Off) - Determines if beep will sound with each button press. • Operation Region (USA or Europe) - Selects the appropriate region. • Clock Display (12 or 24) - Selects a 12-hour or 24-hour clock display. • Display Brightness (Low, Medium or High) - Determines brightness level of display screen. • Backlight Color (Amber or Green) - Determines backlight color of display screen. • Power On Volume (0 - 40) - Selects default volume setting when radio is turned on. • WB Alert (On or Off) - Determines if weather band alert feature is activated.
11	FREQUENCY DOWN	Press to manually tune the radio frequency down.
12	FREQUENCY UP	Press to manually tune the radio frequency up.
13	VOLUME DOWN	Adjusts volume down; current volume (0 - 40) will appear briefly in display screen.
14	SEEK FREQUENCY DOWN	Press to automatically tune frequency down to next strong station.
15	SEEK FREQUENCY UP	Press to automatically tune frequency up to next strong station.
16	PRESET STATIONS	Used to store and recall stations for each AM and FM band. Press and hold to store current station; press button to recall station.
17	AUXILIARY INPUT JACK	Connect line output of portable audio device (MP3 player, etc.) to 3,5 mm (1/8 in) jack and press AUXILIARY button.

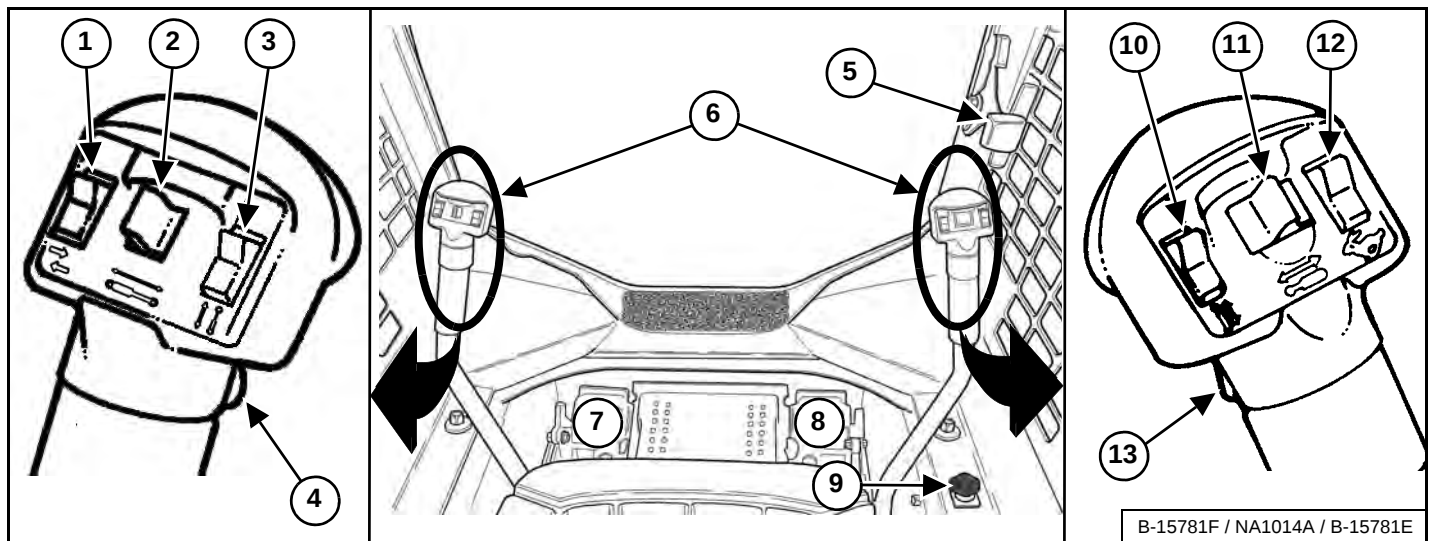
CONTROL IDENTIFICATION

This loader has three control configurations available to operate lift / tilt functions and driving / steering the loader:

- **Standard Controls** - Uses foot pedals for lift and tilt functions.
Uses steering levers for driving and steering the loader.
- **Advanced Control System (ACS) (Option)** - Uses a choice of foot pedals or handles for lift and tilt functions.
Uses steering levers for driving and steering the loader.
- **Selectable Joystick Controls (SJC) (Option)** - Uses joysticks for lift / tilt functions and driving / steering the loader.

Standard Controls

Figure 26

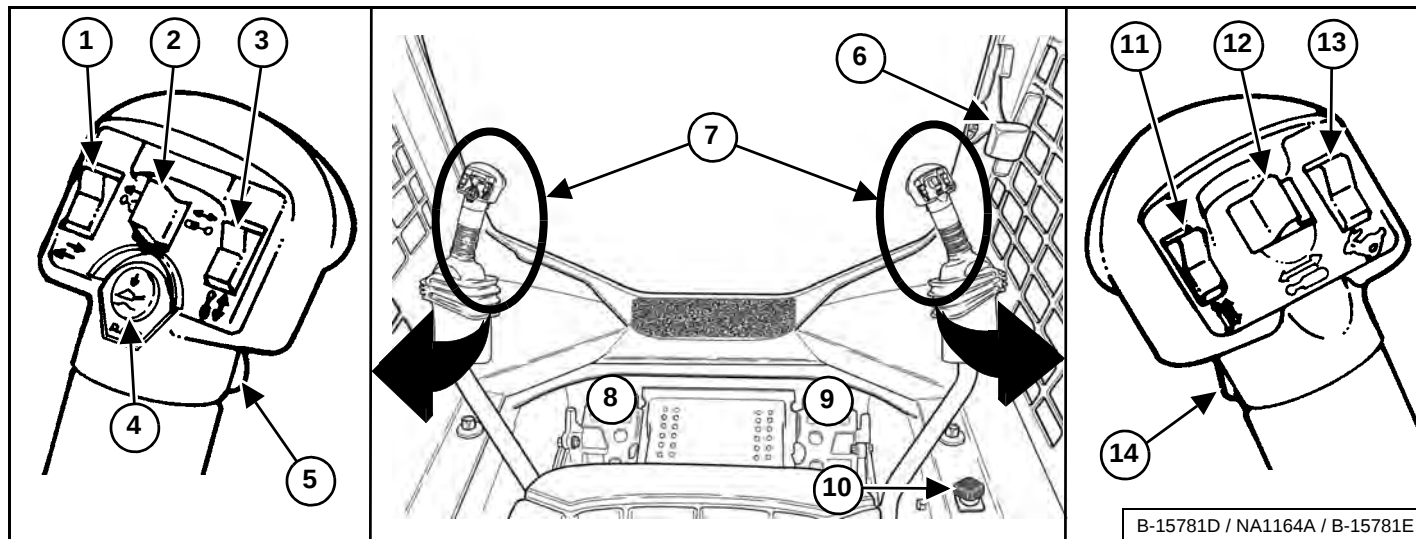


REF. NO.	DESCRIPTION	FUNCTION / OPERATION
1	TURN SIGNALS (Option)	Press the top to activate right signal; bottom to activate left signal; center position to turn off.
2	REAR AUXILIARY HYDRAULICS (Option) Also: ATTACHMENT FUNCTION CONTROL	See REAR Auxiliary Hydraulics Operation in this manual. See ATTACHMENT CONTROL DEVICE in this manual.
3	ATTACHMENT FUNCTION CONTROL	See ATTACHMENT CONTROL DEVICE in this manual.
4	FRONT HORN	Press the front switch to sound the front horn.
5	ENGINE SPEED CONTROL	See ENGINE SPEED CONTROL in this manual.
6	STEERING LEVERS	See DRIVING AND STEERING THE LOADER in this manual.
7	LIFT ARM PEDAL	See HYDRAULIC CONTROLS in this manual.
8	TILT PEDAL	See HYDRAULIC CONTROLS in this manual.
9	LIFT ARM BYPASS CONTROL	See LIFT ARM BYPASS CONTROL in this manual.
10	ATTACHMENT FUNCTION CONTROL	See ATTACHMENT CONTROL DEVICE in this manual.
11	FRONT AUXILIARY HYDRAULICS	See FRONT Auxiliary Hydraulics Operation in this manual.
12	TWO-SPEED CONTROL (Option)	See TWO-SPEED CONTROL in this manual.
13	CONTINUOUS FLOW CONTROL FOR AUXILIARY HYDRAULICS	See FRONT Auxiliary Hydraulics Operation (CONTINUOUS FLOW) in this manual.

CONTROL IDENTIFICATION (CONT'D)

Advanced Control System (ACS)

Figure 27

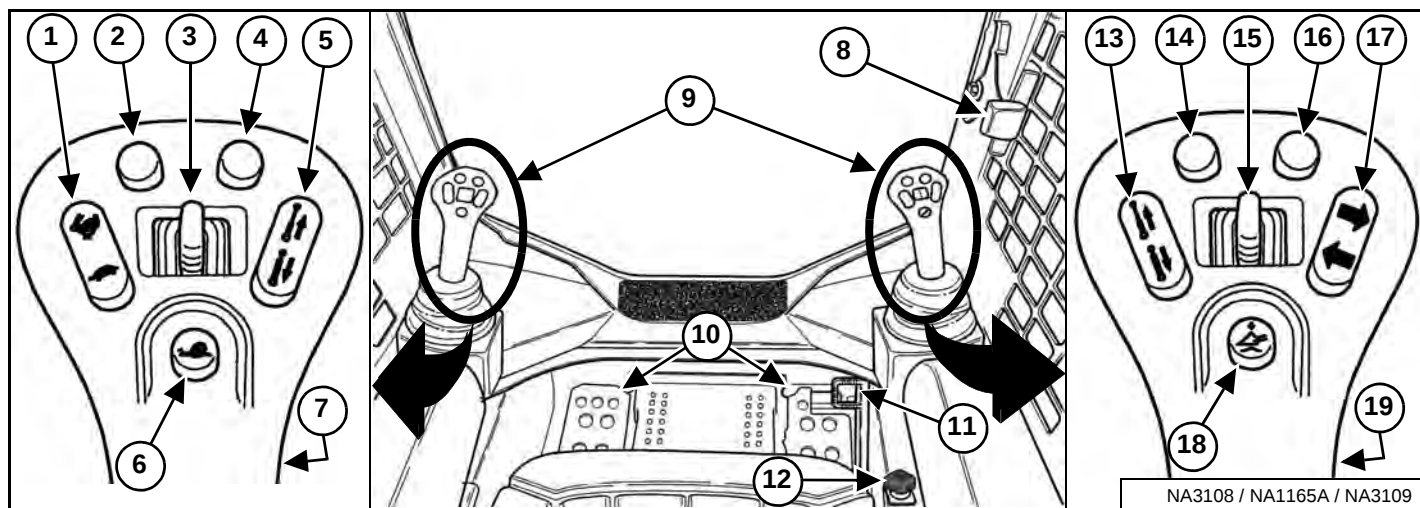


REF. NO.	DESCRIPTION	FUNCTION / OPERATION
1	TURN SIGNALS (Option)	Press the top to activate right signal; bottom to activate left signal; center position to turn off.
2	REAR AUXILIARY HYDRAULICS (Option) Also: ATTACHMENT FUNCTION CONTROL	See REAR Auxiliary Hydraulics Operation in this manual. See ATTACHMENT CONTROL DEVICE in this manual.
3	ATTACHMENT FUNCTION CONTROL	See ATTACHMENT CONTROL DEVICE in this manual.
4	FLOAT CONTROL	See HYDRAULIC CONTROLS in this manual.
5	FRONT HORN	Press the front switch to sound the front horn.
6	ENGINE SPEED CONTROL	See ENGINE SPEED CONTROL in this manual.
7	STEERING LEVERS AND LIFT / TILT HANDLES	See DRIVING AND STEERING THE LOADER and HYDRAULIC CONTROLS in this manual.
8	LIFT ARM PEDAL	See HYDRAULIC CONTROLS in this manual.
9	TILT PEDAL	See HYDRAULIC CONTROLS in this manual.
10	LIFT ARM BYPASS CONTROL	See LIFT ARM BYPASS CONTROL in this manual.
11	ATTACHMENT FUNCTION CONTROL	See ATTACHMENT CONTROL DEVICE in this manual.
12	FRONT AUXILIARY HYDRAULICS	See FRONT Auxiliary Hydraulics Operation in this manual.
13	TWO-SPEED CONTROL (Option)	See TWO-SPEED CONTROL in this manual.
14	CONTINUOUS FLOW CONTROL FOR AUXILIARY HYDRAULICS	See FRONT Auxiliary Hydraulics Operation (CONTINUOUS FLOW) in this manual.

CONTROL IDENTIFICATION (CONT'D)

Selectable Joystick Controls (SJC)

Figure 28



REF. NO.	DESCRIPTION	FUNCTION / OPERATION
1	TWO-SPEED CONTROL (Option) Also: SPEED MANAGEMENT	See TWO-SPEED CONTROL in this manual. See SPEED MANAGEMENT in this manual.
* 2	STEERING DRIFT COMPENSATION Also: DRIVE RESPONSE	See STEERING DRIFT COMPENSATION in this manual. See DRIVE RESPONSE in this manual.
3	REAR AUXILIARY HYDRAULICS (Option) Also: ATTACHMENT FUNCTION CONTROL	See REAR Auxiliary Hydraulics Operation in this manual. See ATTACHMENT CONTROL DEVICE in this manual.
* 4	STEERING DRIFT COMPENSATION Also: DRIVE RESPONSE	See STEERING DRIFT COMPENSATION in this manual. See DRIVE RESPONSE in this manual.
5	ATTACHMENT FUNCTION CONTROL	See ATTACHMENT CONTROL DEVICE in this manual.
6	SPEED MANAGEMENT	See SPEED MANAGEMENT in this manual.
7	FRONT HORN	Press the front switch to sound the front horn.
8	ENGINE SPEED CONTROL (HAND)	See ENGINE SPEED CONTROL in this manual.
9	JOYSTICKS	See DRIVING AND STEERING THE LOADER and HYDRAULIC CONTROLS in this manual.
10	FOOTRESTS	Keep your feet on the footrests at all times.
11	ENGINE SPEED CONTROL (FOOT)	See ENGINE SPEED CONTROL in this manual.
12	LIFT ARM BYPASS CONTROL	See LIFT ARM BYPASS CONTROL in this manual.
13	ATTACHMENT FUNCTION CONTROL	See ATTACHMENT CONTROL DEVICE in this manual.
* 14	NOT USED	- - -
15	FRONT AUXILIARY HYDRAULICS	See FRONT Auxiliary Hydraulics Operation in this manual.
* 16	NOT USED	- - -
17	TURN SIGNALS (Option)	Press the top to activate right signal; press again to turn off. Press the bottom to activate left signal; press again to turn off.
18	FLOAT CONTROL	See HYDRAULIC CONTROLS in this manual.
19	CONTINUOUS FLOW CONTROL FOR AUXILIARY HYDRAULICS	See FRONT Auxiliary Hydraulics Operation (CONTINUOUS FLOW) in this manual.

* Also used as Attachment Function Control: See your attachment Operation & Maintenance Manual.

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.

WARNING

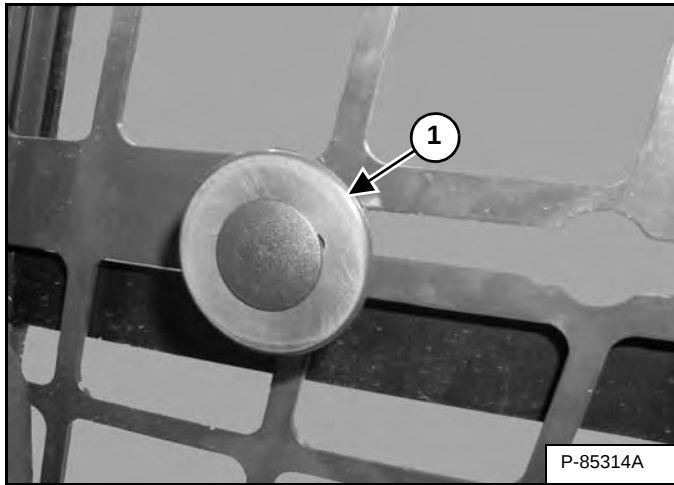
Never modify operator cab by welding, grinding, drilling holes or adding attachments unless instructed to do so by Bobcat Company. Changes to the cab can cause loss of operator protection from rollover and falling objects, and result in injury or death.

W-2069-0200

Side Windows

This machine may be equipped with Side Windows.

Figure 29

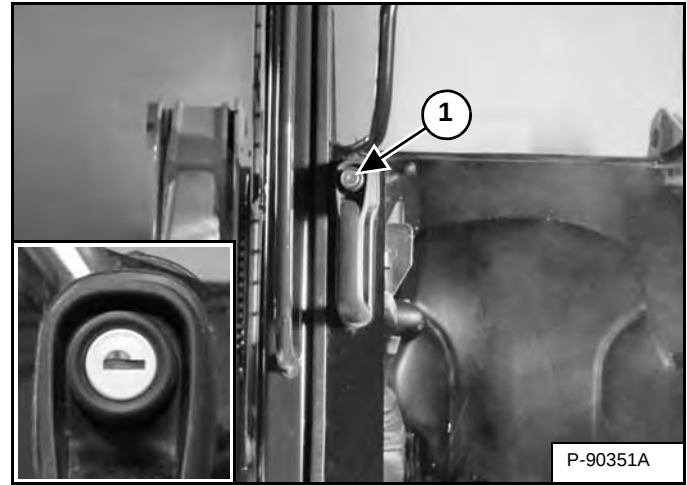


Pull the knob (Item 1) [Figure 29] and slide backward to open window. Release knob at cutout to lock in desired position. Pull the knob and slide forward to close window.

Door Operation

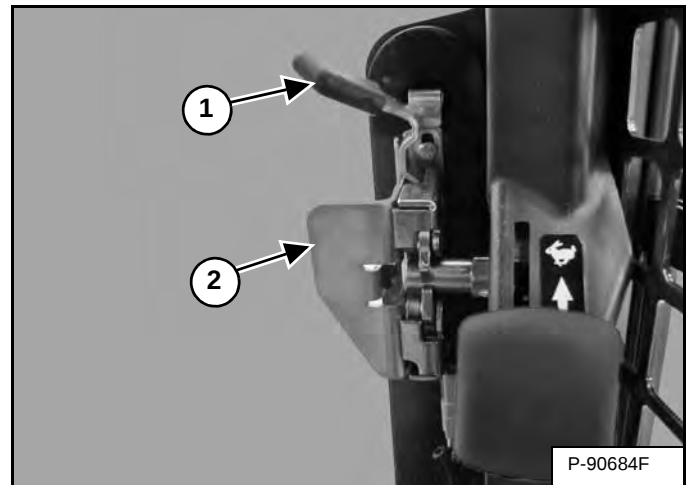
This machine may be equipped with a Front Door.

Figure 30



Push the knob (Item 1) and pull the handle to open the front door. A lock is provided in the knob (Inset) [Figure 30] to lock the front door when the loader is not in use.

Figure 31



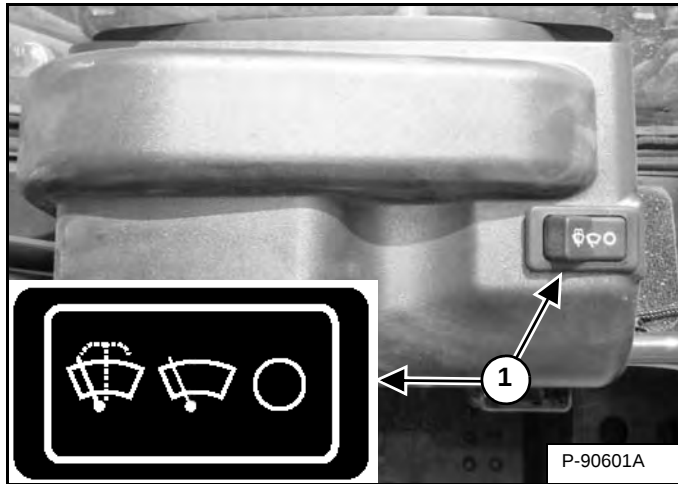
Pull the front door closed using the handle (Item 2) [Figure 31].

Pull the lever (Item 1) toward you to unlatch the front door. Push on the handle (Item 2) [Figure 31] to open the front door.

OPERATOR CAB (CONT'D)

Front Wiper

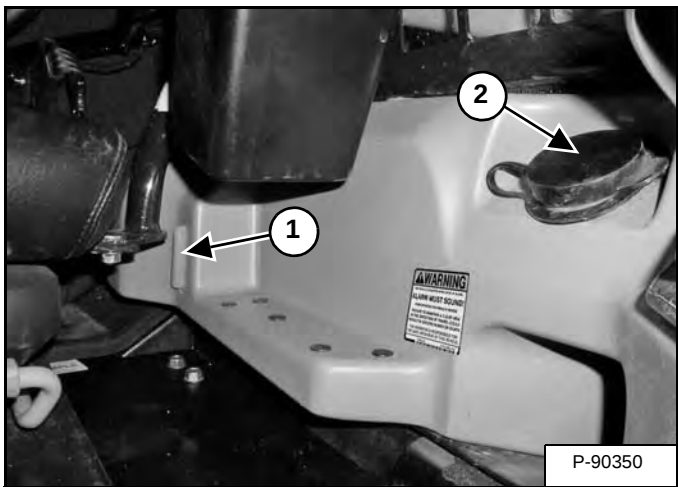
Figure 32



This machine may be equipped with a Front Wiper [Figure 32].

Press the left side of the switch (Item 1) [Figure 32] to start the front wiper (press and hold for washer fluid). Press the right side of the switch to stop the wiper.

Figure 33



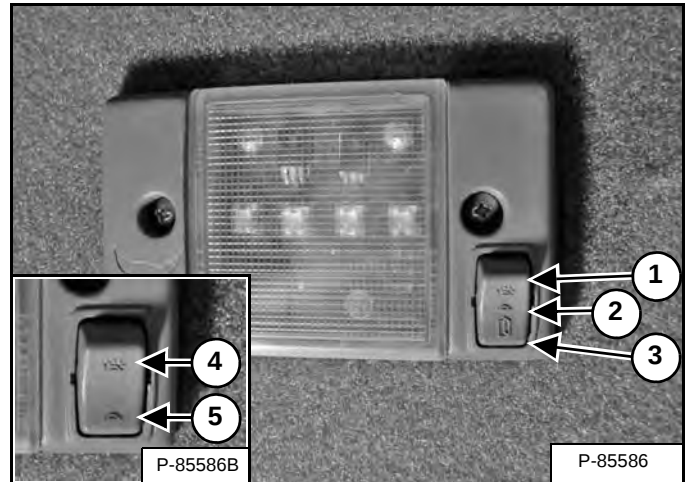
The washer fluid tank is located on the left side of the operator cab. Check the fluid level in the sight gauge (Item 1). Remove the cap (Item 2) [Figure 33] to add washer fluid.

Cab Light

This machine may be equipped with a Cab Light.

The cab light is located above the operator's left shoulder. More than one type can be found on this machine. The operation of each is explained below.

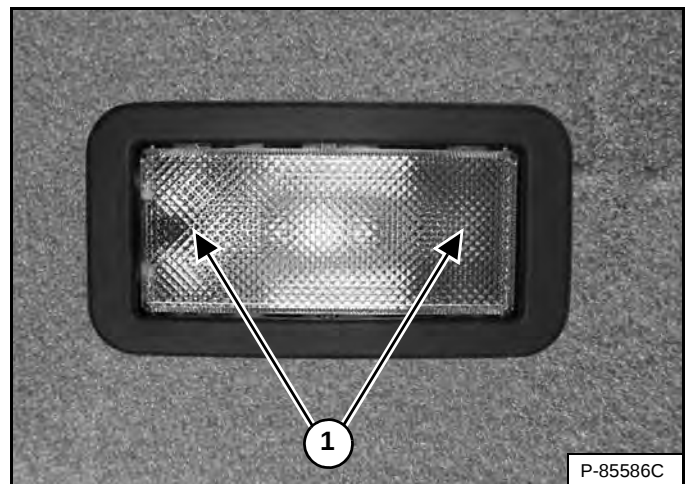
Figure 34



Push this side of the switch (Item 1) to turn the light ON. Place the switch in the middle position (Item 2) to turn the light OFF. Push this side of the switch (Item 3) [Figure 34] to turn the light ON and OFF with the door.

Some models use a cab light with a two-position switch (Inset). Push this side of the switch (Inset Item 4) to turn the light ON. Push this side of the switch (Inset Item 5) [Figure 34] to turn the light OFF.

Figure 35



Push either side of the lens (Item 1) [Figure 35] to turn the light ON. Return the lens to the middle position to turn the light OFF.

SEAT BAR RESTRAINT SYSTEM

Operation

Figure 36



The seat bar restraint system has a pivoting seat bar with armrests (Item 1) [Figure 36].

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

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

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

When the seat bar is raised, the lift, tilt and traction drive functions are deactivated and both foot pedals (if equipped) will be locked when returned to NEUTRAL position.

WARNING

AVOID INJURY OR DEATH

Before you leave the operator's seat:

- Lower the lift arms and put the attachment flat on the ground.
- Stop the engine.
- Engage the parking brake.
- Raise the seat bar.
- Move all controls to the NEUTRAL / LOCKED position to make sure the lift, tilt and traction drive functions are deactivated.

The seat bar system must deactivate these functions when the seat bar is up. See your Bobcat dealer for service if controls do not deactivate.

W-2463-1110

BOBCAT INTERLOCK CONTROL SYSTEM (BICS™)

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 37



The Bobcat Interlock Control System (BICS™) has a pivoting seat bar with armrests (Item 1) [Figure 37]. 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 drive functions can be operated. The seat belt must be fastened anytime 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 or footrests and hands on the controls.

W-2261-0909

Figure 38



There are three display lights (Items 1, 2 and 3) [Figure 38] located on the left 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

AVOID INJURY OR DEATH

Before you leave the operator's seat:

- Lower the lift arms and put the attachment flat on the ground.
- Stop the engine.
- Engage the parking brake.
- Raise the seat bar.
- Move all controls to the NEUTRAL / LOCKED position to make sure the lift, tilt and traction drive functions are deactivated.

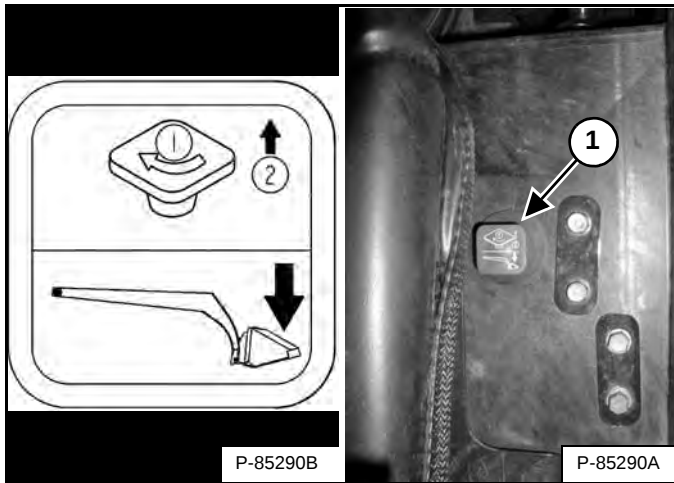
The seat bar system must deactivate these functions when the seat bar is up. See your Bobcat dealer for service if controls do not deactivate.

W-2463-1110

LIFT ARM BYPASS CONTROL

Operation

Figure 39



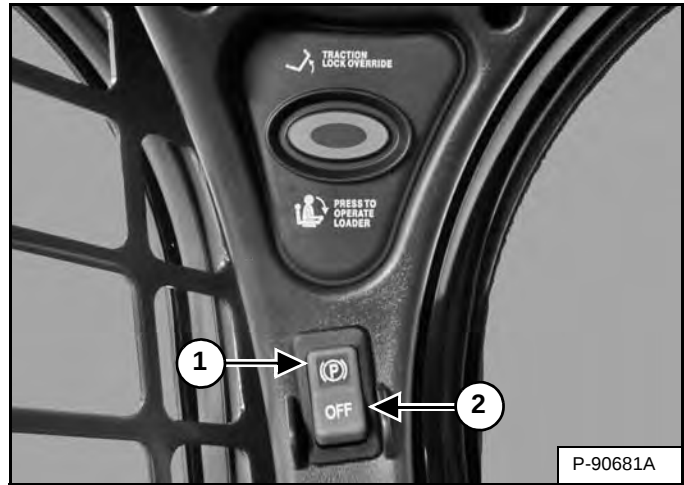
The lift arm bypass control (Item 1) [Figure 39], located to the right of the operator's seat, is used to lower the lift arms if the lift arms cannot be lowered during normal operations.

1. Sit in the operator's seat.
2. Fasten the seat belt and lower the seat bar.
3. Turn the knob (Item 1) [Figure 39] 90° clockwise.
4. Pull up and hold the knob until the lift arms lower.

PARKING BRAKE

Operation

Figure 40



Press the top of the switch (Item 1) [Figure 40] 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.

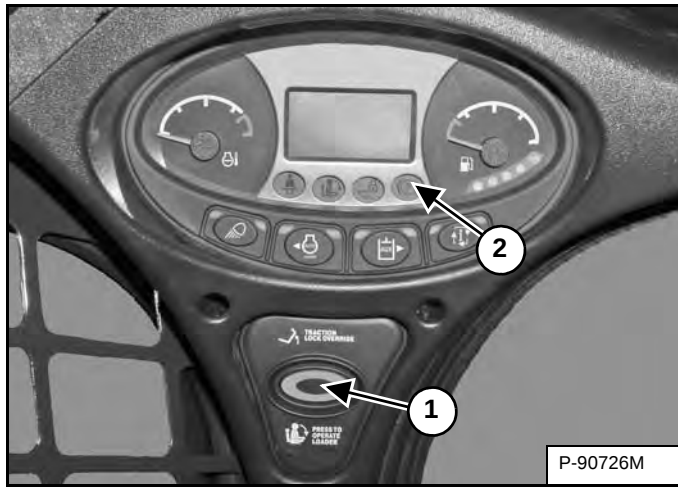
Press the bottom of the switch (Item 2) [Figure 40] to disengage the parking brake. The red light in the switch will turn off. The traction drive system will be unlocked.

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.

TRACTION LOCK OVERRIDE

Operation

Figure 41



(Functions Only When The Seat Bar Is Raised And The Engine Is Running) There is a TRACTION LOCK OVERRIDE button (Item 1) [Figure 41] 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 traction drive. The PARKING BRAKE light (Item 2) [Figure 41] will be OFF.
- Press the button a second time to lock the traction drive. The PARKING BRAKE light (Item 2) [Figure 41] will be ON.

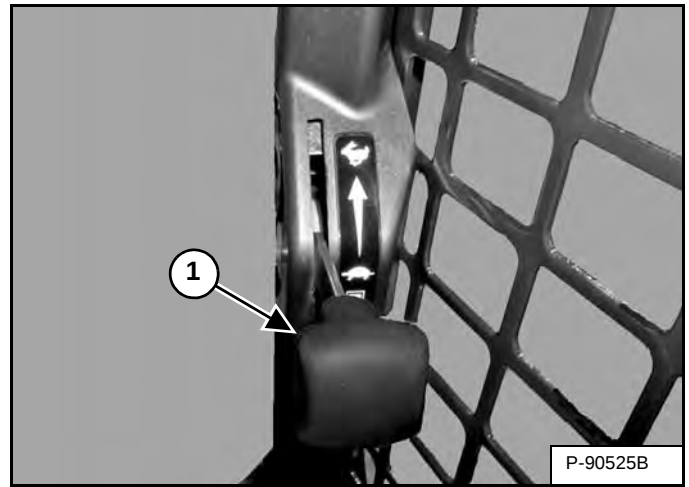
NOTE: The TRACTION LOCK OVERRIDE button will unlock the traction drive when the seat bar is raised and the engine is running.

NOTE: The TRACTION LOCK OVERRIDE button will function if the parking brake is in the engaged or disengaged position and the engine is running. If the parking brake switch is turned ON, the red light in the parking brake switch will turn OFF when TRACTION LOCK OVERRIDE is engaged.

ENGINE SPEED CONTROL

Operation

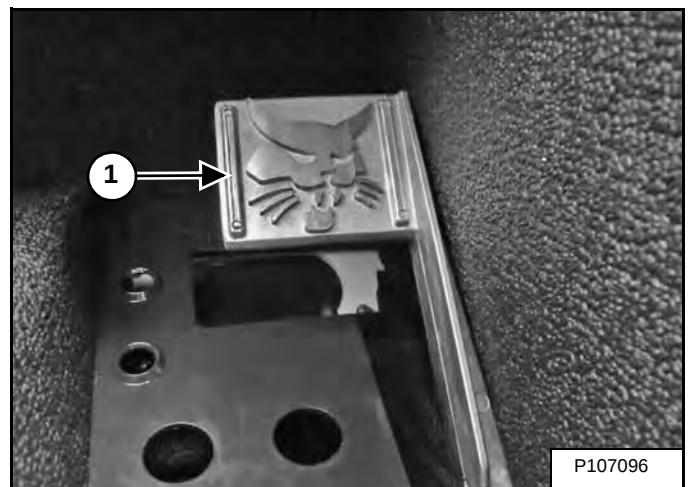
Figure 42



The Engine Speed Control lever (Item 1) [Figure 42] is located alongside the door frame below the right panel.

Move the lever up to increase engine speed. Move down to decrease engine speed.

Figure 43



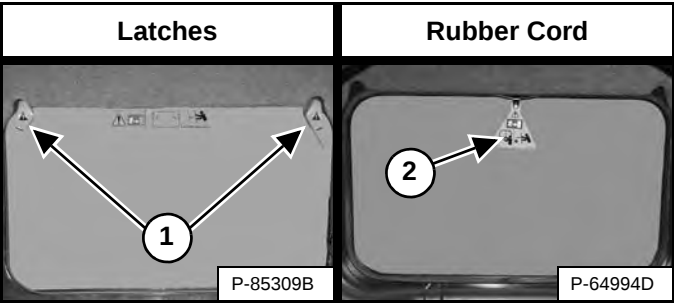
There is a foot operated engine speed control pedal (Item 1) [Figure 43] in addition to the engine speed control lever on SJC equipped machines. It is located on the right side floor above the footrest.

EMERGENCY EXIT

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

Rear Window Identification

Figure 44



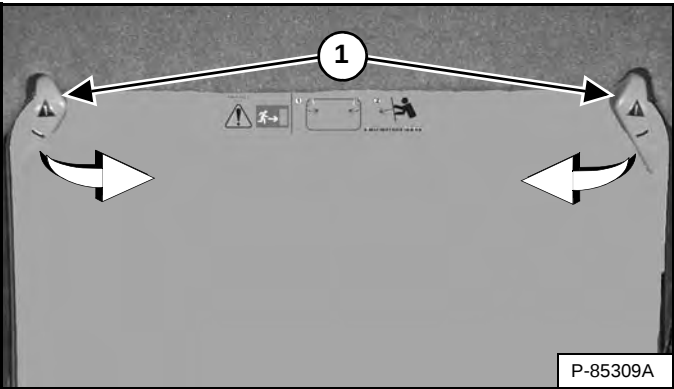
There are two different procedures for removing the rear window from your machine:

- 1. This window is equipped with latches [Figure 44].
- 2. This window is equipped with a rubber cord and tag [Figure 44].

NOTE: Use these procedures to remove the rear window only under emergency conditions. Damage to machine may occur.

Rear Window Removal (Latches)

Figure 45



Turn both latches (Item 1) [Figure 45] in until they disengage from the window frame.

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

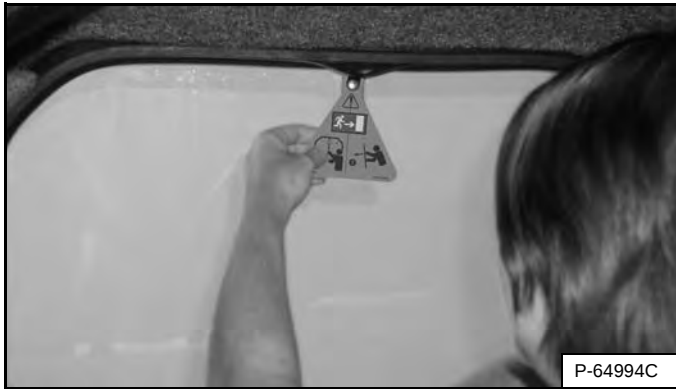
Figure 46



Exit through the rear of the operator cab [Figure 46].

Rear Window Removal (Rubber Cord)

Figure 47



Pull on the tag on the top of the rear window to remove the rubber cord [Figure 47].

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

Figure 48

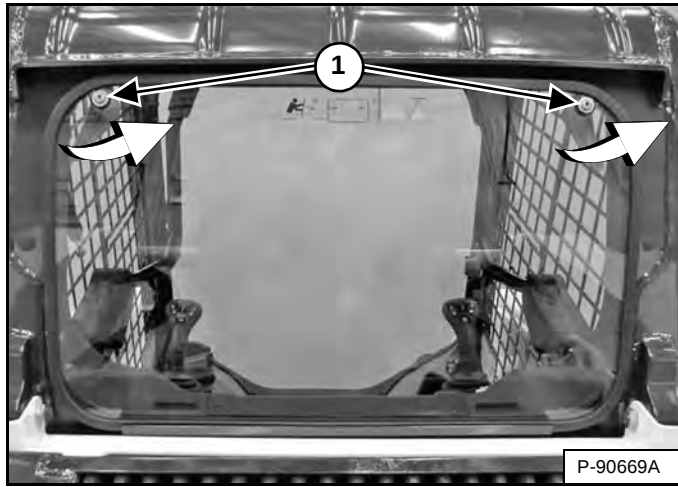


Exit through the rear of the operator cab [Figure 48].

EMERGENCY EXIT (CONT'D)

External Access (Rear Window With Latches)

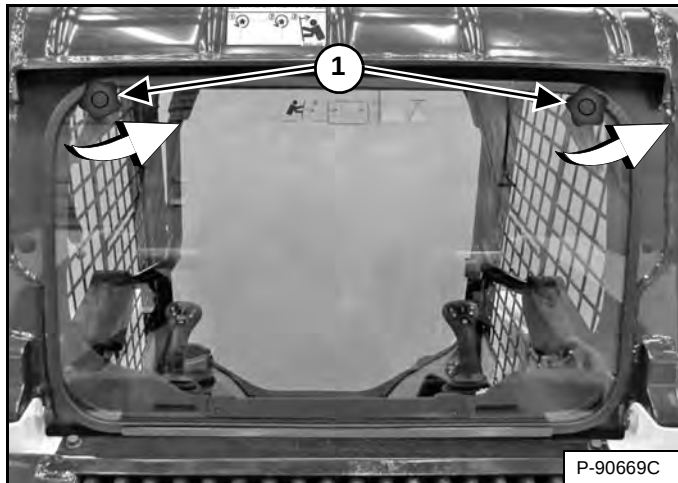
Figure 49



The rear window can be removed from outside the loader using a T40 TORX® Drive tool. Turn both screws (Item 1) [Figure 49] counterclockwise until the latches disengage from the window frame. Pull the top of the window away from the cab and lift up to remove.

OR

Figure 50



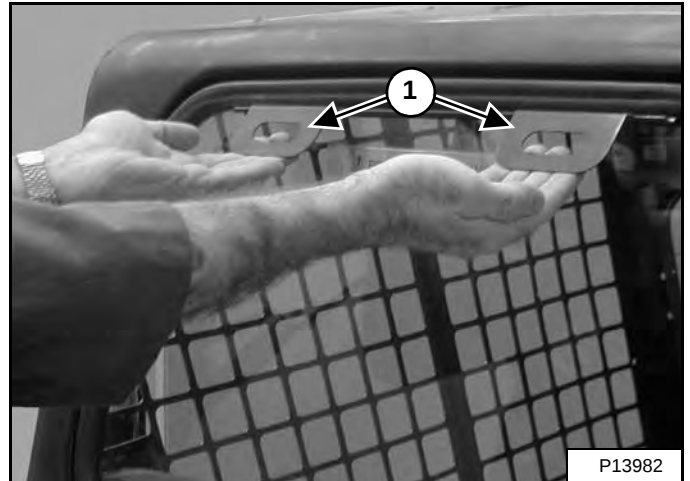
A kit is available to allow removal of the latch equipped rear window from outside the machine without tools. See your Bobcat dealer for availability.

Turn both knobs (Item 1) [Figure 50] counterclockwise until the latches disengage from the window frame. Pull the top of the window away from the cab and lift up to remove.

External Access (Rear Window With Rubber Cord)

A kit is available to allow removal of the rubber cord equipped rear window from outside the machine. See your Bobcat dealer for availability.

Figure 51



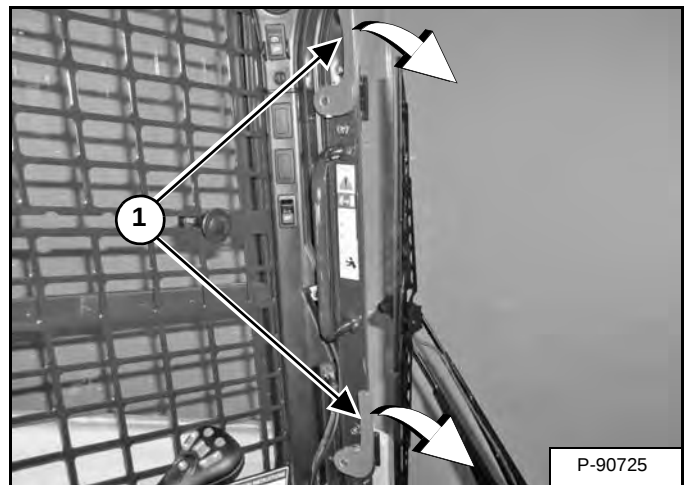
Pull both handles (Item 1) [Figure 51] up and out to remove the rear window.

Front Door

This machine may be equipped with a Front Door.

NOTE: Use this procedure to remove the front door only under emergency conditions. Damage to machine may occur.

Figure 52



Turn both latches (Item 1) [Figure 52] down until they disengage from the door frame.

Push the door out of the operator cab door frame and exit through the opening.

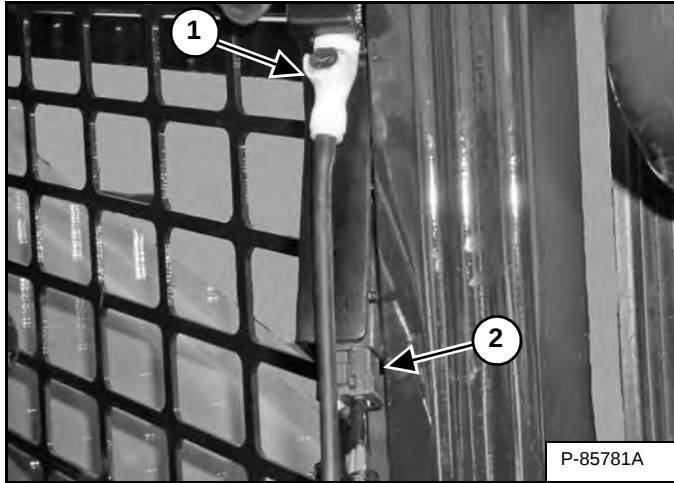
EMERGENCY EXIT (CONT'D)

Front Door (Cont'd)

Front Door Reassembly

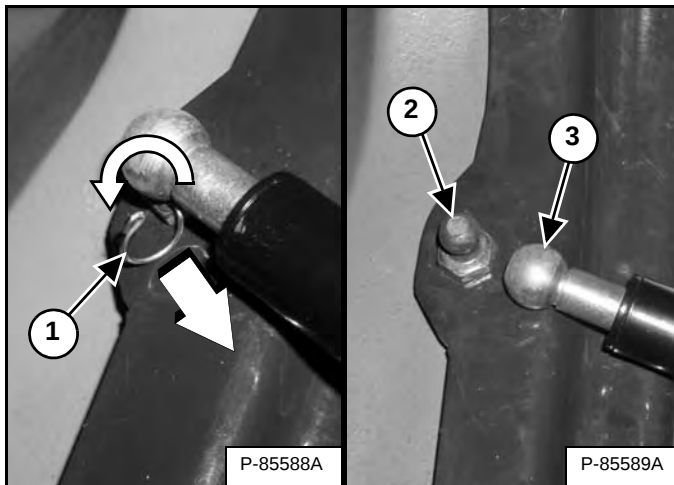
Reassemble the front door using the following instructions if the door was opened using the emergency exit procedure.

Figure 53



Disconnect electrical connector (Item 2) and washer fluid hose (Item 1) [Figure 53].

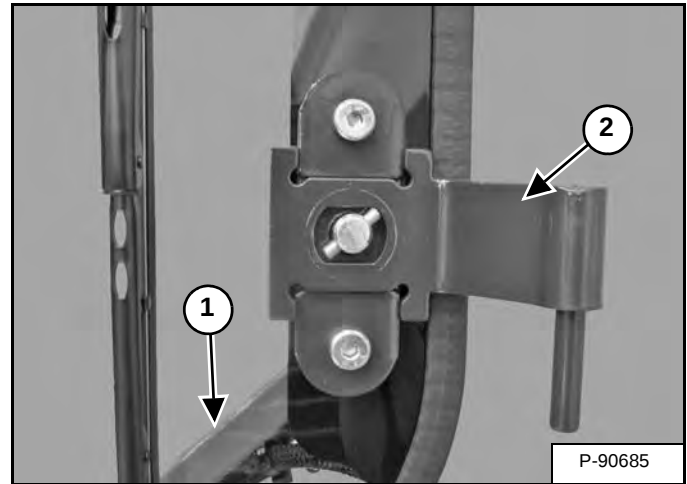
Figure 54



Rotate and pull the clip (Item 1) out of the gas spring socket. Pull the gas spring socket (Item 3) straight off the ball stud fitting (Item 2) [Figure 54].

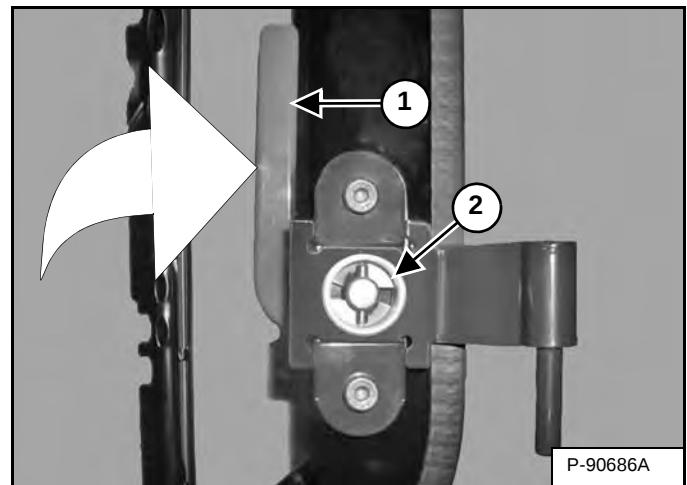
Remove the door hinges from the loader.

Figure 55



Orient the latches as shown (Item 1) and install the door hinges (Item 2) [Figure 55] on the door. (Bottom hinge shown)

Figure 56



Install cast washers (Item 2) on door hinges taking care to match rectangular surfaces. Hold cast washer firmly against door and rotate latch (Item 1) [Figure 56] up to lock cast washer into place. (Bottom hinge shown) (Plastic cap shown removed for visual clarity.)

Install door on loader.

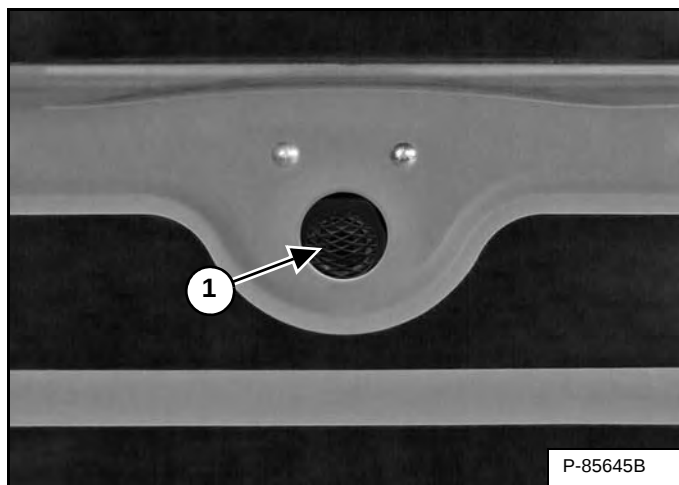
Install the gas spring socket on the ball stud fitting. Install the clip into the hole in the gas spring socket. Rotate the clip to lock into place [Figure 54].

Connect electrical connector (Item 2) and washer fluid hose (Item 1) [Figure 53].

BACK-UP ALARM SYSTEM

Description

Figure 57



The Back-up Alarm (Item 1) [Figure 57] 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 also 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 always look in the direction of travel.
- The back-up alarm must sound when operating the machine in the reverse direction.

W-2783-0409

The back-up alarm will sound when the operator moves both steering levers or joystick(s) 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 133.)

DRIVING AND STEERING THE LOADER

Available Control Configurations

The loader has three configurations available:

- *Standard Controls* - Two Steering Levers control drive and steering functions.
- *Advanced Control System (ACS) (Option)* - Two Steering Levers control drive and steering functions.
- *Selectable Joystick Controls (SJC) (Option)* -

(*'ISO' Pattern*) Left joystick controls the drive and steering functions.

(*'H' Pattern*) Left and right joysticks control left and right side drive and steering functions.

Operation (Standard And ACS)

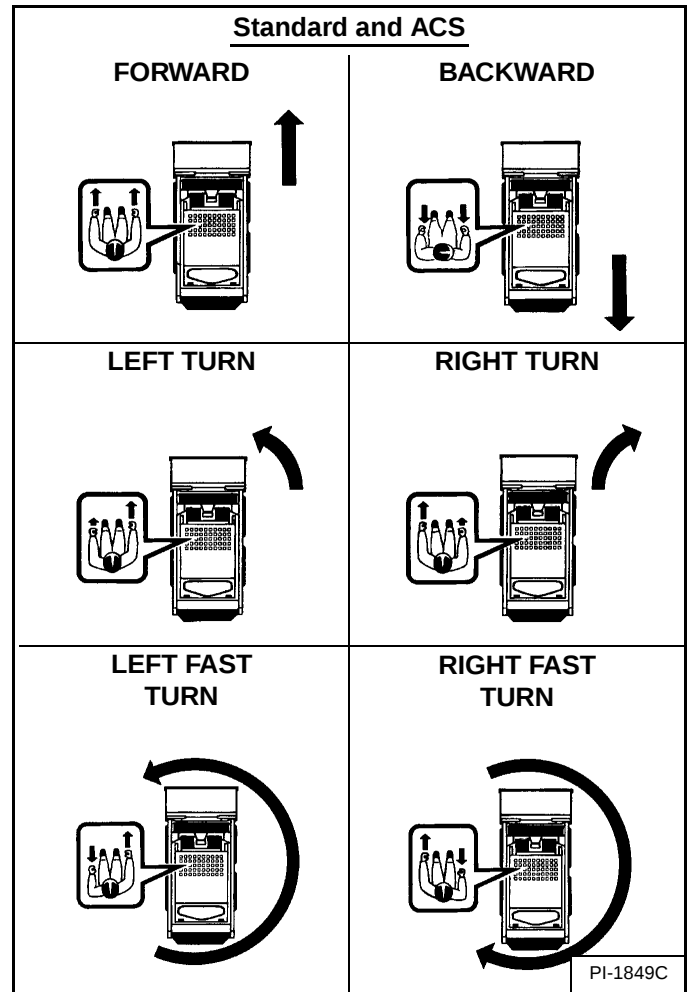
Figure 58



The steering levers (Item 1) [Figure 58] are on the left and right side in front of the seat.

Move the levers smoothly. Avoid sudden starting and stopping.

Figure 59



The steering levers control forward and backward travel and turning the loader [Figure 59].

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.

WARNING

AVOID INJURY OR DEATH

When operating the machine:

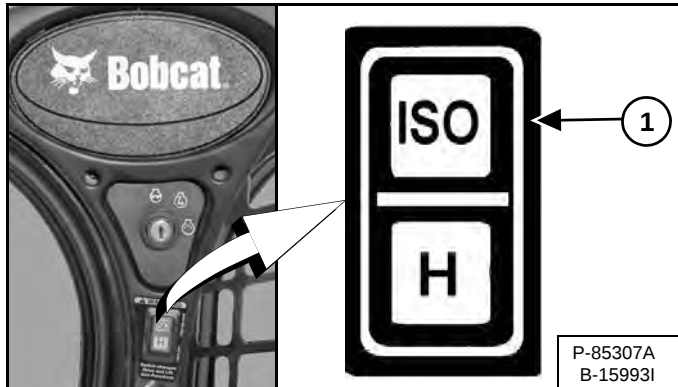
- Keep the seat belt fastened snugly.
- The seat bar must be lowered.
- Keep your feet on the pedal controls or footrests and hands on the controls.

W-2261-0909

DRIVING AND STEERING THE LOADER (CONT'D)

Operation (SJC) In 'ISO' Control Pattern

Figure 60



Select the 'ISO' control pattern by pressing the top of the switch (Item 1) [Figure 60].

WARNING

AVOID INJURY OR DEATH

When operating the machine:

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

W-2399-0501

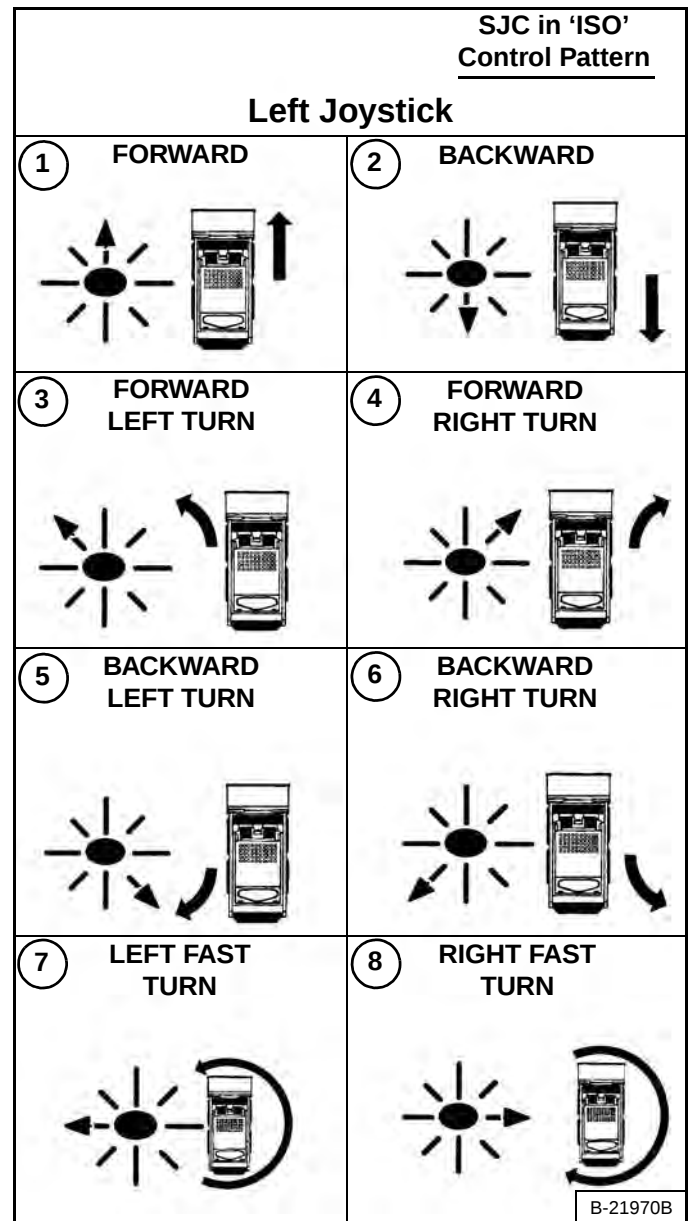
Figure 61



The joystick that controls drive and steering is on the left side in front of the seat (Item 1) [Figure 61].

Move the joystick smoothly. Avoid sudden starting and stopping.

Figure 62



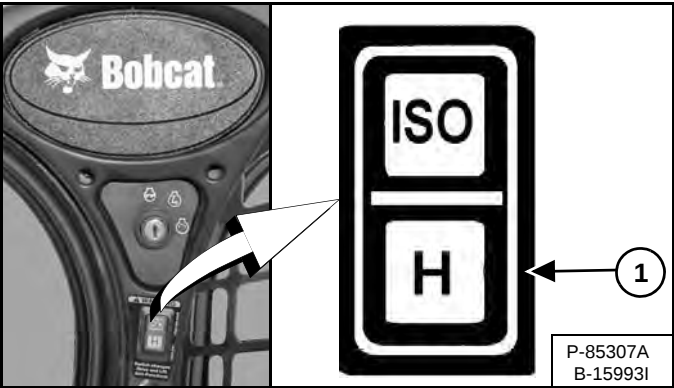
Left Joystick Functions (Drive And Steering) [Figure 62].

1. **Forward Travel** - Move joystick forward.
2. **Backward Travel** - Move joystick backward.
3. **Forward Left Turn** - Move joystick forward and to the left.
4. **Forward Right Turn** - Move joystick forward and to the right.
5. **Backward Left Turn** - Move joystick backward and to the right.
6. **Backward Right Turn** - Move joystick backward and to the left.
7. **Left Fast Turn** - Move joystick to the left.
8. **Right Fast Turn** - Move joystick to the right.

DRIVING AND STEERING THE LOADER (CONT'D)

Operation (SJC) In 'H' Control Pattern

Figure 63



Select the 'H' control pattern by pressing the bottom of the switch (Item 1) [Figure 63].

WARNING

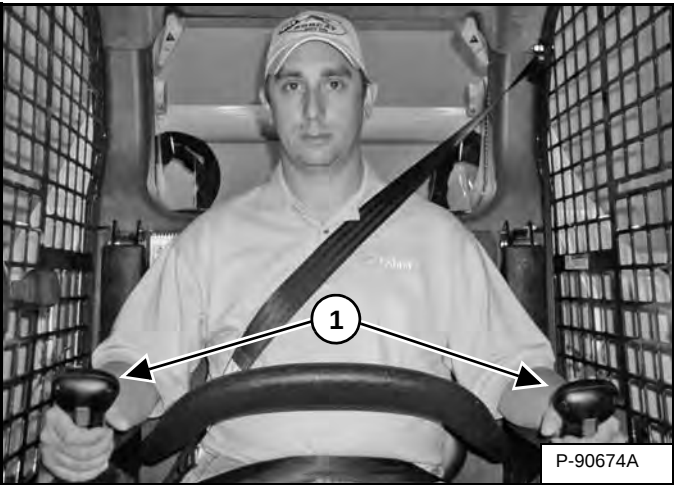
AVOID INJURY OR DEATH

When operating the machine:

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

W-2399-0501

Figure 64



Both joysticks control drive and steering and are located on the left and right side in front of the seat (Item 1) [Figure 64].

Move the joysticks smoothly. Avoid sudden starting and stopping.

Figure 65

Left Joystick	Right Joystick	SJC in 'H' Control Pattern
1 		 FORWARD
2 		 BACKWARD
3 		 LEFT TURN
4 		 RIGHT TURN
5 		 LEFT FAST TURN
6 		 RIGHT FAST TURN

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Joystick Functions (Drive And Steering) [Figure 65]

1. **Forward Travel** - Move both joysticks forward.
2. **Backward Travel** - Move both joysticks backward.
3. **Forward Left Turn** - Move the right joystick farther forward than the left joystick.
4. **Forward Right Turn** - Move the left joystick farther forward than the right joystick.
5. **Left Fast Turn** - Move the left joystick backward and the right joystick forward.
6. **Right Fast Turn** - Move the left joystick forward and the right joystick backward.

STOPPING THE LOADER

Using The Control Levers Or Joysticks

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

TWO-SPEED CONTROL

Description

This machine may be equipped with Two Speed Ranges, high and low range. High range allows you to reduce cycle times when there is a long travel distance between the dig site and the dump site. You can also use the high range when traveling from one job site to another at faster speeds.



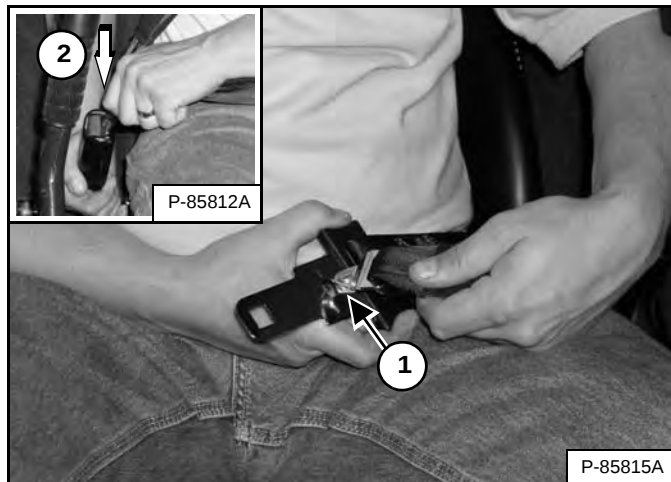
WARNING

HITTING OBSTRUCTIONS AT HIGH RANGE SPEEDS CAN CAUSE SERIOUS INJURY OR DEATH

Fasten shoulder belt for additional restraint when operating at high range speeds.

W-2754-0908

Figure 66



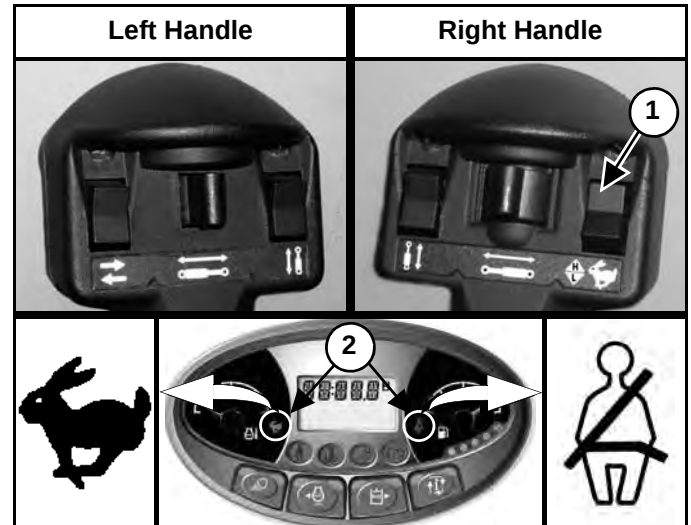
NOTE: The 3-point restraint must be used when selecting high range operation [Figure 66].

Connect the shoulder belt to the lap belt (Item 1) [Figure 66]. Pull the lap belt across to the right side of the seat and fasten (Item 2) [Figure 66].

The shoulder belt must be positioned over your left shoulder and lap belt over your lower hips [Figure 66].

Operation (Standard And ACS) (If Equipped)

Figure 67



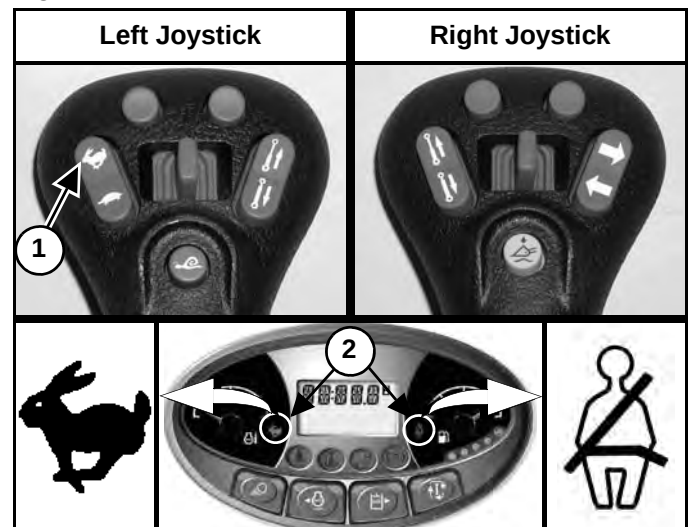
Press the top of the switch (Item 1) on the right handle for high range. The two-speed and shoulder belt icons located on the left instrument panel (Item 2) [Figure 67] will come on.

NOTE: This toggle switch retains the selected range. The loader will be in high range speed at start-up if the switch is in the high range position.

Press the bottom of the switch for low range.

Operation (SJC) (If Equipped)

Figure 68



NOTE: You must disengage Speed Management before you can select high range.

Press the top of the switch (Item 1) on the left joystick for high range. The two-speed and shoulder belt icons located on the left instrument panel (Item 2) [Figure 68] will come on.

Press the bottom of the switch for low range.

SPEED MANAGEMENT

Speed Management is available on SJC equipped machines.

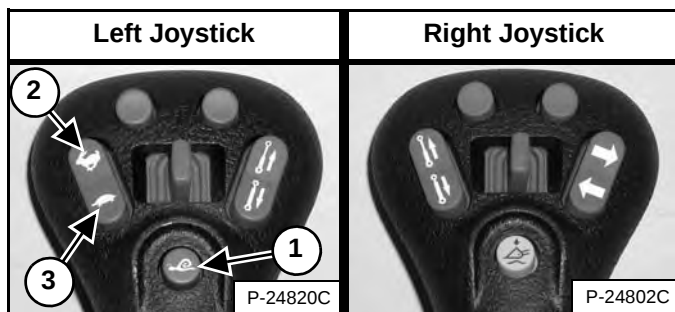
Operation

Speed Management allows the loader to be maneuvered at a slower travel speed, even during maximum movement of the joystick(s).

This feature can be useful when installing attachments, loading or unloading, and certain applications. (EXAMPLES: Landscaping, tilling, trenching)

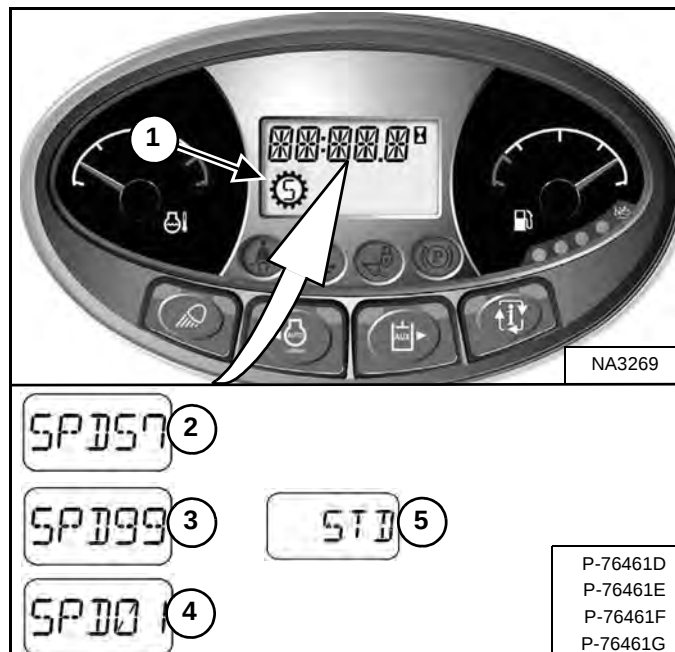
NOTE: Two-Speed Loaders Only - You must be in low range speed to engage Speed Management.

Figure 69



Press the button (Item 1) [Figure 69] on the left joystick once to engage Speed Management.

Figure 70



The Speed Management icon (Item 1) [Figure 70] will appear in the display and remain on until the Speed Management button is pressed again or the machine is turned off.

When Speed Management is engaged, the machine will travel at the factory default setting of 57% of Standard Travel Speed and the percentage [SPD 57] will appear in the display (Item 2) [Figure 70].

NOTE: The factory default setting can be changed by the operator. (See Changing The Factory Default Setting on Page 63.)

While Speed Management is engaged, press the top of the Speed Control switch (Item 2) [Figure 69] to increase the speed up to 99% [SPD 99] or the bottom of the switch (Item 3) [Figure 69] to decrease the speed down to 1% [SPD 01]. The percentages will appear in the display (Items 2, 3 and 4) [Figure 70].

Press button (Item 1) [Figure 69] again to disengage Speed Management and return to Standard Travel Speed. [STD] (Item 5) [Figure 70] will appear in the display.

The system will retain the speed percentage as long as the loader remains ON.

EXAMPLE: You can be using the machine at 40% and then disengage Speed Management to reposition the loader, then re-engage Speed Management. The speed percentage will still be at 40%.

EXAMPLE: Turning the key OFF or pressing the STOP button will return the Speed Management setting to default. The next time you start the engine and engage Speed Management, the speed will be at 57% (factory default setting) or the last default setting saved by the operator. (See Changing The Factory Default Setting on Page 63.)

NOTE: Two-Speed Loaders Only - You must disengage Speed Management before you can select high range.

SPEED MANAGEMENT (CONT'D)

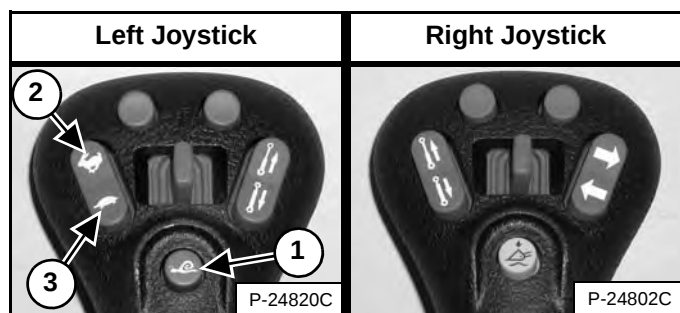
Changing The Factory Default Setting

The Speed Management factory default setting can be changed by the operator to save adjustment time.

