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# Bobcat®

## Operation & Maintenance Manual

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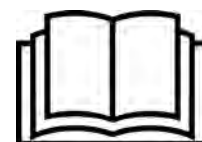


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# T650

## Compact Track Loader

S/N A3P114001 & Above



# OPERATOR SAFETY WARNINGS

## WARNING

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

W-2001-0502

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

**CORRECT**

P-90216

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

**CORRECT**

NA1254

**! Always use the seat bar and fasten seat belt snugly.**  
**! Always keep feet on the foot pedals or footrests when operating loader.**

**CORRECT**

NA1720

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

**WRONG**

NA1723

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

**WRONG**

NA1724

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

**WRONG**

NA1721

**! Never carry riders.**  
**! Keep bystanders away from work area.**

**WRONG**

NA1716

**! Always carry bucket or attachments as low as possible.**  
**! Do not travel or turn with lift arms up.**  
**! Load, unload, and turn on flat level ground.**

**WRONG**

NA1718

**! Never exceed Rated Operating Capacity.**

**WRONG**

NA1719

**! Never leave loader with engine running or with lift arms up.**  
**! To park, engage parking brake and put attachment flat on the ground.**

**WRONG**

NA1717

**! Never modify equipment.**  
**! Use only attachments approved by Bobcat Company for this model loader.**

## SAFETY EQUIPMENT

The Bobcat® loader must be equipped with safety items necessary for each job. Ask your 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)

# CONTENTS

FOREWORD .....	2
SAFETY AND TRAINING RESOURCES .....	13
OPERATING INSTRUCTIONS .....	31
PREVENTIVE MAINTENANCE .....	125
SYSTEM SETUP AND ANALYSIS .....	209
SPECIFICATIONS .....	225
WARRANTY .....	237
ALPHABETICAL INDEX .....	240

## REFERENCE INFORMATION

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

Loader Serial Number \_\_\_\_\_  
Engine Serial Number \_\_\_\_\_

NOTES:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

YOUR BOBCAT DEALER:

ADDRESS:

PHONE:

\_\_\_\_\_



Bobcat Company  
P.O. Box 128  
Gwinner, ND 58040-0128  
UNITED STATES OF AMERICA

Doosan Bobcat EMEA s.r.o.  
U Kodetky 1810  
263 12 Dobris  
CZECH REPUBLIC

## FOREWORD

This Operation & Maintenance Manual was written to give the owner / operator instructions on the safe operation and maintenance of the Bobcat loader. READ AND UNDERSTAND THIS OPERATION & MAINTENANCE MANUAL BEFORE OPERATING YOUR BOBCAT LOADER. If you have any questions, see your Bobcat dealer. This manual may illustrate options and accessories not installed on your loader.


DECLARATION OF CONFORMITY .....	3
BOBCAT COMPANY IS ISO 9001 CERTIFIED .....	5
REGULAR MAINTENANCE ITEMS .....	5
Fluids, Lubricants And Fuel .....	6
SERIAL NUMBER LOCATIONS .....	7
Loader Serial Number .....	7
Engine Serial Number .....	7
DELIVERY REPORT .....	7
LOADER IDENTIFICATION .....	8
FEATURES, ACCESSORIES AND ATTACHMENTS .....	9
Standard Items .....	9
Options And Accessories .....	9
Buckets Available .....	10
Attachments .....	10
High-Flow Attachments .....	10
Special Applications Kit .....	11
Special Applications Kit Inspection And Maintenance .....	11
Forestry Door And Window Kit .....	12
Forestry Door And Window Kit Inspection And Maintenance .....	12

**DECLARATION OF CONFORMITY**

**Contents of EC Declaration of Conformity**

This information is provided in the operators manual to comply with clause 1.7.4.2(c) of Annex I of Machinery Directive 2006/42/EC.

The official EC Declaration of Conformity is supplied in a separate document.

<p><b>Manufacturer</b></p>  <p>Bobcat Company World Headquarters 250 East Beaton Drive West Fargo, ND 58078-6000 UNITED STATES OF AMERICA</p>	<p><b>Directive 2000/14/EC: Noise Emission in the Environment by Equipment For Use Outdoors</b></p> <p><b>Notified Body</b> Technical and Test Institute for Construction Prague, Czech Republic Notified Body Number: 1020</p> <p><b>EC Certificate No.</b> 1020-090-022395</p>				
<p><b>Technical Documentation</b> Homologation Manager Doosan Bobcat EMEA s.r.o. U Kodetky 1810 263 12 Dobris CZECH REPUBLIC</p>	<p><b>Conformity Assessment Procedure(s)</b> 2000/14/EC, Annex VIII, Full Quality Assurance</p> <p><b>Sound Power Levels [Lw(A)]</b></p> <table data-bbox="836 1048 1426 1106"> <tr> <td>Measured Sound Power</td> <td><b>101 dBA</b></td> </tr> <tr> <td>Guaranteed Sound Power</td> <td><b>103 dBA</b></td> </tr> </table>	Measured Sound Power	<b>101 dBA</b>	Guaranteed Sound Power	<b>103 dBA</b>
Measured Sound Power	<b>101 dBA</b>				
Guaranteed Sound Power	<b>103 dBA</b>				
<p><b>Description of Equipment</b> Type of Equipment: Crawler Loader Model Name: T650 Model Code: A3P1 Lot Series: 11001</p> <p>Engine Manufacturer: Kubota Engine Model: V3307-DI-T-EU3 Engine Power: 54,6 kW @ 2400 RPM</p>	<p><b>Equipment conforms to CE Directive(s) Listed Below</b> 2006/42/EC: Machinery Directive 2004/108/EC: Electromagnetic Compatibility Directive</p>				
<p><b>Declaration of Conformance</b> This equipment conforms to the requirements specified in all the EC Directives listed in this declaration.</p>					
<p><b>Effective From:</b>  24 May 2010</p>					

## DECLARATION OF CONFORMITY (CONT'D)



Homologation Manager  
Doosan Bobcat Engineering s.r.o.  
U Kodetky 1978  
26312 Dobris  
Czech Republic

### Declaration of conformity with Article 14 of Regulation (EU) No 517/2014 of the European Parliament and of the Council

We Doosan Bobcat EMEA s.r.o. with VAT number CZ26489201, acting in its capacity as EU only representative for the import of goods from Doosan Infracore Co., Ltd with its address at Doosan Tower, 275, Jangchungdan-ro, Jung-gu, Seoul, 100-730, Korea, declare under our sole responsibility that when placing on the market pre-charged equipment, which we import to or manufacture in the Union, the hydrofluorocarbons contained in that equipment are accounted for within the quota system referred to in Chapter IV of Regulation (EU) No 517/2014 as:

A. we hold authorisation(s) issued in accordance with Article 18(2) of Regulation (EU) No 517/2014 and registered in the registry referred to in Article 17 of that Regulation, at the time of release for free circulation to use the quota of a producer or importer of hydrofluorocarbons subject to Article 15 of Regulation (EU) No 517/2014 that cover(s) the quantity of hydrofluorocarbons contained in the equipment.

