

CONTENTS

FOREWORD	2
SAFETY AND TRAINING RESOURCES	10
OPERATING INSTRUCTIONS	20
PREVENTIVE MAINTENANCE	104
SYSTEM SETUP AND ANALYSIS	166
MACHINE SIGN TRANSLATIONS	181
SPECIFICATIONS	196
WARRANTY	203
ALPHABETICAL INDEX	206

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:



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

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

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

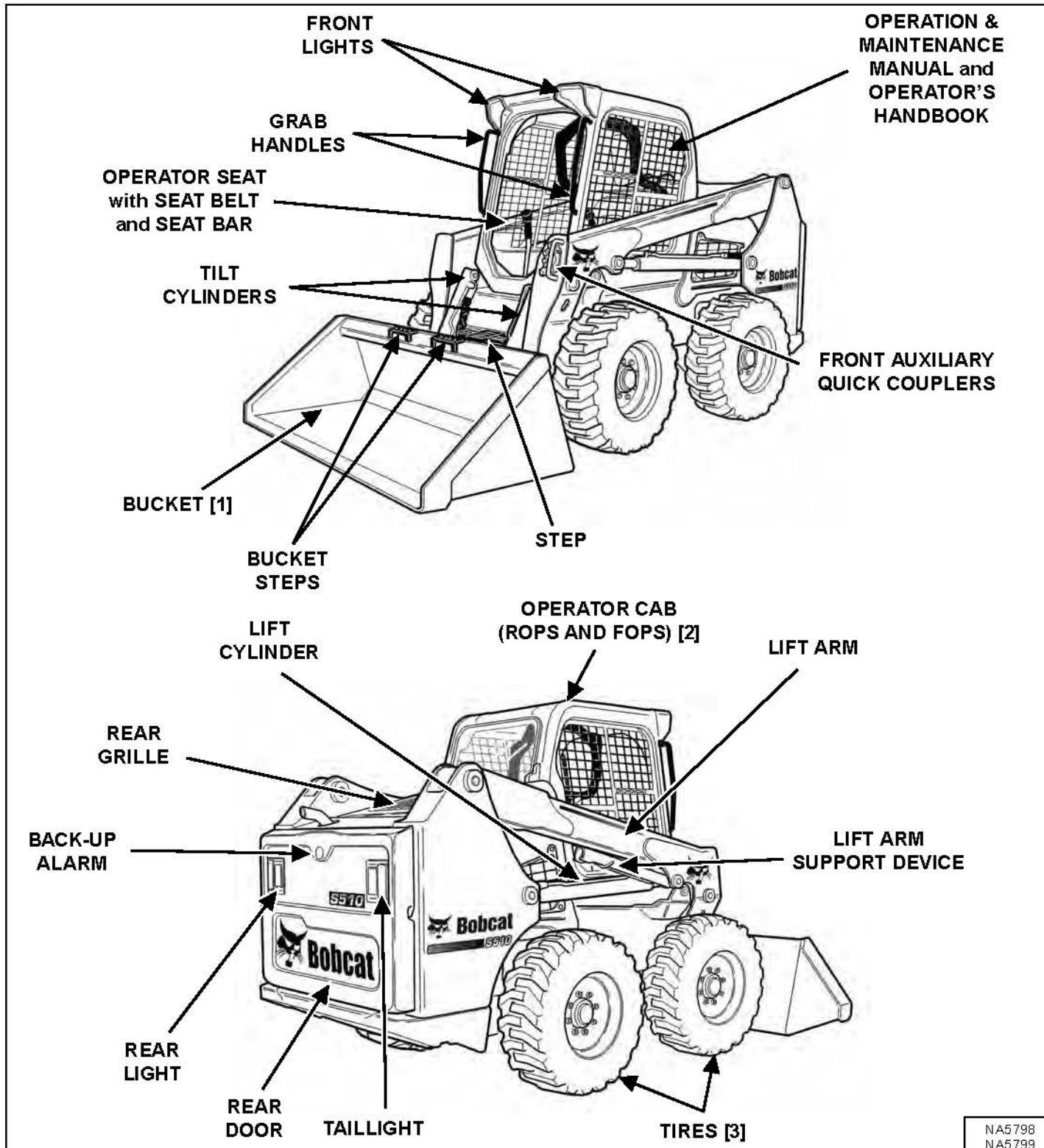
CALIFORNIA PROPOSITION 65 WARNING

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

REGULAR MAINTENANCE ITEMS

	ENGINE OIL FILTER (6 Pack) 6675517		BATTERY 7269857
	FUEL FILTER 6667352		HYDRAULIC FILTER 7024037
	AIR FILTER, Outer 6666333		HYDRAULIC CHARGE FILTER 6692337 (Earlier Models) 6686926 (Later Models)
	AIR FILTER, Inner 6666334		HYDRAULIC FILL / BREATHER CAP 6727475
	ANTIFREEZE, Propylene Glycol 6983128 - Premixed - U.S. gal (6) 6983129 - Concentrate - U.S. gal (6)		FLUID, Hydraulic / Hydrostatic 6903117 - 2.5 U.S. gal (2) 6903118 - 5 U.S. gal (1) 6903119 - 55 U.S. gal (1)
ENGINE OIL 7023080 7023076	SAE 15W-40 - qt (12) SAE 10W-30 - qt (12)	ENGINE OIL 7023081 7023077	SAE 15W-40 - U.S. gal (6) SAE 10W-30 - U.S. gal (6)
7023082 7023078	SAE 15W-40 - 2.5 U.S. gal (2) SAE 10W-30 - 2.5 U.S. gal (2)		

NOTE: Always verify Part Numbers with your Bobcat dealer.



