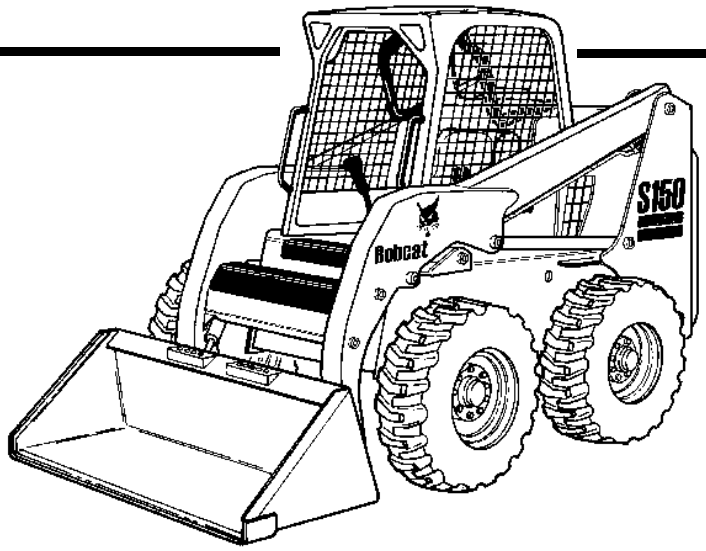
S150

EN

Bobcat®

Operation & Maintenance Manual

S/N 526811001 & Above



EQUIPPED WITH BOBCAT INTERLOCK CONTROL SYSTEM (BICS™)

6902684-EN (07-05)

A Ingersoll-Rand Business

Printed in Europe

OPERATOR SAFETY WARNINGS

WARNING

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

W-2001-1285

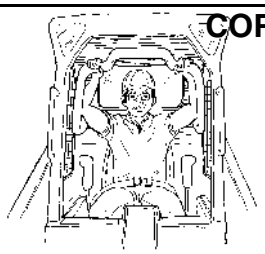
Safety Alert Symbol: This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.

CORRECT

B-10731a

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

CORRECT

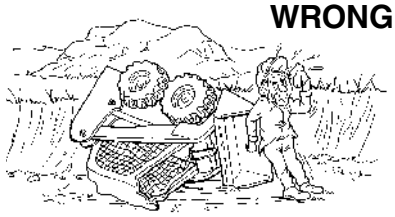


B-15570

Always use the seat bar and fasten seat belt snugly.

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

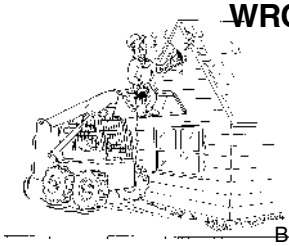
WRONG



B-15572

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

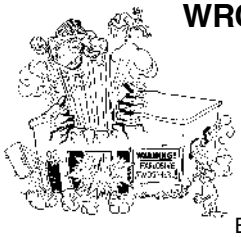
WRONG



B-15571

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

WRONG



B-15573

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

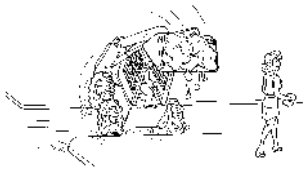
WRONG

B-15574

Never carry riders.

Keep bystanders away from work area.

WRONG



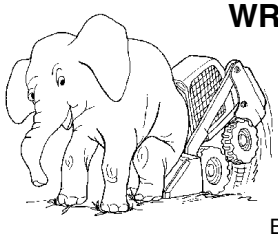
B-15575

Always carry bucket or attachments as low as possible.

Do not travel or turn with lift arms up.

Load, unload and turn on flat level ground.

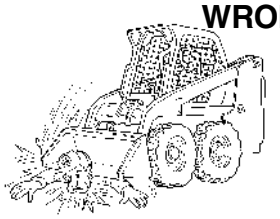
WRONG



B-15576

Never exceed rated operating capacity.

WRONG

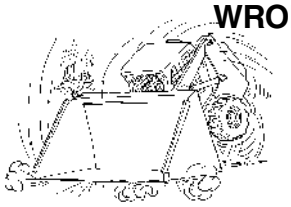


B-15577

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

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

WRONG



B-15578

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 about attachments and accessories.

1. **SEAT BELT: Check belt fasteners and check for damaged webbing or buckle.**
2. **SEAT BAR: When up, it must deactivate travel and hydraulic functions.**
3. **OPERATOR CAB (ROPS and FOPS): It must be on the loader with all fasteners tight.**
4. **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™)**

OSW09-0903

U.S. Publication 6902684 (10-04) Revised (6-05) (7)

CONTENTS

REFERENCE INFORMATION

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

Loader Serial Number _____

Engine Serial Number _____

_____

NOTES:

_____

_____

_____

YOUR BOBCAT® DEALER:

_____

ADDRESS:

_____

PHONE:

_____

CE

Bobcat Europe
J. Huysmanslaan 59
B-1651 LOT
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.


Bobcat®

BOBCAT COMPANY IS ISO 9001:2000 CERTIFIED

ISO 9001:2000 is a set of international standards that control the processes and procedures which we use to design, develop, manufacture, distribute, and service Bobcat products.

British Standards Institute (**BSI**) is the Certified Registrar Bobcat chose to assess the Company's compliance with the ISO 9001:2000 set of standards. The BSI registration certifies that the two Bobcat manufacturing plants and the Bobcat corporate offices (Gwinner, Bismarck & West Fargo) in North Dakota are in compliance with ISO 9001:2000. Only certified assessors, like BSI, can grant registrations.

ISO 9001:2000 means that as a company we say what we do and do what we say. In other words, we have established procedures and policies, and we provide evidence that the procedures and policies are followed.

REGULAR MAINTENANCE ITEMS

	ENGINE OIL FILTER (6 Pack) 6678233		HYDROSTATIC FILTER, In-Line 6661807
	FUEL FILTER 6667352		BATTERY 6665427
	AIR FILTER, Outer 6681475		FLUID, Hydraulic/Hydrostatic (19 L) 6563328 - Two 8-2 L containers 6722344 - One 19 L container
	AIR FILTER, Inner 6681474		Radiator Cap 6733429
	HYDROSTATIC FILTER 6661248		Propylene Glycol Premixed - 6724094 Concentrate - 6724354

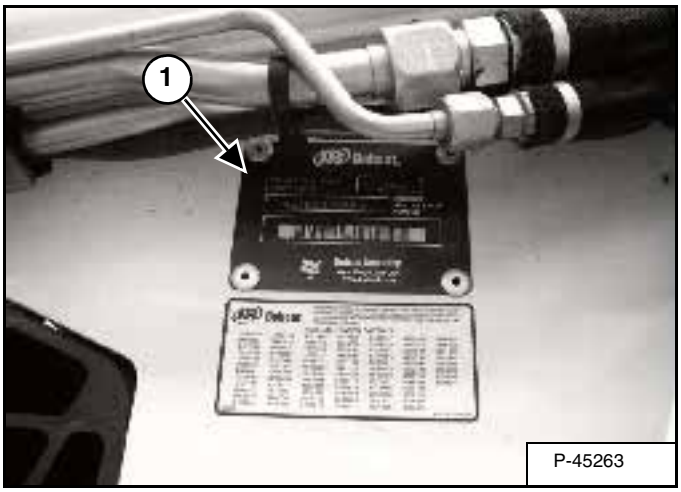
MOTOR OIL

6667299 SAE 15W40 CE/SG (12 L)	6724558 SAE 15W40 CE/SG (3.8 L)	6674204 SAE 15W40 CE/SG (9.5 L)
6657301 SAE 10W30 CE/SG (12 L)	6724557 SAE 10W30 CE/SG (3.8 L)	6674205 SAE 10W30 CE/SG (9.5 L)
6657303 SAE 30W CE/SG (12 L)	6724559 SAE 30W CS/SG (3.8 L)	6674206 SAE 30W CS/SG (9.5 L)

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.

Figure 1



LOADER SERIAL NUMBER

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

Explanation of loader Serial Number:

XXXX XXXXX

Module 2. - Production Sequence (Series)

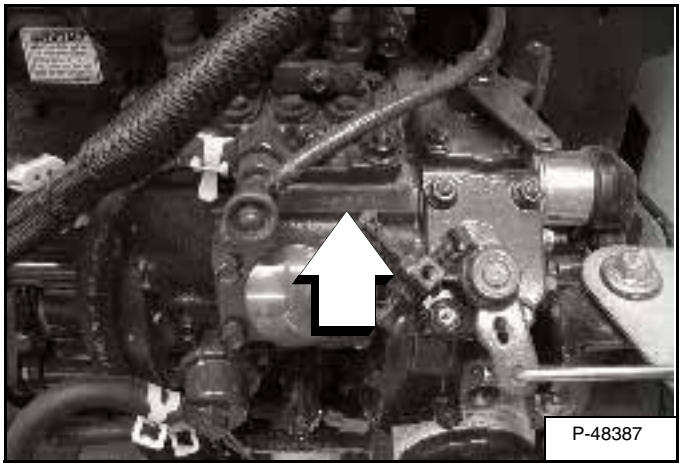
Module 1. - Model / Engine Combination

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

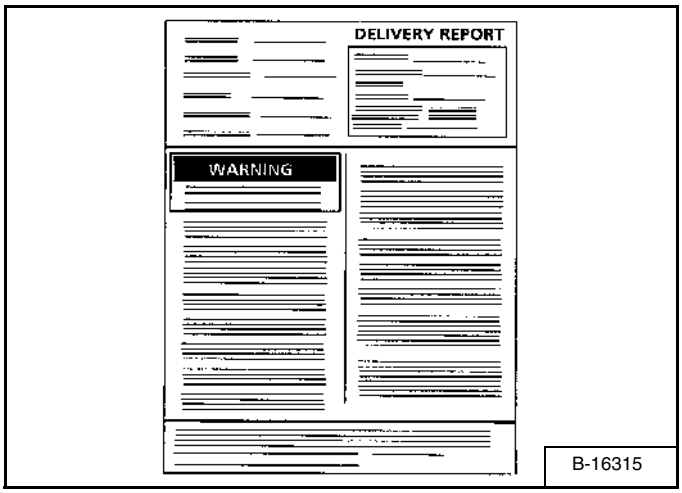
Figure 2



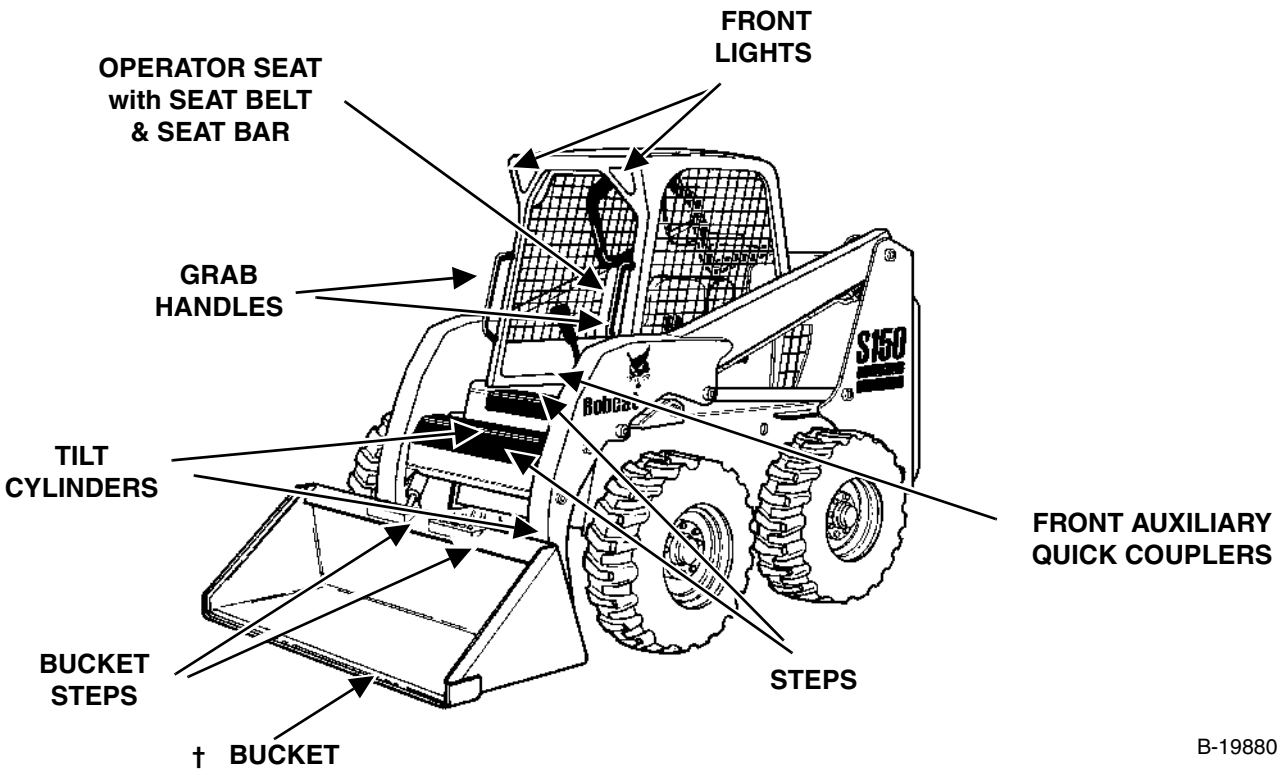
The engine serial number is located on the side of the engine **[Figure 2]**.

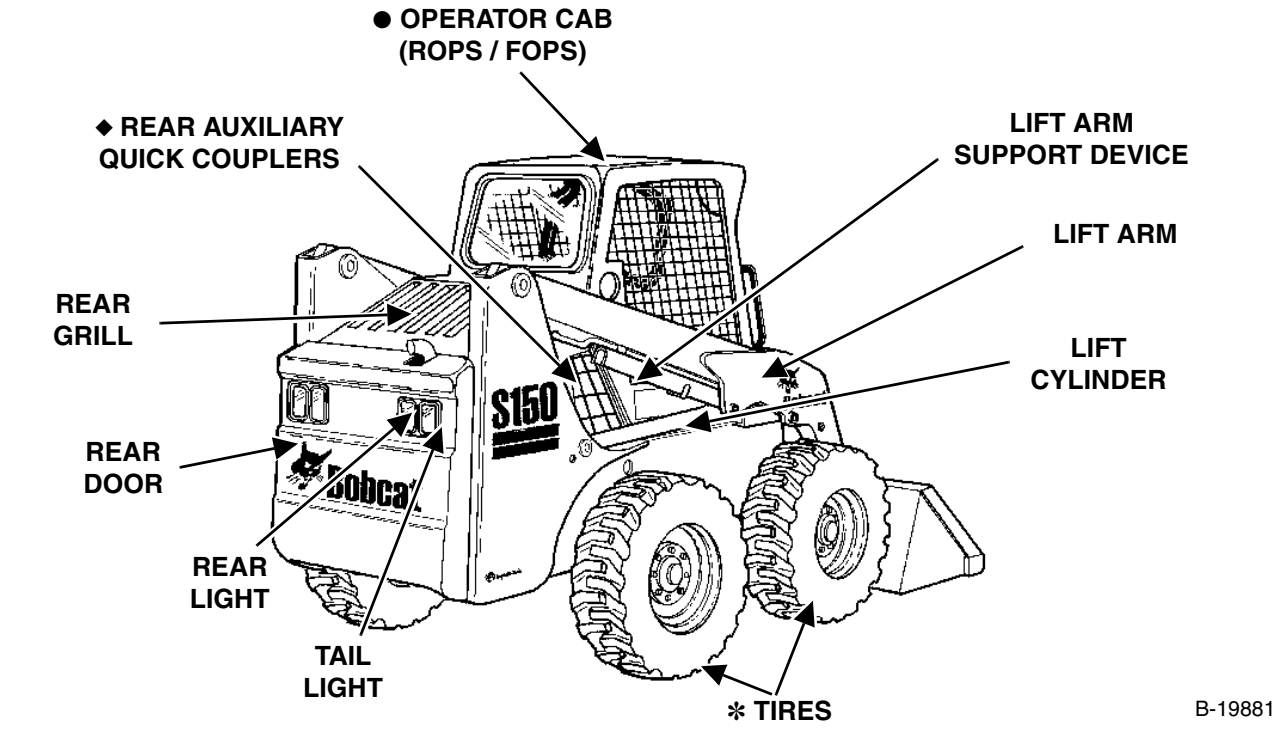
DELIVERY REPORT

Figure 3



The delivery report must be filled out by the dealer and signed by the owner or operator when the Bobcat loader is delivered. An explanation of the form must be given to the owner. Make sure it is filled out completely **[Figure 3]**.





◆ Optional or Field Accessory (Not Standard Equipment)

✻ TIRES - Tires shown may not be standard. The machine is factory equipped with standard tires. Other tires are available.

† Bucket - Several different buckets and other attachments are available for this machine.

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

FEATURES, ACCESSORIES AND ATTACHMENTS

Standard Items

Model S150 Bobcat loaders are equipped with the following standard items:

- Automatically activated glow-plugs
- Bobcat Interlock Control System (BICS)
- Bob-Tach™ frame
- CE certification
- Deluxe operator cab*
  Includes interior cab foam, side, top and rear windows, accessory wire harness, dome light, and electrical power port
- Electrically activated proportional front auxiliary hydraulics
- Engine/hydraulics system shutdown
- High-back cushion suspension seat
- Hydraulic bucket positioning (including ON / OFF switch)
- Instrumentation
- Lift arm support
- Operating lights, front and rear
- Parking brake
- Seat bar
- Seat belt
- Spark arrestor muffler
- Tyres - 10-16.5 - 10-ply - Bobcat heavy duty

*** Roll Over Protective Structure (ROPS) - meets requirements of SAE-J1040 and ISO 3471**

Options and Accessories

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

- Dealer Installed Accessories
  - 7-pin attachment control kit
  - Back up alarm kit
  - Cab enclosure kit
  - Counterweight kit
  - Door sensor kit
  - FOPS kit **
  - Four-point lift kit
  - Fresh air heater kit
  - Front axle counterweight kit
  - Front door kit
  - Fuel cap locking kit
  - Operator cab, CE, enclosure kit
  - Plumbing kit for fresh air heater
  - Rear auxiliary hydraulic kit
  - Replacement Bob-Tach™
  - Secondary auxiliary hydraulics
  - Single-point lift kit
  - Special applications kit
- Factory Options
  - Advanced Control System (ACS)
  - Advanced Hand Controls (AHC)
  - Cab enclosure with heat
  - Deluxe instrument panel
  - Power Bob-Tach™
  - Segmented tyres - 10-16.5
  - Segmented tyres - industrial type - 7.50-15
  - Selectable Joystick Controls (SJC)
  - Severe duty foam-filled tyres - 10-16.5 - 10-ply
  - Severe duty tyres - 10-16.5 - 10-ply
  - Super float tyres - 31-15.5 - 8-ply

**** Falling Objects Protective Structure (FOPS) - meets requirements of SAE-J1043 and ISO 3449, Level I**

Specifications subject to change without notice.

FEATURES, ACCESSORIES AND ATTACHMENTS (CONT'D)

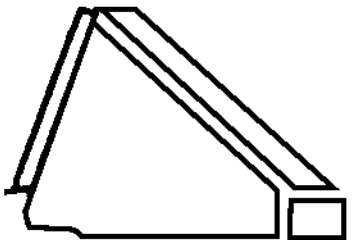
These and other attachments are approved for use on this model loader. Do not use unapproved attachments. Attachments not manufactured by Bobcat may not be approved.

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 more details on these and other attachments and field accessories.

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

Buckets Available


BUCKET

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

Attachments

For specific model availability, see Bobcat Product Price List.

- Angle blade
- Angle broom*†
- Auger
- Backhoe
- Box blade
- Brushcat rotary cutter
- Buckets
- Chipper*
- Combination bucket
- Concrete pump*
- Cutter crusher*
- Digger
- Dozer blade*
- Dumping hopper
- Ejector bucket
- Farm grapple
- Grader*
- Hydraulic breaker**
- Industrial grapple
- Landplane
- Landscape rake
- Mixing bucket*
- Pallet fork - hydraulic
- Pallet fork - standard
- Planer*
- Rear stabiliser
- Scarifier
- Snow blower*
- Sod layer*
- Soil conditioner*
- Spreader
- Stump grinder*
- Super scraper
- Sweeper
- Three-point hitch
- Tiller
- Tilt-Tatch™
- Tracks, steel
- Tree transplanter*
- Trench compactor
- Trencher
- Utility forks
- Vibratory roller
- Water kit
- Wheel saw
- Whisker broom

*** Attachment control kit required.**

**** When operating the loader with this attachment, a Special Applications Kit, which includes a 12 mm Lexan front door with 6 mm top and rear windows, must be used.**

- **†Optional water kit.**


Bobcat


Bobcat

SAFETY INSTRUCTIONS

Safe Operation Is The Operator's Responsibility

Carefully follow the operating and maintenance instructions in this manual.

The Bobcat skid-steer 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 has an internal combustion engine with resultant heat and exhaust. All exhaust gasses can kill or cause illness so use the loader with adequate ventilation. The loader has a spark arrestor exhaust system or muffler which is required for operation in certain areas.

The dealer explains the capabilities and restrictions of the Bobcat loader and attachments 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) and 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 loader-attachment combination.

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

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

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

- Machine signs (decals) instruct on the safe operation and care of your Bobcat loader 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. Its brief instructions are convenient to the operator. The Handbook is available from your dealer in an English edition or one of many other languages. See your Bobcat dealer for more information on translated versions.

Safe Operation Is The Operator's Responsibility (Cont'd)

Safety Alert Symbol

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

WARNING

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

W-2001-0502

IMPORTANT

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

I-2019-0284

WARNING

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

W-2044-1285

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 must not use drugs or alcoholic drinks which impair his alertness or coordination while working. An operator who is taking prescription drugs must get medical advice to determine if he 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 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 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 can operate the machine and attachment safely under all conditions of the work area. Always fasten seat belt before operating.

Know the Work Conditions

- Know the weight of the materials being handled. Avoid exceeding the Rated Operating Capacity of the machine. Material which is very dense will be heavier than the same volume of less dense material. Reduce the size of load if handling dense material.
- The operator must know any prohibited uses or work areas, for example, he needs to know about excessive slopes.
- Know the location of any underground lines.
- Wear tight fitting clothing. Always wear safety glasses when doing maintenance or service. Safety glasses, hearing protection or special applications kit are required for some work. See your dealer about Bobcat Safety equipment.

SI02-0903

Fire Prevention

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

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

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

- Check all electrical wiring and connections for damage. Keep the battery terminals clean and tight. Repair or replace any damaged part.

- Check fuel and hydraulic tubes, hoses and fittings for damage and leakage. Never use open flame or bare skin to check for leaks. Tighten or replace any parts that show leakage. Always clean fluid spills. Do not use gasoline or diesel fuel for cleaning parts. Use commercial nonflammable solvents.

- Do not use ether or starting fluids on any engine which has glow plugs. These starting aids can cause explosion and injure you or bystanders.

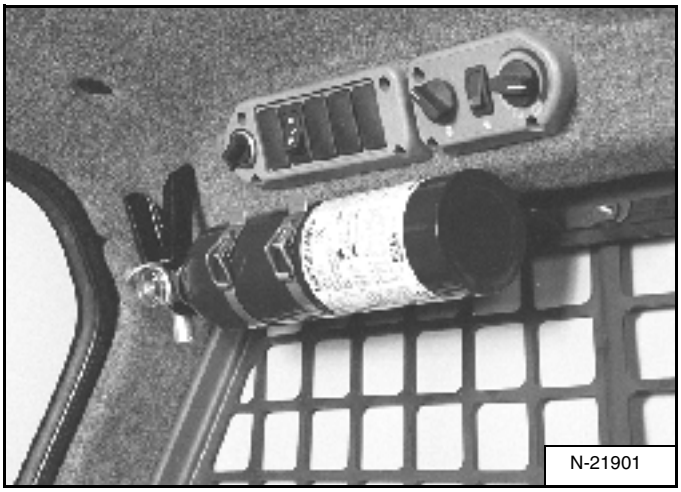
- Always clean the machine, disconnect the battery, and disconnect the wiring from the Bobcat controllers before welding. Cover rubber hoses, battery and all other flammable parts. Keep a fire extinguisher near the Loader when welding. Have good ventilation when grinding or welding painted parts. Wear dust mask when grinding painted parts. Toxic dust or gas can be produced.

- Stop the engine and let it cool before adding fuel. No smoking!

- Use the procedure in the Operation & Maintenance Manual for connecting the battery.

- Use the procedure in the Operation & Maintenance Manual for cleaning the spark arrestor muffler (if equipped).

Figure 4

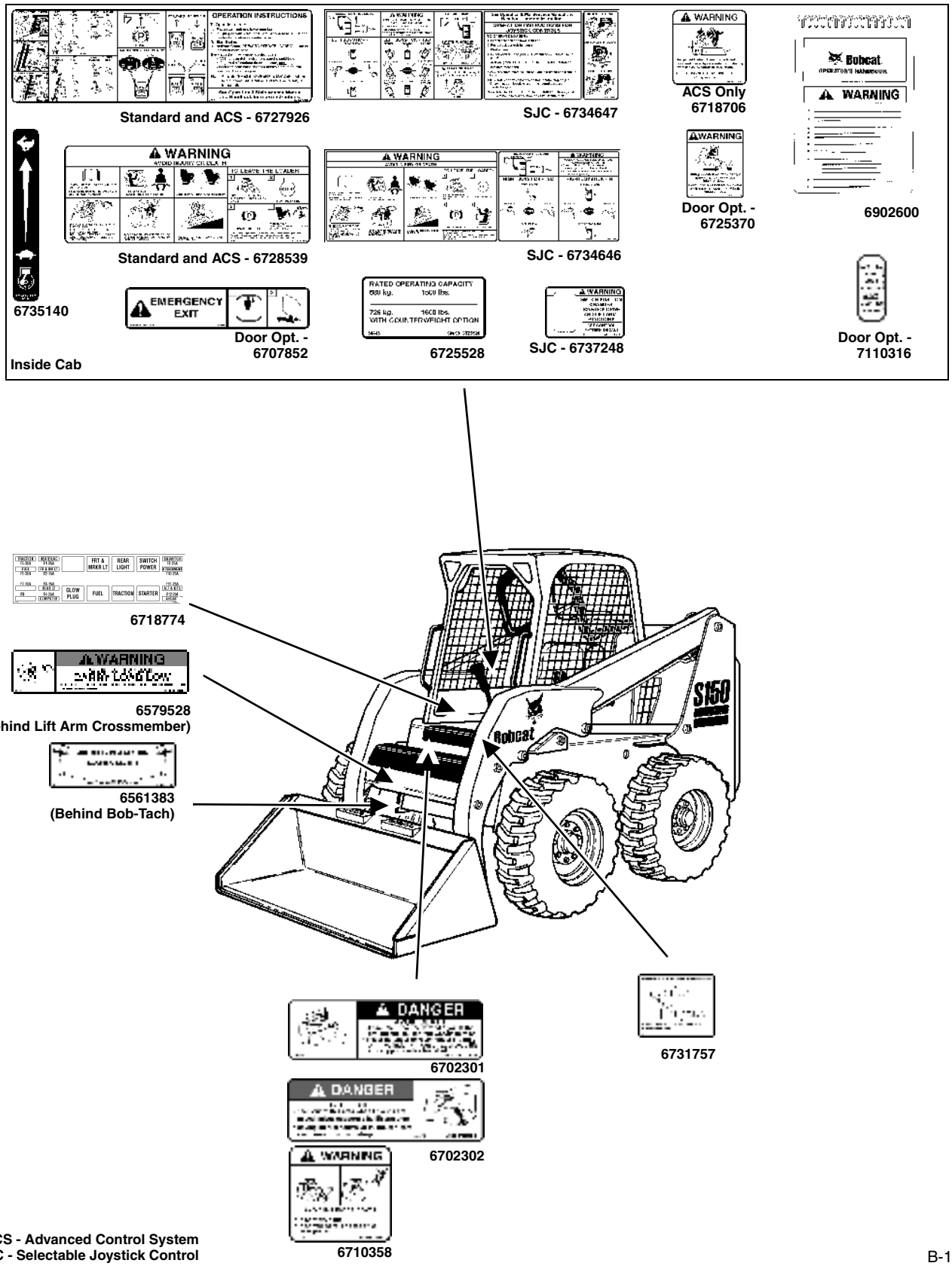


- Know where fire extinguishers and first aid kits are located and how to use them. Fire extinguishers are available from your Bobcat dealer. The fire extinguisher can be installed in the location shown **[Figure 4]**.

SI03-0301

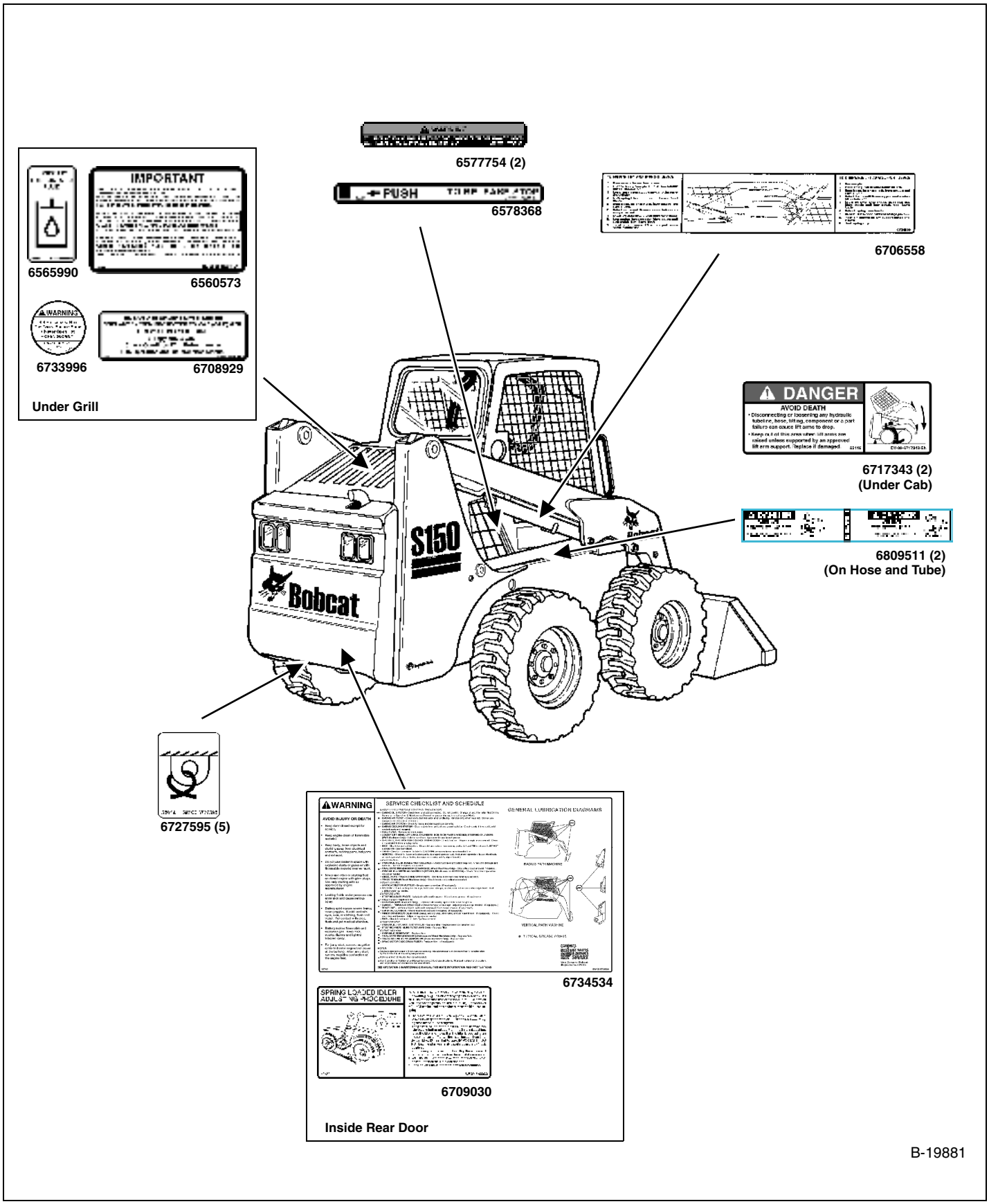
MACHINE SIGNS (DECALS)

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.



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.




Bobcat®

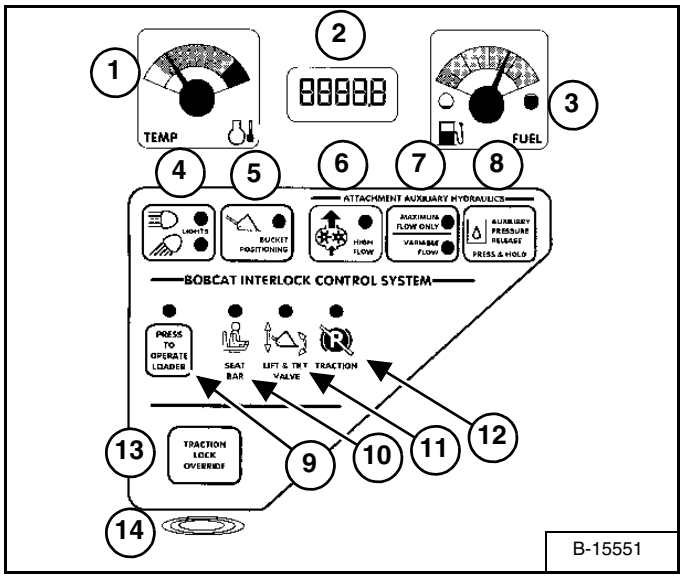
OPERATING INSTRUCTIONS

OPERATING INSTRUCTIONS (CONT'D)

INSTRUMENT PANEL IDENTIFICATION

Left Panel

Figure 5



The left instrument panel is the same for both the Standard and Deluxe Instrument Panels **[Figure 5]**.

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

Press and hold LIGHTS button (4) **[Figure 5]** for two seconds to view SERVICE CODES in the HOURMETER/ CODE DISPLAY (2) **[Figure 5]**. If more than one SERVICE CODE is present, the codes will scroll on the HOURMETER / CODE DISPLAY.

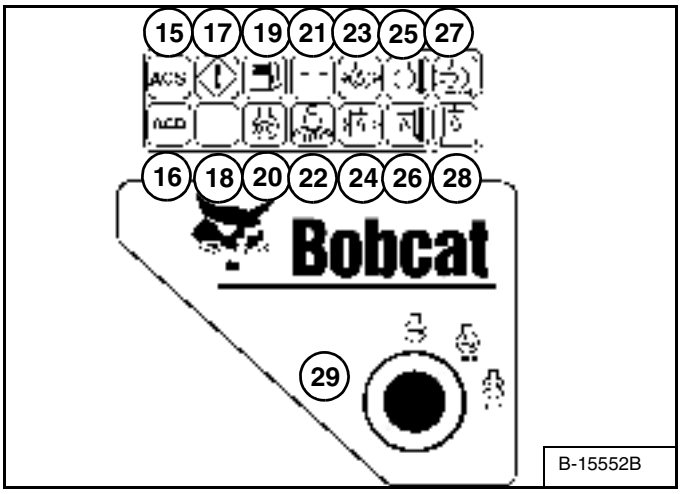
REF. NO	DESCRIPTION	FUNCTION / OPERATION
1	TEMPERATURE GAUGE	Shows the engine coolant temperature.
2	HOURMETER / CODE DISPLAY / GLOW PLUG COUNTDOWN	HOURMETER - Records operating hours of loader. CODE DISPLAY - Display numeric SERVICE CODES* relating to the loader monitoring system. COUNTDOWN - Preheat time remaining
3	FUEL GAUGE	Shows the amount of fuel in the tank.
4	LIGHTS / HOLD FOR CODES	LIGHTS - Press once for FRONT LIGHTS. Press a second time for FRONT AND REAR lights. Press a third time to turn all lights off. HOLD FOR CODES - Press and hold two seconds for display of SERVICE CODES (2). (CODES* show only when there is an error found by loader monitoring system.)
5	BUCKET POSITIONING (Option)	Press to engage the BUCKET POSITIONING function. Press again to disengage. Press and hold 2 seconds to view SHTDN (SHUTDOWN) feature & Operational Code Number in HOURMETER / CODE DISPLAY.
	ATTACHMENT AUXILIARY HYDRAULICS	
6	HIGH FLOW (Option)	Press to engage the HIGH FLOW auxiliary hydraulics. Press again to disengage.
7	MAXIMUM FLOW / VARIABLE FLOW	Press once to engage the VARIABLE FLOW auxiliary hydraulics. Press a second time to engage MAXIMUM FLOW. Press a third time to disengage all auxiliary hydraulics. [VARIABLE FLOW allows for slow-to-fast movement of auxiliary functions (The farther you move the switch, the faster the movement of auxiliary functions.) MAXIMUM FLOW allows for only fast movement.]
8	AUXILIARY PRESSURE RELEASE	Rear Auxiliary Only - With key ON or engine running, press and hold button for 5 seconds. (See Releasing Hydraulic Pressure - Loader and Attachment Page 14 for front auxiliary pressure release.)
	BOBCAT INTERLOCK CONTROL SYSTEM (BICS™)	
9	PRESS TO OPERATE LOADER	Press to activate BICS™ System when the Seat Bar is down and operator is seated in operating position.
10	SEAT BAR	The light comes *ON* when the seat bar is down.
11	LIFT & TILT VALVE	The light comes *ON* when the seat bar is down and the PRESS TO OPERATE Button is pressed. The lift and tilt functions can be operated when the light is *ON*.
12	TRACTION	The light comes *ON* when the seat bar is down, engine is running, and parking brake is released. The loader can be moved forward or backward when the light is *ON*.
13	TRACTION LOCK OVERRIDE	(Function Only When Seat Bar Is Raised And The Engine Is Running) Press to unlock the brakes. Allows you to use the steering levers to move the loader forward or backward when using the backhoe attachment or for loader service. (See TRACTION LOCK OVERRIDE Page 8). Press a second time to lock the brakes.
14	ALARM	The ALARM beeps when there is an Error, WARNING or SHUTDOWN condition.

* See System Setup & Analysis for further description on SERVICE CODES.

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Right Panel (Standard - With Key Switch)

Figure 6



The right instrument panel shown **[Figure 6]** is the Standard Panel.

The table below shows the Icons and other components of the Right Standard Panel

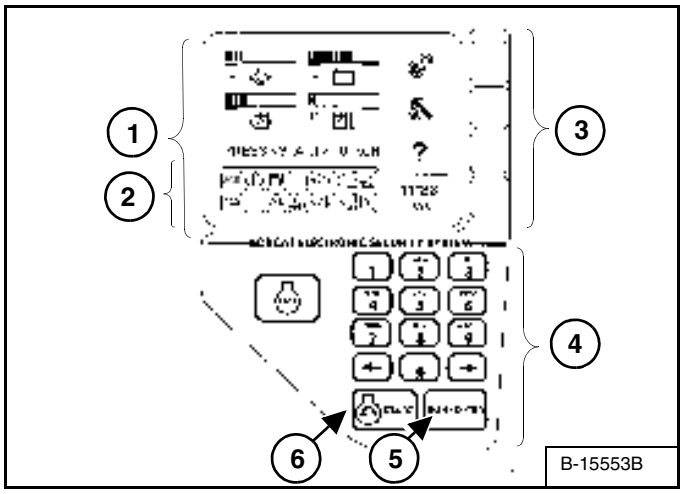
* These functions are monitored and have SERVICE CODES associated with them. For descriptions, (See DIAGNOSTICS SERVICE CODES, Page 88).

REF.	FUNCTION	ICON / LIGHT	ALARM	CODE	CONDITION	DESCRIPTION
15	Advanced Control System (ACS) (Opt.)	ON	3 Beeps	*	Error	Error with Advanced Control System (ACS).
16	Attachment Control Device (ACD) (Opt.)	ON FLASHING	- - - 3 Beeps	- *	- - - Error	Electrical controlled attachment is present. Error with Attachment Control Device (ACD).
17	General Warning	ON ON FLASHING	3 Beeps 3 Beeps Continuous	* * *	Error WARNING SHUTDOWN	Error with one or more engine or hydraulic functions. Engine speed high or in shutdown. Engine speed extremely high. Engine will stop in 10 seconds.
18	NOT USED					
19	Fuel Level	ON FLASHING	3 Beeps 3 Beeps	* *	Error WARNING	Fuel level sender system fault. Fuel level low.
20	Glow Plugs	ON FLASHING	- - - 3 Beeps	- *	- - - Error	Glow plugs are energized. Error with glow plugs.
21	System Voltage	ON	3 Beeps	*	WARNING	Voltage low, high or extremely high.
22	Seat Belt	ON	- - -	-	- - -	Light stays on for 45 seconds to remind operator to fasten seat belt.
23	Engine Oil Pressure	ON ON FLASHING	3 Beeps 3 Beeps Continuous	* * *	Error WARNING SHUTDOWN	Engine oil pressure sender out of range. Engine oil level low. Engine oil pressure extremely low. Engine will shutdown in 10 seconds.
24	Hydrostatic Charge Pressure	ON ON FLASHING	3 Beeps 3 Beeps Continuous	* * *	Error WARNING SHUTDOWN	Hydraulic oil pressure sender out of range. Hydraulic oil pressure low. Hydraulic charge pressure extremely low. Engine will stop in 10 seconds.
25	Engine Coolant Temperature	ON ON FLASHING	3 Beeps 3 Beeps Continuous	* * *	Error WARNING SHUTDOWN	Engine coolant sender out of range. Engine coolant temperature high. Engine coolant temperature extremely high. Engine will stop in 10 seconds.
26	Hydraulic Oil Temperature	ON ON FLASHING	3 Beeps 3 Beeps Continuous	* * *	Error WARNING SHUTDOWN	Hydraulic oil temperature out of range. Hydraulic oil temperature high. Hydraulic oil temperature extremely high. Engine will stop in 10 seconds.
27	Engine Air Filter	ON FLASHING	3 Beeps 3 Beeps	* *	Error WARNING	Air filter with high restriction. Air filter switch not connected.
28	Hydraulic Filter	ON FLASHING	3 Beeps 3 Beeps	* *	Error WARNING	Hydraulic filter with high restriction. Hydraulic filter switch not connected.
29	Key Switch	-	-	-	-	Used to start and stop the engine.