B. *[for importers of equipment only]* the hydrofluorocarbons contained in the equipment have been placed on the market in the Union, subsequently exported and charged into the equipment outside the Union, and the undertaking that placed the hydrofluorocarbons on the market made a declaration stating that the quantity of hydrofluorocarbons has been or will be reported as placed on the market in the Union and that it has not been and will not be reported as direct supply for export in the meaning of Article 15(2)(c) of Regulation (EU) No 517/2014 pursuant to Article 19 of Regulation (EU) No 517/2014 and Section 5C of the Annex to Commission Implementing Regulation (EU) No 1191/2014 (2).

C. *[for equipment manufactured in the Union only]* the hydrofluorocarbons charged into the equipment were placed on the market by a producer or importer of hydrofluorocarbons subject to Article 15 of Regulation (EU) No 517/2014.

Dobroslav Rak

30th January, 2017

Doosan Bobcat EMEA s.r.o. | Identification No. 264 89 201 | Prague Commercial Register Section C, Entry 85459



**BOBCAT COMPANY IS ISO 9001 CERTIFIED**













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

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

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

**REGULAR MAINTENANCE ITEMS**

 <p><b>ENGINE OIL FILTER (6 Pack)</b> 6678233</p>	 <p><b>BATTERY</b> 7269857</p>
 <p><b>FUEL FILTER</b> 6667352</p>	 <p><b>HYDRAULIC FILTER</b> 7002734 (Hex Head Filter Cap) 7012314 (Square Head Filter Cap) 7248874 (Bolt-on Filter Cap)</p>
 <p><b>AIR FILTER, Outer</b> 7008043</p>	 <p><b>HYDRAULIC CHARGE FILTER</b> 6692337 (Earlier Models) 7319444 (Later Models)</p>
 <p><b>AIR FILTER, Inner</b> 7008044</p>	 <p><b>HYDRAULIC FILL / BREATHER CAP</b> 6727475</p>
 <p><b>FLUID, Hydrostatic Drive Motor (Six or Eight Sprocket Nuts)</b> 7024981 - 8 U.S. fl oz</p>	 <p><b>FLUID, Hydrostatic Drive Motor (Sixteen Sprocket Bolts)</b> 7270874 - 12 U.S. fl oz</p>

**NOTE: Always verify Part Numbers with your Bobcat dealer.**

## REGULAR MAINTENANCE ITEMS (CONT'D)

### Fluids, Lubricants And Fuel

The fluids, lubricants and fuel described below are those used in the factory and apply to operating conditions in European temperate climate areas. Please see your Bobcat dealer for requirements in other climate areas.

Read and understand the preventive maintenance required before adding or replacing any fluids or lubricants. (See PREVENTIVE MAINTENANCE on Page 125.)

ENGINE SYSTEMS				
Machine Components	Fluids And Lubricants	T° Range	Packaging**	Part Number
Engine	- Bobcat Engine Power SAE 10W30 CI4 / ACEA E7	-35°C - +30°C	A, B, C, D	6987789
	- Bobcat Engine Power SAE 15W40 CI4 / ACEA E7	-20°C - +40°C	A, B, C, D	6987790
	- Bobcat Engine Power SAE 10W30 CJ4 / ACEA E9	-25°C - +30°C	A, B, C, D	6987818*
	- Bobcat Engine Power SAE 15W40 CJ4 / ACEA E9	-20°C - +40°C	A, B, C, D	6987819
Cooling Circuit	- Bobcat PG Coolant Concentrated	-36°C	B, C, D	6987813*
	- Bobcat PG Coolant 4 Seasons	-36°C	A, B, C, D	6987793
Fuel Tank	- High-quality diesel fuel that meets EN590 (See FUEL SYSTEM on Page 154.)	-	-	*

HYDRAULIC / HYDROSTATIC SYSTEMS				
Machine Components	Fluids And Lubricants	T° Range	Packaging**	Part Number
Hydraulic Fluid Tank	- Bobcat Superior SH Hydraulic / Hydrostatic	-35°C - +50°C	A, B, C, D	6987791*
	- Bobcat Biodegradable Hydraulic / Hydrostatic	-35°C - +50°C	A, B, C, D	6987792

MECHANICAL SYSTEMS				
Machine Components	Fluids And Lubricants	Drop Point	Packaging**	Part Number
All Mechanical Systems	- Bobcat Multipurpose Grease	From 260°C	E	6987888*
	- Bobcat Supreme HD Grease	From 280°C	E	6987889
	- Bobcat Extreme HP Grease	From 260°C	E	6987890

(\*) Factory Filled Fluids And Lubricants

(\*\*) Packaging Available:

A = 5 L Can

B = 25 L Container

C = 209 L Drum

D = 1000 L Tank

E = 400 g Tube

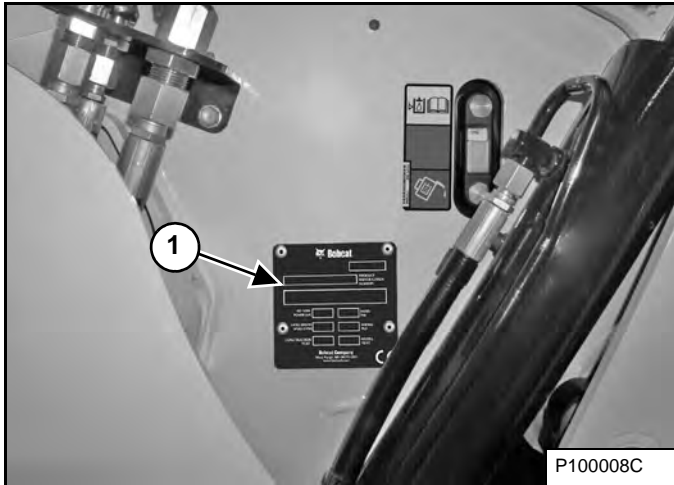


## SERIAL NUMBER LOCATIONS

Always use the serial number of the loader when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to use a different procedure in doing a specific service operation.