EXAMPLE: Your machine is often used for trenching and you prefer a Speed Management setting of 28% of Standard Travel Speed for that application. The Speed Management default setting can be changed to 28% of Standard Travel Speed instead of the factory default setting of 57%. Each time you start the machine and first select Speed Management, the machine will default to 28% of Standard Travel Speed.

Engage Speed Management. (See Operation on Page 62.)

Figure 71



Adjust the speed percentage higher (Item 2) or lower (Item 3) [Figure 71] by pressing the Speed Control switch until the desired default setting is displayed.

Press and hold the button (Item 1) [Figure 71] on the left joystick to save the default setting.

Figure 72



The alarm will beep once, display [SET ##] [Figure 72] (## will be the percentage you selected) and remain in Speed Management mode.

Pressing the button (Item 1) [Figure 71] on the left joystick or turning the machine off will disengage Speed Management and return the loader to Standard Travel Speed.

When Speed Management is first selected each time the machine is started, the percentage you selected will be the default setting. Speed Management can still be adjusted from 1% to 99% of Standard Travel Speed.

The default setting can be changed any time the operator chooses.

DRIVE RESPONSE

Drive Response is available on SJC equipped machines.

Description

Drive Response changes how responsive (more or less) the loaders drive and steering systems are when the operator moves the joystick(s).

Drive Response can be changed by the operator for different drive response preferences and various job conditions and attachment use.

NOTE: Changes to drive response do not affect braking or stopping the loader.

There are three drive response settings:

- **[DR-1]** provides a smooth responsive reaction to joystick movement. (Drive only)
- **[DR-2]** is the default setting and provides a normal responsive reaction to joystick movement. (Drive only)
- **[DR-3]** provides a quick responsive reaction to joystick movement. (Drive only)

Operation

NOTE: Changes CANNOT be performed until the seat bar is lowered, the engine is started and the PRESS TO OPERATE LOADER button is pressed to activate the BICS™.

Perform PRE-STARTING PROCEDURE and STARTING THE ENGINE procedures:

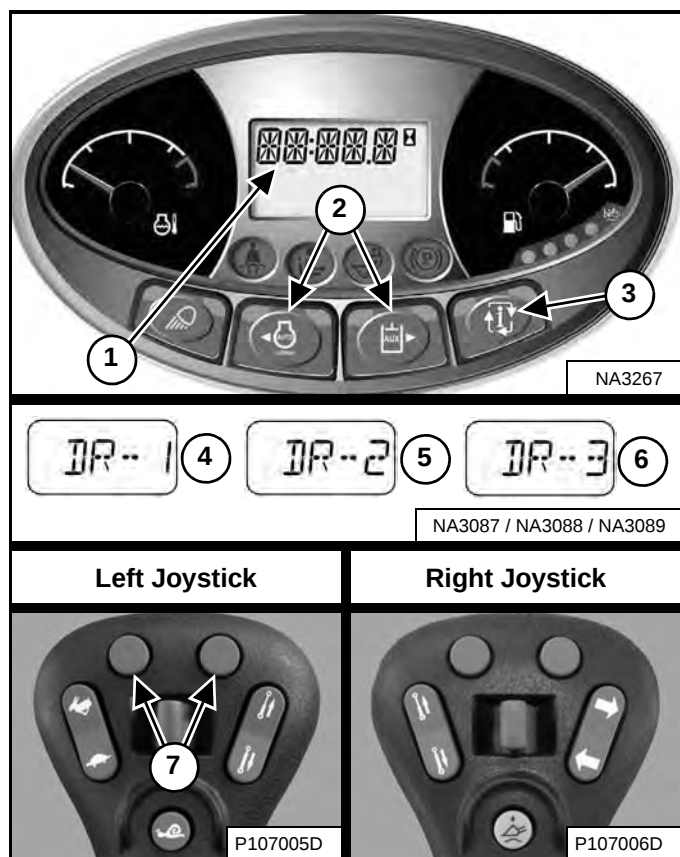
1. Fasten seat belt.
2. Lower seat bar.
3. Place joysticks in NEUTRAL position.
4. Start the engine.
5. Press the PRESS TO OPERATE LOADER button.
6. Current drive response setting will be displayed briefly in the data display.

NOTE: Raising the seat bar or changing control mode (ISO / H) will cause the machine to disengage from drive response. The last displayed setting will remain in effect until the machine is turned OFF.

DRIVE RESPONSE (CONT'D)

Operation (Cont'd)

Figure 73



Press the Information button (Item 3) to cycle the data display until the drive response menu is displayed. The current drive response setting will appear in the data display (Item 1) [Figure 73].

Press the left or right scroll button (Item 2) [Figure 73] on the left panel to adjust the setting. Adjustments to the drive response are effective immediately.

OR

Press the left or right button (Item 7) [Figure 73] on the left joystick to adjust the setting. Adjustments to the drive response are effective immediately.

Press the left scroll button on the left panel or the left button on the left joystick to scroll down through the three drive response settings (Items 4, 5, and 6). Press the right scroll button on the left panel or the right button of the left joystick to scroll up through the three drive response settings (Items 4, 5, and 6) [Figure 73].

Saving The Drive Response Setting:

The current drive response setting can be saved by pressing the Information button (Item 3) [Figure 73] to exit from the drive response adjustment menu.

OR

If no buttons are pressed for 10 seconds, the drive response setting will be saved and the display screen will change to the hourmeter.

NOTE: Machines equipped with a Deluxe Instrumentation Panel will save the drive response setting for each user. Example: If user 1 saves the setting [DR-2], the machine will be in [DR-2] the next time user 1 password is entered.

STEERING DRIFT COMPENSATION

Steering Drift Compensation is available on SJC equipped machines.

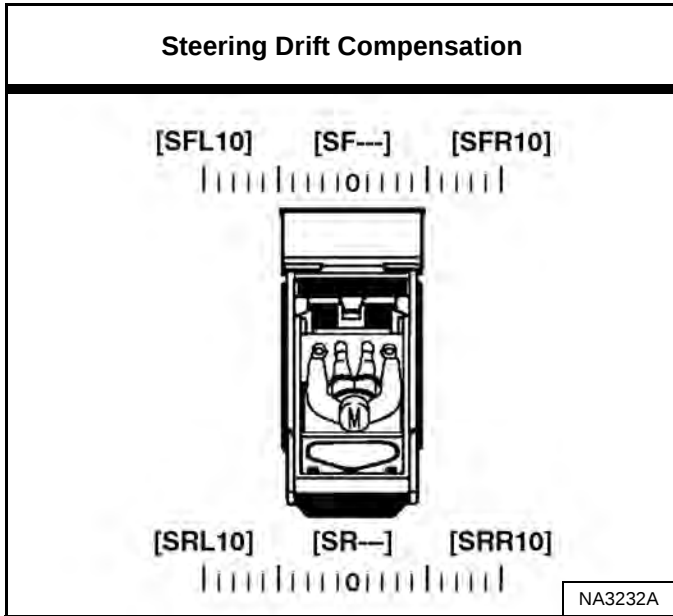
Description

Steering Drift Compensation can be used to reduce steering drift to maintain a desired travel path in both forward and reverse directions.

Examples of applications where this feature can be used:

- To compensate for normal variations such as tire inflation pressure, track tension, tire wear and track wear.
- Using side shift attachments such as trenchers, planers and silt fence installers.
- Driving on uneven terrain such as crowned road surfaces.

Figure 74



Steering drift compensation contains a total of 21 settings. Steering drift compensation can be set to any point from NEUTRAL to [SFL10] or [SRL10] left, and from NEUTRAL to [SFR10] or [SRR10] right. [SF---] or [SR---] is displayed when set for NEUTRAL [Figure 74].

Operation

NOTE: Changes CANNOT be performed until the seat bar is lowered, the engine is started and the PRESS TO OPERATE LOADER button is pressed to activate the BICS™.

Perform PRE-STARTING PROCEDURE and STARTING THE ENGINE procedures:

1. Fasten seat belt.
2. Lower seat bar.
3. Place joysticks in NEUTRAL position.
4. Start the engine.
5. Press the PRESS TO OPERATE LOADER button.
6. Current drive response setting will be displayed briefly in the data display.

NOTE: Raising the seat bar or changing control mode (ISO / H) will cause the machine to disengage from steering drift compensation. The last displayed setting will remain in effect until the machine is turned OFF.

STEERING DRIFT COMPENSATION (CONT'D)

Operation (Cont'd)

Figure 75



Press the Information button (Item 3) to cycle the data display until the steering drift compensation menu is displayed. The current steering drift compensation setting will appear in the data display (Item 1) [Figure 75].

Press the left or right scroll button (Item 2) [Figure 75] on the left panel to adjust the setting. Adjustments to steering drift compensation are effective immediately and saved automatically.

OR

Press the left or right button (Item 7) [Figure 75] on the left control to adjust the setting. Adjustments to the steering drift compensation are effective immediately and saved automatically.

Press the left scroll button on the left panel or the left button on the left control to adjust the machine left. [SFL01] (Item 4) through a maximum of [SFL10] will appear in the data display (Item 1) [Figure 75]. The number will increase by one each time you press the button. The higher the number, the greater the amount of steering drift compensation to the left.

Press the right scroll button on the left panel or the right button on the left control to adjust the machine back toward center. The display will decrease down to NEUTRAL displayed as [SF---] (Item 5). Another press of the upper right button will cause [SFR01] (Item 6) to appear in the data display (Item 1) [Figure 75]. The number will increase by one each time you press the button up to a maximum of [SFR10]. The higher the number, the greater the amount of steering drift compensation to the right.

Forward steering drift compensation setting can be adjusted with the steering controls in NEUTRAL or during forward travel. Reverse steering drift compensation setting can be adjusted during reverse travel. The letter [R] will appear in place of the letter [F] in the data display when setting reverse steering drift compensation. (EXAMPLES: [SRL01], [SRR01], and [SR---].)

Exiting The Steering Drift Compensation Menu:

Press the Information button (Item 3) [Figure 75] to exit from the steering drift compensation adjustment menu.

OR

If no buttons are pressed for 10 seconds, the display screen will change to the hourmeter.

LIFT AND TILT COMPENSATION

Lift and Tilt Compensation is available on ACS and SJC equipped machines.

NOTE: Software version 79.8 or higher is required to support this feature. The software version can be viewed on the display screen using the lights button. (See Left Panel (Earlier Models) (Cont'd) on Page 33.) or (See Left Panel (Later Models) (Cont'd) on Page 35.) See your Bobcat dealer to update your machine software version if necessary.

Description

Lift and Tilt Compensation can be used to adjust the lift and tilt control sensitivity. This enables the operator to increase or decrease the amount of control movement before lift up, lift down, tilt back, and tilt out begins. The operator can change each setting to their preference.

EXAMPLE: Your machine is being used with a mower attachment. The mower slowly lowers because you move the controls slightly when passing over extremely rough ground. Adjusting the lift down control to a low setting will provide an increased NEUTRAL band and allow for more control movement before the lift arms move.

The procedure that follows provides a starting point for the lift and tilt control compensation. Operators can adjust the settings to account for attachment weight, engine rpm and application.

Operation

NOTE: Lift and Tilt Compensation should be performed when the machine has been warmed to operating temperature and any attachment has been removed.

Perform PRE-STARTING PROCEDURE and STARTING THE ENGINE procedures:

1. Fasten seat belt.
2. Lower seat bar and engage the parking brake.
3. Place handles or joysticks in NEUTRAL position.
4. Start the engine.
5. **(ACS)** - Select hand control operation.

OR

(SJC) - Select 'H' control pattern.

6. Press the PRESS TO OPERATE LOADER button.
7. Raise the lift arms about 1 m (3 ft) off the ground and tilt the Bob-Tach frame forward about 300 mm (1 ft).
8. Raise and lower the seat bar to engage the interlocks and enable the procedure to be performed.
9. Increase engine speed to high idle.
10. Continue with the correct procedure for your machine. (See Operation (ACS) on Page 69.) or (See Operation (SJC) on Page 70.)

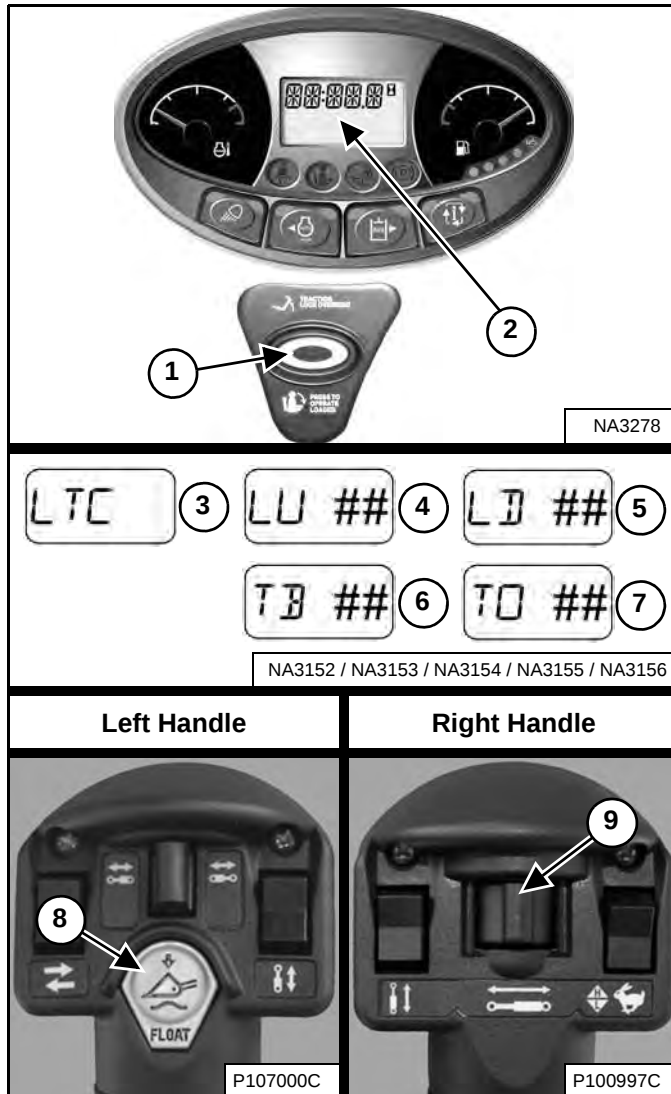
NOTE: When the procedure has begun, raising the seat bar will cause the machine to disengage from lift and tilt compensation. Changes made to the lift and tilt compensation settings will NOT be saved.

LIFT AND TILT COMPENSATION (CONT'D)

Operation (ACS)

This procedure is described using hand controls. The procedure can be performed using foot pedals on ACS equipped loaders.

Figure 76



LTC - Lift and Tilt Compensation

LU - Lift Up

LD - Lift Down

TB - Tilt Back

TO - Tilt Out

1. Press and hold the float button (Item 8). Press the PRESS TO OPERATE LOADER button (Item 1). Release both buttons. This will open the lift and tilt compensation menu. [LTC] (Item 3) will appear in the data display (Item 2) [Figure 76].

2. Move the left handle outward and hold. [LU ##] (Item 4) will appear in the data display. (## will indicate the current setting.) Move the switch (Item 9) [Figure 76] to the right repeatedly until a slight upward movement of the lift arms is noticed. The setting will increase by one each time the switch is moved. The available range of adjustment is -25 to 35.

NOTE: If the lift arms begin to move immediately, move the switch (Item 9) [Figure 76] to the left repeatedly until lift arm movement stops, then move the switch to the right repeatedly until a slight upward movement of the lift arms is noticed. (This procedure also applies to the next three steps.)

3. Move the left handle inward and hold. [LD ##] (Item 5) will appear in the data display. Move the switch (Item 9) [Figure 76] to the right repeatedly until a slight downward movement of the lift arms is noticed.
4. Move the right handle inward and hold. [TB ##] (Item 6) will appear in the data display. Move the switch (Item 9) [Figure 76] to the right repeatedly until a slight backward tilt movement of the Bob-Tach frame is noticed.
5. Move the right handle outward and hold. [TO ##] (Item 7) will appear in the data display. Move the switch (Item 9) [Figure 76] to the right repeatedly until a slight forward tilt movement of the Bob-Tach frame is noticed.

Saving The Lift And Tilt Compensation Setting:

The current lift and tilt compensation setting can be saved by pressing the PRESS TO OPERATE LOADER button (Item 1) [Figure 76]. The machine will exit from the lift and tilt compensation menu.

OR

Raise and lower the seat bar to exit from the lift and tilt compensation menu without saving. This will cancel all changes made. Press the PRESS TO OPERATE LOADER button (Item 1) [Figure 76] to continue machine operation.

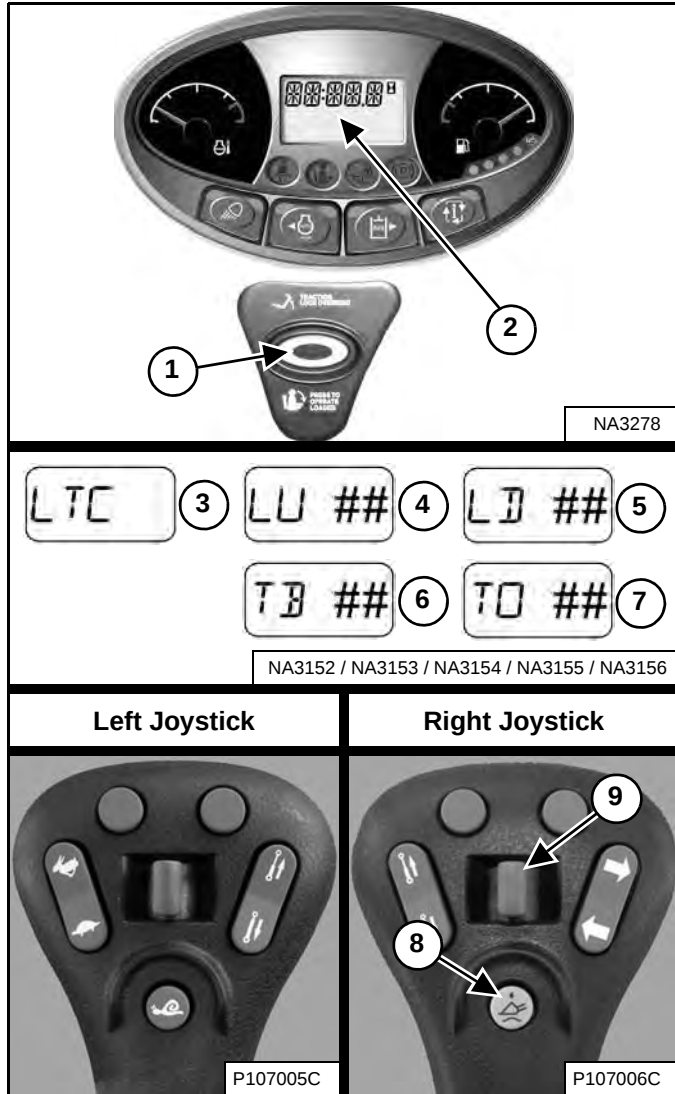
Perform several lift and tilt functions to determine if the settings match your preferences. Repeat procedure if desired.

LIFT AND TILT COMPENSATION (CONT'D)

Operation (SJC)

This procedure is described using the 'H' control pattern. The procedure can be performed using the 'ISO' control pattern on SJC equipped loaders.

Figure 77



LTC - Lift and Tilt Compensation

LU - Lift Up

LD - Lift Down

TB - Tilt Back

TO - Tilt Out

1. Press and hold the float button (Item 8). Press the PRESS TO OPERATE LOADER button (Item 1). Release both buttons. This will open the lift and tilt compensation menu. [LTC] (Item 3) will appear in the data display (Item 2) [Figure 77].

2. Move the left joystick outward and hold. [LU ##] (Item 4) will appear in the data display. (## will indicate the current setting.) Move the switch (Item 9) [Figure 77] to the right repeatedly until a slight upward movement of the lift arms is noticed. The setting will increase by one each time the switch is moved. The available range of adjustment is -25 to 35.

NOTE: If the lift arms begin to move immediately, move the switch (Item 9) [Figure 77] to the left repeatedly until lift arm movement stops, then move the switch to the right repeatedly until a slight upward movement of the lift arms is noticed. (This procedure also applies to the next three steps.)

3. Move the left joystick inward and hold. [LD ##] (Item 5) will appear in the data display. Move the switch (Item 9) [Figure 77] to the right repeatedly until a slight downward movement of the lift arms is noticed.
4. Move the right joystick inward and hold. [TB ##] (Item 6) will appear in the data display. Move the switch (Item 9) [Figure 77] to the right repeatedly until a slight backward tilt movement of the Bob-Tach frame is noticed.
5. Move the right joystick outward and hold. [TO ##] (Item 7) will appear in the data display. Move the switch (Item 9) [Figure 77] to the right repeatedly until a slight forward tilt movement of the Bob-Tach frame is noticed.

Saving The Lift And Tilt Compensation Setting:

The current lift and tilt compensation setting can be saved by pressing the PRESS TO OPERATE LOADER button (Item 1) [Figure 77]. The machine will exit from the lift and tilt compensation menu.

OR

Raise and lower the seat bar to exit from the lift and tilt compensation menu without saving. This will cancel all changes made. Press the PRESS TO OPERATE LOADER button (Item 1) [Figure 77] to continue machine operation.

Perform several lift and tilt functions to determine if the settings match your preferences. Repeat procedure if desired.

HYDRAULIC CONTROLS

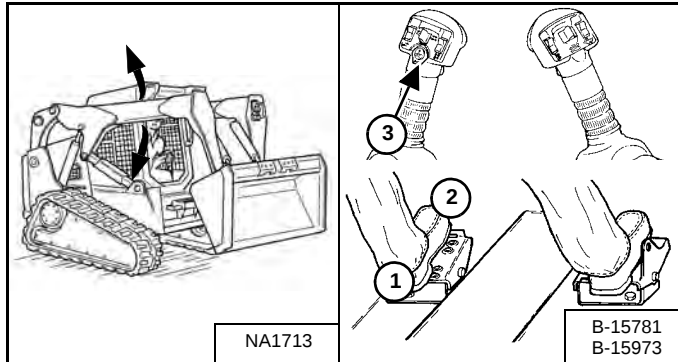
Description

Two foot pedals (or optional hand controls or optional joysticks) control the hydraulic cylinders for the lift and tilt functions.

Put your feet on the pedals (or footrests) and **KEEP THEM THERE** any time you operate the loader.

Standard Controls (Also ACS In FOOT Pedal Mode)

Figure 78



Lift Arm Operation - (Left Pedal)

Push the heel (Item 1) **[Figure 78]** of the pedal to raise the lift arms.

Push the toe (Item 2) **[Figure 78]** of the pedal to lower the lift arms.

Lift Arm Float Position - (Left Pedal)

Push the toe (Item 2) **[Figure 78]** 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.

Lift Arm Float Position (With ACS) - (Left Pedal And Left Handle)

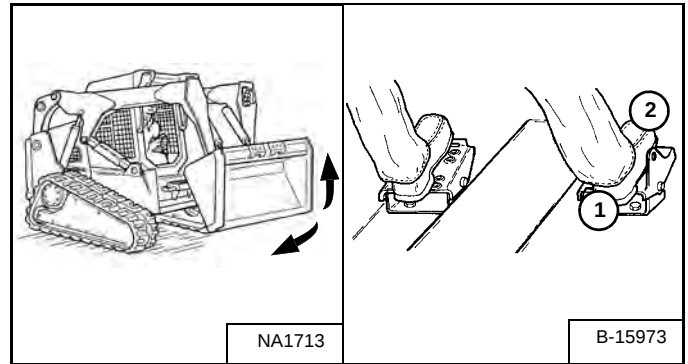
Press and hold the Float button (Item 3) **[Figure 78]**.

Push the toe (Item 2) **[Figure 78]** of the pedal forward to lower the lift arms. Then release the float button.

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 79



Tilt Operation - (Right Pedal)

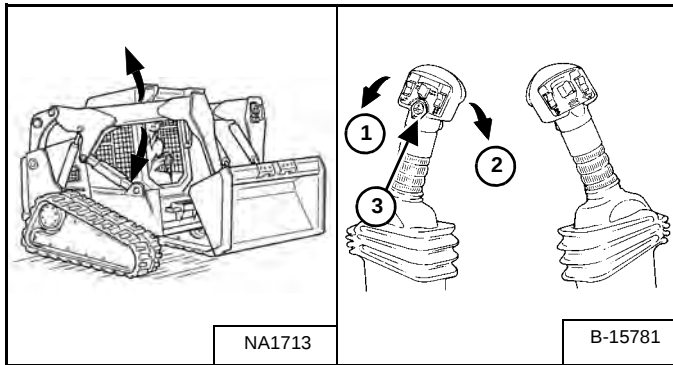
Push the heel (Item 1) **[Figure 79]** of the pedal to tilt the bucket backward.

Push the toe (Item 2) **[Figure 79]** of the pedal to tilt the bucket forward.

HYDRAULIC CONTROLS (CONT'D)

Advanced Control System (ACS) In HAND Control Mode

Figure 80



Lift Arm Operation - (Left Hand Lever)

Move the lever outward (Item 1) **[Figure 80]** to raise the lift arms.

Move the lever inward (Item 2) **[Figure 80]** to lower the lift arms.

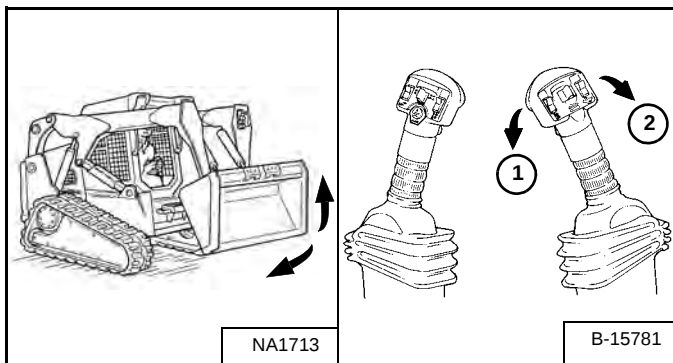
Lift Arm Float Position - (Left Hand Lever)

Press and hold the Float button (Item 3) **[Figure 80]** while the lever is in NEUTRAL. Move the lever to lift arm down position (Item 2) **[Figure 80]**, then release the button.

Press Float button (Item 3) **[Figure 80]** again or move the lever to lift arm up position to disengage.

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

Figure 81



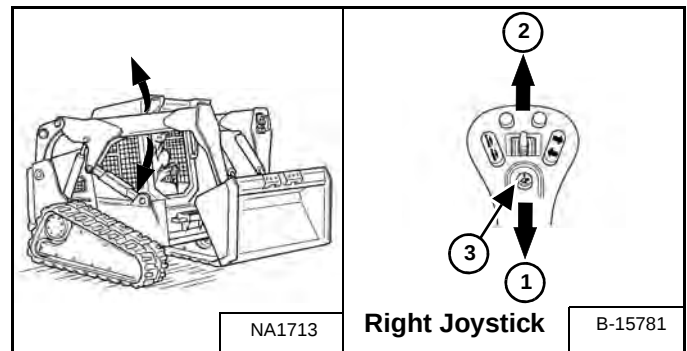
Tilt Operation - (Right Hand Lever)

Move the lever inward (Item 1) **[Figure 81]** to tilt the bucket backward.

Move the lever outward (Item 2) **[Figure 81]** to tilt the bucket forward.

Selectable Joystick Controls (SJC) In 'ISO' Control Pattern

Figure 82



Lift Arm Operation - (Right Hand Joystick)

Move the joystick backward (Item 1) **[Figure 82]** to raise the lift arms.

Move the joystick forward (Item 2) **[Figure 82]** to lower the lift arms.

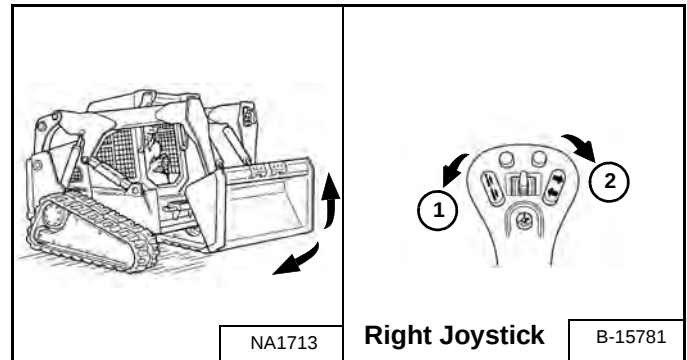
Lift Arm Float Position - (Right Hand Joystick)

Press and hold the Float button (Item 3) **[Figure 82]** while the joystick is in NEUTRAL. Move the joystick to lift arm down position (Item 2) **[Figure 82]**, then release the button.

Press Float button (Item 3) again or move the joystick to lift arm up position (Item 1) **[Figure 82]** to disengage.

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

Figure 83



Tilt Operation - (Right Hand Joystick)

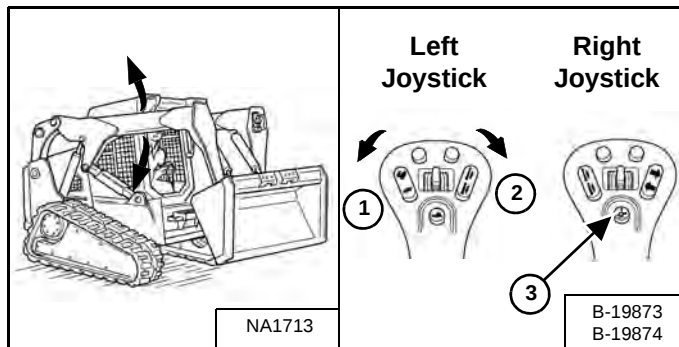
Move the joystick inward (Item 1) **[Figure 83]** to tilt the bucket backward.

Move the joystick outward (Item 2) **[Figure 83]** to tilt the bucket forward.

HYDRAULIC CONTROLS (CONT'D)

Selectable Joystick Controls (SJC) In 'H' Control Pattern

Figure 84



Lift Arm Operation - (Left Hand Joystick)

Move the joystick outward (Item 1) [Figure 84] to raise the lift arms.

Move the joystick inward (Item 2) [Figure 84] to lower the lift arms.

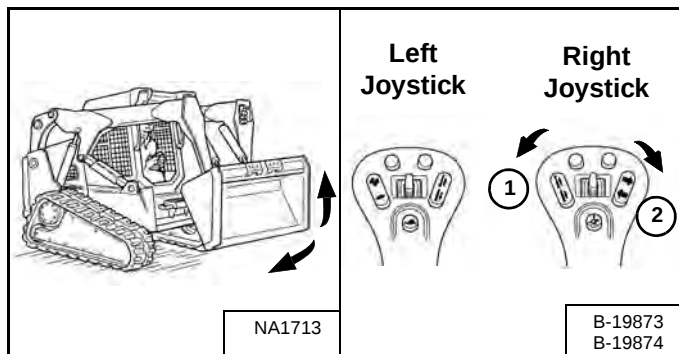
Lift Arm Float Position - (Left And Right Hand Joysticks)

Press and hold the Float button (Item 3) [Figure 84] while the joysticks are in NEUTRAL. Move the left joystick to lift arm down position (Item 2) [Figure 84], then release the button.

Press Float button (Item 3) [Figure 84] again or move the left joystick to lift arm up position to disengage.

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

Figure 85



Tilt Operation - (Right Hand Joystick)

Move the joystick inward (Item 1) [Figure 85] to tilt the bucket backward.

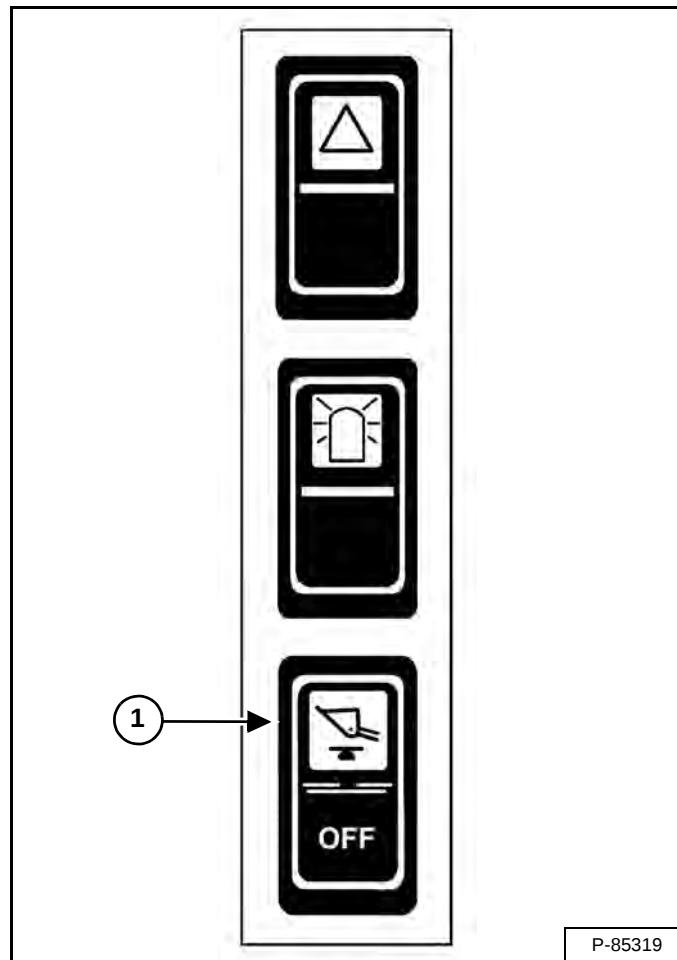
Move the joystick outward (Item 2) [Figure 85] to tilt the bucket forward.

Hydraulic Bucket Positioning

This machine may be equipped with Hydraulic Bucket Positioning.

The function of hydraulic bucket positioning is to keep the bucket at the same approximate angle as the lift arms are raised.

Figure 86



Press the top of the BUCKET POSITIONING switch (Item 1) [Figure 86] on the left switch panel to engage the bucket positioning function. The amber light in the switch will turn on. Press the bottom of the switch to disengage. The amber light will turn off.

Bucket positioning functions only during upward lift cycle.

HYDRAULIC CONTROLS (CONT'D)

FRONT Auxiliary Hydraulics Operation

Figure 87

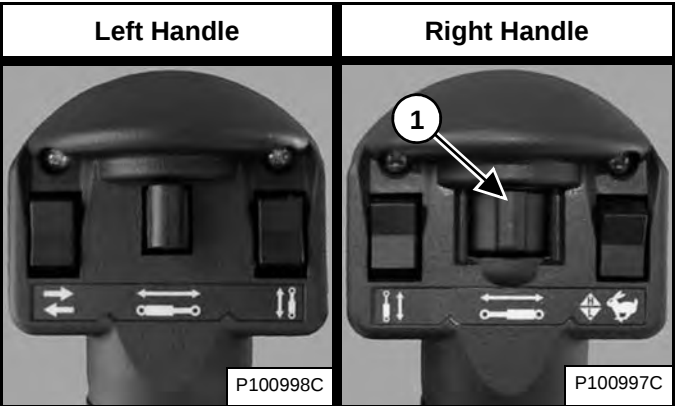


Press the Auxiliary Hydraulics button (Item 2) [Figure 87] once to activate the auxiliary hydraulics.

The light (Item 1) [Figure 87] is ON.

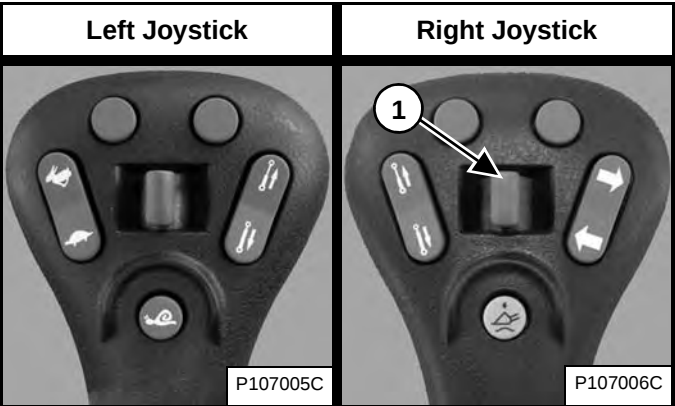
Standard And ACS (If Equipped)

Figure 88



SJC (If Equipped)

Figure 89



Move the Front Auxiliary Hydraulic switch (Item 1) [Figure 88] or [Figure 89] to the right or left to change direction of the auxiliary hydraulic fluid flow to the front quick couplers. If you move the switch halfway, the auxiliary functions move at approximately one-half speed. (EXAMPLE: Open and close grapple teeth.)

Release the Front Auxiliary Hydraulic switch to stop hydraulic fluid flow to the front quick couplers.

Loaders Without High-Flow Hydraulics

To deactivate the auxiliary hydraulics, press the Auxiliary Hydraulics button (Item 2) [Figure 87] again.

Loaders With High-Flow Hydraulics

To deactivate the auxiliary hydraulics, press the Auxiliary Hydraulics button (Item 2) [Figure 87] two times.

All Loaders

The light (Item 1) [Figure 87] is OFF.

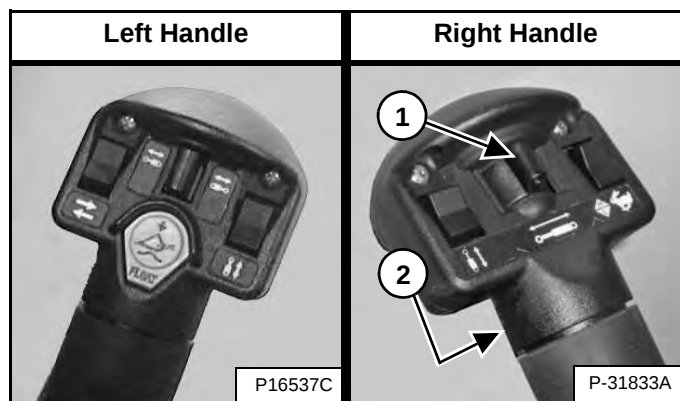
NOTE: When the operator is seated and raises the seat bar, the Auxiliary Hydraulic System (Front and Rear) will deactivate.

HYDRAULIC CONTROLS (CONT'D)

FRONT Auxiliary Hydraulics Operation (CONTINUOUS FLOW)

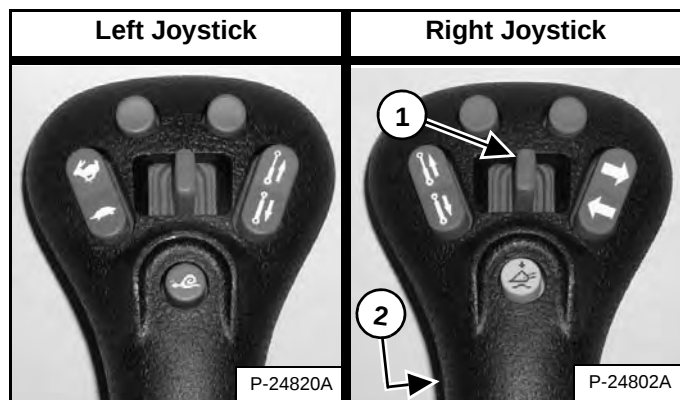
Standard And ACS (If Equipped)

Figure 90



SJC (If Equipped)

Figure 91



After activating the auxiliary hydraulics, press the continuous flow control switch (Item 2) [Figure 90] or [Figure 91] to allow constant auxiliary hydraulic oil flow to the front female coupler (female coupler is pressurized). (EXAMPLE: Operate a backhoe.)

To stop continuous auxiliary hydraulic oil flow, press the continuous flow control switch (Item 2) [Figure 90] or [Figure 91] a second time.

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

FRONT Auxiliary Hydraulics Operation (REVERSE CONTINUOUS FLOW)

To allow constant auxiliary hydraulic oil flow to the front male coupler (male coupler is pressurized):

1. Activate the auxiliary hydraulics.
2. Move the front auxiliary hydraulic switch (Item 1) [Figure 90] or [Figure 91] to the left and hold it there.
3. Press the continuous flow control switch (Item 2) [Figure 90] or [Figure 91].
4. Release the front auxiliary hydraulic switch.

NOTE: Reverse flow can cause damage to some attachments. Use reverse flow with your attachment only if approved. See your attachment Operation & Maintenance Manual for detailed information.

To stop reverse continuous auxiliary hydraulic oil flow, press the continuous flow control switch (Item 2) [Figure 90] or [Figure 91] a second time.

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

HYDRAULIC CONTROLS (CONT'D)

REAR Auxiliary Hydraulics Operation

This machine may be equipped with Rear Auxiliary Hydraulics.

Figure 92



Press the Auxiliary Hydraulics button (Item 2) **[Figure 92]** once to activate the auxiliary hydraulics.

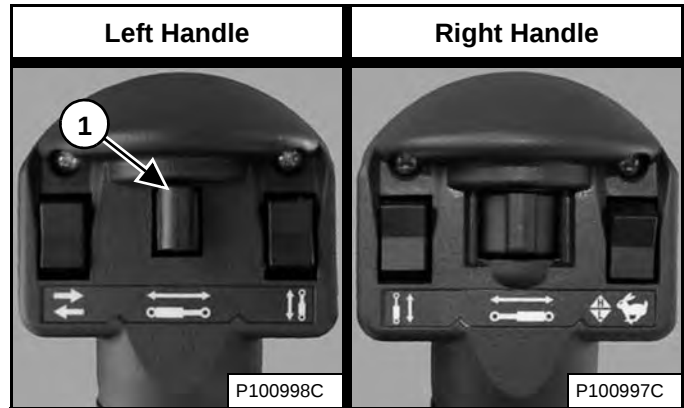
The light (Item 1) **[Figure 92]** is ON.

Figure 93



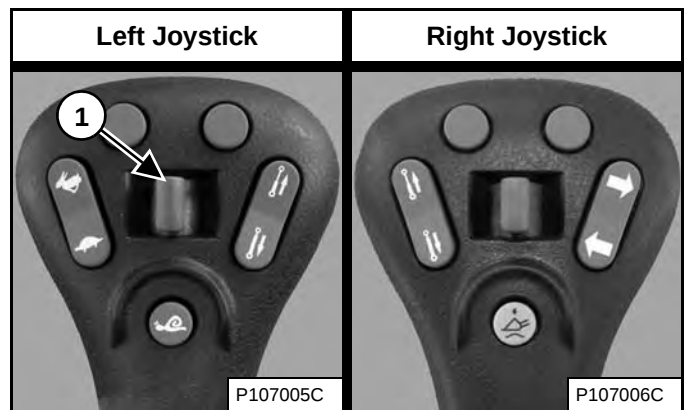
Standard And ACS (If Equipped)

Figure 94



SJC (If Equipped)

Figure 95



Move the Rear Auxiliary Hydraulic switch (Item 1) **[Figure 94]** or **[Figure 95]** to the right or left to change direction of the auxiliary hydraulic fluid flow to the rear quick couplers **[Figure 93]**. (EXAMPLE: Raise and lower rear stabilizers.) Release the switch to stop fluid flow.

Loaders Without High-Flow Hydraulics

To deactivate the auxiliary hydraulics, press the Auxiliary Hydraulics button (Item 2) **[Figure 92]** again.

Loaders With High-Flow Hydraulics

To deactivate the auxiliary hydraulics, press the Auxiliary Hydraulics button (Item 2) **[Figure 92]** two times.

All Loaders

The light (Item 1) **[Figure 92]** is OFF.

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

HYDRAULIC CONTROLS (CONT'D)

High-Flow Hydraulics Operation

This machine may be equipped with High-Flow Hydraulics.

The High-Flow function provides additional hydraulic fluid flow to the system to operate an attachment that requires more hydraulic flow. (EXAMPLE: High-Flow Planer)

Figure 96



Press the Auxiliary Hydraulics button (Item 2) once to activate the auxiliary hydraulics. The light (Item 1) [Figure 96] is ON.

Press the Auxiliary Hydraulics button (Item 2) a second time to activate high-flow auxiliary hydraulics. Both lights (Items 1 and 3) are ON. [HIFLO] (Item 4) [Figure 96] will appear briefly in the data display.

Press the Auxiliary Hydraulics button (Item 2) a third time to deactivate auxiliary hydraulics. Both lights (Items 1 and 3) [Figure 96] are OFF.

Attachments That Automatically Enable High-Flow Hydraulics:

Press button once to activate auxiliary hydraulics and high-flow, both lights are ON; second button press will deactivate high-flow hydraulics, right light is OFF; third button press will deactivate auxiliary hydraulics, both lights are OFF.

Attachments That Automatically Disable High-Flow Hydraulics:

Press button once to activate auxiliary hydraulics, left light is ON; second button press will not activate high-flow hydraulics, right light is ON briefly and turns OFF; third button press will deactivate auxiliary hydraulics, both lights are OFF.

NOTE: See attachment Operation & Maintenance Manual for more information.

Quick Couplers

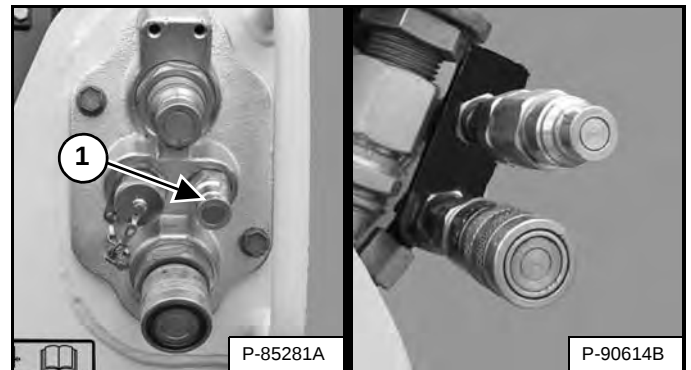
WARNING

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

Figure 97



To Connect: Remove dirt or debris from the surface of the male and female couplers, and from the outside diameter of the male couplers. Visually check the couplers for corroding, cracking, damage, or excessive wear. If any of these conditions exist, the coupler(s) [Figure 97] must be replaced.

Install the male couplers into the female couplers. Full connection is made when the ball release sleeves slide forward on the female couplers. Some attachments may have a case drain that needs to be connected to the small quick coupler (Item 1) [Figure 97].

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

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

HYDRAULIC CONTROLS (CONT'D)

Relieve Auxiliary Hydraulic Pressure (Loader And Attachment)

! 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.

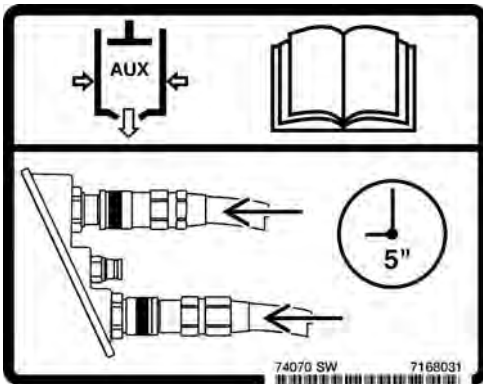
W-2220-0396

! 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



Front Auxiliary Quick Couplers

When Connecting: Push the quick couplers tightly together and hold for five seconds; the pressure is automatically relieved as the couplers are installed.

When Disconnecting: Push the quick couplers tightly together and hold for five seconds; then retract the sleeves until the couplers disconnect.

Rear Auxiliary Quick Couplers

Put the attachment flat on the ground.

Stop the engine and turn the key to RUN or press the RUN button.

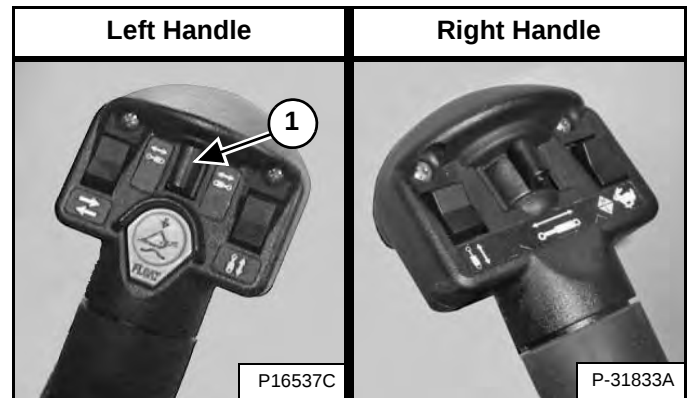
Figure 98



Press the auxiliary hydraulics button (Item 1) [Figure 98].

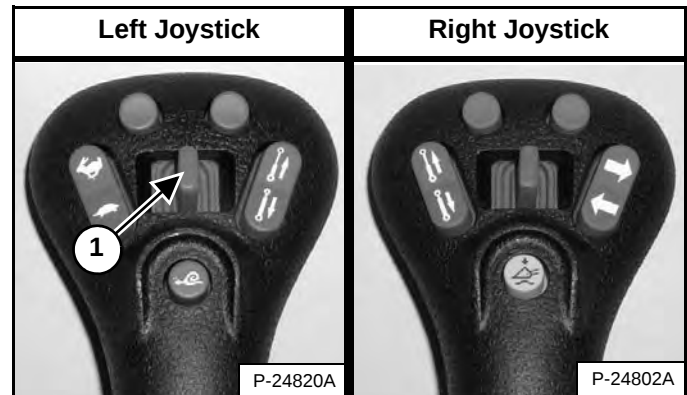
Standard And ACS (If Equipped)

Figure 99



SJC (If Equipped)

Figure 100



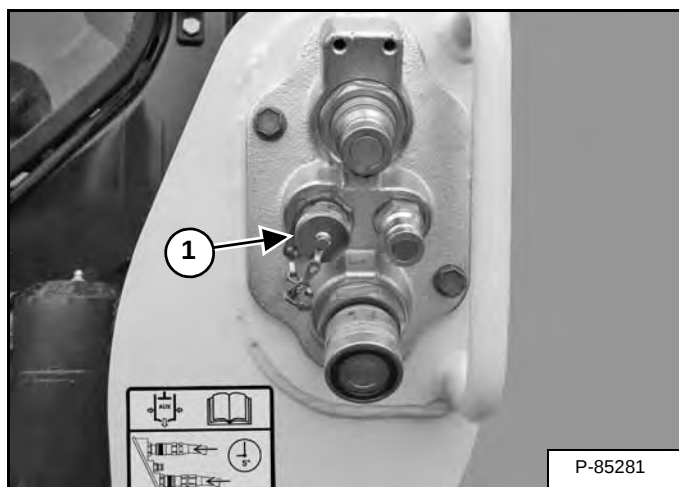
Move the rear auxiliary hydraulic switch (Item 1) [Figure 99] or [Figure 100] to the right and left several times.

ATTACHMENT CONTROL DEVICE (ACD)

This machine may be equipped with an Attachment Control Device.

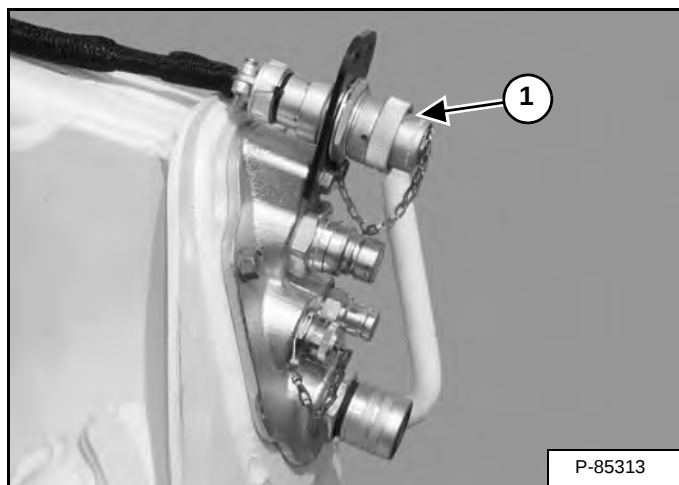
Description

Figure 101



Connect the attachments electrical harness to the attachment control device (Item 1) [Figure 101].

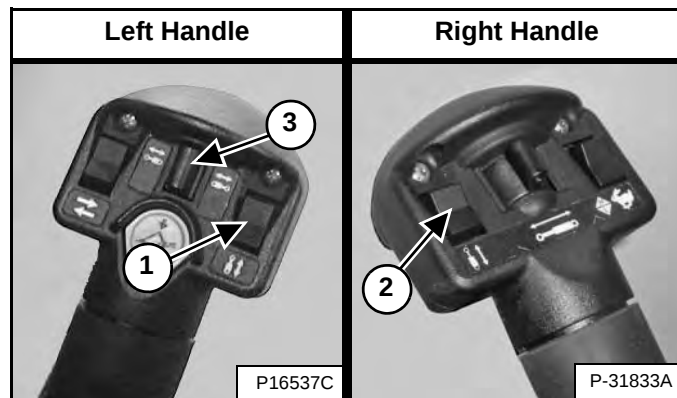
Figure 102



You will need the 14-Pin Attachment Control Device kit (Item 1) [Figure 102] to operate early model attachments. See your Bobcat loader dealer.

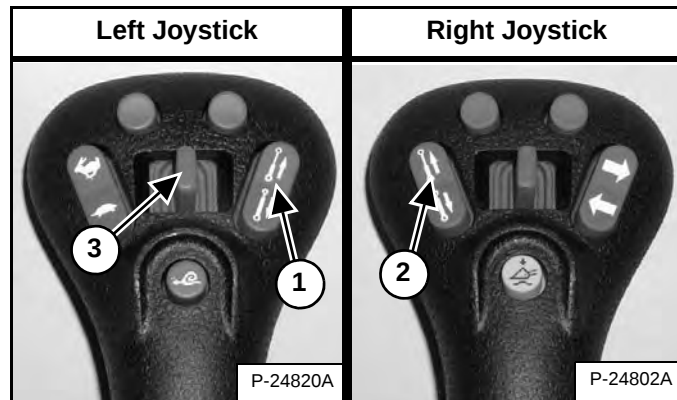
Standard And ACS (If Equipped)

Figure 103



SJC (If Equipped)

Figure 104



Additional switches (Items 1, 2 and 3) [Figure 103] or [Figure 104] on the right and left control handles or joysticks are used to control some attachment functions through the attachment control device.

NOTE: ACD takes over the function of auxiliary hydraulic switch (Item 3) [Figure 103] or [Figure 104] from Rear Auxiliary Hydraulics when an attachment electrical harness is attached to the ACD.

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

DAILY INSPECTION

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 Checklist And Schedule is a guide for correct maintenance of the Bobcat loader.

Figure 105



The Service Checklist And Schedule (Item 1) [Figure 105] is located inside the rear door of the loader and also in the Machine Sign Translation section of this manual. (See MACHINE SIGN TRANSLATIONS on Page 215.)

A chart format of the Service Checklist And Schedule is also available in the Preventive Maintenance section of this manual. (See SERVICE SCHEDULE on Page 127.)

WARNING

AVOID INJURY OR DEATH

- Keep door / cover 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 the machine 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 or air intake heater. 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 the machine engine last (never at the battery). After jump start, remove negative connection at the engine first.
- Exhaust gases can kill. Always ventilate.

W-2782-0409

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.

WARNING

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

W-2001-0502

DAILY INSPECTION (CONT'D)

Daily Inspection And Maintenance (Cont'd)

The following list of items must be checked daily:

- Engine Oil Level
- Hydraulic Fluid Level
- Engine Air Filter - Check System for Damage or Leaks
- Engine Cooling System - Check System for Damage or Leaks, Check Coolant Level, Clean Oil Cooler, Radiator and Rear Grille
- 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, Lift Links, Bob-Tach, Cylinders, Bob-Tach Wedges)
- Tracks - Check for Wear or Damage
- 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

IMPORTANT

This machine is factory equipped with a U.S.D.A. Forestry Service Approved spark arrester exhaust system that must be maintained for proper function.

- **WITH MUFFLER**
The muffler spark chamber must be emptied every 100 hours of operation to keep it in working condition.
- **WITH SELECTIVE CATALYST REDUCTION (SCR) AND / OR DIESEL OXIDATION CATALYST (DOC)**
Do not remove or modify the DOC or SCR.

The SCR must be maintained according to the instructions in the Operation & Maintenance Manual for proper function.

- **WITH DIESEL PARTICULATE FILTER (DPF)**
The DPF must be maintained according to the instructions in the Operation & Maintenance Manual for proper function.

(If this machine is operated on flammable forest, brush or grass cover land, the engine must be equipped with a spark arrester 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-2350-1114

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

PRE-STARTING PROCEDURE

Entering The Loader

Figure 106



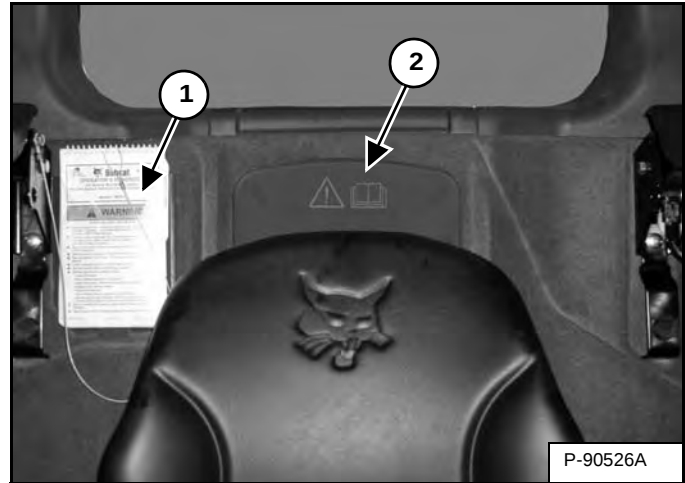
Use the bucket or attachment steps, grab handles, and safety treads (on the loader lift arms and frame) to get on and off the loader, maintaining a 3-point contact at all times **[Figure 106]**. Do not jump.

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

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

Operation & Maintenance Manual And Operator's Handbook Locations

Figure 107



Read and understand the Operation & Maintenance Manual and the Operator's Handbook (Item 1) **[Figure 107]** before operating the loader.

The Operation & Maintenance Manual and other manuals can be kept in a container (Item 2) **[Figure 107]** provided behind 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.

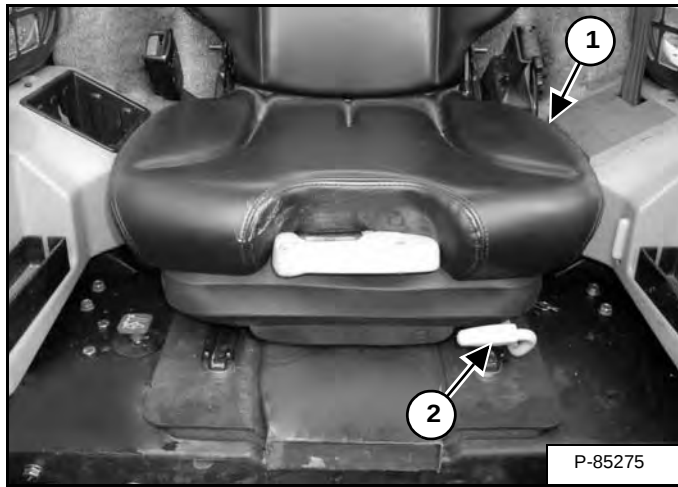
W-2003-0807

PRE-STARTING PROCEDURE (CONT'D)

Seat Adjustment

Suspension Seat

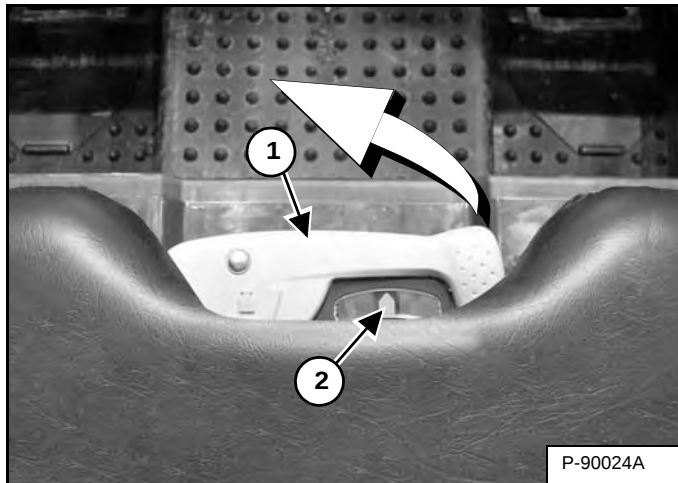
Figure 108



Pull the lever (Item 1) **[Figure 108]** up to adjust the angle of the seat back.

Pull the lever (Item 2) **[Figure 108]** up to adjust the seat position for comfortable operation of the loader controls.

Figure 109



The lever (Item 1) is used to adjust the suspension response of the seat depending on the operator's weight. The optimum setting is achieved with the needle (Item 2) **[Figure 109]** centered in the gauge with the operator normally seated.

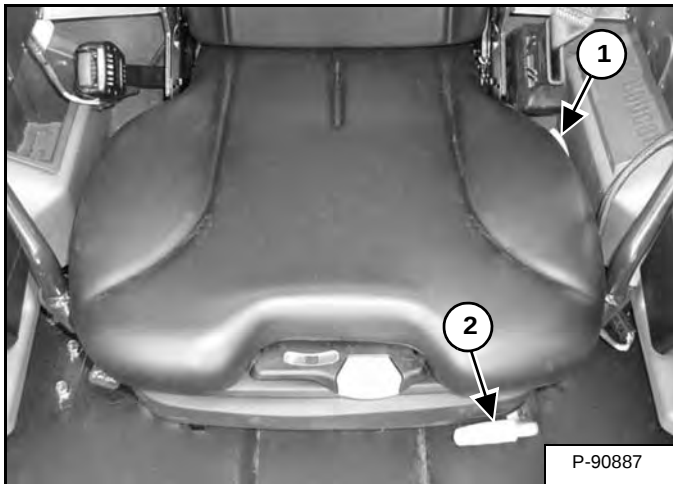
Pivot the lever out fully to adjust the setting. Pump lever between middle and upper positions to move the needle to the right. Pump lever between middle and lower positions to move the needle to the left. Return lever to the middle position and pivot lever back fully to lock in setting.

PRE-STARTING PROCEDURE (CONT'D)

Seat Adjustment (Cont'd)

Air Ride Suspension Seat (Option)

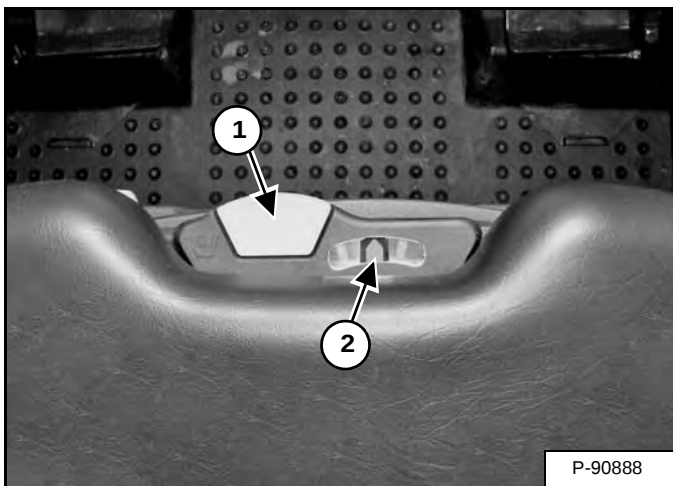
Figure 110



Pull the lever (Item 1) **[Figure 110]** up to adjust the angle of the seat back.

Pull the lever (Item 2) **[Figure 110]** up to adjust the seat position for comfortable operation of the loader controls.

Figure 111



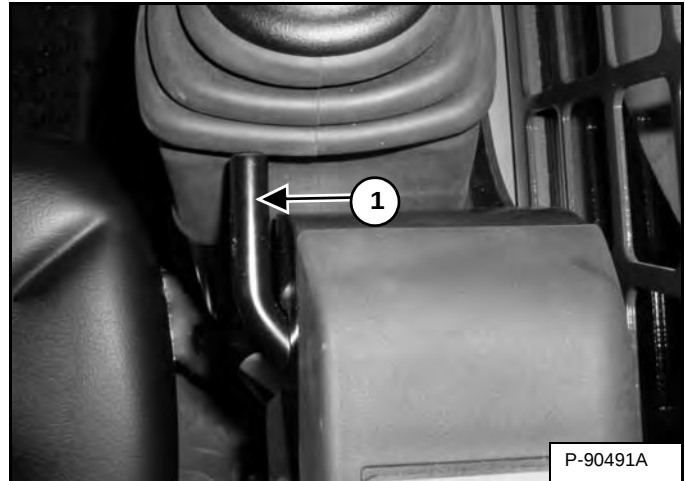
The lever (Item 1) is used to adjust the suspension response of the seat depending on the operator's weight. The optimum setting is achieved with the needle (Item 2) **[Figure 111]** centered in the gauge with the operator normally seated.

Pull the lever (Item 1) **[Figure 111]** up and hold to increase the amount of air in the seat suspension. Push the lever down and hold to decrease the amount of air in the seat suspension.

NOTE: The loader electrical system must be turned **ON** to increase the amount of air in the seat suspension.

Joystick Position Adjustment

Figure 112

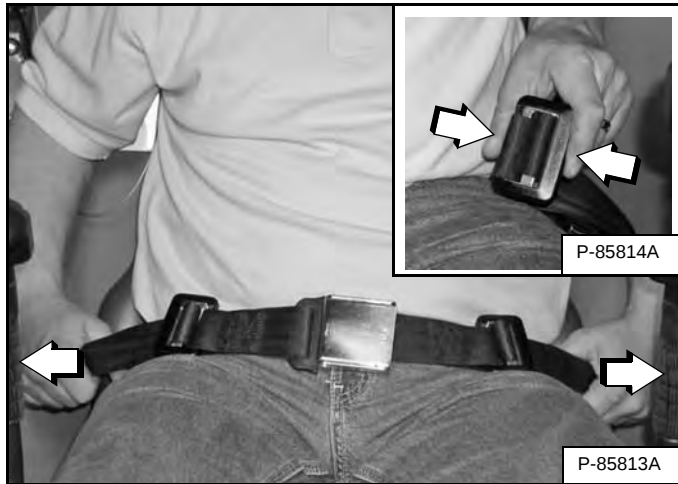


Pull the joystick adjustment levers (Item 1) **[Figure 112]** up to slide the loader joysticks forward or backward to adjust for comfortable operation. (Right side shown.)

PRE-STARTING PROCEDURE (CONT'D)

Seat Belt Adjustment

Figure 113

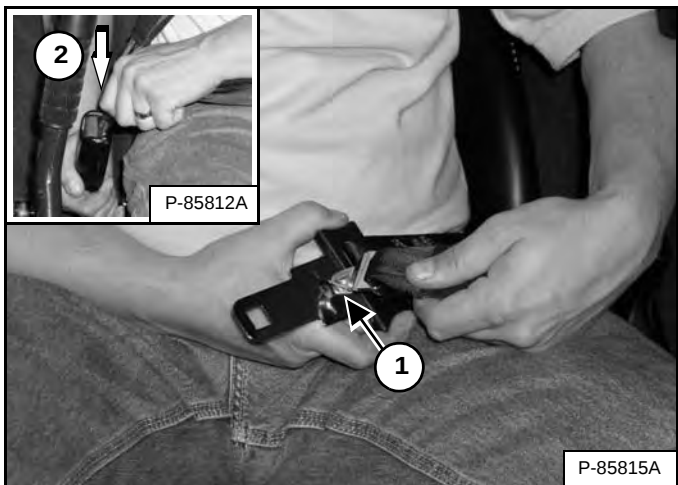


Squeeze both seat belt adjusters to release and lengthen each half of the seat belt (Inset) [Figure 113].

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 113].

Figure 114



3-Point Restraint - (Option and Loaders with Two-Speed)
Connect the shoulder belt to the lap belt (Item 1) [Figure 114]. Pull the lap belt across to the right side of the seat and fasten (Item 2) [Figure 114].

The shoulder belt must be positioned over your left shoulder and lap belt over your lower hips [Figure 114].

IMPORTANT

Check the seat belt and shoulder belt retractors for correct operation.

Keep retractors clean and replace as necessary.

I-2199-0200

Seat Bar

Figure 115



Lower the seat bar and engage the parking brake [Figure 115].

Put the foot pedals or hand controls in NEUTRAL position.

NOTE: Keep your hands on the steering levers and your feet on the foot pedals (or footrests) 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 or footrests and hands on the controls.

W-2261-0909

STARTING THE ENGINE

Standard Key Panel

! WARNING

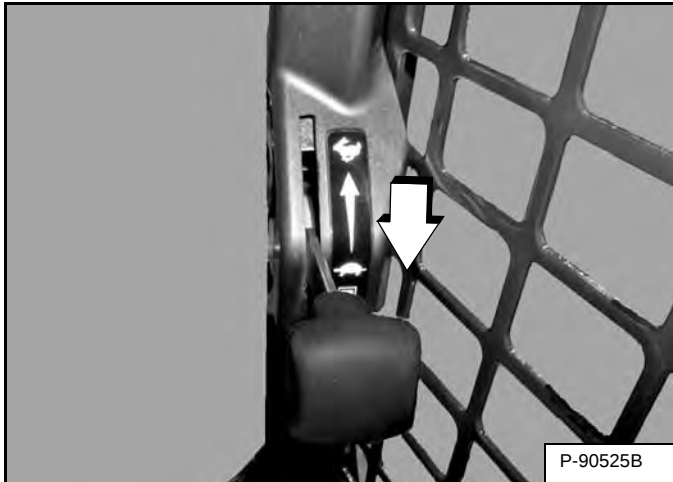
AVOID SERIOUS INJURY OR DEATH

- 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

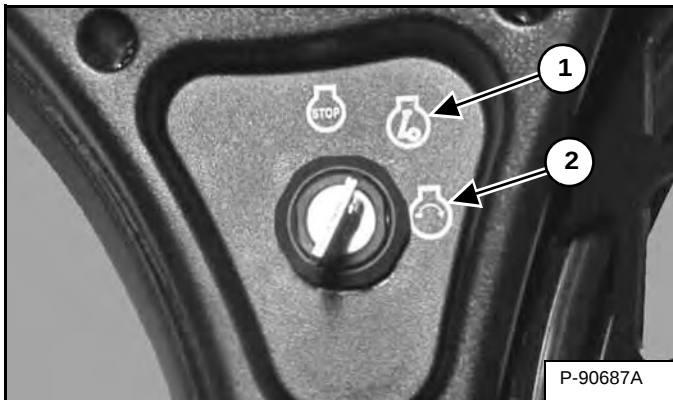
Perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 82.)