- [1] BUCKETS - Several different buckets and other attachments are available for the Bobcat loader.
- [2] ROPS - Roll-Over Protective Structure per ISO 3471 and FOPS - Falling-Object Protective Structure per ISO 3449, Level I. Level II is available.
- [3] TIRES - Standard tires are shown. Several different tire styles and sizes are available for the Bobcat loader.

NA5798
NA5799

FEATURES, ACCESSORIES, AND ATTACHMENTS

Standard Items

Model S510 Bobcat loaders are equipped with the following standard items:

- Access Covers
- Adjustable Vinyl Seat
- Automatically Activated Glow Plugs
- Auxiliary Hydraulics
- Bobcat Interlock Control System (BICS™)
- Bob-Tach®
- Cab (includes: rear window and polycarbonate top window) ROPS and FOPS (Level I) Approved
- Engine / Hydraulic Systems Shutdown
- Front Horn / Back-up Alarm
- Instrumentation: Hourmeter, Engine rpm, System Voltage; Engine Temperature and Fuel Gauges; Warning Lights
- Lift Arm Support Device
- Lights, Front and Rear
- Parking Brake
- Seat Bar
- Seat Belt
- Spark Arrester Device
- Tires (Bobcat Standard Duty, 10 - 16.5, 8 PR)

Options And Accessories

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

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

Options And Accessories (Cont'd)

- Fire Extinguisher
- Foot Area Duct Kit
- FOPS Kit (Level II)
- FOPS Window Kit
- Forestry Door and Window Kit
- Forestry Door Wiper
- Four-Way Flashers (Also adds Turn Signal function)
- Front and Rear Light Guards
- Fuel Sediment Bowl Kit
- Hose Guide
- Hydraulic Bucket Positioning (With On / Off Selection)
- Hydraulic Muffler
- Isolated Steering Link Kit
- Keyless Start
- Larger Capacity Battery (For cold weather starting)
- Lift Kit (Four-Point, Single-Point)
- Locking Fuel Cap
- Maintenance Platform
- MSHA Approval Kit
- Muffler Guard
- Power Bob-Tach®
- Radio
- Radio Remote Control
- Rear Auxiliary Hydraulics
- Rear Bumper Kit
- Rear Window Wiper
- Reversing Fan
- Rotating Beacon
- Seat Belt with 3-Point Restraint (Standard on Two-Speed Models)
- Seat Belt - 3 in. Wide
- Seat Belt - Retractable
- Side Lighting
- Sound Reduction Kit (Reduces noise at operator ear)
- Special Applications Kit
- Strobe Light
- Tailgate Lock
- Tilt Cylinder Guard Kit
- Tires:
 - Bobcat Heavy Duty, 10 - 16.5, 10 PR
 - Bobcat Heavy Duty Offset, 10 - 16.5, 10 PR
 - Bobcat Heavy Duty Offset Poly Fill, 10 - 16.5, 10 PR
 - Bobcat Heavy Duty Poly Fill, 10 - 16.5, 10 PR
 - Bobcat Severe Duty, 10 - 16.5, 10 PR
 - Bobcat Severe Duty Poly Fill, 10 - 16.5, 10 PR
 - Bobcat Solidflex, 31 x 6 x 10
 - Bobcat Super Float, 31 x 12 - 16.5, 10 PR
- Two-Speed Travel
- Windows:
 - Externally Removable Rear Window
 - Polycarbonate Rear Window
 - Polycarbonate Side Windows
 - Side Windows

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

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Left Panel (Cont'd)

REF. NO.	DESCRIPTION	FUNCTION / OPERATION
12	RIGHT TURN SIGNAL (Option)	Indicates right turn signals are ON.
13	DIESEL PARTICULATE FILTER (DPF) / DIESEL EXHAUST FLUID (DEF)	Not used.
14	SHOULDER BELT (Option)	Instructs operator to fasten shoulder belt when operating in high range. Remains lit while in high range.
15	HYDRAULIC SYSTEM MALFUNCTION	Hydraulic system malfunction or failure. (See Service Codes*)
16	FUEL	Fuel level low or sensor error.
17	DIESEL EXHAUST FLUID (DEF) / AdBlue® LEVEL	Not used.
18	FUEL GAUGE	Shows the amount of fuel in the tank.
19	LIGHTS	Press once for FRONT work lights and REAR taillights. (Left green LED lights.) Press a second time to add REAR work lights. (Left and right green LEDs light.) Press a third time to turn all lights off. (Left and right green LEDs off.)
		Press and hold 5 seconds to display software version in display screen.
20	AUTO IDLE	Not used.
		Move cursor to the left inside the DISPLAY SCREEN when using certain INFORMATION button menus.
21	AUXILIARY HYDRAULICS	Press once to activate the auxiliary hydraulic system. (Left green LED lights.) Press a second time to deactivate the system.
		Move cursor to the right inside the DISPLAY SCREEN when using certain INFORMATION button menus.
22	INFORMATION	Cycles through (after each button press): <ul style="list-style-type: none"> • Hourmeter (On startup) • Engine rpm • Battery voltage • Drive response menu • Steering drift compensation menu • Maintenance clock (Press and hold 7 seconds when displayed to reset the maintenance clock.) • Service codes*
23	TRACTION LOCK OVERRIDE	Functions only when the seat bar is raised and the engine is running. Press once to unlock the brakes. Allows you to use the steering levers or joystick(s) to move the loader forward or backward when using the backhoe attachment. (See TRACTION LOCK OVERRIDE in this manual.) Press a second time to lock the brakes.
24	PRESS TO OPERATE LOADER	Press to activate the BICS™ when the seat bar is down and operator is seated in operating position. Button will light.
25	PARKING BRAKE (Standard on all loaders)	Press the top to engage the Parking Brake. Press the bottom to disengage. (See PARKING BRAKE in this manual.)

