EN

Operation & Maintenance Manual

Compact Track Loader

T86 S/N: B56S11001 & Above

7432424enGB (A)
October 2022

Printed in Belgium
Original Instructions

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S5–B

OPERATOR SAFETY WARNINGS

• Never operate without instructions. Read machine signs (decals), Operation & Maintenance Manual, and Operator's Handbook.
• Operator must have instructions before operating the machine. Untrained operators can cause injury or death.

SAFETY EQUIPMENT

The Bobcat® machine 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.

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

This check mark means: "Follow instructions for proper operations." Carefully read the message that follows.

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

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

OPERATOR SAFETY WARNINGS

This Safety Alert Symbol means: “Attention! Be Alert! Your Safety is Involved!” Carefully read the message that follows.

- **Never exceed Rated Operating Capacity (ROC).**
- **Always carry bucket or attachment as low as possible.**
- **Do Not travel or turn with the lift arms up.**
- **Load, unload, and turn on flat level ground.**

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

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

- **Never modify equipment.**
- **Use only attachments approved by Bobcat Company for this machine model.**

- **Do Not use machine in atmosphere with explosive dust, explosive gas, or where exhaust can contact flammable material.**

- **Never use loader as a personnel lift or work platform.**


Bobcat

EC DECLARATION OF CONFORMITY (MACHINE)

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.

Manufacturer

Bobcat

Bobcat Company
World Headquarters
250 East Beaton Drive
West Fargo, ND 58078–6000
UNITED STATES OF AMERICA

Technical Documentation

Homologation Manager
Doosan Bobcat EMEA s.r.o
U Kodetky 1810
26312 Dobris
CZECH REPUBLIC

Directive 2000/14/EC: Noise Emission in the Environment by Equipment For Use Outdoors

Notified Body

Technical and Test Institute for Construction Prague
Czech Republic
Notified Body Number: 1020

EC Certificate No.

1020–090–022395

Conformity Assessment Procedure(s)

2000/14/EC, Annex VIII, Full Quality Assurance

Sound Power Levels [Lw(A)]

Measured Sound Power	102,6 dBA
Guaranteed Sound Power	105,0 dBA

Description of Equipment

Type of Equipment: Crawler Loader
Model Name: T86
Model Code: B56S

Engine Manufacturer: Bobcat Company
Engine Model: DM03VA DM03–MFL03
Engine Power: 78,3 kW @ 2600 rpm

Equipment conforms to CE Directive(s) Listed Below

2006/42/EC: Machinery Directive
2014/30/EU: Electromagnetic Compatibility Directive

Declaration of Conformance

This equipment conforms to the requirements specified in all the EC Directives listed in this declaration.

Effective From:

16 August 2022

UK DECLARATION OF CONFORMITY (MACHINE)

Contents of UK Declaration of Conformity

This information is provided in the operators manual to comply with clause 1.7.4.2(c) of Schedule 2, Part 1 of The Supply of Machinery (Safety) Regulations 2008.

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

Manufacturer

Bobcat

Bobcat Company
World Headquarters
250 East Beaton Drive
West Fargo, ND 58078–6000
UNITED STATES OF AMERICA

Technical Documentation

Homologation Manager
Doosan Bobcat EMEA s.r.o
U Kodetky 1810
26312 Dobris
CZECH REPUBLIC

Noise Emission in the Environment by Equipment For Use Outdoors Regulations 2001

Notified Body

Technical and Test Institute for Construction Prague
Czech Republic
Notified Body Number: 1020

EC Certificate No.

1020–090–022395

Conformity Assessment Procedure(s)

2000/14/EC, Annex VIII, Full Quality Assurance

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Engine Model: DM03VA DM03–MFL03
Engine Power: 78,3 kW @ 2600 rpm

Equipment conforms to UK Regulation(s) Listed Below

Supply of Machinery (Safety) Regulations 2008
Electromagnetic Compatibility Regulations 2016

Declaration of Conformance

This equipment conforms to the requirements specified in all the UK Regulations listed in this declaration.

Effective From:

16 August 2022

DECLARATION OF CONFORMITY (TOUCH DISPLAY)

Continental

EU Declaration of Conformity under the terms of Directive No. 2014/53/EU (RED directive)

1. No … (unique identification of the product)
   Multiview Media Display

2. Name and address of the manufacturer or his authorised representative:
   Continental Automotive GmbH
   Heinrich-Hertz-Str. 45
   78052 Villingen-Schwenningen
   Germany

3. This declaration of conformity is issued under the sole responsibility of the manufacturer ~~(or installer)~~:
   Continental Automotive GmbH declares as a manufacturer that the above-mentioned product complies with the necessary requirements of Directive 2014/53/EU (RED Directive) when used for its intended purpose.

4. Object of the declaration (identification of product allowing traceability. It may include a colour image of sufficient clarity to enable the identification of the product, where appropriate.)
   Not applicable.

5. The object of the declaration described in point 4 is in conformity with the relevant Union harmonisation legislation:
   Directive 2014/53/EU

   Additional relevant Union harmonisation legislation:
   None.

6. References to the relevant harmonised standards used, or references to the specifications in relation to which conformity is declared:
   - **EN 300 328 V2.1.1**
   - **DRAFT EN 301 489-1 V2.2.0; DRAFT EN 301 489-17 V3.2.0**
   - **EN 62311:2008**
   - **EN 62368-1:2014 / AC:2015 / A11:2017 / AC:2017**

7. The notified body **CTC advanced, 0682 has performed Tests** and has issued the EC approval certificate **T818817M-01-TEC**.

8. If available, a description of the accessories and the components, including the software that enables the operation of the radio system and which is covered by the EU Declaration of Conformity:
   Not applicable.

9. Additional information:
   None.

Signed for and on behalf of:
Continental Automotive GmbH
Heinrich-Hertz-Str. 45
78052 Villingen-Schwenningen
Germany

Place and date of issue:
Villingen-Schwenningen, 21 January 2021

Dr. Marion Grüner (Homologation)
(Name, function)

DECLARATION OF CONFORMITY (RADIO)

Continental

EU Declaration of Conformity under the terms of Directive No. 2014/53/EU (RED directive)

1. No … (unique identification of the product)
   Bobcat Radio
   Hardware Version: A2C 399933

2. Name and address of the manufacturer or his authorised representative:
   Continental Automotive GmbH
   Heinrich-Hertz-Str. 45
   78052 Villingen-Schwenningen
   Germany

3. This declaration of conformity is issued under the sole responsibility of the manufacturer ~~(or installer)~~:
   Continental Automotive GmbH declares as a manufacturer that the above-mentioned product complies with the necessary requirements of Directive 2014/53/EU (RED Directive) when used for its intended purpose.

4. Object of the declaration (identification of product allowing traceability. It may include a colour image of sufficient clarity to enable the identification of the product, where appropriate.)
   Not applicable.

5. The object of the declaration described in point 4 is in conformity with the relevant Union harmonisation legislation:
   Directive 2014/53/EU

   Additional relevant Union harmonisation legislation:
   None.

6. References to the relevant harmonised standards used, or references to the specifications in relation to which conformity is declared:
   - **EN 62368-1:2014/AC:2015/A11:2017/AC:2017**
   - **EN 62479:2010**
   - **Draft EN 301 489-1 V2.2.0**
   - **Draft EN 301 489-17 V3.2.0**
   - **EN 300 328 V2.1.1**
   - **Draft EN 303 345 v.1.1.7**
   - **EN 303 345-2 V1.1.1**

7. The notified body **CTC advanced, 0682 has performed Tests** and has issued the EC approval certificate **T818837N-01-TEC**.

8. If available, a description of the accessories and the components, including the software that enables the operation of the radio system and which is covered by the EU Declaration of Conformity:
   Not applicable.

9. Additional information:
   None.

Signed for and on behalf of:
Continental Automotive GmbH
Heinrich-Hertz-Str. 45
78052 Villingen-Schwenningen
Germany

Place and date of issue:
Villingen-Schwenningen, 11 February 2021

Dr. Marion Grüner (Homologation)
(Name, function)

DECLARATION OF CONFORMITY (HYDROFLUOROCARBON)

DOOSAN BOBCAT EMEA
U Kodetky 1810
Dobris, 263 12
Czech Republic
T: +420 318 532 444

www.doosanbobcat.com

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 representative for the import of goods from CLARK EQUIPMENT COMPANY doing business as BOBCAT COMPANY, a corporation organized under the laws of the State of Delaware, USA with its registered address located at 250 East Beaton Drive, West Fargo, North Dakota, USA, 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:

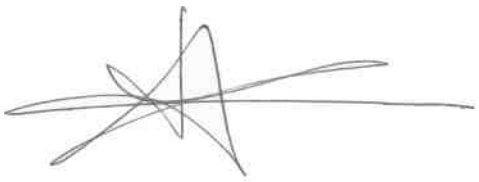
☐ A. we hold authorisation(s) issued in accordance with Article 18(2) of Regulation (EU) No 517/2014 and registered in the registry referred to in Article 17 of that Regulation, at the time of release for free circulation to use the quota of a producer or importer of hydrofluorocarbons subject to Article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

Miguel Mallo Marcos

27th March, 2019



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

INTRODUCTION

This Operation & Maintenance Manual was written to give the owner / operator instructions on the safe operation and maintenance of the Bobcat machine. Read and understand this Operation & Maintenance Manual before operating your Bobcat machine. If you have any questions, see your Bobcat dealer. This manual may illustrate options and accessories not installed on your machine.

Bobcat Company Is ISO 9001 Certified

NA3495c

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

British Standards Institute (BSI) is the Certified Registrar that Bobcat Company chose to assess the company's compliance with 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 that Bobcat Company chose to assess the company's compliance with ISO 9001 at Bobcat's manufacturing facility in Dobriš (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.

MANUFACTURER

North America

Bobcat Company
250 E. Beaton Drive
West Fargo, ND 58078
USA

Czech Republic

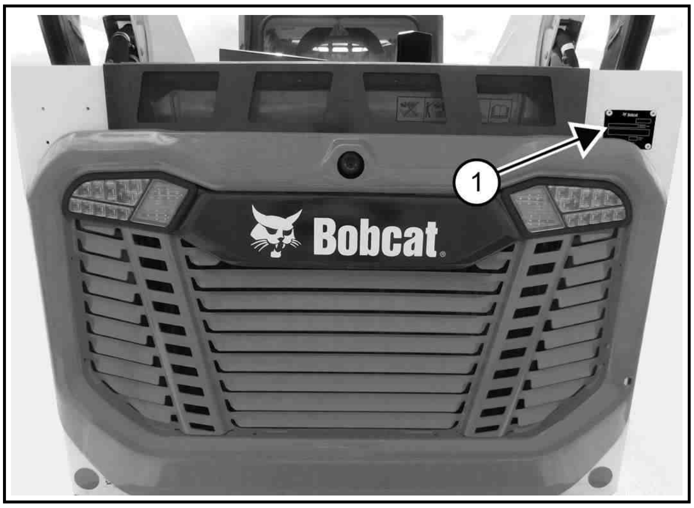
Doosan Infracore Europe s.r.o.
Pobřežni 620/3
186 00 Prague
Czech Republic

SERIAL NUMBER LOCATIONS

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

Machine Serial Number Location

Figure 1

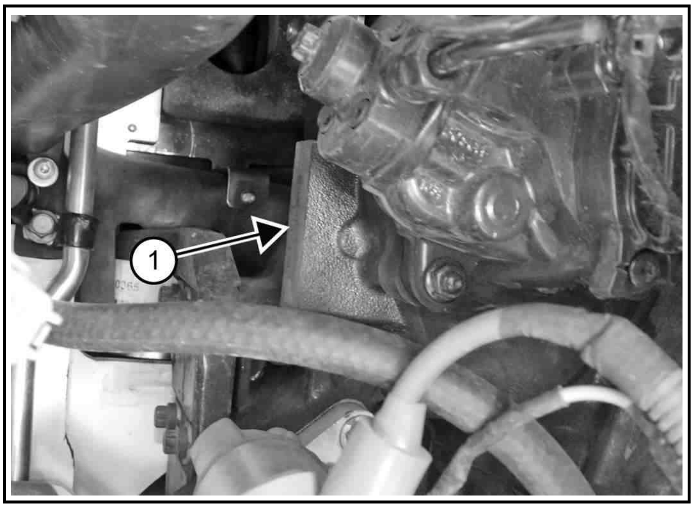


C216281A

The machine serial number plate (Item 1) [Figure 1] is located on the right rear of the machine frame.

Engine Serial Number Location

Figure 2



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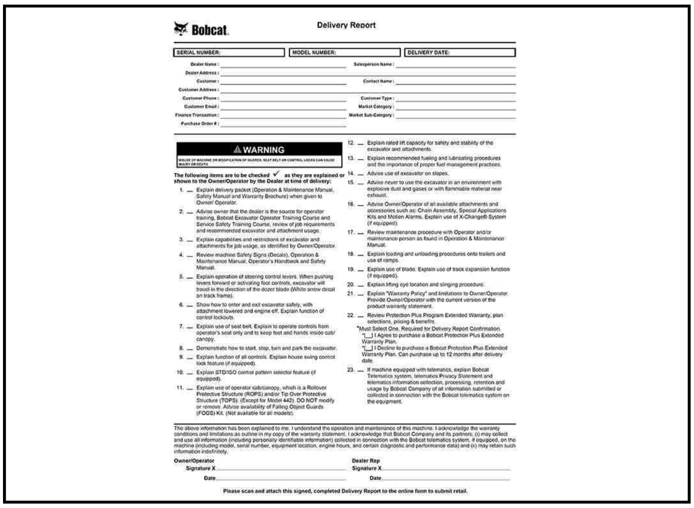
The engine serial number (Item 1) [Figure 2] is located on the left side of the engine above the starter.

DELIVERY REPORT

Figure 3



Bobcat

Delivery Report

SERIAL NUMBER: | MODEL NUMBER: | DELIVERY DATE:

Dealer Name : ____ Salesperson Name : ____
Dealer Address : ____
Customer : ____ Contact Name : ____
Customer Address : ____
Customer Phone : ____ Customer Type : ____
Customer Email : ____ Market Category : ____
Finance Transaction : ____ Market Sub-Category : ____
Purchase Order # : ____

⚠ WARNING

MISUSE OF MACHINE OR MODIFICATION OF GUARDS, SEAT BELT OR CONTROL LOCKS CAN CAUSE INJURY OR DEATH

The following items are to be checked ✓ as they are explained or shown to the Owner/Operator by the Dealer at time of delivery:

1. __ Explain delivery packet (Operation & Maintenance Manual, Safety Manual and Warranty Brochure) when given to Owner/ Operator.
2. __ Advise owner that the dealer is the source for operator training, Bobcat Excavator Operator Training Course and Service Safety Training Course, review of job requirements and recommended excavator and attachment usage.
3. __ Explain capabilities and restrictions of excavator and attachments for job usage, as identified by Owner/Operator.
4. __ Review machine Safety Signs (Decals), Operation & Maintenance Manual, Operator's Handbook and Safety Manual.
5. __ Explain operation of steering control levers. When pushing levers forward or activating foot controls, excavator will travel in the direction of the dozer blade (White arrow decal on track frame).
6. __ Show how to enter and exit excavator safely, with attachment lowered and engine off. Explain function of control lockouts.
7. __ Explain use of seat belt. Explain to operate controls from operator's seat only and to keep feet and hands inside cab/ canopy.
8. __ Demonstrate how to start, stop, turn and park the excavator.
9. __ Explain function of all controls. Explain house swing control lock feature (if equipped).
10. __ Explain STD/ISO control pattern selector feature (if equipped).
11. __ Explain use of operator cab/canopy, which is a Rollover Protective Structure (ROPS) and/or Tip Over Protective Structure (TOPS). (Except for Model 442). DO NOT modify or remove. Advise availability of Falling Object Guards (FOGS) Kit. (Not available for all models).
12. __ Explain rated lift capacity for safety and stability of the excavator and attachments.
13. __ Explain recommended fueling and lubricating procedures and the importance of proper fuel management practices.
14. __ Advise use of excavator on slopes.
15. __ Advise never to use the excavator in an environment with explosive dust and gases or with flammable material near exhaust.
16. __ Advise Owner/Operator of all available attachments and accessories such as: Chain Assembly, Special Applications Kits and Motion Alarms. Explain use of X-Change® System (if equipped).
17. __ Review maintenance procedure with Operator and/or maintenance person as found in Operation & Maintenance Manual.
18. __ Explain loading and unloading procedures onto trailers and use of ramps.
19. __ Explain use of blade. Explain use of track expansion function (if equipped).
20. __ Explain lifting eye location and slinging procedure.
21. __ Explain "Warranty Policy" and limitations to Owner/Operator. Provide Owner/Operator with the current version of the product warranty statement.
22. __ Review Protection Plus Program Extended Warranty, plan selections, pricing & benefits.
*Must Select One. Required for Delivery Report Confirmation.
*[__] I Agree to purchase a Bobcat Protection Plus Extended Warranty Plan.
*[__] I Decline to purchase a Bobcat Protection Plus Extended Warranty Plan. Can purchase up to 12 months after delivery date.
23. __ If machine equipped with telematics, explain Bobcat Telematics system, telematics Privacy Statement and telematics information collection, processing, retention and usage by Bobcat Company of all information submitted or collected in connection with the Bobcat telematics system on the equipment.

The above information has been explained to me. I understand the operation and maintenance of this machine. I acknowledge the warranty conditions and limitations as outline in my copy of the warranty statement. I acknowledge that Bobcat Company and its partners, (i) may collect and use all information (including personally identifiable information) collected in connection with the Bobcat telematics system, if equipped, on the machine (including model, serial number, equipment location, engine hours, and certain diagnostic and performance data) and (ii) may retain such information indefinitely.

Owner/Operator Signature X ____ Date ____
Dealer Rep Signature X ____ Date ____

Please scan and attach this signed, completed Delivery Report to the online form to submit retail.

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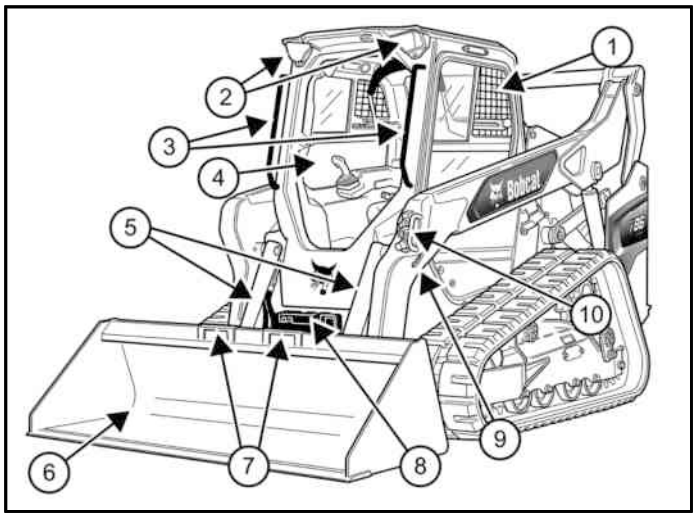
The delivery report contains a list of items that must be explained or shown to the owner or operator by the dealer when the machine is delivered.

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

LOADER IDENTIFICATION

Front View

Figure 4



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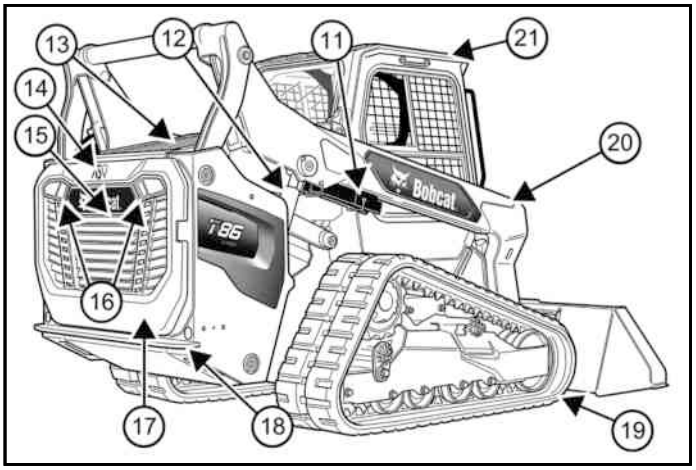
REF	DESCRIPTION
1	Operation & Maintenance Manual and Operator's Handbook
2	Front Lights
3	Grab Handles
4	Operator's Seat with Seat Belt and Seat Bar
5	Tilt Cylinders
6	Bucket [A]
7	Bucket Steps
8	Step
9	Alternate Front Tie-down (Both Sides)
10	Front Auxiliary Quick Couplers

[A] Bucket — Several different buckets and other attachments are available for the Bobcat loader.

Rear View

Figure 5



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REF	DESCRIPTION
11	Lift Arm Support
12	Lift Cylinder (Both Sides)
13	Rear Grille
14	Rear View Camera
15	Back-up Alarm
16	Rear Work Lights and Taillights
17	Rear Door
18	Rear Tie-down (Both Sides) Front Tie-down located behind Bucket
19	Track [A]
20	Lift Arm
21	Operator Cab (ROPS and FOPS) [B]

[A] Track — Standard tracks are shown. Track options 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 T86 Bobcat loader is equipped with the following standard items:

- 78 kW Bobcat Engine Turbo Stage V Diesel Engine
- Adjustable Suspension Seat
- Attachment Control Device (ACD) (7-Pin)
- Auto Idle
- Back-up Alarm
- Battery Disconnect Switch
- Bobcat Interlock Control System (BICS™)
- Bobcat Standard Display
- Cab Door with Emergency Exit
- Controls: Selectable Joystick Controls (SJC) (Selectable 'ISO' or 'H' Pattern Control)
- Cylinder Cushioning (Lift and Tilt)
- Dual Direction Bucket Positioning (With On / Off Selection)
- Electronic Engine Speed Control
- Enclosed Cab (includes: rear and side windows and polycarbonate top window) ROPS and FOPS (Level I) Approved
- Engine / Hydraulic Systems Protection
- Front Horn
- Glow Plugs (Automatically activated)
- Keyed Ignition
- LED Lights: Front and Rear
- Lift Arm Support
- Parking Brake
- Power Bob-Tach® Attachment Mounting System
- Rear Camera
- Seat Bar
- Seat Belt with 3-Point Restraint
- Solid-Mounted Undercarriage with 10 Rollers
- Sound Reduction (Reduces noise at operator ear)
- Spark Arrester
- Super-Flow Auxiliary Hydraulics
- Tailgate Lock
- Tracks, Rubber — 450 mm (17.7 in)
- Two-Speed Travel

Options And Accessories

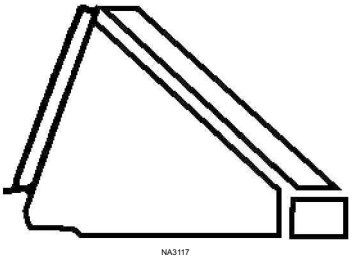
Below is a list of some equipment available from your Bobcat dealer as Dealer and / or Factory Installed Accessories and Factory Installed Options. See your Bobcat dealer for other available options and accessories.

- Adjustable Heated Air Ride Suspension Seat
- Auto HVAC
- Automatic Ride Control
- Auxiliary Hydraulics Coupler Guard
- Bobcat Touch Display
- Clear Side Enclosed Cab
- Counterweight Kit
- Debris Seal Kit
- Engine Block Heater
- Exhaust Debris Guard
- Fire Extinguisher
- FOPS Kit (Level II)
- Forestry Door and Window Kit
- Forestry Door Wiper
- Four-Way Flashers
- Front and Rear Light Guards
- Hose Guide
- LED Side Lighting
- Lift Kit (Four-Point, Single-Point)
- Premium LED Front Lights
- Radio
- Rear Auxiliary Hydraulics
- Rear Bumper Kit
- Rear Window Wiper
- Reversing Fan
- Road Kit
- Rotating Beacon
- Special Applications Kit
- Strobe Light
- Tailgate Guard Kit
- Torsion Suspension Undercarriage with 10 Rollers
- Track, Multi-Bar Lug — 450 mm (17.7 in)
- Windows:
  - Externally Removable Rear Window
  - Polycarbonate Rear Window
  - Polycarbonate Side Windows

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

Buckets Available

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



Many bucket styles, widths, and different capacities are available for a variety of different applications. See your Bobcat dealer for the correct bucket for your Bobcat loader and application.

Attachments

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, and a variety of other attachments.

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

- Angle Broom
- Asphalt Spreader
- Auger
- Blades — Box, Dozer, Snow, Snow V-Blade
- Breaker, Hydraulic
- Brush Saw
- Bucket Spill Guard
- Buckets
- Combination Bucket
- Concrete Mixer
- Concrete Pump
- Drop Hammer
- Dumping Hopper
- Flail Cutter
- Grader
- Grapples — Industrial, Root
- Landplane
- Landscape Rake
- Mixing Bucket
- Pallet Fork
- Planer
- Pressure Washer
- Radio Remote Control
- Rock Bucket
- Sand Cleaner
- Scraper
- Seeder
- Silt Fence Installer
- Snow Pusher
- Sod Layer
- Soil Conditioner
- Spreader
- Stabiliser, Rear
- Stump Grinder
- Sweeper
- Tiller
- Tree Transplanter
- Trench Compactor
- Utility Frame
- Vibratory Roller
- Water Kit

Super-Flow / High-Flow Attachments

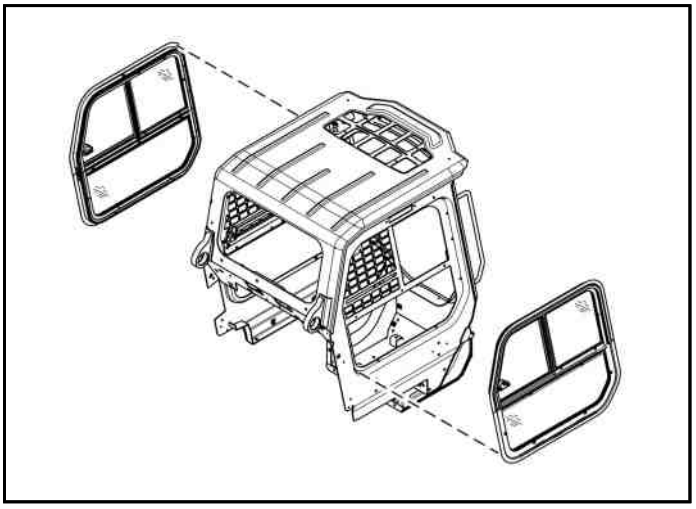
The following attachments are approved for use on High-Flow machines. See your Bobcat dealer for an updated list of approved attachments.

- Auger
- Brushcat™ Rotary Cutter
- Concrete Pump
- Flail Cutter
- Forestry Cutter
- Planer [A]
- Rotary Grinder
- Snowblower [A]
- Soil Conditioner
- Stump Grinder
- Tiller
- Trencher
- Wheel Saw
- Wood Chipper

[A] Also Super-Flow

Clear Side Enclosed Cab Option

Figure 6



NA18179

Depending on machine specifications, windows are provided to function as guards. Damaged windows must be replaced with those of equivalent specification before the machine is used again. The machine must not be used with the window removed. The clear side enclosed cab windows are polycarbonate [Figure 6].

⚠ DANGER

MODIFICATION HAZARD
Crushing can cause serious injury or death.
- **DO NOT operate if cab side windows are damaged or missing.**
- **Replace damaged or missing windows with Bobcat approved parts only.**

D-1050

Inspecting And Maintaining Clear Side Enclosed Cab Option

- 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.

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Avoid polycarbonate window damage:
Do not use abrasive or highly alkaline cleaners.
Do not use cleaners containing ammonia.
Do not clean with metal blades or scrapers.

I-2402

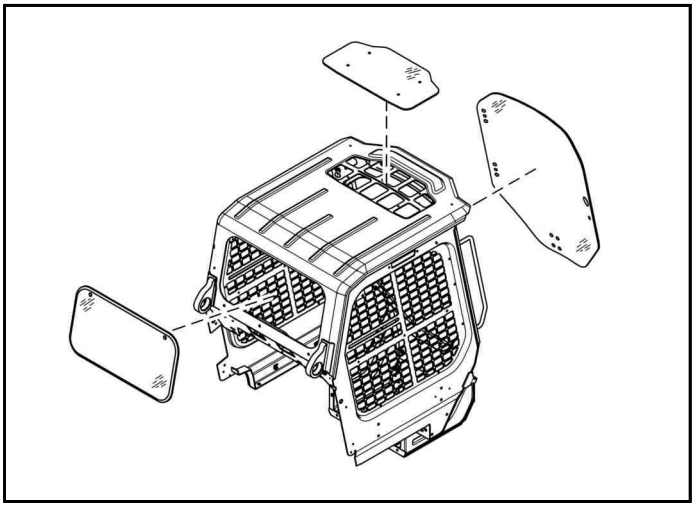
Special Applications Kit

⚠ WARNING

IMPACT AND PUNCTURE HAZARD
Flying debris or objects entering the operator cab can cause serious injury or death.
Some attachment applications can cause flying debris or objects to enter the front, top or rear cab openings. Install the Special Applications Kit and Top Guard (if applicable) to provide added operator protection in these applications.

W-2737

Figure 7



NA15971

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 7].

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

See your Bobcat dealer for availability.

Inspecting And Maintaining Special Applications Kit

- 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.

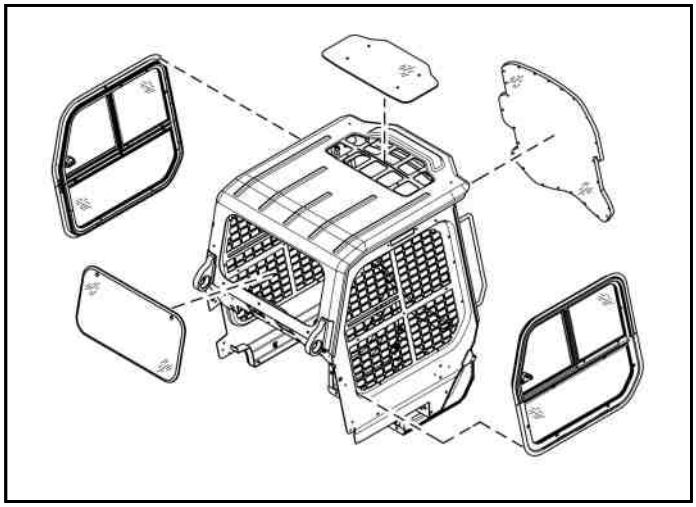
⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Avoid polycarbonate window damage:
Do not use abrasive or highly alkaline cleaners.
Do not use cleaners containing ammonia.
Do not clean with metal blades or scrapers.

I-2402

Forestry Door And Window Kit

Figure 8



NA15972

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 8].

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

The side windows of the clear side enclosed cab are polycarbonate and meet the side window requirements of the Forestry Door and Window kit to restrict material from entering cab openings.

Inspecting And Maintaining Forestry Door And Window Kit

- 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.
- See your Bobcat dealer for replacement door frame or door polycarbonate for your application.

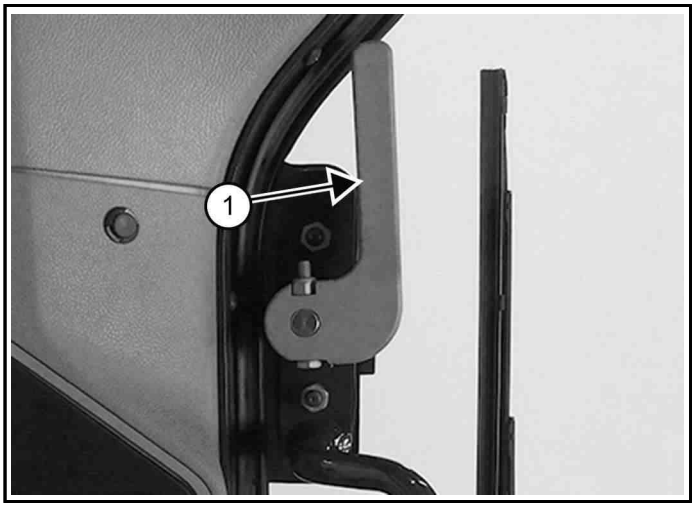
⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Avoid polycarbonate window damage:
Do not use abrasive or highly alkaline cleaners.
Do not use cleaners containing ammonia.
Do not clean with metal blades or scrapers.

I-2402

Forestry Door Emergency Exit

Figure 9



C200179b

- Inspect both emergency exit levers (Item 1) [Figure 9], linkages, and hardware for loose or damaged parts.
- Repair or replace if necessary.

SAFETY INSTRUCTIONS

Before Operation

⚠ WARNING

INSUFFICIENT INSTRUCTIONS HAZARD
Untrained operators or failure to follow instructions can cause serious injury or death.
Operators must have adequate training and instruction before operating.◂
W-2001

Carefully follow the operating and maintenance instructions in this manual.

The Bobcat machine 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 highway, rough terrain applications, common with Bobcat machine usage.

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

The dealer explains the capabilities and restrictions of the Bobcat machine 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. They are designed for secure fastening to the machine. 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 are 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 machine. Its brief instructions are convenient for 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.

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.

⚠ DANGER

The signal word DANGER on machine signs and in the manuals indicates a hazardous situation which, if not avoided, will result in serious injury or death.◂
D-1002

⚠ WARNING

The signal word WARNING on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.◂
W-2044

⚠ IMPORTANT

This notice identifies procedures which must be followed to avoid damage to the machine.◂
I-2019

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

Check all of the items on the Service Schedule decal (if equipped) in the Every 10 Hours section 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 co-ordination while working. An operator who is taking prescription drugs must get medical advice to determine if he or she can safely operate a machine.

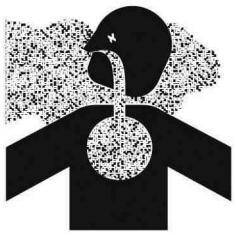
A Qualified Operator Must Do The Following

- 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 of the machine. Material that is very dense will be heavier than the same volume of less dense material. Reduce the size of load if handling dense material.
  - The operator must know any prohibited uses or work areas, for example, he 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.

Silica Dust Exposure



NA3504

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

NA3505

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

P200082

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.

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.

Fuelling

P200084

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 earthing and bonding practices.

Starting

Do not use ether or starting fluids on any engine that has glow plugs or an 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.

Exhaust System

The exhaust system consisting of spark arrester, DOC (Diesel Oxidation Catalyst), or DPF (Diesel Particulate Filter) 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 a 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.

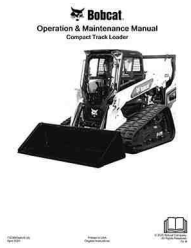
Fire Extinguishers

P200083

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

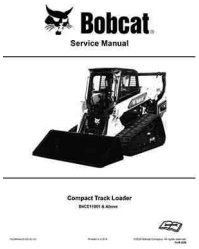
The following publications are also available for your Bobcat loader. You can order them from your Bobcat dealer. For the latest information on Bobcat products and the Bobcat Company, visit our website at Bobcat.com/training or Bobcat.com



OPERATION & MAINTENANCE MANUAL

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

7432424



SERVICE MANUAL

Complete maintenance instructions for your Bobcat loader.

7432425

OPERATOR'S HANDBOOK

Gives basic operation instructions and safety warnings.

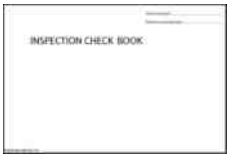
7448925

TOUCH DISPLAY USER GUIDE

Gives instructions for pairing a cellular phone with the touch display and for operating the sound system on the touch display.

7326266

INSPECTION CHECK BOOK



Provides a location to record service performed by your Bobcat dealer.

7296478

LOADER SAFETY VIDEO

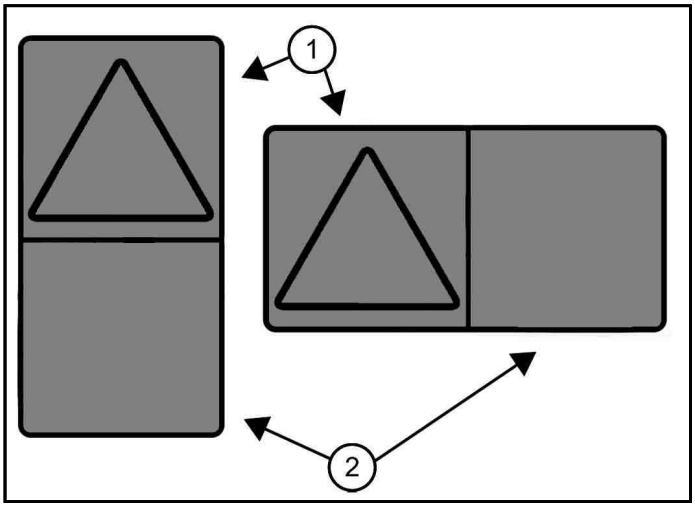
Scan the code to watch the loader safety video or view at Bobcat.com/training.

(Mobile device with quick response code application required)

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 familiarised with all safety signs installed on the machine / attachment.

Figure 10



C200466a

The format consists of the hazard panel(s) (Item 1) [Figure 10] and the avoidance panel(s) (Item 2) [Figure 10].

Hazard Panels: Depict a potential hazard enclosed in a safety alert triangle.

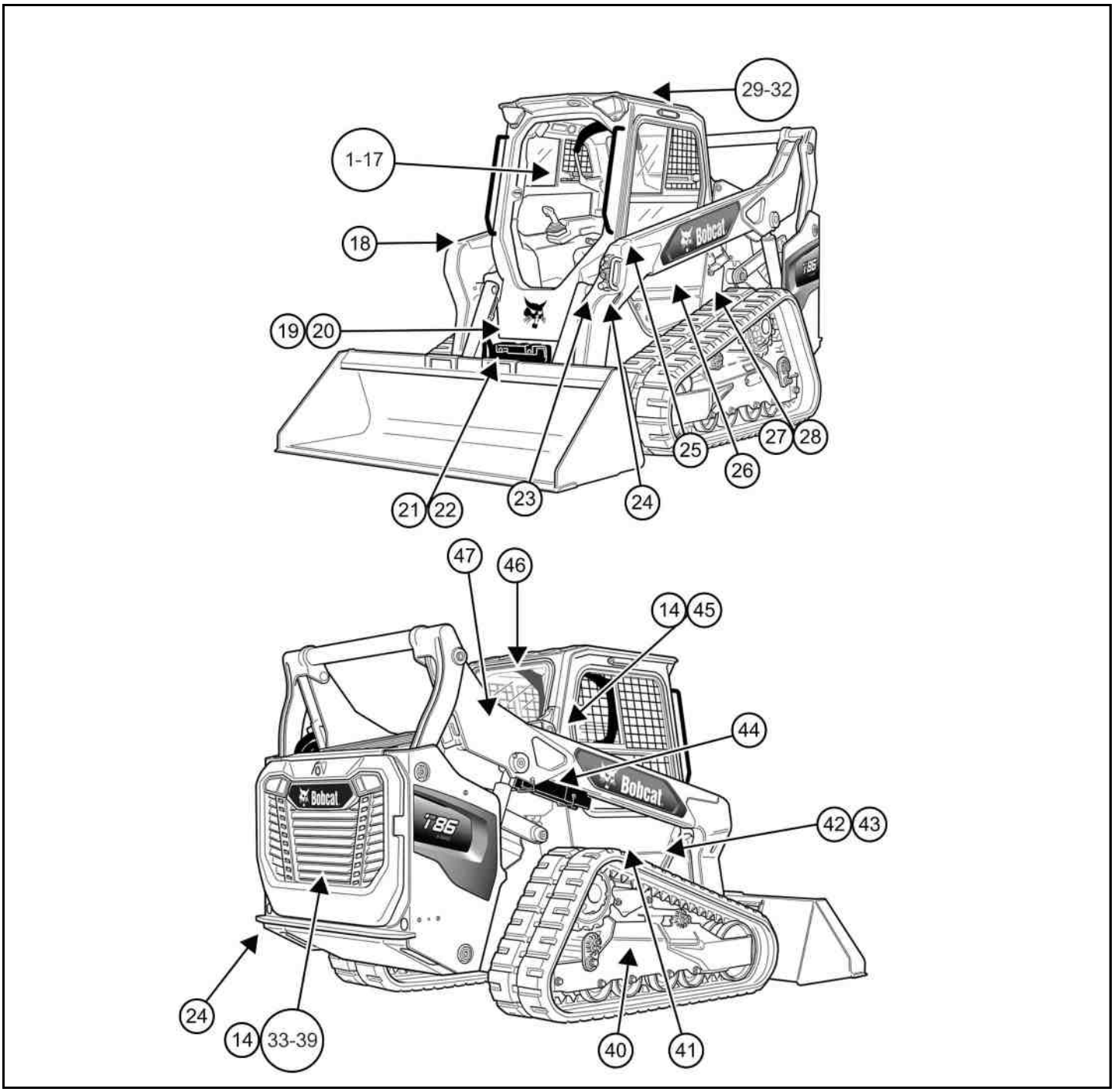
Avoidance Panels: Depict actions required to avoid the hazards.

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

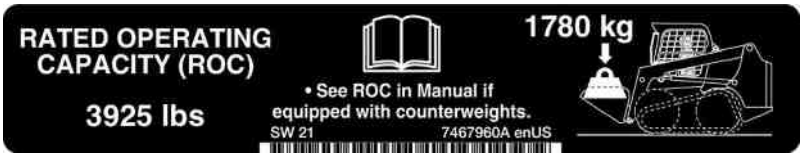
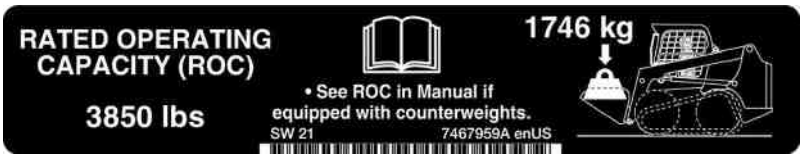
MACHINE SIGNS (DECALS)

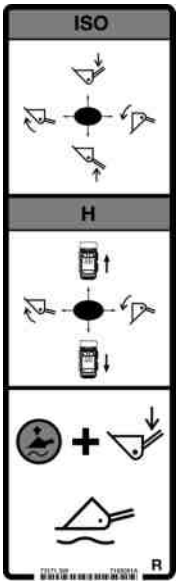
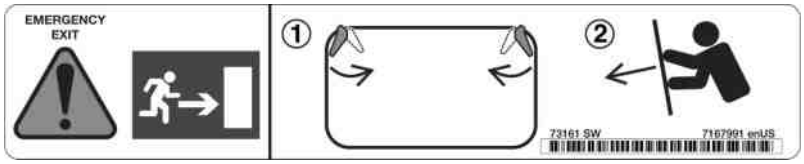
Follow the instructions on all Machine Signs (Decals) that are on the machine. Replace any damaged machine signs and be sure they are in the correct locations. Machine signs are available from your Bobcat dealer.

Figure 11

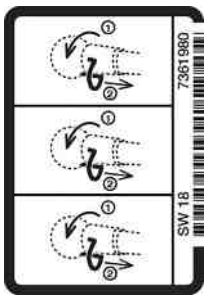


NA20988B

REF.	Decal	Warning
1	Rated Operating Capacity (7467960) This safety sign is located inside the operator cab on the left side of loaders equipped with a solid-mounted undercarriage. 	
2	Rated Operating Capacity (7467959) This safety sign is located inside the operator cab on the left side of loaders equipped with a torsion suspension undercarriage. 	
3	High Range Speeds (7326102) This safety sign is located inside the operator cab on the right side of loaders equipped with 3–point restraint. 	**WARNING** **IMPACT HAZARD** **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
4	SJC Controls (7368056) This safety sign is located inside the operator cab on the left armrest of loaders equipped with SJC controls. 	**WARNING** **UNINTENDED MACHINE MOVEMENT HAZARD** **Accidental loader movement can cause serious injury or death.** • **Drive, lift arm and tilt functions operate on different joysticks in each control mode.** • **Know and understand the selected control mode before operating.** **READ AND UNDERSTAND THE OPERATION & MAINTENANCE MANUAL FOR MORE INFORMATION.** W-2788

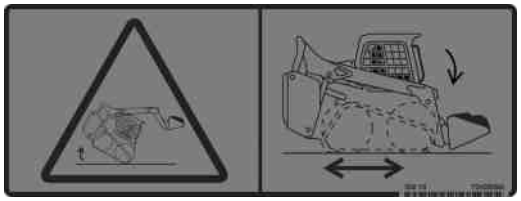
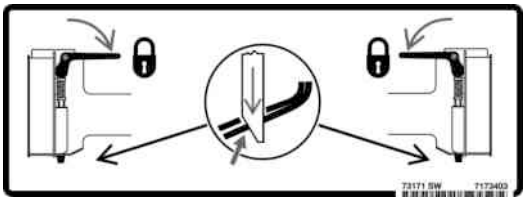
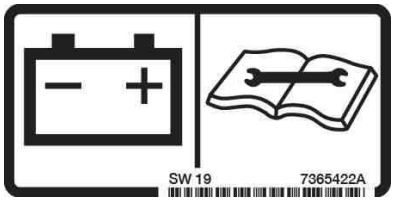
REF.	Decal	Warning
5	SJC Controls (7168081) This safety sign is located inside the operator cab on the right armrest of loaders equipped with SJC controls. 	
6	Rear Window Exit (7167991) This safety sign is located inside the operator cab on the rear window of loaders equipped with rear window with latches. 	
7	To Leave The Loader (7330860) This safety sign is located inside the operator cab on the lower left side of loaders equipped with SJC controls. 	**⚠ WARNING** **GENERAL HAZARD** **Failure to follow instructions can cause serious injury or death** **To leave the loader safely:** **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

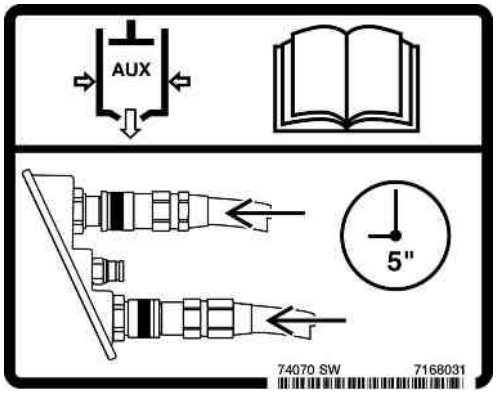
REF.	Decal	Warning
8	SJC Controls Operation (7326103) This safety sign is located inside the operator cab on the lower left side of loaders equipped with SJC controls. 	
9	General Hazard Warning (7323814) This safety sign is located inside the operator cab on the lower right side. 	**⚠ WARNING** **GENERAL HAZARD** **Untrained operators or failure to follow instructions can cause serious injury or death.** **Operators must have adequate training and instruction before operating the machine. Read Operation & Maintenance Manual and Handbook. Never modify equipment or use attachments not approved by Bobcat Company.** • **On slopes, keep heavy end of machine uphill.** • **Do not travel or turn with lift arms up. Load, unload, and turn on flat level ground. DO NOT exceed Rated Operating Capacity (ROC) (See decal in cab).** W-2837
10	Back-Up Alarm (7342336) This safety sign is located inside the operator cab on the lower right side. 	**⚠ WARNING** **CRUSHING HAZARD** **Contact with machine can cause serious 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

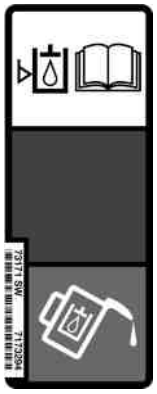
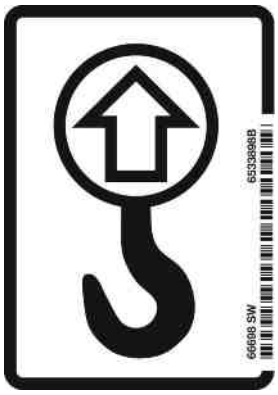
REF.	Decal	Warning
11	Emergency Door Exit (7344613) This safety sign is located inside the operator cab on the left side of the door of loaders equipped with a front door. 	
12	Operator Safety Warning (7368166) This safety sign is located inside the operator cab on the right side back wall. 	**WARNING** **INSUFFICIENT INSTRUCTIONS HAZARD** **Untrained operators or failure to follow instructions can cause serious injury or death.** **Operators must have adequate training and instruction before operating.** W-2001
13	Spring Removal (7361980) This safety sign is located inside the operator cab on the gas spring component of loaders equipped with a front door. 	

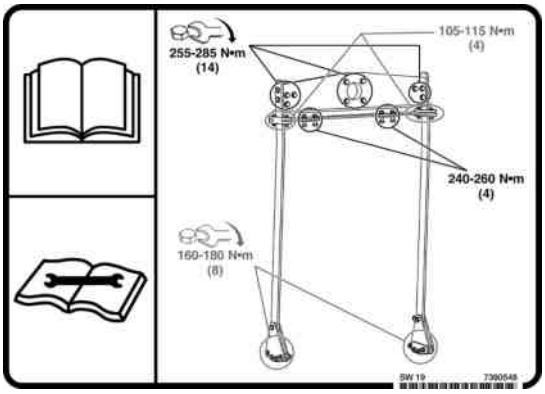
REF.	Decal	Warning
14	High Pressure Gas (7347041) (2 or 3) This safety sign is located on the gas spring component(s) supporting the operator cab, the radiator, and on loaders equipped with a front door. 	**WARNING** **IMPACT HAZARD** **Opening cylinder can release rod and cause serious injury or death.** • **Contents under high pressure.** • **Do not open.** • **See Service Manual for additional information.** W-2523
15	No Ammonia (7397975) (2) This safety sign is located inside the operator cab on the left and right side of loaders equipped with clear side enclosed cab. 	
16	Modification Hazard (7401182) (2) This safety sign is located inside the operator cab on the left and right side of loaders equipped with clear side enclosed cab. 	**DANGER** **MODIFICATION HAZARD** **Crushing can cause serious injury or death.** • **DO NOT operate if cab side windows are damaged or missing.** • **Replace damaged or missing windows with Bobcat approved parts only.** D-1050

REF.	Decal	Warning
17	Non-Flammable Gas (7443686) This safety sign is located inside the operator cab on the fire extinguisher. 	
18	Falling Hazard (7341272) This safety sign is located on top of the right side lift arm. 	**⚠ WARNING** **FALLING HAZARD** **Falling from the machine can cause serious injury or death.** • **Never carry riders.** • **Never use machine as a man lift or work platform.** W-2835
19	Lift Arm Crushing (7341273) This safety sign is located on the right side front frame. 	**⚠ DANGER** **CRUSHING HAZARD** **Lift arms lowering will cause serious injury or death.** **Keep out of this area when lift arms are raised unless supported by an approved lift arm support.** **Moving lift arm control or failure of a part can cause lift arms to drop.** D-1020

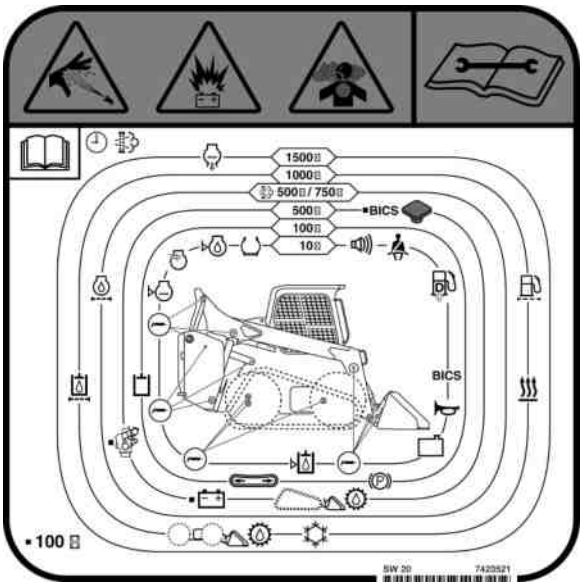
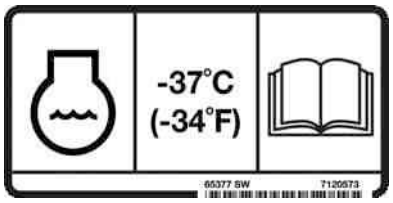
REF.	Decal	Warning
20	Frame Raising (7341274) This safety sign is located on the left side front frame. 	**DANGER** **CRUSHING HAZARD** **Frame raising into the lift arms will cause serious injury or death. Attachment can be forced against the ground and cause front frame to raise.** **Never go under or reach under lift arms or lift cylinder without an approved lift arm support installed.** D-1021
21	Tipping, Rollover, or Loss of Visibility (7342809) This safety sign is located on the back side of the lift arms facing the operator. 	**WARNING** **INSTABILITY HAZARD** **Tipping, rollover or loss of visibility can cause serious injury or death. Carry load low.** W-2836
22	Bob-Tach (7173403) This safety sign is located on the Bob-Tach crossmember. 	
23	Battery Access (7365422) This safety sign is located on the lower left side outside the operator cab. 	

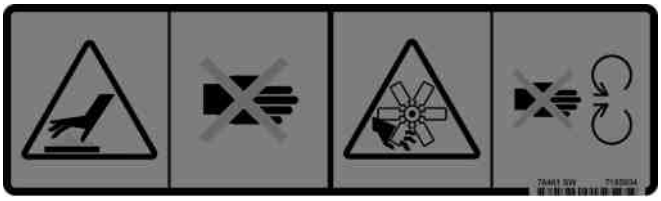
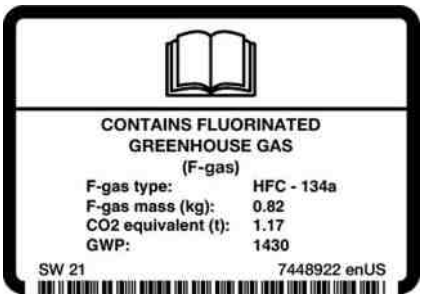
REF.	Decal	Warning
24	Tie-Down (6727595) (5) This safety sign is located next to the front and rear loader tie-down locations. 	
25	Auxiliary Couplers (7168031) This safety sign is located on top of the left side lift arm. 	
26	Sound Power (7432018) This safety sign is located on the lower left side outside the operator cab. 	

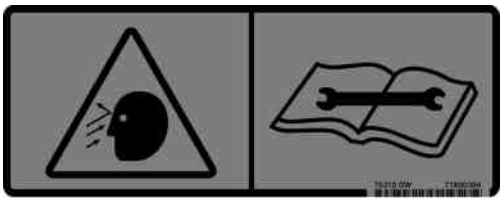
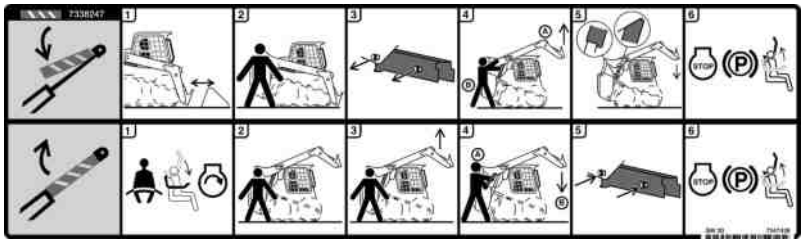
REF.	Decal	Warning
27	Hydraulic Fluid Sight Gauge (7173294) This safety sign is located on the left side of the loader next to the hydraulic fluid sight gauge. 	
28	Hydraulic Fluid (7120570) This safety sign is located on the left side of the loader on the hydraulic fill cover. 	
29	Hook (6533898) (2) This safety sign is located on both sides of the top crossmember of the single-point lift. 	

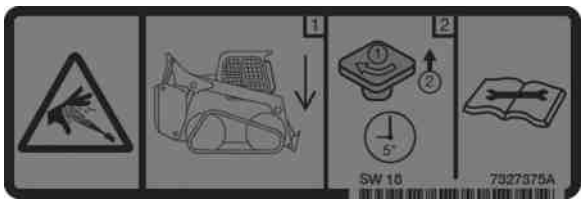
REF.	Decal	Warning
30	Service (7390548) (2) This safety sign is located on both sides of the top crossmember of the single-point lift. 	
31	Single-Point Lift (7142142) (2) This safety sign is located on both side arms of the single-point lift. 	**WARNING** **CRUSHING HAZARD** **Failure of the lift assembly can cause serious injury or death.** **Before lifting loader:** **1. Check the hardware and fasteners of the Single Point Lift and Operator Cab Roll-Over Protective Structure (ROPS) for proper torque.** **2. Inspect Single Point Lift for damage or cracked welds.** **Repair or replace components as necessary.** **• Never allow riders in the cab or bystanders within 5 m (15 ft) while lifting the machine.** **• See Operation & Maintenance Manual for more information.** W-2841

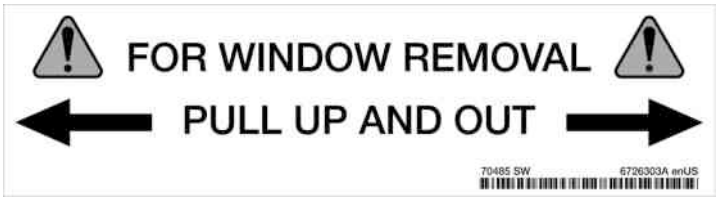
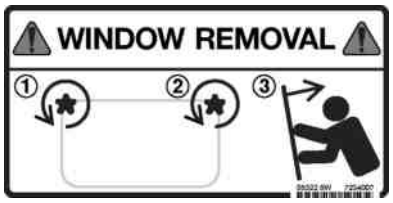
REF.	Decal	Warning
32	Four-Point Lift (7168020) This safety sign is located on the front of loaders equipped with four-point lift. 	**WARNING** **CRUSHING HAZARD** **Failure of the lift assembly can cause serious injury or death.** **BEFORE LIFTING LOADER:** **1. Check the hardware and fasteners at all lift points for proper torque.** **2. Inspect lift points for damage or cracked welds. Repair or replace components as necessary.** **• Never allow riders in the cab or bystanders within 5 m (15 ft) while lifting the machine.** **• See Operation & Maintenance Manual for more information.** W-2840

REF.	Decal	Warning
33	Service Checklist and Schedule (7423521) This safety sign is located inside the rear door on the belt shield. 	**⚠ WARNING** **GENERAL HAZARD** **Failure to follow instructions can cause serious 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
34	Engine Coolant (7120573) This safety sign is located inside the rear door on the engine coolant tank. 	

REF.	Decal	Warning
35	Hot Pressurised Fluid (7325124) This safety sign is located inside the rear door on the radiator cap. 	**WARNING** **BURN HAZARD** **Hot fluid can cause serious burns** • **Never open hot.** • **Open slowly to release pressure.** W-2755
36	Hot Surfaces and Rotating Fan (7185934) This safety sign is located inside the rear door under the handle of the radiator cooling package. 	**WARNING** **CUTTING AND BURN HAZARD** **Keep away from the operating machine.** • **Keep away from fan and moving parts. Do not operate with guard removed.** • **Do not touch hot surfaces. Allow to cool before servicing.** W-2521
37	Exchanger (7324952) This safety sign is located inside the rear door on the radiator cooling package. 	
38	Fluorinated Greenhouse Gas (7448922) This safety sign is located on the condenser inside the rear door of loaders equipped with air conditioning. 	

REF.	Decal	Warning
39	Ultra Low Sulfur Diesel Fuel (7367887) This safety sign is located inside the rear door next to the fuel fill. 	
40	Flying Debris or Objects (7168039) (2) This safety sign is located on the left and right undercarriages near the grease cylinder tensioning fittings. 	**⚠ WARNING** **INJECTION HAZARD** **High pressure grease can penetrate the skin and eyes causing serious injury.** • **Do not loosen grease fitting.** • **Do not loosen bleed fitting more than 1 - 1/2 turns.** • **Read and understand the Operation & Maintenance Manual for more information.** W-2516
41	Lift Arm Support (7347438) This safety sign is located on the lower right side outside the operator cab. 	*To Install Approved Lift Arm Support:* 1. Remove attachment from loader. 2. Stay in seat while second person removes lift arm support from storage position. 3. Remove pins and lift arm support. 4. Raise lift arms while second person positions lift arm support against cylinder rod. 5. Lower lift arms slowly until lift arm support is held securely between lift arm and cylinder. 6. Stop the engine, engage the parking brake, and raise the seat bar. *To Remove Lift Arm Support:* 1. Fasten seat belt and lower seat bar before starting the engine. 2. Stay in seat while second person removes lift arm support from cylinder rod. 3. Raise lift arms. 4. Second person removes lift arm support from cylinder rod. Stay in seat until the lift arms are lowered all the way. 5. Return lift arm support to storage position and secure with pins. 6. Stop the engine, engage the parking brake, and raise the seat bar.

REF.	Decal	Warning
42	Pressurised Fluid (7327375) This safety sign is located inside the loader frame underneath the operator cab on the accumulator of loaders equipped with automatic ride control. 	**⚠ WARNING** **INJECTION HAZARD** **Release Ride Control accumulator pressure before servicing.** • **After fully lowering the lift arms or installing an approved lift arm support, use lift arm bypass control for 5 seconds to release pressure from lift circuit before servicing.** **See Operation & Maintenance Manual or Service Manual for lift arm bypass control instructions.** W-3015
43	Lift Arm Crushing (7349416) (3) This safety sign is located on certain hoses or tubelines inside the loader frame underneath the operator cab. 	**⚠ DANGER** **CRUSHING HAZARD** **Avoid death due to lift arm or attachment movement.** • **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
44	Pinch Hazard (7418028) This safety sign is located on the lift arm support. 	**⚠ WARNING** **PINCH POINT HAZARD** **Keep hands clear during lift arm movement.** W-3072

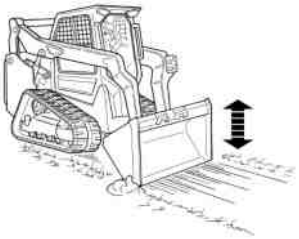
REF.	Decal	Warning
45	Latching Mechanism Release (7169877) This safety sign is located on the latching mechanism release attached to the gas spring supporting the operator cab. 	
46	Rear Window (6726303) This safety sign is located outside the operator cab on the rear window of loaders equipped with externally removable window.  or Rear Window (7234007) This safety sign is located outside the operator cab on the rear window of loaders equipped with externally removable window. 	
47	Pinch Hazard (7325691) (2) This safety sign is located on the side of each lift arm. 	**WARNING** **PINCH POINT HAZARD** **Keep hands clear during lift arm movement.** W-3072

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, levelling, 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	
Levelling	
Piling Material	
Loading Material	
Moving Palletised Loads	

⚠ WARNING

INSTABILITY HAZARD
Machine tipping or rollover can cause serious injury or death.
Load, unload and turn on flat level ground. DO NOT exceed ROC shown on decal in cab.◂
W-2056

⚠ WARNING

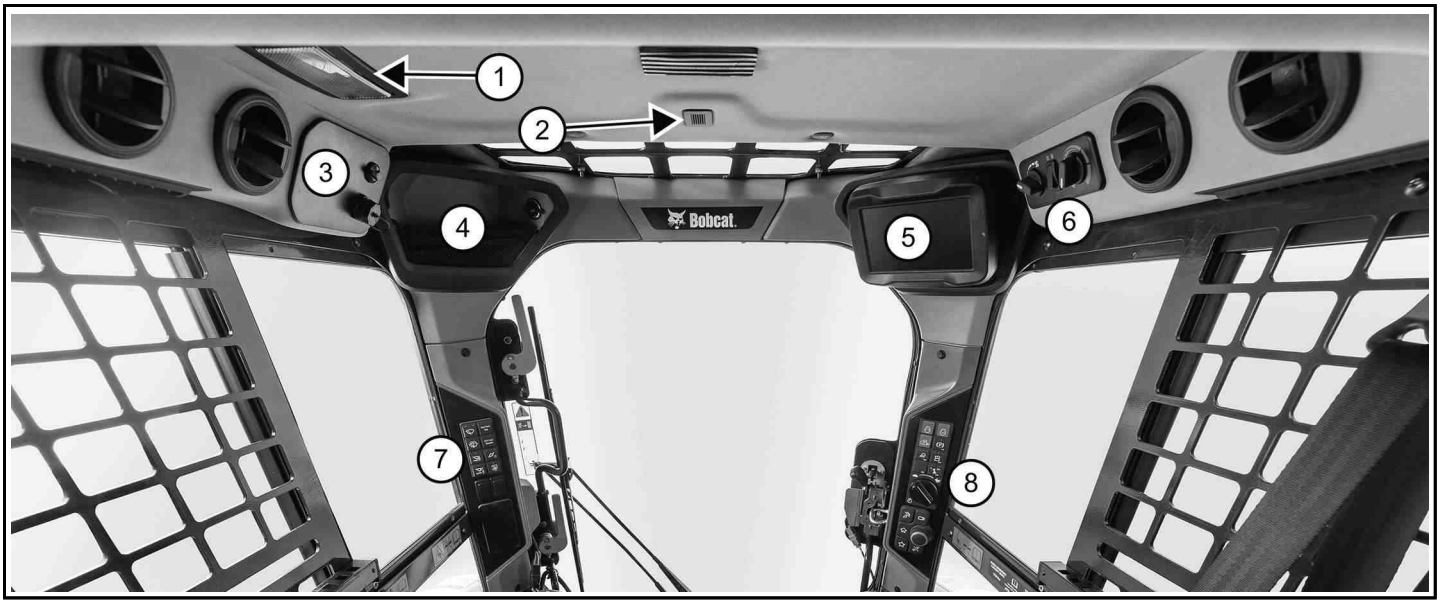
PUNCTURE AND CRUSHING HAZARDS
Tipping forward into an object can cause serious injury or death.
Never dump over an obstruction, such as a post, that can enter the operator cab.◂
W-2057

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Damage to lift arms or hydraulics can occur.
Never drive forward when the hydraulic control for lift arms is in float position.◂
I-2005

INSTRUMENT PANEL OVERVIEW

Figure 12



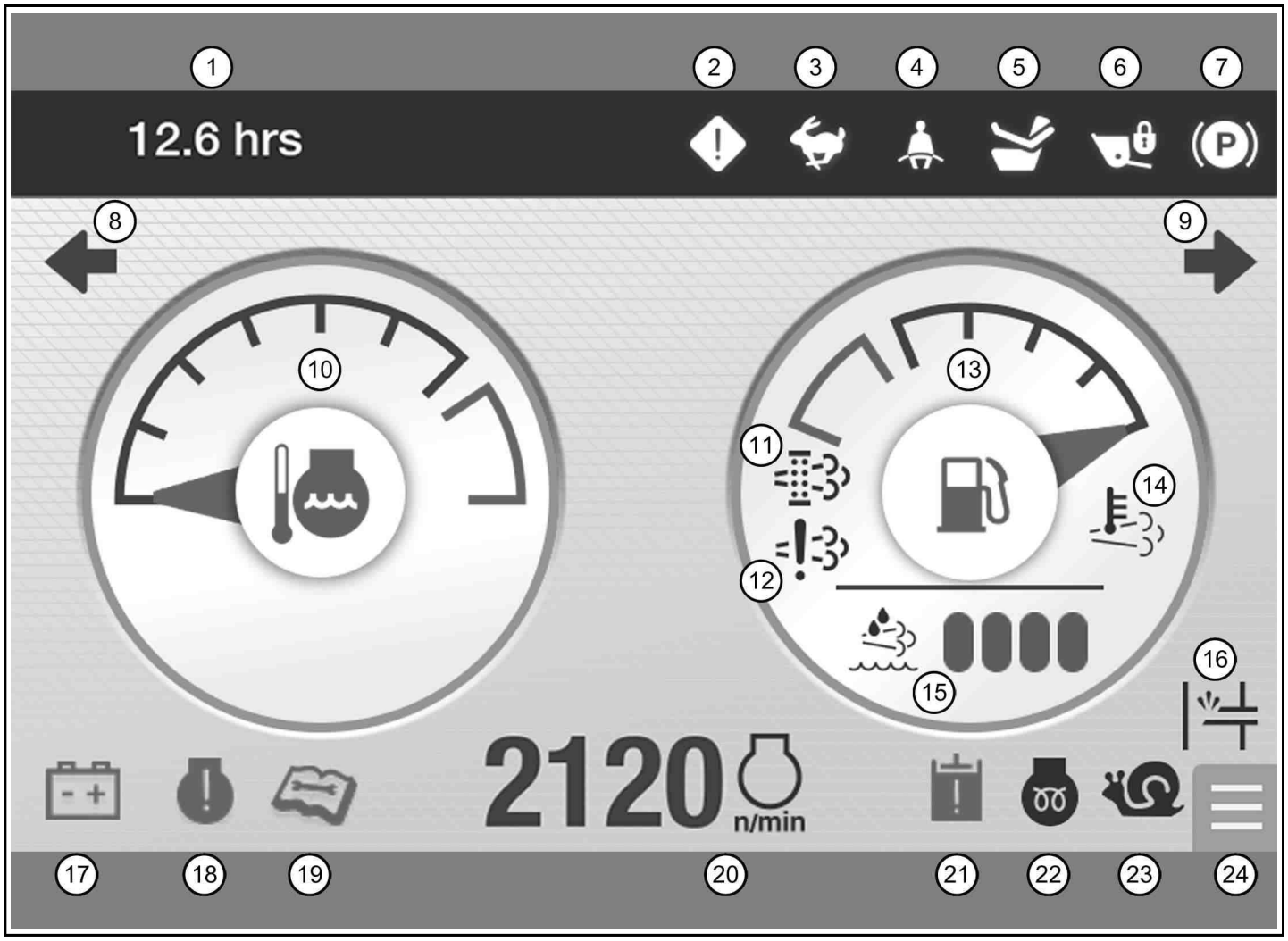
C200192a

REF	DESCRIPTION	FUNCTION
1	Cab Light	Press either side of the lens to turn the light on. Return the lens to the middle position to turn the light off.
2	Hands-Free Microphone	Used for hands-free talking with the touch display phone feature. Not installed with standard display.
3	Touch Display Radio Input Ports	(See Touch Display Radio Input Ports on Page 52)
	Standard Display Optional Radio	(See Radio Identification on Page 53)
4	Storage Compartment	Storage compartment and 12 volt power port for accessories.
5	Standard Display	(See Standard Display on Page 45)
	Touch Display	(See Touch Display on Page 47)
6	HVAC Controls (If equipped)	(See Heating, Ventilation, And Air Conditioning (HVAC) Controls on Page 51)
7	Left Control Panel	Option controls.
8	Right Control Panel	Includes keyless start. (See Right Control Panel on Page 50)

STANDARD DISPLAY

The standard display is a visual interface that provides control of certain machine settings and operating information through the use of a jog shuttle control. The standard display is scratch resistant and weather resistant.