Figure 116



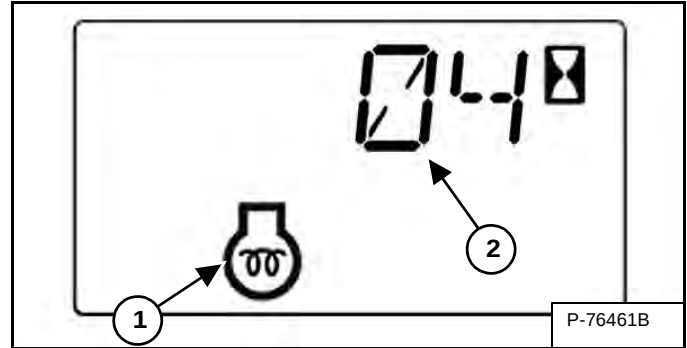
Set the engine speed control to the idle position [Figure 116].

Figure 117



Turn the key switch to RUN (Item 1) [Figure 117]. The indicator lights on the left instrument panel will come ON briefly and the Instrument Panel / monitoring system will do a self test.

Figure 118



The machine will cycle the air intake heater (glow plugs) automatically based on temperature. The engine preheat icon (Item 1) will be ON and the cycle time remaining will show in the data display (Item 2) [Figure 118].

When the engine preheat icon goes OFF, turn the key switch to START (Item 2). Release the key when the engine starts and allow it to return to the RUN position (Item 1) [Figure 117].

NOTE: Make sure both hand controls (ACS) or joysticks (SJC) are in the NEUTRAL position before starting the engine. Do not move the levers or joysticks from the NEUTRAL position when turning the key to RUN or START with the BICS™ activated.

! WARNING

AVOID INJURY OR DEATH

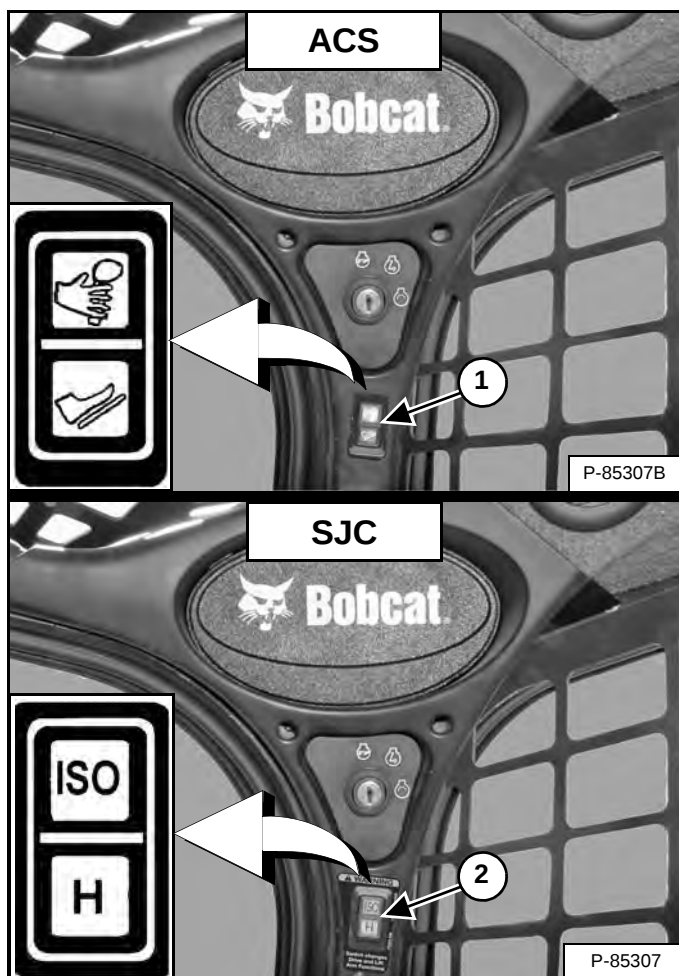
- Fasten seat belt, start and operate only from the operator's seat.
- Never wear loose clothing when working near machine.

W-2135-1108

STARTING THE ENGINE (CONT'D)

Standard Key Panel (Cont'd)

Figure 119



(ACS) Select hand control or foot pedal operation (Item 1) [Figure 119] if equipped with ACS.

OR

(SJC) Select 'ISO' or 'H' Control Pattern (Item 2) [Figure 119] if equipped with SJC.

Figure 120



Press the PRESS TO OPERATE LOADER button (Item 1) [Figure 120] to activate the BICS™ and to perform hydraulic and loader functions.

(SJC) The current drive response setting will be displayed briefly in the data display (Item 2) each time the PRESS TO OPERATE LOADER button (Item 1) [Figure 120] is pressed.

NOTE: (SJC) The light of the current switch position (ISO or H) will flash, which will indicate PRESS TO OPERATE LOADER is required. The light will flash when the key switch is ON and continue to flash until the PRESS TO OPERATE LOADER button is pressed, thereafter the light will become solid. If the mode (ISO / H) is changed while driving, the active mode light will remain solid and the pending mode light will flash. When operation of the machine is returned to NEUTRAL, the active mode light will then turn off and the pending mode light will continue to flash until the PRESS TO OPERATE LOADER button is pressed.

! 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

STARTING THE ENGINE (CONT'D)

Keyless Start Panel

WARNING

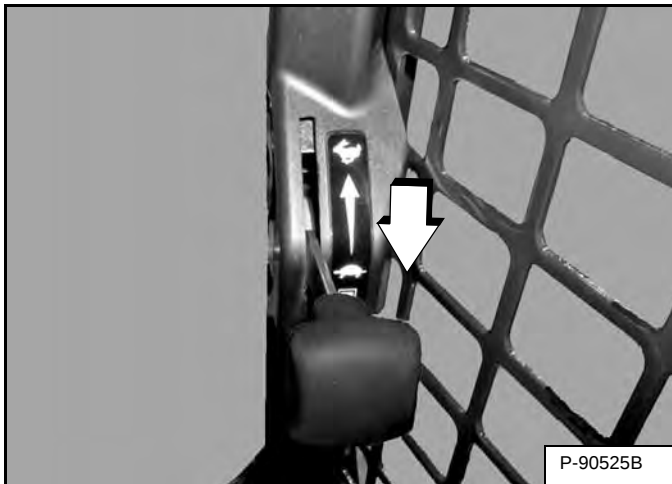
AVOID SERIOUS INJURY OR DEATH

- 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 82.)

Figure 121

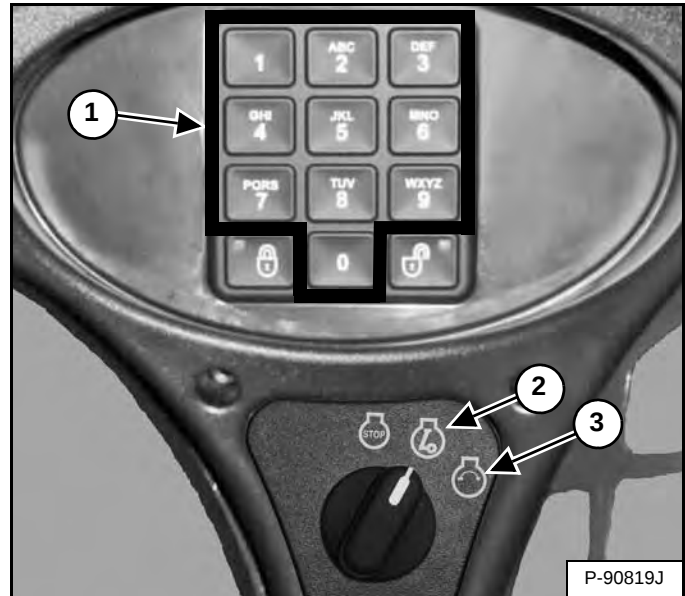


Set the engine speed control to the idle position [Figure 121].

NOTE: Loaders with a Keyless Start Panel have a permanent, randomly generated Master Password set at the factory. Your loader will also have an Owner Password. The owner password can be changed to prevent unauthorized use of your loader. (See Changing The Owner Password on Page 209.) Keep your password in a safe place for future needs.

NOTE: The Password Lockout feature can be used to allow starting of the loader without a password. (See Password Lockout Feature on Page 209.)

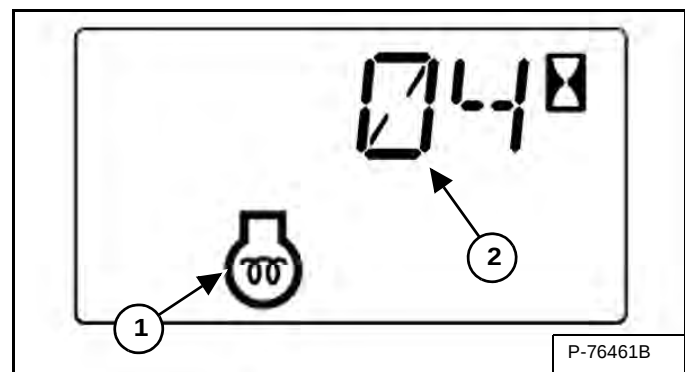
Figure 122



Turn the key switch to RUN (Item 2) [Figure 122]. The indicator lights on the left instrument panel will come ON briefly and the Instrument Panel / monitoring system will do a self test.

Use the numeric keypad (Item 1) [Figure 122] to enter the password.

Figure 123



The machine will cycle the air intake heater automatically based on temperature. The engine preheat icon (Item 1) will be ON and the cycle time remaining (Item 2) [Figure 123] will show in the data display.

When the engine preheat icon goes OFF, turn the key switch to START (Item 3). Release the switch when the engine starts and allow it to return to the RUN position (Item 2) [Figure 122].

STARTING THE ENGINE (CONT'D)

Keyless Start Panel (Cont'd)

NOTE: Make sure both hand controls (ACS) or joysticks (SJC) are in the NEUTRAL position before starting the engine. Do not move the levers or joysticks from the NEUTRAL position when turning the key switch to RUN or START with the BICS™ activated.

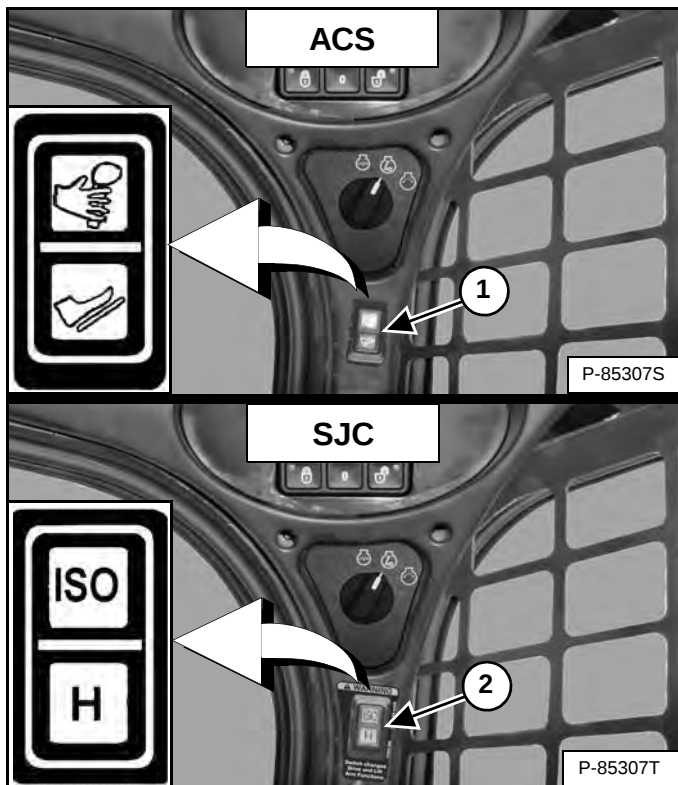
WARNING

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 124

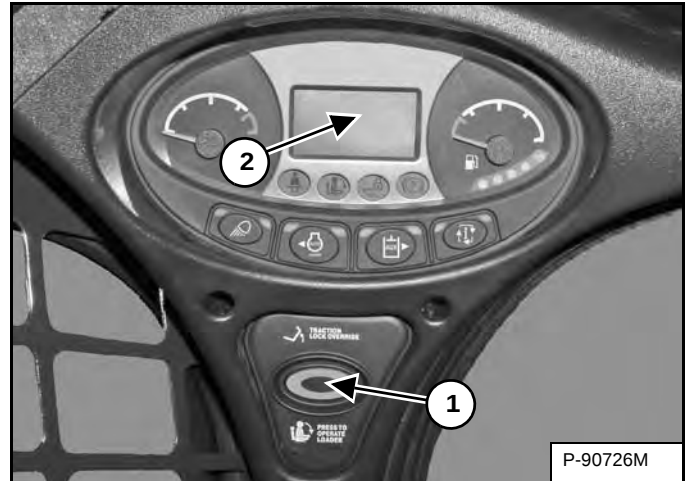


(ACS) Select hand control or foot pedal operation (Item 1) [Figure 124] if equipped with ACS.

OR

(SJC) Select 'ISO' or 'H' Control Pattern (Item 2) [Figure 124] if equipped with SJC.

Figure 125



Press the PRESS TO OPERATE LOADER button (Item 1) [Figure 125] to activate the BICS™ and to perform hydraulic and loader functions.

(SJC) The current drive response setting will be displayed briefly in the data display (Item 2) each time the PRESS TO OPERATE LOADER button (Item 1) [Figure 125] is pressed.

NOTE: (SJC) The light of the current switch position (ISO or H) will flash, which will indicate PRESS TO OPERATE LOADER is required. The light will flash when the key switch is ON and continue to flash until the PRESS TO OPERATE LOADER button is pressed, thereafter the light will become solid. If the mode (ISO / H) is changed while driving, the active mode light will remain solid and the pending mode light will flash. When operation of the machine is returned to NEUTRAL, the active mode light will then turn off and the pending mode light will continue to flash until the PRESS TO OPERATE LOADER button is pressed.

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

STARTING THE ENGINE (CONT'D)

Deluxe Instrumentation Panel

! WARNING

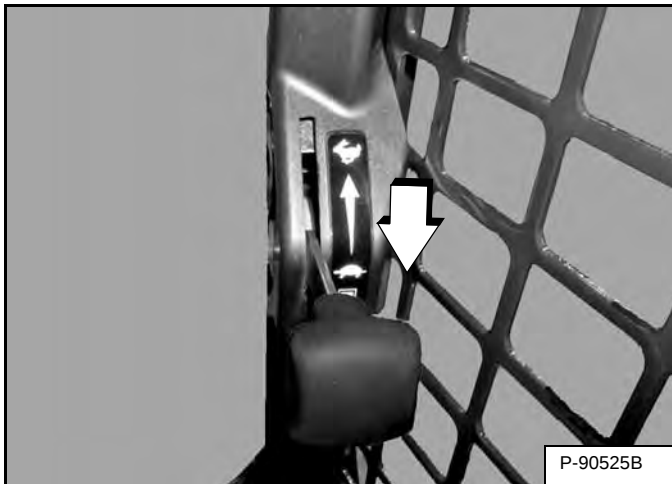
AVOID SERIOUS INJURY OR DEATH

- 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 82.)

Figure 126



Set the engine speed control to the idle position [Figure 126].

NOTE: Loaders with a Deluxe Instrumentation Panel have a permanent, randomly generated Master Password set at the factory. Your loader will also be assigned an Owner Password. Your dealer will provide you with this password. Change the owner password to one that you will easily remember to prevent unauthorized use of your loader. (See Changing The Owner Password on Page 210.) Keep your password in a safe place for future needs.

NOTE: The Password Lockout feature can be used to allow starting of the loader without a password. (See Password Lockout Feature on Page 211.)

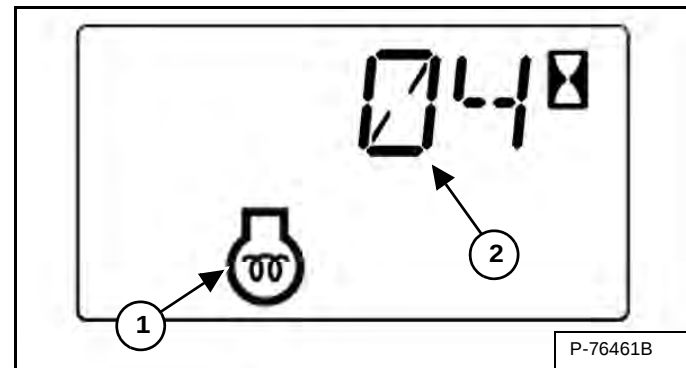
Figure 127



Turn the key switch to RUN (Item 2) [Figure 127]. The indicator lights on the left instrument panel will come ON briefly and the Instrument Panel / monitoring system will do a self test.

Use the numeric keypad (Item 1) [Figure 127] to enter the password.

Figure 128



The machine will cycle the air intake heater automatically based on temperature. The engine preheat icon (Item 1) will be ON and the cycle time remaining (Item 2) [Figure 128] will show in the data display.

When the engine preheat icon goes OFF, turn the key switch to START (Item 3). Release the switch when the engine starts and allow it to return to the RUN position (Item 2) [Figure 127].

STARTING THE ENGINE (CONT'D)

Deluxe Instrumentation Panel (Cont'd)

NOTE: Make sure both hand controls (ACS) or joysticks (SJC) are in the NEUTRAL position before starting the engine. Do not move the levers or joysticks from the NEUTRAL position when turning the key switch to RUN or START with the BICS™ activated.

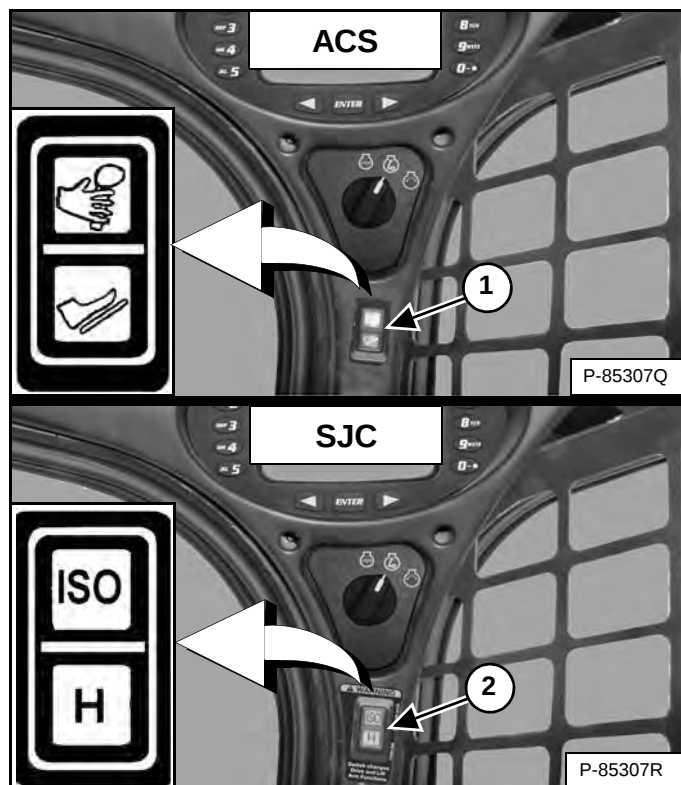
WARNING

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 129

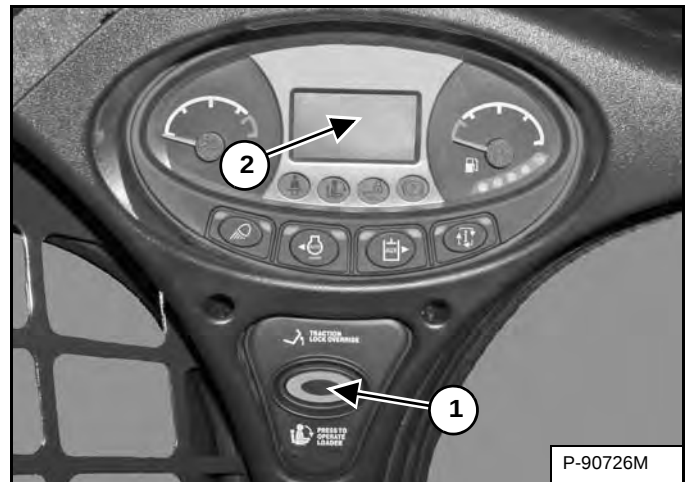


(ACS) Select hand control or foot pedal operation (Item 1) [Figure 129] if equipped with ACS.

OR

(SJC) Select 'ISO' or 'H' Control Pattern (Item 2) [Figure 129] if equipped with SJC.

Figure 130



Press the PRESS TO OPERATE LOADER button (Item 1) [Figure 130] to activate the BICS™ and to perform hydraulic and loader functions.

(SJC) The current drive response setting will be displayed briefly in the data display (Item 2) each time the PRESS TO OPERATE LOADER button (Item 1) [Figure 130] is pressed.

NOTE: (SJC) The light of the current switch position (ISO or H) will flash, which will indicate PRESS TO OPERATE LOADER is required. The light will flash when the key switch is ON and continue to flash until the PRESS TO OPERATE LOADER button is pressed, thereafter the light will become solid. If the mode (ISO / H) is changed while driving, the active mode light will remain solid and the pending mode light will flash. When operation of the machine is returned to NEUTRAL, the active mode light will then turn off and the pending mode light will continue to flash until the PRESS TO OPERATE LOADER button is pressed.

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

STARTING THE ENGINE (CONT'D)

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 152.)
- Make sure the battery is fully charged.
- Install an engine heater, available from your Bobcat
loader dealer.
- Move engine speed control lever halfway before
starting. Return to idle position after the engine starts.

NOTE: The display screen of the Deluxe
Instrumentation Panel may not be at full
intensity when the temperature is below -26°C
(-15°F). It may take 30 seconds to several
minutes for the display screen to warm up. All
systems remain monitored even when the
display screen is off.

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 five minutes to warm
the engine and hydrostatic transmission fluid before
operating the loader.

MONITORING THE DISPLAY PANELS

Left Panel

Figure 131



Frequently monitor the temperature and fuel gauges and BICS™ lights (all BICS™ lights must be OFF to operate loader) [Figure 131].

After the engine is running, frequently monitor the left instrument panel [Figure 131] for machine condition.

The associated icon will be ON if there is an error condition.

EXAMPLE: Engine Coolant Temperature is High.

The Engine Over-Temperature icon (Item 1) [Figure 131] will be ON.

Press the Information button (Item 2) [Figure 131] to cycle the data display until the service code screen is displayed. One of the following SERVICE CODES will be displayed.

- **M0810** Engine Coolant Temperature High
- **M0811** Engine Coolant Temperature Extremely High

Find the cause of the error code and correct before operating the loader again. (See Service Codes List on Page 200.)

Warning And Shutdown

When a WARNING condition exists, the associated icon light will come ON and there will be 3 beeps from the alarm. If this condition is allowed to continue, there may be damage to the engine or loader hydraulic systems.

When a SHUTDOWN condition exists, the associated icon light will come ON and there will be a continuous beep from the alarm. The monitoring system will automatically stop the engine in 15 seconds. The engine can be restarted to move or relocate the loader.

The SHUTDOWN feature is associated with the following icons:

General Warning
Engine Malfunction
Engine Coolant Temperature
Hydraulic System Malfunction

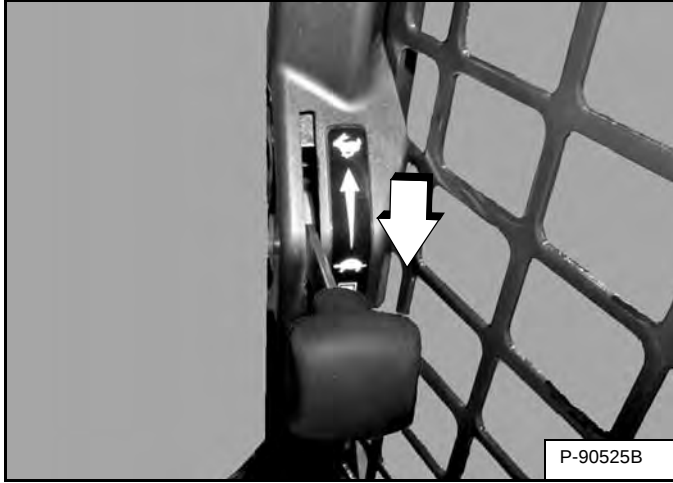
STOPPING THE ENGINE AND LEAVING THE LOADER

Procedure

Stop the loader on level ground.

Fully lower the lift arms and put the attachment flat on the ground.

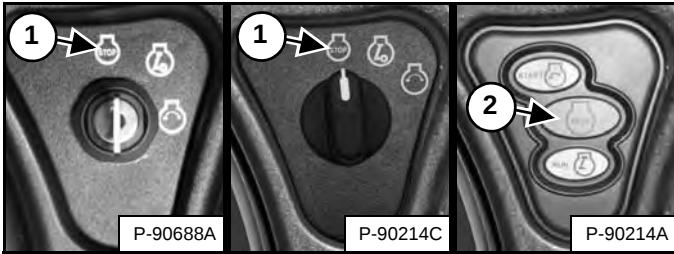
Figure 132



Push the engine speed control fully down [Figure 132] to decrease the engine speed.

Engage the parking brake.

Figure 133



Turn the key switch to the STOP position (Item 1) or press the STOP button (Item 2) [Figure 133].

NOTE: If the loader lights are ON, they will remain ON for approximately 90 seconds after turning the loader OFF.

Raise the seat bar and make sure the lift and tilt functions are deactivated.

Unbuckle the seat belt.

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

NOTE: Activating the Password Lockout Feature on machines with the Keyless Start Panel or the Deluxe Instrumentation Panel allows operation of the loader without using a password. (See Password Lockout Feature on Page 209.) or (See Password Lockout Feature on Page 211.)

Figure 134



Exit the loader using grab handles, safety tread and steps (maintaining a 3-point contact) [Figure 134].

WARNING

AVOID INJURY OR DEATH

Before you leave the operator's seat:

- Lower the lift arms and put the attachment flat on the ground.
- Stop the engine.
- Engage the parking brake.
- Raise the seat bar.
- Move all controls to the NEUTRAL / LOCKED position to make sure the lift, tilt and traction drive functions are deactivated.

The seat bar system must deactivate these functions when the seat bar is up. See your Bobcat dealer for service if controls do not deactivate.

W-2463-1110

COUNTERWEIGHTS

Description

Counterweights can be installed on the loader. See your Bobcat dealer for information about approved loader counterweights and configurations for your job application and attachment.

Effect On The Loader And Loader Operation

Proper operation of the loader and attachment does not change if counterweights are installed on this loader. Always follow the instructions provided in this manual when operating your loader with counterweights installed.

Counterweights installed on your loader can affect the loader and its operation in some applications. Some examples are:

- Increased machine weight.
- Increased Rated Operating Capacity (ROC).
- Harder steering.
- Accelerated or uneven track wear.
- Increased power consumption.

When To Consider Using Counterweights

Install counterweights to increase the loaders Rated Operating Capacity (ROC) which could improve attachment performance in some applications. Some examples are:

- Using pallet fork with palletized loads.
- Using grapples or bale fork.
- Using buckets to handle loose material without digging.

When To Consider Removing Counterweights

Remove counterweights to increase the downward force of the attachment for better attachment performance in some applications. Some examples are:

- Digging with buckets.
- Using Hydraulic Breakers, Scrapers or Landplanes.

Accessories That Affect Machine Weight

If your loader is already equipped with accessories like Water Tanks or Rear Stabilizers, installing counterweights may not be necessary.

See your Bobcat dealer for more information about the proper use of counterweights with approved attachments and accessories for your loader.

ATTACHMENTS

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.

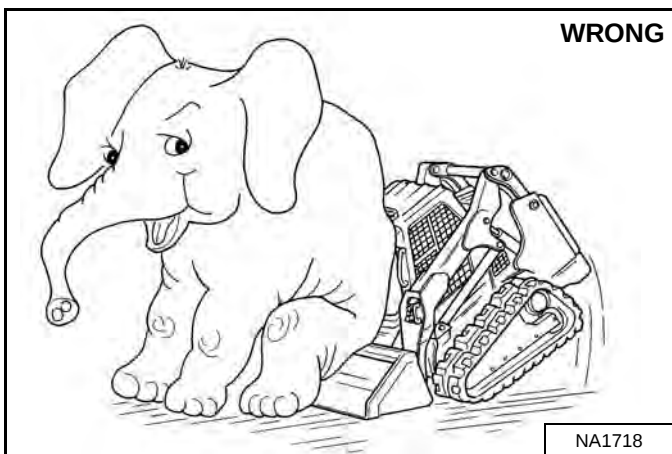
The dealer can identify, for each model loader, the attachments and buckets approved by Bobcat. The buckets and attachments are approved for Rated Operating Capacity (ROC) and for secure fastening to the Bob-Tach.

The ROC for this loader is shown on a decal in the operator cab. (See Performance on Page 232.)

NOTE: The ROC of a loader can be different depending on the undercarriage the loader is equipped with.

The ROC is determined by using a 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 135



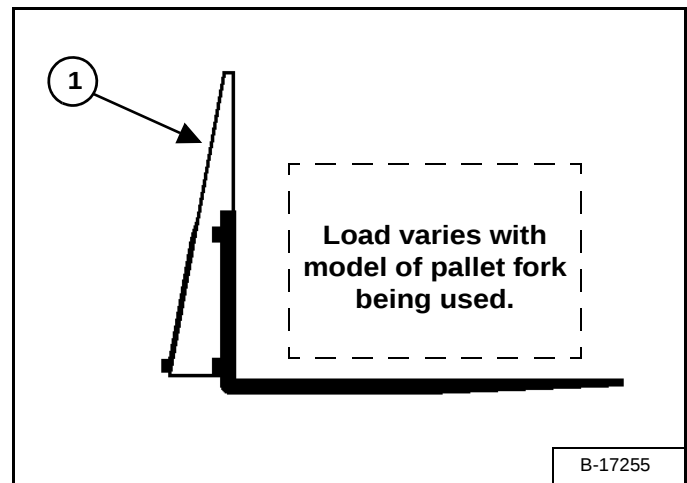
Exceeding the ROC [Figure 135] can cause the following problems:

- Steering the loader may be difficult.
- Tracks 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 Fork

Figure 136



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 136].

See your Bobcat dealer for more information about pallet fork inspection, maintenance and replacement. See your Bobcat 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

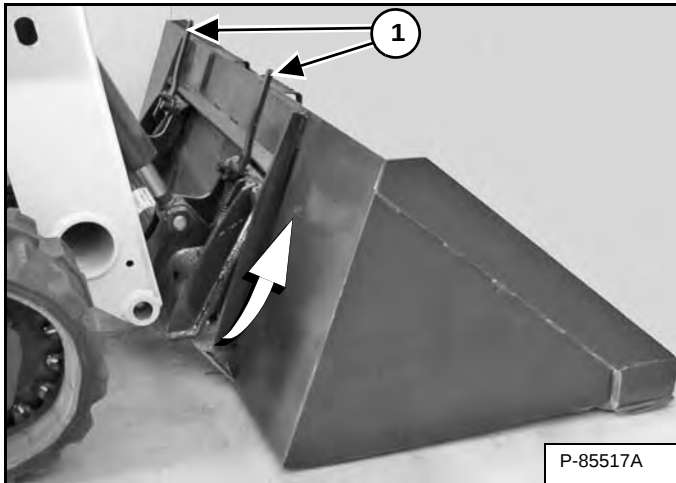
ATTACHMENTS (CONT'D)

Installing And Removing The Attachment (Hand Lever Bob-Tach)

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 137



Pull the Bob-Tach levers up until they are fully raised (wedges fully raised) (Item 1) [Figure 137].

Enter the loader and perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 82.)

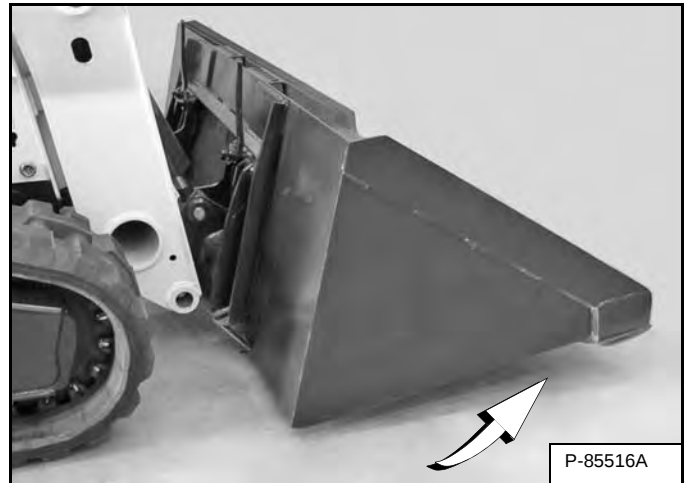
Start the engine, press the PRESS TO OPERATE LOADER button and release the parking brake.

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

Drive the loader slowly forward until the top edge of the Bob-Tach is completely under the top flange of the bucket mounting frame [Figure 137] (or other attachment).

NOTE: Be sure the Bob-Tach levers do not hit the attachment.

Figure 138



Tilt the Bob-Tach backward until the cutting edge of the bucket (or other attachment) is slightly off the ground [Figure 138]. This will cause the bucket mounting frame to fit up against the front of the Bob-Tach.

Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 94.)

WARNING

AVOID INJURY OR DEATH

Before you leave the operator's seat:

- Lower the lift arms and put the attachment flat on the ground.
- Stop the engine.
- Engage the parking brake.
- Raise the seat bar.
- Move all controls to the NEUTRAL / LOCKED position to make sure the lift, tilt and traction drive functions are deactivated.

The seat bar system must deactivate these functions when the seat bar is up. See your Bobcat dealer for service if controls do not deactivate.

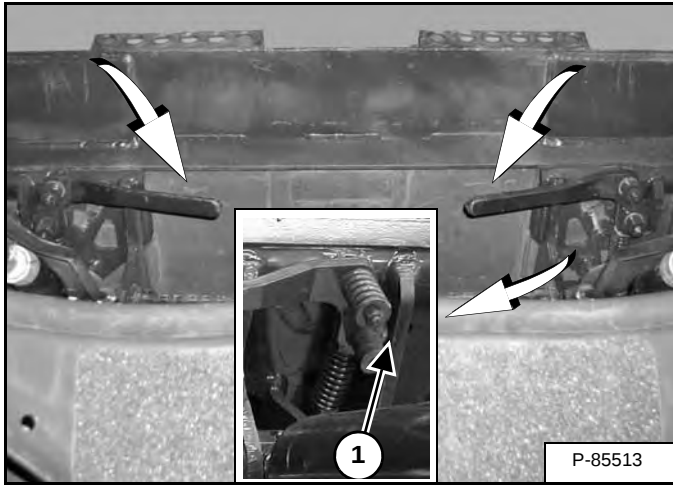
W-2463-1110

ATTACHMENTS (CONT'D)

Installing And Removing The Attachment (Hand Lever Bob-Tach) (Cont'd)

Installing (Cont'd)

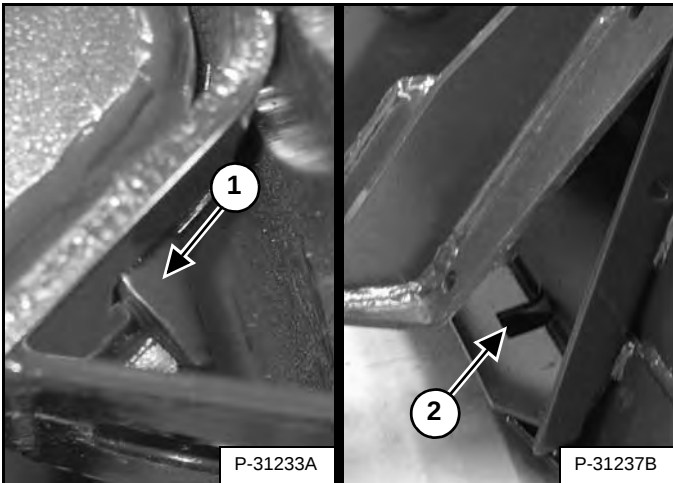
Figure 139



Push down on the Bob-Tach levers until they are fully engaged in the locked position (Item 1) **[Figure 139]** (wedges fully extended through the attachment mounting frame holes). Both levers must contact the frame as shown when locked (Item 1) **[Figure 139]**.

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

Figure 140



The wedges (Item 1) must extend through the holes (Item 2) **[Figure 140]** in the mounting frame of the bucket (or other attachment), securely fastening the bucket to the Bob-Tach.

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

Removing

Lower the lift arms and put the attachment flat on the ground. Lower or close any hydraulic equipment, if applicable.

Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 94.)

WARNING

AVOID INJURY OR DEATH

Before you leave the operator's seat:

- Lower the lift arms and put the attachment flat on the ground.
- Stop the engine.
- Engage the parking brake.
- Raise the seat bar.
- Move all controls to the NEUTRAL / LOCKED position to make sure the lift, tilt and traction drive functions are deactivated.

The seat bar system must deactivate these functions when the seat bar is up. See your Bobcat dealer for service if controls do not deactivate.

W-2463-1110

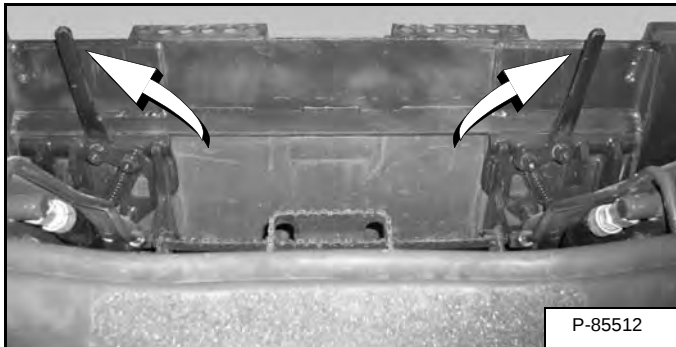
Disconnect attachment electrical harness, water line and hydraulic lines, if applicable, from the loader. (See Relieve Auxiliary Hydraulic Pressure (Loader And Attachment) on Page 78.)

ATTACHMENTS (CONT'D)

Installing And Removing The Attachment (Hand Lever Bob-Tach) (Cont'd)

Removing (Cont'd)

Figure 141



Pull the Bob-Tach levers up **[Figure 141]** until they are fully raised (wedges fully raised).

**WARNING**

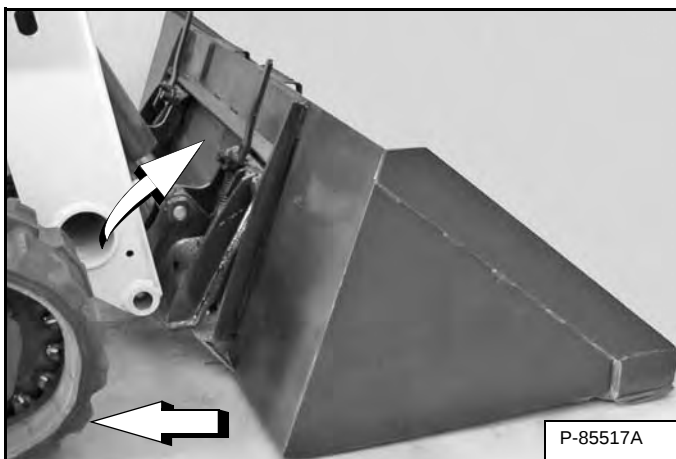
Bob-Tach levers have spring tension. Hold lever tightly and release slowly. Failure to obey warning can cause injury.

W-2054-1285

Enter the loader and perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 82.)

Start the engine, press the PRESS TO OPERATE LOADER button and release the parking brake.

Figure 142



Tilt the Bob-Tach forward and drive the loader backward, away from the bucket or attachment **[Figure 142]**.

Installing And Removing The Attachment (Power Bob-Tach)

This machine may be equipped with a Power Bob-Tach.

Installing

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

Enter the loader and perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 82.)

Start the engine, press the PRESS TO OPERATE LOADER button and release the parking brake.

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

Figure 143

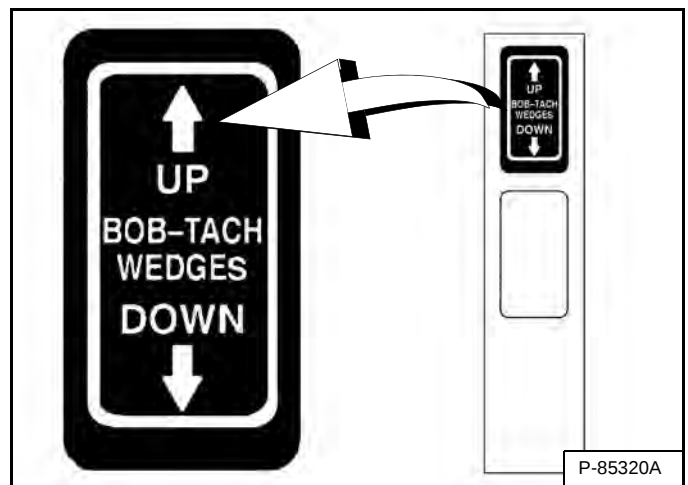
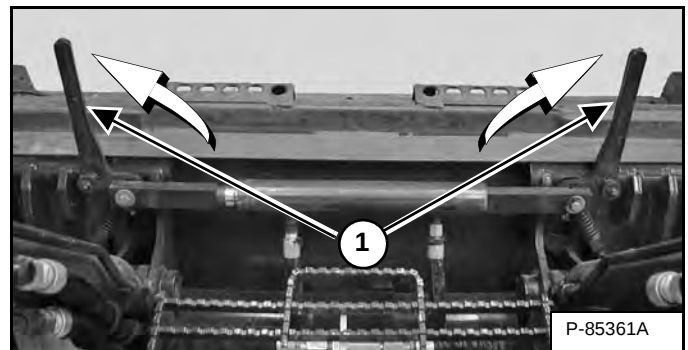


Figure 144



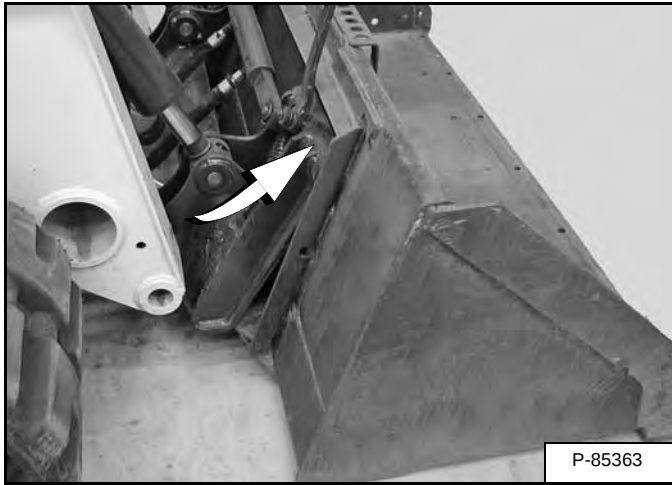
Push and hold BOB-TACH "WEDGES UP" switch (Right Switch Panel) **[Figure 143]** until levers (Item 1) **[Figure 144]** are fully raised (wedges fully raised).

ATTACHMENTS (CONT'D)

Installing And Removing The Attachment (Power Bob-Tach) (Cont'd)

Installing (Cont'd)

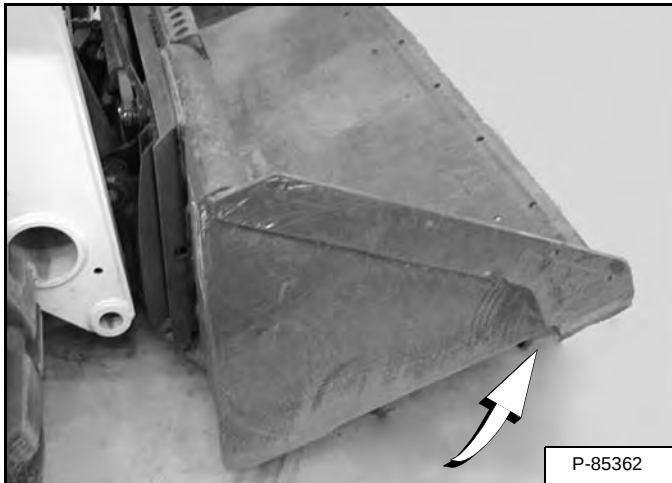
Figure 145



Drive the loader slowly forward until the top edge of the Bob-Tach is completely under the top flange of the bucket mounting frame [Figure 145] (or other attachment).

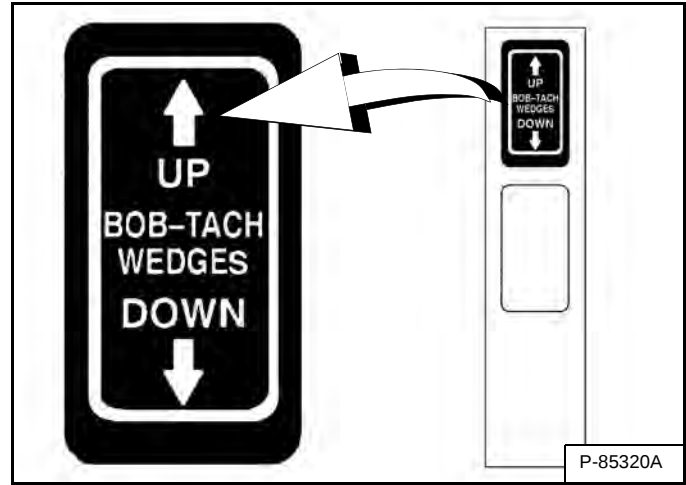
NOTE: Be sure the Bob-Tach levers do not hit the attachment.

Figure 146



Tilt the Bob-Tach backward until the cutting edge of the bucket (or other attachment) is slightly off the ground [Figure 146]. This will cause the bucket mounting frame to fit up against the front of the Bob-Tach.

Figure 147



Push and hold BOB-TACH “WEDGES UP” switch (Right Switch Panel) [Figure 147] to make sure the levers are fully raised (wedges fully raised).

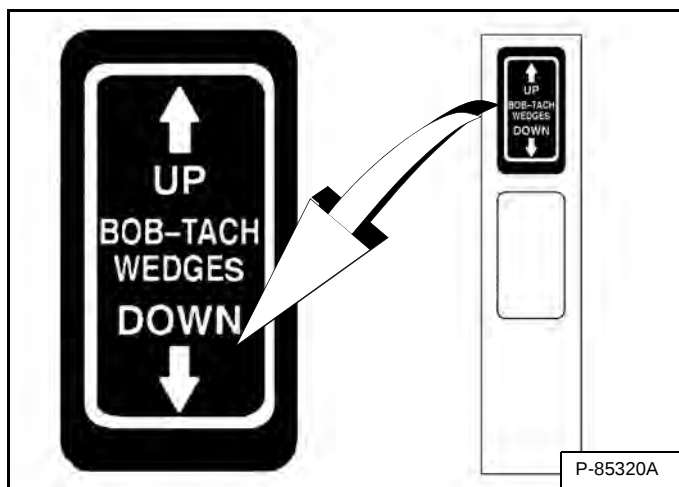
NOTE: The Power Bob-Tach system has continuous pressurized hydraulic oil to keep the wedges in the engaged position and prevent attachment disengagement. Because the wedges can slowly lower, the operator may need to reactivate the switch (BOB-TACH WEDGES UP) to be sure both wedges are fully raised before installing the attachment.

ATTACHMENTS (CONT'D)

Installing And Removing The Attachment (Power Bob-Tach) (Cont'd)

Installing (Cont'd)

Figure 148



The wedges (Item 2) **[Figure 149]** must extend through the holes in the mounting frame of the bucket (or other attachment), securely fastening the bucket to the Bob-Tach.



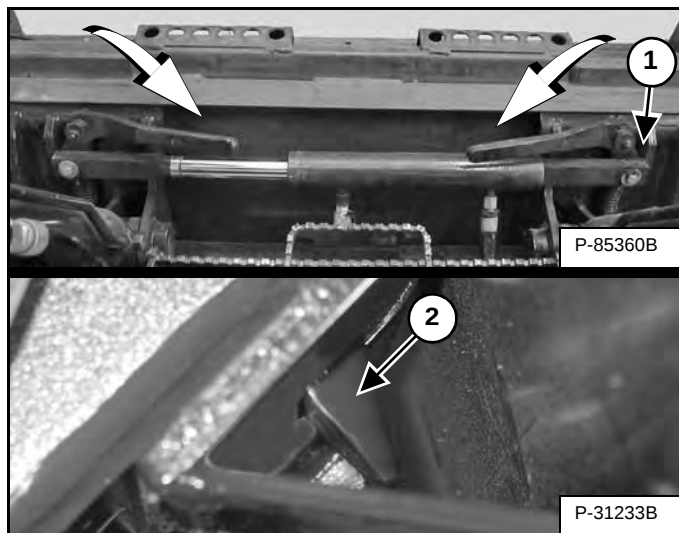
WARNING

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



Push and hold BOB-TACH “WEDGES DOWN” switch (Right Switch Panel) **[Figure 148]** until levers are fully engaged in the locked position **[Figure 149]** (wedges fully extended through the attachment mounting frame holes).

Both levers must contact the frame as shown when locked (Item 1) **[Figure 149]**.

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

ATTACHMENTS (CONT'D)

Installing And Removing The Attachment (Power Bob-Tach) (Cont'd)

Removing

Lower the lift arms and put the attachment flat on the ground. Lower or close any hydraulic equipment, if applicable.

If the attachment has electrical, water or hydraulic connections to the loader:

1. Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 94.)

WARNING

AVOID INJURY OR DEATH

Before you leave the operator's seat:

- Lower the lift arms and put the attachment flat on the ground.
- Stop the engine.
- Engage the parking brake.
- Raise the seat bar.
- Move all controls to the **NEUTRAL / LOCKED** position to make sure the lift, tilt and traction drive functions are deactivated.

The seat bar system must deactivate these functions when the seat bar is up. See your Bobcat dealer for service if controls do not deactivate.

W-2463-1110

2. Disconnect attachment electrical harness and water or hydraulic lines, if applicable, from the loader. (See Relieve Auxiliary Hydraulic Pressure (Loader And Attachment) on Page 78.)
3. Enter the loader and perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 82.)
4. Start the engine, press the PRESS TO OPERATE LOADER button and release the parking brake.

Figure 150

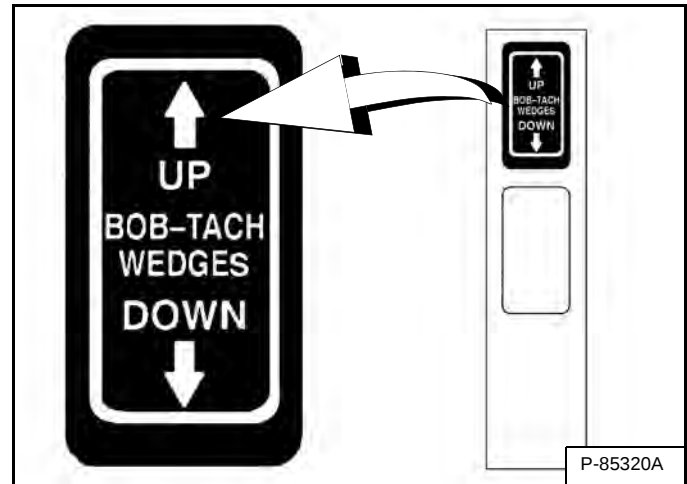
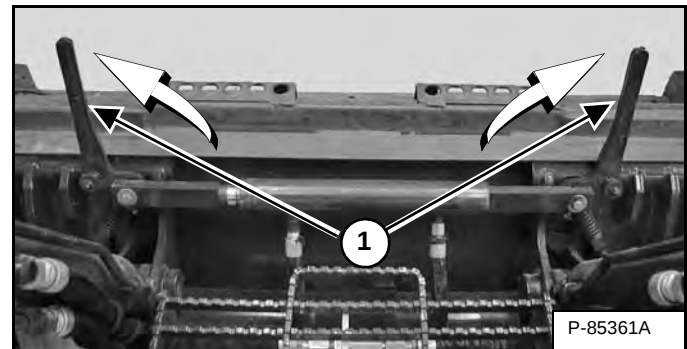


Figure 151



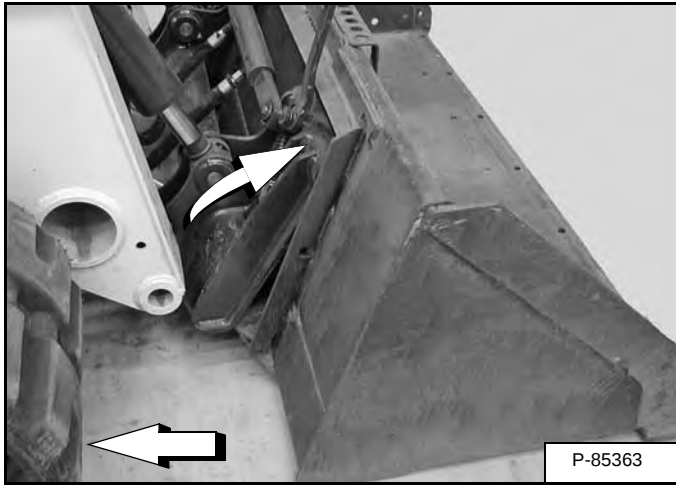
Push and hold BOB-TACH "WEDGES UP" switch (Right Switch Panel) [Figure 150] until levers (Item 1) [Figure 151] are fully raised (wedges fully raised).

ATTACHMENTS (CONT'D)

Installing And Removing The Attachment (Power Bob-Tach) (Cont'd)

Removing (Cont'd)

Figure 152



Tilt the Bob-Tach forward and drive the loader backward, away from the bucket or attachment **[Figure 152]**.

NOTE: The Power Bob-Tach system has continuous pressurized hydraulic oil to keep the wedges in the engaged position and prevent attachment disengagement. Because the wedges can slowly lower, the operator may need to reactivate the switch (BOB-TACH WEDGES UP) when removing an attachment to be sure both wedges are fully raised.

TRACK UNDERCARRIAGE SYSTEM

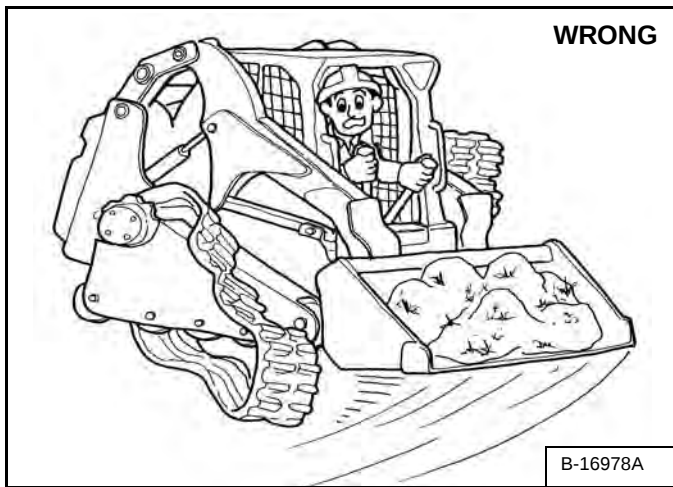
Introduction

There are many advantages of a Bobcat compact track loader. They provide very high flotation, low ground pressure, turf friendly rubber tracks and excellent traction.

Compact Track Loader Operating And Maintenance Tips

Track Tension: Correct track tension is important. If the tracks are too loose, they can easily derail. If they are too tight, they will wear faster and cause increased stress on the complete track carriage system. (See TRACK TENSION on Page 178.)

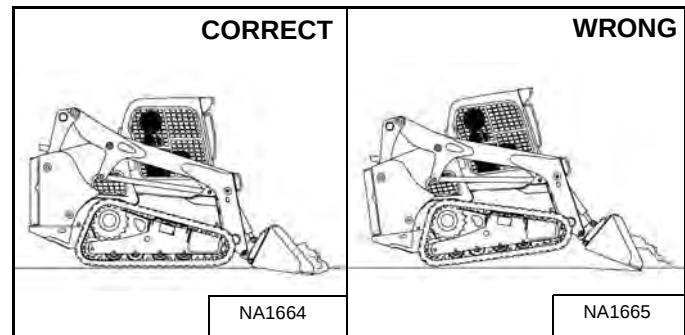
Figure 153



Turning: Use a gradual turn (one lever farther forward than the other) instead of a fast turn (one lever forward and one lever backward) on asphalt or concrete surfaces to prevent reduced track life or derailing of tracks [Figure 153].

Always carry the load low.

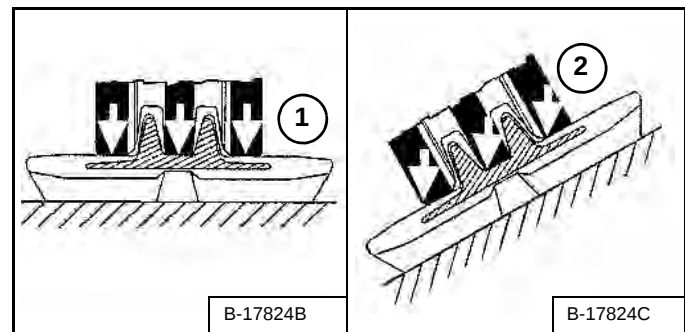
Figure 154



Digging And Leveling: Keep the full length of the tracks in contact with the ground [Figure 154] for best traction. Raising the front end of the tracks off the ground [Figure 154] will reduce traction and cause increased track wear.

Operating On Slopes: Go directly up or down a slope, not across the slope to prevent tracks from derailing.

Figure 155

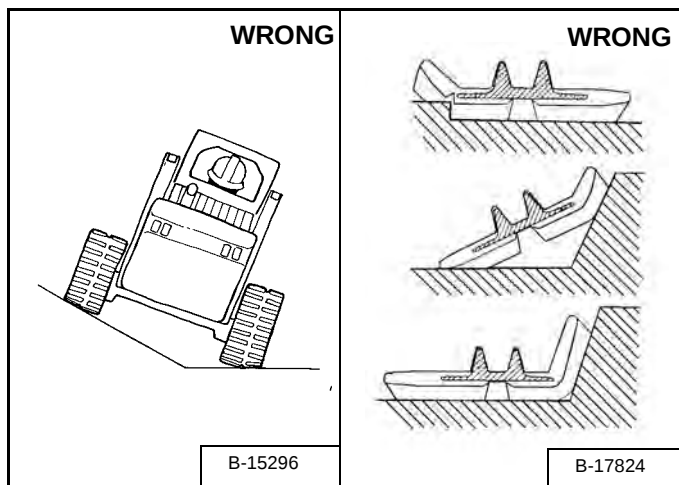


The track carriage components will wear faster when operated on a slope. When the machine is operated on a level surface, the weight of the machine is distributed throughout the entire surface of the rollers to the tracks (Item 1) [Figure 155]. When operated on a slope, the weight is directed to the edge of the rollers and against the lugs of the track (Item 2) [Figure 155] which causes increased wear.

TRACK UNDERCARRIAGE SYSTEM (CONT'D)

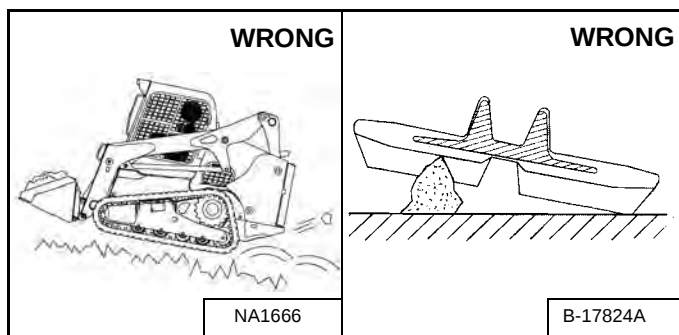
Compact Track Loader Operating And Maintenance Tips (Cont'd)

Figure 156



Operating Conditions: Avoid operating the loader with one track on a slope and the other on flat ground [Figure 156] or with the end of the track turned up against a curb or mound [Figure 156]. This can cause the tracks to derail, cracks in the edge of the tracks or cracks at the edges of the embedded metal.

Figure 157



Avoid operating or turning on sharp objects such as jagged rocks, broken concrete, quarry materials or scrap applications. This can cause cuts on the lug surface of the tracks [Figure 157].

Cleaning And Maintenance: Keep the track carriage system as clean as possible. Remove rocks and debris from the tracks and rollers. Use a pressure washer if necessary.

Rotating: The tracks and sprockets should be periodically rotated to the opposite side of the machine. It is important to rotate the tracks and sprockets as a set for maximum service life. See your Bobcat dealer for track and sprocket rotation.

It's All About The Tracks:

- Follow operating and maintenance tips.
- Keep rollers and idlers clean.
- Know what conditions can cause accelerated wear.
- Watch for abnormal wear patterns.
- Replace components and tracks as needed.

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 controls 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 tracks 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.

OPERATING PROCEDURE (CONT'D)

Operating With A Full Bucket

Figure 158

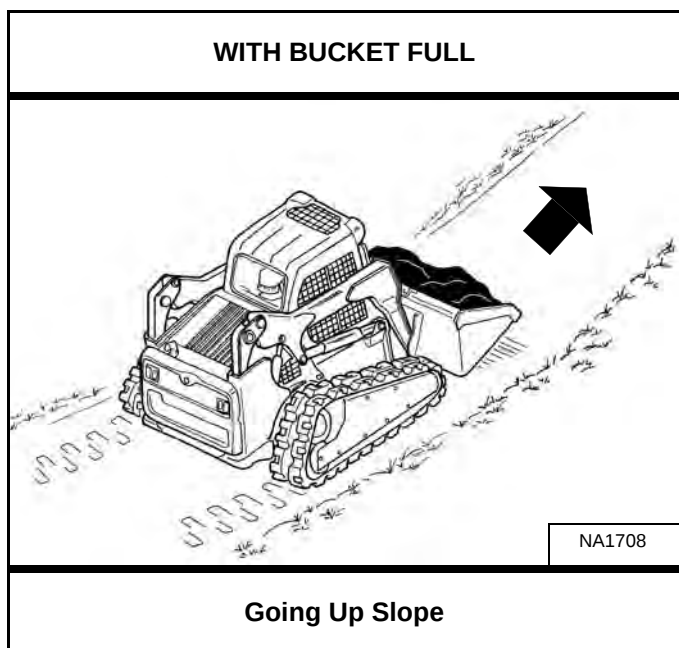
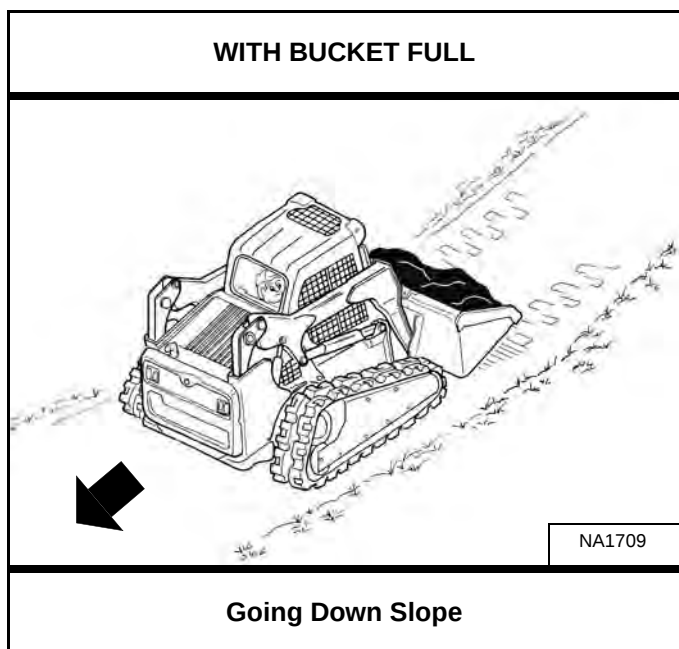


Figure 159



With a full bucket, go up or down the slope with the heavy end toward the top of the slope [Figure 158] and [Figure 159].

Operating With An Empty Bucket

Figure 160

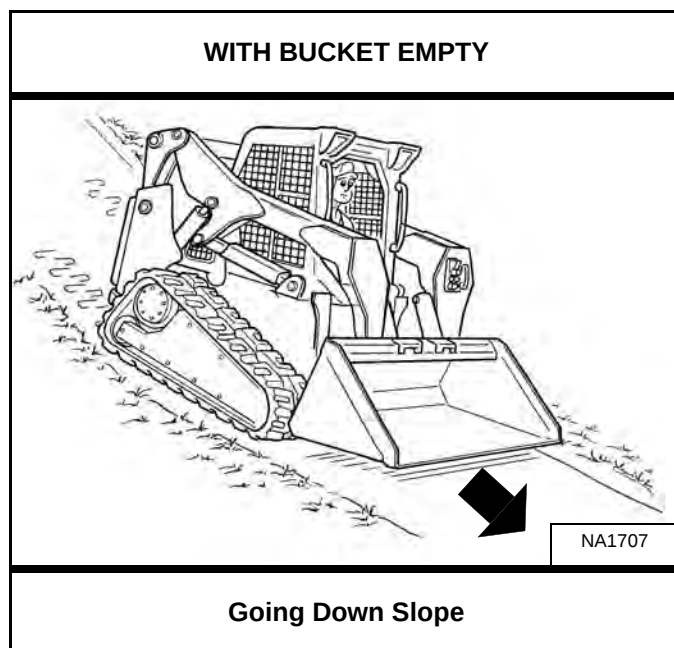
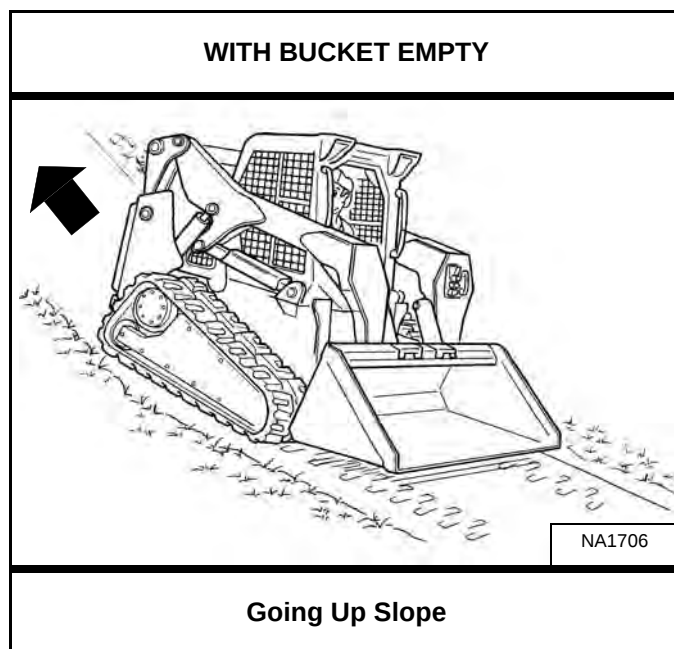


Figure 161



With an empty bucket, go down or up the slope with the heavy end toward the top of the slope [Figure 160] and [Figure 161].

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

OPERATING PROCEDURE (CONT'D)

Filling And Emptying The Bucket (Foot Pedals)

Filling

Figure 162

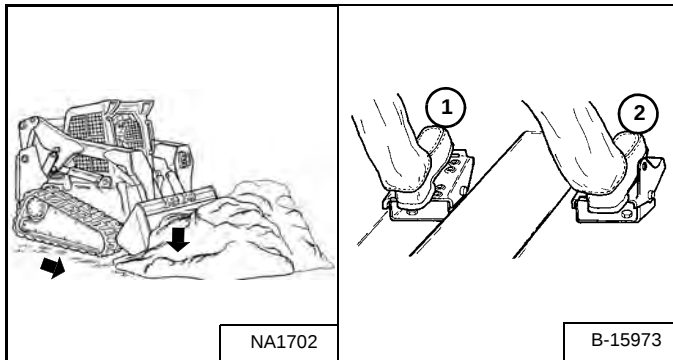
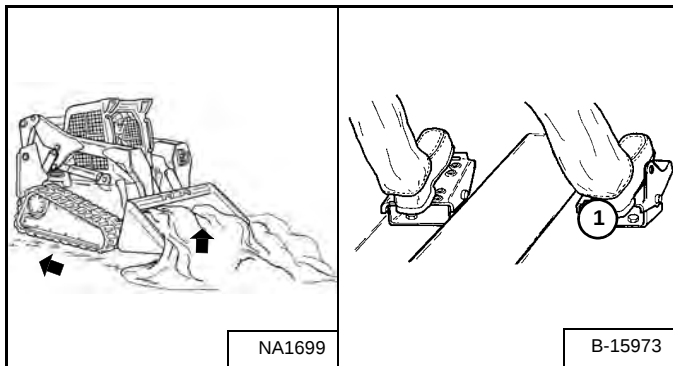


Figure 163



Lower the lift arms all the way (Item 1) [Figure 162].

Tilt the bucket forward (Item 2) [Figure 162] until the cutting edge of the bucket is on the ground.

Drive slowly forward into the material. Tilt the bucket backward (Item 1) [Figure 163] all the way when the bucket is full.

