OPERATOR SAFETY WARNINGS

⚠ WARNING

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

W-2001-0502

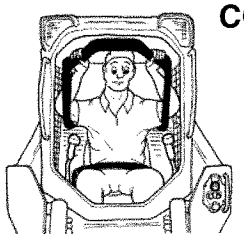
⚠ **Safety Alert Symbol:** This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.

CORRECT

P-90216

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

CORRECT

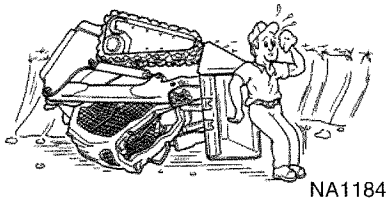


NA1254

⚠ Always use the seat bar and fasten seat belt snugly.

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

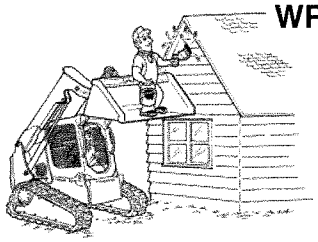
CORRECT



NA1184

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

WRONG



NA1187

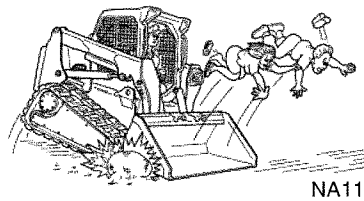
⚠ Never use loader as man lift or elevating device for personnel.

WRONG

NA1188

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

WRONG

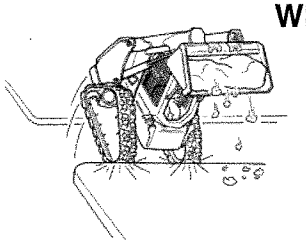


NA1185

⚠ Never carry riders.

⚠ Keep bystanders away from work area.

WRONG



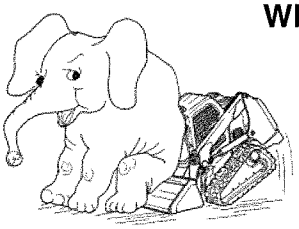
NA1180

⚠ 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.

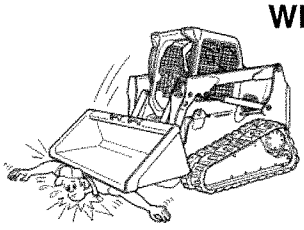
WRONG



NA1182

⚠ Never exceed Rated Operating Capacity.

WRONG

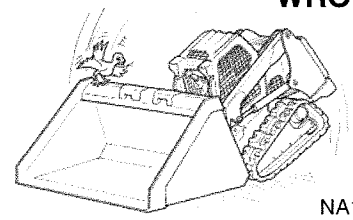


NA1183

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

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

WRONG



NA1181

⚠ Never modify equipment.

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

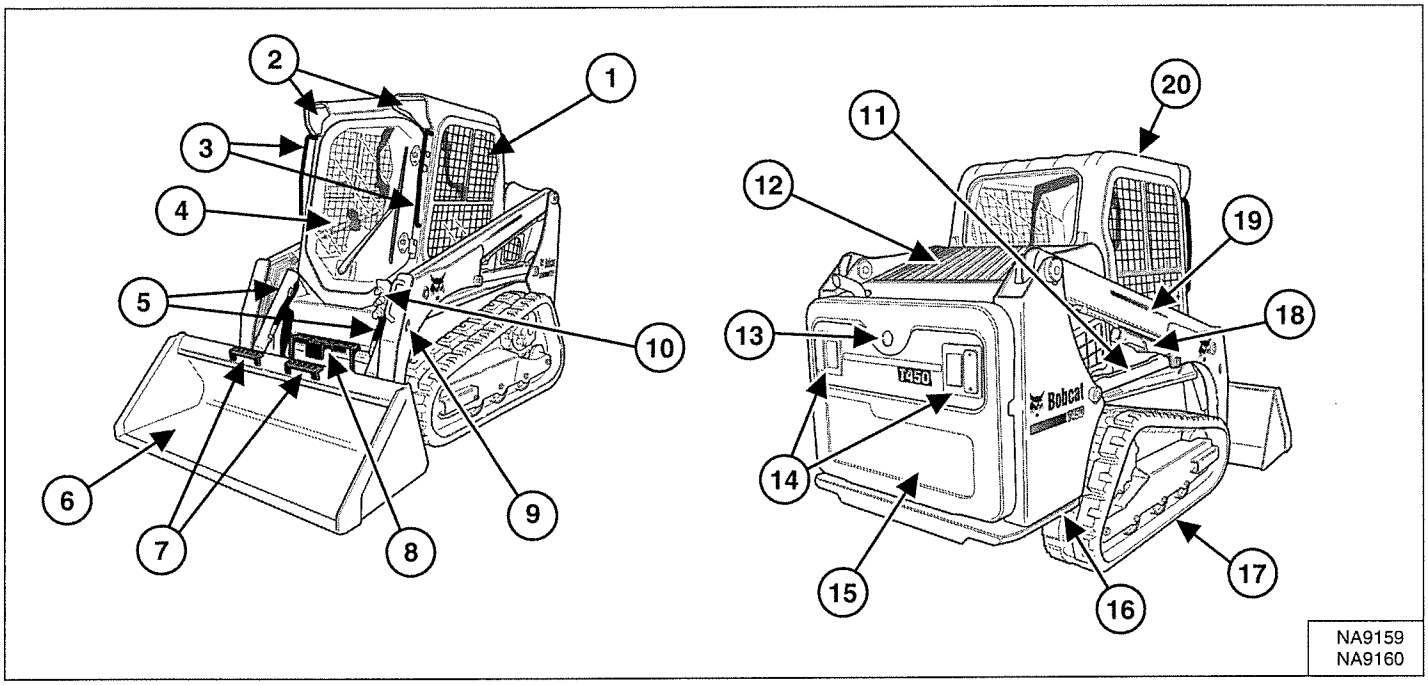
SAFETY EQUIPMENT

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

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

OSW61-0117

LOADER IDENTIFICATION



ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Operation & Maintenance Manual and Operator's Handbook	11	Lift Cylinder (Both Sides)
2	Front Lights	12	Rear Grille
3	Grab Handles	13	Back-up Alarm
4	Operator Seat with Seat Belt and Seat Bar	14	Rear Work Lights and Taillights
5	Tilt Cylinders	15	Rear Door
6	Bucket **[A]**	16	Rear Tie-down (Both Sides) Front Tie-down located behind Bucket
7	Bucket Steps	17	Track
8	Step	18	Lift Arm Support Device
9	Alternate Front Tie-down (Both Sides)	19	Lift Arm
10	Front Auxiliary Quick Couplers	20	Operator Cab (ROPS and FOPS) **[B]**

[A] Bucket – Several different buckets and other attachments are available for the Bobcat loader.
[B] ROPS – Roll-Over Protective Structure per ISO 3471 and FOPS – Falling-Object Protective Structure per ISO 3449, Level I. Level II is available.

FEATURES, ACCESSORIES, AND ATTACHMENTS

Standard Items

This model T450 Bobcat loader is equipped with the following standard items:

- 62 hp Bobcat Engine Turbo Tier 4 Diesel Engine
- Access Covers
- Adjustable Suspension Seat
- Auxiliary Hydraulics: Variable Flow
- Bobcat Interlock Control System (BICS™)
- Bob-Tach®
- Cab (includes: rear window and polycarbonate top window) ROPS and FOPS (Level I) Approved
- Controls: Bobcat Standard
- Engine / Hydraulic Systems Shutdown
- Front Horn / Back-up Alarm
- Glow Plugs (Automatically activated)
- 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 – Retractable
- Solid-Mounted Undercarriage with 3 Rollers
- Spark Arrester Device
- Tracks, Rubber – 300 mm (11.8 in)

Options And Accessories

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

- Adjustable Air Ride Suspension Seat
- Air Conditioning
- Air Filter Precleaner
- Attachment Control Device (ACD) (7-Pin, 14-Pin)
- Auto Idle (Available only on SJC equipped loaders)
- Automatic Ride Control
- 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)
- Counterweight Kit
- Deluxe Instrumentation Panel with Keyless Start
- Deluxe Interior with Storage Compartments

Options And Accessories (Cont'd)

- Engine Heater
- Exhaust Guard Kit
- Extended Pedals
- Fire Extinguisher
- 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
- Hose Guide
- Hydraulic Bucket Positioning (With On / Off Selection)
- Hydraulic Muffler
- Keyless Start
- Lift Kit (Four-Point, Single-Point)
- Locking Fuel Cap
- Maintenance Platform
- Power Bob-Tach®
- Radio
- Radio Remote Control
- Rear Auxiliary Hydraulics
- Rear Bumper
- Rear Camera Kit
- Rear Window Wiper
- Reversing Fan
- Rotating Beacon
- Seat Belt with 3-Point Restraint (Standard on Two-Speed Models)
- Seat Belt – 3 in. Wide
- Sound Reduction Kit (Reduces noise at operator ear)
- Special Applications Kit
- Strobe Light
- Tailgate Lock
- Tilt Cylinder Guard Kit
- Two-Speed Travel (Available only on SJC equipped loaders)
- Windows:
  - — Externally Removable Rear Window
  - — Polycarbonate Rear Window
  - — Polycarbonate Side Windows
  - — Side Windows

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

FEATURES, ACCESSORIES, AND ATTACHMENTS (CONT'D)

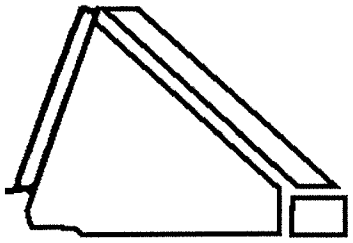
These and other attachments are approved for use on this model loader. Do not use unapproved attachments. Attachments not manufactured by Bobcat may not be approved.

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

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

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

Buckets Available



Bucket

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

Attachments

- Angle Broom
- Auger
- Backhoe
- Blades – Box, Dozer, Snow, Snow V-Blade
- Breaker, Hydraulic
- Brush Saw
- Brushcat™ Rotary Cutter
- Buckets
- Chipper
- Combination Bucket
- Concrete Mixer
- Digger
- Dumping Hopper
- Grader
- Grapple – Farm / Utility, Industrial, Root
- Landplane
- Landscape Rake
- Laser Equipment
- Mower
- Packer Wheel
- Pallet Fork
- Planer
- Rock Bucket
- Scarifier
- Scraper
- Seeder
- Snow Pusher
- Snowblower
- Sod Layer
- Soil Conditioner
- Spreader
- Stabilizer, Rear
- Sweeper
- Three-Point Hitch Adapter
- Tiller
- Tilt-Tatch™
- Trench Compactor
- Trencher
- Utility Fork
- Utility Frame
- Vibratory Roller
- Water Kit
- Whisker Broom

Special Applications Kit

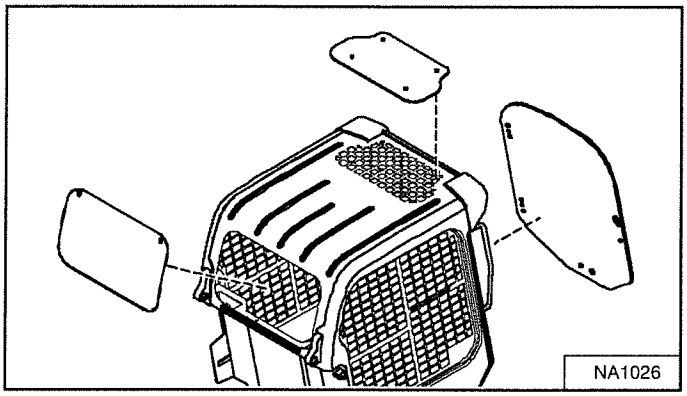
⚠ WARNING

AVOID INJURY OR DEATH

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

W-2737-0508

Figure 4



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

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

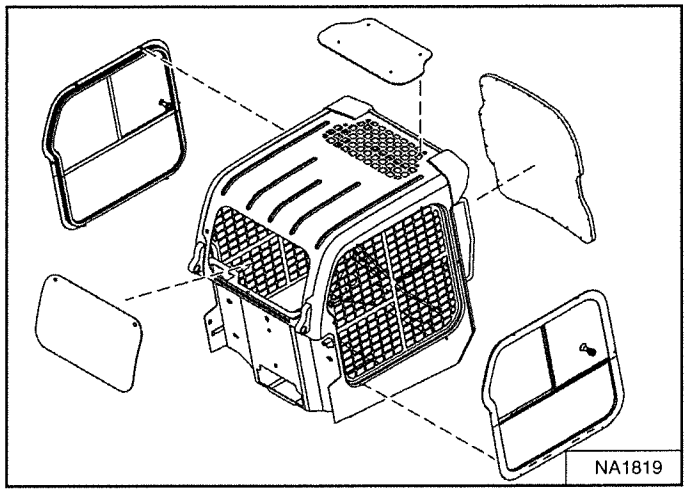
See your Bobcat dealer for availability.

Special Applications Kit Inspection And Maintenance

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

Forestry Door And Window Kit

Figure 5



Available for special applications to prevent flying debris and objects from entering the cab. Kit includes 19,1 mm (0.75 in) thick laminated polycarbonate front door, polycarbonate side windows, and polycarbonate rear window **[Figure 5]**.

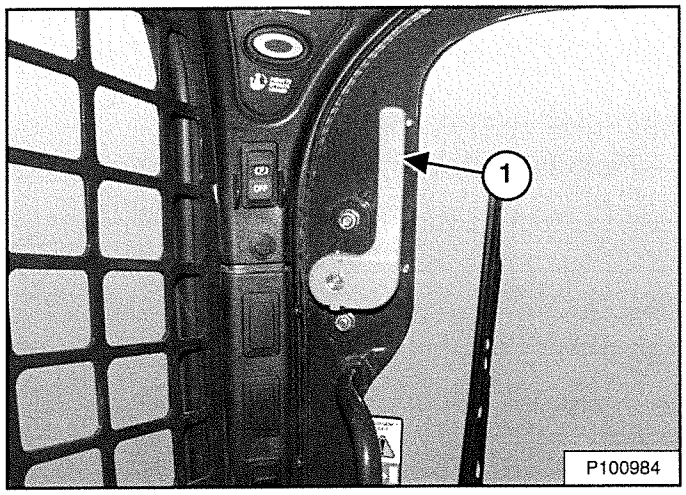
Polycarbonate top window (standard item) must be installed as part of the Forestry Door And Window Kit to restrict material from entering cab openings.

Forestry Door And Window Kit Inspection And Maintenance

- Inspect for cracks or damage. Replace if required.
- Order part number 7171104 if door frame is damaged and needs to be replaced.
- Order kit part number 7193293 if door polycarbonate is damaged and needs to be replaced.
- Prerinse with water to remove gritty materials.
- Wash with a mild household detergent and warm water.
- Use a sponge or soft cloth. Rinse well with water and dry with a clean soft cloth or rubber squeegee.
- Do not use abrasive or highly alkaline cleaners.
- Do not clean with metal blades or scrapers.

Forestry Door Emergency Exit

Figure 6



- Inspect both emergency exit levers (Item 1) **[Figure 6]**, linkages, and hardware for loose or damaged parts.
- Repair or replace if necessary.

SAFETY AND TRAINING RESOURCES

SAFETY INSTRUCTIONS

Before Operation

Carefully follow the operating and maintenance instructions in this manual.

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

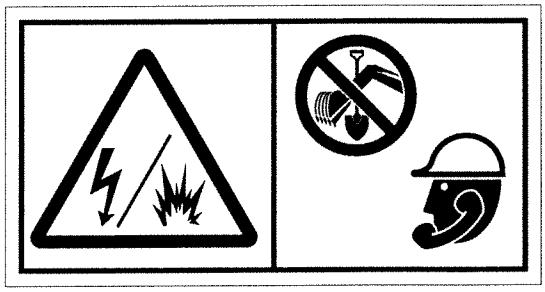
The Bobcat loader has an internal combustion engine with resultant heat and exhaust. All exhaust gases can kill or cause illness so use the loader with adequate ventilation.

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

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

- The Delivery Report is used to assure that complete instructions have been given to the new owner and that the machine and attachment is in safe operating condition.
- The Operation & Maintenance Manual delivered with the machine or attachment gives operating information as well as routine maintenance and service procedures. It is a part of the machine and can be stored in a container provided on the machine. Replacement Operation & Maintenance Manuals can be ordered from your Bobcat dealer.
- Machine signs (decals) instruct on the safe operation and care of your Bobcat machine or attachment. The signs and their locations are shown in the Operation & Maintenance Manual. Replacement signs are available from your Bobcat dealer.
- An Operator's Handbook is fastened to the operator cab of the loader. It's brief instructions are convenient to the operator. The handbook is available from your dealer in an English edition or one of many other languages. See your Bobcat dealer for more information on translated versions.
- The AEM Safety Manual delivered with the machine gives general safety information.
- The Skid-Steer Loader Operating Training Course is available through your Bobcat dealer. This course is intended to provide rules and practices of correct operation of the Bobcat loader. The course is available in English and Spanish versions.
- Service Safety Training Courses are available from your Bobcat dealer. They provide information for safe and correct service procedures.
- See the PUBLICATIONS AND TRAINING RESOURCES Page in this manual or your Bobcat dealer for Service and Parts Manuals, printed materials, videos, or training courses available. Also check the Bobcat websites **Bobcat.com/training** or **Bobcat.com**

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



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

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

SI SSL-1016

Safe Operation Is The Operator's Responsibility

Safety Alert Symbol

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

WARNING

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

W-2001-1285

IMPORTANT

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

I-2019-0284

DANGER

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

D-1002-1107

WARNING

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

W-2044-1107

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

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

Safe Operation Needs A Qualified Operator

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

A Qualified Operator Must Do The Following:

Understand the Written Instructions, Rules and Regulations

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

Have Training with Actual Operation

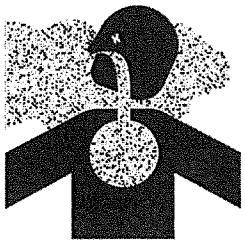
- Operator training must consist of a demonstration and verbal instruction. This training is given by your Bobcat dealer before the product is delivered.
- The new operator must start in an area without bystanders and use all the controls until he or she can operate the machine and attachment safely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

Know the Work Conditions

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

SI SSL-1016

Avoid Silica Dust



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

FIRE PREVENTION

Maintenance

The machine and some attachments have components that are at high temperatures under normal operating conditions. The primary source of high temperatures is the engine and exhaust system. The electrical system, if damaged or incorrectly maintained, can be a source of arcs or sparks.

Flammable debris (leaves, straw, etc.) must be removed regularly. If flammable debris is allowed to accumulate, it can cause a fire hazard. Clean often to avoid this accumulation. Flammable debris in the engine compartment is a potential fire hazard.

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

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

Operation

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

Electrical

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

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

SI SSL-1016

FIRE PREVENTION (CONT'D)

Hydraulic System

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

Always clean fluid spills. Do not use gasoline or diesel fuel for cleaning parts. Use commercial nonflammable solvents.

Fueling

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

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

Starting

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

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

Spark Arrester Exhaust System

The spark arrester exhaust system is designed to control the emission of hot particles from the engine and exhaust system, but the muffler and the exhaust gases are still hot.

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

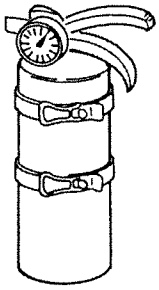
Welding And Grinding

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

Have good ventilation when grinding or welding painted parts. Wear dust mask when grinding painted parts. Toxic dust or gas can be produced.

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

Fire Extinguishers



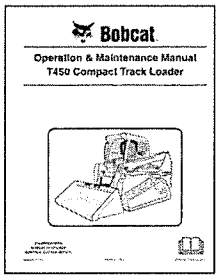
Know where fire extinguishers and first aid kits are located and how to use them. Inspect the fire extinguisher and service the fire extinguisher regularly. Obey the recommendations on the instructions plate.

SI SSL-1016

PUBLICATIONS AND TRAINING RESOURCES

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

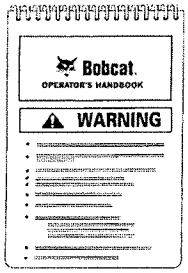
For the latest information on Bobcat products and the Bobcat Company, visit our website at **Bobcat.com/training** or **Bobcat.com**



OPERATION & MAINTENANCE MANUAL

6990393enUS

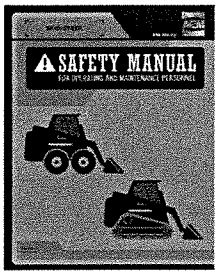
Complete instructions on the correct operation and the routine maintenance of your Bobcat loader.



OPERATOR'S HANDBOOK

6990927enUS

Gives basic operation instructions and safety warnings.



SAFETY MANUAL

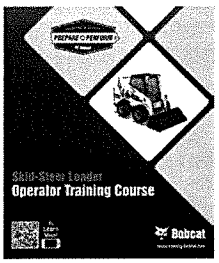
6556500 (English and Spanish)

Gives basic safety procedures and warnings for your Bobcat loader.

OPERATOR SAFETY DVD

6904762 (English and Spanish)

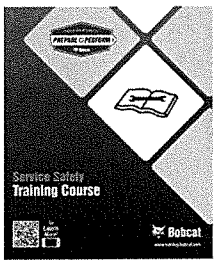
DVD gives basic safety instructions for many Bobcat products including loaders.



SKID-STEER LOADER OPERATOR TRAINING COURSE

7249275 (English)
7249278 (Spanish)

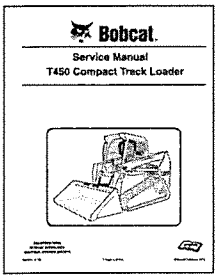
Introduces operator to step-by-step basics of skid-steer loader operation.



SERVICE SAFETY TRAINING COURSE

7297250

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



SERVICE MANUAL

6990394enUS

Complete maintenance instructions for your Bobcat loader.

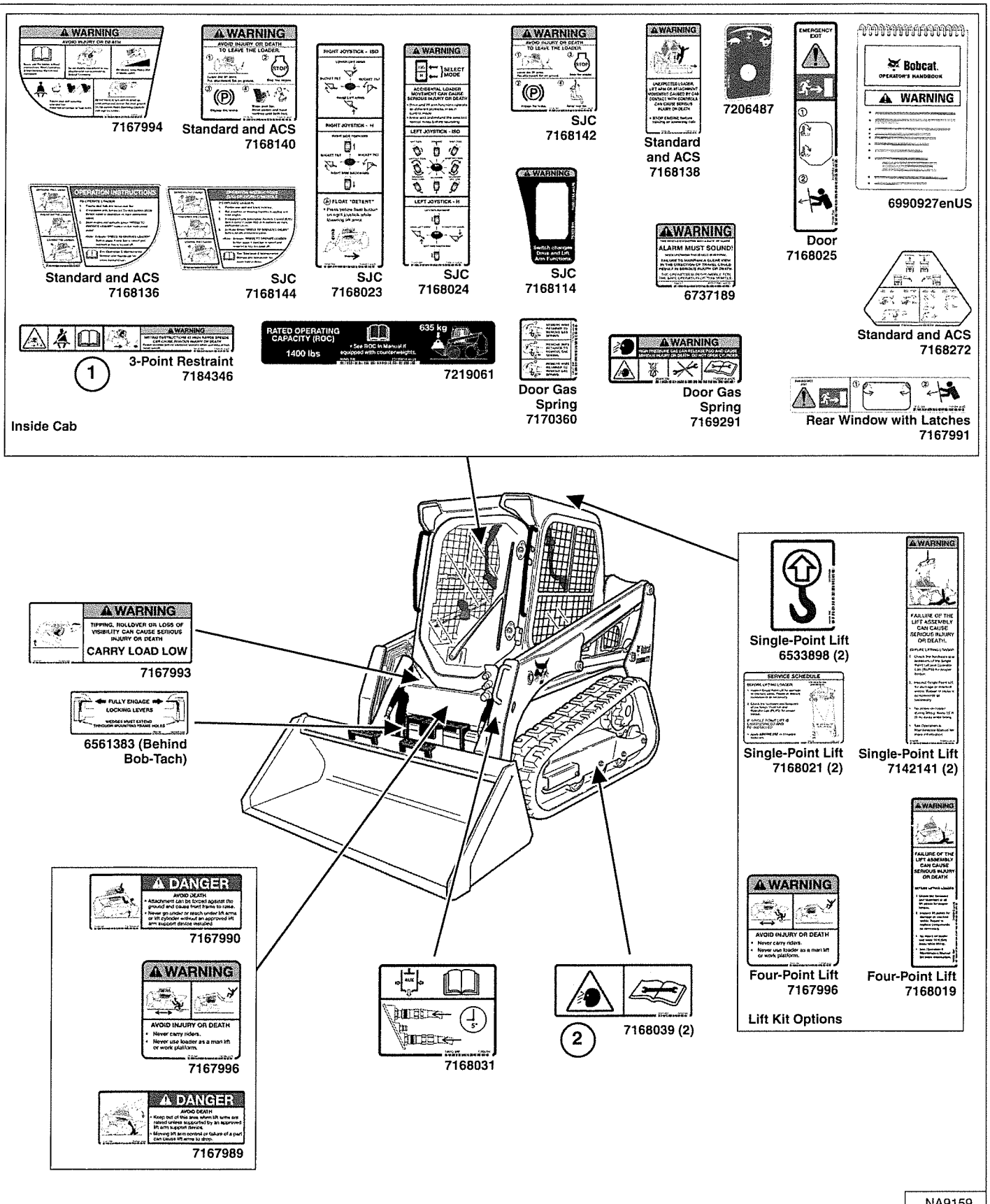
LOADER SAFETY VIDEO

(Mobile device with quick response code application required)

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

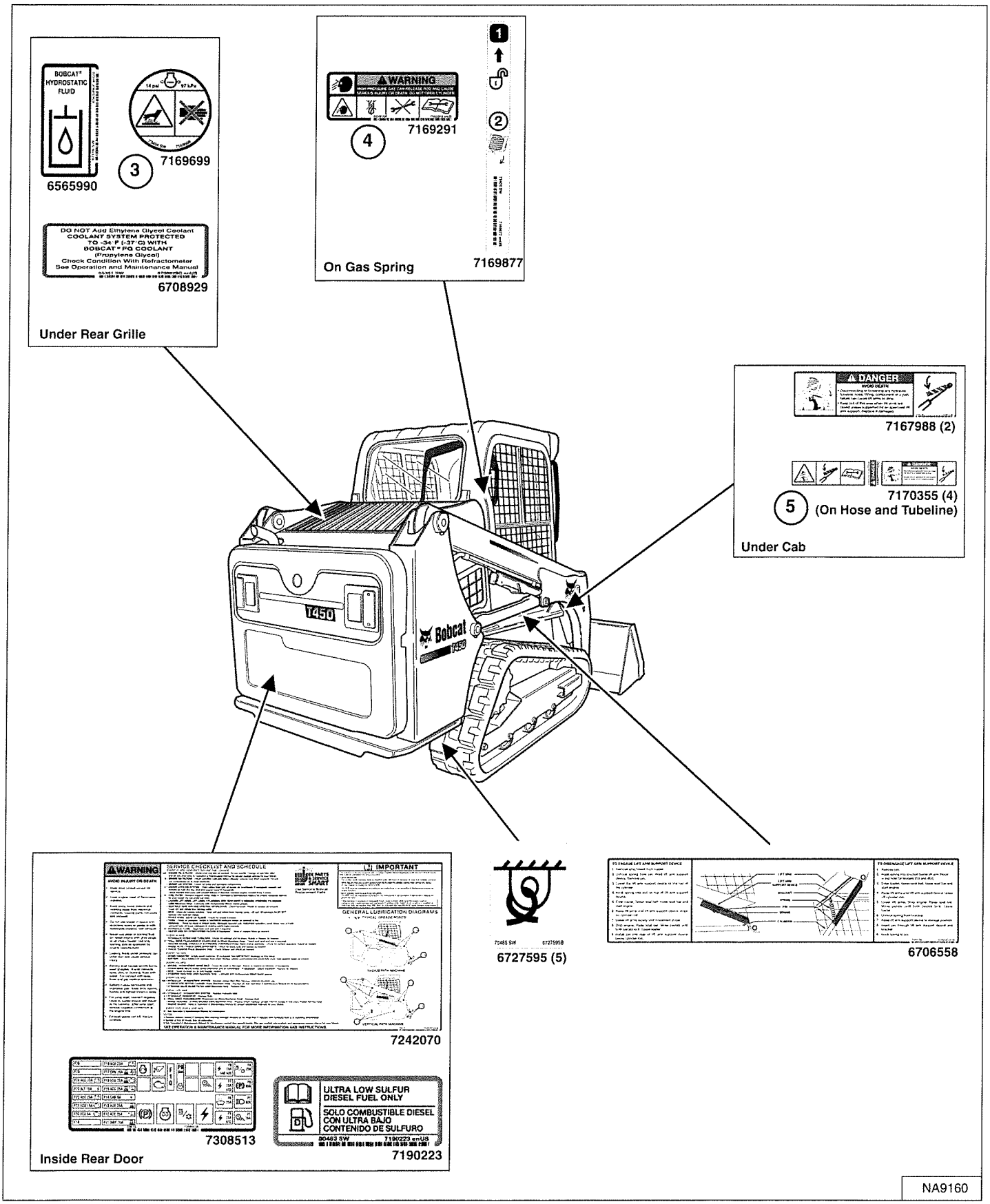
MACHINE SIGNS (DECALS)

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.

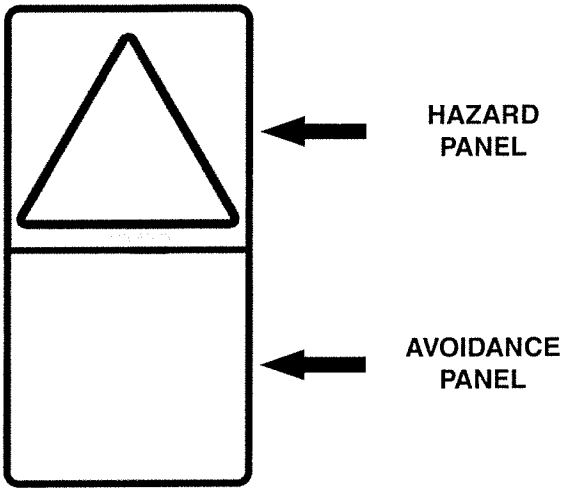


MACHINE SIGNS (DECALS) (CONT'D)

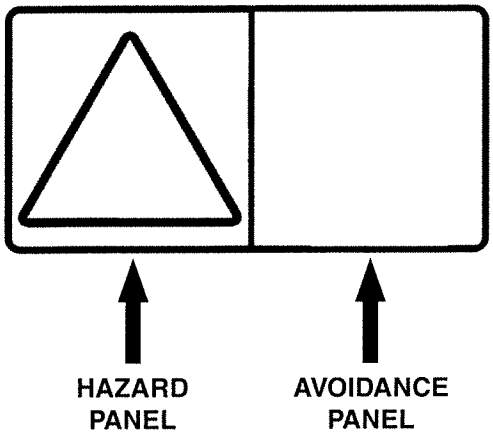
Pictorial Only Safety Signs

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

Vertical Configuration



Horizontal Configuration



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

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

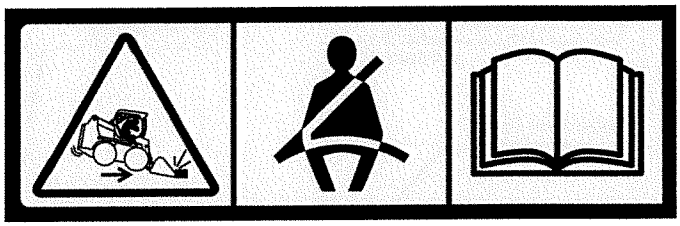
Avoidance panels depict actions required to avoid the hazards.

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

NOTE: See the numbered MACHINE SIGNS (DECALS) on Page 16 and MACHINE SIGNS (DECALS) (CONT'D) on Page 17 for the machine location of each correspondingly numbered pictorial only decal.

1. High Range Speeds (7184346)

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



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

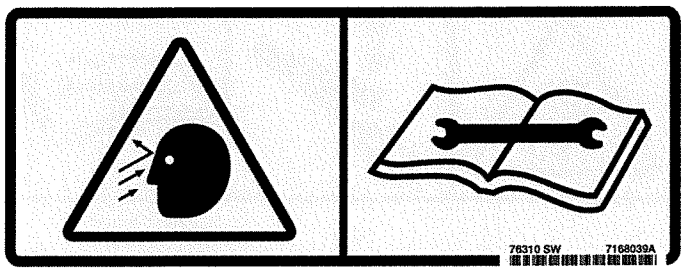
Fasten shoulder belt for additional restraint when operating at high range speeds.

W-2754-0908

Pictorial Only Safety Signs (Cont'd)

2. Flying Debris or Objects (7168039)

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



⚠ WARNING

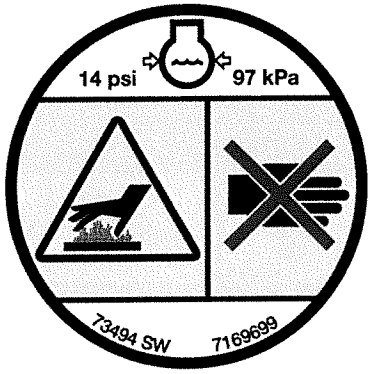
HIGH PRESSURE GREASE CAN CAUSE SERIOUS INJURY

- **Do not loosen grease fitting.**
- **Do not loosen bleed fitting more than 1 - 1/2 turns.**

W-2781-0109

3. Hot Pressurized Fluid (7169699)

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



⚠ WARNING

HOT PRESSURIZED FLUID CAN CAUSE SERIOUS BURNS

- **Never open hot.**
- **OPEN SLOWLY.**

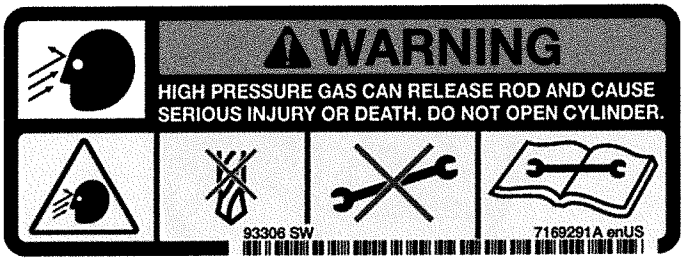
W-2755-0908

MACHINE SIGNS (DECALS) (CONT'D)

Pictorial Only Safety Signs (Cont'd)

4. High Pressure Gas (7169291)

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



WARNING

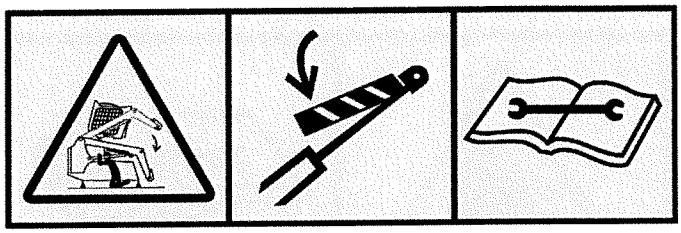
HIGH PRESSURE GAS CAN RELEASE ROD AND CAUSE SERIOUS INJURY OR DEATH

- **Do not open cylinder.**
- **See Service Manual for more information.**

W-2756-0908

5. Lift Arm Crushing (7170355)

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



DANGER

AVOID DEATH

- **Disconnecting hydraulic lines can cause the lift arms or attachment to drop.**
- **Always use an approved lift arm support when lift arms are in a raised position.**

D-1008-0409

OPERATING INSTRUCTIONS

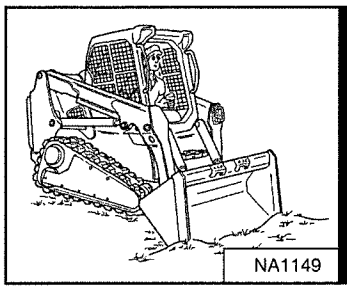
INTENDED USE

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

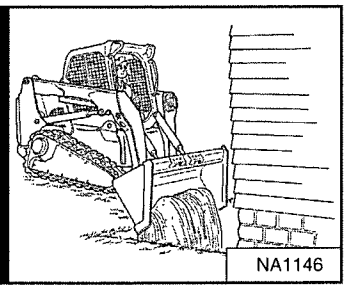
Additional Bobcat approved attachments allow this machine to perform other tasks described in the attachment Operation & Maintenance Manuals.

Examples of intended use include:

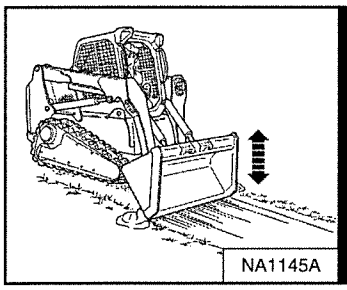
Digging



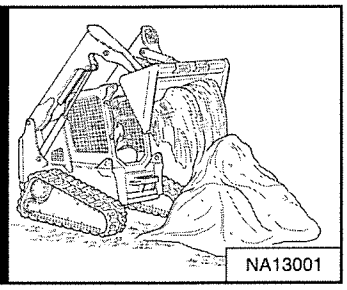
Backfilling



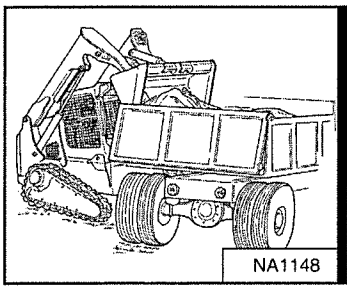
Leveling



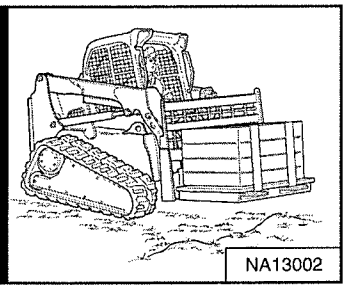
Piling Material



Loading Material



Moving Palletized Loads



⚠ WARNING

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

W-2056-1112

⚠ WARNING

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

W-2057-0694

IMPORTANT

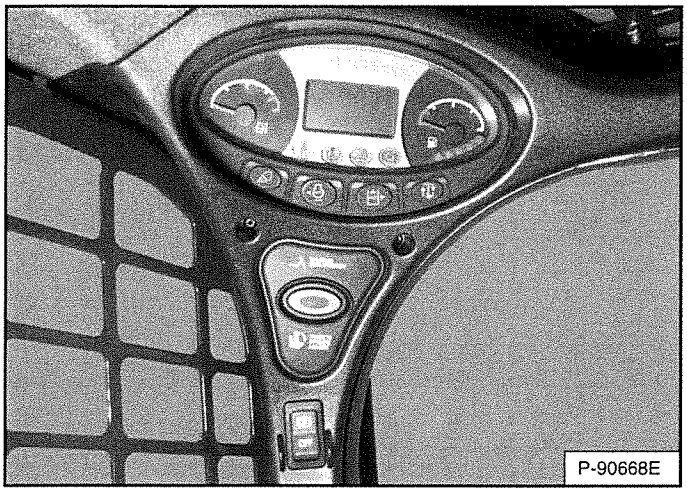
Never drive forward when the hydraulic control for lift arms is in float position.