* This manual contains a table with Service Code descriptions. (See DIAGNOSTIC SERVICE CODES on Page 167.)

CONTROL IDENTIFICATION

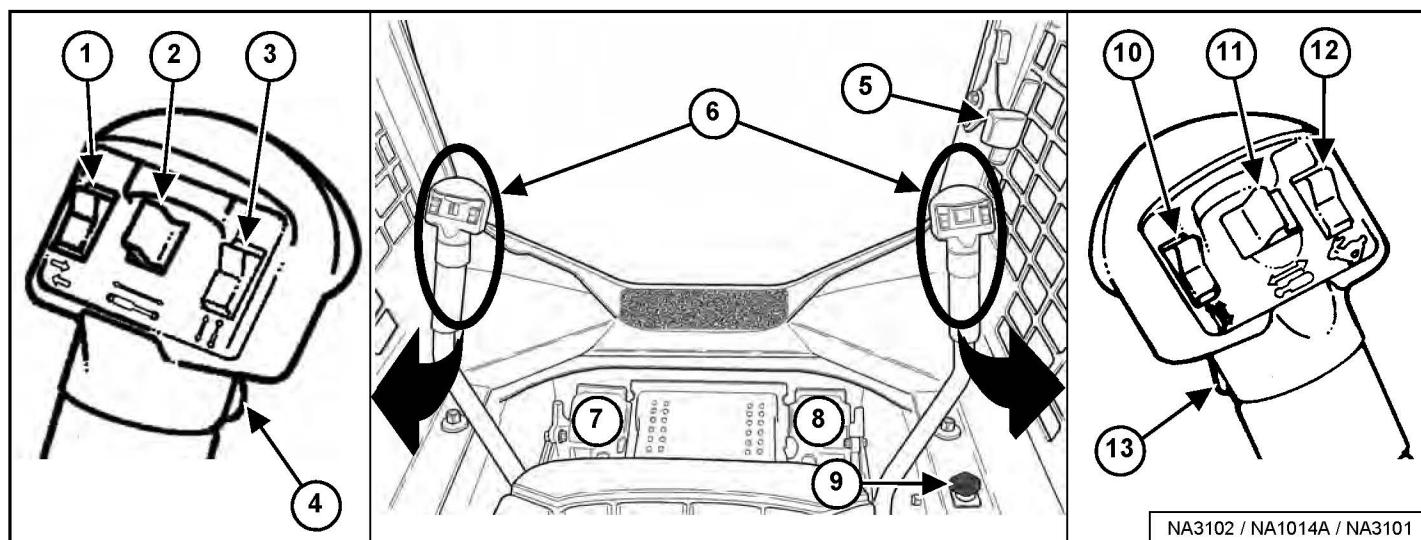
Description

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

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

Standard Controls

Figure 21



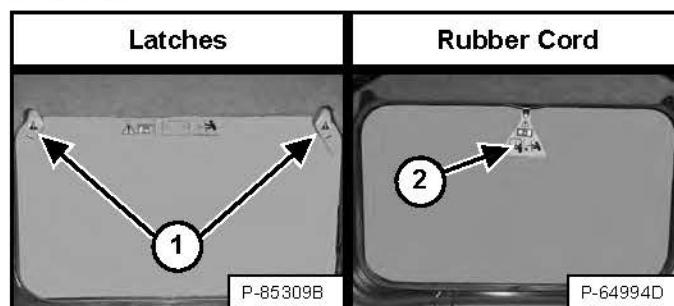
REF. NO.	DESCRIPTION	FUNCTION / OPERATION
1	TURN SIGNALS (Option)	Press the top to activate right signal; bottom to activate left signal; center position to turn off.
2	REAR AUXILIARY HYDRAULICS (Option) Also: ATTACHMENT FUNCTION CONTROL	See REAR Auxiliary Hydraulics Operation in this manual. See ATTACHMENT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