Figure 13



NA3637C

The following table shows the description and function for the icons located on the gauges (home) screen [Figure 13].

REF	DESCRIPTION	FUNCTION
1	Hourmeter	Shows machine operating hours. This will remain visible on most screens.
2	General Warning	Malfunction with one or more machine functions.
3	Two-Speed	High range selected.
4	Seat Belt Reminder	Instructs operator to fasten seat belt.
5	Seat Bar Raised	This icon is ON when the seat bar is UP.
6	Lift and Tilt Lockout	This icon is ON when the lift and tilt functions cannot be operated.
7	Parking Brake Engaged	This icon is ON when the machine cannot be driven.
8	Left Turn Signal	Indicates left turn signal is ON.

REF	DESCRIPTION	FUNCTION
9	Right Turn Signal	Indicates right turn signal is ON.
10	Engine Coolant Temperature Gauge	Shows the engine coolant temperature.
11	Engine Emissions	This icon is ON or flashing when the emission system is requesting regeneration. The inhibit icon will display here when inhibit mode is selected. (See Diesel Particulate Filter (DPF) System on Page 62)
12	Emissions Error	Emission system malfunction or failure.
13	Fuel Gauge	Shows the amount of fuel in the tank.
14	High Exhaust System Temperature (HEST)	This icon is ON when the regeneration process is active. (See Diesel Particulate Filter (DPF) System on Page 62)
15	Diesel Exhaust Fluid (DEF) / AdBlue® Level Bar Graph	Shows the amount of fluid in the tank.
16	Fuel Priming in Process	This icon is ON when the fuel pump is priming the fuel system. Wait to start the machine until this icon is OFF.
17	Low Battery Voltage	Battery voltage is low.
18	Engine Malfunction	Engine malfunction or failure.
19	Service Due	Indicates service is due. (See Record A Service on Page 189)
20	Engine rpm	Shows engine rpm.
21	Hydraulic System Malfunction	Hydraulic system malfunction or failure.
22	Glow Plugs Activated	This icon is ON when the glow plugs are ON. Wait to start the machine until this icon is OFF.
23	Speed Management	Indicates speed management is engaged.
24	Navigation Handle	This icon is used to open the navigation bar. (See Navigation Bar on Page 187)

TOUCH DISPLAY

The touch display is a visual interface that provides control of certain machine settings, operating information, and entertainment through the use of a touch screen or jog shuttle control. The touch display is scratch resistant and weather resistant.

See the Touch Display User Guide included in the machine documentation kit for phone and sound system instructions.

Figure 14

NA3441F

The following table shows the description and function for the icons located on the gauges (home) screen [Figure 14].

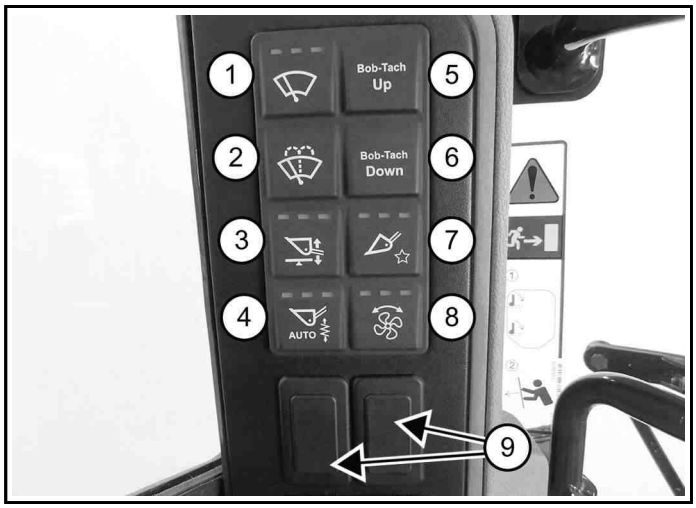
REF	DESCRIPTION	FUNCTION
1	Operator / Connected Device Information	These icons show: Operator Name, Connected Device Signal Strength, Connected Device Battery Strength, Bluetooth Device Connected, Job Clock Active, and Notifications Available.
2	Current Time / Notification Drawer	Displays current time. The notification drawer is opened by pressing the time. The notification drawer will show: Job Clock, Screen Brightness, and Notifications.
3	Status Indicators	These icons show: General Warning, Two-Speed, Seat Belt Reminder, Seat Bar Raised, Lift and Tilt Lockout, and Parking Brake Engaged.
4	Volume Control	Activates volume slider bar and mute control. This will remain visible on most screens.

REF	DESCRIPTION	FUNCTION
5	Vitals Screen	Changes display to machine vitals shown in a digital format.
6	Settings	Changes display to machine settings from the gauges screen. Used to enter camera, phone, and audio settings when those screens are displayed. (See Settings (Touch Display) on Page 204)
7	Hourmeter	Shows machine operating hours. This will remain visible on most screens.
8	Engine Oil Pressure Gauge	Shows the engine oil pressure.
9	System Voltage Gauge	Shows the system voltage.
10	Fuel Gauge	Shows the amount of fuel in the tank.
11	Engine Emissions	This icon is ON or flashing when the emission system is requesting regeneration. The inhibit icon will display here when inhibit mode is selected. (See Diesel Particulate Filter (DPF) System on Page 62)
12	Emissions Error	Emission system malfunction or failure.
13	High Exhaust System Temperature (HEST)	This icon is ON when the regeneration process is active. (See Diesel Particulate Filter (DPF) System on Page 62)
14	Diesel Exhaust Fluid (DEF) / AdBlue® Level Bar Graph	Shows the amount of fluid in the tank.
15	Hydraulic Fluid Temperature Gauge	Shows the hydraulic fluid temperature.
16	Engine Coolant Temperature Gauge	Shows the engine coolant temperature.
17	Fuel Level Bar Graph	Shows the amount of fuel in the tank. This will remain visible on most screens.
18	Diesel Exhaust Fluid (DEF) / AdBlue® Level Bar Graph	Shows the amount of DEF / AdBlue® in the tank. This will remain visible on most screens.
19	Status Indicators	These icons show: Fuel Priming in Process, Hydraulic System Malfunction, Low Battery Voltage, and Speed Management Engaged.
20	Left Turn Signal	Indicates left turn signal is on.
21	Engine rpm	Shows engine rpm.
22	Right Turn Signal	Indicates right turn signal is on.
23	Status Indicators	These icons show: Service Due, Glow Plugs Activated, and Engine Malfunction.
24	Gauges	Changes display to this screen. (See Gauges (Touch Display) on Page 196)
25	Camera	Changes display to the camera screen. (See Camera (Touch Display) on Page 197)
26	Phone	Changes display to the phone screen. (See your Touch Display User Guide.)
27	Audio	Changes display to the audio screen. (See your Touch Display User Guide.)
28	Service	Changes display to the service screen. (See Service (Touch Display) on Page 199)
29	Active Service Code Indicator	Indicates active service code. (See View Service Codes on Page 190)

REF	DESCRIPTION	FUNCTION
30	Attachments	Changes display to the attachments screen. (See Attachments (Touch Display) on Page 203)
31	Settings	Changes display to the settings screen. (See Settings (Touch Display) on Page 204)

LEFT CONTROL PANEL

Figure 15



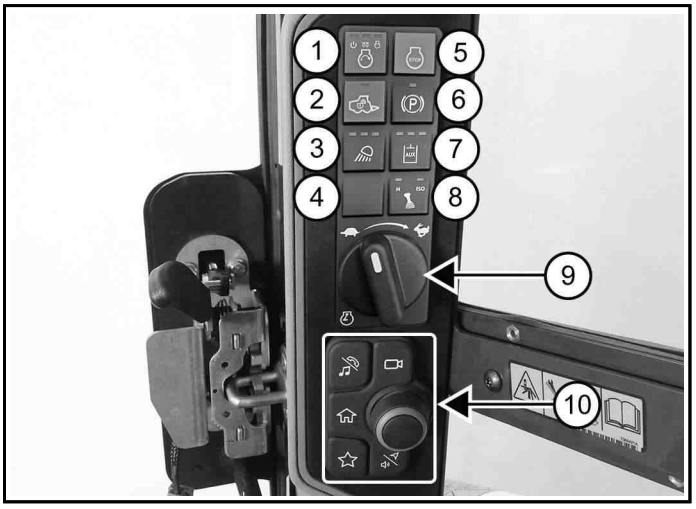
C200193a

REF	DESCRIPTION	FUNCTION
1	Windshield Wiper	(See Operating Front Wiper And Washer on Page 58)
2	Windshield Washer	(See Operating Front Wiper And Washer on Page 58)
3	Dual Direction Bucket Positioning	(See Operating Dual Direction Bucket Positioning on Page 90)
4	Auto Ride Control (If equipped)	(See Operating Automatic Ride Control on Page 90)
5	Power Bob-Tach Wedges Up	(See Installing And Removing Attachments (Power Bob-Tach System) on Page 111)
6	Power Bob-Tach Wedges Down	(See Installing And Removing Attachments (Power Bob-Tach System) on Page 111)
7	Not Used	- - -

REF	DESCRIPTION	FUNCTION
8	Reversing Fan (If equipped)	(See Operating Reversing Fan on Page 91)
9	Accessory Switches (If equipped)	Certain kits available from your Bobcat dealer use switches that can be installed here. Some examples include: strobe light, rotating beacon, rear window wiper, and four-way flashers.

RIGHT CONTROL PANEL

Figure 16



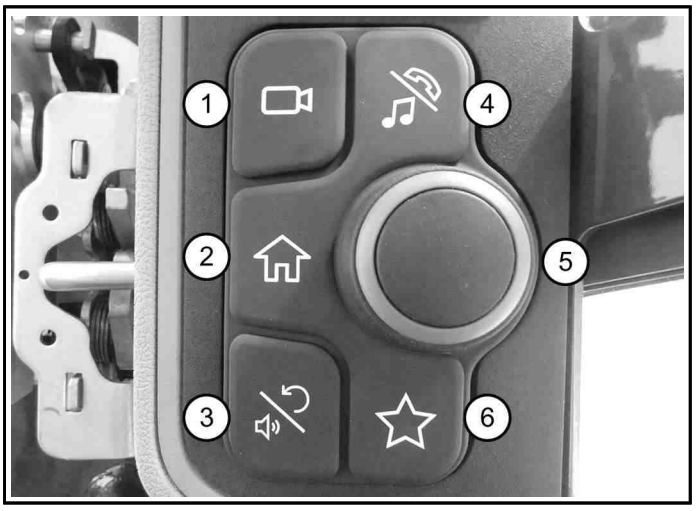
C200320A

REF	DESCRIPTION	FUNCTION
1	Run / Start	(See Starting Engine on Page 104)
2	Operate	(See Starting Engine on Page 104)
3	Lights	(See Operating Loader Lights on Page 58)
4	Not Used	- - -
5	Stop	(See Stopping The Engine And Leaving The Machine Procedure on Page 108)
6	Parking Brake	(See Parking Brake on Page 69)
7	Auxiliary Hydraulics	(See Operating Front Auxiliary Hydraulics on Page 91)
8	Selectable Joystick Controls (SJC)	(See Driving and Steering the Loader on Page 77)
9	Engine Speed Control	(See Engine Speed Control on Page 70)
10	Jog Shuttle	(See Jog Shuttle (Standard Display) on Page 50) (See Jog Shuttle (Touch Display) on Page 51)

JOG SHUTTLE

Jog Shuttle (Standard Display)

Figure 17

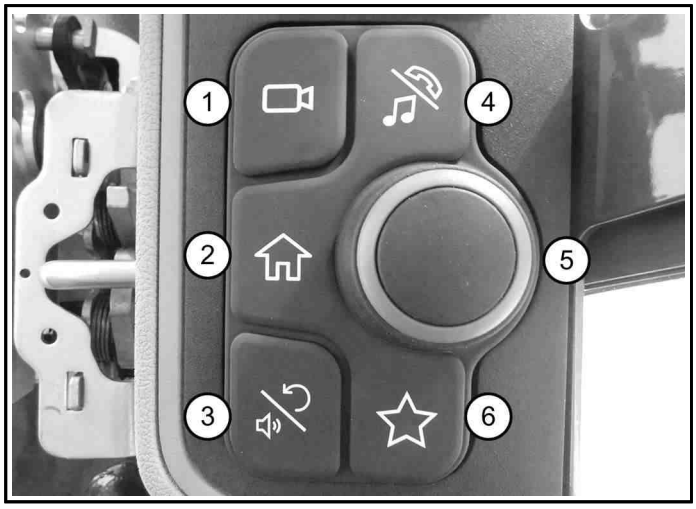


C200199a

REF	DESCRIPTION	FUNCTION
1	Rear View Camera	Press to change display view to rear camera.
2	Gauges	Press to change display view to the **GAUGES** screen.
3	Back	Press to return to previous screen.
4	Not Used	- - -
5	Rotary Knob	Rotate to navigate between available icons on display. Press to select highlighted icon.
6	Not Used	- - -

Jog Shuttle (Touch Display)

Figure 18

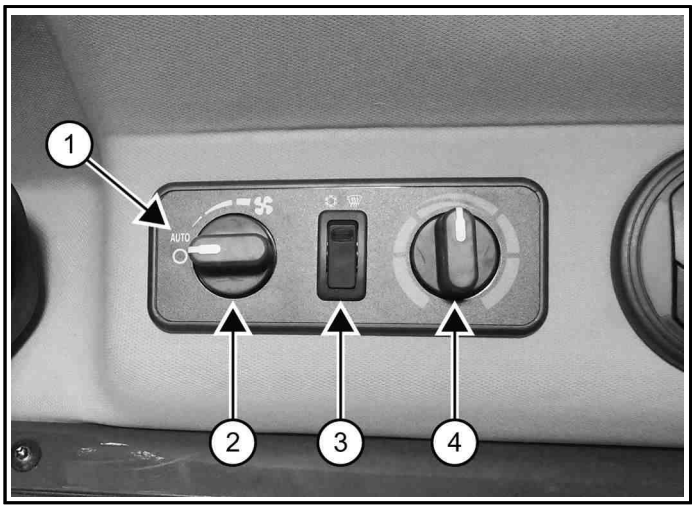


C200199a

REF	DESCRIPTION	FUNCTION
1	Rear View Camera	Press to change display view to rear camera. Press again to toggle full screen view.
2	Gauges	Press to toggle between **GAUGES** and **VITALS** screens.
3	Volume / Navigation	Press to toggle rotary knob control of radio and phone volume or navigation around the current display view.
4	Audio / Phone	Press to toggle between **AUDIO** and **PHONE** screens. See Touch Display User Guide for more information.
5	Rotary Knob	Rotate to navigate between available icons on display. Press to select highlighted icon.
		Rotate clockwise to increase volume of radio or phone and anticlockwise to decrease volume. Press to mute and unmute.
6	Favorite	Press repeatedly to cycle through favorite screens. Press and hold to add and remove favorite screens. (See Favorites on Page 204)

HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) CONTROLS

Figure 19

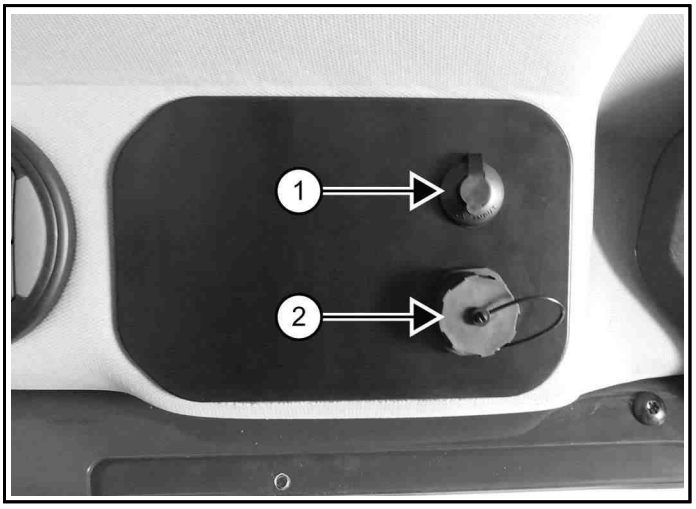


C200198a

REF	DESCRIPTION	FUNCTION
1	Auto Fan Position (If equipped)	Fan speed will automatically increase and decrease to maintain the selected temperature. Fan motor will not run at full speed when heat is required until engine coolant reaches normal operating temperature.
2	Fan Motor Speed	Rotate clockwise to increase fan speed and anticlockwise to decrease. There are four positions; Off-1-2-3. Louvers throughout the operator cab can be opened, closed, and rotated.
3	Air Conditioning / Defrost Switch	Press top of switch to start; bottom to stop. Switch will light when started. Fan motor must be on for air conditioning to operate.
4	Temperature Control	Rotate clockwise to increase the temperature and anticlockwise to decrease.

TOUCH DISPLAY RADIO INPUT PORTS

Figure 20



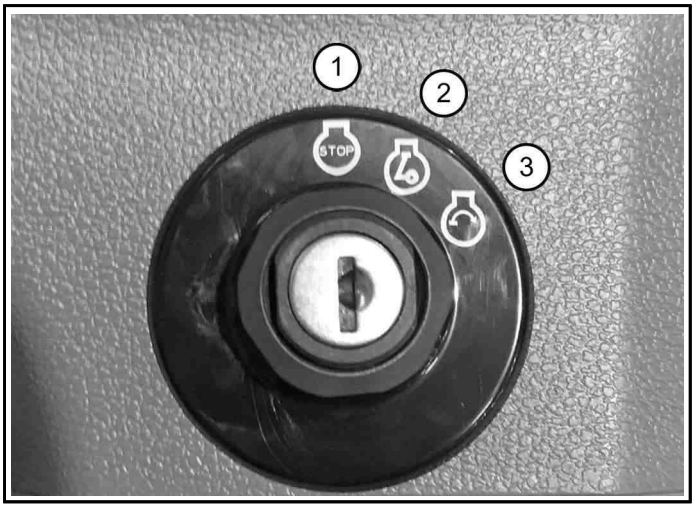
C200196a

The touch display radio input ports [Figure 20] are installed if the machine is equipped with touch display.

REF	DESCRIPTION	FUNCTION
1	3,5 mm (1/8 in) Auxiliary Input (If equipped)	See the Touch Display User Guide included in the machine literature packet for more information about the sound system.
2	USB Input (If equipped)	

KEYED IGNITION

Figure 21



C200594a

REF	DESCRIPTION	FUNCTION
1	Stop	Stop the engine and turn the machines electrical system OFF.
2	Run	Turn the machines electrical system ON.
3	Start	Start the engine.

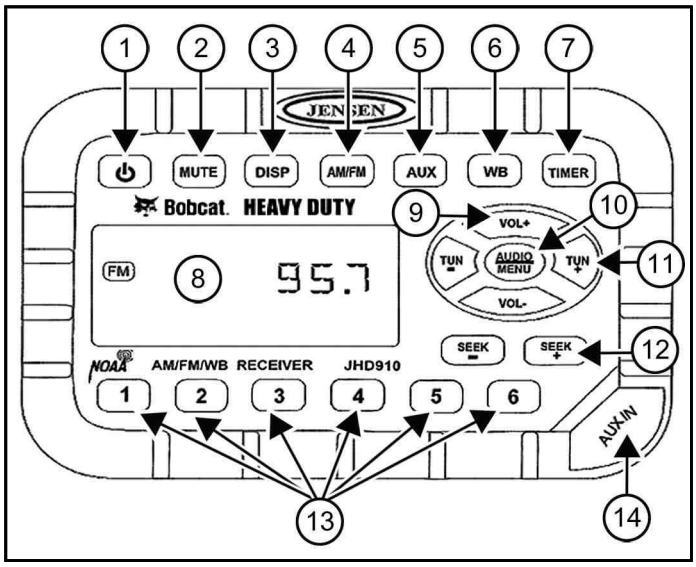
The Run / Start and Stop buttons on the right control panel are functional after the key switch is turned to the Run position.

NOTE: Pressing the Stop button on the right control panel will stop the engine and momentarily turn the electrical system OFF before turning back ON. You must turn the key switch to the Stop position after use if equipped with keyed ignition kit.

RADIO

Radio Identification

Figure 22

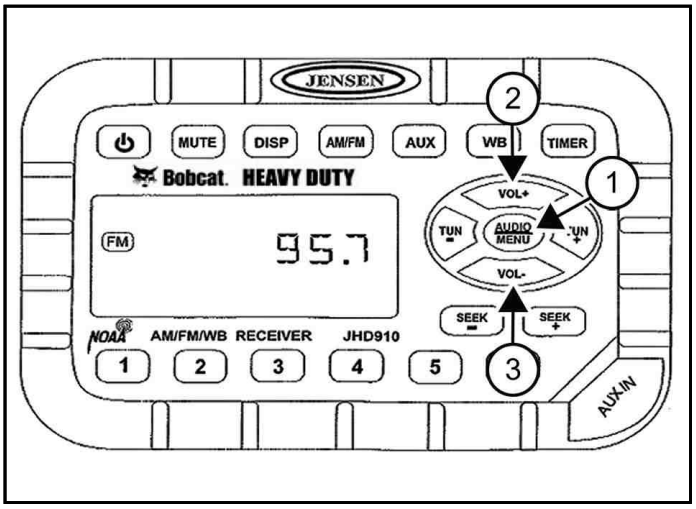


NA3090h

REF	DESC.	FUNCTION
1	POWER	Turns the radio unit ON / OFF.
2	MUTE	Mutes audio output.
3	DISP	Switches between display operation functions of the radio. (See Operating The Radio Clock on Page 54)
4	AM/FM	Switches between AM (MW) bands and three FM bands.
5	AUX	Switches to Auxiliary Input mode. Portable audio device (MP3 player, etc.) must be attached to auxiliary input jack.
6	WB	Selects weather band. The weather alert feature, if activated, will automatically switch from the current function to the weather band if a weather warning is received. (See Adjusting Radio Settings on Page 53)
7	TIMER	Accesses timer mode. (See Operating Radio Timer on Page 54)
8	DISPLAY SCREEN	Displays the time, frequency, and activated functions.
9	VOL+ / VOL-	Adjusts volume up and down. Current volume (0 – 40) will appear briefly in display screen.
10	AUDIO / MENU	Adjusts radio settings. (See Adjusting Radio Settings on Page 53)
11	TUN- / TUN+	Manually tunes the radio frequency up and down.
12	SEEK- / SEEK+	Automatically tunes frequency up or down to next strong station.
13	PRESET STATIONS	Stores and recalls stations for each AM and FM band. Press button and hold to store current station. Press button to recall station.
14	AUX IN	Connect line output of portable audio device (MP3 player, etc.) to 3,5 mm (1/8 in) jack and press AUX button.

Adjusting Radio Settings

Figure 23



NA3090g

- Press the AUDIO / MENU button (Item 1) [Figure 23] to cycle through bass, treble, and balance settings.
  - ▹ Use the VOL+ (Item 2) and VOL- (Item 3) buttons [Figure 23] to adjust the desired option displayed.

  Normal operation will resume automatically.
- Press and hold the AUDIO / MENU button (Item 1) [Figure 23] for three seconds to enter menu adjustment settings.
  - ▹ Press the AUDIO / MENU button (Item 1) [Figure 23] to cycle through the following settings:

Beep Confirm: Determines if beep will sound with each button press.

Operation Region: Selects the appropriate region (USA or Europe).

Clock Display: Selects a 12 hour or 24 hour clock display.

Display Brightness: Set display screen brightness level (low, medium, or high).

Backlight Colour: Set display screen backlight colour (amber or green).

Power On Volume: Sets default volume setting when radio is turned on.

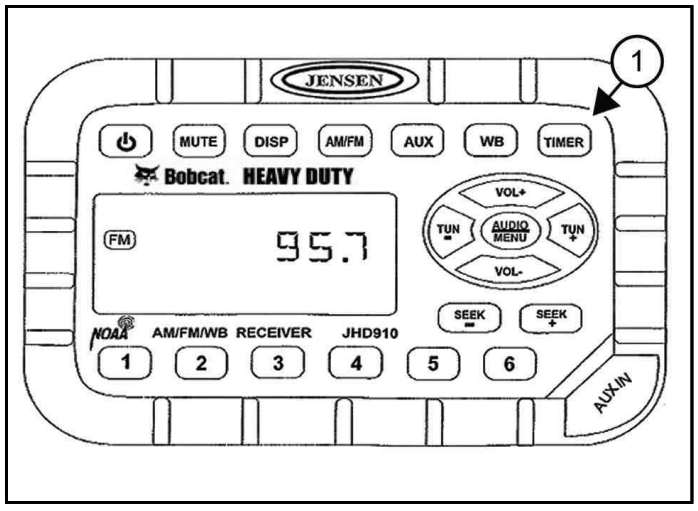
WB Alert: Determines if weather band alert features is activated.

- ▷ Use the VOL+ (Item 2) and VOL- (Item 3) buttons [Figure 23] to adjust the active setting.

Normal operation will resume automatically.

Operating Radio Timer

Figure 24

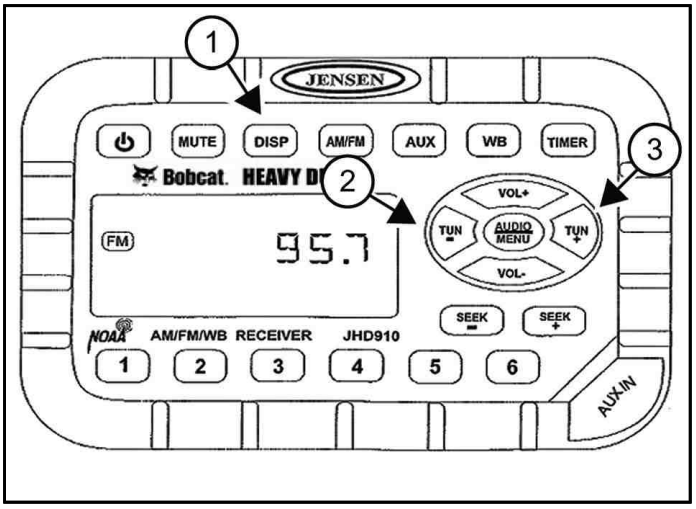


NA3090f

- Press the TIMER (Item 1) [Figure 24] button to start the timer function.
- Press TIMER (Item 1) [Figure 24] again to stop timer.
- Press and hold TIMER (Item 1) [Figure 24] to reset timer and exit from timer mode.

Operating The Radio Clock

Figure 25



NA3090c

- Press and hold the DISP (Item 1) button [Figure 25] to enter clock setting mode.
- Use TUN – button (Item 2) [Figure 25] to adjust hours.
- Use TUN + button (Item 3) [Figure 25] to adjust minutes.

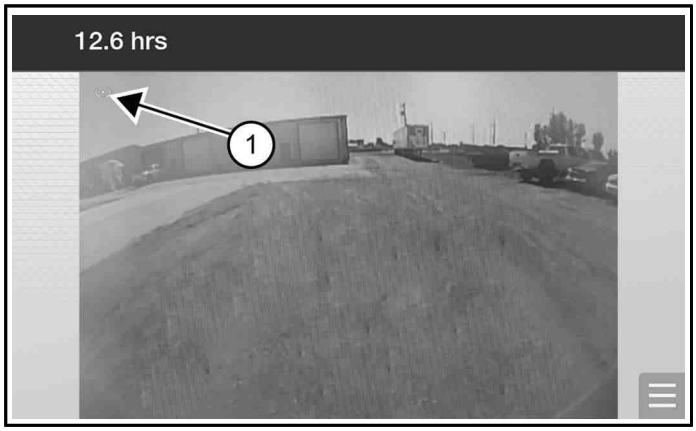
Normal operation will resume automatically.

REAR VIEW CAMERA SYSTEM

Rear View Camera System Description

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 26



NA3636A

The camera view is shown on the display [Figure 26] by selecting **[CAMERA]** on the display or pressing the camera button on the jog shuttle.

The rotating icon (Item 1) [Figure 26] 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.

The display will change to camera view automatically when the operator moves the joystick(s) into the reverse position.

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

⚠ WARNING

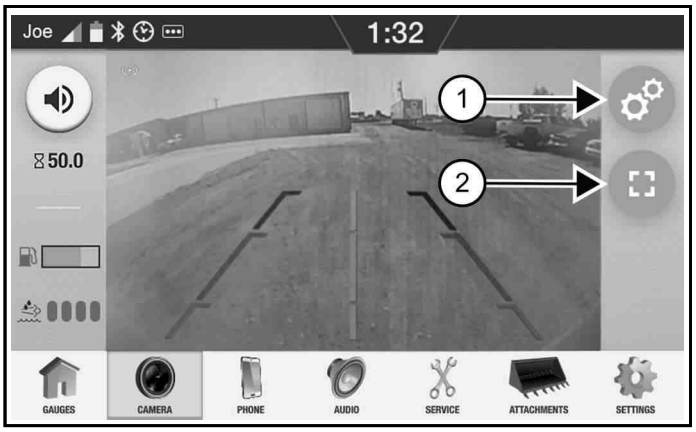
CRUSHING HAZARD
Contact with machine can cause serious injury or death.

- **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

Touch Display Only

Figure 27



NA3584D

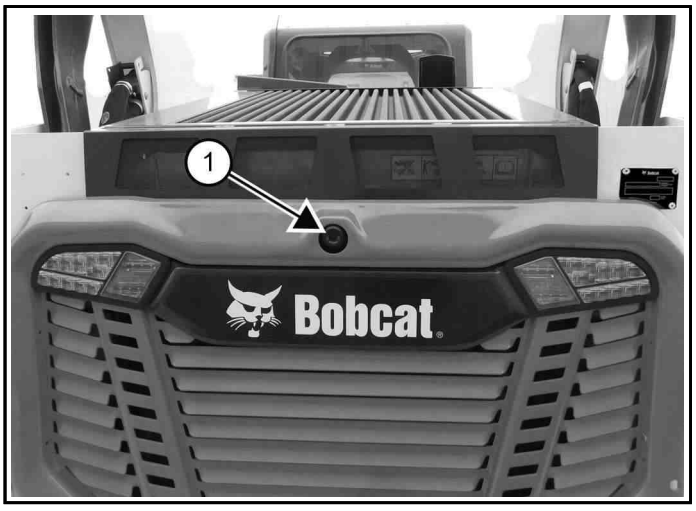
The view can be toggled between partial screen and full screen by:

- Pressing the camera button on the jog shuttle.
- Touching anywhere on the camera view.
- Selecting the **[FULL SCREEN]** icon (Item 2) [Figure 27].

Camera settings are accessed by selecting the **[SETTINGS]** icon (Item 1) [Figure 27].
(See Camera Settings on Page 197)

Maintaining Rear View Camera System

Figure 28



C216682A

The rear view camera (Item 1) [Figure 28] is located in the rear door.

1. Perform the following daily or as necessary:

- 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. (See Adjusting Rear View Camera System on Page 56) Adjust camera if necessary.
- Replace damaged rear view camera system components. See your Bobcat dealer for service and parts.

Adjusting Rear View Camera System

Perform the following steps to adjust the rear camera:

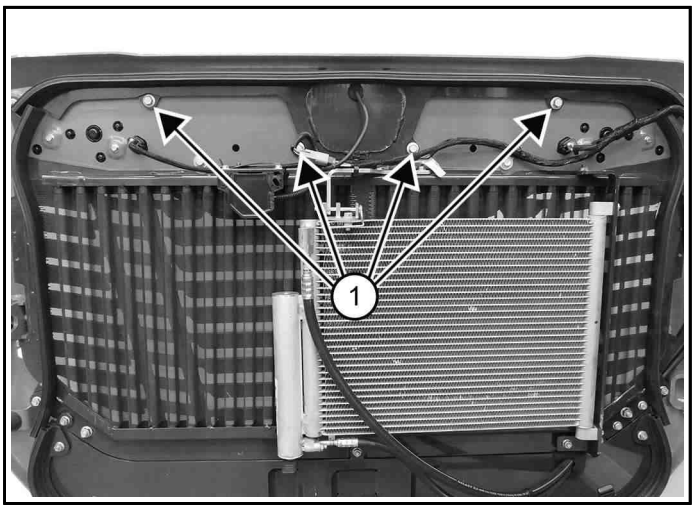
1. Make a mark on the ground 1,25 m (4 ft) behind the machine.
2. Turn the machine ON without starting the engine. Set the display for camera.

Figure 29

NA3636B

3. Ensure the camera is centred left and right. The mark on the ground (Item 2) [Figure 29] from step 1 should be visible on the display. Continue with procedure if necessary.

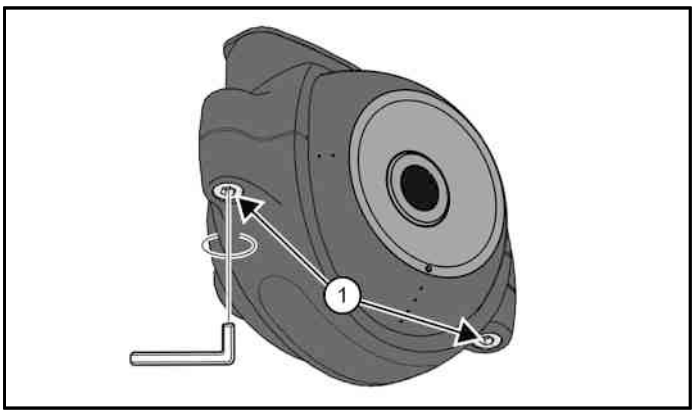
Figure 30



C200205C

4. Remove the bolts (Item 1) [Figure 30] while supporting the bracket.

Figure 31



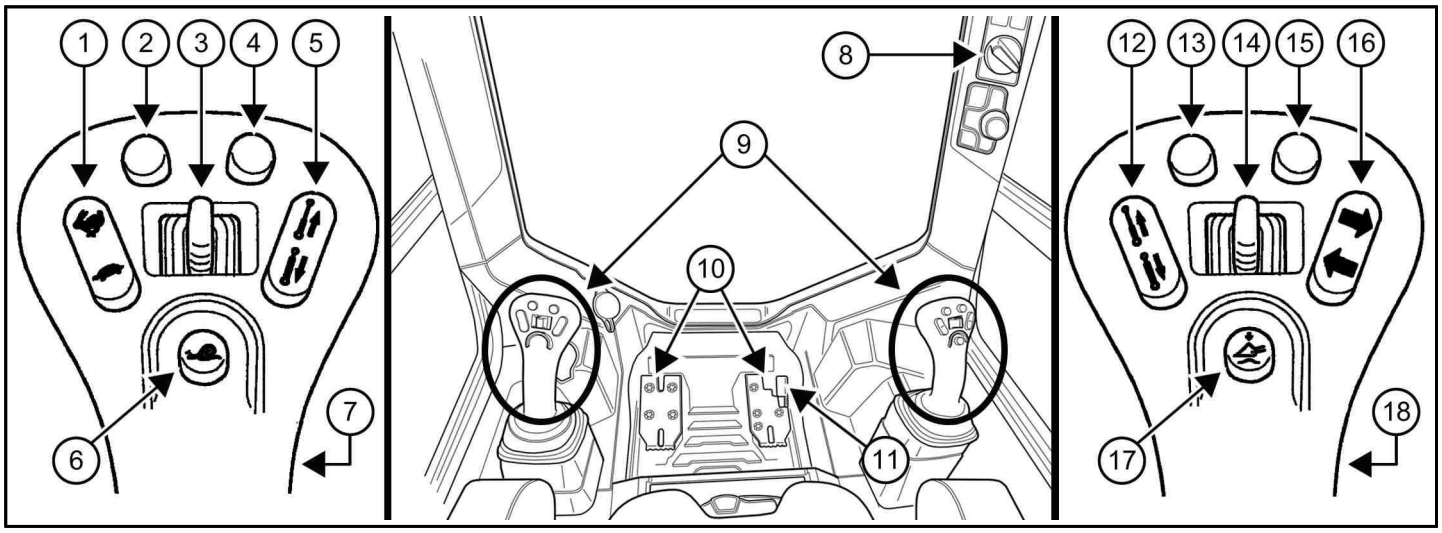
NA3351A

5. Loosen the screws (Item 1) [Figure 31] of the clamp holding the camera.
6. Adjust the camera until the rear door (Item 1) is just visible on the display. Ensure the camera is centred left and right. The mark on the ground (Item 2) [Figure 29] from step 1 should be visible on the display.
7. Tighten the screws to 0,8 – 1,0 N•m (7 – 8.8 in-lb) torque.
8. Install the bracket and bolts [Figure 30].
9. Verify proper camera adjustment [Figure 29].
10. Repeat steps 4 through 9 if necessary.
11. Turn the machine OFF.

CONTROL IDENTIFICATION

Selectable Joystick Controls (SJC) Identification

Figure 32



REF	DESCRIPTION	FUNCTION
1	TWO-SPEED CONTROL	(See Two-speed Control on Page 79)
	Also: SPEED MANAGEMENT	(See Speed Management on Page 80)
2 [A]	STEERING DRIFT COMPENSATION	(See Steering Drift Compensation on Page 83)
3 [A]	REAR AUXILIARY HYDRAULICS (If equipped)	(See Operating Rear Auxiliary Hydraulics on Page 93)
4 [A]	STEERING DRIFT COMPENSATION	(See Steering Drift Compensation on Page 83)
5	ATTACHMENT FUNCTION CONTROL	(See Attachment Control Device (ACD) on Page 98)
6	SPEED MANAGEMENT	(See Speed Management on Page 80)
7	FRONT HORN	Press the front switch to sound the front horn.
8	ENGINE SPEED CONTROL (HAND)	(See Operating Engine Speed Control (Hand) on Page 70)
9	JOYSTICKS	(See Driving and Steering the Loader on Page 77) (See Hydraulic Controls on Page 89)
10	FOOTRESTS	Keep your feet on the footrests at all times.
11	ENGINE SPEED CONTROL (FOOT)	(See Operating Engine Speed Control (Foot) on Page 70)
12	ATTACHMENT FUNCTION CONTROL	(See Attachment Control Device (ACD) on Page 98)
13	ATTACHMENT FUNCTION CONTROL	(See Attachment Control Device (ACD) on Page 98)
14	FRONT AUXILIARY HYDRAULICS	(See Operating Front Auxiliary Hydraulics on Page 91)
15	ATTACHMENT FUNCTION CONTROL	(See Attachment Control Device (ACD) on Page 98)
16	TURN SIGNALS (If equipped)	Press the top to activate right signal; press again to turn off. Press the bottom to activate left signal; press again to turn off.

REF	DESCRIPTION	FUNCTION
17	FLOAT CONTROL	(See Hydraulic Controls on Page 89)
18	CONTINUOUS FLOW CONTROL FOR AUXILIARY HYDRAULICS	(See Operating Front Auxiliary Hydraulics In Continuous Flow Mode on Page 92) (See Operating Front Auxiliary Hydraulics In Reverse Continuous Flow Mode on Page 92)

[A] Also used as Attachment Function Control: See your attachment Operation & Maintenance Manual.

OPERATOR CAB

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

MODIFICATION HAZARD
Cab changes can cause loss of operator protection from rollover and falling objects resulting in serious injury or death.
Never modify operator cab by welding, grinding, drilling holes or adding attachments unless instructed to do so by Bobcat Company.
W-2069

Operating Loader Lights

Figure 33

C200320b

The lights button (Item 1) [Figure 33] is located on the right control panel.

Loader Light Operation Without Road Option

1. Press once for front lights and rear taillights. The left LED in the button will light.
2. Press a second time to add rear work lights. The middle LED in the button will light.
3. If equipped with side lights, a third press adds side lights. The right LED in the button will light.
4. Press a final time to turn all lights off.

Loader Light Operation With Road Option

1. Press once for front road lights, license plate light, and rear taillights. The left LED in the button will light.
2. Press a second time for front and rear work lights. The front road lights and license plate light will turn off. The middle LED in the button will light.
3. If equipped with side lights, a third press adds side lights. The right LED in the button will light.
4. Press a final time to turn all lights off.

Operating Front Wiper And Washer

Figure 34

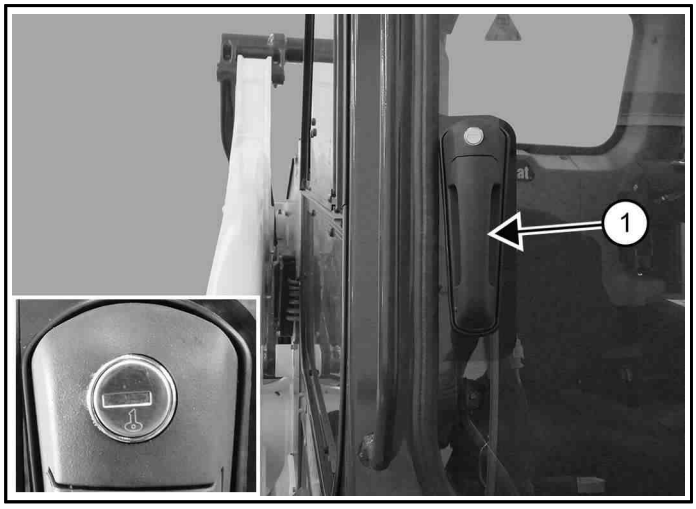
C200193h

The front wiper and washer controls (Items 1 and 2) [Figure 34] are located on the left control panel.

1. Press the wiper button (Item 1) [Figure 34] once to start front wiper. The left and right LED in the button will light.
2. Press a second time for intermittent operation. The left LED in the button will light.
3. Press a third time to turn the wiper off.
4. Press and hold the washer button (Item 2) [Figure 34] for washer fluid. The wiper will start automatically.

Operating Front Door

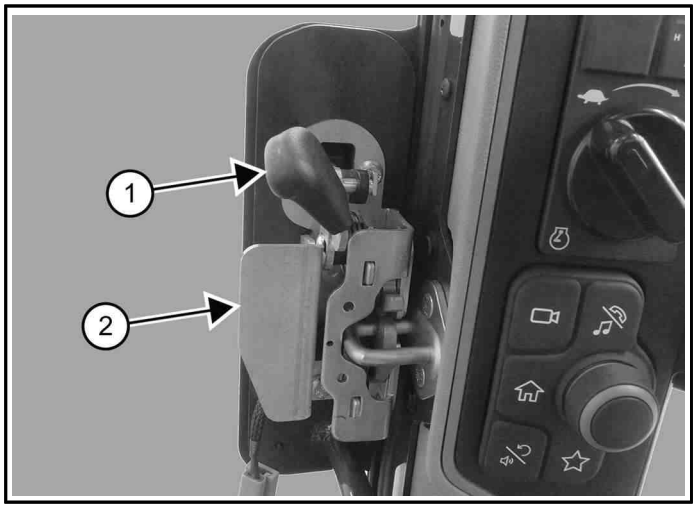
Figure 35



C200224a

- Pull the handle (Item 1) to open the front door. A lock (Inset) [Figure 35] is provided to lock the front door when the machine is not in use.

Figure 36

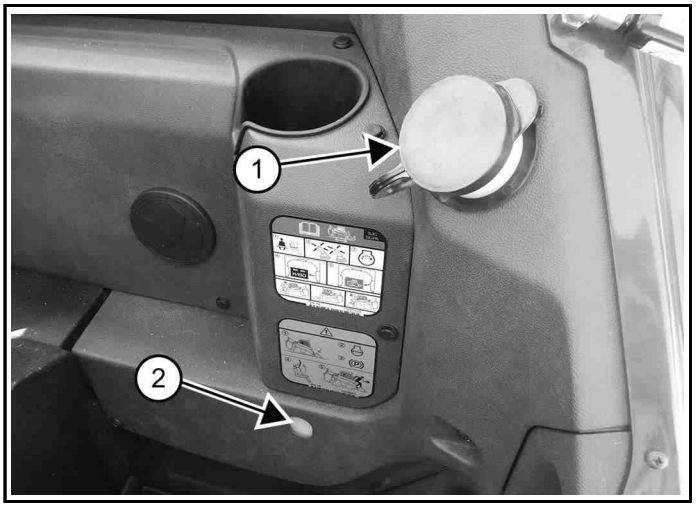


C200225a

- Pull the front door closed using the handle (Item 2) [Figure 36].
- Push the lever (Item 1) to unlatch the front door. Push on the handle (Item 2) [Figure 36] to open the front door.

Filling Front Washer Tank

Figure 37



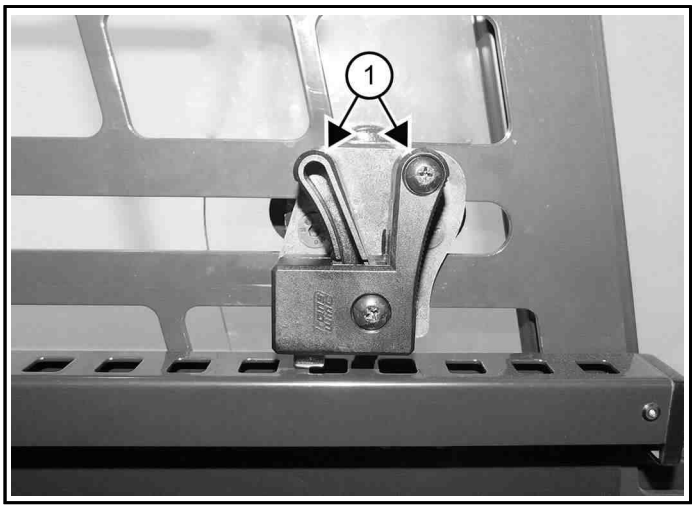
C200201a

The washer fluid tank is located to the left of the operator's seat.

- Check the fluid level in the sight gauge (Item 2) [Figure 37].
- Remove the cap (Item 1) [Figure 37] to add washer fluid.

Operating Side Windows

Figure 38



C200194a

1. Pinch the lever (Item 1) [Figure 38] of the side window handle and slide forward to open window. (Left side shown.)
2. Release lever at cutout to lock in desired position.
3. Pinch the lever and slide backward to close window.

BOBCAT INTERLOCK CONTROL SYSTEM (BICS)

Bobcat Interlock Control System (BICS) Description

⚠ WARNING

MODIFICATION HAZARD
Modifying the machine can cause serious 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

Figure 39

C214222A

The Bobcat Interlock Control System (BICS) has a pivoting seat bar with armrests (Item 1) [Figure 39]. The operator controls the use of the seat bar.

⚠ WARNING

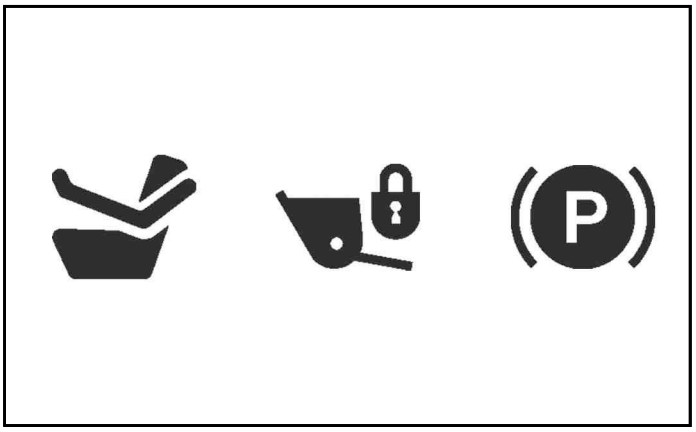
GENERAL HAZARD
Failure to follow instructions can cause serious injury or death.
When operating the machine:
- **Keep the seat belt fastened snugly.**
- **The seat bar must be lowered.**
- **Keep your feet on the pedal controls or footrests and hands on the controls.**

W-2261

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.

Operating Bobcat Interlock Control System (BICS)

Figure 40



NA3635

- Three icons [Figure 40] located in the upper right of the display must be OFF to fully operate the machine.
- When the seat bar is lowered, the engine is running, the operate button is pressed, 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

GENERAL HAZARD
Failure to follow instructions can cause serious injury or death.
Before you leave the operator's seat:
- **Lower the lift arms and put the attachment flat on the ground.**
- **Engage the parking brake.**
- **Raise the seat bar.**
- **Move all controls to the NEUTRAL 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.**
- **Turn off the machine**

W-3175

SEAT BAR RESTRAINT SYSTEM

Seat Bar Restraint System Description

Figure 41

C214222A

The seat bar restraint system has a pivoting seat bar with armrests (Item 1) [Figure 41].

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

GENERAL HAZARD
Failure to follow instructions can cause serious 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

Operating Seat Bar Restraint System

- When the seat bar is down, the engine is running, the operate button is pressed, and the parking 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.

⚠ WARNING

GENERAL HAZARD
Failure to follow instructions can cause serious injury or death.
Before you leave the operator's seat:
- **Lower the lift arms and put the attachment flat on the ground.**
- **Engage the parking brake.**
- **Raise the seat bar.**
- **Move all controls to the NEUTRAL 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.**
- **Turn off the machine**

W-3175

DIESEL PARTICULATE FILTER (DPF) SYSTEM

DPF Description

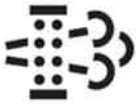
The engine exhaust system is equipped with a diesel particulate filter (DPF).

The DPF is an emissions reduction device that removes diesel particulate matter (soot) from the exhaust gases of the diesel engine. The DPF will trap and collect the soot until it is burned off.

The process of burning off the collected soot is called regeneration. There are five types of regeneration: passive, automatic, forced, forced parked, and service. An inhibit mode is also available to the operator.

Term	Description
Passive Regeneration	The engine provides adequate exhaust temperature during operation for regeneration.
Automatic Regeneration	The engine control unit (ECU) automatically controls active regeneration. Active regeneration can occur any time the engine is operating once the soot accumulated in the DPF reaches a certain level. (See Automatic Regeneration Operation on Page 64)
Forced Regeneration	The operator activates a forced regeneration. This selection requires confirmation after certain machine conditions are met. (See Forced Regeneration Operation on Page 65)
Forced Parked Regeneration	The operator activates a forced parked regeneration. This selection requires confirmation after certain machine conditions are met. (See Forced Parked Regeneration Operation on Page 66)
Service Regeneration	Your Bobcat dealer uses specialised equipment to perform a service regeneration. (See DPF Service Regeneration on Page 175)
Inhibit Mode	Active regeneration will not occur. This selection requires confirmation. (See Inhibit Mode Operation on Page 67)

DPF Regeneration Status Icons

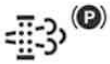
Icon	Definition
	DPF - Appears on the display during regeneration. Machine is requesting that operator activate a forced or forced parked regeneration when flashing slowly.
	Hot Exhaust System Temperature (HEST) - Appears on the display during regeneration to indicate that exhaust and exhaust gases can be hot.
	Inhibit - Appears on the display when the operator has selected inhibit mode. Machine is indicating it would like to do regeneration when DPF icon is flashing.
	Emissions Error - Appears on the display to indicate a problem with the emission regulating system.

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Failure to follow directions may cause damage to the Diesel Particulate Filter (DPF).
Never stop the engine during the regeneration cycle. This will by-pass the programmed cool down cycle required after a high temperature regen.◂

I-2352

DPF Regeneration Tables

Soot Level	0 – 75%	75 – 100%	100 – 105%	105 – 110%	110 – 120%	120 – 150%	> 150%
Active Regeneration Status	Not Required	Not Required	Regenerating	Regenerating	Regenerating	Not Regenerating	Not Regenerating
Inhibit Allowed 	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Forced Allowed 	No	Yes	Yes	Yes	Yes	No	No
Forced Parked Allowed 	No	Yes	Yes	Yes	Yes	No	No
DPF Icon 	Off	Off	On	Flashing Slowly	Flashing Slowly	Flashing Quickly	Off
HEST Icon 	Off	Off	On	On	On	Off	Off
Check Engine Icon 	Off	Off	Off	Off	On	On	On
Regeneration Type	Passive	Passive	Automatic	Automatic	Automatic	Service	None
Soot Load Bar Colour	Grey	Blue	Blue	Red	Red	Red	Red
Service Code	None	None	None	None	P2463	P24A3	P24A3
Torque Derate	None	None	None	None	Mild	Severe	Severe
Operator Action	None	None	None	Activate Forced or Forced Parked Regeneration when possible	Activate Forced or Forced Parked Regeneration when possible	Dealer Service Regeneration Required (See DPF Service Regeneration on Page 175)	Contact your Bobcat dealer to replace the DPF

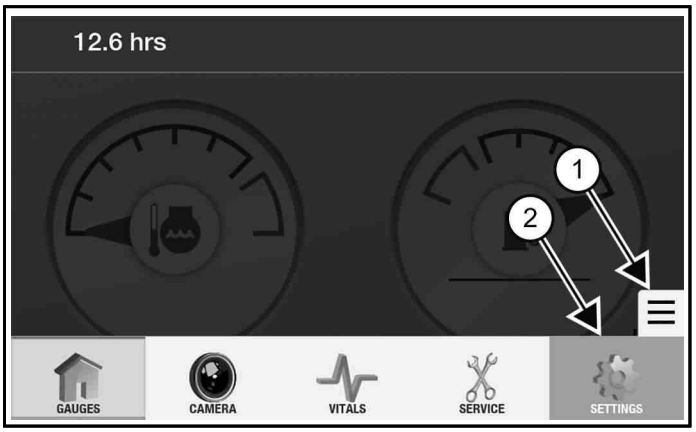
NOTE: The general warning icon on the display will also turn on to alert operator of active service codes.

Automatic Regeneration Operation

Automatic regeneration mode is selected by default every time the machine is started.

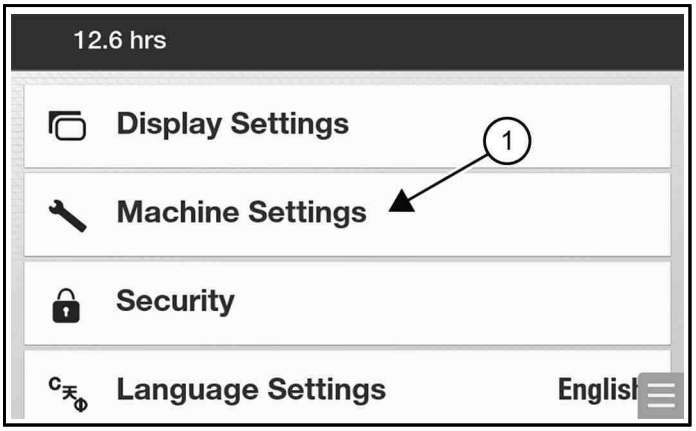
The DPF management screen is available on the display, where you can check the status of the DPF and select the required regeneration mode.

Figure 42



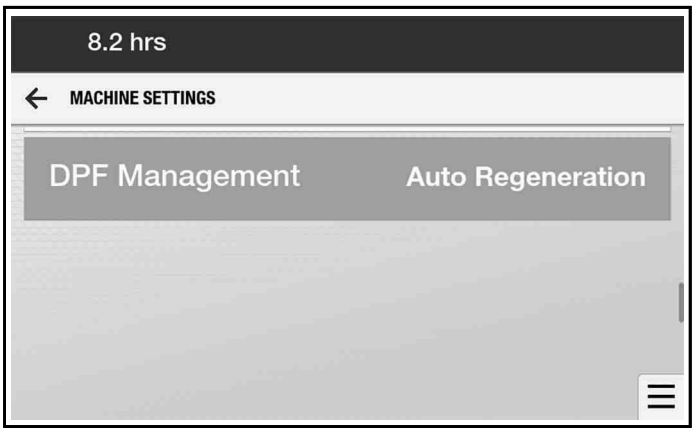
1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 42].
2. Select **[SETTINGS]** (Item 2) [Figure 42].

Figure 43



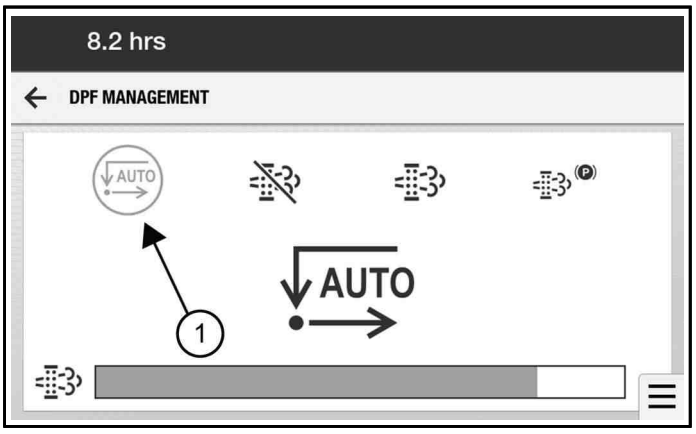
3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 43].

Figure 44



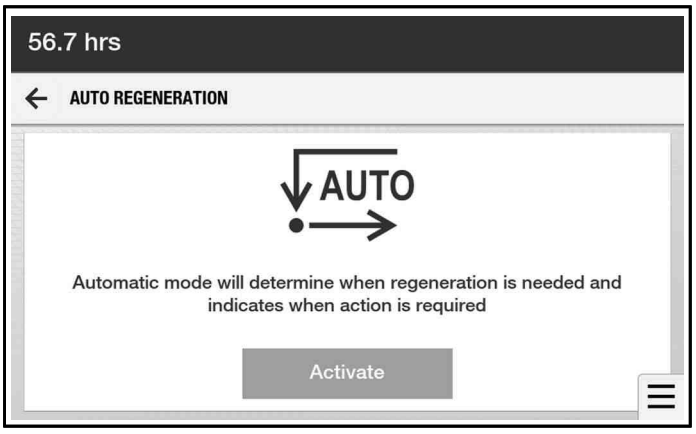
4. Scroll down and select **[DPF MANAGEMENT]** [Figure 44].

Figure 45



5. Select the automatic regeneration icon (Item 1) [Figure 45].

Figure 46



6. Select **[ACTIVATE]** [Figure 46] if not already active.

The ECU will monitor soot load and perform a regeneration automatically. The operator will be informed that an automatic regeneration has started by the HEST icon.

The machine should be operated during this regeneration.

NOTE: The regeneration process can last for 30 minutes or longer.

It is recommended to increase engine speed to high idle during an automatic regeneration and operate the machine under load if possible.

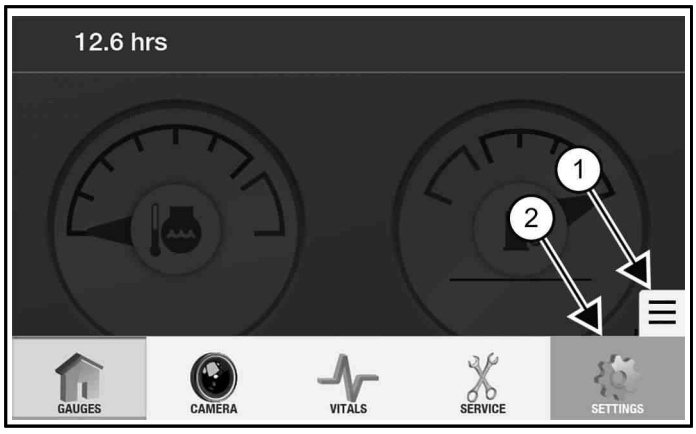
It is recommended to allow the regeneration cycle to finish before turning the machine off.

Forced Regeneration Operation

A forced regeneration can be activated by the operator using the DPF management screen. The machine should be operated as normal during this regeneration.

NOTE: The regeneration process can last for 30 minutes or longer.

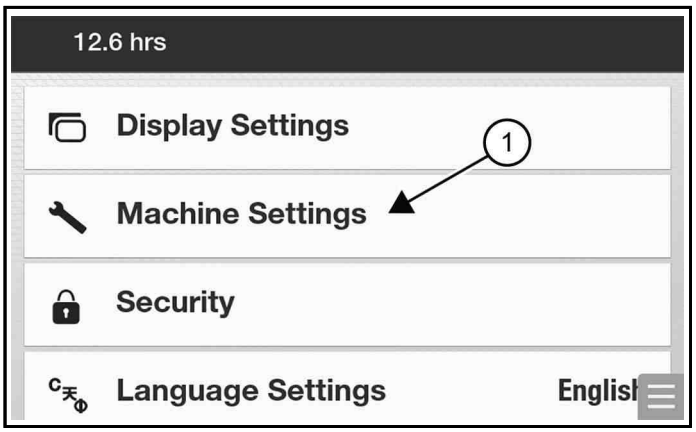
Figure 47



NA3669A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 47].
2. Select **[SETTINGS]** (Item 2) [Figure 47].

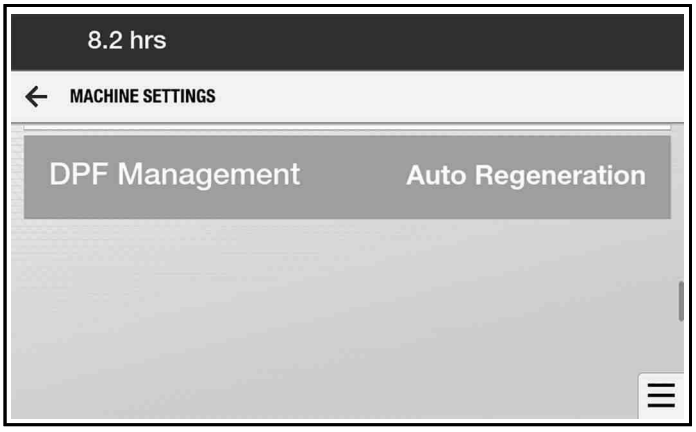
Figure 48



NA3668A

3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 48].

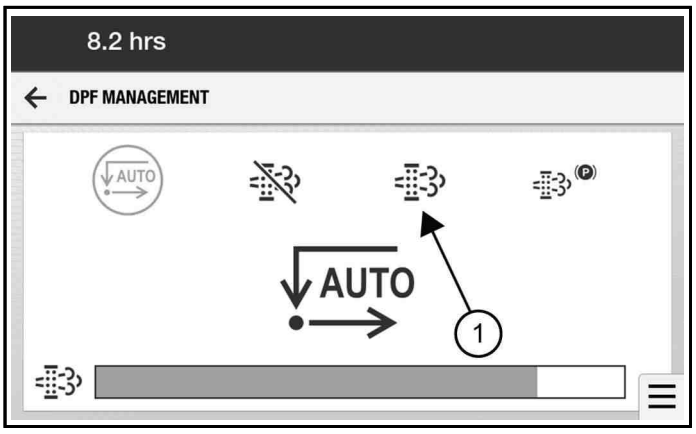
Figure 49



NA3856

4. Scroll down and select **[DPF MANAGEMENT]** [Figure 49].

Figure 50



NA3862B

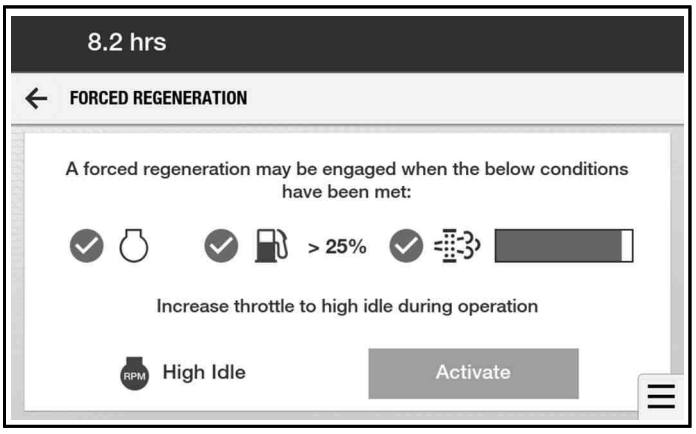
5. Select the forced regeneration icon (Item 1) [Figure 50].

The following machine conditions must be met before forced regeneration is allowed:

- No active DPF related service codes
- Engine coolant temperature higher than 40°C (104°F)
- Soot load between 75 percent and 120 percent
- More than 25 percent fuel in the tank

6. Increase engine speed to high idle.

Figure 51



NA3864

7. Select **[ACTIVATE]** [Figure 51] to start regeneration.

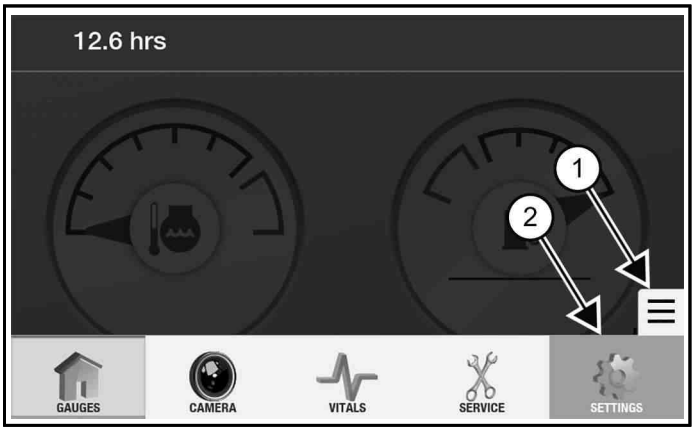
   It is recommended to allow the regeneration cycle to finish before turning the machine off.

Forced Parked Regeneration Operation

A forced parked regeneration can be activated by the operator using the DPF management screen. The machine cannot be operated during this regeneration.

NOTE: The regeneration process can last for 40 minutes or longer.

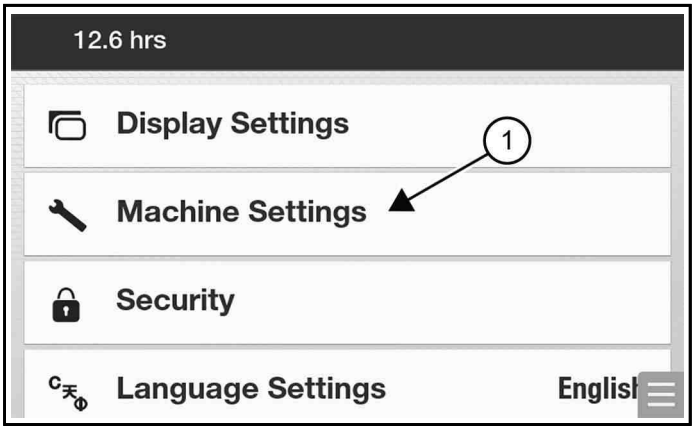
Figure 52



NA3669A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 52].
2. Select **[SETTINGS]** (Item 2) [Figure 52].

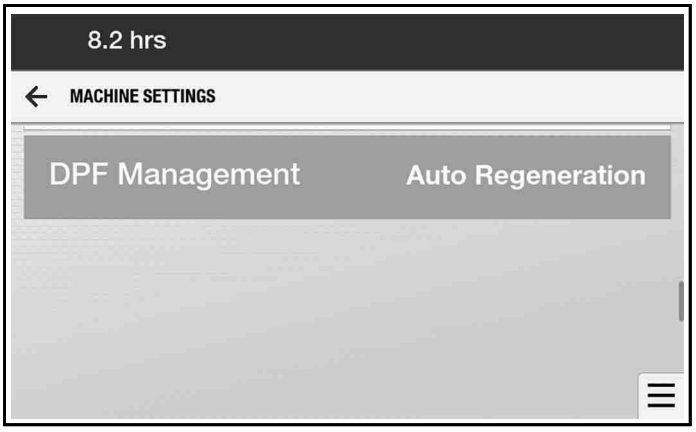
Figure 53



NA3668A

3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 53].

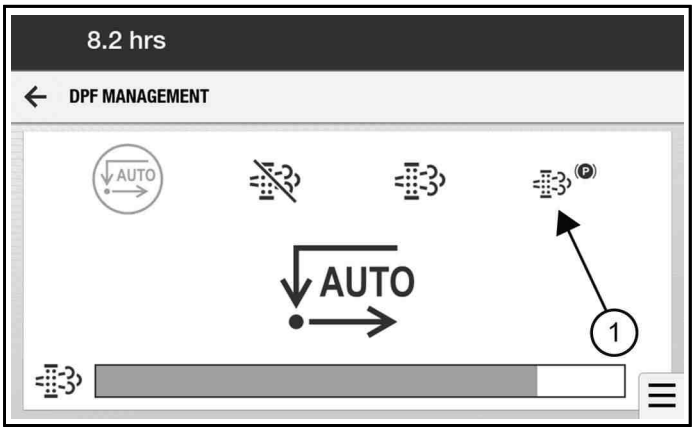
Figure 54



NA3856

4. Scroll down and select **[DPF MANAGEMENT]** [Figure 54].

Figure 55



NA3862C

5. Select the forced parked regeneration icon (Item 1) [Figure 55].

⚠ IMPORTANT

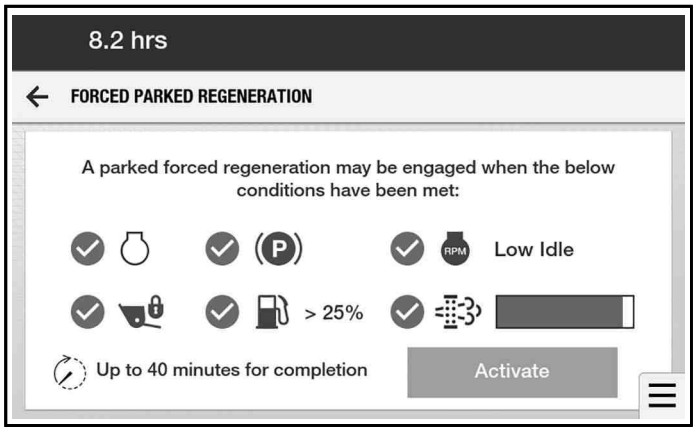
MACHINE DAMAGE HAZARD
Failure to follow directions may cause damage to the DPF.
Never stop the engine during the regeneration cycle. This will by-pass the programmed cool down cycle required after a high temperature regen.
I-2352

The following machine conditions must be met before forced parked regeneration is allowed:

- No active DPF related service codes
- Engine coolant temperature higher than 40°C (104°F)
- Soot load between 75 percent and 120 percent
- Parking brake engaged
- Engine speed at low idle
- Hydraulic functions disabled
- More than 25 percent fuel in the tank

6. Decrease engine speed to low idle.

Figure 56



NA3857

7. Select **[ACTIVATE]** [Figure 56] to start regeneration.

   The ECU will control engine speed until the regeneration cycle is finished.