Drive backward away from the material.

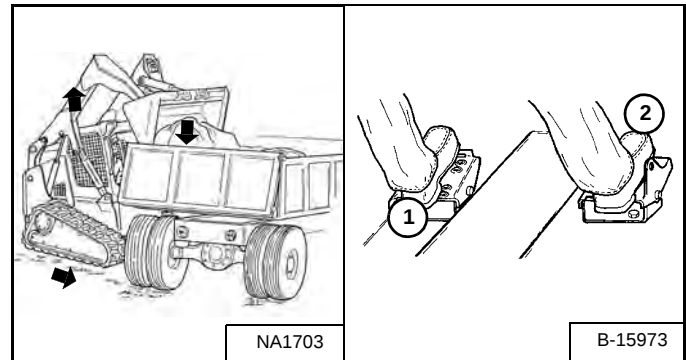
! WARNING

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

Emptying

Figure 164



Keep the bucket low when moving to the area where you want to empty the bucket.

Raise the lift arms (Item 1) [Figure 164]. Level the bucket (Item 2) [Figure 164] while raising the lift arms to help prevent material from falling off the back of the bucket.

Drive forward slowly until the bucket is over the top of the truck box or bin.

Empty the bucket (Item 2) [Figure 164]. If all the material is near the side of the truck or bin, use the bucket tilt to move it to the other side.

! WARNING

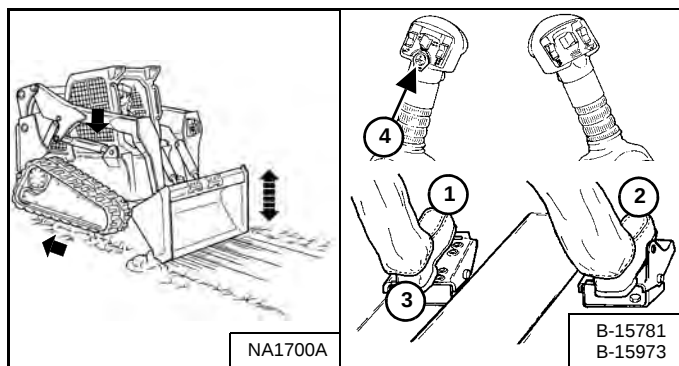
Never dump over an obstruction, such as a post, that can enter the operator cab. The machine could tip forward and cause injury or death.

W-2057-0694

OPERATING PROCEDURE (CONT'D)

Leveling The Ground Using Float (Foot Pedals)

Figure 165



Standard Controls

Put the lift arms in *float* position by pushing the pedal all the way forward (Item 1) [Figure 165] until the pedal is locked in the forward position.

ACS In Foot Pedal Mode

Press and hold the float button (Item 4) on the left handle while the left pedal is in NEUTRAL. While lowering the lift arms (Item 1) [Figure 165], release the float button.

Standard Controls And ACS In Foot Pedal Mode

Tilt the bucket forward (Item 2) [Figure 165] to change the position of the cutting edge of the bucket.

With the bucket tilted farther forward, there is more force on the cutting edge and more loose material can be moved.

Drive backward to level loose material.

Push the bottom of the lift pedal (Item 3) [Figure 165] to unlock the float position.

NOTE: On ACS equipped loaders in Foot Pedal Mode, pressing the float button again will disengage float.

IMPORTANT

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

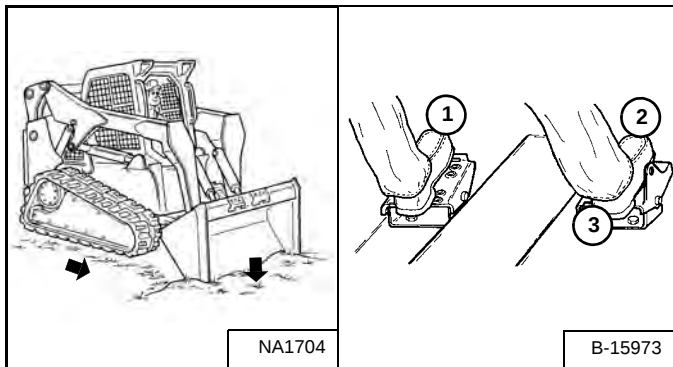
I-2005-1285

OPERATING PROCEDURE (CONT'D)

Digging And Filling A Hole (Foot Pedals)

Digging

Figure 166

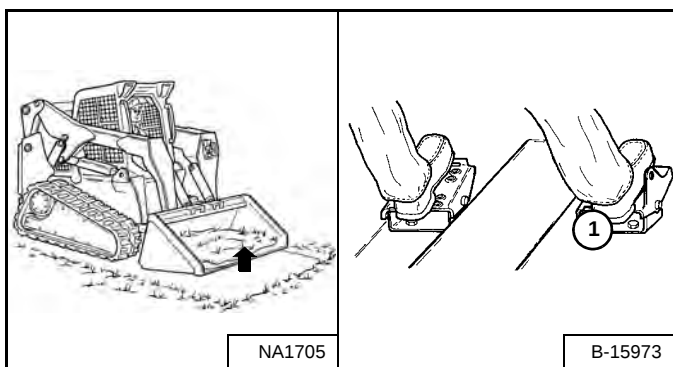


Lower the lift arms all the way (Item 1) [Figure 166]. Put the cutting edge of the bucket on the ground (Item 2) [Figure 166].

Drive forward slowly and continue to tilt the bucket down (Item 2) [Figure 166] until it enters the ground.

Tilt the bucket backward a small amount (Item 3) [Figure 166] to increase traction and keep an even digging depth. Continue to drive forward until the bucket is full. When the ground is hard, raise and lower the cutting edge of the bucket (Items 2 and 3) [Figure 166] while driving forward slowly.

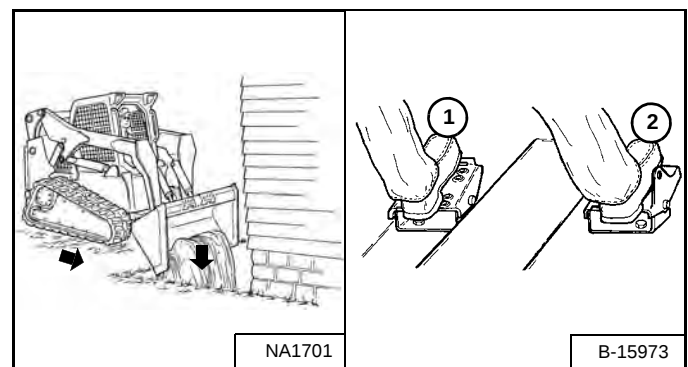
Figure 167



Tilt the bucket backward (Item 1) [Figure 167] as far as it will go when the bucket is full.

Filling

Figure 168



Lower the lift arms (Item 1) [Figure 168] and put the cutting edge of the bucket on the ground (Item 2) [Figure 168]. Drive forward to the edge of the hole to push the material into the hole.

Tilt the bucket forward (Item 2) [Figure 168] as soon as it is past the edge of the hole.

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

OPERATING PROCEDURE (CONT'D)

Filling And Emptying The Bucket (ACS - Handles, SJC - 'H' Pattern)

Filling

Figure 169

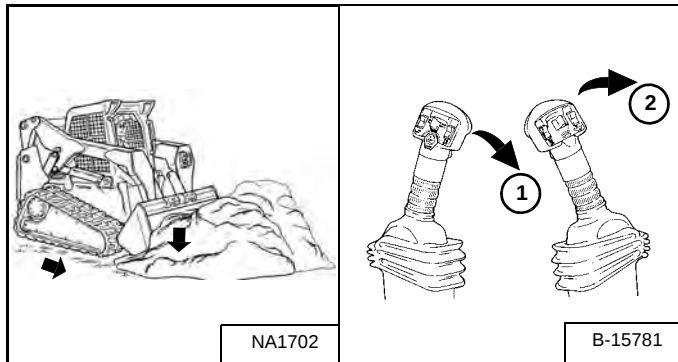
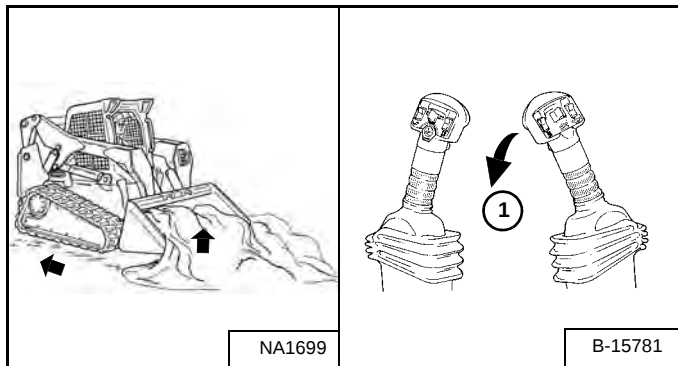


Figure 170



Lower the lift arms all the way (Item 1) [Figure 169].

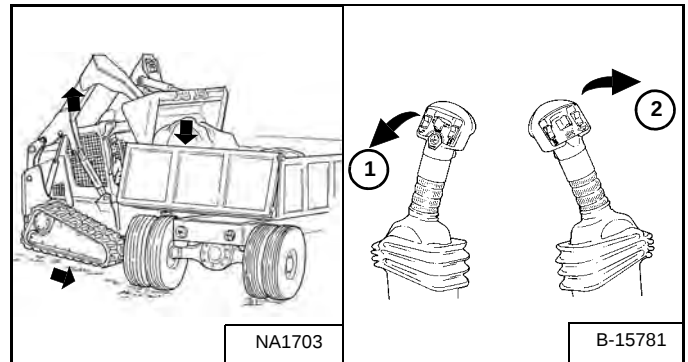
Tilt the bucket forward (Item 2) [Figure 169] until the cutting edge of the bucket is on the ground.

Drive slowly forward into the material. Tilt the bucket backward (Item 1) [Figure 170] all the way when the bucket is full.

Drive backward away from the material.

Emptying

Figure 171



Keep the bucket low when moving to the area where you want to empty the bucket.

Raise the lift arms (Item 1) [Figure 171]. Level the bucket (Item 2) [Figure 171] while raising the lift arms to help prevent material from falling off the back of the bucket.

Drive forward slowly until the bucket is over the top of the truck box or bin.

Empty the bucket (Item 2) [Figure 171]. If all material is near the side of the truck or bin, use the bucket tilt to move it to the other side.

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

WARNING

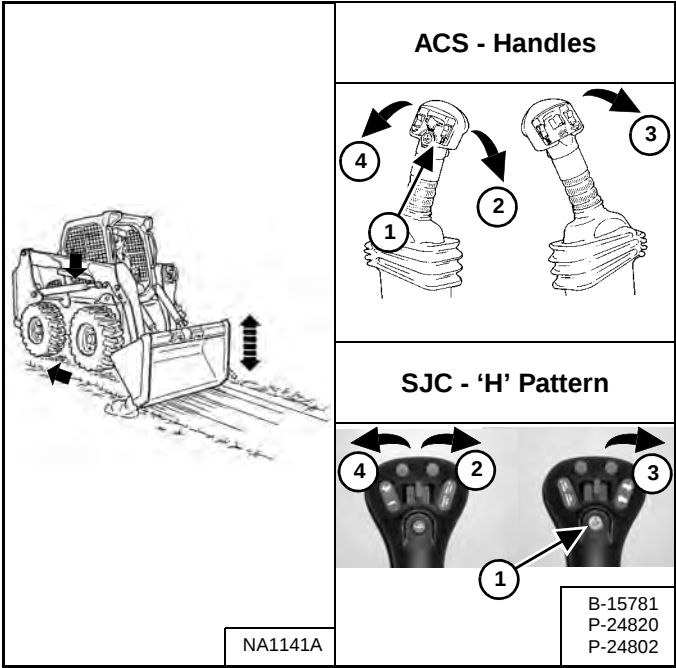
Load, unload and turn on flat level ground. Do not exceed Rated Operating Capacity (ROC) shown on sign (decal) in cab. Failure to obey warnings can cause the machine to tip or rollover and cause injury or death.

W-2056-1112

OPERATING PROCEDURE (CONT'D)

Leveling The Ground Using Float (ACS - Handles, SJC - 'H' Pattern)

Figure 172



Press and hold the float button (Item 1) **[Figure 172]** while the lever is in NEUTRAL. While lowering the lift arms (Item 2) **[Figure 172]**, release the float button.

Tilt the bucket forward (Item 3) **[Figure 172]** to change the position of the cutting edge of the bucket.

With the bucket tilted farther forward, there is more force on the cutting edge and more loose material can be moved.

Drive backward to level loose material.

To disengage float, press the float button again or raise the lift arms (Item 4) **[Figure 172]**.

IMPORTANT

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

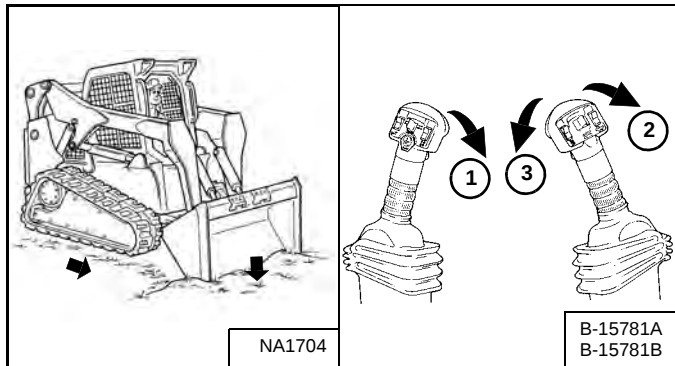
I-2005-1285

OPERATING PROCEDURE (CONT'D)

Digging And Filling A Hole (ACS - Handles, SJC - 'H' Pattern)

Digging

Figure 173

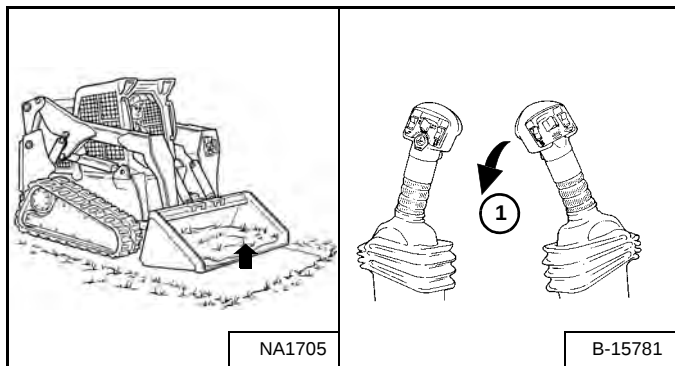


Lower the lift arms all the way (Item 1) **[Figure 173]**. Tilt the bucket forward (Item 2) **[Figure 173]** until the cutting edge of the bucket is on the ground.

Drive forward slowly and continue to tilt the bucket down (Item 2) **[Figure 173]** until it enters the ground.

Tilt the bucket backward a small amount (Item 3) **[Figure 173]** to increase traction and keep an even digging depth. Continue to drive forward until the bucket is full. When the ground is hard, raise and lower the cutting edge (Items 2 and 3) **[Figure 173]** while driving forward.

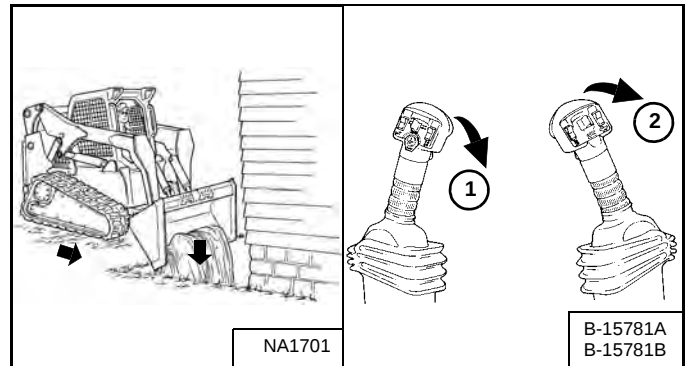
Figure 174



Tilt the bucket backward (Item 1) **[Figure 174]** as far as it will go when the bucket is full.

Filling

Figure 175



Lower the lift arms (Item 1) **[Figure 175]** and put the cutting edge of the bucket on the ground (Item 2) **[Figure 175]**. Drive forward to the edge of the hole to push the material into the hole.

Tilt the bucket forward (Item 2) **[Figure 175]** as soon as it is past the edge of the hole.

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

OPERATING PROCEDURE (CONT'D)

Filling And Emptying The Bucket (SJC - 'ISO' Pattern)

Filling

Figure 176

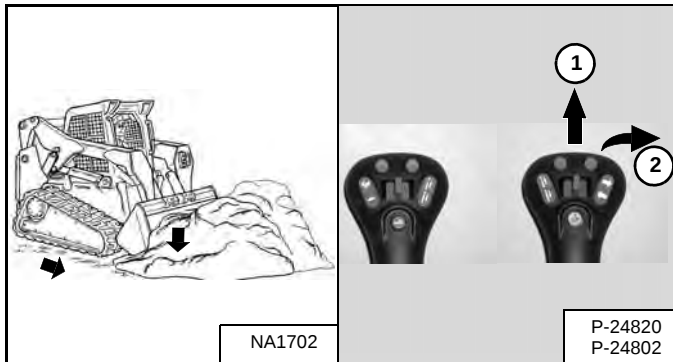
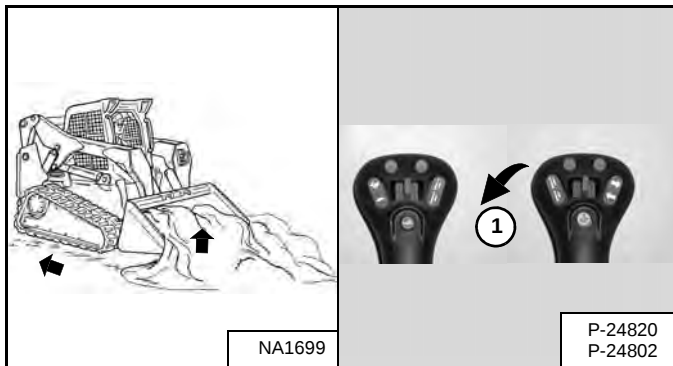


Figure 177



Lower the lift arms all the way (Item 1) [Figure 176].

Tilt the bucket forward (Item 2) [Figure 176] until the cutting edge of the bucket is on the ground.

Drive slowly forward into the material. Tilt the bucket backward (Item 1) [Figure 177] all the way when the bucket is full.

Drive backward away from the material.

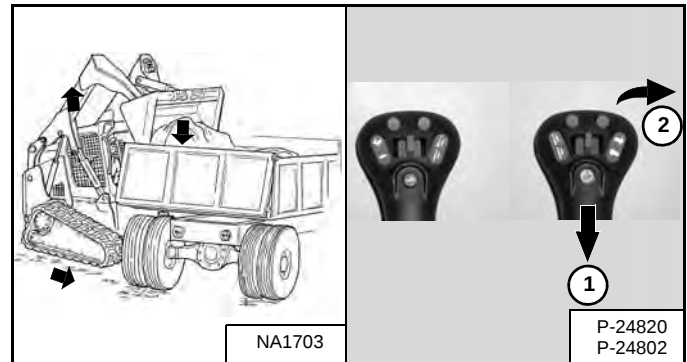
! WARNING

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

Emptying

Figure 178



Keep the bucket low when moving to the area where you want to empty the bucket.

Raise the lift arms (Item 1) [Figure 178]. Level the bucket (Item 2) [Figure 178] while raising the lift arms to help prevent material from falling off the back of the bucket.

Drive forward slowly until the bucket is over the top of the truck box or bin.

Empty the bucket (Item 2) [Figure 178]. If all material is near the side of the truck or bin, use the bucket tilt to move it to the other side.

! WARNING

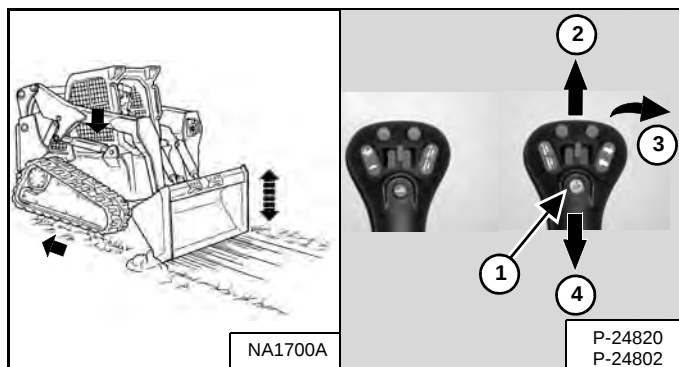
Never dump over an obstruction, such as a post, that can enter the operator cab. The machine could tip forward and cause injury or death.

W-2057-0694

OPERATING PROCEDURE (CONT'D)

Leveling The Ground Using Float (SJC - 'ISO' Pattern)

Figure 179



Press and hold the float button (Item 1) **[Figure 179]** while the joystick is in NEUTRAL. While lowering the lift arms (Item 2) **[Figure 179]**, release the float button.

Tilt the bucket forward (Item 3) **[Figure 179]** to change the position of the cutting edge of the bucket.

With the bucket tilted farther forward, there is more force on the cutting edge and more loose material can be moved.

Drive backward to level loose material.

To disengage, press the float button again or raise the lift arms (Item 4) **[Figure 179]**.

IMPORTANT

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

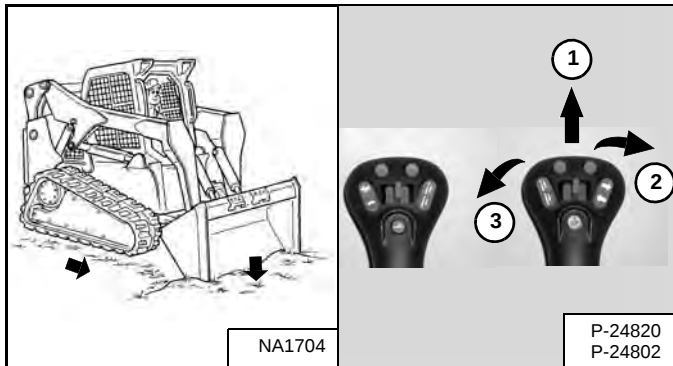
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OPERATING PROCEDURE (CONT'D)

Digging And Filling A Hole (SJC - 'ISO' Pattern)

Digging

Figure 180

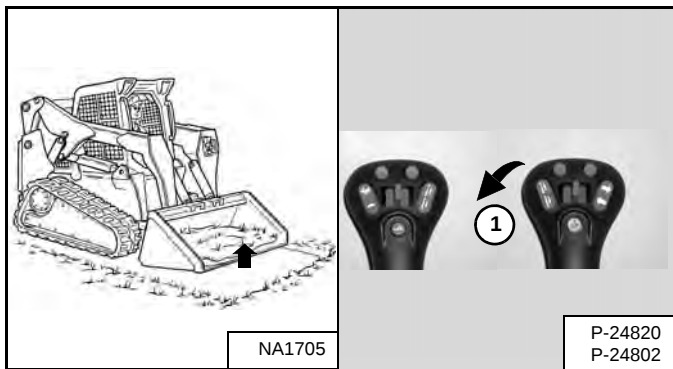


Lower the lift arms all the way (Item 1) [Figure 180]. Put the cutting edge of the bucket on the ground (Item 2) [Figure 180].

Drive forward slowly and continue to tilt the bucket down (Item 2) [Figure 180] until it enters the ground.

Tilt the bucket backward a small amount (Item 3) [Figure 180] to increase traction and keep an even digging depth. Continue to drive forward until the bucket is full. When the ground is hard, raise and lower the cutting edge (Items 2 and 3) [Figure 180] while driving forward.

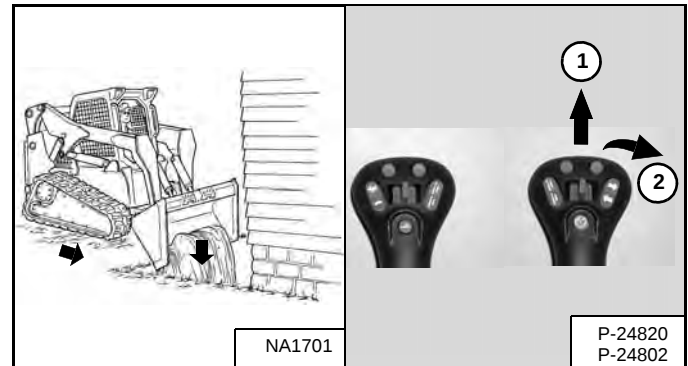
Figure 181



Tilt the bucket backward (Item 1) [Figure 181] as far as it will go when the bucket is full.

Filling

Figure 182



Lower the lift arms (Item 1) [Figure 182] and put the cutting edge of the bucket on the ground (Item 2) [Figure 182]. Drive forward to the edge of the hole to push the material into the hole.

Tilt the bucket forward (Item 2) [Figure 182] as soon as it is past the edge of the hole.

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

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 tracks will not turn.) There might be slight wear to the tracks 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 232.)

LIFTING THE LOADER

Single-Point Lift



WARNING

AVOID INJURY OR DEATH

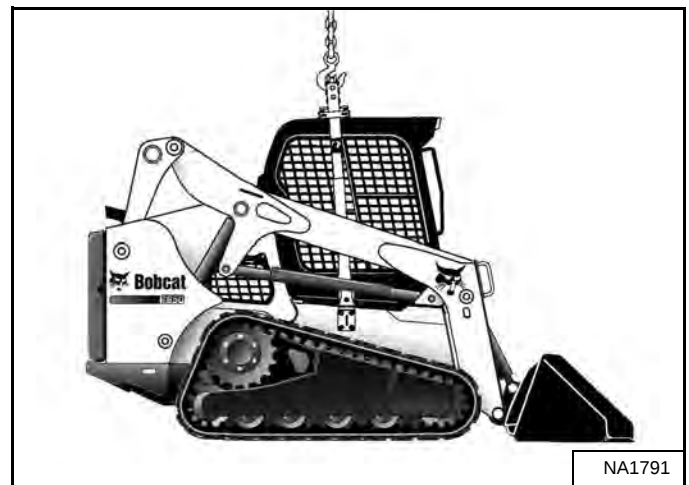
- Before lifting, check fasteners on single point lift and operator cab.
- Assemble front cab fasteners as shown in this manual.
- Never allow riders in the cab or bystanders within 5 m (15 ft) while lifting the machine.

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 183



Attach lift to lift eye [Figure 183].

NOTE: Be sure the lifting equipment is of adequate size and capacity for the weight of the loader. (See Performance on Page 232.)

LIFTING THE LOADER (CONT'D)

Four-Point Lift



WARNING

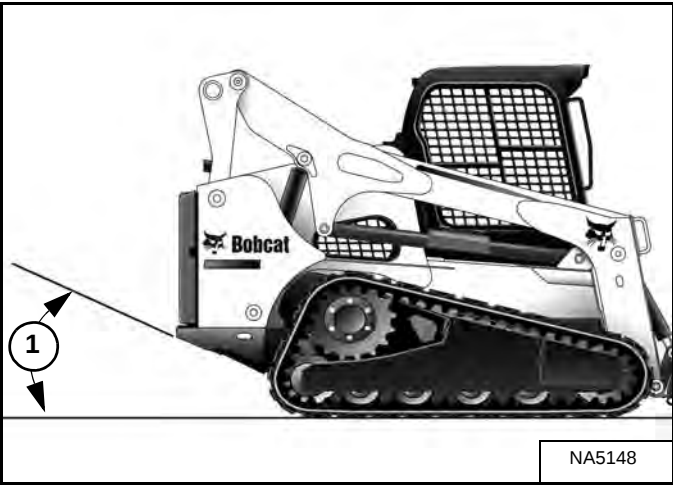
AVOID INJURY OR DEATH

- Before lifting, check fasteners on four point lift.
- Never allow riders in the cab or bystanders within 5 m (15 ft) while lifting the machine.

W-2160-0910

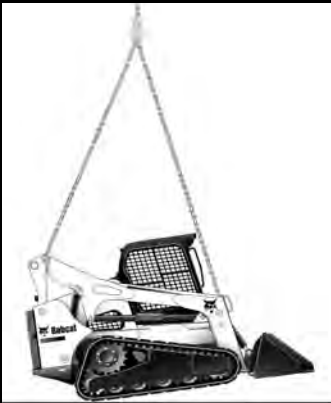
The loader can be lifted with the Four-Point Lift which is available as a kit from your Bobcat loader dealer.

Figure 184



NOTE: The loader should be lifted as close to horizontal as possible, but at no time shall the angle of the suspended loader exceed the departure angle (Item 1) [Figure 184] provided in the specifications section. (See Machine Dimensions on Page 231.)

Figure 185

CORRECT	WRONG
	
NA5146	NA5147

Attach cables or chains to lift eyes [Figure 185].

NOTE: Sling legs should not contact any part of the operator cab or lift arms to prevent damage.

NOTE: The required length of front and rear sling legs may or may not be equal depending on loader configuration. Departure angle (Item 1) [Figure 185] in this view has been exceeded, sling leg length must be adjusted to prevent this situation.

NOTE: Be sure the lifting equipment is of adequate size and capacity for the weight of the loader. (See Performance on Page 232.)

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 weight of loader. (See Performance on Page 232.)

Figure 186

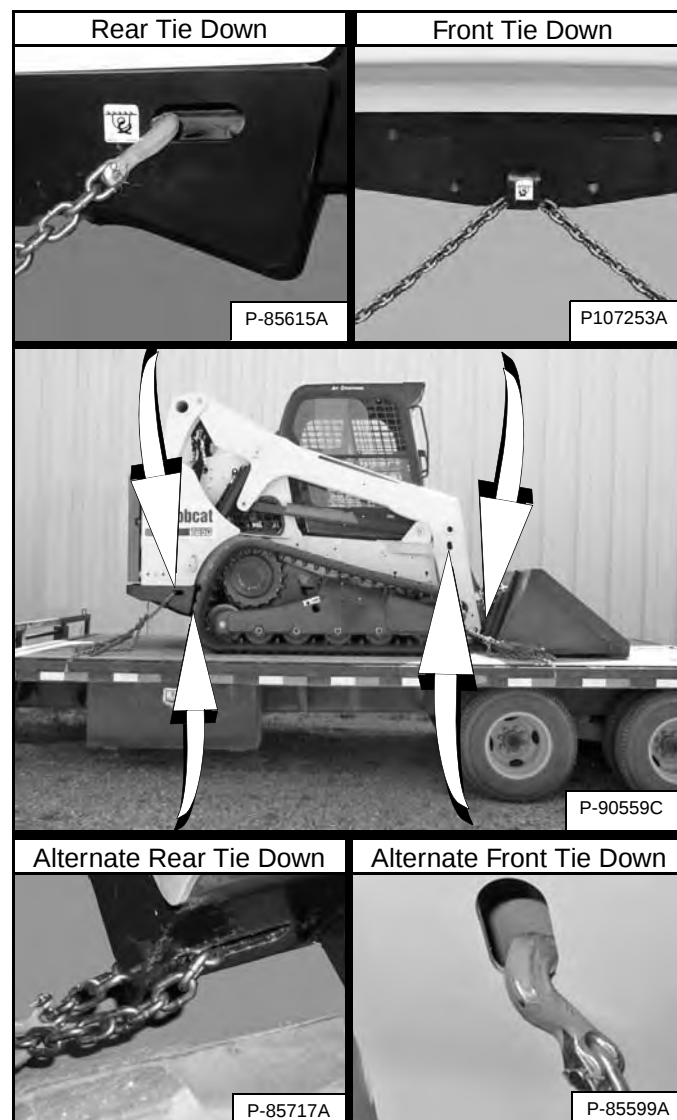


A loader with an empty bucket or no attachment must be loaded backward onto the transport vehicle [Figure 186].

The rear of the trailer must be blocked or supported (Item 1) [Figure 186] when loading or unloading the loader to prevent the front end of the trailer from raising up.

Fastening

Figure 187



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 187].

1. Lower the bucket or attachment to the floor.
2. Stop the engine.
3. Engage the parking brake.
4. Install chains at the front and rear loader tie down positions [Figure 187]. (Lift arms shown raised for clarity.) (Some models have two front tie down locations on the transmission.)
5. Fasten each end of the chain to the transport vehicle.
6. Use chain binders to tighten the chains.



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MAINTENANCE SAFETY



WARNING

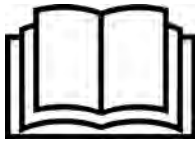
Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual, Operator's Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after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

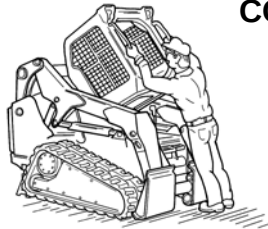
CORRECT



P-90216

- Never service the Bobcat Skid-Steer Loader without instructions.

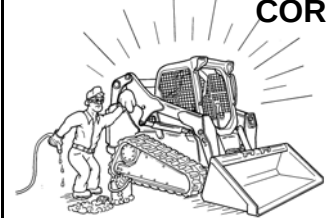
CORRECT



NA1711

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

CORRECT



NA1715

- Cleaning and maintenance are required daily.

WRONG



NA1714

- 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.

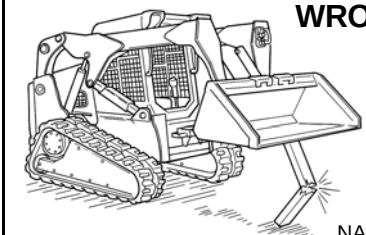
WRONG



NA1710

- 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



NA1712

- 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.

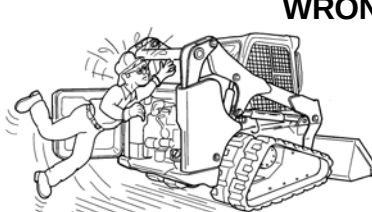
WRONG



NA1722

- 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



NA1725

- 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.

MSW40-0609



Bobcat®

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	[4] 250	[4] 500	[4] 1000
Engine Oil	Check the oil level and add as needed. Do not overfill.						
Engine Air Filter and Air System	Check display panel. Service only when required. Check for leaks and damaged components.						
Engine Cooling System	Clean debris from oil cooler, radiator and grille. Check coolant level COLD and add premixed coolant as needed.						
Fuel Filter	Remove the trapped water.						
Lift Arms, Lift Links, Cylinders, Bob-Tach, Pivot Pins, Wedges	Lubricate with multipurpose lithium based grease.						
Seat Bar, Control Interlocks, Seat Belt, Seat Belt Retractors	Check the condition of seat belt. Clean or replace seat belt retractors as needed. Check the seat bar and control interlocks for correct operation. Clean dirt and debris from moving parts.						
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.						
Front Horn / Back-up Alarm	Check for proper function.						
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 and A/C Filters (If Equipped)	Clean or replace filters as needed.						
Hydraulic Fluid	Check fluid level and add as needed.						
Hydraulic Hoses and Tubelines	Check for damage and leaks. Repair or replace as needed.						
Tracks	Check for damaged and worn tracks and correct tension.	[1]					
Track Sprocket Nuts	Check torque. Tighten as needed. See procedure in this manual.						
Parking Brake, Foot Pedals, Hand Controls and Steering Levers or Joysticks	Check for correct operation. Repair or adjust as needed.						
Spark Arrester Muffler	Clean the spark chamber.						
Battery	Check cables, connections and electrolyte level. Add distilled water as needed.						
Fuel Filter	Replace filter element.						
Engine / Hydro. Drive Belt	Check for wear or damage. Check idler arm stop.		[2]				
Drive Belts (Alternator, air conditioning, water pump)	Check condition. Replace as needed.						
Bobcat Interlock Control System (BICS™)	Check the function of the lift arm bypass control.						
Engine Oil and Filter	Replace oil and filter.		[2]	[3]			
Hydraulic Charge Filter, Hydraulic Reservoir Breather	Replace the charge filter and the reservoir breather.						
Hydrostatic Drive Motors	Replace oil with high performance synthetic oil P/N 7024981.						
Heater Coil and Air Conditioning Evaporator (if equipped)	Clean the heater coil and air conditioning evaporator. Clean the plenum drains.						
Hydraulic / Hydrostatic Filter	Replace the hydraulic / hydrostatic filter.						
Hydraulic Reservoir	Replace the fluid.						
Engine Valves	Adjust the engine valves.						
Coolant	Replace the coolant						
		Every 2 years					

[1] Check every 8 - 10 hours for the first 24 hours, then at 50 hour intervals.

[2] Perform at first 50 hours, then as scheduled.

[3] Change oil and filter every 100 hours when operating under severe conditions.

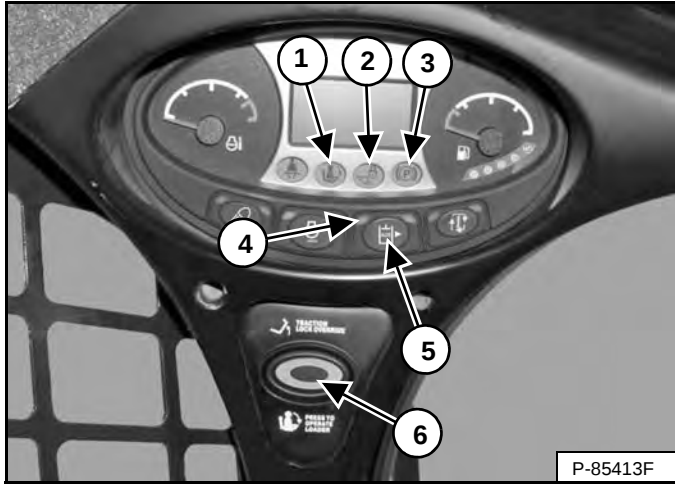
[4] Or every 12 months.

SS CTL LF EXLF T3 MF EXMF iT4-0315

BOBCAT INTERLOCK CONTROL SYSTEM (BICS™)

Inspecting The BICS™ (Engine STOPPED - Key ON)

Figure 188



1. Sit in operator's seat. Turn key switch to RUN or press RUN button. Lower seat bar and disengage parking brake. Press the PRESS TO OPERATE LOADER button (Item 6). Two BICS™ lights (Items 1 and 2) [Figure 188] [SEAT BAR AND LIFT & TILT VALVE] on left instrument panel must be OFF. The PRESS TO OPERATE LOADER button will light.
2. Raise seat bar fully. All three BICS™ lights (Items 1, 2 and 3) [Figure 188] [SEAT BAR, LIFT & TILT VALVE and PARKING BRAKE] on left instrument panel must be ON. The PRESS TO OPERATE LOADER button light will turn OFF.

Inspecting Deactivation Of The Auxiliary Hydraulics System (Engine STOPPED - Key ON)

3. Sit in operator's seat, lower seat bar and press the PRESS TO OPERATE LOADER button (Item 6). Press the auxiliary hydraulics button (Item 5). The auxiliary hydraulics light will be ON (Item 4) [Figure 188]. Raise the seat bar. The light must be OFF.

Inspecting The Seat Bar Sensor (Engine RUNNING)

4. Sit in operator's seat, lower seat bar, engage parking brake and fasten seat belt.
5. Start 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)

6. Fasten seat belt, disengage parking brake, press the PRESS TO OPERATE LOADER button and raise seat bar fully. Move steering levers or joystick(s) slowly forward and backward. The TRACTION lock must be engaged. Lower the seat bar. Press the PRESS TO OPERATE LOADER button.
7. Engage parking brake and 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.

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

8. Raise the lift arms 2 m (6 ft) off the ground. Stop engine. Turn lift arm bypass control knob 90° clockwise. Pull up and hold lift arm bypass control knob until lift arms slowly lower.

Inspecting Deactivation Of Lift And Tilt Functions (ACS And SJC)

9. Sit in operator's seat and fasten seat belt. Lower seat bar, start engine and press the PRESS TO OPERATE LOADER button.
10. Raise lift arms about 2 m (6 ft) off the ground.
11. Turn key switch OFF or press STOP button and wait for the engine to come to a complete stop.
12. Turn key switch ON or press RUN button. Press the PRESS TO OPERATE LOADER button, move the control (foot pedal, hand control or joystick) to lower the lift arms. Lift arms must not lower.
13. Move the control (foot pedal, hand control or joystick) to tilt the bucket (or attachment) forward. The bucket (or attachment) must not tilt forward.



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

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.

Models With Standard Controls have hydraulic valve spool interlocks for the lift and tilt functions. The spool interlocks require the operator to lower the seat bar in order to operate the foot pedal controls.

When the seat bar is down, the engine is running, the PRESS TO OPERATE LOADER button is activated, and the brake is released, 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.

Models With Advanced Control System (ACS) have mechanical interlocks for the handles and pedals. The interlocks for the handles and pedals require the operator to lower the seat bar in order to operate the selected controls.

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

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

Models With Selectable Joystick Controls (SJC) have electrical deactivation of lift and tilt functions. Activation of functions require the operator to lower the seat bar.

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

When the seat bar is up, the lift and tilt functions are deactivated even though the joysticks do not mechanically lock.

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 and handles (if equipped) must be firmly locked in the NEUTRAL position (except joysticks). There must be no motion of the lift arms or tilt (attachment) when the controls are moved.

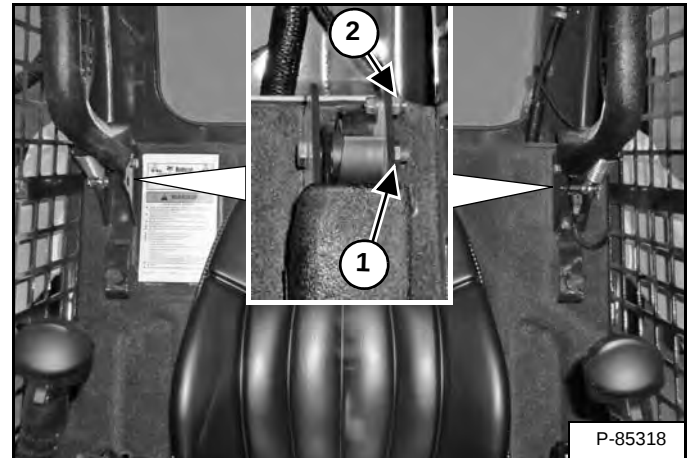
Lower the seat bar, press the PRESS TO OPERATE LOADER button and lower the lift arms. Operate the lift control. While the lift arms are going up, raise the seat bar. The lift arms must stop.

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 and handles (if equipped) to be sure they are firmly locked in the NEUTRAL position (except joysticks).

Maintaining

See the SERVICE SCHEDULE for correct service interval. (See SERVICE SCHEDULE on Page 127.)

Figure 189



Use compressed air to clean any debris or dirt from the pivot parts. Do not lubricate. Inspect all mounting hardware. The correct hinge bolt (Item 1) torque is 34 - 38 N•m (25 - 28 ft-lb). The seat bar sensor nut (left side only) (Item 2) [Figure 189] torque is 6 - 8 N•m (50 - 70 in-lb).

If the seat bar system does not function correctly, replace parts that are worn or damaged. Use only genuine Bobcat replacement parts.



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

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 at least once each year or more often if the machine is exposed to severe environmental conditions or applications.

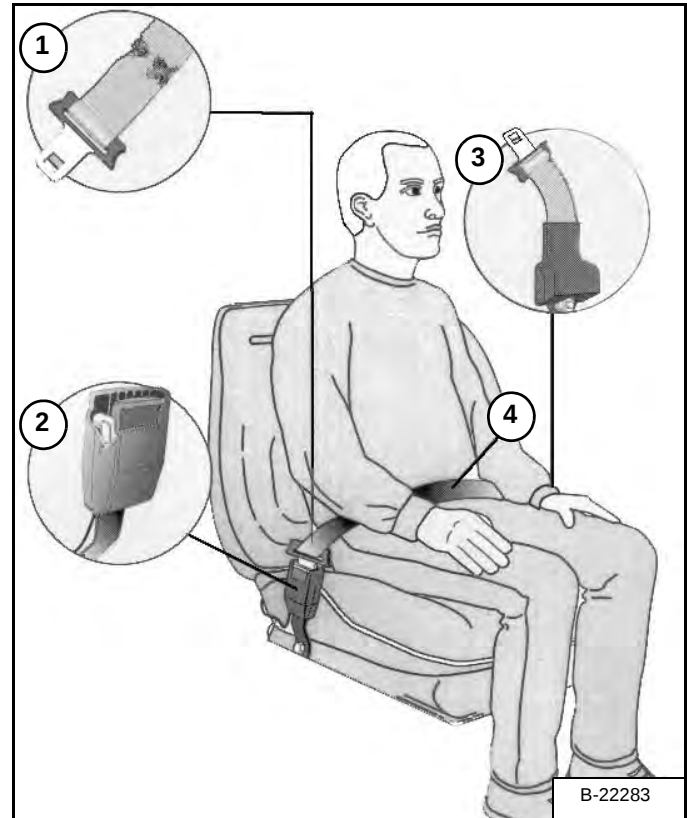
Any seat belt system that shows cuts, fraying, extreme or unusual wear, significant discolorations due to ultraviolet UV exposure, dusty / dirty conditions, abrasion to the seat belt webbing, or damage to the buckle, latch plate, retractor (if equipped), hardware or any other obvious problem should be replaced immediately.

The items below are referenced in **[Figure 190]**.

1. Check the 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 correct operation. Make sure latch plate is not excessively worn, deformed or buckle is not damaged or casing broken.
3. Check the retractor web storage device (if equipped) by extending webbing to determine if it looks correct and that it spools out and retracts 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 deteriorated.

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

Figure 190



LIFT ARM SUPPORT DEVICE

Installing

! 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

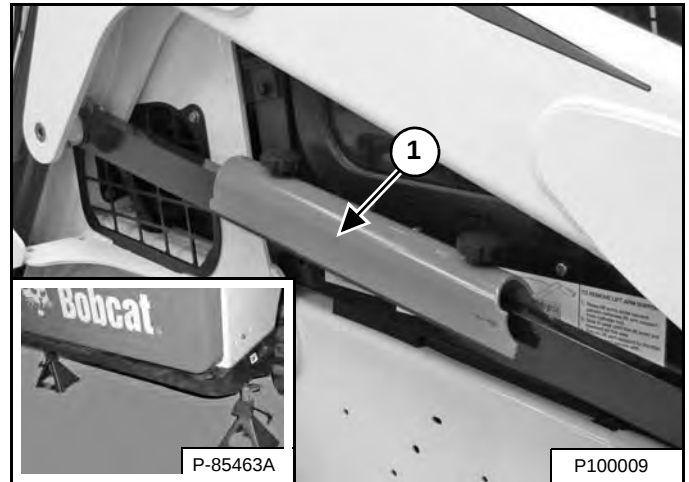
AVOID DEATH

- 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 attachment from the loader. (See Installing And Removing The Attachment (Hand Lever Bob-Tach) on Page 97.) **OR** (See Installing And Removing The Attachment (Power Bob-Tach) on Page 99.)

Figure 191



Put jackstands under the rear corners of the loader frame (Inset) [Figure 191].

Remove the lift arm support device (Item 1) [Figure 191] from the storage position.

The operator must stay in the operator seat with the seat belt fastened and the seat bar lowered until the lift arm support device is installed.

Start the engine and raise the lift arms all the way up.

Figure 192



Have a second person install the lift arm support device over the rod of one of the lift cylinders [Figure 192].

The lift arm support device must be tight against the cylinder rod.

LIFT ARM SUPPORT DEVICE (CONT'D)

Installing (Cont'd)

Figure 193



Lower the lift arms slowly until the lift arm support device is held between the lift arms and the lift cylinder **[Figure 193]**. The tabs of the lift arm support device must go past the end of the cylinder (Inset) **[Figure 193]**.

Removing

The operator must be in the operator's seat, with the seat belt fastened and seat bar lowered, until the lift arm support device is removed and the lift arms are lowered all the way.

Start the engine and raise the lift arms all the way up.

Have a second person remove the lift arm support device.

Lower the lift arms all the way and stop the engine.

Return the lift arm support device to the storage position and secure with clamping knobs.

Remove the jackstands.

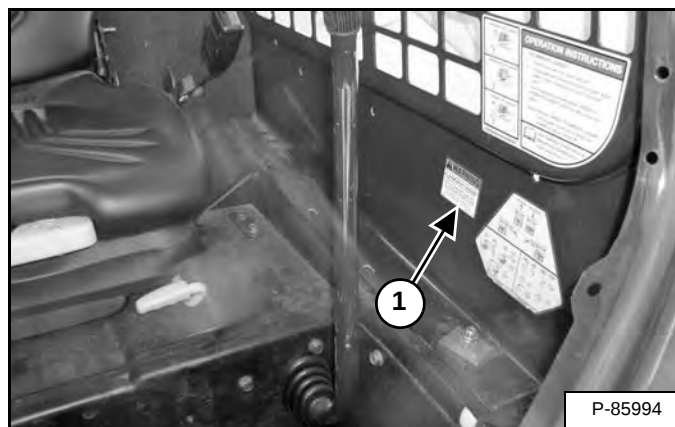
BACK-UP ALARM SYSTEM

Description

The Back-up Alarm will sound when the operator moves both steering levers or joystick(s) 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 194



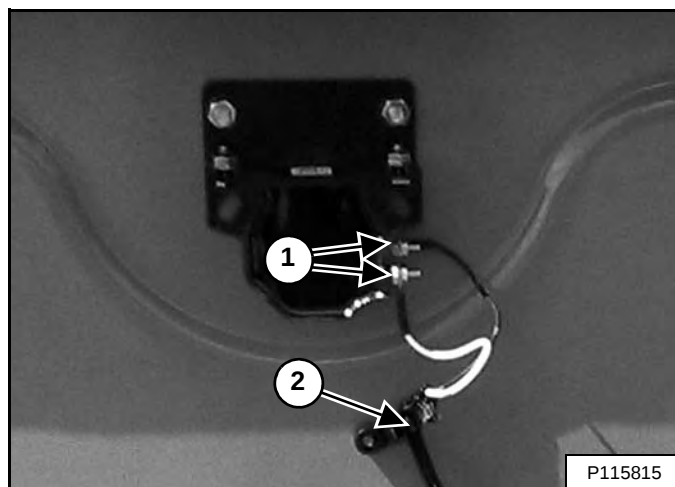
Inspect for damaged or missing back-up alarm decal (Item 1) **[Figure 194]**. Replace if required.

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 or joystick(s) into the reverse position. The back-up alarm must sound when both tracks are moving in reverse.

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

Figure 195



Inspect the back-up alarm electrical connections (Item 1) **[Figure 195]**, wire harness (Item 2) **[Figure 195]** and back-up alarm switches (if equipped) (Item 1) **[Figure 196]** for tightness and damage. Repair or replace any damaged components.

If the back-up alarm switches require adjustment, (See Adjusting Switch Position on Page 134.)

BACK-UP ALARM SYSTEM (CONT'D)

Adjusting Switch Position

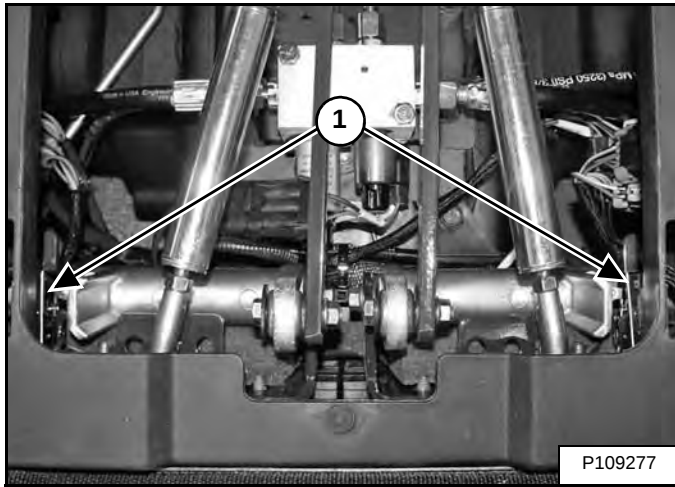
NOTE: Joystick equipped machines do not have back-up alarm switches and cannot be adjusted. See your Bobcat dealer for service if your back-up alarm does not sound.

Standard Controls And ACS (If Equipped)

Stop the engine and raise the operator cab. (See Raising on Page 135.)

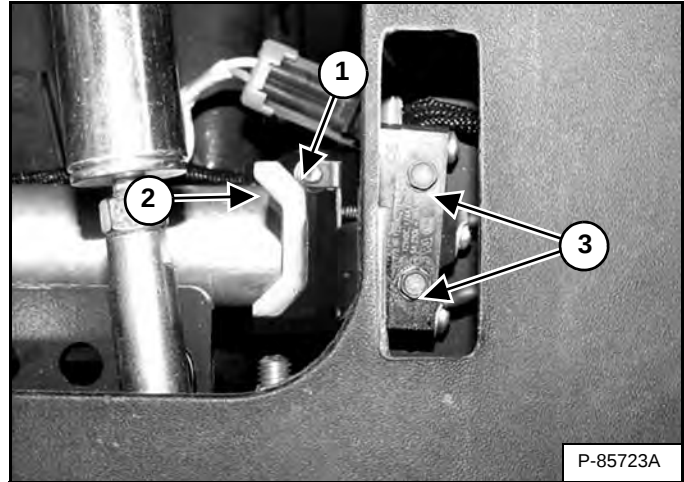
Place the steering levers in the NEUTRAL position.

Figure 196



The back-up alarm switches (Item 1) [Figure 196] are located alongside the steering bellcranks. Both switches must be adjusted properly for the back-up alarm to operate correctly.

Figure 197



Loosen the screws (Item 3) [Figure 197] securing the back-up alarm switch. (Left side shown)

Position the back-up alarm switch so that the roller (Item 1) just makes contact with the bellcrank (Item 2) [Figure 197] without compressing the switch spring.

Torque the screws (Item 3) [Figure 197] securing the switch to the bracket to 1,6 - 2,1 N•m (14 - 19 in-lb).

Repeat adjustment procedure for the other switch.

Lower the operator cab. (See Lowering on Page 136.)

Inspect back-up alarm system for proper function. (See Inspecting on Page 133.)

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 II is available.

Level I

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

Level II

Protection from falling trees, rocks: for machines involved in site clearing, overhead demolition or forestry.



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

Raising

Always stop the engine before raising or lowering the operator cab.

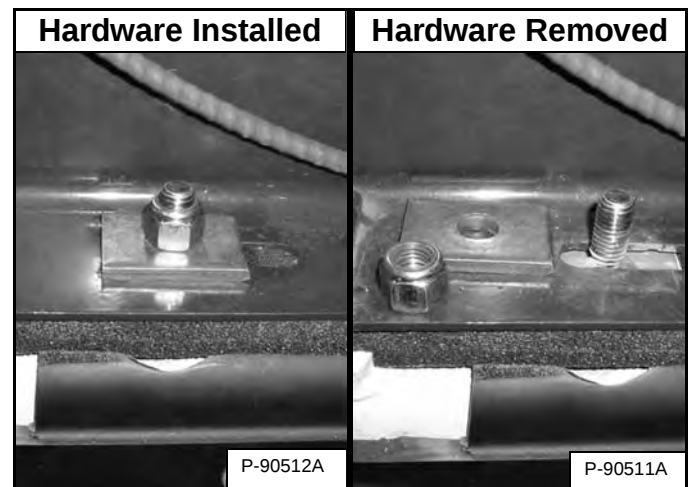
Stop the loader on a level surface. Lower the lift arms. If the lift arms must be up while raising the operator cab, install the lift arm support device. (See LIFT ARM SUPPORT DEVICE on Page 131.)

Figure 198



Install jackstands under the rear of the loader frame [Figure 198].

Figure 199



Remove the nuts and washers [Figure 199] (both sides) at the front corners of the operator cab.



UNEXPECTED LOADER, LIFT ARM OR ATTACHMENT MOVEMENT CAUSED BY CAB CONTACT WITH CONTROLS CAN CAUSE SERIOUS INJURY OR DEATH

- **STOP ENGINE before raising or lowering cab.**

W-2758-0908

NOTE: On some machines, the operator cab frame could contact the steering levers while raising or lowering the operator cab. The engine **MUST** be stopped before raising or lowering the operator cab.

OPERATOR CAB (CONT'D)

Raising (Cont'd)

Figure 200



Lift on the grab handles and bottom of the operator cab [Figure 200] slowly until the operator cab is all the way up and the latching mechanism engages.

Lowering

Always stop the engine before raising or lowering the operator cab.

NOTE: Always use the grab handles to lower the operator cab.

Figure 201



Pull down on the bottom of the operator cab until it stops at the latching mechanism [Figure 201].

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



WARNING

UNEXPECTED LOADER, LIFT ARM OR ATTACHMENT MOVEMENT CAUSED BY CAB CONTACT WITH CONTROLS CAN CAUSE SERIOUS INJURY OR DEATH

- **STOP ENGINE** before raising or lowering cab.

W-2758-0908

NOTE: On some machines, the operator cab frame could contact the steering levers while raising or lowering the operator cab. The engine **MUST** be stopped before raising or lowering the operator cab.

Support the operator cab and release the latching mechanism (Inset) [Figure 201]. Remove your hand from the latch mechanism when the operator cab is past the latch stop. Use both hands to lower the operator cab all the way down.



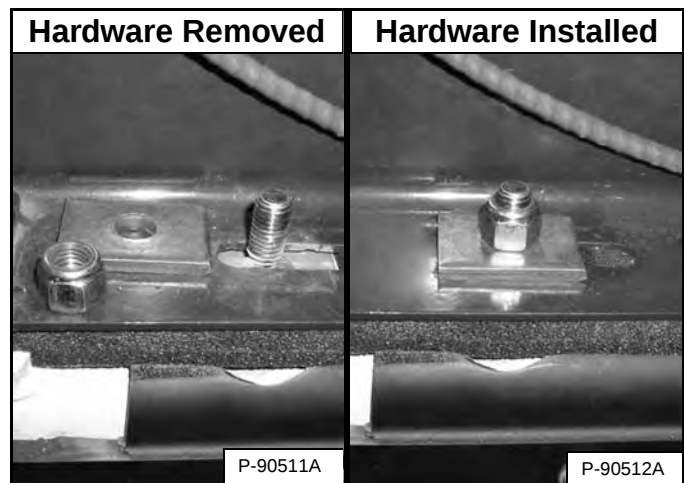
WARNING

PINCH POINT CAN CAUSE INJURY

Remove your hand from the latching mechanism when the cab is past the latch stop.

W-2469-0803

Figure 202



Install the washers and nuts (both sides) [Figure 202].

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

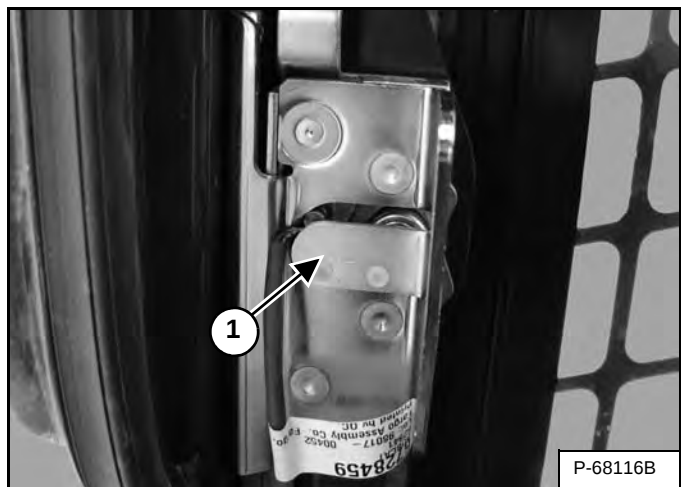
Remove the jackstands.

OPERATOR CAB (CONT'D)

Cab Door Sensor

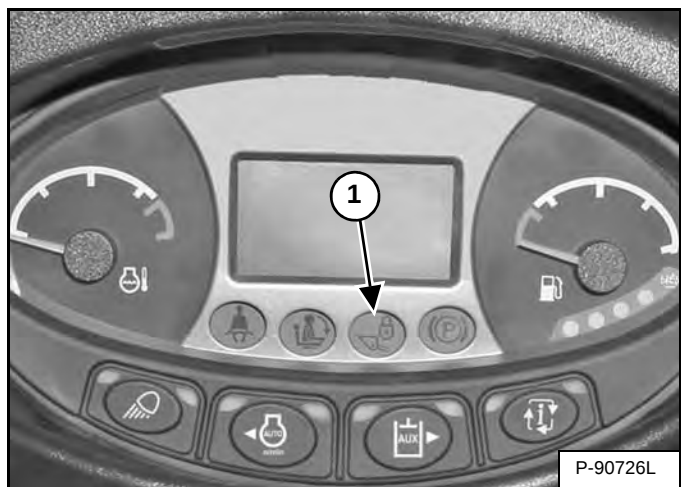
This machine may be equipped with a Cab Door Sensor.

Figure 203



The cab door has a sensor (Item 1) [Figure 203] installed which deactivates the lift and tilt valves when the door is open.

Figure 204



The LIFT AND TILT VALVE light (Item 1) [Figure 204] will be OFF when the door is closed, the key switch is turned to RUN or the RUN button is pressed, the seat bar is lowered and the PRESS TO OPERATE LOADER button is pressed.

Figure 205



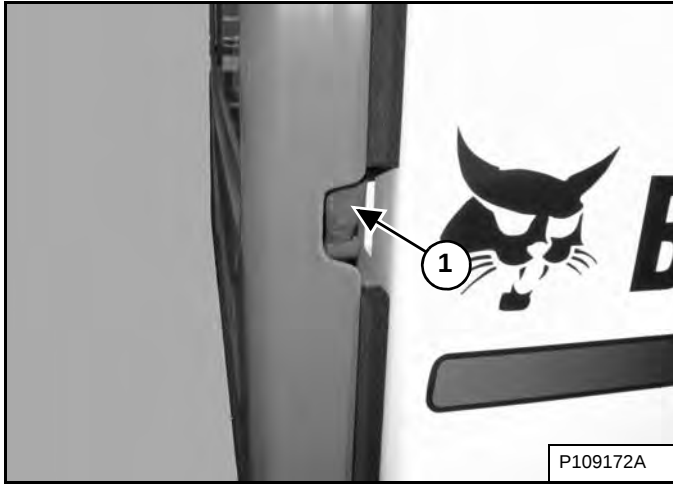
The LIFT AND TILT VALVE light (Item 1) [Figure 204] will be ON when the door is open, the key switch is turned to RUN or the RUN button is pressed, the seat bar is lowered and the PRESS TO OPERATE LOADER button is pressed.

[DOOR] will appear in the data display [Figure 205].

REAR DOOR (TAILGATE)

Opening And Closing

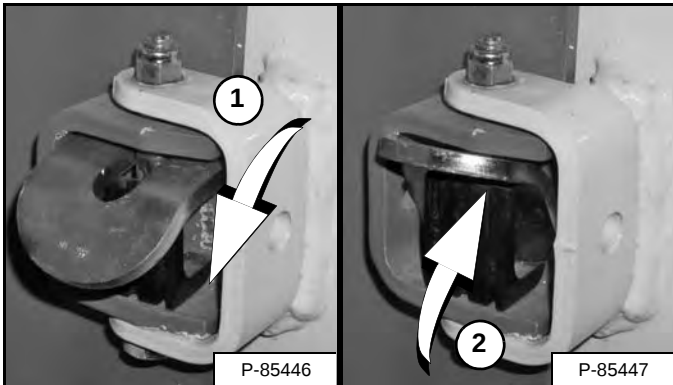
Figure 206



Reach into the slot on the right side of the rear door and pull the latch handle (Item 1) **[Figure 206]**.

Pull the rear door open.

Figure 207



The rear door is equipped with a door stop feature on the top hinge.

Move the door stop into the engaged position (Item 1) **[Figure 207]** to hold the door open.

Move the door stop up (Item 2) **[Figure 207]** to disengage the door stop and allow the door to close.

Close the rear door.

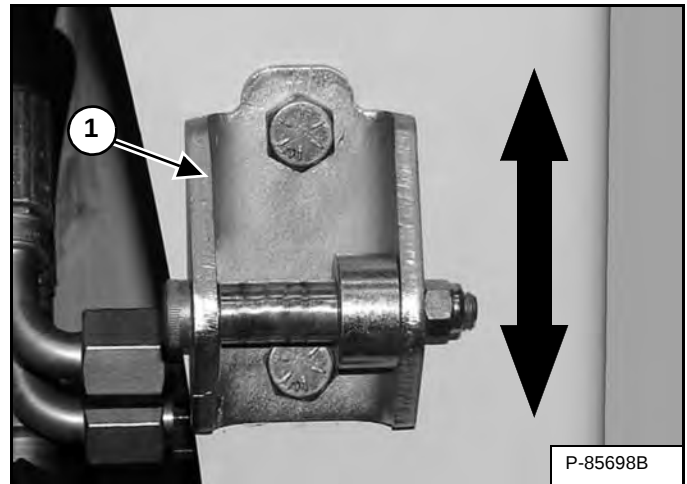
WARNING

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

W-2020-1285

Adjusting

Figure 208



The door latch (Item 1) **[Figure 208]** can be adjusted up or down for alignment with the door latch mechanism.

Close the rear door before operating the loader.

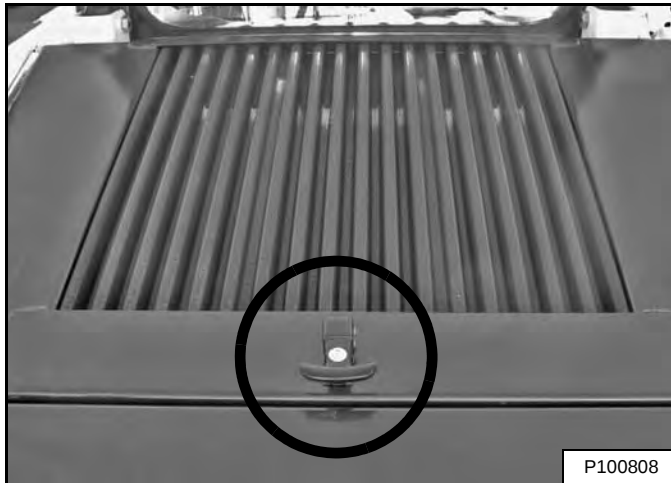
REAR GRILLE

Identification

Review the following photographs to identify the rear grille installed in your machine. Follow the instructions below the photograph to find the correct rear grille removal and installation instructions for the rear grille.

Lockable Handle

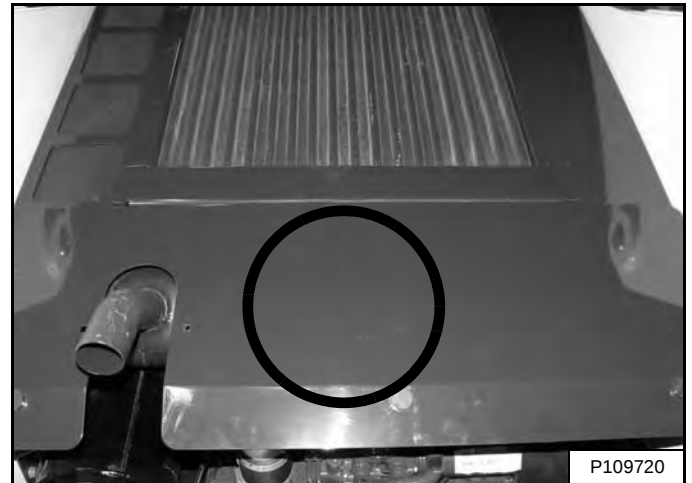
Figure 209



This rear grille **[Figure 209]** is identified by a lockable handle. (See Lockable Handle Rear Grille on Page 140.)

Slide In

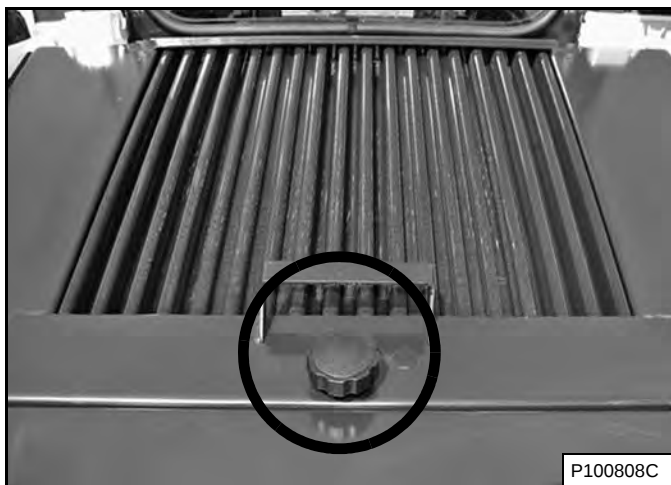
Figure 211



This rear grille **[Figure 211]** is identified by the lack of a handle or a knob. (See Slide In Rear Grille on Page 142.)

Clamping Knob

Figure 210



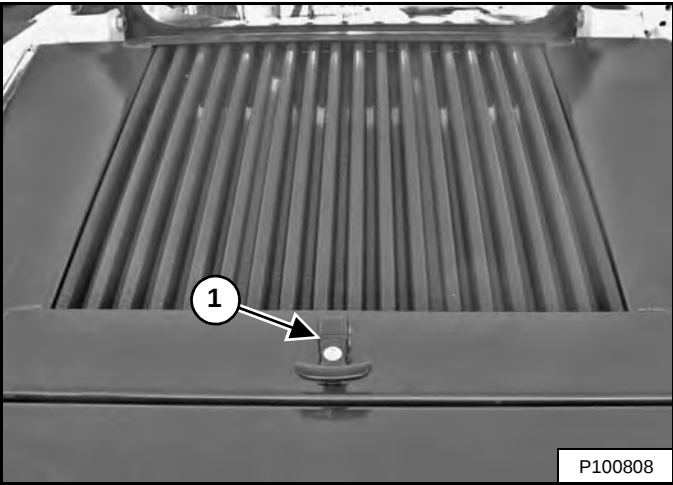
This rear grille **[Figure 210]** is identified by a clamping knob. (See Clamping Knob Rear Grille on Page 141.)