I-2005-1285

INSTRUMENT PANEL IDENTIFICATION

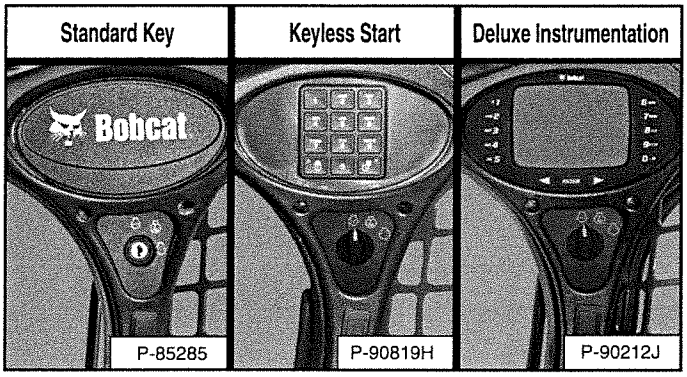
Overview

Figure 7



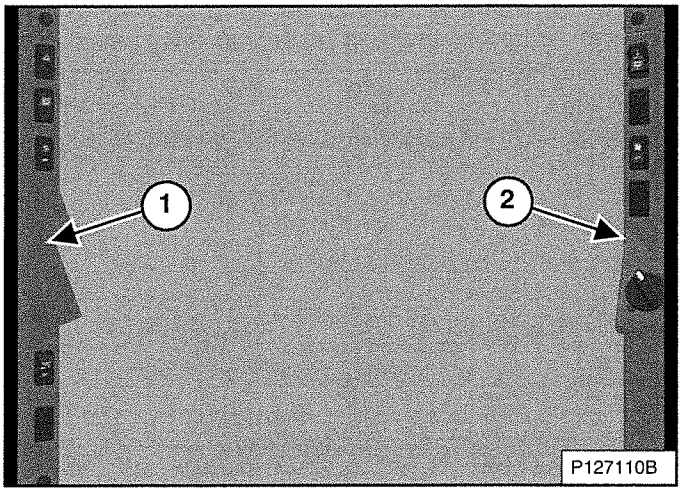
The left panel **[Figure 7]** is described in more detail. (See Left Panel on Page 27.)

Figure 8



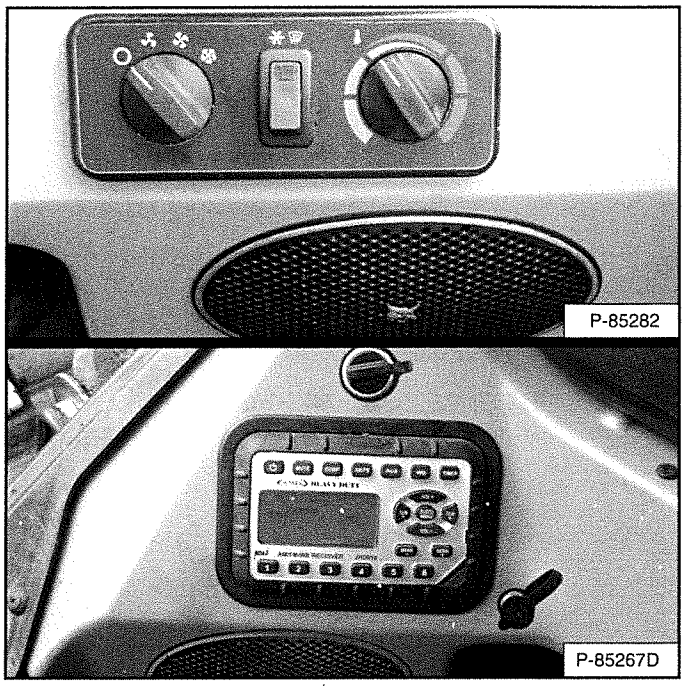
The right panel **[Figure 8]** is described in more detail. (See Right Panel (Standard Key Panel) on Page 30.), (See Right Panel (Keyless Start Panel) on Page 31.), or (See Right Panel (Deluxe Instrumentation Panel) on Page 32.)

Figure 9



The left (Item 1) and right (Item 2) **[Figure 9]** switch panels are described in more detail. (See Left Switch Panel on Page 34.) and (See Right Switch Panel on Page 34.)

Figure 10

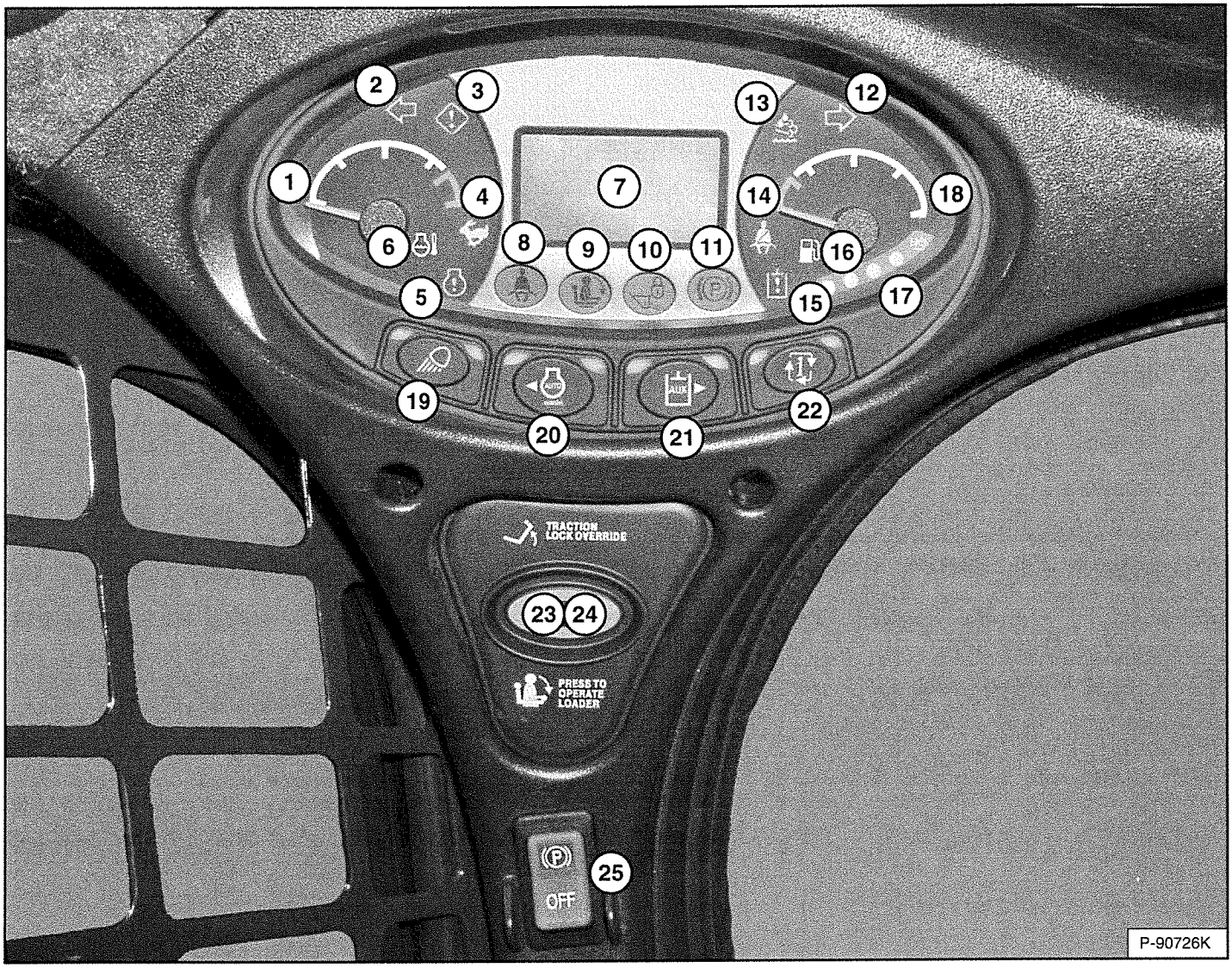


The left and right side lower panels **[Figure 10]** are described in more detail. (See Left Side Lower Panel on Page 35.) and (See Right Side Lower Panel on Page 35.)

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Left Panel

Figure 11



The left panel **[Figure 11]** is the same for all machines regardless of options and accessories.

ITEM	DESCRIPTION	FUNCTION / OPERATION
1	ENGINE TEMPERATURE GAUGE	Shows the engine coolant temperature.
2	LEFT TURN SIGNAL (Option)	Indicates left turn signals are ON.
3	GENERAL WARNING	Malfunction with one or more machine functions. (See Service Codes*)
4	TWO-SPEED (Option)	High range selected.
5	ENGINE MALFUNCTION	Engine malfunction or failure. (See Service Codes*)
6	ENGINE COOLANT TEMPERATURE	Engine coolant temperature high or sensor error.
7	DISPLAY SCREEN	Displays information. (See Display Screen in this manual.)
8	SEAT BELT	Instructs operator to fasten seat belt. Remains lit for 45 seconds.
9	SEAT BAR	The light is on when the seat bar is UP.
10	LIFT AND TILT VALVE	The light is on when the lift and tilt functions cannot be operated.
11	PARKING BRAKE	The light is on when the loader cannot be driven.

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Left Panel (Cont'd)

ITEM	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 (Option)	Press once to engage auto idle. (Left green LED lights.) Press a second time to disengage. (See AUTO IDLE in this manual.)
		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): • 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 187.)

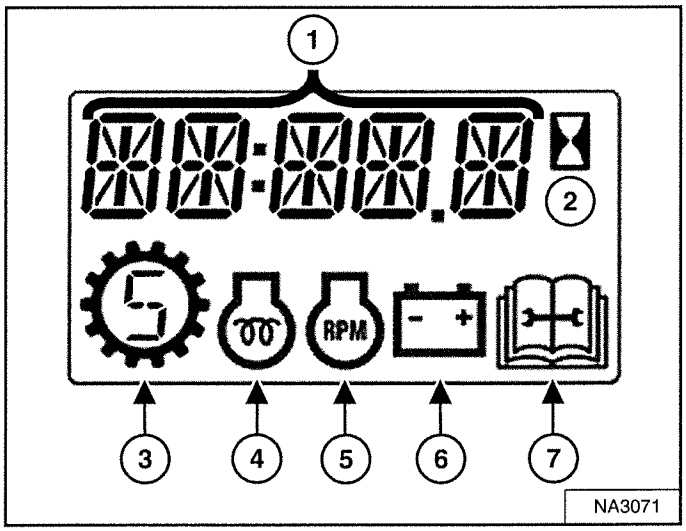
INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Display Screen

The display screen can display the following information:

- Operating hours
- Engine rpm
- Battery voltage
- Drive response setting
- Steering drift compensation setting
- Maintenance clock countdown
- Service codes
- Engine preheat countdown
- Speed management setting
- Lift and tilt compensation setting

Figure 12

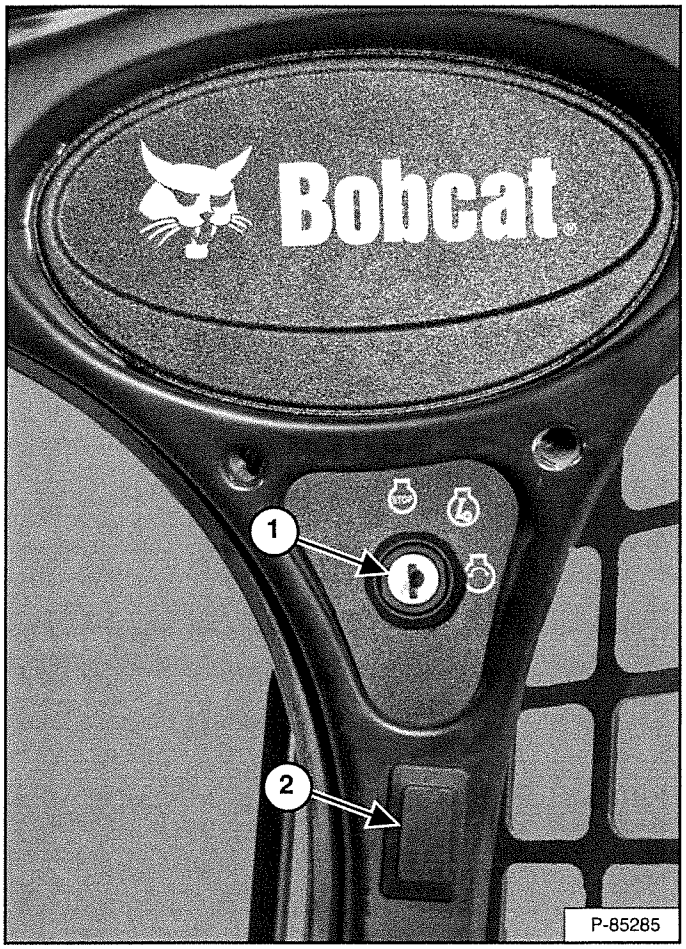


The display screen is shown in **[Figure 12]**. The data display will show operating hours upon startup.

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

Right Panel (Standard Key Panel)

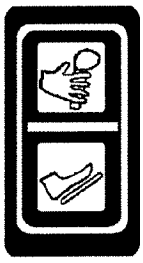
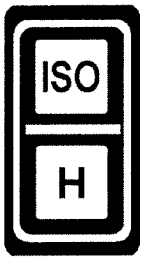
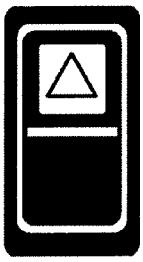
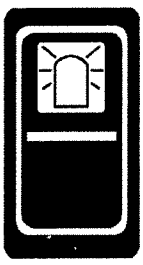
Figure 13



This machine may be equipped with a Standard Key Panel **[Figure 13]**.

The Standard Key Panel has a key switch (Item 1) **[Figure 13]** used to turn the loaders electrical system on and off, and to start and stop the engine.

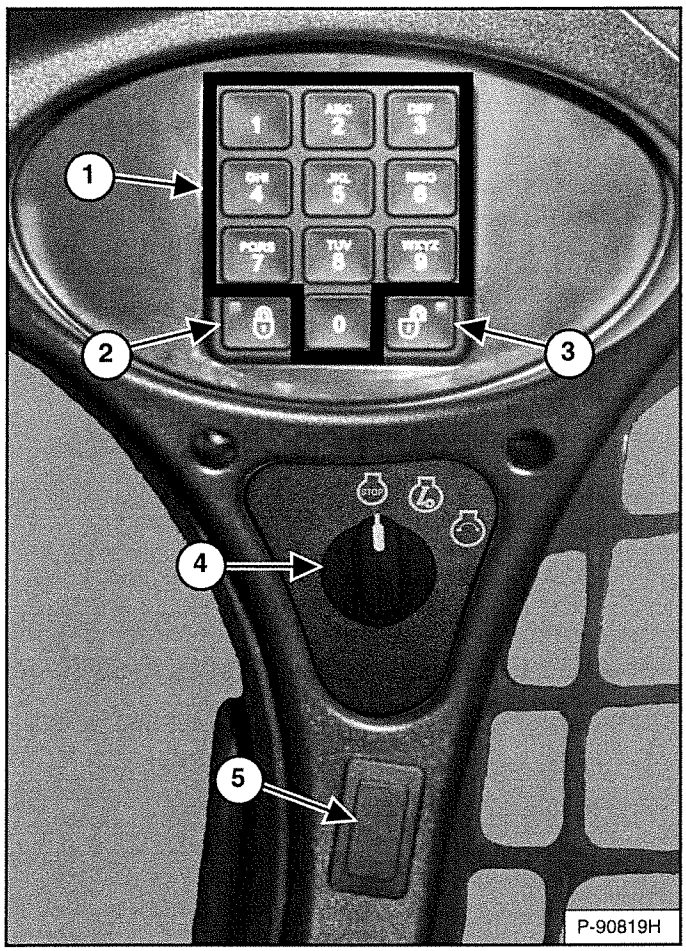
The switch location (Item 2) **[Figure 13]** can have different functions depending on machine configuration. See the following table for more information.

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

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Right Panel (Keyless Start Panel)

Figure 14



This machine may be equipped with a Keyless Start Panel **[Figure 14]**.

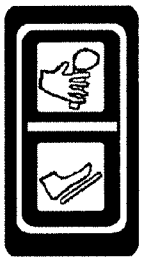
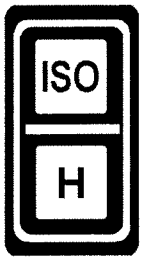
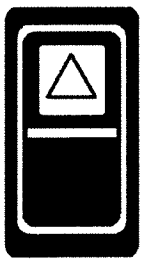
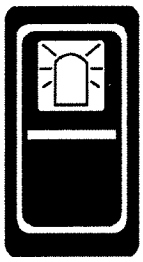
1. **Keypad (keys 1 through 0):** Used to enter a number code (password) to allow starting the engine. An asterisk will show in the left panel display screen for each key press.

2. **LOCK Key:** Used to lock keypad. The lock key will display a red light to indicate a password is required to start the loader. (See Password Lockout Feature on Page 202.)

3. **UNLOCK Key:** Used to unlock keypad. The unlock key will display a green light to indicate the loader can be started without a password. (See Password Lockout Feature on Page 202.)

4. **Key Switch:** Used to turn the loaders electrical system on and off, and to start and stop the engine.

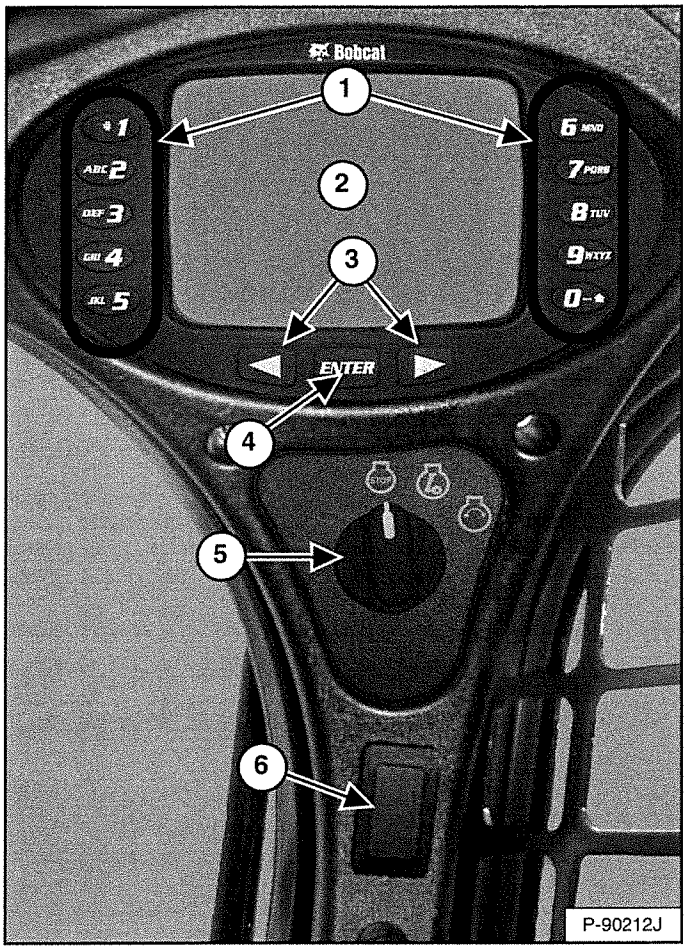
The switch location (Item 5) **[Figure 14]** can have different functions depending on machine configuration. See the following table for more information.

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

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Right Panel (Deluxe Instrumentation Panel)

Figure 15



This machine may be equipped with a Deluxe Instrumentation Panel **[Figure 15]**.

1. **Keypad (keys 1 through 0):** The keypad has two functions:

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

   - To enter a number as directed for further use of the display screen.

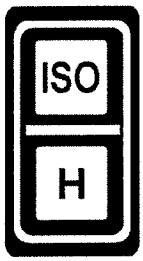
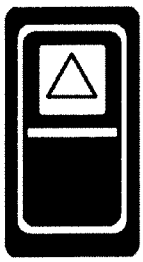
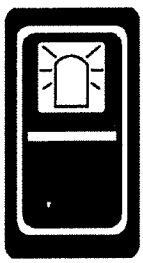
2. **Display Screen:** The display screen is where all system setup, monitoring, and error conditions are displayed.

3. **Scroll Buttons:** Used to scroll through display screen choices.

4. **ENTER Button:** Used to make selections on the display screen.

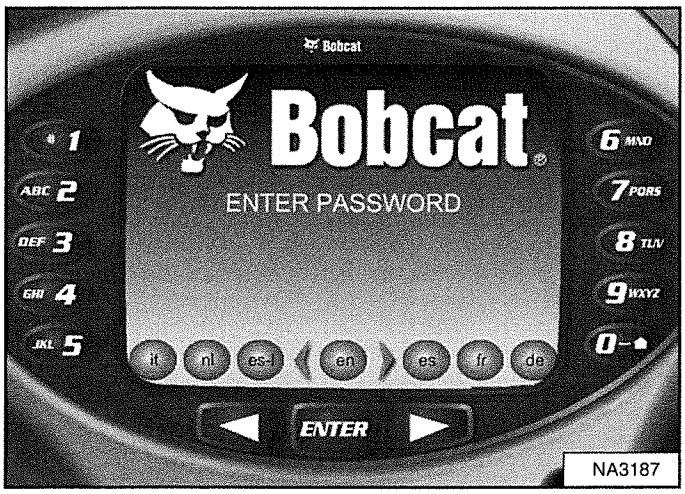
5. **Key Switch:** Used to turn the loaders electrical system on and off, and to start and stop the engine.

The switch location (Item 6) **[Figure 15]** can have different functions depending on machine configuration. See the following table for more information.

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

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

Figure 16



The first screen you will see on your new loader is shown in **[Figure 16]**.

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

NOTE: Your new loader (with Deluxe Instrumentation Panel) will have an Owner Password. Your dealer will provide you with this password. Change the password to one that you will easily remember to prevent unauthorized use of your loader. (See Changing The Owner Password on Page 203.) Keep your password in a safe location for future needs.

Change Language:

Press the left or right scroll button to cycle through the languages. The language that is stopped on becomes the default language used for the Deluxe Instrumentation Panel **[Figure 16]**.

The language can be changed at any time. (See CONTROL PANEL SETUP on Page 198.)

Enter The Password:

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

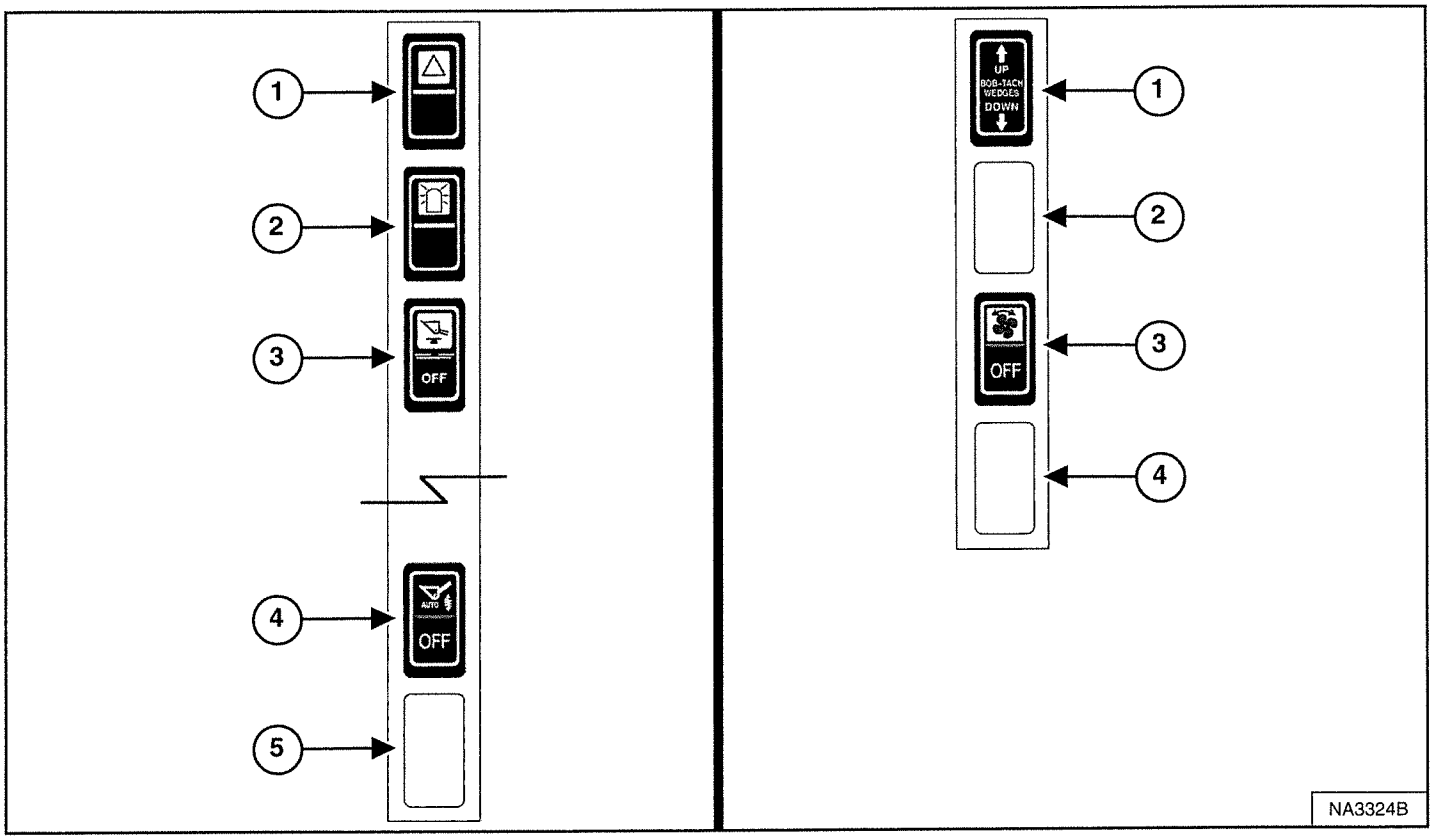
If the correct password is not entered, **[INVALID PASSWORD TRY AGAIN]** will appear on the display screen and the password will have to be reentered.

See CONTROL PANEL SETUP for further description of screens to set up the system for your use. (See CONTROL PANEL SETUP on Page 198.)

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Left Switch Panel **Right Switch Panel**

Figure 17



This machine may be equipped with a left switch panel **[Figure 17]**.

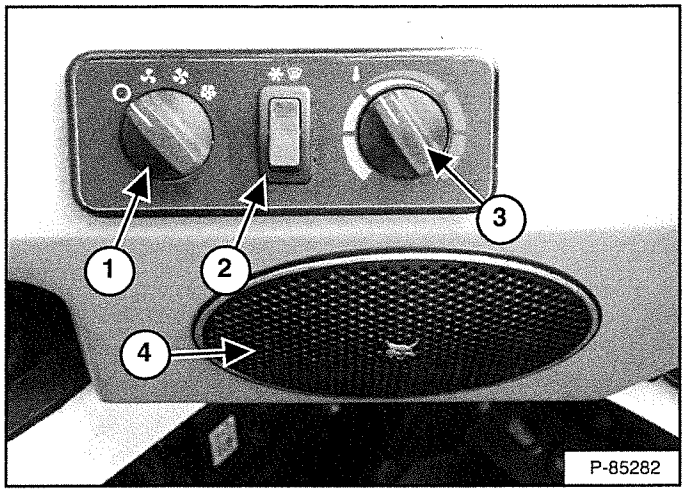
ITEM	DESCRIPTION	FUNCTION / OPERATION
1	FOUR-WAY FLASHER LIGHTS (Option)	Press the top to turn lights ON; bottom to turn OFF.
2	ROTATING BEACON (Option) ***OR*** STROBE LIGHT (Option)	Press the top to turn light ON; bottom to turn OFF.
3	HYDRAULIC BUCKET POSITIONING (Option)	Press the top to engage Hydraulic Bucket Positioning; bottom to disengage.
4	AUTOMATIC RIDE CONTROL (Option)	Press the top to engage Automatic Ride Control; bottom to disengage.
5	NOT USED	– – –

NOTE: Earlier models did not have switch locations four and five on the left switch panel.

ITEM	DESCRIPTION	FUNCTION / OPERATION
1	POWER BOB-TACH (Option)	Press and hold the up arrow to disengage the Bob-Tach wedges. Press and hold the down arrow to engage the Bob-Tach wedges into the attachment mounting frame holes.
2	NOT USED	– – –
3	REVERSING FAN (Option)	Automatic Operation - middle position; Manual Operation - press top momentarily; press bottom to disengage.
4	NOT USED	– – –

Left Side Lower Panel

Figure 18

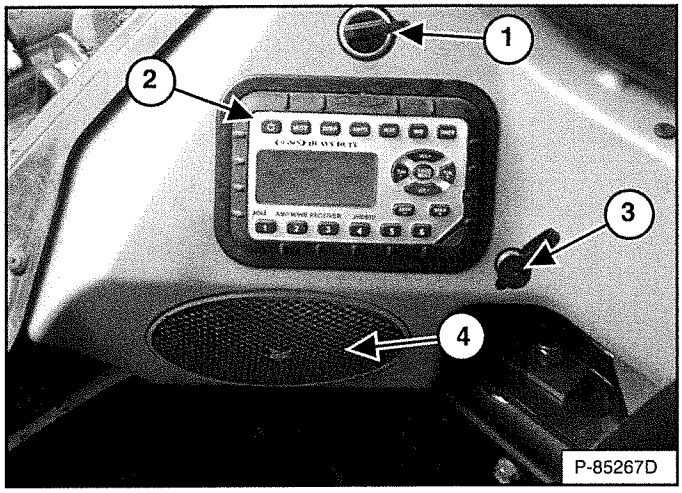


This machine may be equipped with a left side lower panel **[Figure 18]**.

ITEM	DESCRIPTION	FUNCTION / OPERATION
1	FAN MOTOR (Option)	Turn clockwise to increase fan speed; counterclockwise to decrease. There are four positions; OFF-1-2-3.
2	AIR CONDITIONING / DEFROST SWITCH (Option)	Press top of switch to start; bottom to stop. Switch will light when started. Fan Motor (Item 1) must be ON for air conditioning to operate.
3	TEMPERATURE CONTROL (Option)	Turn clockwise to increase the temperature; counterclockwise to decrease.
4	SPEAKER (Option)	Left speaker used with optional radio.

Right Side Lower Panel

Figure 19



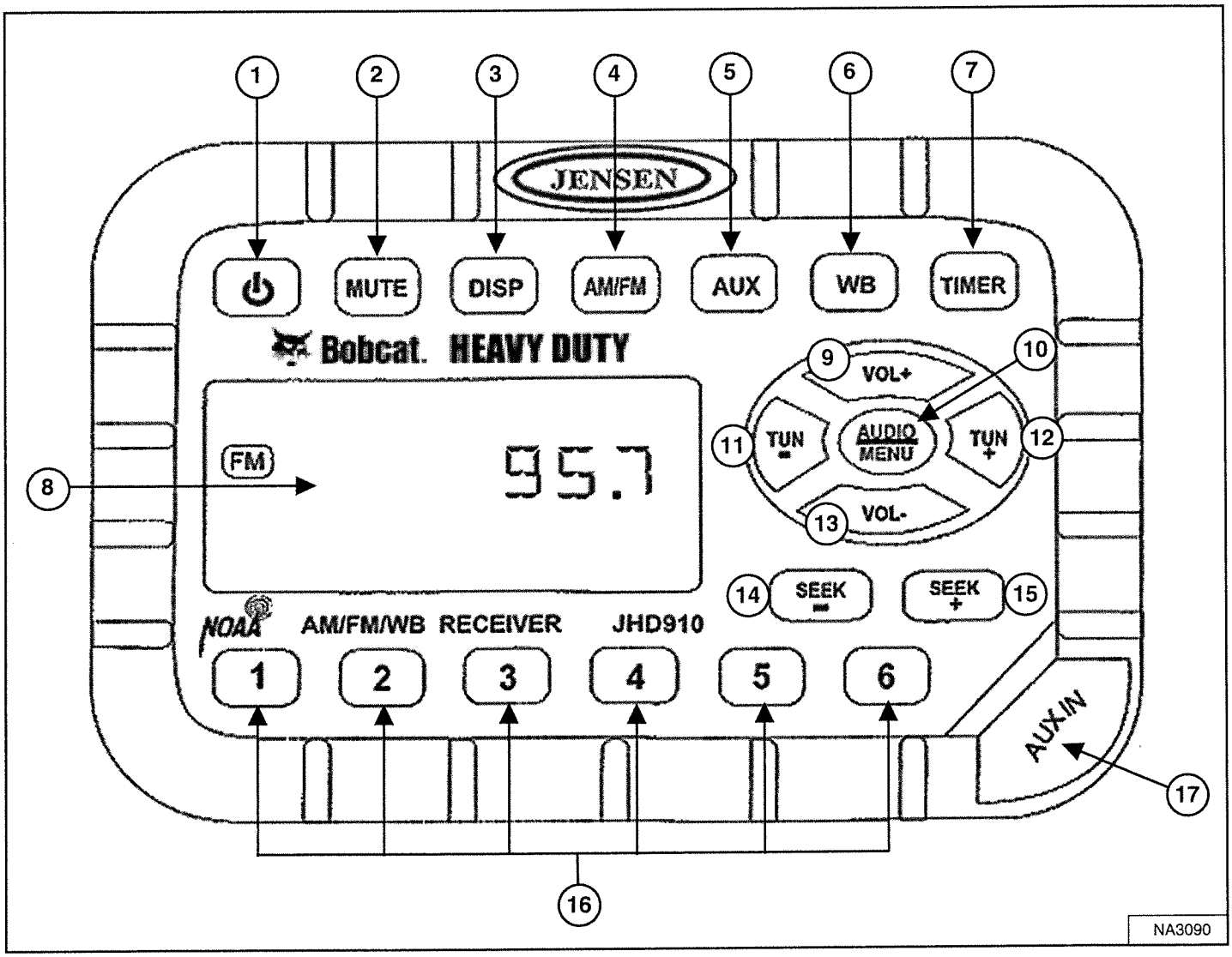
This machine may be equipped with a right side lower panel **[Figure 19]**.

ITEM	DESCRIPTION	FUNCTION / OPERATION
1	POWER PORT (Option)	Provides a 12 volt receptacle for accessories.
2	RADIO (Option)	See Radio in this manual.
3	HEADPHONE JACK (Option)	Used to connect headphones to the optional radio output. Automatically silences speakers when used.
4	SPEAKER (Option)	Right speaker used with optional radio.

Radio

This machine may be equipped with a radio.

Figure 20



The table on the next page shows the DESCRIPTION and FUNCTION / OPERATION for each of the controls of the radio **[Figure 20]**.

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

INSTRUMENT PANEL IDENTIFICATION (CONT'D)

Radio (Cont'd)

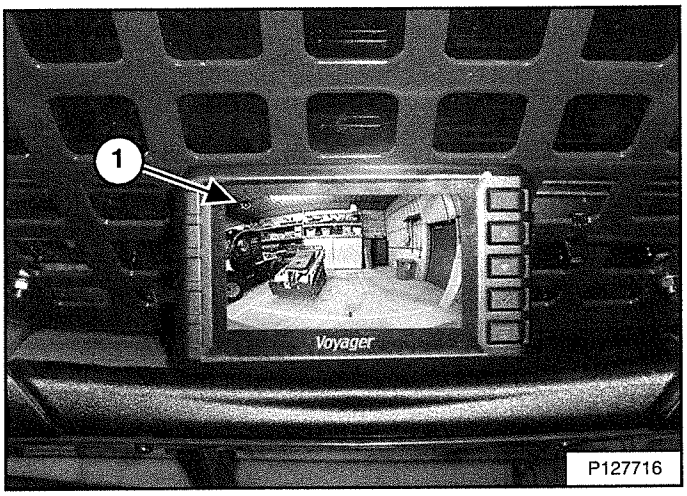
ITEM	DESCRIPTION	FUNCTION / OPERATION
1	POWER	Press to turn ON; press again to turn OFF.
2	MUTE	Press to mute audio output; **[MUTE]** will appear in display screen; press again to turn OFF.
3	DISPLAY	Press to toggle between function mode (showing tuner frequency, auxiliary input, weather band information, or timer) and clock mode.
		Press and hold to enter clock setting mode; use FREQUENCY DOWN (TUN -) button to adjust hours and FREQUENCY UP (TUN +) button to adjust minutes; normal operation will resume automatically.
4	BAND	Press to select tuner mode. Press to cycle through 2 AM (MW) bands and 3 FM bands.
5	AUXILIARY	Press to select Auxiliary Input mode. Portable audio device (MP3 player) must be attached to auxiliary input jack.
6	WEATHER BAND	Press to select weather band; use FREQUENCY UP (TUN +) and FREQUENCY DOWN (TUN -) buttons to adjust to the clearest station.
		The weather alert feature, if activated, will automatically switch from the current function to the weather band if a weather warning is received. See AUDIO / MENU ADJUSTMENT in this table.
7	TIMER	Press to access timer mode. Press to start the timer function; press again to stop timer; press again to resume timer or press and hold to reset timer and exit from timer mode.
8	DISPLAY SCREEN	Displays the time, frequency, and activated functions.
9	VOLUME UP	Adjusts volume up; current volume (0 – 40) will appear briefly in display screen.
10	AUDIO / MENU ADJUSTMENT	AUDIO ADJUSTMENT: Press to cycle through bass, treble, and balance settings; use VOLUME UP (VOL +) and VOLUME DOWN (VOL -) buttons to adjust when desired option is displayed; normal operation will resume automatically.
		MENU ADJUSTMENT: Press and hold for 3 seconds to enter menu adjustment settings; press to cycle through the following settings; use VOLUME UP (VOL +) and VOLUME DOWN (VOL -) buttons to adjust when desired option is displayed; normal operation will resume automatically. • Beep Confirm (On or Off) – Determines if beep will sound with each button press. • Operation Region (USA or Europe) – Selects the appropriate region. • Clock Display (12 or 24) – Selects a 12-hour or 24-hour clock display. • Display Brightness (Low, Medium, or High) – Determines brightness level of display screen. • Backlight Color (Amber or Green) – Determines backlight color of display screen. • Power On Volume (0 – 40) – Selects default volume setting when radio is turned on. • WB Alert (On or Off) – Determines if weather band alert feature is activated.
11	FREQUENCY DOWN	Press to manually tune the radio frequency down.
12	FREQUENCY UP	Press to manually tune the radio frequency up.
13	VOLUME DOWN	Adjusts volume down; current volume (0 – 40) will appear briefly in display screen.
14	SEEK FREQUENCY DOWN	Press to automatically tune frequency down to next strong station.
15	SEEK FREQUENCY UP	Press to automatically tune frequency up to next strong station.
16	PRESET STATIONS	Used to store and recall stations for each AM and FM band. Press and hold to store current station; press button to recall station.
17	AUXILIARY INPUT JACK	Connect headphone or line output of portable audio device (MP3 player) to 3,5 mm (1/8 in) jack and press AUXILIARY button.

Rear View Camera System

This machine may be equipped with a rear view camera system.

A rear view camera system is not a substitute for keeping bystanders away from the work area. Operators must remain fully aware of the surroundings using direct visibility and the rear view camera system. The operator must service and maintain the camera system to ensure proper function.

Figure 21



The camera display is located above the front door **[Figure 21]**.

NOTE: Objects viewed on the camera display are closer than they appear.

The rotating icon (Item 1) **[Figure 21]** in the upper left corner of the display indicates a live broadcast from the camera.

If the icon freezes, it indicates that the camera is not supplying a live broadcast and service may be required.

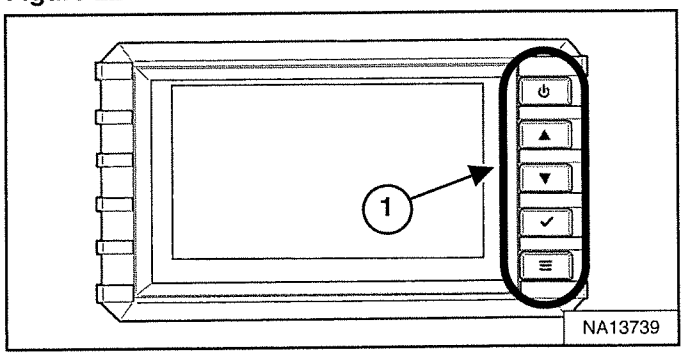
⚠ WARNING

AVOID INJURY OR DEATH

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

W-2783-0118

Figure 22



The table below explains the function of each button (Item 1) **[Figure 22]** on the camera display.