Inhibit Mode Operation

Regeneration can be prevented from occurring by selecting inhibit mode. The machine should be operated under load when inhibit mode is selected.

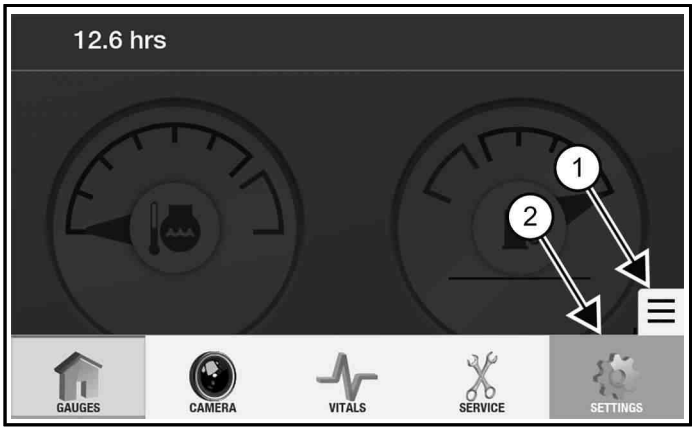
NOTE: Understand the work environment. The inhibit function is intended to temporarily delay the exhaust emissions system regeneration process when operating in heat sensitive areas where regeneration is not advisable.

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Operating the machine in inhibit mode for extended periods may cause severe damage to the DPF.
I-2409

The DPF will be inhibited from actively regenerating until a regeneration mode is selected or the machine is turned OFF. The machine will revert to automatic mode the next time the machine is turned ON.

Figure 57

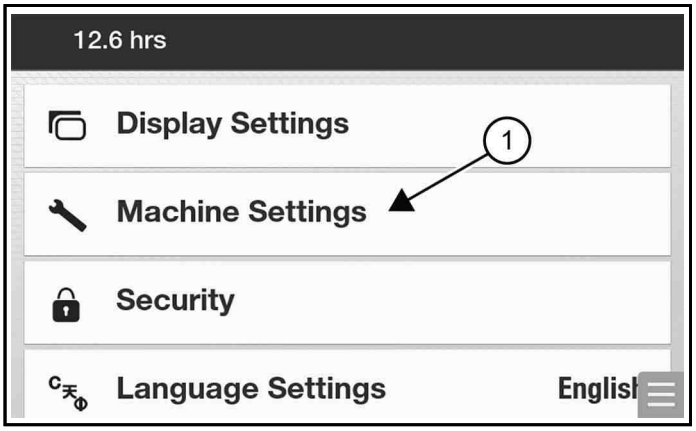


NA3669A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 57].

2. Select **[SETTINGS]** (Item 2) [Figure 57].

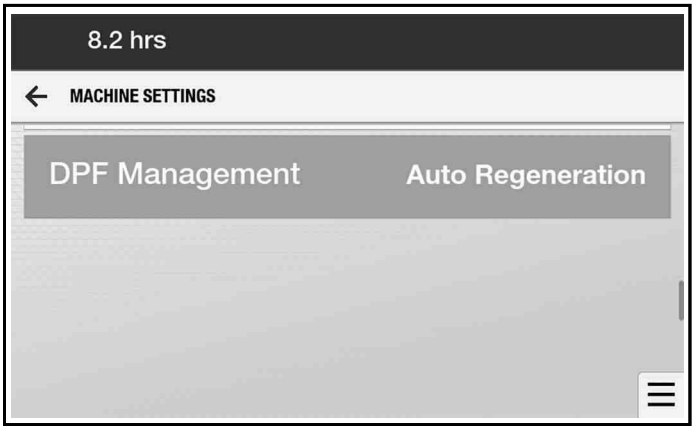
Figure 58



NA3668A

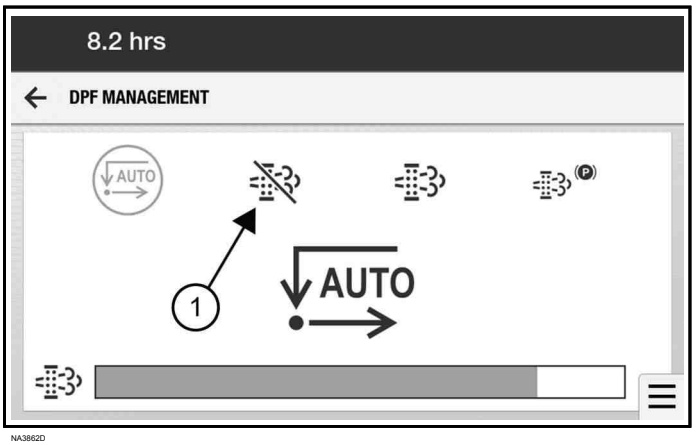
3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 58].

Figure 59



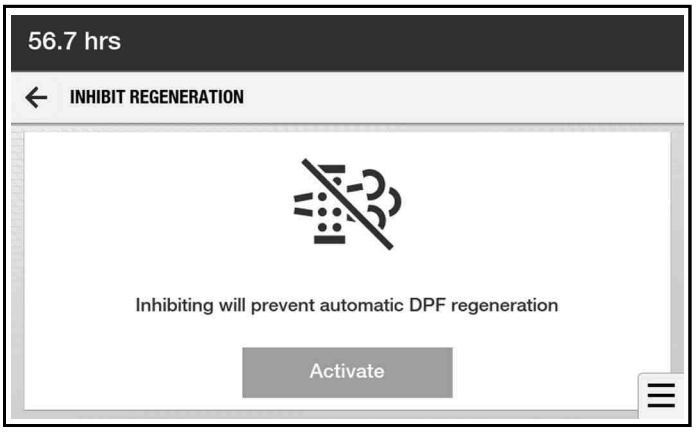
4. Scroll down and select **[DPF MANAGEMENT]** [Figure 59].

Figure 60



5. Select the inhibit mode icon (Item 1) [Figure 60].

Figure 61



6. Select **[ACTIVATE]** [Figure 61] to inhibit regeneration.

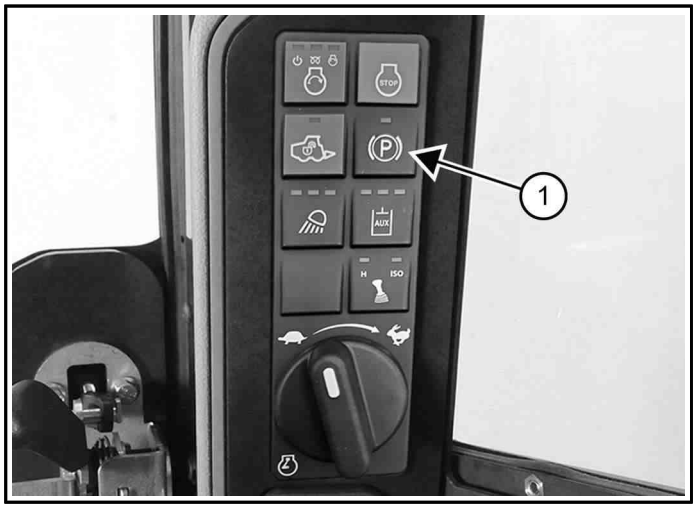
7. After running the machine in inhibit mode, take one of the below actions as soon as possible:

- Place the machine in automatic regeneration mode
- Perform a forced regeneration if possible (The soot load bar must be blue or red.)
- Perform a forced parked regeneration if possible (The soot load bar must be blue or red.)

PARKING BRAKE

Operating Parking Brake

Figure 62



C200321A

1. Press the parking brake button (Item 1) [Figure 62] on the right control panel to engage the parking brake.

   The LED in the button will light. The traction drive system is locked.

2. Slightly move joystick(s) forward and backward.

   The traction lock must be engaged. See your Bobcat dealer for service if machine fails to stop.

3. Press the button again to disengage the parking brake.

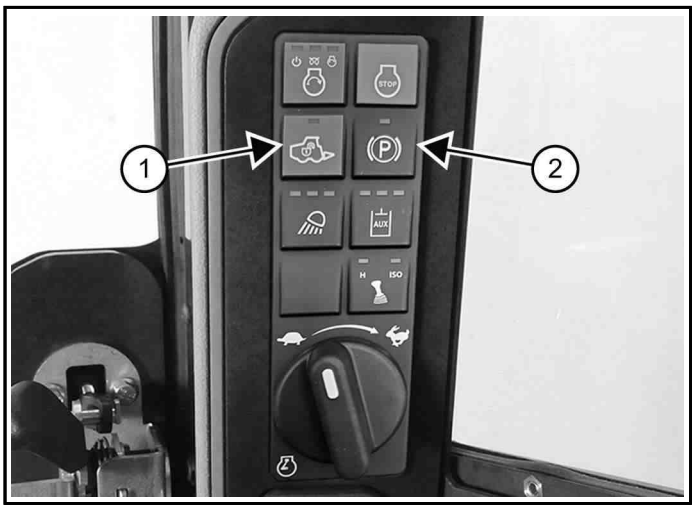
   The LED in the button will turn off. The traction drive system is unlocked.

NOTE: The parking brake icon will remain visible on the display until the engine is started, the operate button is pressed, and the parking brake is disengaged.

Operating Hydraulic Controls With Parking Brake Engaged

The following steps allow you to activate the BICS and use loader lift and tilt functions without releasing the parking brake.

Figure 63



C200321h

1. Press and hold the parking brake button (Item 2) [Figure 63] on the right control panel.

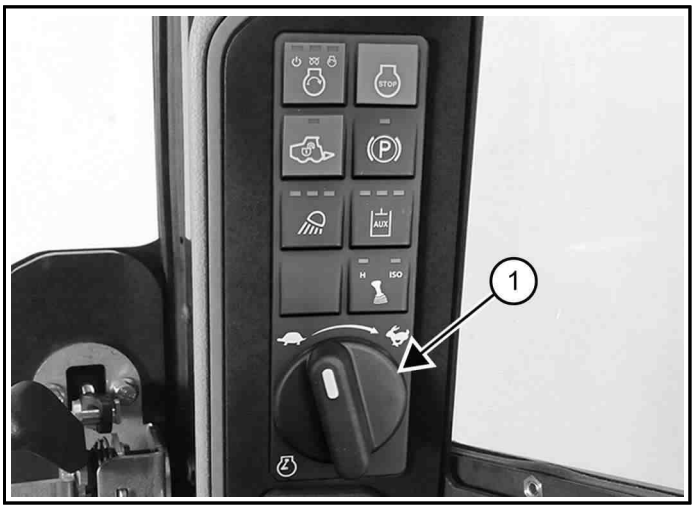
2. Press and hold the operate button (Item 1) [Figure 63] on the right control panel.

3. Release both buttons.

ENGINE SPEED CONTROL

Operating Engine Speed Control (Hand)

Figure 64



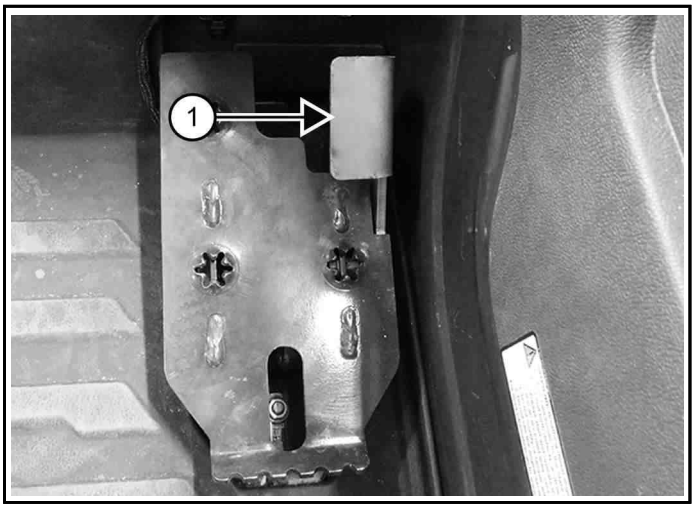
The engine speed control (Item 1) [Figure 64] is located on the right control panel.

1. Turn the knob clockwise to increase engine speed.
2. Turn the knob anticlockwise to decrease engine speed.

NOTE: The full range of the engine speed control will not be available until the engine controller determines the machine is adequately warmed. (See Cold Temperature Engine Speed Control Description on Page 106)

Operating Engine Speed Control (Foot)

Figure 65



C200202A

This machine has a foot operated engine speed control pedal (Item 1) [Figure 65] in addition to the engine speed control knob. The pedal is located on the right side floor above the footrest.

Decel Pedal

Machines equipped with touch display have a decel function.

NOTE: Always disengage the decel pedal feature when loading or unloading the machine on a trailer.

When the decel function is ON and the hand engine speed control is set to high idle, pressing the foot engine speed control will lower the engine speed. (See Machine Settings on Page 206)

AUTO IDLE

Auto Idle Description

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

NOTE: The five second time delay before the engine speed reduces to low idle can be changed on machines equipped with a touch display. (See Machine Settings on Page 206)

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.

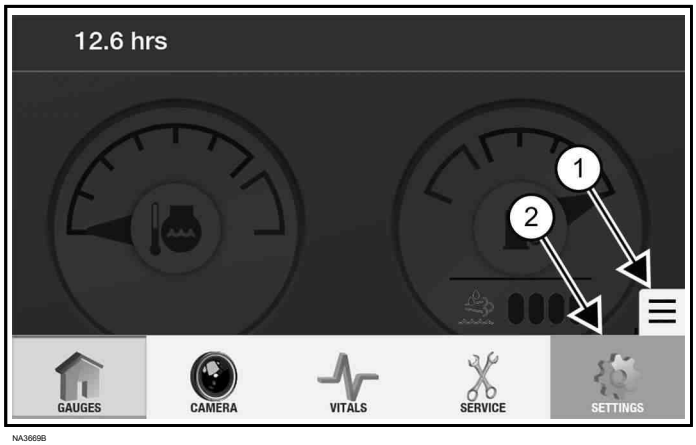
Any of the following conditions / actions return the engine speed to the set position from low idle:

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

Operating Auto Idle

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

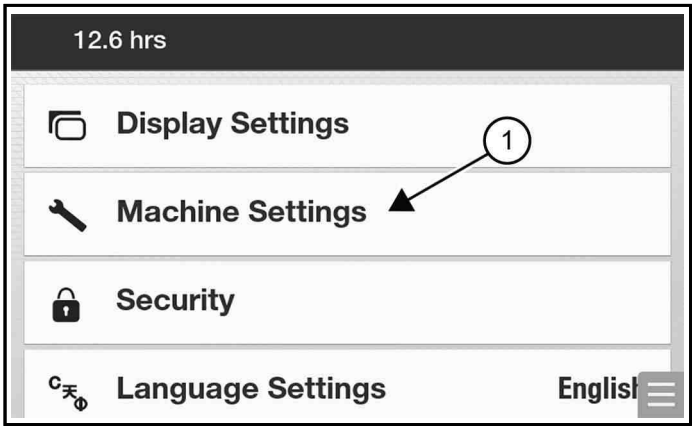
Figure 66



NA3669B

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 66].
2. Select **[SETTINGS]** (Item 2) [Figure 66].

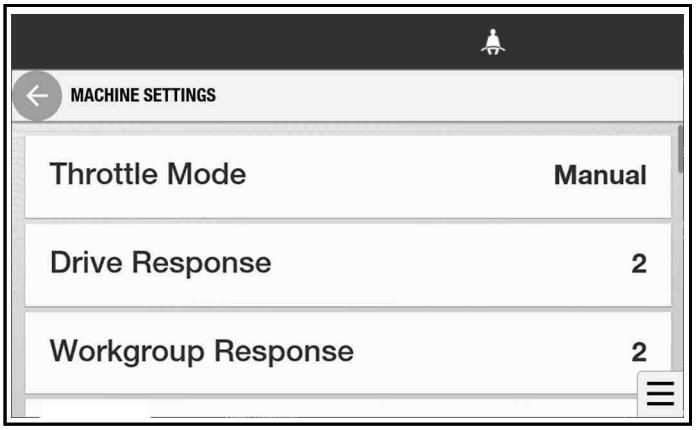
Figure 67



NA3668A

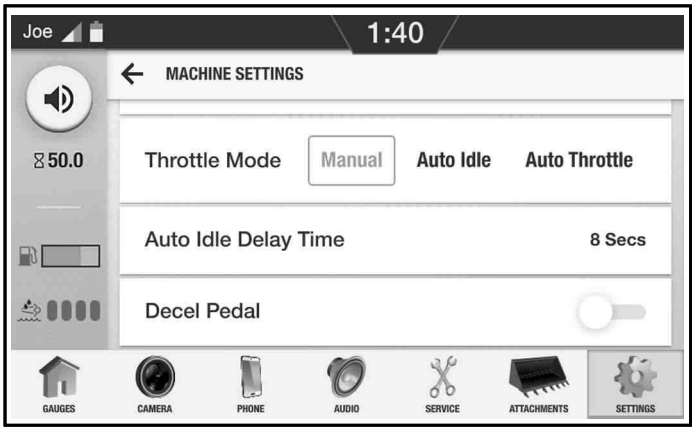
3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 67].

Figure 68



NA3889

Figure 69



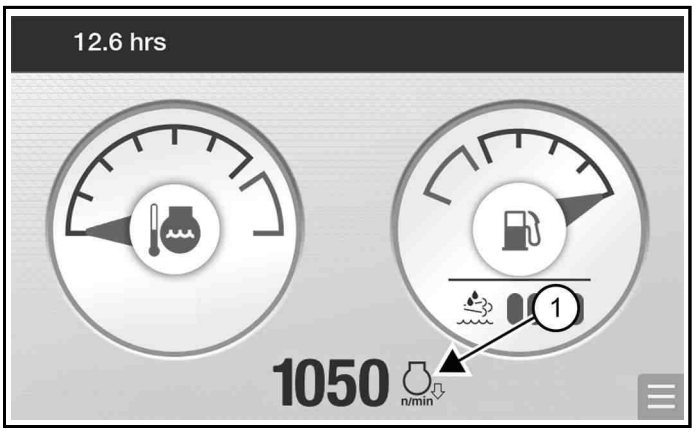
NA3887A

4. On the standard display, select **[THROTTLE MODE]** [Figure 68], and on the next screen select **[AUTO IDLE]**.

   OR

   On the touch display, select **[AUTO IDLE]** as the Throttle Mode [Figure 69].

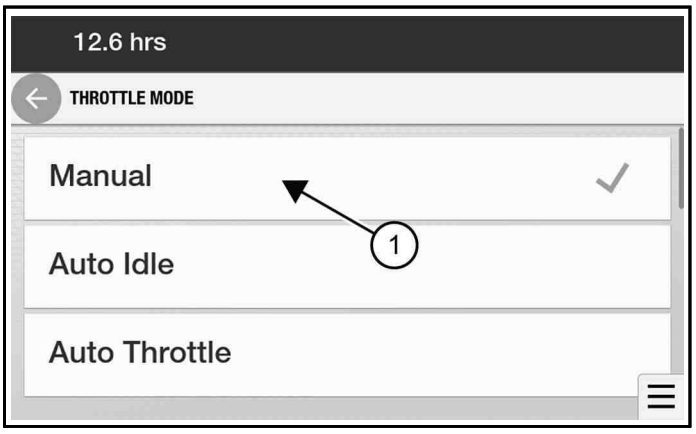
Figure 70



NA3670B

5. The auto idle icon (Item 1) [Figure 70] replaces the rpm icon on the display when auto idle is engaged.

Figure 71



NA3954A

6. Select **[MANUAL] [THROTTLE MODE]** (Item 1) [Figure 71] to turn auto idle off.

LIFT ARM BYPASS CONTROL

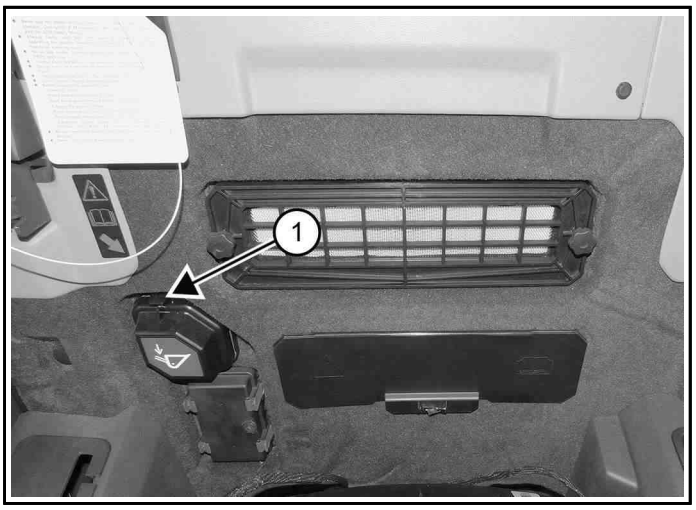
Operating Lift Arm Bypass Control

The lift arm bypass control, located behind the operator on the right side, is used to lower the lift arms if the lift arms cannot be lowered during normal operation.

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

1. Sit in the operator's seat.
2. Fasten the seat belt and lower the seat bar.

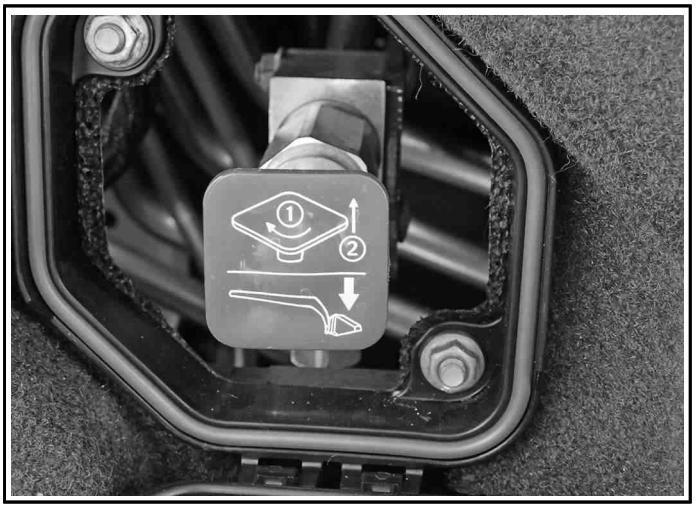
Figure 72



C200577a

3. Press down on the latch (Item 1) [Figure 72] to allow the cover to hinge open at the bottom of the cover.

Figure 73



C200204

4. Turn the knob [Figure 73] 90° clockwise.
5. Pull out and hold the knob until the lift arms lower.
6. Close the cover.

EMERGENCY EXITS

Emergency Exit Locations

The front opening on the operator cab and the rear window provide exits in case of an emergency.

Making An Emergency Exit Through Rear Window With Rubber Cord

Figure 74

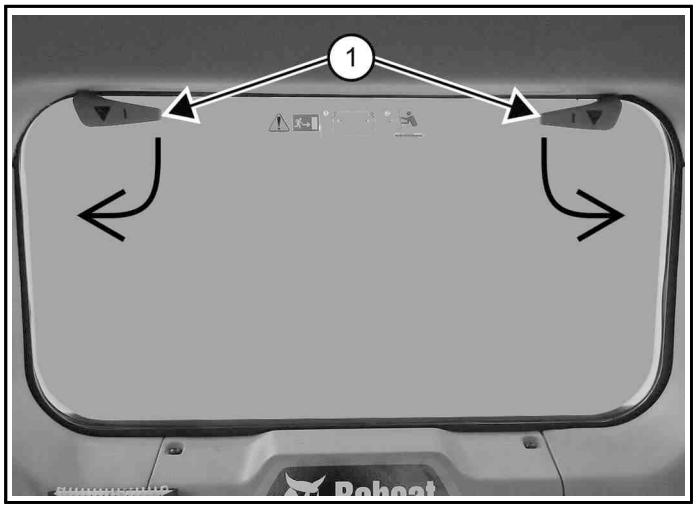
P64994f

1. Pull on the tag on the top of the rear window to remove the rubber cord [Figure 74].
2. Push the rear window out of the rear of the operator cab.
3. Exit through the rear of the operator cab.

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

Making An Emergency Exit Through Rear Window With Latches

Figure 75



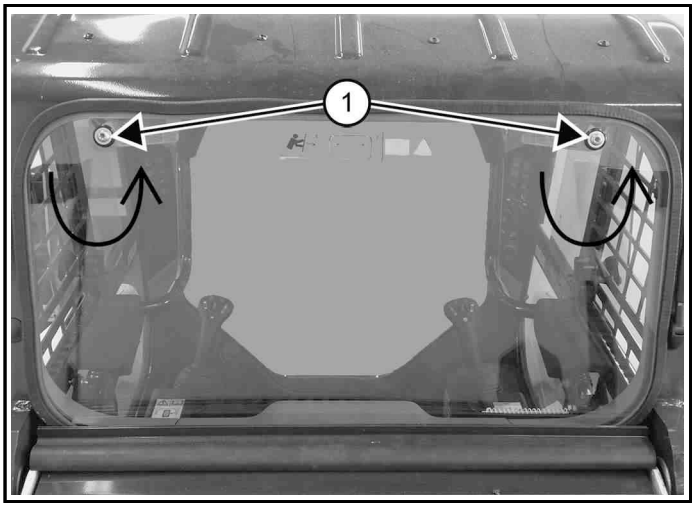
P200419a

1. Turn both latches (Item 1) [Figure 75] down until they disengage from the window frame.
2. Push the rear window out of the rear of the operator cab.
3. Exit through the rear of the operator cab.

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

Removing Rear Window With Latches From Outside Loader

Figure 76



P200567a

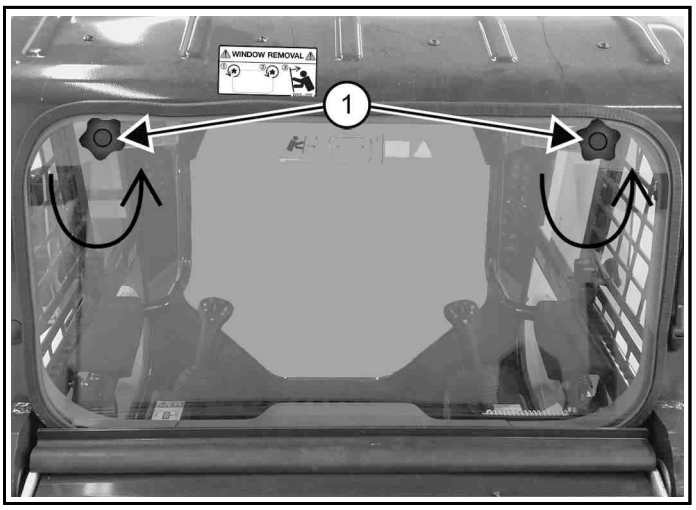
The rear window can be removed from outside the machine using a T40 TORX® drive tool.

1. Turn both screws (Item 1) [Figure 76] anticlockwise until the latches disengage from the window frame.
2. Pull the top of the window away from the cab and lift up to remove.

Removing Rear Window With Latches From Outside Loader With Knob Kit

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.

Figure 77



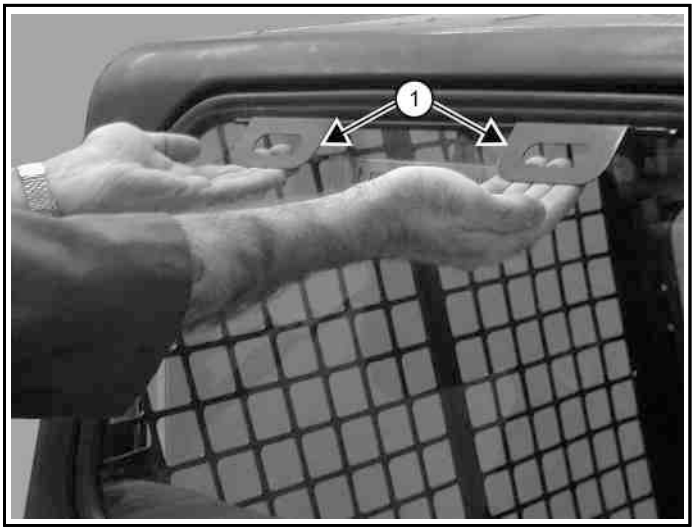
P200568a

1. Turn both knobs (Item 1) [Figure 77] anticlockwise until the latches disengage from the window frame.
2. Pull the top of the window away from the cab and lift up to remove.

Removing Rear Window With Rubber Cord From Outside Loader

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 78

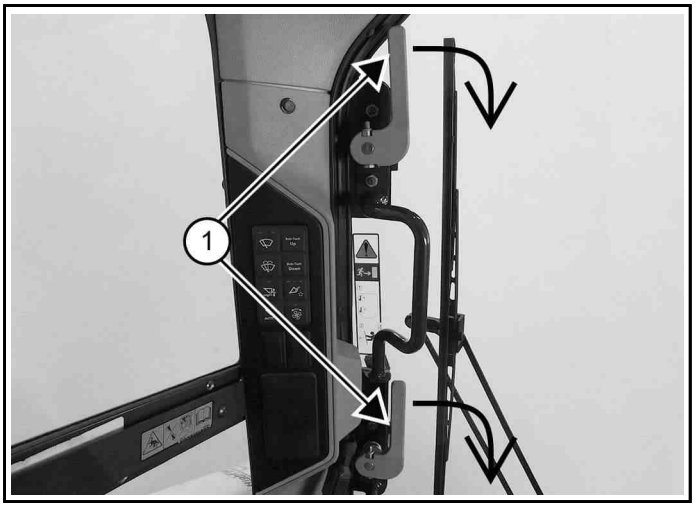


P13982a

1. Pull both handles (Item 1) [Figure 78] up and out to remove the rear window seal.
2. Remove the rear window.

Making An Emergency Exit Through Front Door

Figure 79



C200197a

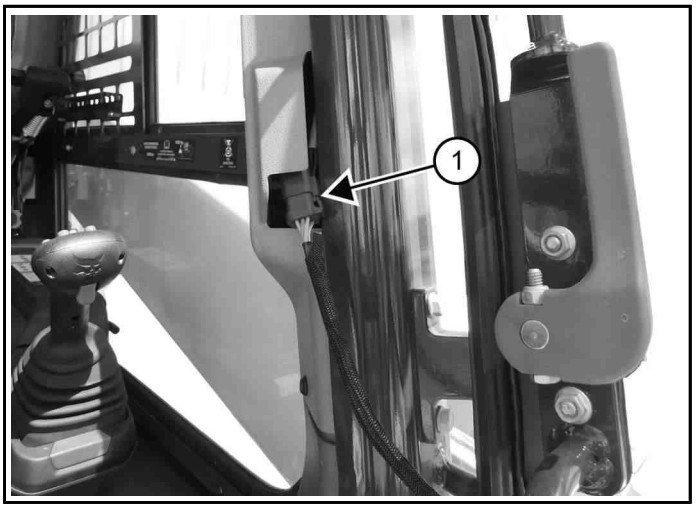
1. Turn both latches (Item 1) [Figure 79] down until they disengage from the door frame.
2. Push the door out of the operator cab door frame and exit through the opening.

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

Front Door Reassembly

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

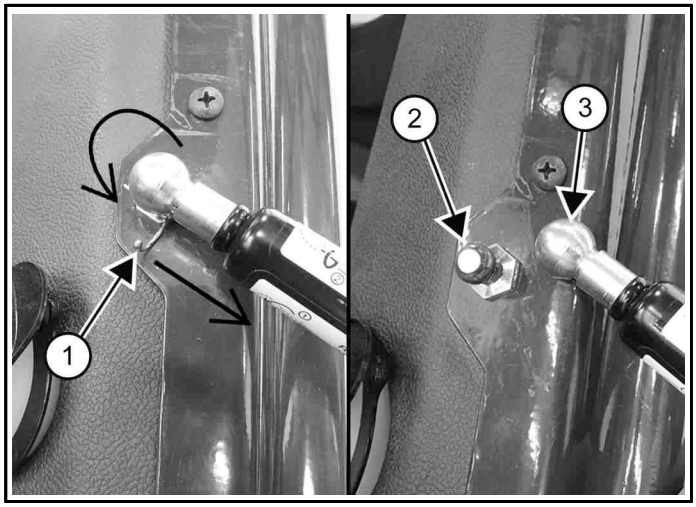
Figure 80



C200569A

1. Disconnect electrical connector (Item 1) [Figure 80].

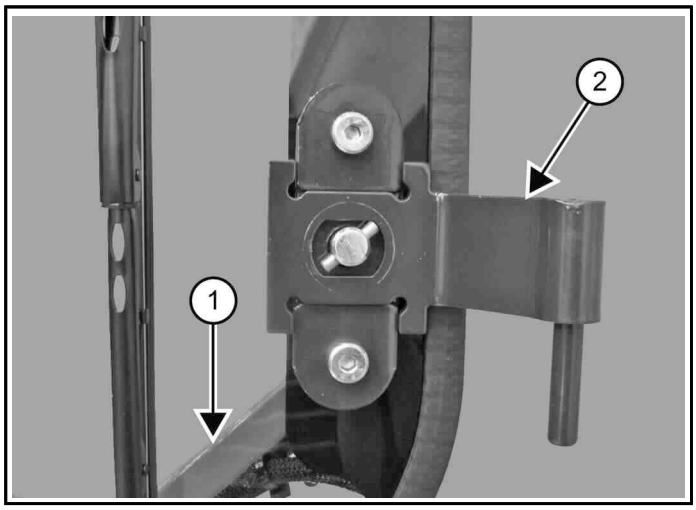
Figure 81



P200209a

2. Rotate and pull the clip (Item 1) [Figure 81] out of the gas spring socket.
3. Pull the gas spring socket (Item 3) straight off the ball stud fitting (Item 2) [Figure 81].
4. Remove the door hinges from the machine.

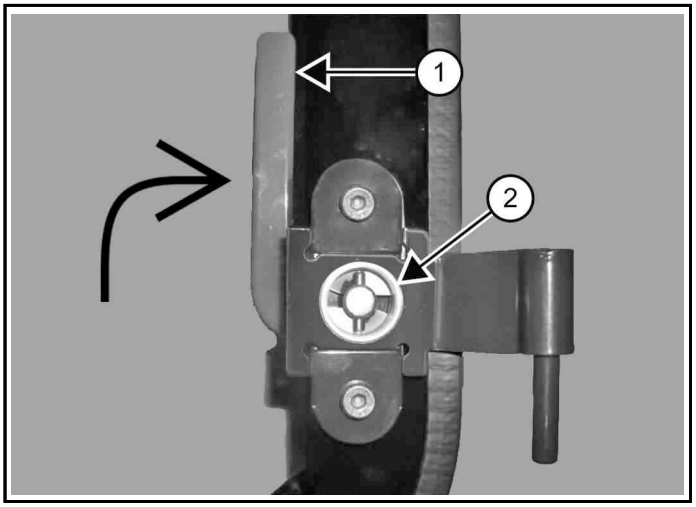
Figure 82



P90685a

5. Orient the latches as shown (Item 1) and install the door hinges (Item 2) [Figure 82] on the door. (Bottom hinge shown.)

Figure 83



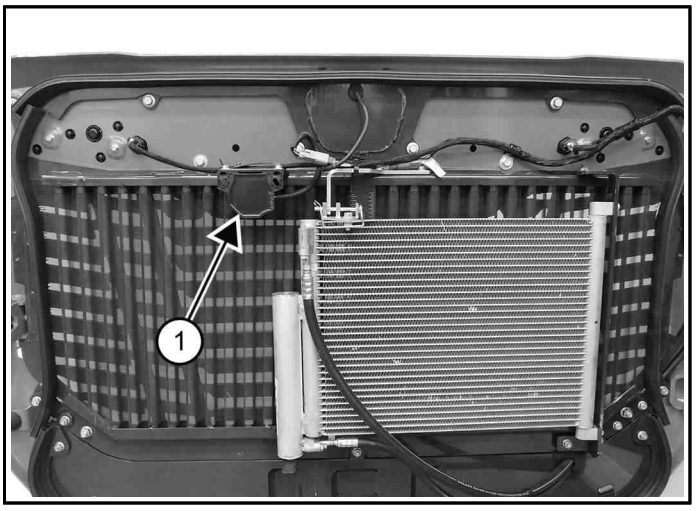
P90686c

6. 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 83] up to lock cast washer into position. (Bottom hinge shown.) (Plastic cap shown removed for visual clarity.)
7. Install door on machine.
8. Install the gas spring socket on the ball stud fitting [Figure 81].
9. Install the clip into the hole in the gas spring socket [Figure 81].
10. Rotate the clip to lock into position [Figure 81].
11. Connect electrical connector [Figure 80].

BACK-UP ALARM SYSTEM

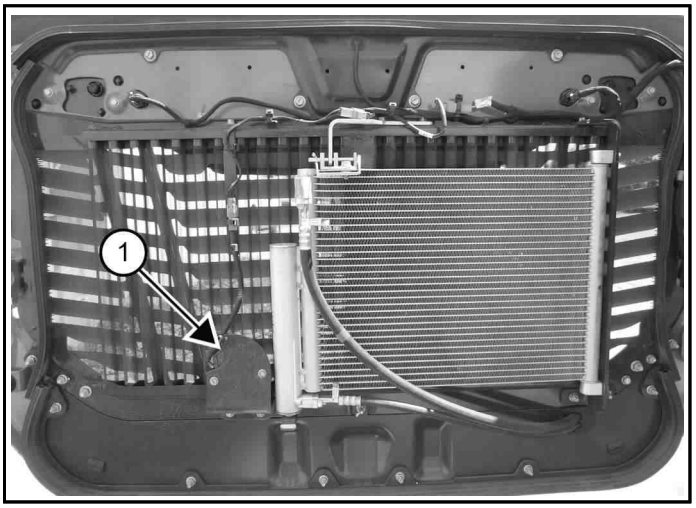
Back-Up Alarm Description

Figure 84



C2002205a

Figure 85



C216683B

The back-up alarm (Item 1) [Figure 84] [Figure 85] is located on the inside of the rear door.

A back-up alarm is not a substitute for having a clear view of the direction of travel when operating the machine 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 machine is equipped with a back-up alarm.

Operators must be trained to always look in the direction of travel, including when operating the machine 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.

Operating Back-Up Alarm

⚠ WARNING

CRUSHING HAZARD
Contact with machine can cause serious 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

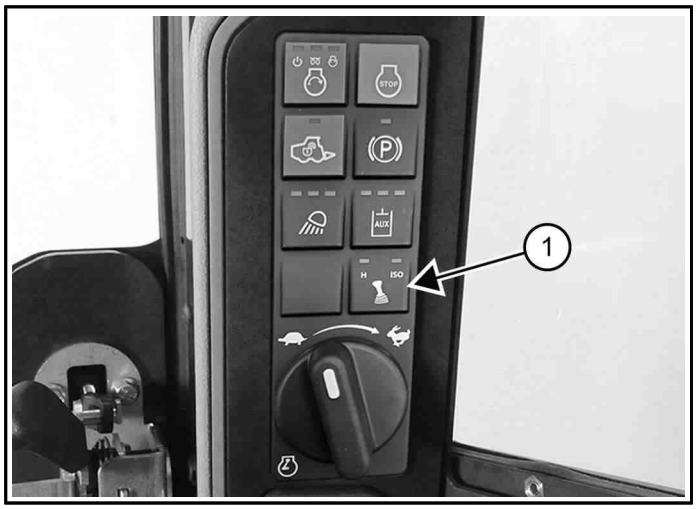
- The back-up alarm will sound when the operator moves the joystick(s) into the reverse position. Slight movement of the joystick(s) into the reverse position is required with hydrostatic transmissions, before the back-up alarm will sound.

- 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.

DRIVING AND STEERING THE LOADER

Operating SJC In 'ISO' Control Pattern

Figure 86



C200321c

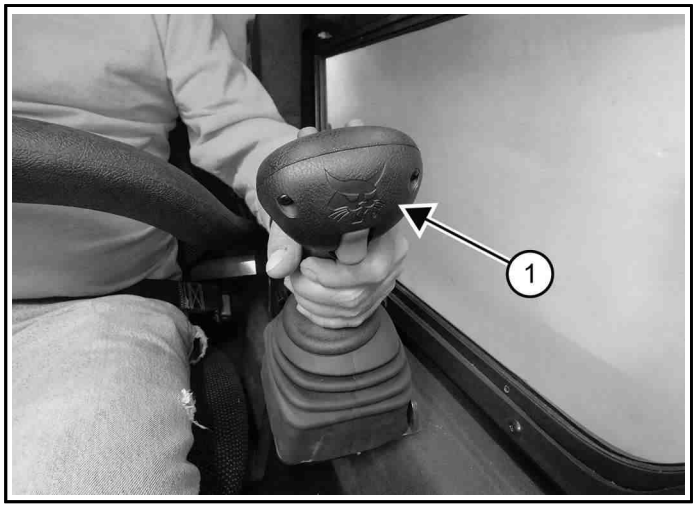
Select the 'ISO' control pattern by pressing the SJC control mode button (Item 1) [Figure 86] on the right control panel until the 'ISO' LED flashes. BICS can then be activated by pressing the operate button.

⚠ WARNING

GENERAL HAZARD
Failure to follow instructions can cause serious 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

Figure 87

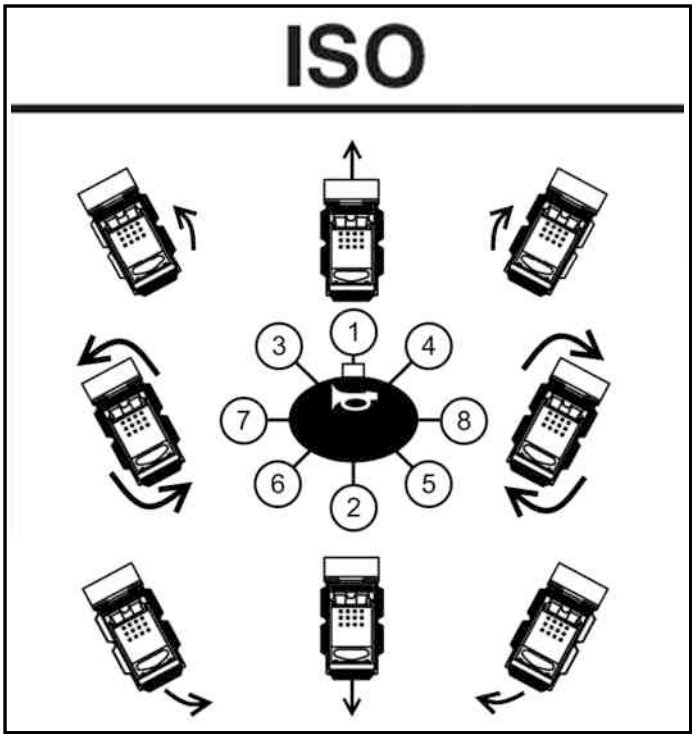


C200579a

The joystick that controls drive and steering is on the left side in front of the seat (Item 1) [Figure 87].

Move the joystick smoothly. Avoid sudden starting and stopping.

Figure 88



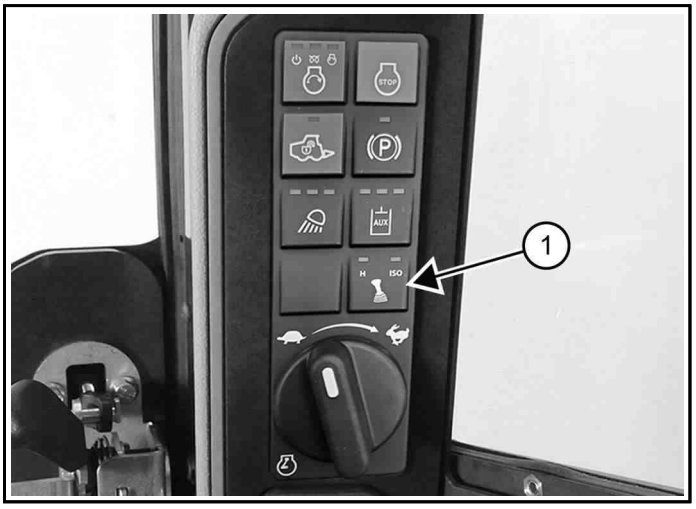
NA3469A

Left Joystick Functions (Drive And Steering) [Figure 88]:

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.

Operating SJC In ‘H’ Control Pattern

Figure 89



C200321c

Select the ‘H’ control pattern by pressing the SJC control mode button (Item 1) [Figure 89] on the right control panel until the ‘H’ LED flashes. BICS can then be activated by pressing the operate button.

⚠ WARNING

GENERAL HAZARD
Failure to follow instructions can cause serious 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

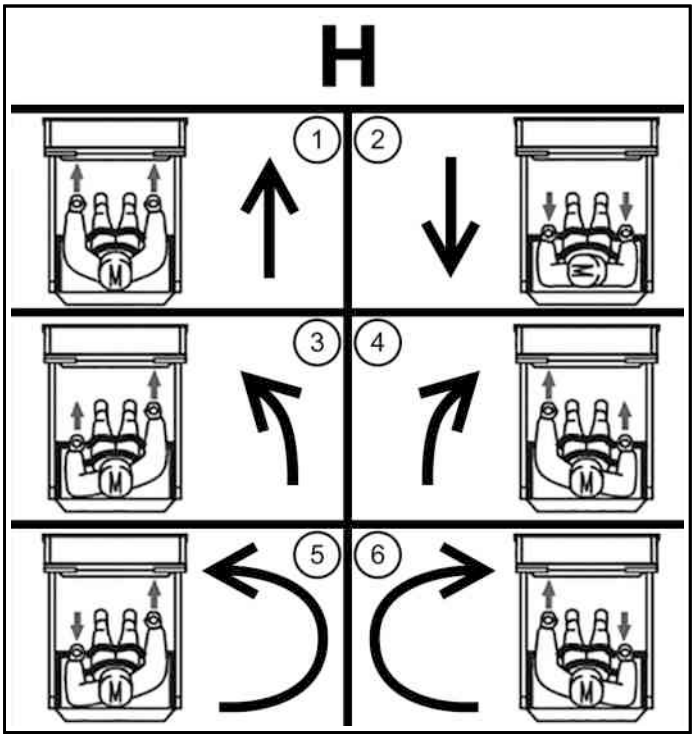
Figure 90

C214222B

Both joysticks control drive and steering and are located on the left and right side in front of the seat (Item 1) [Figure 90].

Move the joysticks smoothly. Avoid sudden starting and stopping.

Figure 91



NA3470A

Joystick Functions (Drive And Steering) [Figure 91]:

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

Stopping Loader Using Joysticks

When the joysticks are moved to the NEUTRAL position, the hydrostatic transmission will act as a service brake to stop the machine.

TWO-SPEED CONTROL

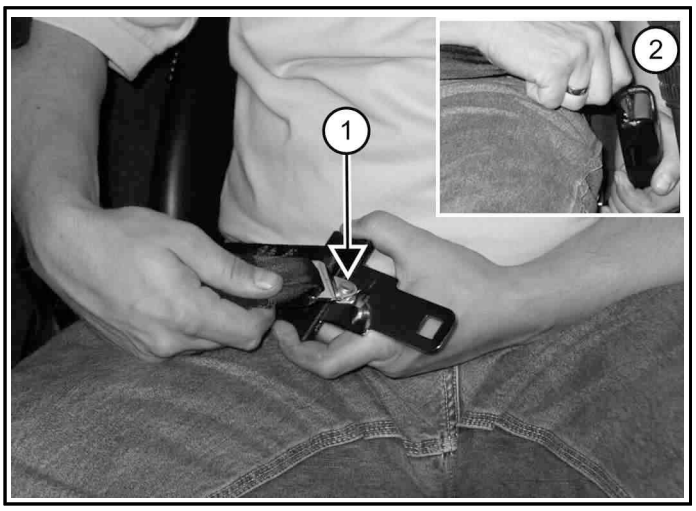
Two-Speed Control Description

This machine is equipped with two speed ranges, high and low. 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 travelling from one jobsite to another at faster speeds.

⚠ WARNING

IMPACT HAZARD
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

Figure 92



P200415a

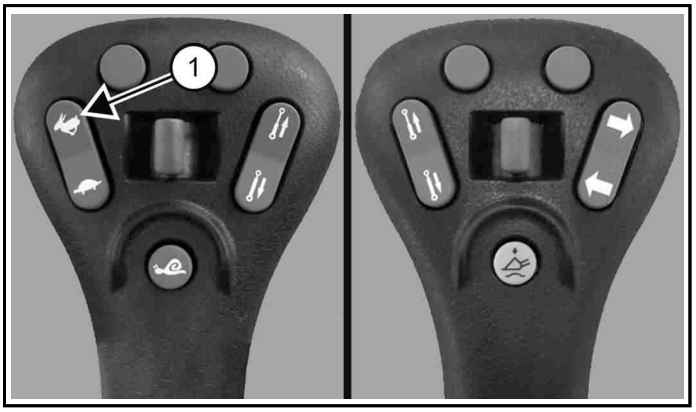
NOTE: The 3-point restraint must be used when selecting high range operation [Figure 92].

Connect the shoulder belt to the lap belt (Item 1). Pull the lap belt across to the left side of the seat and fasten (Item 2) [Figure 92].

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

Operating Two-Speed

Figure 93

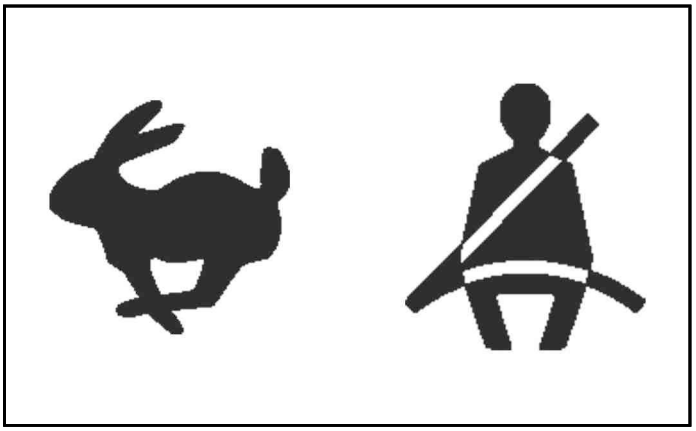


P200213A

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

1. Press the top of the switch (Item 1) [Figure 93] on the left joystick for high range.

Figure 94



NA3638

The two-speed and seat belt icons [Figure 94] located on the upper right display will turn on.

2. Press the bottom of the switch for low range.

NOTE: The full range of travel speeds will not be available until the engine controller determines the machine is adequately warmed. (See Cold Temperature Hydrostatic Drive Description on Page 106)

SPEED MANAGEMENT

Speed Management Description

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

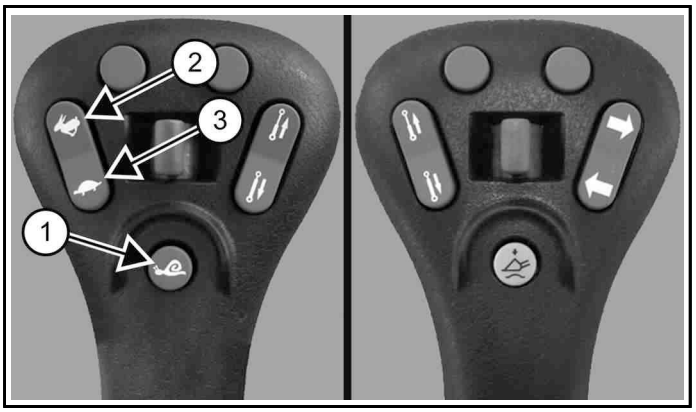
This feature can be useful when installing attachments, loading or unloading, and certain applications. (EXAMPLES: Landscaping, tilling, trenching)

Operating Speed Management

NOTE: The machine must be in low range speed to engage Speed Management.

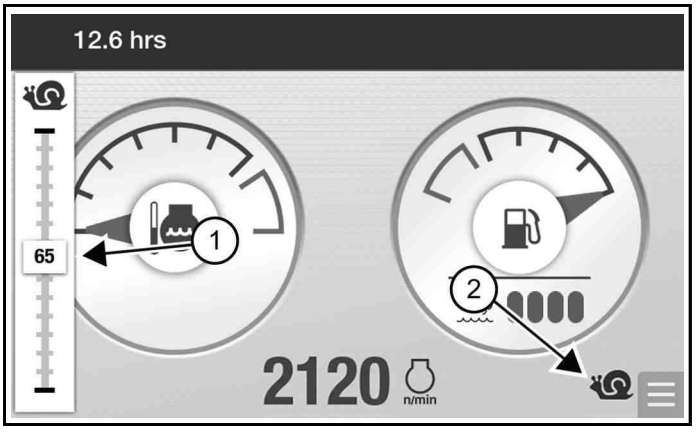
Engaging:

Figure 95



- Press the button (Item 1) [Figure 95] on the left joystick once to engage speed management.

Figure 96



NA3714B

The speed management icon (Item 2) [Figure 96] 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 a percentage of standard travel speed. That percentage will appear briefly in the display (Item 1) [Figure 96].

NOTE: The default percentage setting can be changed by the operator.
(See Changing Speed Management Default Setting on Page 81)

Adjusting:

1. Press the top of the speed control switch (Item 2) [Figure 95] to increase the speed up to 99%.

   The percentage graph will appear in the display (Item 1) [Figure 96] while adjusting.

2. Press the bottom of the switch (Item 3) [Figure 95] to decrease the speed down to 1%.

   The percentage graph will appear in the display (Item 1) [Figure 96] while adjusting.

3. Press button (Item 1) [Figure 95] again to disengage speed management and return to standard travel speed. The speed management icon will turn off.

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

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

EXAMPLE: Turning the machine OFF will return the Speed Management setting to the default percentage. The next time you start the engine and engage speed management, the speed is set at the last default setting saved by the operator.
(See Changing Speed Management Default Setting on Page 81)

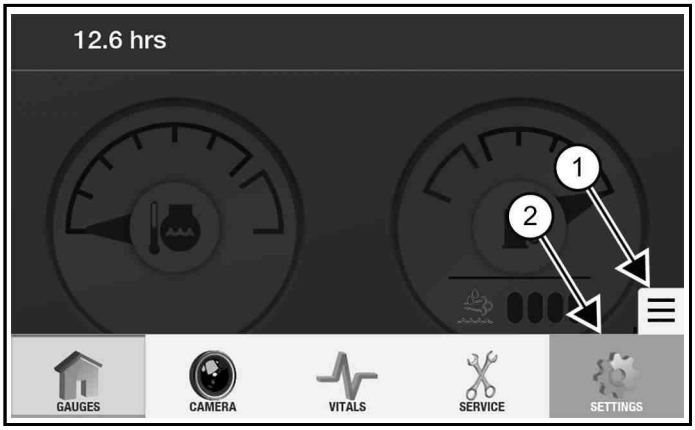
NOTE: You must disengage speed management before you can select high range.

Changing Speed Management 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 saved as 28% of standard travel speed. Each time you start the machine and engage speed management, the machine will default to 28% of standard travel speed.

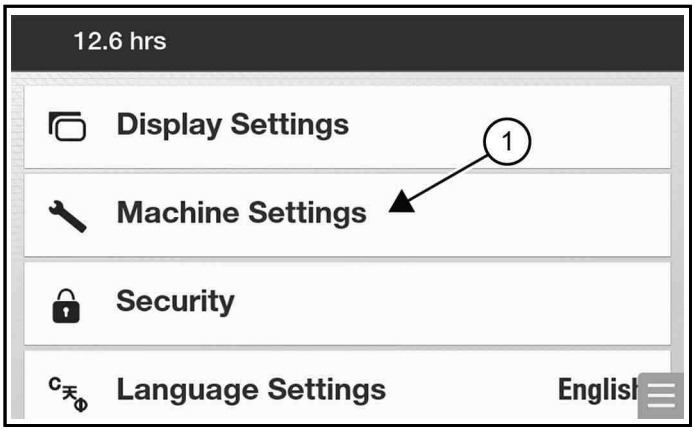
Figure 97



1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 97].

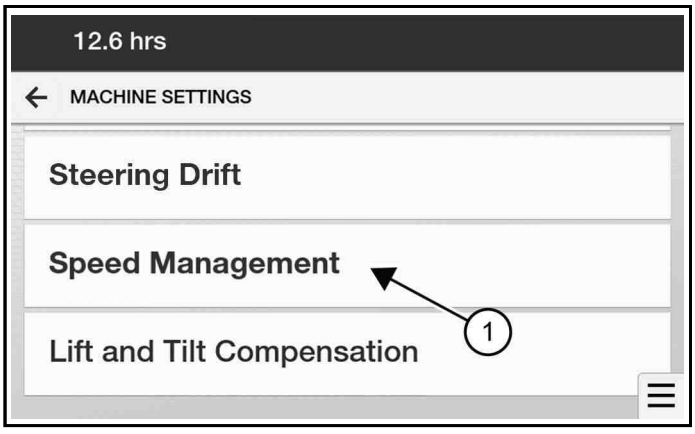
2. Select **[SETTINGS]** (Item 2) [Figure 97].

Figure 98



3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 98].

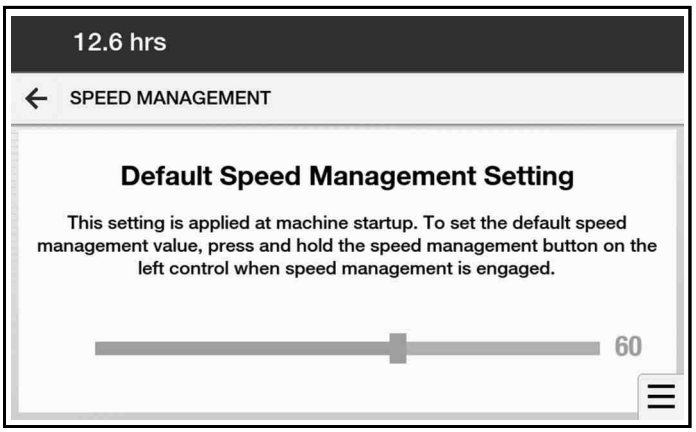
Figure 99



4. Select **[SPEED MANAGEMENT]** (Item 1) [Figure 99].

5. Scroll down to Default Speed Management Setting.

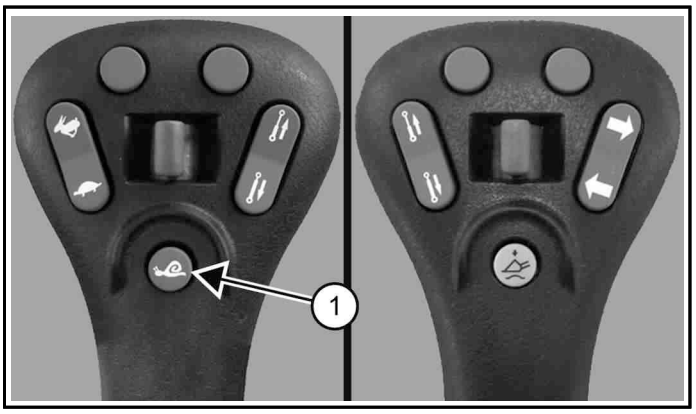
Figure 100



NA3715

6. Use the slider bar [Figure 100] to adjust to desired default setting.

Figure 101



P200213k

7. Press and hold the button (Item 1) [Figure 101] on the left joystick for several seconds to save the default setting.

   When speed management is first engaged the next time the machine is started, the percentage you saved is the new default setting. Speed management can still be adjusted from 1% to 99% of standard travel speed.

   The default setting can be changed any time the operator chooses and is saved for each operator.

8. Pressing the button (Item 1) [Figure 101] on the left joystick or turning the machine off will disengage speed management and return the machine to standard travel speed.

DRIVE RESPONSE

Drive Response 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.

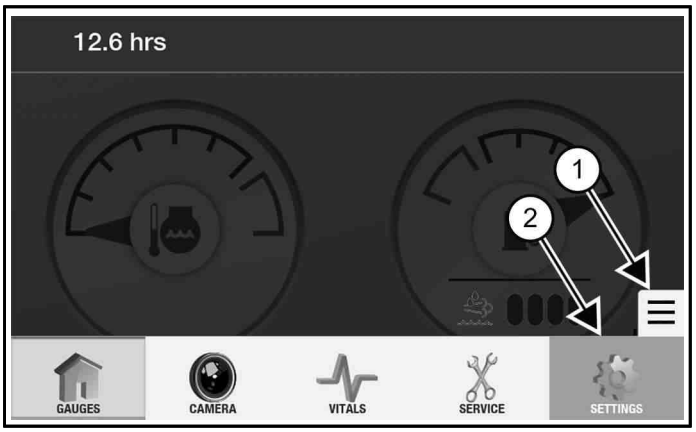
NOTE: Changes to drive response do not affect braking or stopping the machine.

There are three drive response settings:

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

Adjusting Drive Response

Figure 102

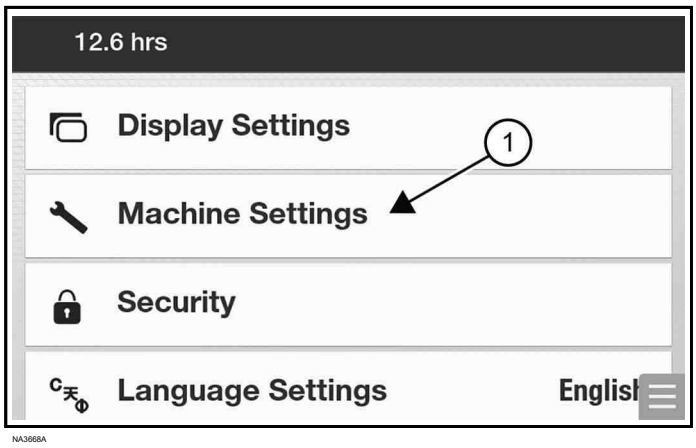


NA3669B

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 102].

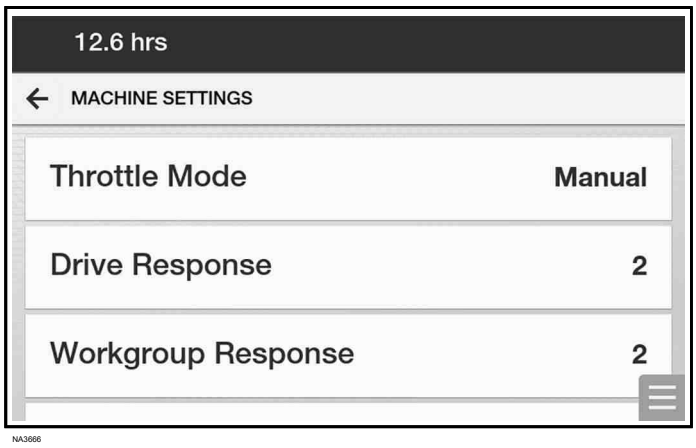
2. Select **[SETTINGS]** (Item 2) [Figure 102].

Figure 103



3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 103].

Figure 104



4. Select the desired drive response setting [Figure 104].

   The current drive response setting is automatically saved.

   Drive response settings are saved individually for each operator.

STEERING DRIFT COMPENSATION

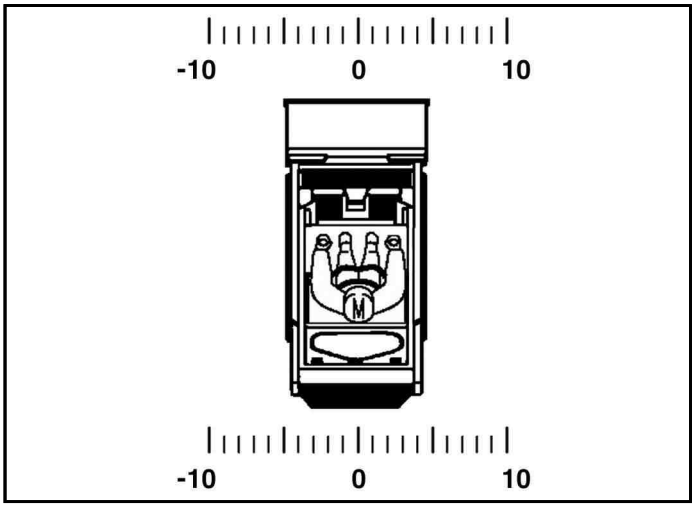
Steering Drift Compensation Description

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 105

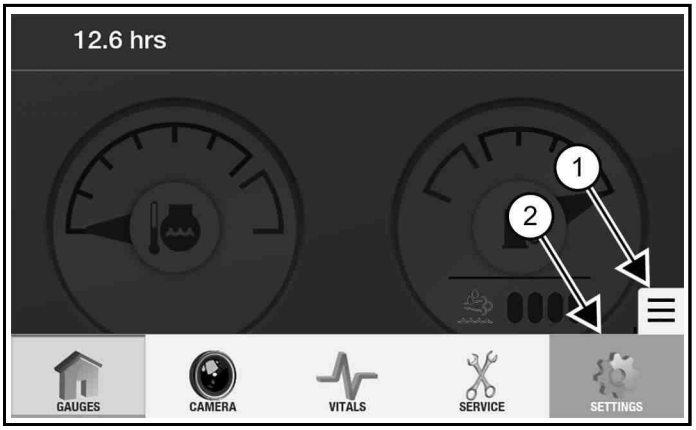


Steering drift compensation contains a total of 21 settings. Steering drift compensation can be set to any point from zero to -10 left, and from zero to 10 right [Figure 105].

Adjusting Steering Drift Compensation

Steering drift compensation is adjusted during machine operation.

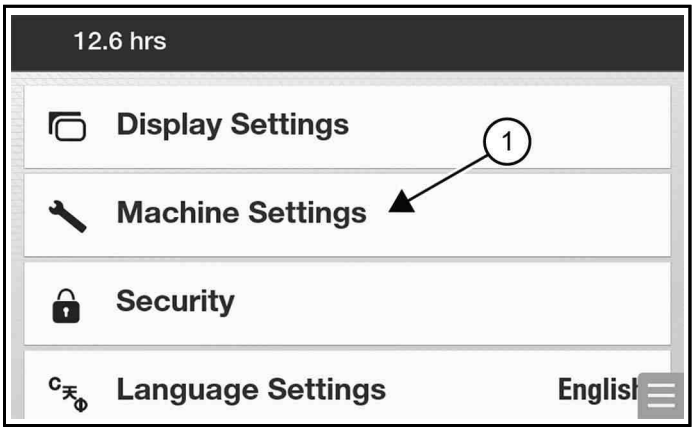
Figure 106



NA3669B

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 106].
2. Select **[SETTINGS]** (Item 2) [Figure 106].

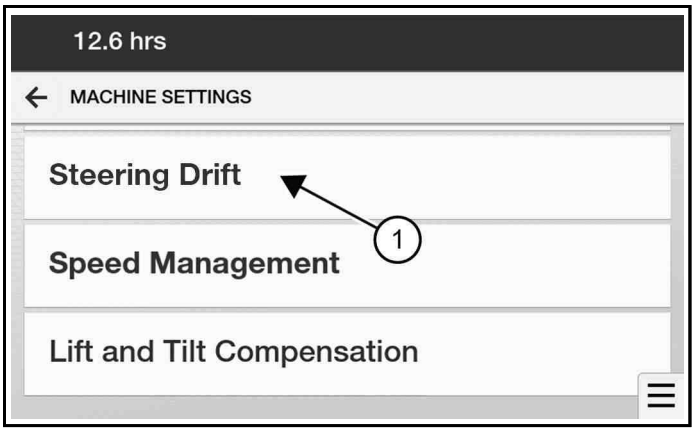
Figure 107



NA3668A

3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 107].

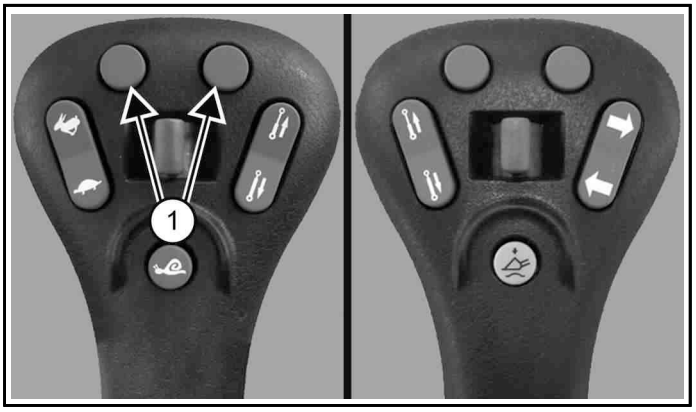
Figure 108



NA3671C

4. Select **[STEERING DRIFT]** (Item 1) [Figure 108].

Figure 109



P200213j

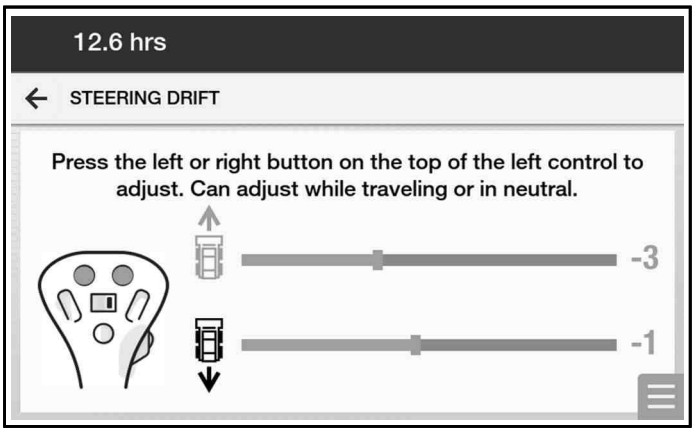
5. Press the left or right button (Item 1) [Figure 109] on the left joystick to adjust the setting.

   The forward steering drift setting can be adjusted in neutral or forward travel.

   The reverse steering drift setting can only be adjusted in reverse travel.

   Adjustments to steering drift compensation are effective immediately.

Figure 110



NA3716

6. The bar graphs on the display will show the current steering drift settings for forward and reverse [Figure 110].

   The current steering drift settings are automatically saved.

NOTE: Rear view camera will display when operating in reverse. Return controls to neutral to view settings.

LIFT AND TILT COMPENSATION

Lift And Tilt Compensation Description

Lift and tilt compensation is used to account for variances in the valve. The procedure maps the full range of the joystick to lift and tilt functions allowing compensation for machine and attachment variables.

Operators can adjust the compensation to account for:

- Attachment weight
- Engine rpm
- Application
- Other machine function settings
- Personal preference

NOTE: Adjusting values for personal preference can negatively impact Dual Direction Bucket Positioning performance.