EMERGENCY EXIT

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

Rear Window Identification

Figure 39



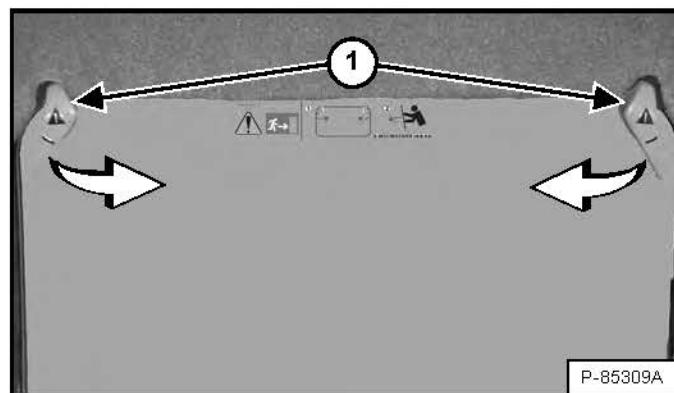
There are two different procedures for removing the rear window from your machine:

1. This window is equipped with latches [Figure 39].
2. This window is equipped with a rubber cord and tag [Figure 39].

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

Rear Window Removal (Latches)

Figure 40



Turn both latches (Item 1) [Figure 40] in until they disengage from the window frame.

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

Figure 41



Exit through the rear of the operator cab [Figure 41].

Rear Window Removal (Rubber Cord)

Figure 42



Pull on the tag on the top of the rear window to remove the rubber cord [Figure 42].

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

Figure 43



Exit through the rear of the operator cab [Figure 43].

Operation (Cont'd)

Figure 70



Press the Information button (Item 3) to cycle the data display until the steering drift compensation menu is displayed. The current steering drift compensation setting will appear in the data display (Item 1) [Figure 70].

Press the left or right scroll button (Item 2) [Figure 70] on the left panel to adjust the setting. Adjustments to steering drift compensation are effective immediately and saved automatically.

OR

Press the left or right button (Item 7) [Figure 70] on the left control to adjust the setting. Adjustments to the steering drift compensation are effective immediately and saved automatically.

Press the left scroll button on the left panel or the left button on the left control to adjust the machine left. **[SFL01]** (Item 4) through a maximum of **[SFL10]** will appear in the data display (Item 1) [Figure 70]. The number will increase by one each time you press the button. The higher the number, the greater the amount of steering drift compensation to the left.

Press the right scroll button on the left panel or the right button on the left control to adjust the machine back toward center. The display will decrease down to NEUTRAL displayed as **[SF---]** (Item 5). Another press of the upper right button will cause **[SFR01]** (Item 6) to appear in the data display (Item 1) [Figure 70]. The number will increase by one each time you press the button up to a maximum of **[SFR10]**. The higher the number, the greater the amount of steering drift compensation to the right.

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

Exiting The Steering Drift Compensation Menu:

Press the Information button (Item 3) [Figure 70] to exit from the steering drift compensation adjustment menu.

OR

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

Relieve Auxiliary Hydraulic Pressure (Loader And Attachment)

**WARNING****AVOID BURNS**

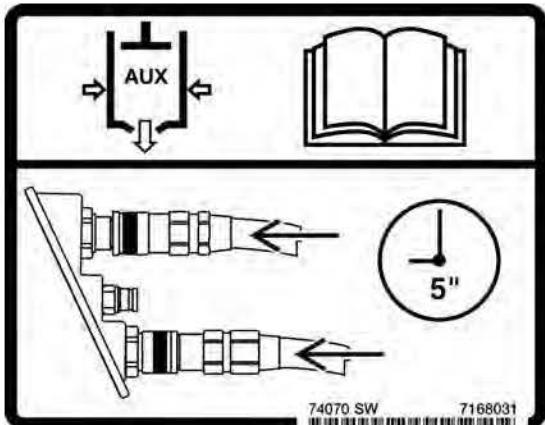
Hydraulic fluid, tubes, fittings and quick couplers can get hot when running machine and attachments. Be careful when connecting and disconnecting quick couplers.

W-2220-0396

**WARNING****AVOID INJURY OR DEATH**

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

W-2072-0807

**Front Auxiliary Quick Couplers**

When Connecting: Push the quick couplers tightly together and hold for 5 seconds; the pressure is automatically relieved as the couplers are installed.

When Disconnecting: Push the quick couplers tightly together and hold for 5 seconds; then retract the sleeves until the couplers disconnect.

Rear Auxiliary Quick Couplers

Put the attachment flat on the ground. Stop the engine and turn the key switch to RUN.

Figure 95



Press the Auxiliary Hydraulics button (Item 1) [Figure 95].