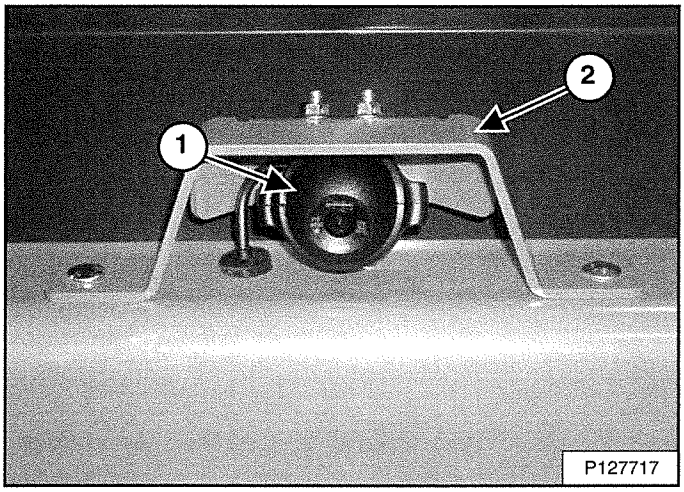
ITEM	DESCRIPTION	FUNCTION / OPERATION
⏻	POWER	Press to turn display ON; press again to turn OFF.
▲	UP	Press to navigate up through menu screen choices; also used to adjust menu settings.
▼	DOWN	Press to navigate down through menu screen choices; also used to adjust menu settings.
✓	SELECT	Press to select the highlighted function or option setting. Pressing the select button while on the main screen will change the camera input to a blank screen labeled CAM2 or CAM3. Press the button until the input is returned to CAM1 for normal system operation.
☰	MENU	Press to enter the menu settings; also used to return to previous menu.

Commonly used menu settings:

- PICTURE - Brightness, contrast, color, tint
- SETTING - Screen saver, auto power
- MISCELLANEOUS - Language, reset.

Rear View Camera System (Cont'd)

Figure 23



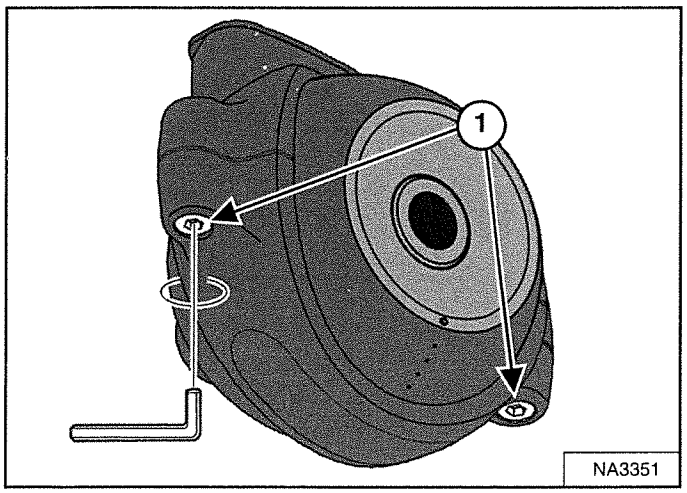
The rear camera (Item 1) is located inside a bracket (Item 2) **[Figure 23]** mounted on top of the rear door.

Perform the following daily or as needed:

- Clean the lens of the camera using a soft cloth and clean water.
- Remove mud, snow, ice or other debris that could affect the clear view provided by the camera system.
- Verify proper camera adjustment. Adjust camera if needed.
- Replace damaged rear view camera system components. See your Bobcat dealer for service and parts.

Rear Camera Adjustment

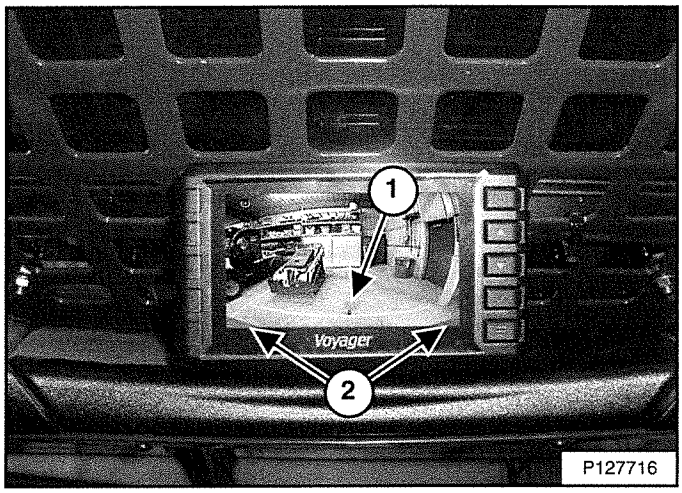
Figure 24



Perform the following steps to adjust the rear camera:

1. Make a mark on the ground 1,25 m (4 ft) behind the machine.
2. Loosen the screws (Item 1) **[Figure 24]** of the clamp holding the camera.
3. Turn the key switch to RUN **without starting the engine**. Turn the display ON.

Figure 25



4. Look at the camera display through the rear window of the machine. The image should be as a mirror, an object to the left of the machine appears on the left of the display. See display menu to adjust if needed.
5. Adjust the camera down until the rear door (Item 2) is just visible on the display. Ensure the camera is centered left and right. The mark on the ground (Item 1) **[Figure 25]** from step 1 should be visible on the display.
6. Tighten the screws to 0,8 – 1,0 N•m (7 – 8.8 in-lb) torque.
7. Turn the key switch to OFF.

CONTROL IDENTIFICATION

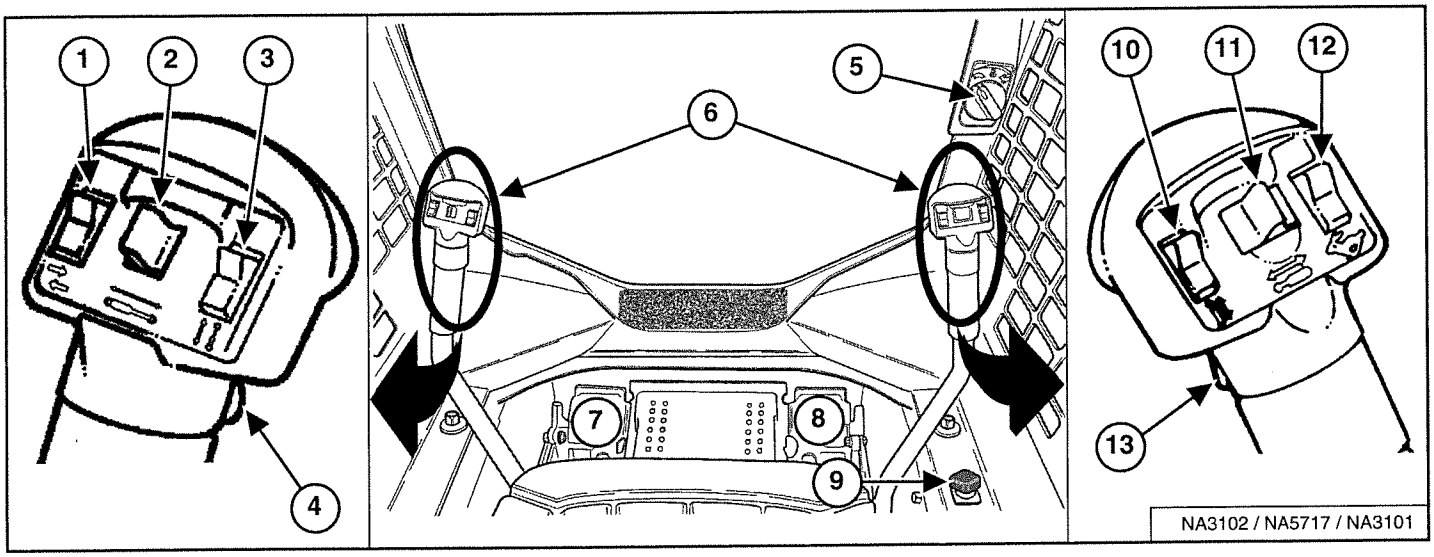
Description

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 26

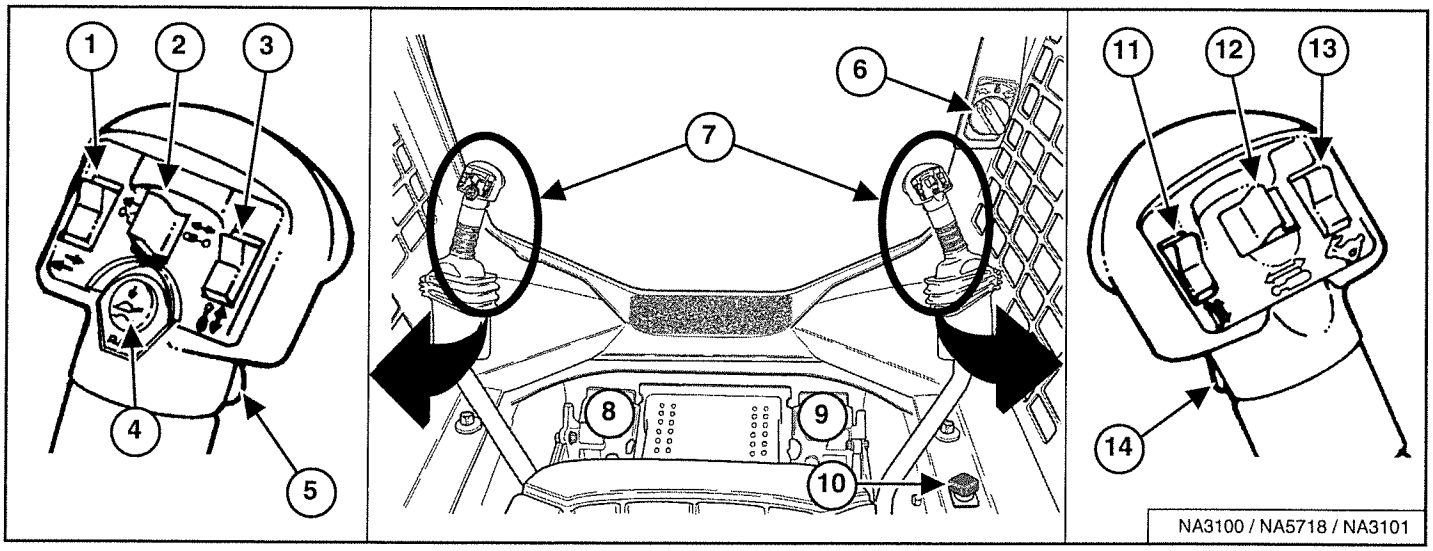


ITEM	DESCRIPTION	FUNCTION / OPERATION
1	TURN SIGNALS (Option)	Press the top to activate right signal; bottom to activate left signal; center position to turn off.
2	REAR AUXILIARY HYDRAULICS (Option)	See REAR Auxiliary Hydraulics Operation in this manual.
	Also: ATTACHMENT FUNCTION CONTROL	See ATTACHMENT 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	NOT USED	– – –
13	CONTINUOUS FLOW CONTROL FOR AUXILIARY HYDRAULICS	See FRONT Auxiliary Hydraulics Operation (CONTINUOUS FLOW) in this manual.

CONTROL IDENTIFICATION (CONT'D)

Advanced Control System (ACS)

Figure 27

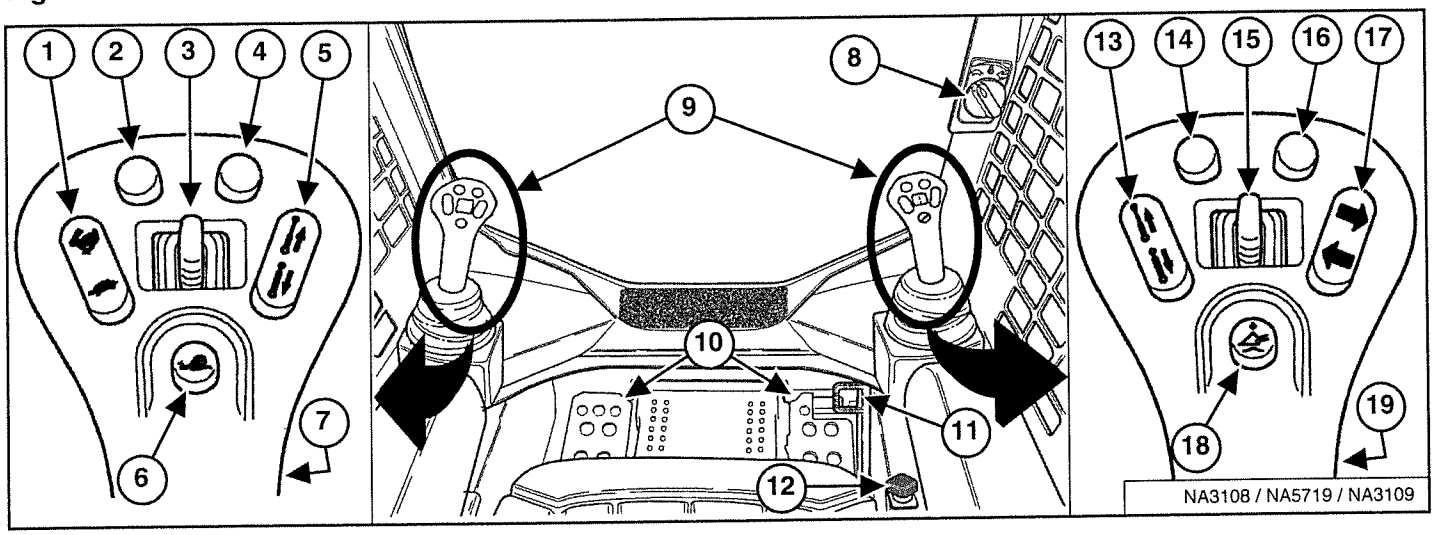


ITEM	DESCRIPTION	FUNCTION / OPERATION
1	TURN SIGNALS (Option)	Press the top to activate right signal; bottom to activate left signal; center position to turn off.
2	REAR AUXILIARY HYDRAULICS (Option)	See REAR Auxiliary Hydraulics Operation in this manual.
	Also: ATTACHMENT FUNCTION CONTROL	See ATTACHMENT CONTROL DEVICE in this manual.
3	ATTACHMENT FUNCTION CONTROL	See ATTACHMENT CONTROL DEVICE in this manual.
4	FLOAT CONTROL	See HYDRAULIC CONTROLS in this manual.
5	FRONT HORN	Press the front switch to sound the front horn.
6	ENGINE SPEED CONTROL	See ENGINE SPEED CONTROL in this manual.
7	STEERING LEVERS and LIFT / TILT HANDLES	See DRIVING AND STEERING THE LOADER and HYDRAULIC CONTROLS in this manual.
8	LIFT ARM PEDAL	See HYDRAULIC CONTROLS in this manual.
9	TILT PEDAL	See HYDRAULIC CONTROLS in this manual.
10	LIFT ARM BYPASS CONTROL	See LIFT ARM BYPASS CONTROL in this manual.
11	ATTACHMENT FUNCTION CONTROL	See ATTACHMENT CONTROL DEVICE in this manual.
12	FRONT AUXILIARY HYDRAULICS	See FRONT Auxiliary Hydraulics Operation in this manual.
13	NOT USED	– – –
14	CONTINUOUS FLOW CONTROL FOR AUXILIARY HYDRAULICS	See FRONT Auxiliary Hydraulics Operation (CONTINUOUS FLOW) in this manual.

CONTROL IDENTIFICATION (CONT'D)

Selectable Joystick Controls (SJC)

Figure 28



ITEM	DESCRIPTION	FUNCTION / OPERATION
1	TWO-SPEED CONTROL	See TWO-SPEED CONTROL in this manual.
	Also: SPEED MANAGEMENT	See SPEED MANAGEMENT in this manual.
2 *	STEERING DRIFT COMPENSATION	See STEERING DRIFT COMPENSATION in this manual.
	Also: DRIVE RESPONSE	See DRIVE RESPONSE in this manual.
3	REAR AUXILIARY HYDRAULICS (Option)	See REAR Auxiliary Hydraulics Operation in this manual.
	Also: ATTACHMENT FUNCTION CONTROL	See ATTACHMENT CONTROL DEVICE in this manual.
4 *	STEERING DRIFT COMPENSATION	See STEERING DRIFT COMPENSATION in this manual.
	Also: DRIVE RESPONSE	See DRIVE RESPONSE in this manual.
5	ATTACHMENT FUNCTION CONTROL	See ATTACHMENT CONTROL DEVICE in this manual.
6	SPEED MANAGEMENT	See SPEED MANAGEMENT in this manual.
7	FRONT HORN	Press the front switch to sound the front horn.
8	ENGINE SPEED CONTROL (HAND)	See ENGINE SPEED CONTROL in this manual.
9	JOYSTICKS	See DRIVING AND STEERING THE LOADER and HYDRAULIC CONTROLS in this manual.
10	FOOTRESTS	Keep your feet on the footrests at all times.
11	ENGINE SPEED CONTROL (FOOT)	See ENGINE SPEED CONTROL in this manual.
12	LIFT ARM BYPASS CONTROL	See LIFT ARM BYPASS CONTROL in this manual.
13	ATTACHMENT FUNCTION CONTROL	See ATTACHMENT CONTROL DEVICE in this manual.
14 *	NOT USED	– – –
15	FRONT AUXILIARY HYDRAULICS	See FRONT Auxiliary Hydraulics Operation in this manual.
16 *	NOT USED	– – –
17	TURN SIGNALS (Option)	Press the top to activate right signal; press again to turn off. Press the bottom to activate left signal; press again to turn off.
18	FLOAT CONTROL	See HYDRAULIC CONTROLS in this manual.
19	CONTINUOUS FLOW CONTROL FOR AUXILIARY HYDRAULICS	See FRONT Auxiliary Hydraulics Operation (CONTINUOUS FLOW) in this manual.

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

OPERATOR CAB

Description

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

⚠ WARNING

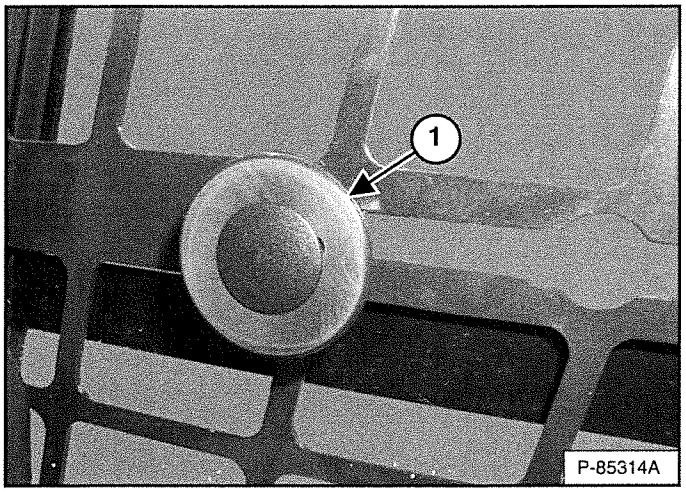
Never modify operator cab by welding, grinding, drilling holes or adding attachments unless instructed to do so by Bobcat Company. Changes to the cab can cause loss of operator protection from rollover and falling objects, and result in injury or death.

W-2069-0200

Side Windows

This machine may be equipped with side windows.

Figure 29

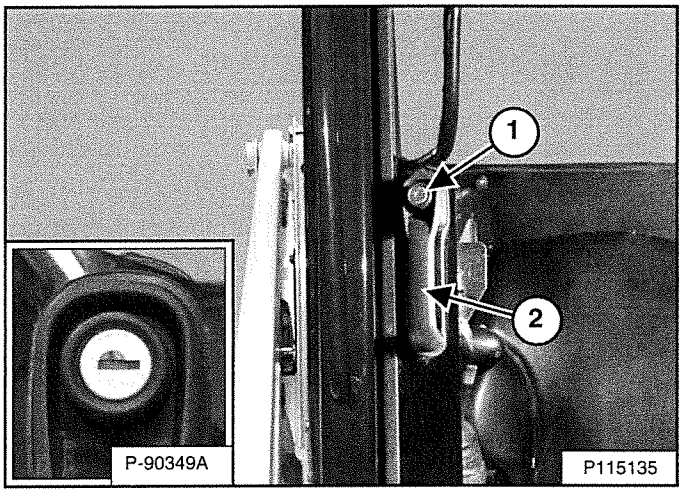


Pull the knob (Item 1) **[Figure 29]** and slide backward to open window. Release knob at cutout to lock in desired position. Pull the knob and slide forward to close window.

Door Operation

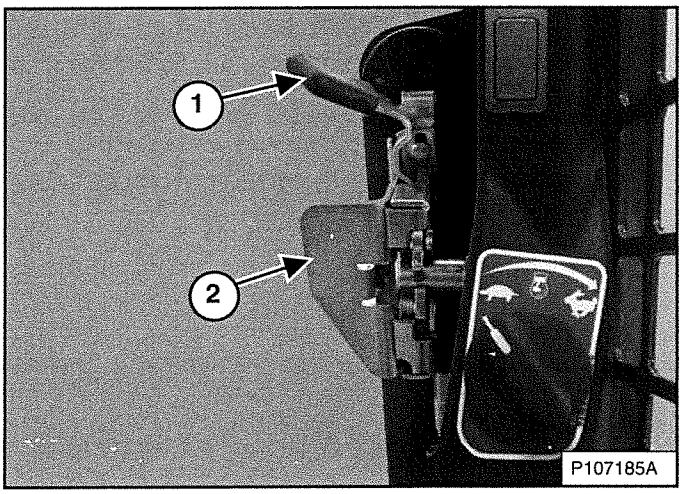
This machine may be equipped with a front door.

Figure 30



Push the knob (Item 1) and pull the handle (Item 2) to open the front door. A lock is provided in the knob (Inset) **[Figure 30]** to lock the front door when the loader is not in use.

Figure 31



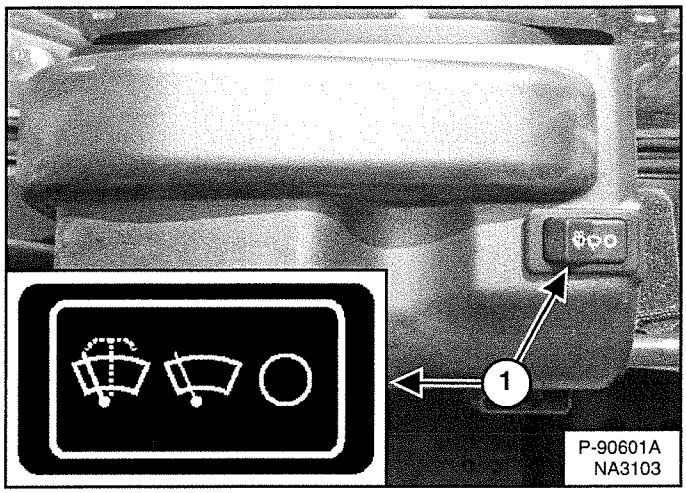
Pull the front door closed using the handle (Item 2) **[Figure 31]**.

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

Front Wiper

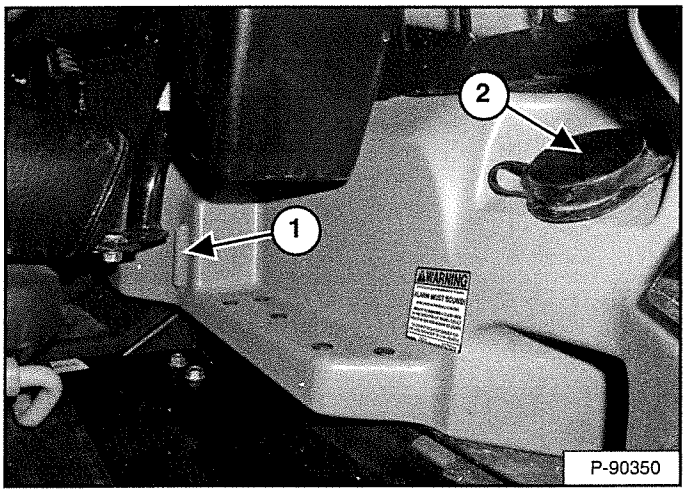
This machine may be equipped with a front wiper.

Figure 32



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

Figure 33



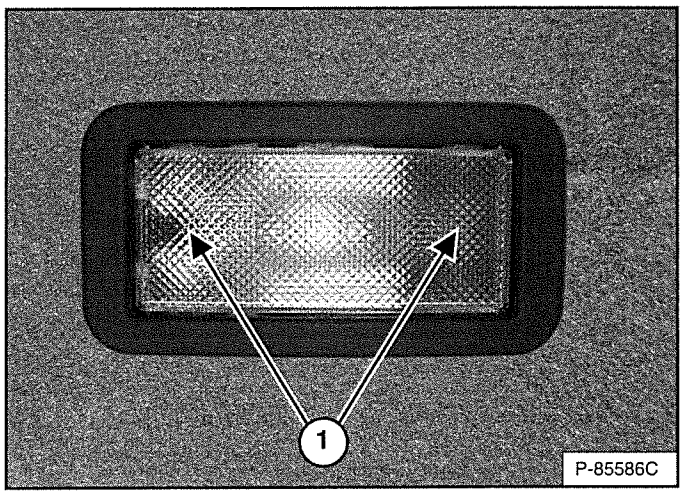
The washer fluid tank is located to the left of the operator seat. Check the fluid level in the sight gauge (Item 1). Remove the cap (Item 2) **[Figure 33]** to add washer fluid.

Cab Light

This machine may be equipped with a cab light.

The cab light is located above the operator's left shoulder.

Figure 34



Push either side of the lens (Item 1) **[Figure 34]** to turn the light ON. Return the lens to the middle position to turn the light OFF.

BOBCAT INTERLOCK CONTROL SYSTEM (BICS™)

Description

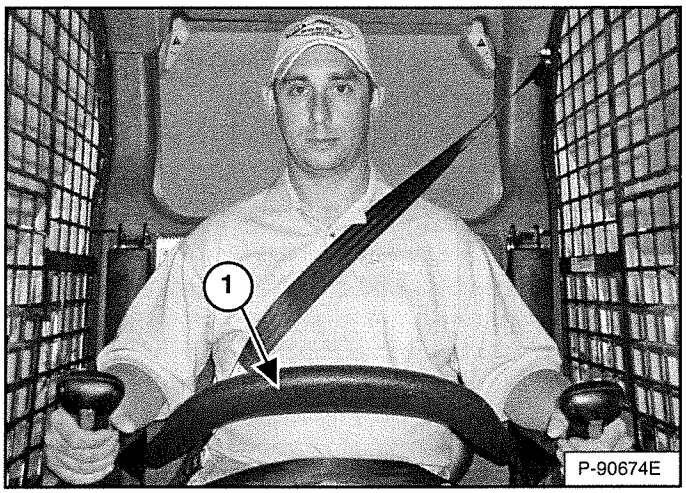
⚠ WARNING

AVOID INJURY OR DEATH

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

W-2151-1111

Figure 35



The Bobcat Interlock Control System (BICS™) has a pivoting seat bar with armrests (Item 1) **[Figure 35]**. The operator controls the use of the seat bar.

⚠ WARNING

AVOID INJURY OR DEATH

When operating the machine:

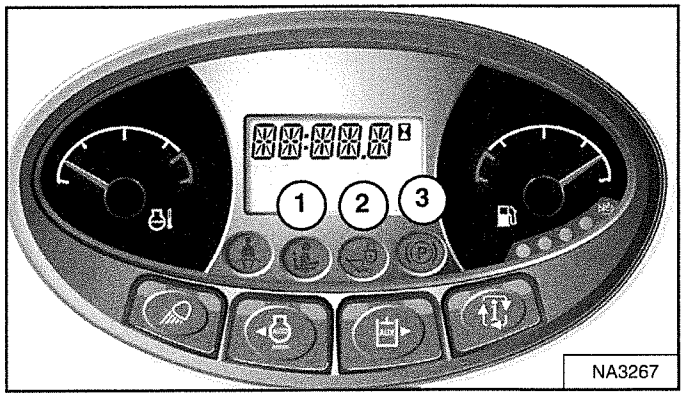
- **Keep the seat belt fastened snugly.**
- **The seat bar must be lowered.**
- **Keep your feet on the pedal controls or footrests and hands on the controls.**

W-2261-0909

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

Operation

Figure 36



There are three display lights (Items 1, 2, and 3) **[Figure 36]** located on the left instrument panel that must be OFF to fully operate the machine.

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

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

⚠ WARNING

AVOID INJURY OR DEATH

Before you leave the operator's seat:

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

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

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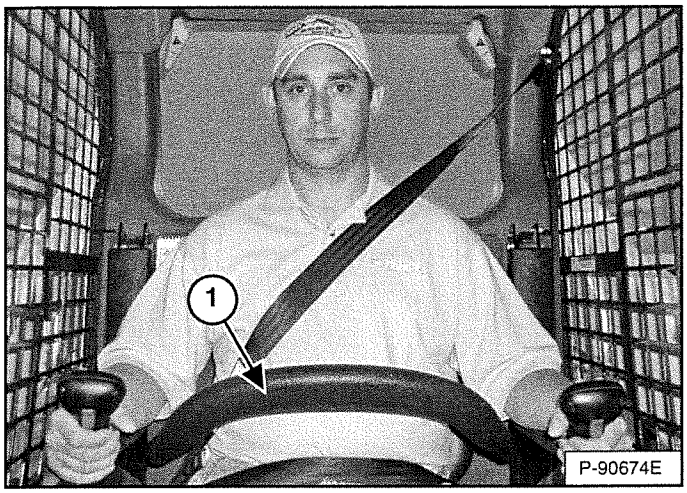
SEAT BAR RESTRAINT SYSTEM

Description

Figure 37



The seat bar restraint system has a pivoting seat bar with armrests (Item 1) **[Figure 37]**.

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

⚠ WARNING

AVOID INJURY OR DEATH

When operating the machine:

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

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Operation

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

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

⚠ WARNING

AVOID INJURY OR DEATH

Before you leave the operator's seat:

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

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

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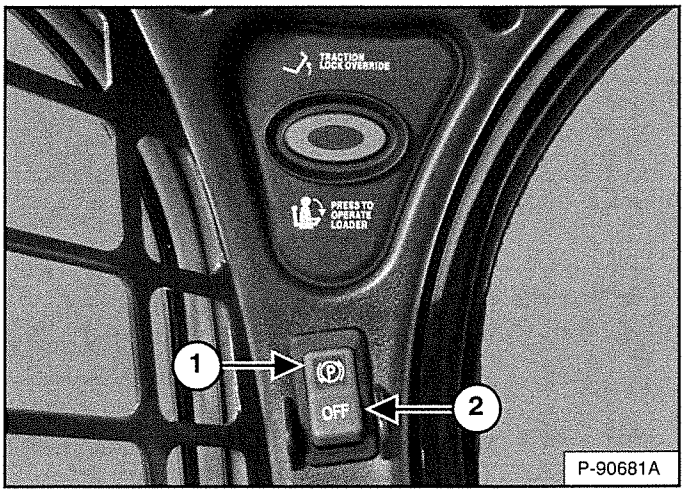
PARKING BRAKE

Operation

Figure 38



Press the top of the switch (Item 1) **[Figure 38]** to engage the parking brake. The red light in the switch will turn ON. The traction drive system is locked.

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

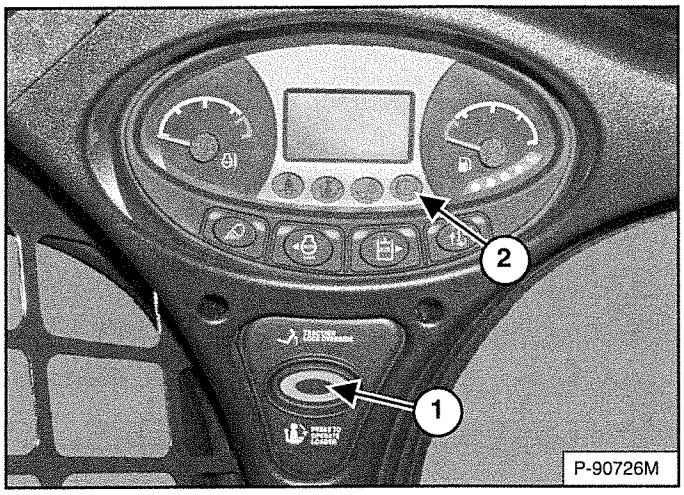
Press the bottom of the switch (Item 2) **[Figure 38]** to disengage the parking brake. The red light in the switch will turn OFF. The traction drive system is unlocked.

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

TRACTION LOCK OVERRIDE

Description

Figure 39



(Functions Only When The Seat Bar Is Raised And The Engine Is Running) There is a TRACTION LOCK OVERRIDE button (Item 1) **[Figure 39]** on the left instrument panel that will allow you to use the steering controls to move the loader forward and backward when using the backhoe attachment.

Operation

Press the TRACTION LOCK OVERRIDE button once to unlock traction drive. The PARKING BRAKE light (Item 2) **[Figure 39]** is OFF.

Press the button a second time to lock the traction drive. The PARKING BRAKE light (Item 2) **[Figure 39]** is ON.

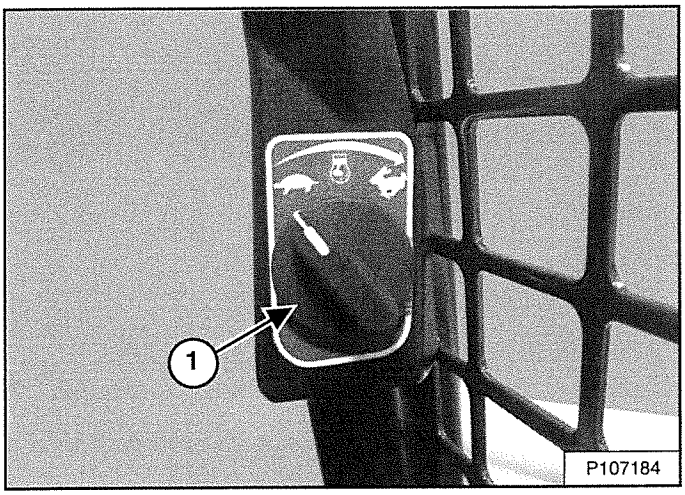
NOTE: The TRACTION LOCK OVERRIDE button will unlock the traction drive when the seat bar is raised and the engine is running.

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

ENGINE SPEED CONTROL

Operation

Figure 40

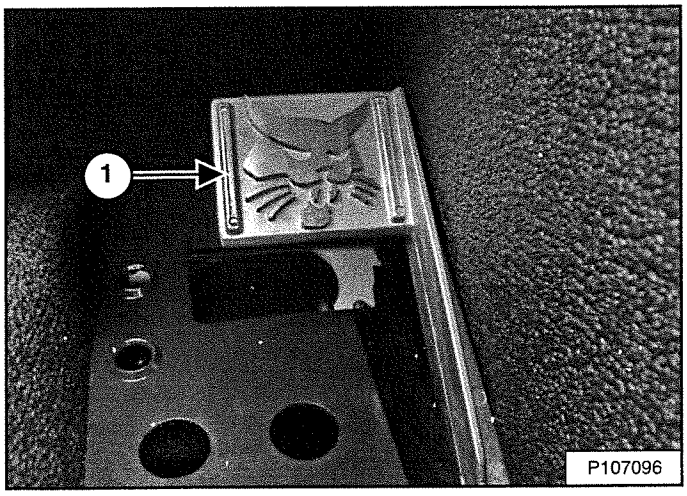


The engine speed control (Item 1) **[Figure 40]** is located alongside the door frame below the right panel.

Turn the knob clockwise to increase engine speed. Turn the knob counterclockwise to decrease engine speed.

NOTE: The full range of the engine speed control will not be available until the engine controller determines the engine is adequately warmed.

Figure 41



SJC equipped machines have a foot operated engine speed control pedal (Item 1) **[Figure 41]** in addition to the engine speed control knob. The pedal is located on the right side floor above the footrest.

AUTO IDLE

Auto Idle is available on SJC equipped machines.

Description

The auto idle feature (when engaged) reduces the engine speed to low idle when the joysticks are in NEUTRAL and not used for about five seconds.

All of the following conditions / actions must be met to allow the engine speed to reduce to low idle when auto idle is ON:

- Joysticks are not moved out of NEUTRAL.
- Auxiliary hydraulics is not engaged.
- Foot operated engine speed control pedal is not depressed.
- Engine speed controls are not moved.

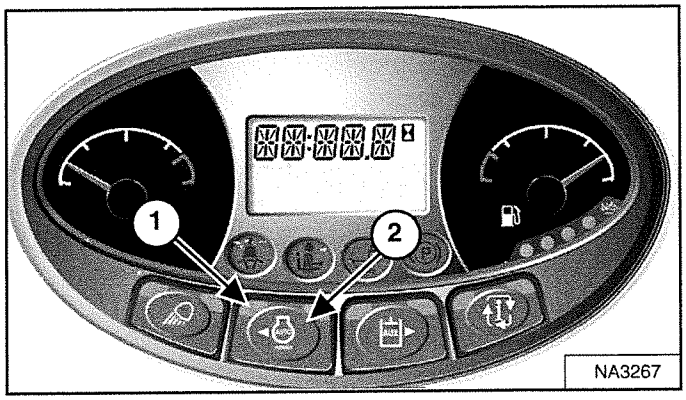
Any of the following conditions / actions return the engine speed to the set position from low idle:

- Moving a joystick out of NEUTRAL.
- Engaging auxiliary hydraulics.
- Moving either engine speed control.

NOTE: The five second time delay before the engine speed reduces to low idle can be changed on machines equipped with a Deluxe Instrumentation Panel. (See Auto Idle Time Delay on Page 199.)

Operation

Figure 42



Press the button (Item 2) to engage auto idle. The light (Item 1) **[Figure 42]** is ON.

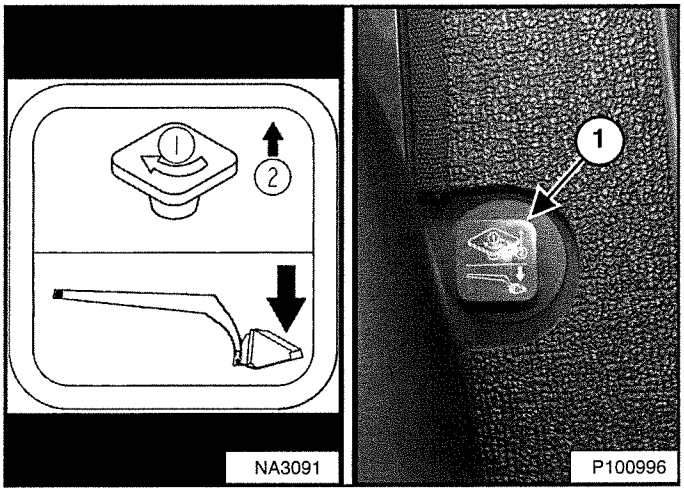
Press the button again to disengage auto idle. The light is OFF.

NOTE: Always disengage the auto idle feature when loading or unloading the loader on a trailer.

LIFT ARM BYPASS CONTROL

Description

Figure 43



The lift arm bypass control (Item 1) **[Figure 43]**, located to the right of the operator's seat, is used to lower the lift arms if the lift arms cannot be lowered during normal operations.

Operation

Perform the procedure below to operate the lift arm bypass control:

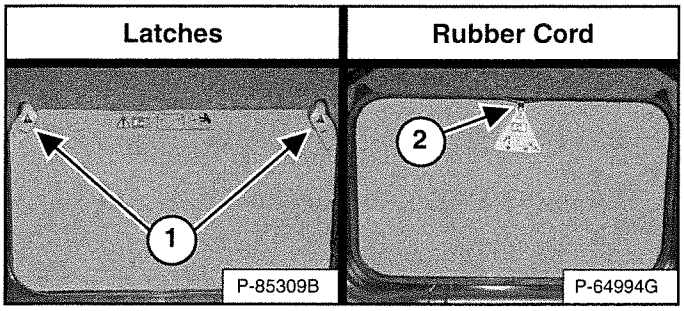
1. Sit in the operator's seat.
2. Fasten the seat belt and lower the seat bar.
3. Turn the knob (Item 1) **[Figure 43]** 90° clockwise.
4. Pull up and hold the knob until the lift arms lower.