Adjusting Lift And Tilt Compensation

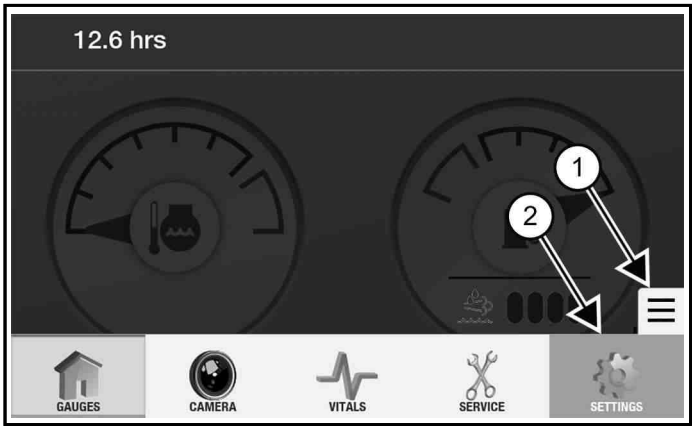
NOTE: Ensure the following conditions have been met before adjusting Lift and Tilt Compensation:

- Warm the machine to normal operating temperature.
- Remove attachment.
- Keep the engine speed control in high idle position throughout the adjustment procedure.
- Turn automatic ride control OFF.
- Turn dual direction bucket positioning OFF.

Perform pre-starting procedure and starting the engine procedures:

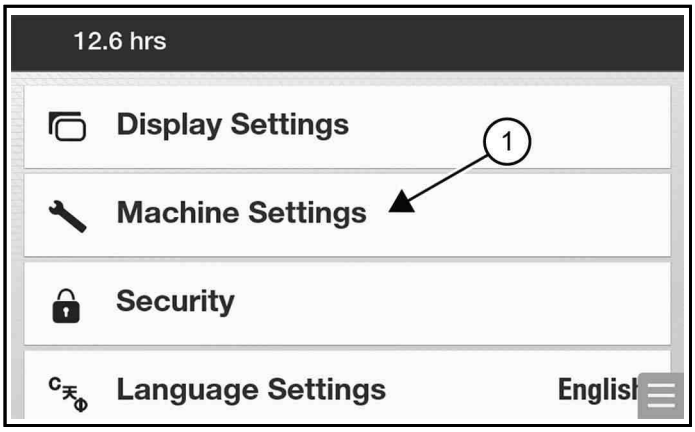
1. Fasten seat belt.
2. Lower seat bar.
3. Put handles or joysticks in neutral position.
4. Press the run button or turn the key switch ON.
5. Start the engine.
6. Set the engine speed control to the high idle position.
7. Press the operate button.
8. Raise the lift arms approximately 1 m (3 ft) off the ground and tilt the Bob-Tach frame forward approximately 300 mm (1 ft).
9. Press the operate button to deactivate BICS.

Figure 111



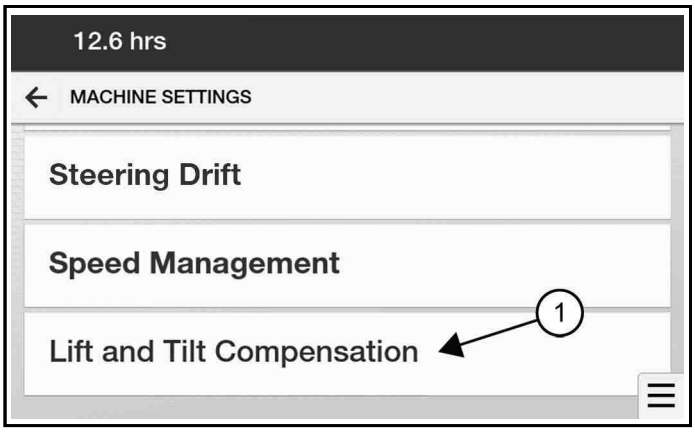
10. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 111].
11. Select **[SETTINGS]** (Item 2) [Figure 111].

Figure 112



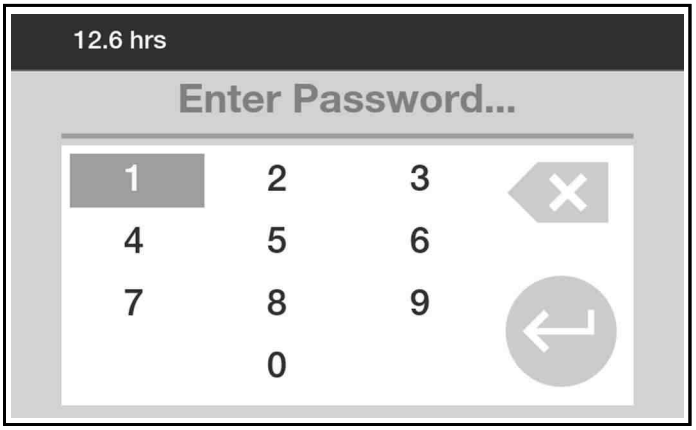
12. Select **[MACHINE SETTINGS]** (Item 1) [Figure 112].

Figure 113



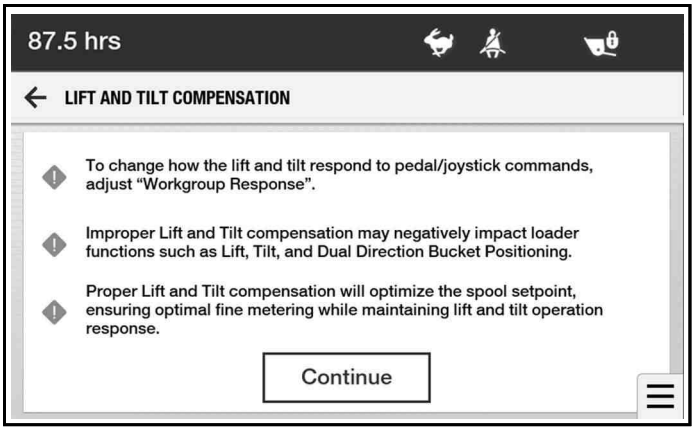
13. Scroll down and select **[LIFT AND TILT COMPENSATION]** (Item 1) [Figure 113].

Figure 114



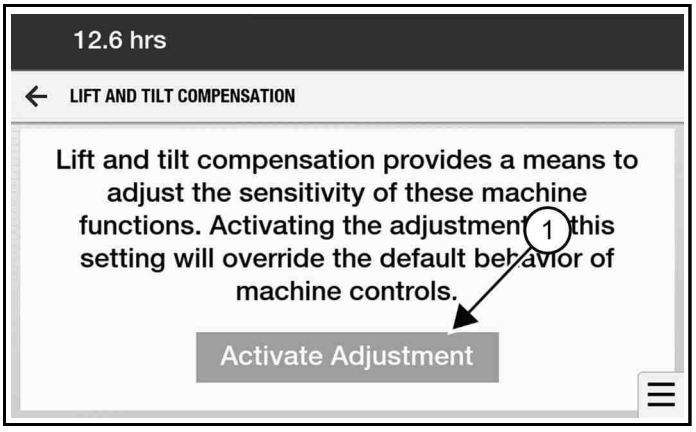
14. Enter the owner password [Figure 114].

Figure 115



15. Review the caution statements and select **[CONTINUE]** [Figure 115].

Figure 116



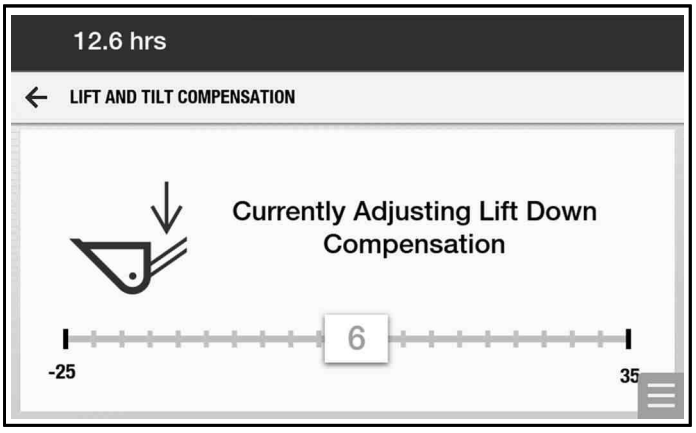
16. Select **[ACTIVATE ADJUSTMENT]** (Item 1) [Figure 116].

Figure 117

17. Press the operate button [Figure 117].

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

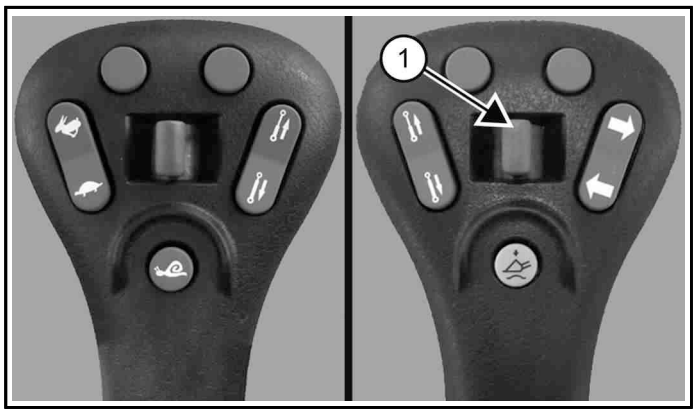
Figure 118



18. Activate lift down control and hold.

    The display will indicate that lift down compensation is being adjusted and the current setting will be highlighted [Figure 118].

Figure 119



19. Move the switch (Item 1) [Figure 119] to the right repeatedly until a slight downward 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.

    If the lift arms begin to move immediately, move the switch (Item 1) [Figure 119] to the left repeatedly until lift arm movement stops, then move the switch to the right repeatedly until a slight downward movement of the lift arms is noticed. (This procedure also applies to lift up, tilt backward, and tilt forward.)

20. Activate lift up control and hold. The display will indicate that lift up compensation is being adjusted and the current setting will be highlighted.

21. Move the switch (Item 1) [Figure 119] to the right repeatedly until a slight upward movement of the lift arms is noticed.

22. Activate tilt backward control and hold. The display will indicate that tilt up compensation is being adjusted and the current setting will be highlighted.

23. Move the switch (Item 1) [Figure 119] to the right repeatedly until a slight backward tilt movement of the Bob-Tach frame is noticed.

24. Activate tilt forward control and hold. The display will indicate that tilt down compensation is being adjusted and the current setting will be highlighted.

25. Move the switch (Item 1) [Figure 119] to the right repeatedly until a slight forward tilt movement of the Bob-Tach frame is noticed.

26. Save the current lift and tilt compensation settings by pressing the operate button. The machine will exit from the lift and tilt compensation menu.

    OR

    Raise and lower the seat bar to exit from lift and tilt compensation without saving. This will cancel all changes made.

27. Press the operate button to continue machine operation.

28. Repeat procedure if desired.

29. Check the dual direction bucket positioning (if equipped) to ensure it functions as intended.

WORKGROUP RESPONSE

Workgroup Response Description

Workgroup response changes how responsive (more or less) the lift and tilt functions are when the operator moves the joystick(s).

Workgroup response can be changed by the operator for different workgroup response preferences, various job conditions, and attachment use.

There are three workgroup response settings:

- **[Workgroup Response 1]** provides a smooth response for more precise work. For example: high speed grading, working in tight areas, and material handling.
- **[Workgroup Response 2]** is the default setting and provides a normal response for most applications.
- **[Workgroup Response 3]** provides a quick response for experienced operators. For example: increased bucket shake when truck loading and excavating.

Adjusting Workgroup Response

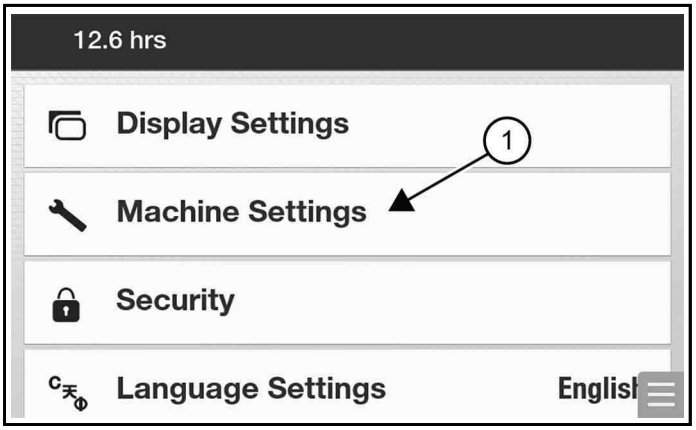
NOTE: It is recommended that you adjust lift and tilt compensation before choosing a workgroup response setting.
(See Lift and Tilt Compensation on Page 85)

Figure 120

NA3669B

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 120].
2. Select **[SETTINGS]** (Item 2) [Figure 120].

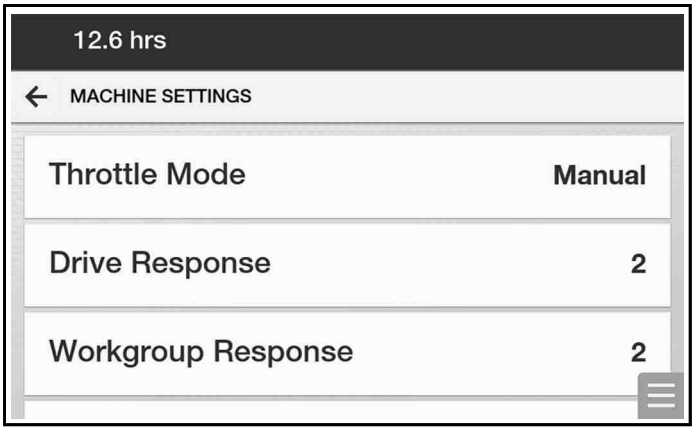
Figure 121



NA3668A

3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 121].

Figure 122



NA3666

4. Select the desired workgroup response setting [Figure 122].

   The current workgroup response setting is automatically saved.

   Workgroup response settings are saved individually for each operator.

HYDRAULIC CONTROLS

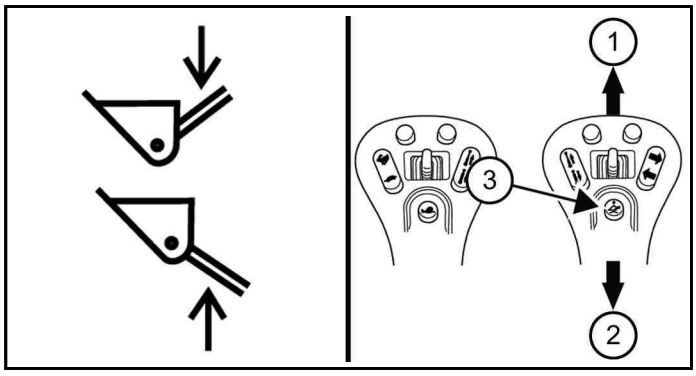
Hydraulic Controls Description

Two joysticks control the hydraulic cylinders for the lift and tilt functions.

Put your feet on the footrests and hands on the controls and KEEP THEM THERE any time you operate the machine.

Operating SJC Hydraulic Controls In 'ISO' Control Pattern

Figure 123



Lift Arm Operation — (Right Joystick)

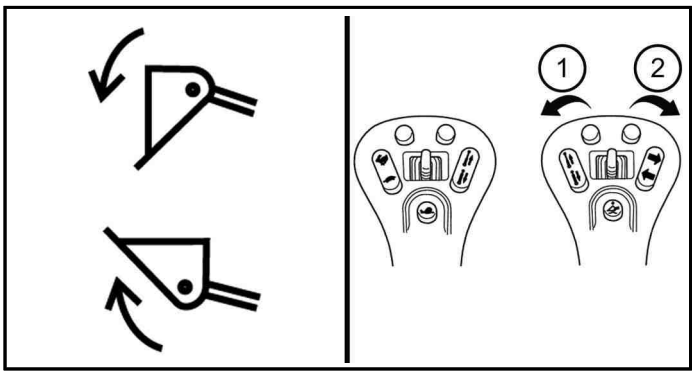
1. Move the right joystick forward (Item 1) [Figure 123] to lower the lift arms.
2. Move the right joystick backward (Item 2) [Figure 123] to raise the lift arms.

Lift Arm Float Position — (Right Joystick)

1. Move the right joystick forward to lift arm down position (Item 1), then press the Float button (Item 3) [Figure 123].
2. Release the Float button and allow the right joystick to return to neutral.
3. Press Float button (Item 3) again or raise the lift arms (Item 2) [Figure 123] to disengage.

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

Figure 124

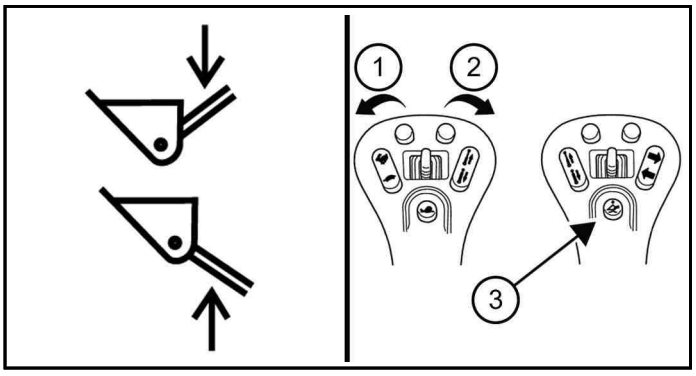


Tilt Operation (Right Joystick)

1. Move the right joystick inward (Item 1) [Figure 124] to tilt the bucket backward.
2. Move the right joystick outward (Item 2) [Figure 124] to tilt the bucket forward.

Operating SJC Hydraulic Controls In 'H' Control Pattern

Figure 125



Lift Arm Operation — (Left Joystick)

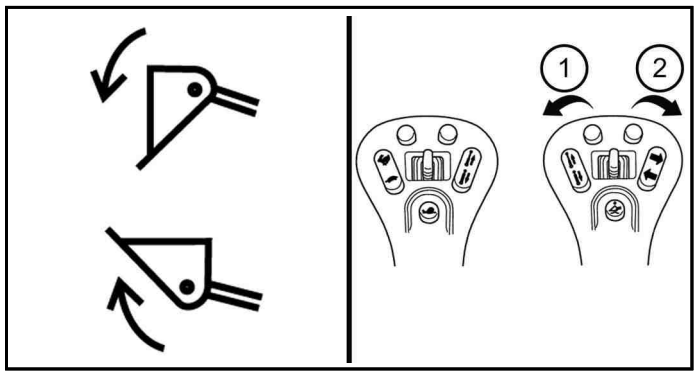
1. Move the left joystick outward (Item 1) [Figure 125] to raise the lift arms.
2. Move the left joystick inward (Item 2) [Figure 125] to lower the lift arms.

Lift Arm Float Position — (Left And Right Joysticks)

1. Move the left joystick inward to lift arm down position (Item 2), then press the Float button (Item 3) [Figure 125].
2. Release the Float button and allow the left joystick to return to neutral.
3. Press Float button (Item 3) again or raise the lift arms (Item 1) [Figure 125] to disengage.

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

Figure 126



NA3805B

Tilt Operation (Right Joystick)

1. Move the right joystick inward (Item 1) [Figure 126] to tilt the bucket backward.
2. Move the right joystick outward (Item 2) [Figure 126] to tilt the bucket forward.

Operating Dual Direction Bucket Positioning

The function of dual direction bucket positioning is to keep the bucket or other attachment at the same approximate angle as the lift arms are raised and lowered.

Figure 127

C200193b

1. Press the dual direction bucket positioning button (Item 1) [Figure 127] on the left control panel to engage the bucket positioning function.

   Self levelling will be activated in up direction only.

   The left LED on the button will light.

2. Press the dual direction bucket positioning button (Item 1) [Figure 127] a second time.

   Self levelling will be activated in both up and down directions.

   The left and middle LED on the button will light.

3. Press the button again to disengage.

   The LED will turn off.

NOTE: The machine will stay in the selected mode after key OFF.

Operating 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 travelling over uneven ground with heavy loads or in heavy digging applications.

Figure 128

C200193c

1. Press the automatic ride control button (Item 1) [Figure 128] on the left control panel to engage the automatic ride control function. The middle LED in the button will light.

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

2. Press the button to disengage. The LED will turn off.

Automatic ride control may not be available if the hydraulic fluid temperature is too low.

The automatic ride control system uses an accumulator that requires occasional service.
(See Checking Automatic Ride Control Accumulator Charge on Page 181)

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 ON 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-3073

Operating Reversing Fan

This machine may be equipped with a reversing fan. The function 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 129

C200193d

Automatic

1. Press the reversing fan button (Item 1) [Figure 129] on the left control panel to engage the automatic reversing fan function. The middle LED in the button will light.

   The machine will reverse the fan automatically based on fluid temperature as long as automatic operation is selected.

2. Press the button again to disengage. The LED will turn off.

Manual

1. Press and hold the reversing fan button (Item 1) [Figure 129] on the left control panel for several seconds to engage the manual reversing fan function. The middle LED in the button will light and the alarm will beep one time.

   The machine will reverse the fan for one cycle.

2. The machine will return to the previous state after the manual cycle has completed.

NOTE: To protect vital systems, the fan will not reverse when fluid temperatures approach overheating conditions. Cleaning or servicing the cooling system may be required to continue operation. (See Engine Cooling System on Page 155)

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

Selecting automatic operation of the reversing fan when disabled will cause the following indications:

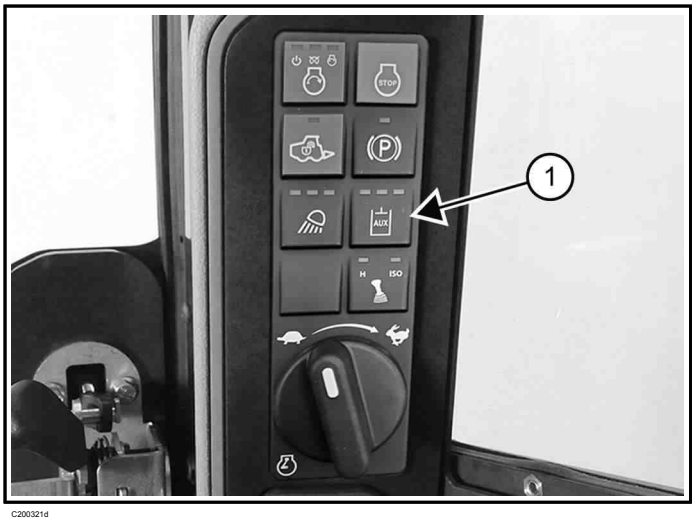
- The middle LED will light to indicate desired functionality.
- The fan will not reverse.

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

- The alarm will not beep.
- The middle LED will light as long as the button is held.
- The fan will not reverse.

Operating Front Auxiliary Hydraulics

Figure 130

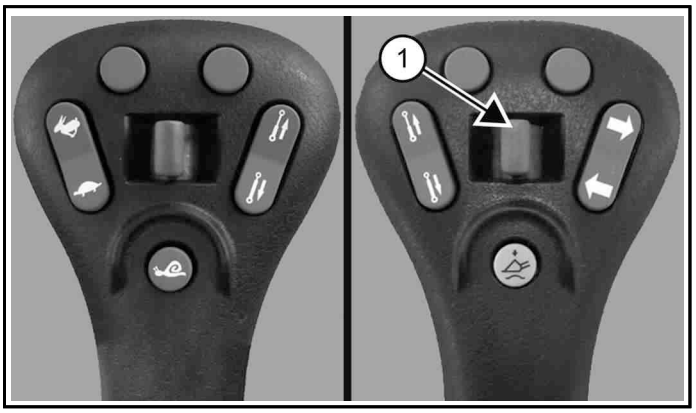


C200321d

1. Press the auxiliary hydraulics button (Item 1) [Figure 130] on the right control panel once to activate auxiliary hydraulics.

   The left LED in the button will light.

Figure 131



P200213b

2. Move the front auxiliary hydraulic switch (Item 1) [Figure 131] 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.

3. Release the front auxiliary hydraulic switch to stop hydraulic fluid flow to the front quick couplers.

Loaders With Standard Flow Hydraulics

- To deactivate the auxiliary hydraulics, press the auxiliary hydraulics button again. All LED are off.

  NOTE: When the operator is seated and raises the seat bar, the auxiliary hydraulic system (Front and Rear) will deactivate.

Loaders With High-Flow Hydraulics

- To deactivate the auxiliary hydraulics, press the auxiliary hydraulics button two times. All LED are off.

  NOTE: When the operator is seated and raises the seat bar, the auxiliary hydraulic system (Front and Rear) will deactivate.

Loaders With Super-Flow Hydraulics

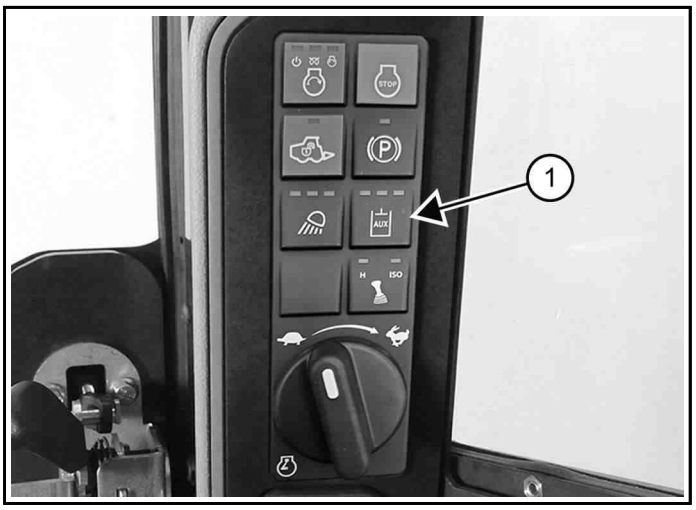
- To deactivate the auxiliary hydraulics, press the auxiliary hydraulics button three times. All LED are off.

  NOTE: When the operator is seated and raises the seat bar, the auxiliary hydraulic system (Front and Rear) will deactivate.

Operating Front Auxiliary Hydraulics In Continuous Flow Mode

To provide constant auxiliary hydraulic fluid flow to the front female coupler (female coupler is pressurised):

Figure 132

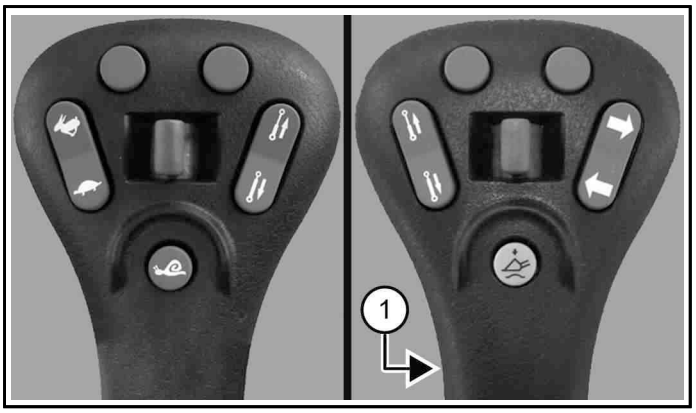


C200321d

1. Press the auxiliary hydraulics button (Item 1) [Figure 132] on the right control panel once to activate auxiliary hydraulics.

   The left LED in the button will light.

Figure 133



P200213h

2. Press the Continuous Flow Control switch (Item 1) [Figure 133].

3. Press the Continuous Flow Control switch (Item 1) [Figure 133] a second time to stop continuous auxiliary hydraulic fluid flow.

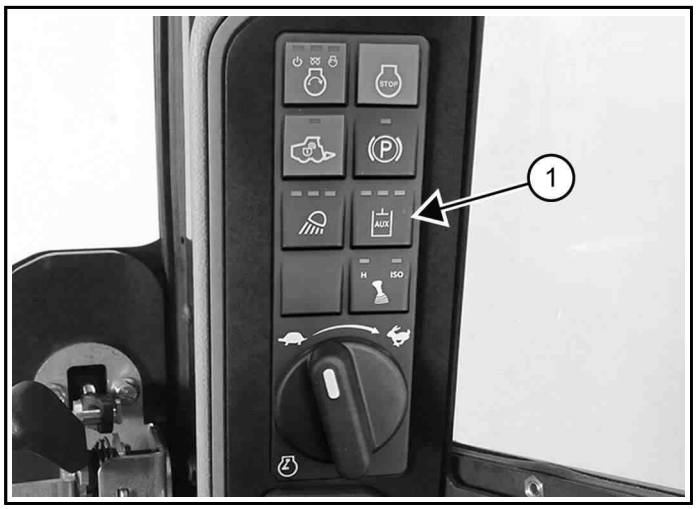
NOTE: When the operator is seated and raises the seat bar, the auxiliary hydraulic system (Front and Rear) will deactivate.

Operating Front Auxiliary Hydraulics In Reverse Continuous Flow Mode

To provide constant auxiliary hydraulic fluid flow to the front male coupler (male coupler is pressurised):

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.

Figure 134

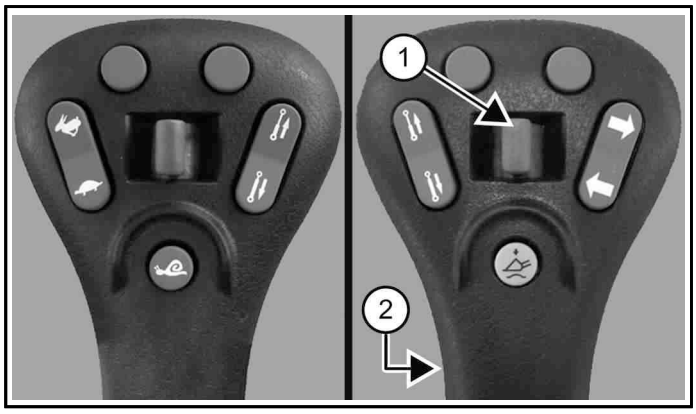


C200321d

1. Press the auxiliary hydraulics button (Item 1) [Figure 134] on the right control panel once to activate auxiliary hydraulics.

   The left LED in the button will light.

Figure 135



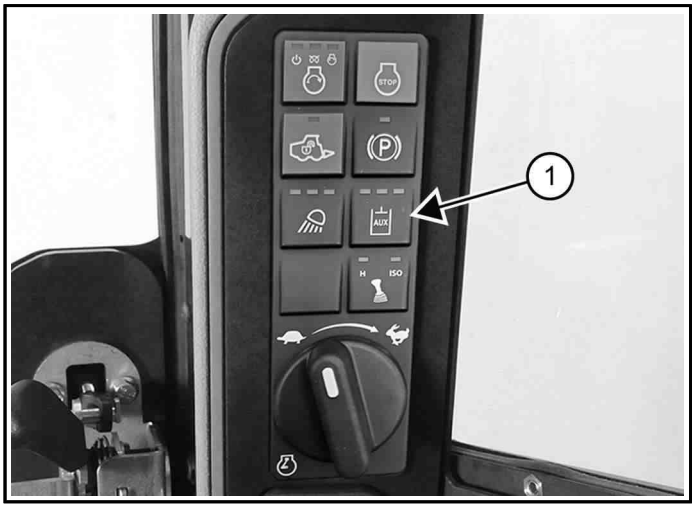
P200213c

2. Move the front auxiliary hydraulic switch (Item 1) [Figure 135] to the left and hold.
3. Press the continuous flow control switch (Item 2) [Figure 135].
4. Release the front auxiliary hydraulic switch.
5. Press the continuous flow control switch (Item 2) [Figure 135] a second time to stop continuous auxiliary hydraulic fluid flow.

NOTE: When the operator is seated and raises the seat bar, the auxiliary hydraulic system (Front and Rear) will deactivate.

Operating Rear Auxiliary Hydraulics

Figure 136

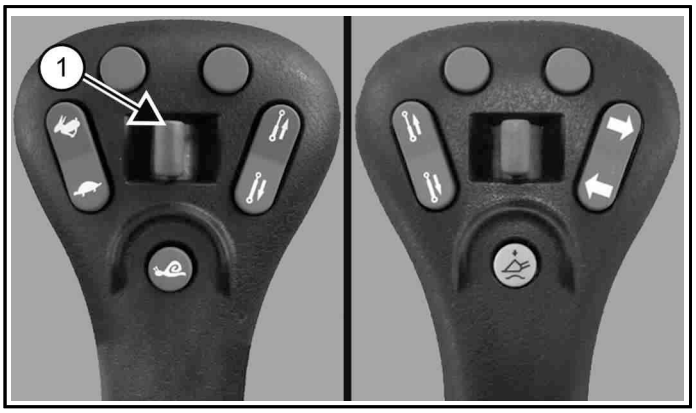


C200321d

1. If equipped with rear auxiliary hydraulics, press the auxiliary hydraulics button (Item 1) [Figure 136] on the right control panel once to activate auxiliary hydraulics.

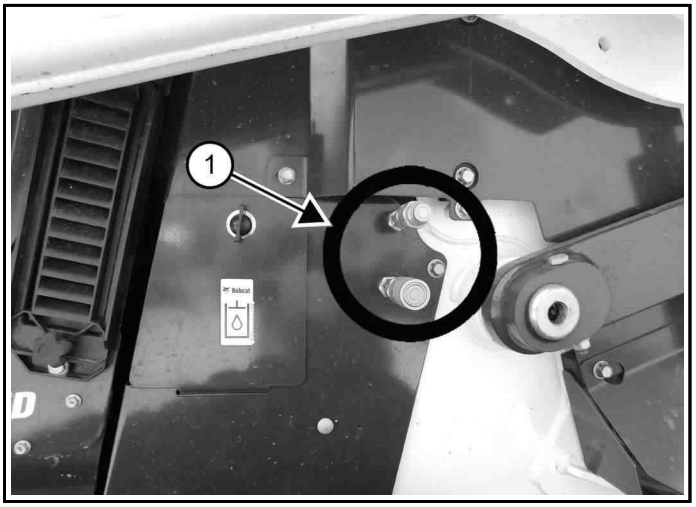
   The left LED in the button will light.

Figure 137



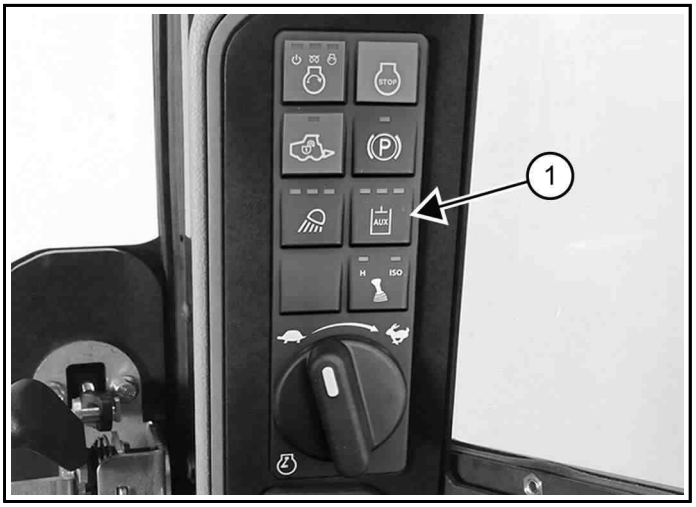
P200213d

Figure 138



C216684A

Figure 139



C200321d

2. Move the rear auxiliary hydraulic switch (Item 1) [Figure 137] to the right or left to change direction of the auxiliary hydraulic fluid flow to the rear quick couplers (Item 1) [Figure 138]. (Left side shown.)

3. Release the switch to stop fluid flow.

Loaders With Standard Flow Hydraulics

- To deactivate the auxiliary hydraulics, press the auxiliary hydraulics button again. All LED are off.

  NOTE: When the operator is seated and raises the seat bar, the auxiliary hydraulic system (Front and Rear) will deactivate.

Loaders With High-Flow Hydraulics

- To deactivate the auxiliary hydraulics, press the auxiliary hydraulics button two times. All LED are off.

  NOTE: When the operator is seated and raises the seat bar, the auxiliary hydraulic system (Front and Rear) will deactivate.

Loaders With Super-Flow Hydraulics

- To deactivate the auxiliary hydraulics, press the auxiliary hydraulics button three times. All LED are off.

  NOTE: When the operator is seated and raises the seat bar, the auxiliary hydraulic system (Front and Rear) will deactivate.

Operating High-Flow Auxiliary Hydraulics

The high-flow function provides additional hydraulic fluid flow to the system to operate an attachment that requires more hydraulic flow.

High-flow auxiliary hydraulics is available for forward flow only, reverse flow will be reduced to standard flow rate.

1. Press the auxiliary hydraulics button (Item 1) [Figure 139] on the right control panel once to activate auxiliary hydraulics.

   The left LED in the button will light.

2. Press the auxiliary hydraulics button (Item 1) [Figure 139] a second time to activate high-flow auxiliary hydraulics.

   The left and middle LED in the button will light.

3. Press the auxiliary hydraulics button (Item 1) [Figure 139] a third time to deactivate auxiliary hydraulics. All LED in the button are off.

Attachments That Automatically Enable High-Flow Hydraulics

1. Press button once to activate auxiliary hydraulics and high-flow, the left and middle LED are on.

2. Second button press will deactivate high-flow hydraulics, middle LED is off.

3. Third button press will deactivate auxiliary hydraulics, all LED are off.

Attachments That Automatically Disable High-Flow Hydraulics

1. Press button once to activate auxiliary hydraulics, left LED is on.

2. Second button press will not activate high-flow hydraulics, middle LED is on briefly and turns off.

3. Third button press will deactivate auxiliary hydraulics, all LED are off.

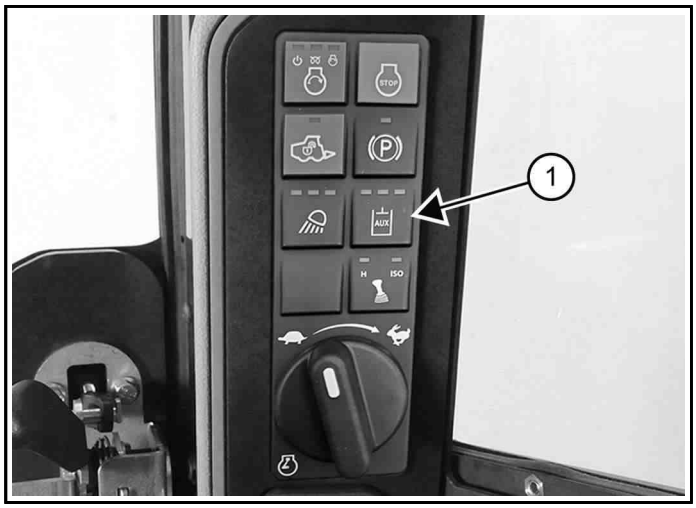
NOTE: See attachment Operation & Maintenance Manual for more information.

Operating Super-Flow Auxiliary Hydraulics

This machine may be equipped with super-flow auxiliary hydraulics. The super-flow function provides additional hydraulic fluid flow to the system to operate an attachment that requires more hydraulic flow.

Super-flow auxiliary hydraulics is available for forward flow only and flow is not variable.

Figure 140



C200321d

1. Press the auxiliary hydraulics button (Item 1) [Figure 140] on the right control panel once to activate auxiliary hydraulics.

   The left LED in the button will light.

2. Press the auxiliary hydraulics button (Item 1) [Figure 140] a second time to activate high-flow auxiliary hydraulics.

   The left and middle LED in the button will light.

3. Press the auxiliary hydraulics button (Item 1) [Figure 140] a third time to activate super-flow auxiliary hydraulics.

   NOTE: Super-flow auxiliary hydraulics can damage attachments designed for lower flow rates.

   A notification banner will appear on the display. Review and select unlock to activate super-flow auxiliary hydraulics.

   The left, middle, and right LED in the button will light.

4. Press the auxiliary hydraulics button (Item 1) [Figure 140] a final time to deactivate auxiliary hydraulics. All LED in the button are off.

Attachments That Automatically Enable Super-Flow Hydraulics

1. Press button once to activate auxiliary hydraulics and super-flow, the left, middle, and right LED are on.
2. Second button press will deactivate super-flow hydraulics, right LED is off.
3. Third button press will deactivate auxiliary hydraulics, all LED are off.

Attachments That Automatically Disable Super-Flow Hydraulics

1. Press button once to activate auxiliary hydraulics, left LED is on.
2. Third button press will not activate super-flow hydraulics, right LED is on briefly and turns off.
3. Final button press will deactivate auxiliary hydraulics, all LED are off.

NOTE: See attachment Operation & Maintenance Manual for more information.

Connecting And Disconnecting Auxiliary Hydraulic Couplers

⚠ WARNING

INJECTION HAZARD
Pressurised diesel fuel or hydraulic fluid can penetrate skin and 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 doctor familiar with this injury.

W-2072

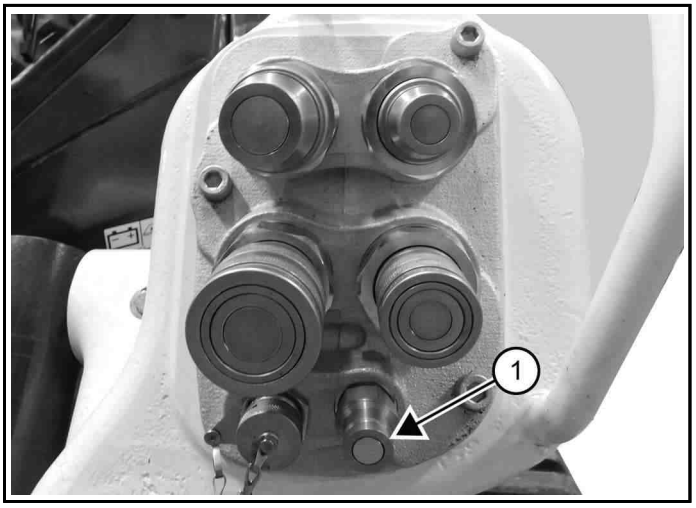
⚠ WARNING

BURN HAZARD
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

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

Figure 141



C216686B

To Connect

1. Remove dirt or debris from the surface of the male and female couplers, and from the outside diameter of the male couplers.
2. Visually check the couplers for corroding, cracking, damage, or excessive wear.

   If any of these conditions exist, the coupler(s) must be replaced.
3. Install the male couplers into the female couplers.

   Full connection is made when the ball release sleeves slide forward on the female couplers.
4. Connect the attachment case drain (if equipped) to the small quick coupler (Item 1) .

To Disconnect

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

Troubleshooting Auxiliary Hydraulic Couplers

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.
- Clean couplers with a Teflon™ based aerosol lubricant.
- 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 machine 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.

Relieving Auxiliary Hydraulic Pressure (Front Auxiliary Couplers)

⚠ WARNING

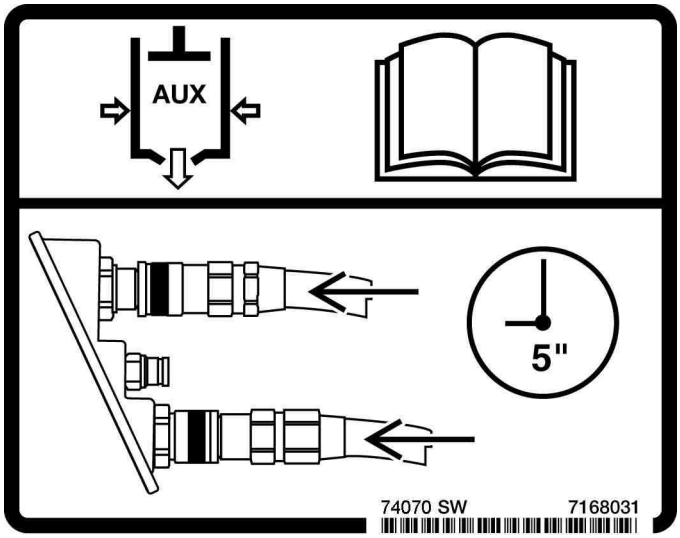
BURN HAZARD
Hydraulic fluid, tubes, fittings and quick couplers can get hot when running machine and attachments. Be careful when connecting and disconnecting quick couplers.

W-2220

⚠ WARNING

INJECTION HAZARD
Pressurised diesel fuel or hydraulic fluid can penetrate skin and 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 doctor familiar with this injury.

W-2072



1. Push the quick couplers tightly together and hold for 5 seconds when connecting.

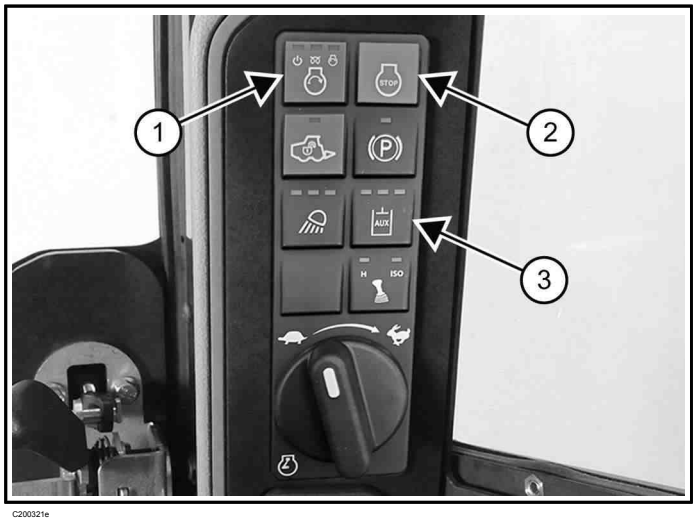
   The pressure is automatically relieved as the couplers are installed.

2. Push the quick couplers tightly together and hold for 5 seconds when disconnecting; then retract the sleeves until the couplers disconnect.

Relieving Auxiliary Hydraulic Pressure (Rear Auxiliary Couplers)

1. Put the attachment flat on the ground.
2. Stop the engine.

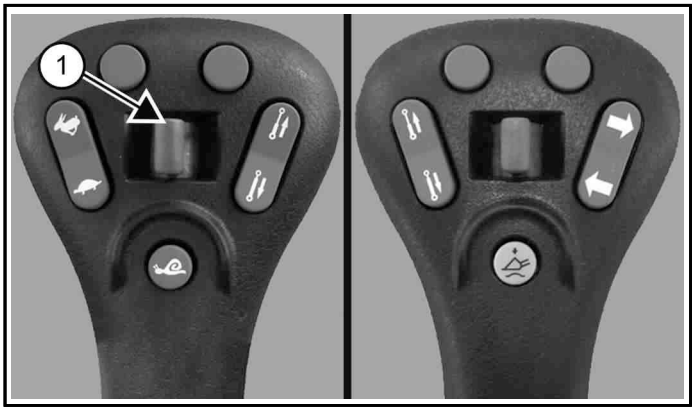
Figure 142



C200321e

3. Press the run button (Item 1) [Figure 142] on the right control panel or turn the key switch to run, but do not start the engine.
4. Press the auxiliary hydraulics button (Item 3) [Figure 142] on the right control panel once to activate auxiliary hydraulics.

Figure 143



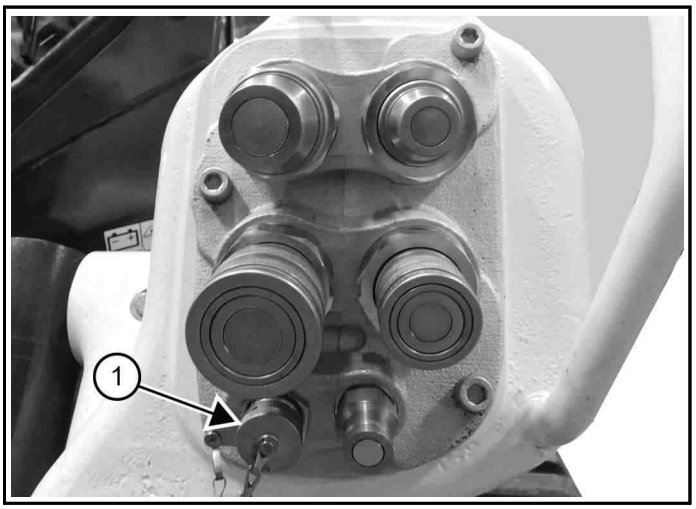
P200213d

5. Move the rear auxiliary hydraulic switch (Item 1) [Figure 143] to the left and right several times.
6. Press the stop button (Item 2) [Figure 142] on the right control panel or turn the key switch to stop.

ATTACHMENT CONTROL DEVICE (ACD)

Attachment Control Device (ACD) Description

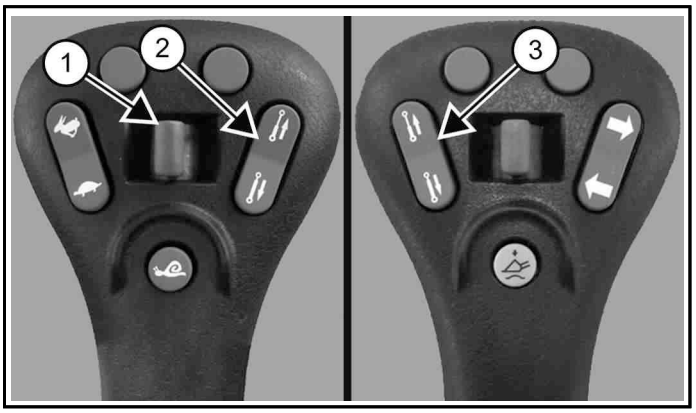
Figure 144



C216686A

The attachment electrical harness (if equipped) connects to the attachment control device (Item 1) [Figure 144].

Figure 145



P200213e

Additional switches (Items 1, 2, and 3) [Figure 145] 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 145] from rear auxiliary hydraulics when an attachment electrical harness is attached to the ACD.

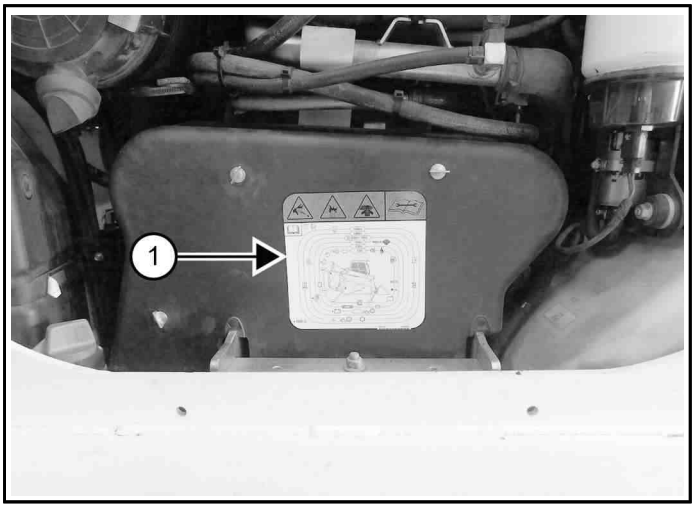
See the appropriate attachment Operation & Maintenance Manual for control details.

DAILY INSPECTION

Daily Inspection And Maintenance List

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 146



C216687A

The Service Checklist And Schedule (Item 1) [Figure 146] is located on the belt guard inside the rear door of the machine.

A complete list of scheduled maintenance tasks is also located in the Preventive Maintenance section of this manual. (See Service Schedule on Page 124)

⚠ WARNING

GENERAL HAZARD
Failure to follow instructions can cause serious 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

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 regulations for correct disposal.

⚠ WARNING

INSUFFICIENT INSTRUCTIONS HAZARD
Untrained operators or failure to follow instructions can cause serious injury or death.
Operators must have adequate training and instruction before operating.◂

W-2001

The following list of items must be checked daily:

- Engine Oil Level
- Hydraulic Fluid Level
- Engine Air Cleaner – Check system for damage or loose connections
- Engine Cooling System – Check system for damage or leaks, check coolant level, clean radiator cooling package, rear grilles, and engine compartment
- Operator Cab and Cab Mounting Hardware
- Seat Belt
- Seat Bar and Control Interlocks
- Bobcat Interlock Control System (BICS)
- Front Horn, Back-up Alarm, and Rear View Camera – 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 – Replace if damaged

⚠ IMPORTANT

ENGINE OR EXHAUST SYSTEM DAMAGE
Failure to maintain the factory equipped spark arrester exhaust system can result in improper function.
- **Muffler: The muffler chamber must be emptied every 100 hours of operation to keep it in working condition.**
- **Selective Catalytic 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.**
- **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 covered land, a spark arrester attached to the exhaust system may be required and must be maintained in working order. Refer to local laws and regulations for spark arrester requirements.
◂

I-2420

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Improper pressure washing may lead to damage of the decal.
- **Direct the stream at a 90 degree angle and at least 300 mm (12 in) from the decal.**
- **Wash from the centre of the decal toward the edges.◂**

I-2226

Cleaning The Machine

It is recommended to keep the machine clean and well maintained to ensure optimum performance. When using a pressure washer to clean the machine, the following requirements should not be exceeded:

- Maximum water temperature: 50°C (122°F).
- Maximum water pressure: 12 MPa (120 bar) (1740 psi).
- Maximum water flow: 15 L/min (4 U.S. gpm).
- Minimum spraying distance: 150 mm (6 in).
- Use a flat jet nozzle.

⚠ IMPORTANT

MACHINE DAMAGE
Never Pressure Wash
- **The machine with the engine running**
- **The engine compartment and inside other covered areas**
- **Electrical components**
- **With the nozzle directly into the air inlet**
- **The radiator with water, it could damage the fins and cause dust to stick to the radiator channels. Always use compressed air to clean the radiator blowing out from the fan side.**

I-2410

PRE-STARTING PROCEDURE

Entering The Machine

Figure 147

C200589

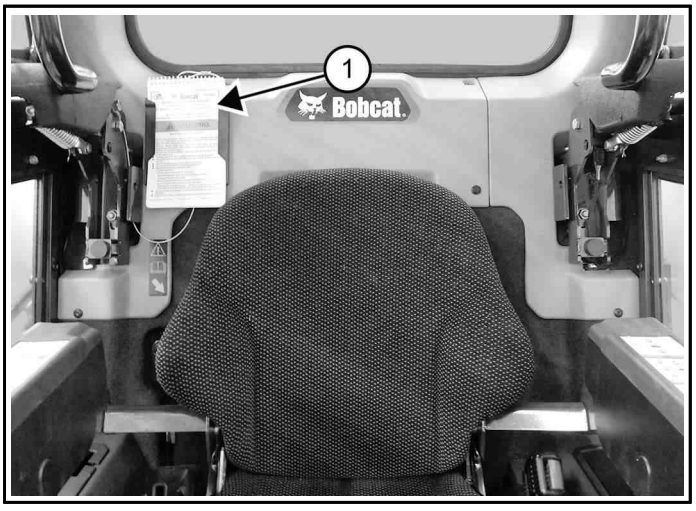
- Use the bucket or attachment steps, grab handles, and safety treads (on the machine lift arms and frame) to get on and off the machine, maintaining a three-point contact at all times [Figure 147]. Do not jump.

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

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

Operation & Maintenance Manual And Operator's Handbook Locations

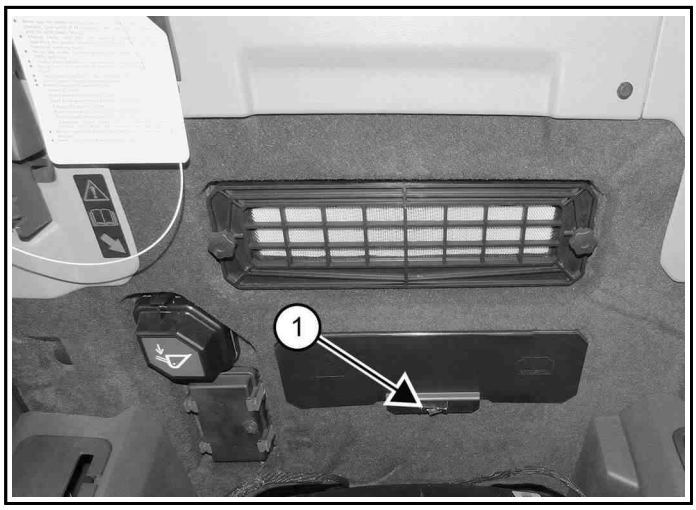
Figure 148



C200216a

Read and understand the Operation & Maintenance Manual and the Operator's Handbook (Item 1) [Figure 148] before operating the machine.

Figure 149



C200577b

The Operation & Maintenance Manual and other manuals can be kept in a container provided behind the operator's seat. Press the latch (Item 1) [Figure 149] to allow the cover to flip up.

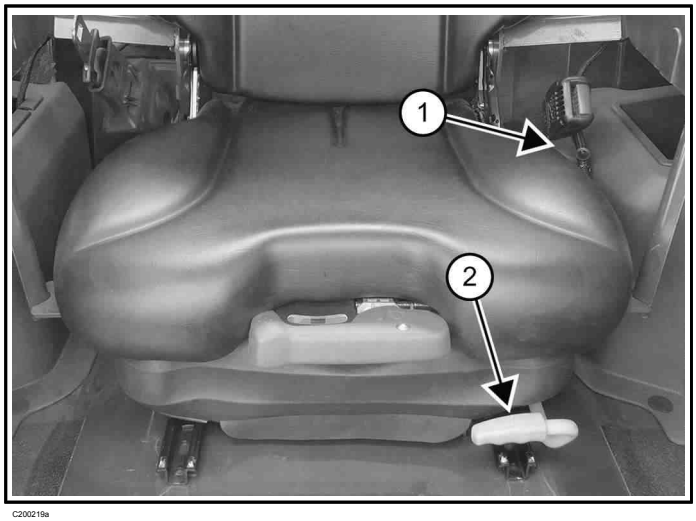
⚠ WARNING

INSUFFICIENT INSTRUCTIONS HAZARD
Untrained operators or failure to follow instructions can cause serious injury or death.
- **Read and understand the Operation & Maintenance Manual, Operator's Handbook and 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.**

W-2003

Adjusting Seat

Figure 150

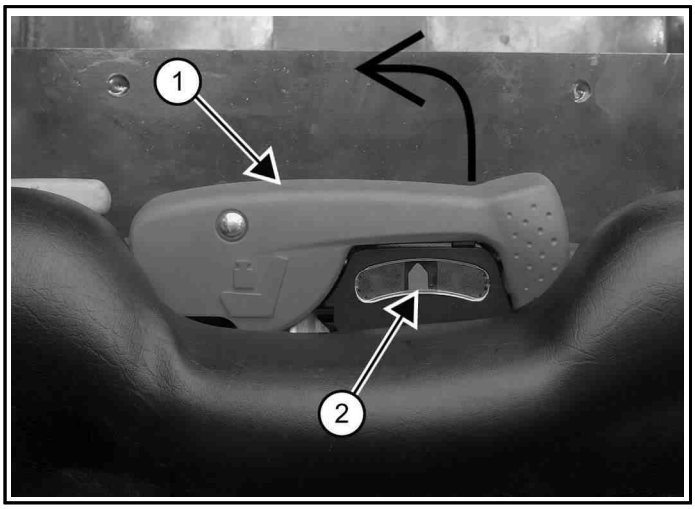


C200219a

- Pull the lever (Item 1) [Figure 150] up to adjust the angle of the seat back.
- Pull the lever (Item 2) [Figure 150] up to adjust the seat position for comfortable operation of the machine controls.

Adjusting Suspension Seat

Figure 151



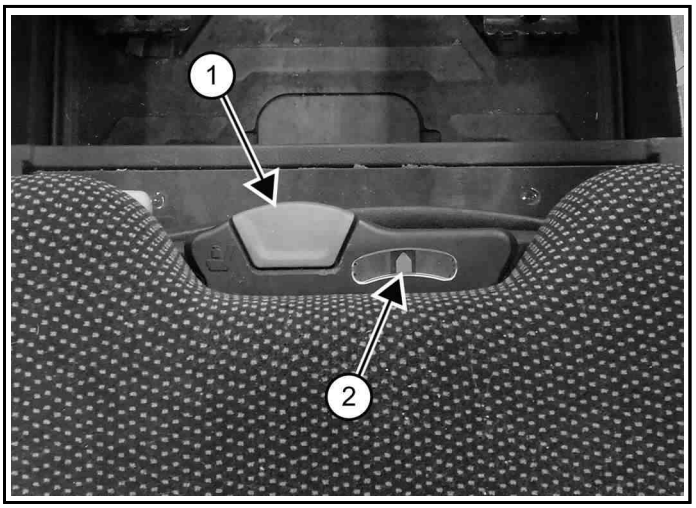
C200220a

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 151] centred 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.

Adjusting Heated Cloth Air Ride Suspension Seat

Figure 152



C200580a

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 152] centred in the gauge with the operator normally seated.

- Pull the lever (Item 1) [Figure 152] 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 machine electrical system must be turned ON to increase the amount of air in the seat suspension and to operate the heated seat.

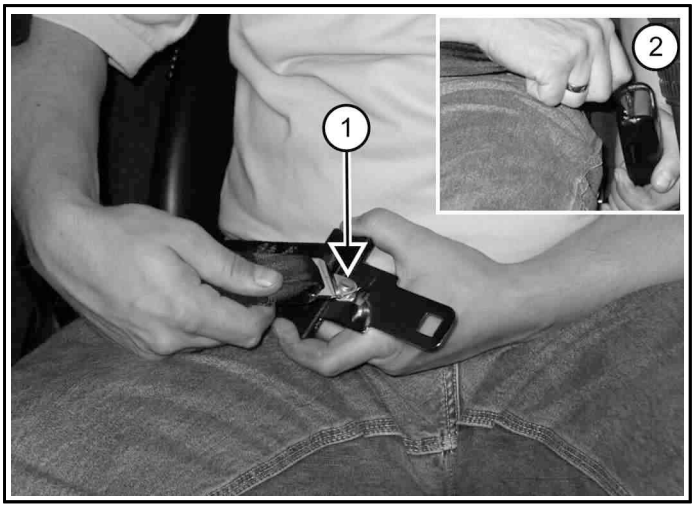
Figure 153

C200590

The switch [Figure 153] to turn the heated seat on or off is located behind the seat back on the left side.

Adjusting 3-Point Restraint Seat Belt

Figure 154



P200415a

1. Connect the shoulder belt to the lap belt (Item 1) [Figure 154].
2. Pull the lap belt across to the left side of the seat and fasten (Item 2) [Figure 154].

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

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

Lowering Seat Bar

Figure 155

C214223

1. Lower the seat bar [Figure 155].
2. 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 machine.

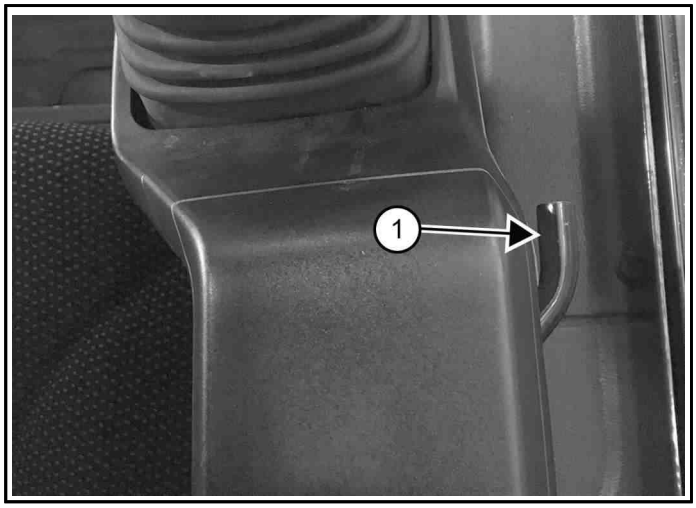
⚠ WARNING

GENERAL HAZARD
Failure to follow instructions can cause serious 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

Adjusting Joystick Position

Figure 156



C200603A

- Pull the joystick adjustment lever (Item 1) [Figure 156] up to slide the joystick forward or backward to adjust for comfortable operation. (Right side shown.)

STARTING THE ENGINE

Quick Start Description

The display uses a sleep function to reduce boot-up time and battery draw. The sleep time for standard display is fixed. The sleep time for touch display can be adjusted using the owner or master password.
(See Security Settings on Page 208)

If the machine has been off longer than the sleep time setting, one of three splash screens will appear on the display.

Figure 157

NA3639

Unlocked with quick start on [Figure 157]:

- A password is not required.
- The engine can be started after the glow plugs have cycled and the fuel lift pump has purged.
- Machine functions are active immediately after engine is started.
- The display will start booting up as soon as the machine is turned ON and the gauges screen will be the next screen to appear.

Figure 158

NA3640

Locked with quick start on [Figure 158]:

- A password is required.
- The engine can be started after the glow plugs have cycled and the fuel lift pump has purged.
- Machine functions are disabled until a password is entered.
- The display will start booting up as soon as the machine is turned ON and the password entry screen will be the next screen to appear.
- The machine will shut down if a valid password is not entered within 10 minutes.

Figure 159

NA3641

Locked with quick start off [Figure 159]:

- A password is required.
- The engine cannot be started until a password is entered.
- The display will start booting up as soon as the machine is turned ON and the password entry screen will be the next screen to appear.

  NOTE: Machine lockout can be turned on or off.
  (See Security Settings on Page 192)
  (See Security Settings on Page 208)

  NOTE: Quick start can be turned on or off.
  (See Security Settings on Page 192)
  (See Security Settings on Page 208)

Starting Engine

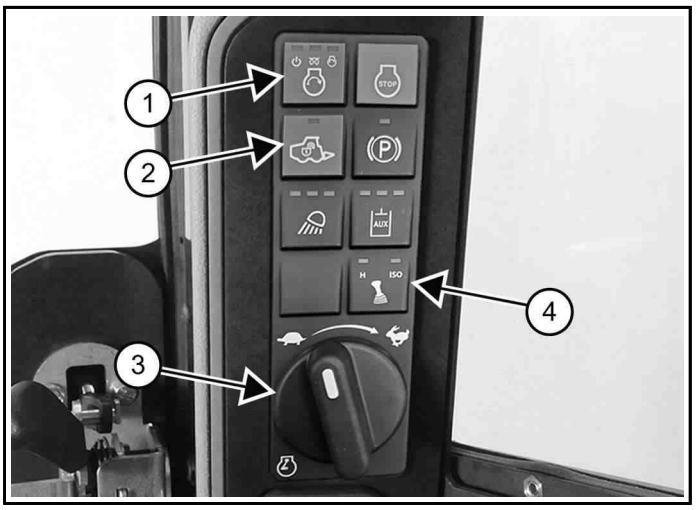
⚠ WARNING

FIRE AND EXPLOSION HAZARDS
Engines can have hot parts and hot exhaust gas that can cause serious injury or death.
- **Keep flammable material away.**
- **DO NOT use machines in an atmosphere containing explosive dust or gases.**

W-2051

1. Perform the pre-starting procedure.
   (See Pre-Starting Procedure on Page 100)

Figure 160

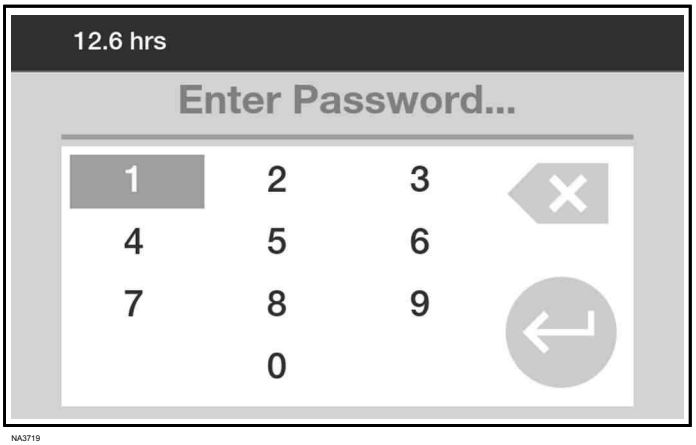


C200321J

2. Set the engine speed control (Item 3) [Figure 160] to the low idle position.
3. Press the run button (Item 1) [Figure 160] or turn the key switch to run. (See Keyed Ignition on Page 52) The left LED in the run button will light.

   If the machine has been off longer than the sleep time setting, one of three splash screens will appear on the display.
   (See Quick Start Description on Page 103)

Figure 161

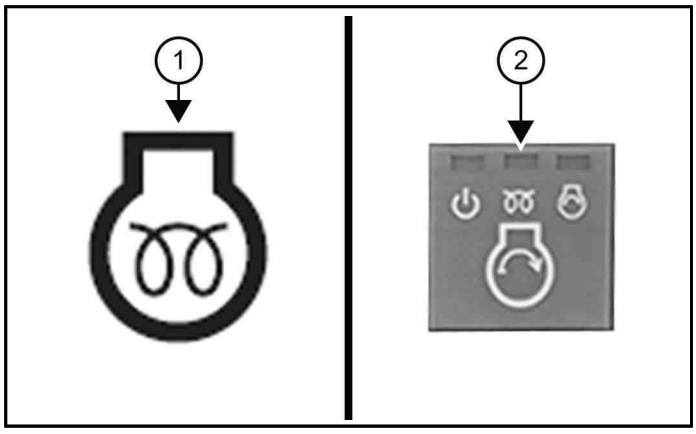


NA3719

4. Use the numeric keypad [Figure 161] to enter the password if the machine lockout feature is activated.
   (See Security Settings on Page 192)
   (See Security Settings on Page 208)

NOTE: Loaders have a permanent, randomly generated master password set at the factory. Your machine 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 unauthorised use of your machine.
(See Security Settings (Manage Operators) on Page 193)
(See Edit Operator on Page 209) Keep your password in a safe location for future needs.

Figure 162



C200593A

The machine will cycle the glow plugs automatically based on temperature. The engine preheat icon (Item 1) will show on the display and the middle LED in the run button (Item 2) [Figure 162] will light while the glow plugs are on.

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.

5. When the engine preheat icon turns off, press the start button (Item 1) [Figure 160] or turn the key to the start position. The right LED in the run button will light while the starter is operating. Release the button or key when the engine starts.

   The engine controller will run the engine at a slightly lower idle speed while checking engine systems and temperatures at startup.

   The engine controller may override the operator engine speed control setting and restrict the idle speed.

   The alarm will beep two times when the engine controller is no longer overriding engine speed.

   Engine speed will return to normal low idle or slowly increase to the operator engine speed control setting.

   The engine speed control may remain overridden during cold temperatures.
   (See Cold Temperature Engine Speed Control Description on Page 106)

NOTE: Make sure both joysticks are in the neutral position before starting the engine. Do not move the joysticks from the neutral position when pressing the start button with the BICS activated.