REAR GRILLE (CONT'D)

Lockable Handle Rear Grille

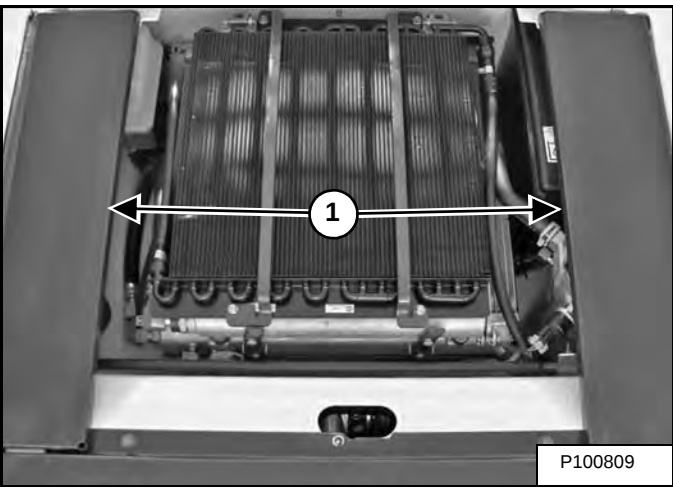
Removing

Figure 212



Flip the lockable handle (Item 1) [Figure 212] up and turn the handle 90° counterclockwise. Lift and pull the rear grille backward to remove from the loader.

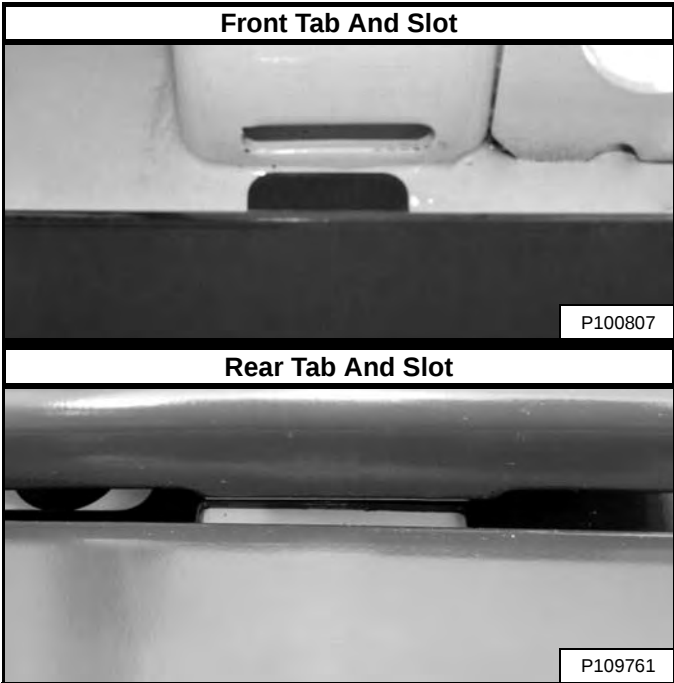
Figure 213



Lift and remove the two side covers (Item 1) [Figure 213].

Installing

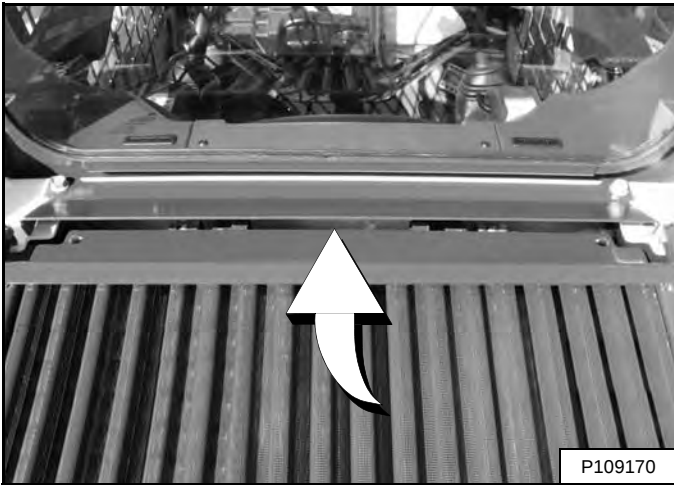
Figure 214



Align the front tabs of the two side covers into the slots in the loader frame [Figure 214].

Align the rear tabs of the two side covers into the slots in the loader frame and lower [Figure 214].

Figure 215



Align the edge of the rear grille under the loader frame and slide rear grille in while lowering [Figure 215].

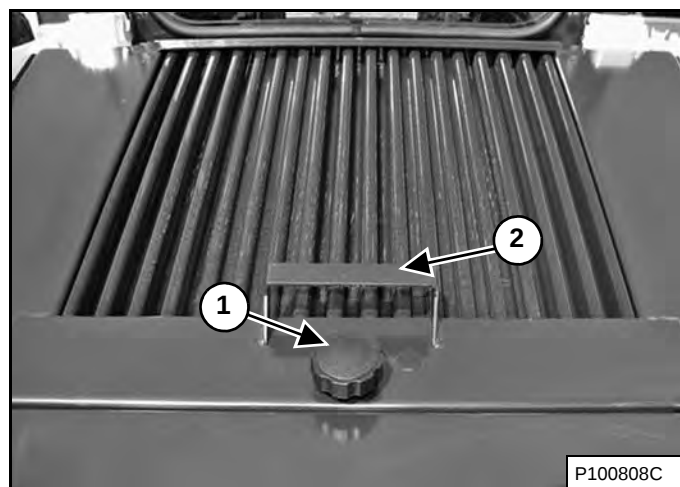
Turn the lockable handle 90° clockwise and fold the handle down [Figure 212].

REAR GRILLE (CONT'D)

Clamping Knob Rear Grille

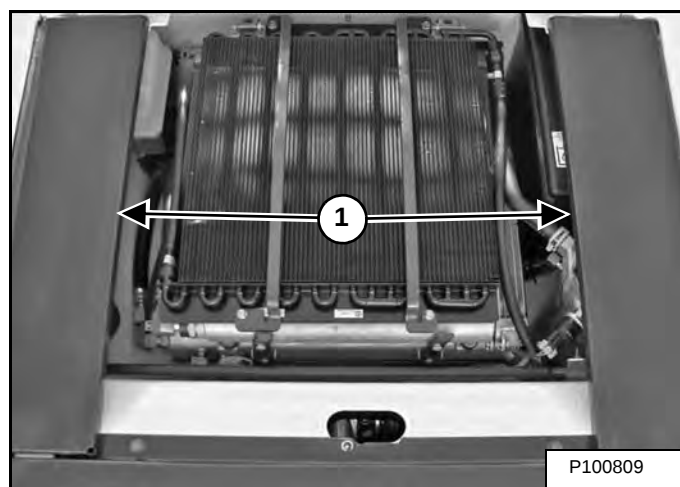
Removing

Figure 216



Remove the clamping knob (Item 1). Lift using the handle (Item 2) [Figure 216] and pull the rear grille backward to remove from the loader.

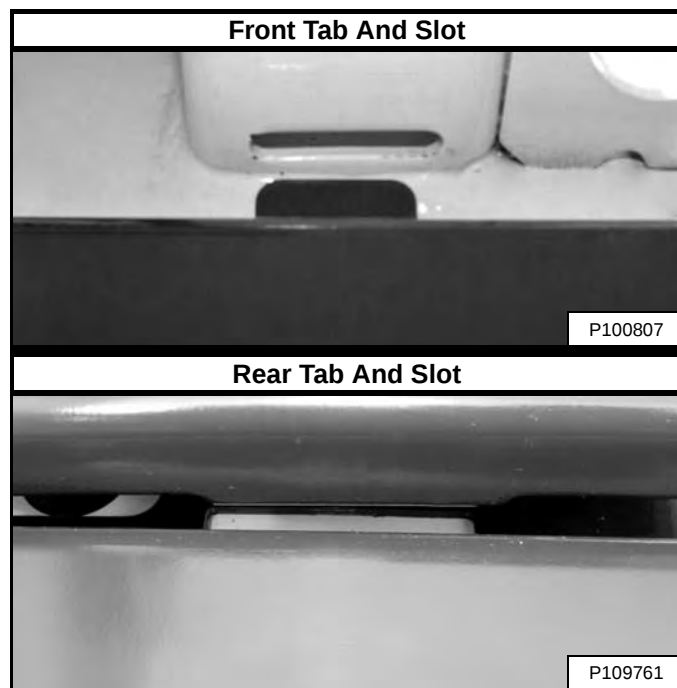
Figure 217



Lift and remove the two side covers (Item 1) [Figure 217].

Installing

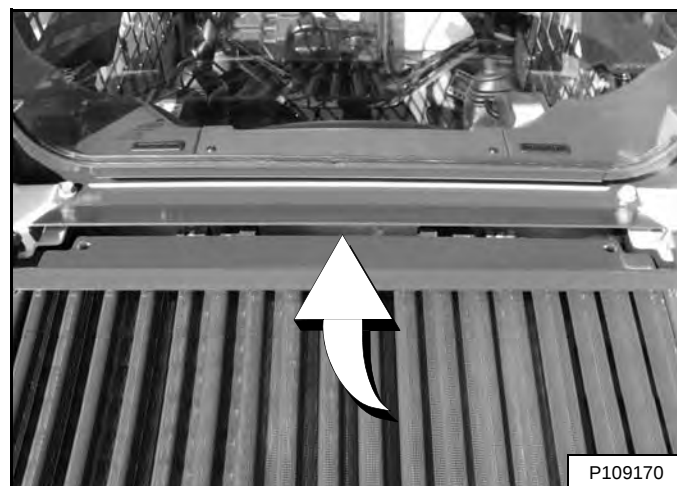
Figure 218



Align the front tabs of the two side covers into the slots in the loader frame [Figure 218].

Align the rear tabs of the two side covers into the slots in the loader frame and lower [Figure 218].

Figure 219



Align the edge of the rear grille under the loader frame and slide rear grille in while lowering [Figure 219].

Install the clamping knob (Item 1) [Figure 216].

REAR GRILLE (CONT'D)

Slide In Rear Grille

Removing

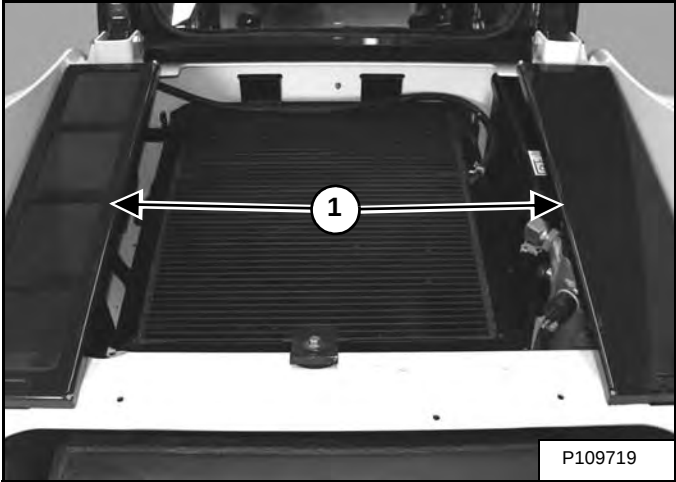
Stop the engine and open the rear door.

Figure 220



Lift and pull the rear grille backward to remove from the loader **[Figure 220]**.

Figure 221



Lift and remove the two side covers (Item 1) **[Figure 221]**.

REAR GRILLE (CONT'D)

Slide In Rear Grille (Cont'd)

Installing

Figure 222



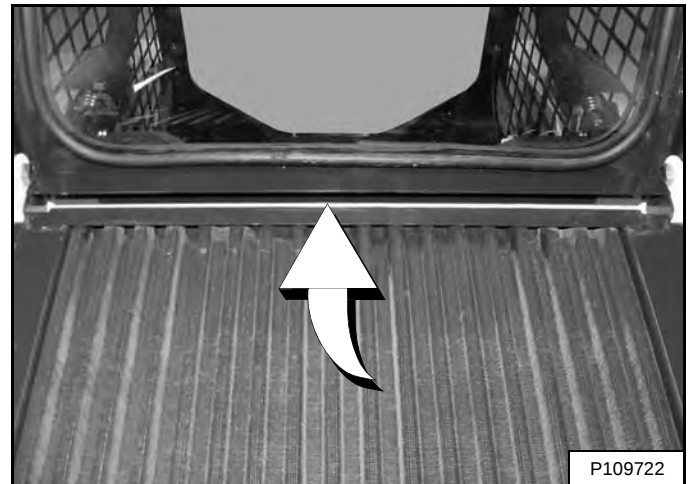
Align the front tabs of the two side covers into the slots in the loader frame and lower **[Figure 222]**. (Right side shown.)

Figure 223



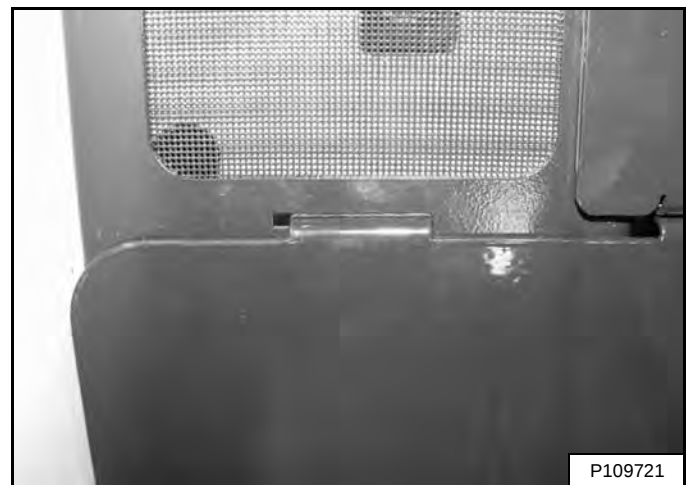
Align the rear tabs of the two side covers into the slots in the loader frame and lower **[Figure 223]**. (Left side shown.)

Figure 224



Align the edge of the rear grille under the loader frame and slide rear grille in while lowering **[Figure 224]**.

Figure 225



Align the tabs of the rear grille into the slots in the two side covers **[Figure 225]**. (Left side shown.)

Close the rear door.

HEATING, VENTILATION AND AIR CONDITIONING (HVAC)

This machine may be equipped with a Heating System or HVAC.

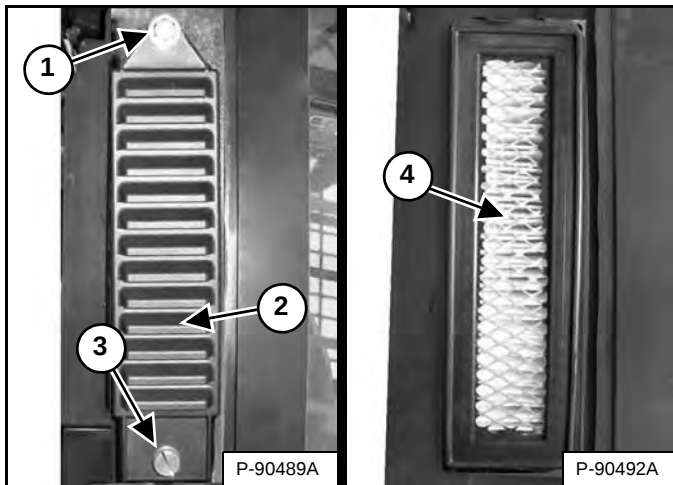
Cleaning And Maintenance

The heating and HVAC systems require regular inspection and maintenance. (See SERVICE SCHEDULE on Page 127.)

Filters

Fresh Air Filters

Figure 226



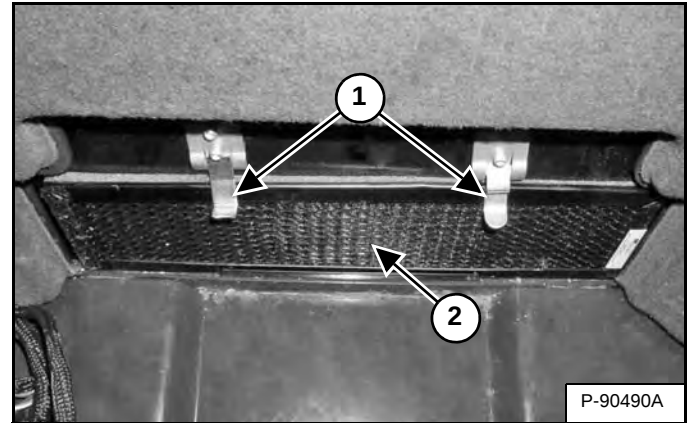
The fresh air filters are located behind the side windows outside the operator cab. (Right side shown) Remove the retaining screw (Item 3) and the filter cover (Item 2) [Figure 226]. (Lift arms shown raised for visual clarity.)

NOTE: Loosen the upper filter cover bolt (Item 1) [Figure 226] to allow removal and installation of the cover if equipped with the High-Efficiency Particulate Air (HEPA) filter kit.

Shake the filter (Item 4) [Figure 226] or use low pressure air to remove dirt. This procedure can be done several times before replacement is required. Install the filter, the filter cover, and the retaining screw.

Recirculation Filter (Earlier Models)

Figure 227



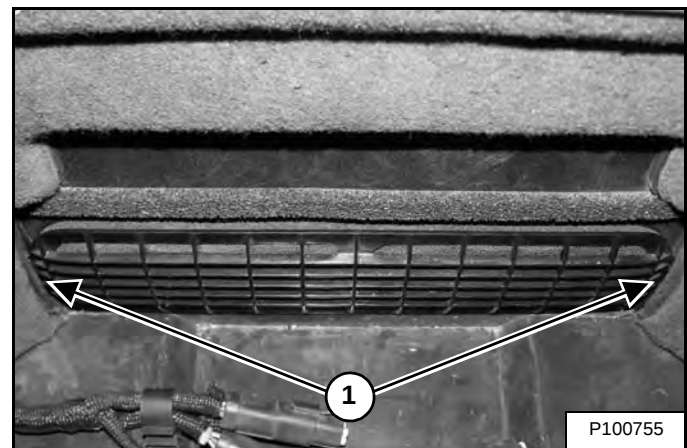
The recirculation filter is located behind the operator's seat inside the operator cab. Flip the clamps (Item 1) holding the filter up and remove the filter (Item 2) [Figure 227].

Shake the filter or use a vacuum to clean. This can be done several times before replacement is required.

Install the filter into the opening and flip the clamps down to hold the filter in place.

Recirculation Filter (Later Models)

Figure 228



The recirculation filter is located behind the operator's seat inside the operator cab. The filter cover is held in place with three clips. Pull the cover at each end (Item 1) [Figure 228] to remove.

Rinse the filter elements with water or use a vacuum to clean. Do not use solvents.

Line up the clips on the filter cover with the slots provided and push the cover into place.

HEATING, VENTILATION AND AIR CONDITIONING (HVAC) (CONT'D)

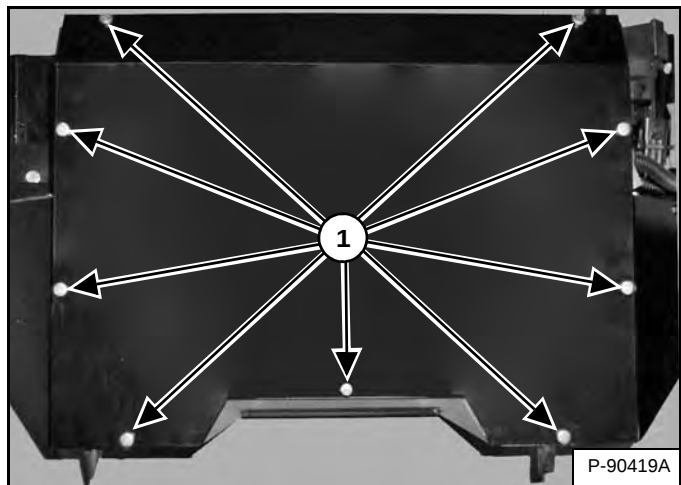
Evaporator / Heater Coil

See the SERVICE SCHEDULE for the correct service interval. (See SERVICE SCHEDULE on Page 127.)

Earlier Models

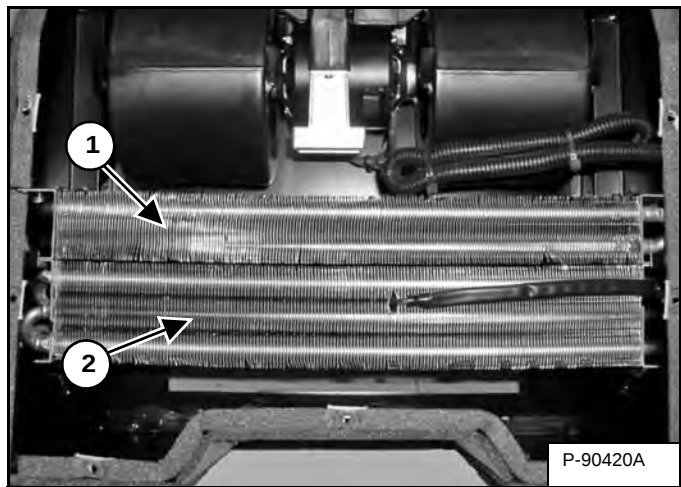
Stop the engine and raise the operator cab. (See Raising on Page 135.)

Figure 229



Remove cover screws (Item 1) [Figure 229] and remove the cover.

Figure 230



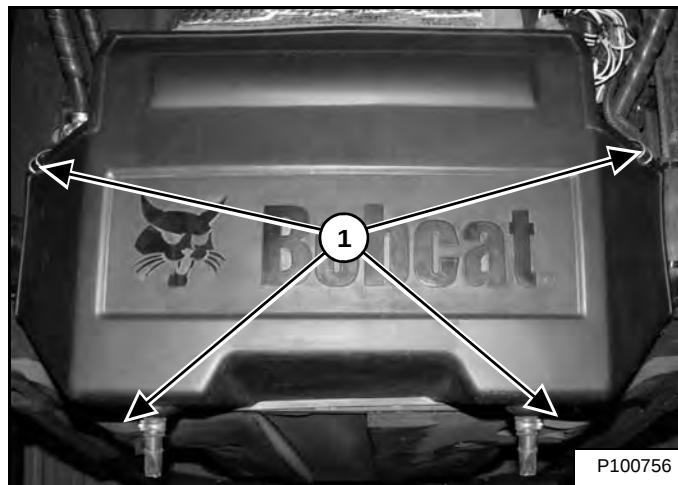
Use low pressure air or water to remove debris from the heater coil (Item 1) and evaporator (Item 2) [Figure 230].

Install the cover and lower the operator cab. (See Lowering on Page 136.)

Later Models

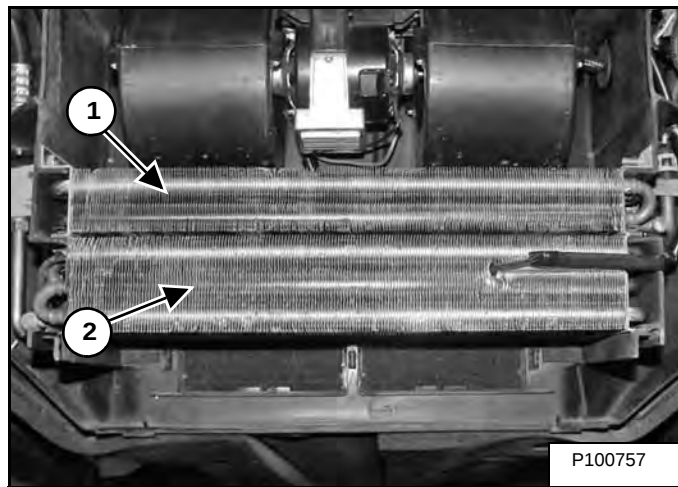
Stop the engine and raise the operator cab. (See Raising on Page 135.)

Figure 231



Unhook cover latches (Item 1) [Figure 231] and remove the cover.

Figure 232

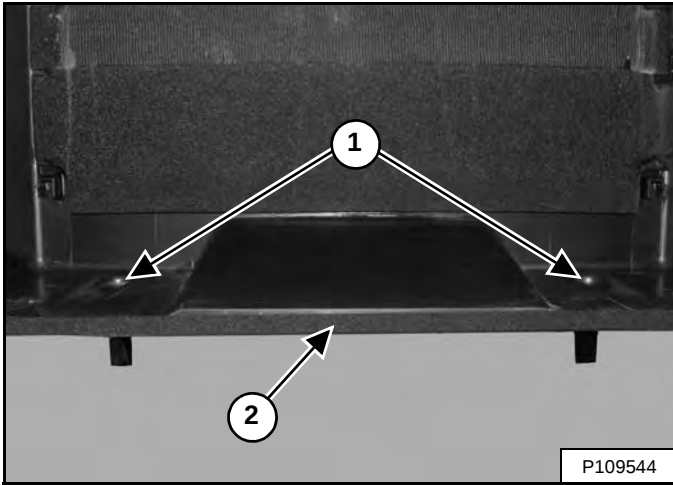


Use low pressure air or water to remove debris from the heater coil (Item 1) and evaporator (Item 2) [Figure 232].

Evaporator / Heater Coil (Cont'd)

Later Models (Cont'd)

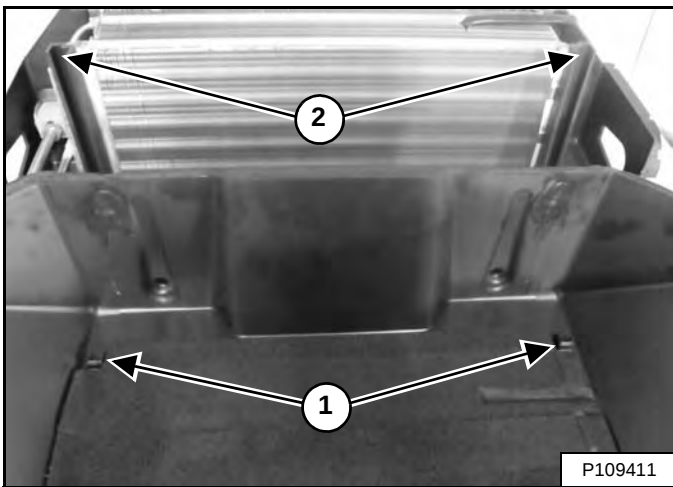
Figure 233



Clean the plenum drains (Item 1) [Figure 233] to ensure they are not plugged by debris.

Inspect the cover seal (Item 2) [Figure 233] for breaks and tears. Ensure the seal is firmly attached all around the cover. See your Bobcat dealer for a replacement seal.

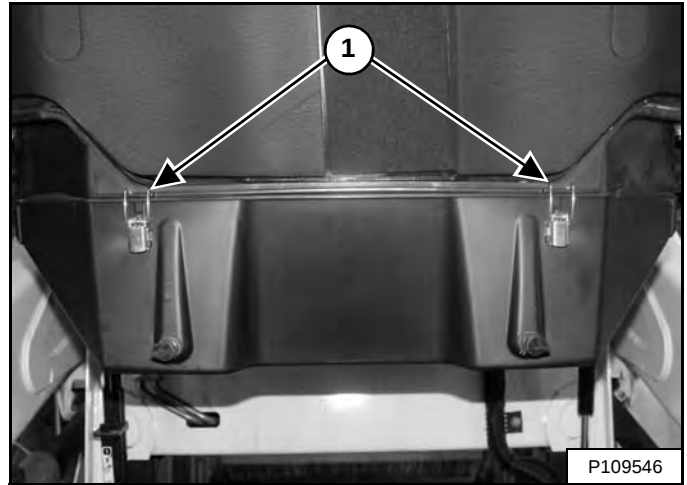
Figure 234



NOTE: The bosses (Item 1) fit inside the core supports (Item 2) [Figure 234] when the cover is installed. Deformity of the cover indicates they are out of position.

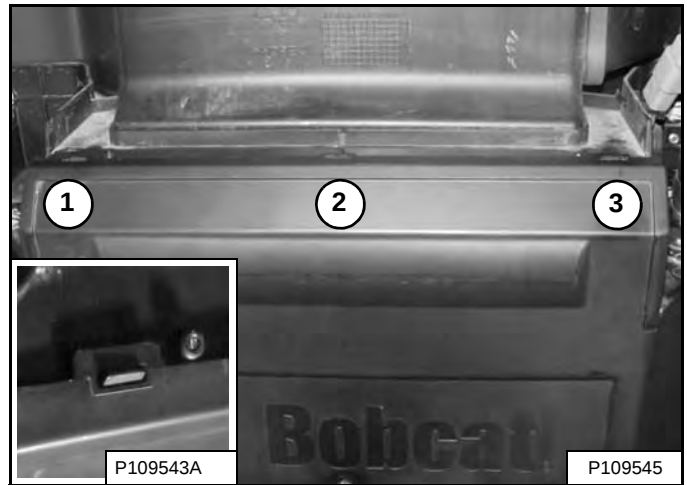
NOTE: Improper cover installation can damage the seal, which may lead to HVAC component failure. Perform the following steps in the order given to prevent cover seal damage.

Figure 235



1. Hold the cover in place and fasten two latches (Item 1) [Figure 235].

Figure 236



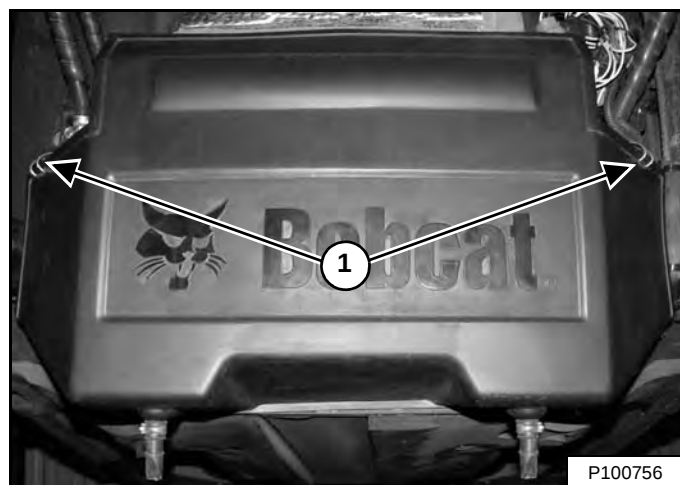
2. Push the cover up in three places (Items 1, 2, and 3) until the slots snap into place on the tabs. This slot (Inset) [Figure 236] is correctly fastened.

HEATING, VENTILATION AND AIR CONDITIONING (HVAC) (CONT'D)

Evaporator / Heater Coil (Cont'd)

Later Models (Cont'd)

Figure 237



3. Fasten the two remaining latches (Item 1) [Figure 237].

NOTE: Perform a thorough visual check to ensure that the cover and the cover seal are not deformed. The cover should seal tightly all around without any gaps.

Lower the operator cab. (See Lowering on Page 136.)

Condenser

The condenser should be cleaned with the oil cooler and the radiator. (See Cleaning (Earlier Models) on Page 156.)

Air Conditioning Lubrication

Run the air conditioning for about five minutes every week to lubricate the internal components.

Troubleshooting

If the fan does not run, or the air conditioning does not turn on, check the fuse. (See Fuse And Relay Location / Identification on Page 161.) If the air conditioning system circulates warm air, the refrigerant may need to be recharged.

AIR CLEANER SERVICE

Replacing Filter Elements

Figure 238

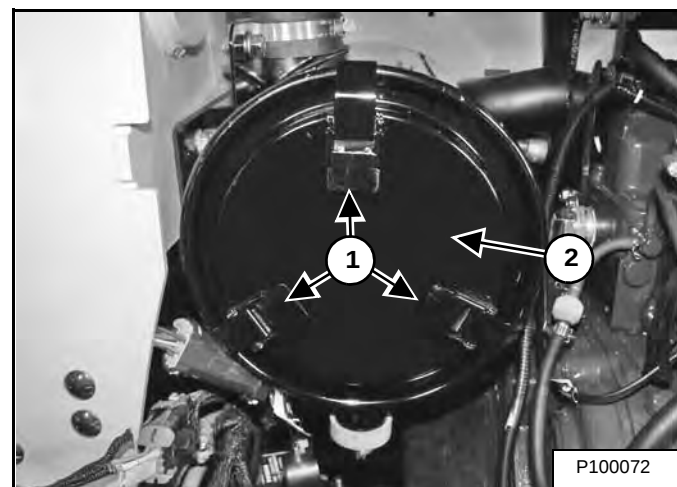


It is important to change the air filter element only when necessary. The service indicator (Item 1) will FLASH. Press the information button (Item 3) until the display screen (Item 2) shows the service codes. Service code [M0117] (Air Filter Plugged) will show in the display screen (Item 2) [Figure 238] when air filter change is necessary.

Replace the inner filter every third time the outer filter is replaced or as indicated.

Outer Filter

Figure 239



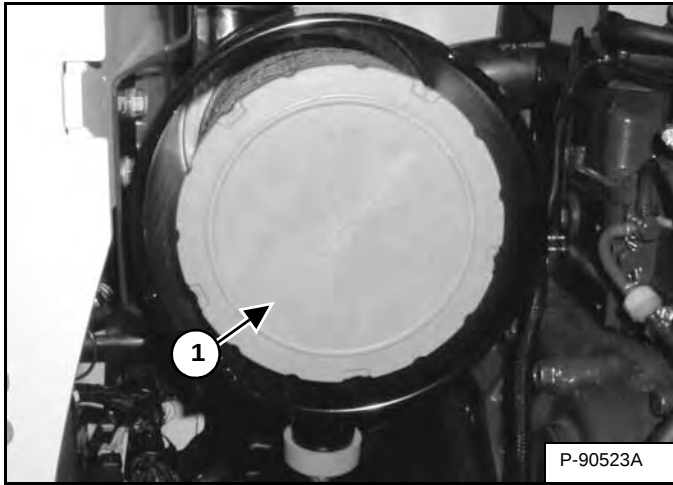
Open the latches (Item 1) and remove the dust cover (Item 2) [Figure 239].

AIR CLEANER SERVICE (CONT'D)

Replacing Filter Elements (Cont'd)

Outer Filter (Cont'd)

Figure 240



Pull the outer filter element (Item 1) [Figure 240] out and discard.

NOTE: Make sure all sealing surfaces are free of dirt and debris. DO NOT use compressed air.

Install new filter element. Push all the way in until it contacts the base of the housing.

Install the dust cover and secure the latches [Figure 239].

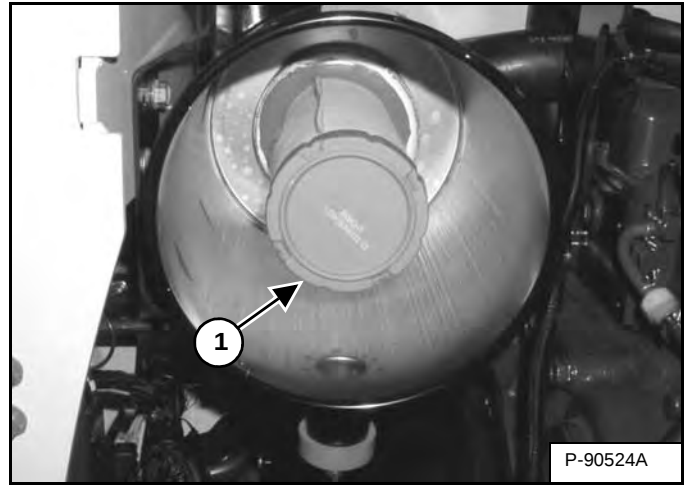
Inner Filter

Only replace the inner filter element under the following conditions:

- Replace the inner filter element every *third* time the outer filter is replaced.
- After the outer element has been replaced, start the engine and run at full rpm. If service code [M0117] (Air Filter Plugged) is still displayed in the data display, replace the inner filter element.

Remove the dust cover [Figure 239] and the outer filter element [Figure 240].

Figure 241



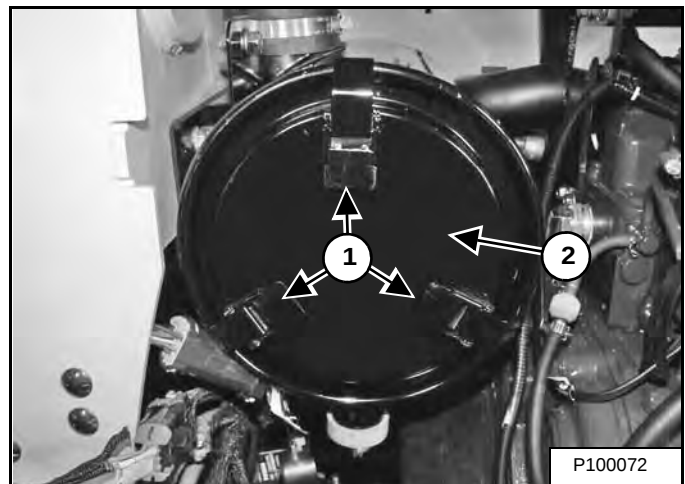
Remove the inner filter element (Item 1) [Figure 241].

NOTE: Make sure all sealing surfaces are free of dirt and debris. DO NOT use compressed air.

Install new inner filter element. Push all the way in until it contacts the base of the housing.

Install the outer filter element [Figure 240].

Figure 242



Install the dust cover (Item 2) and secure the latches (Item 1) [Figure 242].

FUEL SYSTEM

Fuel Specifications

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

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

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

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

The following fuels may also be used in this machine:

- Ultra low sulfur diesel fuel. Ultra low sulfur is defined as 15 mg/kg (15 ppm) sulfur maximum.
- Biodiesel blend fuel - Must contain no more than five percent biodiesel mixed with low sulfur or ultra low sulfur petroleum based diesel. This is commonly marketed as B5 blended diesel fuel. B5 blended diesel fuel must meet ASTM D975 (US Standard) or EN590 (EU Standard) 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.

FUEL SYSTEM (CONT'D)

Filling The Fuel Tank

! WARNING

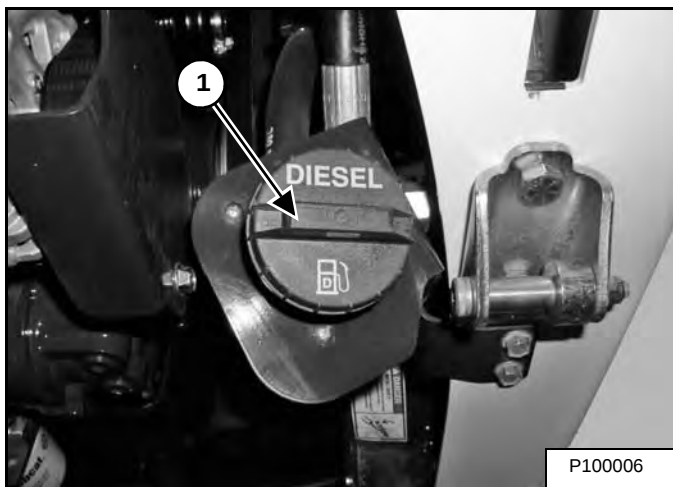
AVOID INJURY OR DEATH

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

W-2063-0807

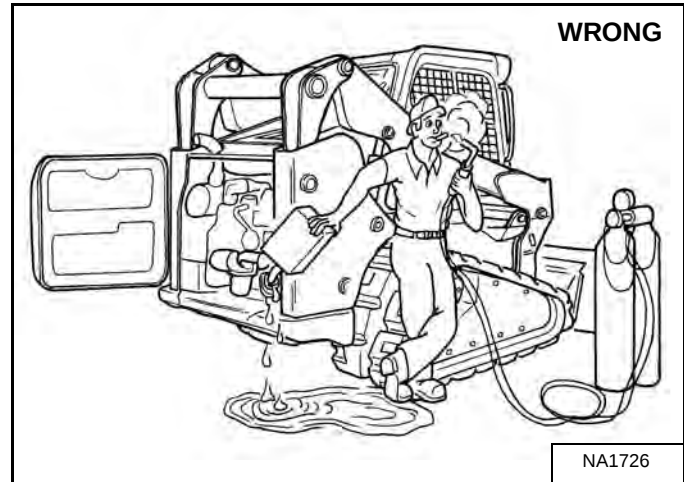
Open the rear door.

Figure 243



Remove the fill cap (Item 1) [Figure 243].

Figure 244



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 244].

Install and tighten the fuel cap (Item 1) [Figure 243].

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

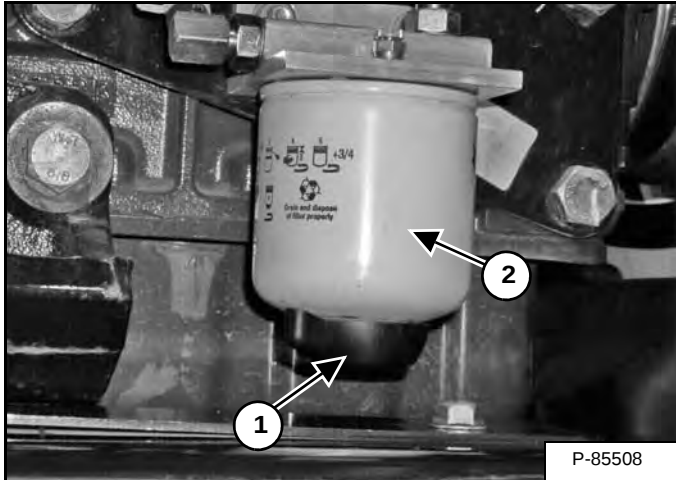
FUEL SYSTEM (CONT'D)

Fuel Filter

Follow the service interval for removing water from, or replacing the fuel filter. (See **SERVICE SCHEDULE** on Page 127.)

Removing Water

Figure 245



Loosen the drain (Item 1) [Figure 245] at the bottom of the filter element to remove water from the filter.

Replacing Element

Remove the filter element (Item 2) [Figure 245].

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 on Page 151.)

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

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.

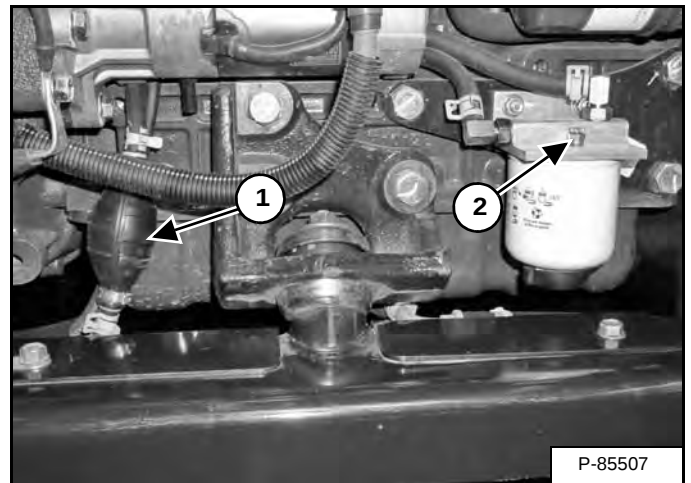
WARNING

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

Figure 246



Open the vent (Item 2) [Figure 246] on the fuel filter housing.

Squeeze the hand pump (priming bulb) (Item 1) [Figure 246] until fuel flows from the vent with no air bubbles.

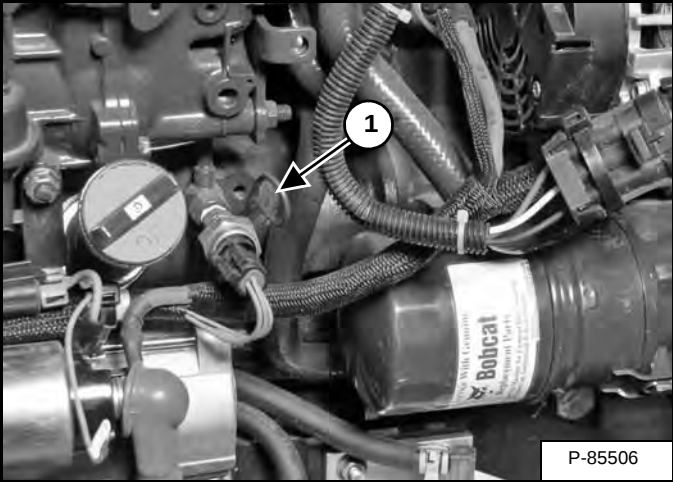
Close the vent (Item 2) [Figure 246].

ENGINE LUBRICATION SYSTEM

Checking And Adding Engine Oil

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

Figure 247

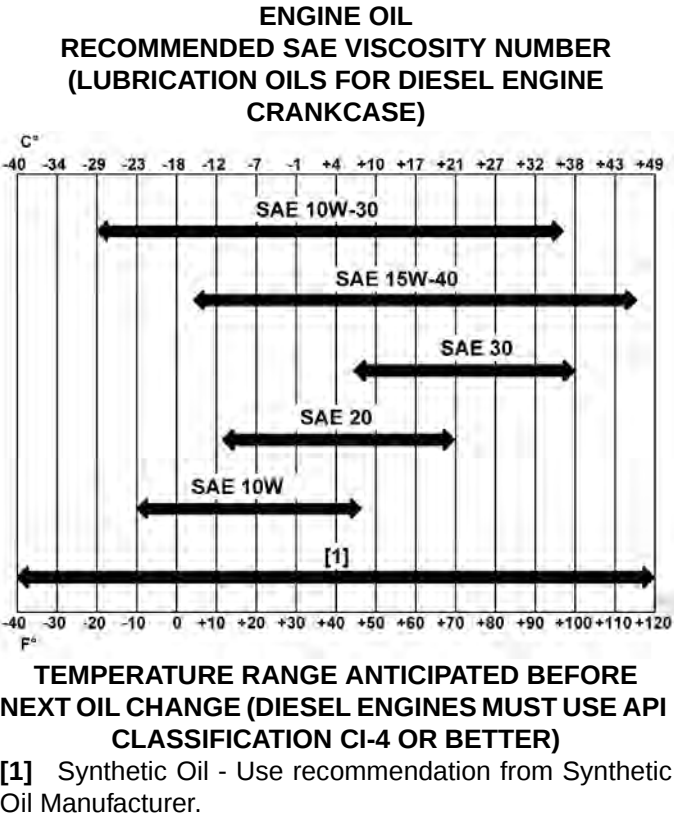


Park the machine on level ground. Open the rear door and remove the dipstick (Item 1) [Figure 247].

Keep the oil level between the marks on the dipstick. Do not overfill.

Engine Oil Chart

Figure 248



Use good quality engine oil that meets API Service Classification of CI-4 or better [Figure 248].

**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.

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ENGINE LUBRICATION SYSTEM (CONT'D)

Removing And Replacing Oil And Filter

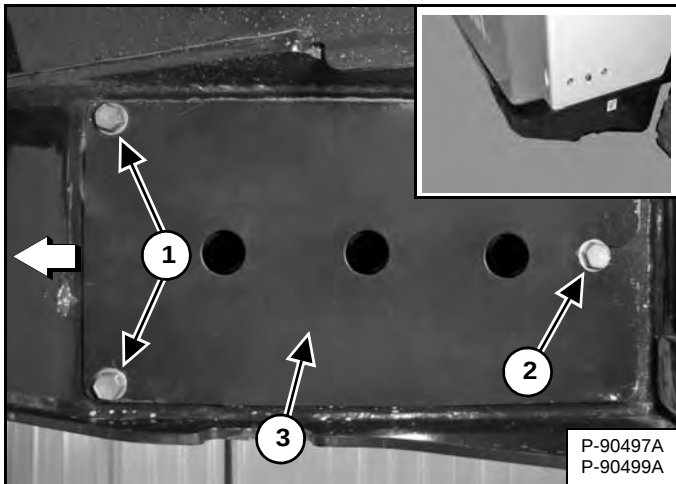
Follow the service interval for replacing the engine oil and filter. (See SERVICE SCHEDULE on Page 127.)

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

Open the rear door.

Earlier Models

Figure 249



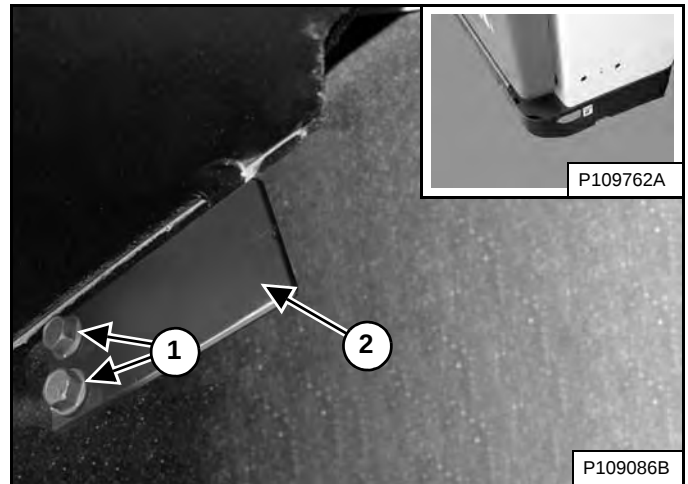
The oil drain hose is located behind a cover under the right rear corner of the loader (Inset) [Figure 249].

Remove two cover mounting bolts (Item 1) [Figure 249].

Loosen one cover mounting bolt (Item 2) and slide the cover (Item 3) [Figure 249] to the rear of the loader.

Later Models

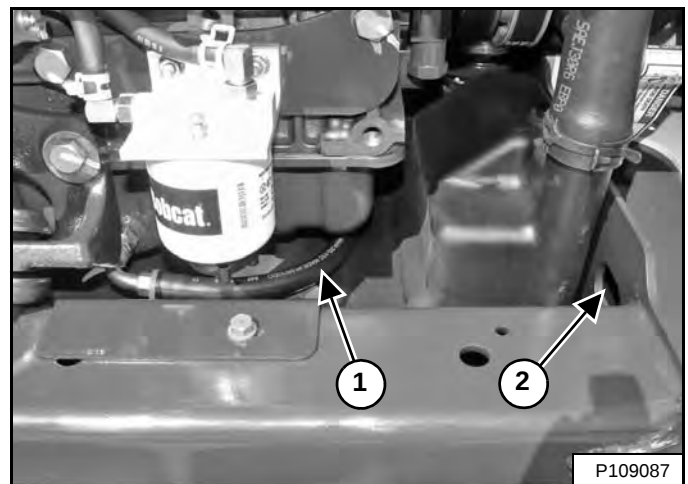
Figure 250



The oil drain hose is located behind a cover under the right rear corner of the loader (Inset) [Figure 250].

Remove the cover mounting bolts (Item 1) and remove the cover (Item 2) [Figure 250].

Figure 251



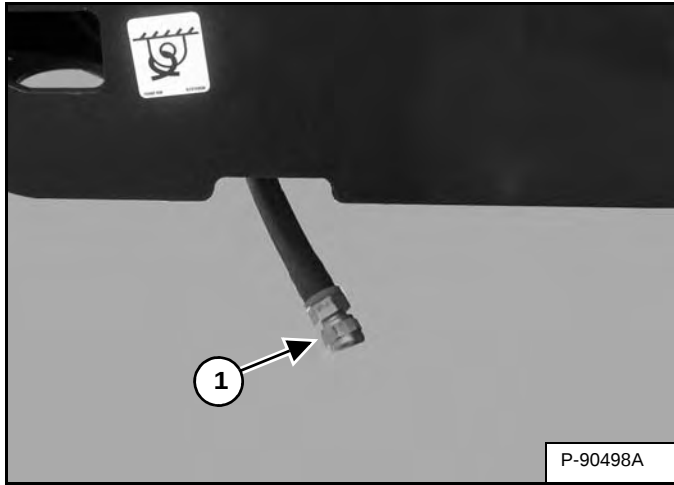
Remove the oil drain hose (Item 1) from the storage location and route through the opening (Item 2) [Figure 251].

ENGINE LUBRICATION SYSTEM (CONT'D)

Removing And Replacing Oil And Filter (Cont'd)

All Models

Figure 252



Remove the oil drain cap (Item 1) [Figure 252] from the oil drain hose and drain the oil into a container. Recycle or dispose of used oil in an environmentally safe manner.

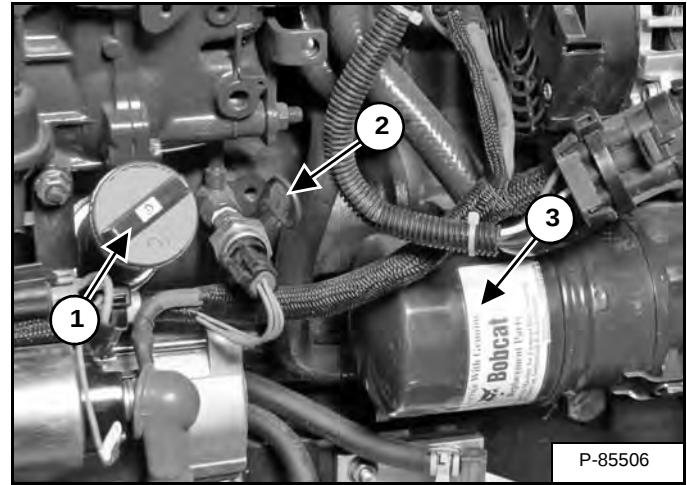
Install and tighten the oil drain cap [Figure 252].

(Earlier Models) - Install the cover and the cover mounting bolts [Figure 249]. Tighten all bolts.

OR

(Later Models) - Remove the oil drain hose from the opening and return to storage location [Figure 251]. Install the cover and the cover mounting bolts [Figure 250]. Tighten all bolts.

Figure 253



Remove the oil filter (Item 3) [Figure 253] and clean the filter housing surface.

Use genuine Bobcat filter only.

Put oil on the new filter gasket, install the filter and hand tighten.

Remove the oil fill cap (Item 1) [Figure 253].

Put oil in the engine. For the correct quantity (See Capacities on Page 234.) Do not overfill.

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

Remove the dipstick (Item 2) [Figure 253] and check the oil level.

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.

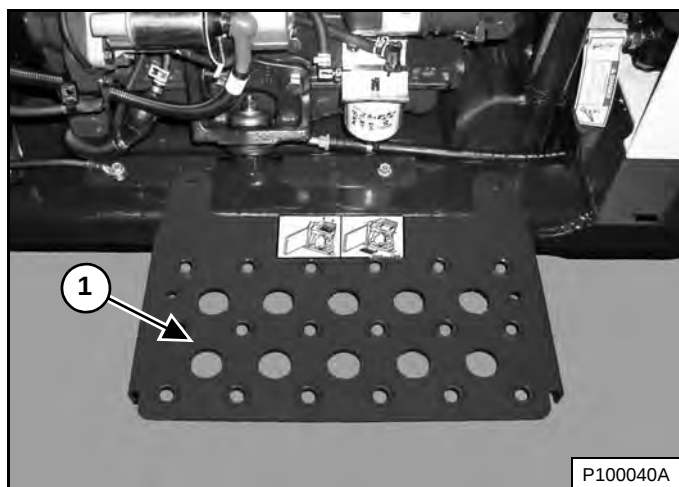
W-2103-0508

ENGINE COOLING SYSTEM

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

Maintenance Platform

Figure 254



A maintenance platform (Item 1) [Figure 254] is available from your Bobcat dealer to facilitate access when cleaning the engine cooling system.

WARNING

AVOID INJURY OR DEATH

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

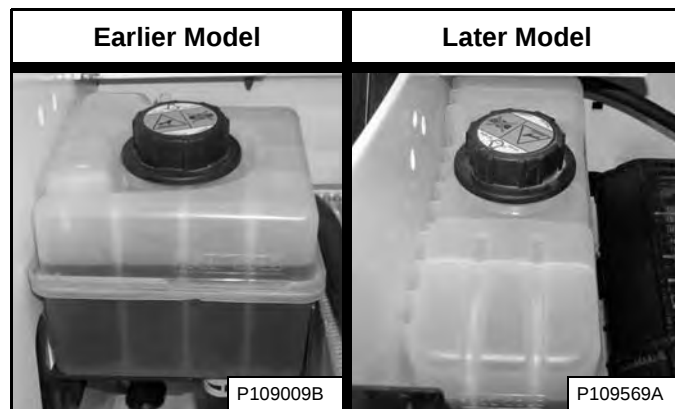
- When fluids are under pressure.
- Flying debris or loose material is present.
- Engine is running.
- Tools are being used.

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Cooling System Identification

NOTE: Identification of the cooling system used on your machine is necessary to perform the correct cleaning procedure.

Figure 255



Earlier models have a square coolant tank. Later models have a rectangular coolant tank [Figure 255].

ENGINE COOLING SYSTEM (CONT'D)

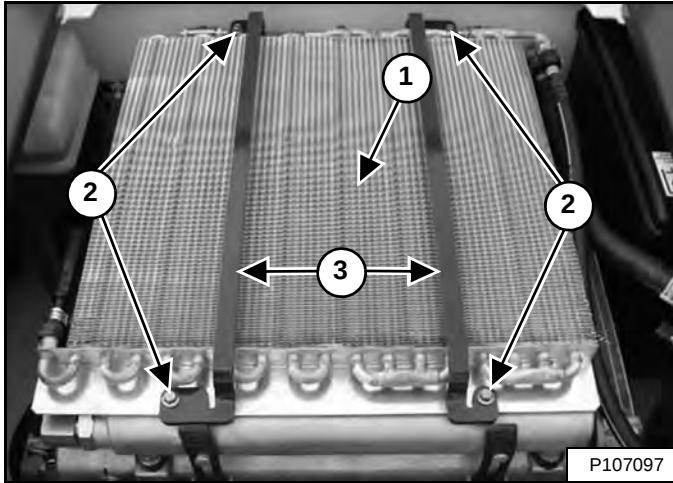
Cleaning (Earlier Models)

Open the rear door. (See REAR DOOR (TAILGATE) on Page 138.)

Remove the rear grille. (See REAR GRILLE on Page 139.)

Loaders With Air Conditioning

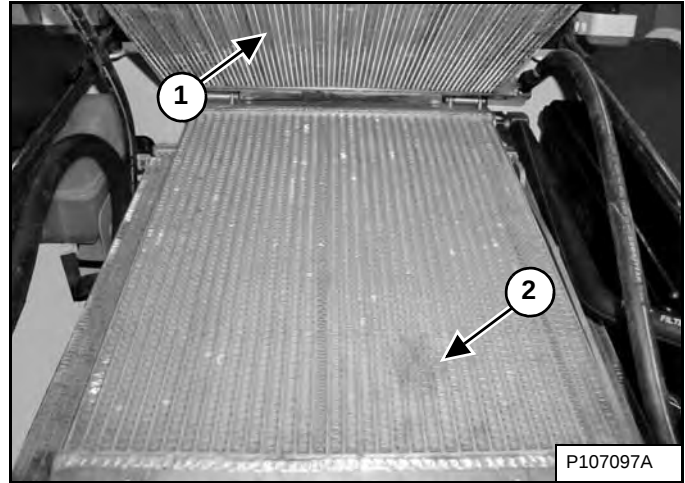
Figure 256



Use low air pressure or water pressure to clean the top of the air conditioning condenser (Item 1) [Figure 256].

The area between the air conditioning condenser and the oil cooler will require occasional cleaning. Remove the bolts (Item 2) and the brackets (Item 3) [Figure 256].

Figure 257



NOTE: Be careful when raising and lowering the air conditioning condenser so that the air conditioning condenser does not fall on the oil cooler and damage the fins.

Raise the air conditioning condenser (Item 1) and use low air pressure or water pressure to clean the top of the oil cooler (Item 2) [Figure 257].

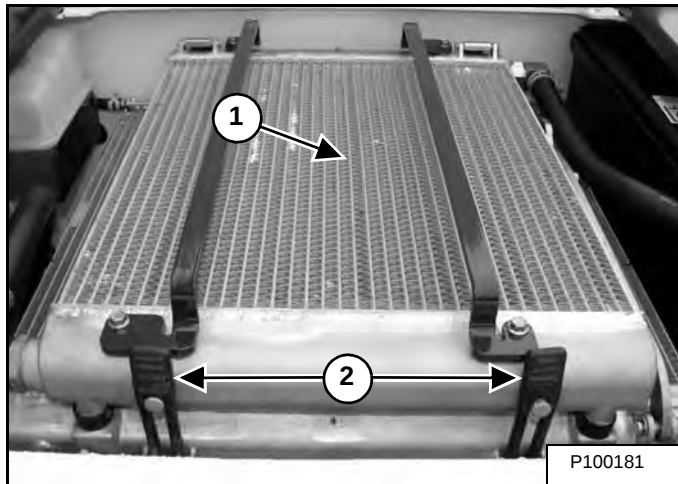
Lower the air conditioning condenser (Item 1) [Figure 257]. Install the brackets (Item 3) [Figure 256] and the bolts (Item 2) [Figure 256].

ENGINE COOLING SYSTEM (CONT'D)

Cleaning (Earlier Models) (Cont'd)

Loaders Without Air Conditioning

Figure 258

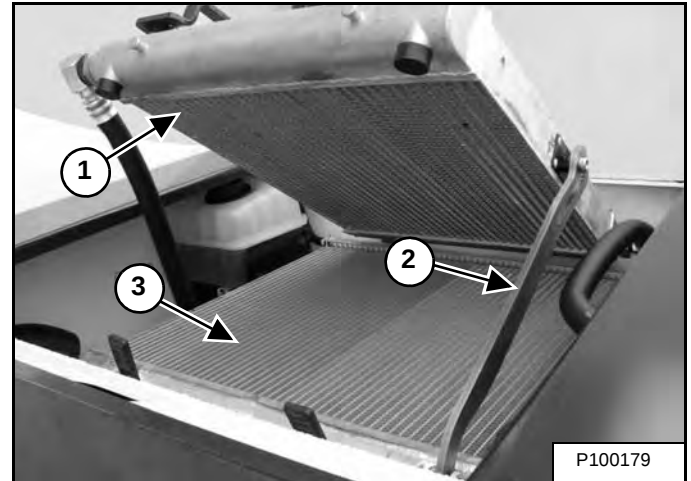


Use low air pressure or water pressure to clean the top of the oil cooler (Item 1) [Figure 258].

All Loaders

Unhook the two rubber straps (Item 2) [Figure 258].

Figure 259



Raise the oil cooler (Item 1) until the bar (Item 2) drops into position to support the oil cooler. Use low air pressure or water pressure to clean the top of the radiator (Item 3) [Figure 259].

Raise the bar (Item 2) [Figure 259] slightly and lower the oil cooler. Fasten the two rubber straps.

Check the cooling system for leaks.

Install the rear grille and close the rear door.

ENGINE COOLING SYSTEM (CONT'D)

Cleaning (Later Models)

See the SERVICE SCHEDULE for the correct service interval. (See SERVICE SCHEDULE on Page 127.)

Stop the engine, open the rear door, and remove the rear grille. (See REAR GRILLE on Page 139.)

WARNING

AVOID INJURY OR DEATH

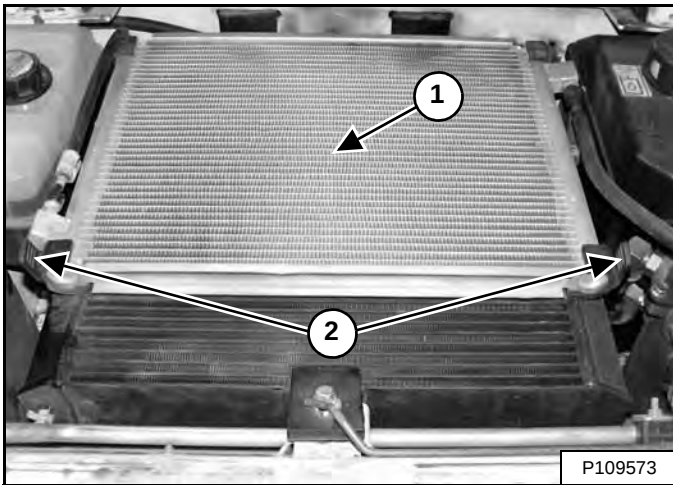
Wear safety glasses to prevent eye injury when any of the following conditions exist:

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

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Loaders With Air Conditioning

Figure 260

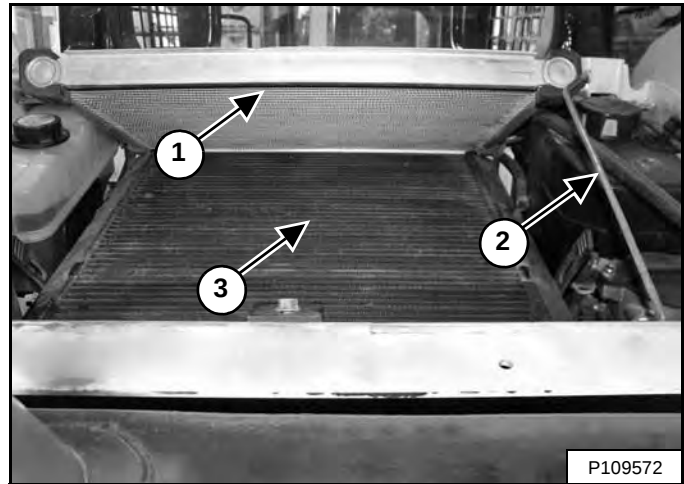


Use low air pressure or water pressure to clean the top of the air conditioning condenser (Item 1) [Figure 260].

Unhook the two rubber straps (Item 2) [Figure 260].

NOTE: The air conditioning condenser fits into two slotted brackets mounted on the hydraulic fluid cooler and radiator assembly. Ensure the air conditioning condenser remains connected to the brackets when raising and lowering.

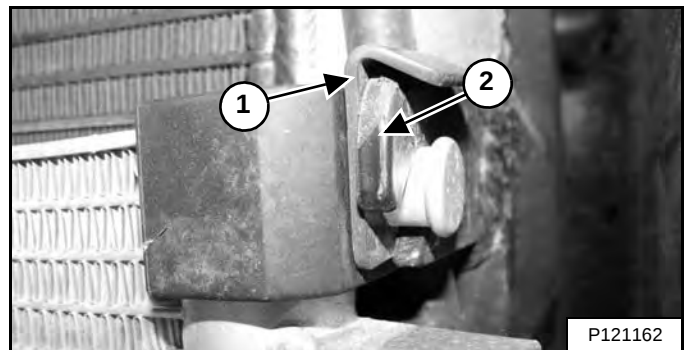
Figure 261



Pivot the air conditioning condenser (Item 1) up and rotate the support bar (Item 2) into position. Use low air pressure or water pressure to clean the top of the hydraulic fluid cooler and radiator assembly (Item 3) [Figure 261].

Return the support bar to storage position and lower the air conditioning condenser.

Figure 262



Ensure the air conditioning condenser is installed into the two slotted brackets [Figure 262]. (Right side shown.)

Ensure the clips (Item 1) are properly installed over the two slotted brackets (Item 2) [Figure 262]. (Right side shown.)

Fasten the two rubber straps [Figure 260].

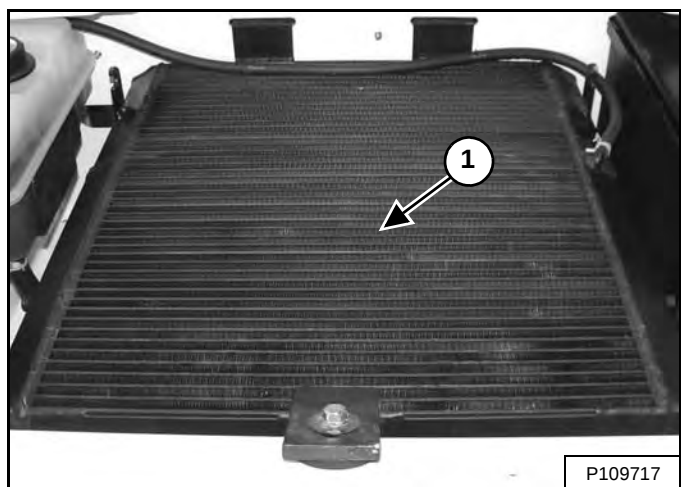
NOTE: The air conditioning condenser can be lifted out of the two slotted brackets by removing the clips. This allows greater access to clean the hydraulic fluid cooler and radiator assembly.

ENGINE COOLING SYSTEM (CONT'D)

Cleaning (Later Models) (Cont'd)

Loaders Without Air Conditioning

Figure 263



Use low air pressure or water pressure to clean the top of the hydraulic fluid cooler and radiator assembly (Item 1) [Figure 263].

All Loaders

Check the cooling system for leaks.

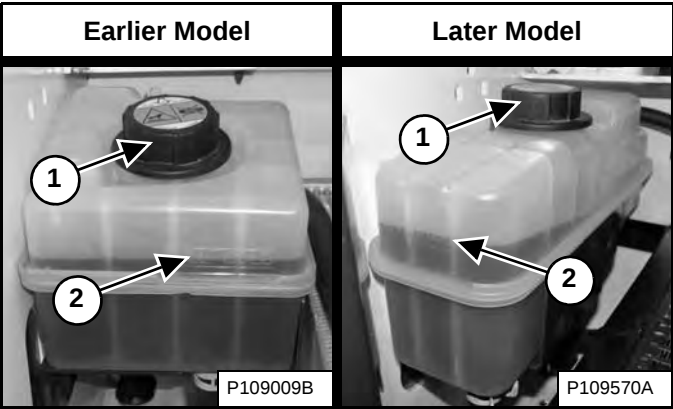
Install the rear grille and close the rear door.

ENGINE COOLING SYSTEM (CONT'D)

Checking Level

Open the rear door and raise the rear grille.

Figure 264



Check coolant level using the level markers (Item 2) [Figure 264] on the tank. Coolant must be between top and bottom level markers when the engine is cold.

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

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

Lower the rear grille and 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.