Standard And ACS (If Equipped)

Figure 96

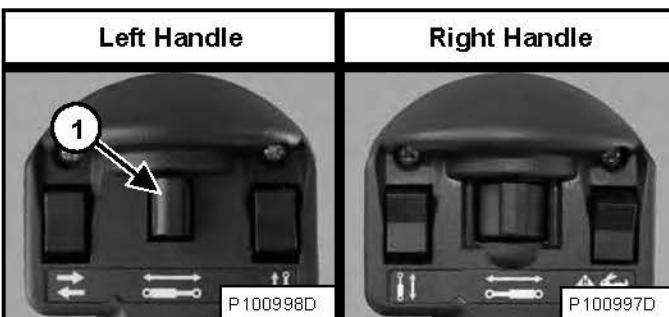
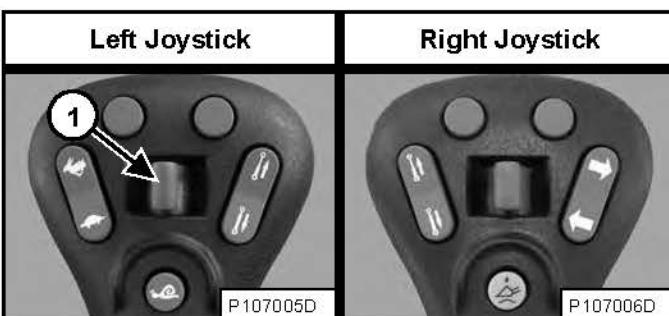
**SJC (If Equipped)**

Figure 97



Move the Rear Auxiliary Hydraulic switch (Item 1) [Figure 96] or [Figure 97] to the left and right several times. Turn the key switch to STOP.

STARTING THE ENGINE (CONT'D)

Deluxe Instrumentation Panel (Cont'd)

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

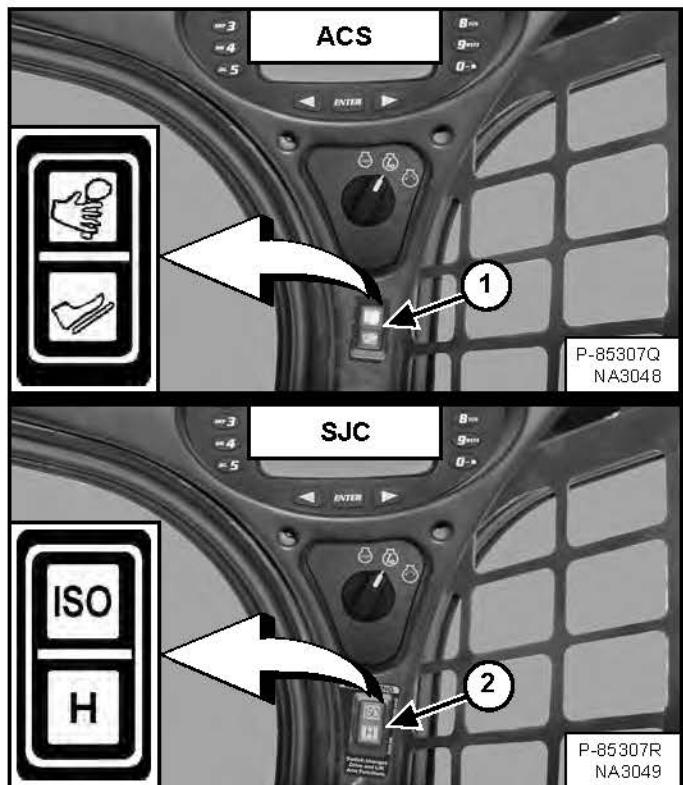
⚠ WARNING

AVOID INJURY OR DEATH

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

W-2135-1108

Figure 127

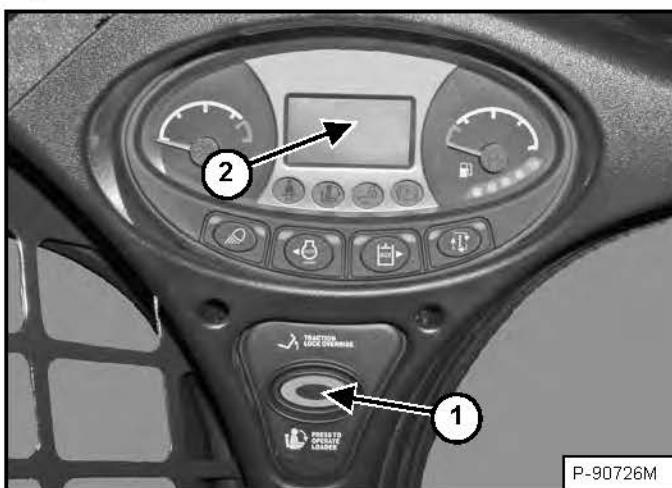


(ACS) Select hand control or foot pedal operation (Item 1) [Figure 127] if equipped with ACS.

OR

(SJC) Select 'ISO' or 'H' Control Pattern (Item 2) [Figure 127] if equipped with SJC.

Figure 128



Press the PRESS TO OPERATE LOADER button (Item 1) [Figure 128] to activate the BICS™ and to perform hydraulic and loader functions.

(SJC) The current drive response setting is displayed briefly in the data display (Item 2) each time the PRESS TO OPERATE LOADER button (Item 1) [Figure 128] is pressed.