### Loader Serial Number

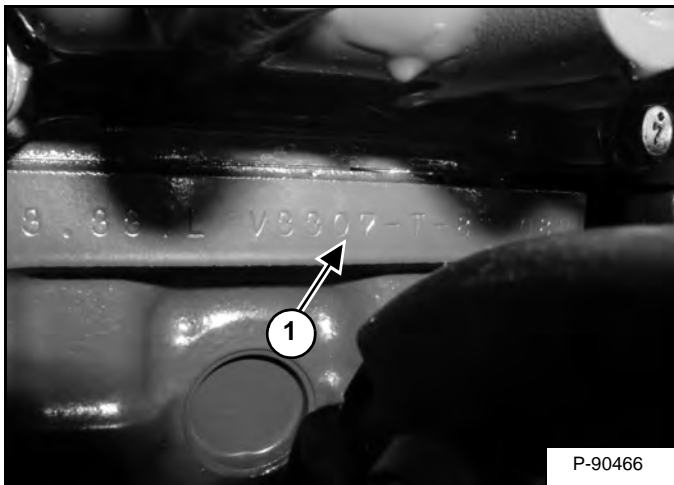
Figure 1



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

### Engine Serial Number

Figure 2



The engine serial number is located on the side of the engine (Item 1) [Figure 2] behind the alternator.

## DELIVERY REPORT

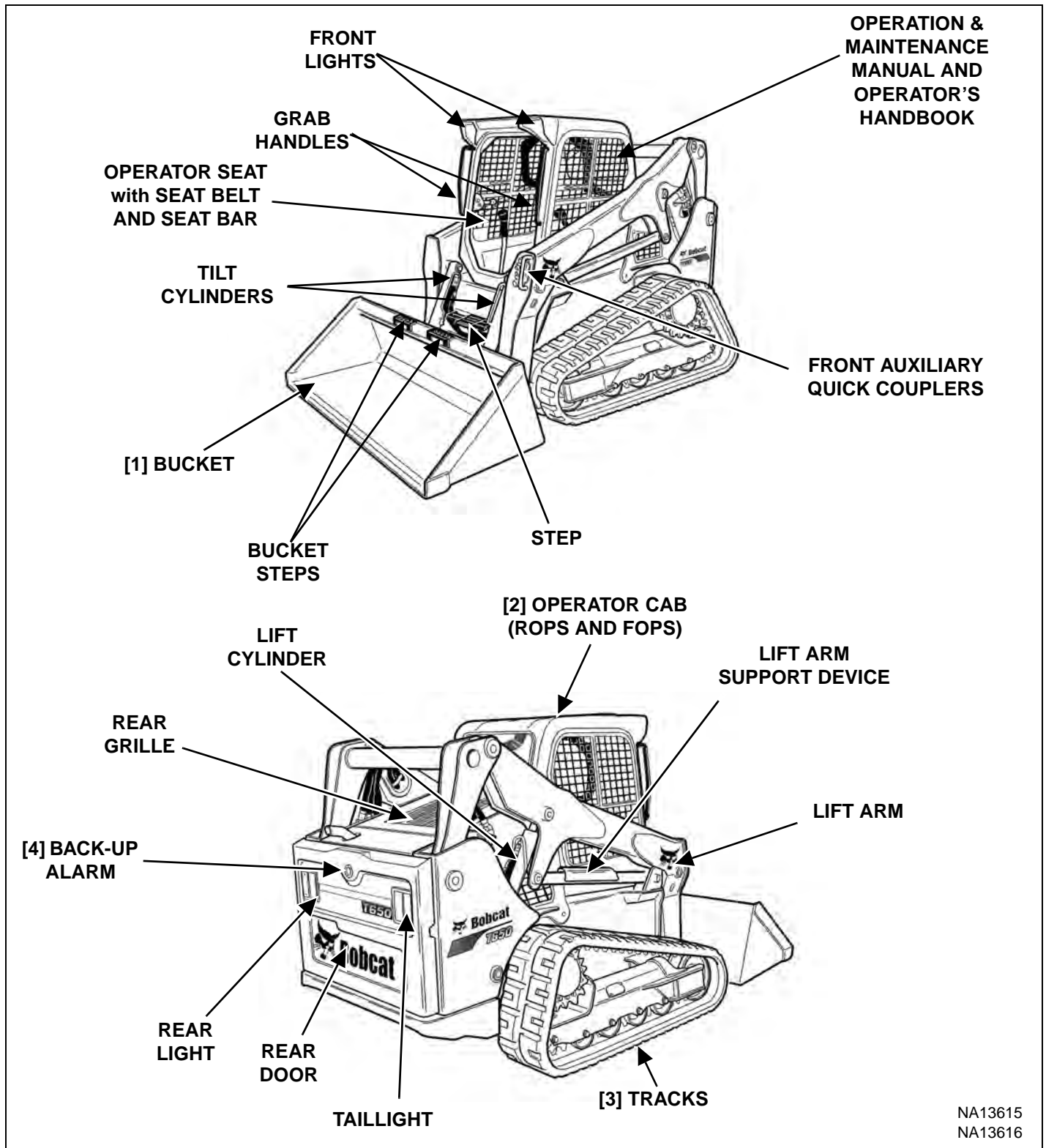
Figure 3

A diagram of a delivery report form. The form is divided into several sections. At the top right is a section titled 'DELIVERY REPORT' with several lines for text. Below this is a section titled 'WARNING' with a large area of horizontal lines for text. At the bottom right of the form is a small white box containing the text 'B-16315'.

The delivery report [Figure 3] contains a list of items that must be explained or shown to the owner or operator by the dealer when the Bobcat loader is delivered.

The delivery report must be reviewed and signed by the owner or operator and the dealer.

## LOADER IDENTIFICATION



NA13615  
NA13616

- [1] BUCKETS - Several different buckets and other attachments are available for the Bobcat loader.
- [2] ROPS - Roll-Over Protective Structure per ISO 3471 and FOPS - Falling-Object Protective Structure per ISO 3449, Level I. Level II is available.
- [3] TRACKS - Optional tracks are available.
- [4] Optional or Field Accessory. (Not Standard Equipment.)