EMERGENCY EXIT

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

Rear Window Identification

Figure 44



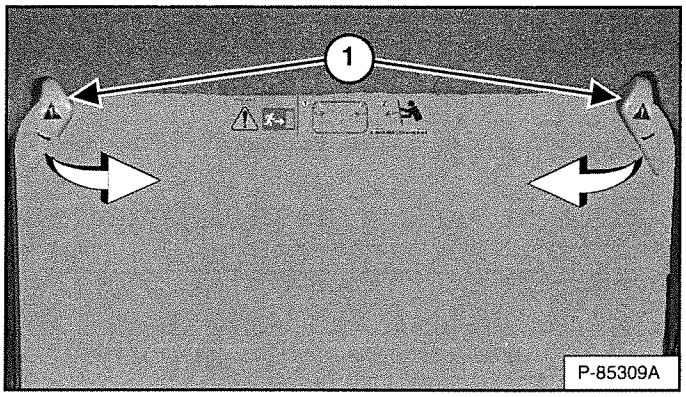
There are two different procedures for removing the rear window from your machine:

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

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

Rear Window Removal (Latches)

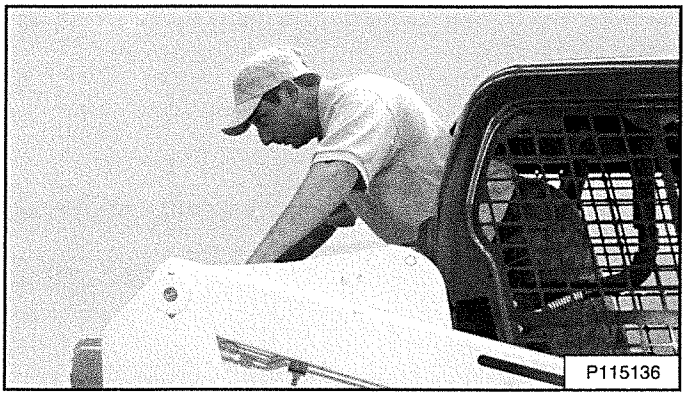
Figure 45



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

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

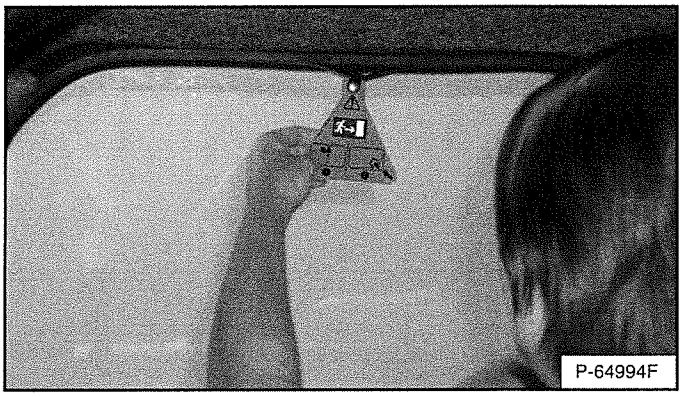
Figure 46



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

Rear Window Removal (Rubber Cord)

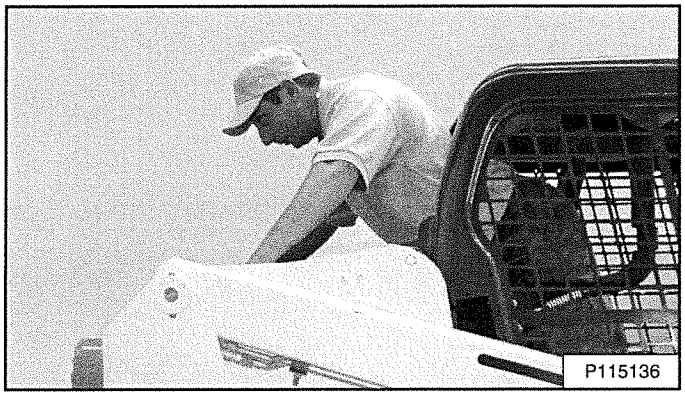
Figure 47



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

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

Figure 48

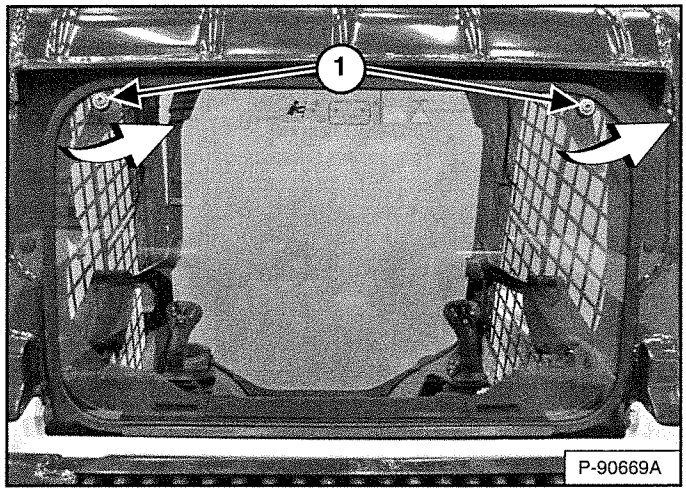


Exit through the rear of the operator cab **[Figure 48]**.

EMERGENCY EXIT (CONT'D)

External Access (Rear Window With Latches)

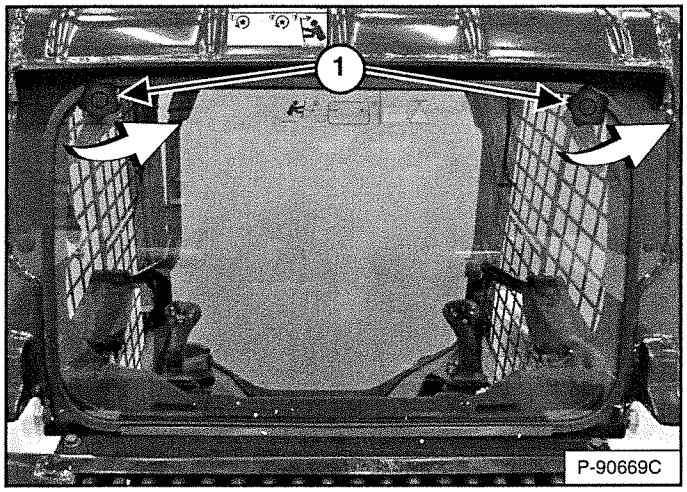
Figure 49



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

OR

Figure 50



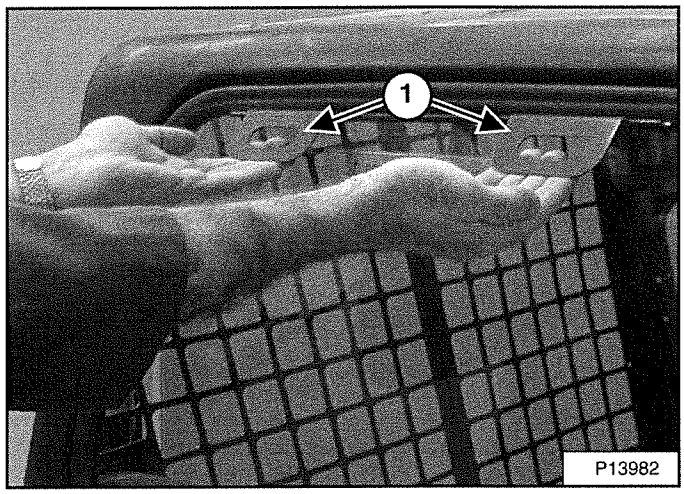
A kit is available to allow removal of the latch equipped rear window from outside the machine without tools. See your Bobcat dealer for availability.

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

External Access (Rear Window With Rubber Cord)

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

Figure 51

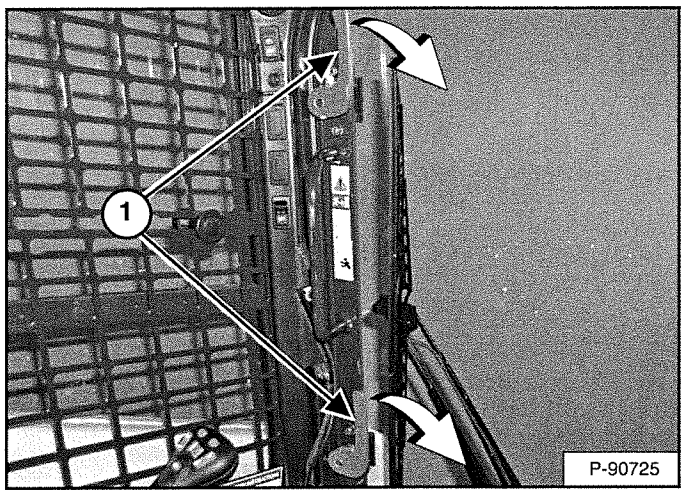


Pull both handles (Item 1) **[Figure 51]** up and out to remove the rear window.

Front Door

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

Figure 52



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

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

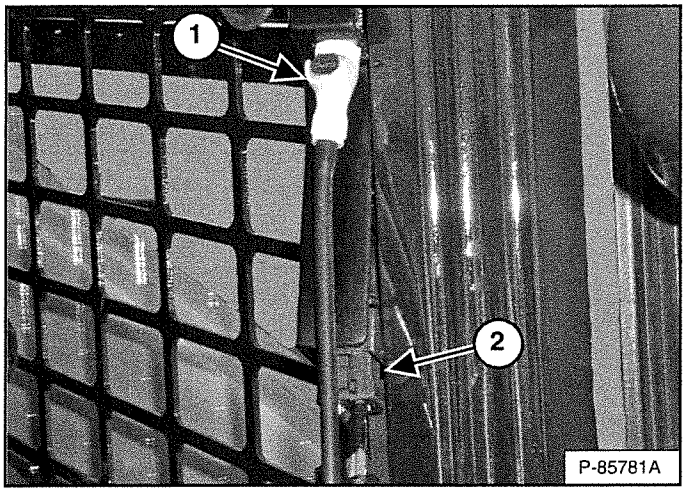
EMERGENCY EXIT (CONT'D)

Front Door (Cont'd)

Front Door Reassembly

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

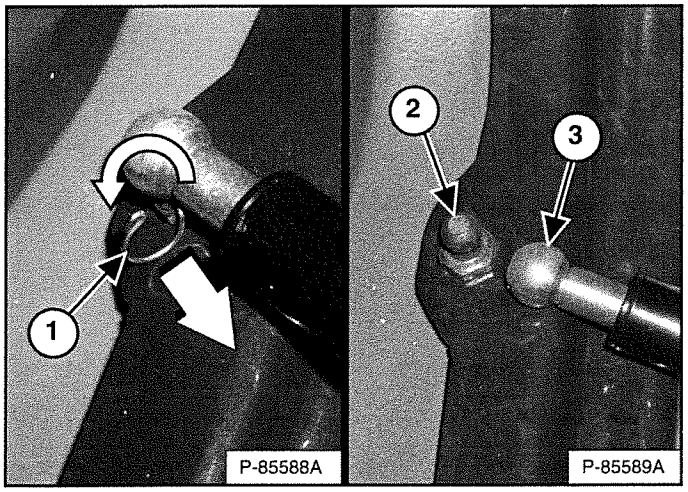
Figure 53



NOTE: Later models route the washer fluid hose differently and will not require this step.

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

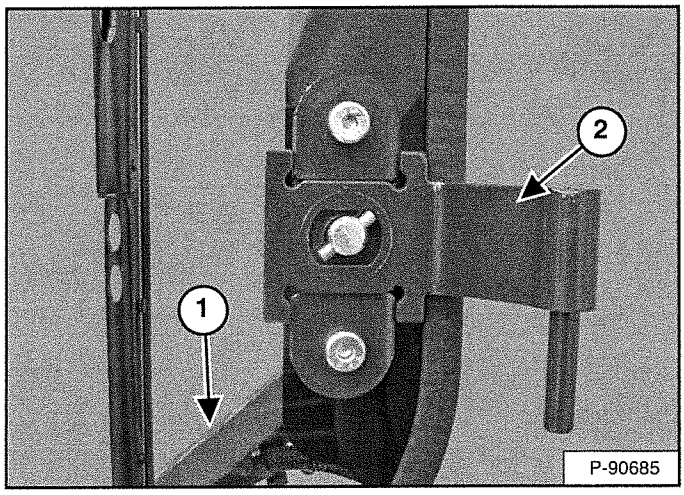
Figure 54



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

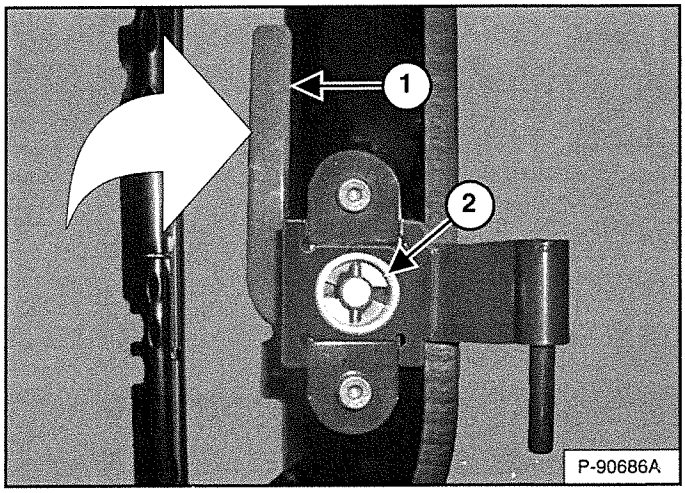
Remove the door hinges from the loader.

Figure 55



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

Figure 56



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

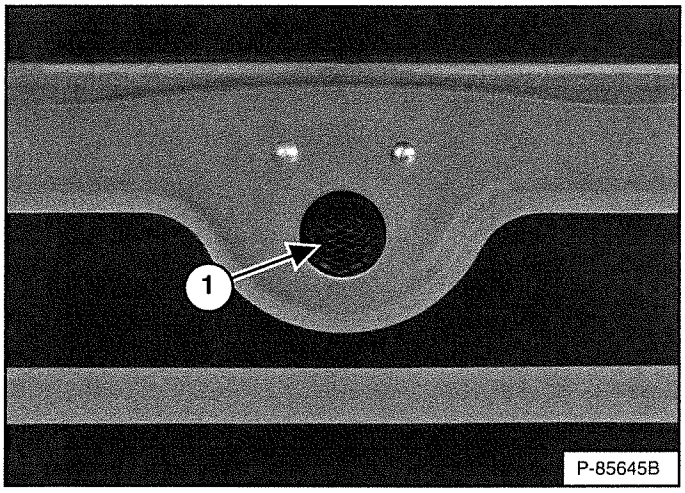
Install door on loader. Install the gas spring socket on the ball stud fitting. Install the clip into the hole in the gas spring socket. Rotate the clip to lock into position **[Figure 54]**.

Connect electrical connector and washer fluid hose (if equipped) **[Figure 53]**.

BACK-UP ALARM SYSTEM

Description

Figure 57



The back-up alarm (Item 1) **[Figure 57]** is located on the inside of the rear door.

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

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

Operation

⚠ WARNING

AVOID INJURY OR DEATH

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

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

If alarm does not sound or for adjustment instructions, see inspection and maintenance instructions for the back-up alarm system in the preventive maintenance section of this manual. (See BACK-UP ALARM SYSTEM on Page 122.)

DRIVING AND STEERING THE LOADER

Available Control Configurations

This loader has three control configurations available:

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

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

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

Operation (Standard And ACS)

⚠ WARNING

AVOID INJURY OR DEATH

When operating the machine:

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

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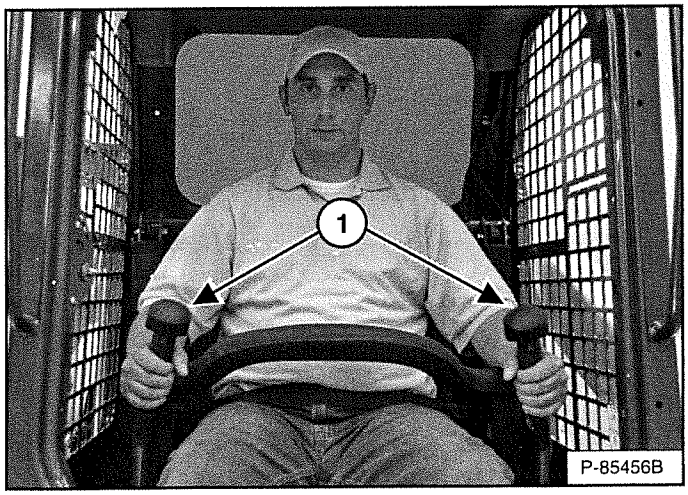
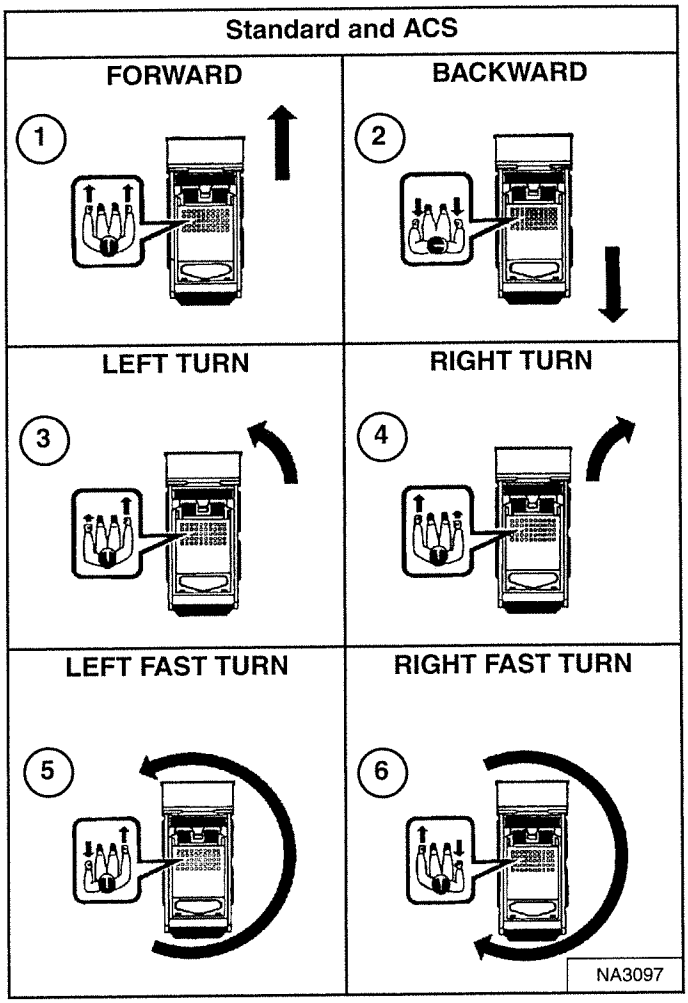
Figure 58



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

Move the levers smoothly. Avoid sudden starting and stopping.

Figure 59

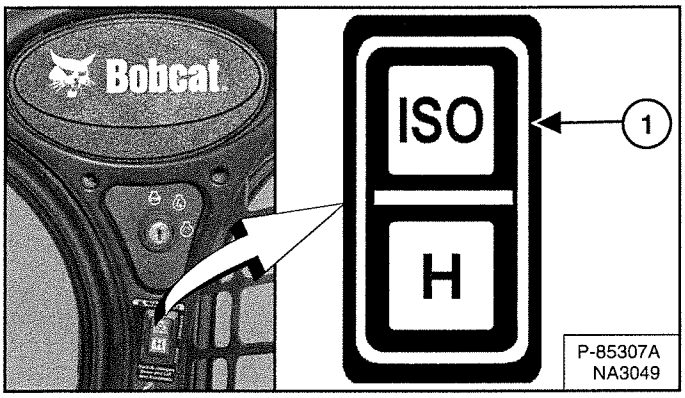


Steering Lever Functions (Drive And Steering) **[Figure 59]**:

1. **Forward Travel** – Push both levers forward.
2. **Backward Travel** – Pull both levers backward.
3. **Left Turn** – Move the right lever farther forward than the left lever.
4. **Right Turn** – Move the left lever farther forward than the right lever.
5. **Left Fast Turn** – Move the left lever backward and the right lever forward.
6. **Right Fast Turn** – Move the right lever backward and the left lever forward.

Operation (SJC) In 'ISO' Control Pattern

Figure 60



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

⚠ WARNING

AVOID INJURY OR DEATH

When operating the machine:

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

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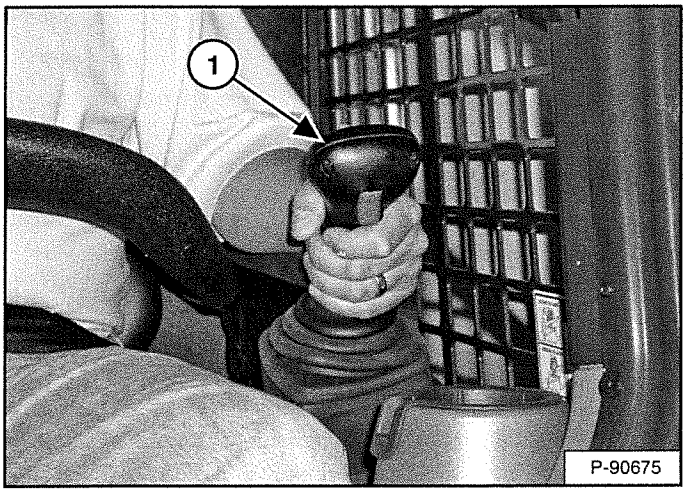
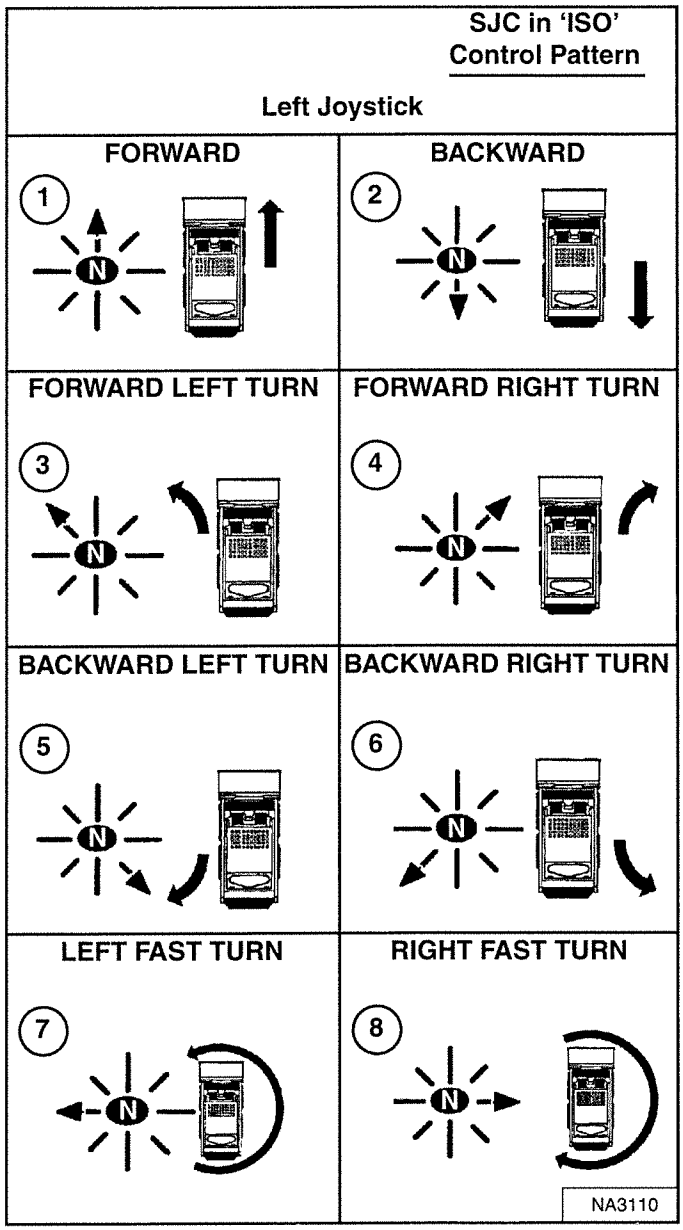
Figure 61



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

Move the joystick smoothly. Avoid sudden starting and stopping.

Figure 62

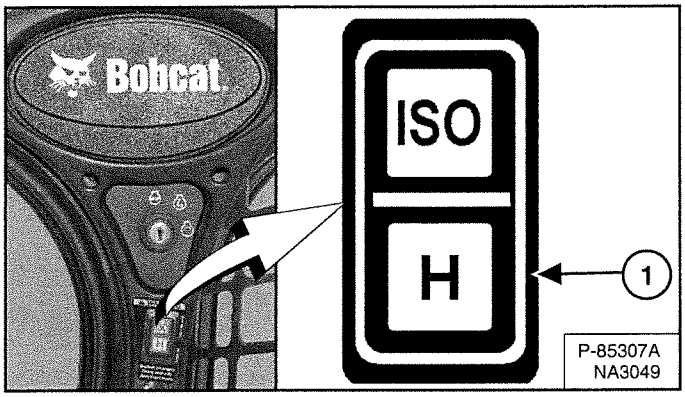


Left Joystick Functions (Drive And Steering) **[Figure 62]**:

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

Operation (SJC) In 'H' Control Pattern

Figure 63



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

⚠ WARNING

AVOID INJURY OR DEATH

When operating the machine:

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

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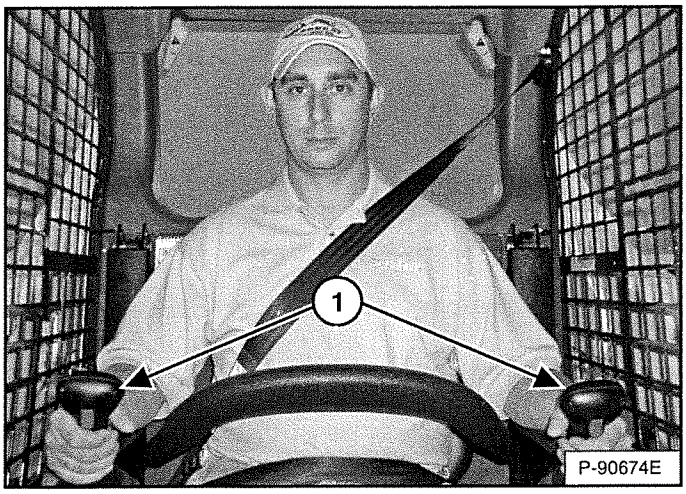
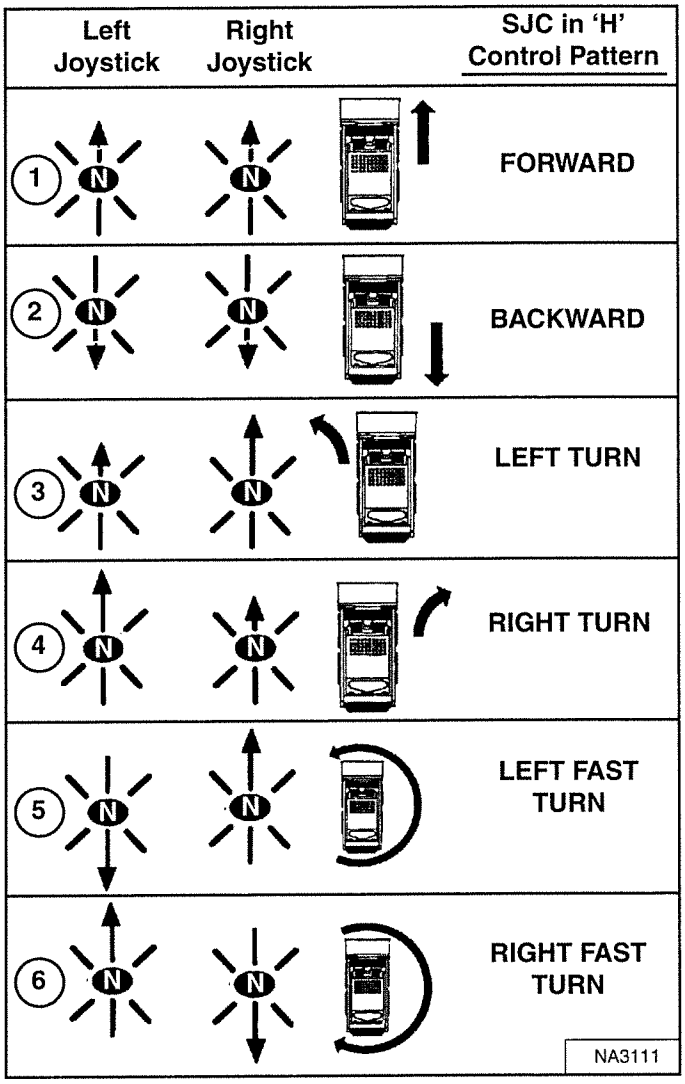
Figure 64



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

Move the joysticks smoothly. Avoid sudden starting and stopping.

Figure 65



Joystick Functions (Drive And Steering) **[Figure 65]**:

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

STOPPING THE LOADER

Using The Control Levers Or Joysticks

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

TWO-SPEED CONTROL

Description

Two-speed is available on SJC equipped machines. High range allows you to reduce cycle times when there is a long travel distance between the dig site and the dump site. You can also use the high range when traveling from one jobsite to another at faster speeds.

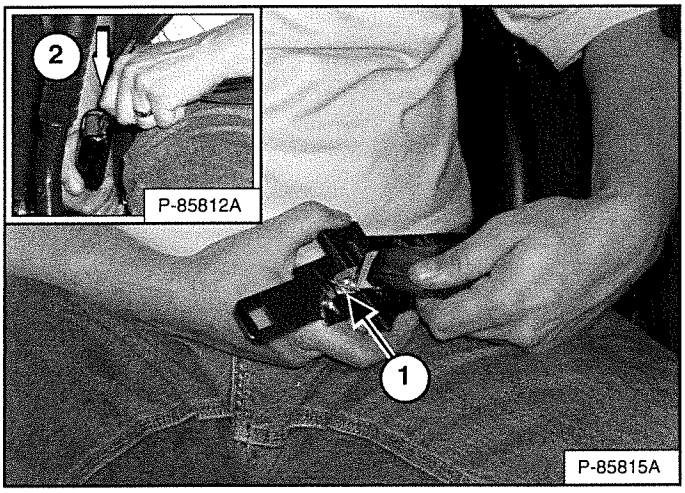
⚠ WARNING

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

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

W-2754-0908

Figure 66



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

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

The shoulder belt must be positioned over your left shoulder and lap belt over your lower hips.

Operation

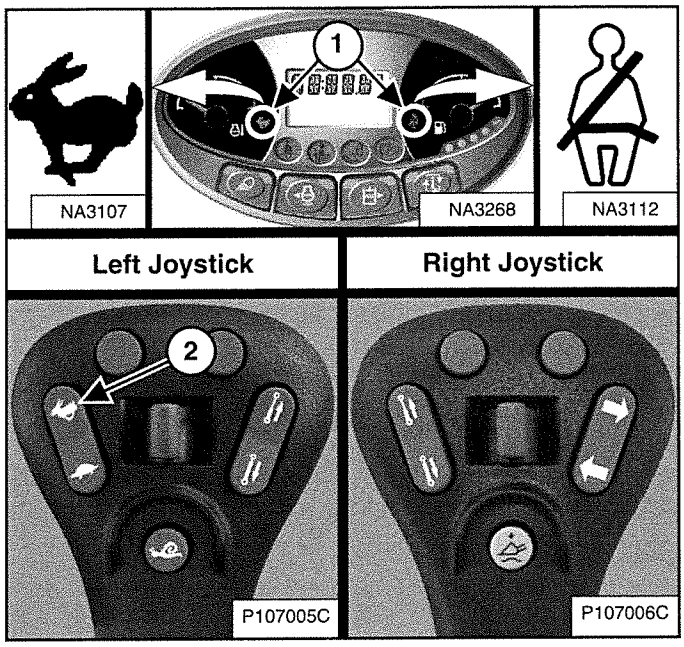
⚠ WARNING

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

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

W-2754-0908

Figure 67



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

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

Press the bottom of the switch for low range.

SPEED MANAGEMENT

Speed Management is available on SJC equipped machines.

Description

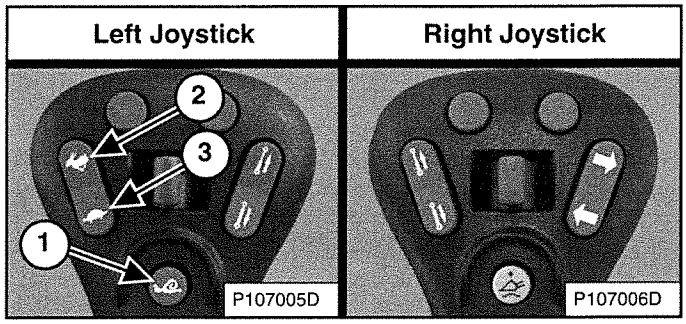
Speed Management allows the loader to be maneuvered at a slower travel speed, even during maximum movement of the joystick(s).

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

Operation

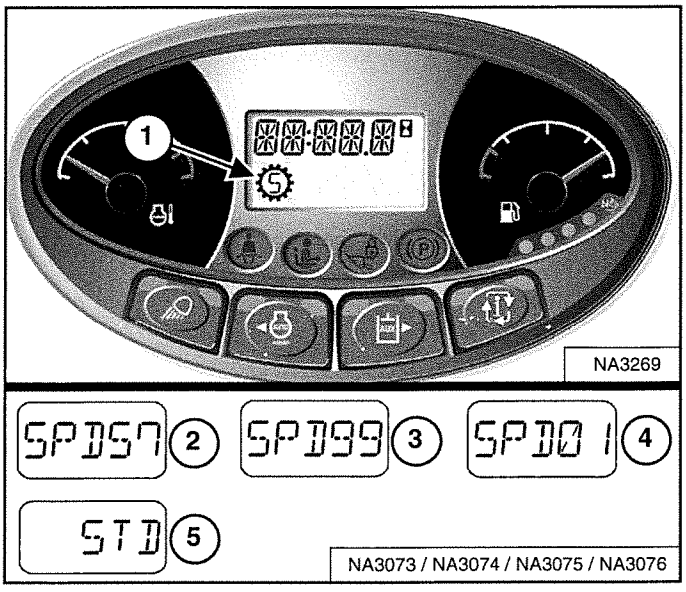
NOTE: *Two-Speed Loaders Only* – You must be in low range speed to engage Speed Management.

Figure 68



Press the button (Item 1) **[Figure 68]** on the left joystick once to engage Speed Management.

Figure 69



The Speed Management icon (Item 1) **[Figure 69]** will appear in the display and remain on until the Speed Management button is pressed again or the machine is turned off.

When Speed Management is engaged, the machine will travel at the factory default setting of 57% of Standard Travel Speed and the percentage **[SPD 57]** will appear in the display (Item 2) **[Figure 69]**.

NOTE: The factory default setting can be changed by the operator. (See Changing The Factory Default Setting on Page 60.)

While Speed Management is engaged, press the top of the Speed Control switch (Item 2) **[Figure 68]** to increase the speed up to 99% **[SPD 99]** or the bottom of the switch (Item 3) **[Figure 68]** to decrease the speed down to 1% **[SPD 01]**. The percentages will appear in the display (Items 2, 3, and 4) **[Figure 69]**.

Press button (Item 1) **[Figure 68]** again to disengage Speed Management and return to Standard Travel Speed. **[STD]** (Item 5) **[Figure 69]** will appear in the display.

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

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

EXAMPLE: Turning the key switch to STOP will return the Speed Management setting to default. The next time you start the engine and engage Speed Management, the speed is set at 57% (factory default setting) or the last default setting saved by the operator. (See Changing The Factory Default Setting on Page 60.)

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

SPEED MANAGEMENT (CONT'D)

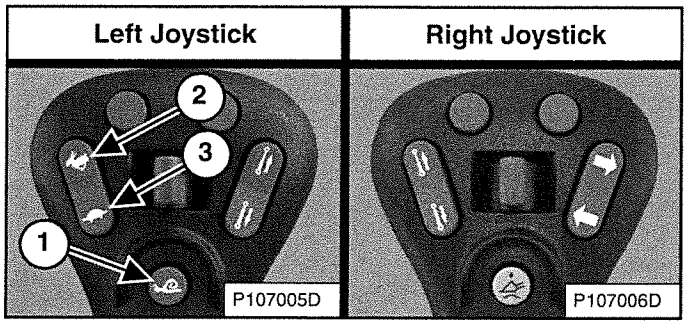
Changing The Factory Default Setting

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

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

Engage Speed Management. (See Operation on Page 59.)

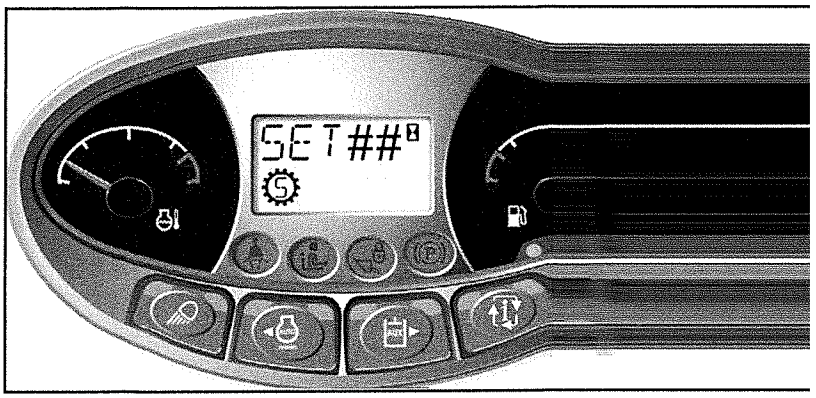
Figure 70



Adjust the speed percentage higher (Item 2) or lower (Item 3) **[Figure 70]** by pressing the Speed Control switch until the desired default setting is displayed.

Press and hold the button (Item 1) **[Figure 70]** on the left joystick to save the default setting.

Figure 71



The alarm will beep once, display **[SET ##]** (## will indicate the percentage you selected) in Speed Management mode.

Pressing the button (Item 1) **[Figure 70]** joystick or turning the machine off will disen Management and return the loader to Star Speed.

When Speed Management is first selected e machine is started, the percentage you sel default setting. Speed Management can still from 1% to 99% of Standard Travel Speed.

The default setting can be changed any time chooses.

DRIVE RESPONSE

Drive Response is available on SJC equipped machines.

Description

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

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

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

There are three drive response settings:

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

Operation

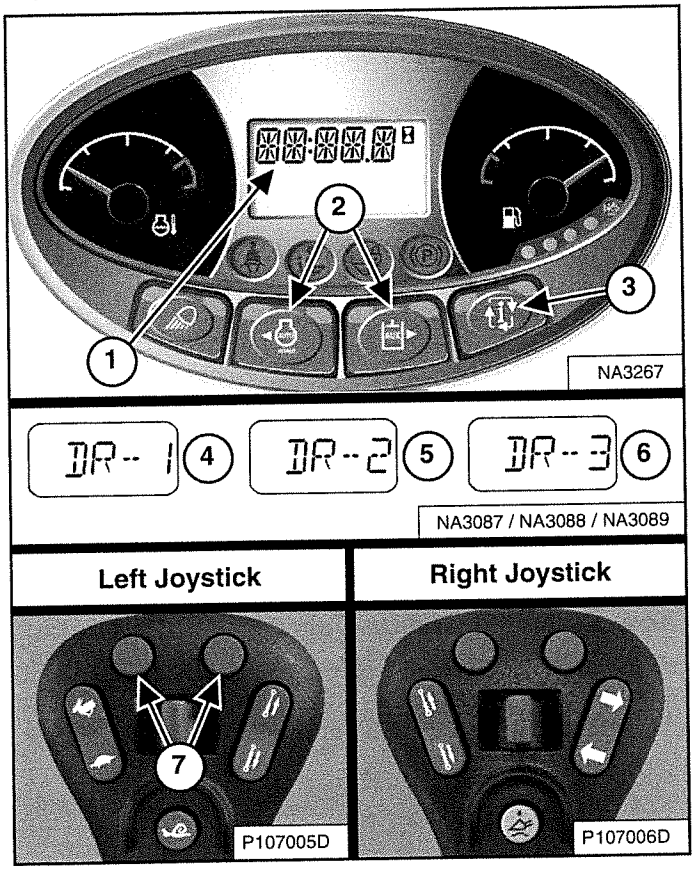
Perform PRE-STARTING PROCEDURE and STARTING THE ENGINE procedures:

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

DRIVE RESPONSE (CONT'D)

Operation (Cont'd)

Figure 72



Press the Information button (Item 3) to cycle the data display until the drive response menu is displayed. The current drive response setting will appear in the data display (Item 1) **[Figure 72]**.

Press the left or right scroll button (Item 2) **[Figure 72]** on the left panel to adjust the setting. Adjustments to the drive response are effective immediately.