* These functions are monitored and have associated SERVICE CODES. See SYSTEM SETUP AND ANALYSIS for description of SERVICE CODES.

Right Panel (Deluxe - With Keyless Start)

Figure 7



The right instrument panel shown **[Figure 7]** is the Deluxe Panel.

1. **Display Panel:** The Display Panel is where all system setup, monitoring, troubleshooting, and error conditions are displayed.

2. **Function Icons:** The lower left area of the Deluxe Panel has the same Icons as the Standard Panel. These Icons are only visible when the monitoring system has detected an error.

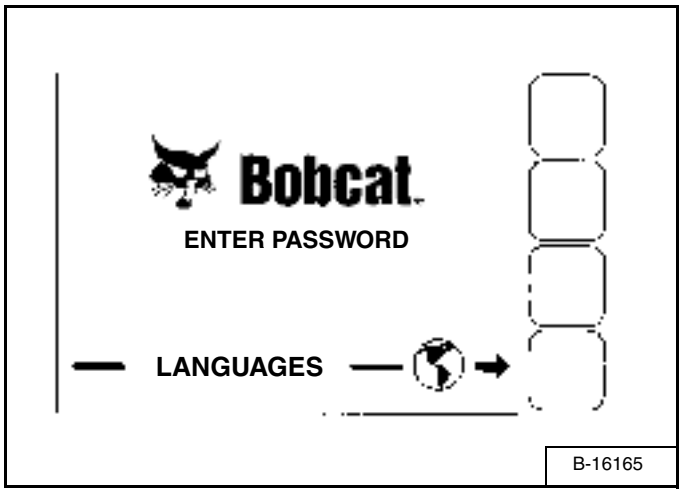
3. **Selection Buttons:** The four Selection Buttons allow you to select items from the Display Panel and scroll through screens.

4. **Keypad:** The numeric keypad (4) **[Figure 7]** has two functions:

   To enter a number code (password) to allow starting the engine (Keyless Start).

   To enter a number as directed for further use of the Display Panel.

Figure 8



The first screen you will see on your new loader will be as shown in **[Figure 8]**.

When this screen is on the display you can enter the password and start the engine or change the Display Panel setup features.

NOTE: Your new loader (with Deluxe Instrument Panel) will have a 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 Deluxe Panel Setup, Page 10.) Keep your password in a safe place for future needs.

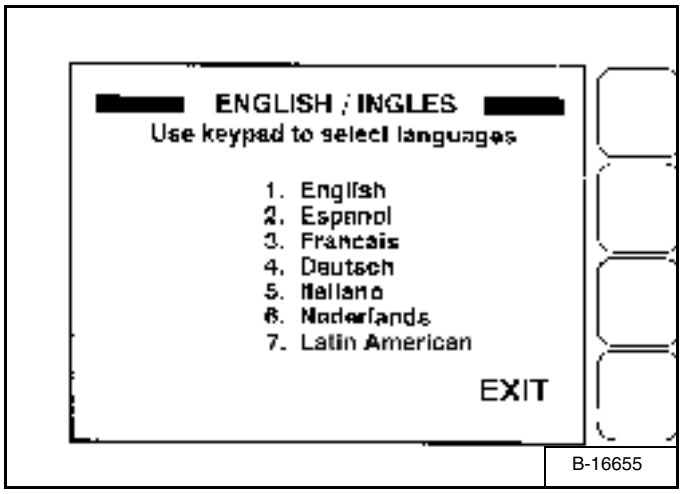
Start Engine: Use the Keypad to enter the numbers (letters) of your password and press the RUN / ENTER key (5) **[Figure 7]**.

Press and hold the START Button (6) **[Figure 7]** until the engine starts.

Change Language: Press the Selection Button at the end of the arrow **[Figure 8]** to go to the next screen.

Right Panel (Deluxe - With Keyless Start) (Cont'd)

Figure 9



Use the Keypad to select the number of the language **[Figure 9]**.

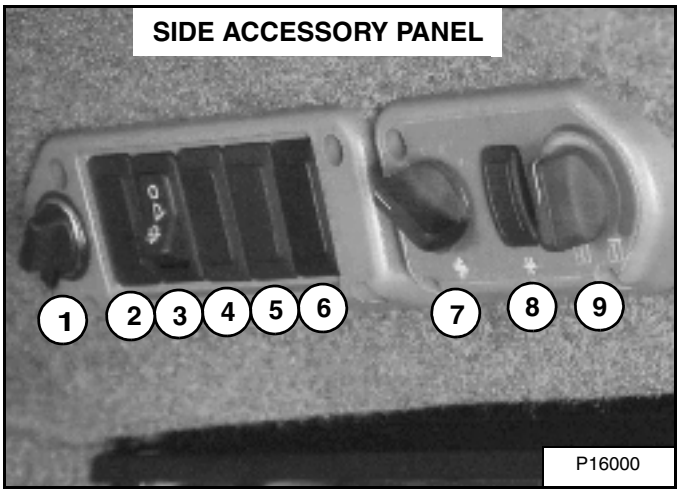
Press EXIT. The screen will return to **[Figure 8]**. You can then enter the password and start the engine.

For further description of screens to setup the system for your use. (See DELUXE INSTRUMENT PANEL SETUP on Page 93.)

NOTE: Pressing the EXIT key will go to the previous screen and you can continue pressing until you get to the initial (home) screen. SHORTCUT: Press the "0" (zero) key to get to the home screen immediately.

Option And Field Accessory Panels (If Equipped)

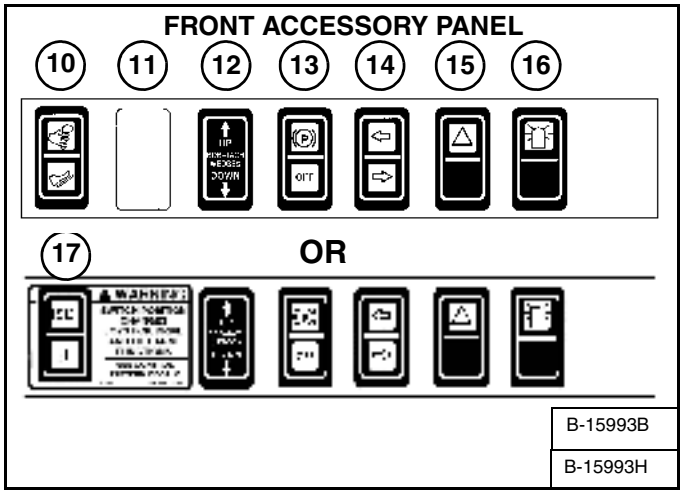
Figure 10



Side Accessory Panel **[Figure 10]**.

REF. NO.	DESC.	FUNCTION / OPERATION
1	POWER PLUG	Provides a 12V receptacle for accessories.
2	NOT USED	- - -
3	FRONT WIPER	Press the top of the switch to start the front wiper (press and hold for washer fluid). Press the bottom of the switch to stop the wiper.
4	REAR WIPER	Press the bottom of the switch to start the rear wiper. Press the top of the switch to provide washer fluid to clean the rear window.
5	NOT USED	- - -
6	NOT USED	- - -
7	FAN MOTOR	Turn clockwise to increase fan speed; counterclockwise to decrease. There are four positions; OFF-1-2-3.
8	AIR COND. SWITCH	Press top of switch to start; bottom to stop. Fan Motor (7) must be ON for A/C to operate.
9	TEMP. CONTROL	Turn clockwise to increase the temperature; counterclockwise to decrease.

Figure 11



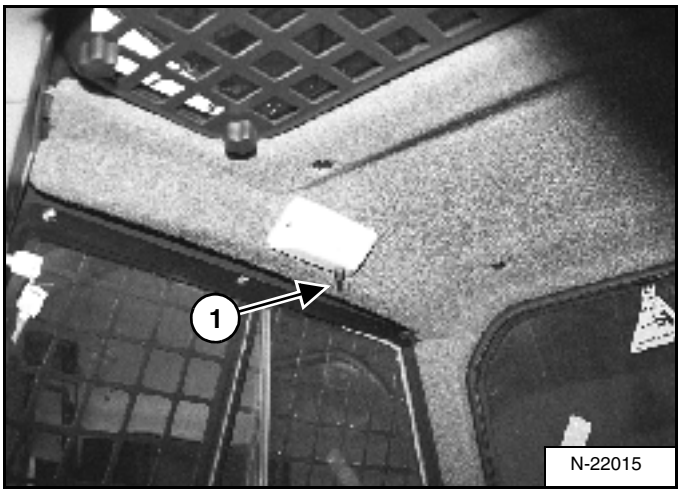
NOTE: Parking Brake (13) [Figure 11] is Standard on all loaders.

Front Accessory Panel **[Figure 11]**

REF. NO.	DESC.	FUNCTION / OPERATION
10	ADVANCED CONTROL SYSTEM (ACS)	Press the top to select Hand Controls; bottom to select Foot Controls.
11	NOT USED	- - -
12	POWER BOB-TACH	Press and hold the up arrow to disengage the the Bob-Tach wedges. Press and hold the down arrow to engage the wedges into the mounting frame holes.
13	PARKING BRAKE (Standard on all Loaders)	Press the top to engage the PARKING BRAKE; bottom to disengage.
14	TURN SIGNAL INDICATORS	Indicates left or right TURN SIGNALS are ON.
15	HAZARD LIGHTS	Press the top to turn the HAZARD LIGHTS ON; right side bottom to turn OFF.
16	ROTATING BEACON	Press the top to turn the ROTATING BEACON ON; bottom to turn OFF.
17	SELECTABLE JOYSTICK CONTROL (SJC)	Press the top to select 'ISO' Control Pattern; bottom to select 'H' Control Pattern.

Cab Light

Figure 12

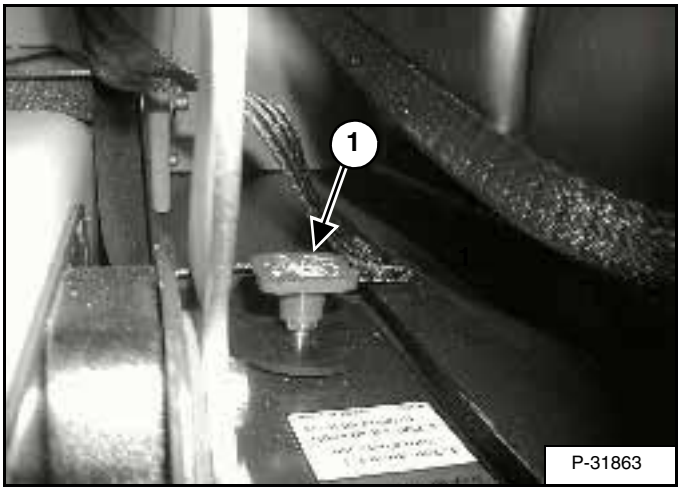


Push the button (1) **[Figure 12]** to turn the light ON. Push the button again to turn OFF.

LIFT ARM BY-PASS CONTROL

Operation

Figure 13



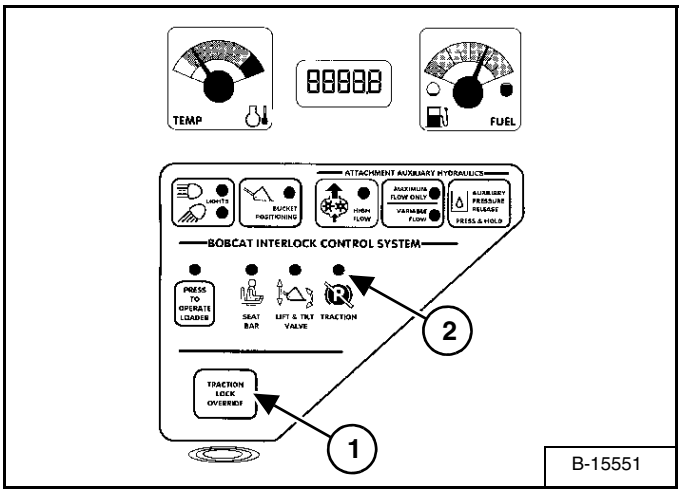
The lift arm by-pass control (1) **[Figure 13]** is used to lower the lift arms if the lift arms cannot be lowered during normal operations.

- Sit in the operator's seat.
- Fasten the seat belt and lower the seat bar.
- Turn the knob (1) **[Figure 13]** clockwise 1/4 turn.
- Pull up and hold the knob until the lift arms slowly lower.

TRACTION LOCK OVERRIDE

Operation

Figure 14



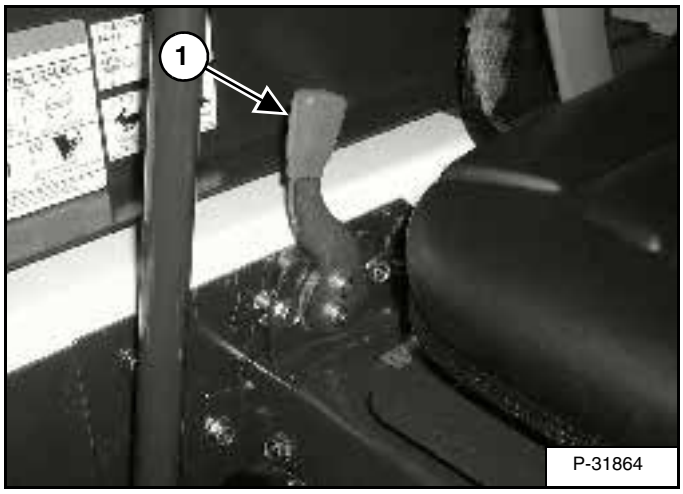
(Functions Only When The Seat Bar Is Raised And The Engine Is Running) There is a TRACTION LOCK OVERRIDE Button (1) **[Figure 14]** on the left instrument panel which will allow you to use the steering levers to move the loader forward and backward when using the backhoe attachment or for loader service.

- Press the TRACTION LOCK OVERRIDE button once to unlock traction lock drive. The TRACTION light (2) **[Figure 14]** will be ON.
- Press the button a second time to lock the traction drive. The TRACTION light (2) **[Figure 14]** will be OFF.

ENGINE SPEED CONTROL

Operation

Figure 15



The speed control lever is at the right side of the operator's seat (1) **[Figure 15]**.

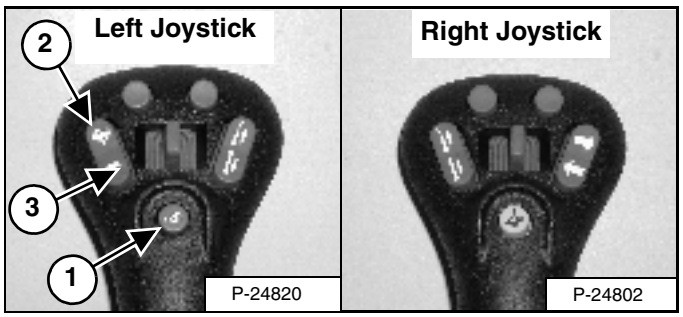
Move the lever forward to increase engine speed. Move backward to decrease engine speed.

INCHING CONTROL

Operation

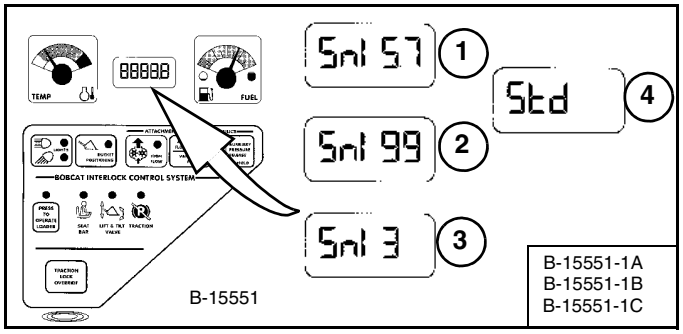
The Inching Control allows the loader to be maneuvered at slow travel speed for installing attachments, loading or unloading.

Figure 16



Press the button (1) **[Figure 16]** on the left joystick once to engage the Inching Control.

Figure 17



When the Inching Control is engaged, the machine will travel at 57% of Standard travel speed and the percentage **[Snl 57]** will appear in the display (1) **[Figure 17]**.

While Inching Control is engaged, press the top of the Speed Control switch (2) **[Figure 16]** to increase the speed up to 99% **[Snl 99]** or the bottom of the switch (3) **[Figure 16]** to decrease the speed down to 3% **[Snl 3]**. The percentages will appear in the display (1, 2 and 3) **[Figure 17]**.

Press button (1) **[Figure 16]** again to disengage Inching Control and return to Standard Travel Speed (**[Std]** (4) **[Figure 17]** will appear in display).

The system will retain the speed percentage as long as the key remains ON (Standard Panel) or the STOP button has not been pressed (Deluxe Panel).

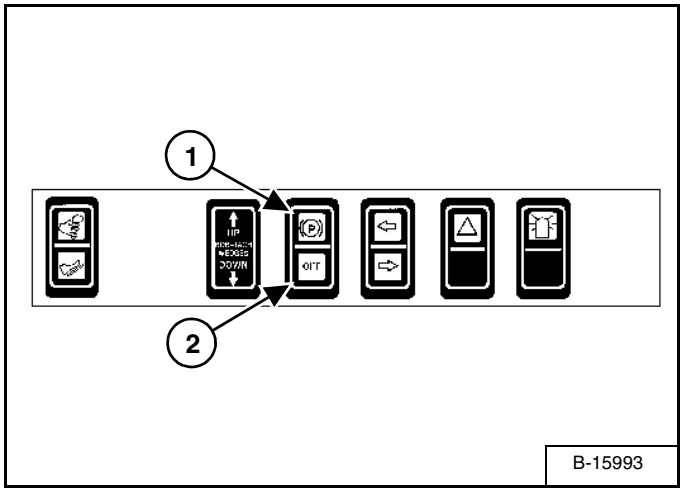
EXAMPLE: You can be using the machine at 40% and then disengage the Inching Control to reposition the loader, then re-engage Inching Control. The speed percentage will still be at 40%.

If you turn the key OFF or press the STOP button, the next time you start the engine and engage the Inching Control, the speed will be at 57% of Standard Travel Speed.

PARKING BRAKE

Operation

Figure 18



Press the top of the switch (1) **[Figure 18]** to engage the parking brake. The traction drive system will be locked.

Press the bottom of the switch (2) **[Figure 18]** to disengage the parking brake. The traction drive system will be unlocked.

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

DRIVING AND STEERING THE LOADER

Available Controls Configurations

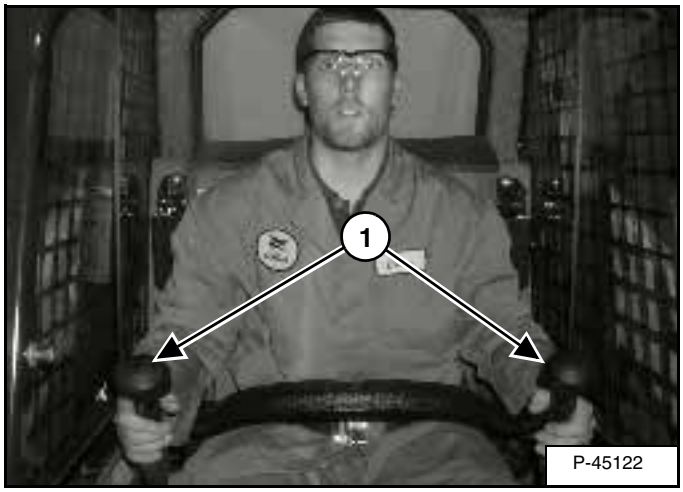
The loader has three configurations available:

- **Standard Controls** - Two Steering Levers control drive and steering functions.
- **Advanced Control System (ACS) (Option or Field Accessory)** - 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)

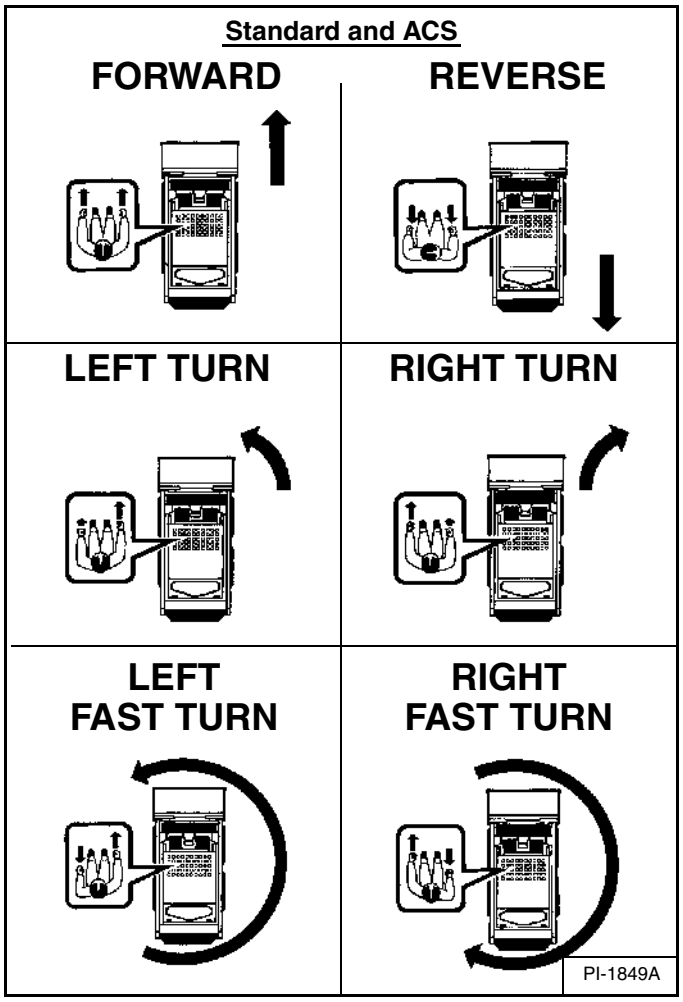
Figure 19



The steering levers (1) **[Figure 19]** are on the left and right side in front of the seat.

Move the levers smoothly. Avoid sudden starting and stopping.

Figure 20



The steering levers control forward and reverse travel and turning the loader **[Figure 20]**.

Forward Travel - Push both levers forward.

Reverse 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

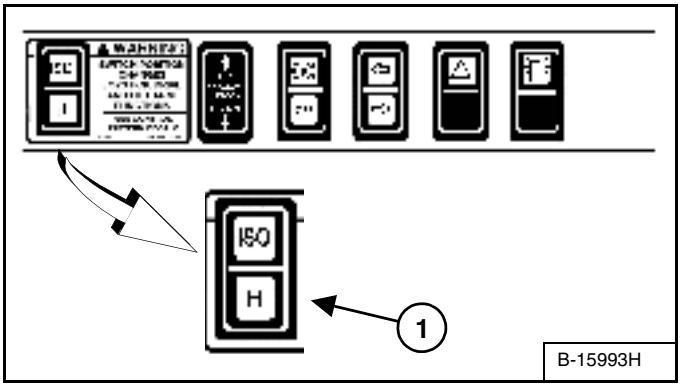
When operating the machine:

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

W-2261-0799

Operation (SJC in 'H' Control Pattern)

Figure 21



Select the 'H' control pattern by pressing the bottom of the switch (1) **[Figure 21]**.

⚠ WARNING

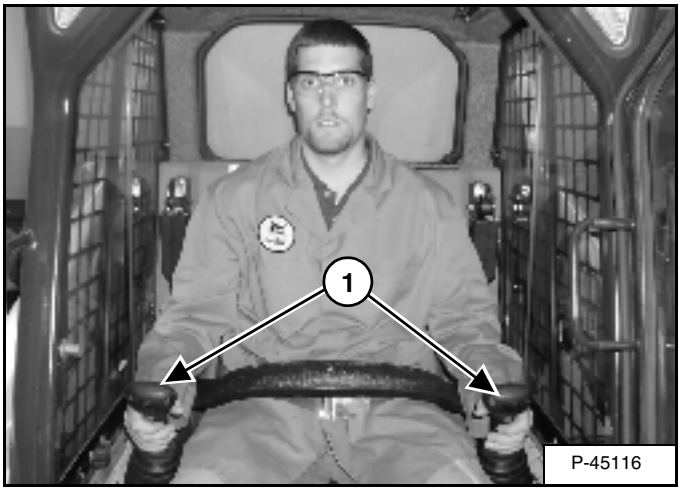
AVOID INJURY OR DEATH

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.**

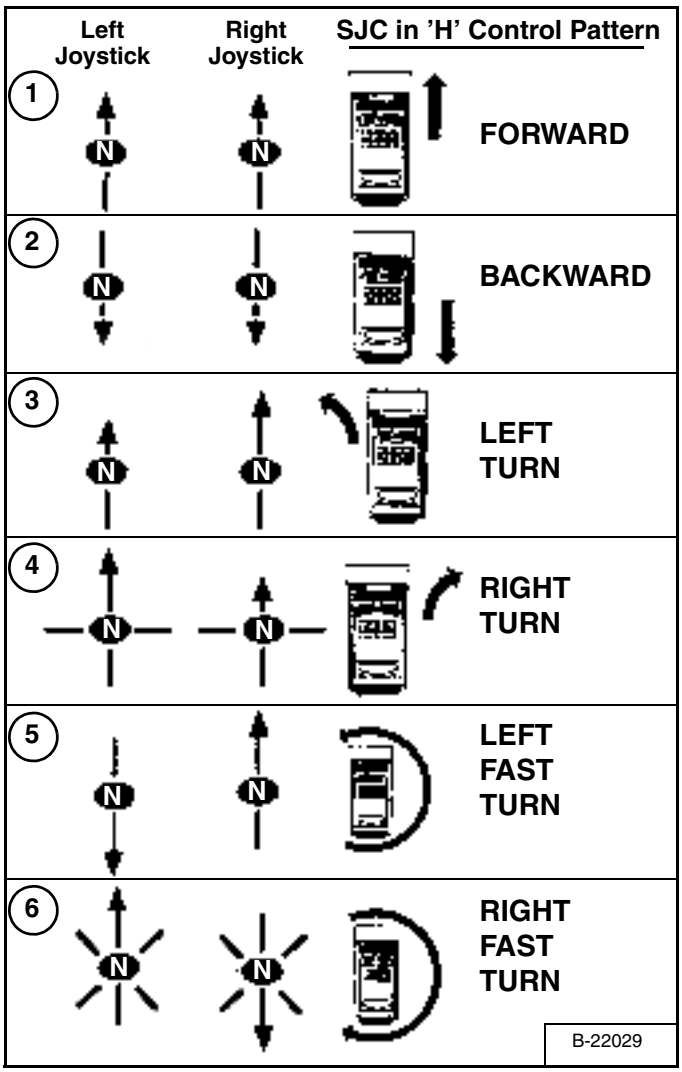
W-2399-0501

Figure 22



Both joysticks control drive and steering and are located on the right and left side in front of the seat (1) **[Figure 22]**.

Figure 23

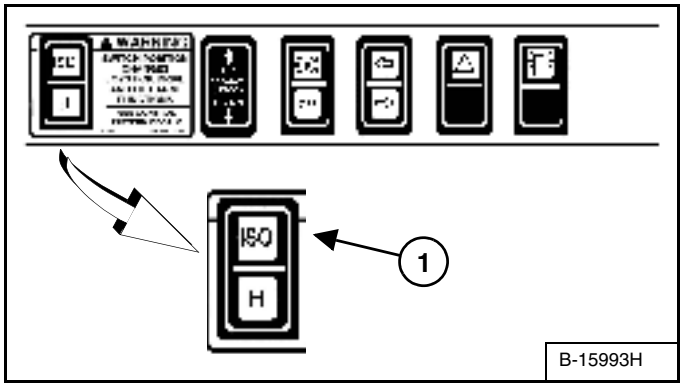


Hand Control Functions (Drive and Steering) **[Figure 23]**

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.

Operation (SJC in 'ISO' Control Pattern)

Figure 24



Select the 'ISO' control pattern by pressing the top of the switch (1) **[Figure 24]**.

⚠ WARNING

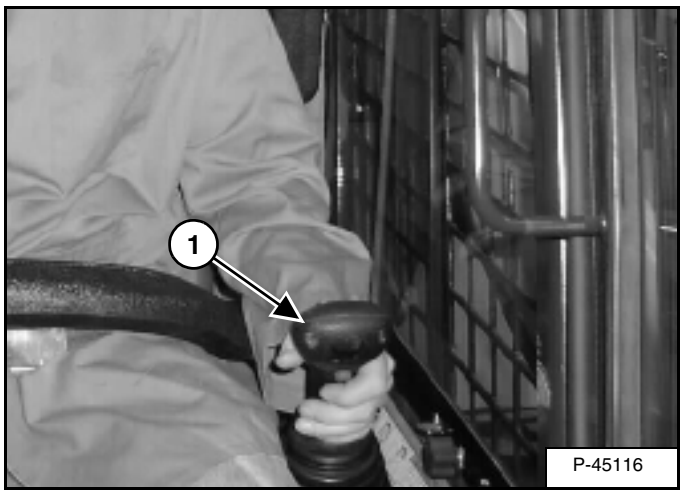
AVOID INJURY OR DEATH

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.**

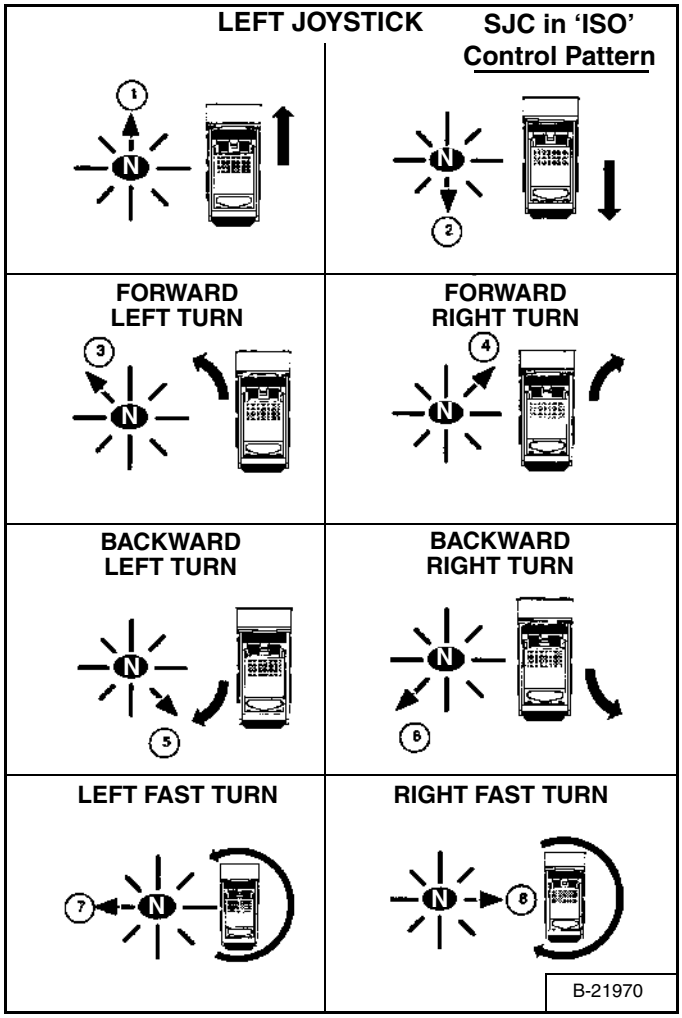
W-2399-0501

Figure 25



The joystick which controls drive and steering is on the left side in front of the seat (1) **[Figure 25]**.

Figure 26



Left Joystick Functions (Drive and Steering) **[Figure 26]**

Move the joystick smoothly. Avoid sudden starting and stopping.

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.

STOPPING THE BOBCAT LOADER

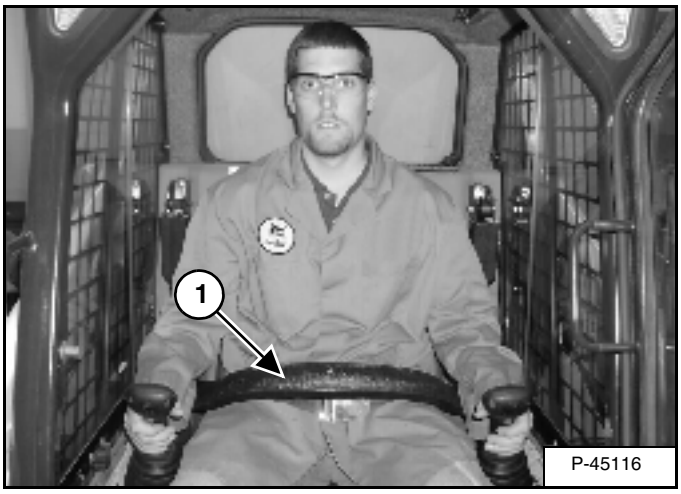
Using The Steering Levers or Joysticks

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.

SEAT BAR RESTRAINT SYSTEM

Operation

Figure 27



The seat bar restraint system has a pivoting seat bar with arm rests (1) **[Figure 27]**.

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 steering levers.**

W-2261-0799

When the seat bar is down, the PRESS TO OPERATE LOADER button is activated, and the brake is released, the lift, tilt, and traction drive functions can be operated. (Traction drive will operate only when the engine is running.)

When the seat bar is up, the lift, tilt and traction drive functions are deactivated and both foot pedals (if equipped) will be locked.

⚠ WARNING

Before you leave the operator's seat:

- **Lower the lift arms, put the attachment flat on the ground.**
- **Stop the engine.**
- **Engage the parking brake.**
- **Raise seat bar.**
- **(Foot Pedal Controls) Move pedals until both lock.**
- **(Advanced Control System - ACS) Move the hydraulic controls to the NEUTRAL POSITION to make sure that both lift and tilt functions are deactivated.**
  The seat bar system must deactivate the lift and tilt control functions when the seat bar is up. Service the system if hand controls do not deactivate.
- **(Selectable Joystick Control - SJC) Move the joysticks to the NEUTRAL POSITION to make sure that travel and hydraulic functions are deactivated.**
  The seat bar system must deactivate these functions when the seat bar is up. Service the system if controls do not deactivate.

W-2463-0603

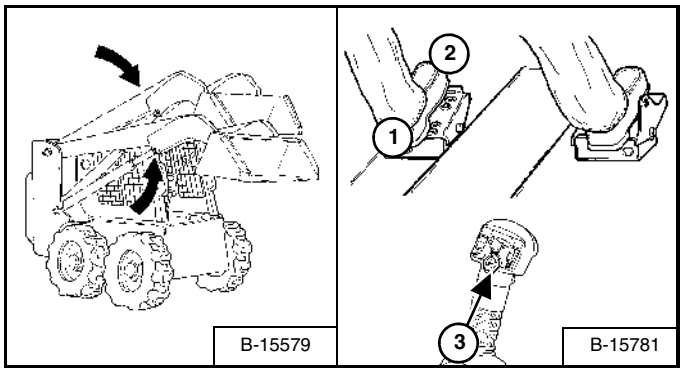
HYDRAULIC CONTROLS

Standard Operation (Foot Pedal)

Two foot pedals (or optional hand controls) 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.

Figure 28



Standard Controls (Also ACS in Foot Pedal Mode)

Lift Arm Operation - **(Left Pedal)**

Push the heel (1) **[Figure 28]** of the pedal to raise the lift arms.

Push the toe (2) **[Figure 28]** of the pedal to lower the lift arms.

Lift Arm Float Position - **(Left Pedal)**

Push the toe (2) **[Figure 28]** 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)**

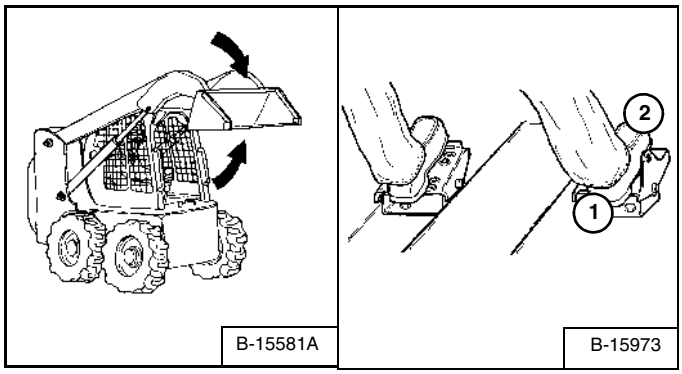
Press and hold the Float button (3) **[Figure 28]**.

Push the toe (2) **[Figure 28]** 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 29



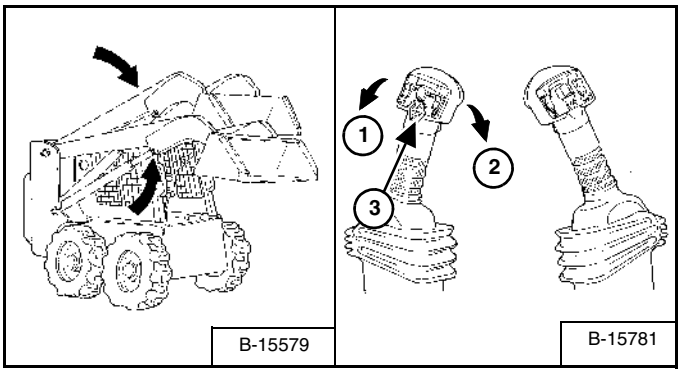
Tilt Operation - **(Right Pedal)**

Push the heel (1) **[Figure 29]** of the pedal to tilt the bucket backwrd.

Push the toe (2) **[Figure 29]** of the pedal to tilt the bucket forward.

Advanced Control System (ACS) in HAND Control Mode

Figure 30



Lift Arm Operation - **(Left Hand Lever)**

Move the lever outward (1) **[Figure 30]** to raise the lift arms.

Move the lever inward (2) **[Figure 30]** to lower the lift arms.

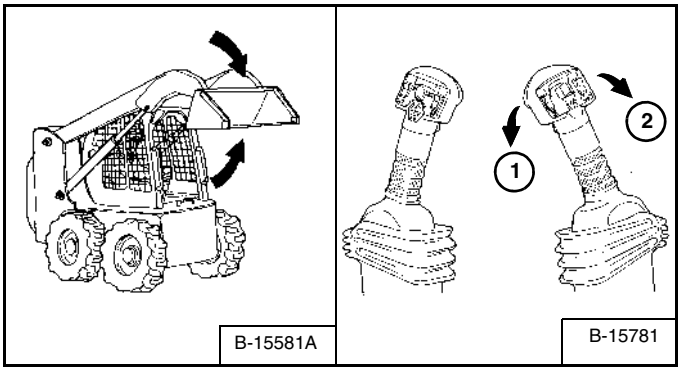
Lift Arm Float Position - **(Left Hand Lever)**

Press and hold the Float Button (3) **[Figure 30]** while the lever is in neutral. Move the lever to lift arm down position (2) **[Figure 30]**, then release the button.

Press Float Button again or move the lever to lift arm up position (3) **[Figure 30]**.

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

Figure 31



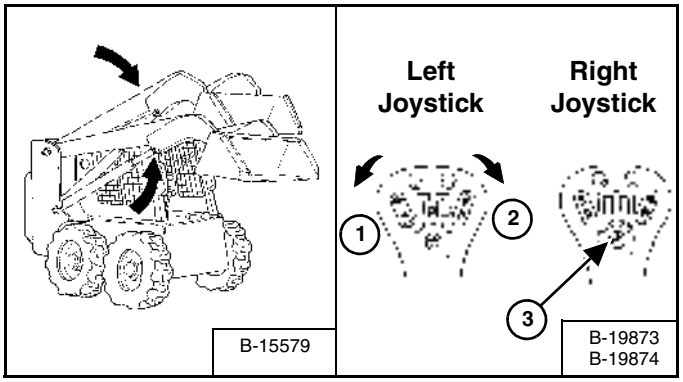
Tilt Operation - **(Right Hand Lever)**

Move the lever inward (1) **[Figure 31]** to tilt the bucket backward.

Move the lever outward (2) **[Figure 31]** to tilt the bucket forward.

Selectable Joystick Control (SJC) - 'H' Control Pattern

Figure 32



Lift Arm Operation - **(Left Hand Joystick)**

Move the joystick outward (1) **[Figure 32]** to raise the lift arms.

Move the joystick inward (2) **[Figure 32]** to lower the lift arms.

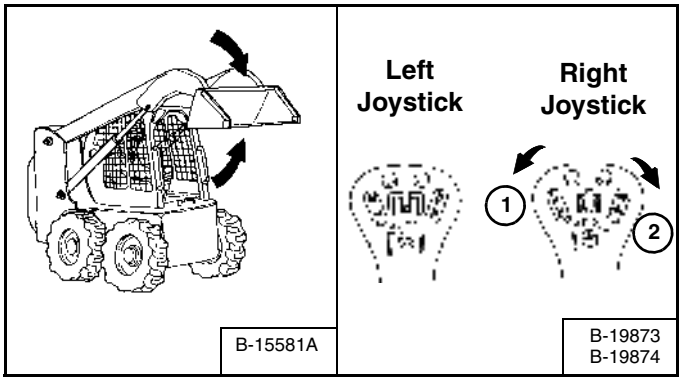
Lift Arm Float Position - **(Left & Right Hand Joysticks)**

Press and hold the Float Button (3) **[Figure 32]** while the joysticks are in neutral. Move the left joystick to lift arm down position (2) **[Figure 32]**, then release the button.

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

Press Float Button again or move the left joystick to lift arm up position (3) **[Figure 32]** to disengage.