## FEATURES, ACCESSORIES AND ATTACHMENTS

### Standard Items

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

- Access Covers
- Adjustable Suspension Seat
- Automatically Activated Glow Plugs
- Auxiliary Hydraulics
- Bobcat Interlock Control System (BICS™)
- Bob-Tach®
- Cab (includes: rear and side windows and polycarbonate top window) ROPS and FOPS (Level I) Approved
- Cab Accessory Harness
- CE Certification
- Deluxe Interior with Storage Compartments
- Engine / Hydraulic Systems Shutdown
- Front Horn
- Instrumentation: Hourmeter, RPM, System Voltage; Engine Temperature and Fuel Gauges; Warning Lights
- Lift Arm Support Device
- Lights, Front and Rear
- Parking Brake
- Seat Bar
- Seat Belt
- Sound Reduction Kit (Reduces noise at operator ear)
- Spark Arrester Muffler
- Tailgate Lock
- Tracks, Rubber - 450 mm (17.7 in)
- Turbo-Charger

### Options And Accessories

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

- Adjustable Heated Cloth Air Ride Suspension Seat
- Air Conditioning
- Air Deflector Kit
- Air Filter Precleaner
- Attachment Control Device (ACD) (7-Pin, 14-Pin)
- Automatic Ride Control
- Auxiliary Hydraulic Coupler Guard
- Back-up Alarm
- Bucket Shields
- Cab Door with Emergency Exit
- Cab Enclosure
- Cab Heater
- Cab Reseal Plug Kit
- Controls:
  - Advanced Control System (ACS)  
(Selectable Foot Pedal or Hand Control)
  - Advanced Hand Controls (AHC)
  - Selectable Joystick Controls (SJC)  
(Selectable 'ISO' or 'H' Pattern Control)
  - Standard Controls

### Options And Accessories (Cont'd)

- Counterweight Kit
- Deluxe Instrumentation Panel
- Dual Steering Damper
- Engine Compartment Seal Kit
- Exhaust Purifying Muffler
- Extended Pedals
- Fire Extinguisher
- Foot Area Duct Kit
- FOPS Kit (Level II)
- FOPS Window Kit
- Forestry Door and Window Kit
- Four-Way Flashers (Also adds Turn Signal function)
- Front and Rear Light Guards
- Fuel Sediment Bowl Kit
- High-Flow Auxiliary Hydraulics
- Hydraulic Bucket Positioning (Includes On / Off Selection)
- Isolated Rear Pump Support
- Keyless Start
- Lift Cylinder Cushion Kit
- Lift Kit (Four-Point, Single-Point)
- Lights Extension Kit for Wide Attachments
- Locking Fuel Cap
- Maintenance Platform
- Muffler Guard
- Power Bob-Tach®
- Radio
- Rear Auxiliary Hydraulics
- Rear Bumper Kit
- Rear Camera Kit
- Rear Window Wiper
- Reversing Fan
- Road Kit
- Rotating Beacon
- Seat Belt with 3-Point Restraint (Standard on Two-Speed Models)
- Seat Belt - 3 in. Wide
- Seat Belt - Retractable
- Side Lighting
- Special Applications Kit
- Strobe Light
- Tilt Cylinder Guard Kit
- Tracks, Multi-Bar Lug – 450 mm (17.7 in)
- Two-Speed Travel
- Undercarriage:
  - Roller Suspension™
  - Solid-Mounted
- Undercarriage Cover Kit
- Windows:
  - Polycarbonate Rear Window
  - Polycarbonate Side Windows

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

## FEATURES, ACCESSORIES AND ATTACHMENTS (CONT'D)

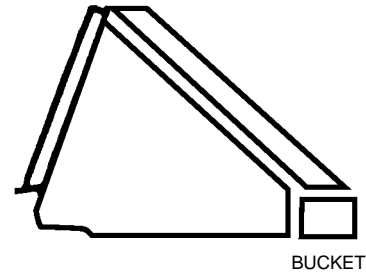
These and other attachments are approved for use on this model loader. Do not use unapproved attachments. Attachments not manufactured by Bobcat may not be approved.

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

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

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

### Buckets Available



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

---

### Attachments

- Angle Broom
- Auger
- Backhoe
- Blades
  - Box Blade
  - Dozer Blade
  - Snow Blade
  - Snow V-Blade
- Breaker, Hydraulic
- Brush Saw
- Buckets
- Combination Bucket
- Concrete Mixer
- Concrete Pump
- Drop Hammer
- Dumping Hopper
- Flail Cutter
- Forks, Utility
- Grader
- Grapple; Industrial, Root, Utility
- Landplane
- Landscape Rake
- Laser Equipment
- Mixing Bucket
- Packer Wheel
- Pallet Fork
- Planer
- Rear Stabilisers
- Rock Bucket
- Rotary Cutter (Brushcat™)
- Rotary Grinder
- Sand Cleaner
- Scarifier
- Scraper
- Snow Pusher
- Snowblower
- Sod Layer
- Soil Conditioner
- Spreader
- Stump Grinder
- Sweeper
- Tiller
- Tree Transplanter
- Trench Compactor
- Trencher
- Utility Frame
- Vibratory Roller
- Water Kit
- Whisker Push Broom
- X-Change™ Frame

### High-Flow Attachments

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

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

## FEATURES, ACCESSORIES AND ATTACHMENTS (CONT'D)

### Special Applications Kit

# WARNING

### AVOID INJURY OR DEATH

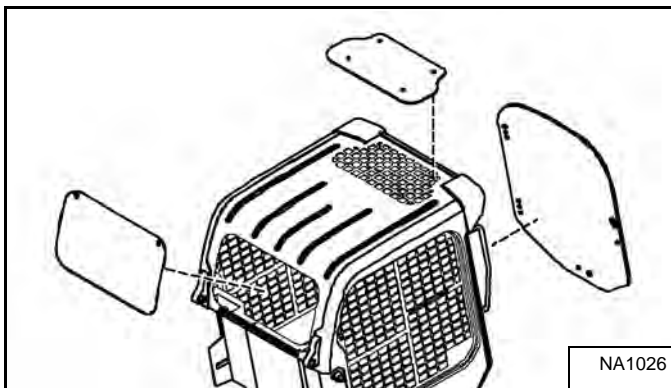
Some attachment applications can cause flying debris or objects to enter front, top or rear cab openings. Install the Special Applications Kit to provide added operator protection in these applications.