OR

Press the left or right button (Item 7) **[Figure 72]** on the left joystick to adjust the setting. Adjustments to the drive response are effective immediately.

Press the left scroll button on the left panel or the left button on the left joystick to scroll down through the three drive response settings (Items 4, 5, and 6). Press the right scroll button on the left panel or the right button of the left joystick to scroll up through the three drive response settings (Items 4, 5, and 6) **[Figure 72]**.

Saving The Drive Response Setting:

The current drive response setting can be saved by pressing the Information button (Item 3) **[Figure 72]** to exit from the drive response adjustment menu.

OR

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

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

STEERING DRIFT COMPENSATION

Steering Drift Compensation is available on SJC equipped machines.

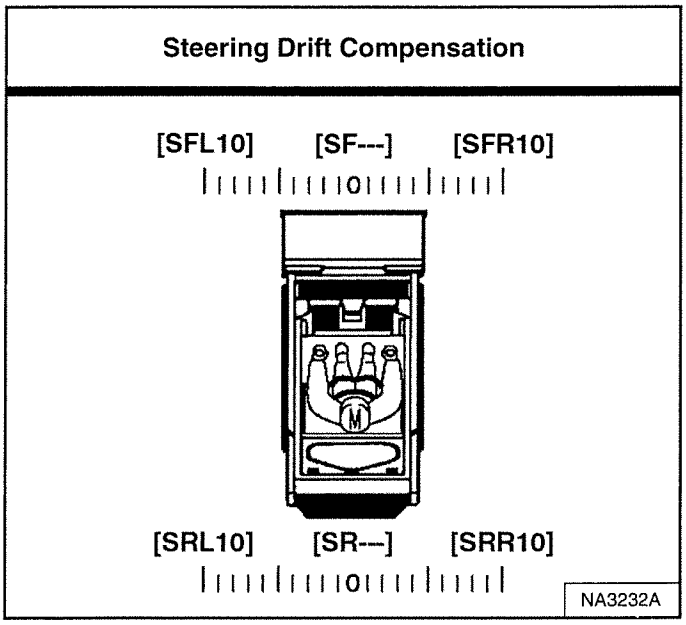
Description

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

Examples of applications where this feature can be used:

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

Figure 73



Steering drift compensation contains a total of 21 settings. Steering drift compensation can be set to any point from NEUTRAL to **[SFL10]** or **[SRL10]** left, and from NEUTRAL to **[SFR10]** or **[SRR10]** right. **[SF---]** or **[SR---]** is displayed when set for NEUTRAL **[Figure 73]**.

Operation

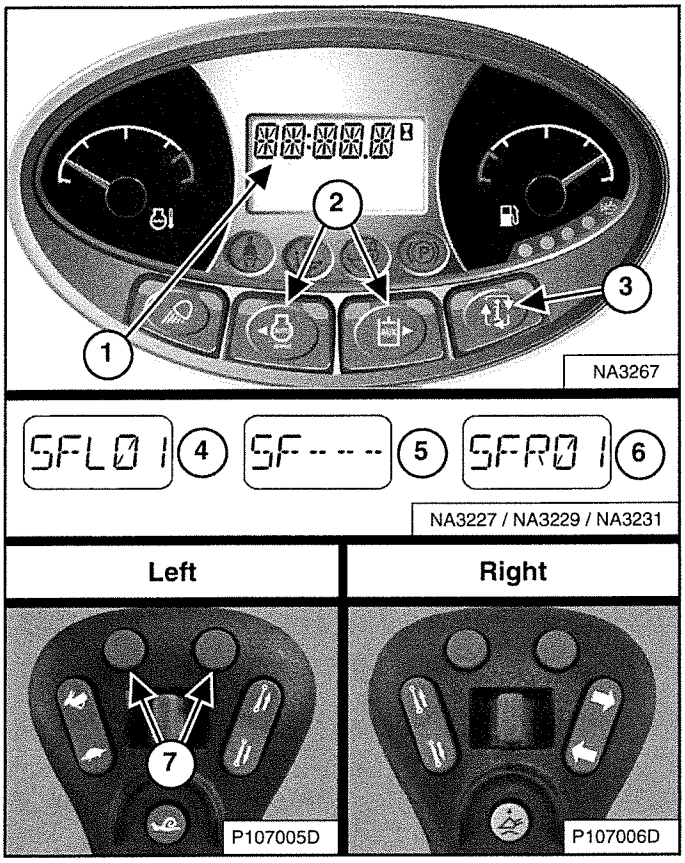
Perform PRE-STARTING PROCEDURE and STARTING THE ENGINE procedures:

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

STEERING DRIFT COMPENSATION (CONT'D)

Operation (Cont'd)

Figure 74



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 74]**.

Press the left or right scroll button (Item 2) **[Figure 74]** 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 74]** 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 74]**. 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 74]**. 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 74]** to exit from the steering drift compensation adjustment menu.

OR

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

LIFT AND TILT COMPENSATION

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

Description

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

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

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

Operation

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

Perform PRE-STARTING PROCEDURE and STARTING THE ENGINE procedures:

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

   OR

   (SJC) – Select 'H' control pattern.
6. Press the PRESS TO OPERATE LOADER button.
7. Raise the lift arms approximately 1 m (3 ft) off the ground and tilt the Bob-Tach frame forward approximately 300 mm (1 ft).
8. Raise and lower the seat bar to engage the interlocks and enable the procedure to be performed.
9. Increase engine speed to high idle.
10. Continue with the correct procedure for your machine. (See Operation (ACS) on Page 66.) or (See Operation (SJC) on Page 67.)

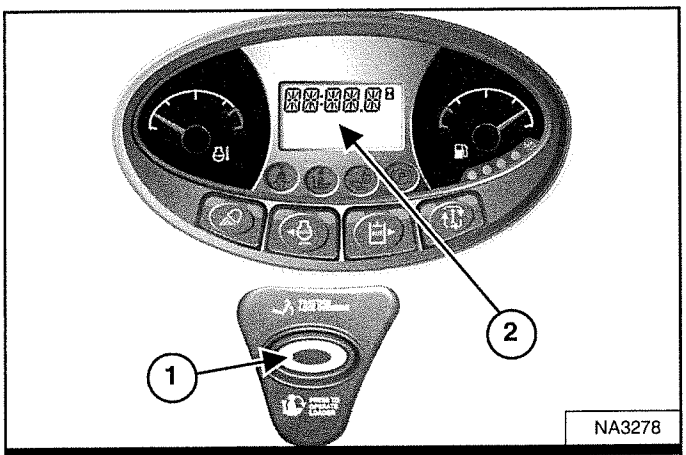
NOTE: When the procedure has begun, raising the seat bar will cause the machine to disengage from lift and tilt compensation. Changes made to the lift and tilt compensation settings will NOT be saved.

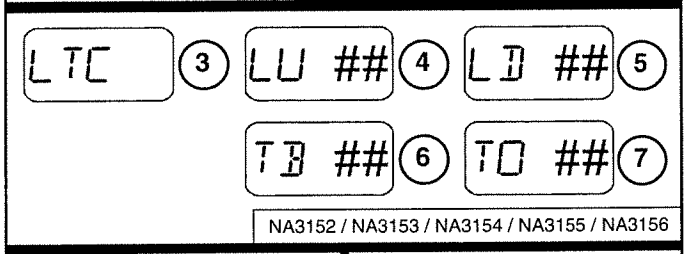
LIFT AND TILT COMPENSATION (CONT'D)

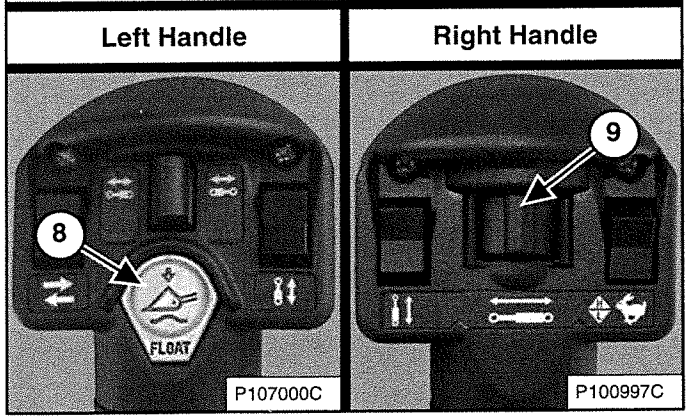
Operation (ACS)

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

Figure 75







LTC – Lift and Tilt Compensation
LU – Lift Up
LD – Lift Down
TB – Tilt Back
TO – Tilt Out

1. Press and hold the float button (Item 8). Press the PRESS TO OPERATE LOADER button (Item 1). Release both buttons. This will open the lift and tilt compensation menu. **[LTC]** (Item 3) will appear in the data display (Item 2) **[Figure 75]**.

2. Move the left handle outward and hold. **[LU ##]** (Item 4) will appear in the data display. (## will indicate the current setting.) Move the switch (Item 9) **[Figure 75]** to the right repeatedly until a slight upward movement of the lift arms is noticed. The setting will increase by one each time the switch is moved. The available range of adjustment is -25 to 35.

NOTE: If the lift arms begin to move immediately, move the switch (Item 9) [Figure 75] to the left repeatedly until lift arm movement stops, then move the switch to the right repeatedly until a slight upward movement of the lift arms is noticed. (This procedure also applies to the next three steps.)

3. Move the left handle inward and hold. **[LD ##]** (Item 5) will appear in the data display. Move the switch (Item 9) **[Figure 75]** to the right repeatedly until a slight downward movement of the lift arms is noticed.

4. Move the right handle inward and hold. **[TB ##]** (Item 6) will appear in the data display. Move the switch (Item 9) **[Figure 75]** to the right repeatedly until a slight backward tilt movement of the Bob-Tach frame is noticed.

5. Move the right handle outward and hold. **[TO ##]** (Item 7) will appear in the data display. Move the switch (Item 9) **[Figure 75]** to the right repeatedly until a slight forward tilt movement of the Bob-Tach frame is noticed.

Exiting The Lift And Tilt Compensation Menu:

The current lift and tilt compensation setting can be saved by pressing the PRESS TO OPERATE LOADER button (Item 1) **[Figure 75]**. The machine will exit from the lift and tilt compensation menu.

OR

Raise and lower the seat bar to exit from the lift and tilt compensation menu without saving. This will cancel all changes made. Press the PRESS TO OPERATE LOADER button (Item 1) **[Figure 75]** to continue machine operation.

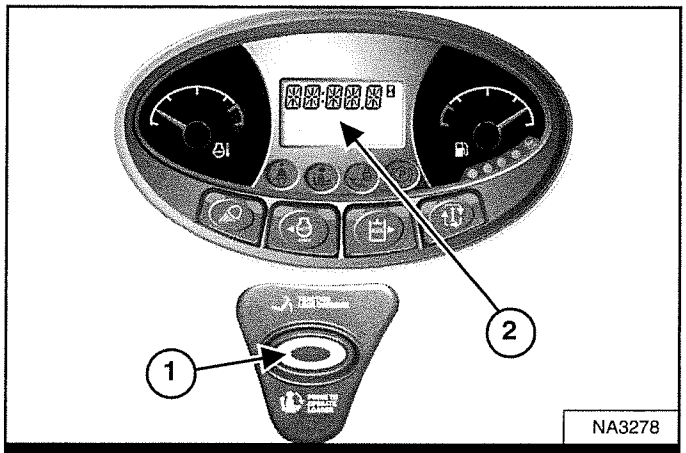
Perform several lift and tilt functions to determine if the settings match your preferences. Repeat procedure if desired.

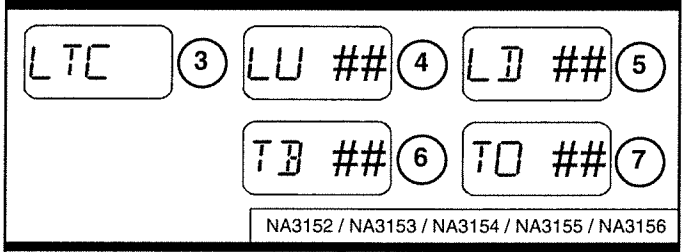
LIFT AND TILT COMPENSATION (CONT'D)

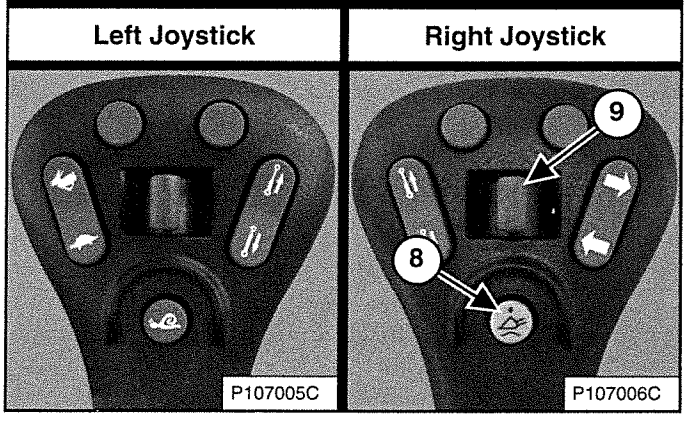
Operation (SJC)

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

Figure 76







LTC – Lift and Tilt Compensation
LU – Lift Up
LD – Lift Down
TB – Tilt Back
TO – Tilt Out

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

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

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

3. Move the left joystick inward and hold. **[LD ##]** (Item 5) will appear in the data display. Move the switch (Item 9) **[Figure 76]** to the right repeatedly until a slight downward movement of the lift arms is noticed.

4. Move the right joystick inward and hold. **[TB ##]** (Item 6) will appear in the data display. Move the switch (Item 9) **[Figure 76]** to the right repeatedly until a slight backward tilt movement of the Bob-Tach frame is noticed.

5. Move the right joystick outward and hold. **[TO ##]** (Item 7) will appear in the data display. Move the switch (Item 9) **[Figure 76]** to the right repeatedly until a slight forward tilt movement of the Bob-Tach frame is noticed.

Exiting The Lift And Tilt Compensation Menu:

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

OR

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

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

HYDRAULIC CONTROLS

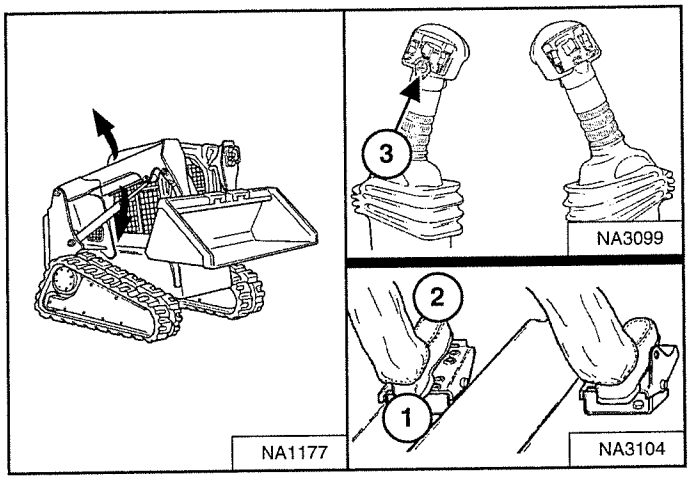
Description

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

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

Standard Controls And Advanced Control System (ACS) In FOOT Pedal Mode

Figure 77



Lift Arm Operation – (Left Pedal)

Push the heel (Item 1) **[Figure 77]** of the pedal to raise the lift arms.

Push the toe (Item 2) **[Figure 77]** of the pedal to lower the lift arms.

Lift Arm Float Position – (Left Pedal)

Push the toe of the pedal (Item 2) **[Figure 77]** all the way forward until the pedal locks into the float position.

Raise the lift arms (Item 1) **[Figure 77]** to disengage.

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

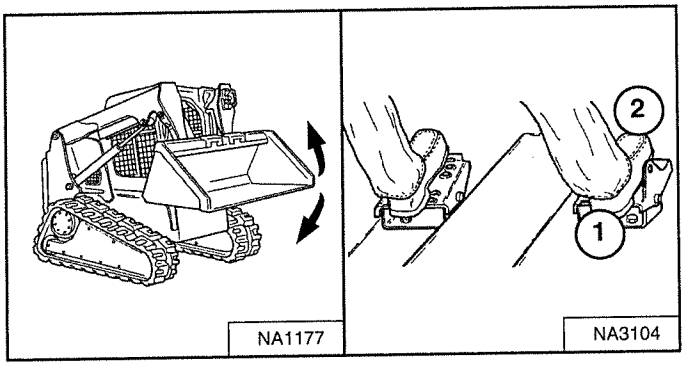
Lift Arm Float Position (With ACS) – (Left Pedal And Left Handle)

Press and hold the Float button (Item 3) while the left pedal is in NEUTRAL. Push the toe of the pedal forward to lift arm down position (Item 2) **[Figure 77]**, then release the button.

Press Float button (Item 3) again or raise the lift arms (Item 1) **[Figure 77]** to disengage.

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

Figure 78



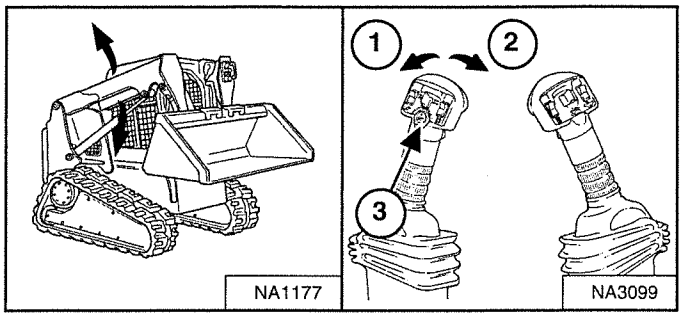
Tilt Operation – (Right Pedal)

Push the heel of the pedal (Item 1) **[Figure 78]** to tilt the bucket backward.

Push the toe of the pedal (Item 2) **[Figure 78]** to tilt the bucket forward.

Advanced Control System (ACS) In HAND Control Mode

Figure 79



Lift Arm Operation – (Left Handle)

Move the handle outward (Item 1) **[Figure 79]** to raise the lift arms.

Move the handle inward (Item 2) **[Figure 79]** to lower the lift arms.

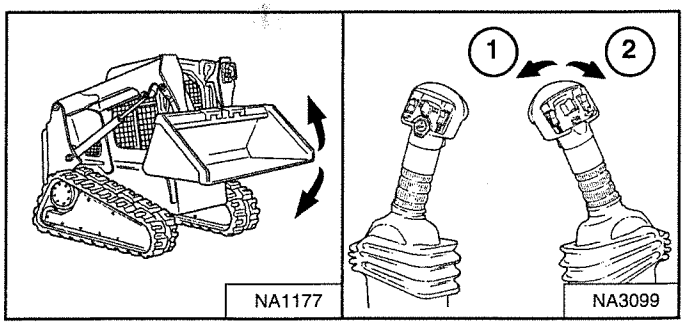
Lift Arm Float Position – (Left Handle)

Press and hold the Float button (Item 3) while the handle is in NEUTRAL. Move the handle to lift arm down position (Item 2) **[Figure 79]**, then release the button.

Press Float button (Item 3) again or move the handle to lift arm up position (Item 1) **[Figure 79]** to disengage.

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

Figure 80



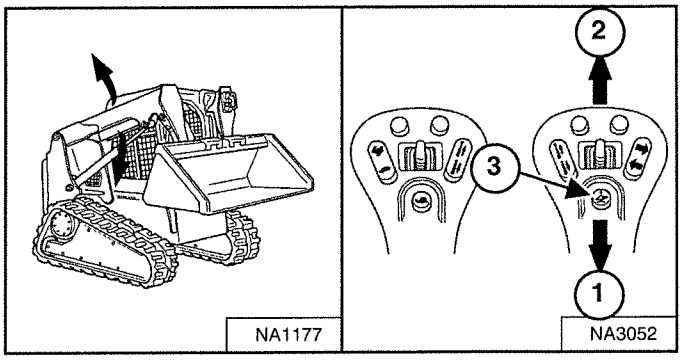
Tilt Operation – (Right Handle)

Move the handle inward (Item 1) **[Figure 80]** to tilt the bucket backward.

Move the handle outward (Item 2) **[Figure 80]** to tilt the bucket forward.

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

Figure 81



Lift Arm Operation – (Right Hand Joystick)

Move the joystick backward (Item 1) **[Figure 81]** to raise the lift arms.

Move the joystick forward (Item 2) **[Figure 81]** to lower the lift arms.

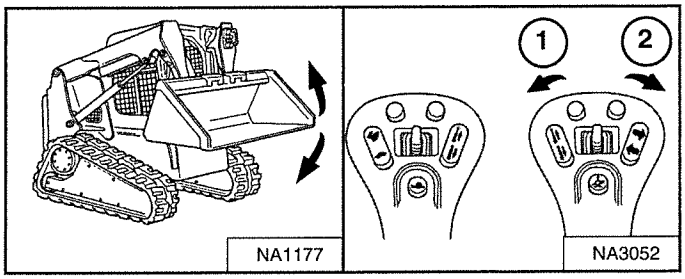
Lift Arm Float Position – (Right Hand Joystick)

Press and hold the Float button (Item 3) while the joystick is in NEUTRAL. Move the joystick to lift arm down position (Item 2) **[Figure 81]**, then release the button.

Press Float button (Item 3) again or move the joystick to lift arm up position (Item 1) **[Figure 81]** to disengage.

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

Figure 82



Tilt Operation – (Right Hand Joystick)

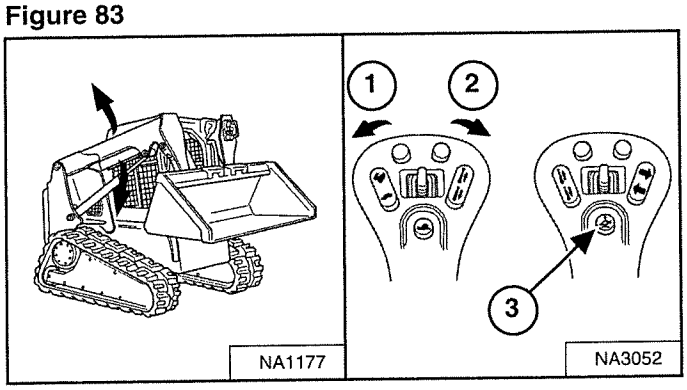
Move the joystick inward (Item 1) **[Figure 82]** to tilt the bucket backward.

Move the joystick outward (Item 2) **[Figure 82]** to tilt the bucket forward.

HYDRAULIC CONTROLS (CONT'D)

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

Figure 83



Lift Arm Operation – (Left Hand Joystick)

Move the joystick outward (Item 1) **[Figure 83]** to raise the lift arms.

Move the joystick inward (Item 2) **[Figure 83]** to lower the lift arms.

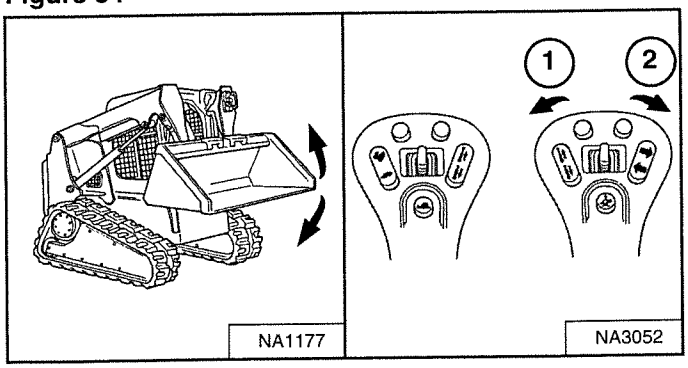
Lift Arm Float Position – (Left And Right Hand Joysticks)

Press and hold the Float button (Item 3) while the joysticks are in NEUTRAL. Move the left joystick to lift arm down position (Item 2) **[Figure 83]**, then release the button.

Press Float button (Item 3) again or move the left joystick to lift arm up position (Item 1) **[Figure 83]** to disengage.

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

Figure 84



Tilt Operation – (Right Hand Joystick)

Move the joystick inward (Item 1) **[Figure 84]** to tilt the bucket backward.

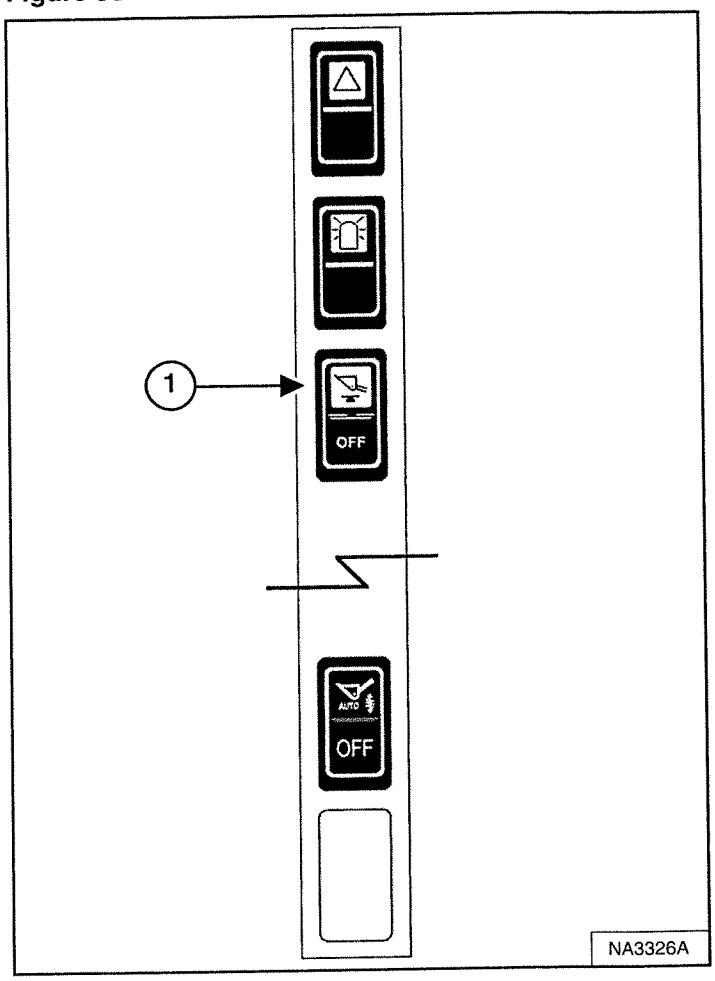
Move the joystick outward (Item 2) **[Figure 84]** to tilt the bucket forward.

Hydraulic Bucket Positioning

This machine may be equipped with Hydraulic Bucket Positioning.

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

Figure 85



Press the top of the Bucket Positioning switch (Item 1) **[Figure 85]** on the left switch panel to engage the bucket positioning function. The amber light in the switch will turn ON.

Press the bottom of the switch to disengage. The amber light will turn OFF.

Bucket positioning functions only during upward lift cycle.

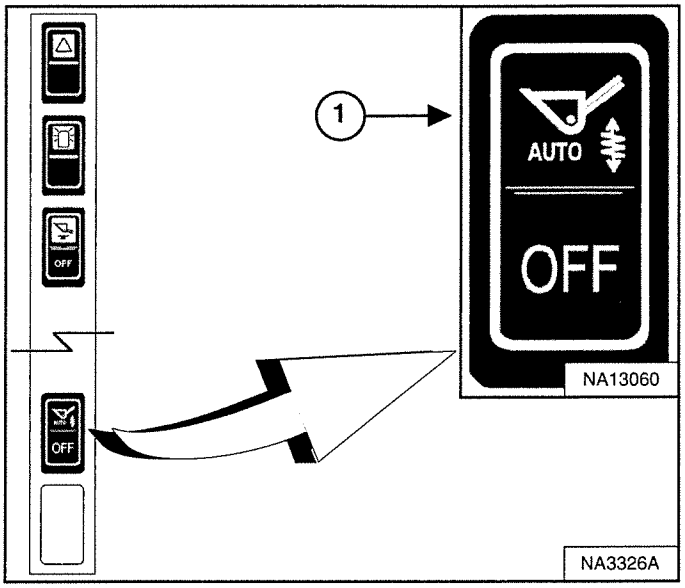
HYDRAULIC CONTROLS (CONT'D)

Automatic Ride Control

This machine may be equipped with Automatic Ride Control.

Automatic ride control provides a smoother ride, reduced load spillage, and improved machine control when traveling over uneven ground with heavy loads or in heavy digging applications.

Figure 86



Press the top of the Automatic Ride Control switch (Item 1) **[Figure 86]** on the left switch panel to engage the automatic ride control function.

The loader software will engage and disengage ride control automatically based on lift arm load and operation.

The automatic ride control system uses an accumulator that requires occasional service. (See AUTOMATIC RIDE CONTROL ACCUMULATOR on Page 179.)

Press the bottom of the switch to disengage.

NOTE: Certain applications will not benefit from using automatic ride control. Turn OFF when using certain attachments for better performance.

⚠ WARNING

AVOID UNEXPECTED LIFT ARM MOVEMENT

Operating with the Automatic Ride Control switch in the AUTO position may result in the lift arms slowly raising during certain conditions when the operator moves the hydraulic controls in a specific manner:

1. **A small or no load on the lift arms. EXAMPLE: Empty bucket or no attachment installed.**

   WITH

2. **High hydraulic pressure in the tilt or auxiliary hydraulic system. EXAMPLE: Holding the tilt control forward or backward after it stops moving OR when an attachment hydraulic motor is stalled.**

   AND

3. **While moving the lift control to raise or lower the lift arms.**

NOTE: The slow upward movement of the lift arms will continue briefly even after the operator moves the hydraulic controls back to NEUTRAL under the conditions and operation described above.

Disengage the automatic ride control functions for applications where precise lift arm control is required or whenever unexpected lift arm movement is not desired.

W-3017-0816

HYDRAULIC CONTROLS (CONT'D)

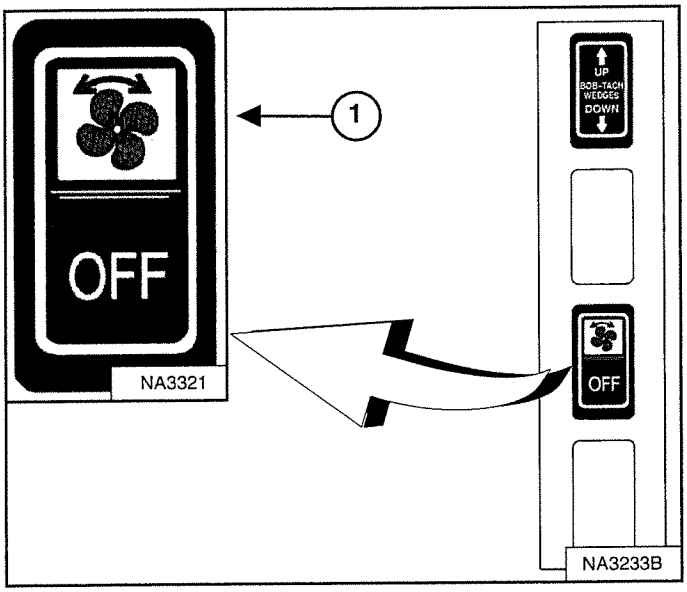
Reversing Fan

This machine may be equipped with a Reversing Fan.

The function of the reversing fan is to clear dust and debris from the rear grille. This is accomplished by reversing the direction of the cooling fan for several seconds.

The operator can select automatic or manual operation of the reversing fan.

Figure 87



Automatic:

- Press the top of the Reversing Fan switch (Item 1) **[Figure 87]** on the right switch panel to put the switch into the middle position.
- The machine will reverse the fan automatically based on fluid temperature as long as automatic operation is selected.

Manual:

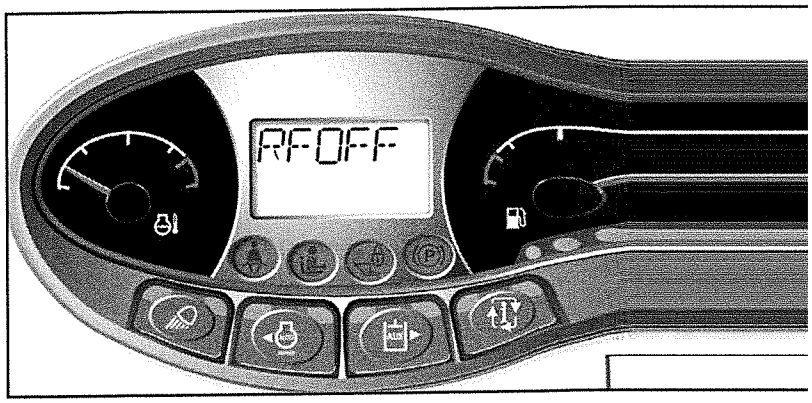
- Fully press the top of the Reversing Fan switch (Item 1) **[Figure 87]** on the right switch panel to perform one reversing cycle.
- The switch will return to automatic operation when released.

The top of the switch will light in the Automatic and Manual positions.

Press the bottom of the switch to disengage.

NOTE: To protect vital systems, the fan reverse when fluid temperatures a overheating conditions. Cleaning or s the cooling system may be req continue operation. (See Cleaning 141.)

Figure 88



Reversing fan is disabled when the engine c hydraulic fluid temperature is too high or too low

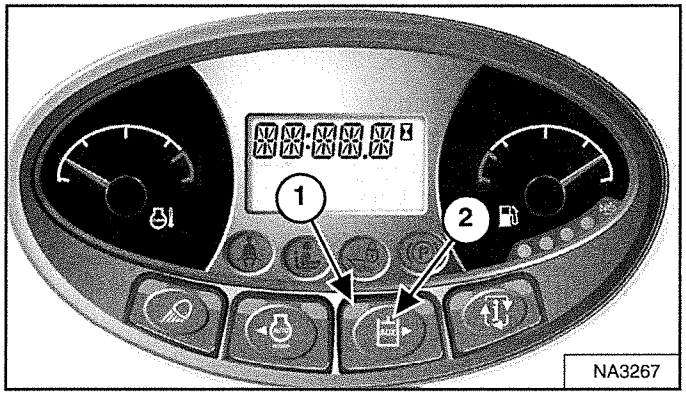
Selecting manual operation of the reversing disabled will cause the following indications:

1. The alarm will beep once.
2. Service code **[RFOFF]** will appear in the da **[Figure 88]** for several seconds.

HYDRAULIC CONTROLS (CONT'D)

FRONT Auxiliary Hydraulics Operation

Figure 89

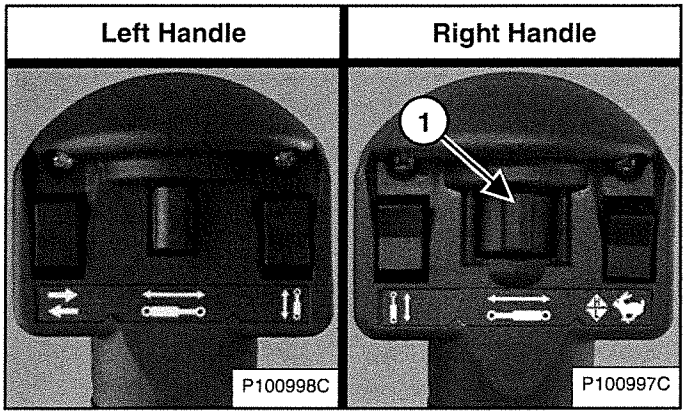


Press the Auxiliary Hydraulics button (Item 2) **[Figure 89]** once to activate the auxiliary hydraulics.

The light (Item 1) **[Figure 89]** is ON.

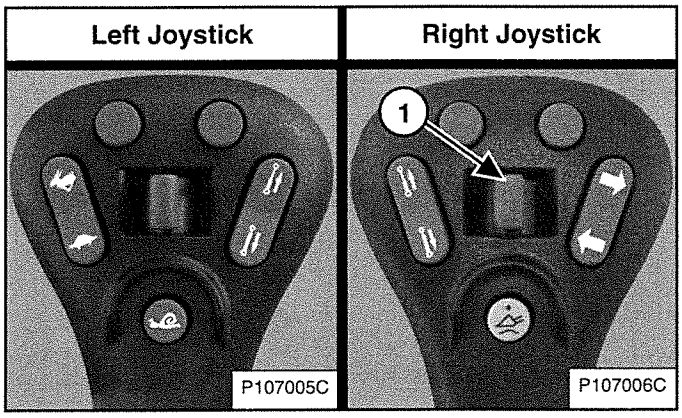
Standard And ACS (If Equipped)

Figure 90



SJC (If Equipped)

Figure 91



Move the Front Auxiliary Hydraulic switch (Item 1) **[Figure 90]** or **[Figure 91]** to the right or left to change direction of the auxiliary hydraulic fluid flow to the front quick couplers. If you move the switch halfway, the auxiliary functions move at approximately one-half speed. (EXAMPLE: Open and close grapple teeth.)

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

To deactivate the auxiliary hydraulics, press the Auxiliary Hydraulics button (Item 2) **[Figure 89]** again.

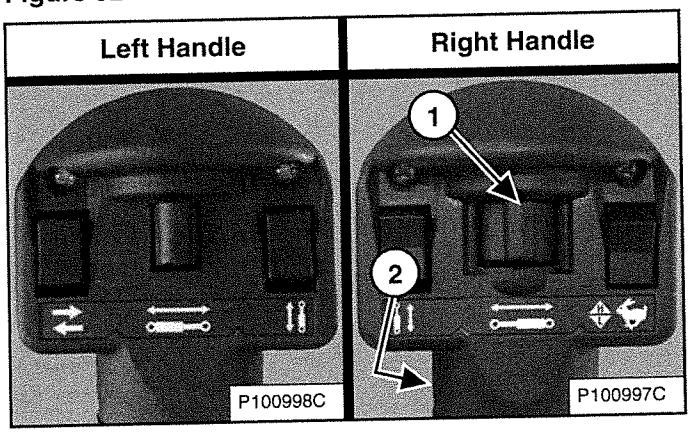
The light (Item 1) **[Figure 89]** is OFF.

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

FRONT Auxiliary Hydraulics Operation (CONTINUOUS FLOW)

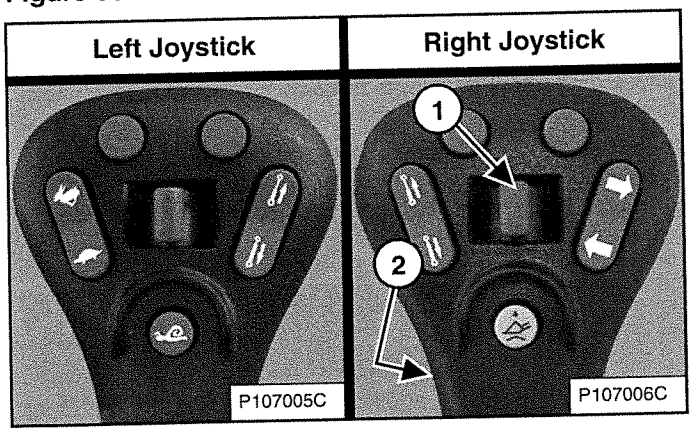
Standard And ACS (If Equipped)

Figure 92



SJC (If Equipped)

Figure 93



After activating the auxiliary hydraulics, press the Continuous Flow Control switch (Item 2) **[Figure 92]** or **[Figure 93]** to allow constant auxiliary hydraulic fluid flow to the front female coupler (female coupler is pressurized). (EXAMPLE: Operate a backhoe.)

To stop continuous auxiliary hydraulic fluid flow, press the Continuous Flow Control switch (Item 2) **[Figure 92]** or **[Figure 93]** a second time.

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

FRONT Auxiliary Hydraulics Operation (REVERSE CONTINUOUS FLOW)

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

1. Activate the auxiliary hydraulics.
2. Move the Front Auxiliary Hydraulic switch (Item 1) **[Figure 92]** or **[Figure 93]** to the left and hold.
3. Press the Continuous Flow Control switch (Item 2) **[Figure 92]** or **[Figure 93]**.
4. Release the Front Auxiliary Hydraulic switch.

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

To stop reverse continuous auxiliary hydraulic fluid flow, press the Continuous Flow Control switch (Item 2) **[Figure 92]** or **[Figure 93]** a second time.