⚠ WARNING

GENERAL HAZARD
Failure to follow instructions can cause serious 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

6. Select 'ISO' or 'H' Control Pattern (Item 4) [Figure 160].

   The LED of the current selection will flash until the operate button is pressed.

7. Press the operate button (Item 2) [Figure 160] to activate the BICS and to perform hydraulic and loader functions.

   The LED in the operate button will light and the parking brake will disengage when BICS is activated.

⚠ WARNING

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

W-2050

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 machine.

  NOTE: The full range of the engine speed control and the full range of travel speeds will not be available until the engine controller determines the machine is adequately warmed.
  (See Cold Temperature Engine Speed Control Description on Page 106)
  (See Cold Temperature Hydrostatic Drive Description on Page 106)

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Failure to follow directions can result in machine damage.
Starting the engine when the temperature of the hydraulic fluid is less than – 29°C (-20°F) will result in significant damage to the hydraulic system and components.
Park the machine in a heated location or provide some means of warming the hydraulic fluid prior to starting the engine if the ambient temperature at startup is expected to be -29°C (-20°F) or below.
I-2403

Cold Temperature Starting Tips

⚠ WARNING

EXPLOSION HAZARD
Failure to follow instructions 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

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.
- Make sure the battery is fully charged.
- Install an engine heater, available from your Bobcat dealer.

NOTE: The display may not be at full intensity when the temperature is below -20°C (-4°F). The display may take 30 seconds to several minutes to warm up. All systems remain monitored even when the display is off.

⚠ WARNING

INHALATION HAZARD
Exhaust fumes contain odorless, invisible gases that can kill without warning.
Fresh air must be added to avoid concentration of exhaust fumes when an engine is running in an enclosed area. If the engine is stationary, vent the exhaust outside.
W-2050

Cold Temperature Engine Speed Control Description

The engine controller will not allow full engine speed and torque when the hydraulic temperature is too low and may slightly raise engine speed to assist in warming the engine coolant and hydraulic fluid during cold temperatures.

The following actions are performed automatically by the engine controller to aid machine warm up:

1. The engine controller will increase engine speed.
2. Operator selected engine speed will be limited until hydraulic fluid is adequately warmed.
3. Once engine coolant and hydraulic fluid approaches normal operating temperatures, engine speed will return to normal low idle or slowly increase or decrease to the operator engine speed control setting.
4. Full engine speed control is returned to the operator.

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

Cold Temperature Hydrostatic Drive Description

Drive will be disabled when the hydraulic fluid temperature is too low.

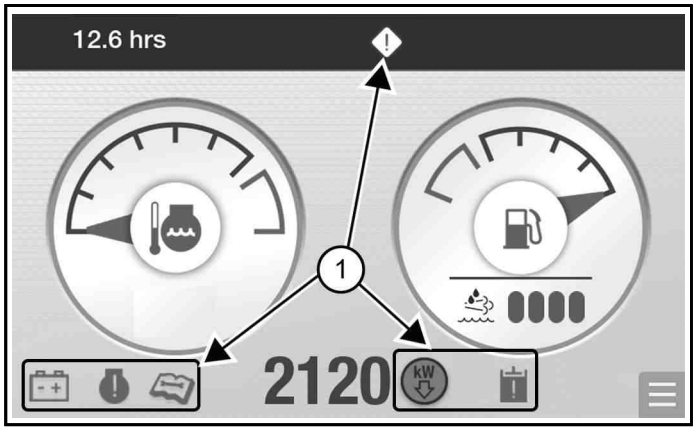
Drive will be allowed, but limited when the hydraulic fluid has warmed sufficiently. The machine will gradually allow faster travel as the hydraulic fluid continues to warm. The joystick(s) must be returned to neutral momentarily to allow full travel speed.

Two-speed travel will also be disabled until the hydraulic fluid is adequately warmed.

MONITORING THE DISPLAY

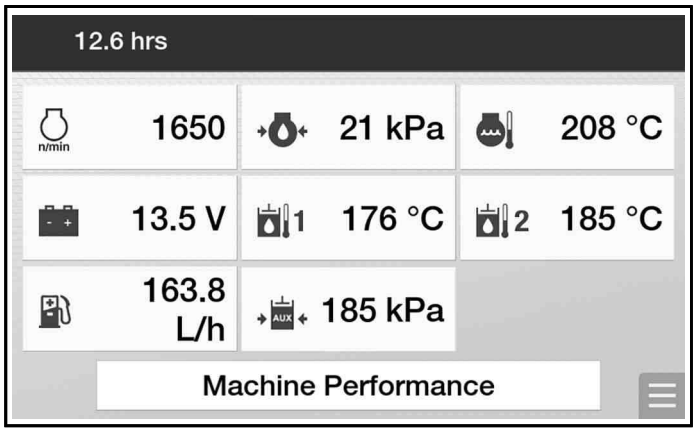
Monitoring Standard Display During Operation

Figure 163



NA3712B

Figure 164



NA3701B

- Frequently monitor the **GAUGES** or **VITALS** screens [Figure 163] and [Figure 164].
- These icons (Item 1) [Figure 163] indicate machine conditions that may require service.
  (See Standard Display on Page 45)
- Selecting **[MACHINE PERFORMANCE]** on the vitals screen can also provide details on machine condition.
  (See Vital Detail And Machine Performance on Page 188)

Figure 165

NA3705G

- Active shortcuts (Item 1) [Figure 165] can appear in place of, or next to, the navigation handle that also indicate a need for service.
  (See Viewing Active Shortcuts on Page 187)
- A red dot next to **[SERVICE]** [Figure 165] indicates an active service code.
  (See View Service Codes on Page 190)

Monitoring Touch Display During Operation

Figure 166

NA3713C

Figure 167

NA3594B

- Frequently monitor the **GAUGES** [Figure 166] or **VITALS** [Figure 167] screens.
- These icons (Item 1) [Figure 166] indicate machine conditions that may require service.
  (See Touch Display on Page 47)
- The red dot next to SERVICE [Figure 166] indicates an active service code.
  (See View Service Codes on Page 202)
- The centre icon in the gauges will change from black to red to indicate a problem [Figure 166].
- Selecting **[MACHINE PERFORMANCE]** on the vitals screen [Figure 167] can also provide details on machine condition.
  (See Vital Detail And Machine Performance on Page 196)

Figure 168

NA3591B

- A notification [Figure 168] can alert you to a machine condition requiring service.

Derate And Shutdown Conditions

Certain machine conditions can result in a derate condition until the fault is corrected. These derates are designed to protect the machine systems from damage while a fault condition exists.

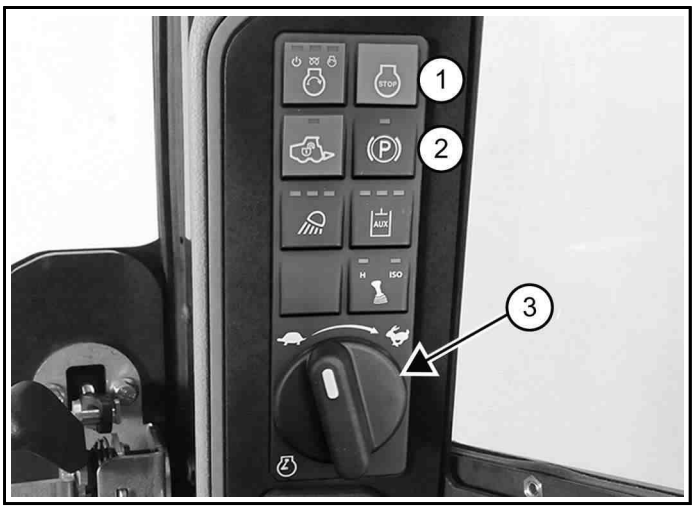
An engine shutdown can occur during certain system malfunctions. The engine can be restarted to move the machine.

STOPPING THE ENGINE AND LEAVING THE MACHINE

Stopping The Engine And Leaving The Machine Procedure

1. Park the machine on a level surface.
2. Fully lower the lift arms and put the attachment flat on the ground.

Figure 169



C200321g

3. Set the engine speed control (Item 3) [Figure 169] to the low idle position.
4. Engage the parking brake (Item 2) [Figure 169].

Figure 170

C200594b

5. Press the stop button (Item 1) [Figure 169] or turn the key switch (if equipped) to the Stop position (Item 1) [Figure 170] to stop the engine and turn the machine's electrical system OFF.

   NOTE: If the loader lights are on, they will remain on for approximately 90 seconds after turning the machine off.

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

7. Unbuckle the seat belt.

8. Remove the key from the switch (if equipped) to prevent operation of the machine by unauthorised personnel.

   NOTE: Activate the machine lockout feature to require a password before the machine can be operated.
   (See Security Settings on Page 192)
   (See Security Settings on Page 208)

Figure 171

C200319

9. Exit the machine using grab handles, safety tread, and steps (maintaining a three-point contact) [Figure 171].

⚠ WARNING

GENERAL HAZARD
Failure to follow instructions can cause serious injury or death.
Before you leave the operator's seat:
- **Lower the lift arms and put the attachment flat on the ground.**
- **Engage the parking brake.**
- **Raise the seat bar.**
- **Move all controls to the NEUTRAL 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.**
- **Turn off the machine.**

W-3175

COUNTERWEIGHTS

Counterweight Description

Counterweights can be installed on the machine.

See your Bobcat dealer for information about approved loader counterweights and configurations for your job application and attachment.

Effect Of Counterweight Use On The Loader And Loader Operation

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

Counterweights installed on your machine can affect the machine 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 palletised 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 machine is already equipped with accessories like water tanks or rear stabilisers; 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 machine.

ATTACHMENTS

Choosing The Correct Bucket

⚠ WARNING

MODIFICATION HAZARD
Unapproved attachments can cause serious injury or death.
Buckets and attachments for safe loads of specified densities are approved for each model. Never use attachments or buckets that are not approved by Bobcat Company.
W-2052

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

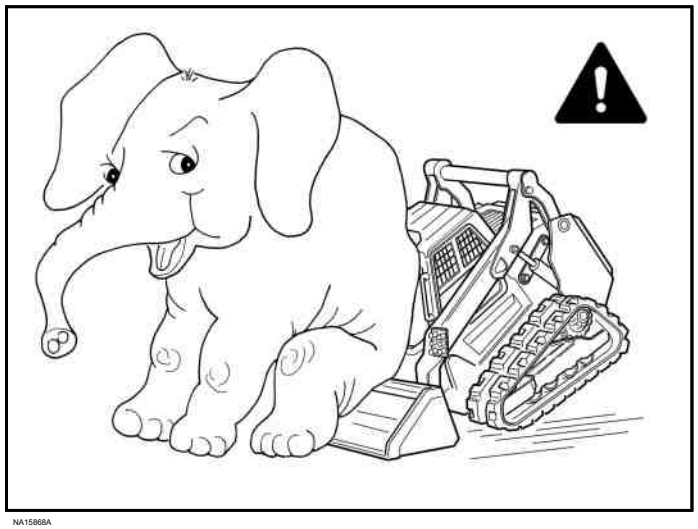
The dealer can identify, for each model loader, the attachments and buckets approved by Bobcat. The buckets and attachments are approved for Rated Operating Capacity (ROC) and for secure fastening to the Bob-Tach.

The ROC for this machine is shown on a decal in the operator cab. (See Loader Specifications on Page 218)

NOTE: The ROC of a loader can be different depending on the undercarriage the loader is equipped with.

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 centre moves forward and reduces the ROC. If extremely dense material is loaded, the volume must be reduced to prevent overloading.

Figure 172


NA15868A

Exceeding the ROC [Figure 172] can cause the following problems:

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

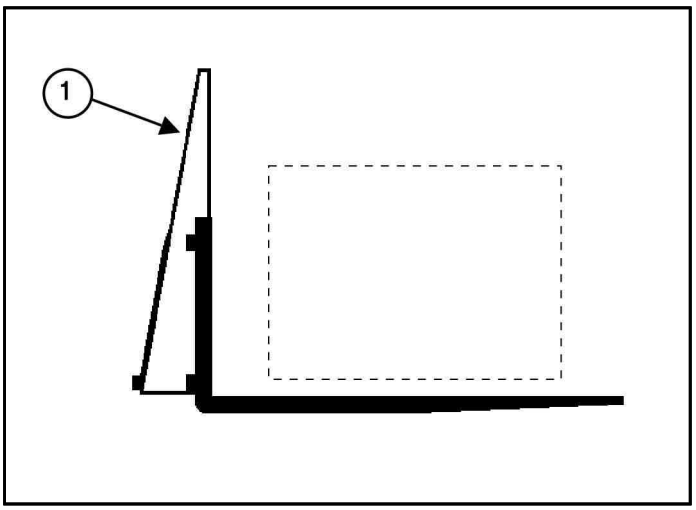
Use the correct bucket size for the type and density of material being handled. For safe handling of materials and avoiding machine damage, the attachment (or bucket) should handle a full load without going over the ROC for the machine. Partial loads make steering more difficult.

⚠ WARNING

INSTABILITY HAZARD
Excessive load can cause loss of control or tipping leading to serious injury or death.
DO NOT exceed ROC.
W-2053

Pallet Fork Information

Figure 173



NA3116A

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 173].

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

INSTABILITY HAZARD
Excessive load can cause loss of control or tipping leading to serious injury or death.
DO NOT exceed ROC.
W-2053

Inspecting Pallet Fork

Forks shall be inspected at intervals of not more than 12 months or whenever any defect or permanent deformation is detected. Severe applications require more frequent inspection.

Fork inspection shall be carried out carefully by trained personnel with the aim of detecting any damage, failure, or deformation which might impair safe use. Any fork that shows such a defect shall be withdrawn from service and repaired by the fork manufacturer or replaced.

- Surface Cracks - The fork shall be thoroughly examined visually for cracks and if considered necessary, subjected to a nondestructive crack detection process. This inspection for cracks must also include any special mounting mechanisms of the fork blank to the fork carrier. The fork shall not be returned to service if cracks are detected.
- Straightness of Blade and Shank - The straightness of the upper face of the blade and the front face of the shank shall be checked. If the deviation from straightness exceeds 0.5 percent of the length of the blade or the height of the shank, the fork shall not be returned to service until it has been repaired.
- Fork Angle (Upper Face of Blade to Load Face of Shank) - Any fork that has a deviation of greater than 3 degrees from the original specification shall not be returned to service.
- Difference in Height of Fork Tips - The difference in height of one set of forks when mounted on the fork carrier shall be checked. If the difference in tip heights exceeds 3 percent of the length of the blade, the set of forks shall not be returned to service until repaired.
- Positioning Lock (When Originally Provided) - It shall be confirmed that the positioning lock is in good repair and correct working order. If any fault is found, the fork shall be withdrawn from service until satisfactory repairs have been made.
- Wear of Fork Blade and Shank - The fork blade and shank shall be thoroughly checked for wear, special attention being paid to the vicinity of the heel. If the thickness is reduced to 90 percent of the original thickness, the fork shall not be returned to service.

INSTALLING AND REMOVING ATTACHMENTS (POWER BOB-TACH SYSTEM)

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

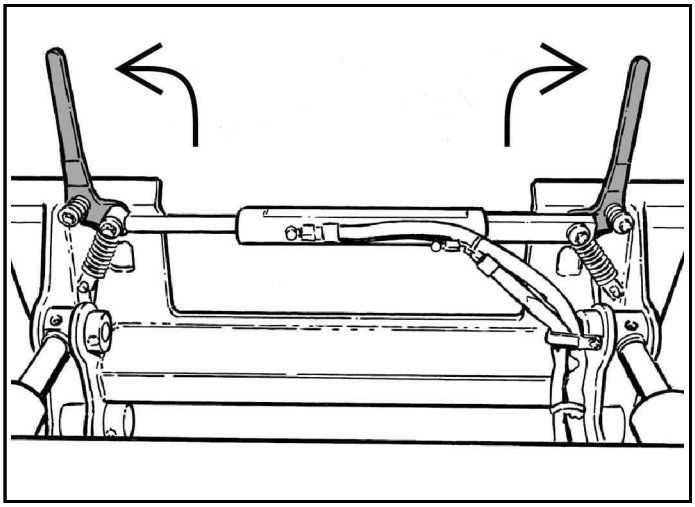
Installing Attachments

1. Enter the machine and perform the pre-starting procedure.
   (See Pre-Starting Procedure on Page 100)
2. Start the engine.
3. Press the operate button
4. Release the parking brake.
5. Lower the lift arms and tilt the Bob-Tach frame forward.

Figure 174

C200193e

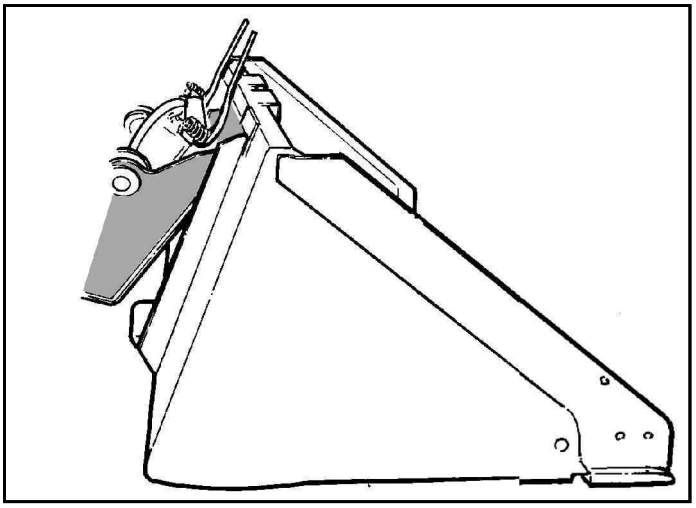
Figure 175



NA3453A

6. Push and hold Bob-Tach Wedges Up button (Item 1) [Figure 174] on the left control panel until levers are fully raised (wedges fully raised) [Figure 175].

Figure 176

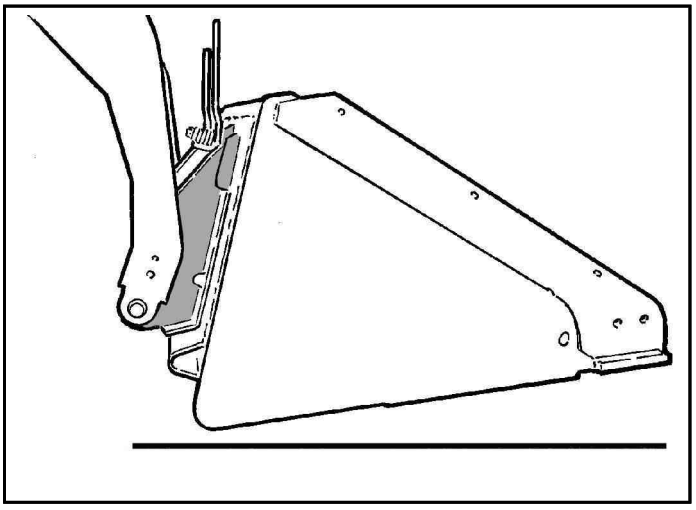


NA3451

7. Drive the machine slowly forward until the top edge of the Bob-Tach frame is completely under the top flange of the bucket mounting frame [Figure 176] (or other attachment).

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

Figure 177



NA3447

8. Tilt the Bob-Tach frame backward until the cutting edge of the bucket (or other attachment) is slightly off the ground [Figure 177].

   This procedure will cause the bucket mounting frame to fit up against the front of the Bob-Tach frame.

Figure 178

C200193e

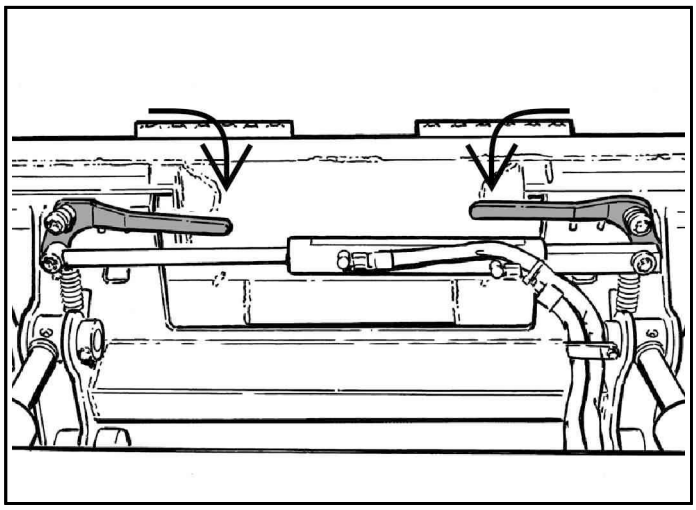
9. Push and hold Bob-Tach Wedges Up button (Item 1) [Figure 178] on the left control panel until levers are fully raised (wedges fully raised).

   NOTE: The Power Bob-Tach system uses continuously pressurised 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 button (Bob-Tach Wedges Up) to be sure both wedges are fully raised before installing the attachment.

Figure 179

C200193f

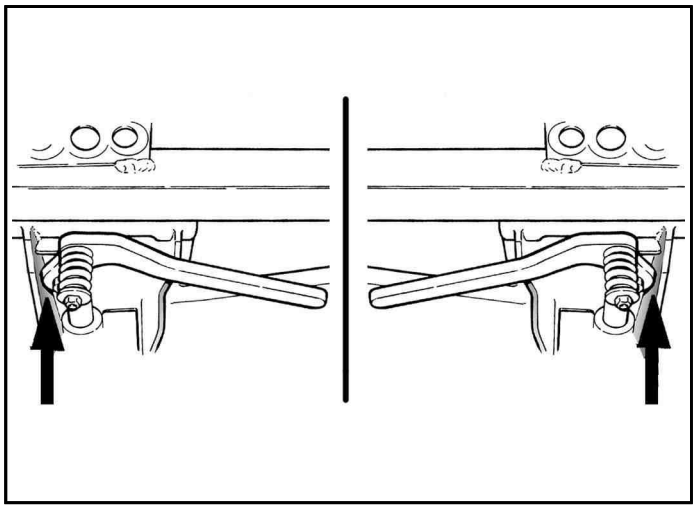
Figure 180



NA3454A

10. Push and hold Bob-Tach Wedges Down button (Item 1) [Figure 179] on the left control panel until levers are fully engaged in the locked position [Figure 180] (wedges fully extended through the attachment mounting frame holes).

Figure 181



NA3449

11. Both levers must contact the frame as shown when locked [Figure 181].

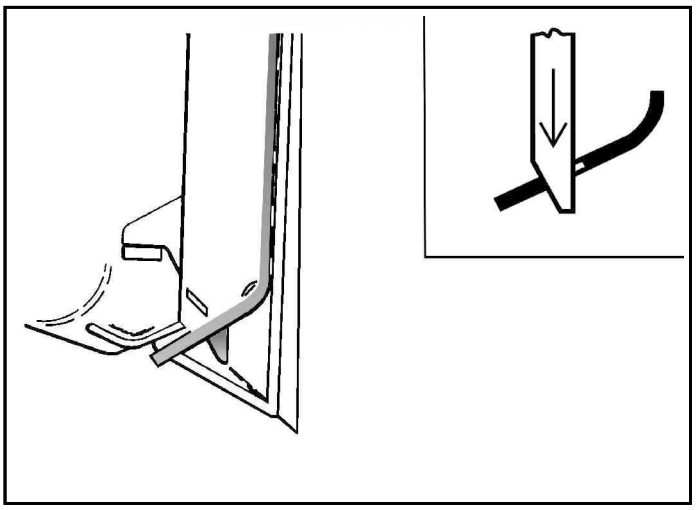
    If both levers do not engage in the locked position, see your Bobcat dealer for maintenance.

⚠ WARNING

CRUSHING HAZARD
Failure to secure Bob-Tach® attachment mounting system wedges can allow attachment to come off and cause serious injury or death. Both wedges must extend through the holes in the attachment mounting frame. Lever(s) must be fully down and locked.

W-2102

Figure 182



NA3450A

12. The wedges must extend through the holes in the mounting frame of the bucket (or other attachment), securely fastening the bucket to the Bob-Tach frame [Figure 182].

Removing Attachments

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

2. Lower or close any hydraulic equipment, if applicable.

3. Perform the following steps if the attachment has electrical, water, or hydraulic connections to the machine:

⚠ WARNING

GENERAL HAZARD
Failure to follow instructions can cause serious injury or death.
Before you leave the operator's seat:
- **Lower the lift arms and put the attachment flat on the ground.**
- **Engage the parking brake.**
- **Raise the seat bar.**
- **Move all controls to the NEUTRAL 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.**
- **Turn off the machine**

W-3175

   a. Stop the engine and exit the machine. (See Stopping The Engine And Leaving The Machine Procedure on Page 108)

   b. Disconnect attachment electrical harness and water or hydraulic lines, if applicable, from the machine. (See Relieving Auxiliary Hydraulic Pressure (Front Auxiliary Couplers) on Page 96)

c. Enter the machine and perform the pre-starting procedure.
(See Pre-Starting Procedure on Page 100)

d. Start the engine.

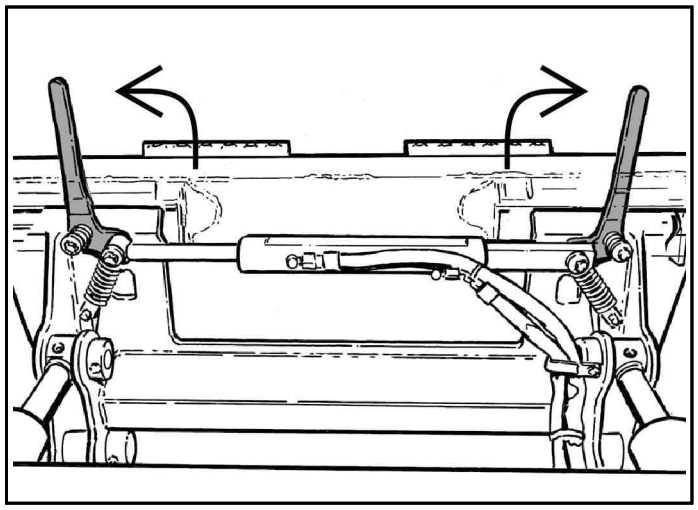
e. Press the operate button.

f. Release the parking brake.

Figure 183

C200193e

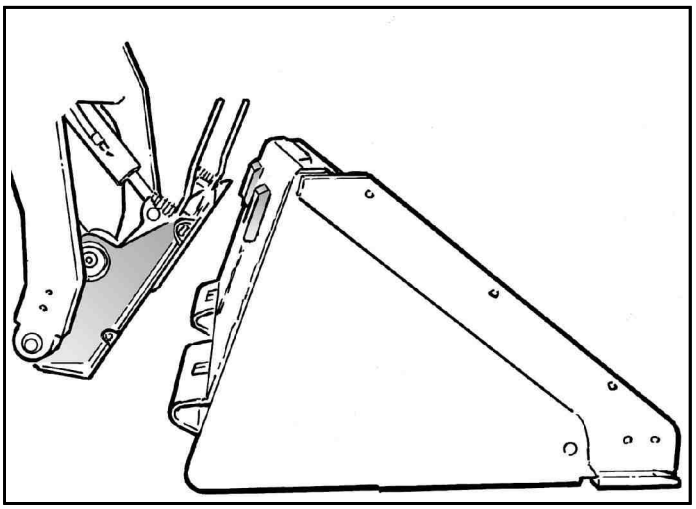
Figure 184



NA3455A

4. Push and hold Bob-Tach Wedges Up button (Item 1) [Figure 183] on the left control panel until levers are fully raised (wedges fully raised) [Figure 184].

Figure 185



NA3446

5. Tilt the Bob-Tach frame forward and drive the machine backward, away from the bucket or attachment [Figure 185].

   NOTE: The Power Bob-Tach system uses continuously pressurised 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 button (Bob-Tach Wedges Up) to be sure both wedges are fully raised before installing the attachment.

TRACK UNDERCARRIAGE SYSTEM

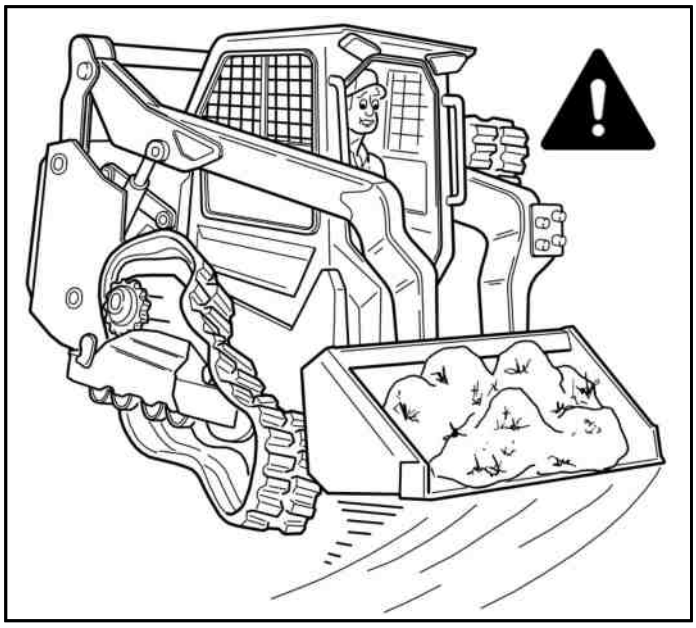
Track Loader Introduction

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 176)

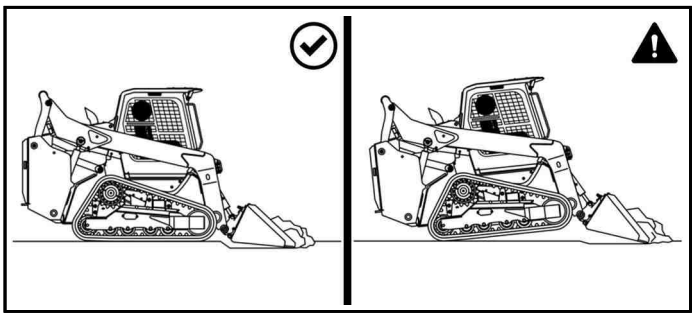
Figure 186



NA15862A

- Turning:
  - ▷ Use a gradual turn (one control farther forward than the other) instead of a fast turn (one control forward and one control backward) on asphalt or concrete surfaces to prevent reduced track life or derailing of the tracks [Figure 186].
  - ▷ Always carry the load low.

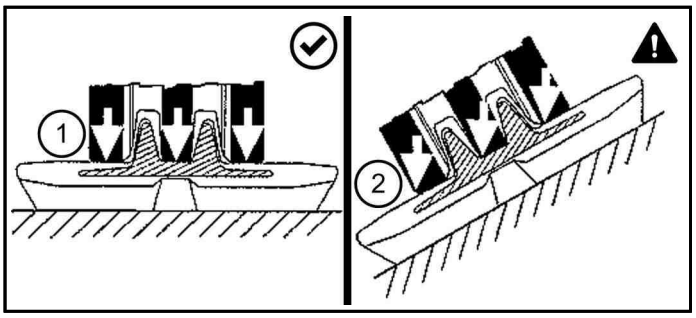
Figure 187



NA3828

- Digging And Levelling:
  - ▷ Keep the full length of the tracks in contact with the ground [Figure 187] for best traction.
  - ▷ Raising the front end of the tracks off the ground [Figure 187] 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.

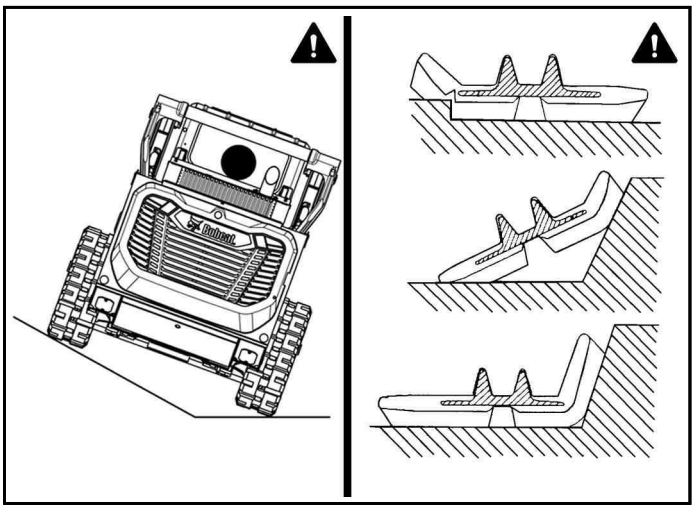
Figure 188



NA3829

  - ▷ 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) [Figure 188].
  - ▷ 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 188] which causes increased wear.

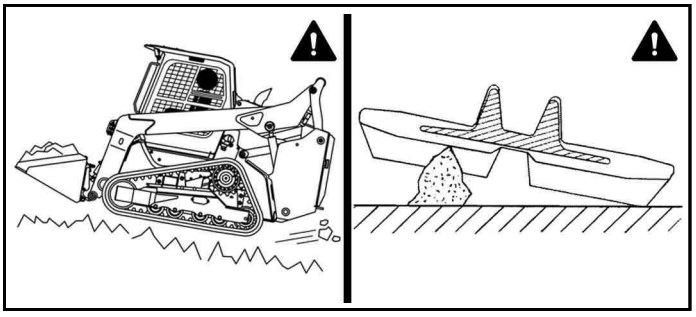
Figure 189



NA3830

- 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 kerb or mound [Figure 189]. This can cause the tracks to derail, cracks in the edge of the tracks, or cracks at the edges of the embedded metal.

Figure 190



NA3831

- 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 190].
- 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 and check ground conditions for unsafe conditions:

- Look for sharp drop-offs or rough terrain.
- Have underground utility lines (gas, electrical, water, sewer, irrigation, etc.) located and marked.
- Work slowly in areas of underground utilities.
- Remove objects or other construction material that could damage the machine or cause personal injury.
- 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 machine.

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

- Operate the machine with engine at full speed for maximum horsepower. Move the steering controls only a small amount to operate the machine slowly.
- New operators must operate the machine in an open area without bystanders. Operate the controls until the machine can be handled at an efficient and safe rate for all conditions of the work area.

Operating Near An Edge Or Water

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

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

Driving On Public Roads

When operating on a public road or motorway, always follow local regulations. For example; Slow Moving Vehicle emblem or direction signals may be required.

NOTE: Road kits are available from your Bobcat dealer to equip your machine for driving on public roads in European Union (EU) countries.

Always follow local regulations. For more information, contact your local Bobcat dealer.

Operating On Slopes With A Full Bucket

Figure 191

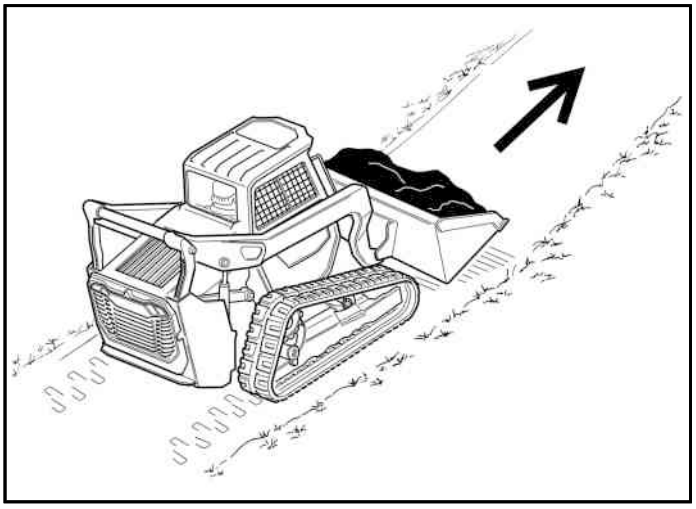
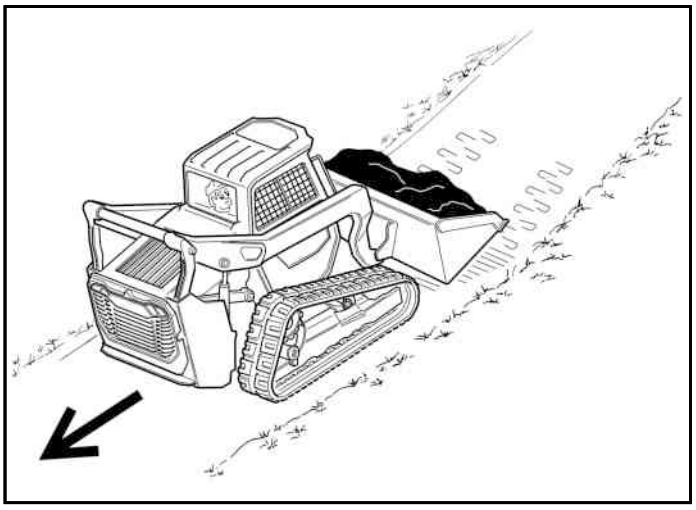


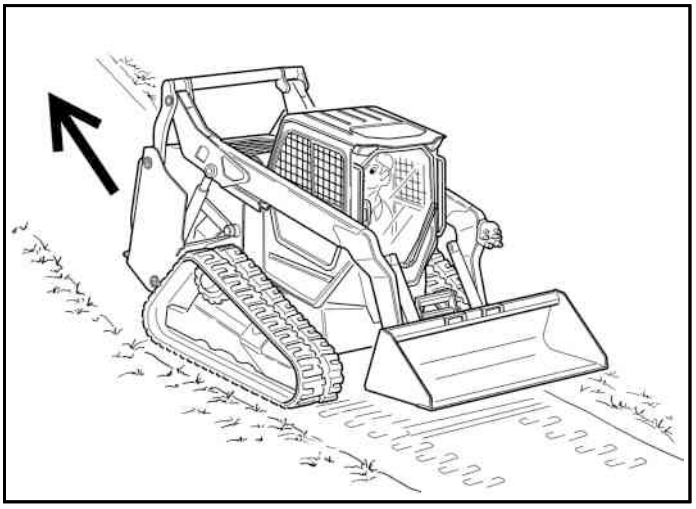
Figure 192



- With a full bucket, go up or down the slope with the heavy end toward the top of the slope [Figure 191] and [Figure 192].
- Raise the bucket only high enough to avoid obstructions on rough ground.

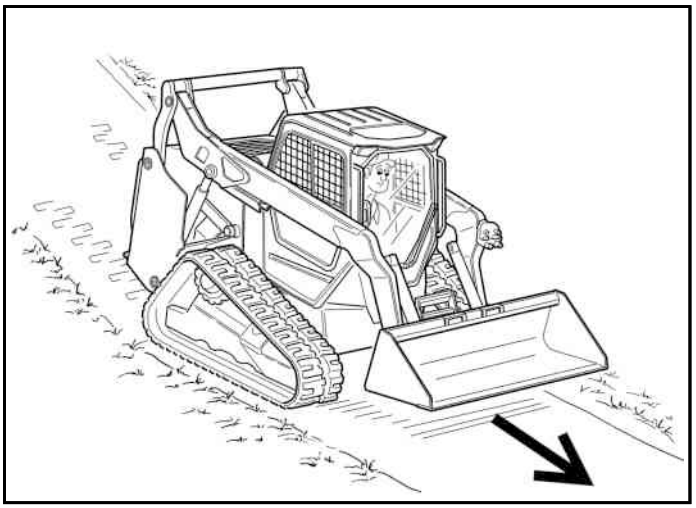
Operating On Slopes With An Empty Bucket

Figure 193



NA15866A

Figure 194



NA15867A

- With an empty bucket, go up or down the slope with the heavy end toward the top of the slope [Figure 193] and [Figure 194].
- Raise the bucket only high enough to avoid obstructions on rough ground.

TOWING THE MACHINE

Towing Procedure

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

- The machine can be lifted onto a transport vehicle.
- The machine 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 machine is skidded.

The towing chain (or cable) must be rated at 1.5 times the weight of the machine.
(See Loader Specifications on Page 218)

LIFTING THE MACHINE

Single-Point Lift Description

⚠ WARNING

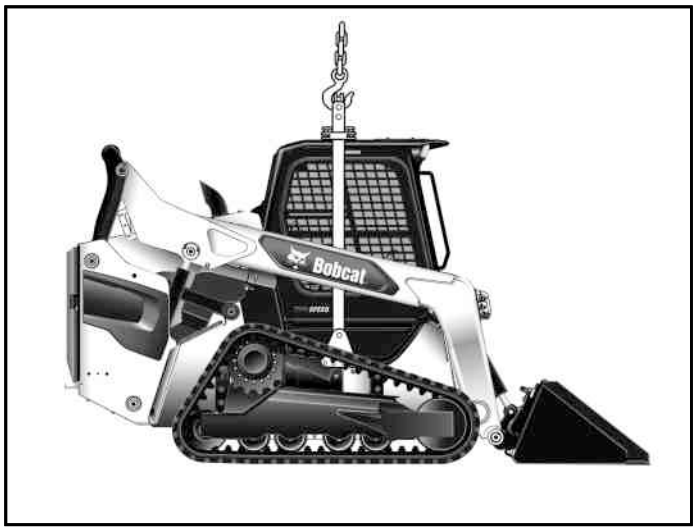
CRUSHING HAZARD
Falling machine can cause serious injury or death.
- **Before lifting, check fasteners on single point lift the operator cab.**
- **Assemble front cab fasteners as shown in this manual.**
- **Never allow riders in the cab or bystanders within 5 m (15 ft) while lifting the machine.**

W-2007

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

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

Figure 195



NA18143

- Attach lift to lift eye [Figure 195].

NOTE: Be sure the lifting equipment is of adequate size and capacity for the weight of the machine.
(See Loader Specifications on Page 218)

Four-Point Lift Description

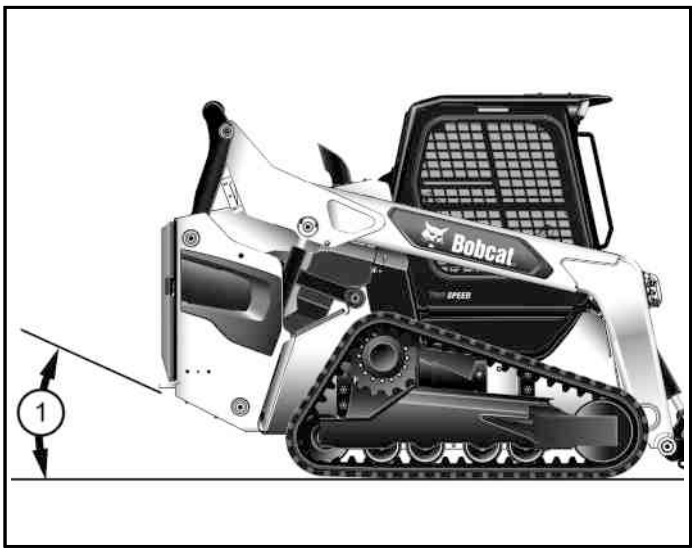
⚠ WARNING

CRUSHING HAZARD
Falling machine can cause serious 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

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

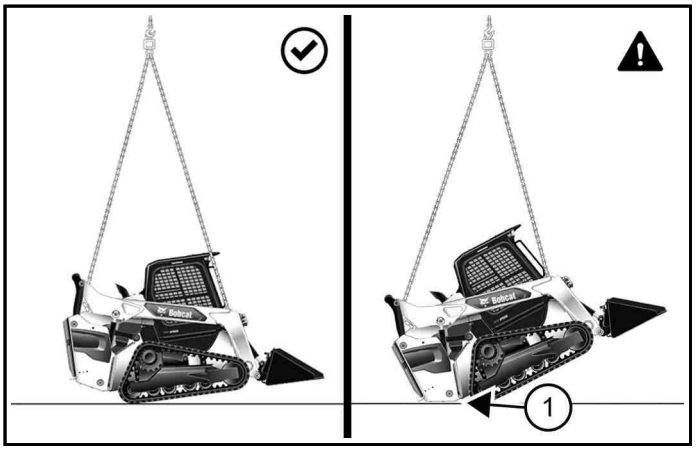
Figure 196



NA18150B

NOTE: The machine should be lifted as close to horizontal as possible, but at no time should the angle of the suspended machine exceed the departure angle (Item 1) [Figure 196] provided in the specifications section.
(See Specifications on Page 216)

Figure 197



NA3765A

- Attach cables or chains to lift eyes [Figure 197].

  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 machine configuration. Departure angle (Item 1) [Figure 197] 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 machine.
  (See Loader Specifications on Page 218)

TRANSPORTING THE MACHINE

Loading And Unloading Machine

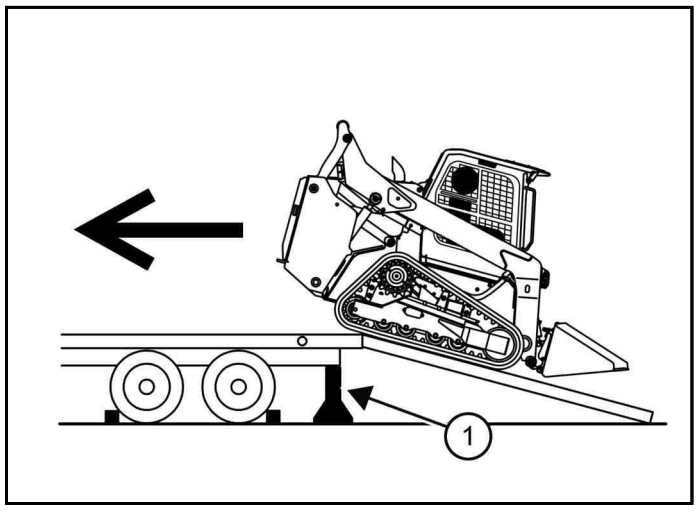
⚠ WARNING

INSTABILITY HAZARD
Wood ramps can break and cause personal injury. Use adequately designed ramps of sufficient strength to support the weight of the machine loading onto a transport vehicle.
W-2058

Be sure the transport and towing vehicles are of adequate size and capacity for weight of machine. (See Loader Specifications on Page 218)

NOTE: Always disengage the auto idle feature, the auto throttle feature, and the decel pedal feature when loading or unloading the machine on a trailer. (See Auto Idle on Page 71)
(See Engine Speed Control on Page 70)

Figure 198



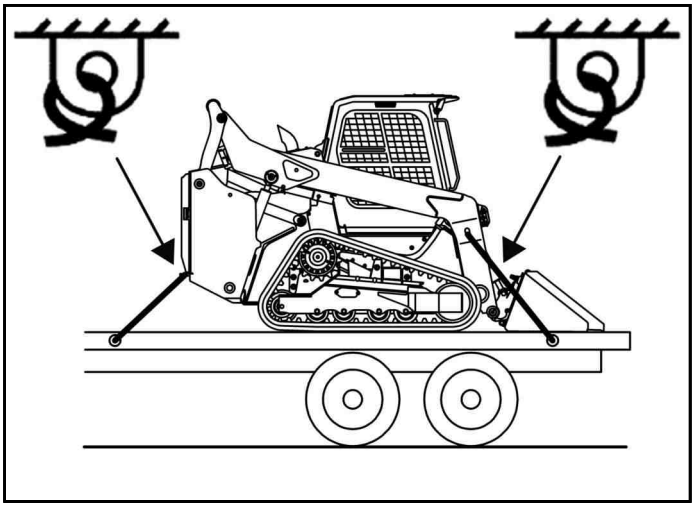
NA18110B

A loader with an empty bucket or no attachment must be loaded backward onto the transport vehicle [Figure 198].

The rear of the trailer must be blocked or supported (Item 1) [Figure 198] when loading or unloading the machine to prevent the front end of the trailer from raising up.

Fastening Machine To Transport Vehicle

Figure 199



NA18112A

Use the following procedure to fasten the Bobcat loader to the transport vehicle to prevent the machine from moving during sudden stops, or when going up or down slopes [Figure 199].

1. Lower the bucket or attachment to the floor.
2. Stop the engine.
3. Engage the parking brake.

Figure 200

C200575

4. Install chains at both rear tie-down positions [Figure 200]. (Right side shown.)

Figure 201

C200584

5. Install chains at the front tie-down position [Figure 201]. (Lift arms shown raised for visual clarity.)

Figure 202

C200574

6. Alternate front tie-down - Install chains at both front tie-down positions on the lift arms [Figure 202]. (Right side shown.)
7. Fasten each end of the chain to the transport vehicle.
8. Use chain binders to tighten the chains.

MAINTENANCE SAFETY WARNINGS

- **Never service the Bobcat® machine without instructions. 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.**

Maintenance procedures which are given in the Operation & Maintenance Manual can be performed by the owner / operator without any specific technical training. Maintenance procedures which are not in the Operation & Maintenance Manual must be performed ONLY BY QUALIFIED BOBCAT SERVICE PERSONNEL. Always use genuine Bobcat replacement parts. The Service Safety Training Course is available from your Bobcat dealer.

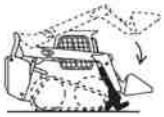
This check mark means: "Follow instructions for proper operations." Carefully read the message that follows.

• Use the correct procedure to lift or lower operator cab.

• Cleaning and maintenance are required daily.

• Grease per schedule.

MAINTENANCE SAFETY WARNINGS

	This Safety Alert Symbol means: “Attention! Be Alert! Your Safety is Involved!” Carefully read the message that follows.
	**• Have good ventilation when welding or grinding painted parts.** **• Wear dust mask when grinding painted parts. Toxic dust and gas can be produced.** **• Avoid exhaust fume leaks which can kill without warning. Exhaust system must be tightly sealed.**
	**• Disconnecting or loosening any hydraulic tubeline, hose, fitting, component, or a part failure can cause lift arms to drop. Do not go under lift arms when raised unless supported by an approved lift arm support. Replace if damaged.**
	**• Never work on loader with lift arms up unless lift arms are held by an approved lift arm support. Replace if damaged.** **• Never modify equipment or add attachments not approved by Bobcat Company.**
	**• Stop, cool, and clean engine of flammable materials before checking fluids.** **• Never service or adjust loader with the engine running unless instructed to do so in the manual.** **• Avoid contact with leaking hydraulic fluid or diesel fuel under pressure. It can penetrate the skin or eyes.** **• Never fill fuel tank with engine running, while smoking, or when near open flame.**
	**• Keep body, jewelry, and clothing away from moving parts, electrical contact, hot parts, and exhaust.** **• Wear eye protection to guard from battery acid, compressed springs, fluids under pressure, and flying debris when engines are running or tools are used. Use eye protection approved for type of welding.** **• Keep rear door closed except for service. Close and latch door before operating the loader.**
	**• Lead-acid batteries produce flammable and explosive gases.** **• Keep arcs, sparks, flames, and lighted tobacco away from batteries.** **• Batteries contain acid which burns eyes or skin on contact.** **• Wear protective clothing. If acid contacts body, flush well with water. For eye contact, flush well and get immediate medical attention.**

SERVICE SCHEDULE

Maintenance Intervals

Maintenance work must be done at regular intervals. Failure to do so will result in excessive wear and early failures.

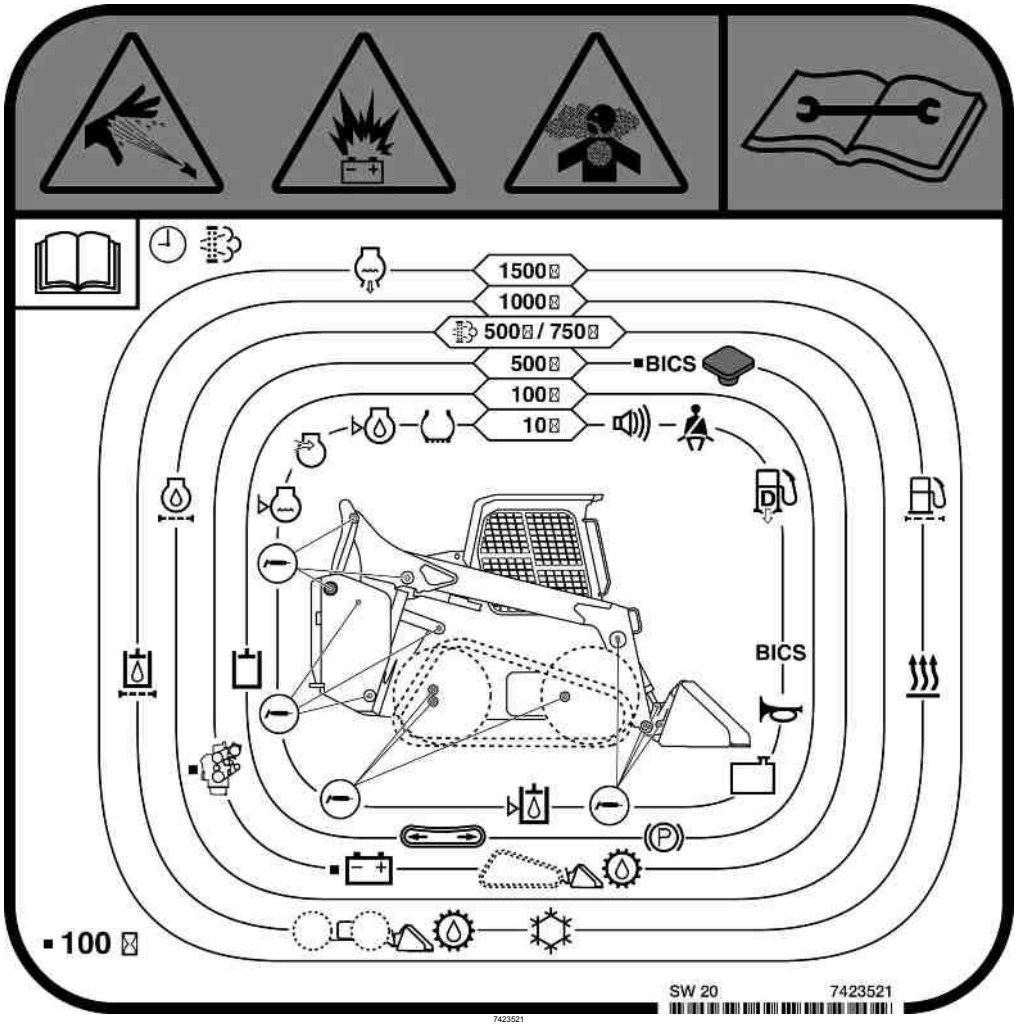
The service schedule decal is a guide for correct maintenance of the Bobcat loader.

The maintenance items listed under the maintenance intervals on the following pages are the required tasks to be performed. Those items provide additional details and include maintenance that is not shown on the decal.

All maintenance intervals are for machines operating in general environmental conditions. Keep in mind that filter and oil life can be reduced:

- When machines are operating in high dust environments or extreme temperature applications,
- When fuel is taken from uncontrolled storage tanks,
- When other non-standard conditions exist.

For more details, contact your Bobcat dealer.



7423521

⚠ WARNING

INSUFFICIENT INSTRUCTIONS HAZARD
Untrained operators or failure to follow instructions can cause serious injury or death.
- **Read and understand the Operation & Maintenance Manual, Operator's Handbook and 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.**

W-2003

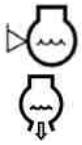
Explanation of the service intervals:

- **10:** Every 10 hours or daily (before starting the machine).
- **100:** Every 100 hours.
- **500:** Every 500 hours or every 12 months, whichever comes first.
- **1000:** Every 1000 hours or every 12 months, whichever comes first.
- **1500:** Every 1500 hours or every 24 months, whichever comes first.
- **3000:** Every 3000 hours or every 36 months, whichever comes first.

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.

Service Schedule			
O	Check condition / proper operation. Adjust, drain contaminants, or replace as needed.	C	Clean.
F	First time only.	R	Replace.
V	Refill as needed.	G	Grease.

Item		Service Required	Service Interval (hours)					
			10	100	500	1000	1500	3000
Engine Oil		Check level and add as needed. (See Page 153) • Engine Oil (Packaging: A = 5 L can, B = 25 L container, C = 209 L drum, D = 1000 L tank): ▹ SAE 15W-40 (-20°C – +40°C) (7395725) ▹ SAE 10W-30 (-25°C – +30°C) (7341377)	V					
Engine Air Intake Ducting		Check for loose connections and damaged components. (See Page 145)	O					
Engine Cooling System		Clean debris from radiator cooling package, air conditioning condenser (if equipped), rear grilles, and engine compartment. (See Page 155)	C					
Engine Coolant		Check coolant level COLD and add premixed coolant as needed. (See Page 157) Replace the coolant. (See Page 157) • Coolant (Packaging: A = 5 L can, B = 20 L container, C = 210 L drum, D = 1000 L tank): ▹ Bobcat PG Coolant Premix (6987793)	V				R	
Fuel Filter		Remove the trapped water. (See Page 148)	O					

Service Schedule			
O	Check condition / proper operation. Adjust, drain contaminants, or replace as needed.	C	Clean.
F	First time only.	R	Replace.
V	Refill as needed.	G	Grease.

Item		Service Required	Service Interval (hours)					
			10	100	500	1000	1500	3000
Lift Arms, Lift Links, Cylinders, Bob-Tach, Pivot Pins, Wedges, and Torsion Axle Spindles (if equipped)		Lubricate with multipurpose lithium based grease. (See Page 183) • Grease (Packaging: 400 g tube): ▹ Bobcat Multipurpose Grease (Drop Point from 260°C) (6987888) ▹ Bobcat Supreme HD Grease (Drop Point from 280°C) (6987889)	G					
Seat Belt, Seat Belt Retractors, Seat Bar, Control Interlocks		Check the condition of seat belt. Clean or replace seat belt retractors as needed. Check the seat bar and control interlocks for correct operation. Clean dirt and debris from moving parts. (See Page 133) (See Page 132)	O					
Bobcat Interlock Control System (BICS)	BICS	Check for correct function. Lift and tilt functions MUST NOT operate with seat bar raised. (See Page 129)	O					
Front Horn, Back-up Alarm, Rear View Camera		Check for proper function. (See Page 57) (See Page 137) (See Page 55)	O					
Operator Cab		Check the fastening bolts, washers, and nuts. Check the condition of the cab. (See Page 138)	O					
Indicators and Lights		Check for correct operation of all indicators and lights. (See Page 45) (See Page 47)	O					
Safety Signs and Safety Treads		Check for damaged signs (decals) and safety treads. Replace any signs or safety treads that are damaged or worn. (See Page 26) (See Page 100)	O					
Hydraulic Fluid		Check fluid level and add as needed. (See Page 167) • Hydraulic Fluid (Packaging: A = 5 L can, B = 20 L container, C = 210 L drum, D = 1000 L tank): ▹ Bobcat Superior SH Hydraulic (-40°C – +32°C) (6987791) ▹ Bobcat VG68 Hydraulic (-12°C – +49°C) (7486193)	V					

Service Schedule			
O	Check condition / proper operation. Adjust, drain contaminants, or replace as needed.	C	Clean.
F	First time only.	R	Replace.
V	Refill as needed.	G	Grease.

Item		Service Required	Service Interval (hours)					
			10	100	500	1000	1500	3000
Heater and Air Conditioning Filters		Clean or replace filters as needed. (See Page 142) • HVAC Air Filter: ▹ Fresh Air (7313306) ▹ Recirculation (7310820)	O C					
Hydraulic Hoses and Tubelines		Check for damage and leaks. Repair or replace as needed.		O				
Parking Brake and Joysticks		Check for correct operation. Repair or adjust as needed.		O				
Track Drive Sprocket Bolts		Check for loose sprocket bolts and tighten to correct torque. (See Page 180)		O				
Track Tension		Check tension and adjust as needed. (See Page 176)		O				
Accessory Drive Belt (Alternator, air conditioning, water pump)		Check condition. Replace as needed. (See Page 180) • Accessory Drive Belt (7374896)		F O	O			
Bobcat Interlock Control System (BICS)		Check the function of the lift arm bypass control. (See Page 131)		F O	O			
Battery		Check cables and connections. (See Page 164)		F O	O			
Engine Oil and Filter		Replace oil and filter element. (See Page 153) • Engine Oil (Packaging: A = 5 L can, B = 25 L container, C = 209 L drum, D = 1000 L tank): ▹ SAE 15W-40 (-20°C – +40°C) (7395725) ▹ SAE 10W-30 (-25°C – +30°C) (7341377) • Engine Oil Filter (7386383)			R			
Hydrostatic Drive Motor Brake Cavity		Replace fluid. (See Page 179) • Drive Motor Gear Oil (7270875) Packaging: 517,5 mL (17.5 U.S. fl oz)			R			

Service Schedule			
O	Check condition / proper operation. Adjust, drain contaminants, or replace as needed.	C	Clean.
F	First time only.	R	Replace.
V	Refill as needed.	G	Grease.

Item		Service Required	Service Interval (hours)					
			10	100	500	1000	1500	3000
Hydraulic Filters		Replace the hydraulic main, case drain, and charge filters. (See Page 171) (See Page 172) (See Page 173) • Hydraulic Main Filter, Kit with O-rings (7414582) • Hydraulic Case Drain Filter (7334208) • Hydraulic Charge Filter (7319444)				R		
Hydraulic Reservoir		Replace the fluid and reservoir vent filter. (See Page 168) (See Page 174) • Hydraulic Fluid (Packaging: A = 5 L can, B = 20 L container, C = 210 L drum, D = 1000 L tank): ▹ Bobcat Superior SH Hydraulic (-40°C – +32°C) (6987791) ▹ Bobcat VG68 Hydraulic (-12°C – +50°C) (7486193) • Hydraulic Reservoir Vent Filter (7390732)				R		
Heater Coil and Air Conditioning Evaporator		Clean the heater coil and air conditioning evaporator. Clean the plenum drain. (See Page 143)				C		
Fuel System		Replace main fuel filter. (See Page 149) If fuel pressure warning appears on display before this, the most likely cause is poor fuel quality and the filter will need to be replaced. Replace fuel pre-filter element and fuel tank vent filter. (See Page 148) (See Page 150) • Main Fuel Filter (7336334) • Fuel Pre-Filter (7348032) • Fuel Tank Vent Filter (7340277)				R		

Service Schedule			
O	Check condition / proper operation. Adjust, drain contaminants, or replace as needed.	C	Clean.
F	First time only.	R	Replace.
V	Refill as needed.	G	Grease.

Item		Service Required	Service Interval (hours)					
			10	100	500	1000	1500	3000
Engine Air Filters and Air System		Replace outer air filter element. Check for leaks and damaged components. Clean or replace as necessary. (See Page 145) Replace inner air filter element every second time the outer air filter element is replaced. • Outer Air Filter (7386225) • Inner Air Filter (7386224)				R		
Diesel Exhaust Fluid (DEF) / AdBlue® Filter		Replace the diesel exhaust fluid (DEF) / AdBlue® filter. • DEF Tank Filter (7433127)						R

Inspection Checkbook

Maintenance work must be done at regular intervals. Failure to do so will result in excessive wear and early failures.

The service schedule is a guide for correct maintenance of the Bobcat machine.

The inspection checkbook contains the following information:

- Doosan Bobcat EMEA s.r.o. Warranty Policy
- Doosan Bobcat EMEA s.r.o. Extended Warranty Policy

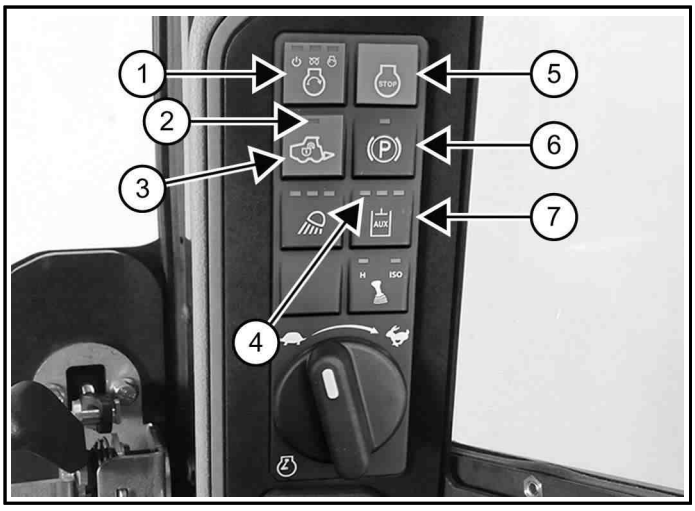
The inspection checkbook has to be filled in by the dealer for any maintenance and service work of your Bobcat machine. This book may be required anytime by an authorised dealer or by Bobcat Europe, should a breakdown occur on the Bobcat machine.

BOBCAT INTERLOCK CONTROL SYSTEM (BICS)

Inspecting The Bobcat Interlock Control System (BICS)

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

Figure 203



C200321f

1. Inspect the BICS (Engine Stopped — Machine ON):
   a. Sit in the operator’s seat.
   b. Fasten the seat belt.

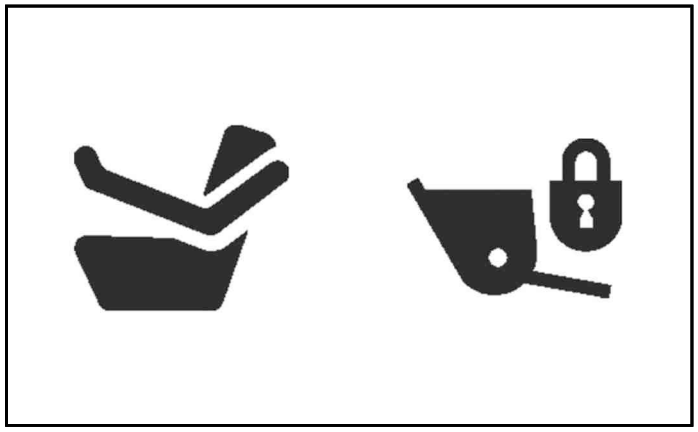
c. Press the run button (Item 1) [Figure 203] or turn the key switch to run, but do not start the engine.

d. Lower the seat bar.

e. Press the parking brake button (Item 6) [Figure 203] to disengage parking brake.

f. Press the operate button (Item 3) [Figure 203].

Figure 204



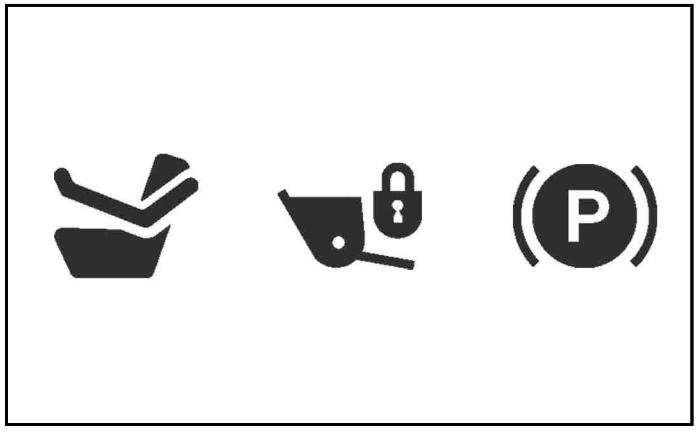
NA3635A

g. Verify two BICS icons [Figure 204] (Seat Bar Raised and Lift and Tilt Lockout) on the display are off.

h. Verify the LED in the operate button (Item 2) [Figure 203] is on.

i. Raise the seat bar fully.

Figure 205



NA3635

j. Verify all three BICS icons [Figure 205] (Seat Bar Raised, Lift and Tilt Lockout, and Parking Brake Engaged) on the display are on.

k. Verify the LED in the operate button (Item 2) [Figure 203] is off.

2. Inspect deactivation of the auxiliary hydraulics system (Engine Stopped — Machine ON):

   a. Lower the seat bar.

   b. Press the operate button (Item 3) [Figure 203].

   c. Press the auxiliary hydraulics button (Item 7) [Figure 203].

   d. Verify the LED in the auxiliary hydraulics button (Item 4) [Figure 203] is on.

   e. Raise the seat bar fully.

   f. Verify the LED in the auxiliary hydraulics button (Item 4) [Figure 203] is off.

3. Inspect the seat bar sensor (Engine RUNNING):

   a. Lower the seat bar.

   b. Press the parking brake button (Item 6) [Figure 203] to engage parking brake.

   c. Start the engine and operate at low idle.

   d. Press the operate button (Item 3) [Figure 203].

   e. While raising the lift arms, raise the seat bar fully. The lift arms must stop.

   f. Repeat using the tilt function.

4. Inspect the traction lock and parking brake (Engine RUNNING):

   a. Lower the seat bar.

   b. Press the parking brake button (Item 6) [Figure 203] to disengage parking brake.

   c. Press the operate button (Item 3) [Figure 203].

   d. Raise the seat bar fully.

   e. Slightly move joystick(s) forward and backward. The traction lock must be engaged. Joysticks are deactivated.

   f. Lower the seat bar.

   g. Press the operate button (Item 3) [Figure 203].

   h. Press the parking brake button (Item 6) [Figure 203] to engage parking brake.

   i. Slightly move joystick(s) forward and backward. The traction lock must be engaged.

   See your Bobcat dealer for service if machine fails to stop.

   NOTE: The parking brake icon on the display will remain on until the engine is started, the operate button is pressed, and the parking brake is disengaged.

5. Inspect deactivation of lift and tilt functions:

   a. Press the operate button (Item 3) [Figure 203].

   b. Raise the lift arms approximately 2 m (6 ft) off the ground.

c. Press the stop button (Item 5) [Figure 203] and wait for the engine to come to a complete stop.

d. Press the run button (Item 1) [Figure 203].

e. Press the operate button (Item 3) [Figure 203].

f. Move the control to lower the lift arms. Lift arms must not lower.

g. Move the control to tilt the bucket (or attachment) forward. The bucket (or attachment) must not tilt forward.

h. Start the engine and operate at low idle.

i. Lower the lift arms fully.

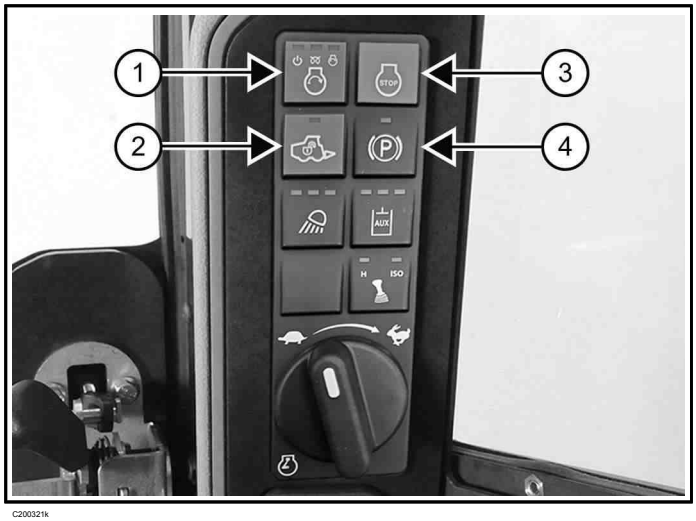
j. Press the stop button (Item 5) [Figure 203] or turn the key switch to stop and wait for the engine to come to a complete stop before exiting the machine.

