

EN

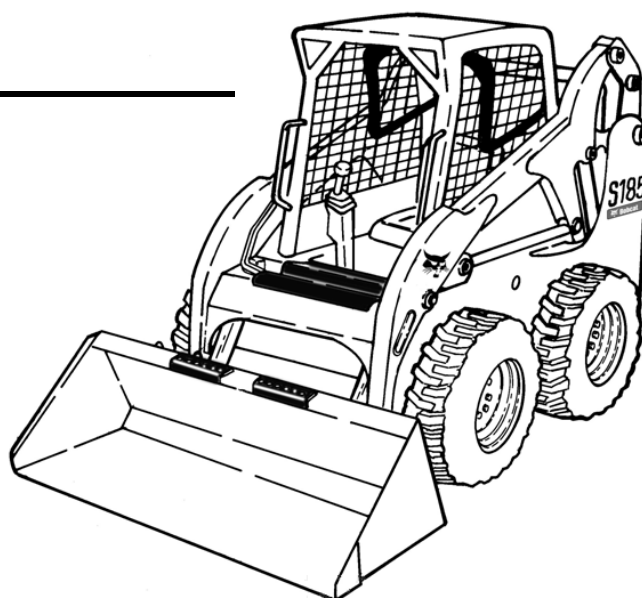
# S185



# Bobcat®

# Operation & Maintenance Manual

S/N AEYU11001 & Above



EQUIPPED WITH  
BOBCAT INTERLOCK  
CONTROL SYSTEM (BICS™)

7168131-EN (08-08)



Printed in Europe

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## FEATURES, ACCESSORIES AND ATTACHMENTS

### Standard Items

Model S185 Bobcat loaders are equipped with the following standard items:

- 7-pin attachment control kit
- Attachment electrical control kit
- Automatically activated glow-plugs
- Auxiliary hydraulics: variable flow / maximum flow
- Bob-Tach™ frame
- Bobcat Interlock Control System (BICS)
- CE certification
- Deluxe operator cab\*  
Includes interior cab foam, side, top and rear windows, Deluxe 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
- Warranty: 12 months or 2000 hours

\* **Roll Over Protective Structure (ROPS)** - meets requirements of SAE-J1040 and ISO 3471; **Falling Object Protective Structure (FOPS)** - meets requirements of SAE-J1043 and ISO 3449, Level I

## Options And Accessories

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

- Dealer Installed Accessories
  - Air conditioning kit
  - Back up alarm kit
  - Cab enclosure kit
  - Counterweight kit
  - Deluxe instrument panel
  - 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
  - Power Bob-Tach™ kit
  - Rear auxiliary hydraulic kit
  - Replacement Bob-Tach™
  - Replacement operator cab structure
  - Single-point lift kit
  - Special applications kit
- Factory Options
  - Advanced Control System (ACS)
  - Advanced Hand Controls (AHC)
  - Air conditioning
  - Cab enclosure with heat
  - Deluxe instrument panel
  - Heavy duty tyres with offset rims - 10-16.5 - 10-ply
  - Heavy Duty Wide Flotation tyres - 31 x 12-16.5 - 10-ply
  - Power Bob-Tach™
  - Selectable Joystick Controls (SJC)
  - Severe duty poly-filled tyres - 10-16.5 - 10-ply
  - Severe duty tyres - 10-16.5 - 10-ply
  - Two speed

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

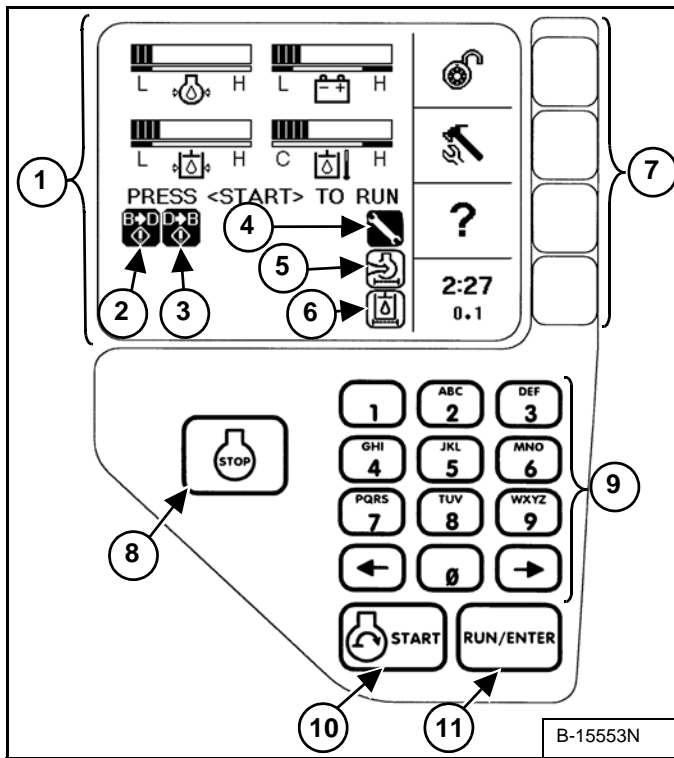
*Specifications subject to change without notice.*



## INSTRUMENT PANEL IDENTIFICATION (CONT'D)

### Deluxe Instrumentation Panel

Figure 12



This machine may be equipped with a Deluxe Instrumentation Panel [Figure 12].