W-2737-0508

### Special Applications Kit Inspection And Maintenance

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

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].

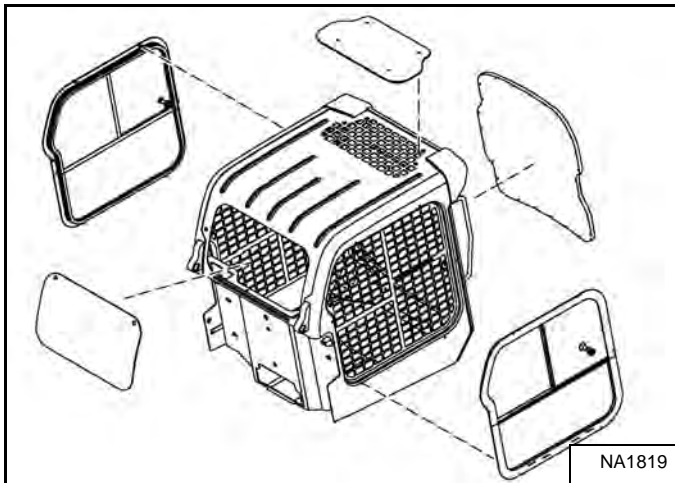
Polycarbonate top window (standard item) must be installed for special applications to restrict material from entering cab openings.

See your Bobcat dealer for availability.

## FEATURES, ACCESSORIES AND ATTACHMENTS (CONT'D)

### Forestry Door And Window Kit

Figure 5



Must be used as part of the Forestry Applications Kit to prevent flying debris and objects from entering the loader. Kit includes 19,1 mm (0.75 in) thick laminated polycarbonate front door, polycarbonate side windows and polycarbonate rear window [Figure 5].

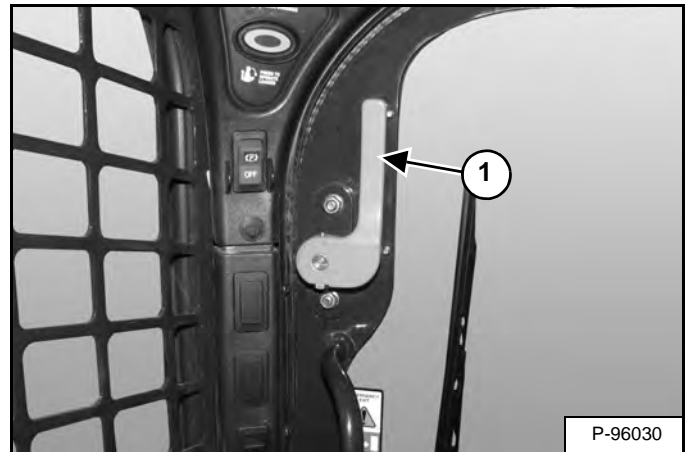
Polycarbonate top window (standard item) must be installed as part of the Forestry Applications Kit to restrict material from entering cab openings.

### Forestry Door And Window Kit Inspection And Maintenance

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

### Forestry Door Emergency Exit

Figure 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 .....	14
Before Operation .....	14
Safe Operation Is The Operator's Responsibility .....	15
Safe Operation Needs A Qualified Operator .....	15
Avoid Silica Dust .....	16
FIRE PREVENTION .....	16
Maintenance .....	16
Operation .....	16
Electrical .....	16
Hydraulic System .....	17
Fueling .....	17
Starting .....	17
Spark Arrester Exhaust System .....	17
Welding And Grinding .....	17
Fire Extinguishers .....	17
PUBLICATIONS AND TRAINING RESOURCES .....	18
MACHINE SIGNS (DECALS) .....	19
Pictorial Only Safety Signs .....	21

## **SAFETY INSTRUCTIONS**

### **Before Operation**

Carefully follow the operating and maintenance instructions in this manual.

The Bobcat loader is highly manoeuvrable and compact. It is rugged and useful under a wide variety of conditions. This presents an operator with hazards associated with off motorway, 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. Its brief instructions are convenient to the operator. See your Bobcat dealer for more information on translated versions.

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.



## SAFETY INSTRUCTIONS (CONT'D)

### Safe Operation Is The Operator's Responsibility

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



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

W-2001-0502



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

I-2019-0284



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

D-1002-1107



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

W-2044-1107

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

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

### Safe Operation Needs A Qualified Operator

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

*A Qualified Operator Must Do The Following:*

*Understand the Written Instructions, Rules and Regulations*

- The written instructions from Bobcat Company include the Delivery Report, Operation & Maintenance Manual, Operator's Handbook and machine signs (decals).
- Check the rules and regulations at your location. The rules may include an employer's work safety requirements. For driving on public roads, the machine must be equipped as stipulated by the local regulations authorising operation on public roads in your specific country. 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.

*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.
- 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 EMEA-0913

## SAFETY INSTRUCTIONS (CONT'D)

### Avoid Silica Dust



Cutting or drilling concrete containing sand or rock containing quartz may result in exposure to silica dust. Use a respirator, water spray or other means to control dust.

## 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 coolants 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 EMEA-0913

## FIRE PREVENTION (CONT'D)

### Hydraulic System

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

Always clean fluid spills. Do not use petrol or diesel fuel for cleaning parts. Use commercial non-flammable 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 fuelling 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).

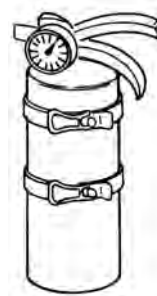
### Welding And Grinding

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 non-metallic parts such as hoods, fenders or covers can be flammable or explosive. Repair such components in a well ventilated area away from open flames or sparks.

### Fire Extinguishers

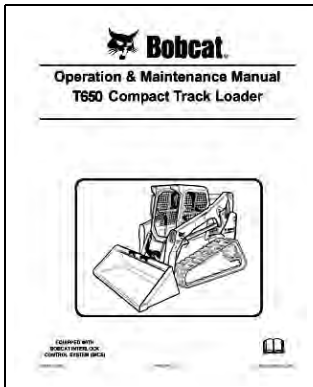


Know where fire extinguishers and first aid kits are located and how to use them. Inspect the fire extinguisher and service the fire extinguisher regularly. Obey the recommendations on the instructions plate.