Inspecting The Lift Arm Bypass Control

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

1. Sit in the operator's seat.
2. Fasten the seat belt.
3. Lower the seat bar.

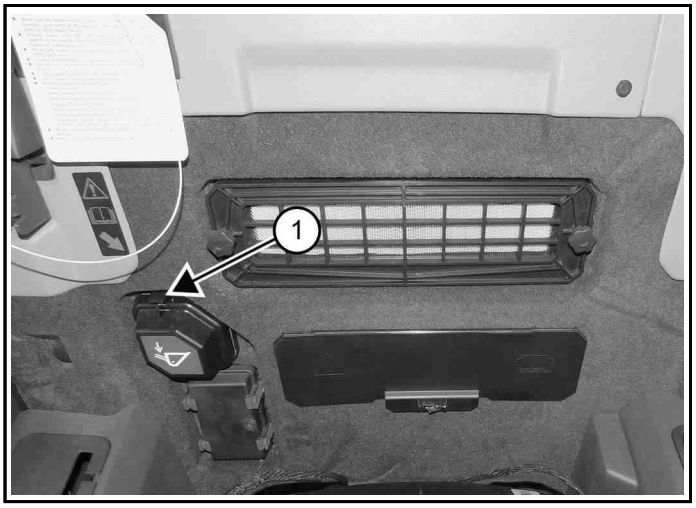
Figure 206



C200321k

4. Press the run button (Item 1) [Figure 206] or turn the key switch to run.
5. Press the parking brake button (Item 4) [Figure 206] to engage parking brake.
6. Start the engine and operate at low idle.
7. Press the operate button (Item 2) [Figure 206].
8. Raise the lift arms 2 m (6 ft) off the ground.
9. Press the stop button (Item 3) [Figure 206] or turn the key switch to stop and wait for the engine to come to a complete stop.

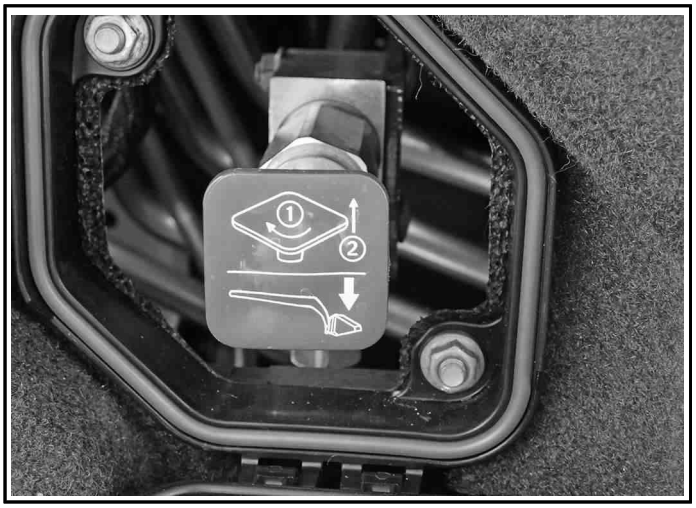
Figure 207



C200577a

10. Press down on the latch (Item 1) [Figure 207] to allow the cover to hinge open at the bottom of the cover.

Figure 208



C200204

11. Turn the knob [Figure 208] 90° clockwise.
12. Pull out and hold the knob until the lift arms lower.
13. Close the cover.

⚠ WARNING

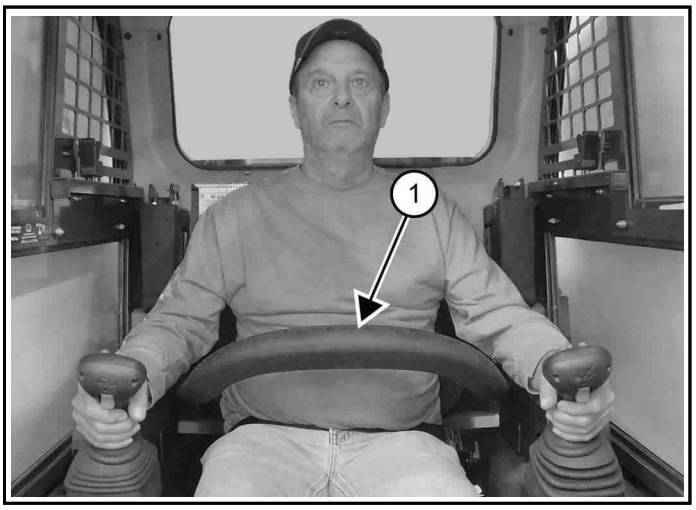
MODIFICATION HAZARD
Modifying the machine can cause serious injury or death.
The BICS control system must deactivate the lift, tilt and traction drive functions. If it does not, contact your dealer for service. DO NOT modify the system.

W-2151

SEAT BAR RESTRAINT SYSTEM

Seat Bar Restraint System Control Description

Figure 209



C200588B

The seat bar restraint system has a pivoting seat bar with armrests (Item 1) [Figure 209].

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

Models With Selectable Joystick Controls (SJC)

Selectable Joystick Controls (SJC) have electrical deactivation of lift, tilt, and drive functions. Activation of functions require the operator to lower the seat bar.

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

When the seat bar is up, the lift and tilt functions are deactivated even though the joysticks do not mechanically lock.

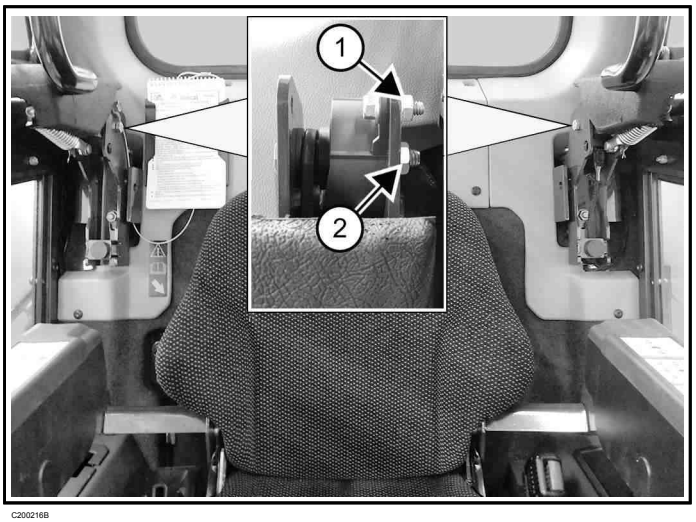
Inspecting Seat Bar Restraint System

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

1. Sit in the seat and fasten the seat belt.
2. Engage the parking brake.
3. Pull the seat bar all the way down.
4. Start the engine.
5. Press the operate button.
6. Operate the hydraulic controls to check that the lift and tilt functions operate correctly.
7. Raise the lift arms until the attachment is approximately 600 mm (2 ft) off the ground.
8. Raise the seat bar.
9. Move the hydraulic controls.
10. There must be no motion of the lift arms or tilt (attachment) when the controls are moved.
11. Lower the seat bar.
12. Press the operate button.
13. Lower the lift arms.
14. Operate the lift control.
15. While the lift arms are going up, raise the seat bar. The lift arms must stop.
16. Lower the seat bar.
17. Press the operate button.
18. Lower the lift arms.
19. Put the attachment flat on the ground.
20. Stop the engine.
21. Raise the seat bar.

Maintaining Seat Bar Restraint System

Figure 210



C200216B

1. Use compressed air to clean any debris or dirt from the pivot parts. Do not lubricate.
2. Inspect all mounting hardware:

   The seat bar sensor nut (left side only) (Item 1) [Figure 210] torque is 6 – 8 N•m (50 – 70 in-lb).

   The correct hinge nut (both sides) (Item 2) [Figure 210] torque is 34 – 38 N•m (25 – 28 ft-lb).
3. Replace parts that are worn or damaged if the seat bar system does not function correctly. Use only genuine Bobcat replacement parts.

⚠ WARNING

GENERAL HAZARD
Failure to follow instructions can cause serious injury or death.
The seat bar system must deactivate the lift and tilt control functions when the seat bar is up. See your dealer for service if the workgroup does not deactivate. ◂
W-2465

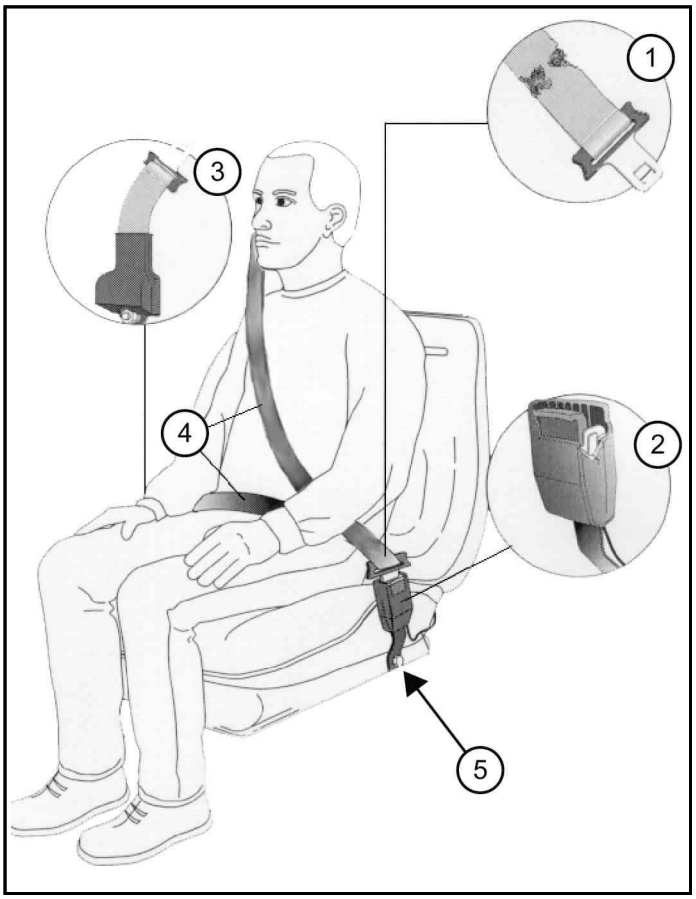
SEAT BELT

Inspecting And Maintaining The Seat Belt

⚠ WARNING

GENERAL HAZARD
Failure to properly inspect and maintain the seat belt can cause lack of operator restraint resulting in serious injury or death. ◂
W-2466

Figure 211



B-22283C

Check the seat belt daily for correct function. Inspect the seat belt system thoroughly at least once each year or more often if the machine is exposed to severe environmental conditions or applications.

The items below are referenced in [Figure 211].

1. Check the webbing. If the system is equipped with a retractor, pull the webbing completely out and inspect the full length of the webbing. Look for cuts, wear, fraying, dirt, and stiffness.

2. Check the buckle and latch for correct operation. Make sure latch plate is not excessively worn or deformed, buckle is not damaged, and casing is not broken.

3. Check the retractor web storage device (if equipped) by extending webbing to determine if it looks correct and that it spools out and retracts webbing correctly.

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

5. Check the hardware on both sides of the seat. Hardware should be tight. Hardware must not be missing, rusted, corroded, or damaged.

Any seat belt system that shows cuts, fraying, extreme or unusual wear, significant discolourations due to ultraviolet UV exposure, dusty / dirty conditions, abrasion to the seat belt webbing, or damage to the buckle, latch plate, retractor (if equipped), hardware or any other obvious problem should be replaced immediately.

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

LIFT ARM SUPPORT

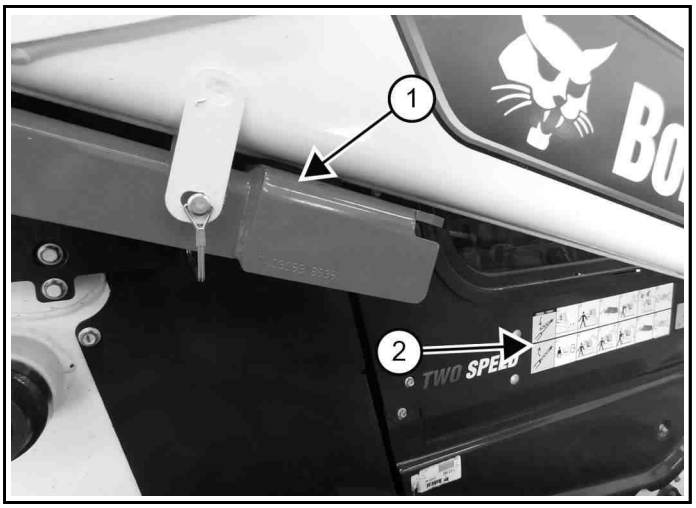
Lift Arm Support Description

⚠ DANGER

CRUSHING HAZARD
Failure to use an approved lift arm support or using a damaged lift arm support can allow the lift arms or attachment to fall and cause serious injury or death.
- **Never work on machine with the lift arms up unless the lift arms are secured by an approved lift arm support.**
- **Service or replace lift arm support if damaged or if parts are missing.**

D-1043

Figure 212



C216688A

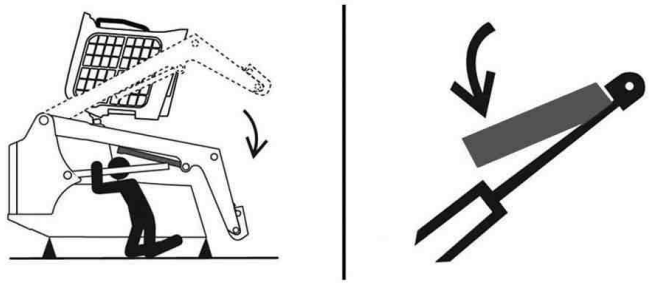
The lift arm support (Item 1) [Figure 212] is used to support the lift arms while working on a machine with the lift arms up.

A decal (Item 2) [Figure 212] located on the right side of the operator cab provides instructions for installing and removing the lift arm support.

The procedures are described in more detail on the following pages
(See Installing Lift Arm Support on Page 135)
(See Removing Lift Arm Support on Page 136) .

Installing Lift Arm Support

⚠ DANGER



CRUSHING HAZARD
Avoid death due to lift arm movement.
- **Disconnecting or loosening any hydraulic tubeline, hoses, fitting, component or a part failure can cause lift arms to drop.**
- **Keep out of this area when lift arms are raised unless supported by an approved lift arm support. Replace if damaged.**

D-1009

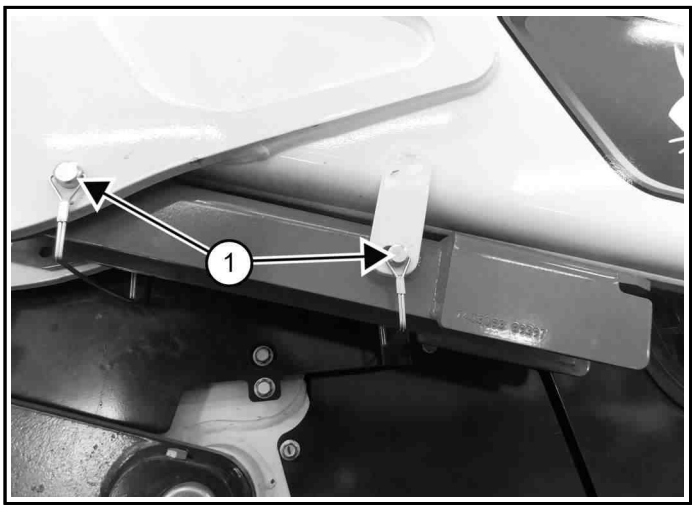
1. Remove attachment from the machine. (See Removing Attachments on Page 113) .

Figure 213

C200233

2. Put jackstands under the rear of the machine frame [Figure 213].

Figure 214



C216689A

3. Remove the pins (Item 1) [Figure 214] to remove the lift arm support from the storage position.

   The operator must stay in the operator's seat with the seat belt fastened and the seat bar lowered until the lift arm support is installed.

4. Start the engine and raise the lift arms all the way up.

Figure 215

C216690

5. Have a second person install the lift arm support over the rod of one of the lift cylinders [Figure 215].

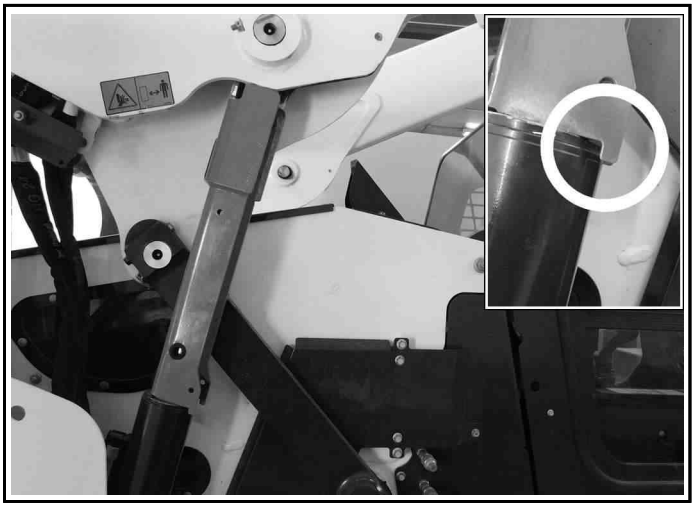
   The lift arm support must be tight against the cylinder rod.

⚠ WARNING

PINCH POINT HAZARD
Keep hands clear during lift arm movement.

W-3072

Figure 216



C216691

6. Lower the lift arms slowly until the lift arm support is held between the lift arms and the lift cylinder [Figure 216].

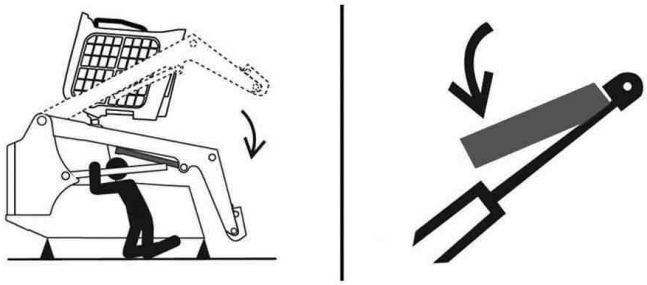
   The tabs of the lift arm support must go past the end of the cylinder (Inset) [Figure 216].

   At the rod end side of the lift cylinder, the lift arm support must contact the lift arm on both sides.

7. Stop the engine.

Removing Lift Arm Support

⚠ DANGER



CRUSHING HAZARD
Avoid death due to lift arm movement.
- **Disconnecting or loosening any hydraulic tubeline, hoses, fitting, component or a part failure can cause lift arms to drop.**
- **Keep out of this area when lift arms are raised unless supported by an approved lift arm support. Replace if damaged.**

D-1009

The operator must stay in the operator's seat with the seat belt fastened and the seat bar lowered until the lift arm support is removed and the lift arms are lowered all the way.

NOTE: The lift arm support should remain resting on the cylinder barrel when the lift arms are raised. Service or replace the lift arm support if the lift arm support raises with the cylinder rod.

1. Start the engine and raise the lift arms all the way up.

⚠ WARNING

PINCH POINT HAZARD
Keep hands clear during lift arm movement.

W-3072

Figure 217

C216690

2. Have a second person remove the lift arm support [Figure 217] after the lift arms are all the way up.

3. Lower the lift arms all the way.

4. Stop the engine.

Figure 218

C216689

5. Return the lift arm support to the storage position and install the pins [Figure 218].

6. Remove the jackstands.

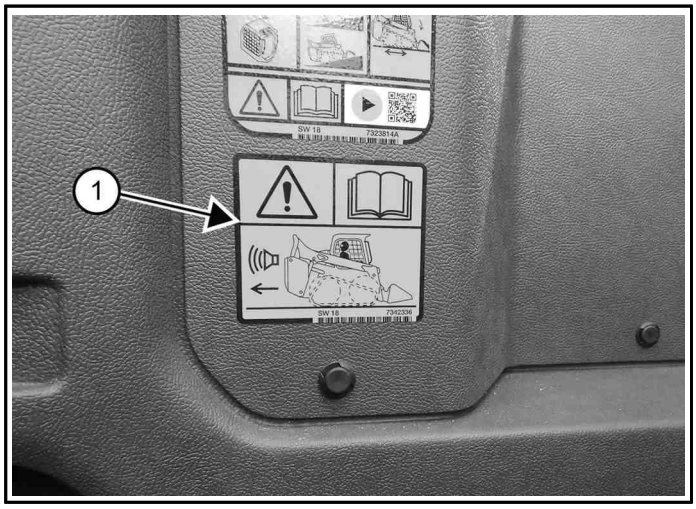
BACK-UP ALARM SYSTEM

Inspecting Back-Up Alarm System

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

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

Figure 219

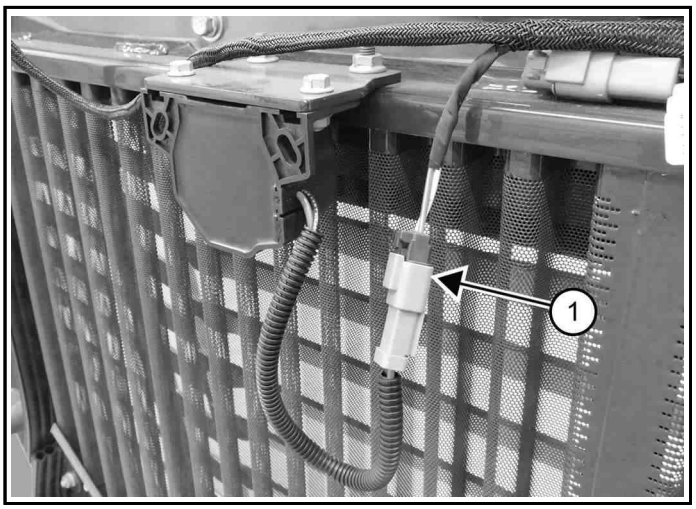


C200245A

1. Inspect for damaged or missing back-up alarm decal (Item 1) [Figure 219] located near your right leg. Replace if required.
2. Sit in the operator's seat.
3. Fasten the seat belt.
4. Engage the parking brake.
5. Pull the seat bar all the way down.
6. Start the engine.
7. Press the operate button.
8. Disengage the parking brake.
9. Move the joystick(s) into the reverse position. The back-up alarm must sound when both tracks are moving in reverse.

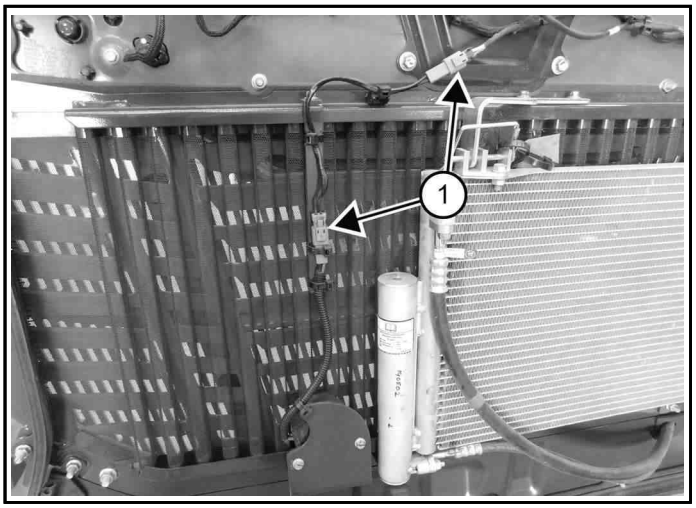
   The back-up alarm is located on the inside of the rear door.

Figure 220



C200246A

Figure 221



C216692A

10. Inspect the back-up alarm electrical connector(s) (Item 1) [Figure 220] [Figure 221] and harness for tightness and damage. Repair or replace any damaged components.

    NOTE: See your Bobcat dealer for service if your back-up alarm does not sound.

OPERATOR CAB

Inspecting Operator Cab

This 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.

- Check the cab, mounting, and hardware for damage.
- Never modify the cab.
- Replace the cab and hardware if damaged. See your Bobcat dealer for parts.

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

Level I

Protection from falling bricks, small concrete blocks, and hand tools encountered in operations, such as: motorway maintenance, landscaping, and other construction sites.

Level II

Protection from falling trees, rocks: for machines involved in site clearing, overhead demolition, or forestry.

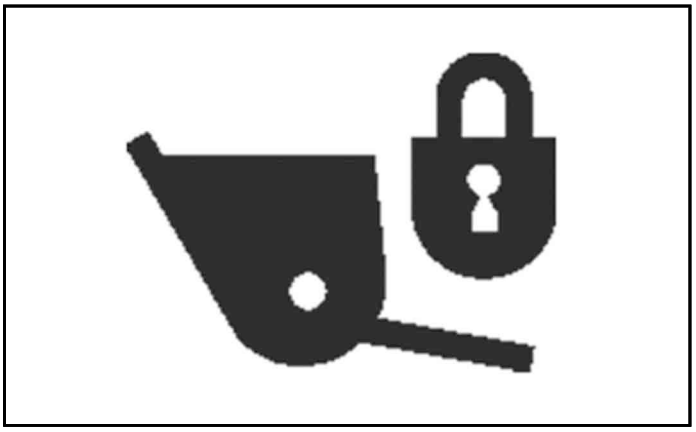
⚠ WARNING

MODIFICATION HAZARD
Cab changes can cause loss of operator protection from rollover and falling objects resulting in serious injury or death.
Never modify operator cab by welding, grinding, drilling holes or adding attachments unless instructed to do so by Bobcat Company.
W-2069

Cab Door Sensor Description

The cab door has a sensor installed in the door latch that deactivates the lift and tilt valves when the door is open.

Figure 222



NA3635B

The lift and tilt lockout icon [Figure 222] is OFF when:

- The door is closed.
- The machine is turned ON.
- The seat bar is lowered.
- The operate button is pressed.

The lift and tilt lockout icon [Figure 222] is ON when the door is open.

Raising Operator Cab

Always stop the engine before raising or lowering the operator cab.

1. Stop the machine on a level surface.
2. Lower the lift arms.

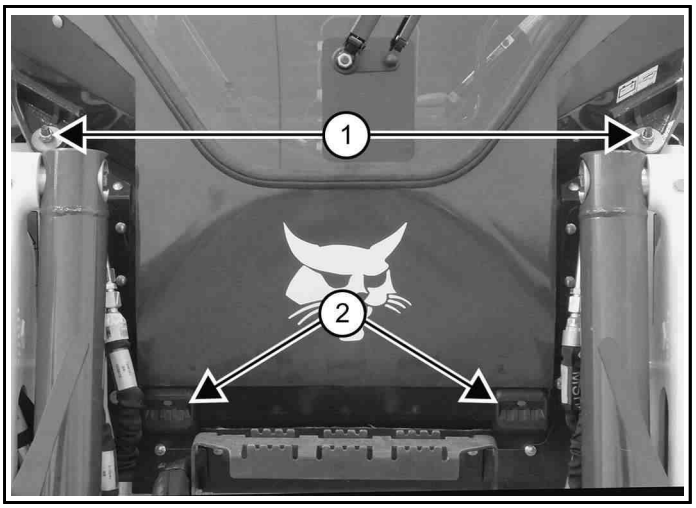
   If the lift arms must be up while raising the operator cab, install the lift arm support.
   (See Lift Arm Support on Page 134)

Figure 223

C200233

3. Install jackstands under the rear of the machine frame [Figure 223].

Figure 224



C200249A

4. Remove the nuts and washers (Item 1) [Figure 224] at the front corners of the operator cab.

5. Lift on the grab handles (Item 2) [Figure 224] at the bottom of the operator cab.

Figure 225

C200595

6. Push the bottom of the operator cab [Figure 225] slowly until the operator cab is all the way up and the latching mechanism engages.

Lowering Operator Cab

Always stop the engine before raising or lowering the operator cab.

Figure 226

C200596

1. Pull down on the bottom of the operator cab until stopped by the latching mechanism [Figure 226].

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

⚠ WARNING

PINCHING HAZARD
Pinch point can cause injury.
Remove your hand from the latching mechanism when the cab is past the latch stop.

W-2469

Figure 227

C200252

2. Support the operator cab [Figure 226] while a second person releases the latching mechanism [Figure 227]. Remove your hand from the latch mechanism when the operator cab is past the latch stop.

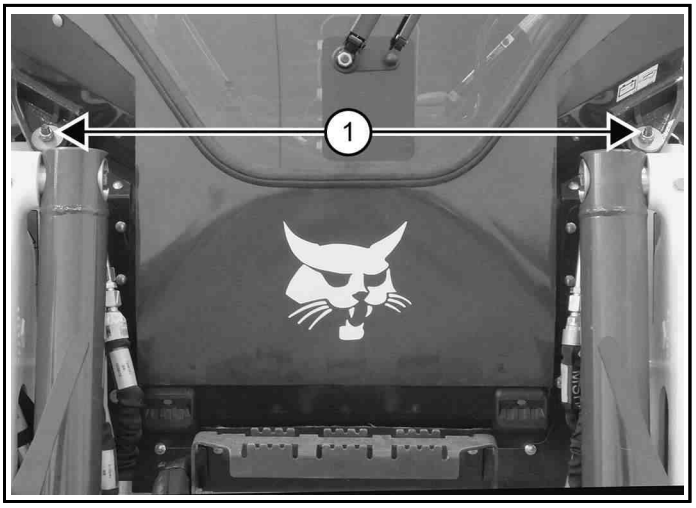
Figure 228

C200597

3. Use both hands on the grab handles to lower the operator cab all the way down [Figure 228].

   NOTE: Always use the grab handles to lower the operator cab.

Figure 229



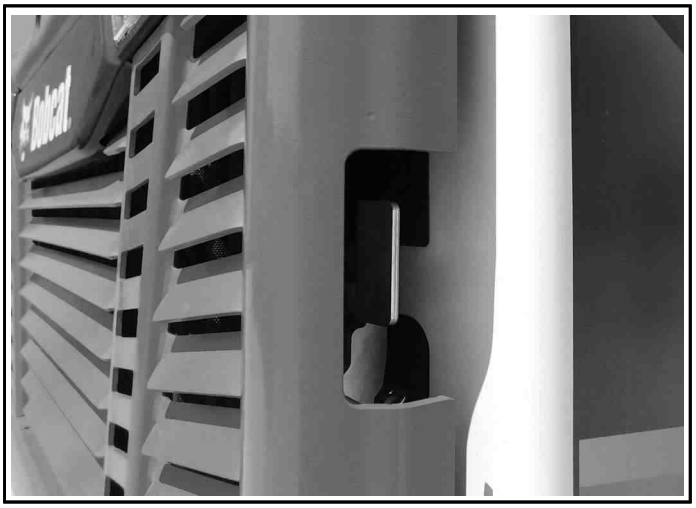
C200249B

4. Install the washers and nuts (both sides) [Figure 229].
5. Tighten the nuts to 54 – 61 N•m (40 – 45 ft-lb) torque.
6. Remove the jackstands.

REAR DOOR (TAILGATE)

Opening And Closing Rear Door

Figure 230



C200254

1. Reach into the slot on the right side of the rear door and pull the latch handle [Figure 230].
2. Pull the rear door open.

⚠ WARNING

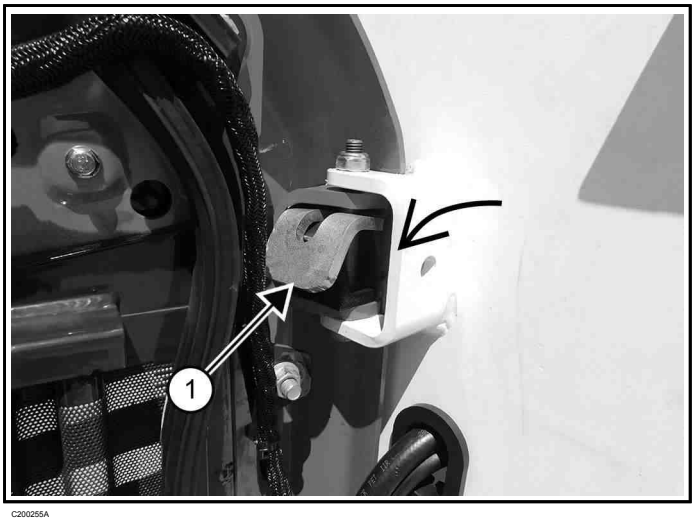
IMPACT HAZARD
Swinging rear door can seriously injure a bystander.
Keep the rear door closed when operating the machine.
W-2020

3. Close the rear door.

Using Rear Door Stop

The rear door is equipped with a door stop feature on the top hinge.

Figure 231

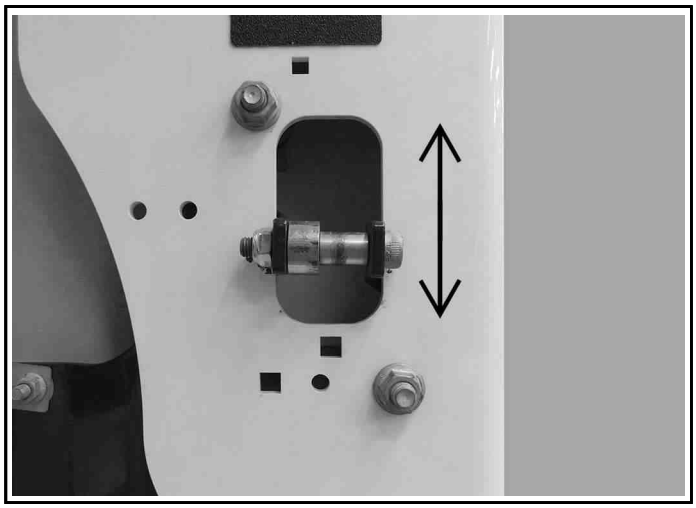


C200255A

1. Move the door stop (Item 1) [Figure 231] into the engaged position as shown to hold the door open.
2. Move the door stop in to allow the door to close.

Adjusting Rear Door Latch

Figure 232



C200256A

The door latch striker [Figure 232] can be adjusted up or down for alignment with the door latch.

The rear door must be closed before operating the machine.

REAR GRILLE

Raising Rear Grille

1. Stop the engine.
2. Open the rear door.

Figure 233

C216693A

The prop rod (Item 1) [Figure 233] for the rear grille is stored alongside the fuel tank.

Figure 234

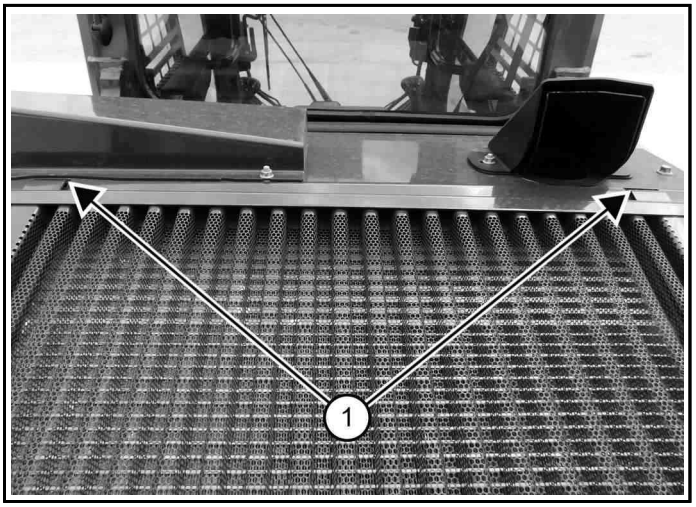
C216694

3. Raise the rear grille [Figure 234].
4. Insert the prop rod into the rear grille (Inset) [Figure 234].

Removing And Installing Rear Grille

1. Raise the rear grille.

Figure 235



C216695A

2. Pull the rear grille backward until the tabs (Item 1) [Figure 235] are free from the slots. This allows the rear grille to be removed for increased access.

3. Insert both tabs (Item 1) [Figure 235] into the slots and lower to install the rear grille.

Lowering Rear Grille

1. Remove the prop rod from the rear grille and lower the rear grille.

Figure 236

C216693A

2. Clip the prop rod back into the storage position (Item 1) [Figure 236].

3. Close the rear door.

HEATING, VENTILATION, AND AIR CONDITIONING (HVAC)

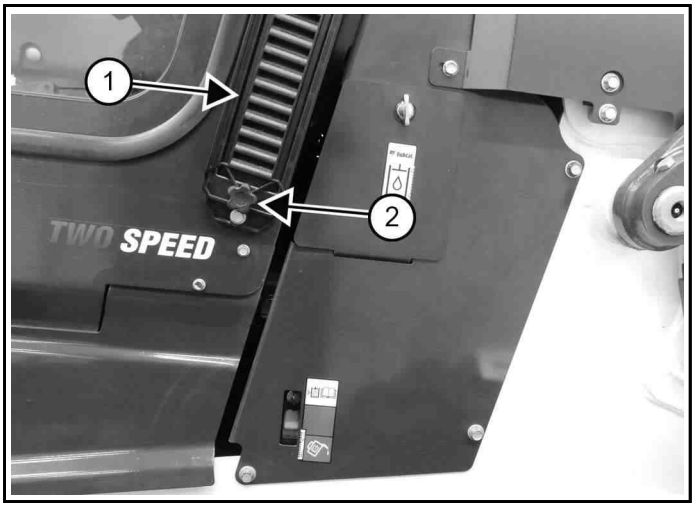
Cleaning HVAC Filters

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

Fresh Air Filter

The fresh air filter is located behind the left side window outside the operator cab.

Figure 237



C216696A

1. Remove the clamping knob (Item 2) and the filter cover (Item 1) [Figure 237].

2. Shake the filter or use low pressure air to remove dirt.

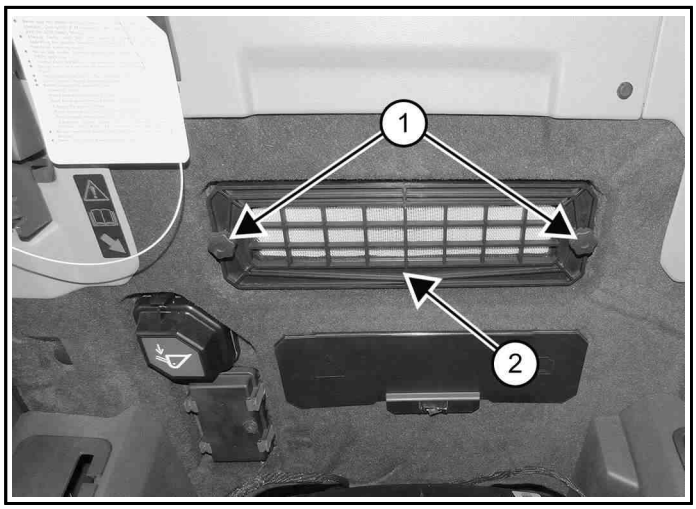
   This procedure can be done several times before replacement is required.

3. Install the filter, the filter cover, and the clamping knob.

Recirculation Filter

The recirculation filter is located behind the operator's seat inside the operator cab.

Figure 238



C200577C

1. Remove two clamping knobs (Item 1) and the filter cover (Item 2) [Figure 238].
2. Shake the filter or use low pressure air to remove dirt.

   This procedure can be done several times before replacement is required.
3. Install the filter, the filter cover, and the clamping knobs.

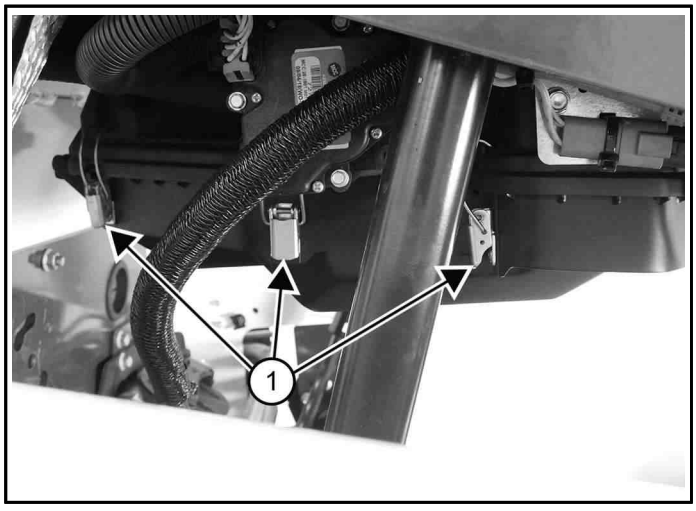
Cleaning Air Conditioning Evaporator And Heater Coil

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

The HVAC unit is located on the back of the operator cab.

1. Stop the engine.
2. Raise the operator cab.

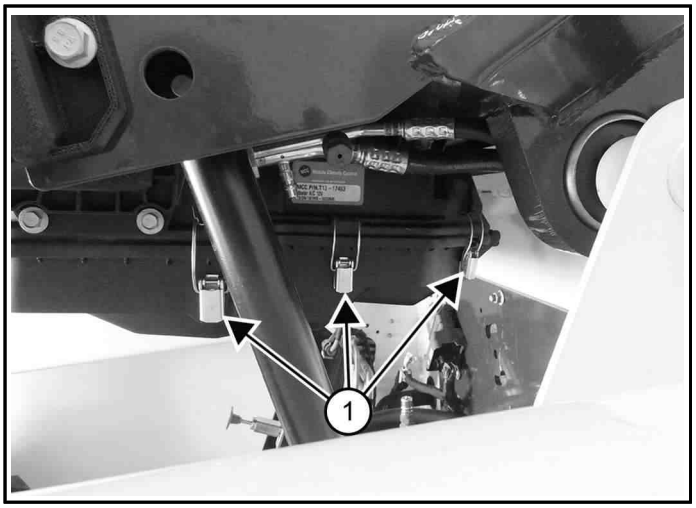
Figure 239



C200264A

3. Unhook three cover latches (Item 1) [Figure 239] on the right side of the HVAC cover.

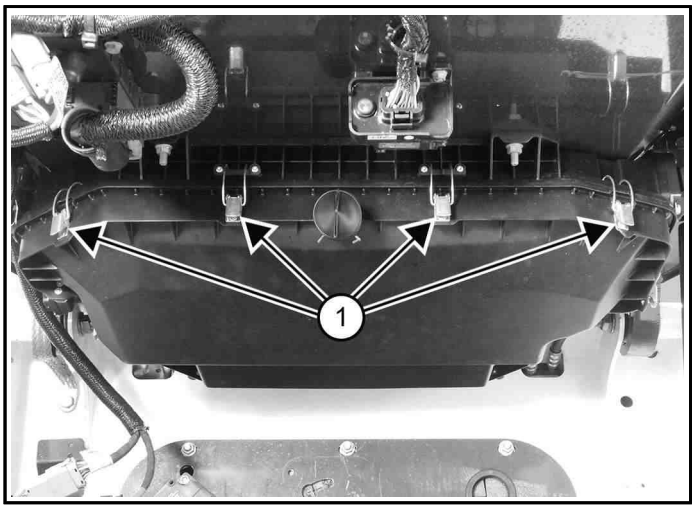
Figure 240



C200265A

4. Unhook three cover latches (Item 1) [Figure 240] on the left side of the HVAC cover.

Figure 241

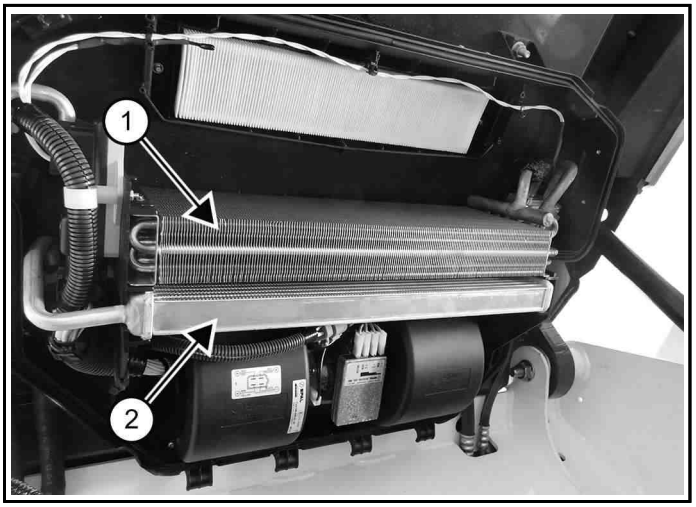


C200266A

5. Unhook four cover latches (Item 1) [Figure 241] on the front side of the HVAC cover.
6. Allow the HVAC cover to swing open on the rear hinges.

   The cover can be removed at the hinge for increased access.

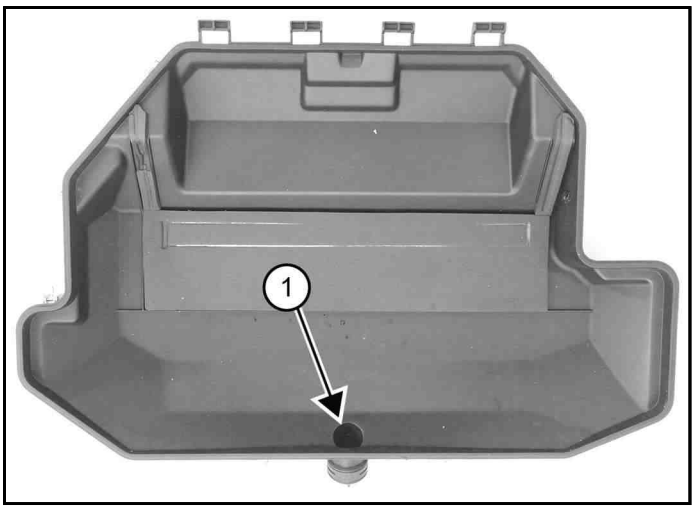
Figure 242



C200267A

7. Use low pressure air or water to remove debris from the evaporator (Item 1) and heater coil (Item 2) [Figure 242].

Figure 243



C200268A

8. Clean the plenum drain (Item 1) [Figure 243] to ensure it is not plugged by debris.
9. Swing the cover up into position.
10. Fasten the four front cover latches [Figure 241].
11. Fasten the six right and left side latches [Figure 239] and [Figure 240].

    NOTE: Perform a thorough visual check to ensure that the cover and the cover seal are not deformed. The cover should seal tightly all around without any gaps.

12. Lower the operator cab.

Cleaning Air Conditioning Condenser

The condenser should be cleaned with the radiator cooling package.
(See Engine Cooling System on Page 155)

Lubricating Air Conditioning System

The air conditioning should be operated for approximately 5 minutes every week to lubricate the internal components.

Troubleshooting HVAC System

If the fan does not operate or the air conditioning does not turn on, check the fuse.
(See Operator Cab Fuse Panel on Page 160) The refrigerant may need to be recharged if the air conditioning system circulates warm air.

ENGINE AIR CLEANER

Replacing Engine Air Filter Element (Outer)

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

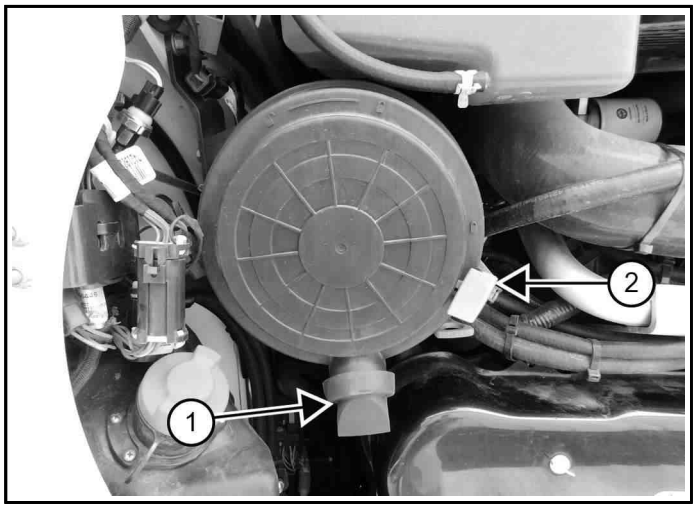
Replace the inner filter every second time the outer filter is replaced.

NOTE: Prolonged operation with an active air filter plugged code can cause severe engine component damage.

NOTE: Prolonged operation with an active air filter plugged code will cause the engine to derate (torque and rpm reduction).

1. Stop the engine.
2. Open the rear door.

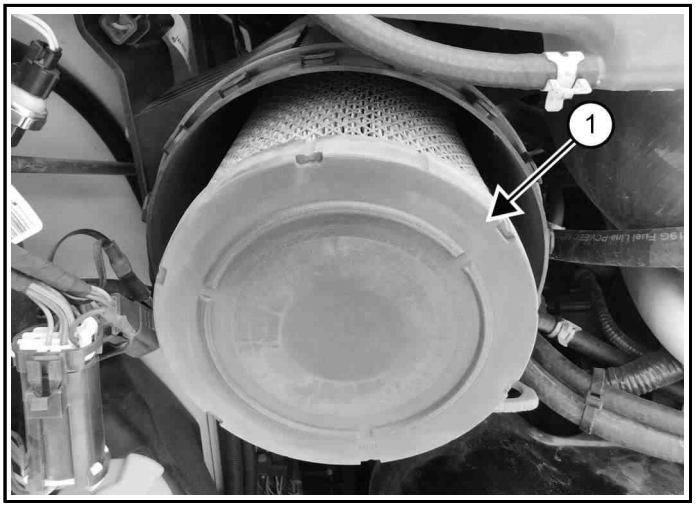
Figure 244



C216697A

3. Pull the tab (Item 2) [Figure 244] to unlock the cover.
4. Rotate the cover anticlockwise a small amount to remove.

Figure 245



C216698A

5. Remove the outer filter (Item 1) [Figure 245] and discard.

   NOTE: Make sure the filter housing is free of dirt and debris. Verify that sealing surfaces are clean. DO NOT use compressed air.

6. Install new outer filter. Push in until the filter contacts the base of the housing.
7. Install the cover so that the evacuator valve (Item 1) [Figure 244] is pointed down.
8. Rotate the cover clockwise a small amount.
9. Push the tab (Item 2) [Figure 244] in to lock the cover in place.
10. Close the rear door.

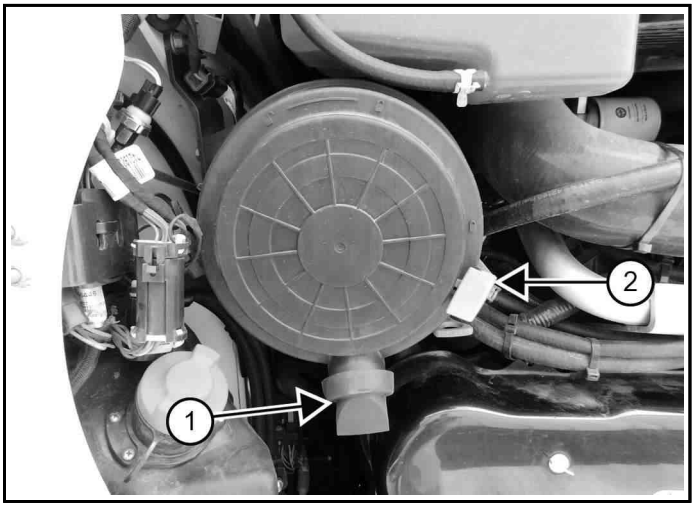
Replacing Engine Air Filter Element (Inner)

The inner filter should be replaced only under the following conditions:

- Replace the inner filter every second time the outer filter is replaced.
- After the outer filter has been replaced, start the engine and operate at full rpm. If service code Air Filter Plugged is still displayed, replace the inner filter.

1. Stop the engine.
2. Open the rear door.

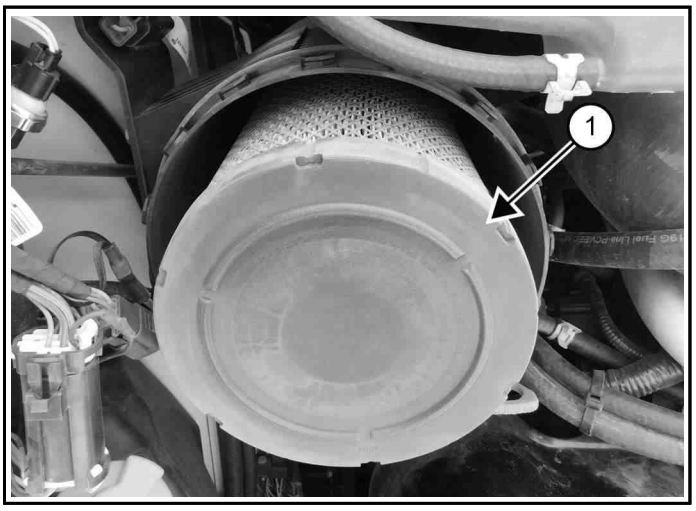
Figure 246



C216697A

3. Pull the tab (Item 2) [Figure 246] to unlock the cover.
4. Rotate the cover anticlockwise a small amount to remove.

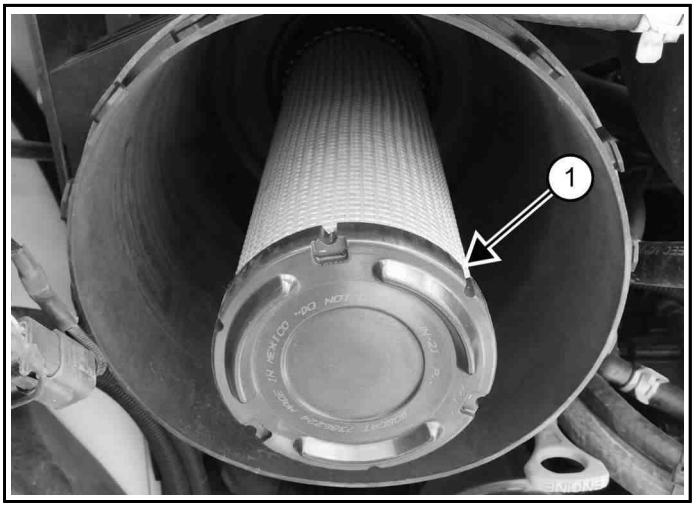
Figure 247



C216698A

5. Remove the outer filter (Item 1) [Figure 247].

Figure 248



C216699A

6. Remove the inner filter (Item 1) [Figure 248] and discard.

   NOTE: Make sure the filter housing is free of dirt and debris. Verify that sealing surfaces are clean. DO NOT use compressed air.

7. Install new inner filter. Push in until the filter contacts the base of the housing.
8. Install the outer filter [Figure 247]. Push in until the filter contacts the base of the housing.
9. Install the cover so that the evacuator valve (Item 1) [Figure 246] is pointed down.
10. Rotate the cover clockwise a small amount.
11. Push the tab (Item 2) [Figure 246] in to lock the cover in place.
12. Close the rear door.

FUEL SYSTEM

Fuel Specifications

NOTE: Contact your local fuel supplier to receive recommendations for your region.

U.S. Standard (ASTM D975)

Use only clean, high quality diesel fuel, grade number 2-D or grade number 1-D.

Ultra-low sulfur diesel fuel must be used in this machine. Ultra-low sulfur is defined as 15 mg/kg (15 ppm) sulfur maximum.

The following is one suggested blending guideline that should prevent fuel gelling during cold temperatures:

TEMPERATURE	GRADE 1–D	GRADE 2–D
Above -9°C (+15°F)	0%	100%
Down to -21°C (-5°F)	50%	50%
Below -21°C (-5°F)	100%	0%

NOTE: Biodiesel blend fuel may also be used in this machine. Biodiesel blend fuel must contain no more than five percent biodiesel mixed with ultra-low sulfur petroleum based diesel. This biodiesel blend fuel is commonly marketed as B5 blended diesel fuel. B5 blended diesel fuel must meet ASTM specifications.

E.U. Standard (EN590)

Use only clean, high quality diesel fuel that meets the EN590 specifications listed below:

- Sulfur-free diesel fuel defined as 10 mg/kg (10 ppm) sulfur maximum.
- Diesel fuel with cetane number of 51.0 and above.

NOTE: Biodiesel blend fuel may also be used in this machine. Biodiesel blend fuel must contain no more than seven percent biodiesel mixed with sulfur-free petroleum based diesel. This biodiesel blend fuel is commonly marketed as B7 blended diesel fuel. B7 blended diesel fuel must meet EN590 specifications.

Biodiesel Blend Fuel

Biodiesel blend fuel has unique qualities that should be considered before using in this machine:

- Cold weather conditions can lead to plugged fuel system components and hard starting.
- Biodiesel blend fuel is an excellent medium for microbial growth and contamination, which can cause corrosion and plugging of fuel system components.
- Use of biodiesel blend fuel may result in premature failure of fuel system components, such as plugged fuel filters and deteriorated fuel lines.
- Shorter maintenance intervals may be required, such as cleaning the fuel system and replacing fuel filters and fuel lines.
- Using biodiesel blended fuels containing more than the recommended amount of biodiesel can affect engine life and cause deterioration of hoses, tubelines, injectors, injector pump, and seals. (See Fuel Specifications on Page 147)

Apply the following guidelines if biodiesel blend fuel is used:

- Ensure the fuel tank is as full as possible at all times to prevent moisture from collecting in the fuel tank.
- Ensure that the fuel tank cap is securely tightened.
- Biodiesel blend fuel can damage painted surfaces. Remove all spilled fuel from painted surfaces immediately.
- Drain all water from the fuel filter daily before operating the machine.
- Do not exceed engine oil change interval. Extending oil change intervals can cause engine damage.
- Before vehicle storage, drain the fuel tank, refill with 100% petroleum diesel fuel, add fuel stabiliser, and run the engine for at least 30 minutes.

NOTE: Biodiesel blend fuel does not have long-term stability and should not be stored for more than three months.

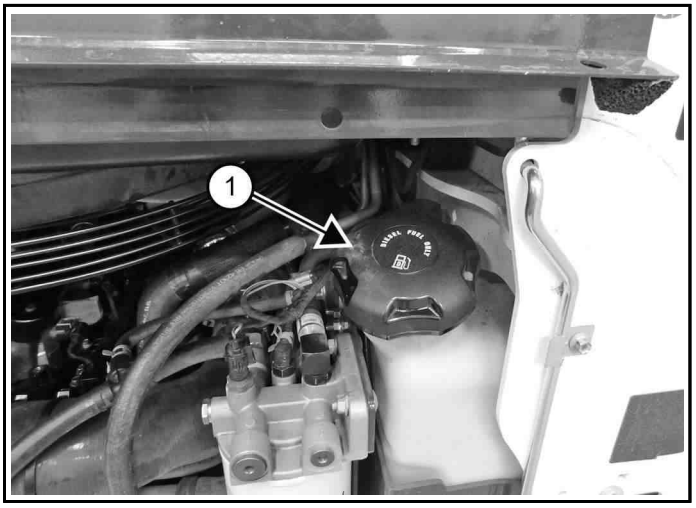
Filling The Fuel Tank

⚠ WARNING

FIRE AND EXPLOSION HAZARD
Failure to follow instructions can cause serious injury or death.
Stop the engine and allow it to cool before adding fuel. NO SMOKING!
W-2063

1. Stop the engine.
2. Open the rear door.

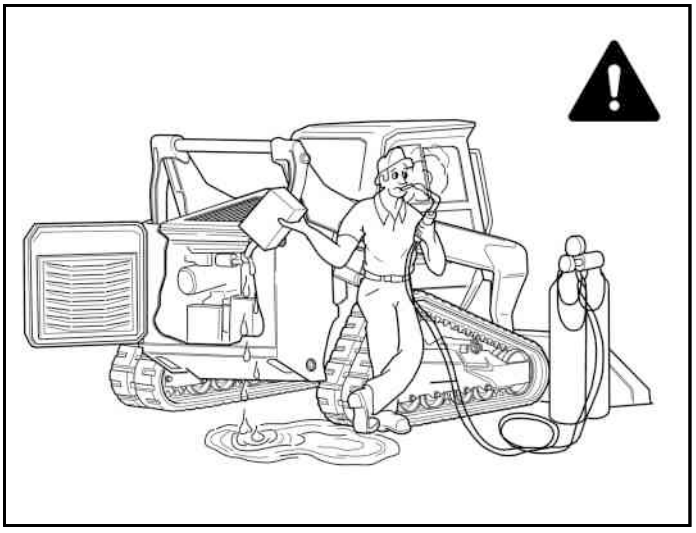
Figure 249



C216700A

3. Remove the fuel fill cap (Item 1) [Figure 249].

Figure 250



NA15863A

4. Use a clean, approved safety container to add fuel of the correct specification. Add fuel only in an area that has free movement of air and no open flames or sparks. NO SMOKING [Figure 250].
5. Install and tighten the fuel fill cap (Item 1) [Figure 249].

   NOTE: The fuel fill cap must be tightened until the cap clicks.
6. Close the rear door.

⚠ WARNING

FIRE AND EXPLOSION HAZARD
Failure to use care around combustibles can cause serious injury or death.
Always clean up spilled flammable fluids or oil. Keep heat, flames, sparks or lighted tobacco away from flammable fluids and oil.
W-2103

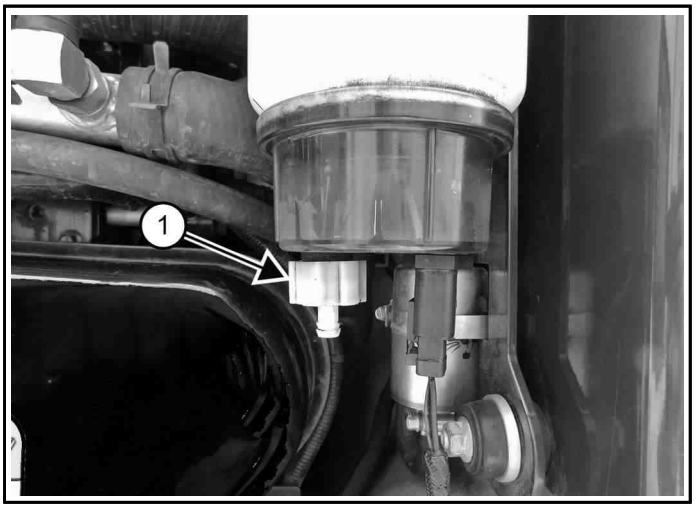
Removing Water From Main Fuel Filter

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

NOTE: This procedure requires the use of a spare 9 mm (3/8 in) hose approximately 300 mm (12 in) long.

1. Stop the engine.
2. Open the rear door.

Figure 251



C216701A

3. Attach a 9 mm (3/8 in) hose to the drain (Item 1) [Figure 251] at the bottom of the main fuel filter.
4. Route the other end of the hose to a container.
5. Loosen the drain (Item 1) [Figure 251] to remove trapped water from the fuel water separator.
6. Tighten the drain.
7. Remove the hose.

⚠ WARNING

FIRE AND EXPLOSION HAZARD
Failure to use care around combustibles can cause serious injury or death.
Always clean up spilled flammable fluids or oil. Keep heat, flames, sparks or lighted tobacco away from flammable fluids and oil.
W-2103

8. Close the rear door.

Replacing Fuel Pre-Filter

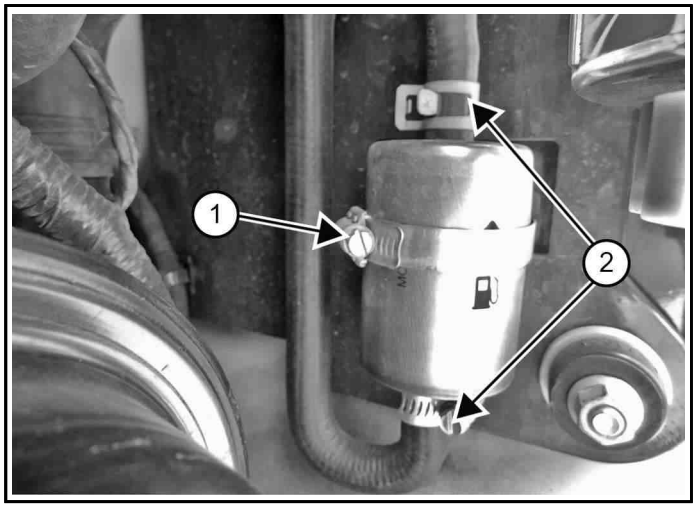
See the service schedule for the correct service interval. (See Service Schedule on Page 124)

1. Stop the engine.
2. Open the rear door.

   The fuel pre-filter is located behind the main fuel filter.

3. Pinch off the upper and lower hoses to prevent spilled fuel while the hoses are disconnected from the pre-filter.

Figure 252



C216702A

4. Move the upper and lower hose clamps (Item 2) [Figure 252] and remove the hoses from the pre-filter.
5. Loosen the clamp (Item 1) [Figure 252].
6. Remove the pre-filter and discard.
7. Install new pre-filter into clamp (Item 1) [Figure 252] and tighten clamp.
8. Install upper and lower hoses.
9. Move hose clamps (Item 2) [Figure 252] back into the correct position as shown.
10. Remove tools used to pinch off the upper and lower hoses.

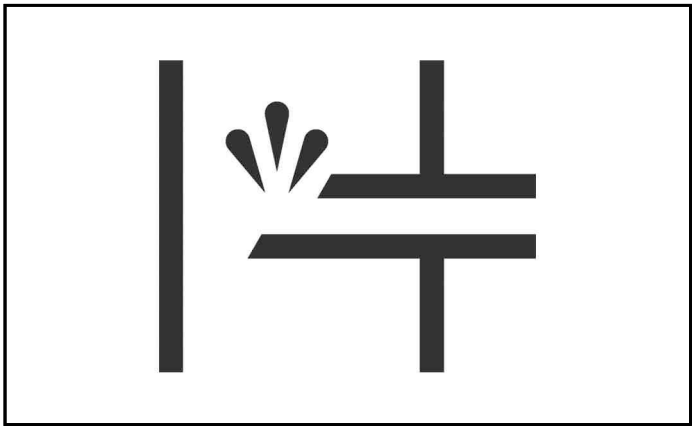
⚠ WARNING

FIRE AND EXPLOSION HAZARD
Failure to use care around combustibles can cause serious injury or death.
Always clean up spilled flammable fluids or oil. Keep heat, flames, sparks or lighted tobacco away from flammable fluids and oil.◂

W-2103

11. Close the rear door.
12. Press run button on right control panel.

Figure 253



NA3643

13. Wait for the fuel priming in process icon [Figure 253] on the display to turn off.
14. Start the engine and allow to operate for one minute.
15. Stop the engine.

⚠ WARNING

INJECTION HAZARD
Pressurised diesel fuel or hydraulic fluid can penetrate skin and 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 doctor familiar with this injury.◂

W-2072

16. Check for leaks at the fuel pre-filter.

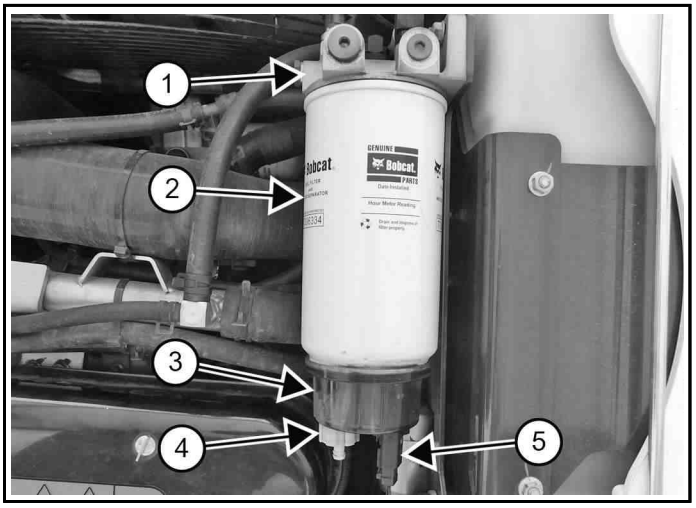
Replacing Main Fuel Filter

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

NOTE: This procedure requires the use of a spare 9 mm (3/8 in) hose approximately 300 mm (12 in) long.

1. Stop the engine.
2. Open the rear door.

Figure 254



C216703A

3. Attach a 9 mm (3/8 in) hose to the drain (Item 4) [Figure 254] at the bottom of the main fuel filter.
4. Route the other end of the hose to a container.
5. Loosen the drain (Item 4) [Figure 254] to empty the filter.
6. Tighten the drain.
7. Remove the hose.
8. Recycle or dispose of used fuel in an environmentally safe manner.
9. Disconnect the electrical connector (Item 5) [Figure 254].
10. Remove the fuel water separator (Item 3) from the fuel filter element (Item 2) [Figure 254].
11. Remove the fuel filter element (Item 2) from the fuel filter head (Item 1) [Figure 254].

    NOTE: DO NOT fill the new fuel filter element with fuel at this time.

12. Put clean oil on two new fuel filter element O-rings.
13. Install the fuel water separator onto new fuel filter element.

    Tighten three-fourths of a turn after the O-ring makes contact.

14. Install assembly onto fuel filter head.

    Tighten three-fourths of a turn after the O-ring makes contact.

15. Connect the electrical connector.
16. Verify the drain is fully closed.

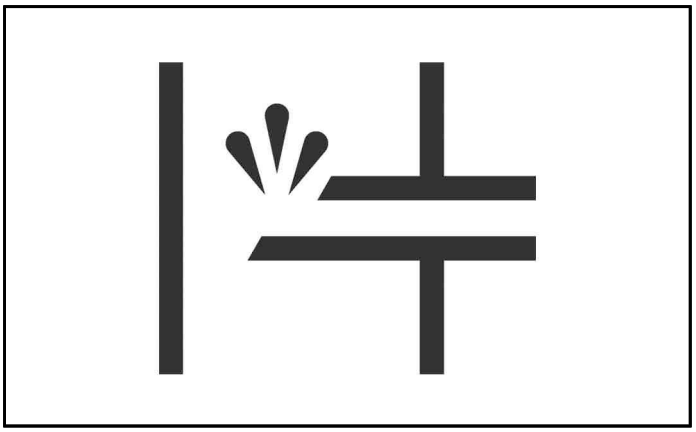
⚠ WARNING

FIRE AND EXPLOSION HAZARD
Failure to use care around combustibles can cause serious injury or death.
Always clean up spilled flammable fluids or oil.
Keep heat, flames, sparks or lighted tobacco away from flammable fluids and oil.