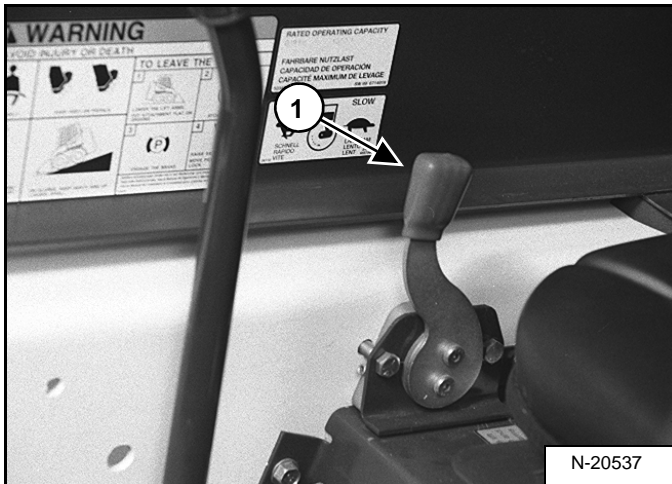
1. **Display Screen:** The Display Screen is where all system setup, monitoring, troubleshooting and error conditions are displayed.
2. **Bobcat Main Controller Error:** Indicates communication error between Bobcat Main Controller and Deluxe Instrumentation Panel. (See DIAGNOSTIC SERVICE CODES on Page 139.)
3. **Display Error:** Indicates communication error between instrument panel and Bobcat controller. (See DIAGNOSTIC SERVICE CODES on Page 139.)
4. **BobCARE<sup>PM</sup> SM Icon:** Indicates planned maintenance is due. (See MAINTENANCE CLOCK on Page 149.)
5. **Engine Air Filter Icon:** Indicates engine air filter requires service.
6. **Hydraulic Filter Icon:** Indicates hydraulic filter requires service.

7. **Selection Buttons:** The four Selection Buttons allow you to select items from the Display Screen and scroll through screens.
8. **Stop Button:** Used to stop the engine and shut down the loader's electrical system.
9. **Keypad:** The numeric keypad has two functions:
  - To enter a number code (password) to allow starting the engine.
  - To enter a number as directed for further use of the Display Screen.
10. **Start Button:** Used to start the engine.
11. **Run / Enter Button:** Used to turn on the loader's electrical system.

## ENGINE SPEED CONTROL

### Operation

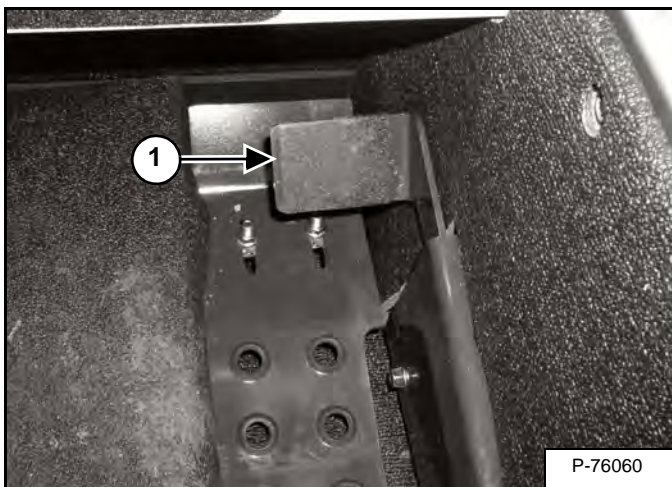
Figure 26



The engine speed control lever is at the right side of the operator's seat (1) [Figure 26].

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

Figure 27

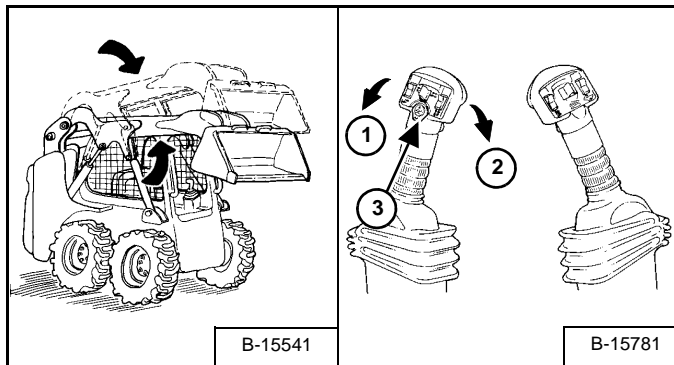


There is a foot operated engine speed control pedal (1) [Figure 27] in addition to the engine speed control lever on SJC equipped machines. It is located on the right side floor above the footrest.

## HYDRAULIC CONTROLS (CONT'D)

### Advanced Control System (ACS) In HAND Control Mode

Figure 46



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

Move the lever outward (1) [Figure 46] to raise the lift arms.