Figure 33



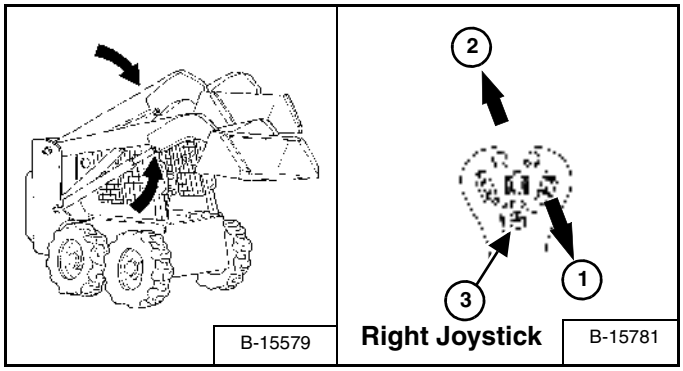
Tilt Operation - **(Right Hand Joystick)**

Move the joystick inward (1) **[Figure 33]** to tilt the bucket backward.

Move the joystick outward (2) **[Figure 33]** to tilt the bucket forward.

Selectable Joystick Control (SJC) - 'ISO' Control Pattern

Figure 34



Lift Arm Operation - **(Right Hand Joystick)**

Move the joystick backward (1) **[Figure 34]** to raise the lift arms.

Move the joystick forward (2) **[Figure 34]** to lower the lift arms.

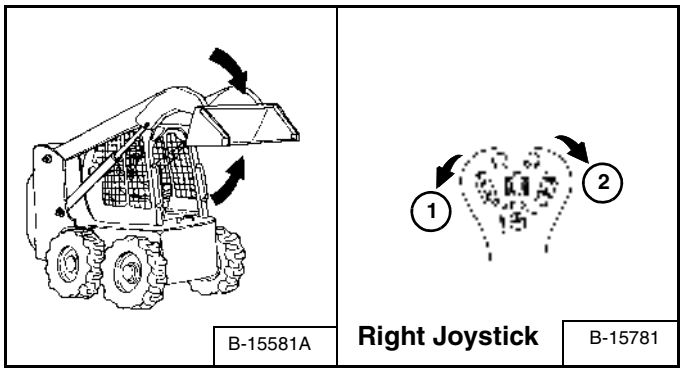
Lift Arm Float Position - **(Right Hand Joystick)**

Press and hold the Float Button (3) **[Figure 34]** while the joystick is in neutral. Move the joystick to lift arm down position (2) **[Figure 34]**, then release the button.

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

Press Float Button again or move the joystick to lift arm up position (2) **[Figure 34]** to disengage.

Figure 35



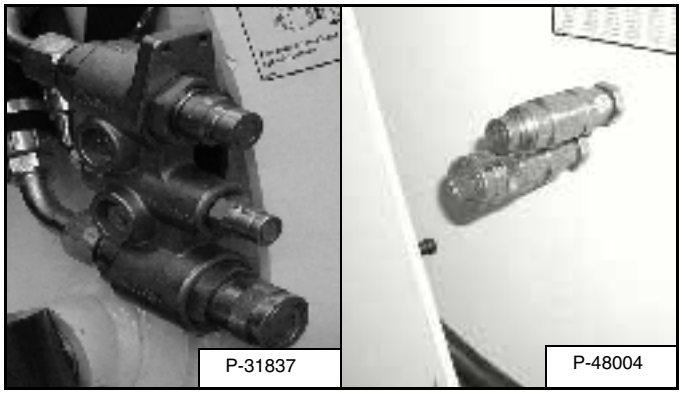
Tilt Operation - **(Right Hand Joystick)**

Move the joystick inward (1) **[Figure 35]** to tilt the bucket backward.

Move the joystick outward (2) **[Figure 35]** to tilt the bucket forward.

Quick Couplers

Figure 36



To Connect: Remove dirt or debris from the surface of both the male and female couplers, and from the outside diameter of the male coupler. Visually check the couplers for corroding, cracking, damage or excessive wear. If any of these conditions exist, the coupler(s) **[Figure 36]** must be replaced.

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

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

Releasing 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

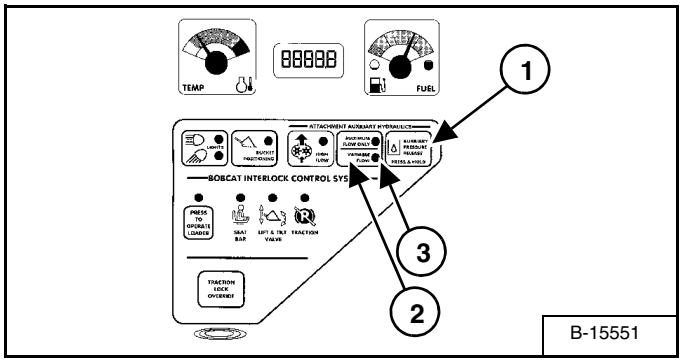
Front Auxiliary Hydraulics

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

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

Rear Auxiliary Hydraulics

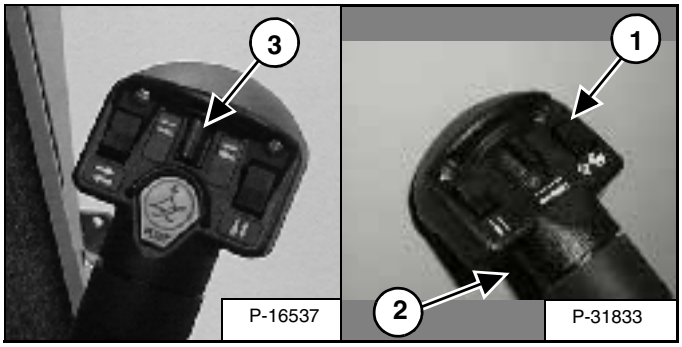
Figure 37



Press and hold the Auxiliary Pressure Release Button (1) **[Figure 37]** for 5 seconds.

Auxiliary Hydraulics Button - VARIABLE FLOW

Figure 38



VARIABLE FLOW allows for slow-to-fast movement of auxiliary functions. If you move the auxiliary switch (1) **[Figure 38]** half-way, the auxiliary functions move at approximately one-half speed.

Press the auxiliary hydraulics button (2) **[Figure 37]** once.

The light (3) **[Figure 37]** will be ON.

Auxiliary Hydraulics Button - MAXIMUM FLOW ONLY

MAXIMUM FLOW ONLY allows for fast movement only. If you move the auxiliary switch (1 or 3) **[Figure 38]**, the auxiliary functions move at fast speed; release the switch to stop auxiliary functions.

Press the auxiliary hydraulics button (1) **[Figure 37]** a second time.

The light (3) **[Figure 37]** will be ON.

Auxiliary Hydraulics Button - DISENGAGE

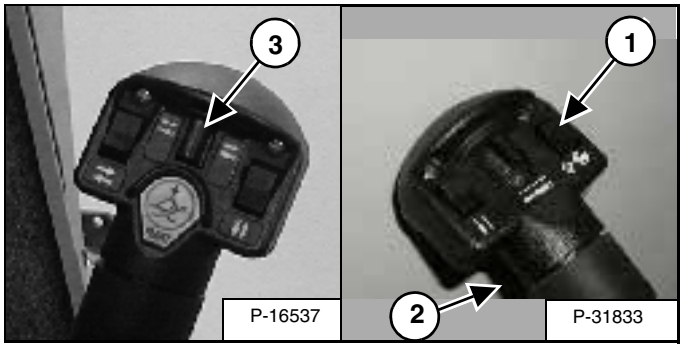
To disengage, press the auxiliary hydraulics button (1) **[Figure 37]** a third time.

Both lights (2 & 3) **[Figure 37]** will be OFF.

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

FRONT Auxiliary Hydraulics Operation - VARIABLE FLOW

Figure 39



Press the auxiliary hydraulics button for VARIABLE FLOW (See also Auxiliary Hydraulics Button - VARIABLE FLOW on Page 18).

Push the switch (1) **[Figure 39]** to the right or left to change the fluid flow direction of the front quick couplers. (EXAMPLE: Open and close grapple teeth.)

FRONT Auxiliary Hydraulics Operation - MAXIMUM FLOW

Press the auxiliary hydraulics button for MAXIMUM FLOW.

Push the switch (1) **[Figure 39]** to the right or left to change the fluid flow direction of the front quick couplers. (EXAMPLE: Open and close grapple teeth.)

FRONT Auxiliary Hydraulics Operation - CONTINUOUS FLOW

After selecting VARIABLE or MAXIMUM FLOW, press the front switch (2) **[Figure 39]** to give the front quick couplers a constant flow of fluid with the female coupler being pressurized. (EXAMPLE: Operate a backhoe.)

REVERSE CONTINUOUS FLOW - To set reverse flow (male coupler pressurized), select VARIABLE or MAXIMUM FLOW, then, while holding the auxiliary switch (1) **[Figure 39]** to the left, press the front switch (2) **[Figure 39]**. Reverse flow can be used only with augers, power rakes, sweepers, tillers, and vibratory rollers.

To release from continuous operation, press the front switch (2) **[Figure 39]** a second time.

REAR Auxiliary Hydraulics Operation (If Equipped)

Figure 40

The switches on the left hand lever control the rear auxiliary hydraulics.

Press the auxiliary hydraulics button for MAXIMUM FLOW (See also Auxiliary Hydraulics Button - MAXIMUM FLOW ONLY on Page 18).

Push the switch (3) **[Figure 39]** to the right or left to change the fluid flow direction to rear quick couplers **[Figure 40]**. (EXAMPLE: Raise and lower rear stabilizers.)

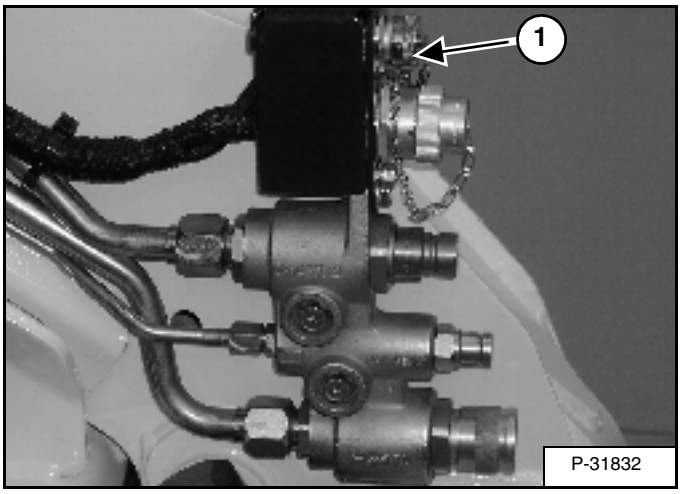
⚠ WARNING

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

W-2007-0497

Attachment Control Device (ACD) (If Equipped)

Figure 41

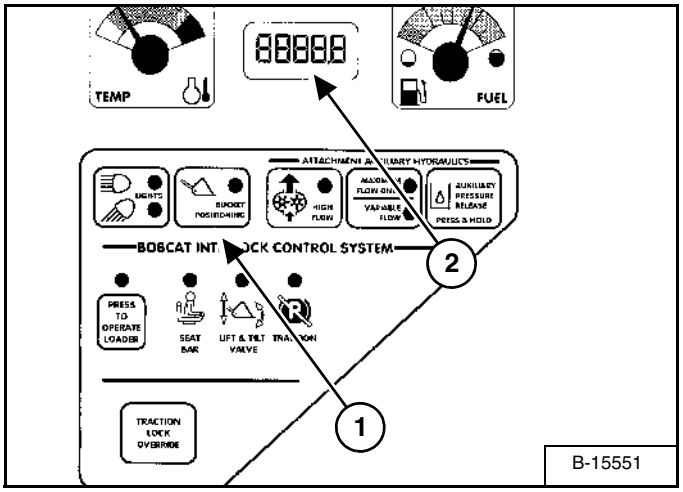


You will need the Dual-Connector (7-pin/14-pin) kit (1) **[Figure 41]** to operate early model attachments. See your Bobcat loader dealer.

Bucket Position Valve Operation (If Equipped)

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

Figure 42

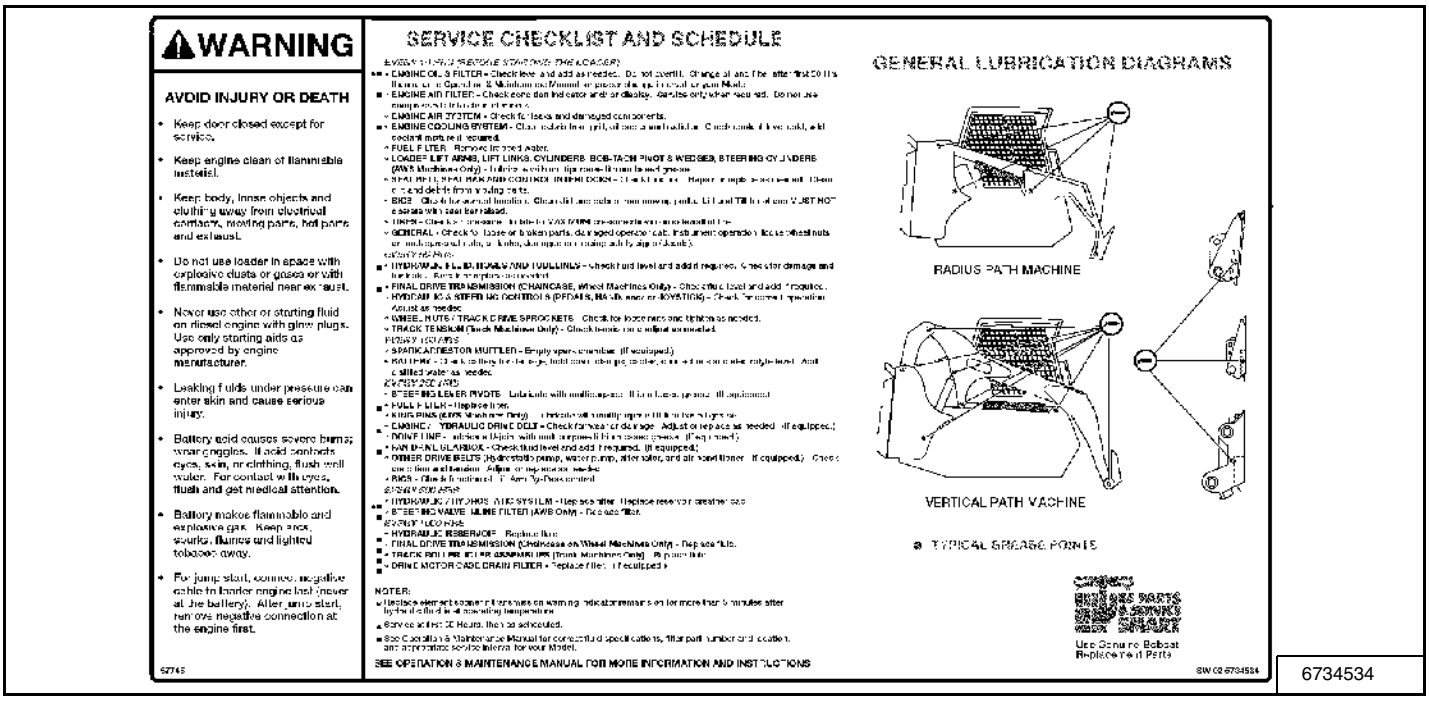


Press BUCKET POSITIONING button (1) **[Figure 42]** to engage the bucket position function. (The light will be on.) Press again to disengage.

Bucket Positioning functions only during upward lift cycle.

SHUTDOWN FEATURE

Press and hold the BUCKET POSITIONING button (1) **[Figure 42]** for 2 seconds. **Shtdn** will appear in the HOURMETER / CODE DISPLAY (2) **[Figure 42]** (Operational Code will also appear.)



Maintenance work must be done at regular intervals. Failure to do so will result in excessive wear and early failures. The Service Schedule (above) is a guide for correct maintenance of the Bobcat Loader. It is located inside the rear door of the loader.

Daily Inspection and Maintenance

- Engine Oil Level
- Hydraulic/Hydrostatic Fluid Level
- Engine Air Filter, Check System for Damage or Leaks
- Engine Coolant System, Check System for Damage or Leaks
- Operator Cab and Cab Mounting Hardware
- Seat Belt
- Seat Bar and Control Interlocks
- Grease Pivot Pins (Lift Arms, Bob-Tach™, Cylinders, Bob-Tach Wedges)
- Tires, Check for Wear, Damage, Correct Air Pressure
- Fuel Filter, Remove Trapped Water
- Loose or Broken Parts, Repair or Replace as Necessary
- Lift Arm Support Device. Replace if Damaged
- Bobcat Interlock Control System (BICS™)

⚠ WARNING

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

W-2001-0596

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

IMPORTANT

PRESSURE WASHING DECALS

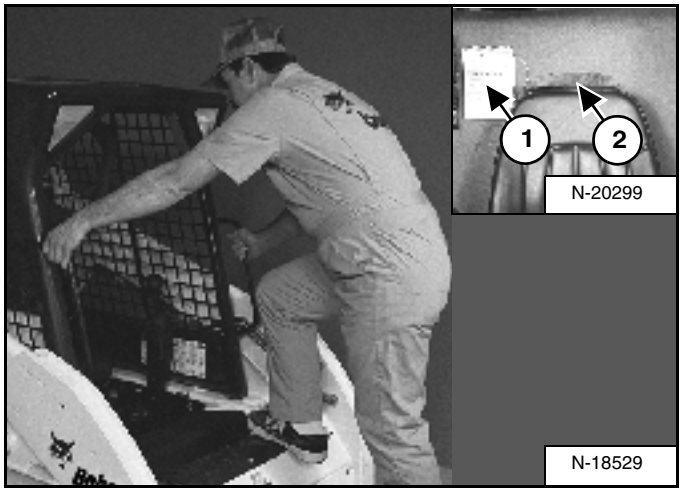
- **Never direct the stream at a low angle toward the decal that could damage the decal causing it to peel from the surface.**
- **Direct the stream at a 90 degree angle and at least 300 mm from the decal. Wash from the center of the decal toward the edges.**

I-2225-0204

PRE-STARTING PROCEDURES

Before Starting The Engine

Figure 43



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 **[Figure 43]**. 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.

Read and understand the Operation & Maintenance Manual and the Operator's Handbook (1) **[Figure 43]** before operating the loader.

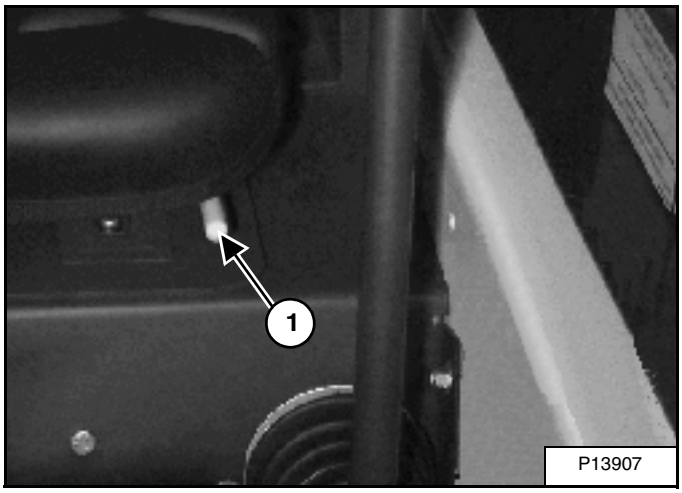
The Operation & Maintenance Manual and other manuals can be kept in a container (2) **[Figure 43]** provided behind the operator seat.

⚠ WARNING

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

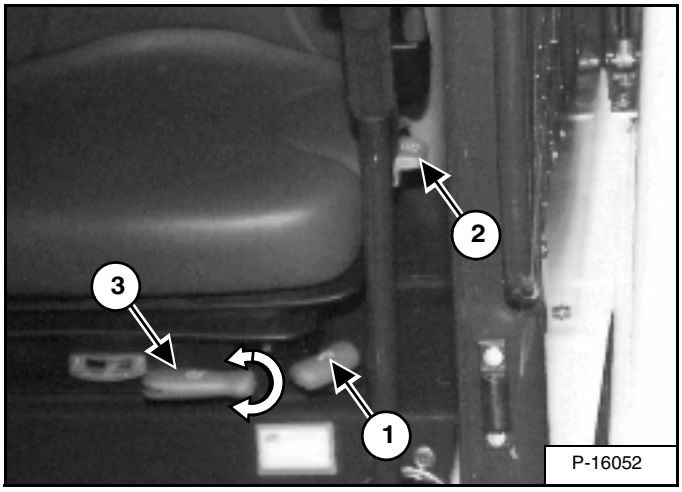
W-2003-0903

Figure 44



Release the seat lever (1) **[Figure 44]** and adjust the seat position for comfortable operation of the loader controls.

Figure 45



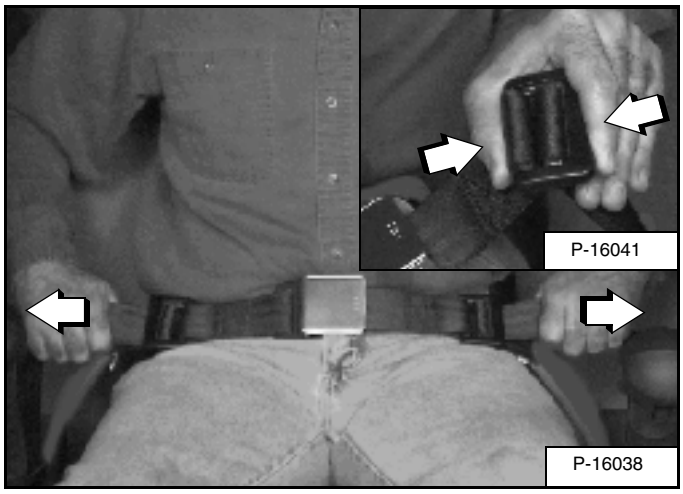
Suspension Seat - (Option) Release the lever (1) **[Figure 45]** to adjust the seat distance from the levers and footrests.

Release the lever (2) **[Figure 45]** to adjust the angle of the seat back.

Turn the lever (3) **[Figure 45]** to adjust the seat cushion for weight of the operator.

Before Starting The Engine (Cont'd)

Figure 46

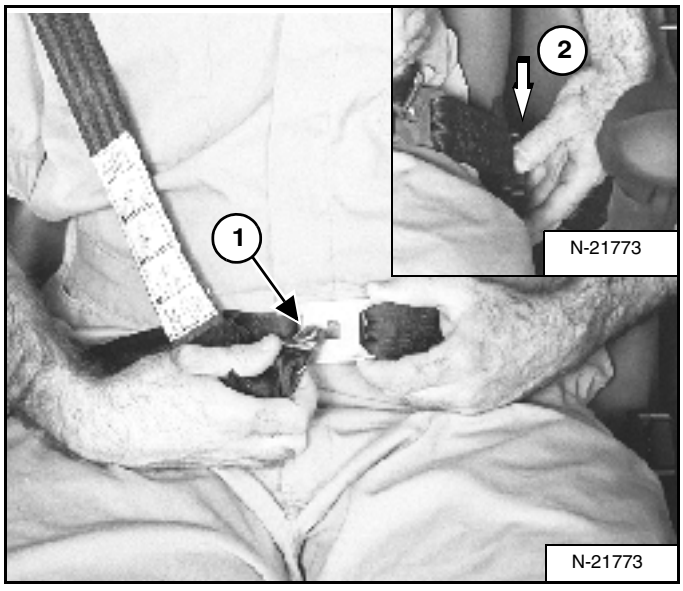


Squeeze both seat belt adjusters to release and lengthen each half of the seat belt **[Figure 46]**.

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 46]**.

Figure 47



3-Point Restraint - (Option) Connect the shoulder belt to the lap belt (1) **[Figure 47]**. Pull the lap belt across to the left side of the seat (2) **[Figure 47]** and fasten.

The shoulder belt must be positioned over your right shoulder and lap belt over your lower hips **[Figure 47]**.

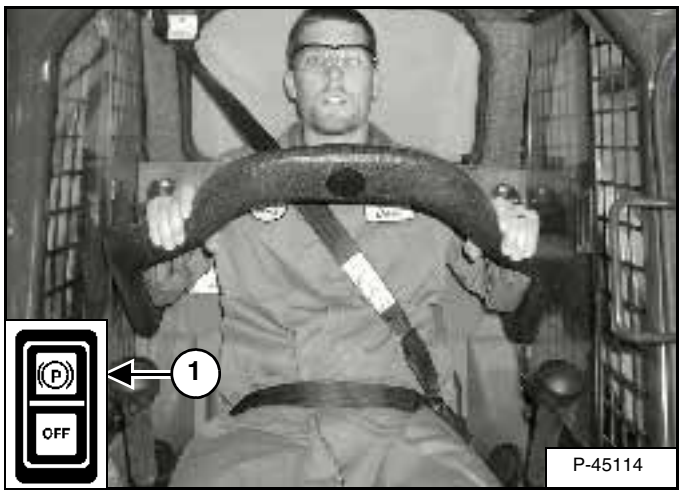
IMPORTANT

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

Keep retractors clean and replace as necessary.

I-2199-0400

Figure 48



Lower the seat bar and engage the parking brake (1) **[Figure 48]**.

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 steering levers.**

W-2261-0799

STARTING THE ENGINE (STANDARD PANEL, KEY SWITCH)

Procedure

⚠ WARNING

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

W-2050-1285

⚠ WARNING

AVOID INJURY OR DEATH

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

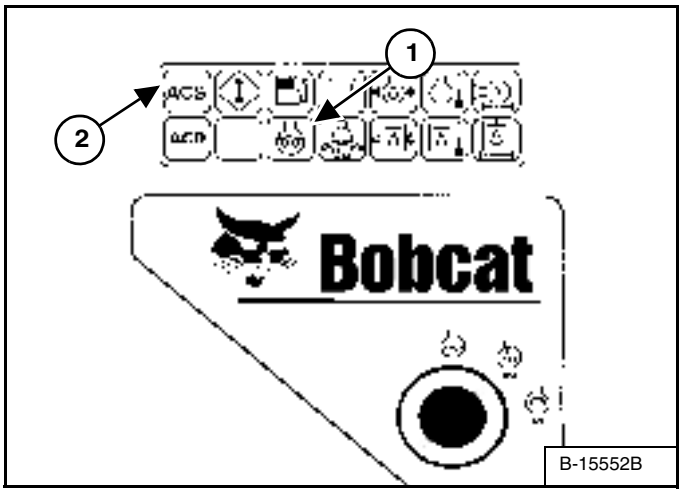
W-2051-1086

Perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURES on Page 22.)

Figure 49

Set the engine speed control to the 1/2 speed position **[Figure 49]**.

Figure 50



Turn the key switch to RUN **[Figure 50]**. The indicator lights on the right instrument panel **[Figure 50]** will come ON briefly and the Instrument Panel/monitoring system will do a self test.

If the temperature is cold, the intake air heater will automatically cycle. The Icon light (1) **[Figure 50]** will be ON and the cycle time remaining will show in the hour meter.

When the Icon light goes OFF, turn the key switch to START **[Figure 50]**.

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 [Figure 50].

If controls are moved:

a. The neutral position for the hydraulic valve spool and hand control may not be correctly calibrated. This can result in slight movement of the lift or tilt hydraulic cylinders when the hand control lever is returned to the neutral position after start-up.

OR

b. ACS indicator light (2) [Figure 50] on right instrument panel will be ON.

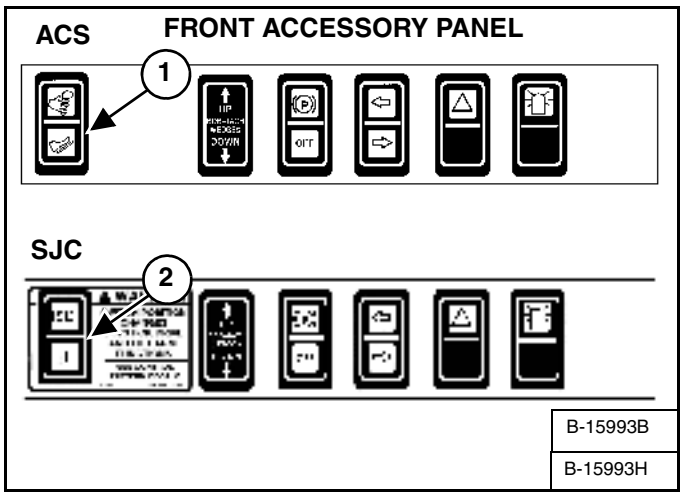
If either condition occurs, return key to STOP. Put the controls in neutral position and re-start engine.

Release the key when the engine starts. It will return to the RUN position.

STARTING THE ENGINE (STD. PANEL, KEY SWITCH) (CONT'D)

Procedure (Cont'd)

Figure 51

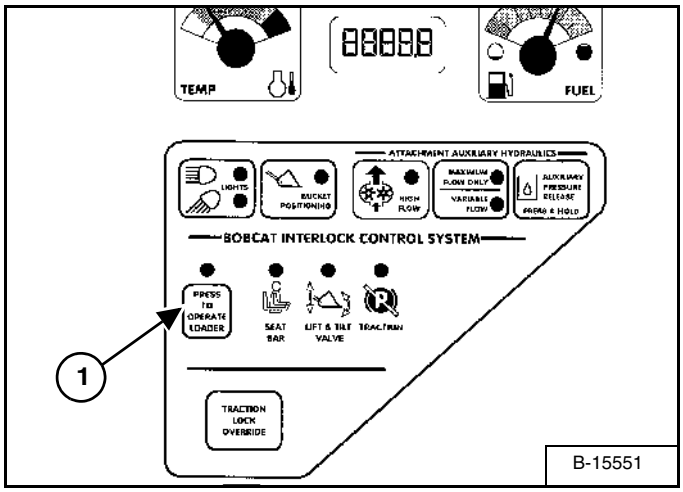


(ACS) Select hand control or foot pedal operation (1) **[Figure 51]**.

OR

(SJC) Select 'ISO' or 'H' Control Pattern (2) **[Figure 51]**.

Figure 52



Press the PRESS TO OPERATE LOADER Button (1) **[Figure 52]** to activate the BICS™ system and to perform hydraulic and loader functions. (See Cold Temperature Starting on Page 27.)

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

STARTING THE ENGINE (DELUXE PANEL, KEYLESS START)

Procedure

⚠ WARNING

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

W-2050-1285

⚠ WARNING

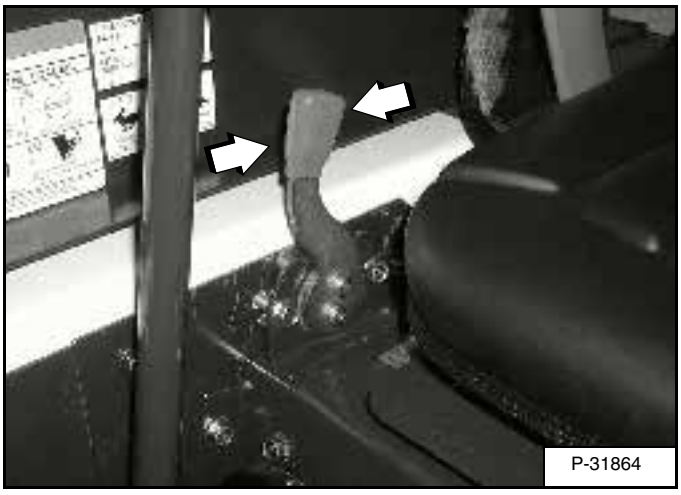
AVOID INJURY OR DEATH

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

W-2051-1086

Perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURES on Page 22.)

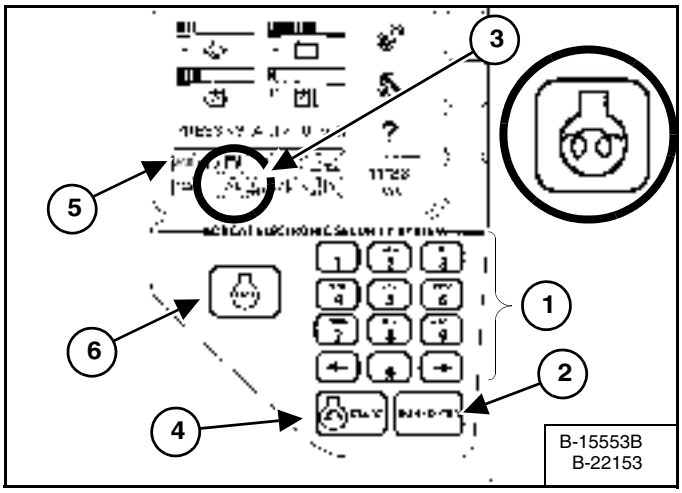
Figure 53



Set the engine speed control at the 1/2 speed position **[Figure 53]**.

NOTE: Loaders with Deluxe Instrument Panel have a permanent, randomly generated Master Password set at the factory. Your loader will be assigned 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 Passwords (Deluxe) on Page 94.) Keep your password in a safe place for future needs.

Figure 54



Use the numeric keypad (1) **[Figure 54]** to enter the password, then press the RUN / ENTER Button (2) **[Figure 54]**.

If the temperature is cold, the intake air heater will automatically cycle and the Icon (3) **[Figure 54]** will be ON.

When the Icon light goes OFF, press the START Button (4) **[Figure 54]**. Release the button when the engine starts.

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 before attempting to start the engine.

If controls are moved:

a. The neutral position for the hydraulic valve spool and hand control may not be correctly calibrated. This can result in slight movement of the lift or tilt hydraulic cylinders when the hand control lever is returned to the neutral position after start-up.

OR

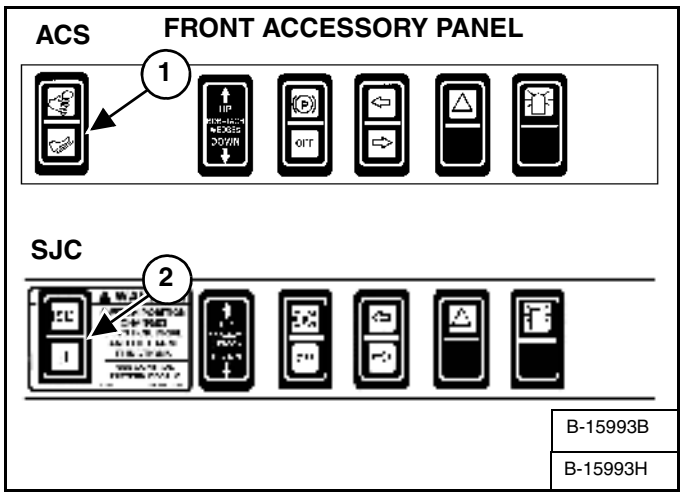
b. ACS indicator light (5) [Figure 54] on right instrument panel will be ON.

If either condition occurs, return key to STOP. Put the controls in neutral position and re-start engine.

STARTING THE ENGINE (DELUXE PANEL, KEYLESS START (CONT'D)

Procedure (Cont'd)

Figure 55

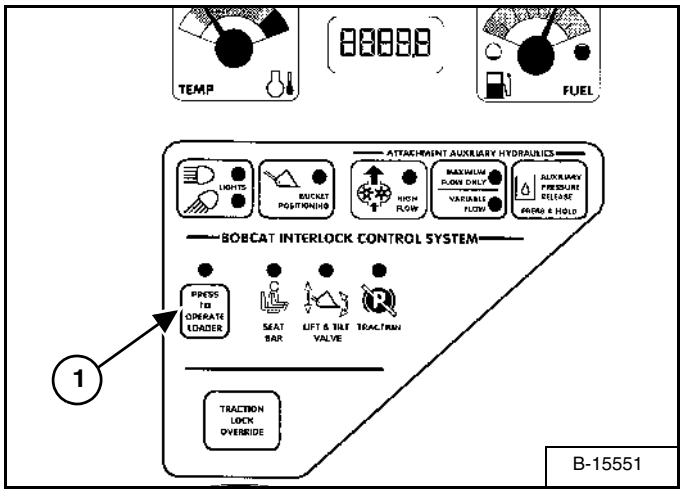


(ACS) Select hand control or foot pedal operation (1) **[Figure 55]**.

OR

(SJC) Select 'ISO' or 'H' Control Pattern (2) **[Figure 55]**.

Figure 56



Press the PRESS TO OPERATE LOADER Button (1) **[Figure 56]** to activate the BICS system and to perform hydraulic and loader functions. (See Cold Temperature Starting on Page 27.)

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

Cold Temperature Starting

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 also ENGINE LUBRICATION SYSTEM on Page 67.)
- Make sure the battery is fully charged.
- Install an engine heater, available from your Bobcat loader dealer.

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

WARMING THE HYDRAULIC / HYDROSTATIC SYSTEM

Procedure

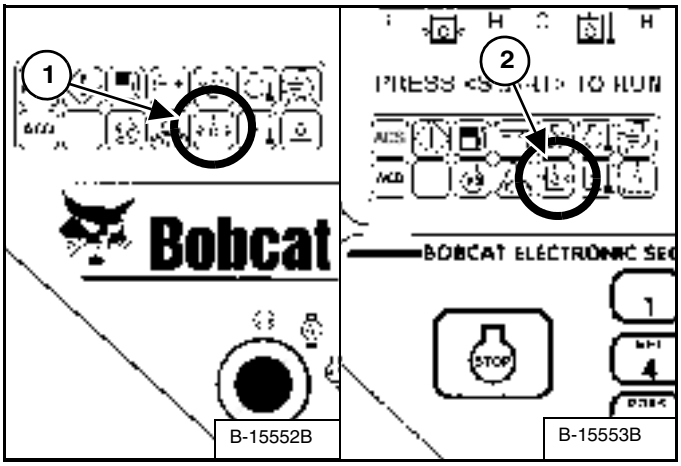
IMPORTANT

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-2007-1285

Let the engine run at least 5 minutes to warm the engine and hydrostatic fluid before operating the loader.

Figure 57

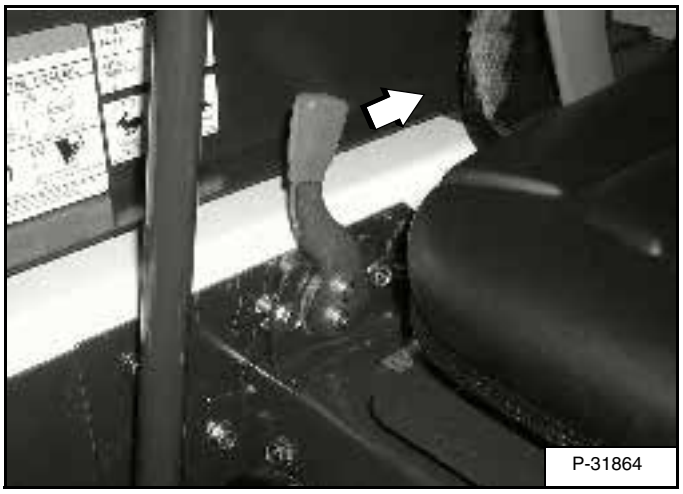


If the Fluid Pressure Icon (1) **[Figure 57]** *(Standard Panel)* or (2) **[Figure 57]** *(Deluxe Panel)* comes ON when operating the loader (cold), more warm up time is needed.

STOPPING THE ENGINE

Procedure

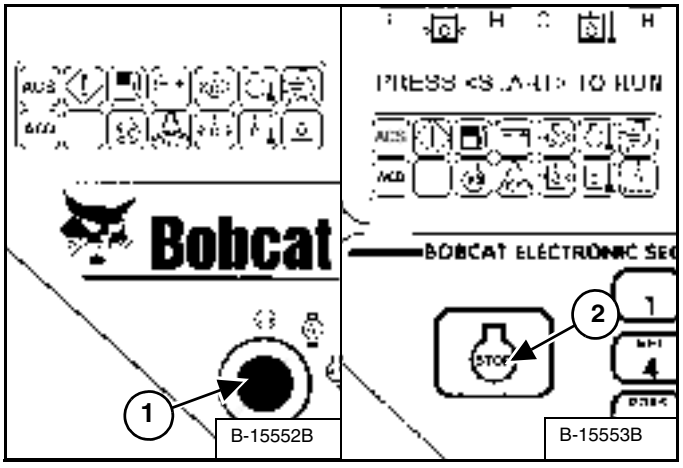
Figure 58



Pull the engine speed control fully backward **[Figure 58]** to decrease the engine speed.

Let the engine run at idle speed for 5 minutes to let the turbocharger cool before stopping the engine.

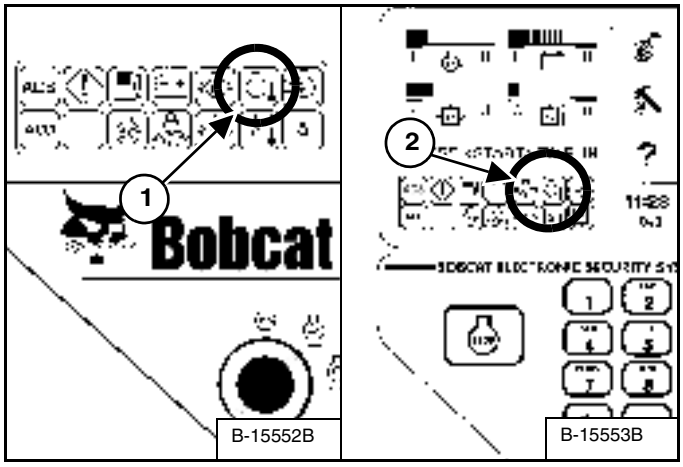
Figure 59



Turn the key switch to the STOP position (1) **[Figure 59]** *(Standard Panel)* or press the STOP Button (2) **[Figure 59]** *(Deluxe Panel)*.

MONITORING THE DISPLAY PANEL

Figure 60



After the engine is running, frequently monitor the right instrument panel **[Figure 60]** *(Standard Panel)* or **[Figure 60]** *(Deluxe Panel)* for error conditions.

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

EXAMPLE: Engine Coolant Temperature is High

Standard Panel

The Engine Temperature Icon (1) **[Figure 60]** will be ON.

Press and hold LIGHTS Button for 2 seconds. One of the following SERVICE CODES will be displayed.

- **08-10** Engine Coolant Temperature High
- **08-11** Engine Coolant Temperature Extremely High

Deluxe Panel

The Engine Temperature Icon (2) **[Figure 60]** will be ON.

The SERVICE CODE will be in the hourmeter/code display.

In addition, the Deluxe Panel display screen will describe the extreme condition that can cause damage to the engine or loader systems **[Figure 60]**.