W-2103

17. Close the rear door.
18. Press run button on right control panel.

Figure 255



NA3643

19. Wait for the fuel priming in process icon [Figure 255] on the display to turn off.
20. Start the engine and allow to operate for one minute.
21. Stop the engine.

⚠ WARNING

FIRE AND EXPLOSION HAZARD
Failure to use care around combustibles can cause serious injury or death.
Always clean up spilled flammable fluids or oil.
Keep heat, flames, sparks or lighted tobacco away from flammable fluids and oil.

W-2103

22. Check for leaks at the main fuel filter.

Replacing Fuel Tank Vent Filter

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

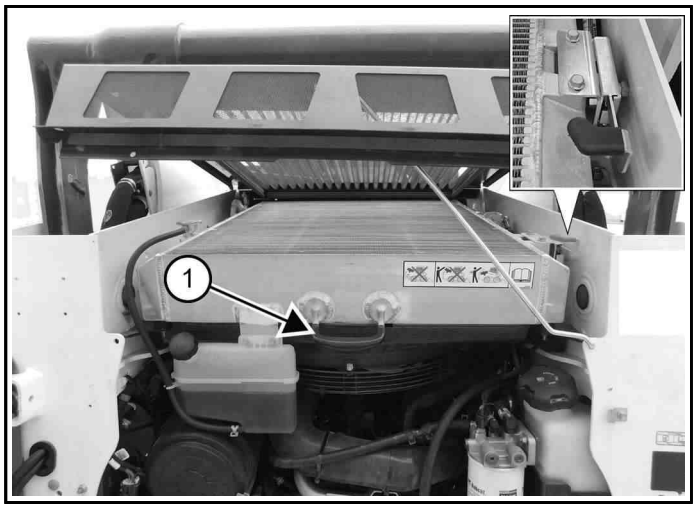
1. Stop the engine.
2. Open the rear door.
3. Raise the rear grille.
   (See Raising Rear Grille on Page 141)

⚠ WARNING

CUTTING AND BURN HAZARD
Keep away from the operating machine.
- **Keep away from fan and moving parts. Do not operate with guard removed.**
- **Do not touch hot surfaces. Allow to cool before servicing.**

W-2521

Figure 256

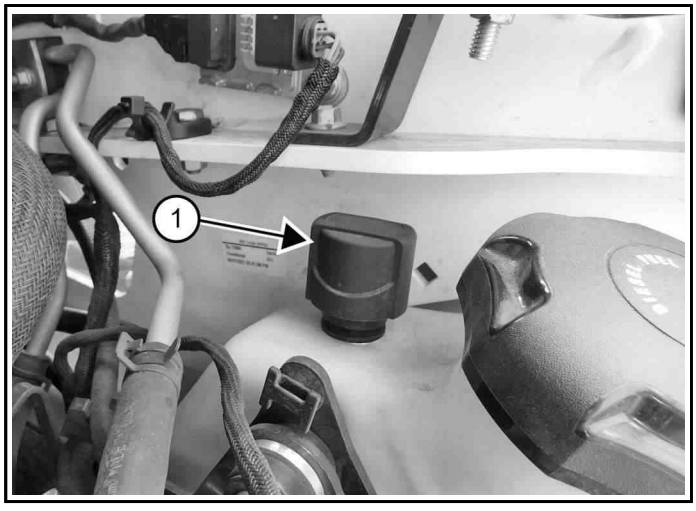


C216715A

4. Press the release lever (Inset) [Figure 256] down.
5. Raise the radiator cooling package using the handle (Item 1) [Figure 256].

   NOTE: Do not start the engine, add coolant, or add hydraulic fluid while the radiator cooling package is raised.

Figure 257



C216704A

6. Remove the fuel tank vent filter (Item 1) [Figure 257] and discard.

   The fuel tank vent filter is located behind the fuel fill cap.

7. Install new fuel tank vent filter and tighten to 5,6 – 6,8 N•m (50 – 60 in-lb) torque.
8. Lower the radiator cooling package using the handle until it locks into place [Figure 256].
9. Lower the rear grille.
   (See Lowering Rear Grille on Page 142)
10. Close the rear door.

DIESEL EXHAUST FLUID (DEF) / ADBLUE® SYSTEM

DEF / AdBlue® System Description

The engine exhaust system is equipped with a selective catalytic reduction (SCR) system. The SCR is an emissions reduction system that removes nitrogen oxides from the exhaust gases.

The SCR system requires DEF / AdBlue® to function correctly.

NOTE: DEF and AdBlue® are different names for the same fluid. See your Bobcat dealer for more information.

The SCR system will use one tankful of DEF / AdBlue® for approximately two to four tankfuls of diesel fuel.

The DEF / AdBlue® level indicator is located on the display. (See Standard Display on Page 45) (See Touch Display on Page 47)

Avoiding Urea Crystallization In The SCR System

At low exhaust temperatures and low exhaust gas flow rates, there is a risk of urea deposit formation in the exhaust system and catalyst.

To reduce the risk of urea crystallization:

- Ensure the DEF / AdBlue® tank is full and the cap is tight.
- Avoid extended engine idling and frequent engine starts and stops, especially in low ambient temperatures.
- Use high quality DEF / AdBlue®.

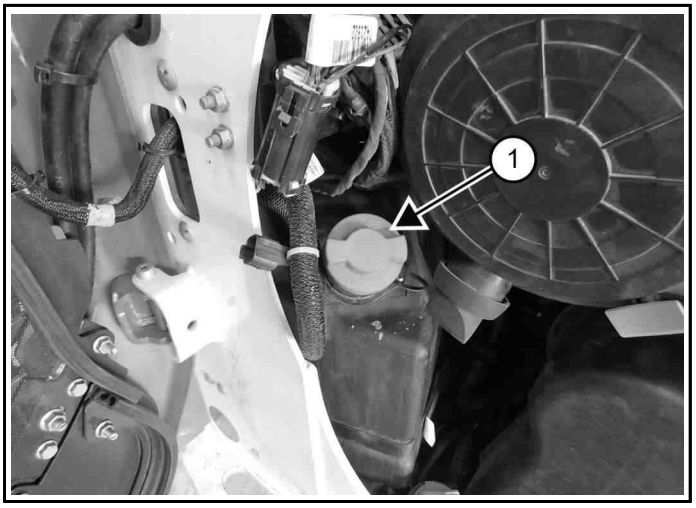
Filling The DEF / AdBlue® Tank

1. Stop the engine.

   NOTE: The engine must be stopped when filling the DEF / AdBlue® tank.

2. Open the rear door.

Figure 258



C216705A

3. Remove the fill cap (Item 1) [Figure 258].

   The fill cap is located inside the rear door on the left side of the machine.

4. Add only clean, unused DEF / AdBlue®. (See Loader Specifications on Page 218)

5. Install and fully tighten the fill cap (Item 1) [Figure 258].

6. Close the rear door.

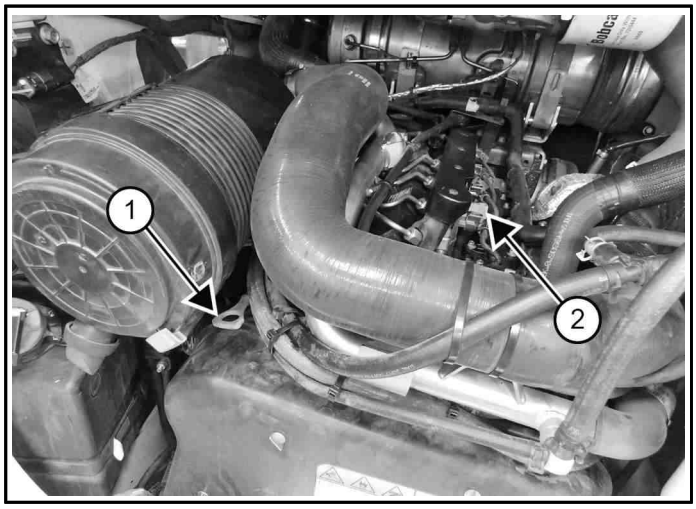
ENGINE LUBRICATION SYSTEM

Checking And Adding Engine Oil

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

1. Park the machine on a level surface.
2. Stop the engine.
3. Open the rear door.

Figure 259



C216706A

4. Remove the dipstick (Item 1) [Figure 259].
5. Keep the oil level between the marks on the dipstick. Do not overfill.
6. Remove the oil fill cap (Item 2) [Figure 259] to add engine oil.

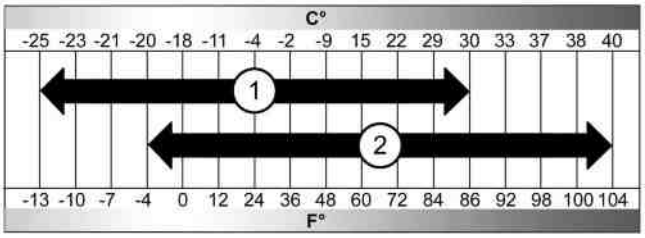
⚠ WARNING

FIRE AND EXPLOSION HAZARD
Failure to use care around combustibles can cause serious injury or death.
Always clean up spilled flammable fluids or oil. Keep heat, flames, sparks or lighted tobacco away from flammable fluids and oil.

W-2103

7. Close the rear door.

Engine Oil Chart

ENGINE CRANKCASE OIL
Recommended SAE Viscosity Number

Refer to the temperature range anticipated before next oil change.
Must use API Category CK-4 or better or ACEA E9 or better.
Do not use API category FA-4 engine oil.
[1] SAE 10W-30 [2] SAE 15W-40

NA24041B

Bobcat engine oils are recommended for use in this machine. If Bobcat engine oil is not available, use a good quality engine oil that meets API Service Category of CK-4 or better, or ACEA E9 or better.

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Failure to follow directions may result in severe engine damage.
Use of API Service Category FA-4 engine oil is not approved and may cause irreversible damage to the engine.

I-2384

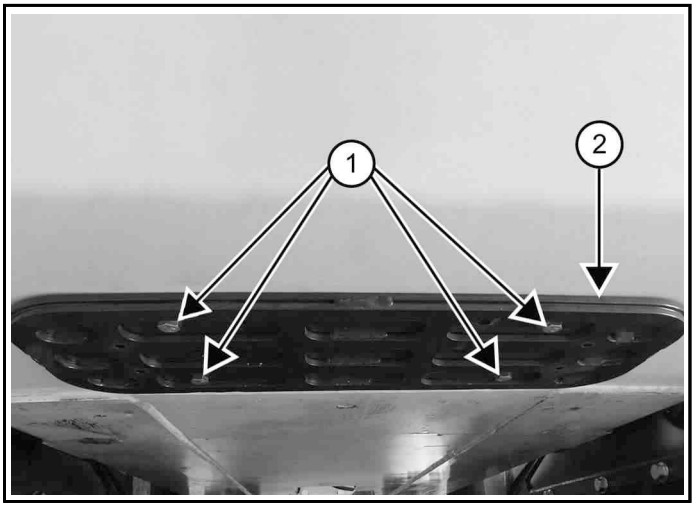
Replacing Engine Oil And Filter

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

The use of work gloves is recommended when performing this task.

1. Operate the engine until coolant reaches normal operating temperature.
2. Stop the engine.

Figure 260

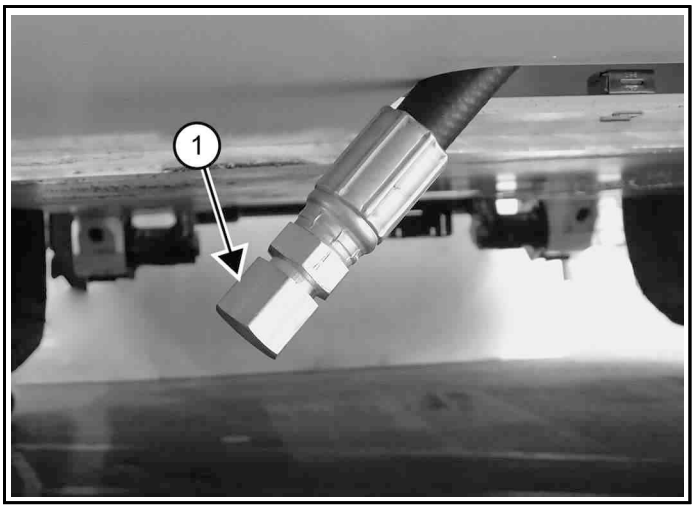


P200325A

3. Remove the access cover mounting bolts (Item 1) and remove the access cover (Item 2) [Figure 260].

   The access cover is located under the rear of the machine.

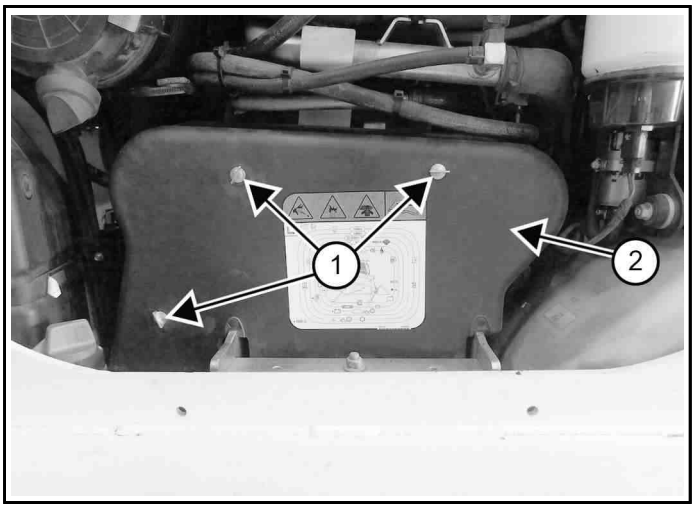
Figure 261



P200327A

4. Route the oil drain hose through the opening [Figure 261].
5. Remove the oil drain cap (Item 1) [Figure 261] from the oil drain hose and drain the oil into a container.
6. Install the cap onto the drain hose and tighten when the fluid stops draining [Figure 261].
7. Place the oil drain hose inside the engine compartment.
8. Install the access cover and the cover mounting bolts [Figure 260].
9. Recycle or dispose of used oil in an environmentally safe manner.
10. Open the rear door.

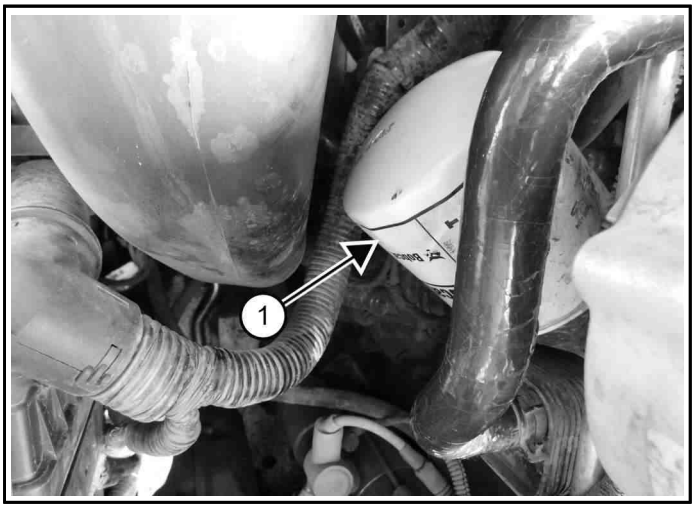
Figure 262



C216687B

11. Loosen fasteners (Item 1) and remove belt shield (Item 2) [Figure 262].

Figure 263



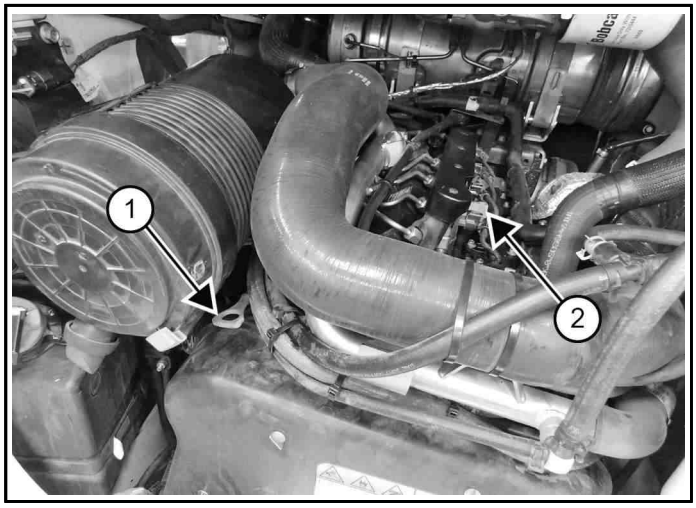
C216707A

12. Remove the oil filter (Item 1) [Figure 263].

    The oil filter is located on the left side of the engine behind the alternator.
13. Clean the filter base.
14. Put clean oil on the new filter gasket.
15. Install the new filter and hand tighten.

    Use genuine Bobcat filter only.
16. Install the belt shield .

Figure 264



C216706A

17. Remove the oil fill cap (Item 2) [Figure 264].
18. Put oil into the engine and replace the oil fill cap. (See Loader Specifications on Page 218) Do not overfill.
19. Start the engine and allow to operate for several minutes.
20. Stop the engine.
21. Check for leaks at the filter.
22. Remove the dipstick (Item 1) [Figure 264] and check the oil level.
23. Add oil as needed if oil level is not at the top mark on the dipstick.
24. Install the dipstick.
25. Close the rear door.

⚠ WARNING

FIRE AND EXPLOSION HAZARD
Failure to use care around combustibles can cause serious injury or death.
Always clean up spilled flammable fluids or oil. Keep heat, flames, sparks or lighted tobacco away from flammable fluids and oil.

W-2103

ENGINE COOLING SYSTEM

Cleaning Engine Cooling System

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

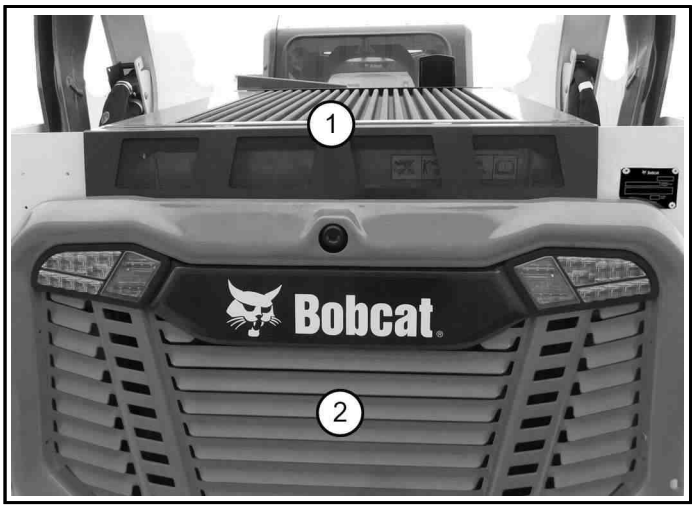
1. Stop the engine.

⚠ WARNING

IMPACT AND INJECTION HAZARDS
Flying debris or pressurised fluids can cause serious injury or death.
Wear safety glasses to prevent eye injury when any of the following conditions exist:
- **When fluids are under pressure.**
- **Flying debris or loose material.**
- **Engine is running.**
- **Tools are being used.**

W-2019

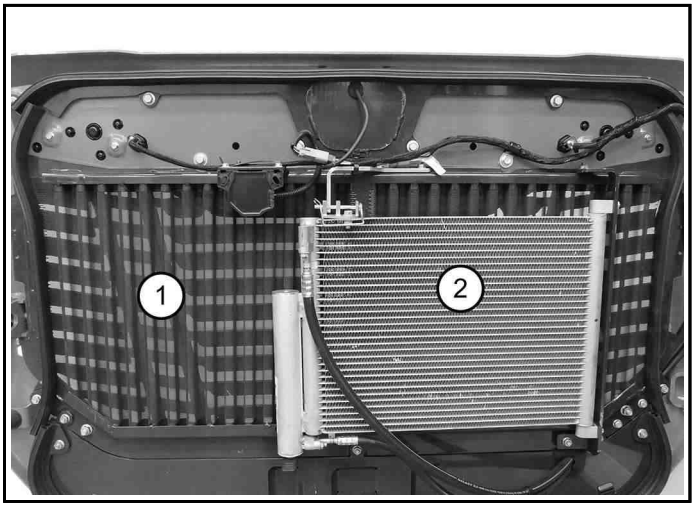
Figure 265



C216682B

2. Use low air pressure to clean the top and back of the rear grille (Item 1) [Figure 265].
3. Use low air pressure to clean the outside grille of the rear door (Item 2) [Figure 265].
4. Open the rear door.

Figure 266

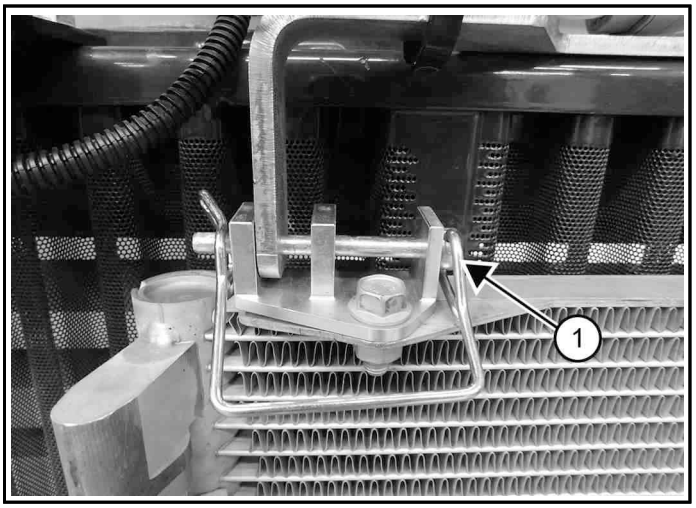


C200205B

5. Use low air pressure to clean the inside grille of the rear door (Item 1) [Figure 266].
6. Use low air pressure to clean the air conditioning condenser (Item 2) [Figure 266].

   The condenser can be swung open to allow greater access for cleaning the area between the rear door and the condenser.

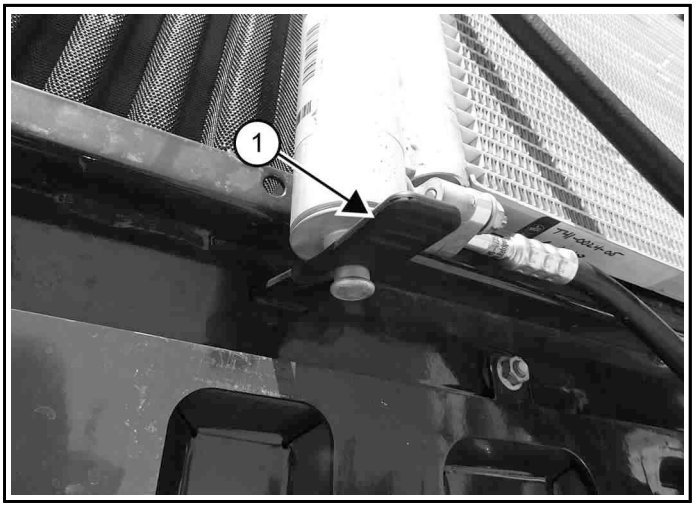
Figure 267



P200280A

7. Remove the pin (Item 1) [Figure 267] at the top of the condenser.

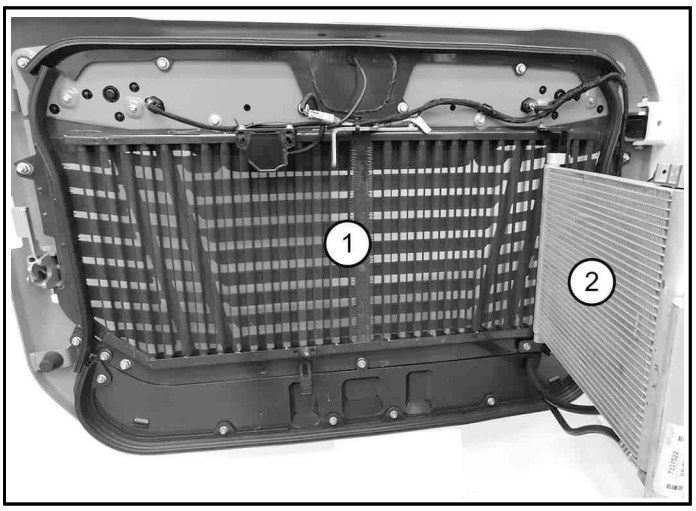
Figure 268



P200281A

8. Unhook the rubber strap (Item 1) [Figure 268] at the bottom of the condenser.

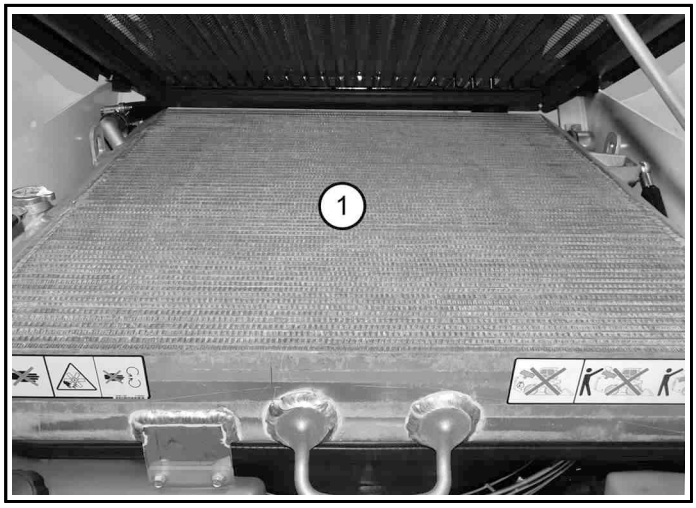
Figure 269



P200283A

9. Use low air pressure to clean the inside grille of the rear door (Item 1) [Figure 269].
10. Use low air pressure to clean the air conditioning condenser (Item 2) [Figure 269].
11. Raise the rear grille.
    (See Raising Rear Grille on Page 141)

Figure 270



P200282A

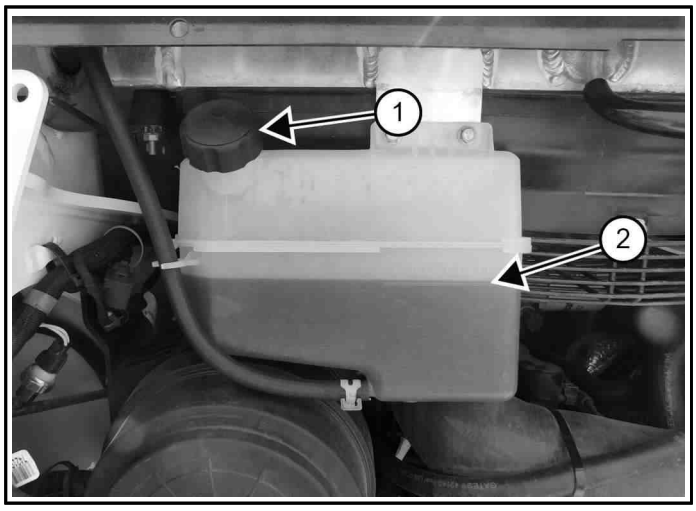
12. Use low air pressure to clean the top of the radiator cooling package (Item 1) [Figure 270].
13. Lower the rear grille.
(See Lowering Rear Grille on Page 142)
14. Close the rear door.

Checking And Adding Coolant

See the service schedule for the correct service interval.
(See Service Schedule on Page 124)

1. Stop the engine.
2. Open the rear door.

Figure 271



C216709A

3. Check the coolant level when the engine is cold. Coolant must be at the full cold mark (Item 2) [Figure 271].

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

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

⚠ WARNING

BURN HAZARD
Failure to follow instructions can cause serious burns.
Stop the engine and allow it to cool before removing the radiator cap or adding coolant.

W-2070

4. Remove the coolant fill cap (Item 1) [Figure 271] to add coolant.

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

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
The incorrect ratio of water to coolant will reduce cooling system efficiency and may lead to premature engine failure.
- **Always use the correct ratio of water to coolant.**
- **Always add a premixed solution.**

I-2124

5. Add premixed coolant, 47% water and 53% propylene glycol, to the coolant tank until the coolant level reaches the full cold mark on the tank [Figure 271].
6. Install the coolant fill cap [Figure 271].
7. Close the rear door.

Replacing Coolant

See the service schedule for the correct service interval.
(See Service Schedule on Page 124)

NOTE: This procedure requires the use of a spare 9,5 mm (3/8 in) coolant hose approximately 600 mm (24 in) long.

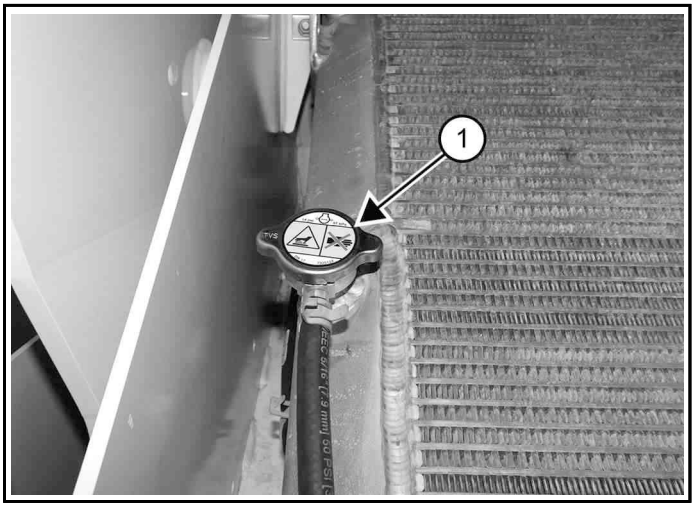
1. Stop the engine.
2. Open the rear door.
3. Remove the rear grille.
(See Removing And Installing Rear Grille on Page 141)

⚠ WARNING

BURN HAZARD
Failure to follow instructions can cause serious burns.
Stop the engine and allow it to cool before removing the radiator cap or adding coolant.

W-2070

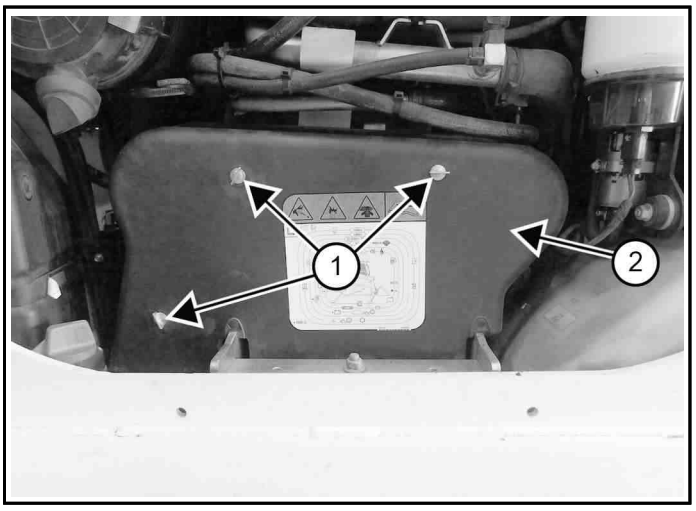
Figure 272



P200287A

4. Remove the radiator cap (Item 1) [Figure 272] to relieve cooling system pressure.
5. Install the radiator cap.

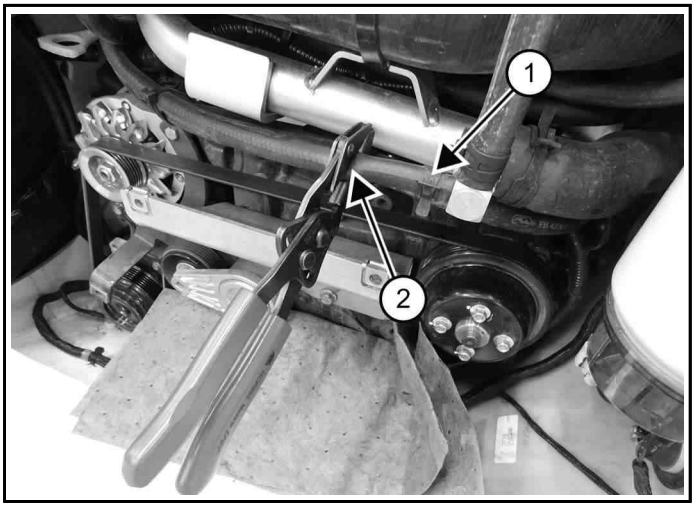
Figure 273



C216687B

6. Loosen fasteners (Item 1) and remove belt shield (Item 2) [Figure 273].

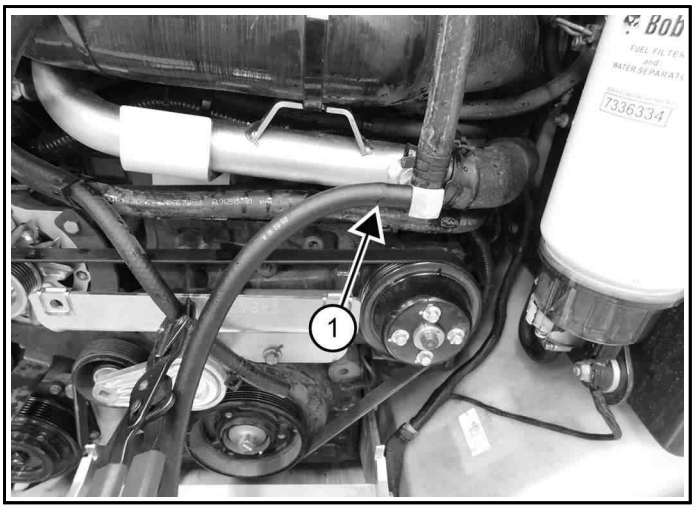
Figure 274



C217332A

7. Pinch off the coolant hose using a locking hose pinching plier (Item 2) [Figure 274] or similar tool.
8. Remove the clamp (Item 1) [Figure 274] and disconnect the hose.

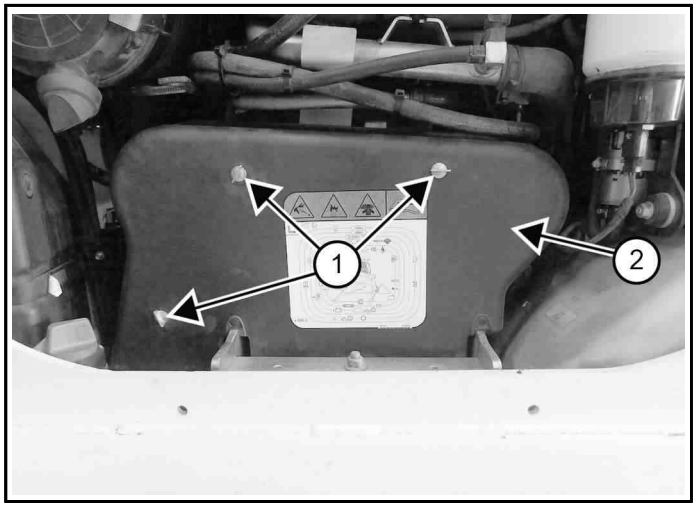
Figure 275



C217333A

9. Quickly install the spare 9,5 mm (3/8 in) coolant hose (Item 1) [Figure 275].
10. Drain the coolant into a container.
11. Remove the radiator cap (Item 1) [Figure 272] to relieve cooling system pressure to drain the coolant faster.
12. Remove the spare 9,5 mm (3/8 in) coolant hose when the coolant has drained.
13. Install the coolant hose and clamp.
14. Remove the tool used to pinch off the coolant hose.

Figure 276



C216687B

15. Install belt shield (Item 2) and tighten fasteners (Item 1) [Figure 276].
16. Recycle or dispose of used coolant in an environmentally safe manner.
17. Mix new coolant in a separate container.
(See Loader Specifications on Page 218)

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

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
The incorrect ratio of water to coolant will reduce cooling system efficiency and may lead to premature engine failure.
- **Always use the correct ratio of water to coolant.**
- **Always add a premixed solution.**

I-2124

18. Add premixed coolant, 47% water and 53% propylene glycol, to the radiator tank until the coolant level reaches the bottom of the fill neck.
19. Do not install the radiator cap at this time.
20. Close the rear door and operate the engine at low idle for two minutes.
21. Stop the engine.
22. Open the rear door.
23. Add premixed coolant to the radiator tank until the coolant level again reaches the bottom of the fill neck.
24. Install the radiator cap.
25. Install the rear grille.
(See Removing And Installing Rear Grille on Page 141)
26. Ensure coolant level in coolant tank is at the full cold mark.
(See Checking And Adding Coolant on Page 157)
27. Close the rear door.
28. Operate the engine until coolant reaches normal operating temperature.
29. Stop the engine.
30. Allow system to cool and recheck radiator tank level. Add premixed coolant to the radiator tank as needed until the coolant level reaches the bottom of the fill neck.
31. Check the coolant level in coolant tank when cool. Add premixed coolant as needed.
(See Checking And Adding Coolant on Page 157)

ELECTRICAL SYSTEM

Electrical System Description

The machine has a 12 volt, negative earth, alternator charging system.

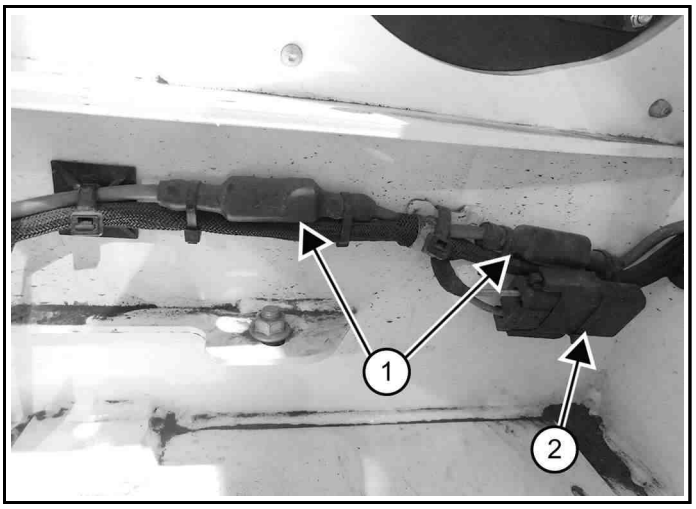
The electrical system is protected by fuses located in a master fuse panel, an operator cab fuse panel, and a mainframe fuse panel.

The fuses will protect the electrical system when there is an electrical overload. The reason for the overload must be found before starting the engine again.

Fuse And Relay Identification

Master Fuse Panel

Figure 277



C217314A

The master fuses (Item 1) [Figure 277] are located next to the battery under the operator cab.

The glow plug relay (Item 2) [Figure 277] is located in the harness next to the master fuse panel under the operator cab.

Operator Cab Fuse Panel

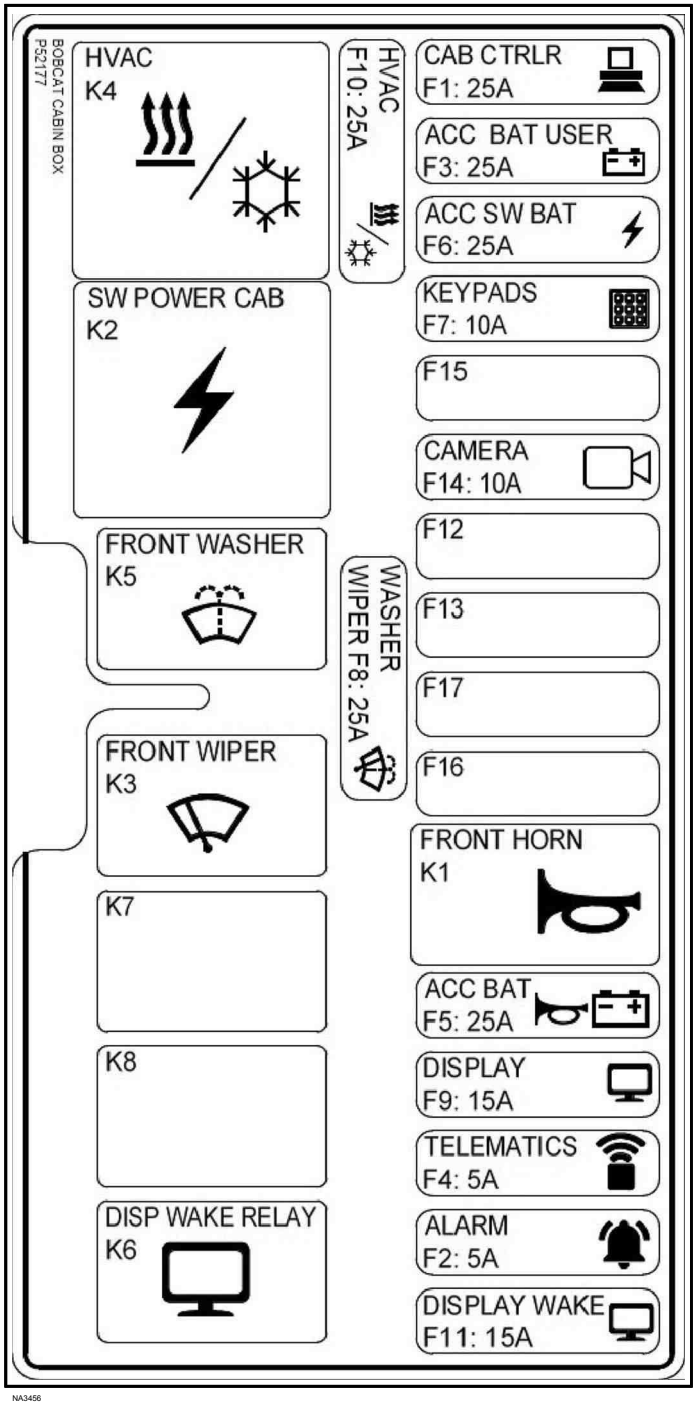
Figure 278

C200577D

The operator cab fuse panel is located behind the operator's seat on the right side. The cover (Item 1) [Figure 278] can be removed by opening four latches while pressing the cover tightly closed.

A decal [Figure 279] located inside the fuse panel cover indicates fuse and relay location and fuse amperage ratings.

Figure 279



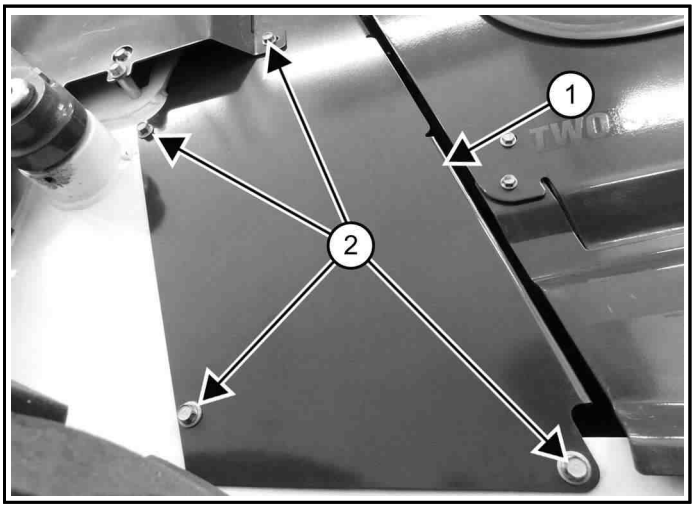
Fuse location and amperage ratings are shown in the table below and on the decal [Figure 279]. Relays are identified by the letter “R” in the AMP column.

REF	ICON	DESCRIPTION	AMP
F1		Cab Controller	25
F2		Alarm	5
F3		Accessories	25
F4		Telematics	5
F5		Accessories and Front Horn	25
F6		Accessories / Seat / Radio	25
F7		Keypads	10
F8		Front Wiper / Washer	25
F9		Display	15
F10		Heater / HVAC	25
F11		Display	15
F12		Not Used	- -
F13		Not Used	- -
F14		Camera	10
F15		Not Used	- -
F16		Not Used	- -
F17		Not Used	- -
K1		Front Horn	R

REF	ICON	DESCRIPTION	AMP
K2		Switched Power	R
K3		Front Wiper	R
K4		Heater / HVAC	R
K5		Front Washer	R
K6		Display	R
K7		Not Used	- -
K8		Not Used	- -

Mainframe Fuse Panel

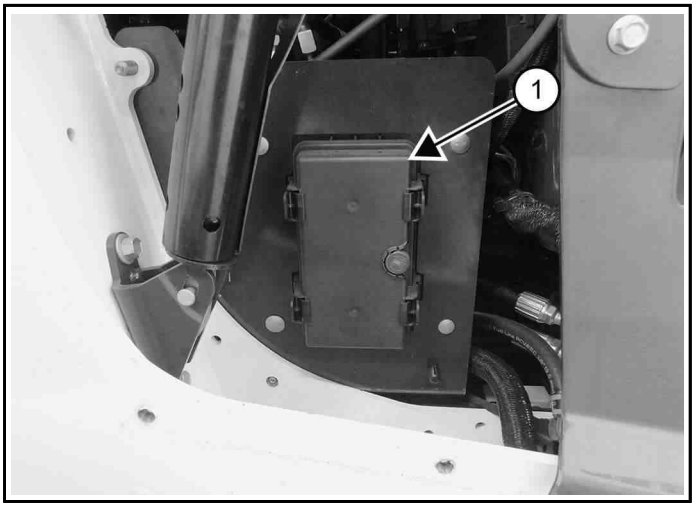
Figure 280



C216711A

Remove the bolts (Item 2) and the access panel (Item 1) [Figure 280] located on the right side of the machine behind the operator cab.

Figure 281

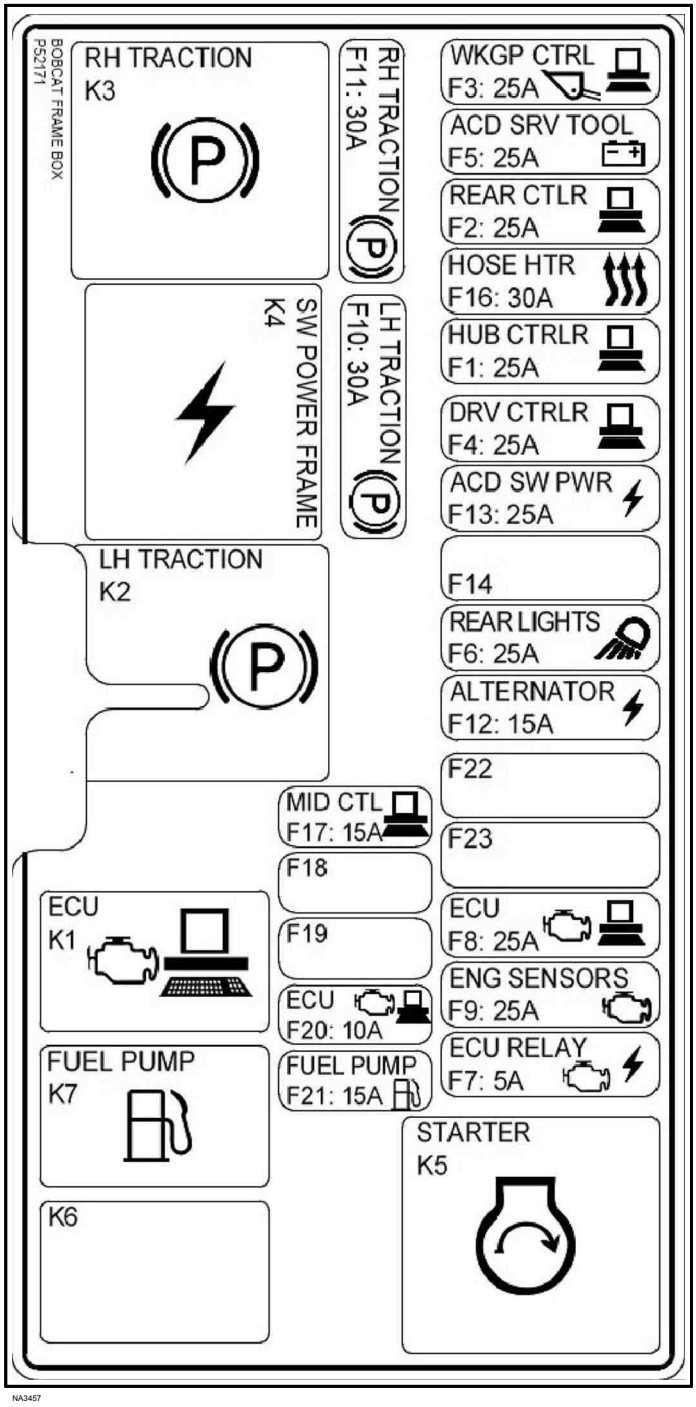


C200294A

The cover (Item 1) [Figure 281] can be removed by opening four latches while pressing the cover tightly closed.

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

Figure 282



Fuse location and amperage ratings are shown in the table below and on the decal [Figure 282]. Relays are identified by the letter “R” in the AMP column.

REF	ICON	DESCRIPTION	AMP
F1		Hub Controller	25
F2		Rear Auxiliary / Road Lights	25
F3		Workgroup Controller	25
F4		Drive Controller	25
F5		Attachments	25
F6		Rear Lights / Back-up Alarm	25
F7		Switched Power Relay	5
F8		Engine Controller	25
F9		Engine Sensors	25
F10		Left Traction Lock	30
F11		Right Traction Lock	30
F12		Alternator	15
F13		Attachments	25
F14		Not Used	- -
F16		DEF Hoses	30

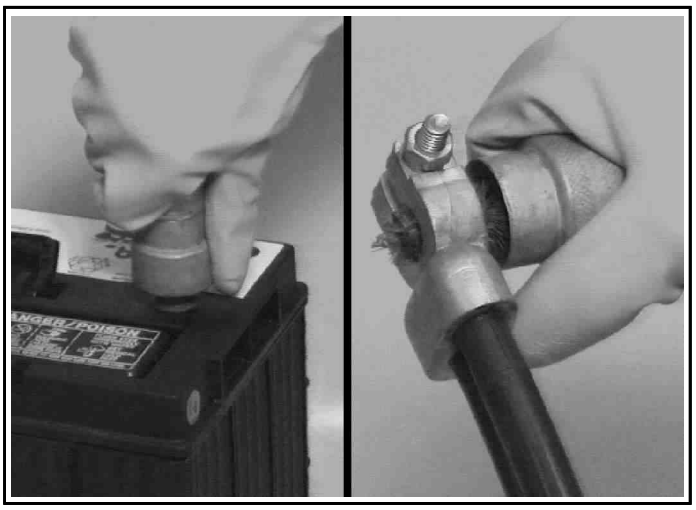
REF	ICON	DESCRIPTION	AMP
F17		Mid Controller	15
F18		Not Used	- -
F19		Not Used	- -
F20		Engine Controller	10
F21		Fuel Pump	15
F22		Not Used	- -
F23		Not Used	- -
K1		Engine Controller	R
K2		Left Traction Lock	R
K3		Right Traction Lock	R
K4		Switched Power	R
K5		Starter	R
K6		Not Used	- -
K7		Fuel Pump	R

Battery Maintenance

See the Service Schedule for the correct service interval. (See Service Schedule on Page 124)

The Bobcat brand battery supplied with your machine is sealed and does not require watering. Proper charging and storage are important to maximise the life of all batteries.

Figure 283



P200188

Simple steps for reliability and long battery life:

- Keep battery posts and terminals clean [Figure 283].
- Keep terminals tight.
- Remove corrosion from battery and terminals with sodium bicarbonate (baking soda) and water solution.
- Put Bobcat Battery Saver or grease on the battery terminals and cable ends to prevent corrosion.
- Operate the machine for at least 15 minutes to recover from the battery drain caused by engine start up whenever practical.
- Maintain the battery charge level. This is a key factor for long battery life.
- Charge a severely discharged battery with a battery charger instead of relying on the machine charging system. (See Battery Charging on Page 165)
- Check the battery state of charge every 30 days on machines that are not frequently used. (See Testing The Battery on Page 165)

⚠ WARNING

CHEMICAL HAZARD
Contact with or ingestion of battery acid can cause serious injury or death.

- **Batteries contain acid that burns eyes and skin on contact. Wear safety goggles, protective clothing, and rubber gloves to keep acid off body.**
- **In case of acid contact, wash immediately with water. In case of eye contact, get prompt medical attention and wash eye with clean, cool water for at least 5 minutes.**
- **If electrolyte is ingested, drink large quantities of water or milk! DO NOT induce vomiting. Get prompt medical attention.**

W-2065

Maintaining Battery Charge Level

All batteries will self-discharge over time. This machine has features that require battery power even when the machine is not being used. Use of a quality battery maintainer is highly recommended to ensure that your machine is ready to start when you need it and avoid costly battery replacement.

Battery Maintainers

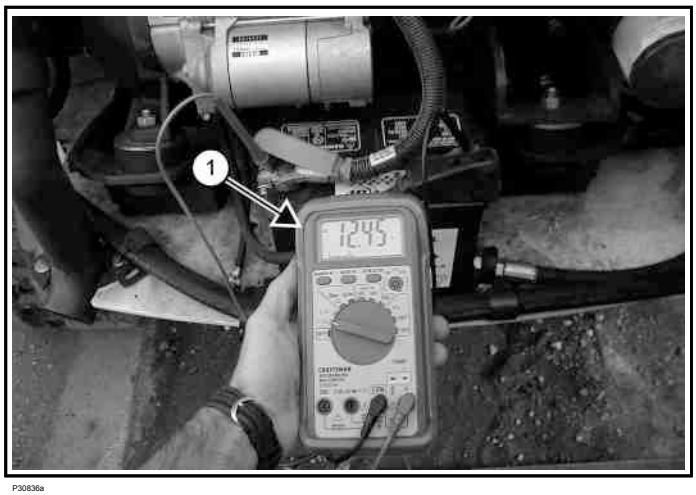
Use a good quality battery maintainer to keep the battery above 12.4 volts for machines that are not frequently used. Batteries below 12.4 volts must first be charged using a battery charger. Solar maintainers should have a minimum capacity of 10 watts to be effective.

Battery Service During Machine Storage

- Remove the battery if storing the machine for an extended period of time.
- Fully charge the battery.
- Store the battery in a cool dry place above freezing and boost charge periodically.
- If battery removal is not desired, a good quality battery maintainer must be used to compensate for battery self-discharge and parasitic loads from machine controllers, accessories, and features such as connected machine intelligence.

Testing The Battery

Figure 284



P30836a

The simplest and most common check to determine battery state of charge is to use a digital multimeter or voltmeter (Item 1) [Figure 284].

A battery found below 12.4 volts must be charged to 100% charge per the battery charger's recommendation. Allow at least 60 minutes after operating the machine or charging the battery to get an accurate reading.

If the reading is less than 12.4 volts after the battery has been charged for several hours, see your Bobcat dealer to have a more thorough battery test performed.

The freezing point of battery electrolyte is dependent on the battery state of charge. Keeping the battery voltage above 12.4 volts will help prevent batteries from freezing, even at extremely low temperatures.

If the battery freezes, the internal grid may be damaged and the case will be distorted or cracked. If this happens, dispose of the battery according to local regulations.

Battery Charging

A battery charger designed for 12 volt charging systems is recommended. Follow the battery charger manufacturer's instructions to charge the battery to 12.6 volts (100% charge). Batteries should be charged at room temperature to avoid an undercharge or overcharge condition. Never attempt to charge a frozen battery.

The following table can be used to identify the approximate amount of time required to charge a discharged battery. Allow at least 60 minutes after operating the machine or charging the battery to get an accurate reading.

Battery Voltage	State of Charge	Charger Maximum Rate		
		30 Amps	20 Amps	10 Amps
12.6 V	100%	Ready to Use		
12.4 V	75%	0.9 hr	1.3 hr	2.5 hr
12.2 V	50%	1.9 hr	2.7 hr	5.1 hr
12.0 V	25%	2.9 hr	4.3 hr	7.8 hr
11.8 V	0%	4.0 hr	5.7 hr	10.7 hr

NOTE: Use a good quality charger to avoid battery damage from overcharging.

⚠ WARNING

EXPLOSION HAZARD
Battery gas can explode and cause serious injury or death.

- **Keep arcs, sparks, flames and lighted tobacco away from batteries. When jumping from booster battery make final connection (negative) at machine frame.**
- **Do not jump start or charge a frozen or damaged battery. Warm battery to 16°C (60°F) before connecting to a charger. Unplug charger before connecting or disconnecting cables to a battery. Never lean over battery while boosting, testing or charging.**

W-2066

Using A Booster Battery (Jump Starting)

If the engine will not start without using a booster battery, BE CAREFUL! There must be one person in the operator's seat and one person to connect and disconnect the battery cables.

The key switch must be in the Stop position. The booster battery must be 12 volt.

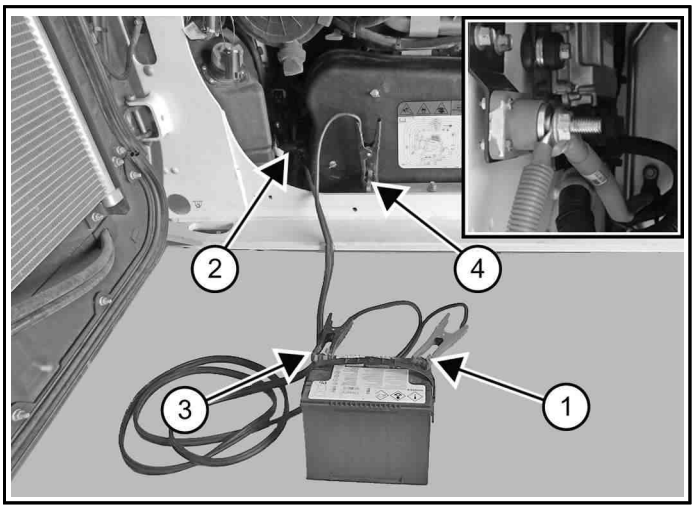
⚠ WARNING

EXPLOSION HAZARD
Battery gas can explode and cause serious injury or death.
- **Keep arcs, sparks, flames and lighted tobacco away from batteries. When jumping from booster battery make final connection (negative) at machine frame.**
- **Do not jump start or charge a frozen or damaged battery. Warm battery to 16°C (60°F) before connecting to a charger. Unplug charger before connecting or disconnecting cables to a battery. Never lean over battery while boosting, testing or charging.**

W-2066

1. Stop the engine.
2. Open the rear door.

Figure 285



C216712A

3. Connect the end of the first cable (Item 1) [Figure 285] to the positive (+) terminal of the booster battery.
4. Connect the other end of the same cable (Item 2) to the positive (+) terminal (Inset) [Figure 285] on the machine frame.
5. Connect the end of the second cable (Item 3) [Figure 285] to the negative (-) terminal of the booster battery.
6. Connect the other end of the same cable (Item 4) [Figure 285] to the engine mount.
7. Keep cables away from moving parts. Start the engine. (See Starting Engine on Page 104)
8. After the engine has started, remove the negative (-) cable (Item 4) [Figure 285] first.
9. Remove the cable from the positive (+) terminal (Item 2) [Figure 285].
10. Remove the cables from the booster battery.
11. Close the rear door.

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Damage to the alternator can occur
Do not operate machine if:
- **Engine is operated with battery cables disconnected.**
- **Battery cables are connected when using a fast charger or when welding on the machine. Remove both cables from the battery.**
- **Extra battery cables (booster cables) are connected wrong.**

I-2023

Replacing Battery

⚠ WARNING

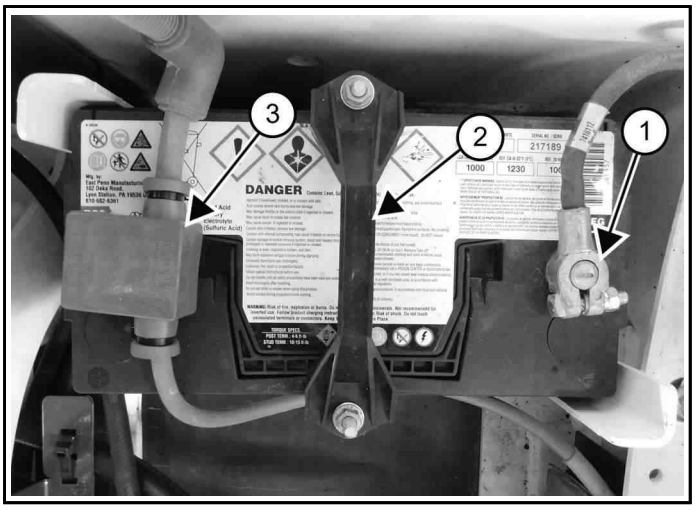
CHEMICAL HAZARD
Contact with or ingestion of battery acid can cause serious injury or death.
- **Batteries contain acid that burns eyes and skin on contact. Wear safety goggles, protective clothing, and rubber gloves to keep acid off body.**
- **In case of acid contact, wash immediately with water. In case of eye contact, get prompt medical attention and wash eye with clean, cool water for at least 5 minutes.**
- **If electrolyte is ingested, drink large quantities of water or milk! DO NOT induce vomiting. Get prompt medical attention.**

W-2065

1. Stop the engine.
2. Raise the operator cab.

   Do not touch any metal parts with the battery terminals.

Figure 286

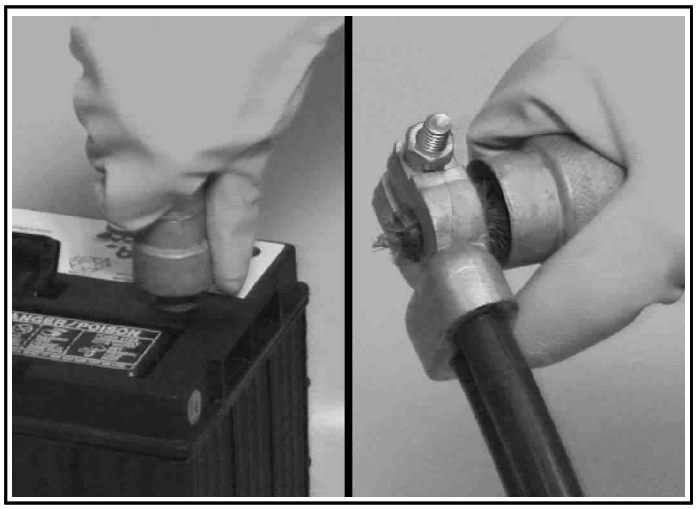


C216713A

3. Disconnect the negative (-) cable (Item 1) [Figure 286] from the battery.

4. Remove the battery hold-down clamp (Item 2) [Figure 286].
5. Disconnect the positive (+) cable (Item 3) [Figure 286] from the battery.
6. Remove the battery from the machine.

Figure 287



P200188

7. Always clean the battery terminals and cable ends when installing a new or used battery [Figure 287].

   Do not touch any metal parts with the battery terminals.
8. Connect the negative (-) cable last to prevent sparks.
9. Connect and tighten the battery cables.
10. Install and tighten the battery hold-down clamp.
11. Put Bobcat Battery Saver or grease on the battery terminals and cable ends to prevent corrosion.
12. Lower the operator cab.

⚠ WARNING

EXPLOSION HAZARD
Battery gas can explode and cause serious injury or death.
- **Keep arcs, sparks, flames and lighted tobacco away from batteries. When jumping from booster battery make final connection (negative) at machine frame.**
- **Do not jump start or charge a frozen or damaged battery. Warm battery to 16°C (60°F) before connecting to a charger. Unplug charger before connecting or disconnecting cables to a battery. Never lean over battery while boosting, testing or charging.**

W-2066

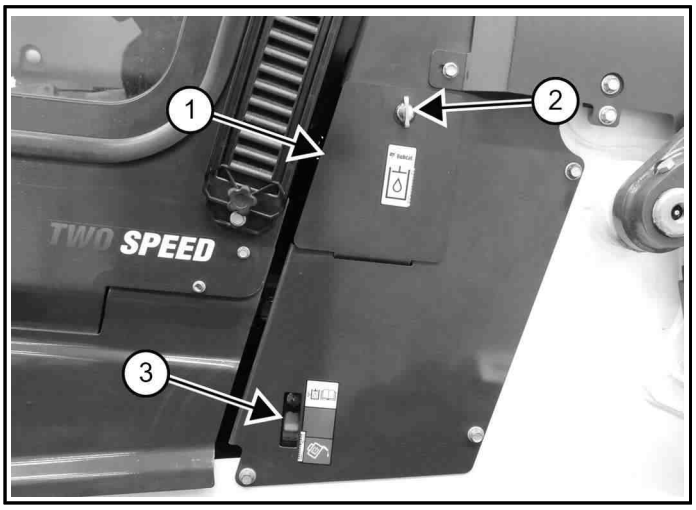
HYDRAULIC SYSTEM

Checking And Adding Hydraulic Fluid

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

1. Park the machine on a level surface.
2. Lower the lift arms.
3. Put the attachment flat on the ground or tilt the Bob-Tach fully back if no attachment is installed.
4. Stop the engine.

Figure 288

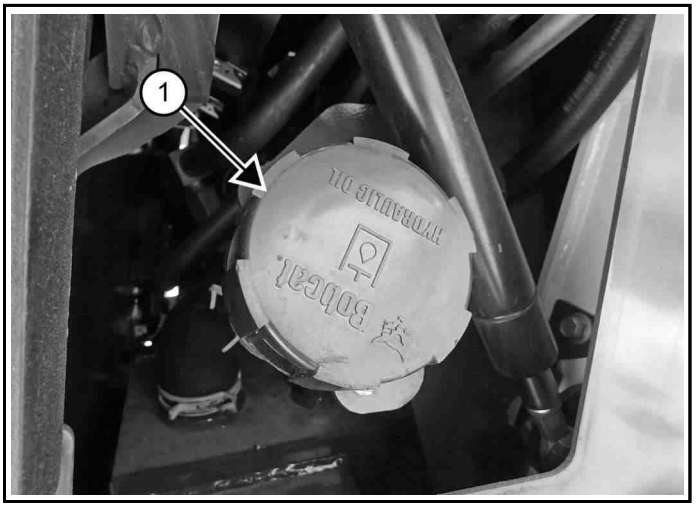


C216696B

5. Check the hydraulic fluid level in the sight gauge (Item 3) [Figure 288] on the left side of the machine. Keep the fluid level within the operating range.

   The hydraulic fluid fill (Item 1) [Figure 288] is located on the left side of the machine.
6. Loosen the fastener (Item 2) [Figure 288].
7. Allow the hydraulic fill cover (Item 1) [Figure 288] to rotate down.

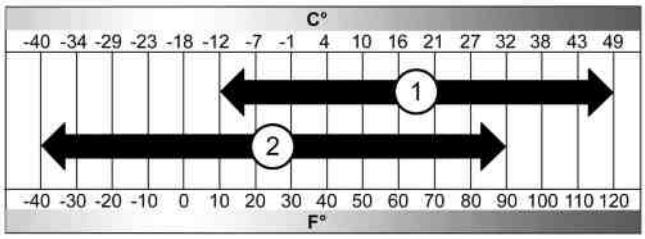
Figure 289



C216714A

8. Remove the hydraulic fill cap (Item 1) [Figure 289].
9. Add fluid as needed to bring the level within the operating range in the sight gauge [Figure 288].
10. Install the fill cap [Figure 289].
11. Rotate the fill cover closed [Figure 288].
12. Tighten the fastener [Figure 288].

Hydraulic Fluid Chart

HYDRAULIC FLUID
Recommended Hydraulic Fluids
 NA20991B
Refer to the temperature range anticipated before next fluid change.
[1] Bobcat VG68 or ISO VG 68 HVLP fluid with minimum VI 160
[2] Bobcat Superior SH Hydraulic / Hydrostatic or ISO VG 46 HVLP fluid with minimum VI 155

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Failure to follow directions can result in machine damage.
Starting the engine when the temperature of the hydraulic fluid is less than – 29°C (-20°F) will result in significant damage to the hydraulic system and components.
Park the machine in a heated location or provide some means of warming the hydraulic fluid prior to starting the engine if the ambient temperature at startup is expected to be -29°C (-20°F) or below◂

I-2403

Replacing Hydraulic Fluid

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

NOTE: This procedure requires the use of a spare 22 mm (7/8 in) rubber hose approximately 900 mm (36 in) long.

Always replace the fluid if contaminated or after a major repair.

Always replace the hydraulic filters whenever the hydraulic fluid is replaced.

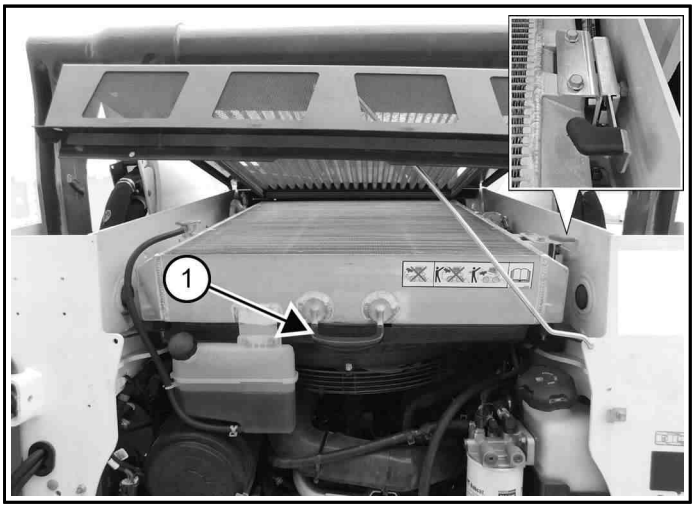
1. Stop the engine.
2. Open the rear door.
3. Raise the rear grille.
(See Raising Rear Grille on Page 141)

⚠ WARNING

CUTTING AND BURN HAZARD
Keep away from the operating machine.
- **Keep away from fan and moving parts. Do not operate with guard removed.**
- **Do not touch hot surfaces. Allow to cool before servicing.◂**

W-2521

Figure 290



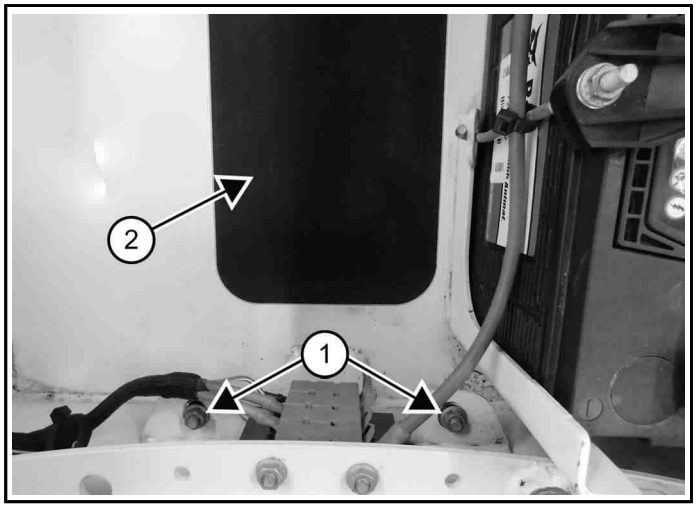
C216715A

4. Press the release lever (Inset) [Figure 290] down.
5. Raise the radiator cooling package using the handle (Item 1) [Figure 290].