Move the lever inward (2) [Figure 46] to lower the lift arms.

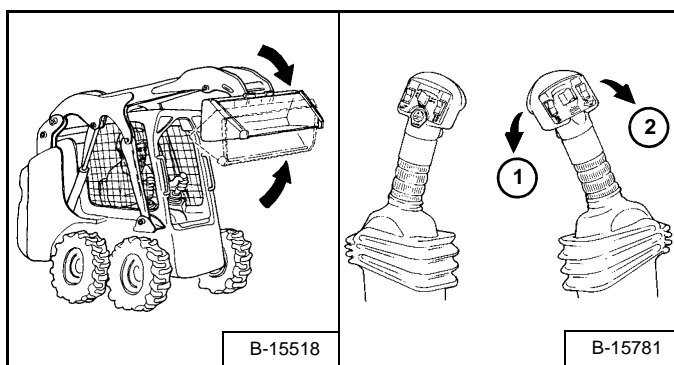
#### Lift Arm Float Position - (Left Hand Lever)

Press and hold the Float button (3) [Figure 46] while the lever is in neutral. Move the lever to lift arm down position (2) [Figure 46], then release the button.

Press Float button (3) [Figure 46] again or move the lever to lift arm up position to disengage.

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

Figure 47



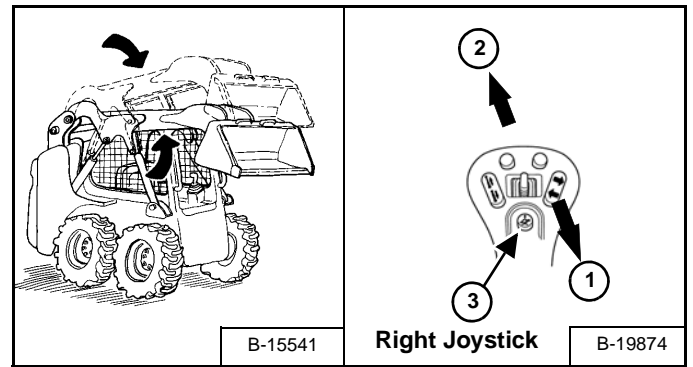
#### Tilt Operation - (Right Hand Lever)

Move the lever inward (1) [Figure 47] to tilt the bucket backward.

Move the lever outward (2) [Figure 47] to tilt the bucket forward.

### Selectable Joystick Controls (SJC) In "ISO" Control Pattern

Figure 48



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

Move the joystick backward (1) [Figure 48] to raise the lift arms.

Move the joystick forward (2) [Figure 48] to lower the lift arms.

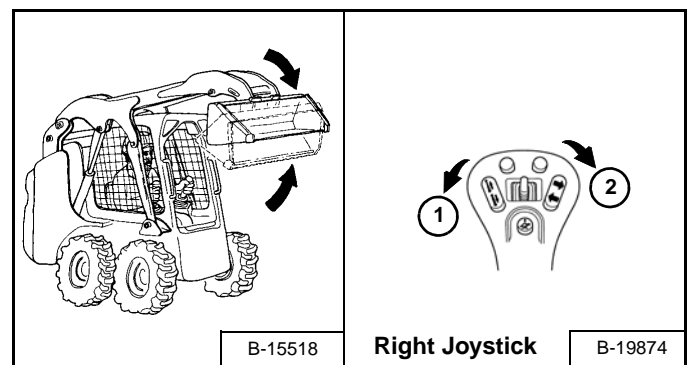
#### Lift Arm Float Position - (Right Hand Joystick)

Press and hold the Float button (3) [Figure 48] while the joystick is in neutral. Move the joystick to lift arm down position (2) [Figure 48], then release the button.

Press Float button (3) again or move the joystick to lift arm up position (1) [Figure 48] to disengage.

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

Figure 49



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

Move the joystick inward (1) [Figure 49] to tilt the bucket backward.

Move the joystick outward (2) [Figure 49] to tilt the bucket forward.

## DAILY INSPECTION (CONT'D)

### Daily Inspection And Maintenance

Maintenance work must be done at regular intervals. Failure to do so will result in excessive wear and early failures. The Service Schedule **[Figure 74]** is a guide for correct maintenance of the Bobcat loader. It is located inside the rear door of the loader.

- Engine Oil Level
- Hydraulic / Hydrostatic Fluid Level
- Engine Air Filter, Check System for Damage or Leaks
- Engine Coolant Level, 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
- Safety Treads and Safety Signs (Decals), Replace as necessary
- Lift Arm Support Device, Replace if Damaged
- Bobcat Interlock Control System (BICS)

## WARNING

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

W-2001-0502

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

## IMPORTANT

### PRESSURE WASHING DECALS

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

I-2226-0104

## MONITORING THE DISPLAY PANELS

### Left Panel

Figure 95



Frequently monitor the temperature and fuel gauges and BICS™ lights (all BICS™ lights must be OFF to operate loader) [Figure 95].

After the engine is running, frequently monitor the left instrument panel [Figure 95] for error conditions.