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

⚠ WARNING

AVOID INJURY OR DEATH

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

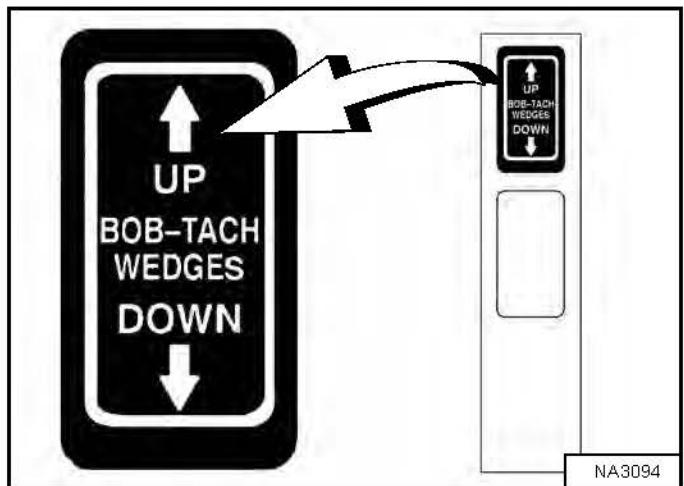
W-2050-0807

ATTACHMENTS (CONT'D)

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

Installing (Cont'd)

Figure 145



Push and hold BOB-TACH WEDGES "UP" switch (Right Switch Panel) [Figure 145] to make sure the levers are fully raised (wedges fully raised).

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

Figure 146

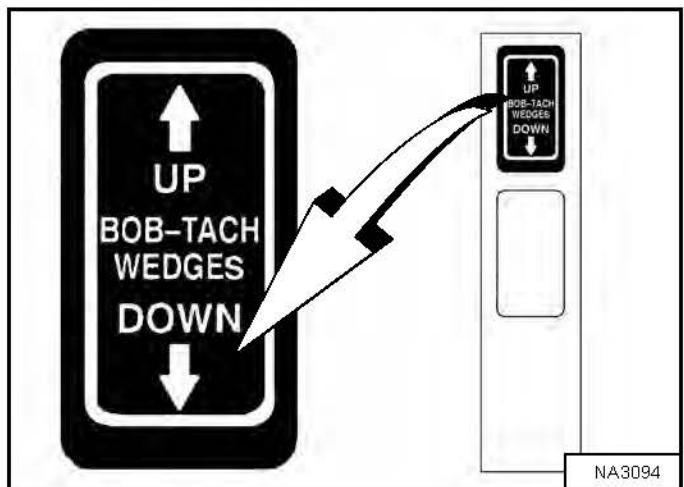
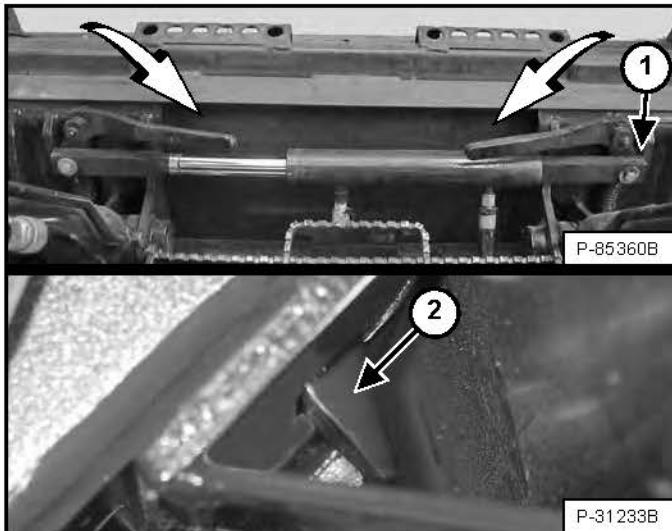


Figure 147



Push and hold BOB-TACH WEDGES "DOWN" switch (Right Switch Panel) [Figure 146] until levers are fully engaged in the locked position [Figure 147] (wedges fully extended through the attachment mounting frame holes).

Both levers must contact the frame as shown when locked (Item 1) [Figure 147].

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

The wedges (Item 2) [Figure 147] must extend through the holes in the mounting frame of the bucket (or other attachment), securely fastening the bucket to the Bob-Tach.

WARNING

AVOID INJURY OR DEATH

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

W-2715-0208

Maintenance Intervals

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****AVOID INJURY OR DEATH**

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

W-2003-0807

Every 10 Hours (Before Starting The Loader)

- **Engine Oil** - Check level and add as needed. (See Page 133.)
- **Engine Air Filters and Air System** - Check display panel. Service only when required. Check for leaks and damaged components. (See Page 127.)
- **Engine Cooling System** - Clean debris from radiator, hydraulic fluid cooler, and rear grille. Check coolant level COLD and add premixed coolant as needed. (See Page 136.) or (See Page 137.) and (See Page 138.)
- **Fuel Filter** - Remove the trapped water. (See Page 131.)
- **Lift Arms, Lift Links, Cylinders, Bob-Tach, Pivot Pins, Wedges** - Lubricate with multipurpose lithium based grease. (See Page 160.)
- **Seat Belt, Seat Belt Retractors, Seat Bar, Control Interlocks** - Check the condition of seat belt. Clean or replace seat belt retractors as needed. Check the seat bar and control interlocks for correct operation. Clean dirt and debris from moving parts. (See Page 111.) and (See Page 113.)
- **Bobcat Interlock Control Systems (BICS™)** - Check for correct function. Lift and Tilt functions MUST NOT operate with seat bar raised. (See Page 110.)
- **Front Horn / Back-up Alarm** - Check for proper function. (See Page 37.) and (See Page 117.)
- **Tires** - Check for damaged tires and correct air pressure. Inflate to MAXIMUM pressure shown on the sidewall of the tire. (See Page 153.)
- **Operator Cab** - Check the fastening bolts, washers, and nuts. Check the condition of the cab. (See Page 119.)
- **Indicators and Lights** - Check for correct operation of all indicators and lights. (See Page 26.)
- **Wheel Nuts** - Perform every 10 hours or daily for the first 30 hours, then as scheduled. Check for loose wheel nuts and tighten to correct torque. (See Page 153.)
- **Safety Signs and Safety Treads** - Check for damaged signs (decals) and safety treads. Replace any signs or safety treads that are damaged or worn. (See Page 16.) and (See Page 77.)
- **Hydraulic Fluid** - Check fluid level and add as needed. (See Page 145.)
- **Heater Filters** (if equipped) - Clean or replace filters as needed. (See Page 124.)