WARNING and SHUTDOWN

When a WARNING condition exists, the associated Icon light will come ON and there will be 3 beeps from the alarm. Be aware that, 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 and the monitoring system will automatically stop the engine in 10 seconds. The engine can be restarted to move or relocate the loader.

The SHUTDOWN feature is associated with the following Icons:

General Warning
Engine Oil Pressure
Engine Coolant Temperature
Hydraulic Oil Temperature
Hydrostatic Charge Pressure

Whenever **STOP** appears on the display screen, lower the lift arms all the way, put the attachment flat on the ground and stop the engine to prevent damage to the engine or loader systems.

ATTACHMENTS AND BUCKETS

Choosing The Correct Bucket

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

⚠ WARNING

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.

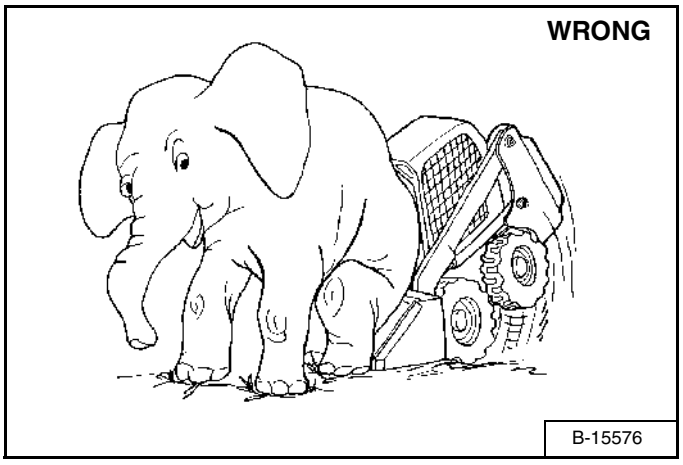
W-2052-0500

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 and for secure fastening to the Bob-Tach™.

The Rated Operating Capacity for this loader is shown on a decal in the operator cab. (See Machine Rating on Page 100.)

The Rated Operating Capacity is determined by using a standard dirt 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 Rated Operating Capacity. If very dense material is loaded, the volume must be reduced to prevent overloading.

Figure 61



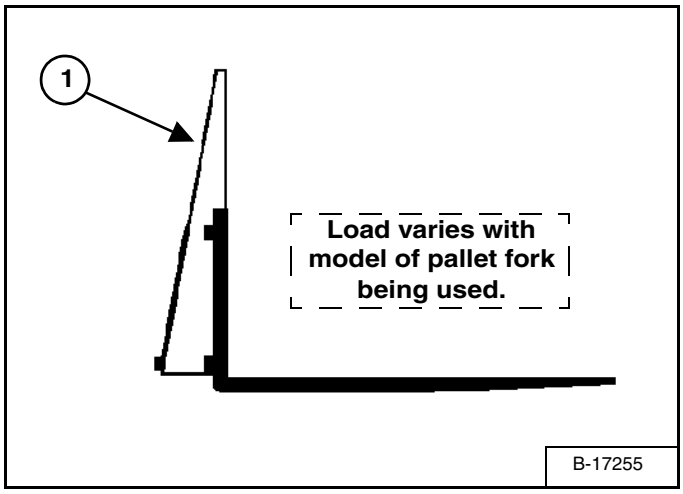
Exceeding the Rated Operating Capacity **[Figure 61]** can cause the following problems:

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

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

Pallet Forks

Figure 62



If a pallet fork attachment is used, the load center moves forward and reduces the Rated Operating Capacity.

The maximum load to be carried when using a pallet fork is shown on a decal located on the pallet fork frame (1) **[Figure 62]**.

⚠ WARNING

AVOID INJURY OR DEATH
Do not exceed Rated Operating Capacity. Excessive load can cause tipping or loss of control.

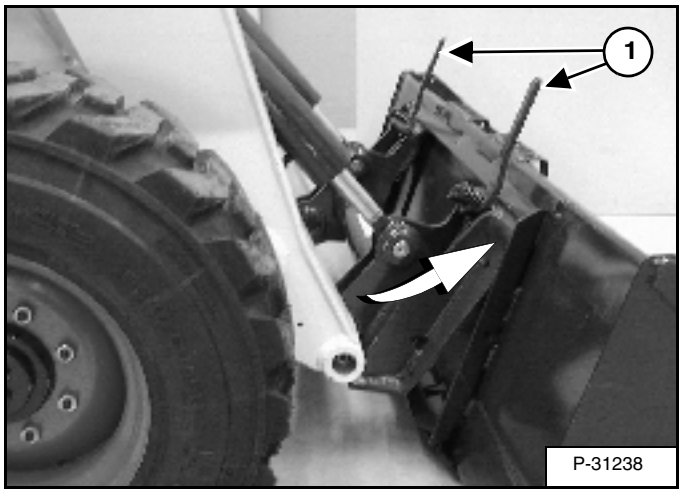
W-2053-0903

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

Hand Lever Bob-Tach™ - Installing The Bucket Or Attachment

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

Figure 63



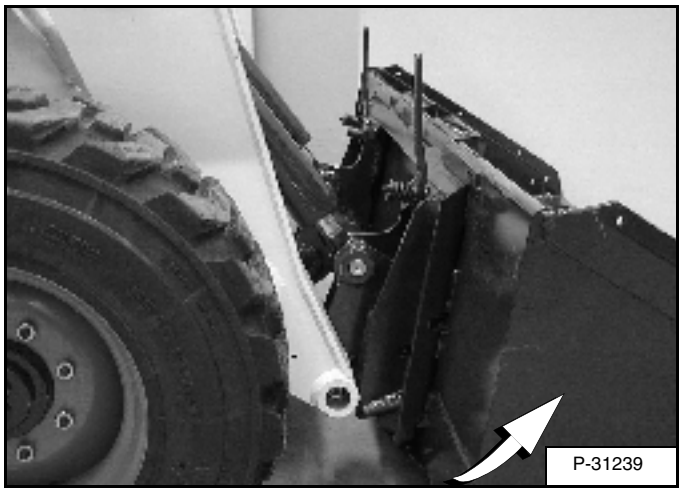
Pull the Bob-Tach levers all the way up (1) **[Figure 63]**.

Enter the loader and perform the PRE-STARTING PROCEDURE. (See also PRE-STARTING PROCEDURES on Page 22).

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

Drive the loader forward until the top edge of the Bob-Tach is completely under the top flange of the bucket **[Figure 63]** (or other attachment). Be sure the Bob-Tach levers do not hit the bucket.

Figure 64



Tilt the Bob-Tach backward until the cutting edge of the bucket (or other attachment) is slightly off the ground **[Figure 64]**.

Stop the engine and exit the loader.

Hand Lever Bob-Tach™ - Installing The Bucket Or Attachment (Cont'd)

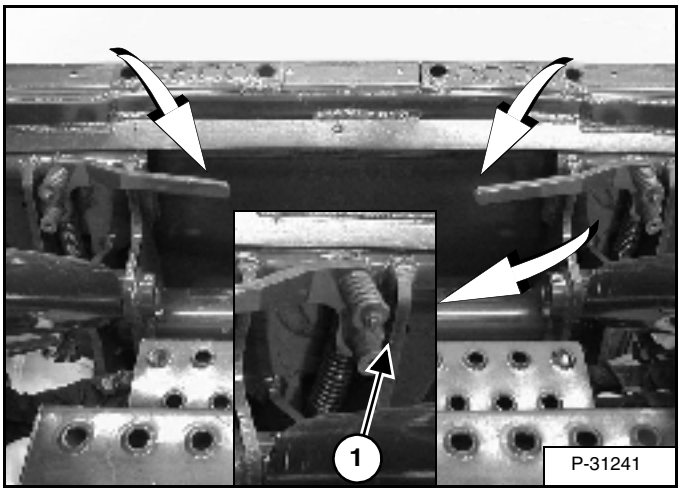
⚠ WARNING

Before you leave the operator's seat:

- **Lower the lift arms, put the attachment flat on the ground.**
- **Stop the engine.**
- **Engage the parking brake.**
- **Raise seat bar.**
- **(Foot Pedal Controls) Move pedals until both lock.**
- **(Advanced Control System - ACS) Move the hydraulic controls to the NEUTRAL POSITION to make sure that both lift and tilt functions are deactivated.**
  The seat bar system must deactivate the lift and tilt control functions when the seat bar is up. Service the system if hand controls do not deactivate.
- **(Selectable Joystick Control - SJC) Move the joysticks to the NEUTRAL POSITION to make sure that travel and hydraulic functions are deactivated.**
  The seat bar system must deactivate these functions when the seat bar is up. Service the system if controls do not deactivate.

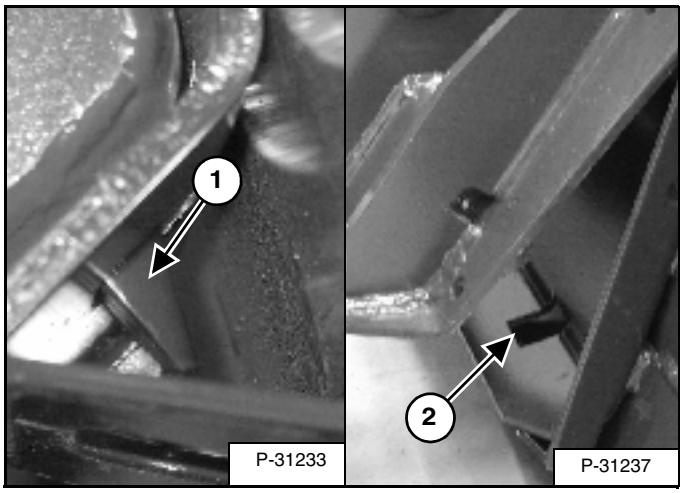
W-2463-0603

Figure 65



Push down on the Bob-Tach levers until they are fully engaged in the locked position (1) **[Figure 65]** (wedges fully extended).

Figure 66



The wedges (1) **[Figure 66]** must extend through the holes (2) **[Figure 66]** in the mounting frame of the bucket (or other attachment), securely fastening the bucket to the Bob-Tach.

⚠ WARNING

Bob-Tach wedges must extend through the holes in attachment. Levers must be fully down and locked. Failure to secure wedges can allow attachment to come off and cause injury or death.

W-2102-0588

Hand Lever Bob-Tach™ - Removing The Bucket Or Attachment

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

Raise the seat bar, unfasten the seat belt, set the parking brake and exit the loader.

If the attachment is hydraulically controlled, lower or close the hydraulic equipment. You may need to release hydraulic pressure before disconnecting the quick couplers. (See Releasing Hydraulic Pressure (Loader and Attachment) on Page 18.)

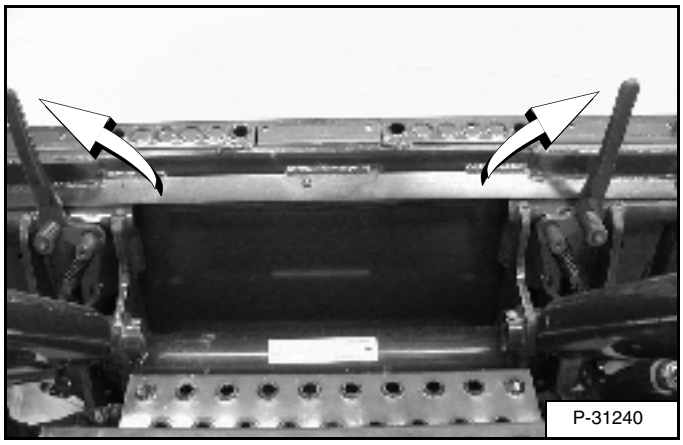
⚠ WARNING

Before you leave the operator's seat:

- **Lower the lift arms, put the attachment flat on the ground.**
- **Stop the engine.**
- **Engage the parking brake.**
- **Raise seat bar.**
- **(Foot Pedal Controls) Move pedals until both lock.**
- **(Advanced Control System - ACS) Move the hydraulic controls to the NEUTRAL POSITION to make sure that both lift and tilt functions are deactivated.**
  The seat bar system must deactivate the lift and tilt control functions when the seat bar is up. Service the system if hand controls do not deactivate.
- **(Selectable Joystick Control - SJC) Move the joysticks to the NEUTRAL POSITION to make sure that travel and hydraulic functions are deactivated.**
  The seat bar system must deactivate these functions when the seat bar is up. Service the system if controls do not deactivate.

W-2463-0603

Figure 67



Pull the Bob-Tach levers **[Figure 67]** all the way up.

⚠ WARNING

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

W-2054-1285

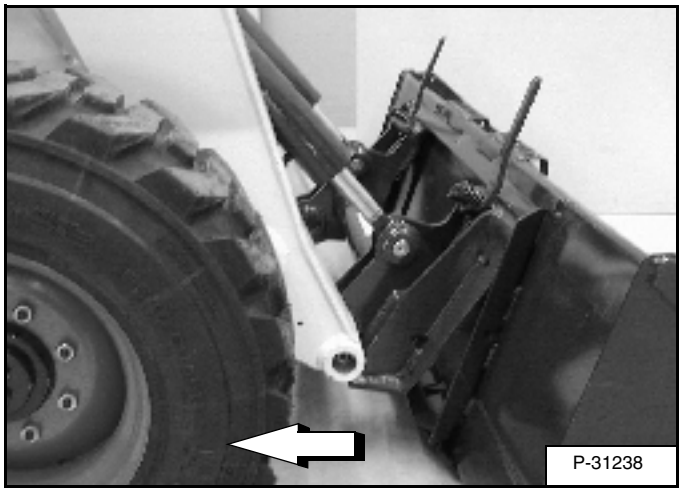
Enter the loader.

Perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURES on Page 22.)

Start the engine and release the parking brake.

Be sure the lift arms are all the way down. Tilt the Bob-Tach forward.

Figure 68



Move the loader backward, away from the bucket or attachment **[Figure 68]**.

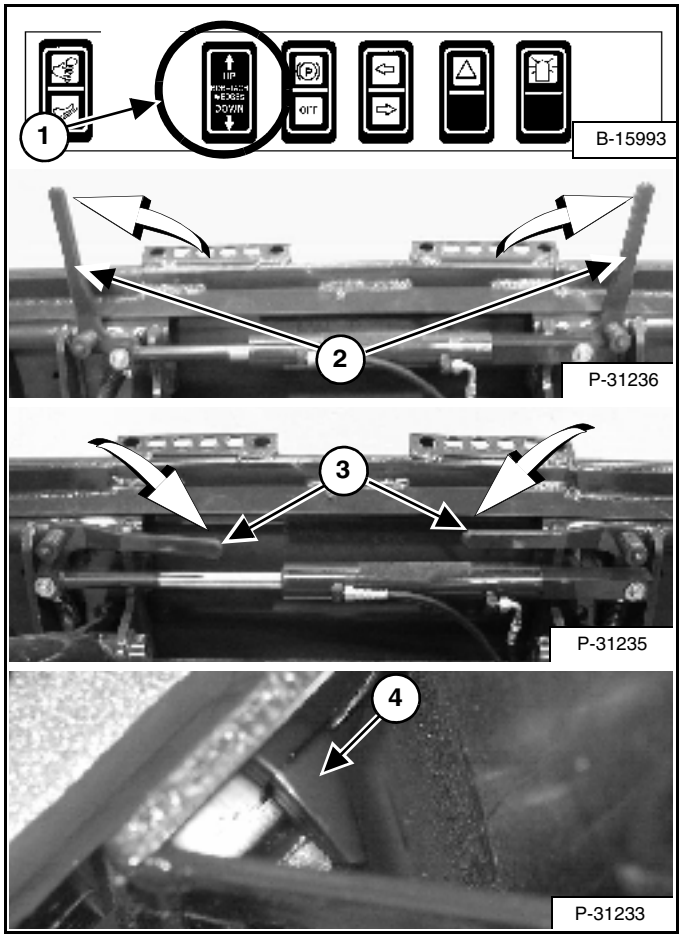
Power Bob-Tach™ - Installing The Bucket Or Attachment

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

Perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURES on Page 22.)

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

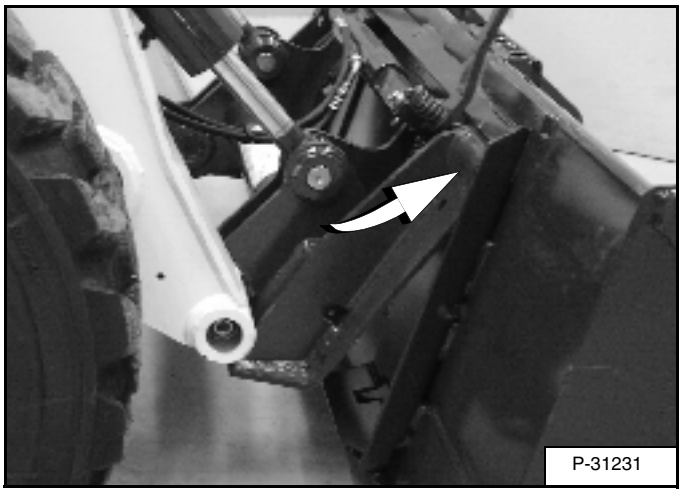
Figure 69



Push and hold BOB-TACH "WEDGES UP" switch (1) **[Figure 69]** (Front Accessory Panel) until levers (2) are in unlocked position (wedges fully raised).

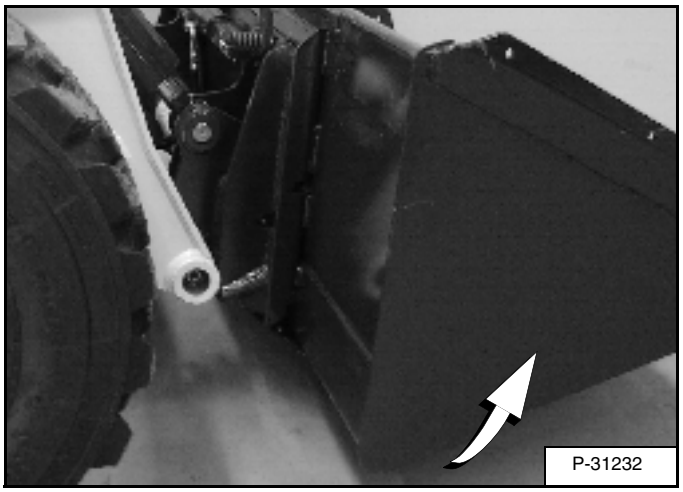
NOTE: The Power Bob-Tach system has continuous pressurized hydraulic oil to keep the wedges in the engaged position and prevent attachment disengagement. Because the wedges can slowly lower, the operator may need to reactivate the switch (WEDGES UP) before installing an attachment to be sure both wedges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

Figure 70



Drive the loader forward until the top edge of the Bob-Tach is completely under the top flange of the bucket **[Figure 70]** (or other attachment).

Figure 71



Tilt the Bob-Tach backward until the cutting edge of the bucket (or other attachment) is slightly off the ground **[Figure 71]**.

Push and hold BOB-TACH "WEDGES DOWN" switch (Front Accessory Panel) (1) **[Figure 69]** until levers are fully engaged (3) **[Figure 69]** in the locked position (wedges fully engaged).

The wedges (4) **[Figure 69]** must extend through the holes in the mounting frame of the bucket (or other attachment), securely fastening the bucket to the Bob-Tach.

Power Bob-Tach™ - Removing The Bucket Or Attachment

⚠ WARNING

Bob-Tach wedges must extend through the holes in attachment. Levers must be fully down and locked. Failure to secure wedges can allow attachment to come off and cause injury or death.

W-2102-0588

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

If the attachment is hydraulically controlled, lower or close the hydraulic equipment before disconnecting the quick couplers. (See Releasing Hydraulic Pressure (Loader and Attachment) on Page 18.)

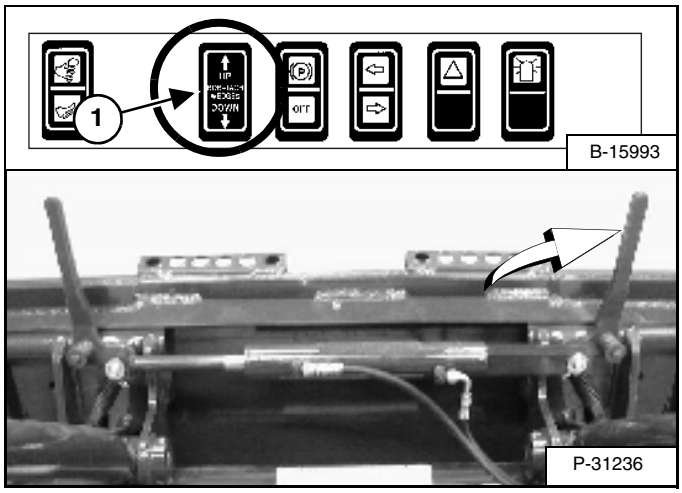
⚠ WARNING

Before you leave the operator's seat:

- **Lower the lift arms, put the attachment flat on the ground.**
- **Stop the engine.**
- **Engage the parking brake.**
- **Raise seat bar.**
- **(Foot Pedal Controls) Move pedals until both lock.**
- **(Advanced Control System - ACS) Move the hydraulic controls to the NEUTRAL POSITION to make sure that both lift and tilt functions are deactivated.**
  The seat bar system must deactivate the lift and tilt control functions when the seat bar is up. Service the system if hand controls do not deactivate.
- **(Selectable Joystick Control - SJC) Move the joysticks to the NEUTRAL POSITION to make sure that travel and hydraulic functions are deactivated.**
  The seat bar system must deactivate these functions when the seat bar is up. Service the system if controls do not deactivate.

W-2463-0603

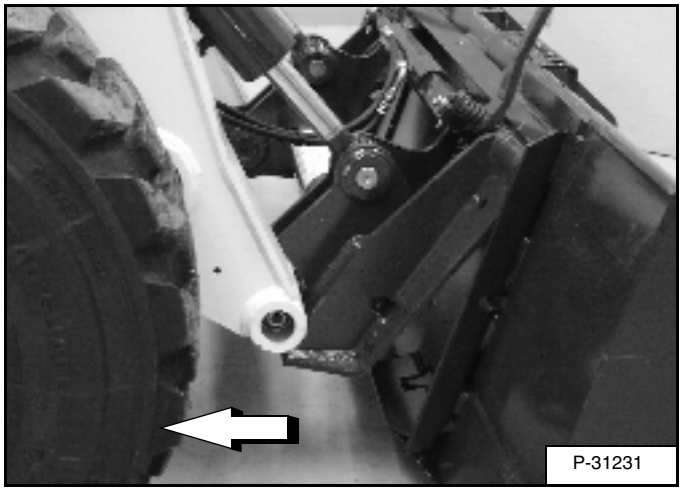
Figure 72



Push and hold the BOB-TACH "WEDGES UP" Switch (Front Accessory Panel) (1) **[Figure 72]** until the wedges are fully raised.

Tilt the Bob-Tach forward.

Figure 73



Move the loader backward, away from the bucket or attachment **[Figure 73]**.

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 (WEDGES UP) before installing an attachment to be sure both wedges are fully raised before installing the attachment.

Operating With A Full Bucket

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

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

IMPORTANT

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

I-2015-0284

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

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

Figure 74

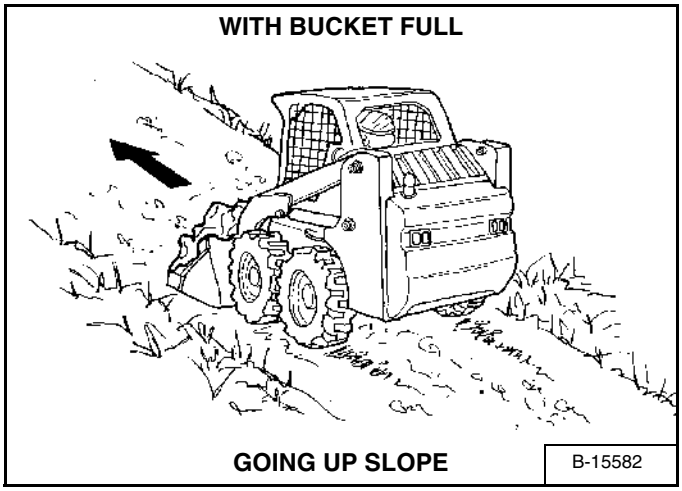
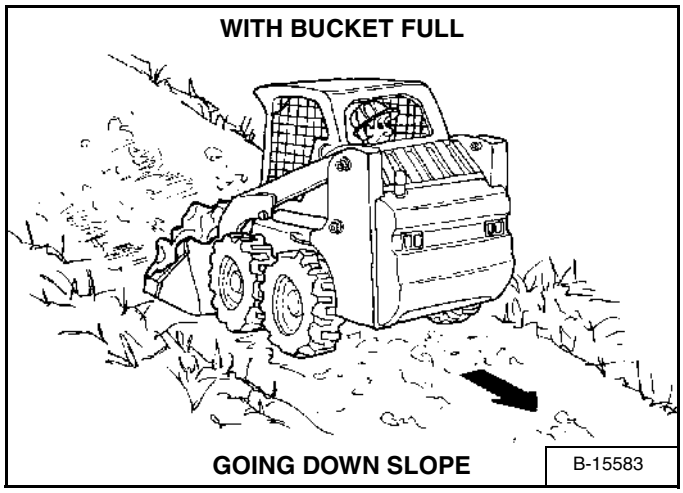


Figure 75



With a full bucket, go up or down the slope with the heavy end toward the top of the slope **[Figure 74]** and **[Figure 75]**.

Operating With An Empty Bucket

Figure 76

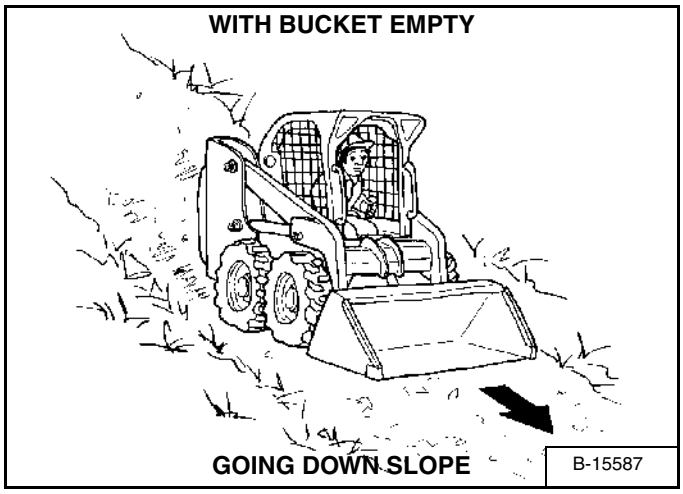
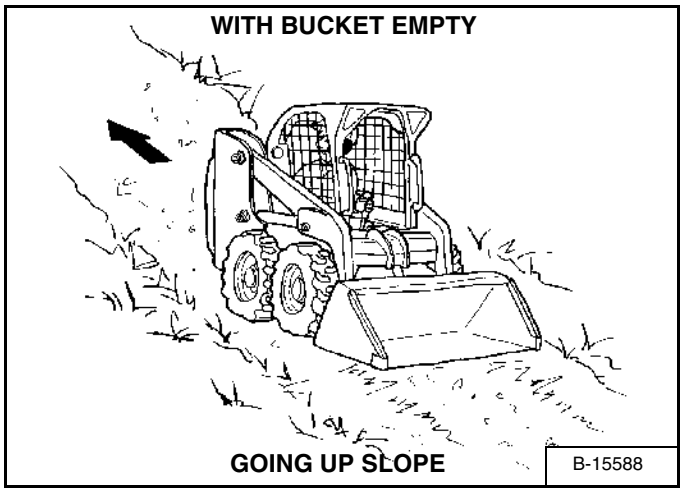


Figure 77



With an empty bucket, go down or up the slope with the heavy end toward the top of the slope **[Figure 76]** and **[Figure 77]**.

⚠ WARNING

AVOID 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.**
- **Go up and down slopes, not across them.**
- **Keep the heavy end of the machine uphill.**
- **Do not overload the machine.**

Failure to obey warnings can cause the machine to tip or roll over and cause injury or death.

W-2018-1187

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

Foot Pedal Machines

Filling The Bucket:

Figure 78

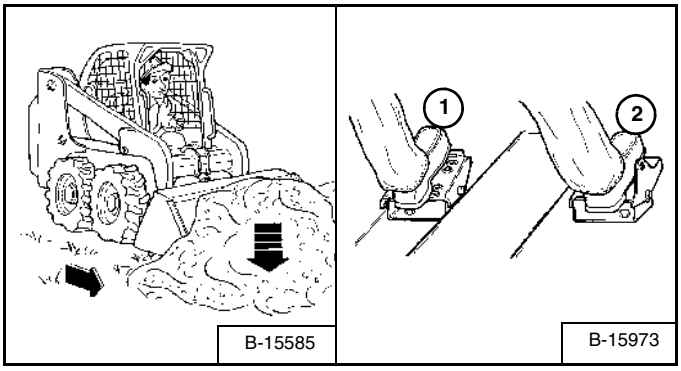
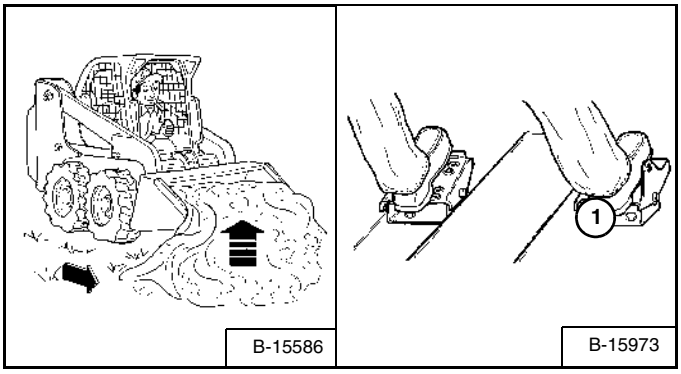


Figure 79



Lower the lift arms all the way (1) **[Figure 78]**.

Tilt the bucket forward (2) **[Figure 78]** until the cutting edge of the bucket is on the ground.

Drive slowly forward into the material. Tilt the bucket backward (1) **[Figure 79]** all the way when the bucket is full.

Drive backward away from the material.

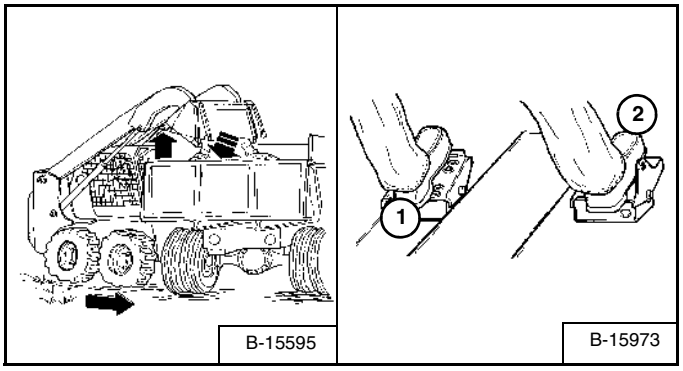
⚠ WARNING

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

W-2056-0903

Emptying The Bucket:

Figure 80



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

Raise the lift arms (1) **[Figure 80]**. Level the bucket (2) **[Figure 80]** 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 (2) **[Figure 80]**. 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

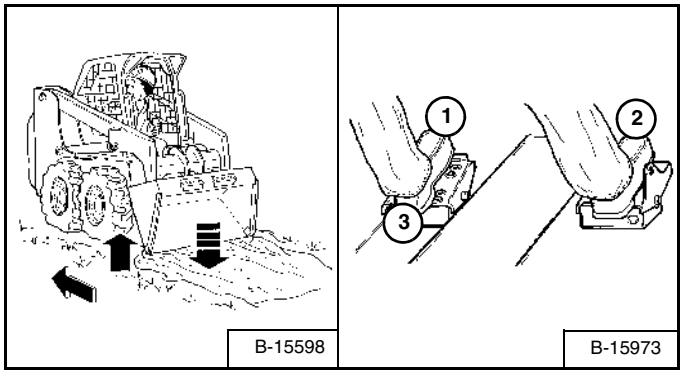
Never dump over an obstruction, such as a post, that can enter the operator cab. The machine could tip forward and cause injury or death.

W-2057-0694

Foot Pedal Machines (Cont'd)

Leveling The Ground (Using Float Position):

Figure 81



Put the lift arms in *float* position by pushing the pedal all the way forward (1) **[Figure 81]** until the pedal is locked in the forward position.

Tilt the bucket forward (2) **[Figure 81]** 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 (3) **[Figure 81]** to unlock the float position.

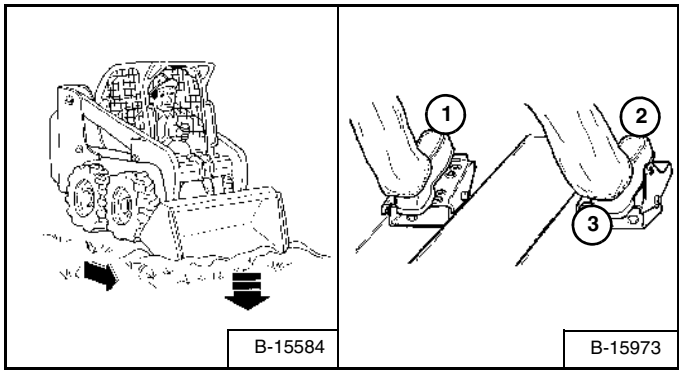
IMPORTANT

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

I-2005-1285

Digging A Hole

Figure 82



Lower the lift arms all the way (1) **[Figure 82]**. Put the cutting edge of the bucket on the ground (2) **[Figure 82]**.

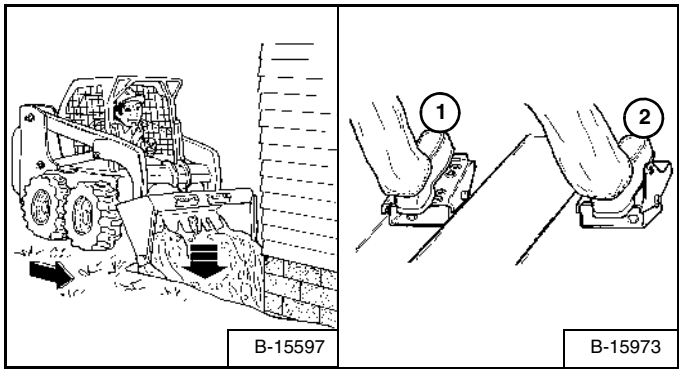
Drive forward slowly and continue to tilt the bucket down (2) **[Figure 82]** until it enters the ground.

Raise the cutting edge a small amount (3) **[Figure 82]** 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 (2 & 3) **[Figure 82]** while driving forward slowly.

Tilt the bucket backward (3) **[Figure 82]** as far as it will go when the bucket is full.

Filling The Hole

Figure 83



Lower the lift arms (1) **[Figure 83]** and put the cutting edge of the bucket on the ground (2) **[Figure 83]**. Drive forward to the edge of the hole to push the material into the hole.

Tilt the bucket forward (2) **[Figure 83]** as soon as it is past the edge of the hole.

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

Hand Control Machines (Includes ACS and SJC with H-Pattern Selected)

Filling The Bucket:

Figure 84

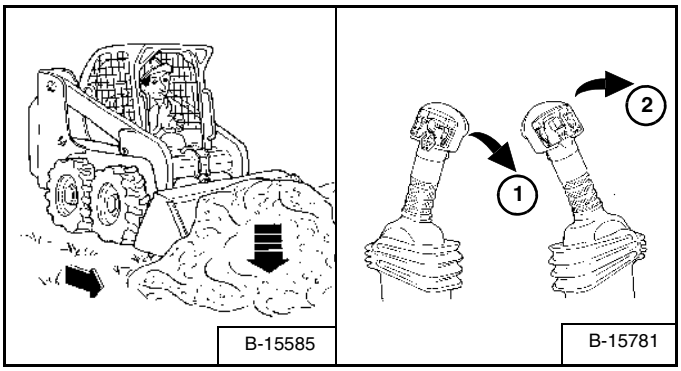
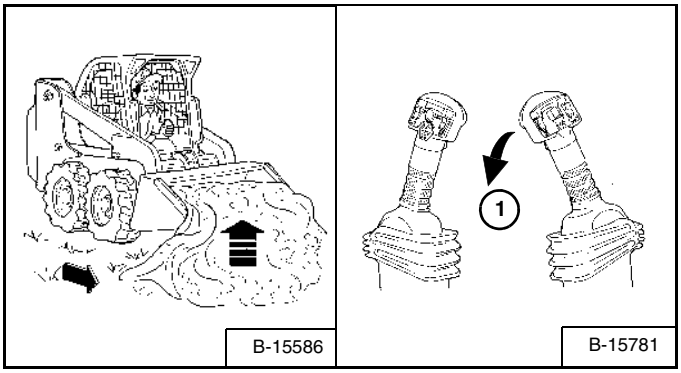


Figure 85



Lower the lift arms all the way (1) **[Figure 84]**.

Tilt the bucket forward (2) **[Figure 84]** until the cutting edge of the bucket is on the ground.

Drive slowly forward into the material. Tilt the bucket backward (1) **[Figure 85]** all the way when the bucket is full.

Drive backward away from the material.

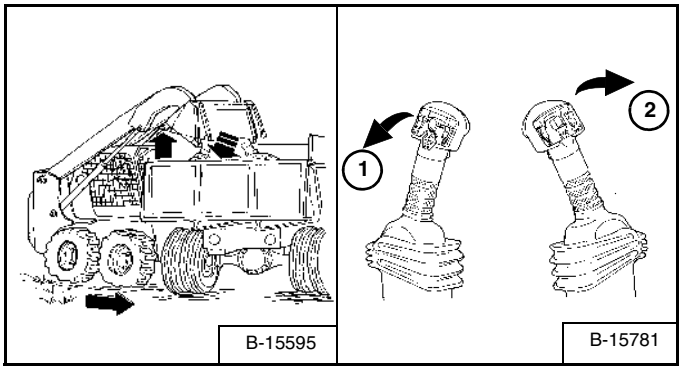
⚠ WARNING

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

W-2056-0903

Emptying The Bucket:

Figure 86



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

Raise the lift arms (1) **[Figure 86]**. Level the bucket (2) **[Figure 86]** 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 (2) **[Figure 86]**. If all material is near the side of the truck or bin, use the bucket tilt to move it to the other side.

⚠ WARNING

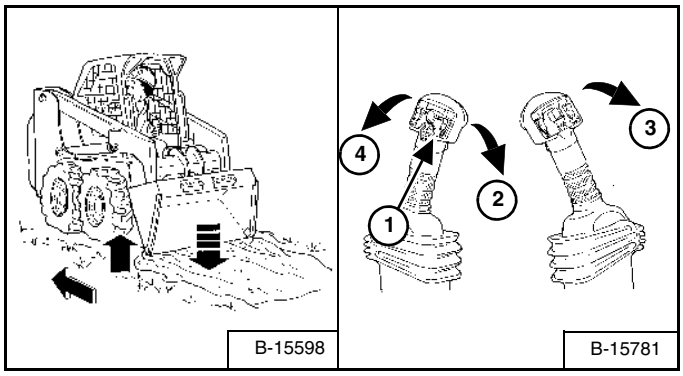
Never dump over an obstruction, such as a post, that can enter the operator cab. The machine could tip forward and cause injury or death.

W-2057-0694

Hand Control Machines (Includes ACS and SJC with H-Pattern Selected) (Cont'd)

Leveling The Ground (Using Float Position):

Figure 87



Press and hold the float button (1) **[Figure 87]** while the lever is in neutral. While lowering the lift arms (2) **[Figure 87]**, release the float button.

Tilt the bucket forward (3) **[Figure 87]** 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 (4) **[Figure 87]**.

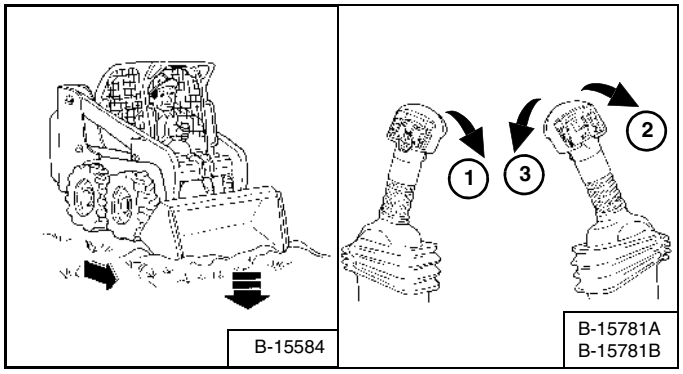
IMPORTANT

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

I-2005-1285

Digging A Hole

Figure 88



Lower the lift arms all the way (1) **[Figure 88]**. Tilt the bucket forward (2) **[Figure 88]** until the cutting edge of the bucket is on the ground.

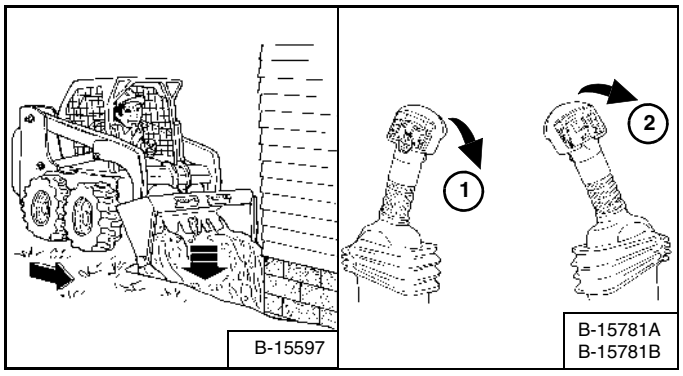
Drive forward slowly and continue to tilt the bucket down (2) **[Figure 88]** until it enters the ground.

Tilt the bucket backward a small amount (3) **[Figure 88]** 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 (1 & 2) **[Figure 88]** while driving forward.

Tilt the bucket backward (2) **[Figure 88]** as far as it will go when the bucket is full.

Filling The Hole

Figure 89



Lower the lift arms (1) **[Figure 89]** and put the cutting edge of the bucket on the ground (2) **[Figure 89]**. Drive forward to the edge of the hole to push the material into the hole.