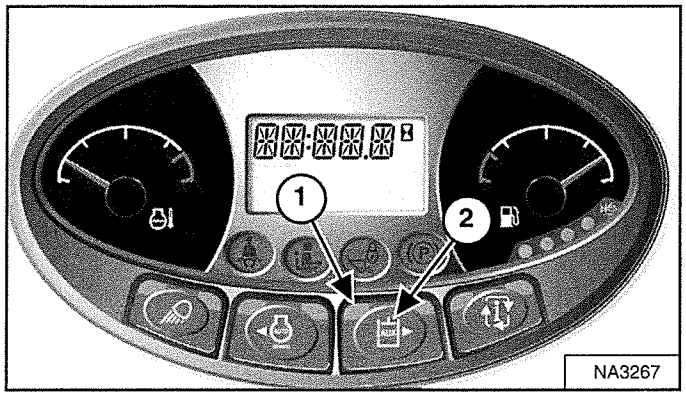
NOTE: When the operator is seated and raises the seat bar, the Auxiliary Hydraulic System (Front *and* Rear) will deactivate.

HYDRAULIC CONTROLS (CONT'D)

REAR Auxiliary Hydraulics Operation

This machine may be equipped with rear auxiliary hydraulics.

Figure 94

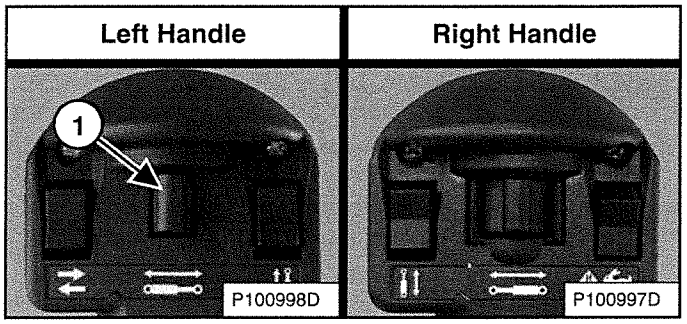


Press the Auxiliary Hydraulics button (Item 2) **[Figure 94]** once to activate the auxiliary hydraulics.

The light (Item 1) **[Figure 94]** is ON.

Standard And ACS (If Equipped)

Figure 95



SJC (If Equipped)

Figure 96

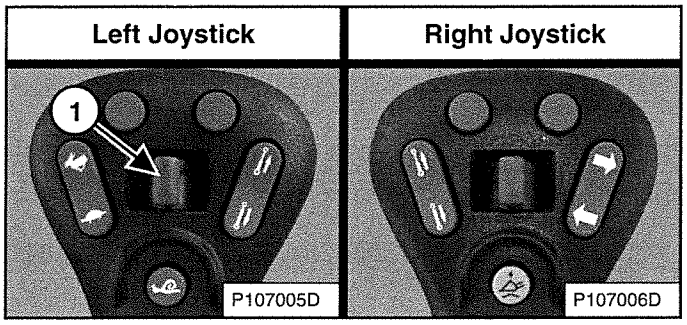
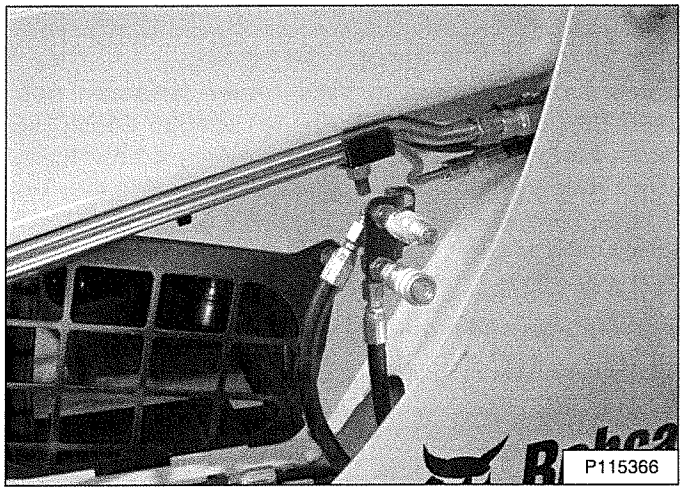


Figure 97



Move the Rear Auxiliary Hydraulic switch (Item 1) **[Figure 95]** or **[Figure 96]** to the right or left to change direction of the auxiliary hydraulic fluid flow to the rear quick couplers **[Figure 97]**. (Left side shown.) (EXAMPLE: Raise and lower rear stabilizers.) Release the switch to stop fluid flow.

To deactivate the auxiliary hydraulics, press the Auxiliary Hydraulics button (Item 2) **[Figure 94]** again.

The light (Item 1) **[Figure 94]** is OFF.

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

Quick Couplers

⚠ WARNING

AVOID INJURY OR DEATH

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

W-2072-0807

⚠ WARNING

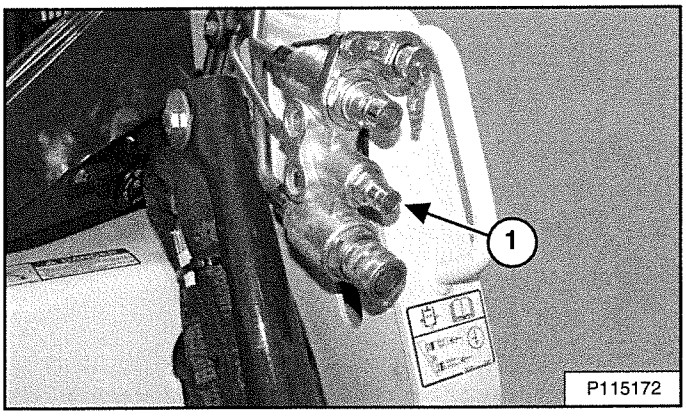
AVOID BURNS

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

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

Figure 98



To Connect:

Remove dirt or debris from the surface of the male and female couplers, and from the outside diameter of the male couplers. Visually check the couplers for corroding, cracking, damage, or excessive wear. If any of these conditions exist, the coupler(s) **[Figure 98]** must be replaced.

Install the male couplers into the female couplers. Full connection is made when the ball release sleeves slide forward on the female couplers.

Some attachments have a case drain that needs to be connected to the small quick coupler (Item 1) **[Figure 98]**.

To Disconnect:

Hold the male couplers. Retract the sleeves on the female couplers until couplers disconnect.

Quick Coupler Troubleshooting

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

Leaking Couplers

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

Couplers Stuck In Open Position

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

Difficult To Connect And Disconnect Couplers

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

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.

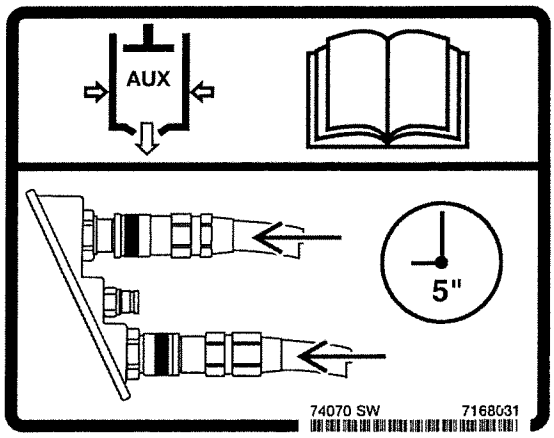
W-2220-0396

⚠ 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

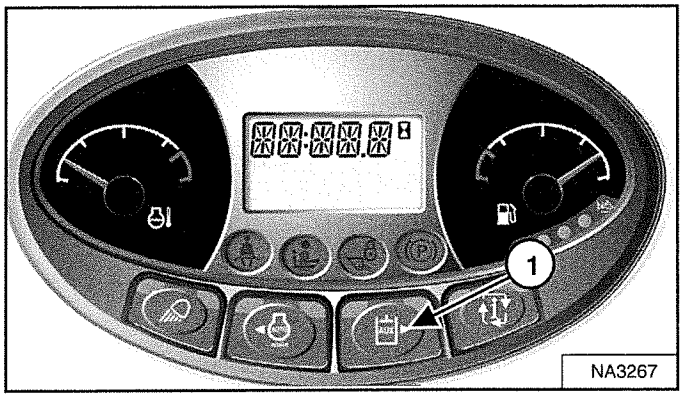
When Connecting: Push the quick couplers tightly together and hold for 5 seconds; the pressure is automatically relieved as the couplers are installed.

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.

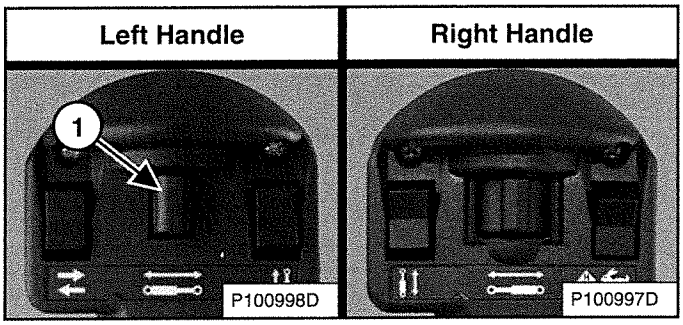
Figure 99



Press the Auxiliary Hydraulics button (Item 1) **[Figure 99]**.

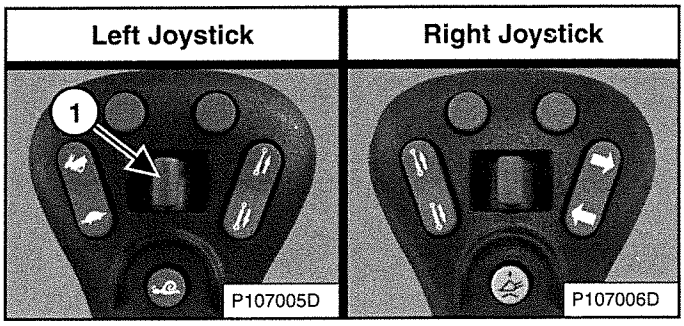
Standard And ACS (If Equipped)

Figure 100



SJC (If Equipped)

Figure 101



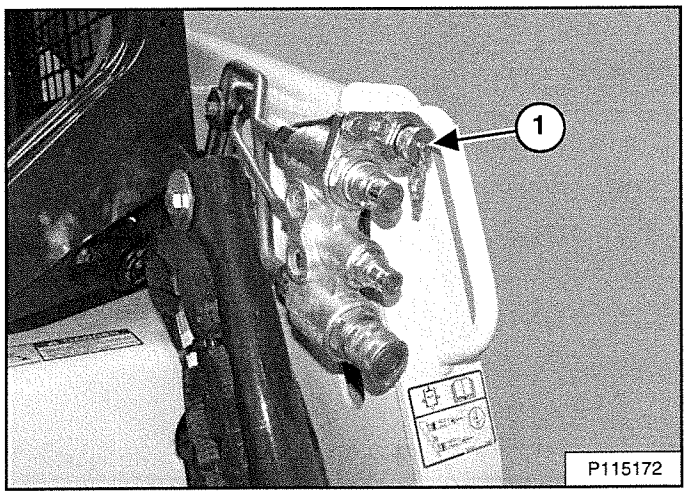
Move the Rear Auxiliary Hydraulic switch (Item 1) **[Figure 100]** or **[Figure 101]** to the left and right several times. Turn the key switch to STOP.

ATTACHMENT CONTROL DEVICE (ACD)

This machine may be equipped with an Attachment Control Device.

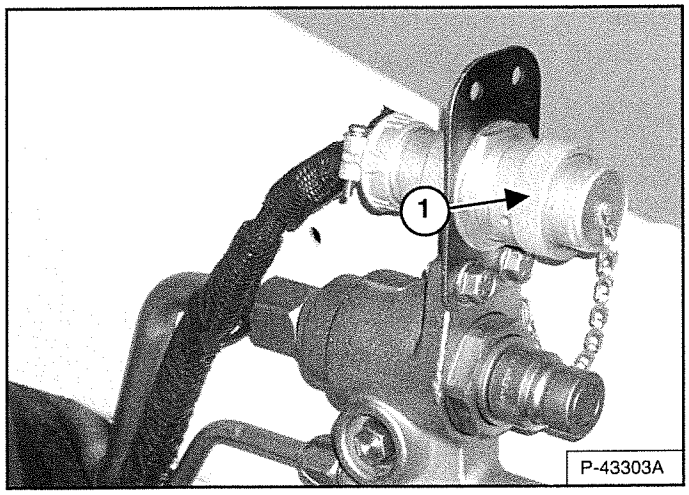
Description

Figure 102



Connect the attachment electrical harness to the attachment control device (Item 1) **[Figure 102]**.

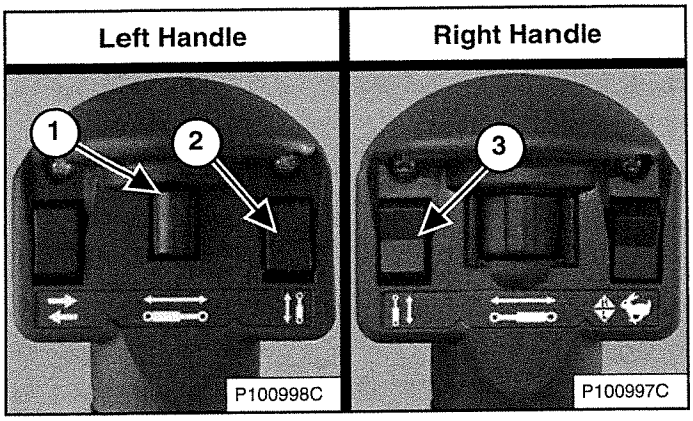
Figure 103



You will need the 14-Pin Attachment Control Device kit (Item 1) **[Figure 103]** to operate early model attachments. See your Bobcat loader dealer.

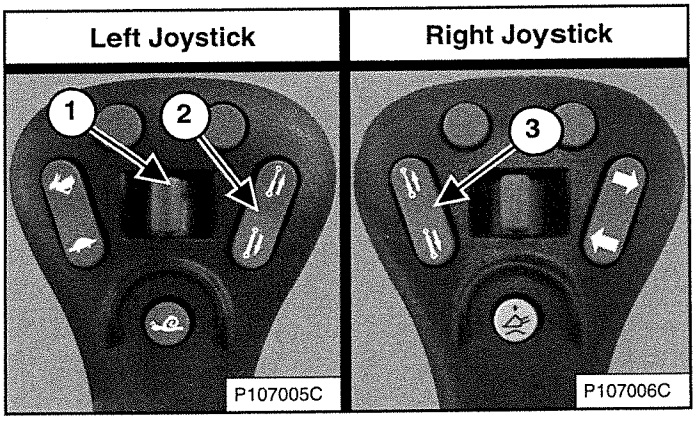
Standard And ACS (If Equipped)

Figure 104



SJC (If Equipped)

Figure 105



Additional switches (Items 1, 2, and 3) **[Figure 104]** or **[Figure 105]** are used to control some attachment functions through the attachment control device.

NOTE: ACD takes over the function of the Rear Auxiliary Hydraulic switch (Item 1) [Figure 104] or [Figure 105] from rear auxiliary hydraulics when an attachment electrical harness is attached to the ACD.

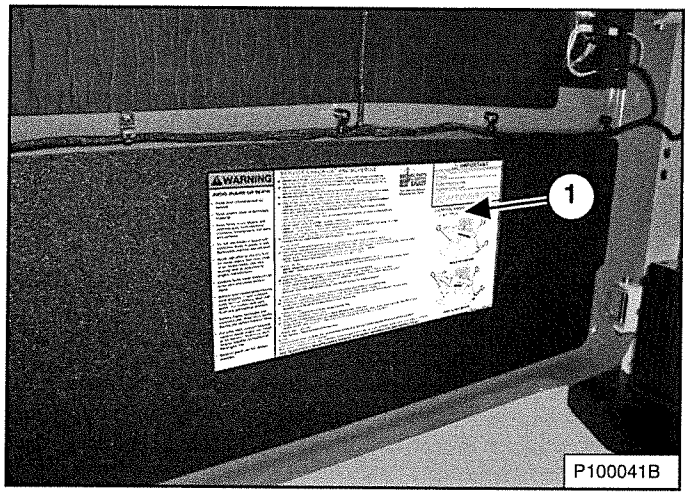
See the appropriate attachment Operation & Maintenance Manual for control details.

DAILY INSPECTION

Daily Inspection And Maintenance

Maintenance work must be done at regular intervals. Failure to do so will result in excessive wear and early failures. The Service Checklist And Schedule is a guide for correct maintenance of the Bobcat loader.

Figure 106



The Service Checklist And Schedule (Item 1) **[Figure 106]** is located inside the rear door of the loader and in the Machine Sign Translations section of this manual. (See MACHINE SIGN TRANSLATIONS on Page 208.)

A complete list of scheduled maintenance tasks is also located in the Preventive Maintenance section of this manual. (See SERVICE SCHEDULE on Page 113.)

⚠ WARNING

AVOID INJURY OR DEATH

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

W-2782-0409

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

⚠ WARNING

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

W-2001-0502

Daily Inspection And Maintenance (Cont'd)

The following list of items must be checked daily:

- Engine Oil Level
- Hydraulic Fluid Level
- Engine Air Cleaner – Check System for Damage or Leaks
- Engine Cooling System – Check System for Damage or Leaks, Check Coolant Level, Clean Hydraulic Fluid Cooler and Radiator Assembly, Fuel Cooler, and Rear Grille
- Operator Cab and Cab Mounting Hardware
- Seat Belt
- Seat Bar and Control Interlocks
- Bobcat Interlock Control System (BICS™)
- Front Horn and Back-up Alarm – Check for Proper Function
- Grease Pivot Pins (Lift Arms, Lift Links, Bob-Tach, Cylinders, Bob-Tach Wedges)
- Tracks – Check for Wear or Damage
- Loose or Broken Parts – Repair or Replace as Necessary
- Safety Treads and Safety Signs (Decals) – Replace as Necessary
- Lift Arm Support Device – Replace if Damaged

IMPORTANT

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

- **WITH MUFFLER**
  The muffler spark chamber must be emptied every 100 hours of operation to keep it in working condition.

- **WITH SELECTIVE CATALYST REDUCTION (SCR) AND / OR DIESEL OXIDATION CATALYST (DOC)**
  Do not remove or modify the DOC or SCR.

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

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

(If this machine is operated on flammable forest, brush or grass cover land, the engine must be equipped with a spark arrester and maintained in working order. Failure to do so will be in violation of California state law section 4442 PRC. Refer to local laws and regulations for spark arrester requirements.)

I-2350-1114

IMPORTANT

PRESSURE WASHING DECALS

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

I-2226-0910

PRE-STARTING PROCEDURE

Entering The Loader

Figure 107

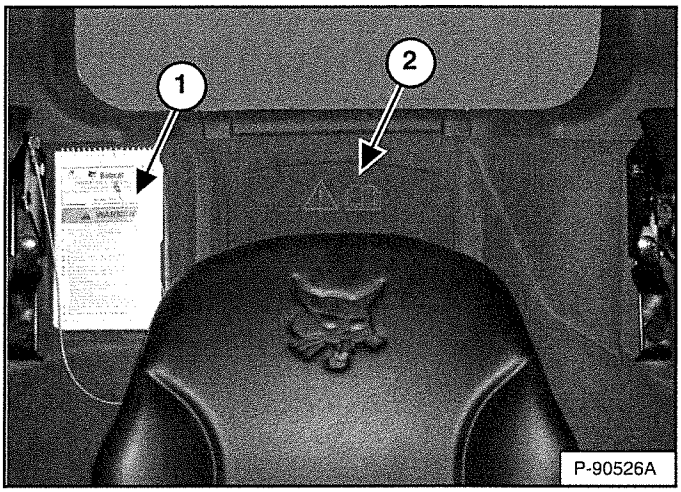
Use the bucket or attachment steps, grab handles, and safety treads (on the loader lift arms and frame) to get on and off the loader, maintaining a three-point contact at all times **[Figure 107]**. Do not jump.

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

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

Operation & Maintenance Manual And Operator's Handbook Locations

Figure 108



Read and understand the Operation & Maintenance Manual and the Operator's Handbook (Item 1) **[Figure 108]** before operating the loader.

The Operation & Maintenance Manual and other manuals can be kept in a container (Item 2) **[Figure 108]** provided behind the operator seat.

⚠ WARNING

AVOID INJURY OR DEATH

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

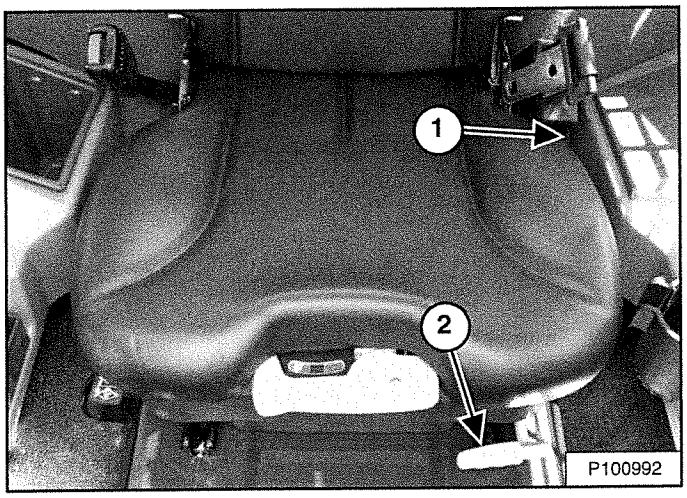
W-2003-0807

PRE-STARTING PROCEDURE (CONT'D)

Seat Adjustment

Suspension Seat (Standard)

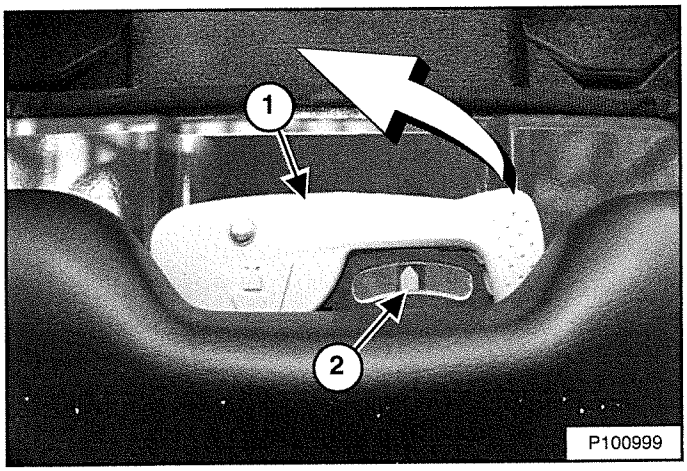
Figure 109



Pull the lever (Item 1) **[Figure 109]** up to adjust the angle of the seat back.

Pull the lever (Item 2) **[Figure 109]** up to adjust the seat position for comfortable operation of the loader controls.

Figure 110

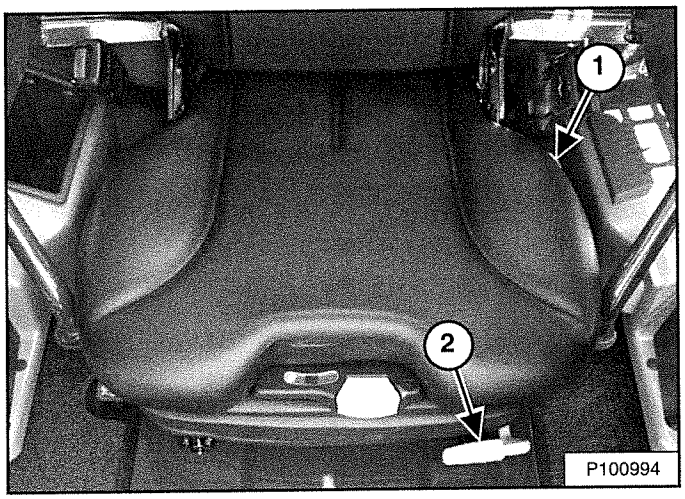


The lever (Item 1) is used to adjust the suspension response of the seat depending on the operator's weight. The optimum setting is achieved with the needle (Item 2) **[Figure 110]** centered in the gauge with the operator normally seated.

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

Air Ride Suspension Seat (Option)

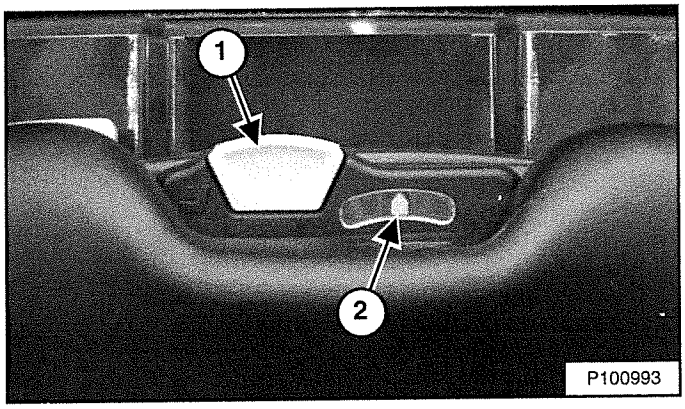
Figure 111



Pull the lever (Item 1) **[Figure 111]** up to adjust the angle of the seat back.

Pull the lever (Item 2) **[Figure 111]** up to adjust the seat position for comfortable operation of the loader controls.

Figure 112



The lever (Item 1) is used to adjust the suspension response of the seat depending on the operator's weight. The optimum setting is achieved with the needle (Item 2) **[Figure 112]** centered in the gauge with the operator normally seated.

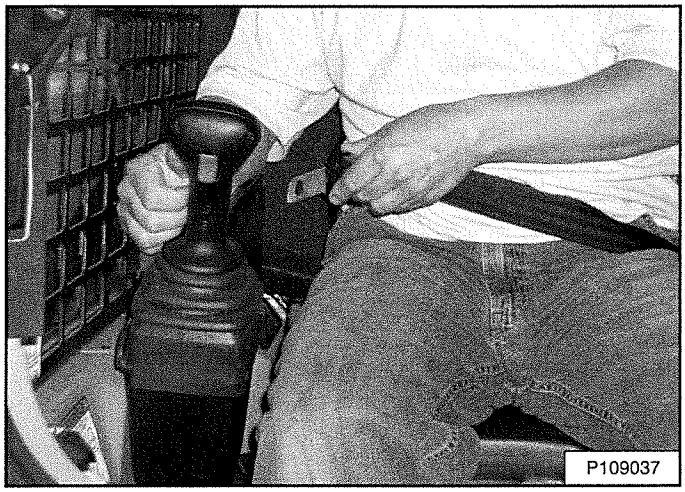
Pull the lever (Item 1) **[Figure 112]** up and hold to increase the amount of air in the seat suspension. Push the lever down and hold to decrease the amount of air in the seat suspension.

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

Seat Belt Adjustment

Retractable Seat Belt (Standard)

Figure 113



Pull the lap belt across to the right side of the seat and fasten **[Figure 113]**.

The lap belt must be positioned over your lower hips.

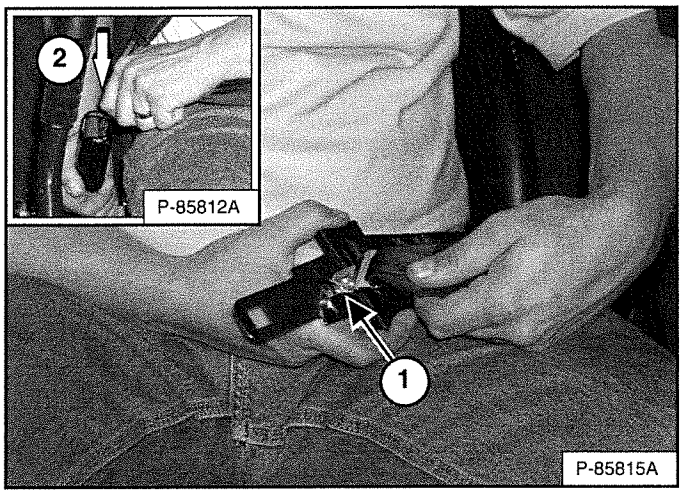
IMPORTANT

Check the seat belt retractor for correct operation. Keep retractor clean and replace as necessary.

I-2252-0707

3-Point Restraint (Option And Loaders Equipped With Two-Speed)

Figure 114



Connect the shoulder belt to the lap belt (Item 1). Pull the lap belt across to the right side of the seat and fasten (Item 2) **[Figure 114]**.

The shoulder belt must be positioned over your left shoulder and lap belt over your lower hips.

IMPORTANT

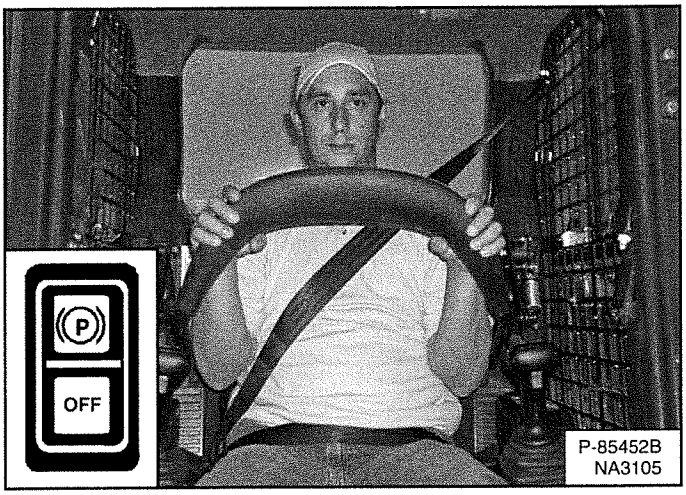
Check the seat belt and shoulder belt retractors for correct operation.

Keep retractors clean and replace as necessary.

I-2199-0200

Seat Bar

Figure 115



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

Put the foot pedals or hand controls in NEUTRAL position.

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

⚠ WARNING

AVOID INJURY OR DEATH

When operating the machine:

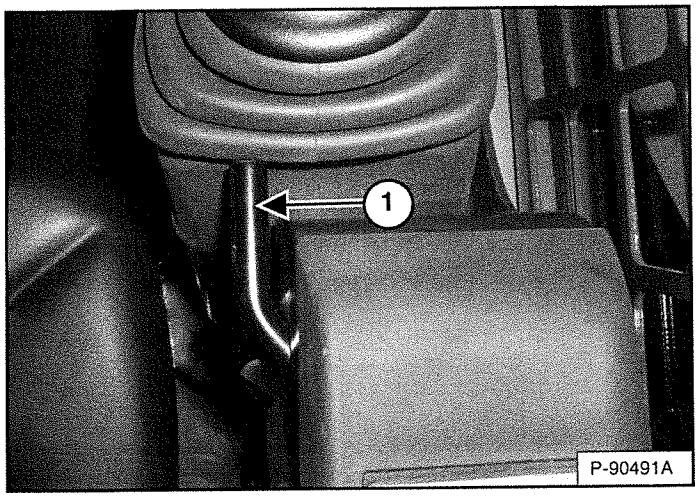
- **Keep the seat belt fastened snugly.**
- **The seat bar must be lowered.**
- **Keep your feet on the pedal controls or footrests and hands on the controls.**

W-2261-0909

Joystick Position Adjustment

Joystick Position Adjustment is available on SJC equipped machines.

Figure 116



Pull the joystick adjustment lever (Item 1) **[Figure 116]** up to slide the loader joystick forward or backward to adjust for comfortable operation. (Right side shown.)

STARTING THE ENGINE

Standard Key Panel

⚠ WARNING

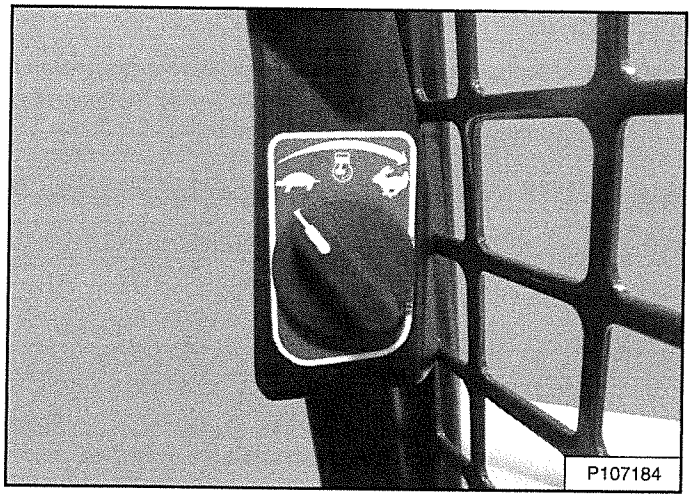
AVOID SERIOUS INJURY OR DEATH

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

W-2051-0212

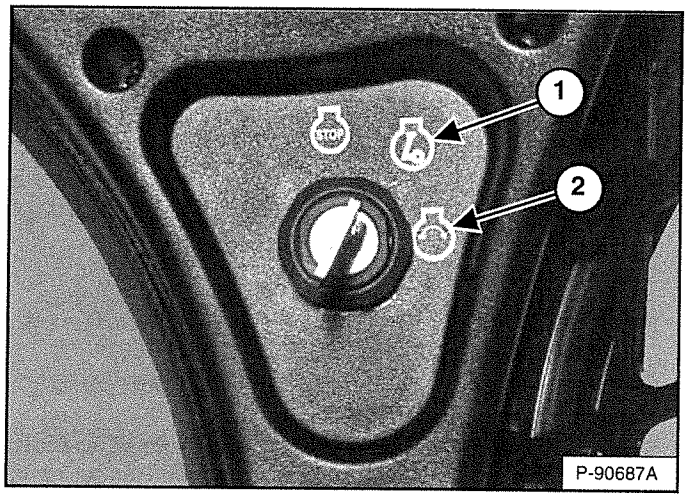
Perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 81.)

Figure 117



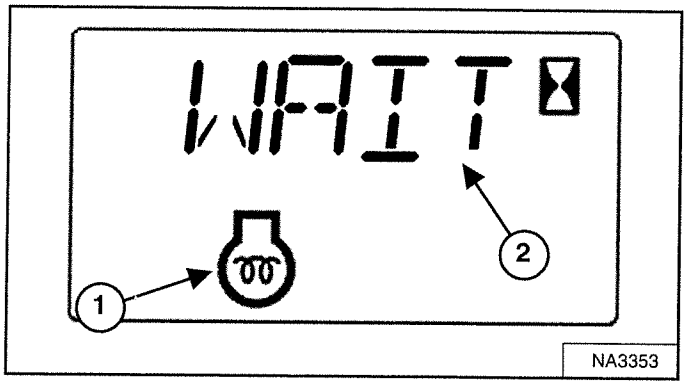
Set the engine speed control to the low idle position **[Figure 117]**.

Figure 118



Turn the key switch to RUN (Item 1) **[Figure 118]**. The indicator lights on the left instrument panel will come ON briefly and the instrument panel / monitoring system will perform a self test.

Figure 119



The machine will cycle the glow plugs automatically based on temperature. The engine preheat icon (Item 1) and the cycle time remaining or **[WAIT]** (Item 2) **[Figure 119]** are displayed in the data display.

NOTE: It is recommended in cold weather to cycle the glow plugs twice before attempting to start the engine. This will allow for additional heating time for cold weather starting.

When the engine preheat icon goes OFF, turn the key switch to START (Item 2). Release the switch when the engine starts and allow the switch to return to the RUN position (Item 1) **[Figure 118]**.

STARTING THE ENGINE (CONT'D)

Standard Key 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.

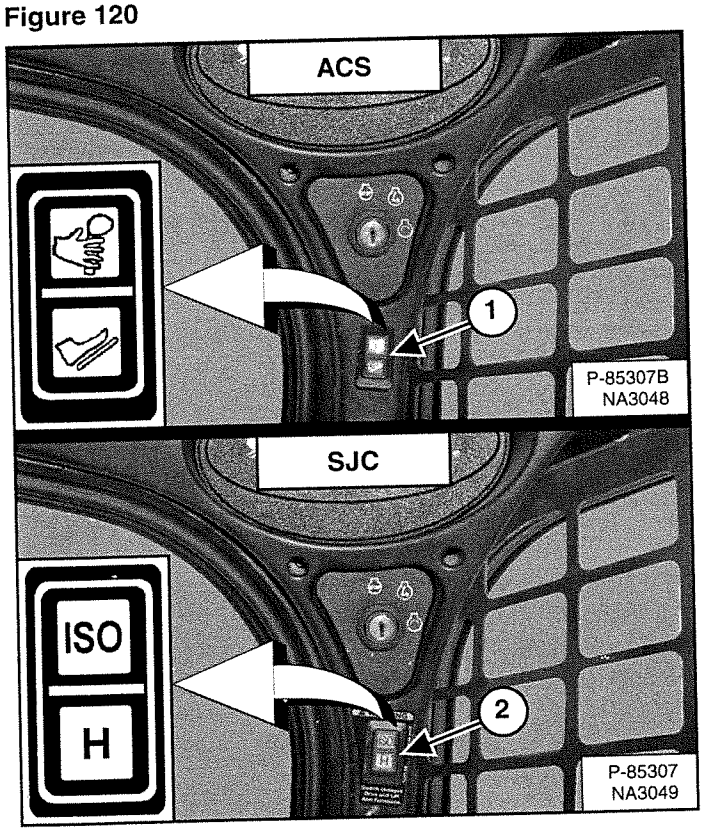
⚠ WARNING

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 120

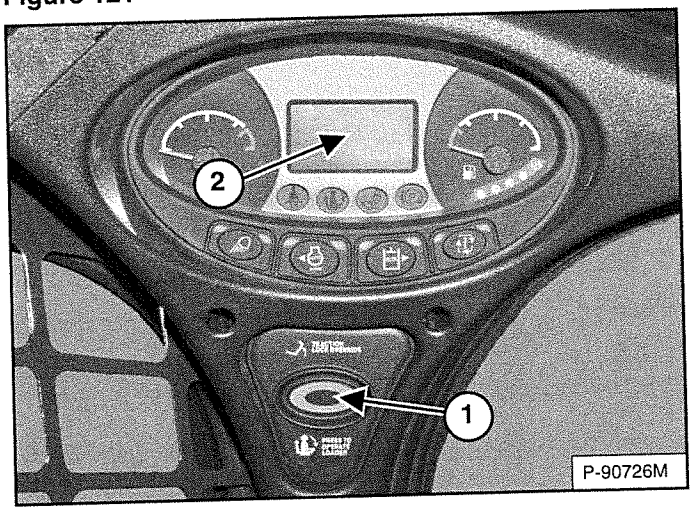


(ACS) Select hand control or foot pedal operation (Item 1) **[Figure 120]** if equipped with ACS.

OR

(SJC) Select 'ISO' or 'H' Control Pattern (Item 2) **[Figure 120]** if equipped with SJC.

Figure 121



Press the PRESS TO OPERATE LOADER button (Item 1) **[Figure 121]** 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 121]** 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

Keyless Start Panel

⚠ WARNING

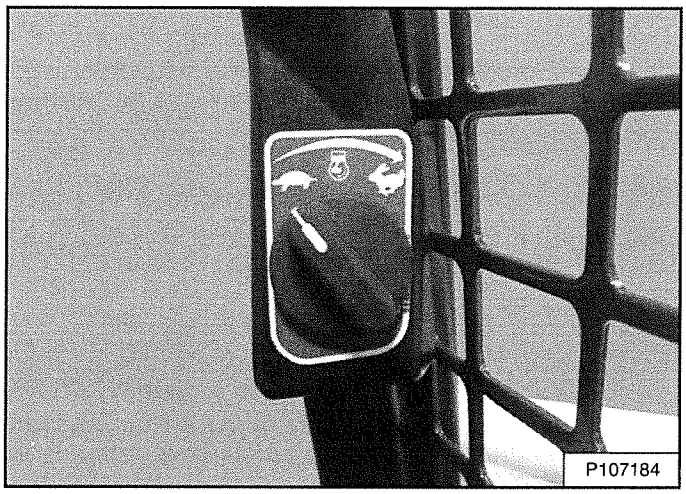
AVOID SERIOUS INJURY OR DEATH

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

W-2051-0212

Perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 81.)