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

**EXAMPLE:** Engine Coolant Temperature is High.

The Engine Over-Temperature icon (1) [Figure 95] will be ON.

Press the Information button (2) [Figure 95] to cycle the data display until the service code screen is displayed. One of the following SERVICE CODES will be displayed.

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

Find the cause of the error code and correct before operating the loader again. (See Service Codes List on Page 140.)

## Warning And Shutdown

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

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

The SHUTDOWN feature is associated with the following icons:

- General Warning**
- Engine Malfunction**
- Engine Coolant Temperature**
- Hydraulic System Malfunction**

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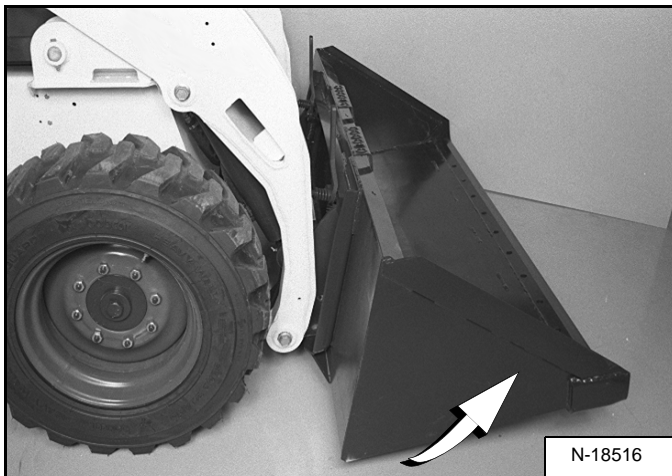
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## ATTACHMENTS (CONT'D)

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

*Installing (Cont'd)*

Figure 113

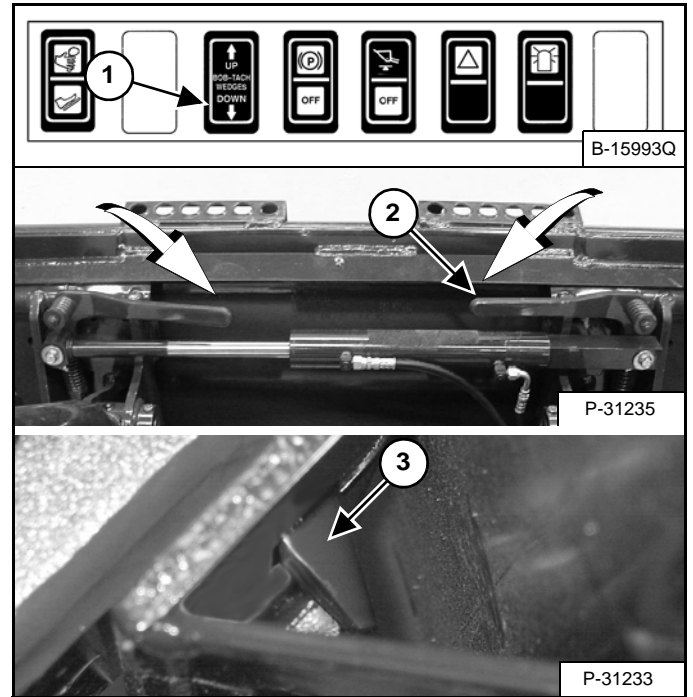


Tilt the Bob-Tach backward until the cutting edge of the bucket (or other attachment) is slightly off the ground [Figure 113].

Push and hold BOB-TACH "WEDGES UP" switch (1) [Figure 111] (Front Panel) to make sure the levers are all the way up.

**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) to be sure both wedges are fully raised before installing the attachment.

Figure 114



Push and hold BOB-TACH "WEDGES DOWN" switch (Front Panel) (1) until levers are fully engaged in the locked position (2) [Figure 114] (wedges fully engaged).

The wedges (3) [Figure 114] must extend through the holes 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. Lever(s) must be fully down and locked. Failure to secure wedges can allow attachment to come off and cause injury or death.

W-2102-0497

## OPERATING PROCEDURE (CONT'D)

### Filling And Emptying The Bucket (SJC - "ISO" Pattern)

#### Filling

Figure 135

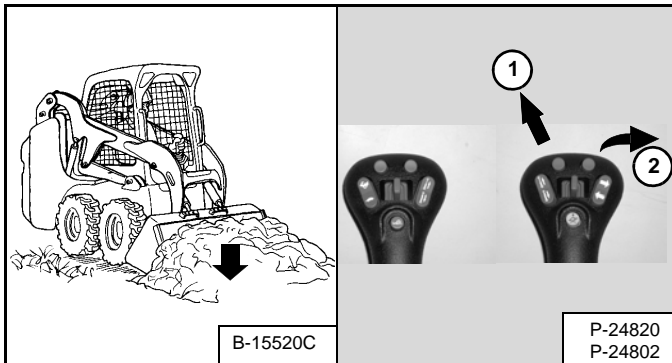
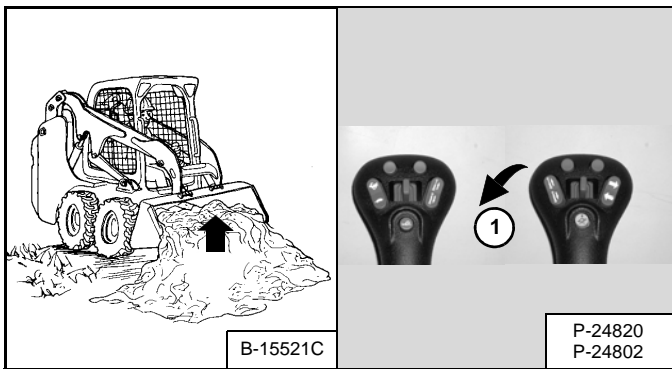


Figure 136



Lower the lift arms all the way (1) [Figure 135].