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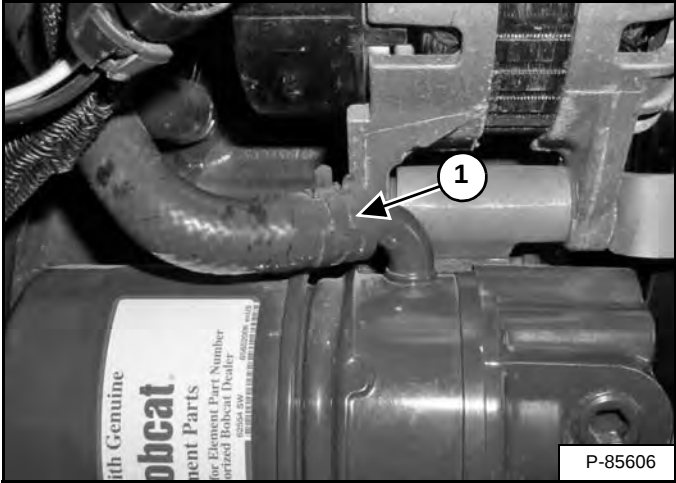
Removing And Replacing Coolant

For the service interval for replacing the engine coolant (See SERVICE SCHEDULE on Page 127.)

Open the rear door and remove the rear grille.

Remove the coolant fill cap (Item 1) [Figure 264].

Figure 265



Disconnect the coolant hose (Item 1) [Figure 265] from the oil filter assembly. Drain the coolant into a container. Connect the coolant hose to the oil filter assembly. Recycle or dispose of coolant in an environmentally safe manner.

Mix new coolant in a separate container. (See Capacities on Page 234.)

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.

Add premixed coolant, 47% water and 53% propylene glycol to the coolant tank until the coolant level reaches the lower marker on the tank [Figure 264].

Install the coolant fill cap.

NOTE: When installing the coolant fill cap, the cap must be tightened until it clicks.

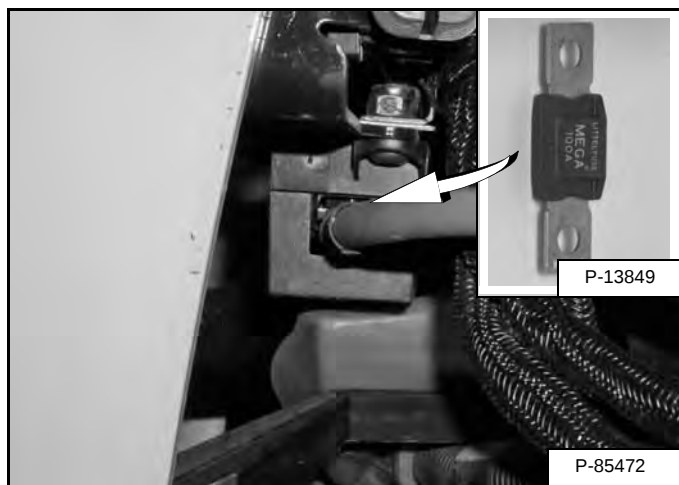
Run the engine until it is at operating temperature. Stop the engine. Check the coolant level when cool. Add coolant as needed.

Install the rear grille and close the rear door.

ELECTRICAL SYSTEM

Description

Figure 266



The loader has a 12 volt, negative ground, alternator charging system.

The electrical system is protected by fuses located in the operator cab (located under the operator cab in earlier models) and a 100 ampere master fuse **[Figure 266]** located under the air cleaner in the engine compartment.

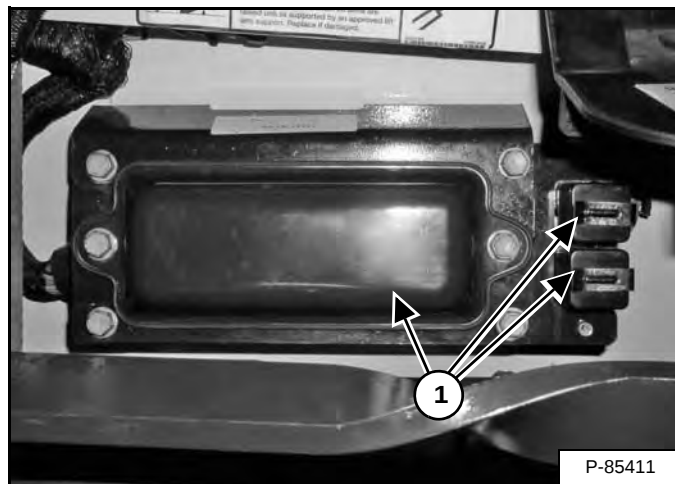
The fuses will protect the electrical system when there is an electrical overload. The reason for the overload must be found before starting the engine again.

Fuse And Relay Location / Identification

Earlier Models

Raise the operator cab. (See Raising on Page 135.)

Figure 267



The electrical system is protected from overload by fuses and relays located under three fuse panel covers (Item 1) **[Figure 267]**.

Figure 268



Remove the covers to check or replace the fuses **[Figure 268]**.

A decal is located inside the large cover to show location and amperage ratings.

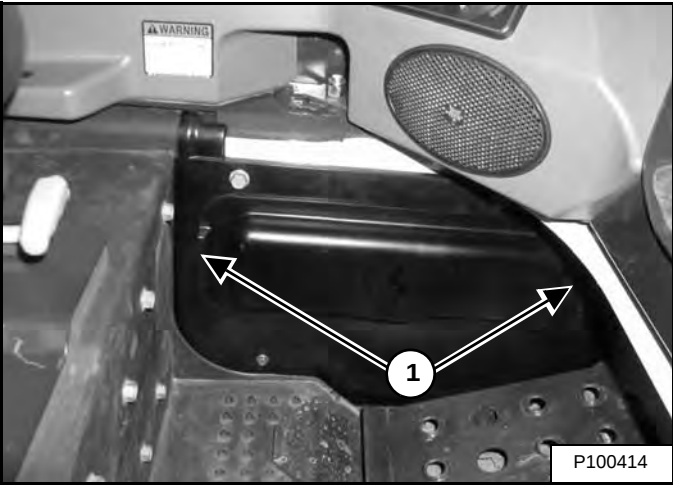
A table is provided with details on amperage ratings and circuits affected by each fuse and relay. (See Figure 272 on Page 163.)

ELECTRICAL SYSTEM (CONT'D)

Fuse And Relay Location / Identification (Cont'd)

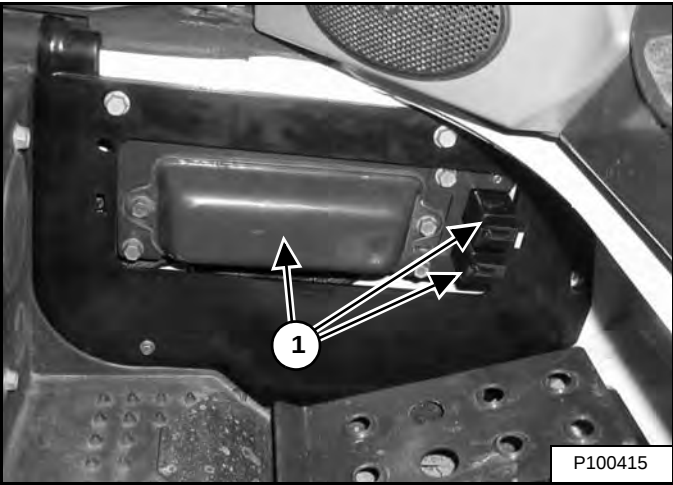
Later Models

Figure 269



The fuse / relay panels are located behind an access panel near the left foot pedal / footrest. Pull the panel at each end (Item 1) [Figure 269] to remove.

Figure 270



The electrical system is protected from overload by fuses and relays located under three fuse panel covers (Item 1) [Figure 270].

Figure 271



Remove the covers to check or replace the fuses [Figure 271].

A decal is located inside the access panel to show location and amperage ratings.

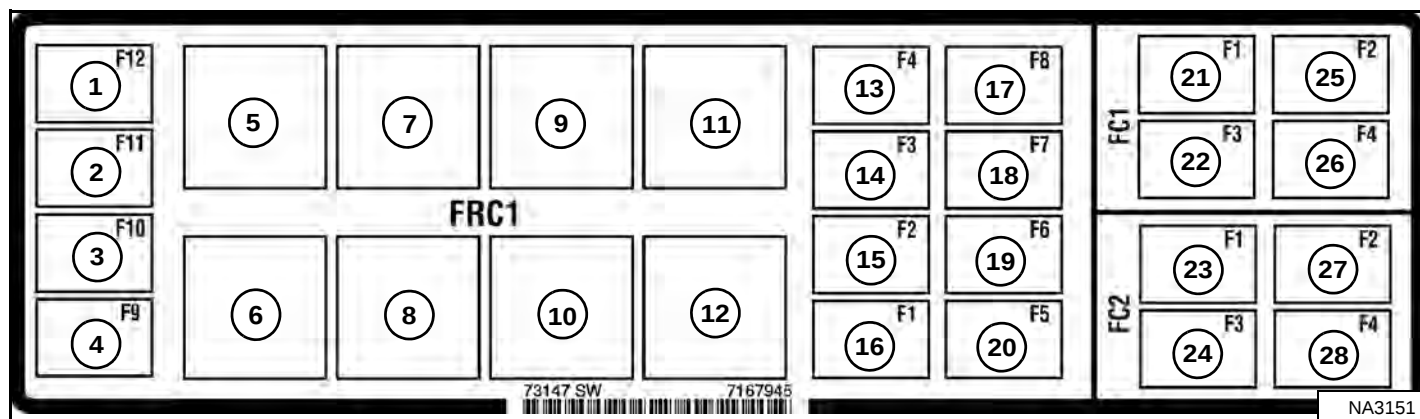
Line up the clips on the back of the access panel with the slots provided and push the panel into place when finished [Figure 269]. A locating pin prevents the panel from being installed upside down.

A table is provided with details on amperage ratings and circuits affected by each fuse and relay. (See Figure 272 on Page 163.)

ELECTRICAL SYSTEM (CONT'D)

Fuse And Relay Location / Identification (Cont'd)

Figure 272



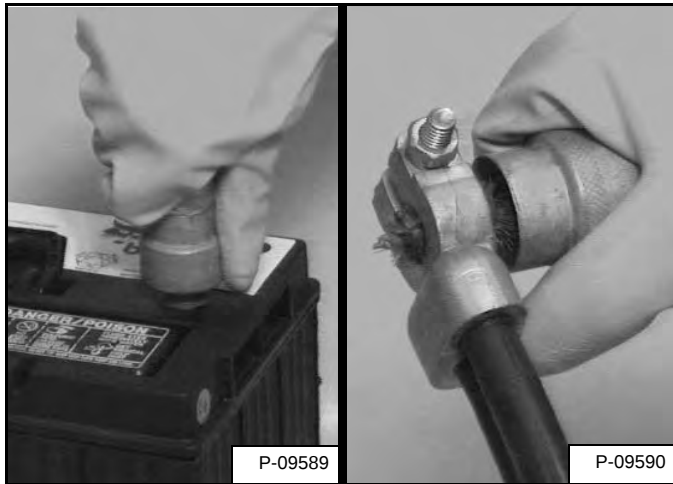
The location and amperage ratings are shown in the table below and on the decal [Figure 272]. Relays are identified by the letter "R" in the AMP column.

REF	ICON	DESCRIPTION	AMP	REF	ICON	DESCRIPTION	AMP	REF	ICON	DESCRIPTION	AMP
1		Alternator	15	11		Glow Plugs	R	21		Bobcat Controller	25
2		Heater / HVAC	25	12		Fuel Shutoff	R	22		ACS Controller	25
3		Front Lights	20	13		Cab Switched Power	5	23		Attachments	25
4		Rear Lights	15	14		Bucket Position	15	24		Not Used	--
5		Starter	R	15		Wiper / Washer	25	25		Auxiliary Controller	25
6		Front Lights	R	16		Switched Power and Back-up Alarm (Standard / ACS)	25	26		Drive Controller and Back-up Alarm (SJC)	25
7		Heater / HVAC	R	17		Switched Power	25	27		Accessories and Front Horn	25
8		Rear Lights	R	18		Switched Power	25	28		Power Port	15
9		Switched Power	R	19		Traction	30				
10		Traction	R	20		Fuel Shutoff	30				

ELECTRICAL SYSTEM (CONT'D)

Battery Maintenance

Figure 273



The battery cables must be clean and tight **[Figure 273]**. Check electrolyte level in the battery. Add distilled water as needed. Remove acid or corrosion from battery and cables with sodium bicarbonate (baking soda) and water solution.

Put Bobcat Battery Saver or grease on the battery terminals and cable ends to prevent corrosion.

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.

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ELECTRICAL SYSTEM (CONT'D)

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.

The key switch must be OFF or the STOP button 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

Keep cables away from moving parts. Start the engine. (See STARTING THE ENGINE on Page 86.)

After the engine has started, remove the negative (-) cable (Item 4) [Figure 274] first. Remove the cable from the positive terminal (Item 2) [Figure 274].

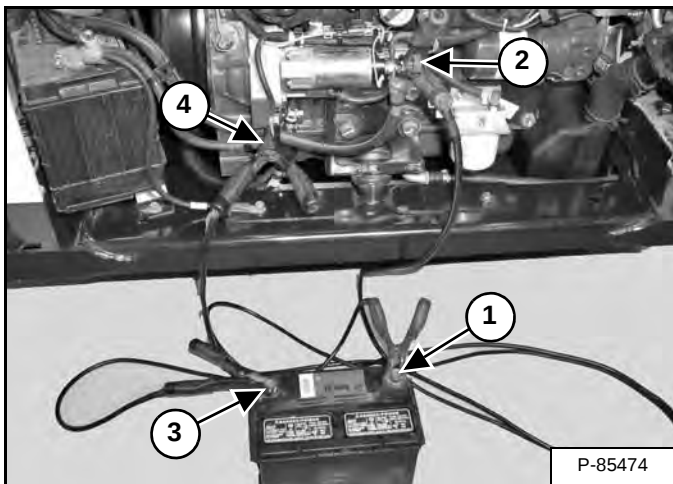
IMPORTANT

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

Figure 274



Connect the end of the first cable (Item 1) [Figure 274] to the positive (+) terminal of the booster battery. Connect the other end of the same cable (Item 2) [Figure 274] to the positive terminal on the loader starter.

Connect the end of the second cable (Item 3) [Figure 274] to the negative terminal of the booster battery. Connect the other end of the same cable (Item 4) [Figure 274] to the engine.

ELECTRICAL SYSTEM (CONT'D)

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.

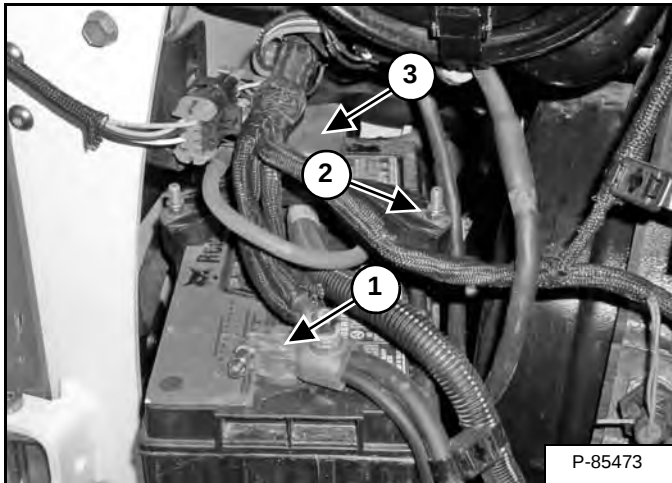
In case of acid contact, wash immediately with water. In case of eye contact get prompt medical attention and wash eye with clean, cool water for at least 15 minutes.

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 275



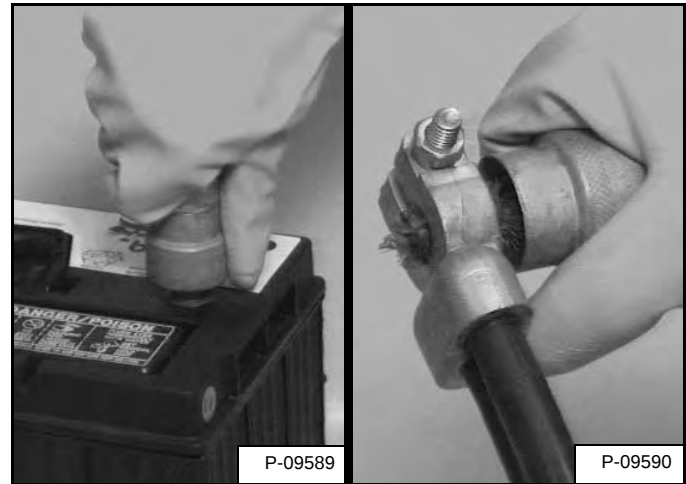
Disconnect the negative (-) cable (Item 1) [Figure 275].

Remove the battery hold-down clamp (Item 2) [Figure 275].

Disconnect the positive (+) cable (Item 3) [Figure 275] from the battery.

Remove the battery from the loader.

Figure 276



Always clean the battery terminals and cable ends when installing a new or used battery [Figure 276].

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

Connect the negative (-) cable last to prevent sparks.

Connect and tighten the battery cables.

Install and tighten the battery hold-down.

! 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

HYDRAULIC / HYDROSTATIC SYSTEM

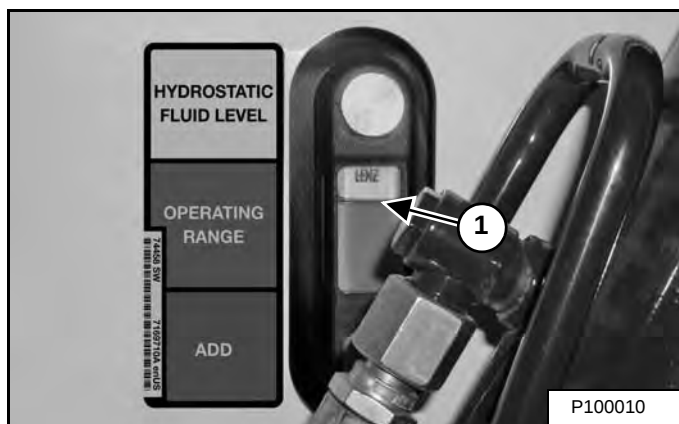
Checking And Adding Fluid

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 place the attachment flat on the ground or tilt the Bob-Tach fully back if no attachment is installed.

Stop the engine.

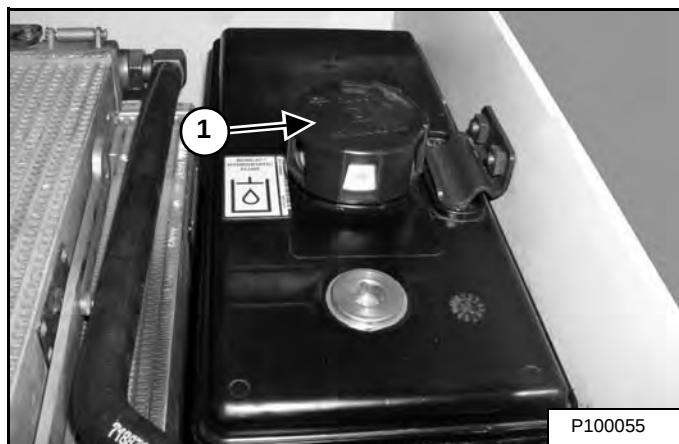
Figure 277



Check the fluid level in the sight gauge (Item 1) [Figure 277]. Keep the fluid level within the operating range.

Stop the engine, open the rear door, and remove the rear grille. (See REAR GRILLE on Page 139.)

Figure 278



Remove the fill cap (Item 1) [Figure 278].

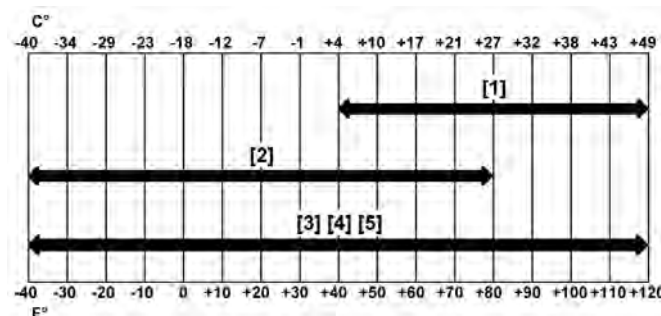
Add fluid as needed to bring the level within the operating range in the sight gauge (Item 1) [Figure 277].

Install the fill cap (Item 1) [Figure 278], install the rear grille, and close the rear door.

Hydraulic / Hydrostatic Fluid Chart

Figure 279

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 279]. (See Hydraulic System on Page 233.)

! 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

HYDRAULIC / HYDROSTATIC SYSTEM (CONT'D)

Removing And Replacing Hydraulic Fluid

For the correct service interval (See SERVICE SCHEDULE on Page 127.)

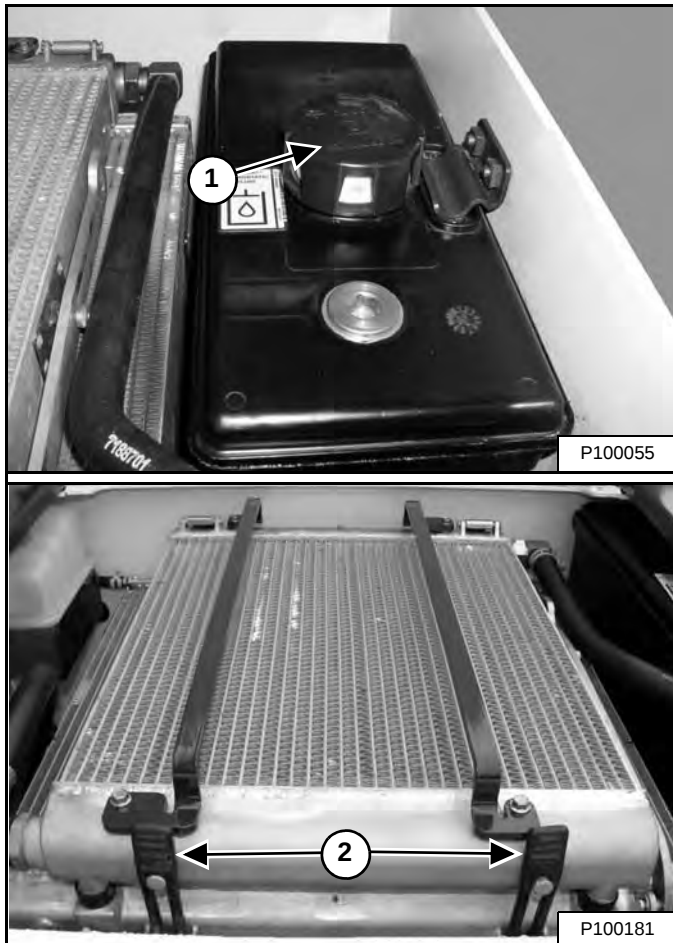
Replace the fluid if it becomes contaminated or after major repair.

Always replace the hydraulic / hydrostatic filter and the hydraulic charge filter whenever the hydraulic fluid is replaced. (See Hydraulic / Hydrostatic Filter Identification on Page 170.)

Stop the engine and open the rear door. (See REAR DOOR (TAILGATE) on Page 138.)

Remove the rear grille. (See REAR GRILLE on Page 139.)

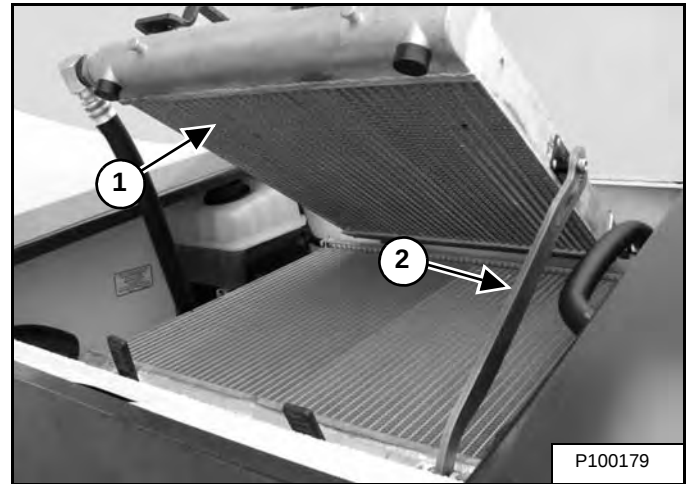
Figure 280



Remove the hydraulic fill cap (Item 1) [Figure 280].

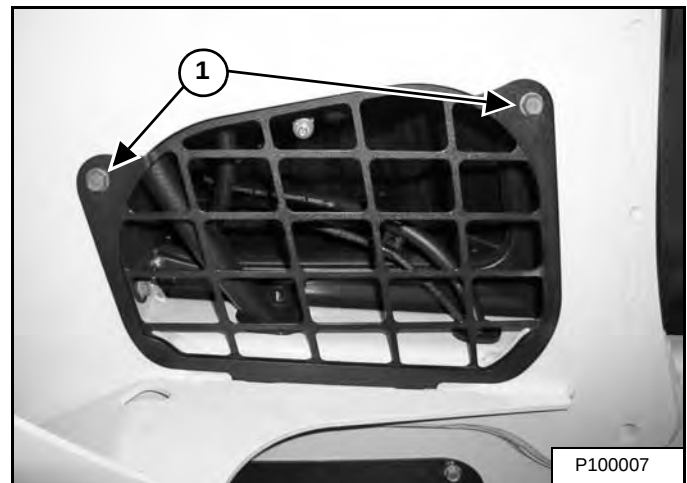
(Earlier Models with Square Coolant Tank) - Unhook the two rubber straps (Item 2) [Figure 280].

Figure 281



(Earlier Models with Square Coolant Tank) - Raise the oil cooler (Item 1) until the bar (Item 2) [Figure 281] drops into position to support the oil cooler. This will aid in draining the hydraulic fluid.

Figure 282



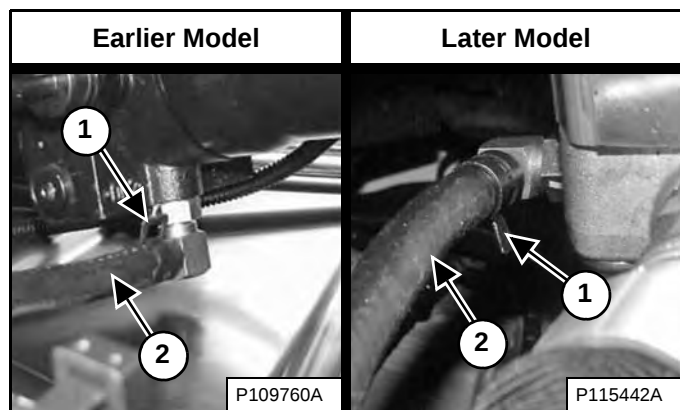
Remove the right side access cover bolts (Item 1) [Figure 282] and remove the cover. (Lift arms shown raised for visual clarity.)

HYDRAULIC / HYDROSTATIC SYSTEM (CONT'D)

Removing And Replacing Hydraulic Fluid (Cont'd)

NOTE: The hose used to drain the hydraulic reservoir is located under the fan motor on earlier models and behind the fan motor on later models.

Figure 283



Remove the clamp (Item 1). Pinch off the hose (Item 2) [Figure 283] near the fitting and disconnect hose from the fitting. Route the hose out the side of the loader and drain the fluid into a container.

Connect the hose to the fitting when the fluid stops draining.

Recycle or dispose of used fluid in an environmentally safe manner.



WARNING

AVOID INJURY OR DEATH

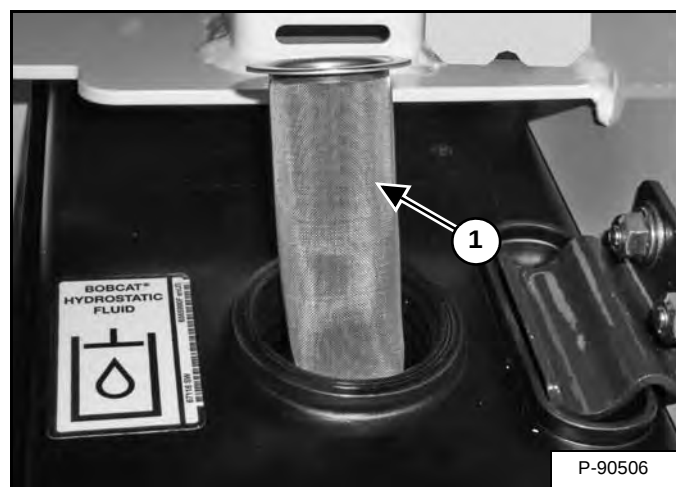
Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire.

W-2103-0508

Install the side access cover.

(Earlier Models with Square Coolant Tank) - Raise the bar supporting the oil cooler and lower the oil cooler. Fasten the two rubber straps.

Figure 284



Remove and clean the hydraulic fill screen (Item 1) [Figure 284]. Use low air pressure to dry the screen.

Install hydraulic fill screen and add the correct fluid to the reservoir until the fluid level is within the operating range of the sight gauge. (See Capacities on Page 234.) and (See Checking And Adding Fluid on Page 167.)

Install the hydraulic fill cap.

Install the rear grille.

Close the rear door.

Start the engine and operate the loader hydraulic controls.

Stop the engine and check for leaks.

Check the fluid level in the reservoir and add as needed. (See Checking And Adding Fluid on Page 167.)

HYDRAULIC / HYDROSTATIC SYSTEM (CONT'D)

Hydraulic / Hydrostatic Filter Identification

The filter housing is located behind the hydraulic fluid reservoir.

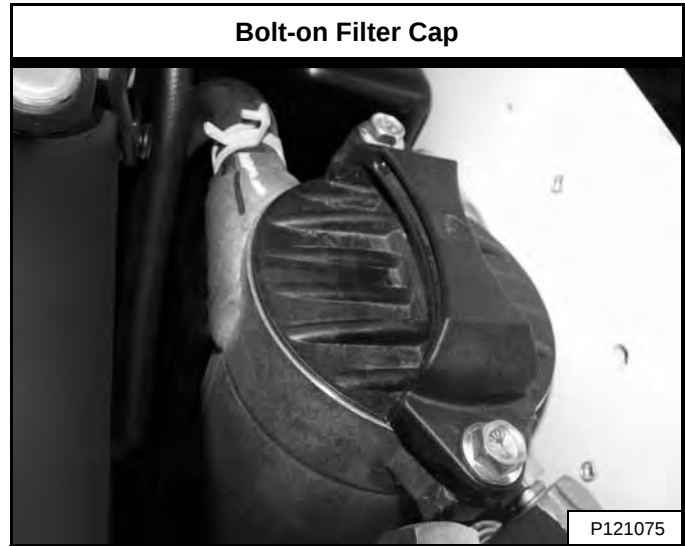
NOTE: Identification of the hydraulic / hydrostatic filter used on your machine is necessary to perform the correct filter replacement procedure.

Figure 285



This model has a hex head on the filter cap **[Figure 285]**. (See Removing And Replacing Hydraulic / Hydrostatic Filter (Hex Head Filter Cap) on Page 171.)

Figure 287



This model has a filter cap held in place by two bolts **[Figure 287]**. (See Removing And Replacing Hydraulic / Hydrostatic Filter (Bolt-on Filter Cap) on Page 173.)

Figure 286



This model has a square head on the filter cap **[Figure 286]**. (See Removing And Replacing Hydraulic / Hydrostatic Filter (Square Head Filter Cap) on Page 172.)

HYDRAULIC / HYDROSTATIC SYSTEM (CONT'D)

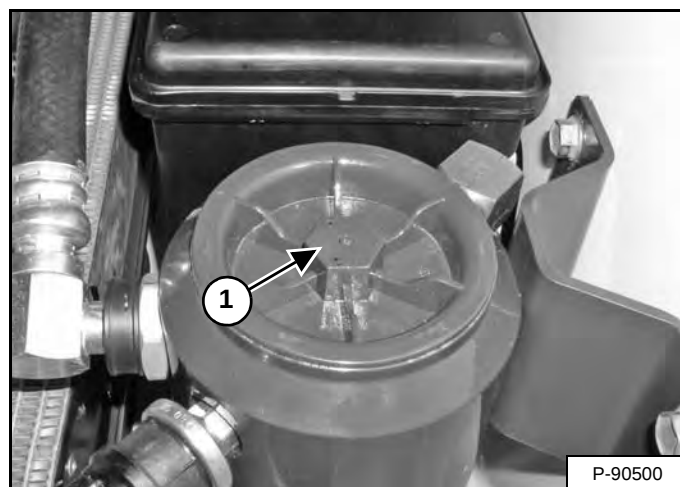
Removing And Replacing Hydraulic / Hydrostatic Filter (Hex Head Filter Cap)

See the SERVICE SCHEDULE for the correct service interval. (See SERVICE SCHEDULE on Page 127.)

Stop the engine, open the rear door, and remove the rear grille. (See REAR GRILLE on Page 139.)

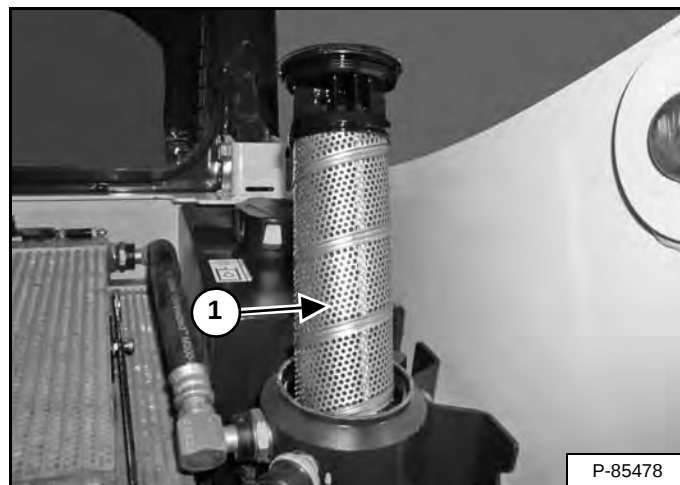
Clean the top of the filter housing.

Figure 288



Remove the filter (Item 1) [Figure 288] using a socket wrench.

Figure 289



Discard the entire filter (Item 1) [Figure 289].

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

Install new filter and tighten to 61 N•m (45 ft-lb) torque.



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

Install the rear grille and close the rear door.

Start the engine and operate the loader hydraulic controls.



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

Stop the engine and check for leaks at the filter.

Check the fluid level in the reservoir and add as needed. (See Checking And Adding Fluid on Page 167.)

HYDRAULIC / HYDROSTATIC SYSTEM (CONT'D)

Removing And Replacing Hydraulic / Hydrostatic Filter (Square Head Filter Cap)

See the SERVICE SCHEDULE for the correct service interval. (See SERVICE SCHEDULE on Page 127.)

Stop the engine, open the rear door, and remove the rear grille. (See REAR GRILLE on Page 139.)

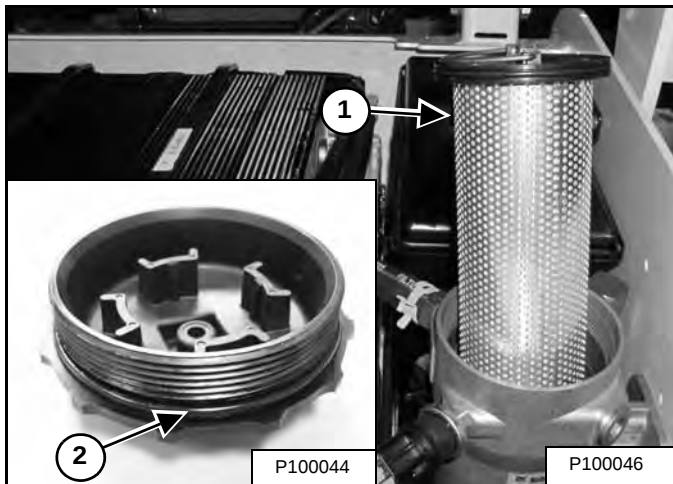
Clean the top of the filter housing.

Figure 290



Remove the filter cap (Item 1) [Figure 290].

Figure 291



Remove the filter element (Item 1) [Figure 291] and discard.

Remove the O-ring (Item 2) [Figure 291] and discard.

Install new O-ring and lubricate with clean oil.

Install new filter element ensuring that element is fully seated in the housing.

Install the filter cap and tighten to 25 N•m (18 ft-lb) torque.

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

Install the rear grille and close the rear door.

Start the engine and operate the loader hydraulic controls.

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

Stop the engine and check for leaks at the filter.

Check the fluid level in the reservoir and add as needed. (See Checking And Adding Fluid on Page 167.)

HYDRAULIC / HYDROSTATIC SYSTEM (CONT'D)

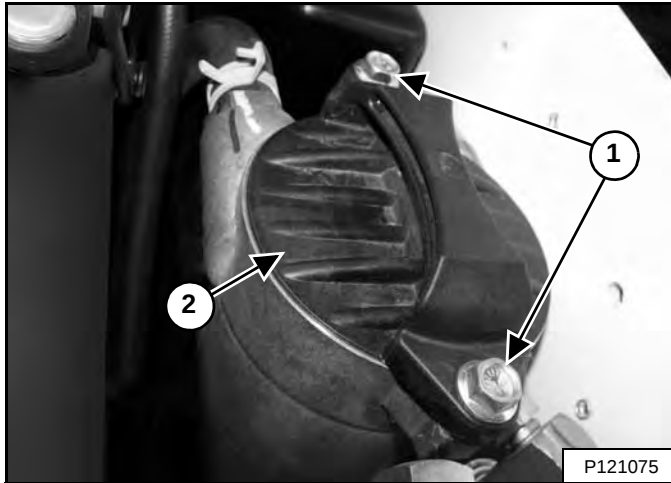
Removing And Replacing Hydraulic / Hydrostatic Filter (Bolt-on Filter Cap)

See the SERVICE SCHEDULE for the correct service interval. (See SERVICE SCHEDULE on Page 127.)

Stop the engine, open the rear door, and remove the rear grille. (See REAR GRILLE on Page 139.)

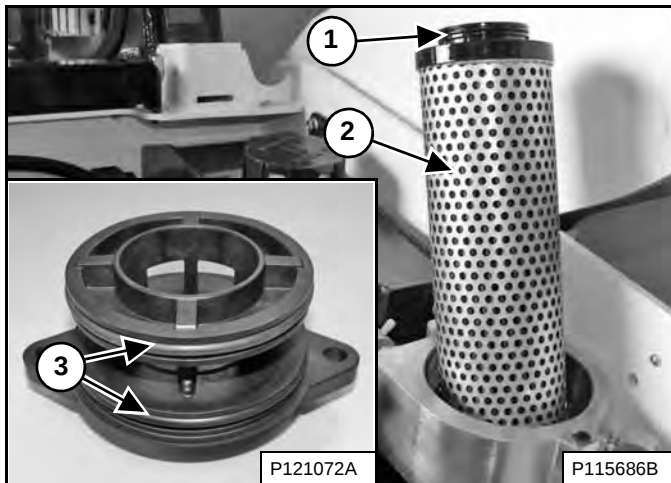
Clean the top of the filter housing.

Figure 292



Remove the bolts (Item 1) and slowly pry the filter cap (Item 2) [Figure 292] off the housing by hand.

Figure 293



Remove the filter element (Item 2) [Figure 293] and discard.

Lubricate the O-ring (Item 1) [Figure 293] on new filter element with clean oil.

Install new filter element ensuring that element is fully seated in the housing.

Remove the filter cap O-rings (Item 3) [Figure 293] and discard.

Install new filter cap O-rings and lubricate with clean oil.

NOTE: The filter cap O-rings are not the same size. Take care to install each O-ring in the correct location.

Install the filter cap and the bolts [Figure 292]. Alternate tightening the bolts to draw the cap down evenly. Tighten the bolts to 27 - 41 N•m (20 - 30 ft-lb) torque.

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

Install the rear grille and close the rear door.

Start the engine and operate the loader hydraulic controls.

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

Stop the engine and check for leaks at the filter.

Check the fluid level in the reservoir and add as needed. (See Checking And Adding Fluid on Page 167.)

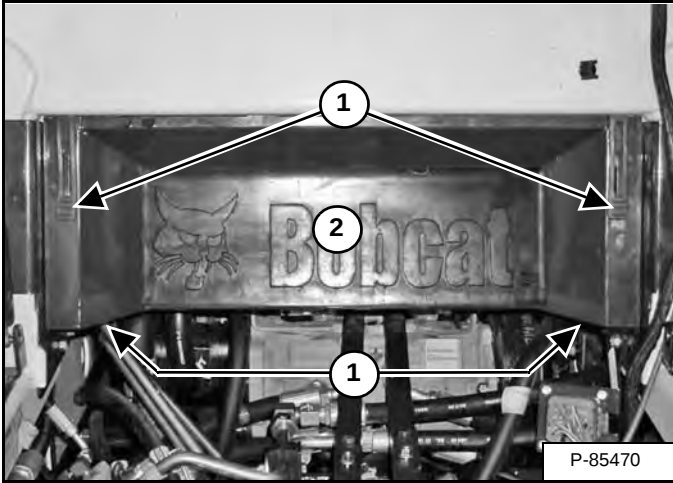
HYDRAULIC / HYDROSTATIC SYSTEM (CONT'D)

Removing And Replacing Hydraulic Charge Filter

The hydraulic charge filter is located under the operator cab. For the correct service interval (See SERVICE SCHEDULE on Page 127.)

Raise the operator cab. (See Raising on Page 135.)

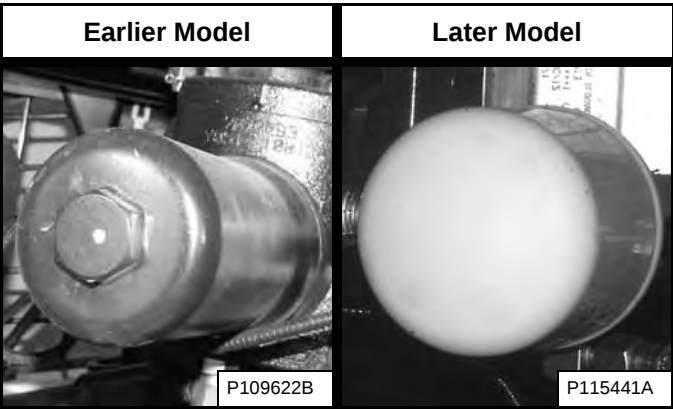
Figure 294



Unhook the four rubber straps (Item 1) and remove the lower fan duct (Item 2) [Figure 294].

NOTE: Identification of the hydraulic charge filter used on your machine is necessary to perform the correct replacement procedure.

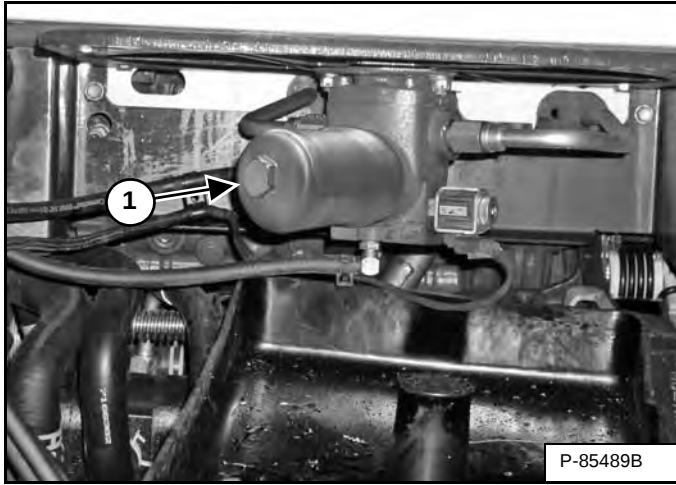
Figure 295



Earlier models use a separate filter housing and filter element. Later models use a spin-on filter [Figure 295].

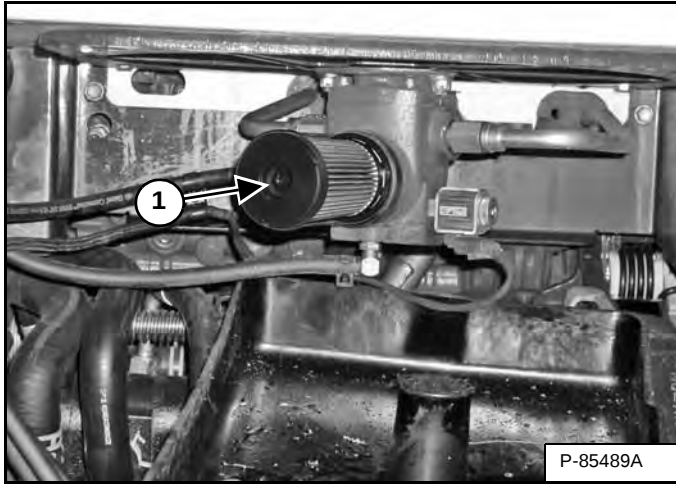
Earlier Models

Figure 296



Place a suitable container below the filter housing and remove the filter housing (Item 1) [Figure 296] using a socket wrench.

Figure 297



Remove and discard the filter element (Item 1) [Figure 297].

Clean the surface of the filter housing and the filter base where they contact the filter element seal.

Put clean oil on the seal of the new filter element. Install the element on the filter base.

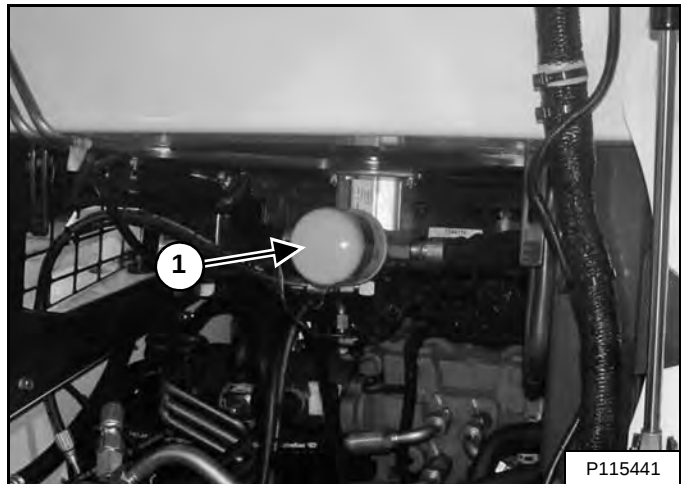
Install and tighten the filter housing to 65 - 70 N•m (48 - 52 ft-lb) torque.

HYDRAULIC / HYDROSTATIC SYSTEM (CONT'D)

Removing And Replacing Hydraulic Charge Filter (Cont'd)

Later Models

Figure 298



Put a suitable container below the filter, remove the filter (Item 1) [Figure 298], and clean the filter base.

Put clean oil on the new filter gasket, install the new filter, and tighten the filter to 37 – 45 N•m (27 – 33 ft-lb) torque.

All Models

Recycle or dispose of used fluid in an environmentally safe manner.

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

Install the lower fan duct [Figure 294].

NOTE: Failure to install the lower fan duct correctly may result in decreased cooling.

Lower the operator cab. (See Lowering on Page 136.)

Start the engine and operate the loader hydraulic controls.

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

Stop the engine and check for leaks at the filter.

Check the fluid level in the reservoir and add as needed. (See Checking And Adding Fluid on Page 167.)

HYDRAULIC / HYDROSTATIC SYSTEM (CONT'D)

Breather Cap

See the SERVICE SCHEDULE for the correct replacement interval. (See SERVICE SCHEDULE on Page 127.)

Stop the engine and open the rear door. (See REAR DOOR (TAILGATE) on Page 138.)

Remove the rear grille. (See REAR GRILLE on Page 139.)

Figure 299



Remove the breather cap (Item 1) [Figure 299] and discard.

Install new breather cap.

Install the rear grille.

Close the rear door.

SPARK ARRESTER MUFFLER

Cleaning Procedure

See the SERVICE SCHEDULE for service interval for cleaning the spark arrester muffler. (See SERVICE SCHEDULE on Page 127.)

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 that must be maintained for proper function.

- **WITH MUFFLER**
The muffler spark chamber must be emptied every 100 hours of operation to keep it in working condition.
- **WITH SELECTIVE CATALYST REDUCTION (SCR) AND / OR DIESEL OXIDATION CATALYST (DOC)**
Do not remove or modify the DOC or SCR.

The SCR must be maintained according to the instructions in the Operation & Maintenance Manual for proper function.

- **WITH DIESEL PARTICULATE FILTER (DPF)**
The DPF must be maintained according to the instructions in the Operation & Maintenance Manual for proper function.

(If this machine is operated on flammable forest, brush or grass cover land, the engine must be equipped with a spark arrester 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-2350-1114

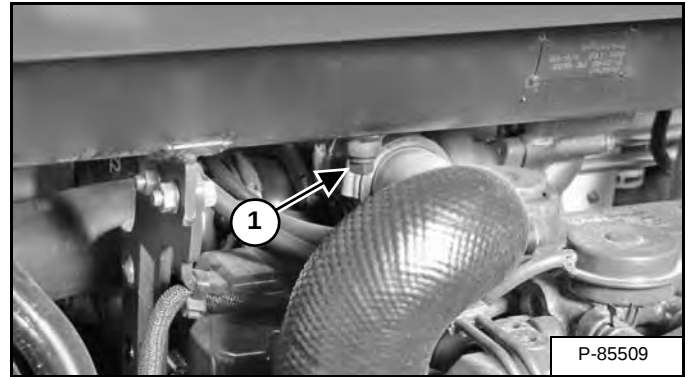
Stop the engine and open the rear door. (See REAR DOOR (TAILGATE) on Page 138.)

! 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

Figure 300



Remove the plug (Item 1) [Figure 300] 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 glasses, holds a piece of wood over the outlet of the muffler. This will force contaminants out through the cleanout hole.

Stop the engine. Install and tighten the plug. 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

TRACK TENSION

Description

Figure 301



The MEL1560 - Bleed Tool [Figure 301] is required to decrease track tension.

Figure 302

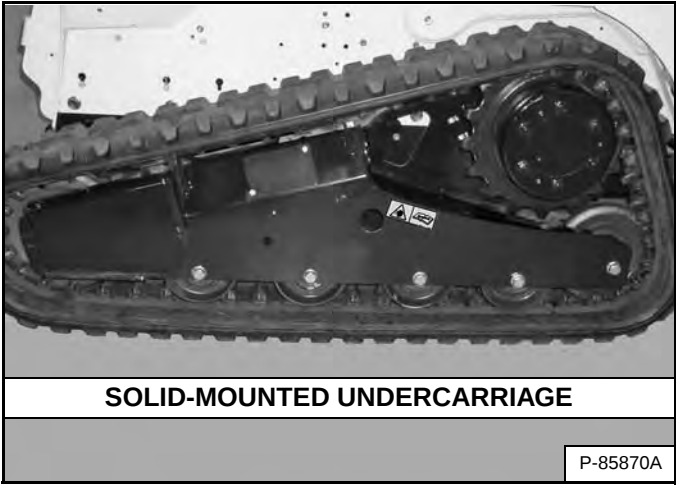


Figure 303



NOTE: This model may be equipped with one of two types of undercarriage systems. Identification of the type used on your machine is necessary to select the correct procedure [Figure 302] and [Figure 303].

TRACK TENSION (CONT'D)

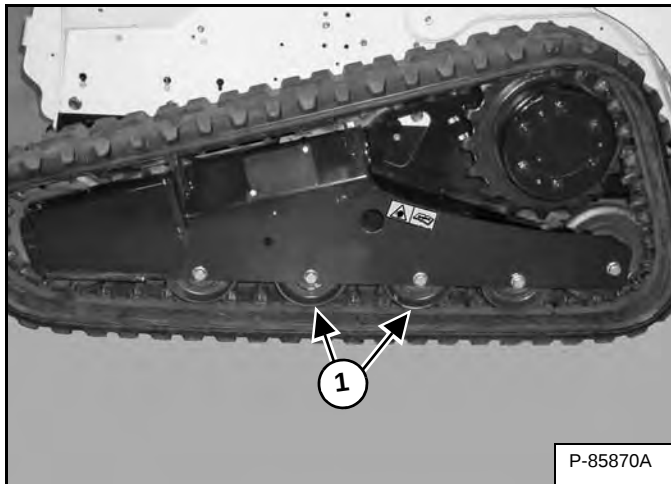
Checking (Solid-Mounted Undercarriage)

Correct track tension is important for good performance and to prevent the tracks from derailing or wearing prematurely.

NOTE: The wear of track rollers vary with the working conditions and different types of soil conditions.

Park the loader on a level surface.

Figure 304



Raise one side of the loader and put jackstands at the front and rear of the loader frame so that the track is about 76 mm (3 in) off the ground [Figure 304]. Lower the loader to the jackstands. Be sure the jackstands do not touch the tracks.

Measure the track sag at either middle track roller (Item 1) [Figure 304]. The correct gap is 13 - 16 mm (1/2 - 5/8 in).

Figure 305

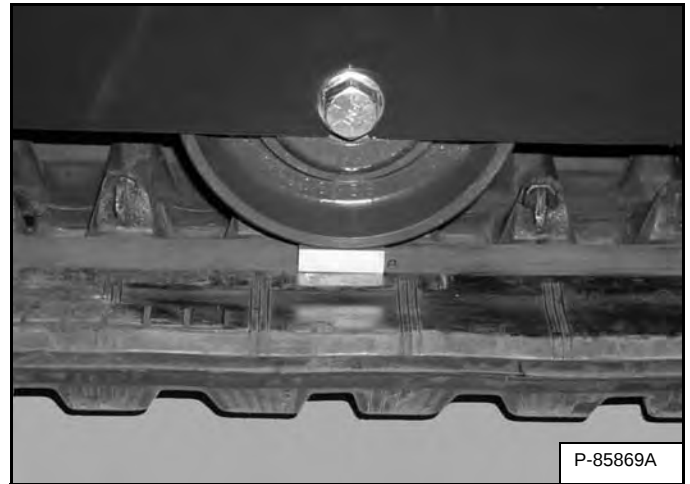
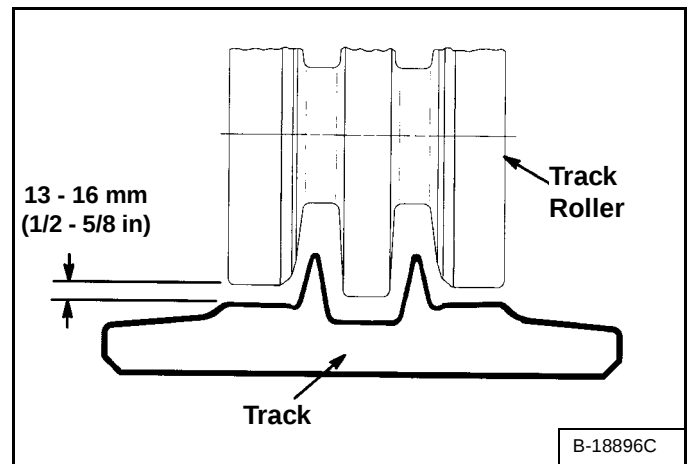


Figure 306



DO NOT put your fingers into the pinch points between the track and the roller. Use a 13 - 16 mm (1/2 - 5/8 in) bolt, dowel or block to check the gap [Figure 305] and [Figure 306].



WARNING

AVOID INJURY

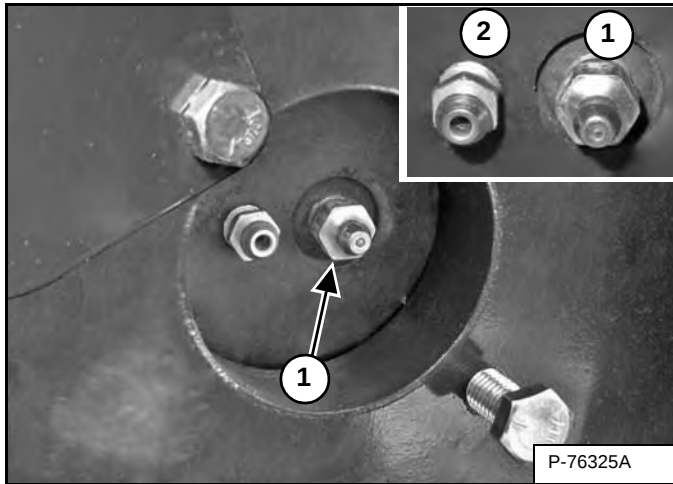
Keep fingers and hands out of pinch points when checking the track tension.

W-2142-0903

TRACK TENSION (CONT'D)

Adjusting (Solid-Mounted Undercarriage)

Figure 307



Loosen the access cover bolts and pivot the access cover open [Figure 307].

NOTE: Fittings may be oriented differently than shown. You **MUST** select the correct fitting for the task required. The grease fitting (Item 1) is used to add grease. The bleed fitting (Item 2) [Figure 307] is used to remove grease.

Increase Track Tension

Add grease to the grease fitting (Item 1) [Figure 307] until the track adjustment is correct [Figure 305] and [Figure 306].

NOTE: Do not remove grease fitting unless pressure is released using the bleed fitting. (See [Figure 308] on Page 180.)

NOTE: If replacement is necessary, always replace grease fitting (Item 1) [Figure 307] with genuine Bobcat Parts. The fitting is a special fitting designed for high pressure.

Decrease Track Tension



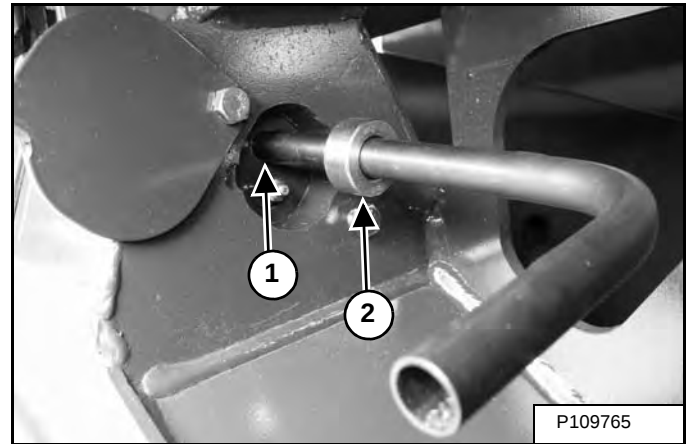
WARNING

**HIGH PRESSURE GREASE CAN
CAUSE SERIOUS INJURY**

- Do not loosen grease fitting.
- Do not loosen bleed fitting more than 1 - 1/2 turns.

W-2781-0109

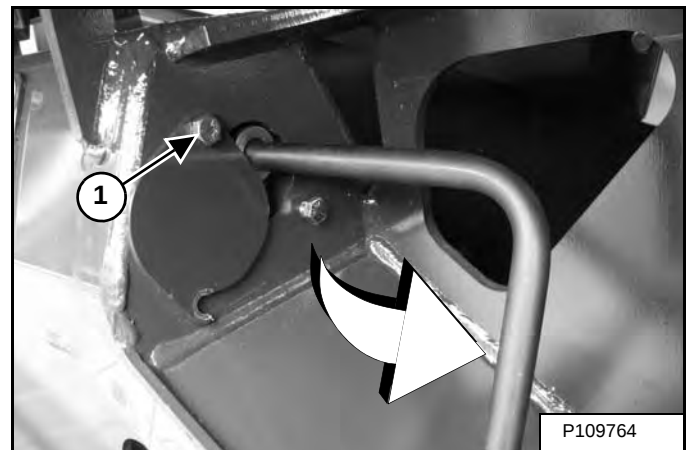
Figure 308



Pressure must be released from the grease cylinder to decrease track tension.

Install the bleed tool (MEL1560) on the bleed fitting (Item 1), adjust and tighten the collar (Item 2) [Figure 308] to fit behind the edge of the access cover.

Figure 309



Tighten the access cover bolt (Item 1) [Figure 309] to secure the tool.

Turn the tool 90° counterclockwise and let the grease flow into a container. Release pressure [Figure 309] until the track adjustment is correct [Figure 305] and [Figure 306].

Tighten the bleed fitting. Pivot the access cover closed and tighten the access cover bolts.

Raise the loader. Remove the jackstands.

Repeat the procedure for the other track.

Dispose of grease in an environmentally safe manner.

TRACK TENSION (CONT'D)

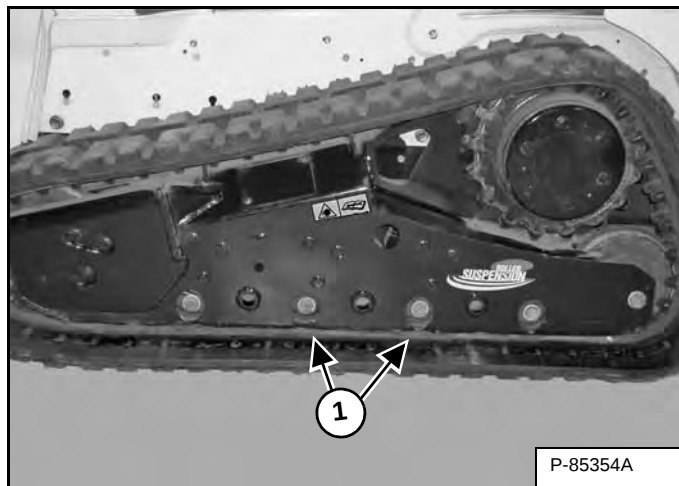
Checking (Roller Suspension Undercarriage)

Correct track tension is important for good performance and to prevent the tracks from derailing or wearing prematurely.

NOTE: The wear of track rollers vary with the working conditions and different types of soil conditions.

Park the loader on a level surface.

Figure 310



Raise one side of the loader and put jackstands at the front and rear of the loader frame so that the track is about 76 mm (3 in) off the ground [Figure 310]. Lower the loader to the jackstands. Be sure the jackstands do not touch the tracks.

Measure the track sag at either middle track roller (Item 1) [Figure 310]. The correct gap is 13 mm (1/2 in).

Figure 311

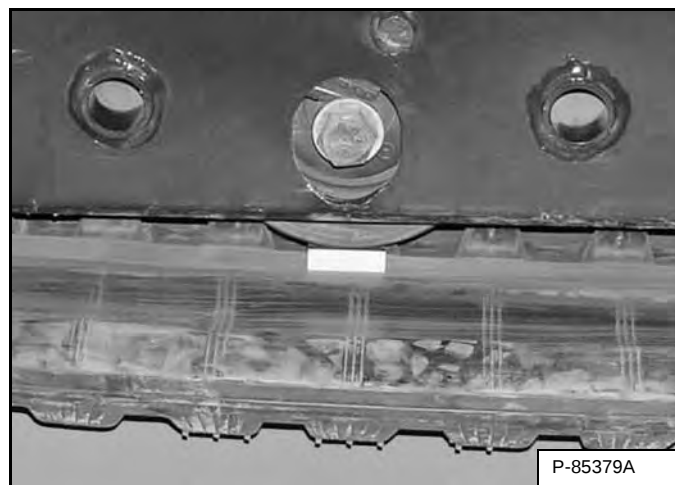
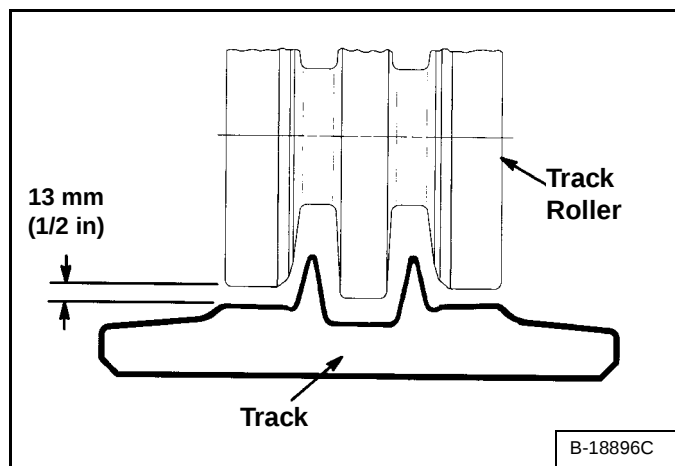


Figure 312



DO NOT put your fingers into the pinch points between the track and the roller. Use a 13 mm (1/2 in) bolt, dowel or block to check the gap [Figure 311] and [Figure 312].



WARNING

AVOID INJURY

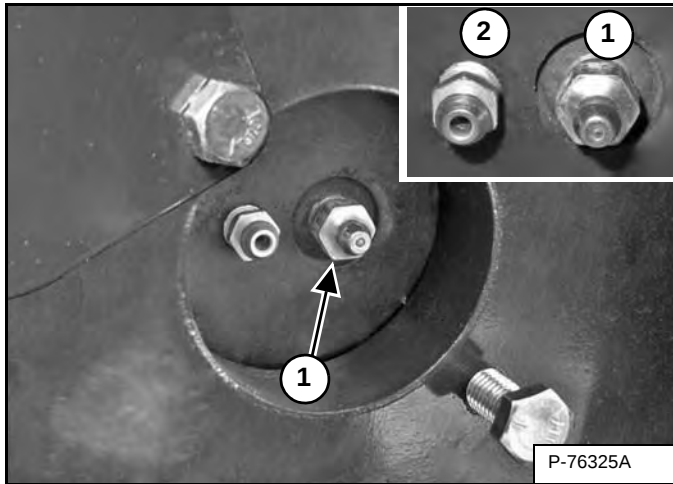
Keep fingers and hands out of pinch points when checking the track tension.

W-2142-0903

TRACK TENSION (CONT'D)

Adjusting (Roller Suspension Undercarriage)

Figure 313



Loosen the access cover bolts and pivot the access cover open [Figure 313].

NOTE: Fittings may be oriented differently than shown. You **MUST** select the correct fitting for the task required. The grease fitting (Item 1) is used to add grease. The bleed fitting (Item 2) [Figure 313] is used to remove grease.

Increase Track Tension

Add grease to the grease fitting (Item 1) [Figure 313] until the track adjustment is correct [Figure 311] and [Figure 312].

NOTE: Do not remove grease fitting unless pressure is released using the bleed fitting. (See [Figure 314] on Page 182.)

NOTE: If replacement is necessary, always replace grease fitting (Item 1) [Figure 313] with genuine Bobcat Parts. The fitting is a special fitting designed for high pressure.

Decrease Track Tension



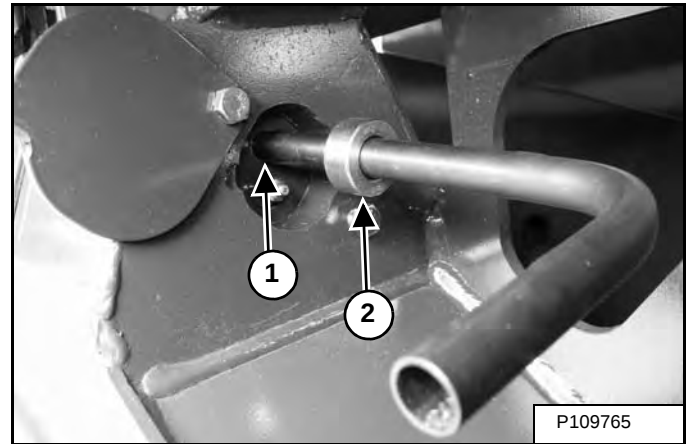
WARNING

**HIGH PRESSURE GREASE CAN
CAUSE SERIOUS INJURY**

- Do not loosen grease fitting.
- Do not loosen bleed fitting more than 1 - 1/2 turns.

W-2781-0109

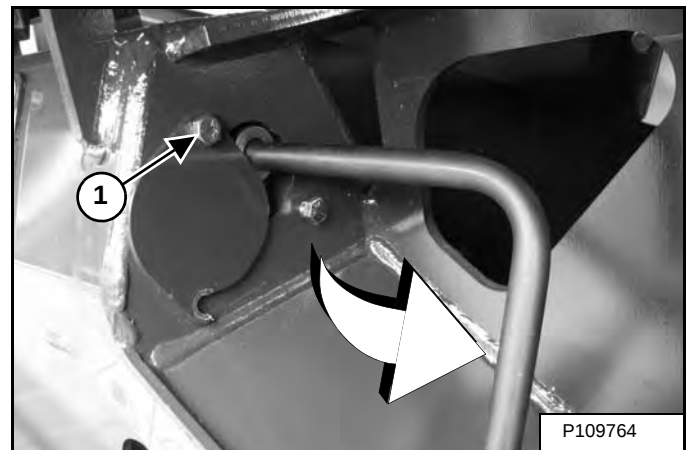
Figure 314



Pressure must be released from the grease cylinder to decrease track tension.

Install the bleed tool (MEL1560) on the bleed fitting (Item 1), adjust and tighten the collar (Item 2) [Figure 314] to fit behind the edge of the access cover.

Figure 315



Tighten the access cover bolt (Item 1) [Figure 315] to secure the tool.

Turn the tool 90° counterclockwise and let the grease flow into a container. Release pressure [Figure 315] until the track adjustment is correct [Figure 311] and [Figure 312].

Tighten the bleed fitting. Pivot the access cover closed and tighten the access cover bolts.

Raise the loader. Remove the jackstands.

Repeat the procedure for the other track.

Dispose of grease in an environmentally safe manner.