Figure 122

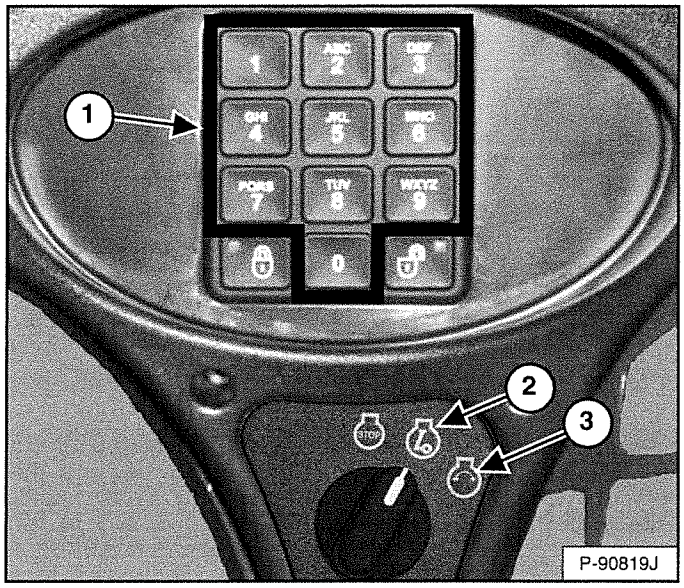


Set the engine speed control to the low idle position **[Figure 122]**.

NOTE: Loaders with a Keyless Start Panel have a permanent, randomly generated Master Password set at the factory. Your loader will also have an Owner Password. The owner password can be changed to prevent unauthorized use of your loader. (See Changing The Owner Password on Page 202.) Keep your password in a safe location for future needs.

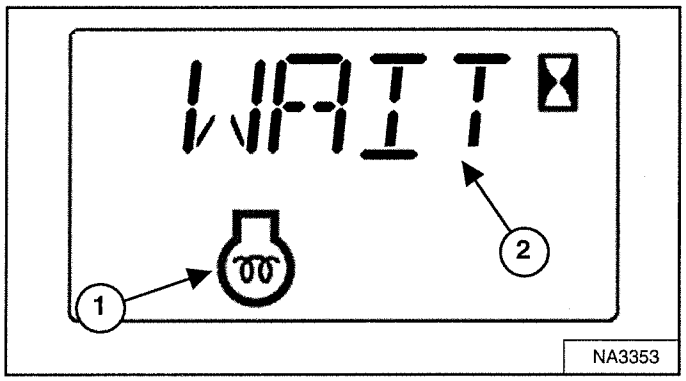
NOTE: The Password Lockout feature can be used to allow starting of the loader without a password. (See Password Lockout Feature on Page 202.)

Figure 123



Turn the key switch to RUN (Item 2). The indicator lights on the left instrument panel will come ON briefly and the instrument panel / monitoring system will perform a self test. Use the numeric keypad (Item 1) **[Figure 123]** to enter the password.

Figure 124



The machine will cycle the glow plugs automatically based on temperature. The engine preheat icon (Item 1) and the cycle time remaining or **[WAIT]** (Item 2) **[Figure 124]** are displayed in the data display.

NOTE: It is recommended in cold weather to cycle the glow plugs twice before attempting to start the engine. This will allow for additional heating time for cold weather starting.

When the engine preheat icon goes OFF, turn the key switch to START (Item 3). Release the switch when the engine starts and allow the switch to return to the RUN position (Item 2) **[Figure 123]**.

STARTING THE ENGINE (CONT'D)

Keyless Start Panel (Cont'd)

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

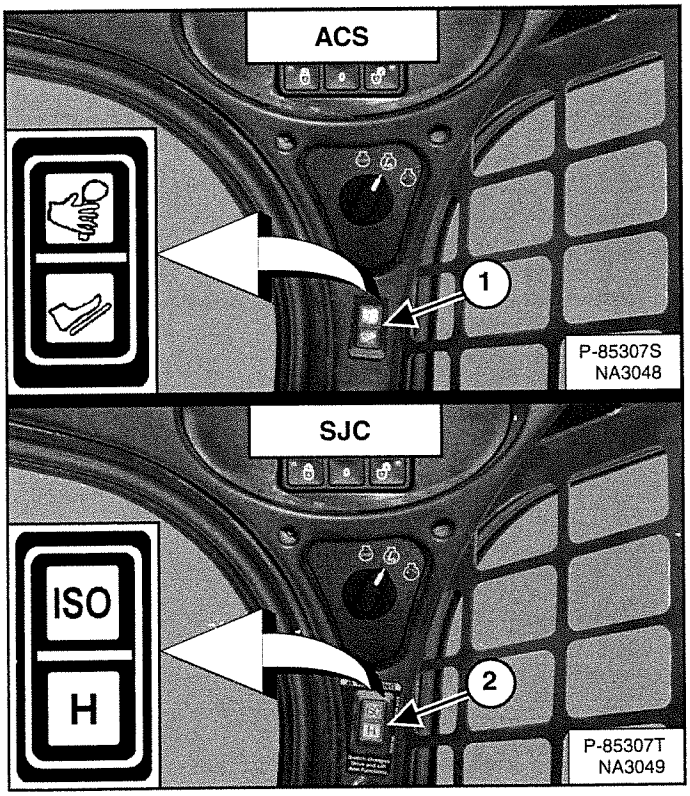
⚠ WARNING

AVOID INJURY OR DEATH

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

W-2135-1108

Figure 125

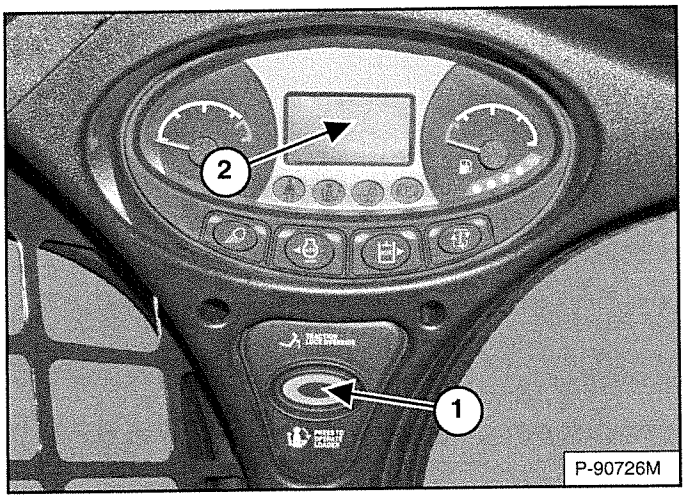


(ACS) Select hand control or foot pedal operation (Item 1) **[Figure 125]** if equipped with ACS.

OR

(SJC) Select 'ISO' or 'H' Control Pattern (Item 2) **[Figure 125]** if equipped with SJC.

Figure 126



Press the PRESS TO OPERATE LOADER button (Item 1) **[Figure 126]** 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 126]** 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

Deluxe Instrumentation Panel

⚠ WARNING

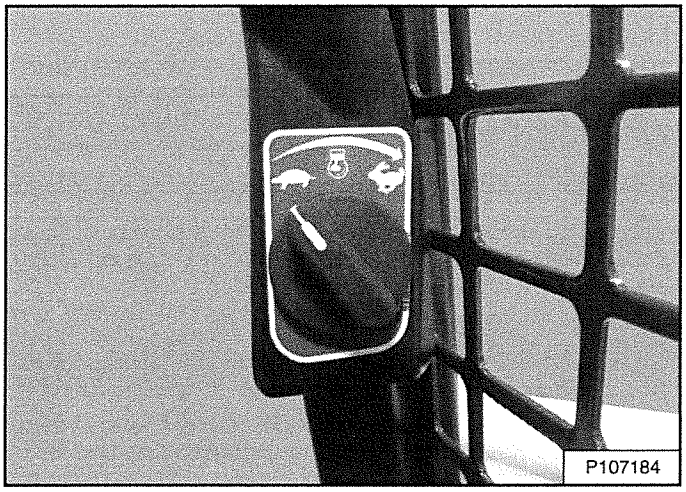
AVOID SERIOUS INJURY OR DEATH

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

W-2051-0212

Perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 81.)

Figure 127

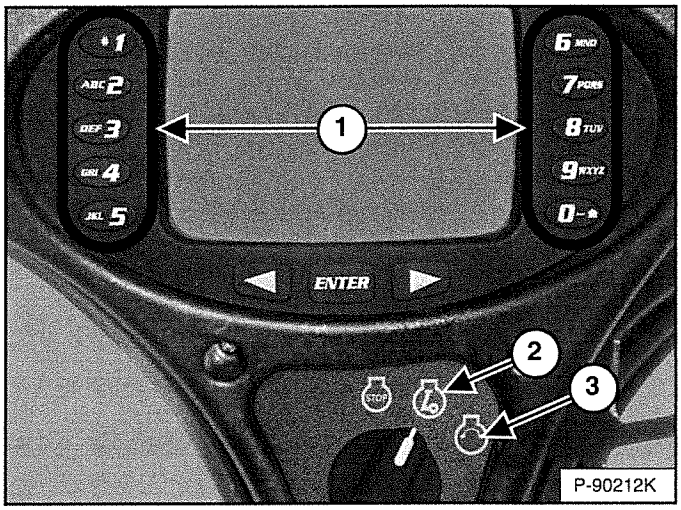


Set the engine speed control to the low idle position **[Figure 127]**.

NOTE: Loaders with a Deluxe Instrumentation Panel have a permanent, randomly generated Master Password set at the factory. Your loader will also be assigned an Owner Password. Your dealer will provide you with this password. Change the owner password to one that you will easily remember to prevent unauthorized use of your loader. (See Changing The Owner Password on Page 203.) Keep your password in a safe location for future needs.

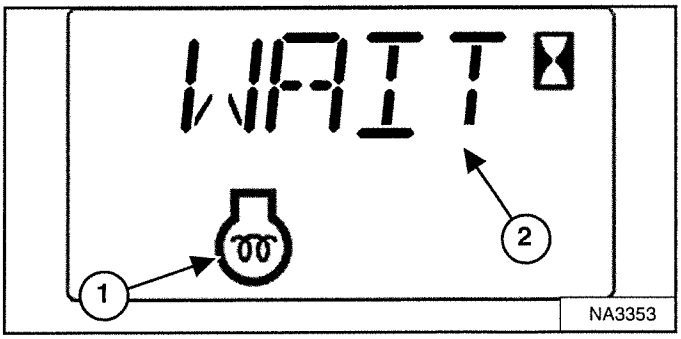
NOTE: The Password Lockout feature can be used to allow starting of the loader without a password. (See Password Lockout Feature on Page 204.)

Figure 128



Turn the key switch to RUN (Item 2). The indicator lights on the left instrument panel will come ON briefly and the instrument panel / monitoring system will perform a self test. Use the numeric keypad (Item 1) **[Figure 128]** to enter the password.

Figure 129



The machine will cycle the glow plugs automatically based on temperature. The engine preheat icon (Item 1) and the cycle time remaining or **[WAIT]** (Item 2) **[Figure 129]** are displayed in the data display.

NOTE: The Deluxe Instrumentation Panel display screen will also display an engine preheat icon and [WAIT TO START].

NOTE: It is recommended in cold weather to cycle the glow plugs twice before attempting to start the engine. This will allow for additional heating time for cold weather starting.

When the engine preheat icon goes OFF, turn the key switch to START (Item 3). Release the switch when the engine starts and allow the switch to return to the RUN position (Item 2) **[Figure 128]**.

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.

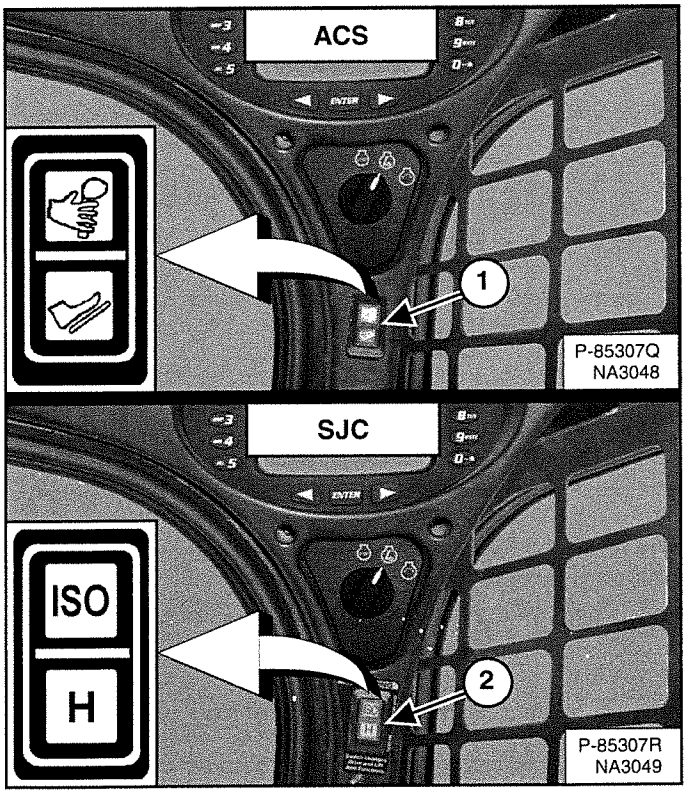
⚠ WARNING

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 130

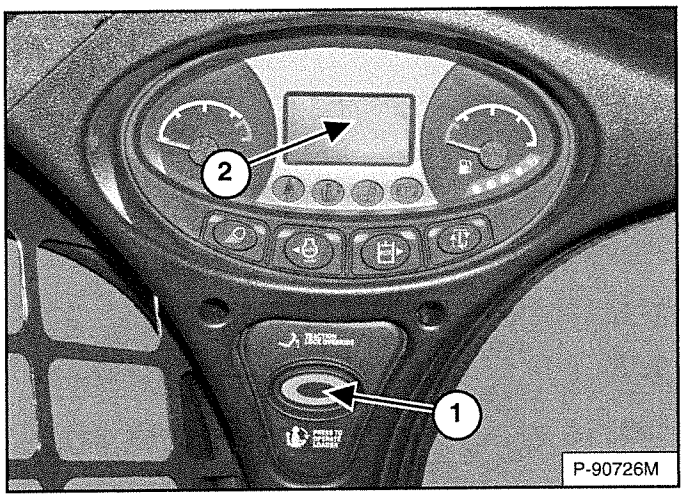


(ACS) Select hand control or foot pedal operation (Item 1) **[Figure 130]** if equipped with ACS.

OR

(SJC) Select 'ISO' or 'H' Control Pattern (Item 2) **[Figure 130]** if equipped with SJC.

Figure 131



Press the PRESS TO OPERATE LOADER button (Item 1) **[Figure 131]** 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 131]** 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

Warming The Hydraulic / Hydrostatic System

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

NOTE: The full range of the engine speed control will not be available until the engine controller determines the engine is adequately warmed.

IMPORTANT

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

I-2007-0910

Cold Temperature Starting

⚠ WARNING

EXPLOSION CAN CAUSE SERIOUS INJURY, DEATH OR SEVERE ENGINE DAMAGE

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

W-2071-0415

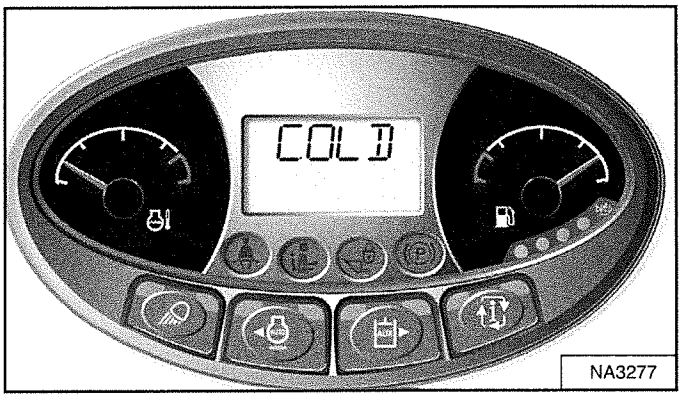
If the temperature is below freezing, perform the following to make starting the engine easier:

- Replace the engine oil with the correct type and viscosity for the anticipated starting temperature. (See Engine Oil Chart on Page 138.)
- Make sure the battery is fully charged.
- Install an engine heater, available from your Bobcat loader dealer.

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

Cold Temperature Engine Speed Control

Figure 132



The engine controller will not allow full engine speed and torque when the engine temperature is too low. The following indications and actions are performed automatically by the engine controller:

1. Service code **[COLD]** will appear in the data display **[Figure 132]**.
2. The engine controller will override the operator engine speed control setting and maintain optimum engine warm-up speed.

   Moving the operator engine speed control will cause the alarm to beep three times. The engine speed will remain overridden.
3. The alarm will beep two times and the data display will change to the hourmeter when the engine controller is no longer overriding engine speed. Engine speed control is returned to the operator.

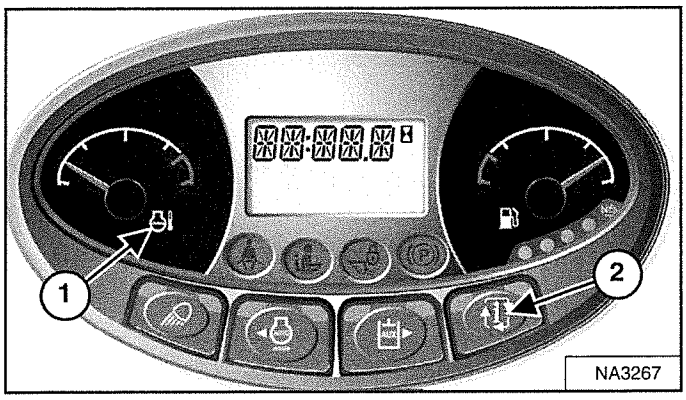
NOTE: Engine speed will remain at low idle until the operator moves the engine speed control regardless of the engine speed control position.

Full engine speed and torque may not be available until the engine controller determines the engine is adequately warmed.

MONITORING THE DISPLAY PANELS

Left Panel

Figure 133



Frequently monitor the temperature and fuel gauges and BICS™ lights (all BICS™ lights must be OFF to operate loader) **[Figure 133]**.

After the engine is running, frequently monitor the left instrument panel **[Figure 133]** for machine condition.

The associated icon is displayed if there is an error condition.

EXAMPLE: Engine Coolant Temperature is High.

The Engine Coolant Temperature icon (Item 1) **[Figure 133]** is ON.

Press the Information button (Item 2) **[Figure 133]** to cycle the data display until the service code screen is displayed. One of the following SERVICE CODES is displayed.

- **[M0810]** Engine Coolant Temperature Too High
- **[M0811]** Engine Coolant Temperature Extremely High

Find the cause of the service code and correct before operating the loader again. (See Service Codes List on Page 188.)

NOTE: The optional Deluxe Instrumentation Panel offers an additional view of service codes that includes a brief description. (See Viewing Service Codes on Page 187.)

Warning And Shutdown

When a WARNING condition exists; the associated icon light is ON and the alarm sounds 3 beeps. 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 is ON and the alarm sounds continuously. The monitoring system will automatically stop the engine in 15 seconds. The engine can be restarted to move or relocate the loader.

The SHUTDOWN feature is associated with the following icons:

General Warning
Engine Malfunction
Engine Coolant Temperature
Hydraulic System Malfunction

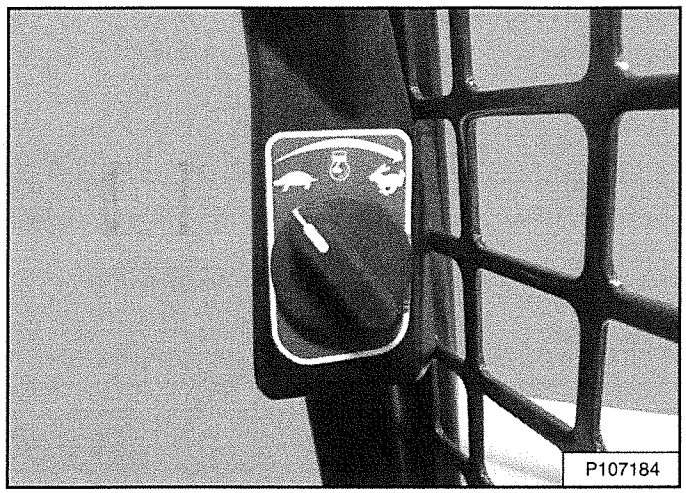
STOPPING THE ENGINE AND LEAVING THE LOADER

Procedure

Stop the loader on level ground.

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

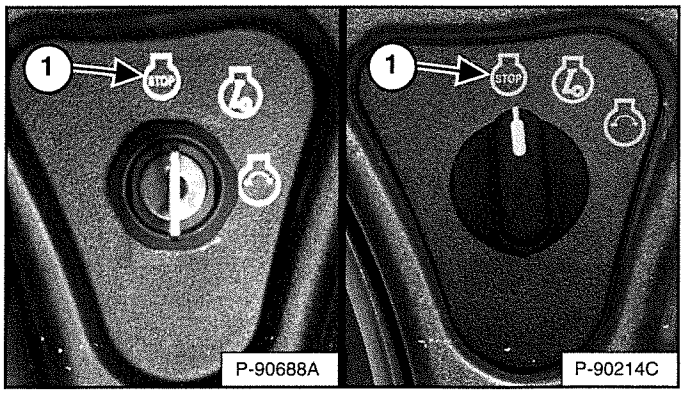
Figure 134



Set the engine speed control to the low idle position **[Figure 134]**.

Engage the parking brake.

Figure 135



Turn the key switch to the STOP position (Item 1) **[Figure 135]**.

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

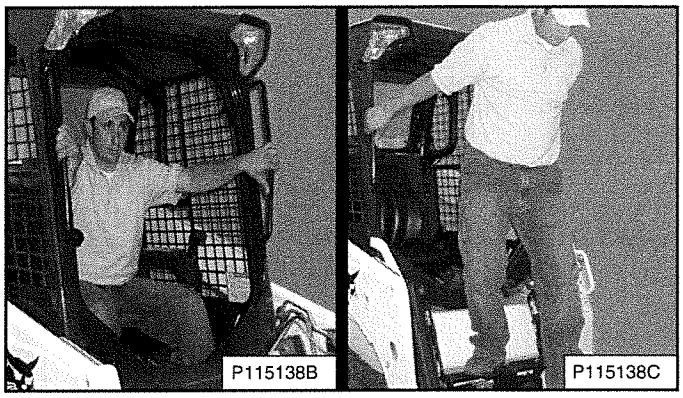
Raise the seat bar and make sure the lift and tilt functions are deactivated.

Unbuckle the seat belt.

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

NOTE: Activating the Password Lockout Feature on machines with the Keyless Start Panel or the Deluxe Instrumentation Panel allows operation of the loader without using a password. (See Password Lockout Feature on Page 202.) or (See Password Lockout Feature on Page 204.)

Figure 136



Exit the loader using grab handles, safety tread, and steps (maintaining a three-point contact) **[Figure 136]**.

⚠ WARNING

AVOID INJURY OR DEATH

Before you leave the operator's seat:

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

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

W-2463-1110

COUNTERWEIGHTS

Description

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

Effect On The Loader And Loader Operation

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

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

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

When To Consider Using Counterweights

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

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

When To Consider Removing Counterweights

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

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

Accessories That Affect Machine Weight

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

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

ATTACHMENTS

Choosing The Correct Bucket

⚠ WARNING

AVOID INJURY OR DEATH

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

W-2052-0907

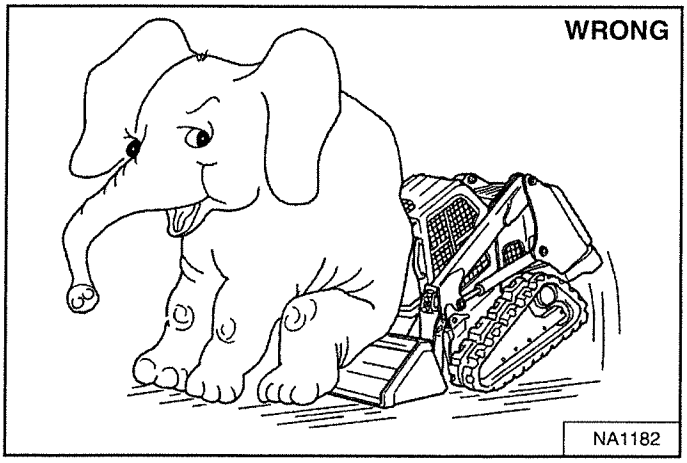
NOTE: Warranty is void if non-approved attachments are used on the Bobcat loader.

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

The ROC for this loader is shown on a decal in the operator cab. (See Performance on Page 224.)

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

Figure 137



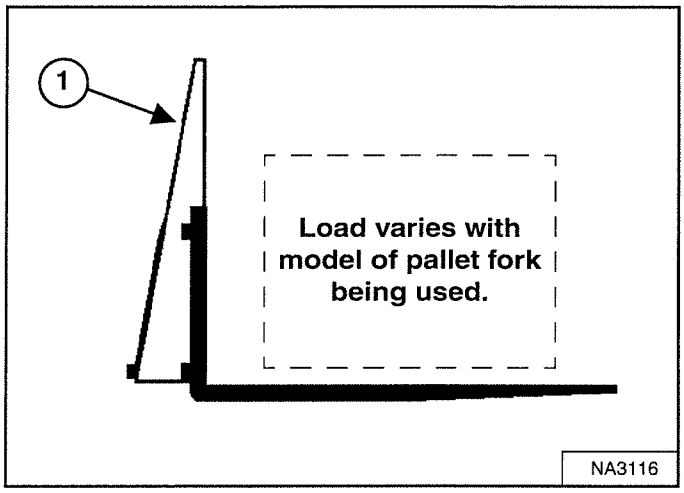
Exceeding the ROC **[Figure 137]** can cause the following problems:

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

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

Pallet Fork

Figure 138



The maximum load to be carried when using a pallet fork is shown on a decal located on the pallet fork frame (Item 1) **[Figure 138]**.

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

⚠ WARNING

AVOID INJURY OR DEATH

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

W-2053-0903

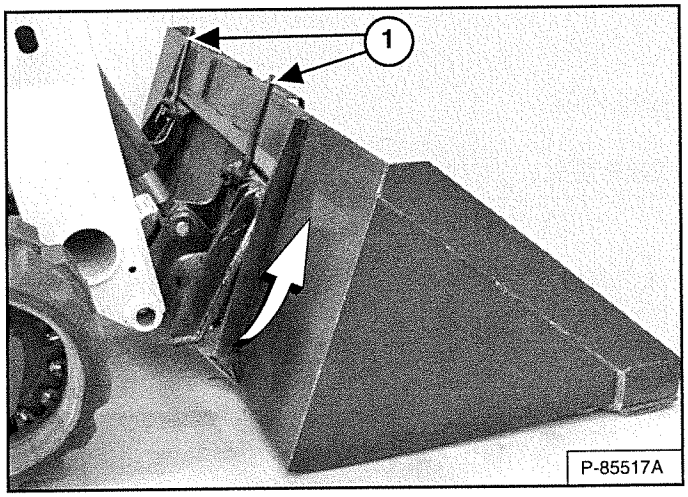
ATTACHMENTS (CONT'D)

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

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

Installing

Figure 139



Pull the Bob-Tach levers up until they are fully raised (wedges fully raised) (Item 1) **[Figure 139]**.

Enter the loader and perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 81.)

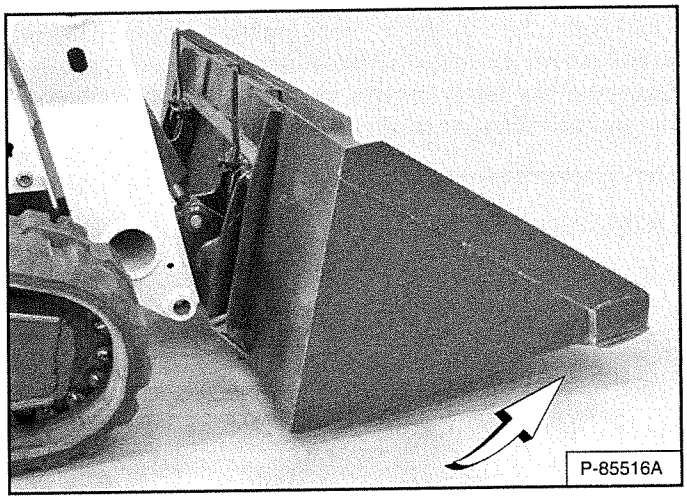
Start the engine, press the PRESS TO OPERATE LOADER button, and release the parking brake.

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

Drive the loader slowly forward until the top edge of the Bob-Tach is completely under the top flange of the bucket mounting frame **[Figure 139]** (or other attachment).

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

Figure 140



Tilt the Bob-Tach backward until the cutting edge of the bucket (or other attachment) is slightly off the ground **[Figure 140]**. This procedure will cause the bucket mounting frame to fit up against the front of the Bob-Tach.

Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 93.)

⚠ WARNING

AVOID INJURY OR DEATH

Before you leave the operator's seat:

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

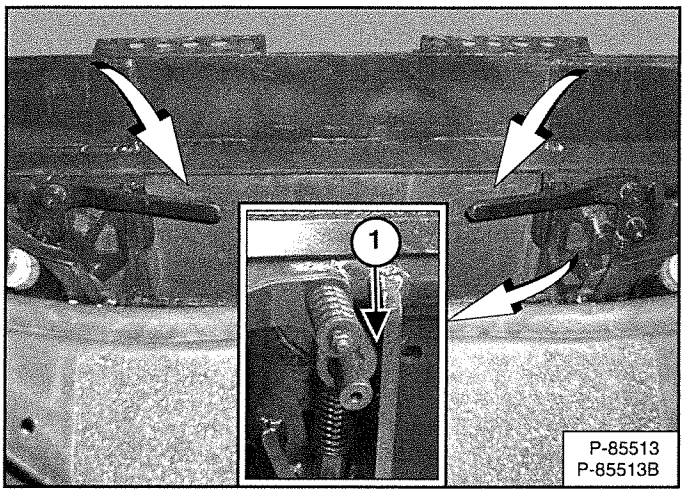
The seat bar system must deactivate these functions when the seat bar is up. See your Bobcat dealer for service if controls do not deactivate.

W-2463-1110

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

Installing (Cont'd)

Figure 141

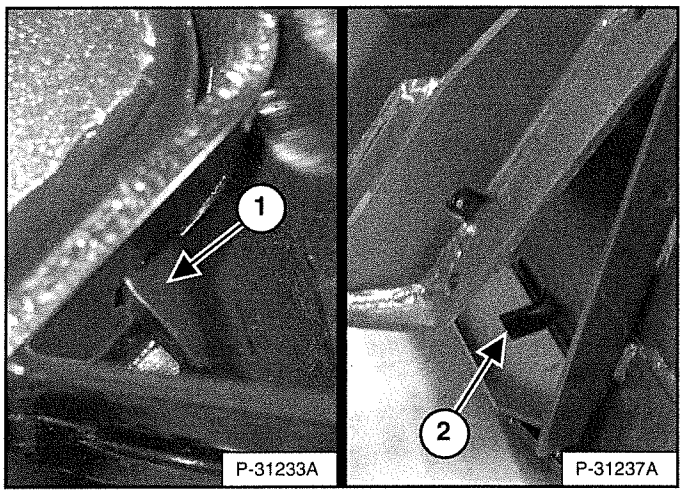


Push down on the Bob-Tach levers until they are fully engaged in the locked position **[Figure 141]** (wedges fully extended through the attachment mounting frame holes).

Both levers must contact the frame as shown when locked (Item 1) **[Figure 141]**.

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

Figure 142



The wedges (Item 1) must extend through the holes (Item 2) **[Figure 142]** 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

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

Removing

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

Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 93.)

⚠ WARNING

AVOID INJURY OR DEATH

Before you leave the operator's seat:

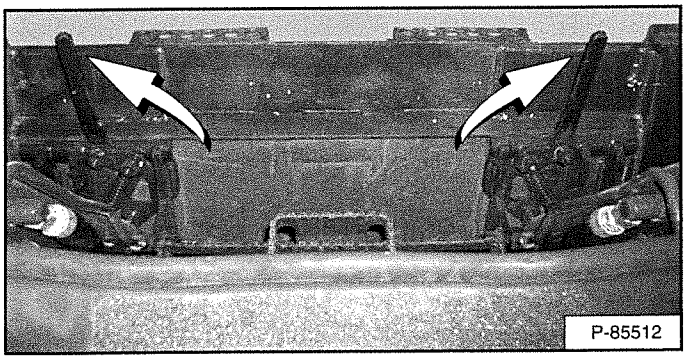
- **Lower the lift arms and put the attachment flat on the ground.**
- **Stop the engine.**
- **Engage the parking brake.**
- **Raise the seat bar.**
- **Move all controls to the NEUTRAL / LOCKED position to make sure the lift, tilt and traction drive functions are deactivated.**

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

W-2463-1110

Disconnect attachment electrical harness and water or hydraulic lines, if applicable, from the loader. (See Relieve Auxiliary Hydraulic Pressure (Loader And Attachment) on Page 77.)

Figure 143



Pull the Bob-Tach levers up **[Figure 143]** until they are fully raised (wedges fully raised).

⚠ WARNING

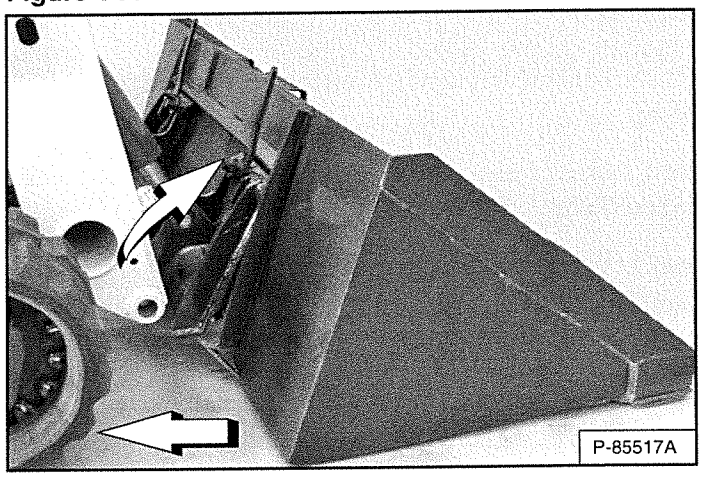
Bob-Tach levers have spring tension. Hold lever tightly and release slowly. Failure to obey warning can cause injury.

W-2054-1285

Enter the loader and perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 81.)

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

Figure 144



Tilt the Bob-Tach forward and drive the loader backward, away from the bucket or attachment **[Figure 144]**.

ATTACHMENTS (CONT'D)

Installing And Removing The Attachment (Power Bob-Tach)

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

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

Installing

Enter the loader and perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 81.)

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

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

Figure 145

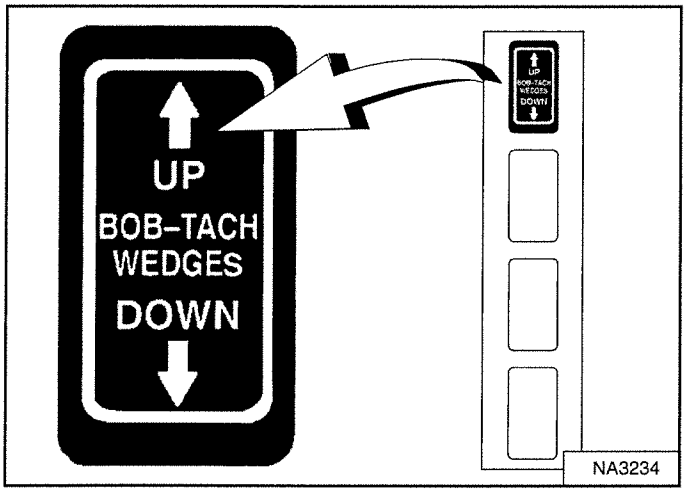
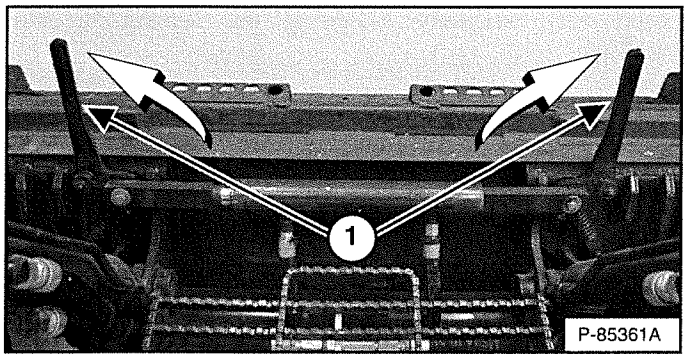
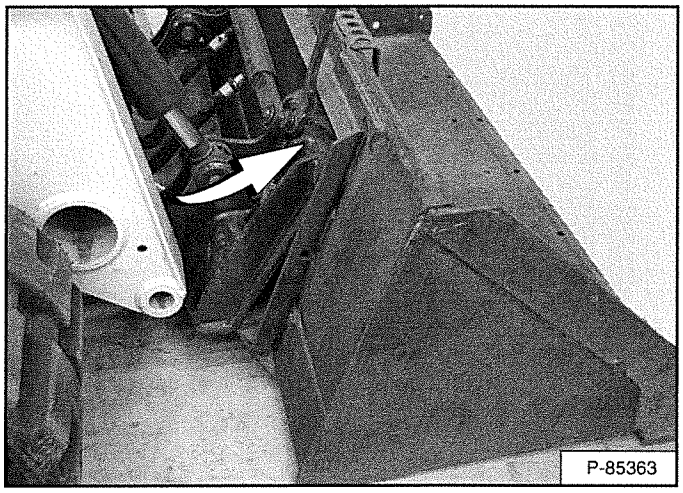


Figure 146



Push and hold BOB-TACH WEDGES "UP" switch (Right Switch Panel) **[Figure 145]** until levers (Item 1) **[Figure 146]** are fully raised (wedges fully raised).

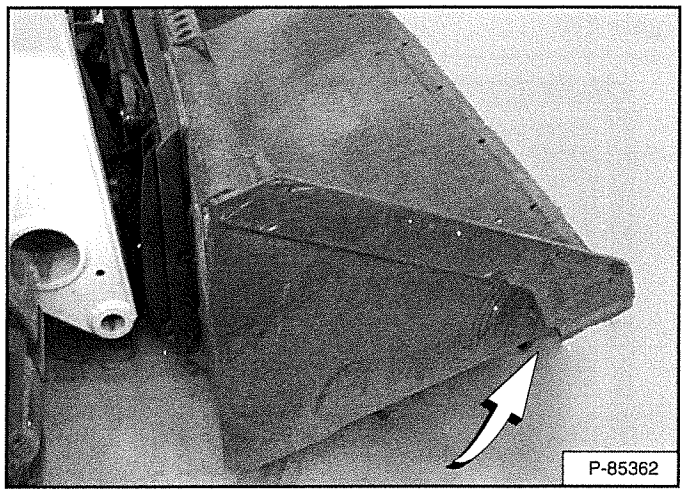
Figure 147



Drive the loader slowly forward until the top edge of the Bob-Tach is completely under the top flange of the bucket mounting frame **[Figure 147]** (or other attachment).

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

Figure 148

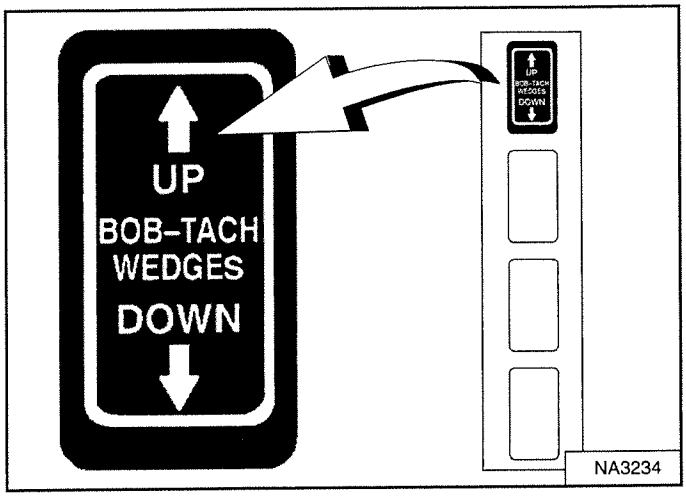


Tilt the Bob-Tach backward until the cutting edge of the bucket (or other attachment) is slightly off the ground **[Figure 148]**. This procedure will cause the bucket mounting frame to fit up against the front of the Bob-Tach.