Tilt the bucket forward (2) [Figure 135] until the cutting edge of the bucket is on the ground.

Drive slowly forward into the material. Tilt the bucket backward (1) [Figure 136] all the way when the bucket is full.

Drive backward away from the material.

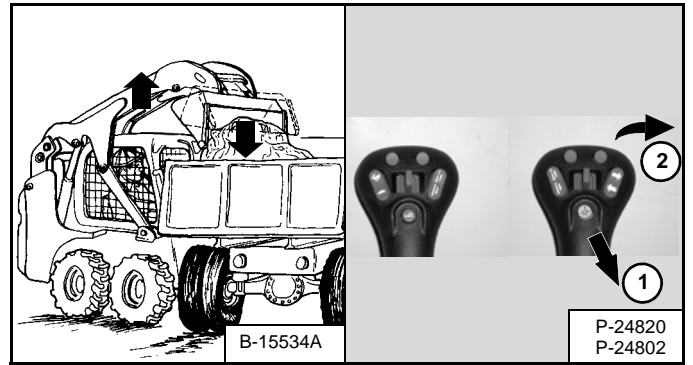
## ! WARNING

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

Figure 137



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

Raise the lift arms (1) [Figure 137]. Level the bucket (2) [Figure 137] 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 137]. 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

# MAINTENANCE SAFETY



## WARNING

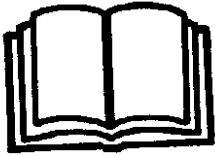
Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual, Operator's Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after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

W-2003-0903



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

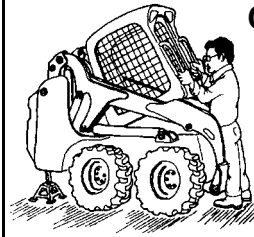
### CORRECT



B-10731A

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

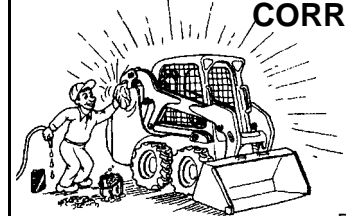
### CORRECT



B-15535

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

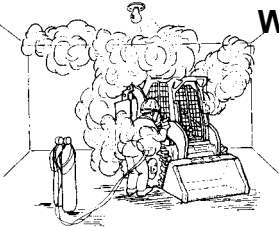
### CORRECT



B-15524

- ⚠ Cleaning and maintenance are required daily.

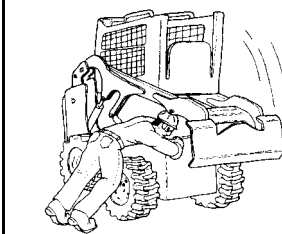
### WRONG



B-15734

- ⚠ 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.

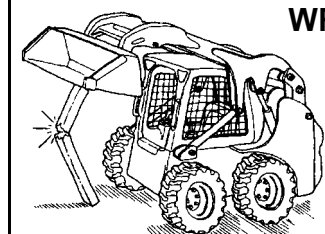
### WRONG



B-15732

- ⚠ 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.

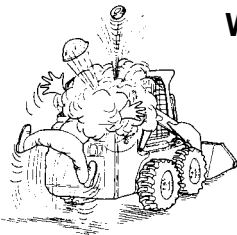
### WRONG



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.

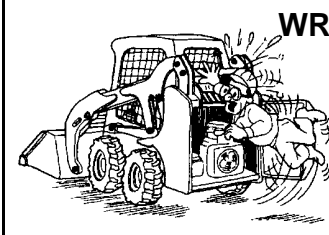
### WRONG



B-15733

- ⚠ 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-15523

- ⚠ 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**.

MSW07-0805

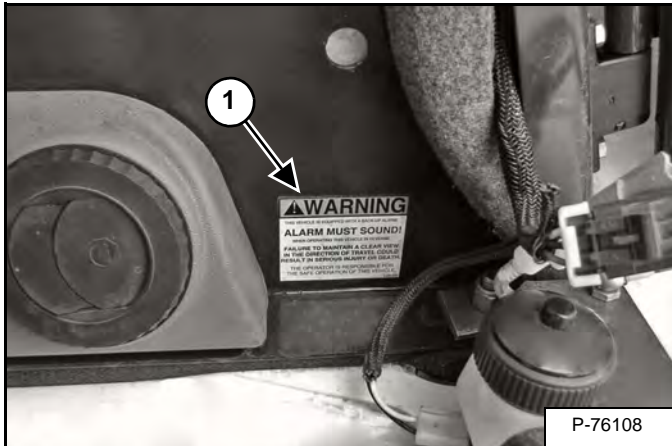
## BACK-UP ALARM SYSTEM

### Description

This machine may be equipped with a back-up alarm system. The back-up alarm will sound when the operator moves both steering levers or joystick(s) in the reverse position. Slight movement of the steering levers in the reverse position is required with hydrostatic transmissions, before the back-up alarm will sound.