Tilt the bucket forward (2) **[Figure 89]** as soon as it is past the edge of the hole.

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

Selectable Joystick Control (SJC) with 'ISO' Pattern Selected

Filling The Bucket:

Figure 90

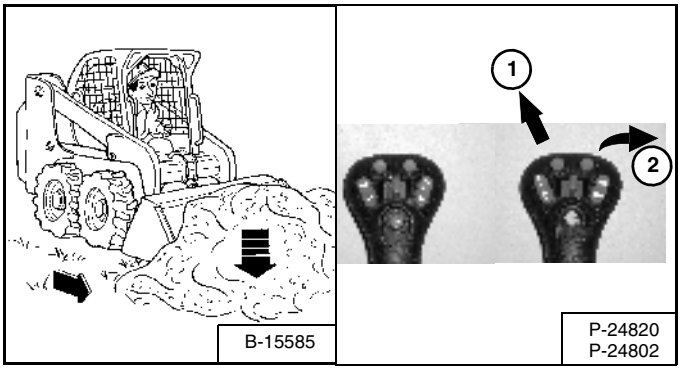
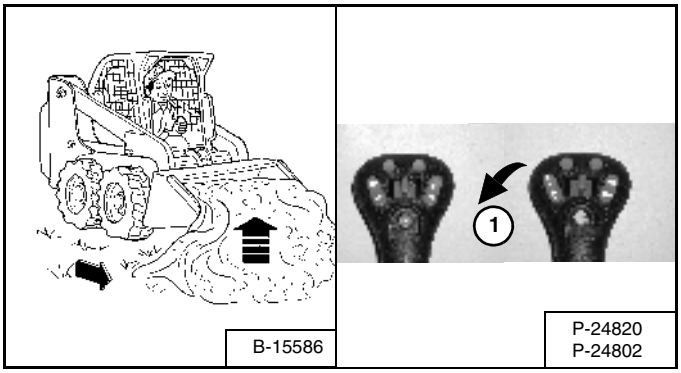


Figure 91



Lower the lift arms all the way (1) **[Figure 90]**.

Tilt the bucket forward (2) **[Figure 90]** until the cutting edge of the bucket is on the ground.

Drive slowly forward into the material. Tilt the bucket backward (1) **[Figure 91]** all the way when the bucket is full.

Drive backward away from the material.

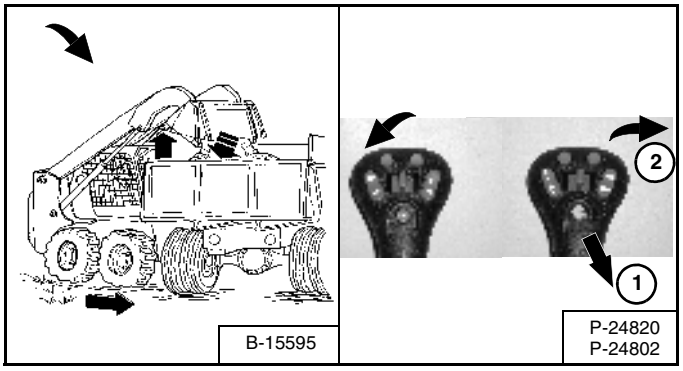
⚠ WARNING

Load, unload and turn on flat level ground. Do not exceed rated operating capacity shown on sign (decal) in cab. Failure to obey warnings can cause the machine to tip or roll over and cause injury or death.

W-2056-1187

Emptying The Bucket:

Figure 92



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

Raise the lift arms (1) **[Figure 92]**. Level the bucket (2) **[Figure 92]** 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 (2) **[Figure 92]**. If all material is near the side of the truck or bin, use the bucket tilt to move it to the other side.

⚠ WARNING

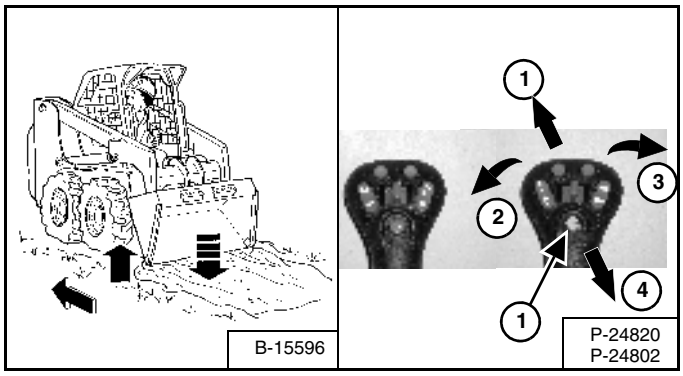
Never dump over an obstruction, such as a post, that can enter the operator cab. The machine could tip forward and cause injury or death.

W-2057-0694

Selectable Joystick Control (SJC) with 'ISO' Pattern Selected (Cont'd)

Leveling The Ground (Using Float Position):

Figure 93



Press and hold the float button (1) **[Figure 93]** while the joystick is in neutral. While lowering the lift arms (2) **[Figure 93]**, release the float button.

Tilt the bucket forward (3) **[Figure 93]** 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 (4) **[Figure 93]**.

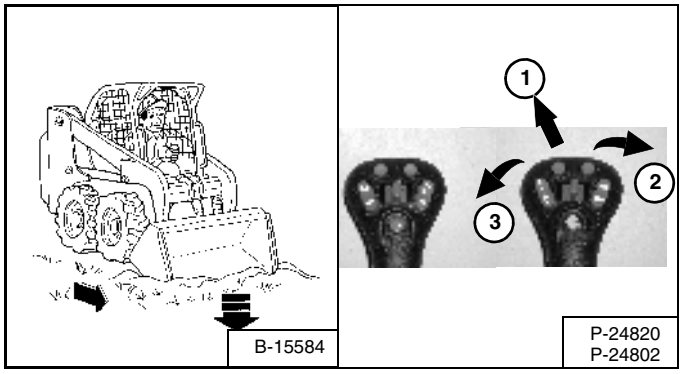
IMPORTANT

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

I-2005-1285

Digging A Hole

Figure 94



Lower the lift arms all the way (1) **[Figure 94]**. Put the cutting edge of the bucket on the ground (2) **[Figure 94]**.

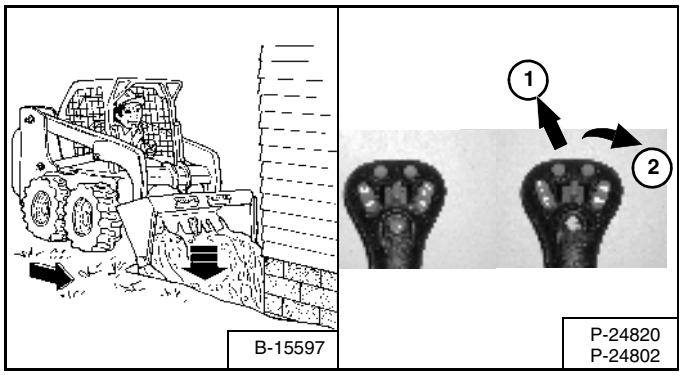
Drive forward slowly and continue to tilt the bucket down (2) **[Figure 94]** until it enters the ground.

Raise the cutting edge a small amount (3) **[Figure 94]** 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 (2 & 3) **[Figure 94]** while driving forward.

Tilt the bucket backward (3) **[Figure 94]** as far as it will go when the bucket is full.

Filling The Hole

Figure 95



Lower the lift arms (1) **[Figure 95]** and put the cutting edge of the bucket on the ground (2) **[Figure 95]**. Drive forward to the edge of the hole to push the material into the hole.

Tilt the bucket forward (2) **[Figure 95]** as soon as it is past the edge of the hole.

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

PARKING THE BOBCAT LOADER

Procedure

Stop the Bobcat Loader on level ground.

Figure 96

Lower the lift arms fully and put the attachment flat on the ground **[Figure 96]**.

Pull the engine speed control lever fully backward to decrease the engine speed.

Turn the key switch to STOP *(Standard Panel)* or press the STOP Button *(Deluxe Panel)*.

Engage the parking brake.

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

Unbuckle the seat belt.

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

⚠ WARNING

Before you leave the operator's seat:

- **Lower the lift arms, put the attachment flat on the ground.**
- **Stop the engine.**
- **Engage the parking brake.**
- **Raise seat bar.**
- **(Foot Pedal Controls) Move pedals until both lock.**
- **(Advanced Control System - ACS) Move the hydraulic controls to the NEUTRAL POSITION to make sure that both lift and tilt functions are deactivated.**
  The seat bar system must deactivate the lift and tilt control functions when the seat bar is up. Service the system if hand controls do not deactivate.
- **(Selectable Joystick Control - SJC) Move the joysticks to the NEUTRAL POSITION to make sure that travel and hydraulic functions are deactivated.**
  The seat bar system must deactivate these functions when the seat bar is up. Service the system if controls do not deactivate.

W-2463-0603

TRANSPORTING THE BOBCAT LOADER

Loading Onto Transport Vehicle

⚠ WARNING

Adequately designed ramps of sufficient strength are needed to support the weight of the machine when loading onto a transport vehicle. Wood ramps can break and cause personal injury.

W-2058-0494

Be sure the transport and towing vehicles are of adequate size and capacity. (See Machine Rating on Page 100) for weight of loader.

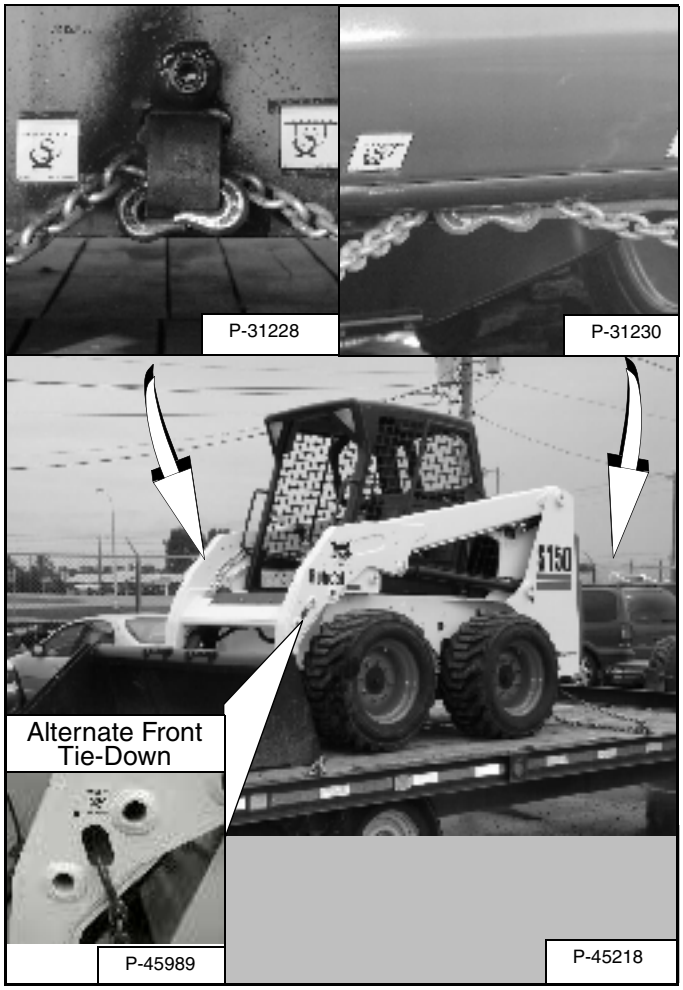
Figure 97

A loader with an empty bucket or no attachment must be loaded backward onto the transport vehicle **[Figure 97]**.

The rear of the trailer must be blocked or supported (1) **[Figure 97]** when loading or unloading the loader to prevent the front end of the trailer from raising up.

Fastening To Transport Vehicle

Figure 98



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 98]**.

- Lower the bucket or attachment to the floor.
- Stop the engine.
- Engage the parking brake.
- Install chains at the front and rear loader tie down positions **[Figure 98]**
- Fasten each end of the chain to the transport vehicle.

TOWING THE LOADER

Towing 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 tires/tracks will not turn.) There might be slight wear to the tires/tracks when the loader is skidded.

  The towing chain (or cable) must be rated at 1 & 1/2 times the weight of the loader. (See Machine Rating on Page 100.)

LIFTING THE LOADER

Single Point Lift

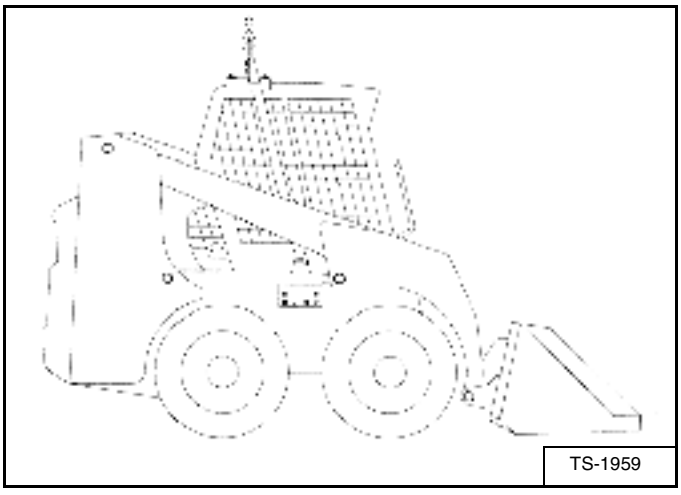
⚠ WARNING

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 meters while lifting the machine.**

W-2007-0497

Figure 99



Lift the loader with the single point lift which is available as a kit from your Bobcat dealer.

Attach cables or chains to the single point lift as shown **[Figure 99]**.

The single point lift, supplied by Bobcat is designed to lift and support the Bobcat Loader without affecting roll over and falling object protection features of the operator cab.

Four Point Lift

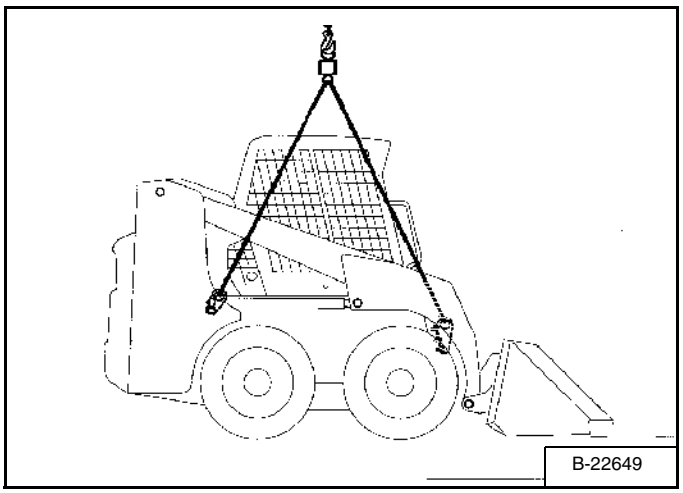
⚠ WARNING

AVOID INJURY OR DEATH

- **Before lifting, check fasteners on four point lift.**
- **Never allow riders in the cab or bystanders within 5 meters while lifting the machine.**

W-2160-0694

Figure 100



Lift the loader with the four point lift which is available as a kit from your Bobcat dealer.

Attach cables or chains of adequate strength to the four lift points as shown **[Figure 100]**.

PREVENTIVE MAINTENANCE

PREVENTIVE MAINTENANCE (CONT'D)

PREVENTIVE MAINTENANCE (CONT'D)


Bobcat

MAINTENANCE SAFETY

WARNING

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

W-2003-0903

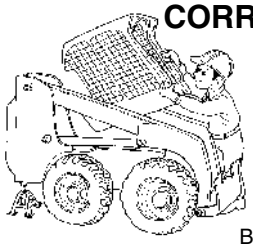
Safety Alert Symbol: This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.

CORRECT

B-10731a

Never service the Bobcat Skid Steer Loader without instructions.

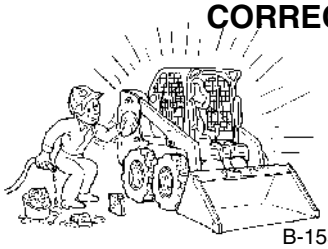
CORRECT



B-15590

Use the correct procedure to lift or lower operator cab.

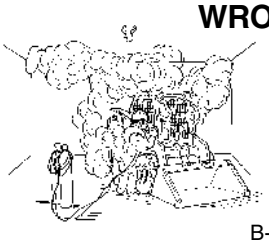
CORRECT



B-15591

Cleaning and maintenance are required daily.

WRONG



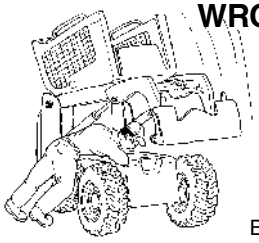
B-15592

Have good ventilation when welding or grinding painted parts.

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

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

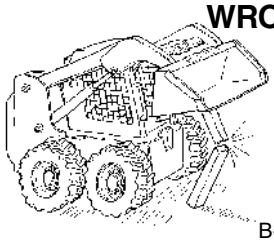
WRONG



B-15593

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

WRONG

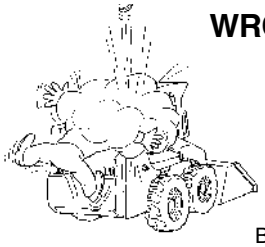


B-15525

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

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

WRONG



B-15600

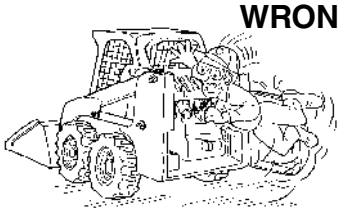
Stop, cool and clean engine of flammable materials before checking fluids.

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

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

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

WRONG



B-15601

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.

MSW08-0903


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, Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

W-2003-0903

SERVICE SCHEDULE		HOURS					
ITEM	**SERVICE REQUIRED**	**8-10**	**50**	**100**	**■ 250**	**■ 500**	**■ 1000**
Engine Oil	Check the oil level and add as needed.						
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 & grill.						
Lift Arms, Cylinders, Bob-Tach Pivot Pins and Wedges	Lubricate with multi-purpose lithium based grease.						
Tires	Check for damaged tires and correct air pressure.						
Seat Belt, Seat Bar, Control Interlocks	Check the condition of seat belt. Check the sear bar and control interlocks for correct operation. Clean dirt and debris from moving parts.						
Bobcat Interlock Control Systems (BICS™)	Check that four (4) BICS™ indicator lights and functions are activated. See details in this Manual.						
Safety Signs and Safety Treads	Check for damaged signs (decals) and safety treads. Replace any signs or safety treads that are damaged or worn.						
Operator Cab	Check the fastening bolts, washers and nuts. Check the condition of the cab.						
Indicators and Lights	Check for correct operation of all indicators and lights.						
Fuel Filter	Remove the trapped water.						
Heater Filters	Clean or replace filters as needed during heating season.						
Hydraulic Fluid, Hoses and Tubelines	Check fluid level and add as needed. Check for damage and leaks. Repair or replace as needed.						
Final Drive Trans. (Chaincase), Foot Pedals, Hand Controls or Steering Levers	Check oil level. Check for correct operation. Repair or adjust as needed.						
Wheel Nuts	Check for loose wheel nuts and tighten to 142-156 Nm torque.	❑					
Parking Brake	Check operation.						
Battery	Check cables, connections and electrolyte level. Add distilled water as needed.						
Engine/Hydro. Drive Belt	Check for wear or damage. Check idler arm stop.		*				
Alternator Belt	Check tension and adjust as needed.						
Air Condition Belt	Check belt for wear. Adjust or replace as needed.						
Bobcat Interlock Control System (BICS™)	Check the function of the lift arm by-pass control.						
Fuel Filter	Replace filter element.						
Steering Shaft	Grease fittings.						
Fan Drive Gearbox	Check gear lube level.						
Engine Oil and Filter	Replace oil and filter. Use CD or better grade oil and Bobcat filter.		^				
Hydraulic Reservoir Breather Cap	Replace the reservoir breather cap.						
Hyd./Hydro. Filter	●Replace the filter element.						
Final Drive Trans. (Chaincase)	Replace the fluid.						
Hydraulic Reservoir	Replace the fluid.						
Case Drain Filters	Replace the filters.						

❑ Check wheel nut torque every 8 hours for the first 24 hours.
*** Inspect the new belt after first 50 hours.**
● Also replace hydraulic/hydrostatic filter element when the transmission warning light comes ON.
^ First oil and filter change must occur at 50 hours; 500 hours thereafter.
■ Or every 12 months.

LIFT ARM SUPPORT DEVICE

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

Engaging The Lift Arm Support Device

⚠ WARNING

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

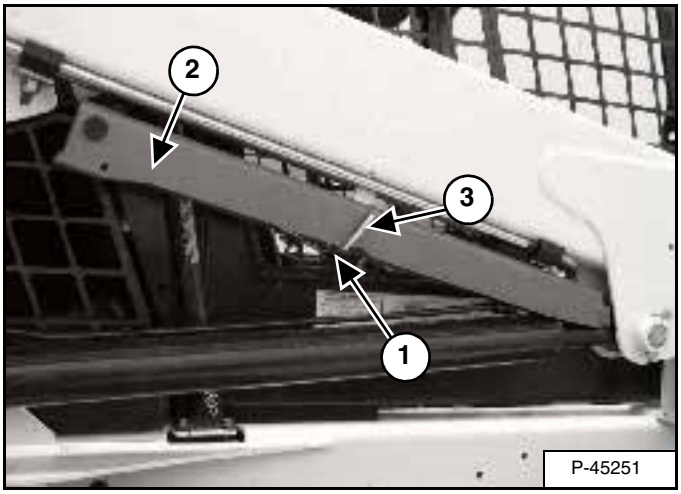
W-2059-0598

⚠ WARNING

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

W-2271-1197

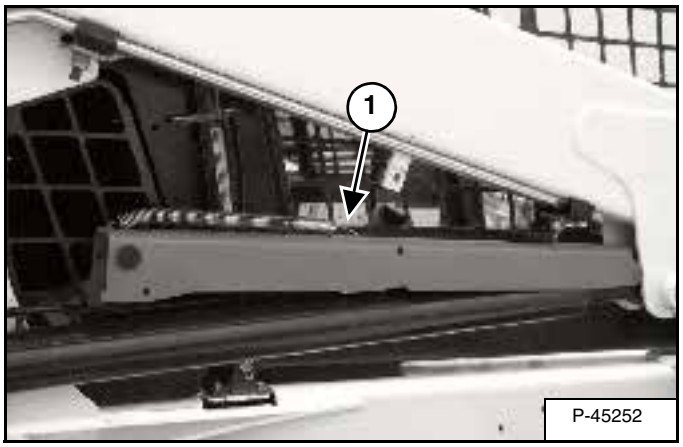
Figure 101



Put jackstands under the rear corners of the loader frame.

Disconnect the spring (1) **[Figure 101]** from the lift arm support device retaining pin. Support the lift arm support device (2) **[Figure 101]** with your hand and remove the retaining pin (3) **[Figure 101]**.

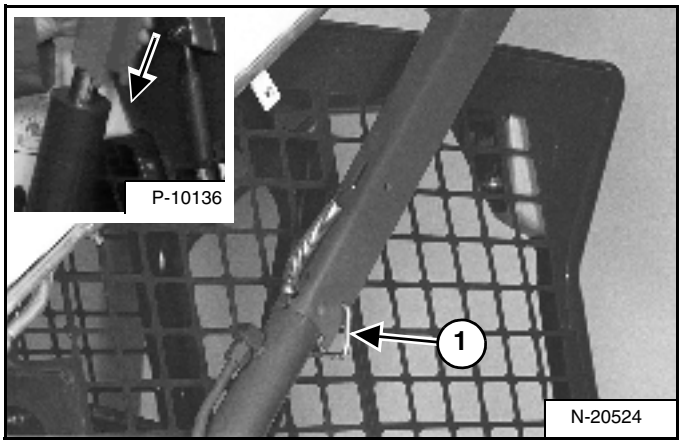
Figure 102



Lower the lift arm support device to the top of the lift cylinder. Hook the free end of the spring (1) **[Figure 102]** to the lift arm support device so there will be no interference with the support device engagement.

Sit in the operator's seat, fasten the seat belt and lower the seat bar. Start the engine.

Figure 103



Raise the lift arms until the lift arm support device drops onto the lift cylinder rod (Inset) **[Figure 103]**.

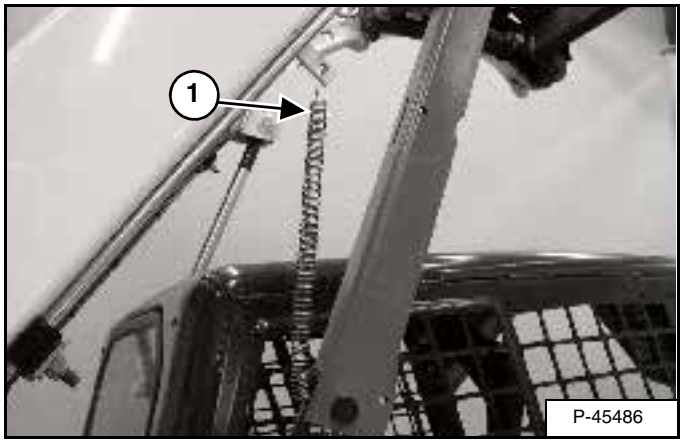
Lower the lift arms slowly until the support device is held between the lift arm and the lift cylinder. Stop the engine. Raise the seat bar and move both pedals until both pedals lock.

Install pin (1) **[Figure 103]** into the rear of the lift arm support device below the cylinder rod.

Disengaging The Lift Arm Support Device

Remove the pin from the lift arm support device.

Figure 104

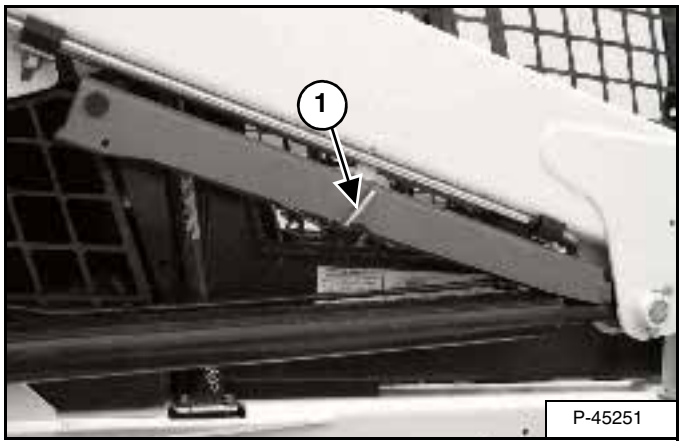


Connect the spring (1) **[Figure 104]** from the lift arm support device to the bracket below the lift arms.

Sit in the operator's seat fasten the seat belt and lower the seat bar.

Start the engine.

Figure 105



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

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

Disconnect the spring from the bracket.

Raise the support device into storage position and insert pin (1) **[Figure 105]** through lift arm support device and bracket. Connect the spring to the pin.

Remove the jackstands.

OPERATOR CAB

The Bobcat loader has an operator cab (ROPS and FOPS) as standard equipment to protect the operator from rollover and falling objects. Check with your dealer if the operator cab has been damaged. The seat belt must be worn for rollover protection.

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

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.

Raising The Operator Cab

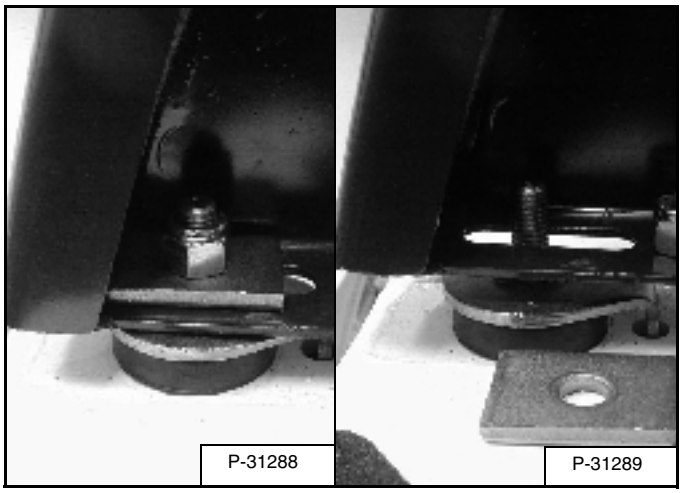
Always stop the engine before raising or lowering the cab.

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 54.)

Figure 106

Install jackstands under the rear of the loader frame **[Figure 106]**.

Figure 107



Remove the nuts and plates **[Figure 107]** (both sides) at the front corners of the cab.

Figure 108

Lift on the grab handles and bottom of the operator cab **[Figure 108]** slowly until the cab is all the way up and the latching mechanism engages.

Advanced Control System (ACS) Only

Lowering The Operator Cab

Always stop the engine before raising or lowering the cab.

NOTE: Make sure the seat bar is fully raised or lowered when lowering the cab. Always use the grab handles to lower the cab.

Figure 109

Pull down on the bottom of the operator cab until it stops at the latching mechanism **[Figure 109]**.

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

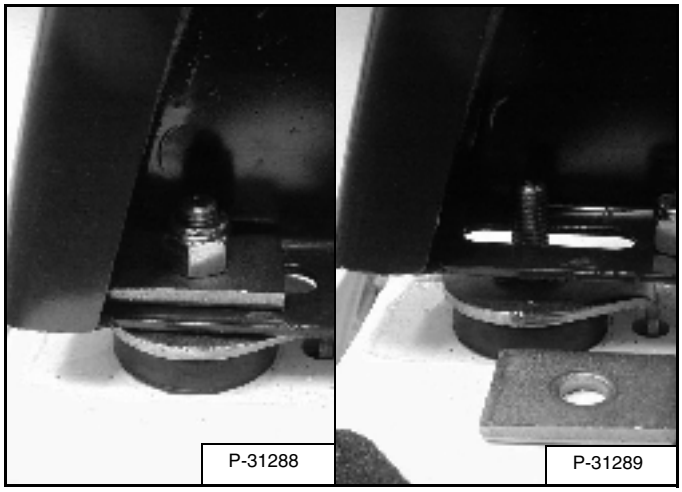
Support the cab and release the latching mechanism (Inset) **[Figure 109]**. Remove your hand from latching mechanism when the cab is past the latch stop. Use both hands to lower the cab all the way.

⚠ WARNING

PINCH POINT CAN CAUSE INJURY
Remove your hand from the latching mechanism when the cab is past the latch stop.

W-2458-0103

Figure 110

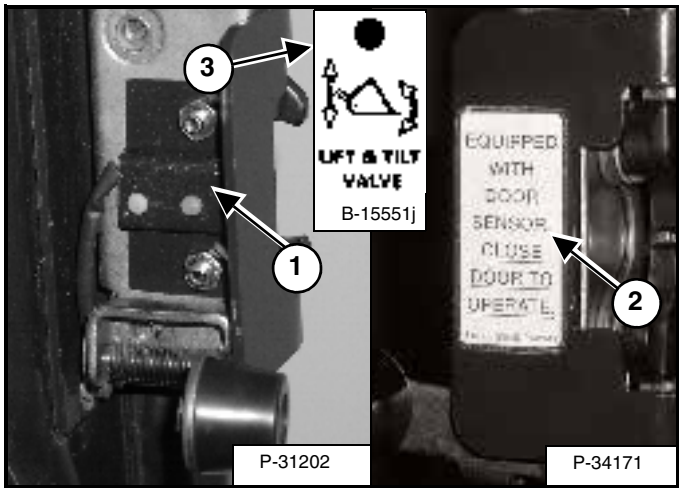


Install the plates and nuts (both sides) **[Figure 110]**.

Tighten the nuts to 54-68 Nm torque.

Cab Door Sensor

Figure 111



The cab door (option) has a sensor (1) **[Figure 111]** installed which deactivates the lift and tilt valves when the door is open.

A decal is located on the latch mechanism (2) **[Figure 111]**.

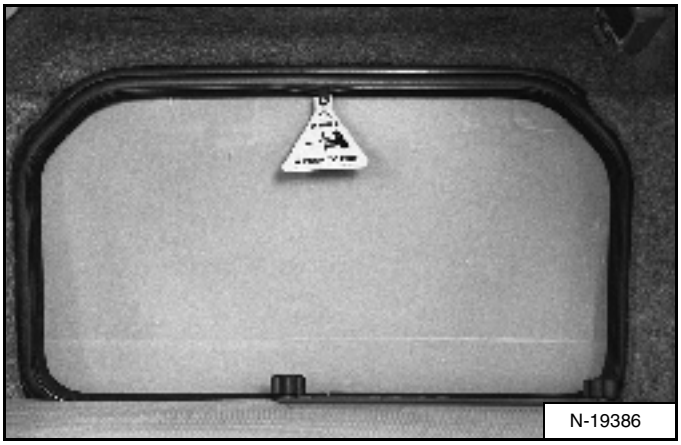
The LIFT & TILT VALVE light (3) **[Figure 111]** will be ON when the door is closed and the PRESS TO OPERATE LOADER Button is pressed.

Emergency Exit

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

Rear Window (If Equipped)

Figure 112



Pull on the tag **[Figure 112]** on the top of the rear window to remove the rubber cord.

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

Figure 113

Exit through the rear of the operator cab **[Figure 113]**.

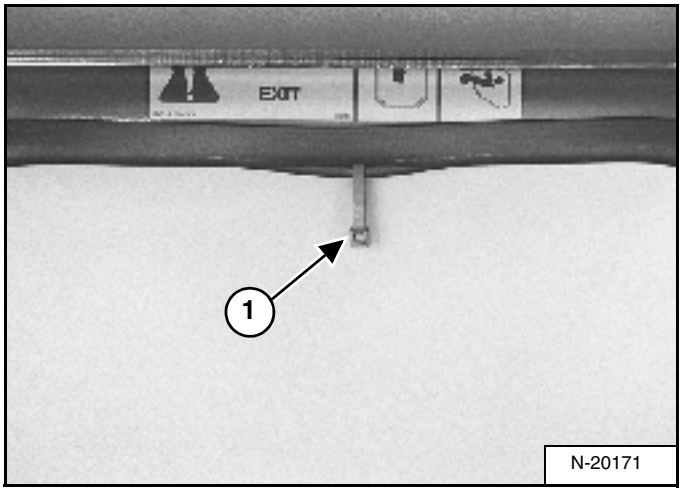
⚠ WARNING

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

W-2069-1299

Front Door (If Equipped)

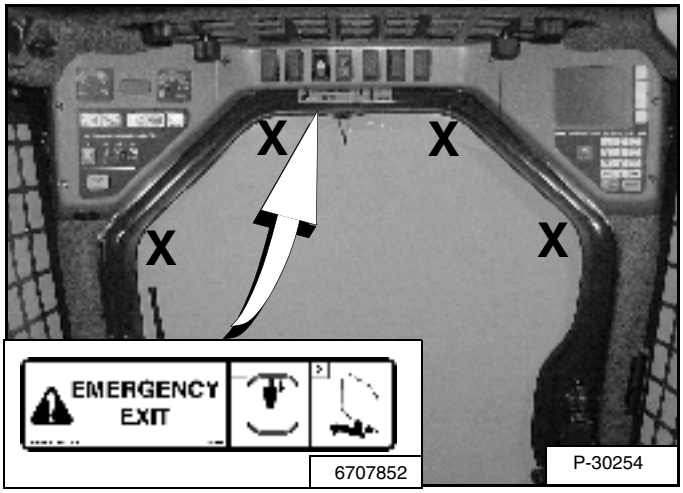
Figure 114



NOTE: When an Operator Cab Enclosure Kit is installed, the window of the front door can be used as an emergency exit [Figure 115].

Pull the plastic loop at the top of the window in the front door to remove the rubber cord (1) **[Figure 114]**.

Figure 115



Push the window out with your foot **[Figure 115]** at any corner (**X**) of the window.

Exit through the front door.

SEAT BELT

Inspection and Maintenance

WARNING

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

W-2466-0703

Check the seat belt daily for correct function.

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

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

The items below are referenced in **[Figure 116]**.

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.

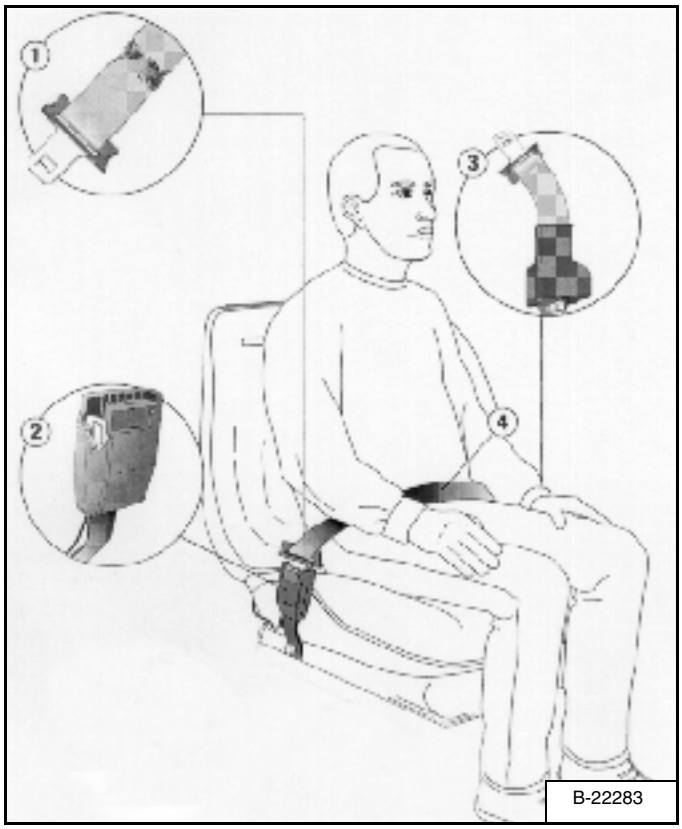
2. Check the buckle and latch for proper function. Make sure latch plate is not excessively worn, deformed or buckle is not damaged.

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

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

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

Figure 116



SEAT BAR RESTRAINT SYSTEM

The seat bar restraint system has a pivoting seat bar with arm rests.

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

Models with foot pedals 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 PRESS TO OPERATE LOADER Button is activated and the engine is running, the lift, tilt and traction drive functions can be operated.

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

Models with the 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 controls.

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

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

Models with Selectable Joystick Control (SJC) have electrical deactivation of joystick functions. Activation of functions require the operator to lower the seat bar.

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

When the seat bar is up, the joystick functions are deactivated even though the joystick does not mechanically lock.

Inspecting The Seat Bar

Sit in the seat and fasten the seat belt. Engage the parking brake. Pull the seat bar all the way down. Start the engine. 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 off the ground.

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

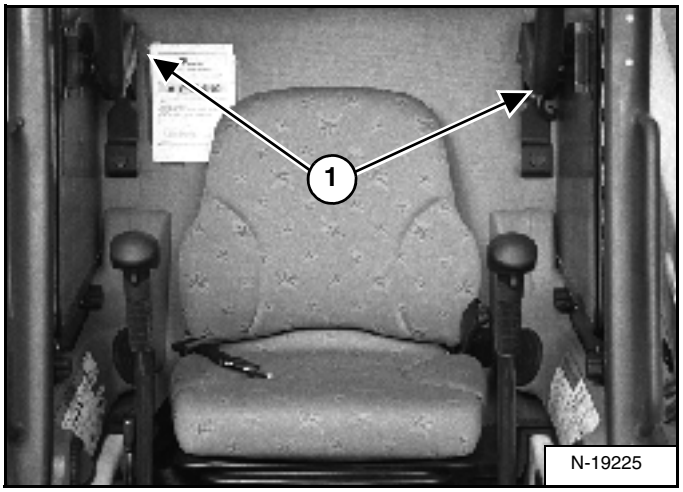
Lower the seat bar, press the PRESS TO OPERATE LOADER Button, lower the lift arms. Operate the lift control. While the lift arms are going up, raise the seat bar. The lift arms must stop.

Lower the seat bar, press the PRESS TO OPERATE LOADER Button, lower the lift arms and put the attachment flat on the ground. Stop the engine. Raise the seat bar. Operate the foot pedals and handles (if equipped) to be sure that the pedals are firmly locked in the NEUTRAL position. Unfasten the seat belt.

Maintaining The Seat Bar

Check the SERVICE SCHEDULE Decal on the loader for correct service interval. (See SERVICE SCHEDULE on Page 53.)

Figure 117



Use compressed air to clean any debris or dirt from the pivot parts (1) **[Figure 117]**. Do not lubricate. Inspect all mounting hardware. The correct bolt torque is 35 Nm.

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

⚠ WARNING

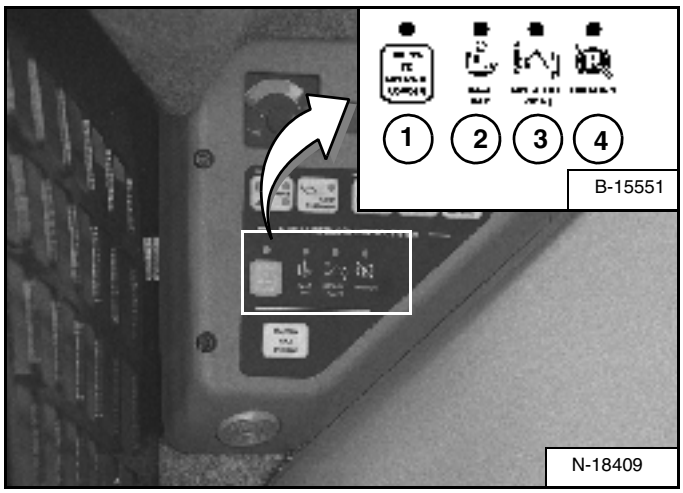
The seat bar system must deactivate the lift and tilt control functions when the seat bar is up. Service the system if hydraulic controls do not deactivate.

W-2465-0703

BOBCAT INTERLOCK CONTROL SYSTEM (BICS)

Inspecting The BICS Controller (Engine Stopped - Key ON)

Figure 118



1. Sit in operator's seat. Turn key ON *(Standard Panel)*, press RUN / ENTER Button *(Deluxe Panel)*, lower seat bar and disengage parking brake. Press the PRESS TO OPERATE LOADER Button. Three BICS lights (1, 2 & 3) **[**PRESS TO OPERATE LOADER, SEAT BAR, AND LIFT & TILT VALVE**]** on left instrument panel should be ON **[Figure 118]**.