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

Installing (Cont'd)

Figure 149



Push and hold BOB-TACH WEDGES "UP" switch (Right Switch Panel) **[Figure 149]** 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 150

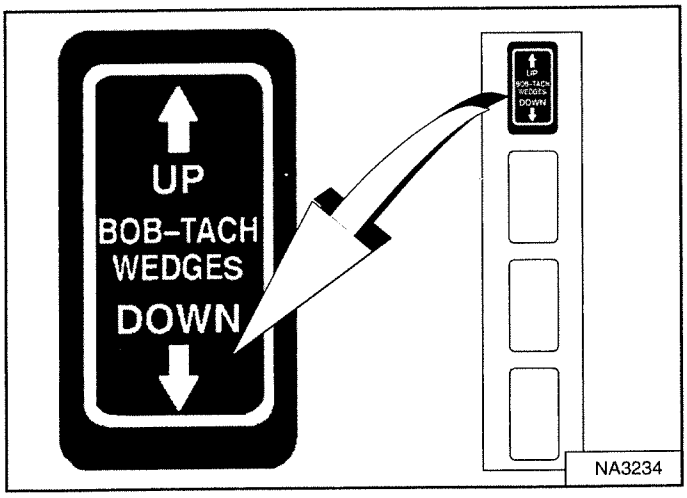
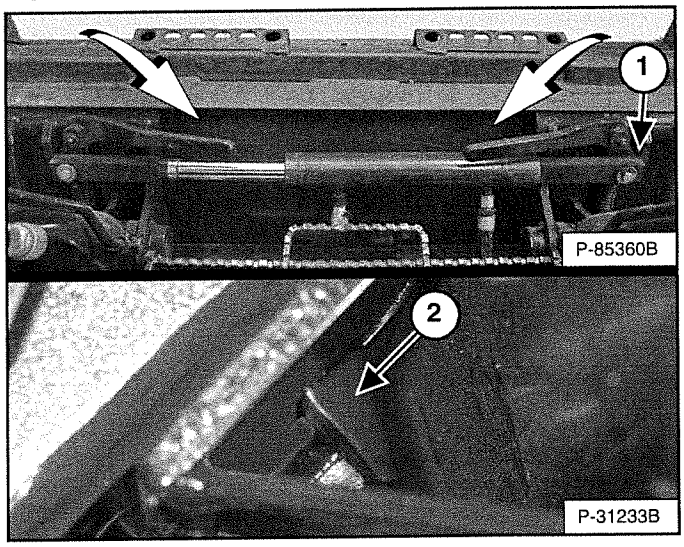


Figure 151



Push and hold BOB-TACH WEDGES "DOWN" switch (Right Switch Panel) **[Figure 150]** until levers are fully engaged in the locked position **[Figure 151]** (wedges fully extended through the attachment mounting frame holes).

Both levers must contact the frame as shown when locked (Item 1) **[Figure 151]**.

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

The wedges (Item 2) **[Figure 151]** 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

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

Removing

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

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

1. Stop the engine and exit the loader. (See STOPPING THE ENGINE AND LEAVING THE LOADER on Page 93.)

⚠ WARNING

AVOID INJURY OR DEATH

Before you leave the operator's seat:

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

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

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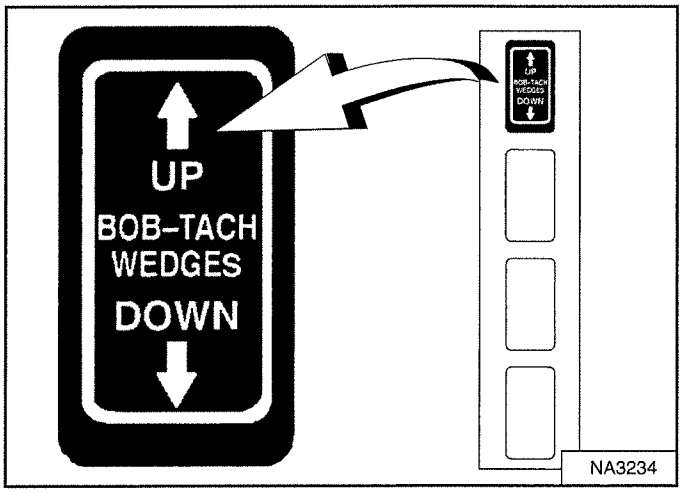
2. Disconnect attachment electrical harness and water or hydraulic lines, if applicable, from the loader. (See Relieve Auxiliary Hydraulic Pressure (Loader And Attachment) on Page 77.)

3. Enter the loader and perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 81.)

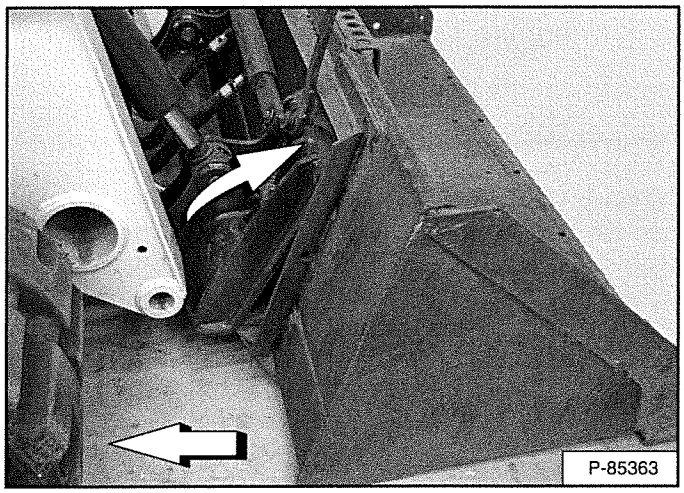
4. Start the engine, press the PRESS TO OPERATE LOADER button, and release the parking brake.

Figure 152



Push and hold BOB-TACH WEDGES "UP" switch (Right Switch Panel) **[Figure 152]** until levers are fully raised (wedges fully raised).

Figure 153



Tilt the Bob-Tach forward and drive the loader backward, away from the bucket or attachment **[Figure 153]**.

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") when removing an attachment to be sure both wedges are fully raised.

TRACK UNDERCARRIAGE SYSTEM

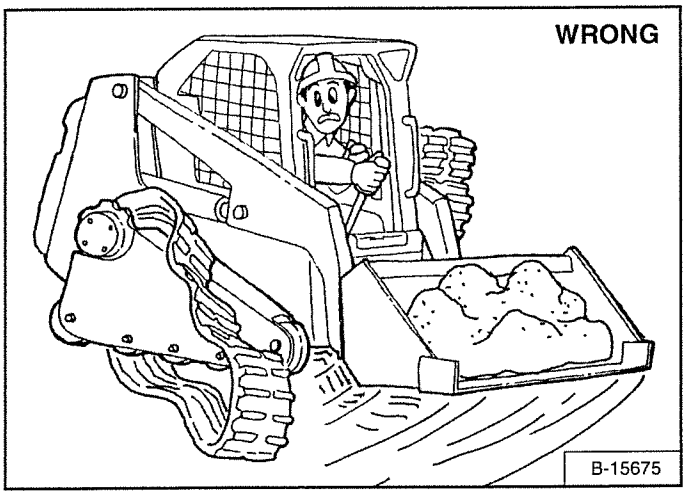
Introduction

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

Compact Track Loader Operating And Maintenance Tips

Track Tension: Correct track tension is important. If the tracks are too loose, they can easily derail. If they are too tight, they will wear faster and cause increased stress on the complete track carriage system. (See TRACK TENSION on Page 167.)

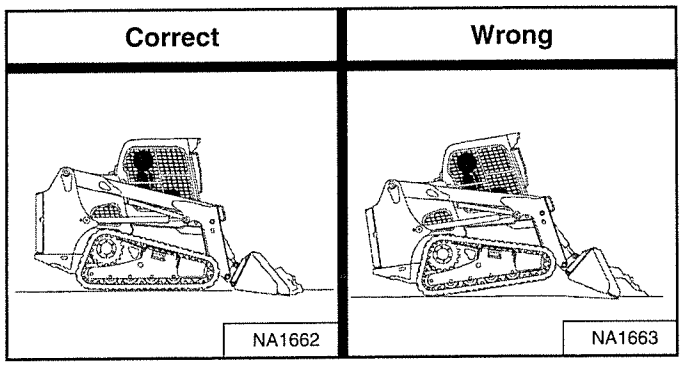
Figure 154



Turning: Use a gradual turn (one lever farther forward than the other) instead of a fast turn (one lever forward and one lever backward) on asphalt or concrete surfaces to prevent reduced track life or derailing of the tracks **[Figure 154]**.

Always carry the load low.

Figure 155

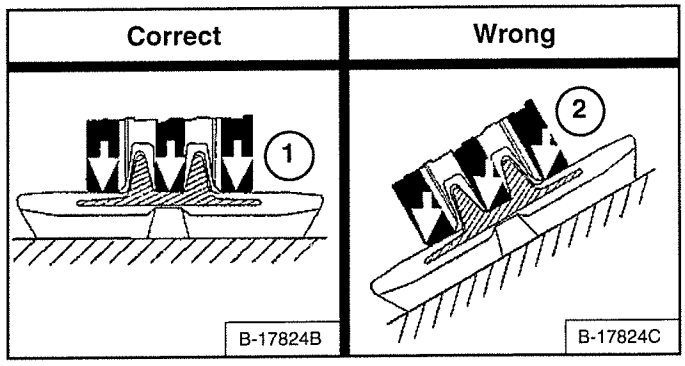


Digging And Leveling: Keep the full length of the tracks in contact with the ground **[Figure 155]** for best traction.

Raising the front end of the tracks off the ground **[Figure 155]** will reduce traction and cause increased track wear.

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

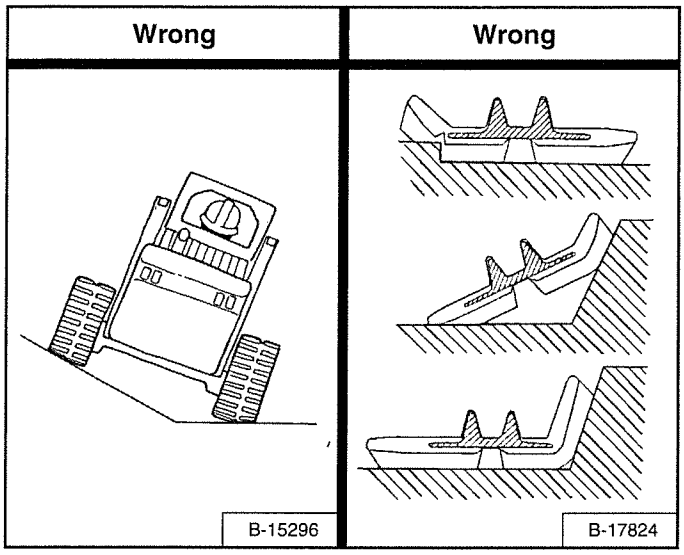
Figure 156



The track carriage components will wear faster when operated on a slope. When the machine is operated on a level surface, the weight of the machine is distributed throughout the entire surface of the rollers to the tracks (Item 1). When operated on a slope, the weight is directed to the edge of the rollers and against the lugs of the track (Item 2) **[Figure 156]** which causes increased wear.

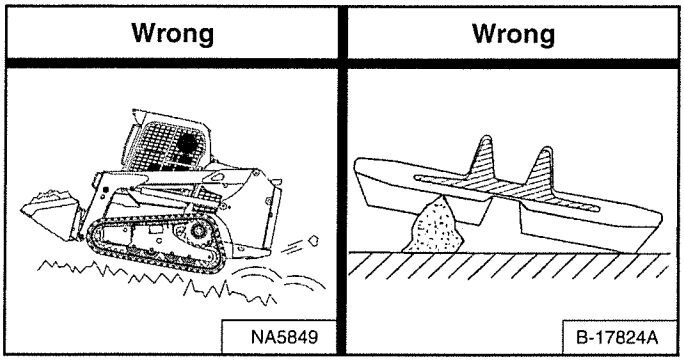
Compact Track Loader Operating And Maintenance Tips (Cont'd)

Figure 157



Operating Conditions: Avoid operating the loader with one track on a slope and the other on flat ground or with the end of the track turned up against a curb or mound **[Figure 157]**. This can cause the tracks to derail, cracks in the edge of the tracks, or cracks at the edges of the embedded metal.

Figure 158



Avoid operating or turning on sharp objects such as jagged rocks, broken concrete, quarry materials, or scrap applications. This can cause cuts on the lug surface of the tracks **[Figure 158]**.

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

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

It's All About The Tracks:

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

OPERATING PROCEDURE

Inspect The Work Area

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

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

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

Always check ground conditions before starting your work:

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

Basic Operating Instructions

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

IMPORTANT

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

I-2015-0284

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

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

Operating Near An Edge Or Water

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

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

⚠ WARNING

MACHINE TIPPING OR ROLLOVER CAN CAUSE SERIOUS INJURY OR DEATH

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

W-2018-1112

Driving On Public Roads

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

Operating With A Full Bucket

Figure 159

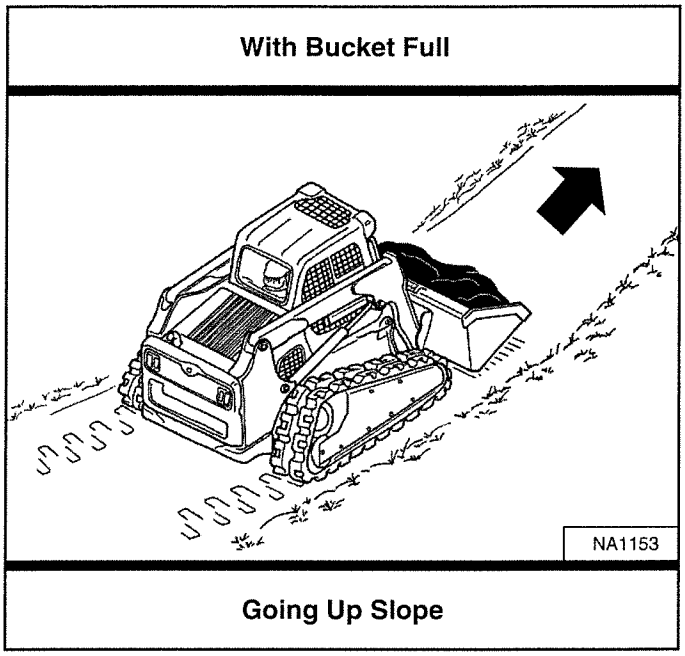
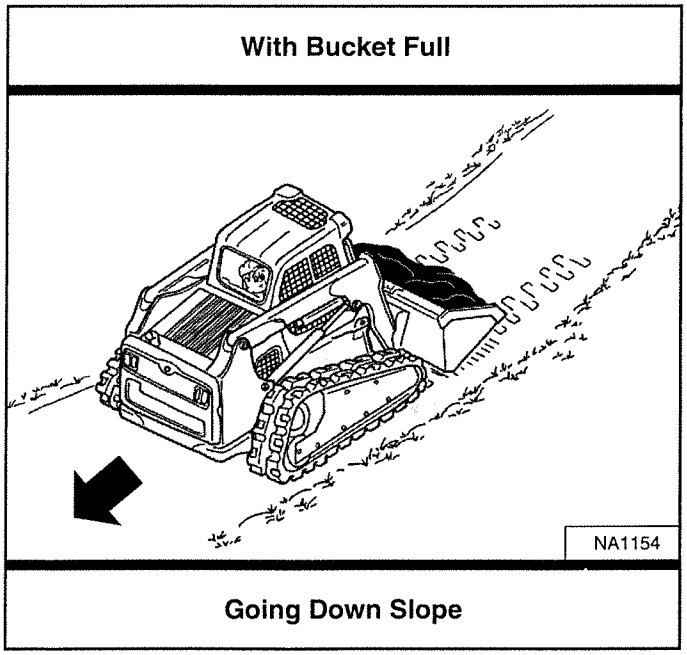


Figure 160



With a full bucket, go up or down the slope with the heavy end toward the top of the slope **[Figure 159]** and **[Figure 160]**.

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

Operating With An Empty Bucket

Figure 161

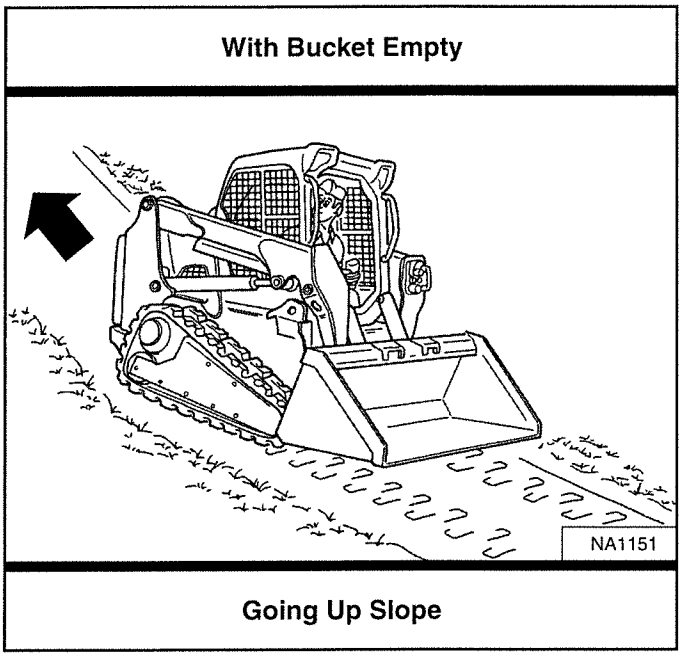
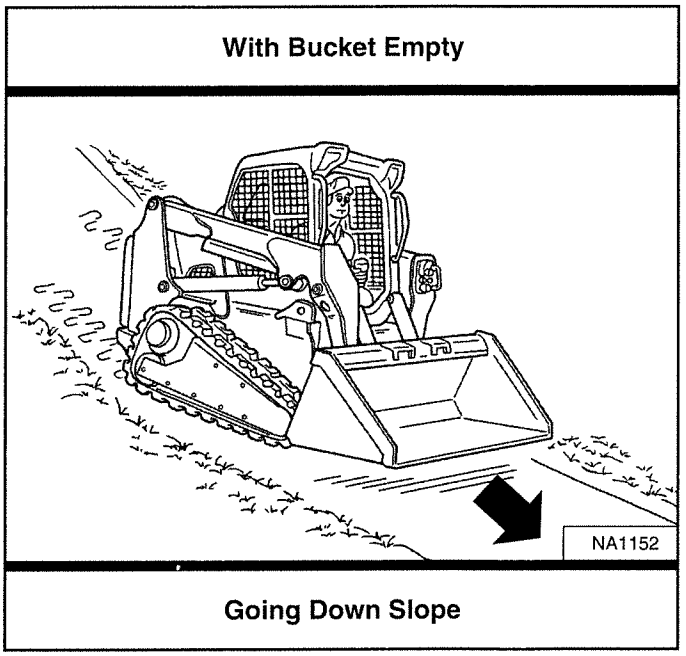


Figure 162



With an empty bucket, go up or down the slope with the heavy end toward the top of the slope **[Figure 161]** and **[Figure 162]**.

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

TOWING THE LOADER

Procedure

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

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

The towing chain (or cable) must be rated at 1.5 times the weight of the loader. (See Performance on Page 224.)

LIFTING THE LOADER

Single-Point Lift

⚠ WARNING

AVOID INJURY OR DEATH

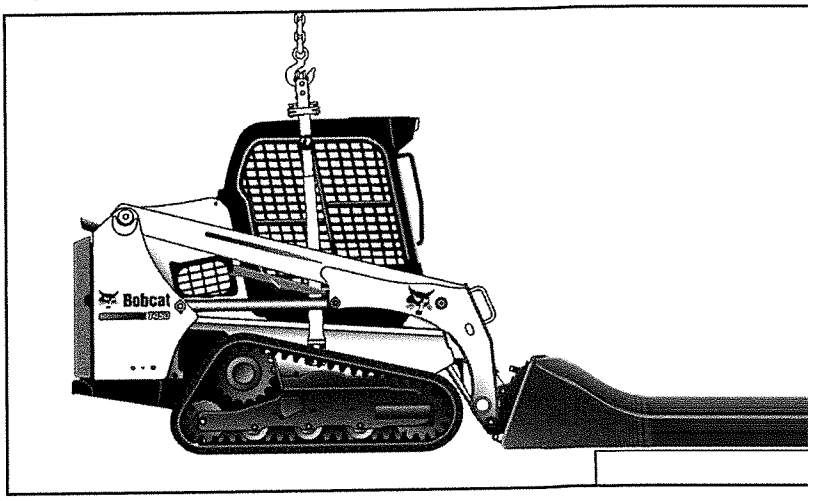
- **Before lifting, check fasteners on single p and operator cab.**
- **Assemble front cab fasteners as shown manual.**
- **Never allow riders in the cab or bystanders 5 m (15 ft) while lifting the machine.**

W-2

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

The Single-Point Lift, supplied by Bobcat, is desi lift and support the Bobcat loader without a rollover and falling object protection features operator cab.

Figure 163



Attach lift to lift eye **[Figure 163]**.

NOTE: Be sure the lifting equipment is of a size and capacity for the weight of the (See Performance on Page 224.)

Four-Point Lift

⚠ WARNING

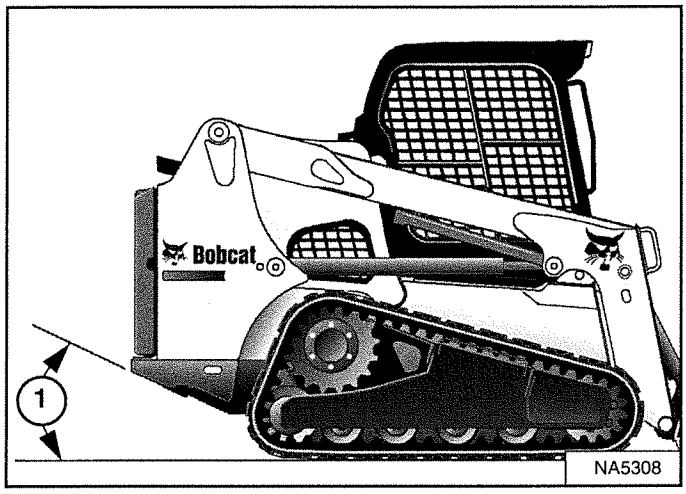
AVOID INJURY OR DEATH

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

W-2160-0910

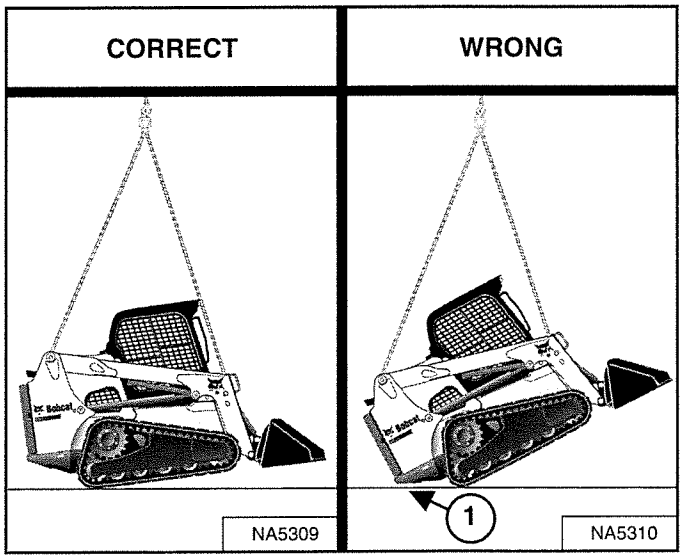
The loader can be lifted with the Four-Point Lift that is available as a kit from your Bobcat loader dealer.

Figure 164



NOTE: The loader should be lifted as close to horizontal as possible, but at no time should the angle of the suspended loader exceed the departure angle (Item 1) [Figure 164] provided in the specifications section. (See Machine Dimensions on Page 223.)

Figure 165



Attach cables or chains to lift eyes **[Figure 165]**.

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

NOTE: The required length of front and rear sling legs may or may not be equal depending on loader configuration. Departure angle (Item 1) [Figure 165] in this view has been exceeded, sling leg length must be adjusted to prevent this situation.

NOTE: Be sure the lifting equipment is of adequate size and capacity for the weight of the loader. (See Performance on Page 224.)

TRANSPORTING THE LOADER ON A TRAILER

Loading And Unloading

⚠ WARNING

AVOID SERIOUS INJURY OR DEATH

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

W-2058-0807

Be sure the transport and towing vehicles are of adequate size and capacity for weight of loader. (See Performance on Page 224.)

NOTE: Always disengage the auto idle feature when loading or unloading the loader on a trailer. (See AUTO IDLE on Page 48.)

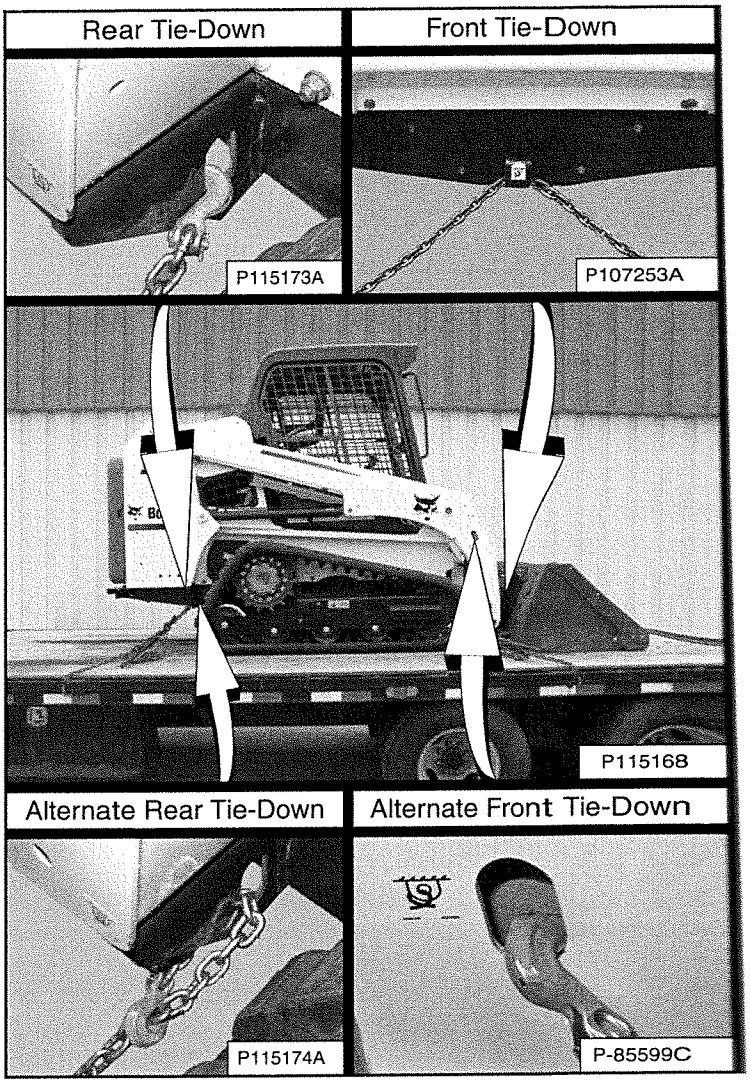
Figure 166

A loader with an empty bucket or no attachment must be loaded backward onto the transport vehicle **[Figure 166]**.

The rear of the trailer must be blocked or supported (Item 1) **[Figure 166]** when loading or unloading the loader to prevent the front end of the trailer from raising up.

Fastening

Figure 167



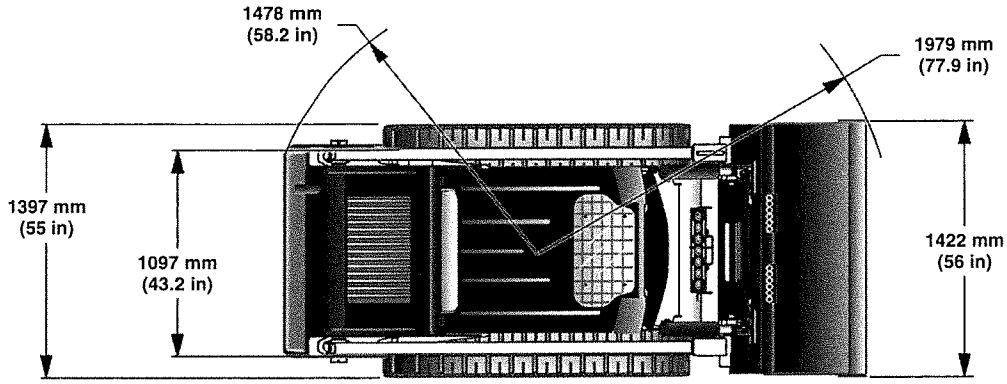
Use the following procedure to fasten the Bobcat loader to the transport vehicle to prevent the loader from moving during sudden stops, or when going up or down slopes **[Figure 167]**.

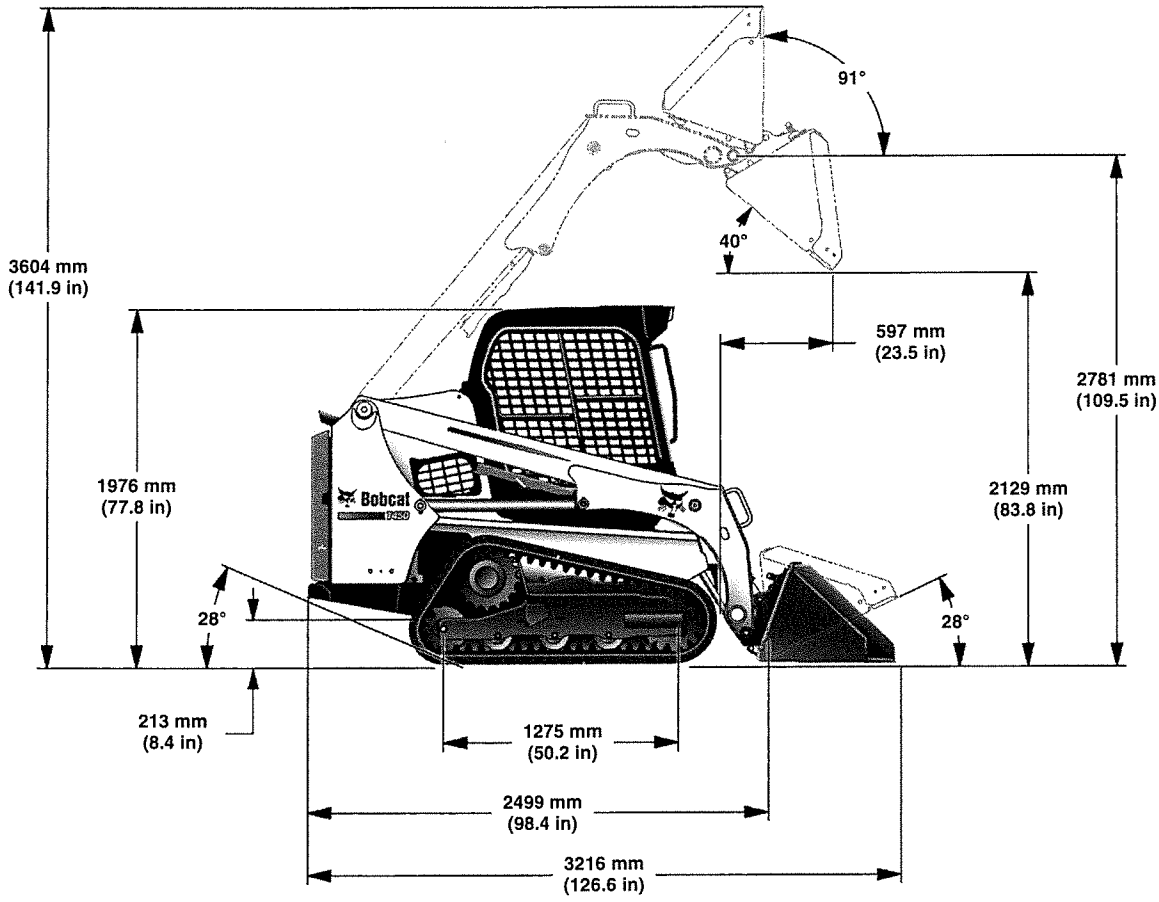
1. Lower the bucket or attachment to the floor.
2. Stop the engine.
3. Engage the parking brake.
4. Install chains at the front and rear loader tie-down positions **[Figure 167]**. (Lift arms shown raised for visual clarity.)
5. Fasten each end of the chain to the transport vehicle.
6. Use chain binders to tighten the chains.

(T450) LOADER SPECIFICATIONS

Machine Dimensions

- Dimensions are given for loader equipped with standard tracks and 56 in. Construction and Industrial bucket and may vary with other bucket types.
- Where applicable, specifications conform to SAE or ISO standards and are subject to change without notice.





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.

(T450) LOADER SPECIFICATIONS (CONT'D)

Performance

Rated Operating Capacity	635 kg (1400 lb)
with 200 Pound Frame Mounted Counterweight Kit	680 kg (1500 lb)
Tipping Load	1814 kg (4000 lb)
Operating Weight	2789 kg (6148 lb)
Breakout Force – Lift	1564 kg (3450 lb)
Breakout Force – Tilt	1627 kg (3588 lb)
Travel Speed:	
– Single Speed Loader	0 – 11,7 km/h (0 – 7.3 mph)
– Two-Speed Loader (Option):	
Low Range	0 – 11,7 km/h (0 – 7.3 mph)
High Range	0 – 17,7 km/h (0 – 11.0 mph)

Engine

Make / Model	Bobcat Engine / 2,4L Bobcat Engine Tier 4
Fuel / Cooling	Diesel / Liquid
Horsepower:	
– ISO 9249 EEC / SAE J1349 Net	43,4 kW (58.2 hp) @ 2600 rpm
– ISO 14396 Gross	45,5 kW (61.1 hp) @ 2600 rpm
– SAE J1995 Gross	46,2 kW (61.9 hp) @ 2600 rpm
– Rated Power	45,5 kW (61.0 hp) @ 2600 rpm
Torque:	
– ISO 9249 EEC / SAE J1349 Net	213,5 N•m (157.5 ft-lb) @ 1800 rpm
– ISO 14396 Gross	225,2 N•m (166.1 ft-lb) @ 1800 rpm
– SAE J1995 Gross	228,2 N•m (168.3 ft-lb) @ 1800 rpm
– Rated Torque	225,1 N•m (166.0 ft-lb) @ 1800 rpm
Low Idle rpm	1125 – 1175
High Idle rpm	2600
Number of Cylinders	4
Displacement	2392,5 cm^3 (146.0 in^3)
Bore / Stroke	90 mm / 94 mm (3.54 in / 3.70 in)
Lubrication	Gear Pump Pressure System with Filter
Crankcase Ventilation	Closed Breathing
Air Cleaner	Dry replaceable paper cartridge with separate safety element
Ignition	Diesel – Compression
Air Induction	Turbo-Charged and Charged Air Cooled
Engine Coolant	Propylene Glycol / Water Mixture
Starting Aid	Glow plugs automatically activated as needed in RUN position

(T450) LOADER SPECIFICATIONS (CONT'D)

Drive System

Main Drive	Fully hydrostatic, rubber track drive
Transmission	Infinitely variable tandem hydrostatic piston pumps, driving two fully reversing hydrostatic motors
Tracks (Tension)	Grease cylinder and spring

Controls

Machine Steering	Direction and speed controlled by two hand operated steering levers or optional joystick(s)
Loader Hydraulics: – Lift and Tilt – Front Auxiliary – Rear Auxiliary (Option)	 Controlled by separate foot pedals or optional Advanced Control System (ACS) or optional Selectable Joystick Controls (SJC) Controlled by electrical switch on Right Hand steering lever or joystick Controlled by electrical switch on Left Hand steering lever or joystick
Auxiliary Pressure Release	Pressure relieved through quick couplers; Push couplers in, hold for 5 seconds
Engine	Hand operated speed control, additional foot operated speed control pedal with SJC option; key-type start switch or optional Keyless Start Panel or optional Deluxe Instrumentation Panel and function error shutdown
Service Brake	Two independent hydrostatic systems controlled by two hand operated steering levers or optional joystick(s)
Secondary Brake	One of the hydrostatic transmissions
Parking Brake	Spring applied pressure release multiple-disc brake activated by manually operated switch on left instrument panel

(T450) LOADER SPECIFICATIONS (CONT'D)

Hydraulic System

Pump Type	Engine driven, gear type
Pump Capacity	63,2 L/min (16.7 U.S. gpm)
System Relief at Quick Couplers	22,4 – 23,1 MPa (224 – 231 bar) (3250 – 3350 psi)
Filter (Hydraulic / Hydrostatic)	Replaceable beta 10 micron = 200, drop in element
Filter (Charge)	Replaceable beta 10 micron = 200, spin-on element
Hydraulic Cylinders:	Double-acting; lift cylinders have cushioning feature on lower, tilt cylinders have cushioning feature on dump and rollback
Lift Cylinder (2):	
Bore Diameter	50,8 mm (2.00 in)
Rod Diameter	31,8 mm (1.25 in)
Stroke	665,2 mm (26.19 in)
Tilt Cylinder (2):	
Bore Diameter	60,4 mm (2.38 in)
Rod Diameter	31,8 mm (1.25 in)
Stroke	353,8 mm (13.93 in)
Control Valve – Standard	3-Spool, open center, manually operated with spring detent for lift float; Electrically controlled auxiliary spool
Control Valve – ACS and SJC	3-Spool, open center with electric actuator controlled lift with float and tilt; Electrically controlled auxiliary spool
Fluid Lines	SAE Standard tubelines, hoses, and fittings
Fluid Type	BOBCAT FLUID, Hydraulic / Hydrostatic 6903117 – (Two – 2.5 U.S. gal) 6903118 – (5 U.S. gal) 6903119 – (55 U.S. gal)
Hydraulic Function Time:	
Raise Lift Arms	2.6 seconds
Lower Lift Arms	2.4 seconds
Bucket Dump	2.0 seconds
Bucket Rollback	1.5 seconds

(T450) LOADER SPECIFICATIONS (CONT'D)

Electrical System

Alternator	Belt driven, 90 amperes, open frame
Battery	12 volt, 700 cold cranking amperes @ -18°C (0°F), 110 minute reserve capacity @ 25 amperes
Starter	12 volt, gear type, 2,7 kW (3.62 hp)
Instrumentation	**Gauges:** Engine Coolant Temperature and Fuel Level **Warning lights:** Fuel Level, Seat Belt, Engine Coolant Temperature, Engine Malfunction, Hydraulic System Malfunction, Diesel Particulate Filter (DPF) / Diesel Exhaust Fluid (DEF), and General Warning **Indicators:** BICS™ Functions, Two-Speed, 3-Point Restraint, and Turn Signals **Data Display:** Operating Hours, Engine rpm, Speed Management Setting, Maintenance Clock Countdown, Battery Voltage, Service Codes, Engine Preheat Countdown, Lift and Tilt Compensation Setting, Steering Drift Compensation Setting, and Drive Response Setting **Other:** Audible Alarm, Lights, and Option / Accessory Switches **Optional Deluxe Instrumentation Panel:** *Additional displays for: Engine rpm, Engine Coolant Temperature, Engine Oil Pressure, System Voltage, Hydraulic Fluid Temperature, and Hydrostatic Charge Pressure *Additional Features Included: Keyless Start, Digital Clock, Job Clock, Password Lockout, Multiple-Language Display, Help Screens, Diagnostic Capability, and Engine / Hydraulic Systems Shutdown Function

Capacities

Fuel	65,5 L (17.3 U.S. gal)
Engine Oil with Filter Change	8,6 L (9.1 qt)
Engine Cooling System with Heater	12,3 L (3.2 U.S. gal)
Engine Cooling System without Heater	11,3 L (3.0 U.S. gal)
Hydraulic / Hydrostatic Reservoir	5,3 L (1.4 U.S. gal)
Hydraulic / Hydrostatic System	21,0 L (5.5 U.S. gal)
Hydrostatic Drive Motor (Each)	345 - 375 mL (11.7 - 12.7 U.S. fl oz)
Air Conditioning Refrigerant (R-134a)	0,9 kg (2.0 lb)

(T450) LOADER SPECIFICATIONS (CONT'D)

Tracks

Standard	300 mm (11.8 in) Rubber, C-Pattern

Ground Pressure

Standard Track – 300 mm (11.8 in)	0,032 MPa (0,32 bar) (4.66 psi)