## PUBLICATIONS AND TRAINING RESOURCES

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

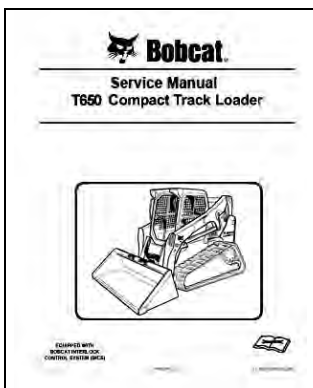
For the latest information on Bobcat products and the Bobcat Company, visit our website at **Bobcat.com**



### OPERATION & MAINTENANCE MANUAL

7276533enGB

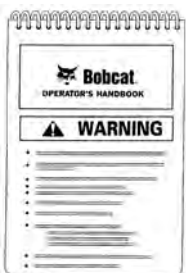
Complete instructions on the correct operation and the routine maintenance of the Bobcat loader.



### T650 SERVICE MANUAL

6987172enUS

Complete maintenance instructions for your Bobcat loader.



### OPERATOR'S HANDBOOK

6987175enGB

Gives basic operation instructions and safety warnings.

# 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.

- 1 7168038 Standard, ACS and AHC - 7168137
- 2 Standard, ACS and AHC - 7168141
- 3 SJC 7177707
- 4 SJC 7168082
- 5 SJC 7168143
- 6 Standard, ACS and AHC 7168139
- 7 Three-Point Seatbelt 7184346
- 8 Back-up Alarm 7180087
- 9 7168017 (RATED OPERATING CAPACITY (ROC) 2570 lbs, 1165 kg)
- 10 Standard, ACS and AHC - 7168273
- 11 Door Gas Spring 7170360
- 12 Door 7168025
- 13 7323563 (Inside Fuse Access Panel) (Left Foot Area)
- 14 Door Gas Spring 7169291
- 15 Rear Window with Latches 7167991

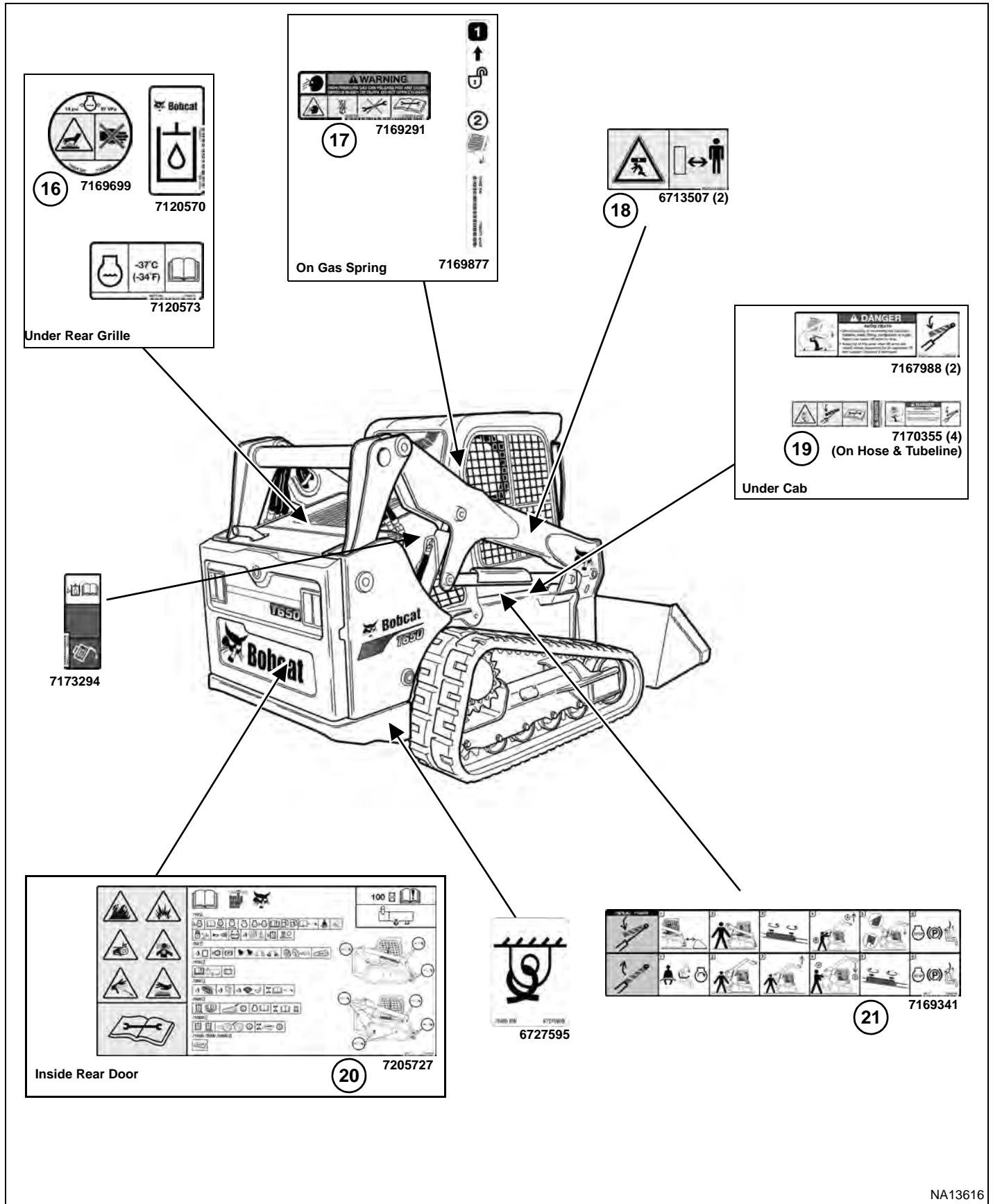
Inside Cab

- 9 7168037
- 10 7168034
- 11 7168040
- 12 7168033
- 13 Single-Point Lift 6533898 (2)
- 14 Single-Point Lift 7142142 (2)
- 15 Single-Point Lift 7168022 (2)
- 16 Four-Point Lift 7168040
- 17 Four-Point Lift 7168020
- 18 Lift Kit Options
- 19 103 dB (7112817)
- 20 7168039 (2)