2. Raise seat bar fully. All four BICS lights (1, 2, 3, and 4) **[**PRESS TO OPERATE LOADER, SEAT BAR, LIFT & TILT VALVE AND TRACTION***]** on left instrument panel should be OFF **[Figure 118]**.

NOTE: Record what lights are blinking (if any) and the number of light flashes. (See SYSTEM SETUP AND ANALYSIS on Page 1.)

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. Press the auxiliary hydraulics FLOW Button. The auxiliary FLOW Button light will come ON. Raise the seat bar. The light should 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 should stop. Repeat using the tilt function.

Inspecting The Traction Lock (Engine RUNNING)

6. Fasten seat belt, disengage parking brake, press the PRESS TO OPERATE LOADER Button and raise seat bar fully. Slowly operate the machine forward and backward. The TRACTION lock should be engaged. Lower the seat bar. Press the PRESS TO OPERATE LOADER Button.

7. Engage parking brake and move steering levers slowly forward and backward. The TRACTION lock should be engaged.

NOTE: *The TRACTION light on the left instrument panel will remain OFF until the engine is started, the PRESS TO OPERATE LOADER Button is pressed and the parking brake is disengaged.

Inspecting The Lift Arm By-Pass Control

8. Raise the lift arms 2 meters off the ground. Stop engine. Turn lift arm by-pass control knob clockwise 1/4 turn. Pull up and hold lift arm by-pass 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 meters off the ground.

11. Turn key OFF *(Standard Panel)*, press STOP Button *(Deluxe Panel)*, and wait for the engine to come to a complete stop.

12. Turn key ON *(Standard Panel)*, press RUN / ENTER Button *(Deluxe Panel)*. Press the PRESS TO OPERATE LOADER Move the control (foot pedal or hand control) to lower the lift arms. Lift arms should not lower.

13. Move the control (foot pedal or hand control) to tilt the bucket forward. The bucket (or attachment) should not tilt forward.

⚠ 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-2151-0394

REAR DOOR

Opening And Closing The Rear Door

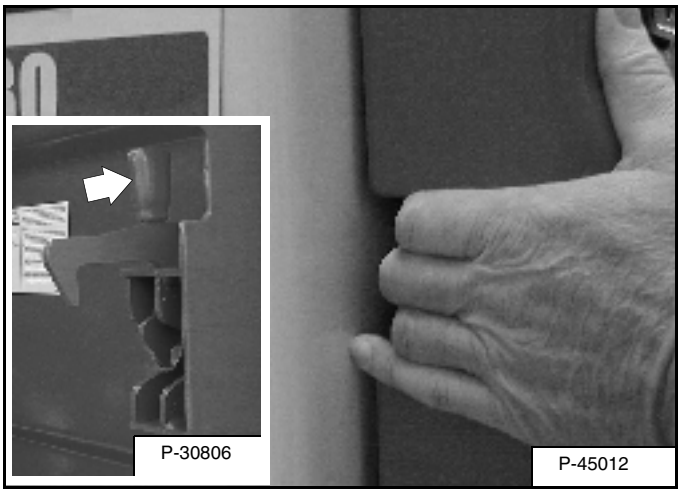
WARNING

AVOID INJURY OR DEATH

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

W-2012-0497

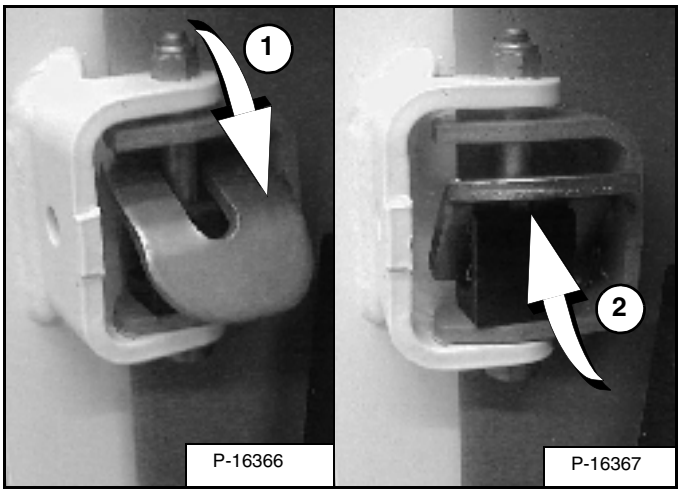
Figure 119



Reach into the slot in the rear door and pull the latch handle **[Figure 119]**.

Pull the rear door open.

Figure 120



Move the door stop into the engaged position (1) **[Figure 120]** to hold the door open. Move to disengaged position (2) **[Figure 120]** to allow the door to close.

Close the rear door.

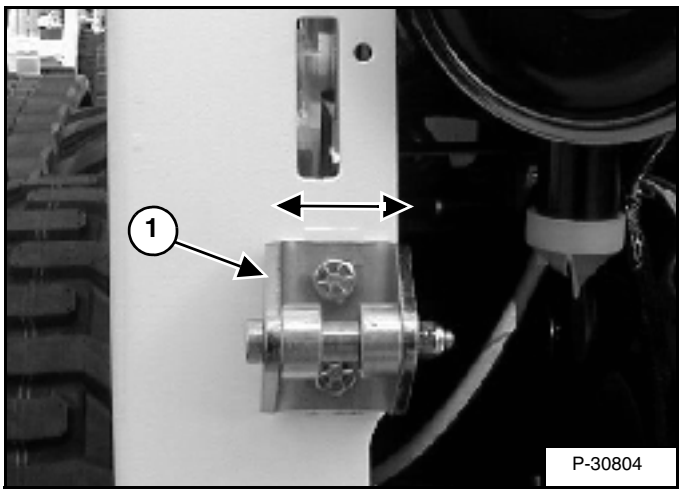
WARNING

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

W-2020-1285

Adjusting The Rear Door Latch

Figure 121



The door latch (1) **[Figure 121]** can be adjusted side to side for alignment with the door latch mechanism.

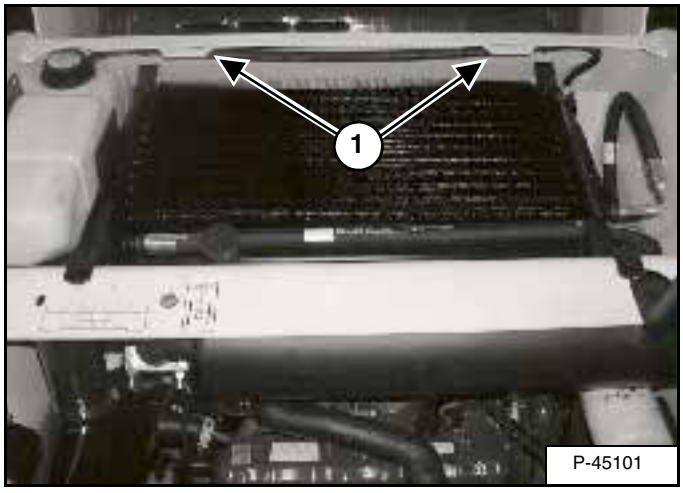
Close the rear door before operating the loader.

REAR GRILL

Removing

Open the rear door.

Figure 122



Lift and pull the rear grill and remove it from the loader **[Figure 122]**.

Installing

Insert the tabs into the slots (1) **[Figure 122]** at the front edge of the grill. Lower the grill to the frame.

Close the rear door.

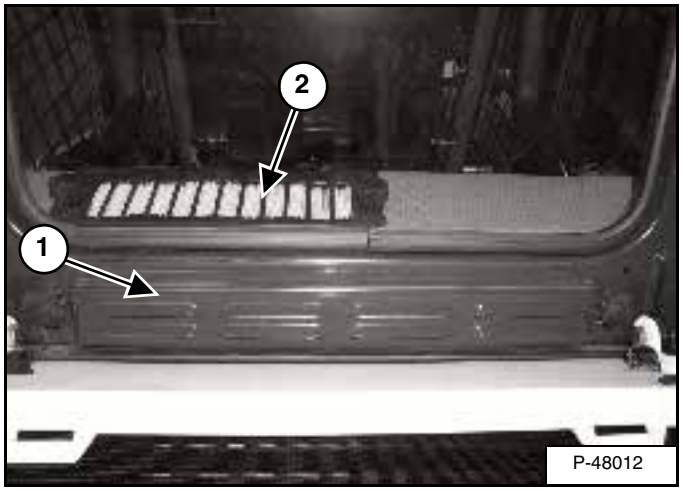
HEATING SYSTEM

Cleaning And Maintenance

The heating system requires regular inspection and maintenance. (See SERVICE SCHEDULE on Page 53) for intervals.

Filters

Figure 123



The *Fresh Air Filter* is located below the rear window of the cab (1) **[Figure 123]**.

Remove the knobs and remove the filter housing.

Shake the filter or use low air pressure to remove dirt. The filter can be cleaned several times in this manner then it must be replaced.

Reinstall the filter housing.

The *Recirculation Filter* is located in front of the rear window inside the cab (2) **[Figure 123]**.

Remove the clamping knobs, grill and filter.

Shake the filter or use low air pressure to remove dirt. The filter can be cleaned several times in this manner then it must be replaced.

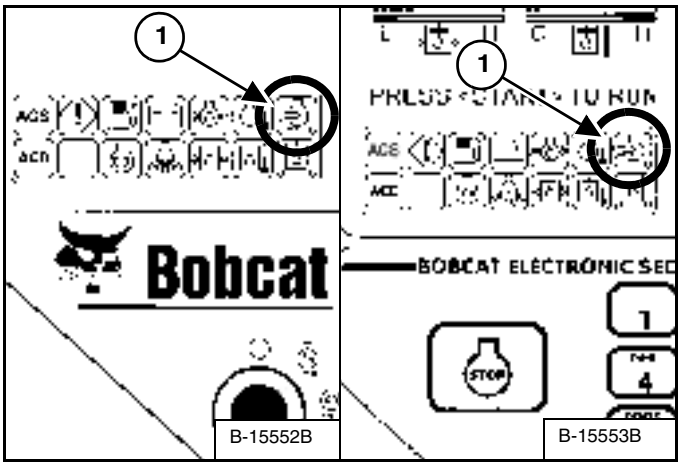
Troubleshooting

If the fan does not run, check the fuse (See ELECTRICAL SYSTEM on Page 70).

AIR CLEANER SERVICE

Replacing Filter Elements

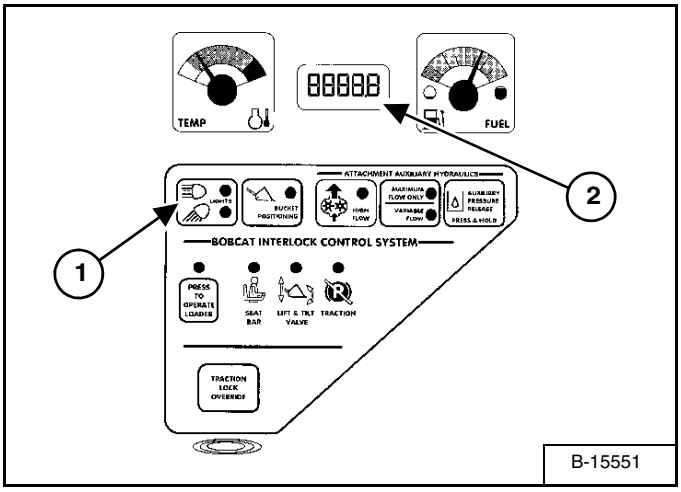
Figure 124



It is important to change the air filter element only when the Air Cleaner Icon in the right panel is ON (1) **[Figure 124]** and you hear three beeps from the alarm.

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

Figure 125

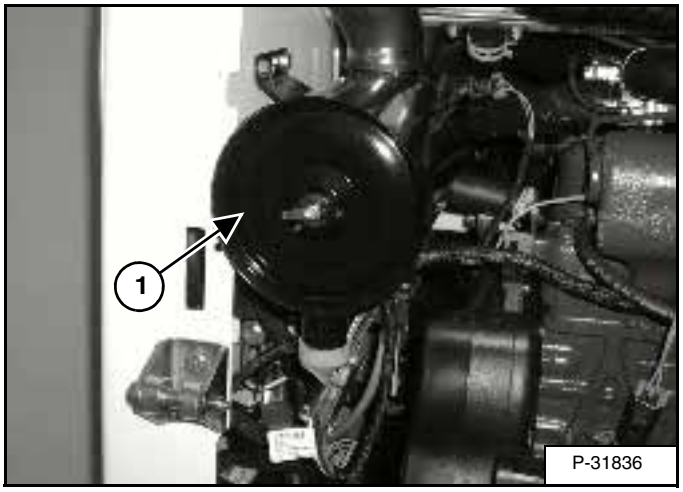


Press and hold the LIGHT Button (1) **[Figure 125]** for two seconds.

If the filter element needs replacement, the CODE [01-17] (Air Filter Plugged) will show in the HOURMETER / CODE DISPLAY (2) **[Figure 125]**.

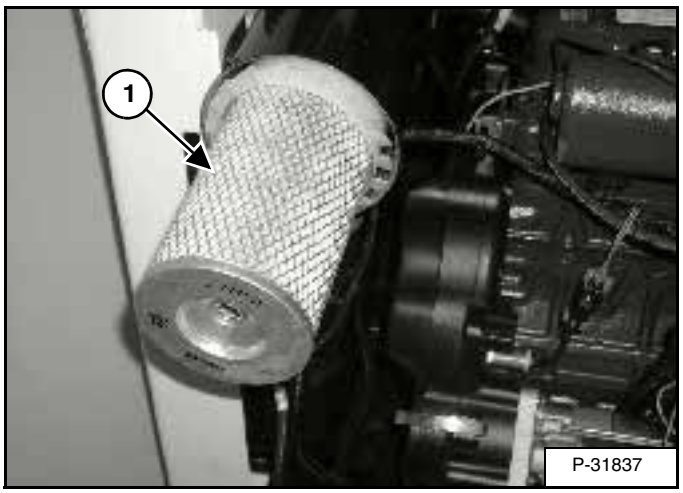
Outer Filter

Figure 126



Remove the wing nut and remove the dust cover (1) **[Figure 126]**.

Figure 127



Remove the wing nut and pull the outer filter element (1) **[Figure 127]** out and discard.

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

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

Install the dust cover and the wing nut **[Figure 126]**.

AIR CLEANER SERVICE (CONT'D)

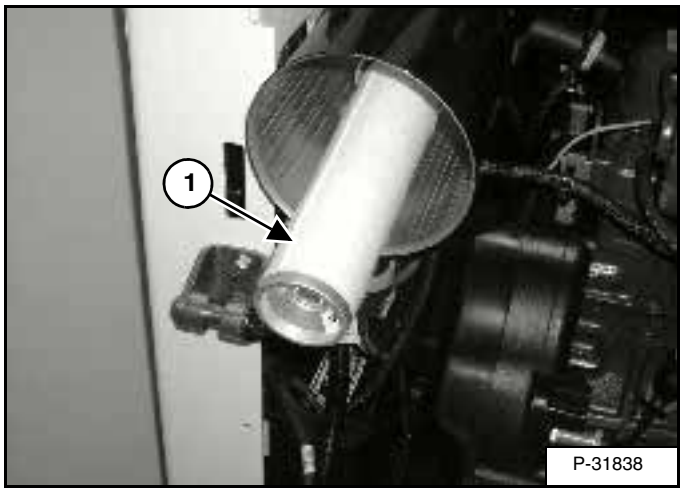
Replacing Filter Elements (Cont'd)

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 the HOURMETER / CODE DISPLAY shows **[01-17]** (Air Filter Plugged), replace the inner filter element.

Figure 128



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

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

Install the new inner element **[Figure 128]**.

Install the outer element and install the dust cover and the wing nut.

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:

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

Contact your fuel supplier for local recommendations.

Filling The Fuel Tank

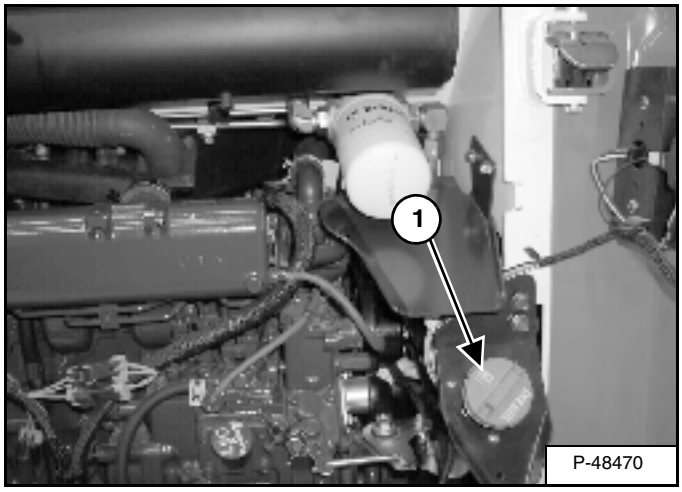
⚠ WARNING

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

W-2063-0887

Open the rear door.

Figure 129



Remove the fill cap (1) **[Figure 129]**.

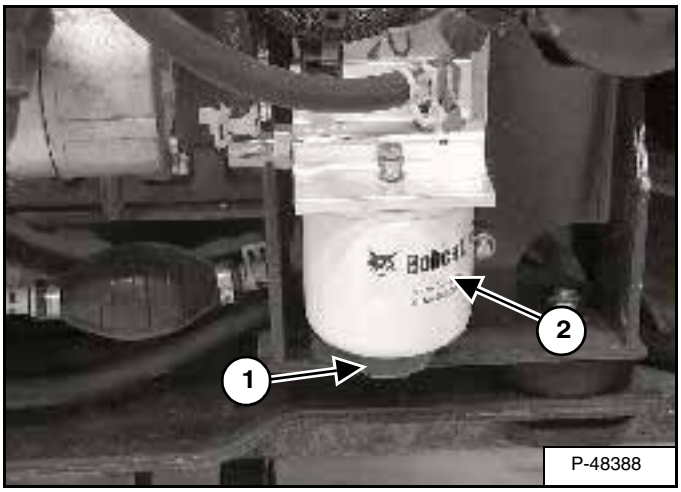
Use a clean, approved safety container to add fuel of the correct specification. Add fuel only in an area that has free movement of air and no open flames or sparks *NO SMOKING.*

Install and tighten the fuel cap (1) **[Figure 129]**.

Fuel Filter

For the service interval for removing water from, or replacing the fuel filter (See SERVICE SCHEDULE on Page 53).

Figure 130



Loosen the drain (1) **[Figure 130]** at the bottom of the filter element to remove water from the filter.

Remove the filter element (2) **[Figure 130]**.

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 66.)

⚠ WARNING

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire which can result in injury or death.

W-2103-1285

Removing Air From The Fuel System

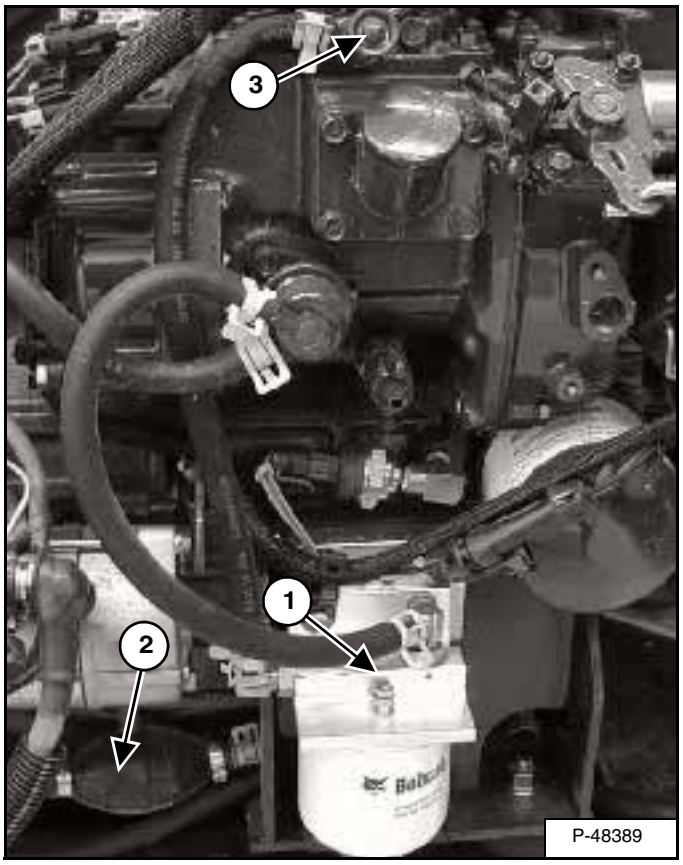
After replacing the filter element or when the fuel tank has run out of fuel, the air must be removed from the fuel system before starting the engine.

⚠ WARNING

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-2072-0496

Figure 131



Open the vent (1) **[Figure 131]** on the fuel filter housing.

Squeeze the hand pump (priming bulb) (2) **[Figure 131]** until fuel flows from the vent with no air bubbles.

Close the vent (1) **[Figure 131]**.

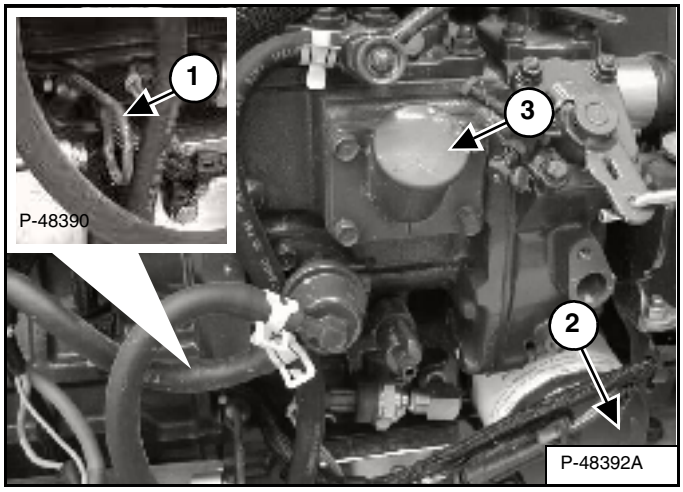
It may be necessary to open the vent (3) **[Figure 131]** briefly while engine is running. Close the vent when the engine runs smoothly.

ENGINE LUBRICATION SYSTEM

Checking Engine Oil

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

Figure 132



Open the rear door and remove the dipstick (1) **[Figure 132]**.

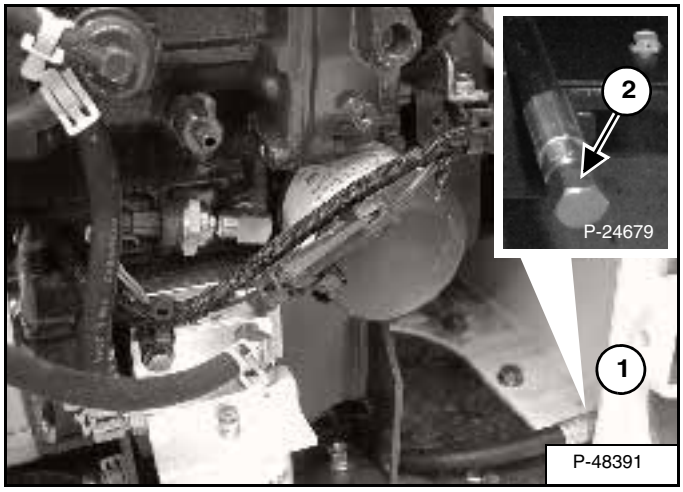
Keep the oil level between the marks on the dipstick.

Replacing The Oil And Filter

For the service interval for replacing the engine oil and filter (See SERVICE SCHEDULE on Page 53).

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

Figure 133



Open the rear door and remove the drain hose from its storage position (1) **[Figure 133]**.

Remove the drain plug (2) **[Figure 133]** and drain the oil into a container and recycle or dispose of used oil in an environmentally safe manner.

Reinstall the drain plug.

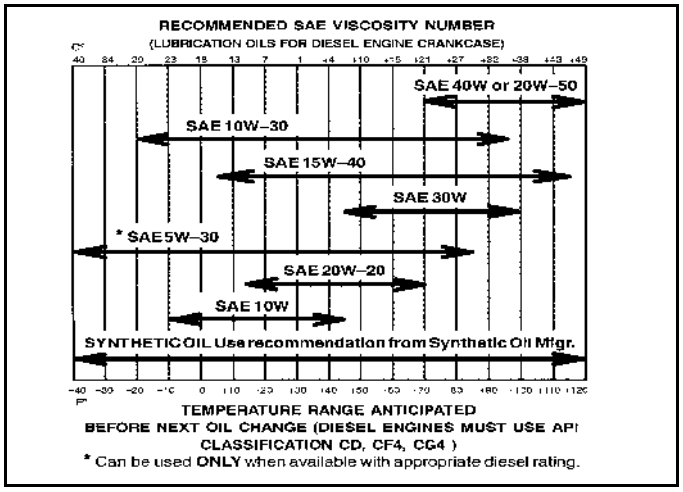
Remove the oil filter (2) **[Figure 132]** and clean the filter housing surface.

Use genuine Bobcat filter only.

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

Remove the fill cap (3) **[Figure 132]**.

Figure 134.



Use good quality motor oil that meets API Service Classification of CD or better (See Oil Chart, **[Figure 134]**).

Put oil in the engine (See Fluid Capacities on Page 103). For the correct quantity and install the fill cap.

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

Remove the dipstick (1) **[Figure 132]** 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

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire which can result in injury or death.

W-2103-1285

ENGINE COOLING SYSTEM

Cleaning The Cooling System

⚠ WARNING

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

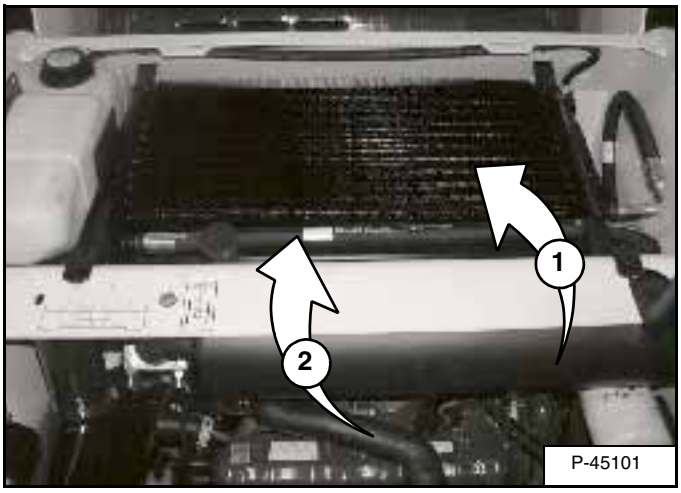
- **When fluids are under pressure.**
- **Flying debris or loose material is present.**
- **Engine is running.**
- **Tools are being used.**

W-2019-1285

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

Remove the rear grill. (See REAR GRILL on Page 63.)

Figure 135



Use low air pressure or water pressure to clean the top of the oil cooler (1) **[Figure 135]**.

Raise the oil cooler and use low air pressure or water pressure to clean the top of the radiator (2) **[Figure 135]**.

Lower the oil cooler.

Check the cooling system for leaks.

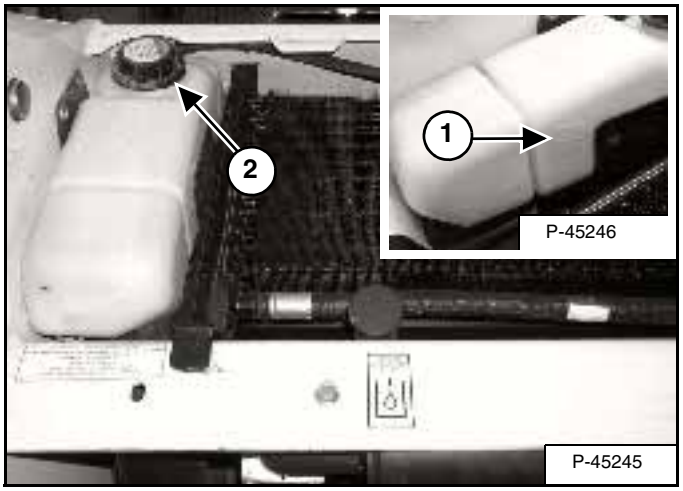
Install the rear grill. (See REAR GRILL on Page 63.)

Checking Coolant Level And Adding Coolant

Open the rear door.

NOTE: The machine uses a pressurized coolant recovery system.

Figure 136



Check the coolant level on the side of the recovery tank (1) **[Figure 136]**. The level must be between the MIN and MAX marks.

Remove the cover (2) **[Figure 136]** from the coolant recovery tank.

Add premixed coolant to the recovery tank and install the cover.

IMPORTANT

AVOID ENGINE DAMAGE

Always use the correct ratio of water to antifreeze.

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

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

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

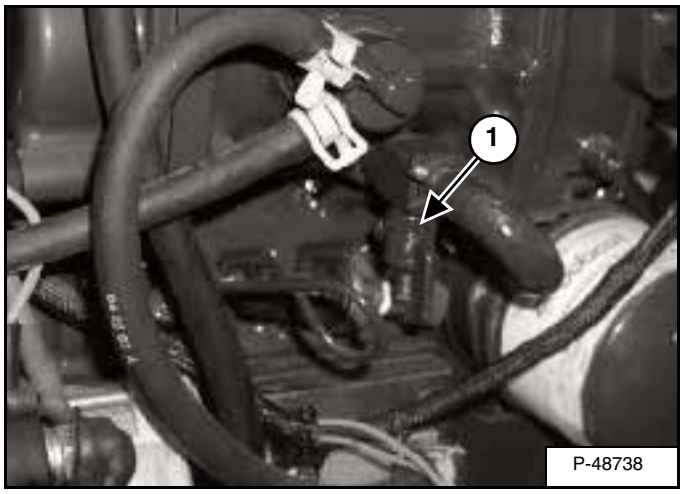
I-2124-0497

Replacing The Coolant

Open the rear door and remove the rear grill.

Remove the cover (2) **[Figure 136]** from the coolant recovery tank.

Figure 137



Connect a hose to the engine block drain (1) **[Figure 137]**. Open the drain valve and drain the coolant into a container.

Recycle or dispose of used coolant in an environmentally safe manner.

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

Premix coolant (53% propylene glycol and 47% water) in a separate container. For correct capacity, (See Fluid Capacities on Page 103).

4,3 L of propylene glycol mixed with 3,8 L of water is the correct ratio (53%/47%) to provide -37°C (-34°F) freeze protection. (See **IMPORTANT**, Page 20.)

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

Run the engine until it is at operating temperature. Stop the engine. Check the coolant level in the recovery tank when cool. Add coolant as needed.

Install the rear grill and close the rear door.

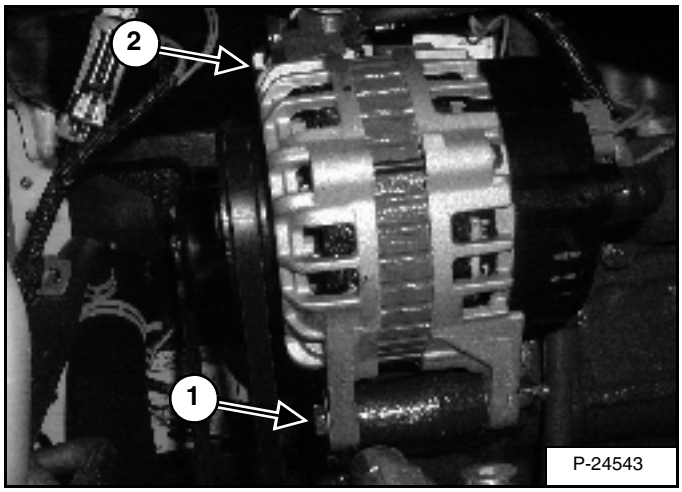
ALTERNATOR BELT

Adjusting The Alternator Belt

Stop the engine.

Raise the operator cab (See Raising The Operator Cab on Page 56).

Figure 138



Loosen the alternator mounting bolt (1) and adjustment bolt (2) **[Figure 138]**.

Move the alternator until the belt has 8,0 mm movement at the middle of the belt span with 66 N of force.

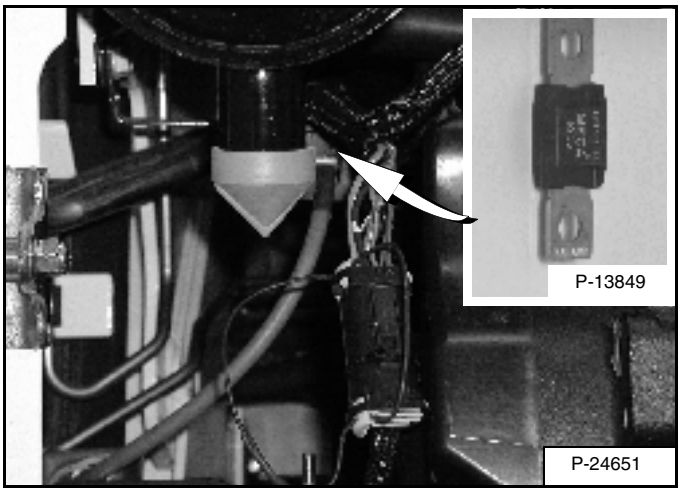
Tighten the adjustment and mounting bolts.

Lower the operator cab (See Lowering The Operator Cab on Page 57).

ELECTRICAL SYSTEM

Description

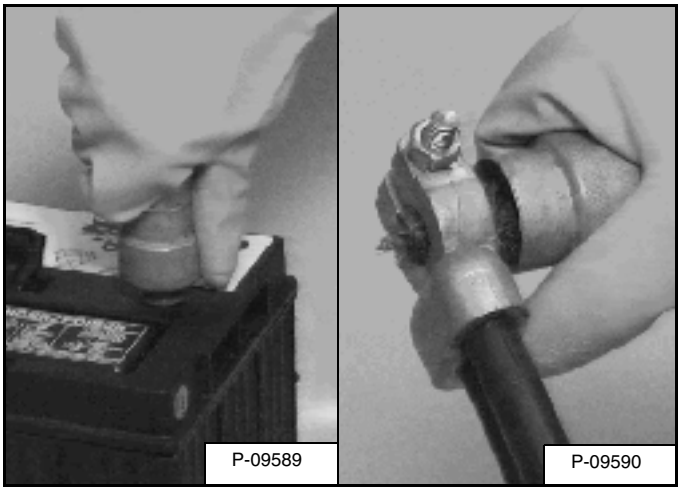
Figure 139



The loader has a 12 volt, negative ground alternator charging system. The electrical system is protected by fuses located in the cab on the steering control panel, and a 100 amp master fuse **[Figure 139]** in the engine compartment on the left side of the engine, under the air cleaner. The fuses will protect the electrical system when there is an electrical overload. The reason for the overload must be found before staring the engine again.

Cleaning Battery and Terminals

Figure 140



The battery cables must be clean and tight **[Figure 140]**. 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 Battery Saver (6664458) or grease on the battery terminals and cable ends to prevent corrosion.

Fuse Location

⚠ WARNING

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

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

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

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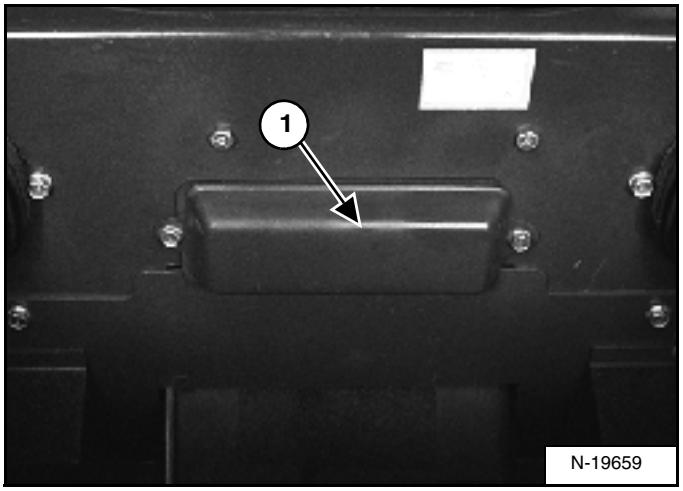
Figure 141



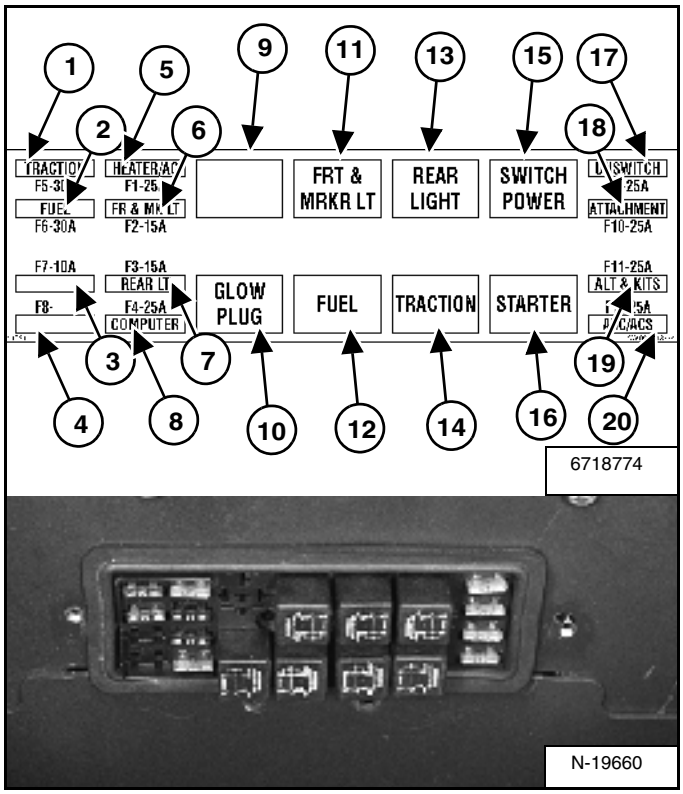
The electrical system is protected from overload by fuses and relays under the fuse panel cover (1) **[Figure 141]**. A decal is inside the cover to show location and amp ratings.

Remove the cover to check or replace the fuses.

ELECTRICAL SYSTEM (CONT'D)

Fuse Location (Cont'd)

Figure 142



The location and sizes are shown below and in **[Figure 142]**.

REF	DESCRIPTION	AMP
1	Traction	30
2	Fuel Shutoff	30
3	Not Used	- -
4	Not Used	- -
5	Heater	25
6	Front & Marker Lights	15
7	Rear Lights	15
8	Bobcat Controller	25
9	Not Used	- -
10	Glow Plugs	R

REF	DESCRIPTION	AMP
11	Front & Marker Lights	R
12	Fuel Shutoff	R
13	Rear Lights	R
14	Traction	R
15	Switch Power	R
16	Starter	R
17	Unswitched Attachments	25
18	Switched Attachments	25
19	Alternator & Accessories	25
20	Accessory Plug	25

R = Relay

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 *(Standard Panel)* OR the STOP Button must be pressed *(Deluxe Panel)*. The booster battery must be 12 volt.

⚠ WARNING

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

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

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

W-2065-1296

⚠ WARNING

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

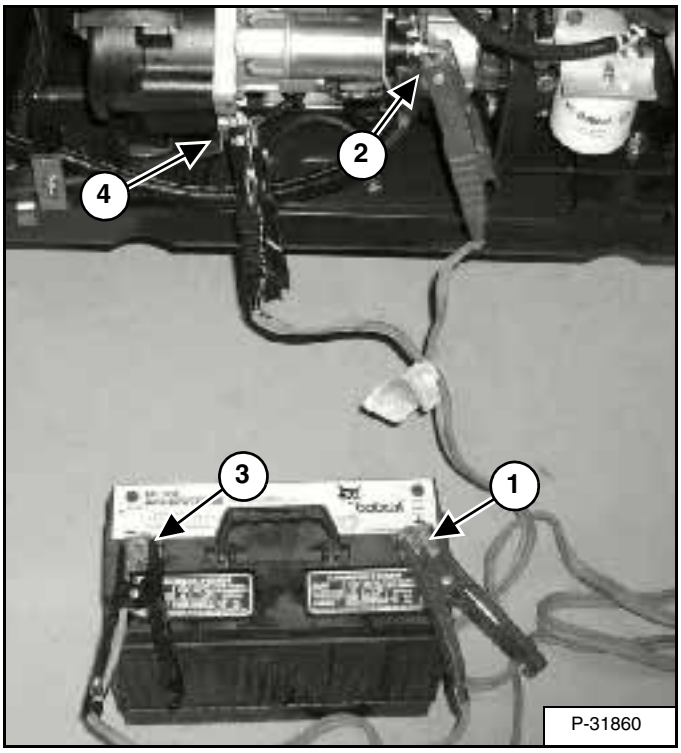
Do not jump start or charge a frozen or damaged battery. Warm battery to 16°C (60°F) before connecting to a charger. Unplug charger before connecting or disconnecting cables to battery. Never lean over battery while boosting, testing or charging.

Battery gas can explode and cause serious injury.

W-2066-1296

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

Figure 143



Connect the end of the first cable (1) **[Figure 143]** to the positive (+) terminal of the booster battery. Connect the other end of the same cable (2) **[Figure 143]** to the positive terminal on the loader starter.

Connect the end of the second cable (3) **[Figure 143]** to the negative terminal of the booster battery. Connect the other end of the same cable (4) **[Figure 143]** to the engine.

Keep cables away from moving parts. Start the engine. (See STARTING THE ENGINE (DELUXE PANEL, KEYLESS START) on Page 26) and (See STARTING THE ENGINE (STANDARD PANEL, KEY SWITCH) on Page 24.)

After the engine has started, remove the ground (-) cable (4) **[Figure 143]** first. Remove the cable from the positive terminal (2) **[Figure 143]**.