HYDROSTATIC DRIVE MOTOR

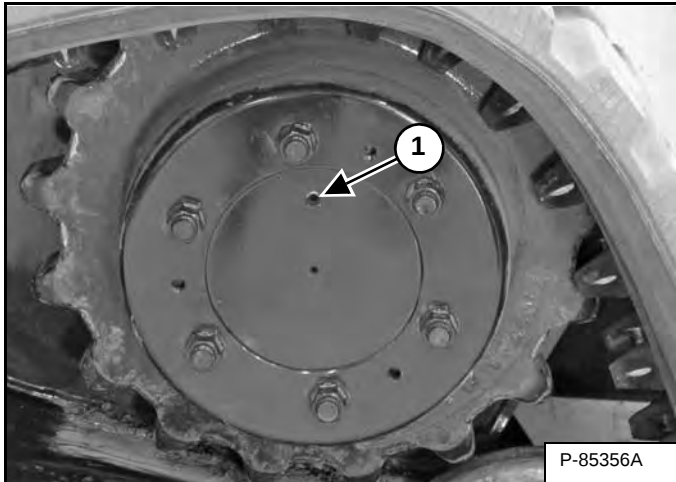
Removing And Replacing Oil

For the correct service interval (See SERVICE SCHEDULE on Page 127.)

Park the loader so that the plug in the hydrostatic drive motor is at the bottom.

Remove the plug and let the oil drain from the hydrostatic drive motor.

Figure 316



Rotate the hydrostatic drive motor so that the plug (Item 1) [Figure 316] is at the top. Add high performance synthetic oil (P/N 7024981). (See Capacities on Page 234.)

Clean the threads of the plug and drain hole. Apply Loctite® 243 to the plug threads. Install and tighten the plug.

Repeat for the other hydrostatic drive motor.

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

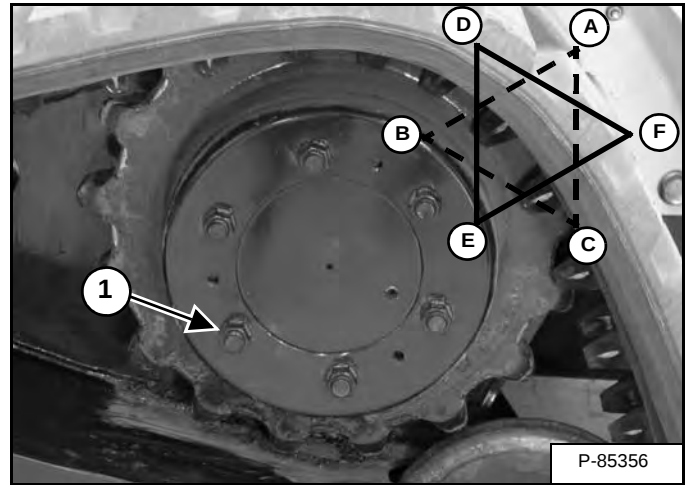
TRACK SPROCKET MAINTENANCE

Tightening Procedure

For the correct service interval (See SERVICE SCHEDULE on Page 127.)

Single Speed Loader

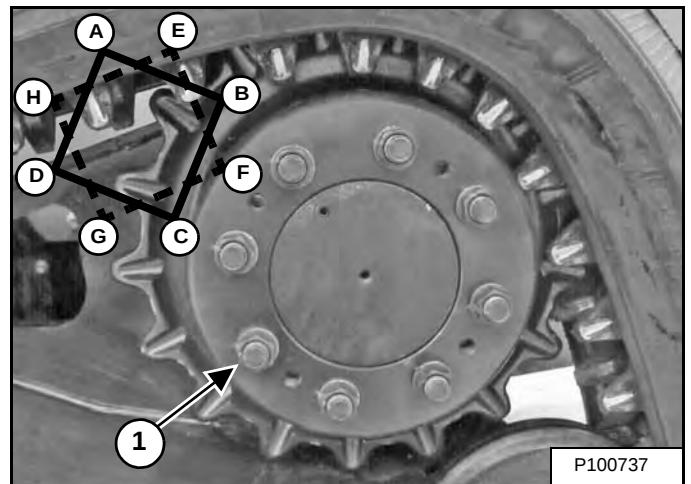
Figure 317



Check the torque of the six track sprocket nuts (Item 1) [Figure 317]. Use a cross-pattern tightening sequence (A-B-C, D-E-F) [Figure 317] and then repeat to tighten the nuts to 280 - 300 N•m (207 - 221 ft-lb) torque.

Two-Speed Loader

Figure 318



Check the torque of the eight track sprocket nuts (Item 1) [Figure 318]. Use a cross-pattern tightening sequence (A-B-C-D, E-F-G-H) [Figure 318] and then repeat to tighten the nuts to 492 - 544 N•m (363 - 401 ft-lb) torque.

ALTERNATOR BELT

Belt Adjustment

The alternator belt is a special maintenance free type that is pretensioned over the pulleys. This belt eliminates the need for a tensioning device and does not require periodic adjustment. Contact your Bobcat dealer for replacement parts.

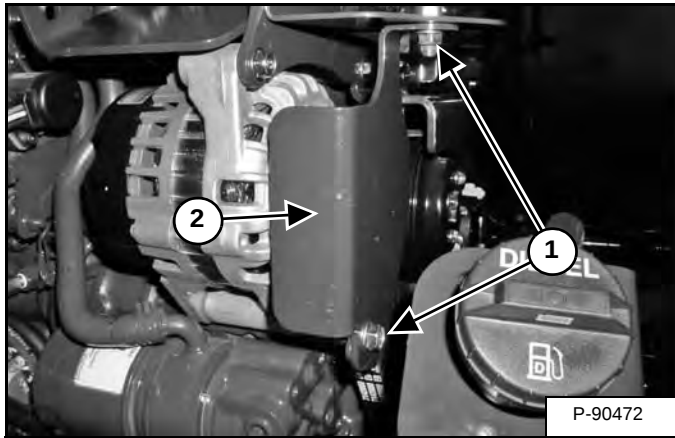
Belt Replacement

Stop the engine and open the rear door. (See REAR DOOR (TAILGATE) on Page 138.)

Remove the air conditioning belt. (See AIR CONDITIONING BELT on Page 186.)

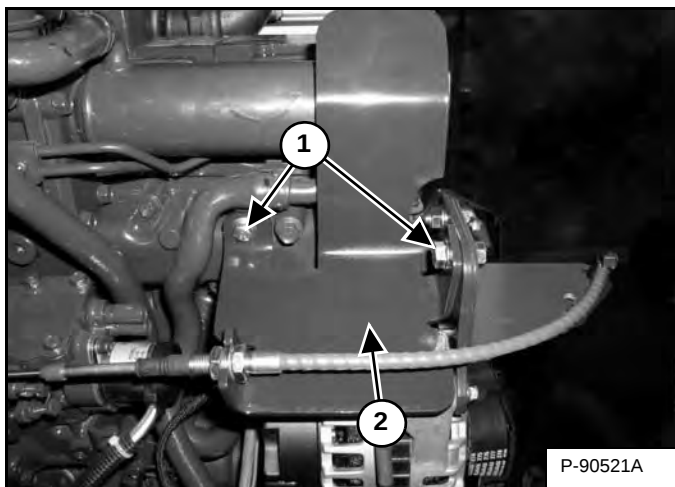
Earlier Models

Figure 319



Remove the belt shield mounting nuts and bolts (Item 1) and remove the belt shield (Item 2) **[Figure 319]**.

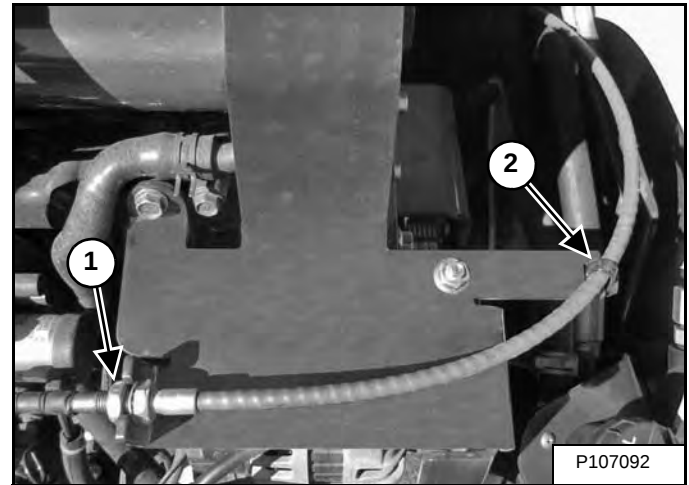
Figure 320



Remove the cable bracket mounting nut and bolts (Item 1) and move the cable bracket (Item 2) **[Figure 320]** up slightly.

Later Models

Figure 321



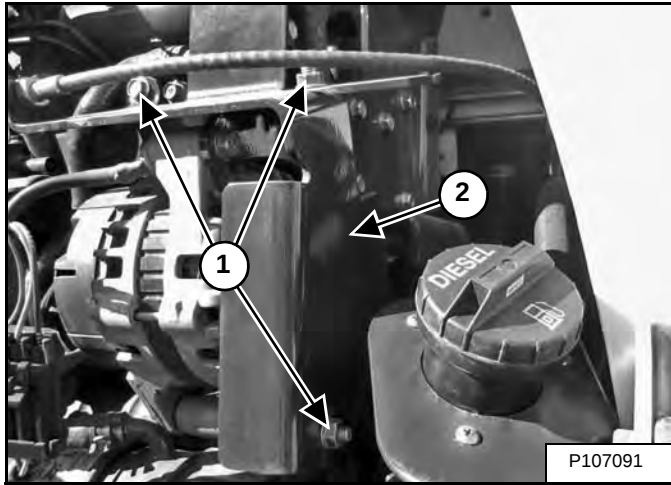
Loosen the throttle cable nut (Item 1) and cut the tie-strap (Item 2) **[Figure 321]**.

ALTERNATOR BELT (CONT'D)

Belt Replacement (Cont'd)

Later Models (Cont'd)

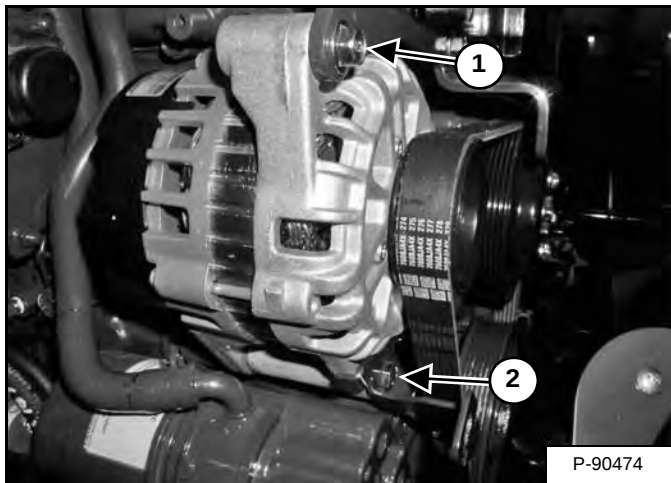
Figure 322



Remove the throttle bracket mounting nuts and bolts (Item 1) and remove the throttle bracket (Item 2) **[Figure 322]**.

All Models

Figure 323

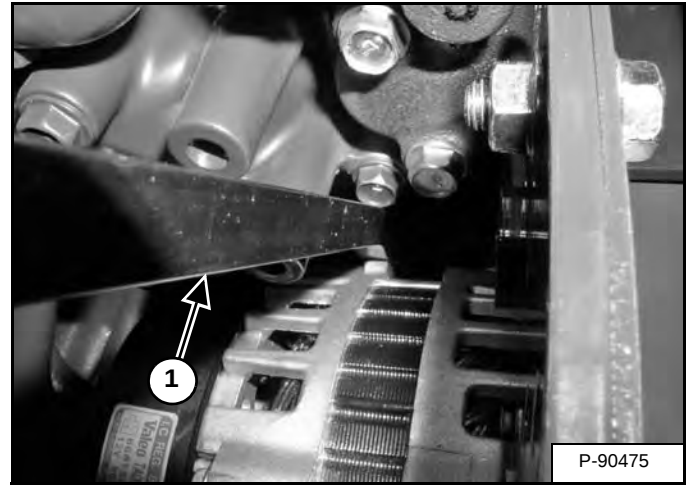


Remove the top alternator mounting bolt (Item 1) and loosen the bottom alternator mounting bolt (Item 2) **[Figure 323]**.

Move the alternator toward the engine as far as it will go and remove the belt from the pulleys. Inspect the pulleys for wear.

Install new belt.

Figure 324



Use a prybar (Item 1) **[Figure 324]** to move the alternator until the top alternator mounting bolt (Item 1) **[Figure 323]** can be installed.

Tighten the top and bottom alternator mounting bolts (Items 1 and 2) **[Figure 323]**.

Install the air conditioning belt. (See AIR CONDITIONING BELT on Page 186.)

Install the cable bracket **[Figure 320]** and the belt shield **[Figure 319]**. (Earlier models)

OR

Install the throttle bracket **[Figure 322]** and the throttle cable **[Figure 321]**. Install a new tie-strap. (Later models)

Close the rear door.

AIR CONDITIONING BELT

This machine may be equipped with Air Conditioning.

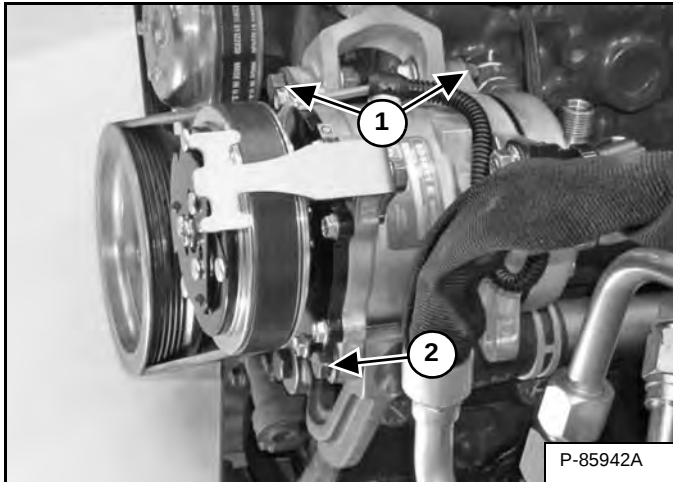
Belt Adjustment

The air conditioning belt is a special maintenance free type that is pretensioned over the pulleys. This belt eliminates the need for a tensioning device and does not require periodic adjustment. Contact your Bobcat dealer for replacement parts.

Belt Replacement

Stop the engine and open the rear door. (See REAR DOOR (TAILGATE) on Page 138.)

Figure 325



NOTE: The engine is shown removed for visual clarity.

Remove the bottom air conditioning compressor mounting bolt (Item 2) [Figure 325].

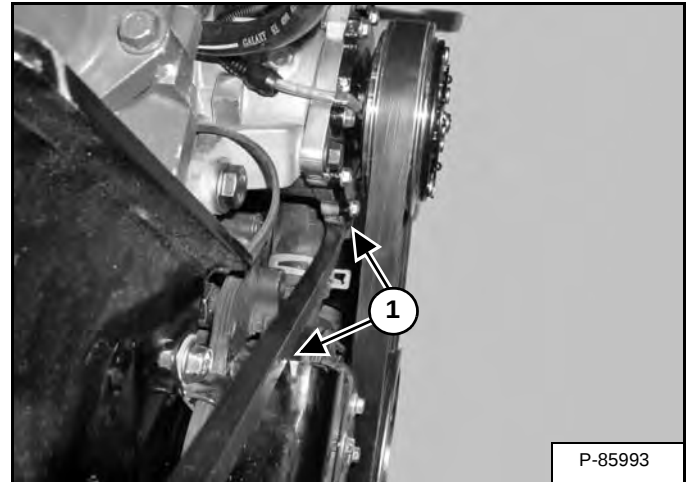
Loosen the top air conditioning compressor mounting bolts (Item 1) [Figure 325].

Move the air conditioning compressor toward the engine as far as it will go and remove the belt from the pulleys.

Inspect the pulleys for wear.

Install new belt.

Figure 326



Use a prybar at the two leverage points (Item 1) [Figure 326] to move the air conditioning compressor until the bottom air conditioning compressor mounting bolt (Item 2) [Figure 325] can be installed.

Tighten the three mounting bolts (Items 1 and 2) [Figure 325].

Close the rear door.

DRIVE BELT

Belt Adjustment

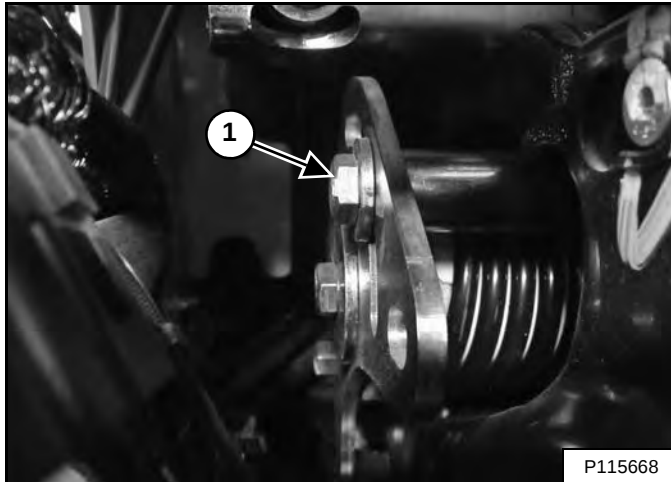
The drive belt does not need adjustment. The belt has a spring loaded idler that constantly maintains the correct belt tension. The spring loaded idler stop adjustment, detailed below, is critical for long belt life.

Stop Adjustment

See the SERVICE SCHEDULE for the correct service interval. (See SERVICE SCHEDULE on Page 127.)

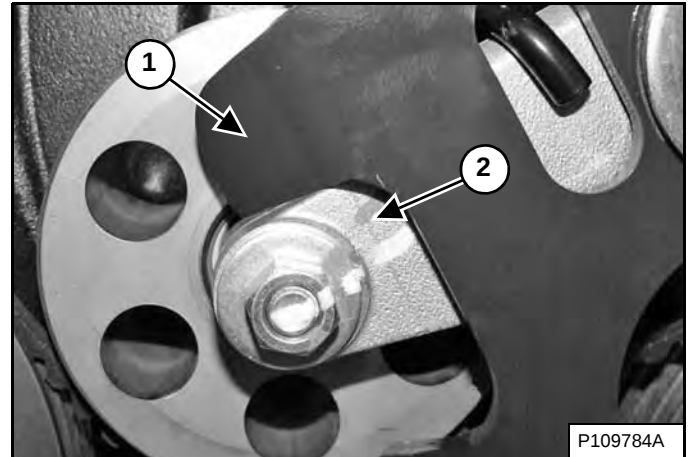
Stop the engine and open the rear door.

Figure 327



Loosen the spring loaded idler adjustment bolt (Item 1) [Figure 327].

Figure 328



Allow the stop arm (Item 1) to contact the top of the spring loaded idler (Item 2) [Figure 328].

Tighten the spring loaded idler adjustment bolt (Item 1) [Figure 327] to 105 – 115 N•m (78 – 85 ft-lb) torque.

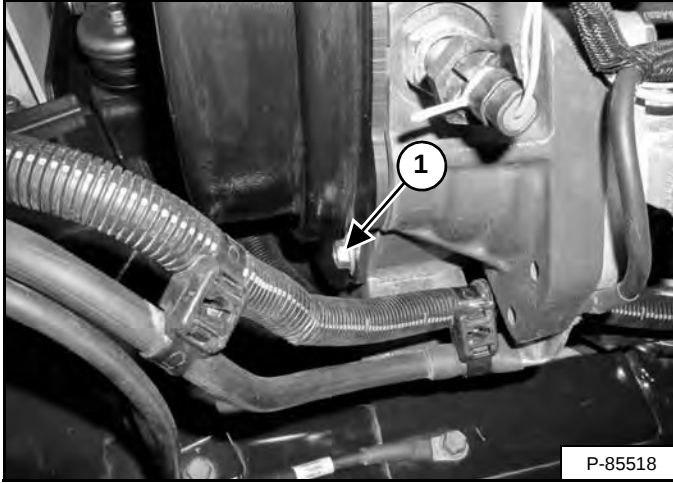
DRIVE BELT (CONT'D)

Belt Replacement

Stop the engine and open the rear door.

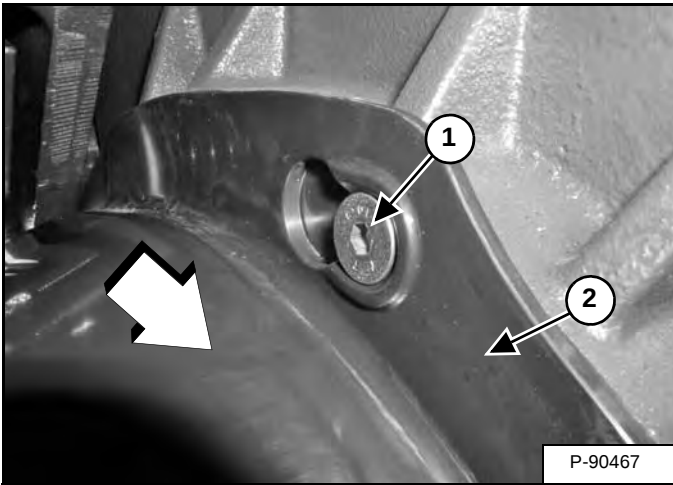
Remove the battery. (See Removing And Installing Battery on Page 166.)

Figure 329



Remove the drive belt shield bolt (Item 1) [Figure 329].

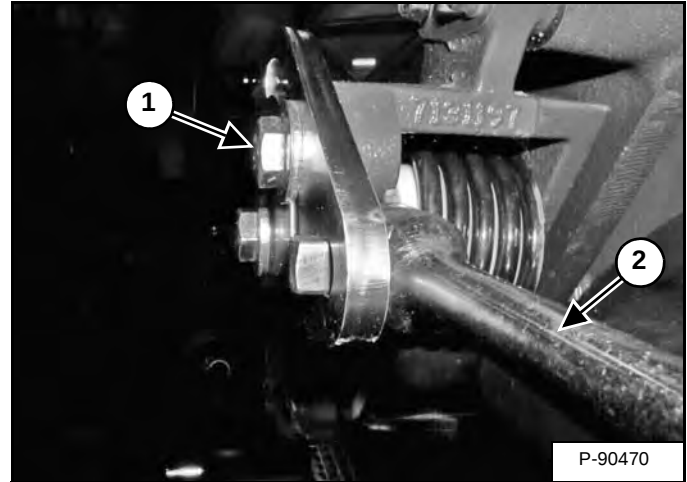
Figure 330



Do **NOT** loosen the drive belt shield mounting bolts (top bolt shown) (Item 1). Slide the drive belt shield (Item 2) [Figure 330] toward the back of the loader to unseat the shield from the top and bottom drive belt shield mounting bolts.

Remove the drive belt shield (Item 2) [Figure 330].

Figure 331



Loosen the spring loaded idler adjustment bolt (Item 1). Insert a breaker bar (Item 2) [Figure 331] into the slot provided in the stop arm as shown and push the breaker bar down to release tension on the drive belt.

Tighten the adjustment bolt (Item 1) [Figure 331] to hold the spring loaded idler off the drive belt.

Remove the drive belt from the hydrostatic pump pulley and flywheel pulley. Inspect the pulleys for wear.

Install new drive belt.

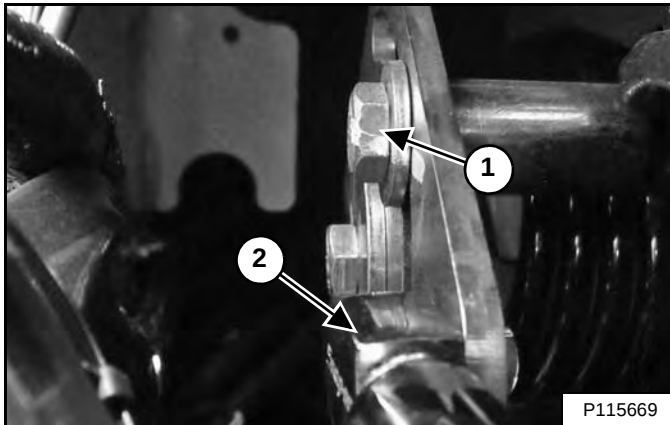
Loosen the spring loaded idler adjustment bolt (Item 1) [Figure 331] and allow the idler to contact the drive belt.

Continue the procedure on the next page.

DRIVE BELT (CONT'D)

Belt Replacement (Cont'd)

Figure 332

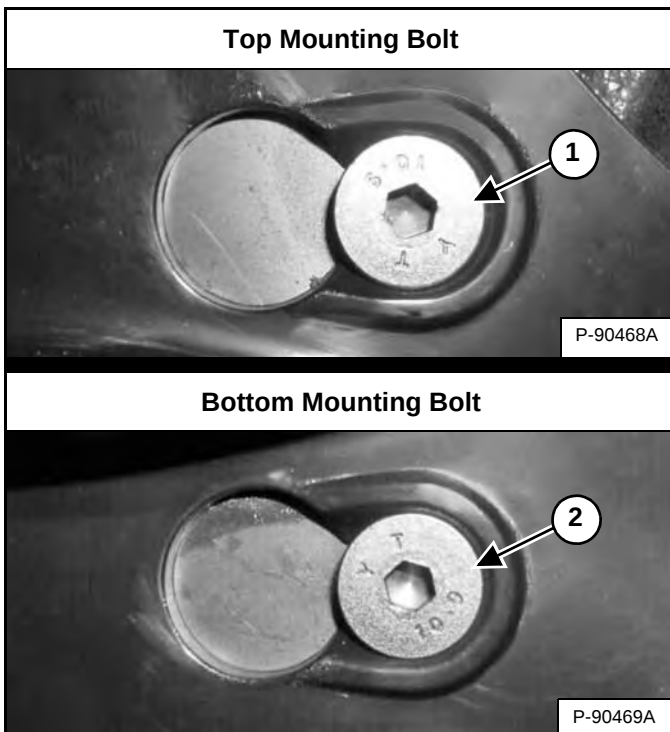


Adjust a torque wrench for 54,2 N•m (40 ft-lb). Insert the torque wrench (Item 2) [Figure 332] into the slot provided in the stop arm as shown and move the torque wrench up until the correct torque is indicated.

Maintain torque on the stop arm and tighten the spring loaded idler adjustment bolt (Item 1) [Figure 332] to 105 – 115 N•m (78 – 85 ft-lb) torque.

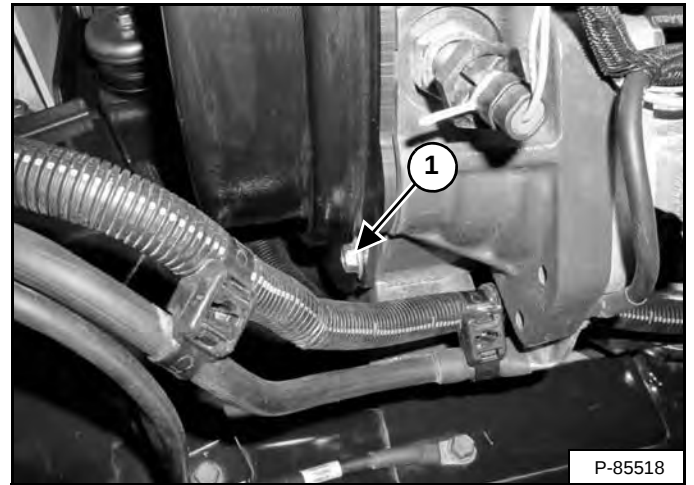
NOTE: This procedure is required to preload a new drive belt in order to achieve the correct stop adjustment after the initial belt break-in period.

Figure 333



Position the drive belt shield over the drive belt shield mounting bolts. Slide the drive belt shield toward the front of the loader to fully seat the shield onto the top and bottom mounting bolts (Items 1 and 2) [Figure 333].

Figure 334



Install the drive belt shield bolt (Item 1) [Figure 334].

Install the battery. (See Removing And Installing Battery on Page 166.)

Close the rear door.

NOTE: The stop arm **MUST** be adjusted after 50 hours operation with the new drive belt. (See Stop Adjustment on Page 187.)

See the **SERVICE SCHEDULE** for the correct service interval after the initial 50 hour adjustment. (See **SERVICE SCHEDULE** on Page 127.)

LUBRICATING THE LOADER

Lubrication Locations

Lubricate the loader as specified for the best performance of the loader. (See SERVICE SCHEDULE on Page 127.)

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.

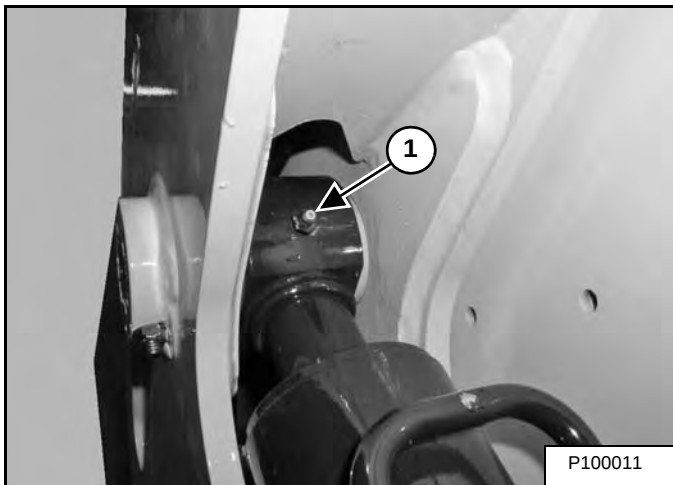
Remove attachment from the loader. (See Installing And Removing The Attachment (Hand Lever Bob-Tach) on Page 97.) **OR** (See Installing And Removing The Attachment (Power Bob-Tach) on Page 99.)

Tilt the Bob-Tach forward until it contacts the ground. (Not required on later models with Bob-Tach wedge grease fittings that are accessible from the side.)

Stop the engine.

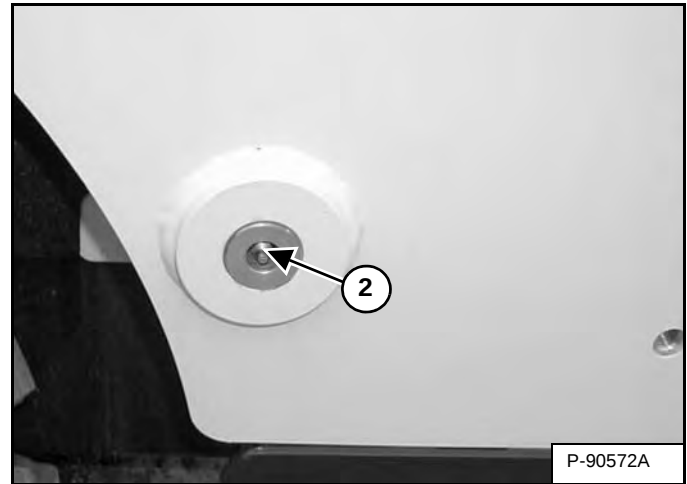
Lubricate the following:

Figure 335



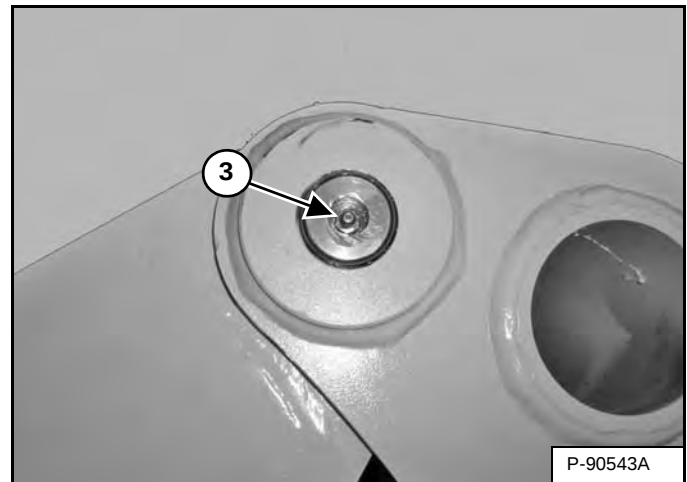
1. Rod End Lift Cylinder (Both Sides) (2) [Figure 335].

Figure 336



2. Base End Lift Cylinder (Both Sides) (2) [Figure 336].

Figure PM-337

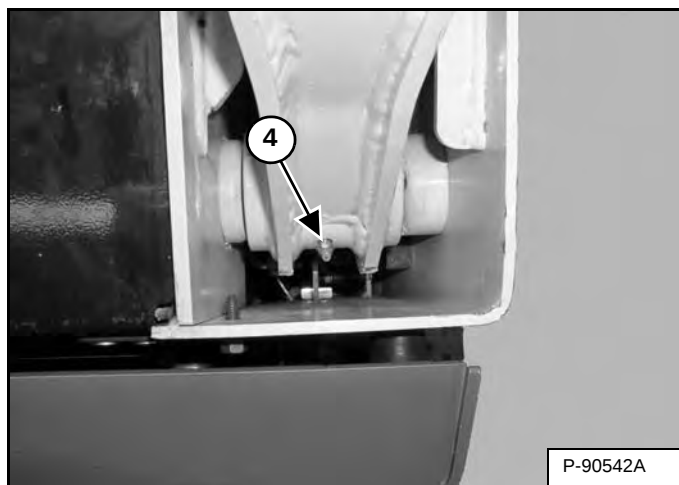


3. Lift Arm Pivot Pin (Both Sides) (2) [Figure PM-337].

LUBRICATING THE LOADER (CONT'D)

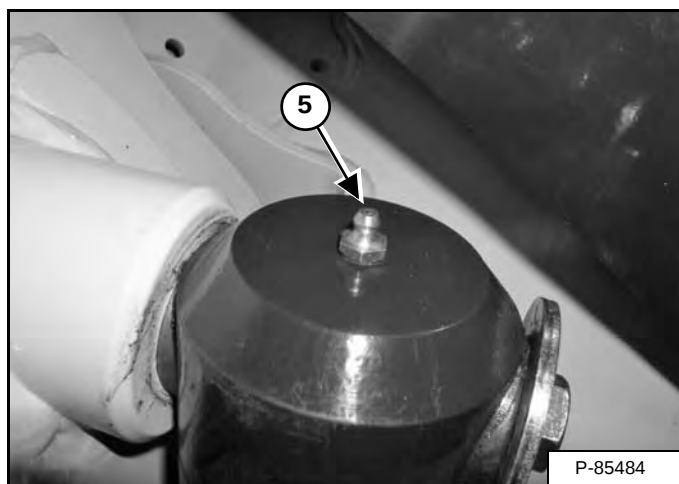
Lubrication Locations (Cont'd)

Figure 338



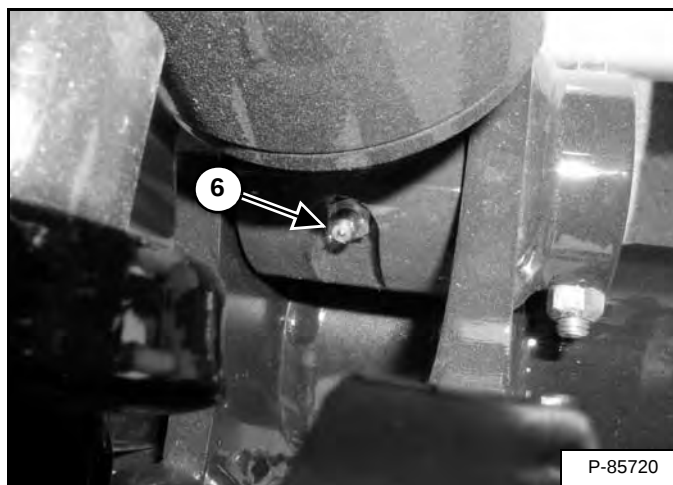
4. Lift Arm Link Pivot (Both Sides) (2) [Figure 338].

Figure 339



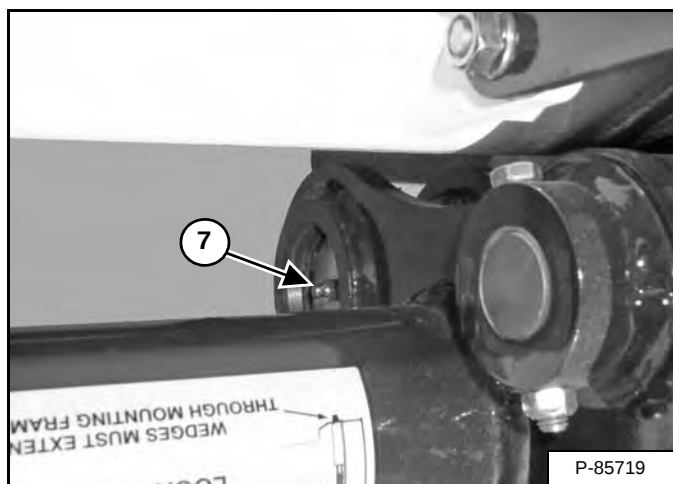
5. Base End Tilt Cylinder (Both Sides) (2) [Figure 339].

Figure 340



6. Rod End Tilt Cylinder (Both Sides) (2) [Figure 340].

Figure 341



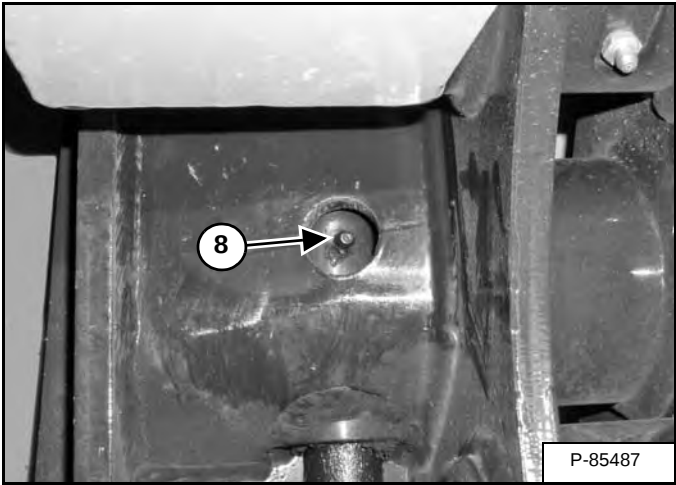
7. Bob-Tach Pivot Pin (Both Sides) (2) [Figure 341].

LUBRICATING THE LOADER (CONT'D)

Lubrication Locations (Cont'd)

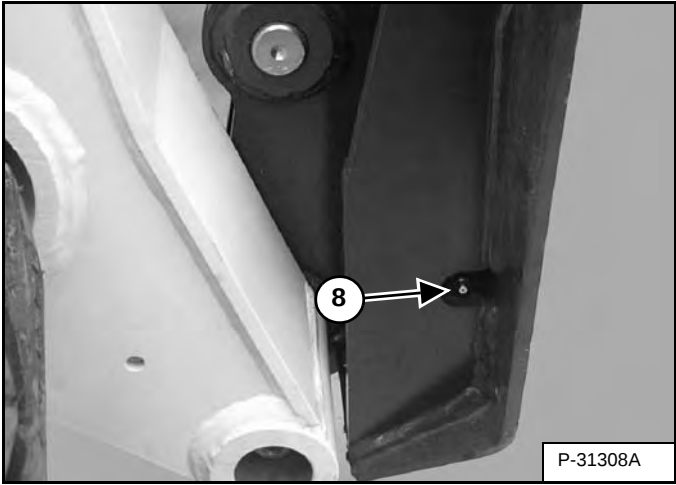
Earlier Models

Figure 342



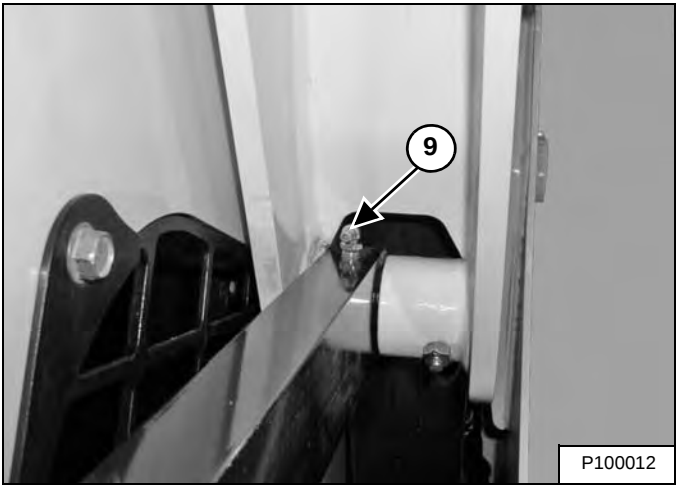
Later Models

Figure 343



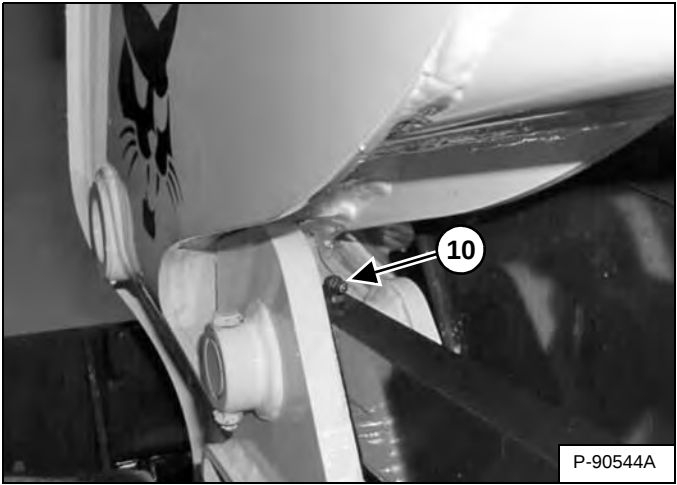
8. Bob-Tach Wedge (Both Sides) (2) [Figure 342] or [Figure 343].

Figure 344



9. Rear Control Link (Both Sides) (2) [Figure 344].

Figure 345



10. Front Control Link (Both Sides) (2) [Figure 345].

TRACK ROLLER AND IDLER LUBRICATION

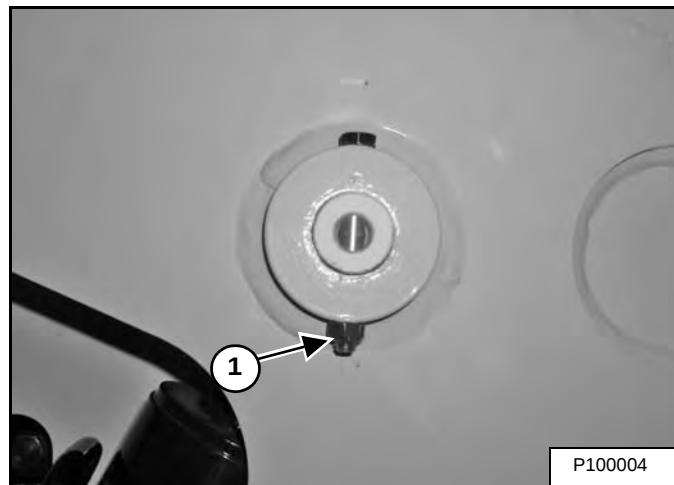
Procedure

The track rollers and idlers have sealed bearings and do not require lubrication.

PIVOT PINS

Inspection And Maintenance

Figure 346



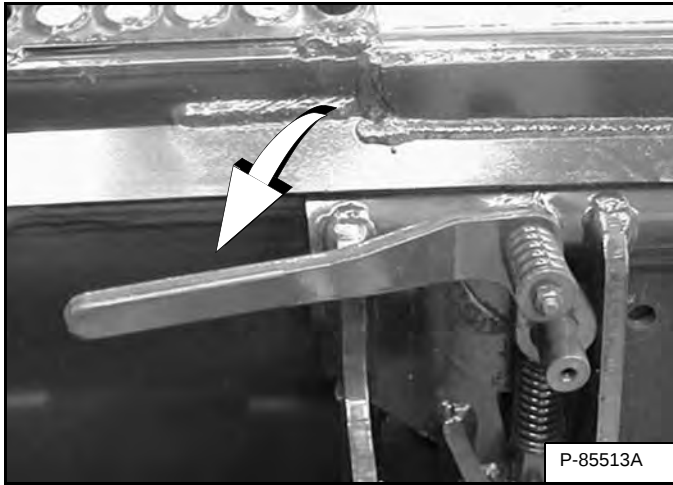
All lift arm and cylinder pivots have a large pin held in position with a retainer bolt and lock nut (Item 1) [Figure 346].

Check that the lock nuts are tightened to 48 - 54 N•m (35 - 40 ft-lb) torque.

BOB-TACH (HAND LEVER)

Inspection And Maintenance

Figure 347



Move the Bob-Tach levers down to engage the wedges [Figure 347].

The levers and wedges must move freely.

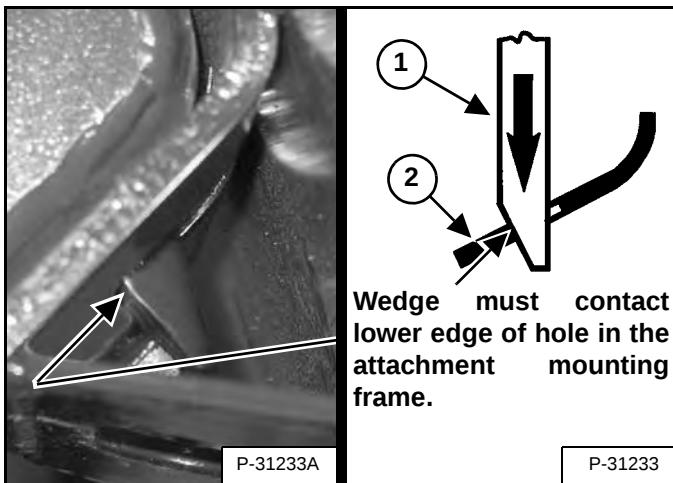
WARNING

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 348

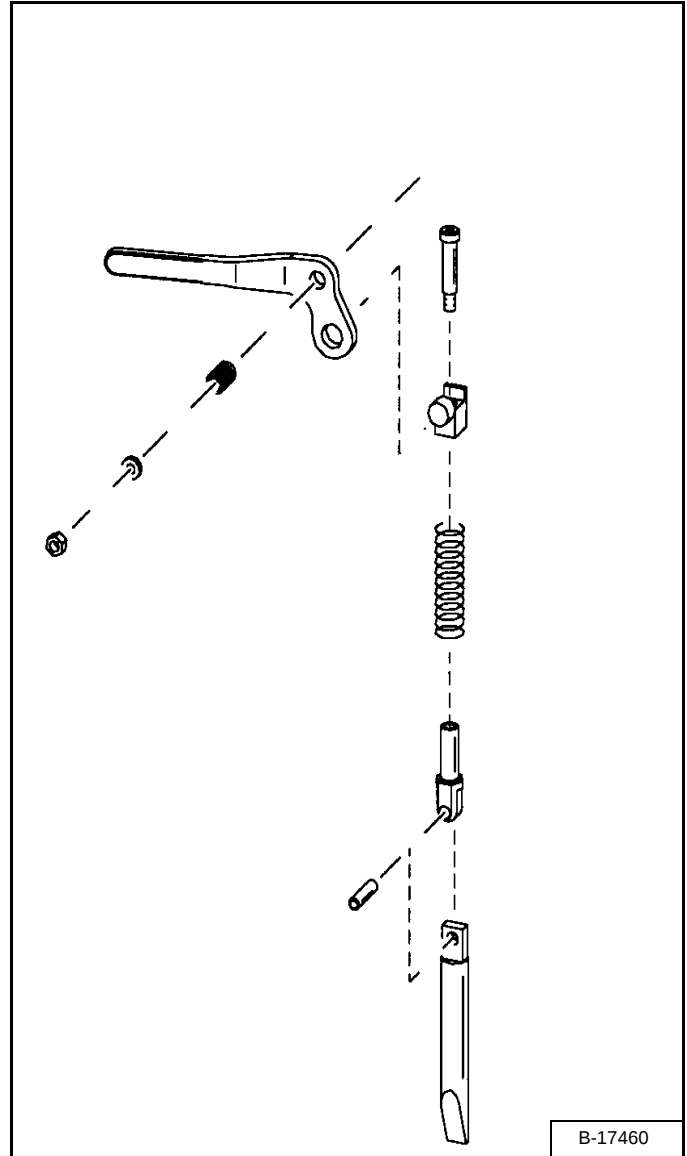


The wedges (Item 1) [Figure 348] must extend through the holes in the attachment mounting frame.

The spring loaded wedges (Item 1) must contact the lower edge of the holes in the attachment mounting frame (Item 2) [Figure 348].

If the wedges do not contact the lower edge of the holes [Figure 348], the attachment will be loose and can come off the Bob-Tach.

Figure 349



Inspect the mounting frame on the attachment and Bob-Tach, linkages and wedges for excessive wear or damage [Figure 349]. 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.

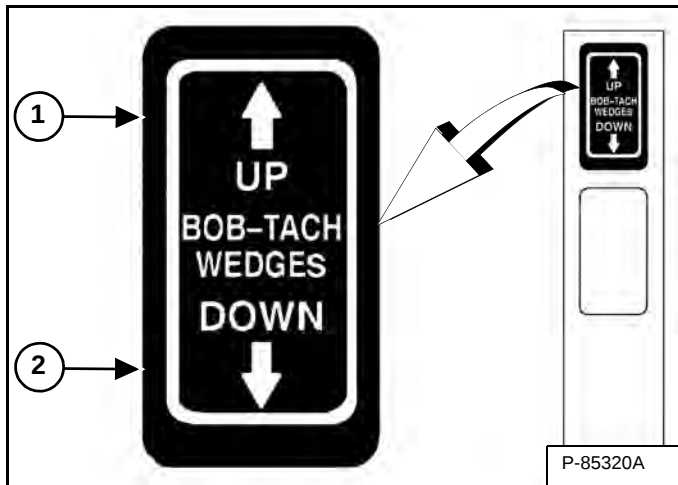
Lubricate the wedges. (See SERVICE SCHEDULE on Page 127.) and (See LUBRICATING THE LOADER on Page 190.)

BOB-TACH (POWER)

This machine may be equipped with a Power Bob-Tach.

Inspection And Maintenance

Figure 350



Push and hold the BOB-TACH “WEDGES UP” switch (Item 1) until wedges are fully raised. Push and hold the BOB-TACH “WEDGES DOWN” switch (Item 2) [Figure 350] until the wedges are fully down.

The levers and wedges must move freely.

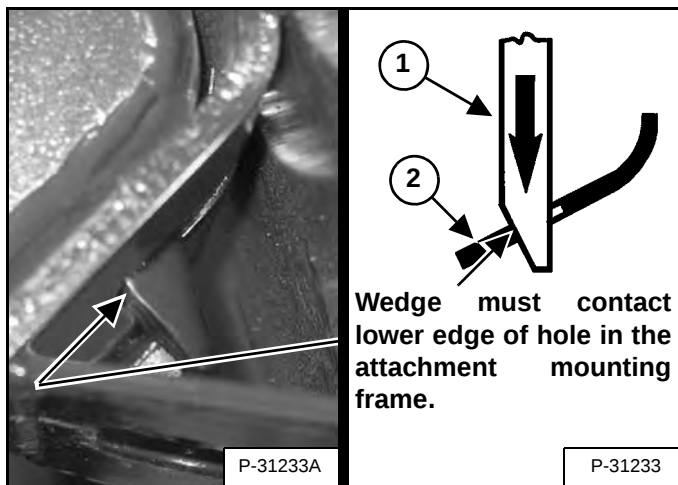
! WARNING

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 351

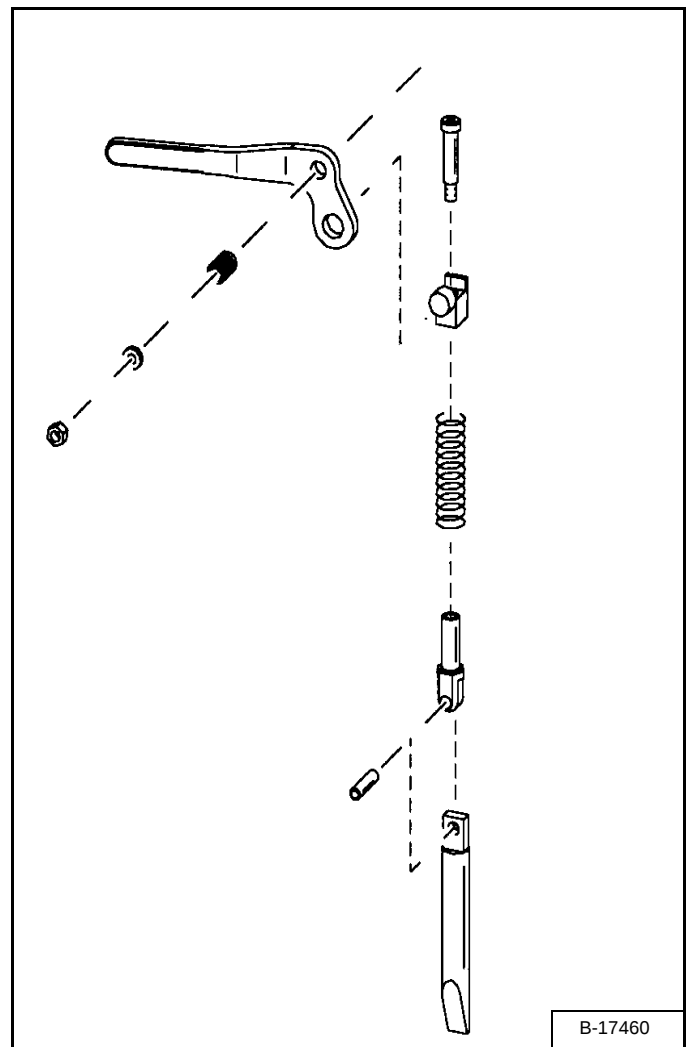


The wedges (Item 1) [Figure 351] must extend through the holes in the attachment mounting frame.

The spring loaded wedges (Item 1) must contact the lower edge of the holes in the attachment mounting frame (Item 2) [Figure 351].

If the wedges do not contact the lower edge of the holes [Figure 351], the attachment will be loose and can come off the Bob-Tach.

Figure 352



Inspect the mounting frame on the attachment and Bob-Tach, linkages and wedges for excessive wear or damage [Figure 352]. 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 127.) and (See LUBRICATING THE LOADER on Page 190.)

LOADER STORAGE AND RETURN TO SERVICE

Storage

Sometimes it may be necessary to store your Bobcat loader for an extend 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 tracks.
- 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.

If biodiesel blend fuel has been used, perform the following:

Drain the fuel tank, refill with 100% petroleum diesel fuel, add fuel stabilizer and run the engine for at least 30 minutes.

- Drain and flush the cooling system. Refill with premixed coolant.
- Replace all fluids and filters (engine, hydraulic / hydrostatic).
- 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 track condition 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.

SYSTEM SETUP AND ANALYSIS

DIAGNOSTIC SERVICE CODES	199
Viewing Service Codes	199
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Bobcat®

DIAGNOSTIC SERVICE CODES

Viewing Service Codes

The Service Codes will aid your dealer in diagnosing conditions that can damage your machine.

Figure 353



Press the Information button (Item 2) to cycle the data display (Item 1) [Figure 353] until the service code screen is displayed. If more than one service code is present, the codes will scroll on the data display.

When no service code is present, [NONE] is displayed [Figure 353].

NOTE: Corroded or loose grounds can cause multiple service codes and / or abnormal symptoms. All instrument panel lights flashing, alarm sounding, headlights and taillights flashing, can indicate a bad ground. The same symptoms can apply if the voltage is low, such as loose or corroded battery cables. If you observe these symptoms, check grounds and positive leads first.

Deluxe Instrumentation Panel

The optional Deluxe Instrumentation Panel offers an additional view of service codes that includes a brief description.

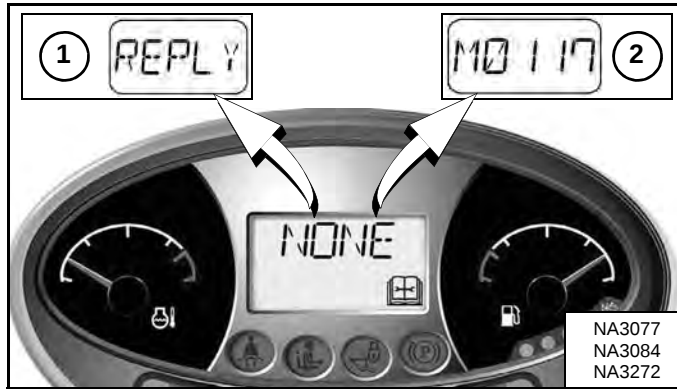
The last 40 codes stored in history can also be viewed using the Deluxe Instrumentation Panel.

	Press a scroll button (Item 1) repeatedly until the Active Warnings screen icon (Inset) is highlighted.
	The ACTIVE WARNINGS screen displays active service codes. Press [9] to view the next service code if more than one is present. Press [4] to display a history of service codes.
	The WARNINGS HISTORY screen will list the Service Code Number (CODE), Hourmeter reading when the error occurred (HOUR), and the User (USER) who was logged in to operate the machine when the error occurred.
Press [9] to view the next eight service codes.	
A total of 40 codes can be stored. When more than 40 codes occur, the oldest code will disappear and the newest code will be in the number 1 position.	
	Press the list number next to the service code for more detail.
	Press the left scroll button to back up one screen.

DIAGNOSTIC SERVICE CODES (CONT'D)

Service Codes List

Figure 354



Service codes may be either a word (Item 1) or a number (Item 2) [Figure 354].

The following word errors may be displayed:

[REPLY] One or both instrument panel(s) not communicating with the controller.

[CODE] The controller is asking for a password. (Keyless Start and Deluxe Instrumentation Panels only.)

[ERROR] The wrong password was entered. (Keyless Start and Deluxe Instrumentation Panels only.)

[SHTDN] A shutdown condition exists.

[DOOR] Operator cab door is open. (Lift and Tilt functions will not operate.)

CODE	DESCRIPTION	CODE	DESCRIPTION
A0618	Wheel speed out of range	A8403	ACD output 'E' error OFF
A3623	ACD not programmed	A8405	ACD output 'E' short to battery
A4621	5 volt sensor supply out of range high	A8406	ACD output 'E' short to ground
A4622	5 volt sensor supply out of range low	A8407	ACD output 'E' open circuit
A4721	8 volt sensor supply out of range high	A8432	ACD output 'E' overcurrent
A4722	8 volt sensor supply out of range low	A8502	ACD output 'F' error ON
A7701	Machine key active	A8503	ACD output 'F' error OFF
A7901	E-Stop active	A8505	ACD output 'F' short to battery
A8002	ACD output 'A' error ON	A8506	ACD output 'F' short to ground
A8003	ACD output 'A' error OFF	A8507	ACD output 'F' open circuit
A8005	ACD output 'A' short to battery	A8532	ACD output 'F' overcurrent
A8006	ACD output 'A' short to ground	A8602	ACD output 'G' error ON
A8007	ACD output 'A' open circuit	A8603	ACD output 'G' error OFF
A8032	ACD output 'A' overcurrent	A8605	ACD output 'G' short to battery
A8102	ACD output 'B' error ON	A8606	ACD output 'G' short to ground
A8103	ACD output 'B' error OFF	A8607	ACD output 'G' open circuit
A8105	ACD output 'B' short to battery	A8702	ACD output 'H' error ON
A8106	ACD output 'B' short to ground	A8703	ACD output 'H' error OFF
A8107	ACD output 'B' open circuit	A8705	ACD output 'H' short to battery
A8132	ACD output 'B' overcurrent	A8706	ACD output 'H' short to ground
A8202	ACD output 'C' error ON	A8707	ACD output 'H' open circuit
A8203	ACD output 'C' error OFF	A8802	Reverse solenoid error ON
A8205	ACD output 'C' short to battery	A8803	Reverse solenoid error OFF
A8206	ACD output 'C' short to ground		
A8207	ACD output 'C' open circuit	D3905	Left joystick X-axis not in NEUTRAL
A8232	ACD output 'C' overcurrent	D3907	Left joystick Y-axis not in NEUTRAL
A8302	ACD output 'D' error ON	D4007	Right joystick Y-axis not in NEUTRAL
A8303	ACD output 'D' error OFF	D7501	Drive CAN joystick information error
A8305	ACD output 'D' short to battery	D7504	Drive no communication from drive controller
A8306	ACD output 'D' short to ground	D7505	Drive left joystick X-axis not in NEUTRAL
A8307	ACD output 'D' open circuit	D7507	Drive left joystick Y-axis not in NEUTRAL
A8332	ACD output 'D' overcurrent	D7508	Drive right joystick Y-axis not in NEUTRAL
A8402	ACD output 'E' error ON	D7509	Drive operating mode switch short to ground or battery

DIAGNOSTIC SERVICE CODES (CONT'D)

Service Codes List (Cont'd)

CODE	DESCRIPTION	CODE	DESCRIPTION
D7510	Drive improper joysticks installed	D7555	Drive right forward drive solenoid error OFF
D7511	Drive left speed sensor not connected	D7556	Drive right reverse drive solenoid error OFF
D7512	Drive right speed sensor not connected	D7557	Drive right front steer extend short to ground
D7513	Drive right front wheel angle sensor stuck	D7558	Drive right front steer retract short to ground
D7514	Drive left front wheel angle sensor stuck	D7559	Drive left front steer extend short to ground
D7515	Drive right rear wheel angle sensor stuck	D7560	Drive left front steer retract short to ground
D7516	Drive left rear wheel angle sensor stuck	D7561	Drive right rear steer extend short to ground
D7517	Drive left swash plate not in NEUTRAL	D7562	Drive right rear steer retract short to ground
D7518	Drive right swash plate not in NEUTRAL	D7563	Drive left rear steer extend short to ground
D7519	Drive left joystick X-axis out of range high	D7564	Drive left rear steer retract short to ground
D7521	Drive left joystick Y-axis out of range high	D7565	Drive steer pressure short to ground
D7522	Drive right joystick Y-axis out of range high	D7566	Drive back-up alarm error OFF
D7523	Drive right front wheel angle sensor out of range high	D7567	Drive no communication from Bobcat controller
D7524	Drive left front wheel angle sensor out of range high	D7568	Drive angle sensors not calibrated
D7525	Drive right rear wheel angle sensor out of range high	D7569	Drive battery voltage out of range high
D7526	Drive left rear wheel angle sensor out of range high	D7570	Drive interrupted power (also occurs after software updates)
D7527	Drive left swash plate out of position	D7571	Drive battery voltage out of range low
D7528	Drive right swash plate out of position	D7572	Drive pump not calibrated
D7529	Drive left joystick X-axis out of range low	D7573	Drive operating mode switch flipped while operating
D7531	Drive left joystick Y-axis out of range low	D7574	Drive right wheel speed uncommanded motion
D7532	Drive right joystick Y-axis out of range low	D7575	Drive left wheel speed uncommanded motion
D7533	Drive right front wheel angle sensor out of range low	D7576	Drive no communication from ACS controller
D7534	Drive left front wheel angle sensor out of range low	D7577	Drive left speed sensor out of range high
D7535	Drive right rear wheel angle sensor out of range low	D7578	Drive right speed sensor out of range high
D7536	Drive left rear wheel angle sensor out of range low	D7579	Drive left speed sensor out of range low
D7537	Drive 5 volt sensor supply 1 out of range low	D7580	Drive right speed sensor out of range low
D7538	Drive 5 volt sensor supply 2 out of range low	D7581	Drive right front steer retract short to battery
D7539	Drive left swash plate sensor out of range high	D7582	Drive left front steer retract short to battery
D7540	Drive left swash plate sensor out of range low	D7583	Drive right rear steer retract short to battery
D7541	Drive right swash plate sensor out of range high	D7584	Drive left rear steer retract short to battery
D7542	Drive right swash plate sensor out of range low	D7585	Drive 5 volt sensor supply 1 out of range high
D7543	Drive left forward drive solenoid error ON	D7586	Drive 5 volt sensor supply 2 out of range high
D7544	Drive left reverse drive solenoid error ON	D7587	Drive software update required
D7545	Drive right forward drive solenoid error ON	D7588	Drive switched power stuck ON
D7546	Drive right reverse drive solenoid error ON	D7589	Drive switched power error OFF
D7547	Drive right front steer extend short to battery	D7590	Drive calibration performed
D7548	Drive left front steer extend short to battery	D7591	Drive left swash plate sensor reversed
D7549	Drive right rear steer extend short to battery	D7592	Drive right swash plate sensor reversed
D7550	Drive left rear steer extend short to battery	D7593	Drive unresponsive right speed sensor
D7551	Drive steer pressure short to battery	D7594	Drive unresponsive left speed sensor
D7552	Drive back-up alarm error ON	D7595	Drive left speed sensor reverse direction
D7553	Drive left forward drive solenoid error OFF	D7596	Drive right speed sensor reverse direction
D7554	Drive left reverse drive solenoid error OFF	D7597	Drive controller programmed

DIAGNOSTIC SERVICE CODES (CONT'D)**Service Codes List (Cont'd)**

CODE	DESCRIPTION	CODE	DESCRIPTION
D7598	Drive controller in calibration mode	H4012	Right joystick thumb switch not in NEUTRAL
D7599	Drive AWS controller in wheel position calibration mode	H4013	Right joystick grip no communication
		H4016	Right joystick no communication
H1221	Right thumb switch out of range high	H4028	Right joystick internal failure
H1222	Right thumb switch out of range low	H4048	Right joystick multiple
H1224	Right thumb switch not in NEUTRAL	H4302	Horn error ON
H1321	Left thumb switch out of range high	H4303	Horn error OFF
H1322	Left thumb switch out of range low	H4423	Auxiliary not programmed
H1324	Left thumb switch not in NEUTRAL	H4497	Auxiliary controller programmed
H2005	Boost solenoid short to battery	H4502	Right blinker error ON
H2006	Boost solenoid short to ground	H4503	Right blinker error OFF
H2007	Boost solenoid open circuit	H4602	Left blinker error ON
H2032	Boost solenoid overcurrent	H4603	Left blinker error OFF
H2305	Rear base output short to battery	H4721	8 volt sensor supply out of range high
H2306	Rear base output short to ground	H4722	8 volt sensor supply out of range low
H2307	Rear base output open circuit	H7404	Main controller no communication
H2332	Rear base output overcurrent		
H2405	Rear rod output short to battery	L0102	Lights button error ON
H2406	Rear rod output short to ground	L0202	High-flow enable / auto idle enable button error ON
H2407	Rear rod output open circuit	L0302	Auxiliary enable button error ON
H2432	Rear rod output overcurrent	L0402	Information button error ON
H2505	Diverter #2 short to battery	L7404	Main controller no communication
H2506	Diverter #2 short to ground	L7672	Left display panel needs programming
H2507	Diverter #2 open circuit		
H2605	Front base output short to battery	M0116	Air filter not connected
H2606	Front base output short to ground	M0117	Air filter plugged
H2607	Front base output open circuit	M0216	Hydraulic / Hydrostatic filter not connected
H2632	Front base output overcurrent	M0217	Hydraulic / Hydrostatic filter plugged
H2705	Front rod output short to battery	M0309	System voltage too low
H2706	Front rod output short to ground	M0310	System voltage too high
H2707	Front rod output open circuit	M0311	System voltage extremely high
H2732	Front rod output overcurrent	M0314	System voltage extremely low
H2805	Diverter short to battery	M0322	System voltage out of range low
H2806	Diverter short to ground	M0409	Engine oil pressure too low
H2807	Diverter open circuit	M0414	Engine oil pressure extremely low
H2905	High-flow short to battery	M0415	Engine oil pressure in shutdown
H2906	High-flow short to ground	M0421	Engine oil pressure out of range high
H2907	High-flow open circuit	M0422	Engine oil pressure out of range low
H2932	High-flow overcurrent	M0509	Hydraulic charge pressure too low
H3028	Controller memory failure	M0510	Hydraulic charge pressure too high
H3128	Interrupted power failure	M0511	Hydraulic charge pressure extremely high
H3648	Multiple ACD conflict error	M0514	Hydraulic charge pressure extremely low
H3904	Left joystick in error	M0515	Hydraulic charge pressure in shutdown
H3912	Left joystick thumb switch not in NEUTRAL	M0521	Hydraulic charge pressure out of range high
H3913	Left joystick grip no communication	M0522	Hydraulic charge pressure out of range low
H3916	Left joystick no communication	M0610	Engine speed too high
H3928	Left joystick internal failure	M0611	Engine speed extremely high
H3948	Left joystick multiple	M0613	Engine speed no signal
H4004	Right joystick in error	M0615	Engine speed in shutdown

DIAGNOSTIC SERVICE CODES (CONT'D)

Service Codes List (Cont'd)

CODE	DESCRIPTION	CODE	DESCRIPTION
M0618	Engine speed out of range	M2202	Starter output error ON
M0634	Engine speed invalid information from ECU	M2203	Starter output error OFF
M0710	Hydraulic oil temperature too high	M2207	Starter output open circuit
M0711	Hydraulic oil temperature extremely high	M2228	Starter output failure
M0715	Hydraulic oil temperature in shutdown	M2302	Starter relay error ON
M0721	Hydraulic oil temperature out of range high	M2303	Starter relay error OFF
M0722	Hydraulic oil temperature out of range low	M2402	Fuel pull relay error ON
M0810	Engine coolant temperature too high	M2403	Fuel pull relay error OFF
M0811	Engine coolant temperature extremely high	M2502	Traction pull relay error ON
M0815	Engine coolant temperature in shutdown	M2503	Traction pull relay error OFF
M0821	Engine coolant temperature out of range high	M2602	Glow plug relay error ON
M0822	Engine coolant temperature out of range low	M2603	Glow plug relay error OFF
M0909	Fuel level too low	M2721	Throttle primary sensor out of range high
M0921	Fuel level out of range high	M2722	Throttle primary sensor out of range low
M0922	Fuel level out of range low	M2821	Throttle secondary sensor out of range high
M1016	Hydraulic charge filter not connected	M2822	Throttle secondary sensor out of range low
M1017	Hydraulic charge filter plugged	M3028	Controller memory failure
M1121	Seat bar sensor out of range high	M3128	Interrupted power failure
M1122	Seat bar sensor out of range low	M3204	ACS (AHC) no communication to Bobcat controller
M1128	Seat bar sensor failure	M3304	Deluxe panel no communication
M1305	Fuel hold solenoid short to battery	M3404	Deluxe panel in error
M1306	Fuel hold solenoid short to ground	M3505	Hydraulic fan short to battery
M1307	Fuel hold solenoid open circuit	M3506	Hydraulic fan short to ground
M1402	Fuel pull solenoid error ON	M3507	Hydraulic fan open circuit
M1403	Fuel pull solenoid error OFF	M3532	Hydraulic fan overcurrent
M1407	Fuel pull solenoid open circuit	M3705	Two-speed second output short to battery
M1428	Fuel pull solenoid failure	M3706	Two-speed second output short to ground
M1502	Traction lock pull output error ON	M3707	Two-speed second output open circuit
M1503	Traction lock pull output error OFF	M3732	Two-speed second output overcurrent
M1507	Traction lock pull output open circuit	M3805	Auxiliary hydraulic lock short to battery
M1528	Traction lock pull output failure	M3806	Auxiliary hydraulic lock short to ground
M1605	Traction lock hold solenoid short to battery	M3807	Auxiliary hydraulic lock open circuit
M1606	Traction lock hold solenoid short to ground	M3832	Auxiliary hydraulic lock overcurrent
M1607	Traction lock hold solenoid open circuit	M4109	Alternator too low
M1705	Hydraulic lock valve short to battery	M4110	Alternator high
M1706	Hydraulic lock valve short to ground	M4111	Alternator extremely high
M1707	Hydraulic lock valve open circuit	M4304	Keyless panel no communication
M1732	Hydraulic lock valve overcurrent	M4404	Auxiliary no communication
M1805	Lift spool lock output short to battery	M4510	Water in fuel sensor too high
M1806	Lift spool lock output short to ground	M4511	Water in fuel sensor extremely high
M1807	Lift spool lock output open circuit	M4521	Water in fuel sensor out of range high
M1832	Lift spool lock output overcurrent	M4522	Water in fuel sensor out of range low
M2005	Two-speed primary solenoid short to battery	M4621	5 volt sensor supply out of range high
M2006	Two-speed primary solenoid short to ground	M4622	5 volt sensor supply out of range low
M2007	Two-speed primary solenoid open circuit	M4721	8 volt sensor supply out of range high
M2032	Two-speed primary solenoid overcurrent	M4722	8 volt sensor supply out of range low
M2102	Glow plug output error ON	M4802	Front light relay error ON
M2103	Glow plug output error OFF	M4803	Front light relay error OFF
M2107	Glow plug output open circuit	M4902	Rear light relay error ON
M2128	Glow plug output failure	M4903	Rear light relay error OFF

DIAGNOSTIC SERVICE CODES (CONT'D)

Service Codes List (Cont'd)

CODE	DESCRIPTION	CODE	DESCRIPTION
M5002	Front light output error ON	M8542	DPF automatic regeneration active (Operate machine under load)
M5003	Front light output error OFF	M8551	DPF regeneration needed - inhibit active
M5007	Front light output open circuit	M8552	DPF regeneration needed - inhibit active (Operate machine under load)
M5028	Front light output failure	M8553	DPF remote parked regeneration required (Remote regeneration kit required)
M5102	Rear light output error ON	M8554	DPF service regeneration required (Contact Bobcat dealer)
M5103	Rear light output error OFF	M8555	DPF service required
M5107	Rear light output open circuit	M8560	DPF service regeneration active
M5128	Rear light output failure	M8561	DPF service regeneration active
M5202	Press to operate button error ON	M8562	DPF service regeneration active
M5221	Press to operate button out of range high	M8563	DPF service regeneration active
M5222	Press to operate button out of range low	M8564	DPF service regeneration active
M5305	Press to operate light short to battery	M8615	Engine speed derate in shutdown
M5306	Press to operate light short to ground	M8625	Engine speed derate unresponsive
M5405	Tilt spool lock short to battery		
M5406	Tilt spool lock short to ground	R7404	Main controller no communication
M5407	Tilt spool lock open circuit		
M5432	Tilt spool lock overcurrent	T9002	Service tool output 'C' error ON
M5902	DPF regeneration switch error ON	T9003	Service tool output 'C' error OFF
M6002	DPF inhibit regeneration switch error ON	T9102	Service tool output 'D' error ON
M6102	Remote parked regeneration switch error ON	T9103	Service tool output 'D' error OFF
M6402	Switched power relay error ON	T9202	Service tool output 'E' error ON
M6403	Switched power relay error OFF	T9203	Service tool output 'E' error OFF
M6505	ECU power short to battery	T9302	Service tool output 'F' error ON
M6506	ECU power short to ground	T9303	Service tool output 'F' error OFF
M6507	ECU power open circuit		
M6604	ECU no communication	W3204	ACS (AHC) no communication to Bobcat controller
M6702	HVAC output error ON	W3223	ACS (AHC) calibration required
M6703	HVAC output error OFF	W3224	ACS (AHC) calibration performed
M6707	HVAC output open circuit	W3225	ACS (AHC) actuator calibration failed
M6728	HVAC output failure	W3231	ACS (AHC) tilt actuator
M6802	HVAC relay error ON	W3232	ACS (AHC) tilt actuator wiring
M6803	HVAC relay error OFF	W3233	ACS (AHC) tilt handle wiring
M7002	Switched power output error ON	W3234	ACS (AHC) tilt actuator not in NEUTRAL
M7003	Switched power output error OFF	W3235	ACS (AHC) tilt handle / pedal not in NEUTRAL
M7007	Switched power output open circuit	W3236	ACS (AHC) lift actuator
M7028	Switched power output failure	W3237	ACS (AHC) lift actuator wiring
M7304	Remote control no communication	W3238	ACS (AHC) lift handle wiring
M7316	Remote control no communication to transmitter	W3239	ACS (AHC) lift actuator not in NEUTRAL
M7423	Main controller not programmed	W3240	ACS (AHC) lift handle / pedal not in NEUTRAL
M7472	Main controller needs programming	W3241	ACS (AHC) no communication
M7497	Main controller programmed	W3249	ACS (AHC) lift actuator short to ground
M7504	Drive no communication	W3250	ACS (AHC) tilt actuator short to ground
M7604	Left display panel no communication	W3251	ACS (AHC) lift actuator short to battery
M7748	Key switch multiple	W3252	ACS (AHC) tilt actuator short to battery
M7839	Hourmeter changed	W3253	ACS (AHC) lift handle / pedal short to ground
M7974	Door open	W3254	ACS (AHC) tilt handle / pedal short to ground
M8541	DPF automatic regeneration active	W3255	ACS (AHC) lift handle / pedal short to battery

DIAGNOSTIC SERVICE CODES (CONT'D)

Service Codes List (Cont'd)

CODE	DESCRIPTION	CODE	DESCRIPTION
W3256	ACS (AHC) tilt handle / pedal short to battery	W3268	ACS (AHC) lift handle information error
W3257	ACS (AHC) lift actuator reduced performance	W3270	ACS (AHC) right drive handle short to ground
W3258	ACS (AHC) tilt actuator reduced performance	W3271	ACS (AHC) right drive handle short to battery
W3259	ACS (AHC) lift actuator wrong direction	W3274	ACS (AHC) left joystick X-axis out of range
W3260	ACS (AHC) tilt actuator wrong direction	W3275	ACS (AHC) interrupted unswitched power
W3261	ACS (AHC) handle lock short to ground	W3276	ACS (AHC) CAN joystick information error
W3262	ACS (AHC) handle lock short to battery	W3277	ACS (AHC) remote control information error
W3263	ACS (AHC) pedal lock short to ground	W3297	ACS (AHC) controller programmed
W3264	ACS (AHC) pedal lock short to battery	W3905	Left joystick X-axis not in NEUTRAL
W3265	ACS (AHC) sensor supply voltage out of range	W4005	Right joystick X-axis not in NEUTRAL
W3266	ACS (AHC) battery voltage out of range	W4007	Right joystick Y-axis not in NEUTRAL
W3267	ACS (AHC) switch flipped while operating		

CONTROL PANEL SETUP

Right Panel Setup (Deluxe Instrumentation Panel)

Icon Identification

Figure 355



ICON	DESCRIPTION
	DATE / TIME
	USER / HOURMETER
	CURRENT JOB HOURS
	ACTIVE WARNINGS screen icon
	VITALS screen icon
	SERVICE screen icon
	MAIN screen icon
	ATTACHMENTS screen icon
	SECURITY screen icon
	DISPLAY screen icon
	HOME icon (Return to MAIN screen)
	LEFT SCROLL button
	RIGHT SCROLL button
	ENTER button

Vitals

	Press a scroll button (Item 1) repeatedly until the Vitals screen icon (Inset) is highlighted.
	Displays select system operating levels.