### Inspecting

**Figure 151**



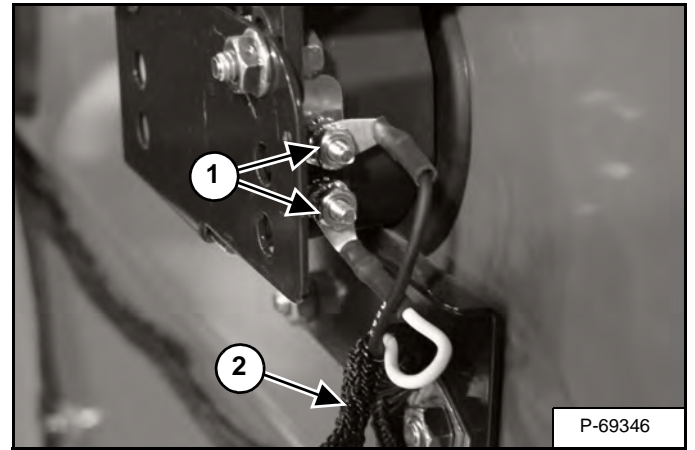
Inspect for damaged or missing back-up alarm decal (1) [Figure 151]. Replace if required.

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

Move both steering levers or joystick(s) in the reverse position. The back-up alarm must sound when all wheels or both tracks are moving in reverse.

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

**Figure 152**



Inspect the back-up alarm electrical connections (1) [Figure 152], wire harness (2) [Figure 152] and back-up alarm switches (if equipped) (2) [Figure 153] for tightness and damage. Repair or replace any damaged components.

If the back-up alarm switches require adjustment, (see Adjusting Switch Position on Page 90).

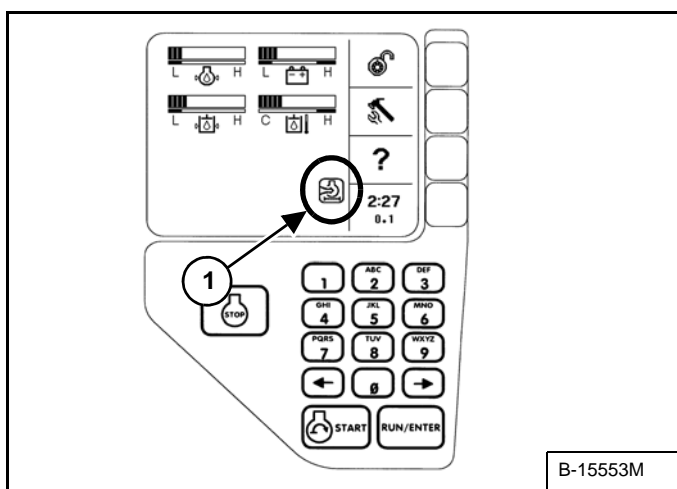
## AIR CLEANER SERVICE

### Replacing Filter Elements

Figure 169



Figure 170



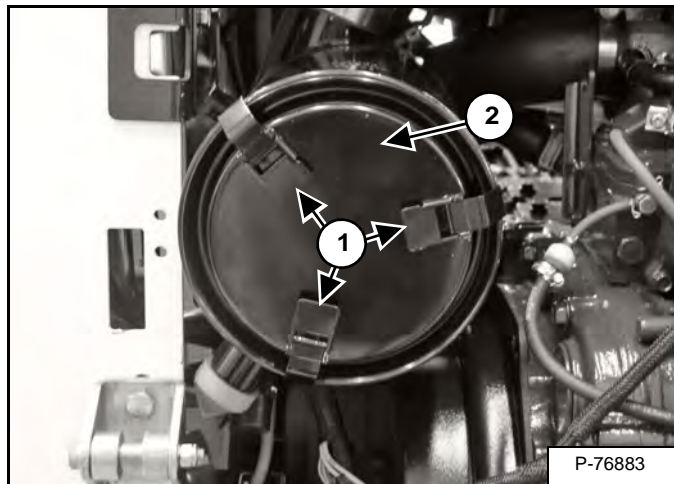
It is important to change the air filter element only when necessary. The Service indicator (1) will FLASH and service code [M0117] (Air Filter Plugged) will show in the Data Display (2) when the Information button (3) [Figure 170] is held for two seconds.

The Air Cleaner icon on the Deluxe Instrumentation Panel, if equipped, will be ON (1) [Figure 170].

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

### Outer Filter

Figure 171



Open the latches (1) and remove the dust cover (2) [Figure 171].