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

Removing And Installing The Battery

⚠ WARNING

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

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

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

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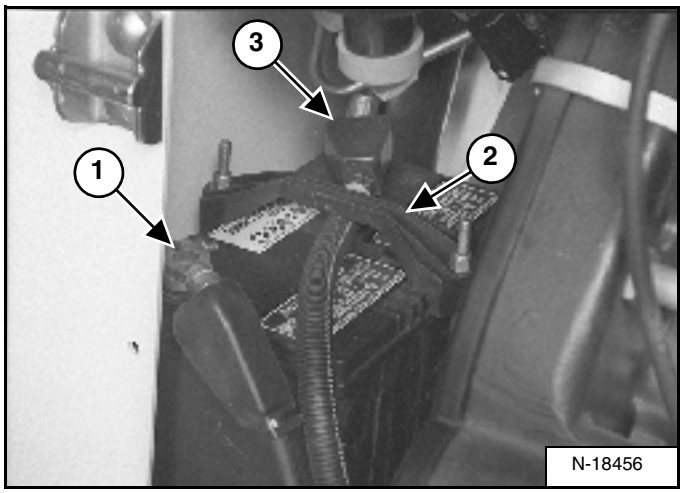
Open the rear door.

Figure 144



Remove the harness clamp from the positive cable.

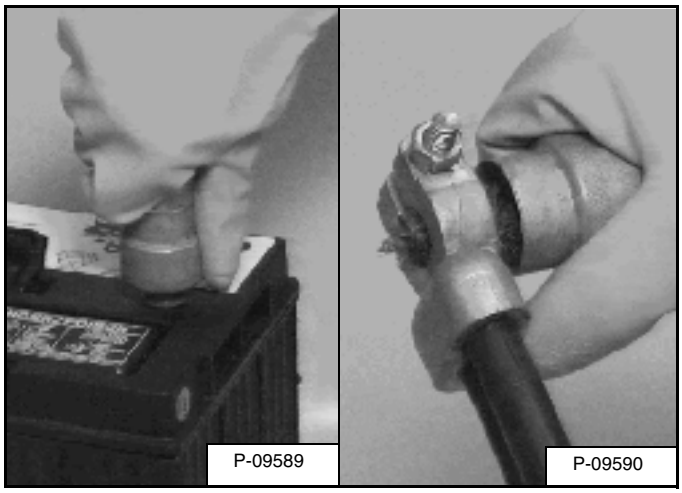
Disconnect the negative (-) cable (1) **[Figure 144]**.

Remove the battery hold down clamp (2) **[Figure 144]**.

Disconnect the positive (+) cable (3) **[Figure 144]** from the battery.

Remove the battery from the loader.

Figure 145



Always clean the battery terminals and cable ends when installing a new or used battery **[Figure 145]**.

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

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

Do not jump start or charge a frozen or damaged battery. Warm battery to 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.

Battery gas can explode and cause serious injury.

W-2066-1296

HYDRAULIC / HYDROSTATIC SYSTEM

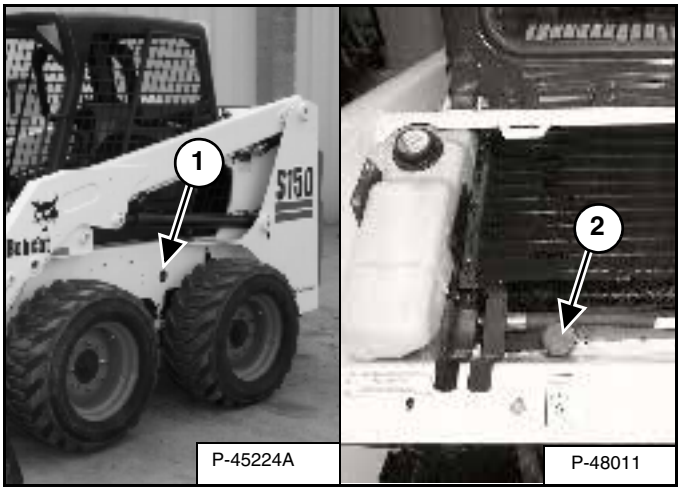
Checking And Adding Fluid

Use only recommended fluid in the hydraulic system. (See Hydraulic System on Page 101).

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

Stop the engine.

Figure 146



Check the fluid level in the sight gauge (1) **[Figure 146]**.

Open the rear door and raise the rear grill. Remove the fill cap (2) **[Figure 146]**.

Add fluid as needed to bring the level to the center of the sight gauge.

Install the fill cap **[Figure 146]**.

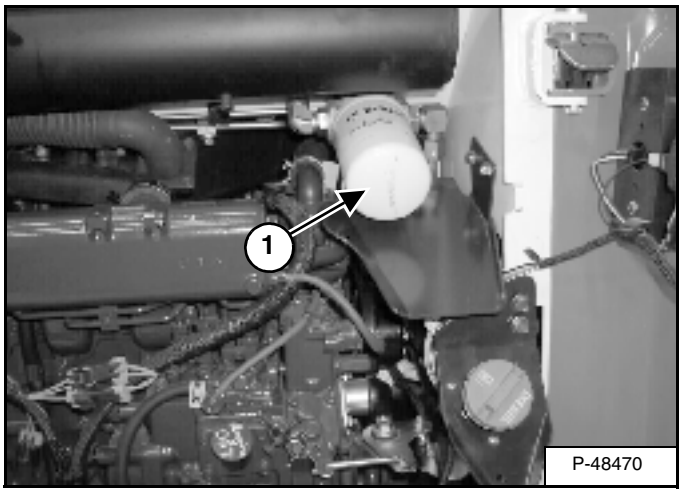
Lower the rear grill and close the rear door.

Replacing Hydraulic/Hydrostatic Filter

For the correct service interval (See SERVICE SCHEDULE on Page 53).

Raise the operator cab (See Raising The Operator Cab on Page 56).

Figure 147



Open the rear door.

Remove the filter (1) **[Figure 147]**.

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

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

⚠ WARNING

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-2072-0496

Start the engine and operate the loader hydraulic controls.

Stop the engine and check for leaks at the filter.

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

⚠ WARNING

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire which can result in injury or death.

W-2103-1285

Replacing Hydraulic Fluid and Case Drain Filters

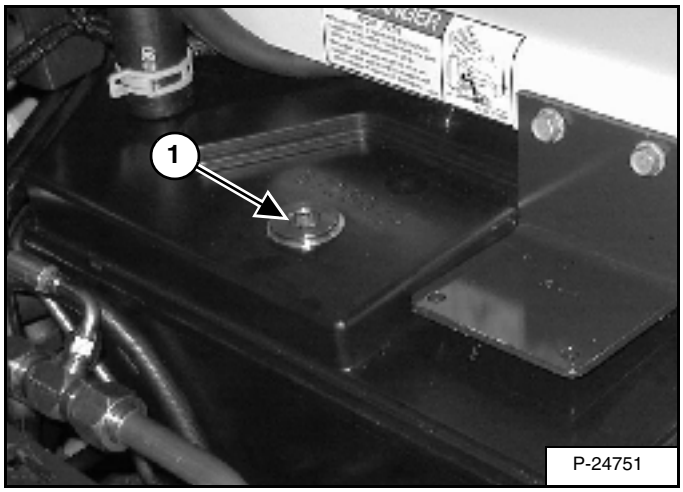
For the correct service interval (See SERVICE SCHEDULE on Page 53).

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

Always replace the hydraulic/hydrostatic filter (See Replacing Hydraulic/Hydrostatic Filter on Page 74) and the case drain filters whenever the hydraulic fluid is replaced.

Open the rear door and remove the fill cap.

Figure 148



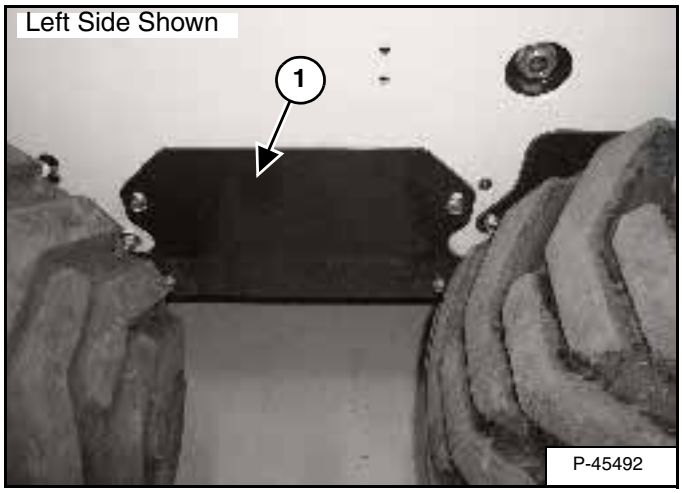
Raise the cab. Remove the plug from the top of the reservoir (1) **[Figure 148]** then pump the fluid out of the reservoir and into a container.

⚠ WARNING

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire which can result in injury or death.

W-2103-1285

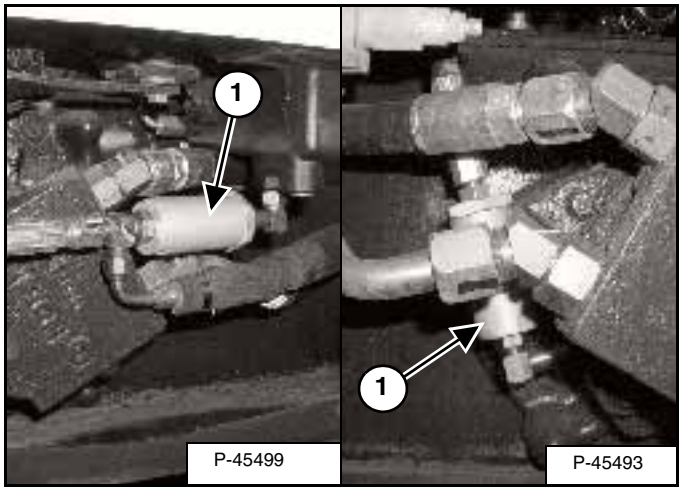
Figure 149



Remove both hydrostatic motor covers (1) **[Figure 149]**.

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

Figure 150

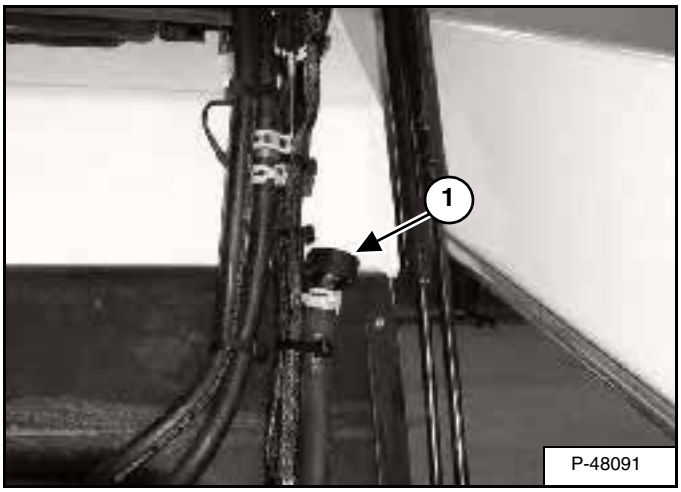


Remove the case drain filters (1) **[Figure 150]** near the hydrostatic motors. Disassemble the filter housings, thoroughly clean and install new filters. Reassemble and install the case drain filters. Install motor covers.

Recycle or dispose of used fluid in an environmentally safe manner.

Hydraulic Breather

Figure 151



Remove and discard the hydraulic breather (1) **[Figure 151]**. Install new breather. (See SERVICE SCHEDULE on Page 53) for correct interval. Lower the cab. (See Lowering The Operator Cab on Page 57.)

⚠ WARNING

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire which can result in injury or death.

W-2103-1285

TIRE MAINTENANCE

Wheel Nuts

Figure 152

For the service interval to check the wheel nuts (See SERVICE SCHEDULE on Page 53). The correct torque is 142-156 Nm torque **[Figure 152]**.

Rotating

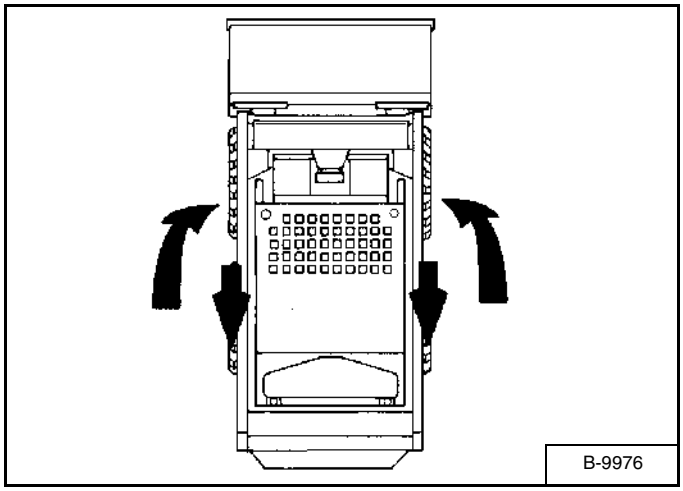
Check the tires regularly for wear, damage and pressure.

IMPORTANT

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

I-2057-0794

Figure 153



Rear tires usually wear faster than front tires. To keep tire wear even, move the front tires to the rear and rear tires to the front **[Figure 153]**.

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

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

Mounting

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

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

The rim flange must be cleaned and free of rust.

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

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

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

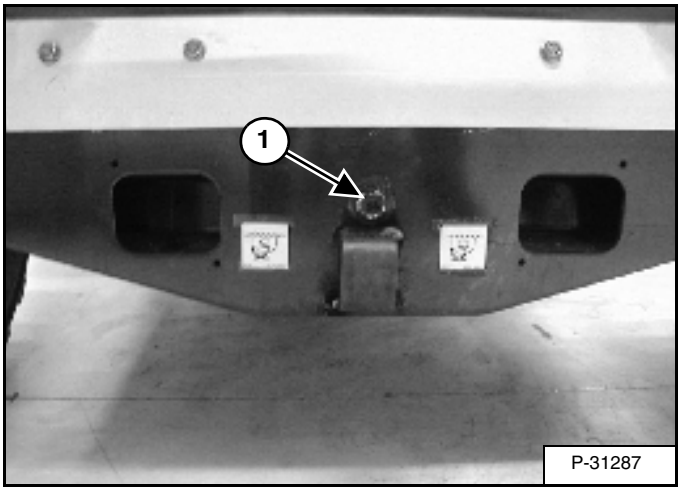
FINAL DRIVE TRANSMISSION (CHAINCASE)

Checking And Adding Oil

The chaincase contains the final drive sprockets and chains and uses the same type of oil as the hydraulic/ hydrostatic system (See Hydraulic System on Page 101).

Stop the loader on a level surface and stop the engine.

Figure 154



Remove the drain plug (1) **[Figure 154]** from the front of the chaincase housing.

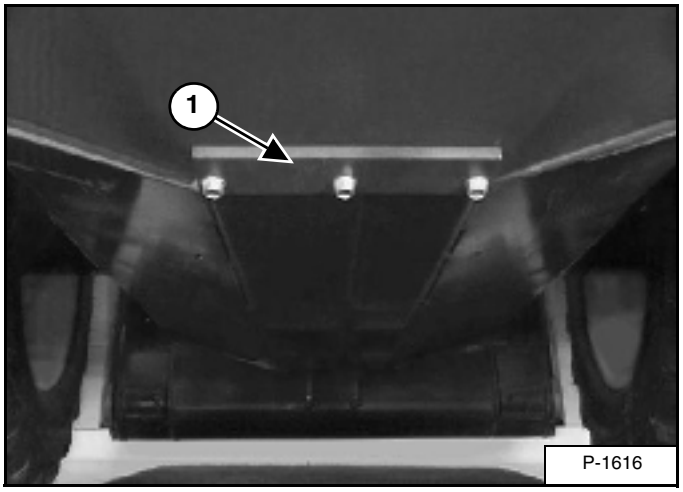
If oil can be reached with the tip of your finger through the hole, the oil level is correct.

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

Install and tighten the plug.

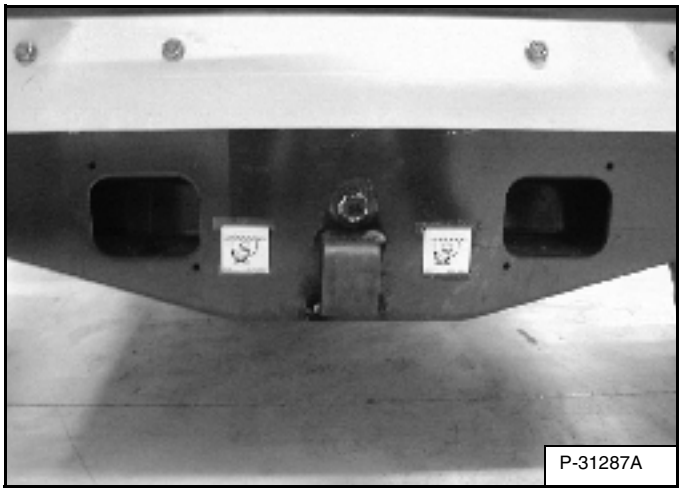
Removing Oil From The Chaincase

Figure 155



Remove the check plug (1) **[Figure 155]** from the front of the chaincase housing.

Figure 156



Use a pump to suction the oil from the chaincase **[Figure 156]**.

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

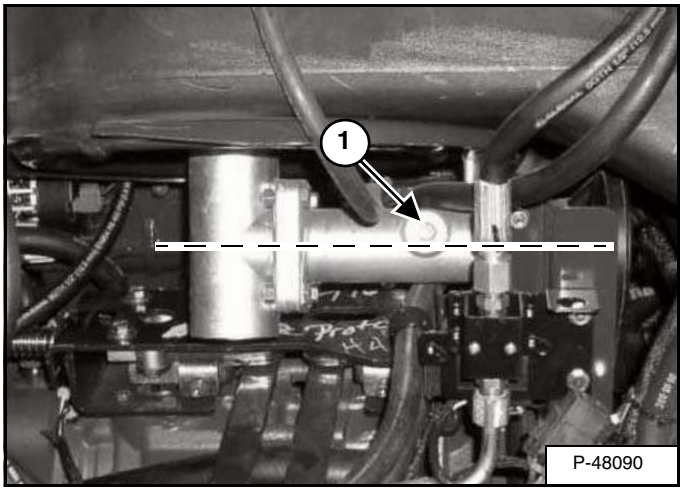
FAN GEARBOX

For the correct service interval (See SERVICE SCHEDULE on Page 53).

Checking And Maintaining

Raise the operator cab (See Raising The Operator Cab on Page 56).

Figure 157



Remove the plug (1) **[Figure 157]**. Lubricant level must be at the bottom edge of the plug hole.

If the level is low, add SAE 90W gear lubricant through the check plug hole until lubricant flows from the hole.

Install and tighten the plug.

Lower the operator cab. (See Lowering The Operator Cab on Page 57.)

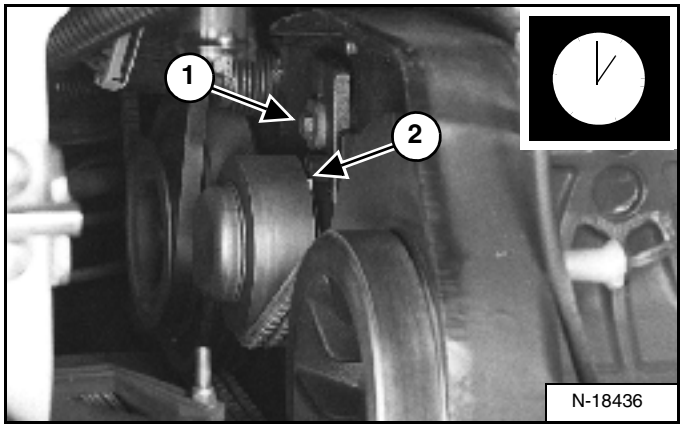
DRIVE BELT

Adjusting The Drive Belt

Stop the engine.

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

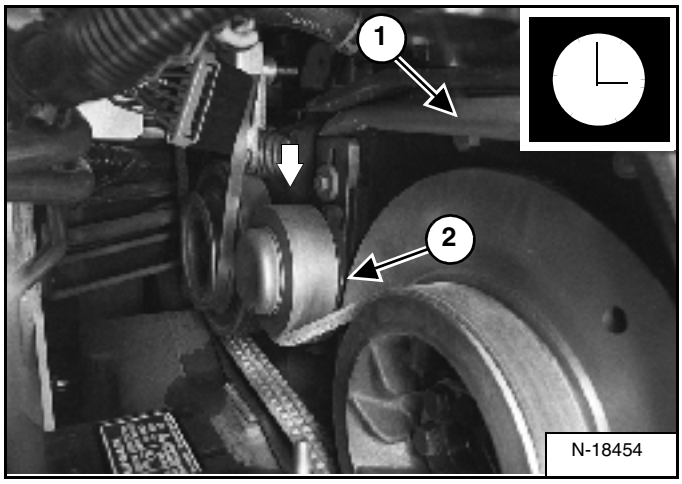
Figure 158



Loosen the bolt (1) **[Figure 158]** on the spring loaded drive idler.

NOTE: The pointer will be at the 1 o'clock position (2) [Figure 158] when the belt tensioner is not under spring tension.

Figure 159



Push the idler pulley against the belt, using a pry bar (1) **[Figure 159]**. The pointer will be at the 3 o'clock position (2) **[Figure 159]** when the idler pulley is against the stop (maximum movement).

Raise the idler assembly slightly so that the pulley is operating on spring tension and not against the stop.

NOTE: Do not set the idler against the travel stop in the 3 o'clock position.

Tighten the mounting bolt (1) **[Figure 158]** to 34-38 Nm torque.

Run the engine for a few minutes. Stop the engine and recheck the pointer position. Readjust if necessary.

After the belt has been in service, readjust when the pointer reached the 1 o'clock position.

Install the belt shield and fasteners. Connect the negative (-) battery cable. Close the rear door.

Replacing The Drive Belt

Loosen and remove the drive belt tensioner assembly.

Remove the fan belt. Remove the drive belt from the pump pulley and then from the flywheel.

Install new drive belt. Install the belt tensioner assembly.

Install the fan belt.

Adjust the drive belt.

SPARK ARRESTOR MUFFLER

Use the correct service interval for cleaning the spark arrestor muffler. (See SERVICE SCHEDULE on Page 53.)

Do not operate the loader with a defective exhaust system.

IMPORTANT

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

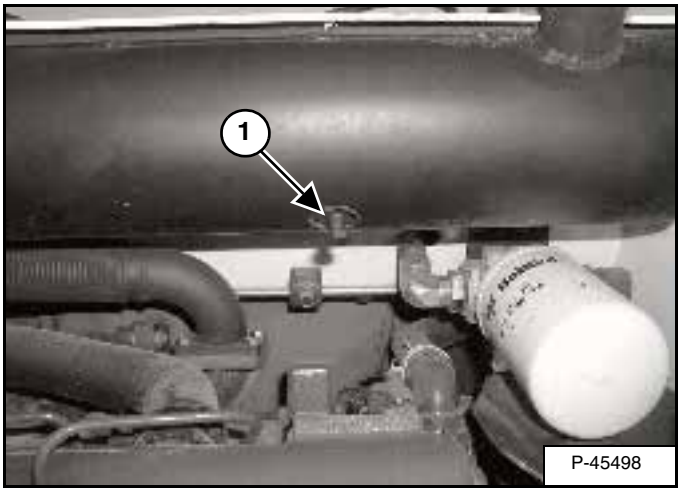
If this machine is operated on flammable forest, brush or grass covered land, it must be equipped with a spark arrestor attached to the exhaust system and maintained in working order.

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

I-2022-0595

Stop the engine and open the rear door.

Figure 160



Remove the plug (1) **[Figure 160]** from the bottom of the muffler.

WARNING

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

W-2006-0284

Start the engine and run for about 10 seconds while a second person, wearing safety goggles, holds a piece of wood over the outlet of the muffler.

This will force contaminants out through the cleanout hole.

Stop the engine.

Install and tighten the plug.

Close the rear door.

WARNING

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

W-2050-1285

WARNING

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

W-2011-1285

WARNING

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

W-2068-1285

LUBRICATING THE BOBCAT LOADER

Lubrication Locations

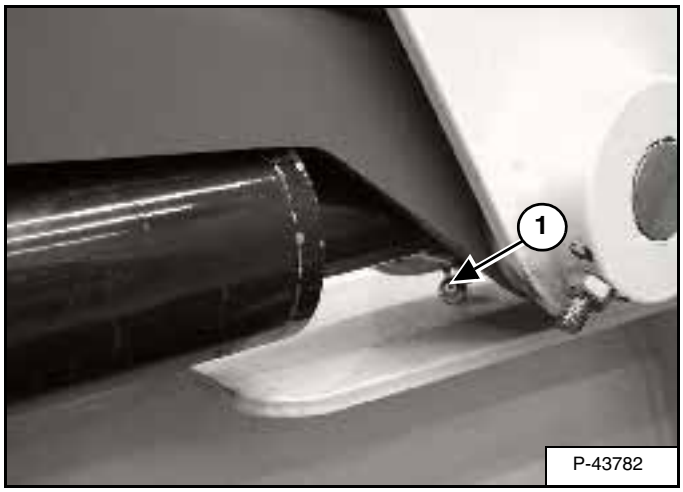
Lubricate the loader as specified for the best performance of the loader (See SERVICE SCHEDULE on Page 53).

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

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

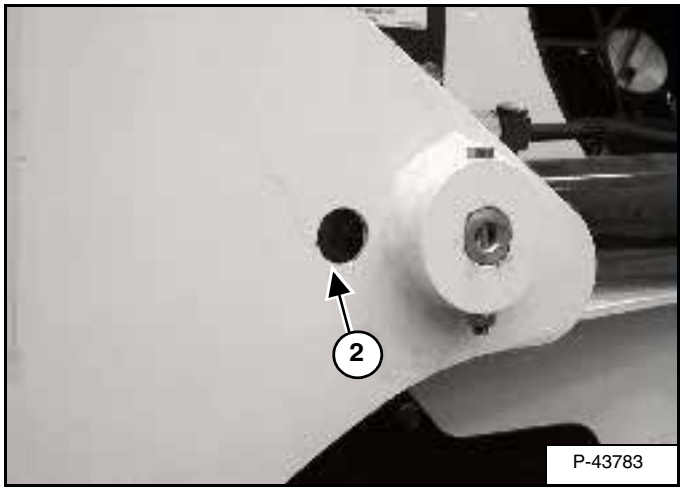
Lubricate the following:

Figure 161



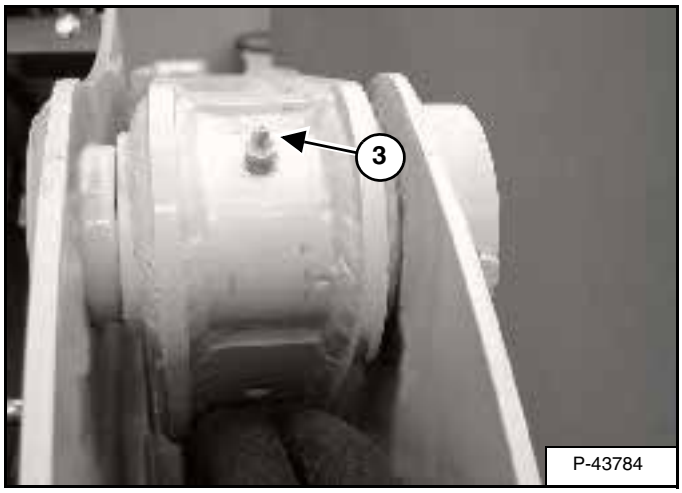
1. Rod End Lift Cylinder (Both Sides) **[Figure 161]**.

Figure 162



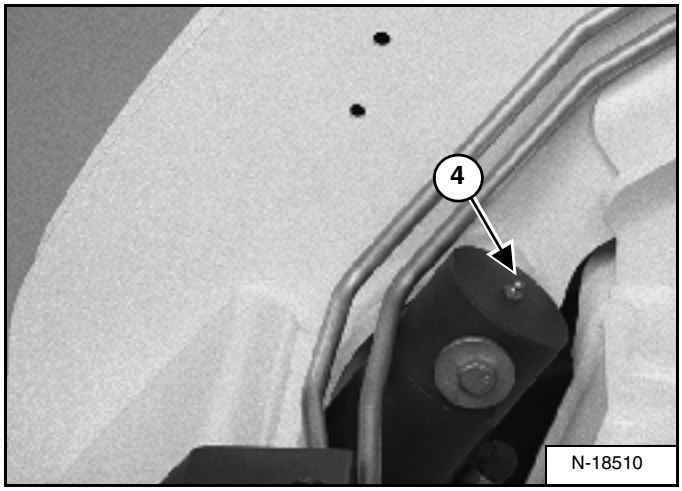
2. Base End Lift Cylinder (Both Sides) **[Figure 162]**.

Figure 163



3. Lift Arm Pivot Pin (Both Sides) **[Figure 163]**.

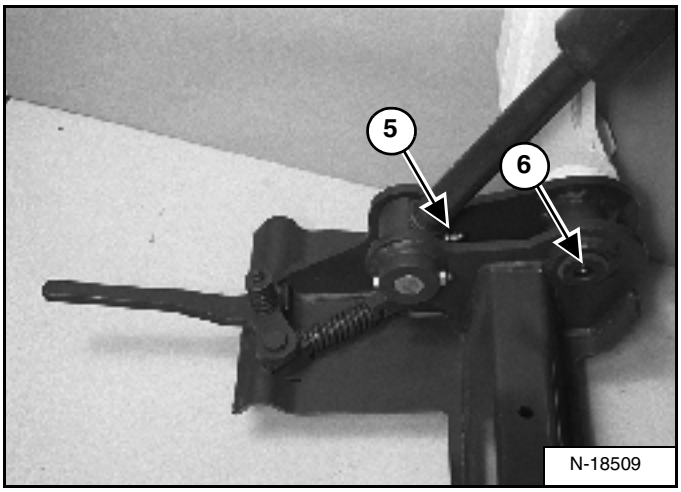
Figure 164



4. Base End Tilt Cylinder (Both Sides) **[Figure 164]**.

Lubrication Locations (Cont'd)

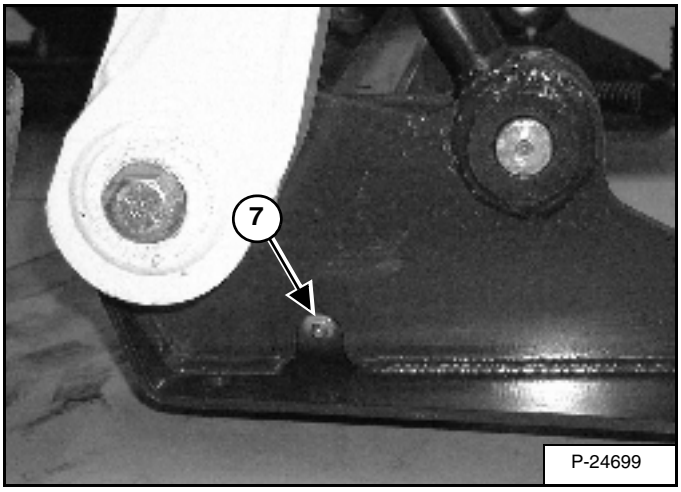
Figure 165



5. Rod End Tilt Cylinder (Both Sides) **[Figure 165]**.

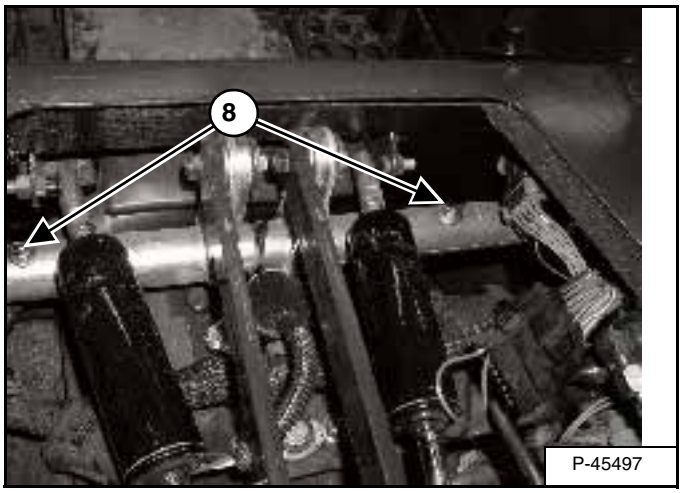
6. Bob-Tach Pivot Pin (Both Sides) **[Figure 165]**.

Figure 166



7. Bob-Tach Wedge (Both Sides) **[Figure 166]**.

Figure 167

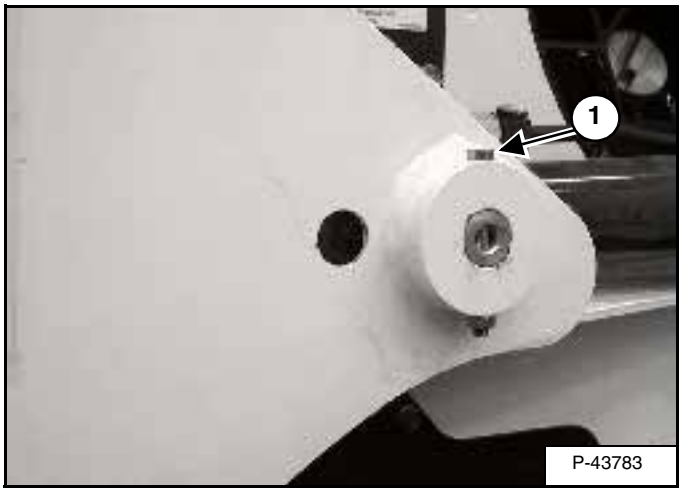


8. 250 Hours: Steering Lever Shaft (2) **[Figure 167]**.

PIVOT PINS

Inspection And Maintenance

Figure 168



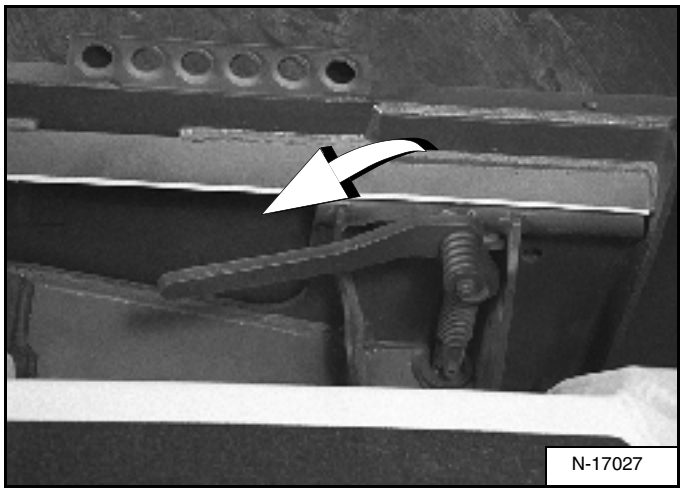
All lift arm and cylinder pivots have a large pin held in position with a retainer bolt and lock nut (1) **[Figure 168]**.

Check that the lock nuts are tightened to 34-38 Nm torque.

BOB-TACH (HAND LEVER)

Inspection And Maintenance

Figure 169



Move the Bob-Tach levers down to engage the wedges **[Figure 169]**.

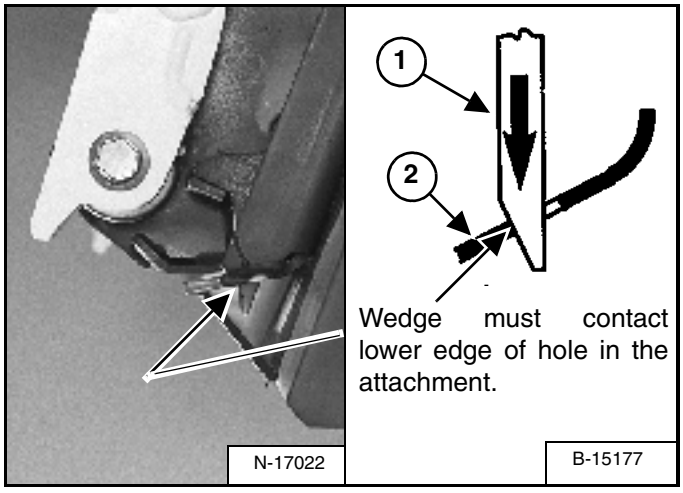
The levers and wedges must move freely.

⚠ WARNING

Bob-Tach wedges must extend through the holes in attachment. Levers must be fully down and locked. Failure to secure wedges can allow attachment to come off and cause injury or death.

W-2102-0588

Figure 170

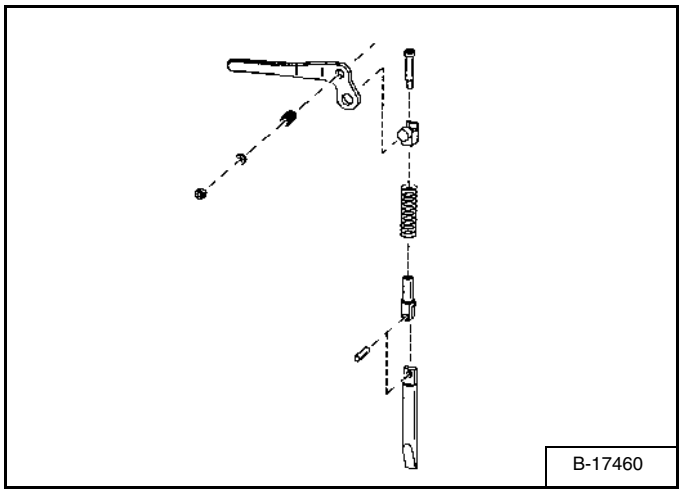


The wedges (1) **[Figure 170]** must extend through the holes in the attachment mounting frame.

The spring loaded wedge (1) **[Figure 170]** must contact the lower edge of the hole in the attachment (2) **[Figure 170]**.

If the wedge does not contact the lower edge of the hole **[Figure 170]**, the attachment will be loose and can come off the Bob-Tach.

Figure 171



Inspect the mounting frame on the attachment and Bob-Tach, linkages and wedges for excessive wear or damage **[Figure 171]**. Replace any parts that are damaged, bent or missing. Keep all fasteners tight.

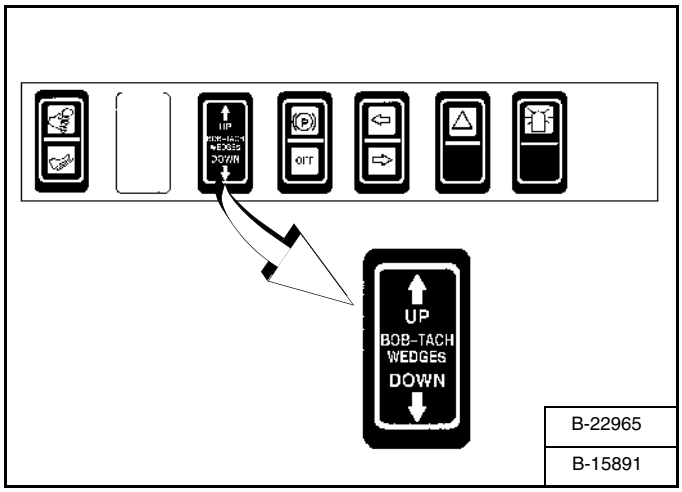
Look for cracked welds. Contact your Bobcat dealer for repair or replacement parts.

Lubricate the wedges (See SERVICE SCHEDULE on Page 53) and (See LUBRICATING THE BOBCAT LOADER on Page 81).

BOB-TACH (POWER) (OPTIONAL)

Inspection And Maintenance

Figure 172



Push and hold the BOB-TACH “WEDGES UP” switch **[Figure 172]** until wedges are fully raised. Push and hold the BOB-TACH “WEDGES DOWN” switch **[Figure 172]** until the wedges are fully down.

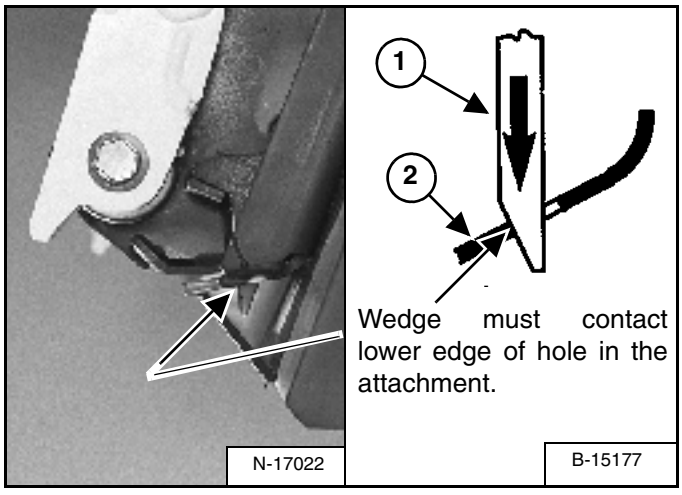
The levers and wedges must move freely.

⚠ WARNING

Bob-Tach wedges must extend through the holes in attachment. Levers must be fully down and locked. Failure to secure wedges can allow attachment to come off and cause injury or death.

W-2102-0588

Figure 173

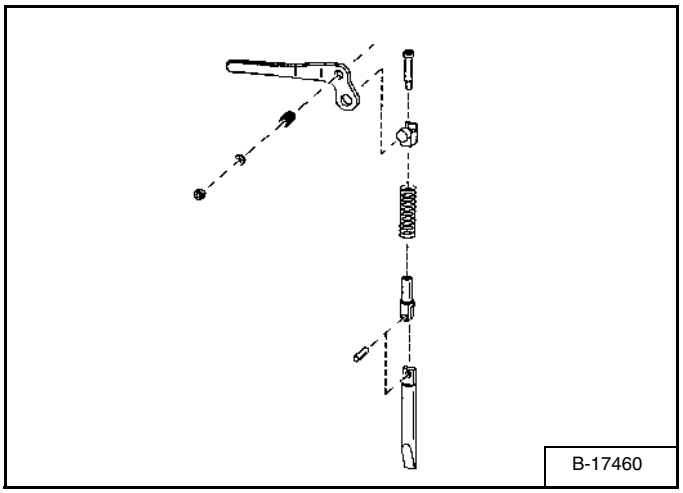


The wedges must extend through the holes in the attachment mounting frame (1) **[Figure 173]**.