You can monitor real-time displays of:

- Engine Speed
- Engine Oil Pressure
- Engine Coolant Temperature
- System Voltage
- Hydraulic Charge Pressure
- Hydraulic Fluid Temperature

The Deluxe Instrumentation Panel is easy to use. Continue to set your own preferences for operating / monitoring your Bobcat loader.

CONTROL PANEL SETUP (CONT'D)

Right Panel Setup (Deluxe Instrumentation Panel) (Cont'd)

Date And Time

	Press a scroll button (Item 1) repeatedly until the Display screen icon (Inset) is highlighted.
	Select [1. CLOCKS] .
	Select [1. TIME] .
	Use the keypad to enter time. Select AM / PM / 24hr. Press [ENTER] to continue.
	Select [2. DATE] .
	Use the keypad to enter date. Press [ENTER] to continue.

Languages

	Press a scroll button (Item 1) repeatedly until the Display screen icon (Inset) is highlighted.
	Select [2. LANGUAGES] .
	Select the desired language.

English / Metric Display

	Press a scroll button (Item 1) repeatedly until the Display screen icon (Inset) is highlighted.
	Select [4. DISPLAY SETTINGS] .
	Press [1] to cycle between ENGLISH and METRIC.

CONTROL PANEL SETUP (CONT'D)

Right Panel Setup (Deluxe Instrumentation Panel) (Cont'd)

Job Clock Reset

	Press a scroll button (Item 1) repeatedly until the Security screen icon (Inset) is highlighted.
	Select [1. PASSWORDS / LOCKOUTS] .
	Enter owner password and press [ENTER] .
	Select [1. USER SETTINGS] .
	Select user.
	Select [3. RESET JOB STATISTICS] .
	Press [9] to reset job statistics. Press left scroll button or [0] to exit without saving.

Machine Lockouts

	Press a scroll button (Item 1) repeatedly until the Security screen icon (Inset) is highlighted.
	Select [1. PASSWORDS / LOCKOUTS] .
	Enter owner password and press [ENTER] .
	Select [3. HIGH FLOW] . Select [4. TWO-SPEED] .
	HIGH FLOW Press user number to cycle between LOCKED and UNLOCKED.
	TWO-SPEED Press user number to cycle between LOCKED and UNLOCKED.

NOTE: High Flow and Two-Speed lockouts for the owner are active even if the Password Lockout feature is unlocked.

PASSWORD SETUP (KEYLESS START PANEL)

Password Description

Master Password:

A permanent, randomly selected password set at the factory that cannot be changed. This password is used for service by the Bobcat dealer if the owner password is not known or to change the owner password.

Owner Password:

Allows for full use of the loader. Must be used to change the owner password.

Changing The Owner Password

Turn the key switch to the RUN position to turn on the loaders electrical system.

Enter the five digit owner password using the number keys (1 through 0) if locked.

Figure 356



Press and hold the lock (Item 1) and unlock (Item 2) [Figure 356] keys for 2 seconds.

The lock key red light will flash and the left panel display screen will show **[ENTER]**.

Enter a new five digit owner password using the number keys (1 through 0). An asterisk will show in the left panel display screen for each key press.

The left panel display screen will show **[AGAIN]**.

Enter the new five digit owner password again.

The lock key red light will become solid.

Password Lockout Feature

This feature allows the owner to unlock the password feature so that a password does not need to be used every time the engine is started.

Turn the key switch to the RUN position to turn on the loaders electrical system.

Enter the five digit owner password using the number keys (1 through 0).

Figure 357



Press the unlock key (Item 2) [Figure 357].

The left panel display screen will show **[CODE]**.

Enter the five digit owner password using the number keys (1 through 0). The unlock key green light will flash, then become solid.

The loader can now be started without using a password.

NOTE: Use the following procedure to reset the machine lock so that the loader requires a password to start the engine.

Turn the key switch to the RUN position to turn on the loaders electrical system.

Press the lock key (Item 1) [Figure 357].

The lock key red light will flash and the left panel display screen will show **[CODE]**.

Enter the five digit owner password using the number keys (1 through 0). The unlock key green light will flash, then the lock key red light will become solid.

You must now enter the password every time to start the loader.

PASSWORD SETUP (DELUXE INSTRUMENTATION PANEL)

Password Setup is available on machines with a Deluxe Instrumentation Panel.

Password Description

All new machines with a Deluxe Instrumentation Panel arrive at Bobcat dealerships with the keypad in locked mode. Locked mode means that a password must be used to start the engine.

For security purposes, your dealer may change the password and set the keypad in the locked mode. Your dealer will provide you with the password.

Master Password:

A permanent, randomly selected password set at the factory that cannot be changed. This password is used for service by the Bobcat dealer if the owner password is not known or to change the owner password.

Owner Password:

Allows for full use of the loader and to set up the Deluxe Instrumentation Panel. There is only one owner password. The owner password must be used to change the owner or user passwords. Owner should change the password as soon as possible for security of the loader.

User Password:

Allows starting and operating the loader; cannot change password or any of the other setup features.

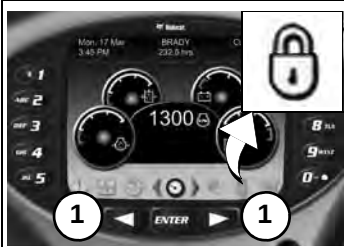
For the procedures to change passwords: (See Changing The Owner Password on Page 210.) and (See Changing The User Passwords on Page 211.)

Changing The Owner Password

	Press a scroll button (Item 1) repeatedly until the Security screen icon (Inset) is highlighted.
	Select [1. PASSWORDS / LOCKOUTS] .
	Enter owner password and press [ENTER] .
	Select [1. USER SETTINGS] .
	Select [1. OWNER] .
	Select [2. CHANGE PASSWORD] .
	Enter new owner password and press [ENTER] . You will be prompted to reenter the new owner password.

PASSWORD SETUP (DELUXE INSTRUMENTATION PANEL) (CONT'D)

Changing The User Passwords

	Press a scroll button (Item 1) repeatedly until the Security screen icon (Inset) is highlighted.
	Select [1. PASSWORDS / LOCKOUTS] .
	Enter owner password and press [ENTER] .
	Select [1. USER SETTINGS] .
	Select user.
	Select [2. CHANGE PASSWORD] .
	Enter new user password and press [ENTER] .

Password Lockout Feature

This feature allows the owner to unlock the password feature so that a password does not need to be used every time the engine is started.

	Press a scroll button (Item 1) repeatedly until the Security screen icon (Inset) is highlighted.
	Select [1. PASSWORDS / LOCKOUTS] .
	Enter owner password and press [ENTER] .
	Select [2. MACHINE LOCK] .

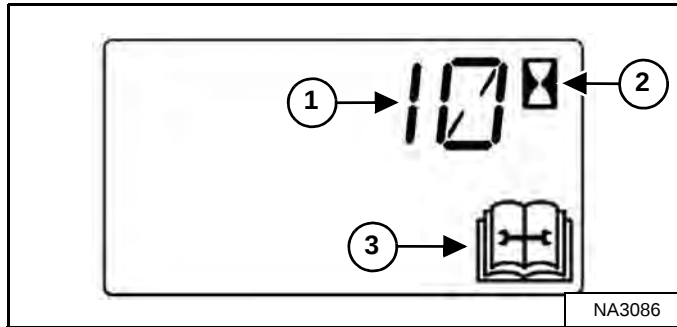
NOTE: The procedure above can be followed to reset the machine lock so that the machine requires a password to start the engine.

MAINTENANCE CLOCK

Description

The Maintenance Clock alerts the operator when the next service interval is due. *EXAMPLE:* The maintenance clock can be set to a 500 hour interval as a reminder for the next 500 hour planned maintenance.

Figure 358



During machine operation, a 2 beep alarm will sound when there are less than 10 hours until the next planned maintenance.

The remaining hours before maintenance is required (Item 1) will appear in the data display for 5 seconds while the service icon (Item 3) and the hourmeter icon (Item 2) [Figure 358] flash.

NOTE: The display will show negative numbers after counting down to zero.

The display will revert to the previous display and will appear for 5 seconds every time the machine is started until the maintenance clock is reset.

Figure 359



The Deluxe Instrumentation Panel (if equipped) will display a message (Item 1) [Figure 359] alerting the operator to service the machine.

This message will remain for 10 seconds and will appear for 10 seconds every time the machine is started until the maintenance clock is reset.

Figure 360



The Deluxe Instrumentation Panel (if equipped) will display a bar (Item 1) [Figure 360] showing the time remaining until next service. This bar will turn red when service is past due. NEXT MAINTENANCE DUE will change to MAINTENANCE PAST DUE and display the number of hours past due.

Keys [4] and [9] can be used to adjust the service interval when the owner is logged in [Figure 360].

Setup

See your Bobcat dealer about installation of this feature.

Reset

Figure 361



Press the Information button (Item 2) [Figure 361] until the display screen shows the maintenance clock.

Press and hold the Information button (Item 2) for 7 seconds until [RESET] (Item 1) [Figure 361] appears in the display screen.

MACHINE SIGN TRANSLATIONS

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Bobcat®

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 or air intake heater. 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 FILTERS - 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, air conditioner (if equipped), radiator and screens on both the rear door and engine cover (if equipped).
- FUEL FILTER - Remove trapped water. Refer to Operation & Maintenance Manual for proper replacement interval.
- 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.
- BICS - Check for correct function. Clean dirt and debris from moving parts. Lift and Tilt functions MUST NOT operate with seat bar raised.
- FRONT HORN / BACK-UP ALARM - Check for proper function.
- 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.
- HYDRAULIC FLUID - Check fluid level and add if required.
- HEATER AND AIR CONDITIONING FILTERS (If Equipped) - Clean or replace filters as needed.

EVERY 50 HRS

- HYDRAULIC HOSES AND TUBELINES - Check for damage and for leaks. Repair or replace as needed.
- FINAL DRIVE TRANSMISSION CHAINCASE on Wheel Machines Only - Check oil level and add if required.
- PARKING BRAKE, HYDRAULIC & STEERING CONTROLS (Pedal, 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 ARRESTER - Empty spark chamber. (If equipped) See IMPORTANT message on this decal.
- BATTERY - Check battery for damage, hold down clamps, cables, connectors and electrolyte level. Add distilled water as needed.

EVERY 250 HRS

- ENGINE / HYDROSTATIC DRIVE BELT - Check for wear or damage. Adjust or replace as needed. (If equipped)
- OTHER DRIVE BELTS (water pump/alternator and air conditioner - if equipped) - Check condition. Replace as needed.
- BICS - Check function of Lift Arm Bypass control.
- STEERING KING PINS (AWS Machines Only) - Lubricate with multipurpose lithium based grease.

EVERY 500 HRS

- HYDRAULIC / HYDROSTATIC SYSTEM - Replace change (am) filter. Replace reservoir breather cap.
- HYDROSTATIC MOTOR CARRIER (Track Machines Only) - Replace oil. See Operation & Maintenance Manual for oil specifications.
- STEERING VALVE IN-LINE FILTER (AWS Machines Only) - Replace filter.

EVERY 1000 HRS

- HYDRAULIC / HYDROSTATIC SYSTEM - Replace hydraulic filter.
- HYDRAULIC RESERVOIR - Replace fluid.
- FINAL DRIVE TRANSMISSION Chaincase on Wheel Machines Only - Replace fluid.
- WHEEL BEARING / OUTER SPLINES (AWS Machines Only) - Repack wheel bearings, grease internal splines in hub yoke. (Dealer Service Only)
- ENGINE VALVES - Refer to Operation & Maintenance Manual for proper adjustment intervals for your Model.

EVERY 1500, 2000 & 3000 HRS

- See Operation & Maintenance Manual for information

IMPORTANT

This machine is factory equipped with a U.S.O.A. Factory Service Scheduled work interval amount system that must be maintained for proper function.

- WITH MUFFLER** - The scheduled work interval must be serviced every 100 hours of operation or less if in working condition.
- WITH SILENCER** - The scheduled work interval must be serviced every 100 hours of operation or less if in working condition.

DO NOT REMOVE OR MODIFY THE DOG OR SCR

The SCR must be maintained according to the instructions in the Operation & Maintenance Manual for proper function.

- WITH DIESEL PARTICULATE FILTER (DPF)** - This DPF must be maintained according to the instructions in the Operation & Maintenance Manual for proper function.

If this machine is operated on flammable liquid, kerosene or gas, cover the tank. The engine must be equipped with a spark arrester and maintained in working order. Failure to do so will be in violation of California state law section 4423 P.C. Refer to local laws and regulations for spark arrester requirements.

GENERAL LUBRICATION DIAGRAMS

— TYPICAL LUBRICATION POINTS

RADIUS PATH MACHINE

VERTICAL PATH MACHINE

SEE OPERATION & MAINTENANCE MANUAL FOR MORE INFORMATION AND INSTRUCTIONS.

Use Genuine Bobcat Replacement Parts

NOTES:

- Replace element sooner if hydraulic filter 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 information, correct fluid specifications, filter part number and location, and appropriate service interval for your Model.

[illegible]

AVERTISSEMENT

RISQUE DE BLESSURES OU DE MORT

Gardez la porte fermée sauf pour l'entretien.

- Gardez le moteur à l'écart de tout matériel inflammable.
- Gardez 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 inflammables à proximité de l'échappement.
- N'utilisez jamais d'éther ou de liquide diesel équipés de bougies de préallumage. 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 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 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 VERIFICATION ET PÉRIODICITÉ DES ENTRETIENS

TOUTES LES 10 HEURES (AVANT DE DEMARRER LA CHARGEUSE)

- HUILE ET FILTRE MOTEUR - Vérifiez le niveau d'huile et faites l'ajustement si nécessaire. Ne déterminez pas le niveau d'huile. Changez l'huile après les 50 premières heures, puis référez-vous au Manuel de l'Opérateur et au chapitre 4 du manuel d'entretien pour votre modèle.
- CIRCUIT D'ENTRAÎNEMENT DU MOTEUR - Vérifiez que vous avez fait bien l'entretien nécessaire.
- CIRCUIT D'EAU MOTEUR - Contrôlez l'enrichissement et l'état des composants.
- CIRCUIT DE RENFORCEMENT DU MOTEUR - Éliminez les déchets de la grille, du refroidisseur d'huile, du ventilateur pour le cas du liquide et du radiateur.
- FILTRE D'ALIMENTATION À FROID - Nettoyez le filtre à froid et laissez l'appareil au bassin. Remplacez le liquide du refroidissement tous les 2 ans.
- FILTRE D'ALIMENTATION - Purgez l'air. Reportez-vous au manuel d'utilisation et d'entretien pour connaître la procédure.
- BRAIS DE LIGNE DE LA CHARGEUSE - ARTICULATIONS DE LEVAGE, VÉRINS, CALES ET AXES PILOT DU BOB-TACH, VÉRINS DE DIRECTION (modèles à roues directrices uniquement) - Lubrifiez avec de la graisse multi-usages à base de lithium.
- CINTURE DE SÉCURITÉ, ARCEAU AU SIÈGE ET VERROUILLAGE DES COMMANDES - Vérifiez leur bon fonctionnement. Effectuez les réparations ou les remplacements selon les besoins.
- BICS - Vérifiez s'ils sont bien fonctionnels. Éliminez les saletés et les déchets des pièces mobiles.
- PNEUS - Vérifiez s'ils ont bien fonctionné.
- PIEDS DE SECOURS AVANT / ALARME DE RECUL - Vérifiez leur bon fonctionnement.
- GENERALITES - Contrôlez l'absence de pièces détachées ou cassées, le bon état de la cabine de l'opérateur, le fonctionnement des instruments, le serrage des écrous de roues ou des barbotins de chenilles, les fuites d'huile, et les autocollants endommagés ou manquants.
- FILTRER DU CHAUFFAGE ET DU CLIMATISEUR (le cas échéant) - Nettoyez ou remplacez les filtres au besoin.
- TOUTES LES 50 H D'UTILISATION
- FLEXIBLES ET CONDUITES HYDRAULIQUES - Vérifiez l'absence de dommages et de fuites. Effectuez les réparations ou les remplacements selon le besoin.
- BOSSON DE POSITION FINALE CARTERS DE CHAINES, ANCHAGES SUR ROUES UNIFORMEMENT - Vérifiez le niveau d'huile et faites l'ajustement si nécessaire.
- FRONT DE STATIONNEMENT, COMMANDES HYDRAULIQUES ET DE DIRECTION (podales, commandes manuelles et/ou multipointeur) - Vérifiez le bon fonctionnement. Effectuez les réglages nécessaires.
- ECROUS DE ROUES / BARBOTINS D'ENTRAÎNEMENT DES CHENILLES - Vérifiez le serrage des écrous et serrez-les au besoin.
- DÉTECTION DES CHENILLES machines sur chenilles uniquement - Vérifiez la tension et effectuez les réglages nécessaires.
- PAIRE-ETINCELLES - Videz la cuve à diélectriques (le cas échéant) Consultez le message IMPORTANT de cet autocollant.
- BATTERIE - Vérifiez que la batterie n'est pas endommagée, vérifiez les brides de retenue, les câbles, les connexions et le niveau d'électrolyte. Faites éventuellement l'apport d'eau distillée.
- TOUTES LES 500 H D'UTILISATION
- TOUCHERES - Vérifiez qu'elles ne soient ni usées ni endommagées. Ajustez ou remplacez au besoin. (le cas échéant)
- AUTRES COURROIES pompe à eau/moteur et climatiseur - le cas échéant - Voir l'état. Remplacez-le au besoin.
- BICS - Vérifiez le fonctionnement de la commande de déclivité des bras de levage.
- PILOTS DE FUSEE D'ESSAI (modèles à roues directrices uniquement) - Lubrifiez avec de la graisse multi-usages à base de lithium.
- CIRCUIT HYDRAULIQUE HYDROSTATIQUE - Remplacez le filtre de charge (ventilateur). Remplacez le bouchon remplissage du réservoir.
- CIRCUIT HYDRAULIQUE HYDROSTATIQUE machines sur chenilles uniquement - Remplacez l'huile. Consultez le manuel d'utilisation et d'entretien pour obtenir les spécifications de l'huile.
- PORTO-MOTEUR - Reportez-vous au manuel d'utilisation et d'entretien pour connaître la périodicité appropriée des réglages pour votre modèle.
- FILTRE EN LIGNE DE LA SOUPAPE DE DIRECTION (machines à roues directrices uniquement) - Remplacez le filtre.
- CIRCUIT HYDRAULIQUE HYDROSTATIQUE - Remplacez le filtre hydraulique.
- RESERVOIR D'EAU HYDRAULIQUE - Remplacez le fluide.
- TRANSMISSION FINALE (carter de chaînes de machines sur roues uniquement) - Remplacez le fluide.
- SOUAPES DU MOTEUR - Reportez-vous au manuel d'utilisation et d'entretien pour connaître la périodicité appropriée des réglages pour votre modèle.

TOUTES LES 1 500 ET 3 000 H D'UTILISATION

REMARQUES :

- Remplacez l'entretien plus tôt si le témoin d'avertissement du filtre hydraulique reste allumé pendant plus de 5 minutes, une fois que le fluide hydraulique a été rempli.
- Effectuez l'entretien après 50 heures, puis selon le tableau.
- Consultez le manuel d'utilisation et d'entretien pour les détails, spécifications sur les fluides, le numéro de pièce et l'emplacement du filtre, et la périodicité d'entretien appropriée pour votre modèle.

IMPORTANT

Cette machine est conçue en vertu d'un système d'accréditation japonaise, approuvé par l'ASQJA.

Équipement Sécurité, qui doit être maintenu en bon état pour bon fonctionnement.

La couverture de sécurité doit être systématiquement maintenue fermée pendant toute utilisation pour la garde en bon état.

Le couvercle du moteur doit être fermé avant de démarrer la machine.

La mise en marche de la machine doit être effectuée conformément aux instructions du manuel d'utilisation et d'entretien pour un bon fonctionnement.

Si vous utilisez cette machine en forêt, sur terrain herbeux ou dans des milieux susceptibles d'être incendiaires, le moteur doit être équipé d'un pare-étincelles qui doit être maintenu en un bon état de fonctionnement. Le défaut de s'y conformer constitue une violation de la Loi de 1969 de la Californie Section 4442 PRC.

Il est recommandé de lire attentivement ce manuel d'utilisation et de l'appliquer à la réglementation locale en vigueur sur les sites agricoles.

SCHEMAS GÉNÉRAUX DE GRAISSAGE

POINTS DE GRAISSAGE TYPiques

LEVAGE EN ARC DE CERCLE

LEVAGE VERTICAL

BE PARTS & SERVICE SMART

Utilisez des pièces de rechange Bobcat d'origine

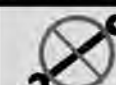
CONSULTEZ LE MANUEL D'UTILISATION ET D'ENTRETIEN POUR PLUS D'INSTRUCTIONS ET D'INFORMATIONS.

MACHINE SIGN TRANSLATIONS (CONT'D)

Warning (7167993)

	⚠ WARNING TIPPING, ROLLOVER OR LOSS OF VISIBILITY CAN CAUSE SERIOUS INJURY OR DEATH CARRY LOAD LOW
	⚠ ADVERTENCIA LOS TRASTORNOS O LA PÉRDIDA DE LA VISIBILIDAD PUEDEN PROVOCAR HERIDAS GRAVES O LA MUERTE LLEVE LA CARGA BAJA
	⚠ AVERTISSEMENT UN BASCULEMENT, UN TONNEAU OU UNE PERTE DE VISIBILITÉ PEUVENT ENTRAÎNER DES BLESSURES GRAVES VOIRE MORTELLES GARDEZ LA CHARGE PRÈS DU SOL

Warning (7169291)

	⚠ WARNING HIGH PRESSURE GAS CAN RELEASE ROD AND CAUSE SERIOUS INJURY OR DEATH. DO NOT OPEN CYLINDER.		
			
93306 SW 7169291A enUS			
	⚠ ADVERTENCIA EL GAS DE ALTA PRESIÓN PUEDE CAUSAR QUE LA VARILLA SE SUELTE Y PROVOCAR LESIONES GRAVES O LA MUERTE. NO ABRA EL CILINDRO.		
			
73403 SW 7169291 esAR			
	⚠ AVERTISSEMENT LE GAZ SOUS HAUTE PRESION PEUT CAUSER UN MOUVEMENT DE LA TIGE ET ENTRAÎNER BLESSURES GRAVES, VOIRE MORTELLES. NE DÉSASSEMBLEZ PAS LE VÉRIN.		
			
73403 SW 7169291 frCA			

Danger (7167989)

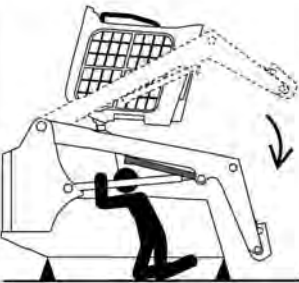
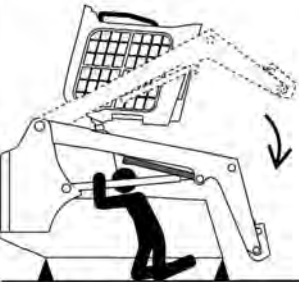
	⚠ DANGER AVOID DEATH - Keep out of this area when lift arms are raised unless supported by an approved lift arm support device. - Moving lift arm control or failure of a part can cause lift arms to drop.
	⚠ PELIGRO EVITE MUERTES - Manténgase alejado del área cuando los brazos de elevación estén elevados, a menos que cuenten con un dispositivo de sostén aprobado. - Si se mueve el control de los brazos de elevación o si falla alguna de las piezas, es posible que éstos se caigan.
	⚠ DANGER RISQUE MORTEL - Restez éloigné de cette zone si les bras de levage sont relevés, sauf s'ils sont maintenus par un arrêtoir de bras de levage approuvé. - Le déplacement de la commande des bras de levage ou une pièce défectueuse peuvent provoquer la chute des bras de levage.

Danger (7167990)

	⚠ DANGER AVOID DEATH - Attachment can be forced against the ground and cause front frame to raise. - Never go under or reach under lift arms or lift cylinder without an approved lift arm support device installed.
	⚠ PELIGRO EVITE MUERTES - El accesorio puede ejercer presión contra el suelo y hacer que la estructura delantera se eleve. - Nunca se posicione por debajo de la parte inferior de los brazos o el cilindro de elevación sin un dispositivo de sostén aprobado.
	⚠ DANGER RISQUE MORTEL - Un accessoire peut être forcé contre le sol et provoquer le soulèvement du cadre avant. - Ne vous placez jamais et ne tendez jamais les mains sous les bras et vérins de levage, sauf s'ils sont maintenus par un arrêtoir de bras de levage approuvé.

MACHINE SIGN TRANSLATIONS (CONT'D)

Danger (7167988)

	⚠ DANGER 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.	 73161 SW 7167988 enUS
	⚠ PELIGRO EVITE MUERTES • Si se desconecta o afloja algún tubo, manguera, accesorio o componente hidráulico o si falla alguna de las piezas, es posible que los brazos de elevación se caigan. • Manténgase alejado del área cuando los brazos de elevación estén elevados, a menos que cuenten con un dispositivo de sostén aprobado. Si se encuentran dañados, cámbielos.	 73161 SW 7167988 esAR
	⚠ DANGER RISQUE MORTEL • Le débranchement ou le desserrage de conduites, raccords, tuyaux ou composants hydrauliques ou une pièce hydraulique défailante peuvent entraîner une chute des bras de levage. • Restez éloigné de la zone où les bras de levage sont relevés, sauf s'ils sont maintenus par un arrêtoir de bras de levage approuvé. Remplacez-les en cas de dommages.	 73161 SW 7167988 frCA

Warning (7168114)

⚠ WARNING 7168114A enUS 75323 SW Switch changes Drive and Lift Arm Functions.	⚠ ADVERTENCIA 7168114A esAR 75323 SW El interruptor cambia las Funciones de transmisión y del brazo de elevación.	⚠ AVERTISSEMENT 7168114A frCA 75323 SW Le commutateur change les fonctions de la traction et des bras de levage.
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Warning (7167994)

**WARNING**

AVOID INJURY OR DEATH

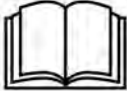
 Never use the loader without instructions. Read Operation & Maintenance Manual and Handbook.	 Never modify equipment or use attachments not approved by Bobcat Company.	 On slopes, keep heavy end of loader uphill.
 Fasten seat belt securely. Use seat bar. Keep feet on pedals or foot rests.	 Do not travel or turn with lift arms up. Load unload and turn on flat level ground. Do not exceed Rated Operating Capacity (see sign on loader).	

73161 SW

7167994 enUS

**ADVERTENCIA**

EVITE LESIONES O LA MUERTE

 Nunca utilice la cargadora sin leer las instrucciones. Lea el Manual de funcionamiento y mantenimiento.	 Nunca modifique el equipo o utilice accesorios que no estén aprobados por Bobcat Company.	 En las pendientes, mantenga el lado con la carga cuesta arriba.
 Ajustese el cinturón de seguridad. Utilice la barra del asiento. Mantenga los pies sobre los pedales o sobre el área de apoyo de los pies.	 No se desplace ni gire con los brazos de elevación elevados. Cargue, descargue y gire sobre superficies lisas y niveladas. No exceda la Capacidad máxima de operación (consulte las indicaciones en la cargadora).	

73161 SW

7167994 esAR

**AVERTISSEMENT**

RISQUE DE BLESSURE OU DE MORT

 N'utilisez jamais la chargeuse sans les instructions. Lisez le guide et le manuel d'utilisation et d'entretien.	 Ne modifiez jamais l'équipement et n'utilisez jamais d'accessoires qui ne sont pas approuvés par Bobcat Company.	 Sur les pentes, maintenez le côté lourd de la chargeuse vers le haut.
 Attachez bien votre ceinture de sécurité. Utilisez l'arc de siège. Gardez les pieds sur les pédales et les repose-pieds.	 Ne virez pas et ne déplacez pas la machine quand les bras sont relevés. Chargez, déchargez et virez uniquement sur un sol plat et horizontal. Ne dépassez jamais la capacité opérationnelle (consultez l'autocollant sur la chargeuse).	

73161 SW

7167994 frCA

Warning (7168140)

⚠ WARNING

**AVOID INJURY OR DEATH
TO LEAVE THE LOADER:**

①  Lower the lift arms.
Put attachment flat on ground.

②  **STOP**
Stop the engine.

③  Engage the brake.

④  Raise seat bar.
Move pedals and hand controls until both lock.

73196 SW 7168140 enUS

⚠ ADVERTENCIA

**EVITE LESIONES O LA MUERTE
AL RETIRARSE DE LA CARGADORA:**

①  Baje los brazos de elevación.
Coloque el accesorio en el suelo.

②  **PARE**
Detenga el motor.

③  Conecte el freno.

④  Levante la barra del asiento.
Mueva los pedales y los controles manuales hasta que se bloqueen.

73196 SW 7168140 esAR

⚠ AVERTISSEMENT

**RISQUE DE BLESSURE OU DE MORT
POUR QUITTER LA CHARGEUSE :**

①  Baissez les bras de levage.
Placez l'accessoire à plat sur le sol.

②  **ARRÊT**
Arrêtez le moteur.

③  Serrez le frein.

④  Relevez l'arceau de siège.
Bougez les commandes manuelles et celles au pied jusqu'à ce qu'elles se verrouillent.

73196 SW 7168140 frCA

Warning (7168142)

⚠ WARNING

**AVOID INJURY OR DEATH
TO LEAVE THE LOADER:**

①  Lower the lift arms.
Put attachment flat on ground.

②  **STOP**
Stop the engine.

③  Engage the brake.

④  Raise seat bar.

73196 SW 7168142 enUS

⚠ ADVERTENCIA

**EVITE LESIONES O LA MUERTE
AL RETIRARSE DE LA CARGADORA:**

①  Baje los brazos de elevación.
Coloque el accesorio en el suelo.

②  **PARE**
Detenga el motor.

③  Conecte el freno.

④  Levante la barra del asiento.

73196 SW 7168142 esAR

⚠ AVERTISSEMENT

**RISQUE DE BLESSURE OU DE MORT
POUR QUITTER LA CHARGEUSE :**

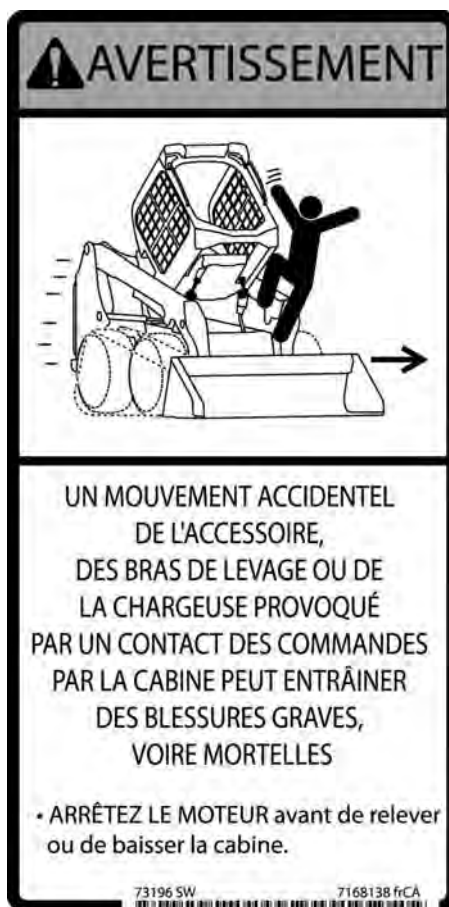
①  Baissez les bras de levage.
Placez l'accessoire à plat sur le sol.

②  **ARRÊT**
Arrêtez le moteur.

③  Serrez le frein.

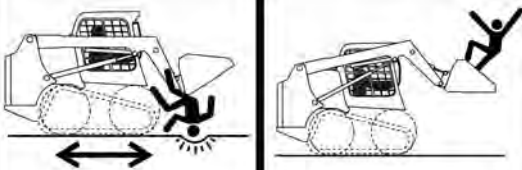
④  Relevez l'arceau de siège.

73196 SW 7168142 frCA



Warning (7167996)

⚠ WARNING



AVOID INJURY OR DEATH

- Never carry riders.
- Never use loader as a man lift or work platform.

73161 SW 7167996 enUS

⚠ ADVERTENCIA

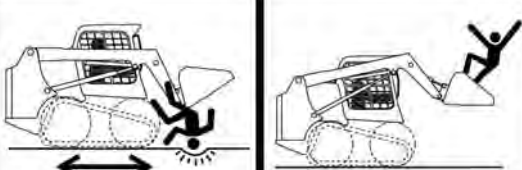


EVITE LESIONES O LA MUERTE

- Nunca lleve ocupantes.
- Nunca utilice la cargadora para levantar personas o como plataforma de trabajo.

73161 SW 7167996 esAR

⚠ AVERTISSEMENT



RISQUE DE BLESSURE OU DE MORT

- Ne transportez jamais de passagers.
- N'utilisez jamais la chargeuse pour soulever des personnes ni comme plate-forme de travail.

73161 SW 7167996 frCA

Warning (6737189)

⚠ WARNING

THIS VEHICLE IS EQUIPPED WITH A BACK-UP ALARM.

ALARM MUST SOUND!

WHEN OPERATING THIS VEHICLE IN REVERSE.

FAILURE TO MAINTAIN A CLEAR VIEW IN THE DIRECTION OF TRAVEL COULD RESULT IN SERIOUS INJURY OR DEATH.

THE OPERATOR IS RESPONSIBLE FOR THE SAFE OPERATION OF THIS VEHICLE.

93149 SW 6737189C enUS

⚠ ADVERTENCIA

ESTE VEHÍCULO DISPONE DE UNA ALARMA DE ALERTA DE RETROCESO.

¡LA ALARMA DEBE SONAR

CUANDO RETROCEDA ESTE VEHÍCULO!

NO MANTENER UNA VISIÓN CLARA EN LA DIRECCIÓN DE DESPLAZAMIENTO PUEDE RESULTAR EN LESIONES GRAVES O FATALIDADES.

EL OPERADOR ES RESPONSIBLE DE LA OPERACIÓN SEGURA DE ESTE VEHÍCULO.

93149 SW 6737189C esAR

⚠ AVERTISSEMENT

CE VÉHICULE EST ÉQUIPÉ D'UNE ALARME DE RECUL.

L'ALARME DOIT RETENTIR!

LORSQUE VOUS UTILISEZ CE VÉHICULE EN MARCHÉ ARRIÈRE,

NE PAS AVOIR UNE VUE DÉGAGÉE DANS LE SENS DE LA MARCHÉ PEUT ENTRAÎNER DES BLESSURES GRAVES, VOIRE MORTELLES.

L'OPÉRATEUR EST RESPONSABLE DE LA SÉCURITÉ LORS DE L'UTILISATION DE CE VÉHICULE.

93149 SW 6737189C frCA

MACHINE SIGN TRANSLATIONS (CONT'D)

Warning (7184346)

				⚠ WARNING HITTING OBSTRUCTIONS AT HIGH RANGE SPEEDS CAN CAUSE SERIOUS INJURY OR DEATH Fasten shoulder belt for additional restraint when operating at high range speeds. 76193 SW 7184346 enUS
				⚠ ADVERTENCIA LAS COLISIONES CONTRA OBSTRUCCIONES A ALTAS VELOCIDADES PUEDEN CAUSAR LESIONES GRAVES O LA MUERTA. Ajústese el cinturón de seguridad de hombro para mayor seguridad al trabajar a altas velocidades. 76193 SW 7184346 esAR
				⚠ AVERTISSEMENT HEURTER DES OBSTACLES EN GAMME RAPIDE PEUT PROVOQUER DES BLESSURES GRAVES, VOIRE MORTELLES Bouclez la ceinture diagonale pour une protection supplémentaire en gamme rapide. 76193 SW 7184346 frCA

Danger (7170355)

			⚠ DANGER AVOID DEATH • Disconnecting hydraulic lines can cause the lift arms or attachment to drop. • Always use an approved lift arm support when lift arms are in a raised position. 72645 SW 7170355 enUS	
			⚠ PELIGRO EVITE MUERTES • Si se desconectan las líneas hidráulicas, es posible que los brazos de elevación o los accesorios se caigan. • Utilice siempre un dispositivo de sostén aprobado de los brazos de elevación cuando éstos estén elevados. 72645 SW 7170355 esAR	
			⚠ DANGER RISQUE MORTEL • Le débranchement des conduites hydrauliques peut provoquer la chute des bras de levage ou de l'accessoire. • Utilisez toujours un arrêtoir de bras de levage approuvé lorsque les bras sont en position relevée. 72645 SW 7170355 frCA	

Lift Arm Support Device (7253013)

TO INSTALL APPROVED LIFT ARM SUPPORT P/N 7158459:

1. Remove attachment from loader.
2. Stay in seat while second person removes lift arm support from storage position.
3. Raise lift arms while second person positions lift arm support against cylinder rod.
4. Lower lift arms slowly until lift arm support is held securely between lift arm and cylinder.

STORAGE POSITION

INSTALLED POSITION

TO REMOVE LIFT ARM SUPPORT:

1. Raise lift arms while second person removes lift arm support from cylinder rod.
2. Stay in seat until the lift arms are lowered all the way.
3. Return lift arm support to storage position and secure with clamping knobs.

90119 SW 7253013 enUS
600 Vertical Path Lift Arms

PARA INSTALAR EL SOPORTE APROBADO DEL BRAZO ELEVADOR P/N 7158459:

1. Retire el aditamento del cargador.
2. Permanezca en el asiento mientras otra persona retira el soporte de la posición de almacenamiento.
3. Suba el brazo elevador mientras otra persona coloca el apoyo contra la varilla del cilindro.
4. Baje el brazo elevador lentamente hasta que el apoyo se sostenga con firmeza entre el brazo elevador y el cilindro.

EN POSICIÓN DE ALMACENAMIENTO

EN POSICIÓN INSTALADA

PARA RETIRAR EL SOPORTE DEL BRAZO ELEVADOR:

1. Suba el brazo elevador mientras otra persona retira el soporte de la varilla del cilindro.
2. Permanezca en el asiento mientras los brazos elevadores sean bajados del todo.
3. Regrese el soporte a la posición de almacenamiento y asegúrelo con perillas de sujeción.

90119 SW 7253013 enAR
Brazos elevadores con trayectoria vertical 600

INSTALLATION DE L'ARRÊTOIR DE BRAS DE LEVAGE APPROUVÉ, PIÈCE N° 7158459 :

1. Retirez l'accessoire de la chargeuse.
2. Ne bougez pas du siège alors qu'une autre personne retire l'arrêtoir de bras de levage de la position de rangement.
3. Levez les bras de levage alors qu'une autre personne place l'arrêtoir de bras de levage contre la tige du vérin.
4. Baissez lentement les bras de levage jusqu'à ce que l'arrêtoir soit bien maintenu entre le bras et le vérin.

POSITION DE RANGEMENT

POSITION INSTALLÉE

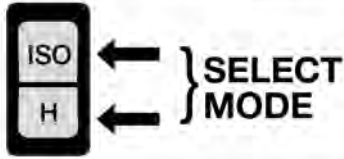
RETRAIT DE L'ARRÊTOIR DE BRAS DE LEVAGE :

1. Levez les bras de levage alors qu'une autre personne retire de la tige du vérin l'arrêtoir de bras de levage.
2. Ne bougez pas du siège tant que les bras de levage ne sont pas complètement abaissés.
3. Remettez l'arrêtoir de bras de levage en position de rangement et fixez-le avec les boutons de serrage.

90119 SW 7253013 enCA
Bras De Levage Vertical De La 600

Warning (7168024)

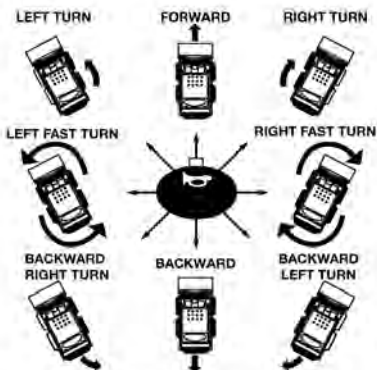
⚠ WARNING



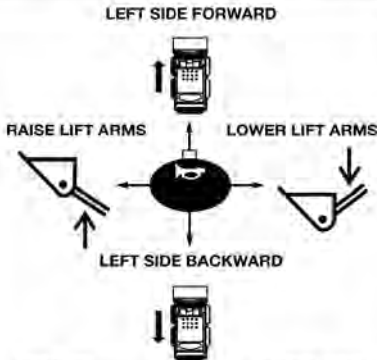
ACCIDENTAL LOADER MOVEMENT CAN CAUSE SERIOUS INJURY OR DEATH

- Drive and lift arm functions operate on different joysticks in each control mode.
- Know and understand the selected control mode before operating.

LEFT JOYSTICK - ISO

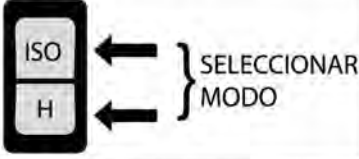


LEFT JOYSTICK - H



73168 SW
7168024 enUS

⚠ ADVERTENCIA



EL MOVIMIENTO ACCIDENTAL DE LA CARGADORA PUEDE PROVOCAR HERIDAS GRAVES O LA MUERTE

- Las funciones de transmisión y del brazo de elevación trabajan con diferentes palancas en cada modo de control.
- Tenga presente el modo de control seleccionado antes de comenzar la operación.

PALANCA IZQUIERDA - ISO



PALANCA IZQUIERDA - H



73168 SW
7168024 esAR

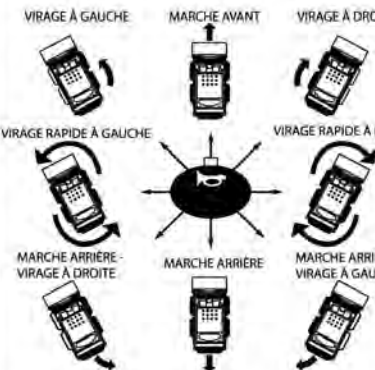
⚠ AVERTISSEMENT



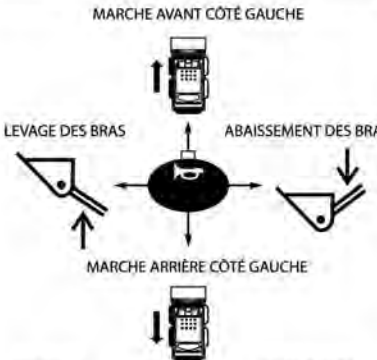
UN MOUVEMENT ACCIDENTEL DE LA CHARGEUSE PEUT PROVOQUER DES BLESSURES GRAVES, VOIRE MORTELLES

- Les fonctions de traction et de levage se commandent sur un manipulateur différent selon le mode.
- Vous devez connaître et comprendre le mode de commande choisi avant d'utiliser la machine.

MANIPULATEUR GAUCHE - ISO



MANIPULATEUR GAUCHE - H



73168 SW
7168024 frCA

Warning (7142141)

⚠ WARNING



FAILURE OF THE LIFT ASSEMBLY CAN CAUSE SERIOUS INJURY OR DEATH.

BEFORE LIFTING LOADER:

1. Check the hardware and fasteners of the Single Point Lift and Operator Cab (ROPS) for proper torque.
2. Inspect Single Point Lift for damage or cracked welds. Repair or replace components as necessary.

- No riders on loader during lifting. Keep 15 ft (5 m) away while lifting.
- See Operation & Maintenance Manual for more information.

71738 SW 7142141A enUS

⚠ ADVERTENCIA



UNA FALLA DEL CONJUNTO ELEVADOR PUEDE PROVOCAR LESIONES GRAVES O FATALIDADES.

ANTES DE LEVANTAR EL CARGADOR:

1. Revise el hardware y sujetadores del elevador de una punta y si la cabina del operador (ROPS) tiene el torque adecuado.
2. Inspeccione si el elevador de una punta está averiado o tiene soldaduras agrietadas. Repare o reponga los componentes, si es del caso.

- No transporte personas en el cargador mientras lo levanta. Manténgalos a 15 pies (5 m) de distancia mientras lo levanta.
- Para mayor información, ver el manual de operación y mantenimiento.

71738 SW 7142141A ar

⚠ AVERTISSEMENT



UNE DÉFAILLANCE DE L'ENSEMBLE DE LEVAGE PEUT ENTRAÎNER DES BLESSURES GRAVES, VOIRE MORTELLES.

AVANT DE SOULEVER LA CHARGEUSE :

1. Vérifiez que le couple de serrage de la visserie de fixation et des fixations de l'ensemble de levage à point unique et de la cabine de l'opérateur (ROPS) est correct.
2. Vérifiez que l'ensemble de levage à point unique n'est pas endommagé et que ses soudures ne sont pas fissurées. Réparez les composants endommagés ou remplacez-les selon le besoin.

- Personne ne doit se trouver sur la chargeuse durant son levage. Maintenez toute personne à une distance d'au moins 5 m pendant le levage.
- Consultez le manuel & d'entretien et d'utilisation pour plus d'informations.

71738 SW 7142141A fr

Warning (7168019)

 WARNING	 ADVERTENCIA	 AVERTISSEMENT
		
FAILURE OF THE LIFT ASSEMBLY CAN CAUSE SERIOUS INJURY OR DEATH	UNA FALLO EN EL CONJUNTO DE ELEVACIÓN PUEDE PROVOCAR HERIDAS GRAVES O LA MUERTE	UNE DÉFAILLANCE DE L'ENSEMBLE DE LEVAGE PEUT ENTRAÎNER DES BLESSURES GRAVES, VOIRE MORTELLES.
BEFORE LIFTING LOADER:	ANTES DE LEVANTAR LA PALA MECÁNICA:	AVANT DE SOULEVER LA CHARGEUSE :
1. Check the hardware and fasteners at all lift points for proper torque. 2. Inspect lift points for damage or cracked welds. Repair or replace components as necessary. • No riders on loader and keep 15 ft (5m) away while lifting. • See Operation & Maintenance Manual for more information.	1. Verifique los herrajes y sujetadores en todos los puntos de elevación para garantizar que la torsión sea la correcta. 2. Controle que los puntos de elevación no estén dañados ni haya grietas en la soldadura. Repare o reemplace los componentes según sea necesario. • No debe haber ocupantes en la cargadora. Manténgase a una distancia de 15 pies (5 m) durante la elevación. • Consulte el Manual de funcionamiento y mantenimiento para obtener más información.	1. Vérifiez que le couple de serrage de la visserie et des fixations est approprié. 2. Vérifiez que les points de levage ne sont pas endommagés et que leurs soudures ne sont pas fissurées. Réparez les composants endommagés ou remplacez-les selon le besoin. • Pas de passager sur la chargeuse et gardez toute personne à une distance d'au moins 5 m pendant le levage. • Consultez le manuel d'entretien et d'utilisation pour plus d'informations.

SPECIFICATIONS

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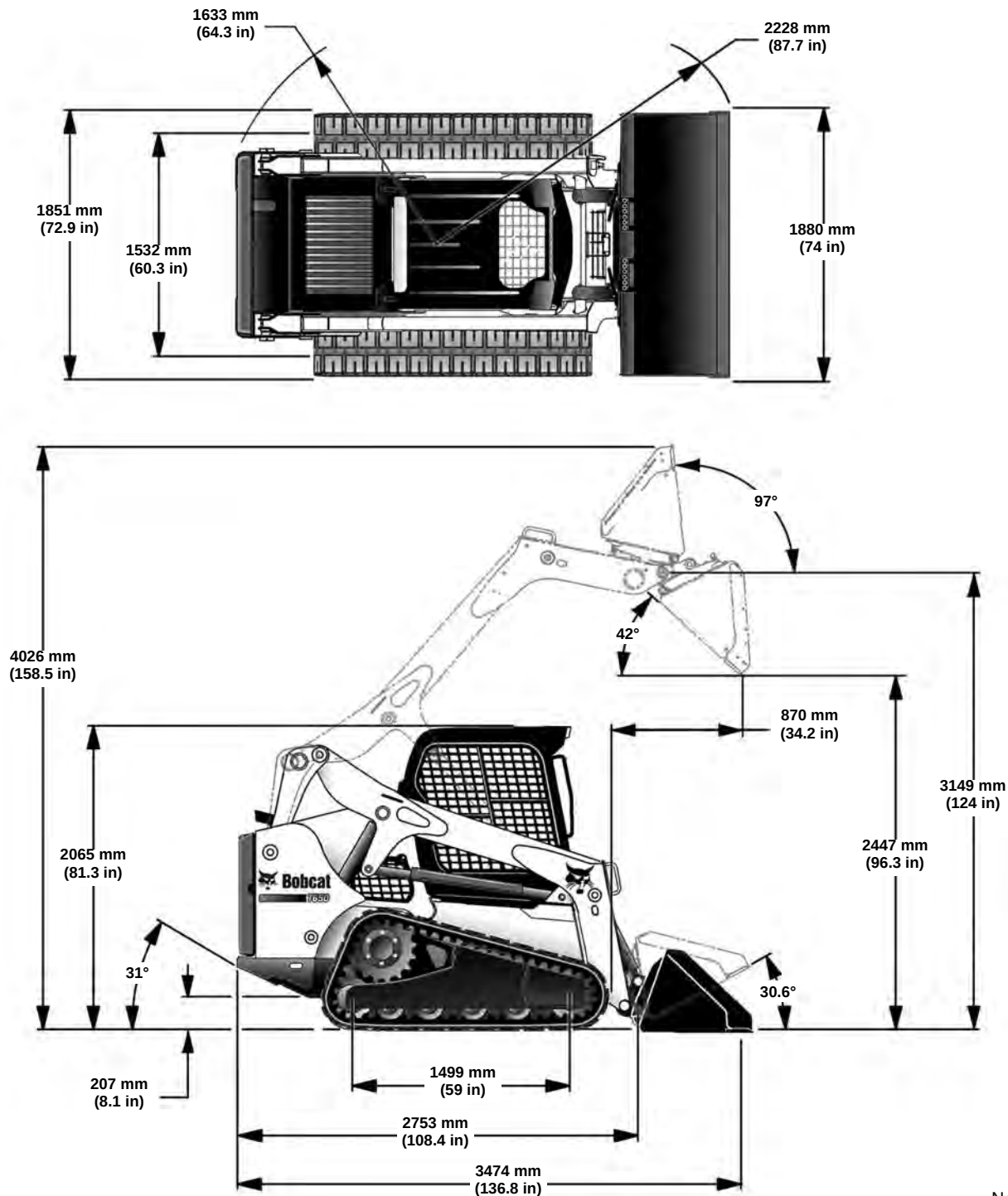


Bobcat®

(T650) LOADER SPECIFICATIONS

Machine Dimensions

- Dimensions are given for loader equipped with standard track and 74 in. Heavy Duty Construction & Industrial bucket and may vary with other bucket types.
- Where applicable, specifications conform to SAE or ISO standards and are subject to change without notice.



NA9101

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.

(T650) LOADER SPECIFICATIONS (CONT'D)

Performance

	ROLLER SUSPENSION UNDERCARRIAGE (OPTIONAL)	SOLID-MOUNTED UNDERCARRIAGE
Rated Operating Capacity	1066 kg (2350 lb)	1166 kg (2570 lb)
with 200 Pound Frame Mounted Counterweight Kit	1111 kg (2450 lb)	1211 kg (2670 lb)
with 300 Pound Frame Mounted Counterweight Kit	1145 kg (2525 lb)	1245 kg (2745 lb)
Tipping Load	3045 kg (6714 lb)	3331 kg (7343 lb)
Operating Weight	4707 kg (10378 lb)	4282 kg (9440 lb)
Breakout Force - Lift	3084 kg (6800 lb)	2903 kg (6400 lb)
Breakout Force - Tilt	2815 kg (6206 lb)	2669 kg (5885 lb)
Push Force	3304 kg (7285 lb)	2903 kg (6400 lb)
Travel Speed		
- Single Speed Loader	0 - 10,6 km/h (0 - 6.6 mph)	0 - 10,6 km/h (0 - 6.6 mph)
- Two-Speed Loader (Option)		
Low Range	0 - 9,8 km/h (0 - 6.1 mph)	0 - 9,8 km/h (0 - 6.1 mph)
High Range	0 - 17,2 km/h (0 - 10.7 mph)	0 - 17,2 km/h (0 - 10.7 mph)

Engine

Make / Model	Kubota® / V3307-DI-TE3 Interim Tier 4
Fuel / Cooling	Diesel / Liquid
Horsepower	
- ISO 9249 EEC / SAE J1349 Net	52,4 kW (70.3 hp) @ 2400 rpm
- ISO 14396 Gross	54,6 kW (73.2 hp) @ 2400 rpm
- SAE J1995 Gross	55,4 kW (74.3 hp) @ 2400 rpm
Torque	
- ISO 9249 EEC / SAE J1349 Net	253,1 N•m (186.7 ft-lb) @ 1600 rpm
- SAE J1995 Gross	264,4 N•m (195.0 ft-lb) @ 1600 rpm
Low Idle rpm	1250 - 1450
High Idle rpm	2525 - 2650
Number of Cylinders	4
Displacement	3,3 L (203 in ³)
Bore / Stroke	94 mm / 120 mm (3.70 in / 4.72 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	Turbo-Charged
Engine Coolant	Propylene Glycol / Water Mixture
Starting Aid	Glow Plugs - Automatically activated as needed in RUN position.

Drive System

Main Drive	Fully hydrostatic, rubber track drive
Transmission	Infinitely variable tandem hydrostatic piston pumps, driving two fully reversing hydrostatic drive motors
Tracks (Tension)	Grease cylinder and spring

(T650) LOADER SPECIFICATIONS (CONT'D)**Controls**

Vehicle Steering	Direction and speed controlled by two hand operated steering levers <i>or</i> optional joystick(s)
Loader Hydraulics - Lift and Tilt - Front Auxiliary - Rear Auxiliary (Option)	Controlled by separate foot pedals <i>or</i> optional Advanced Control System (ACS) <i>or</i> optional Selectable Joystick Controls (SJC) Controlled by electrical switch on Right Hand steering lever <i>or</i> joystick Controlled by electrical switch on Left Hand steering lever <i>or</i> joystick
Auxiliary Pressure Release	Pressure relieved through quick couplers; Push couplers in, hold for 5 seconds
Engine	Hand lever speed control, additional foot operated speed control pedal with SJC option; key-type start switch <i>or</i> optional Keyless Start Panel <i>or</i> optional Deluxe Instrumentation Panel and function error shutdown.
Starting Aid	Glow plugs automatically activated as needed by Instrument Panel
Service Brake	Two independent hydrostatic systems controlled by two hand operated steering levers <i>or</i> optional joystick(s)
Secondary Brake	One of the hydrostatic transmissions
Parking Brake (Standard)	Spring applied pressure release multi-disk brake activated by manually operated switch on left instrument panel

Hydraulic System

Pump Type	Engine driven, gear type
Pump Capacity - Standard	87,1 L/min (23.0 U.S. gpm)
Pump Capacity - High-Flow Option	115,5 L/min (30.5 U.S. gpm)
System Relief at Quick Couplers	23,8 MPa - 24,5 MPa (238 - 245 bar) (3450 - 3550 psi)
Filter (Hydraulic / Hydrostatic)	Replaceable beta 10 micron = 200, drop in element
Filter (Charge)	Replaceable beta 10 micron = 200, drop in element
Hydraulic Cylinders Bore Diameter: Lift Cylinder (2) Tilt Cylinder (2) Rod Diameter: Lift Cylinder (2) Tilt Cylinder (2) Stroke: Lift Cylinder (2) Tilt Cylinder (2)	Double-acting; lift cylinders have cushioning feature on lower, tilt cylinders have cushioning feature on dump and rollback 76,2 mm (3.00 in) 76,2 mm (3.00 in) 44,5 mm (1.75 in) 38,1 mm (1.50 in) 633,2 mm (24.93 in) 354,8 mm (13.97 in)
Control Valve - Standard	3-Spool, open center, manually operated with spring detent for lift float and electrically controlled auxiliary spool
Control Valve - ACS and SJC	3-Spool, open center with electric actuator controlled lift with float and tilt. Electrically controlled auxiliary spool
Fluid Lines	SAE Standard tubelines, hoses and fittings
Fluid Type	BOBCAT FLUID, Hydraulic / Hydrostatic 6903117 - (Two - 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	 3.9 Seconds 2.6 Seconds 2.3 Seconds 1.7 Seconds

(T650) LOADER SPECIFICATIONS (CONT'D)

Electrical System

Alternator	Belt driven, 90 amperes, open frame
Battery	12 volt, 950 cold cranking amperes @ -18°C (0°F), 180 Minute reserve capacity @ 25 amperes
Starter	12 volt, gear type, 3,0 kW (4.02 hp)
Instrumentation	Gauges: Engine Coolant Temperature, Fuel Level. Warning lights: Fuel Level, Seat Belt, Engine Coolant Temperature, Engine Malfunction, Hydraulic System Malfunction, General Warning. Indicators: BICS™ Functions, Two-Speed, 3-Point Shoulder Belt, Turn Signals, Engine Preheat. Data Display: Operating Hours, Engine rpm, Speed Management Setting, Maintenance Clock Countdown, Battery Voltage, Service Codes, Engine Preheat Countdown, Steering Drift Compensation Setting, Drive Response Setting. Other: Audible Alarm, Lights, Option / Accessory Switches. Optional Deluxe Instrumentation Panel: *Additional displays for: Engine rpm, Coolant Temperature and Oil Pressure; System Voltage, Hydrostatic Charge Pressure and Hydraulic Oil Temperature. *Additional Features Included: Keyless Start, Digital Clock, Job Clock, Password Lockout, Multi-language Display, Help Screens, Diagnostic Capability and Engine / Hydraulic Systems Shutdown Function.

Capacities

Fuel	103,1 L (27.2 U.S. gal)
Engine Oil with Filter Change	11,4 L (12.0 qt)
Engine Cooling System with Heater without Heater	11,7 L (3.1 U.S. gal) 11,4 L (3.0 U.S. gal)
Hydraulic / Hydrostatic Reservoir	10,2 L (2.7 U.S. gal)
Hydraulic / Hydrostatic System	45,0 L (11.9 U.S. gal)
Hydrostatic Drive Motor (Each)	180 mL (6.1 U.S. fl oz)
Air Conditioning Refrigerant (R-134a)	0,68 kg (1.5 lb)

Tracks

Standard	320 mm (12.6 in) Rubber, C-Pattern
Optional	450 mm (17.7 in) Rubber, C-Pattern

Ground Pressure

	ROLLER SUSPENSION UNDERCARRIAGE (OPTIONAL)	SOLID-MOUNTED UNDERCARRIAGE
Standard Track - 320 mm (12.6 in)	0,044 MPa (0,44 bar) (6.3 psi)	0,040 MPa (0,40 bar) (5.8 psi)
Optional Track - 450 mm (17.7 in)	0,031 MPa (0,31 bar) (4.5 psi)	0,028 MPa (0,28 bar) (4.1 psi)

WARRANTY

WARRANTY237



Bobcat®

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 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 twelve (12) months, (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, and (iv) Bobcat brand batteries, for an additional twelve (12) months after the initial twelve month warranty period, provided that Bobcat Company shall only reimburse a fixed portion of the cost of replacing the battery during such additional twelve months. 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 apply to diesel engine fuel injection pumps and injectors or tires (except Bobcat brand tires). The owner shall rely solely on the warranty, if any, of the respective manufacturers thereof. 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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WARRANTY (CONT'D)

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 | 4) Electronic Control System | 6) Particulate Controls |
| a) Intake Manifold | a) ECU | a) Any device used to capture particulate emissions. |
| b) Turbocharger System | b) Engine Speed / Timing Sensor | b) Any device used in the regeneration of the particulate control device. |
| c) Charge Air Cooling System (Intercooler) | c) Accelerator Position Sensor | c) Control Device Enclosures and Manifolding |
| 2) Catalyst or Thermal Reactor System | d) Coolant Temperature Sensor | d) Diesel Particulate Filter Temperature Sensor |
| a) Catalytic converter | e) Atmospheric Pressure Sensor | e) Differential Pressure Sensor |
| b) Exhaust manifold | f) Intake Pressure Sensor | 7) Miscellaneous Items |
| 3) Fuel Injection System | g) Intake Manifold Temperature Sensor | a) Closed Breather System |
| a) Fuel Supply Pump | h) Intake Air Flow Sensor | b) Hoses*, Clamps*, Fittings, Tubing* |
| b) Injector | i) Common Rail Pressure Sensor | c) Gaskets, Seals |
| c) Injection Pipe | 5) Exhaust Gas Recirculation System | d) Kubota supplied engine Wiring Harnesses |
| d) Common Rail | a) EGR Valve | e) Kubota supplied engine Elec. Connectors |
| e) Smoke Puff Limiter | b) EGR Cooler | f) Air Cleaner Element*, Fuel Filter Element* |
| f) Speed Timer | c) EGR Valve Opening Rate Sensor | g) Emission Control Information Labels |
| g) Cold Advance Timer | | |
| h) Injection Pump | | |

*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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