NA13615

## 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.



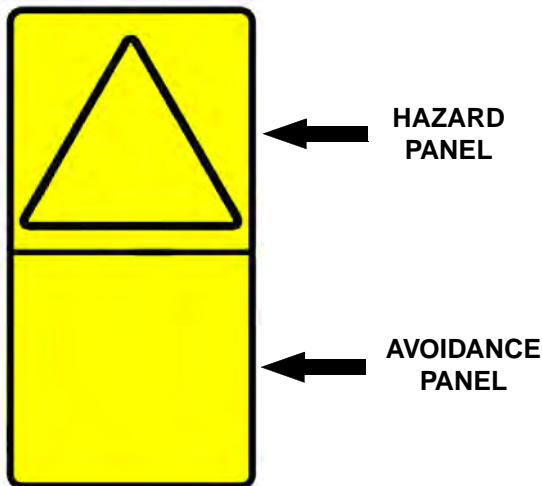
NA13616

## MACHINE SIGNS (DECALS) (CONT'D)

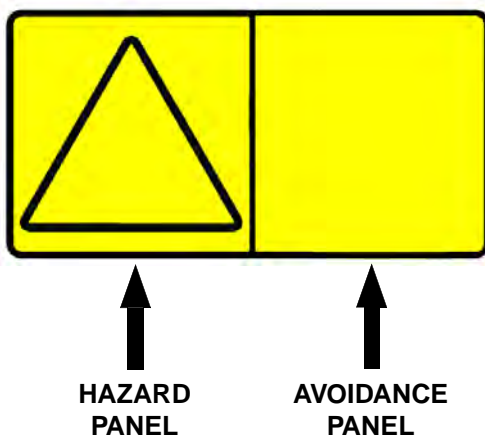
### Pictorial Only Safety Signs

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 19 and **MACHINE SIGNS (DECALS) (CONT'D)** on Page 20 for the machine location of each correspondingly numbered pictorial only decal.

#### 1. General Hazard Warning (7168038)

This safety sign is located in the operator cab in the lower right hand corner.



#### AVOID INJURY OR DEATH

Never use the loader without instructions. Read Operation & Maintenance Manual and Handbook.

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

On slopes, keep heavy end of loader uphill.

Do not travel or turn with lift arms up. Load, unload and turn on flat level ground. Do not exceed Rated Operating Capacity (see sign on loader).

W-2837-0310



## MACHINE SIGNS (DECALS) (CONT'D)

### Pictorial Only Safety Signs (Cont'd)

#### 2. To Leave the Loader (7168141)

This safety sign is located in the operator cab in the lower right hand corner.



#### TO LEAVE THE LOADER:

1. Lower the lift arms and put attachment flat on the ground.
2. Stop the engine.
3. Engage the brake.
4. Raise seat bar.
5. Move pedals and hand controls until both lock.
6. Exit the loader.

W-2838-0310

#### 3. SJC Control Pattern Switch (7177707)

This safety sign is located in the operator cab around the SJC control pattern switch on the right panel.



**ACCIDENTAL LOADER MOVEMENT CAN CAUSE  
SERIOUS INJURY OR DEATH**

Read and understand the Operation & Maintenance Manual for more information.

- Drive, lift arm and tilt functions operate on different joysticks in each control mode.
- Know and understand the selected control mode before operating.

W-2788-0309

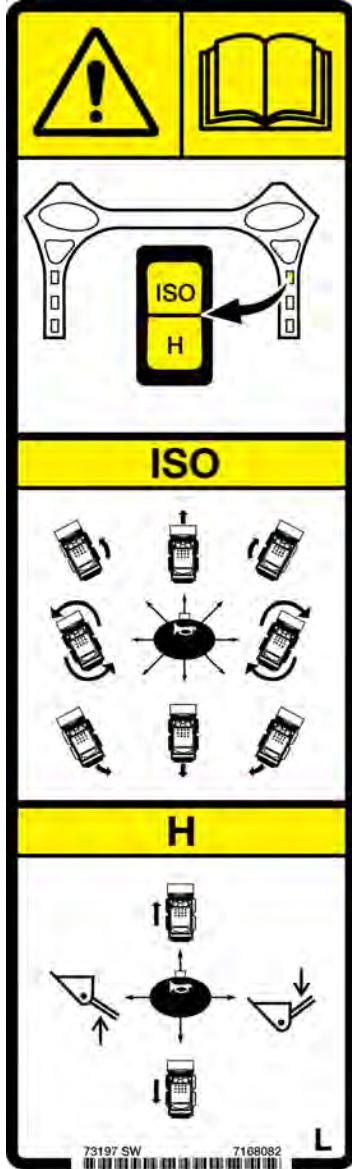


**MACHINE SIGNS (DECALS) (CONT'D)**

**Pictorial Only Safety Signs (Cont'd)**

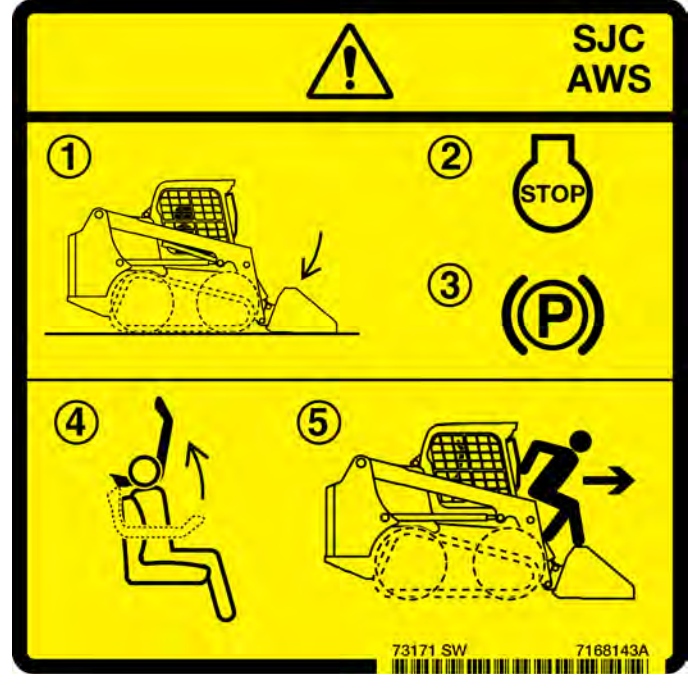
**4. SJC Left Hand Joystick (7168082)**

This safety sign is located in the operator cab on the left armrest.