The spring loaded wedge (1) **[Figure 173]** must contact the lower edge of the hole in the attachment (2) **[Figure 173]**.

If the wedge does not contact the lower edge of the hole **[Figure 173]**, the attachment will be loose and can come off the Bob-Tach.

Figure 174



Inspect the mounting frame on the attachment and the Bob-Tach, linkages and wedges for excessive wear or damage **[Figure 174]**. 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 53) and (See LUBRICATING THE BOBCAT LOADER on Page 81).

SYSTEM SETUP & ANALYSIS


Bobcat®

BICS™ SYSTEM

Troubleshooting Guide

The following list shows the effects which can happen to the loader, and the probable causes when the BICS System lights are off or flashing and associated service code. (See DIAGNOSTICS SERVICE CODES on Page 88.)

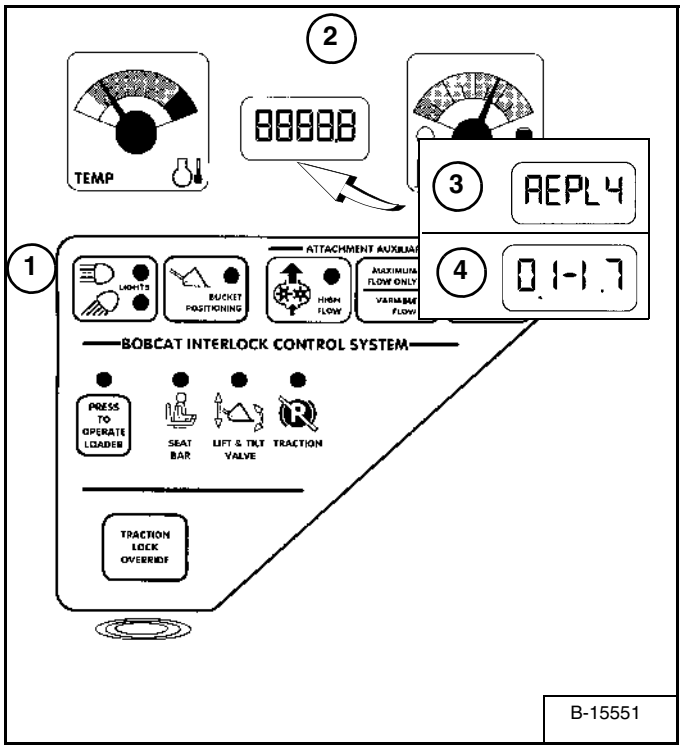
Indicator Light	Light ON	Light OFF	Effect on Operation of Loader When Light is OFF	SERVICE CODES Means System Error (See Your Bobcat Dealer for Service)		
				No. of Flashes	Service Code	Causes
	PRESS TO OPERATE LOADER Button is pressed.	PRESS TO OPERATE LOADER Button is not pressed.	----	----	----	----
	Seat Bar is down.	Seat Bar is up.	Lift and tilt functions will not operate.	2	11-05	Seat Bar sensor circuit shorted to battery voltage*.
				3	11-06	Seat Bar sensor circuit shorted to ground.
				Continuous Flashing	03-09 03-10	System voltage low System voltage high
	Control valve can be used.	Control valve cannot be used.	Lift, tilt and traction functions will not operate.	1	17-07	Valve output circuit is open.
				2	17-05	Valve output circuit shorted to battery voltage*.
				3	17-06	Valve output circuit shorted to ground.
				3	17-06	Controller not grounded or intermittent ground.
				Continuous Flashing	03-09 03-10	System voltage low System voltage high
	Loader can be moved forward & backward.	Loader cannot be moved forward and backward.	Loader cannot be moved forward and backward.	1	16-07	Traction lock hold solenoid circuit is open.
				2	16-05	Traction lock hold solenoid circuit shorted to battery voltage*.
				3	16-06	Traction lock hold solenoid circuit shorted to ground.
				5	15-02	Traction lock pull solenoid circuit is shorted to battery voltage* – ERROR ON (Should be OFF).
				6	15-03	Traction lock pull solenoid circuit ERROR OFF (Should be ON).
				Continuous Flashing	03-09 03-10	System voltage low System voltage high

* Normal BICS operating voltage is less than electrical system voltage.

DIAGNOSTICS SERVICE CODES

Display

Figure 175



Press and hold the LIGHTS Button (1) **[Figure 175]** for two seconds to view SERVICE CODES in the HOURMETER / CODE DISPLAY (2). If more than one SERVICE CODE is present, the codes will scroll on the HOURMETER / CODE DISPLAY.

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, could indicate a bad ground. The same symptoms could apply if the voltage is low, such as loose or corroded battery cables. If you observe these symptoms, check grounds and positive leads first.

SERVICE CODES may be either a word (3) **[Figure 175]** or a number (4). (See the following pages for the number codes.)

The following word errors may be displayed.

REPLY One or both instrument panel(s) not communicating with the controller.

INPUT The controller not communicating with the left instrument panel.

CODE The controller is asking for a password. (Deluxe instrument panel only.)

ERROR The wrong password was entered. (Deluxe instrument panel only.)

DIAGNOSTICS SERVICE CODES (CONT'D)

Number Codes List

CODE		CODE	
01-16	Air filter not connected	11-05	Seat bar sensor short to battery
01-17	Air filter plugged	11-06	Seat bar sensor short to ground
02-16	Hydraulic charge filter not connected	12-21	Front auxiliary PWM switch out of range high
02-17	Hydraulic charge filter plugged	12-22	Front auxiliary PWM switch out of range low
		12-23	Front auxiliary PWM switch not in neutral
03-09	Battery voltage low		
03-10	Battery voltage high	13-05	Fuel shut-off hold solenoid short to battery
03-11	Battery voltage extremely high	13-06	Fuel shot-off hold solenoid short to ground
03-14	Battery voltage extremely low	13-07	Fuel shut-off solenoid open circuit
03-22	Battery voltage out of range low		
		14-02	Fuel shut-off pull solenoid error ON
04-09	Engine oil pressure low	14-03	Fuel shut-off pull solenoid error OFF
04-14	Engine oil pressure extremely low		
04-15	Engine oil pressure shutdown level	15-02	Traction lock pull solenoid error ON
04-21	Engine oil pressure out of range high	15-03	Traction lock pull solenoid error OFF
04-22	Engine oil pressure out of range low		
		16-05	Traction lock hold solenoid short to battery
05-09	Hydraulic charge pressure low	16-06	Traction lock hold solenoid short to ground
05-14	Hydraulic charge pressure extremely low	16-07	Traction lock hold solenoid open circuit
05-15	Hydraulic charge pressure shutdown level		
05-21	Hydraulic charge pressure out of range high	17-05	Hydraulic lock valve solenoid short to battery
05-22	Hydraulic charge pressure of range low	17-06	Hydraulic lock valve solenoid short to ground
		17-07	Hydraulic lock valve solenoid open circuit
06-10	Engine speed high		
06-11	Engine speed extremely high	18-05	Spool Lock Solenoid short to battery
06-13	Engine speed no signal	18-06	Spool Lock Solenoid short to ground
06-15	Engine speed shutdown level	18-07	Spool Lock Solenoid open circuit
06-18	Engine speed out of range		
		19-02	Bucket position solenoid error ON
07-10	Hydraulic oil temperature high	19-03	Bucket position solenoid error OFF
07-11	Hydraulic oil temperature extremely high		
07-15	Hydraulic oil temperature shutdown level	20-02	Two-speed solenoid error ON
07-21	Hydraulic oil temperature out of range high	20-03	Two-speed solenoid error OFF
07-22	Hydraulic oil temperature out of range low		
		21-02	Glow plug error ON
08-10	Engine coolant temperature high	21-03	Glow plug error OFF
08-11	Engine coolant temperature extremely high		
08-15	Engine coolant temperature shutdown level	22-02	Starter error ON
08-21	Engine coolant temperature out of range high	22-03	Starter error OFF
08-22	Engine coolant temperature out of range low		
		23-02	Rear base solenoid error ON
09-09	Fuel level low	23-03	Rear base solenoid error OFF
09-21	Fuel level out of range high		
09-22	Fuel level out of range low	24-02	Rear rod solenoid error ON
		24-03	Rear rod solenoid error OFF

Number Codes List (Cont'd)

CODE		CODE	
25-02	Rear auxiliary relief solenoid error ON	32-61	Handle lock short to ground
25-03	Rear auxiliary relief solenoid error OFF	32-62	Handle lock short to battery
		32-63	Pedal lock short to ground
26-02	Front base solenoid error ON	32-64	Pedal lock short to battery
26-03	Front base solenoid error OFF	32-65	Sensor supply voltage out of range
		32-66	Battery voltage out of range
27-02	Front rod solenoid error ON	32-67	Switch flipped while operating
27-03	Front rod solenoid error OFF	32-68	Lift handle information error
		32-69	Control pattern switch flipped while operating
28-02	Diverter solenoid error ON	32-70	Right drive handle short to ground
28-03	Diverter solenoid error OFF	32-71	Right drive handle short to battery
29-02	High flow solenoid error ON	33-23	Main Controller (Bobcat Controller) not programmed
29-03	High flow solenoid error OFF		
		34-04	Deluxe panel no communication to Bobcat controller
30-28	Controller Memory failure		
		35-02	Two-speed fan error ON
31-28	Interrupted power failure	35-03	Two-speed fan error OFF
32-04	ACS not communicating with Bobcat Controller	36-48	ACD multiple controllers present
32-23	ACS Not calibrated		
32-31	Tilt actuator fault	37-02	Two-speed secondary error ON
32-32	Tilt actuator wiring fault	37-03	Two-speed secondary error OFF
32-33	Tilt handle wiring fault		
32-34	Tilt actuator not in neutral		
32-35	Tilt handle/pedal not in neutral		
32-36	Lift actuator fault		
32-37	Lift actuator wiring fault		
32-38	Lift handle wiring fault		
32-39	Lift actuator not in neutral		
32-40	Lift handle/pedal not in neutral		
32-41	No communication		
32-49	Lift actuator short to ground		
32-50	Tilt actuator short to ground		
32-51	Lift actuator short to battery		
32-52	Tilt actuator short to battery		
32-53	Lift handle/pedal short to ground		
32-54	Tilt handle/pedal short to ground		
32-55	Lift handle/pedal short to battery		
32-56	Tilt handle/pedal short to battery		
32-57	Lift actuator reduced performance		
32-58	Tilt actuator reduced performance		
32-59	Lift actuator wrong direction		
32-60	Tilt actuator wrong direction		

DIAGNOSTICS SERVICE CODES (CONT'D)

Number Codes List (Cont'd)

CODE		CODE	
38-04	No communication from joystick controller	38-53	Left forward drive solenoid error OFF
38-05	Left joystick X axis not in neutral	38-54	Left reverse drive solenoid error OFF
38-06	Right joystick X axis not in neutral	38-55	Right forward drive solenoid error OFF
38-07	Left joystick Y as not in neutral	38-56	Right reverse drive solenoid error OFF
38-08	Right joystick Y axis not in neutral	38-57	Front right extend steering solenoid error OFF
38-09	Control pattern switch - Short to Battery or Ground	38-58	Front right retract steering solenoid error OFF
38-11	Lift actuator not in neutral	38-59	Front left extend steering solenoid error OFF
38-12	Tilt actuator not in neutral	38-60	Front left retract steering solenoid error OFF
38-13	Lift actuator fault	38-61	Rear right extend steering solenoid error OFF
38-14	Tilt actuator fault	38-62	Rear right retract steering solenoid error OFF
38-15	Right wheel speed fault	38-63	Rear left extend steering solenoid error OFF
38-16	Left wheel speed fault	38-64	Rear left retract steering solenoid error OFF
38-17	Tilt actuator reduced performance	38-65	Steering pressure solenoid error OFF
38-18	Lift actuator reduced performance	38-66	Back-up alarm error OFF
38-19	Left joystick X axis out of range high	38-67	No communication from Bobcat controller
38-20	Right joystick X axis out of range low	38-68	Wheel angles (alignment) not calibrated
38-21	Left joystick Y axis out of range high	38-69	Lift & tilt actuators not calibrated
38-22	Right joystick Y axis out of range high	38-70	Interrupted power
38-23	Front right steering sensor out of range high	38-71	Battery out of range
38-24	Front left steering sensor out of range high	38-72	Drive pump not calibrated
38-25	Rear right steering sensor out of range high	38-73	Steering mode/drive mode switch flipped while operating
38-26	Rear left steering sensor out of range high	38-74	Uncommanded right wheel speed error ON
38-27	Lift actuator out of range high	38-75	Uncommanded left wheel speed error ON
38-28	Tilt actuator out of range high	38-76	Undercurrent steer pressure solenoid
38-29	Left joystick X axis out of range low	38-77	Undercurrent front right extend steer solenoid
38-30	Right joystick X axis out of range low	38-78	Undercurrent front right retract steer solenoid
38-31	Left joystick Y axis out of range low	38-79	Undercurrent front left extend steer solenoid
38-32	Right joystick Y axis out of range low	38-80	Undercurrent front left retract steer solenoid
38-33	Front right steering sensor out of range low	38-81	Undercurrent rear right extend steer solenoid
38-34	Front left steering sensor out of range low	38-82	Undercurrent rear right retract steer solenoid
38-35	Rear right steering sensor out of range low	38-83	Undercurrent rear left extend steer solenoid
38-36	Rear left steering sensor out of range low	38-84	Undercurrent rear left retract steer solenoid
38-37	5 volt sensor supply 1 out of range low	38-85	5 Volt sensor supply 1 out of range high
38-38	5 volt sensor supply 2 out of range low	38-86	5 Volt sensor supply 2 out of range high
38-39	Lift actuator short to ground/out of range low	38-87	Front right wheel blocked (steering mechanical failure)
38-40	Tilt actuator short to ground/out of range low	38-88	Front left wheel blocked (steering mechanical failure)
38-41	Tilt actuator wrong direction	38-89	Rear right wheel blocked (steering mechanical failure)
38-42	Lift actuator wrong direction	38-90	Rear left steering error
38-43	Left forward drive solenoid error ON	38-91	Right speed sensor missing pulses
38-44	Left reverse drive solenoid error ON	38-92	Left speed sensor missing pulses
38-45	Right forward drive solenoid error ON	38-93	Unresponsive right speed sensor
38-46	Right reverse drive solenoid error ON	38-94	Unresponsive left speed sensor
38-47	Front right steering solenoid error ON	38-98	Controller in drive calibration mode
38-48	Front left steering solenoid error ON	38-99	Controller in wheel position calibration mode.
38-49	Rear right steering solenoid error ON		
38-50	Rear left steering solenoid error ON		
38-51	Steering pressure solenoid error ON		
38-52	Back-up alarm error ON		

DIAGNOSTICS SERVICE CODES (CONT'D)

Number Codes List (Cont'd)

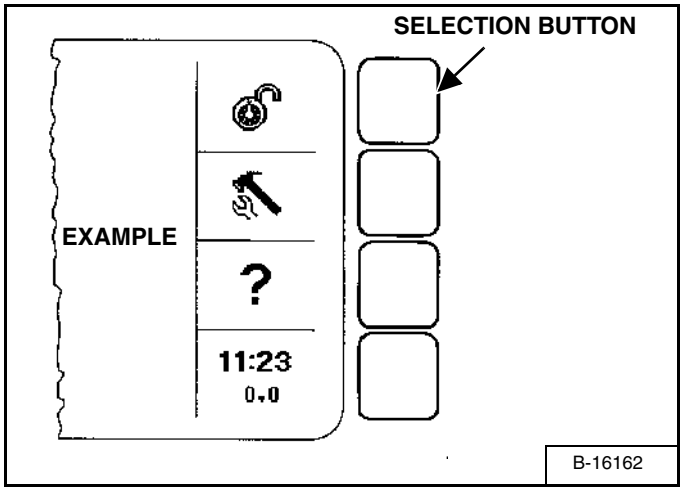
CODE		CODE	
39-04	Left joystick no communication to Bobcat controller	85-02	ACD output 'F' error ON
		85-03	ACD output 'F' error OFF
40-04	Right joystick no communication to Bobcat controller		
		86-02	ACD output 'G' error ON
44-02	Horn error ON	86-03	ACD output 'G' error OFF
44-03	Horn error OFF		
		87-02	ACD output 'H' error ON
45-02	Right blinker error ON	87-03	ACD output 'H' error OFF
45-03	Right blinker error OFF		
		90-02	Service tool output 'C' error ON
46-02	Left blinker error ON	90-03	Service tool output 'C' error OFF
46-03	Left blinker error OFF		
		91-02	Service tool output 'D' error ON
47-21	8 volt sensor supply out of range high	91-03	Service tool output 'D' error OFF
47-22	8 volt sensor supply out of range low		
		92-02	Service tool output 'E' error ON
48-02	Front light relay error ON	92-03	Service tool output 'E' error OFF
48-03	Front light relay error OFF		
		93-02	Service tool output 'F' error ON
49-02	Rear light relay error ON	93-03	Service tool output 'F' error OFF
49-03	Rear light relay error OFF		
60-21	Rear auxiliary control out of range high		
60-22	Rear auxiliary control out of range low		
60-23	Rear auxiliary control not returning to neutral		
64-02	Switched power relay error ON		
64-03	Switched power relay error OFF		
74-72	Bobcat controller in boot code		
74-73	Left hand panel system RX error		
80-02	ACD output 'A' error ON		
80-03	ACD output 'A' error OFF		
81-02	ACD output 'B' error ON		
81-03	ACD output' B' error OFF		
82-02	ACD output 'C' error ON		
82-03	ACD output 'C' error OFF		
83-02	ACD output 'D' error ON		
83-03	ACD output 'D' error OFF		
84-02	ACD output 'E' error ON		
84-03	ACD output 'E' error OFF		

DELUXE INSTRUMENT PANEL SETUP

Deluxe Panel Upgrade

Icon Identification

Figure 176



Make selection by pressing SELECTION BUTTON opposite the Icon **[Figure 176]**.

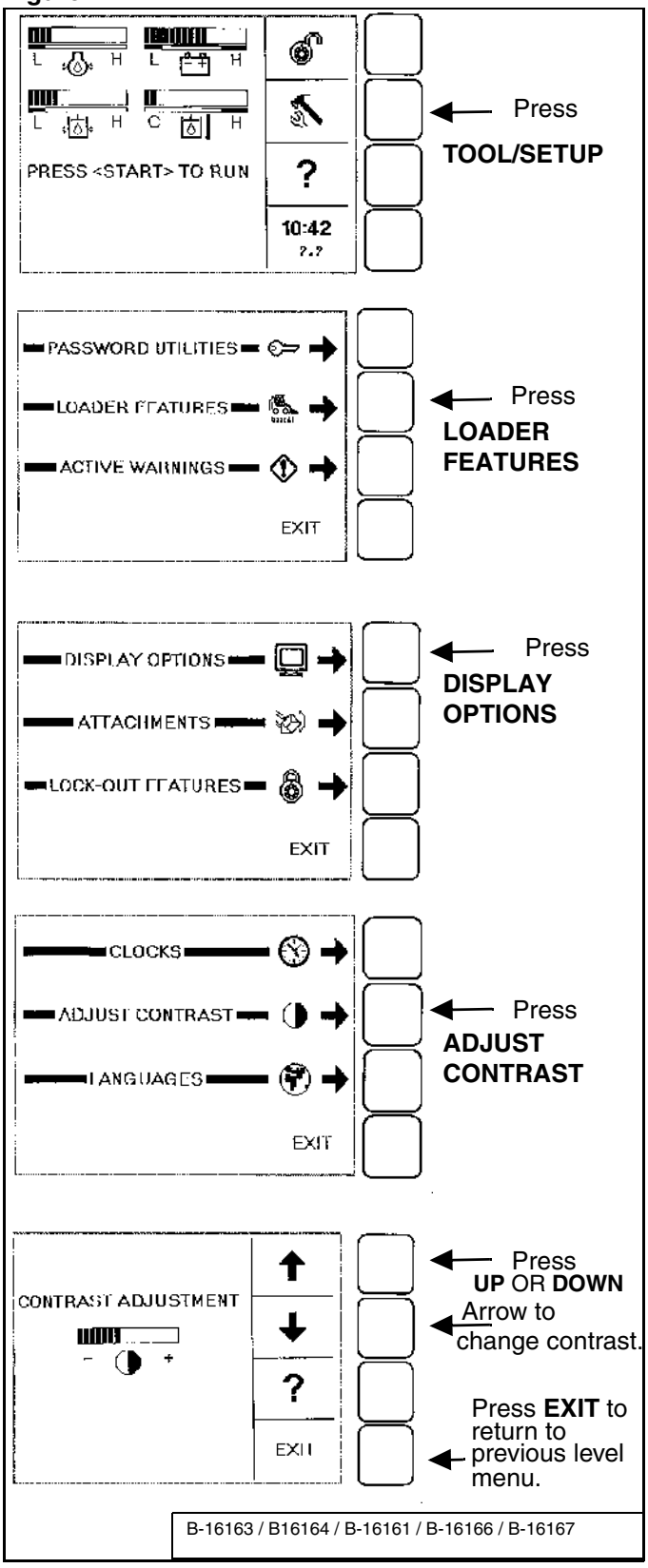
ICON	DESCRIPTION
	**LOCK / UNLOCK:** Allows machine to be locked/ unlocked. You must lock machine to activate security system. When system is unlocked, the user can press RUN / ENTER then press START to begin operation. A valid password will need to be entered at startup to run a locked machine.
	**TOOL / SETUP:** Access system options. Use to set clock, check system warnings, select language, set passwords, etc.
?	**HELP:** Access help on current menu item.
EXIT	**EXIT** returns you to previous level menu.
11:23 0.0	**CLOCK / JOB CLOCK:** Press to clear or lock job clock; TOOL/SETUP to set time.
 	**UP ARROW:** Goes backward one screen. **DOWN ARROW:** Goes forward one screen.
	**OUTLINE ARROWS:** No screen available (backward/forward).
	**SELECTION ARROW:** Use to select menu item.
NEXT	Goes to the NEXT screen in series. EXAMPLE: the next Active Warning screen.
INFO	Goes to more information about an attachment.
YES / NO	Answer yes/no to current setup question.
CLEAR	Removes previously installed password.
SET	Set accepts current installed password.

DELUXE INSTRUMENT PANEL SETUP (CONT'D)

Deluxe Panel Setup

Display Options

Figure 177



B-16163 / B16164 / B-16161 / B-16166 / B-16167

All new machines with Deluxe Instrumentation arrive at Bobcat Dealerships with the panel in locked mode. This means that a password must be used to start the engine **[Figure 177]**.

Passwords (Deluxe)

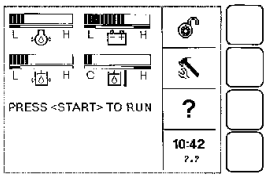
For security purposes, your dealer may change the password and also set it in the locked mode. Your dealer will provide you with the password.

Owner Password:
Allows for full use of the loader and to setup the Deluxe Panel. Owner can select a password to allow starting & operating the loader and modify the setup of the Deluxe Panel. 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.

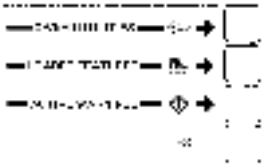
Passwords (Deluxe) (Cont'd)

Changing the Password - Right Instrument Panel Display Screen



B-16163

← Press **TOOL / SETUP**

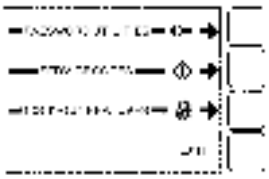


B-24288

← Press **OWNER UTILITIES**

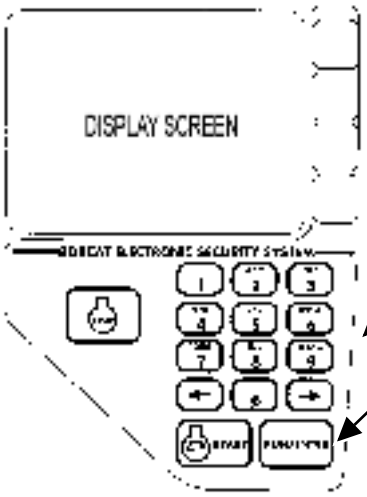
B-24290

Enter **PASSWORD** (owner or master) on ***Keypad*** then press **ENTER** to Continue

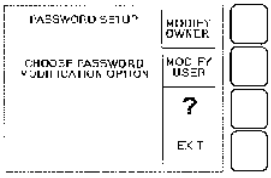


B-24291

← Press **PASSWORD UTILITIES**

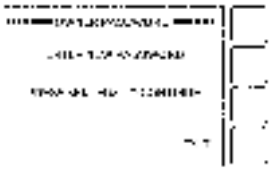


OWNER PASSWORD



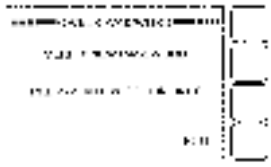
B-16171

← Press **MODIFY OWNER**



B-24292

Enter new **OWNER PASSWORD** on ***Keypad*** then press ***ENTER*** to Continue.



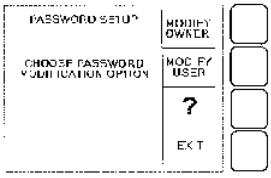
B-24293

Re-Enter new **OWNER PASSWORD** on ***Keypad*** then press ***ENTER*** to Continue.

B-24294

OWNER PASSWORD procedure is now complete.

USER PASSWORD



B-16171

← Press **MODIFY USER**

B-24295

Enter **USER** number on ***Keypad*** (There can be up to 8 different Users, each with their own password) then press ***ENTER*** to Continue.

B-24296

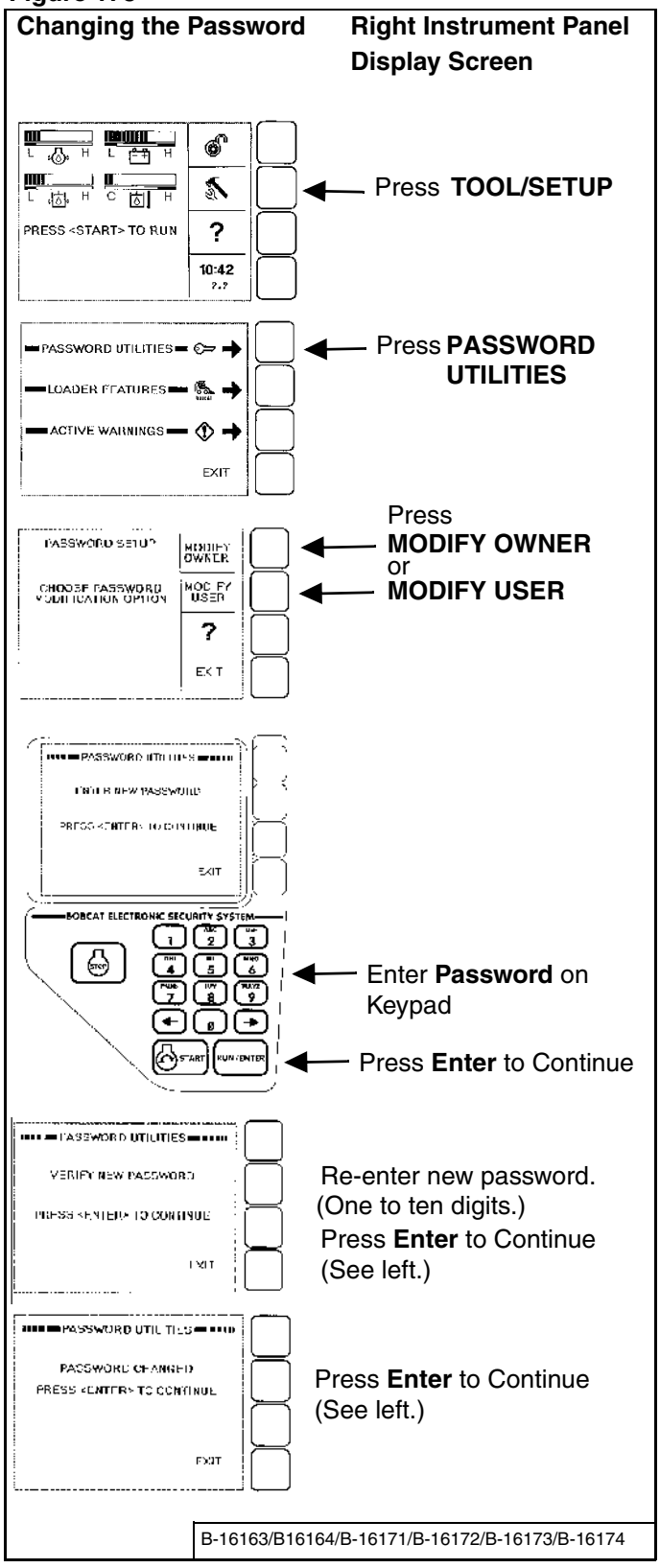
Enter **USER PASSWORD** on ***Keypad*** then press ***ENTER*** to Continue.

B-24297

USER PASSWORD procedure **is now complete.**

Passwords (Deluxe) (Cont'd)

Figure 178



B-16163/B16164/B-16171/B-16172/B-16173/B-16174

More EXAMPLES:

Clocks

TOOL / SETUP [Figure 178]

LOADER FEATURES.
DISPLAY OPTIONS
CLOCKS
SET CLOCK
Use the keypad to set time.
Press **RUN / ENTER** to set clock.
Press **EXIT** to return to previous level menu.

RESET JOB CLOCK (Password required)
Press **CLEAR** to reset job clock to zero.
Press **LOCK / UNLOCK** to unlock.
Enter Password and press **RUN / ENTER**.

Languages

TOOL / SETUP
LOADER FEATURES.
DISPLAY OPTIONS
LANGUAGES
Select the language, press **RUN / ENTER**.
Press **EXIT** to return to previous level menu.

Vitals (Monitor engine, hydraulic/hydrostatic, electrical functions when engine is running.)

TOOL / SETUP
LOADER FEATURES.
VITALS
Press **SELECTION ARROW** to select METRIC or ENGLISH **(M / E)** readouts

You can monitor real-tim readouts of:
Engine Oil Pressure
Engine Coolant Temperature
Hydraulic Charge Pressure
Hydraulic Ouil Temperature
System Voltage
Engine Speed

The Display Panel is easy to use. Continue to set your own preferences for running/monitoring your Bobcat loader.

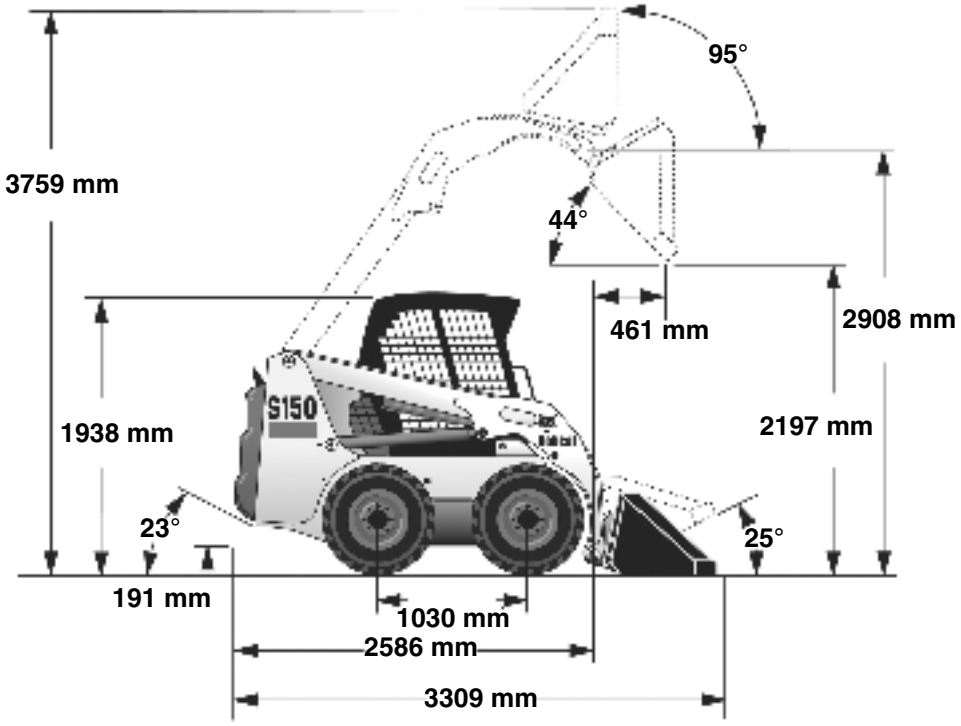
SPECIFICATIONS


Bobcat®

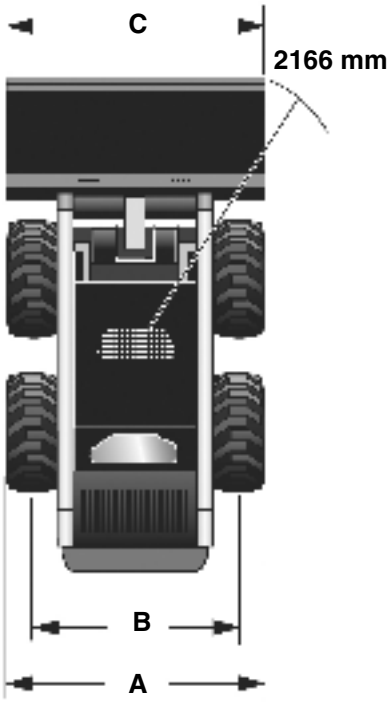
LOADER SPECIFICATIONS (S150)

Machine Dimensions

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



B-22353



B-22354

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.

LOADER SPECIFICATIONS (S150) (CONT'D)

Machine Rating

Lift breakout force	19350 N
Tilt breakout force	16013 N
Rated operating capacity (ISO 5998)	700 kg
Tipping load (ISO 8313)	1400 kg
Axle torque	6644 Nm

Function Time

Raise lift arms	3,67 s
Lower lift arms	2,10 s
Bucket rollback	1,85 s
Bucket dump	2,37 s

Weights

Operating weight	2613 kg
Shipping weight	2424 kg

Controls

Engine	Hand lever throttle
Starting	Key-type starter switch and shutdown or optional keyless start. Glow plugs automatically activated by Standard or Deluxe instrument panel.
Front auxiliary (standard)	Electrical switch on right-hand steering lever
Rear auxiliary (optional)	Electrical switch on left-hand steering lever
Loader hydraulics tilt and lift	Separate foot pedals or optional Advanced Control System (ACS), Advanced Hand Controls (AHC) or Selectable Joystick Controls (SJC)
Service brake	Two independent hydrostatic systems controlled by two hand-operated steering levers
Secondary brake	One of the hydrostatic transmissions
Parking brake	Mechanical disc, hand-operated rocker switch on dash panel
Vehicle steering	Direction and speed controlled by two hand levers
Auxiliary pressure release	Pressure is relieved through the coupler block. Push in and hold for 5 s.

LOADER SPECIFICATIONS (S150) (CONT'D)

Engine

Make/Model	Kubota / V2203-M-DI-E2B-BC-3
Fuel	Diesel
Cooling	Liquid
Power	34,3 kW
Rated speed (EEC 80/1269, ISO 9249)	2800 RPM
Torque at 1800 RPM (ISO 9249)	141 Nm
Number of cylinders	4
Displacement	2,2 l
Bore	87 mm
Stroke	92,4 mm
Fuel consumption	6,78 l/h (Estimated fuel consumption is based on testing by Bobcat Company in high duty-cycle digging applications.)
Lubrication	Pressure system with filter
Crankcase ventilation	Closed
Air filter	Dry replaceable cartridge with safety element
Ignition	Diesel-compression
Starting aid	Glow plugs

Electrical

Alternator	Belt driven - 90 A - open
Battery	12 V - 600 cold cranking A at -18°C - 115 min reserve capacity
Starter	12 V - gear reduction type - 2,7 kW

Hydraulic System

Pump type	Engine driven, gear type
Pump capacity at high idle	63 l/min
System relief at Quick Couplers	228 bar
Control valve	Three-spool, open-centre type with float detent on lift and electrically controlled auxiliary spool
Hydraulic filter	Full-flow replaceable - 3 µm synthetic media element
Fluid lines	SAE standard tubelines, hoses, and fittings

Hydraulic Cylinders

Lift cylinder (2)	Double-acting
Lift cylinder bore	57,2 mm
Lift cylinder rod	38,1 mm
Lift cylinder stroke	708,6 mm
Tilt cylinder (2)	Double-acting with cushioning feature on dump and rollback
Tilt cylinder bore	69,9 mm
Tilt cylinder rod	34,9 mm
Tilt cylinder stroke	335,0 mm

Drive System

Transmission	Infinitely variable tandem hydrostatic piston pumps, driving two fully reversing hydrostatic motors
Final drive chains	Pre-stressed #80 HSOC endless roller chain (no master link) and sprockets in sealed chaincase with oil lubrication. (Chains do not require periodic adjustments.) Two chains per side with no idler sprocket.
Main drive	Fully hydrostatic; four-wheel drive
Axle size	50,8 mm, heat treated
Wheel bolts	Eight 9/16-inch wheel bolts fixed to axle hubs

Traction

Standard tyres	10 x 16.5 - 10-ply - Bobcat heavy duty
Severe duty tyres	10 x 16.5 - 10-ply - Bobcat severe duty
Float tyres	31.5 x 13-16.5 - Bobcat super float
Travel speed	11,3 km/h

Instrumentation

The following loader functions are monitored by a combination of gauges and warning lights in the operator's line of sight. The system alerts the operator of monitored loader malfunctions by way of audible alarm and visual warning lights.

Standard Instrument Panel

- Gauges
  - Engine coolant temperature
  - Fuel
  - Hour-meter
- Warning lights
  - Advanced Control System (ACS)
  - Engine air filter
  - Engine coolant temperature
  - Engine oil pressure
  - Fuel level
  - General warning
  - Hydraulic filter
  - Hydraulic oil temperature
  - Hydrostatic charge pressure
  - Seat belt
  - System voltage
- Indicators
  - Attachment control device
  - BICS functions
  - Glow plugs

Deluxe Instrument Panel (Option)

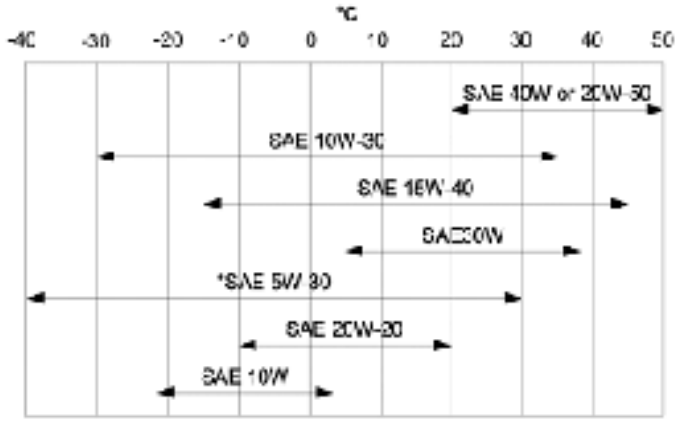
Same gauges, warning lights and other features as Standard Instrument Panel, plus:

- Bar-type gauges
  - Engine oil pressure
  - System voltage
  - Hydrostatic charge pressure
  - Hydraulic oil temperature
- Additional features
  - Keyless start with password capability
  - Digital clock
  - Job clock
  - Attachments information
  - Digital tachometer
  - High flow lockouts
  - Multi-language display
  - Help screens
  - Diagnostic capability
  - Engine/hydraulic systems shutdown function

Fluid Capacities

Chaincase reservoir capacity	34,0 l
Cooling system capacity without heater	10,4 l
Cooling system capacity with heater	11,4 l
Engine oil with filter capacity	7,1 l
Fuel tank capacity	87,1 l
Hydraulic reservoir capacity	18,2 l
Hydraulic/Hydrostatic system capacity	32,2 l

Fluid Specifications

Engine coolant	Polypropylene glycol/water mix (53% - 47%) with freeze protection to -37°C
Engine oil	Oil must meet API Service Classification of CD, CE, CF4, CG4, or better. Recommended SAE viscosity number for anticipated temperature range.  * Can by used only when available with appropriate diesel rating. For synthetic oil use the recommendation from the oil manufacturer.
Hydraulic fluid	Bobcat Fluid (P/N 6563328). If fluid is not available use 10W-30/10W Class SE motor oil for temperatures above -18°C or 5W-30 Class SE motor oil for temperatures below -18°C.

Environmental

Noise level L_{pA} (EU Directive 2000/14/EC)	85 dB(A)
Noise level L_{WA} (EU Directive 2000/14/EC)	104 dB(A)
Whole body vibration (ISO 2631-1)	1,97 ms^{-2}
Hand-arm vibration (ISO 5349-1)	2,77 ms^{-2}


Bobcat

WARRANTY

BOBCAT LOADERS

Ingersoll Rand International (IRI) warrants to its authorised dealers who in turn warrant to the end-user/owner that each new Bobcat loader will be free from proven defects in material and workmanship for twelve months from the date of delivery to the end-user/owner or 2000 hours of machine usage, whichever occurs first.

During the warranty period, the authorised Bobcat dealer shall repair or replace, at its option, without charge for parts, labour and travel time of mechanics, any part of the Bobcat product which fails because of defects in material or workmanship. The end-user/owner shall provide the authorised Bobcat dealer with prompt written notice of the defect and allow reasonable time for replacement or repair. Ingersoll Rand International may, at its option, request failed parts to be returned to the factory. Transportation of the Bobcat product to the authorized Bobcat dealer for warranty work is the responsibility of the end-user/owner.

The warranty does not apply to tyres or other trade accessories not manufactured by Ingersoll Rand. The owner shall rely solely on the warranty, if any, of the respective manufacturers thereof. The warranty does not cover replacement of scheduled service items such as oil, filters, tune-up parts, and other high-wear items. The warranty does not cover damages resulting from abuse, accidents, alterations, use of the Bobcat product with any bucket or attachment not approved by Ingersoll Rand, air flow obstructions, or failure to maintain or use the Bobcat product according to the instructions applicable to it.

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