SS SSL LF EXLF T3 MF EXMF iT4-0315

Adjusting Switch Position

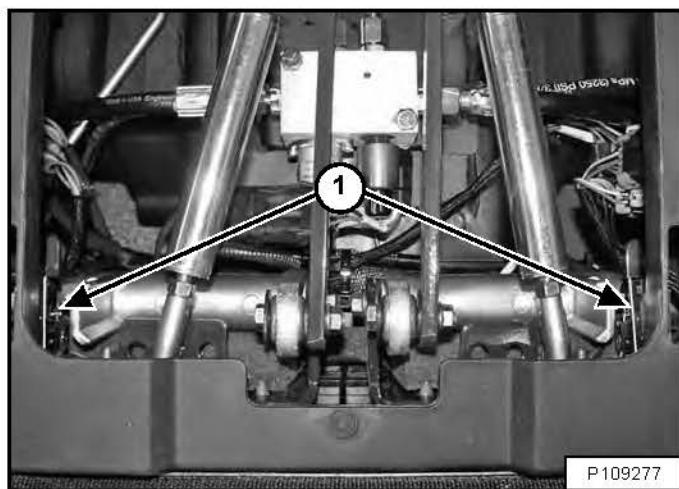
NOTE: Joystick equipped machines do not have back-up alarm switches and cannot be adjusted. See your Bobcat dealer for service if your back-up alarm does not sound.

Standard Controls And ACS (If Equipped)

Stop the engine and raise the operator cab. (See Raising on Page 120.)

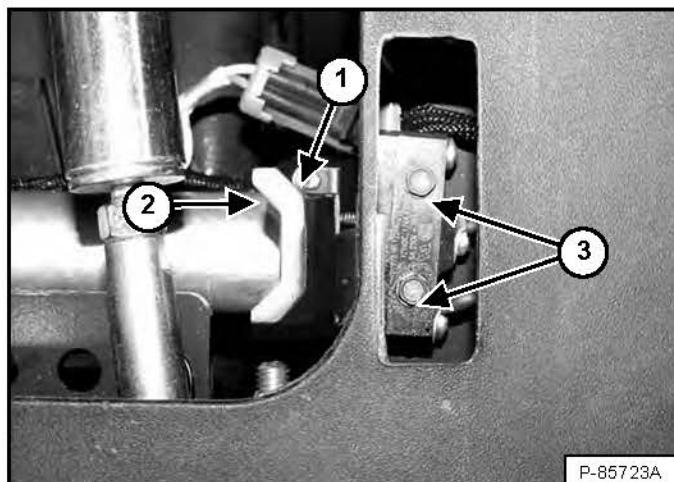
Put the steering levers in the NEUTRAL position.

Figure 172



The back-up alarm switches (Item 1) [Figure 172] are located alongside the steering bellcranks. Both switches must be adjusted properly for the back-up alarm to operate correctly.

Figure 173



Loosen the screws (Item 3) [Figure 173] securing the back-up alarm switch. (Left side shown)

Position the back-up alarm switch so that the roller (Item 1) just makes contact with the bellcrank (Item 2) [Figure 173] without compressing the switch spring.

Torque the screws (Item 3) [Figure 173] securing the switch to the bracket to 1,0 - 1,4 N·m (9 - 12 in-lb).

Repeat adjustment procedure for the other switch.

Lower the operator cab. (See Lowering on Page 121.)

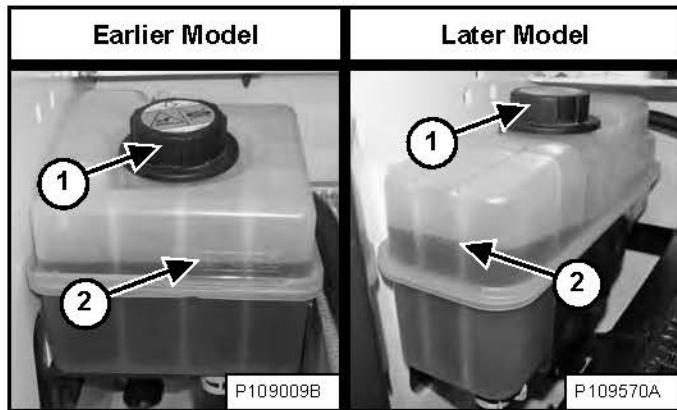
Inspect back-up alarm system for proper function. (See Inspection on Page 117.)