Figure 172



Pull the outer filter element (1) [Figure 172] out and discard.

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

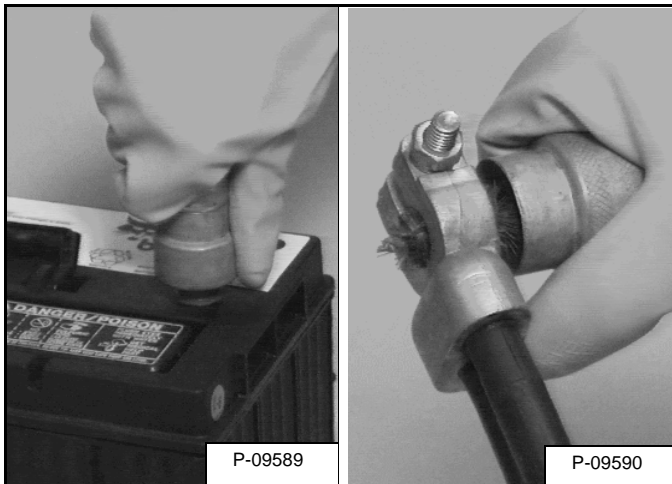
Install new filter element. Push all the way in until it contacts the base of the housing.

Install the dust cover and secure the latches [Figure 171].

## ELECTRICAL SYSTEM (CONT'D)

### Battery Maintenance

Figure 190



The battery cables must be clean and tight **[Figure 190]**. 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.

## **WARNING**

### **AVOID INJURY OR DEATH**

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

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

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

W-2065-0807

## HYDRAULIC / HYDROSTATIC SYSTEM (CONT'D)

### Removing And Replacing Hydraulic Charge Filter (Cont'd)

All Models

# WARNING

#### AVOID INJURY OR DEATH

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

W-2103-0508

Lower the operator cab. (See Lowering on Page 93.)

Start the engine and operate the loader hydraulic controls.

# WARNING

#### AVOID INJURY OR DEATH

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

W-2072-0807

Stop the engine and check for leaks at the filter.

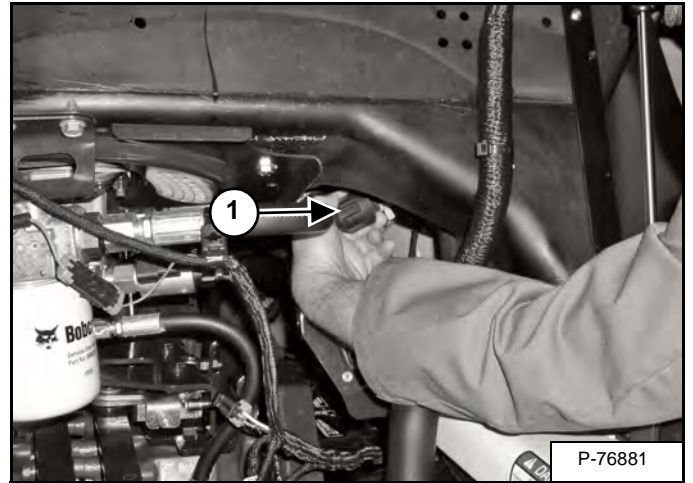
Check the fluid level in the reservoir and add as needed. (See Checking And Adding Fluid on Page 112.)

## Breather Cap

For the correct service interval (see SERVICE SCHEDULE on Page 81).

Raise the operator cab. (See Raising on Page 92.)

Figure 208



Remove the breather cap (1) [Figure 208] and discard.

Install new breather cap.

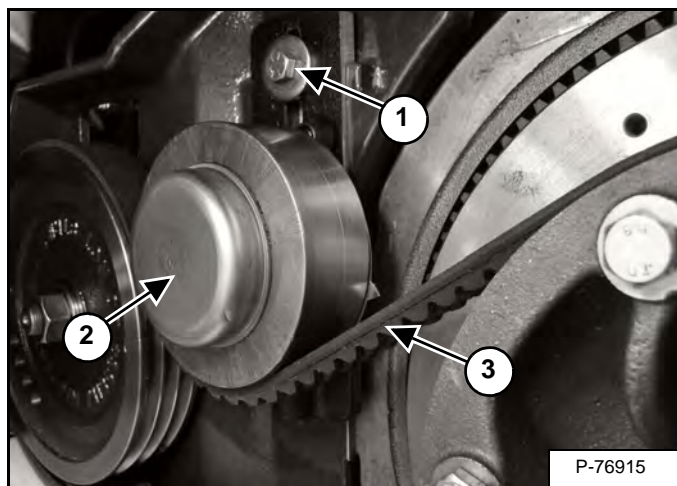
Lower the operator cab. (See Lowering on Page 93.)

## DRIVE BELT (CONT'D)

### Belt Replacement

Follow the procedure under drive belt adjustment to loosen the spring loaded drive idler. (See Belt Adjustment on Page 127.)

**Figure 226**



Remove the spring loaded drive idler mounting bolt (1) and spring loaded drive idler (2) **[Figure 226]**.

Remove the drive belt (3) **[Figure 226]** from the pump pulley and flywheel and remove the belt from the loader.