**5. To Leave the Loader (7168143)**

This safety sign is located in the operator cab in the lower right hand corner.



**AVOID INJURY OR DEATH**

**TO LEAVE THE LOADER:**

1. Lower the lift arms and put attachment flat on the ground.
2. Stop the engine.
3. Engage the brake.
4. Raise seat bar.
5. Exit the loader.

W-2839-0310



**ACCIDENTAL LOADER MOVEMENT CAN CAUSE SERIOUS INJURY OR DEATH**

Read and understand the Operation & Maintenance Manual for more information.

- Drive, lift arm and tilt functions operate on different joysticks in each control mode.
- Know and understand the selected control mode before operating.

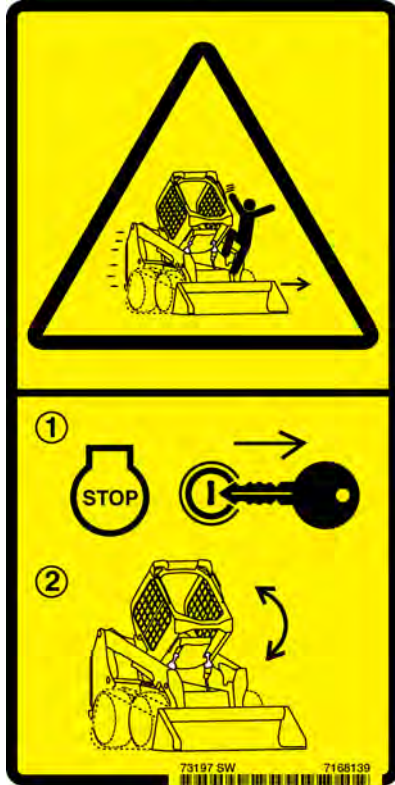
W-2788-0309

**MACHINE SIGNS (DECALS) (CONT'D)**

**Pictorial Only Safety Signs (Cont'd)**

**6. Unexpected Loader, Lift Arm or Attachment Movement (7168139)**

This safety sign is located in the operator cab on the left side of the seat.



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

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

W-2758-0908

**7. High Range Speeds (7184346)**

This safety sign is located in the operator cab on loaders equipped with a seat belt with three-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

**8. Back-Up Alarm (7180087)**

This safety sign is located in the operator cab on the lower left side.



**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.

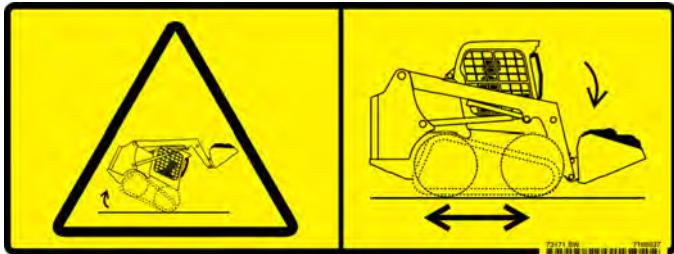
W-2783-0118

**MACHINE SIGNS (DECALS) (CONT'D)**

**Pictorial Only Safety Signs (Cont'd)**

**9. Tipping, Rollover or Loss of Visibility (7168037)**

This safety sign is located on the back side of the lift arms facing the operator.



**TIPPING, ROLLOVER OR LOSS OF VISIBILITY CAN CAUSE SERIOUS INJURY OR DEATH**  
Carry load low.

W-2836-0310

**10. Frame Raising (7168034)**

This safety sign is located on the front of the loader.



**AVOID DEATH**

Attachment can be forced against the ground and cause front frame to raise.

Never go under or reach under lift arms or lift cylinder without an approved lift arm support device installed.

D-1021-0310

**11. Falling Hazard (7168040)**

This safety sign is located on the front of the loader.



**AVOID INJURY OR DEATH**

- Never carry riders.
- Never use loader as a man lift or work platform.

W-2835-0310

**12. Lift Arm Crushing (7168033)**

This safety sign is located on the front of the loader.



**AVOID DEATH**

Keep out of this area when lift arms are raised unless supported by an approved lift arm support device.

Moving lift arm control or failure of a part can cause lift arms to drop.

D-1020-0310

## MACHINE SIGNS (DECALS) (CONT'D)

### Pictorial Only Safety Signs (Cont'd)

#### 13. Single-Point Lift (7142142)

This safety sign is located on the side arm of the single-point lift.



**FAILURE OF THE LIFT ASSEMBLY CAN CAUSE  
SERIOUS INJURY OR DEATH**

#### BEFORE LIFTING LOADER:

1. Check the hardware and fasteners of the Single Point Lift and Operator Cab (ROPS) for proper torque.
  2. Inspect Single Point Lift for damage or cracked welds. Repair or replace components as necessary.
- No riders on loader during lifting. Keep 5 m (15 ft) away while lifting.
  - See Operation & Maintenance Manual for more information.

W-2841-0910

#### 14. Four-Point Lift (7168020)

This safety sign is located on the front of the loader.



**FAILURE OF THE LIFT ASSEMBLY CAN CAUSE  
SERIOUS INJURY OR DEATH**

#### BEFORE LIFTING LOADER:

1. Check the hardware and fasteners at all lift points for proper torque.
  2. Inspect lift points for damage or cracked welds. Repair or replace components as necessary.
- No riders on loader and keep 5 m (15 ft) away while lifting.
  - See Operation & Maintenance Manual for more information.

W-2840-0910



**MACHINE SIGNS (DECALS) (CONT'D)**

**Pictorial Only Safety Signs (Cont'd)**

**15. Flying Debris or Objects (7168039)**

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



**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

**16. Hot Pressurised Fluid (7169699)**

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



**HOT PRESSURISED FLUID CAN CAUSE SERIOUS BURNS**

- Never open hot.
- OPEN SLOWLY.

W-2755-EN-0909

**17. High Pressure Gas (7169291)**

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



**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

## MACHINE SIGNS (DECALS) (CONT'D)

### Pictorial Only Safety Signs (Cont'd)

#### 18. Crush Hazard (6713507)

This safety sign is located on the side of each lift arm.



Keep away from the operating machine to avoid serious injury or death.

W-2520-0106

#### 19. Lift Arm Crushing (7170355)

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



#### 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

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