Checking And Adding Coolant

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

Stop the engine, open the rear door, and remove the rear grille. (See REAR GRILLE on Page 123.)

Figure 215



Coolant must be between the top and bottom level markers (Item 2) [Figure 215] when the engine is cold.

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

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

IMPORTANT

AVOID ENGINE DAMAGE

Always use the correct ratio of water to antifreeze.

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

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

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

I-2124-0497

Add premixed coolant, 47% water and 53% propylene glycol to the coolant tank until the coolant level reaches the upper level marker on the tank [Figure 215].

Install the coolant fill cap [Figure 215].

NOTE: The coolant fill cap must be tightened until the cap clicks.

Install the rear grille and close the rear door.



WARNING

AVOID INJURY

Stop the engine and allow to cool before adding coolant or you can be burned.

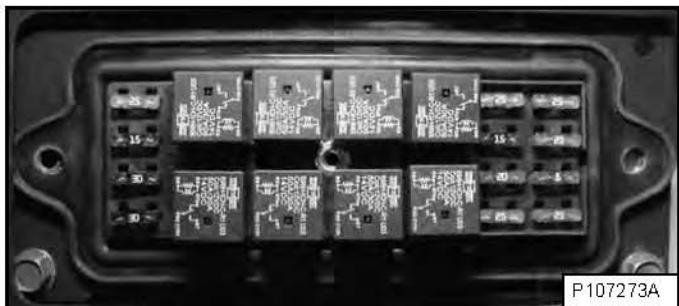
W-2106-0907

Remove the coolant fill cap (Item 1) [Figure 215] to add coolant.

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

Fuse And Relay Location / Identification (Cont'd)

Figure 221



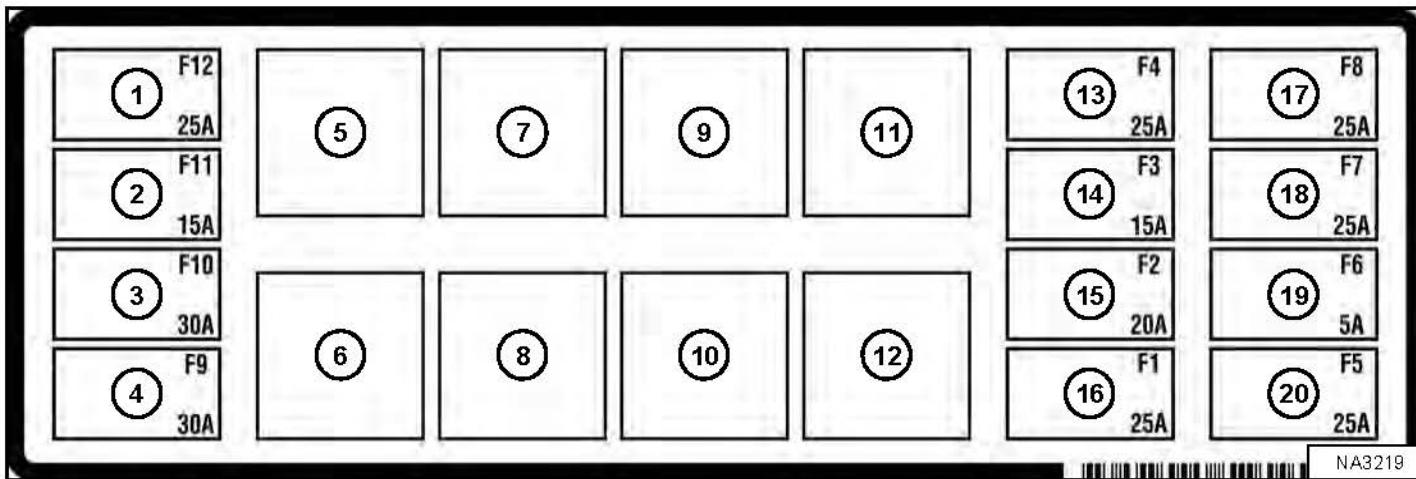
Remove the fuse panel cover to check or replace the fuses and relays [Figure 221].

A decal located inside the access panel indicates fuse / relay location and fuse amperage ratings.

Install the fuse panel cover [Figure 220].

Line up the clips on the access panel with the slots provided and push the panel into position [Figure 219]. A locating pin helps align the panel during installation.

Figure 222



Fuse location and amperage ratings are shown in the table below and on the decal [Figure 222]. Relays are identified by the letter "R" in the AMP column.

REF	ICON	DESCRIPTION	AMP	REF	ICON	DESCRIPTION	AMP	REF	ICON	DESCRIPTION	AMP
1		ACS / Drive Controllers	25	8		Rear Lights	R	15		Front Lights	20
2		Power Port	15	9		Fuel Shutoff	R	16		Heater / HVAC	25
3		Fuel Shutoff	30	10		Front Lights	R	17		Switched Power and ACD	25
4		Traction	30	11		Switched Power	R	18		Switched Power and Back-up Alarm	25
5		Starter	R	12		Heater / HVAC	R	19		Switched Power	5
6		Glow Plugs	R	13		Gateway / Auxiliary Controllers	25	20		Accessories and Front Horn	25
7		Traction	R	14		Rear Lights	15				