Install new drive belt. Install the spring loaded drive idler. Apply Loctite<sup>®</sup> 242 to the mounting bolt (1) **[Figure 226]** and install the mounting bolt and washer.

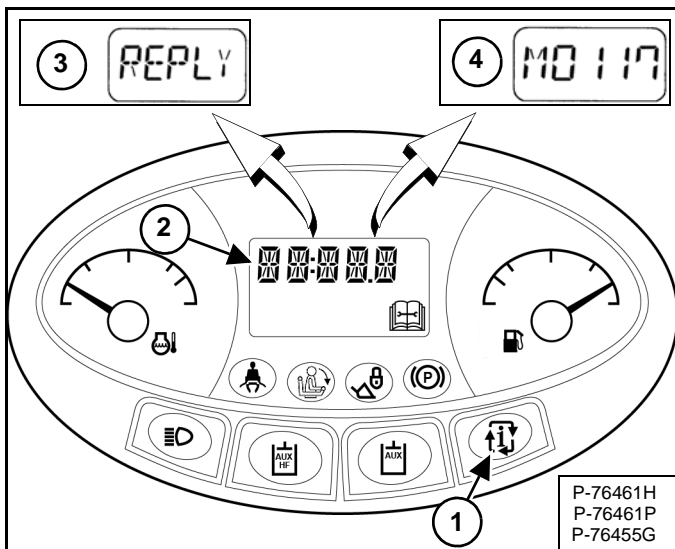
Continue the procedure under drive belt adjustment to adjust the drive belt and complete installation of removed and disconnected components. (See Belt Adjustment on Page 127.)

Close the rear door before operating the loader.

## DIAGNOSTIC SERVICE CODES

### Viewing Service Codes (Standard Key Panel)

Figure 242



Press the INFORMATION button (1) to cycle the DATA DISPLAY (2) [Figure 242] until the service code screen is displayed. If more than one SERVICE CODE is present, the codes will scroll on the DATA 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) or a number (4) [Figure 242]. (See following pages for service codes.)

The following word errors may be displayed:

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

**[CODE]** The controller is asking for a password. (Deluxe Instrumentation Panel only.)

**[ERROR]** The wrong password was entered. (Deluxe Instrumentation Panel only.)

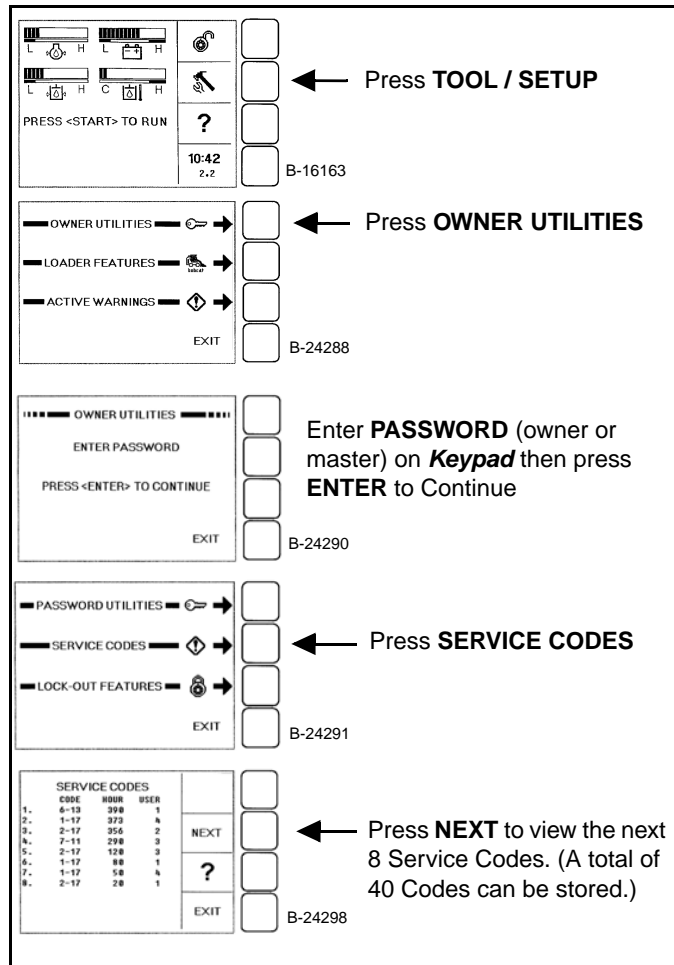
**[SHTDN]** A shutdown condition exists.

**[DOOR]** Operator cab door is open. (Lift and Tilt functions will not operate.)

### Viewing Service Codes (Deluxe Instrumentation Panel)

The Service Codes will aid your dealer in diagnosing conditions which can damage your machine.

Figure 243



The Display Panel will list the Code Number (**CODE**), hourmeter reading when the error occurred (**HOUR**), and the User (**USER**) who was logged in to operate the machine when the error occurred [Figure 243].

A total of 40 Codes can be stored. When more than 40 Codes occur, the oldest code will disappear and the newest code will be in the number 1 position.

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