   NOTE: Do not start the engine, add coolant, or add hydraulic fluid while the radiator cooling package is raised.

6. Raise the operator cab.

Figure 291



C216716A

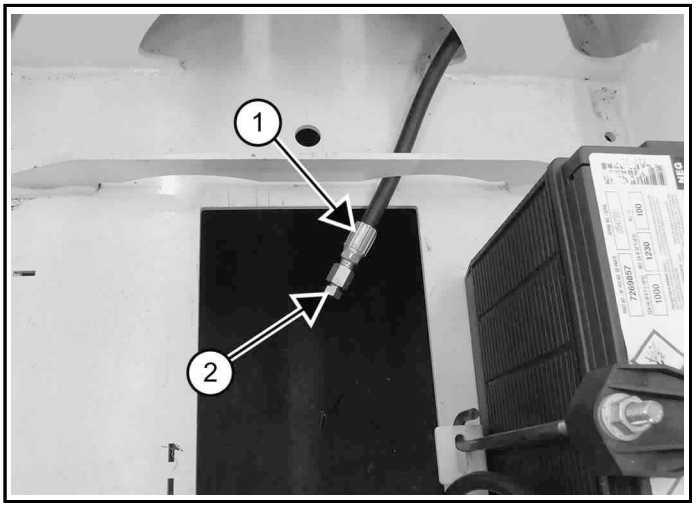
7. Remove two bolts and nuts (Item 1) [Figure 291].
8. Slide the access cover (Item 2) [Figure 291] forward.

   The hydraulic fluid drain hose is stored below the front edge of the hydraulic fluid reservoir [Figure 292].

Figure 292

C200324

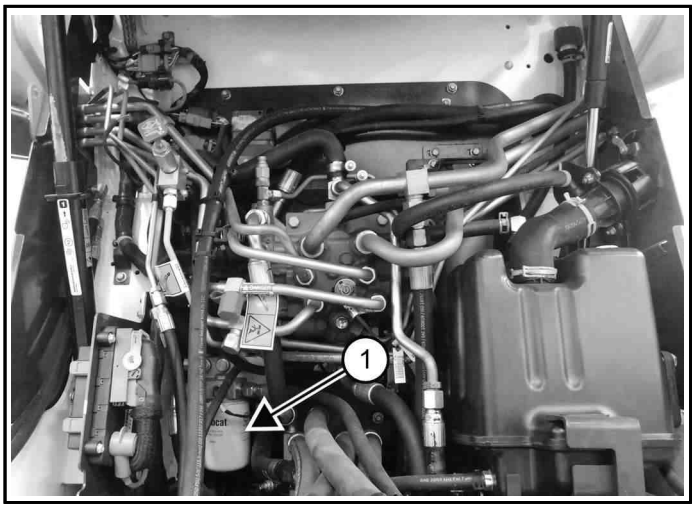
Figure 293



P200411A

9. Route the hydraulic fluid drain hose (Item 1) [Figure 293] through the access cover opening.
10. Remove the plug (Item 2) [Figure 293] from the drain hose and drain the fluid into a container.
11. Remove the hydraulic fill cap to drain the fluid faster.
12. Install the plug into the drain hose when the fluid stops draining and tighten.
13. Coil the hydraulic fluid drain hose and fasten in the storage location to prevent damage [Figure 292].

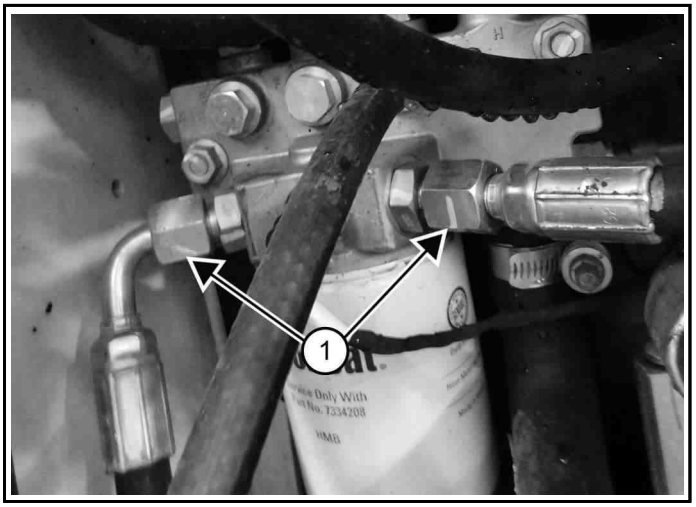
Figure 294



C216717A

14. Locate the case drain manifold above the case drain filter (Item 1) [Figure 294].
15. Route the spare 22 mm (7/8 in) rubber hose through the access cover opening.

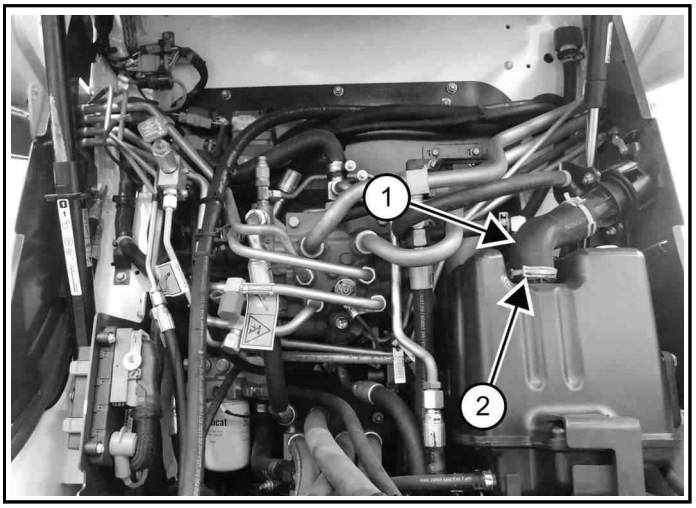
Figure 295



C216718A

16. Remove either hose (Item 1) [Figure 295] from the case drain manifold.
17. Quickly install the spare 22 mm (7/8 in) rubber hose onto the case drain manifold fitting.
18. Drain the fluid into a container.
19. Remove the spare hose when the fluid has drained.
20. Install the hose onto the case drain manifold fitting and tighten [Figure 295].
21. Slide the access cover closed [Figure 291].
22. Install the access cover bolts and nuts [Figure 291].
23. Recycle or dispose of used fluid in an environmentally safe manner.

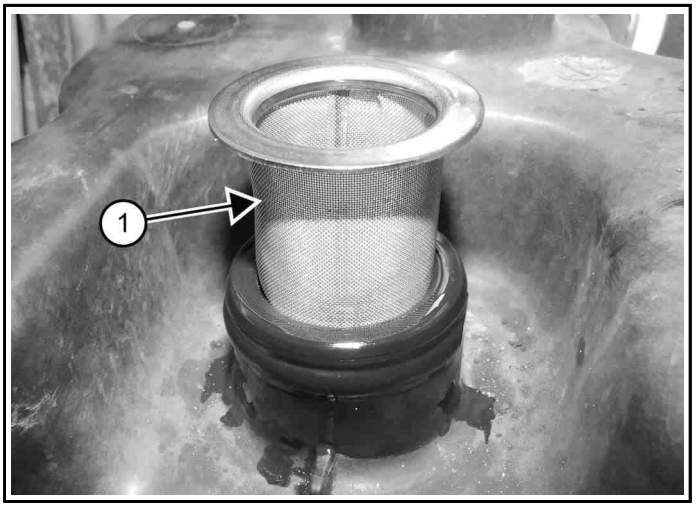
Figure 296



C216717B

24. Loosen the clamp (Item 2) [Figure 296].
25. Remove the hose (Item 1) [Figure 296] from the hydraulic reservoir.

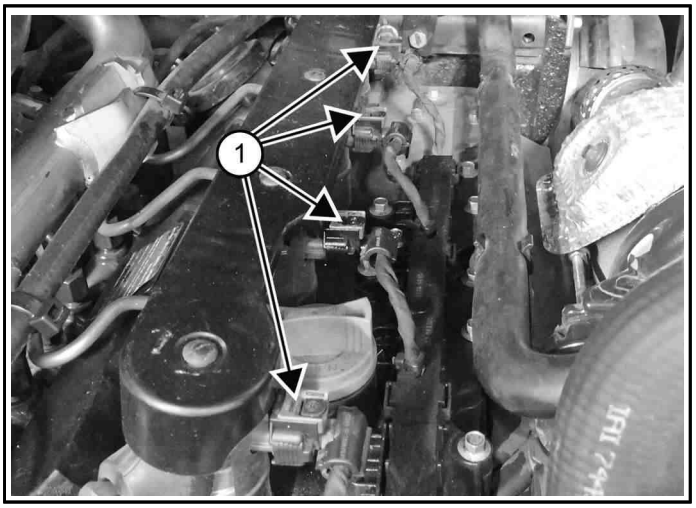
Figure 297



C216719A

26. Remove and clean the hydraulic fill screen (Item 1) [Figure 297]. Use low air pressure to dry the screen.
27. Install hydraulic fill screen [Figure 297].
28. Install the hose and clamp onto the hydraulic reservoir [Figure 296].
29. Completely fill the hydraulic reservoir with hydraulic fluid. (See Loader Specifications on Page 218)
30. Install the hydraulic fill cap.
31. Lower the operator cab.

Figure 298



C216720A

32. Disconnect four fuel injector electrical connectors (Item 1) [Figure 298] on top of the engine.
33. Lower the radiator cooling package using the handle until it locks into place [Figure 290].
34. Lower the rear grille.
(See Lowering Rear Grille on Page 142)

35. Close the rear door.
36. Run the engine starter for 5 to 10 seconds. Do not allow the reservoir to empty during this step.
37. Press the stop button or turn the key switch to the stop position.
38. Add hydraulic fluid to the reservoir until the fluid level is within the operating range of the sight gauge. (See Checking And Adding Hydraulic Fluid on Page 167)
39. Connect the four fuel injector electrical connectors [Figure 298].
40. Start the engine and operate the loader hydraulic controls.
41. Stop the engine.

⚠ WARNING

INJECTION HAZARD
Pressurised diesel fuel or hydraulic fluid can penetrate skin and 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 doctor familiar with this injury.
W-2072

42. Check for leaks.
43. Check the fluid level in the reservoir and add as needed. (See Checking And Adding Hydraulic Fluid on Page 167)

⚠ WARNING

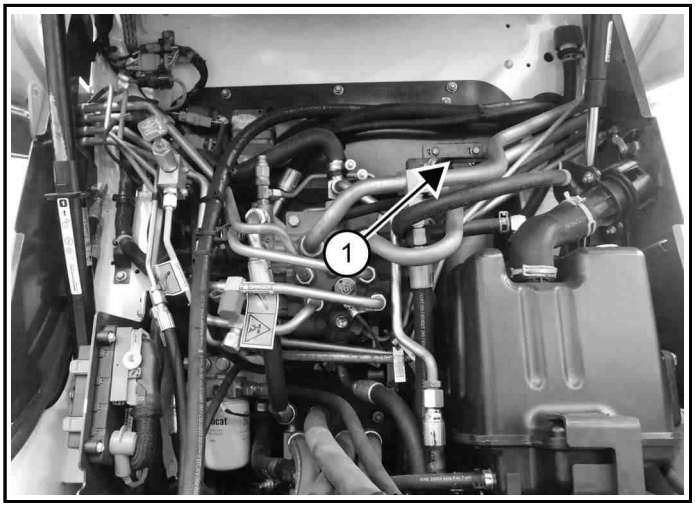
FIRE AND EXPLOSION HAZARD
Failure to use care around combustibles can cause serious injury or death.
Always clean up spilled flammable fluids or oil. Keep heat, flames, sparks or lighted tobacco away from flammable fluids and oil.
W-2103

Replacing Main Hydraulic Filter

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

1. Stop the engine.
2. Raise the operator cab.

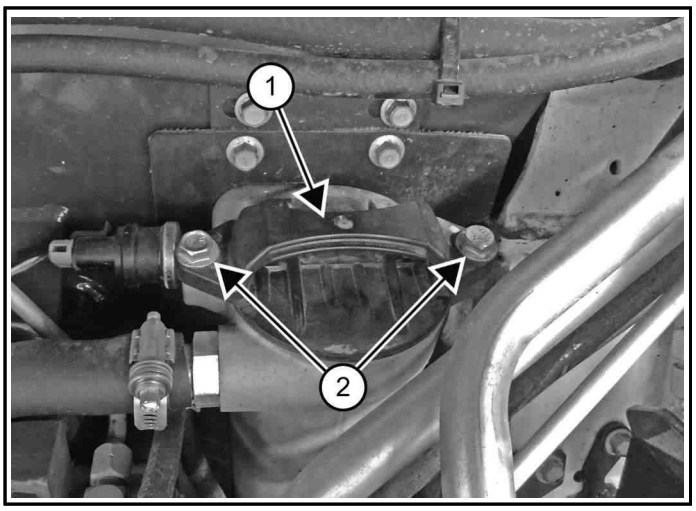
Figure 299



C216717C

3. Clean the top of the filter housing (Item 1) [Figure 299].

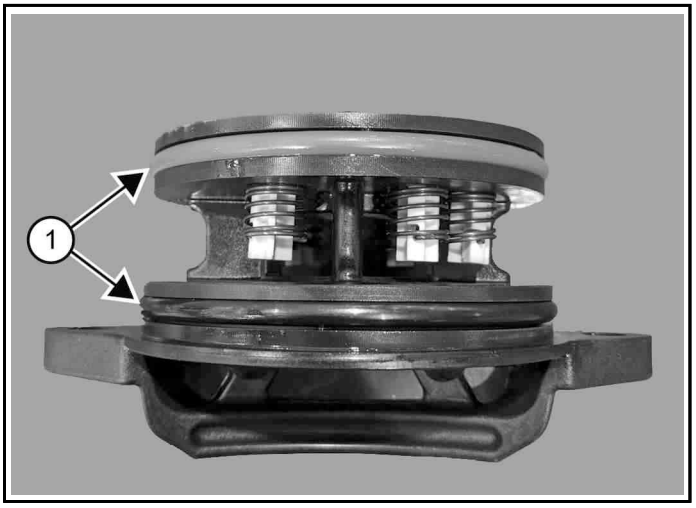
Figure 300



C216721A

4. Remove the bolts (Item 2) and rotate the filter cap (Item 1) [Figure 300] slightly.
5. Slowly pry the filter cap off the housing by hand.
6. Remove the filter element and discard.

Figure 301

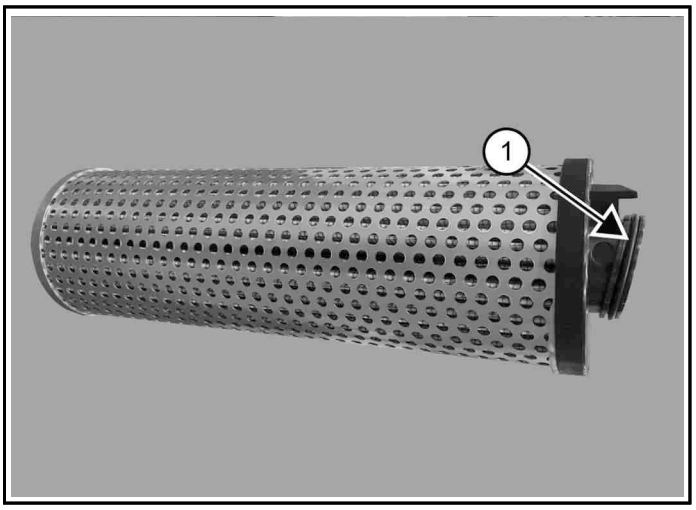


P200417A

7. Remove the filter cap O-rings (Item 1) [Figure 301] and discard.
8. Install new filter cap O-rings and lubricate with clean oil.

   NOTE: The filter cap O-rings are not the same size. Take care to install each O-ring in the correct location.

Figure 302



P200418A

9. Lubricate the O-ring (Item 1) [Figure 302] on new filter element with clean oil.
10. Install new filter element into the filter cap ensuring that element is fully seated in the cap.
11. Install the filter cap and filter element assembly into the housing.
12. Install the bolts [Figure 300]. Alternate tightening the bolts to draw the cap down evenly.

    Tighten the bolts to 27 – 41 N•m (20 – 30 ft-lb) torque.

⚠ WARNING

FIRE AND EXPLOSION HAZARD
Failure to use care around combustibles can cause serious injury or death.
Always clean up spilled flammable fluids or oil. Keep heat, flames, sparks or lighted tobacco away from flammable fluids and oil.
W-2103

13. Lower the operator cab.
14. Start the engine and operate the loader hydraulic controls.
15. Stop the engine.

⚠ WARNING

INJECTION HAZARD
Pressurised diesel fuel or hydraulic fluid can penetrate skin and 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 doctor familiar with this injury.
W-2072

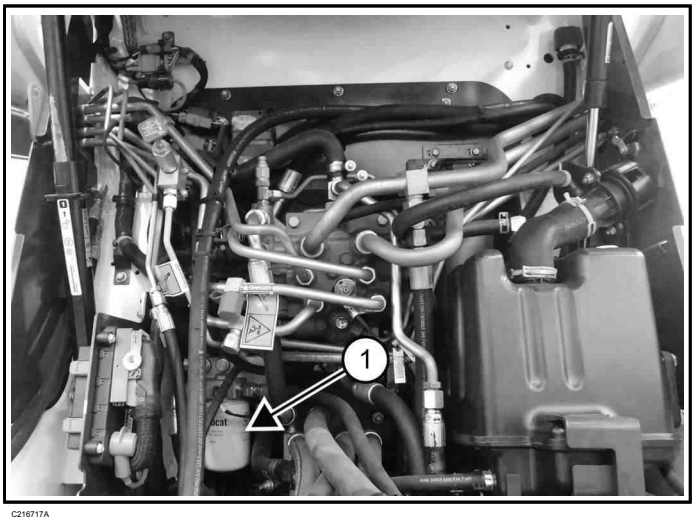
16. Check for leaks at the filter.
17. Check the fluid level in the reservoir and add as needed.
    (See Checking And Adding Hydraulic Fluid on Page 167)

Replacing Hydraulic Case Drain Filter

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

1. Stop the engine.
2. Raise the operator cab.

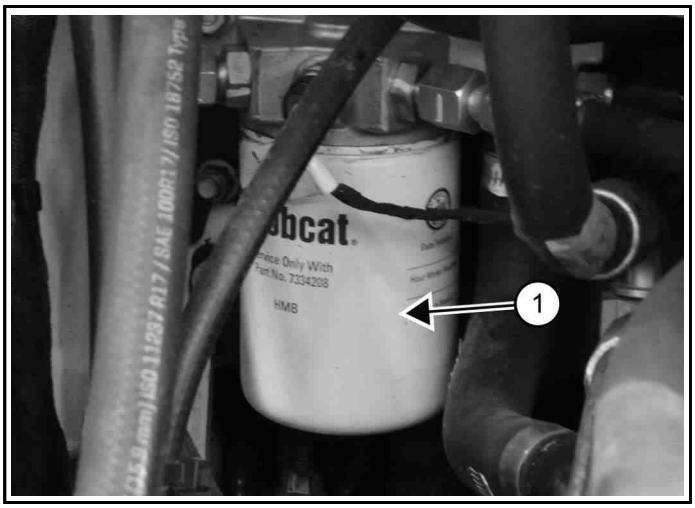
Figure 303



C216717A

3. Locate the filter (Item 1) [Figure 303].

Figure 304



C216722A

4. Put a suitable container below the filter, remove the filter (Item 1) [Figure 304] and discard.
5. Clean the filter base.
6. Put clean oil on the new filter gasket.
7. Install the new filter.

   Tighten to 18 – 23 N•m (13 – 17 ft-lb) torque or 3/4 turn after filter gasket contacts filter base.
8. Recycle or dispose of used fluid in an environmentally safe manner.

⚠ WARNING

FIRE AND EXPLOSION HAZARD
Failure to use care around combustibles can cause serious injury or death.
Always clean up spilled flammable fluids or oil. Keep heat, flames, sparks or lighted tobacco away from flammable fluids and oil.

W-2103

9. Lower the operator cab.
10. Start the engine and operate the loader hydraulic controls.
11. Stop the engine.

⚠ WARNING

INJECTION HAZARD
Pressurised diesel fuel or hydraulic fluid can penetrate skin and 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 doctor familiar with this injury.

W-2072

12. Check for leaks at the filter.
13. Check the fluid level in the reservoir and add as needed.
    (See Checking And Adding Hydraulic Fluid on Page 167)

Replacing Hydraulic Charge Filter

See the service schedule for the correct service interval.
(See Service Schedule on Page 124)

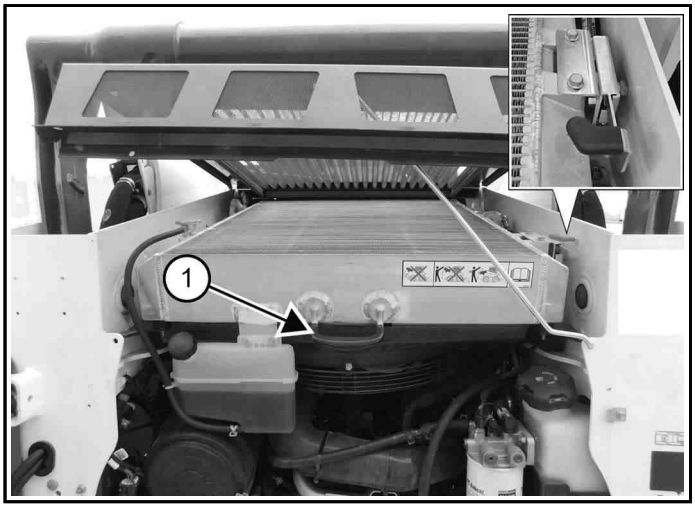
1. Stop the engine.
2. Open the rear door.
3. Raise the rear grille.
   (See Raising Rear Grille on Page 141)

⚠ WARNING

CUTTING AND BURN HAZARD
Keep away from the operating machine.
- **Keep away from fan and moving parts. Do not operate with guard removed.**
- **Do not touch hot surfaces. Allow to cool before servicing.**

W-2521

Figure 305



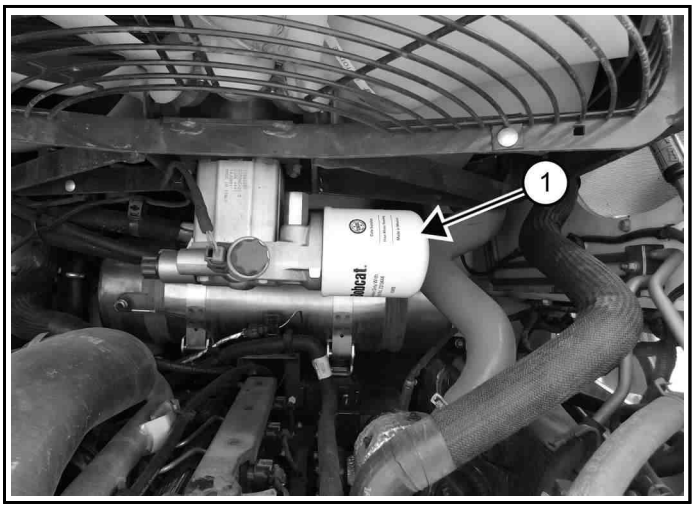
C216715A

4. Press the release lever (Inset) [Figure 305] down.

5. Raise the radiator cooling package using the handle (Item 1) [Figure 305].

   NOTE: Do not start the engine, add coolant, or add hydraulic fluid while the radiator cooling package is raised.

Figure 306



C216723A

6. Put a suitable container below the filter, remove the filter (Item 1) [Figure 306] and discard.
7. Clean the filter base.
8. Put clean oil on the new filter gasket.
9. Install the new filter.

   Tighten to 37 – 45 N•m (27 – 33 ft-lb) torque or 1/2 turn after filter gasket contacts filter base.

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

⚠ WARNING

FIRE AND EXPLOSION HAZARD
Failure to use care around combustibles can cause serious injury or death.
Always clean up spilled flammable fluids or oil. Keep heat, flames, sparks or lighted tobacco away from flammable fluids and oil.

W-2103

11. Lower the radiator cooling package using the handle until it locks into place [Figure 305].
12. Lower the rear grille.
    (See Lowering Rear Grille on Page 142)
13. Close the rear door.
14. Start the engine and operate the loader hydraulic controls.
15. Stop the engine.

⚠ WARNING

INJECTION HAZARD
Pressurised diesel fuel or hydraulic fluid can penetrate skin and 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 doctor familiar with this injury.

W-2072

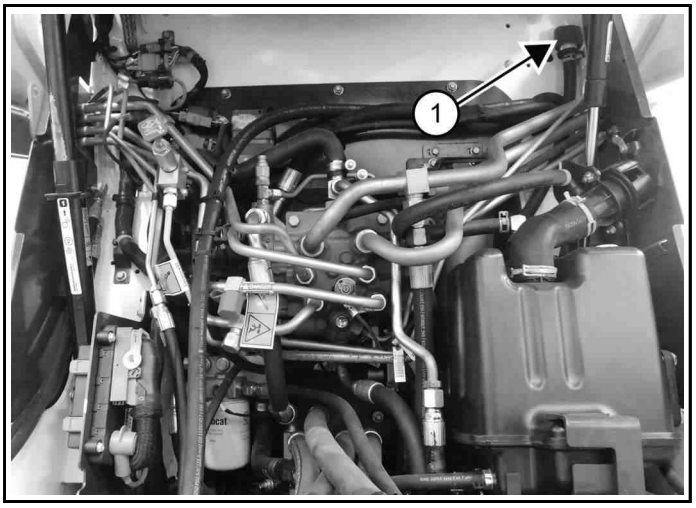
16. Check for leaks at the filter.
17. Check the fluid level in the reservoir and add as needed.
    (See Checking And Adding Hydraulic Fluid on Page 167)

Replacing Hydraulic Reservoir Vent Filter

See the service schedule for the correct service interval.
(See Service Schedule on Page 124)

1. Stop the engine.
2. Raise the operator cab.

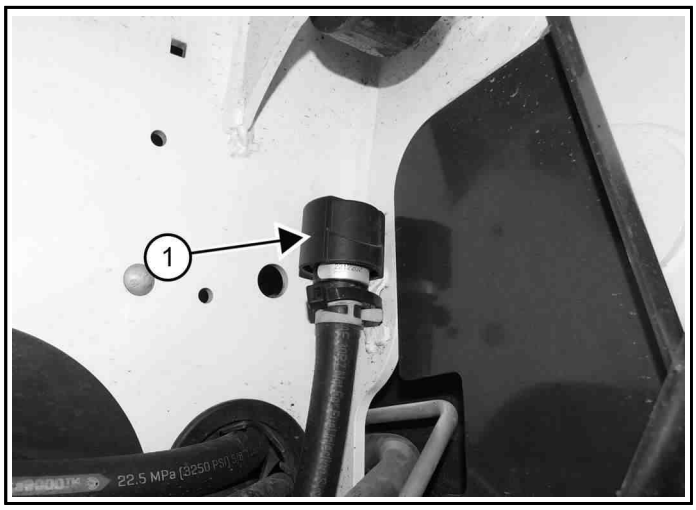
Figure 307



C216717D

3. Locate the vent filter (Item 1) [Figure 307].

Figure 308



C216724A

4. Remove the vent filter (Item 1) [Figure 308] and discard.
5. Install new vent filter.
6. Lower the operator cab.

DIESEL PARTICULATE FILTER (DPF) SYSTEM

DPF Service Description

The engine exhaust system is equipped with a diesel particulate filter (DPF). The DPF is an emissions reduction device that removes diesel particulate matter (soot) from the exhaust gases of the diesel engine. The DPF will trap and collect the soot until it is burned off. The process of burning off the collected soot is called regeneration.

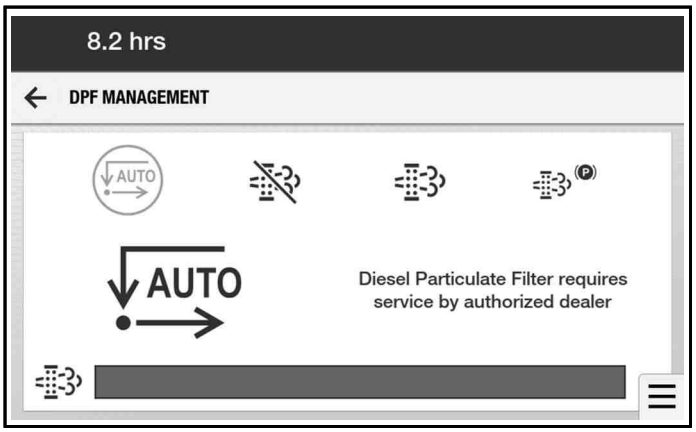
A service regeneration cycle may be required if too much soot is allowed to accumulate in the DPF. This can occur in the following situations:

- The machine is often operated for brief periods (less than 30 minutes) that do not allow sufficient time for the DPF to complete an automatic or operator activated forced regeneration cycle.
- The inhibit mode is used for an extended period of time. This will inhibit the DPF from actively regenerating and burning off the collected soot.

Ash residue will remain after the regeneration process is complete. The ash must be periodically removed from the DPF.

DPF Service Regeneration

Figure 309



NA3858

The machine will alert the operator when DPF service is required [Figure 309].

Service code “P24A3” “Very High DPF Soot Mass - Service Regen Required” will be accompanied by a severe torque reduction.

Service regeneration requires the use of specialised equipment. See your Bobcat dealer for service regeneration.

DPF Cleaning

Contact your Bobcat dealer to arrange the cleaning of the DPF when indicated.

Service code “P242F” “High DPF Ash Content - Ash Cleaning Needed” will show in the display screen when DPF cleaning is necessary.

The DPF is a critical component of the engine exhaust system and must be properly maintained. Specialised equipment is required to clean the ash from the DPF. See your Bobcat dealer for DPF cleaning.

TRACK TENSION

Checking Track Tension

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

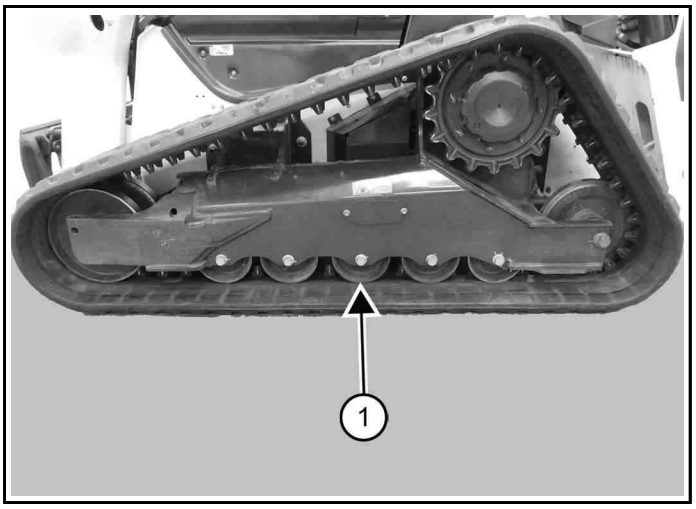
Correct track tension is important for good performance and to prevent the tracks from derailing or wearing prematurely.

NOTE: The wear of track rollers vary with the working conditions and different types of soil conditions.

1. Park the machine on a level surface.
2. Raise one side of the machine and put jackstands at the front and rear of the machine frame so that the track is about 76 mm (3 in) off the ground.
3. Lower the machine to the jackstands.

   Be sure the jackstands do not touch the tracks.

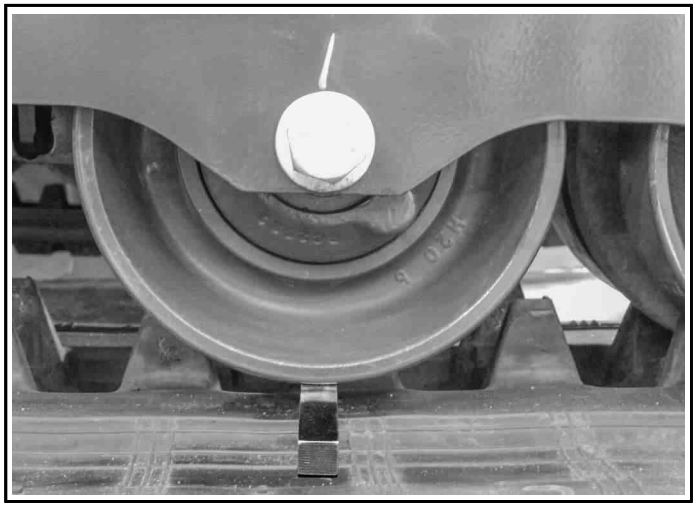
Figure 310



C216727A

4. Measure the track sag at the middle track roller (Item 1) [Figure 310].

Figure 311



C200683

5. DO NOT put your fingers into the pinch points between the track and the roller. Use a 12,7 – 16 mm (1/2 – 5/8 in) bolt, dowel, or block to check the gap [Figure 311].

⚠ WARNING

PINCHING HAZARD
Keep finger and hands out of pinch points when checking the track tension.
W-2142

6. Adjust track tension if necessary.
(See Increasing Track Tension on Page 177)
(See Decreasing Track Tension on Page 178)

7. Raise the machine.

8. Remove the jackstands.

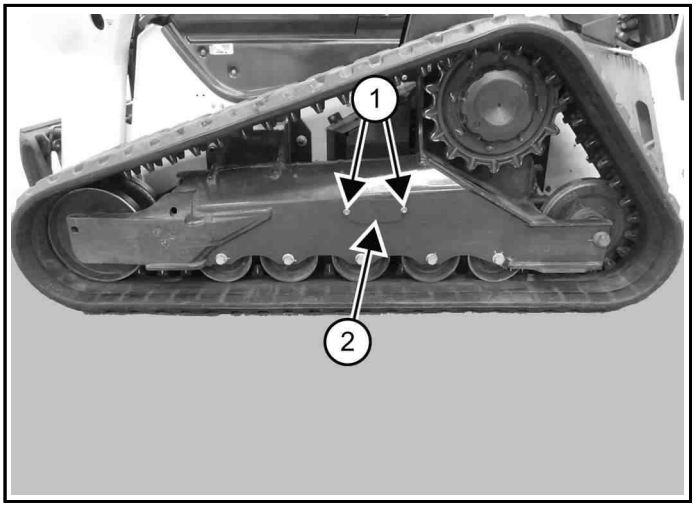
9. Lower the machine.

10. Repeat the procedure for the other track.

Increasing Track Tension

Grease must be added to the grease cylinder to increase track tension.

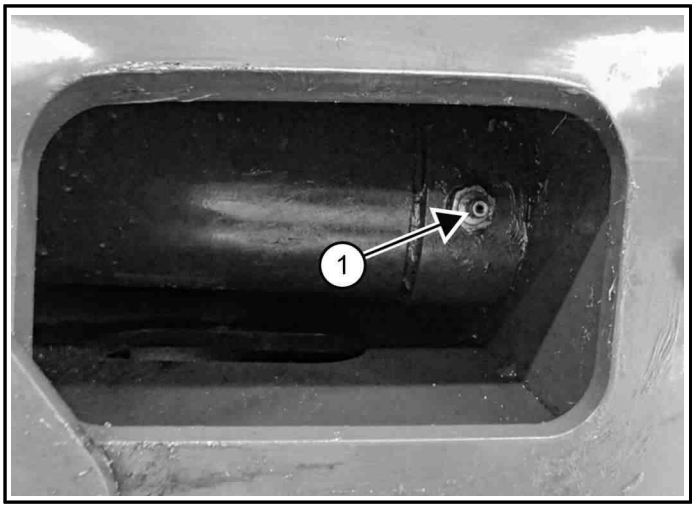
Figure 312



C216727B

1. Loosen the access cover bolts (Item 1) and pivot the access cover (Item 2) [Figure 312] open.

Figure 313



C200684A

2. Add grease to the track tension fitting (Item 1) [Figure 313] until the track adjustment is correct.
(See Checking Track Tension on Page 176)

3. Repeat the procedure for the other track if necessary.

NOTE: Use caution if using a pneumatic grease gun because high pressure can damage the grease fitting. Connect the pneumatic grease gun to a regulated air supply set at the lowest setting and slowly increase the air pressure until the grease fitting starts taking grease.

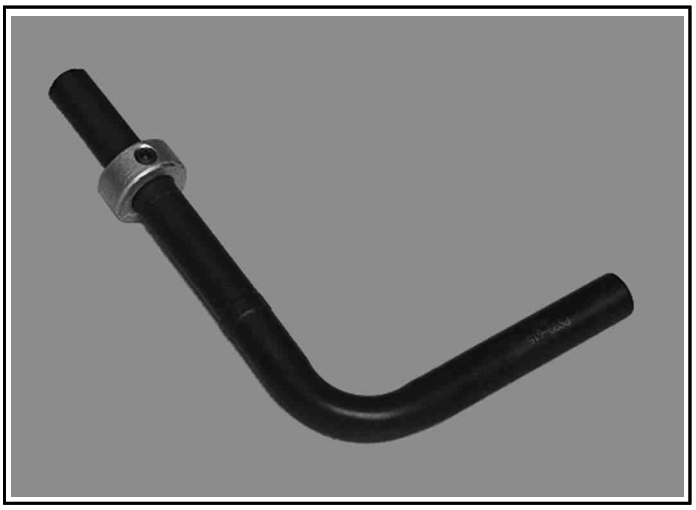
NOTE: Do not remove track tension fitting unless pressure is released.
(See Decreasing Track Tension on Page 178)

NOTE: If replacement is necessary, always replace track tension fitting (Item 1) [Figure 313] with genuine Bobcat Parts. The fitting is a special fitting designed for high pressure.

Decreasing Track Tension

Pressure must be released from the grease cylinder to decrease track tension.

Figure 314



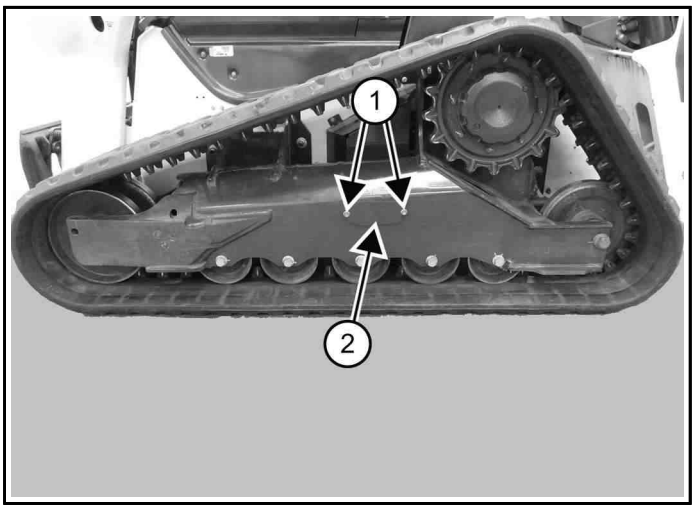
P107800

A bleed tool [Figure 314] is available and recommended to decrease track tension. The bleed tool will direct the flow of grease to aid in cleanup. See your Bobcat dealer to order bleed tool part number 7277225.

⚠ WARNING

INJECTION HAZARD
High pressure grease can penetrate skin and eyes, causing serious injury.
Do not loosen the track tension fitting more than 1 - 1/2 turns.
W-2594

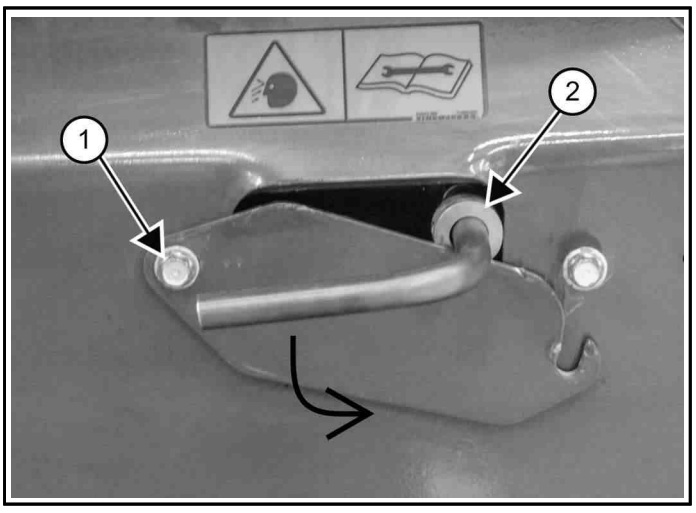
Figure 315



C216727B

1. Loosen the access cover bolts (Item 1) and pivot the access cover (Item 2) [Figure 315] open.

Figure 316



C200685A

2. Install the bleed tool on the track tension fitting [Figure 316].
3. Adjust and tighten the collar (Item 2) [Figure 316] to fit behind the edge of the access cover.
4. Tighten the access cover bolt (Item 1) [Figure 316] to secure the tool.
5. Turn the tool 90° anticlockwise and let the grease flow into a container. Release pressure until the track adjustment is correct.
(See Checking Track Tension on Page 176)
6. Tighten the track tension fitting to 24 – 30 N•m (18 – 22 ft-lb) torque.
7. Pivot the access cover closed and tighten the access cover bolts [Figure 315].

8. Dispose of grease in an environmentally safe manner.

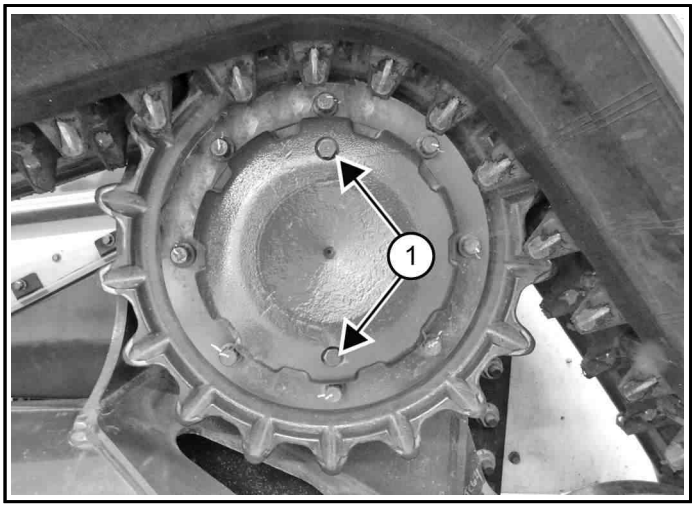
9. Repeat the procedure for the other track if necessary.

HYDROSTATIC DRIVE MOTOR

Replacing Brake Cavity Fluid

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

Figure 317



C216728A

1. Park the machine on a level surface so that the plugs (Item 1) [Figure 317] in the hydrostatic drive motor are at the top and the bottom.

2. Remove both plugs and let the fluid drain from the hydrostatic drive motor.

3. Install and tighten the bottom plug.

4. Add fluid through the top plug hole using the bottle and hose assembly. Allow entire contents of one bottle to drain into the drive motor.

   NOTE: The drive motors will be damaged if the wrong fluid is used. See your Bobcat dealer for the correct fluid.

5. Install and tighten the top plug.

6. Repeat for the other hydrostatic drive motor.

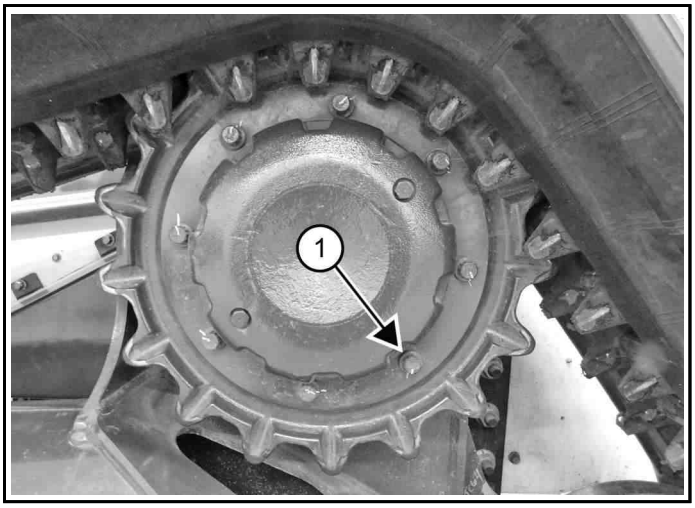
7. Recycle or dispose of the used fluid in an environmentally safe manner.

TRACK SPROCKET MAINTENANCE

Checking Track Sprocket Torque

See the service schedule for the correct service interval. (See Service Schedule on Page 124)

Figure 318



C216729A

1. Check the torque of the eight track sprocket bolts (Item 1) [Figure 318].
2. Use an alternating tightening sequence and then repeat to tighten the bolts to 285 - 310 N•m (210 - 230 ft-lb) torque.
3. Repeat for the other track sprocket.

BELT

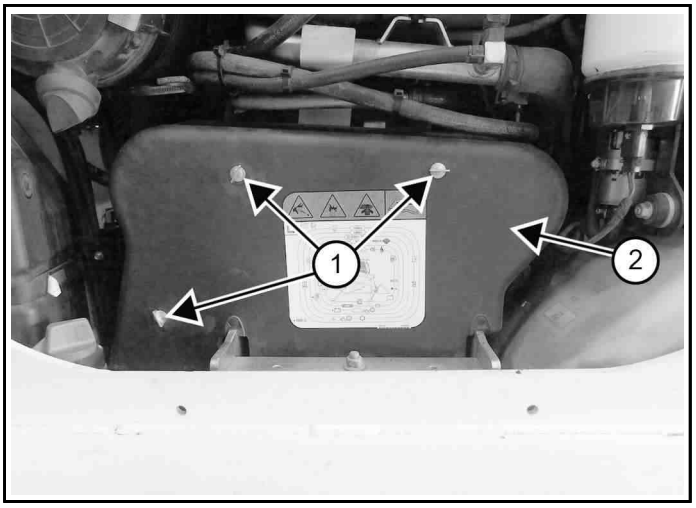
Adjusting Belt (Machines With Air Conditioning)

- The air conditioning belt has a spring loaded idler that constantly maintains the correct belt tension. This belt does not require periodic adjustment.

Replacing Belt (Machines With Air Conditioning)

1. Stop the engine.
2. Open the rear door.

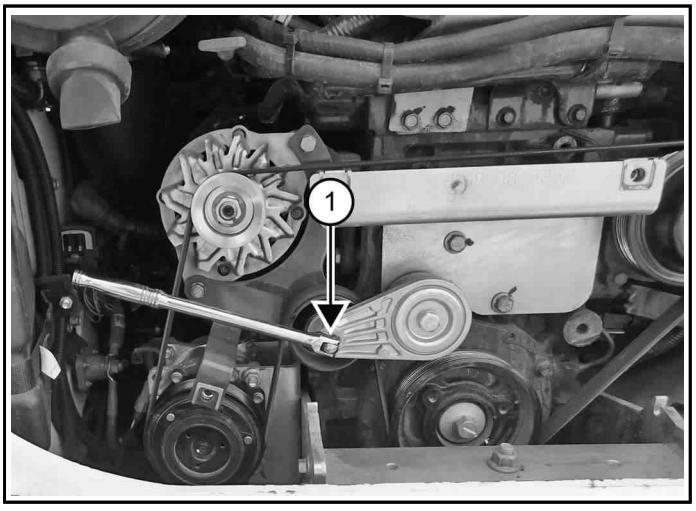
Figure 319



C216687B

3. Loosen fasteners (Item 1) and remove belt shield (Item 2) [Figure 319].

Figure 320

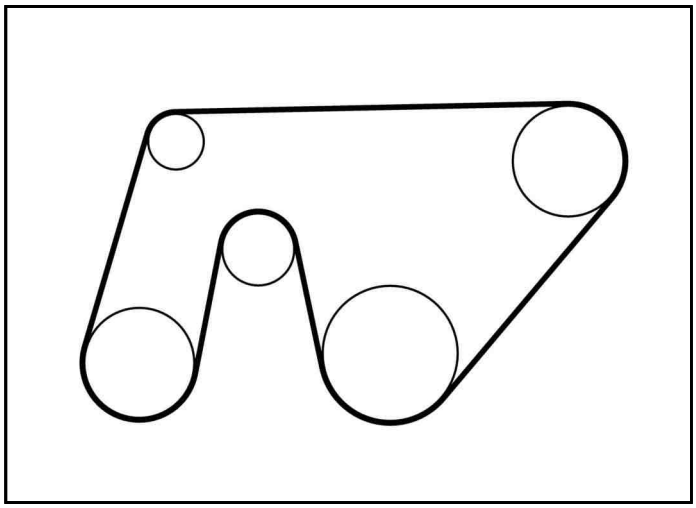


C216725A

4. Insert a breaker bar into the hole provided in the idler pulley (Item 1) [Figure 320] and push down to release belt tension.
5. Remove the belt from the pulleys.

6. Inspect the pulleys for wear.

Figure 321



NA24030

7. Install new belt around the pulleys using the routing diagram [Figure 321].
8. Allow idler pulley to tension belt and remove breaker bar.
9. Ensure the belt is fully installed on all five pulleys.
10. Install the belt shield [Figure 319].
11. Close the rear door.

AUTOMATIC RIDE CONTROL ACCUMULATOR

Checking Automatic Ride Control Accumulator Charge

The nitrogen charge in your accumulator will decrease over time. This will result in decreased effectiveness of the automatic ride control benefits.

NOTE: The signs of a low accumulator charge include: excessive lift arm movement, reduced ride control performance, or loss of ride control function.

Special tools and equipment are required to check and service the nitrogen charge in the accumulator.

⚠ WARNING

INJECTION HAZARD
Release Ride Control accumulator pressure before servicing.
- **After fully lowering the lift arms or installing an approved lift arm support, use lift arm bypass control for 5 seconds to release pressure from lift circuit before servicing.**

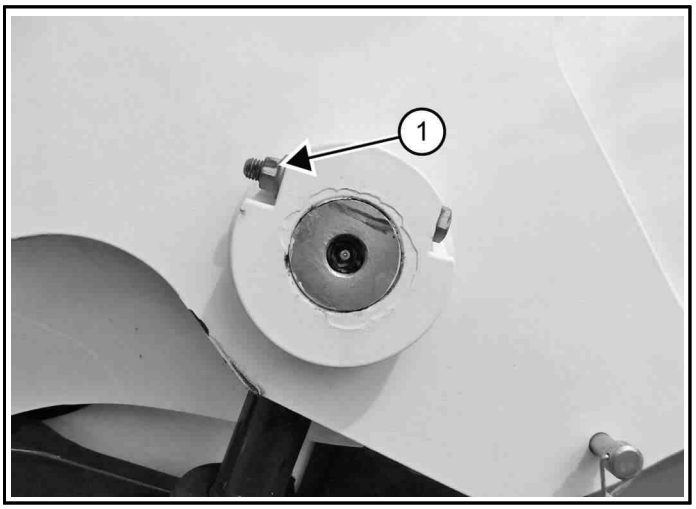
See Operation & Maintenance Manual or Service Manual for lift arm bypass control instructions.
W-3015

See your Bobcat dealer for service if you believe that your automatic ride control accumulator charge is low.

PIVOT PINS

Checking Pivot Pin Torque

Figure 322



C216726A

Some lift arm and cylinder pivots have a large pin held in position with a retainer bolt and locknut (Item 1) [Figure 322].

- Ensure that the locknuts are tightened to 18,3 – 22,4 N•m (13.5 – 16.5 ft-lb) torque.

MACHINE LUBRICATION

Lubricating Grease Fittings

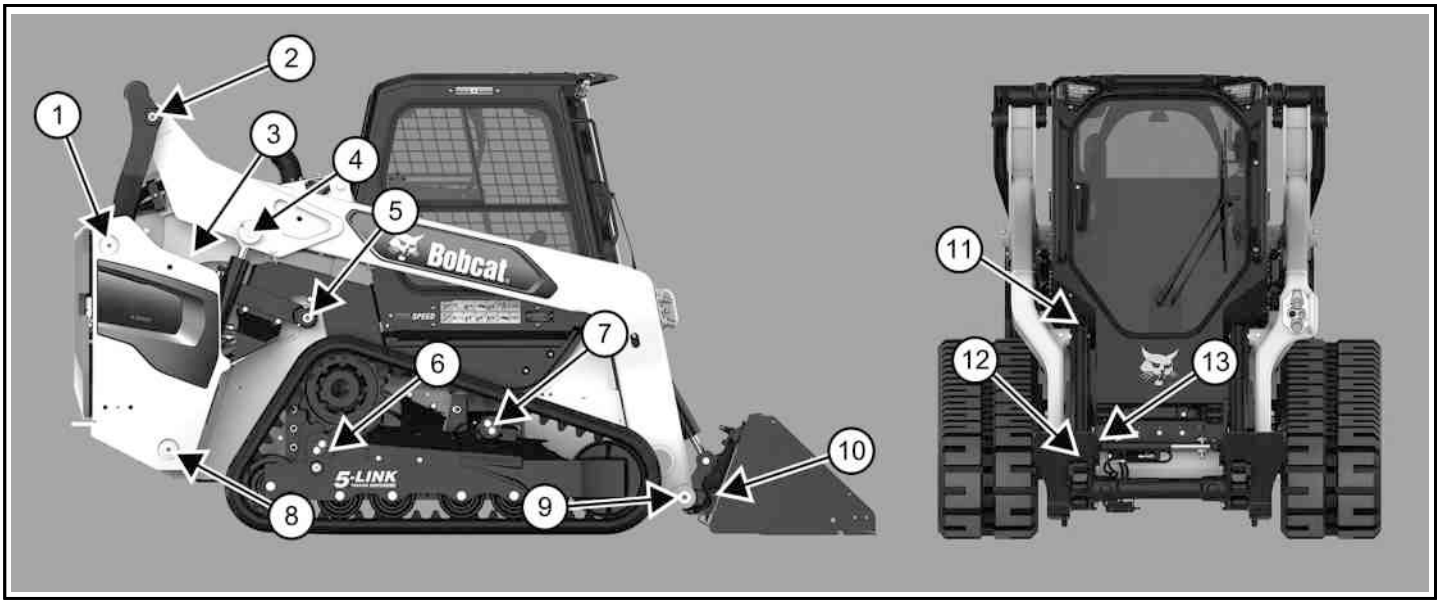
See the service schedule for the correct service interval. (See Service Schedule on Page 124)

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

Always use a good quality lithium based multipurpose grease when you lubricate the machine. Apply the lubricant until extra grease shows.

1. Remove attachment from the machine. (See Removing Attachments on Page 113)
2. Stop the engine.
3. Lubricate the following grease fittings:

Figure 323



REF	DESCRIPTION	QUANTITY
1	Lower Follower Link	1 per side
2	Upper Follower Link	1 per side
3	Rear Driver Assembly	1 per side
4	Rod End Lift Cylinder	1 per side
5	Front Driver Assembly	1 per side
6	Rear Torsion Axle Spindle (If equipped)	3 per side
7	Front Torsion Axle Spindle (If equipped)	2 per side
8	Base End Lift Cylinder	1 per side
9	Bob-Tach Pivot Pin	1 per side
10	Bob-Tach Wedge Pin	1 per side
11	Base End Tilt Cylinder	1 per side

REF	DESCRIPTION	QUANTITY
12	Rod End Tilt Cylinder	1 per side
13	Power Bob-Tach Hydraulic Cylinder (If equipped)	1 per side

BOB-TACH (POWER)

Inspecting And Maintaining Power Bob-Tach

Figure 324

C200193G

1. Push and hold the Bob-Tach wedges Up button (Item 1) [Figure 324] until wedges are fully raised.
2. Push and hold the Bob-Tach wedges Down button (Item 2) [Figure 324] until the wedges are fully down.

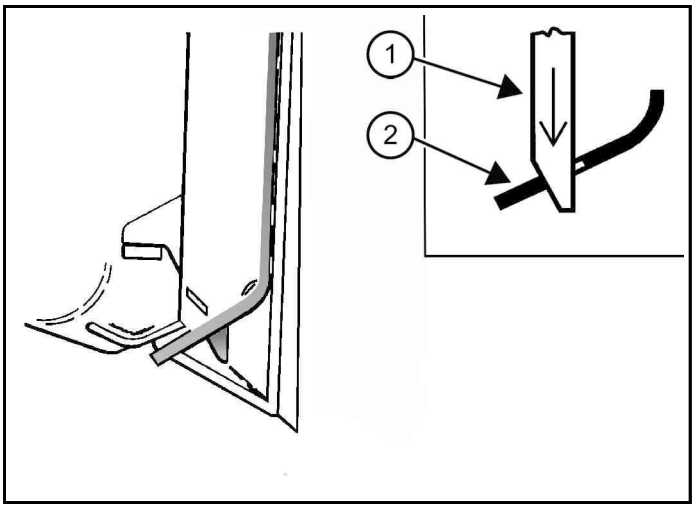
   The levers and wedges must move freely.

⚠ WARNING

CRUSHING HAZARD
Failure to secure Bob-Tach attachment mounting system wedges can allow attachment to come off and cause serious injury or death.
Both wedges must extend through the holes in the attachment mounting frame. Lever(s) must be fully down and locked.

W-2102

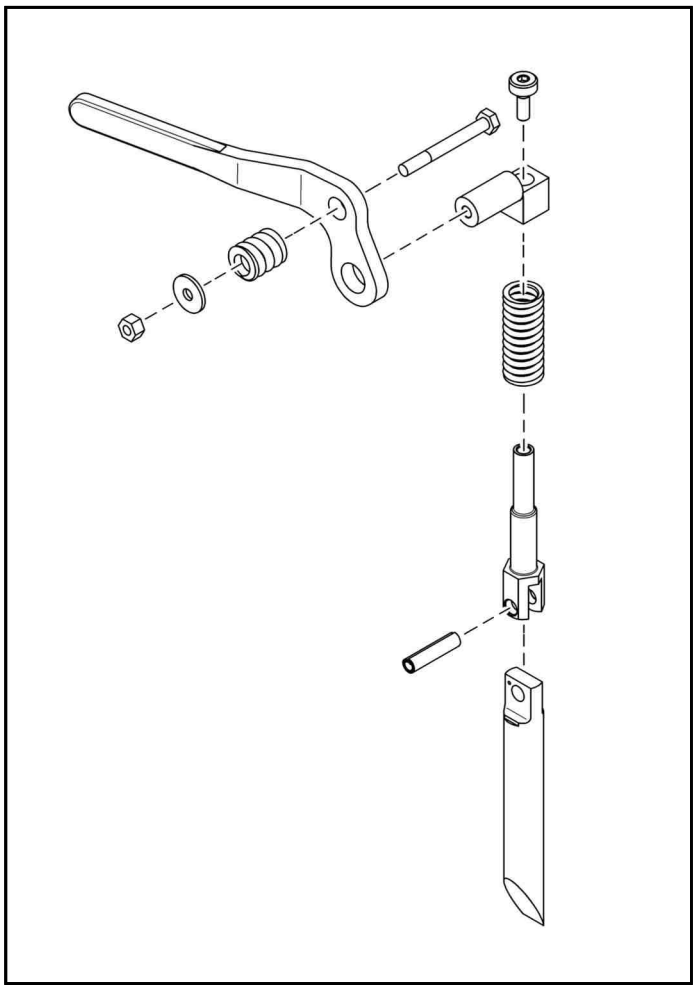
Figure 325



NA3450B

- The wedges (Item 1) [Figure 325] must extend through the holes in the attachment mounting frame.
- The spring loaded wedges (Item 1) must contact the lower edge of the holes in the attachment mounting frame (Item 2) [Figure 325].
- If the wedges do not contact the lower edge of the holes [Figure 325], the attachment will be loose and can come off the Bob-Tach system.

Figure 326



NA13065S

3. Inspect the mounting frame on the attachment and Bob-Tach frame, linkages, and wedges for excessive wear or damage [Figure 326].
4. Replace any parts that are damaged, bent, or missing.
5. Keep all fasteners tight.
6. Look for cracked welds. Contact your Bobcat dealer for repair or replacement parts.
7. Lubricate the wedges.
(See Service Schedule on Page 124)
(See Machine Lubrication on Page 183)

MACHINE STORAGE AND RETURN TO SERVICE

Machine Extended Storage Procedure

You may decide to store your Bobcat machine for an extended period of time. Perform the procedures below for storage:

- Thoroughly clean the machine including the engine compartment.
- Lubricate the machine.
- Replace worn or damaged parts.
- Park the machine in a dry protected shelter.
- Lower the lift arms all the way and put the bucket flat on the ground.
- Put blocks under the frame to remove weight from the tracks.
- Put grease on any exposed cylinder rods.
- Put fuel stabiliser into the fuel tank and operate the engine a few minutes to circulate the stabiliser to the pump and fuel injectors.

  Perform the following steps if biodiesel blend fuel has been used:

  1. Drain the fuel tank.
  2. Refill with 100% petroleum diesel fuel.
  3. Add fuel stabiliser.
  4. Operate the engine for at least 30 minutes.

- Drain and flush the cooling system. Refill with premixed coolant.
- DEF / AdBlue® System

  Storage up to four months:

  - Fill the DEF / AdBlue® tank.
  - The maximum DEF / AdBlue® storage limit is two months in ambient temperatures of –40 to +40°C (–40 to +104°F) or four months in –40 to +25°C (–40 to +77°F).

- Replace all fluids and filters (engine, hydraulic / hydrostatic).
- Replace air cleaner, heater, and air conditioning filters.
- Put all controls into the neutral position.
- Remove the battery. Charge the battery. Store the battery in a cool dry location above freezing temperatures and charge the battery periodically during storage.

- Cover the exhaust pipe opening.
- Tag the machine to indicate that the machine is in storage condition.

Machine Return To Service Procedure

After the Bobcat machine has been in storage, perform the procedures below to return the machine to service:

- Check the engine oil and hydraulic fluid levels; check coolant level.
- Install a fully charged battery.
- Remove grease from exposed cylinder rods.
- Check all belt tensions.
- Be sure all shields and guards are in position.
- Lubricate the machine.
- Check track condition and remove blocks from under frame.
- Remove cover from exhaust pipe opening.
- Perform the following steps if the DEF / AdBlue® storage limit has been exceeded:

  1. Drain and refill the DEF / AdBlue® tank with clean, unused fluid.
  2. Replace the DEF / AdBlue® filter.

- Start the engine and operate for a few minutes while observing the instrument panels and systems for correct operation.
- See your Bobcat dealer for service if the machine displays any codes related to the SCR system that do not clear within 15 minutes of engine operating time.
- Operate machine, check for correct function.
- Stop the engine.
- Check for leaks. Repair as needed.

NAVIGATION (STANDARD DISPLAY)

Navigation Bar

Figure 327

NA3706C

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 327] to open the navigation bar.
2. The navigation bar contains icons that are used to take you to the following screens:

- **GAUGES** - Home screen
- **CAMERA** - Rear view camera screen
- **VITALS** -
  (See Vitals (Standard Display) on Page 188)
- **SERVICE** -
  (See Service (Standard Display) on Page 189)
- **SETTINGS** -
  (See Settings (Standard Display) on Page 191)

Viewing Active Shortcuts

Figure 328

NA3705F

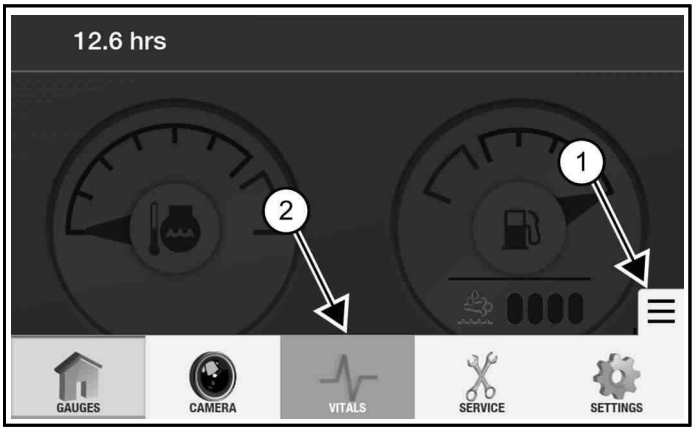
- The following icons can appear in the navigation handle position [Figure 328]. Selecting the icon will take you directly to the indicated screen.

ICON	DESCRIP-TION	FUNCTION
	Navigation Handle	Opens and closes the navigation bar (See Navigation Bar on Page 187)
	Service Due	Opens the service screen (See Record A Service on Page 189)
	Software Update	Opens the software screen (See Software on Page 195)
	Diesel Particulate Filter	Opens the DPF management screen (See Diesel Particulate Filter (DPF) System on Page 175)
	Machine Derate	Opens the machine performance screen (See Vital Detail And Machine Performance on Page 188)
	Warning	Opens the service codes screen (See View Service Codes on Page 190)

VITALS (STANDARD DISPLAY)

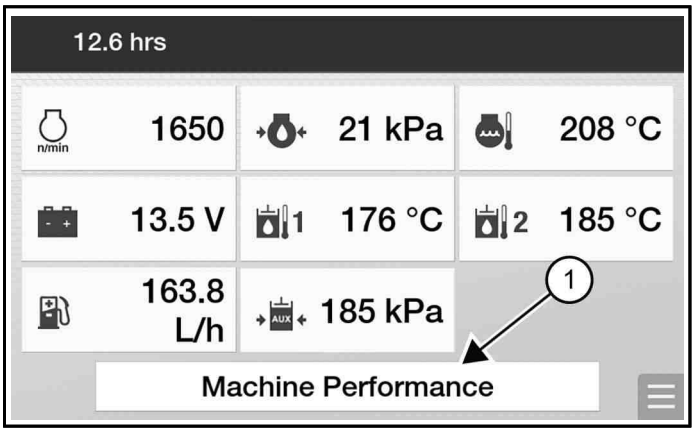
Vital Detail And Machine Performance

Figure 329



1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 329].
2. Select **[VITALS]** (Item 2) [Figure 329].

Figure 330



3. The following vitals can be viewed in a digital format [Figure 330]:
   - Engine Speed (rpm)
   - Engine Oil Pressure
   - Engine Coolant Temperature
   - System Voltage
   - Hydraulic Fluid Temperature - Pump Case Drain
   - Hydraulic Fluid Temperature - Drive Motor Case Drain
   - Fuel Usage Per Hour
   - Auxiliary Hydraulic Fluid Pressure
4. Select **[MACHINE PERFORMANCE]** (Item 1) [Figure 330] to view limitations or restrictions that prevent machine damage.

Figure 331

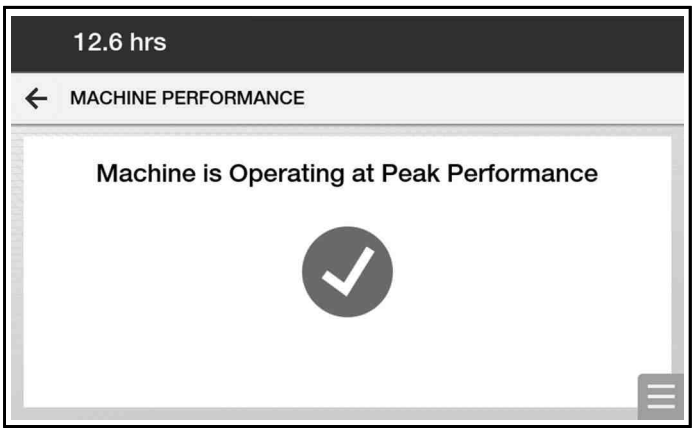
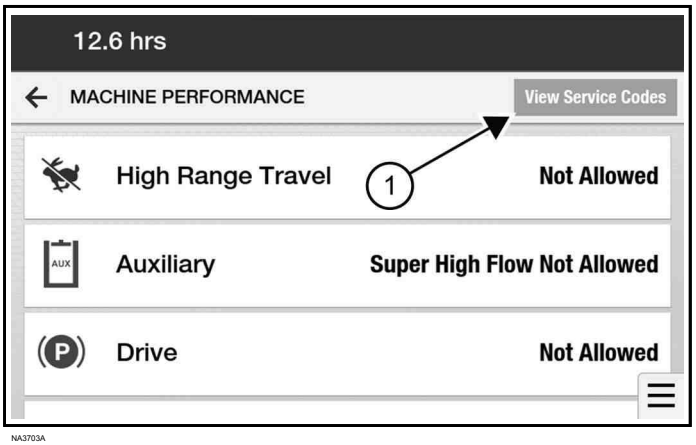


Figure 332



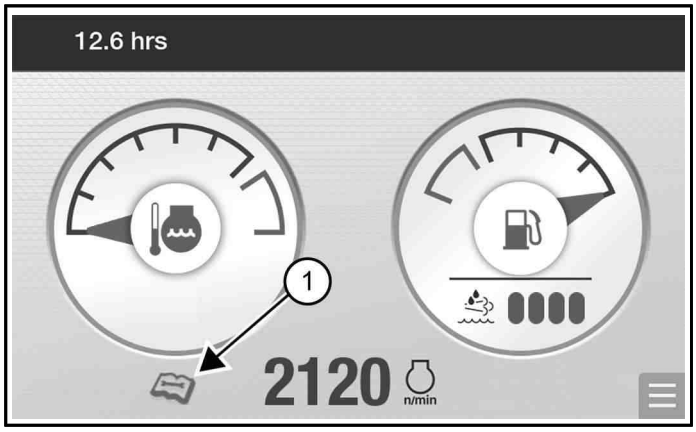
Examples of **MACHINE PERFORMANCE** screens are shown in [Figure 331] and [Figure 332]. Associated service codes may also be listed.

5. Select **[VIEW SERVICE CODES]** (Item 1) [Figure 332] to take you directly to the **SERVICE CODES** screen.

SERVICE (STANDARD DISPLAY)

Record A Service

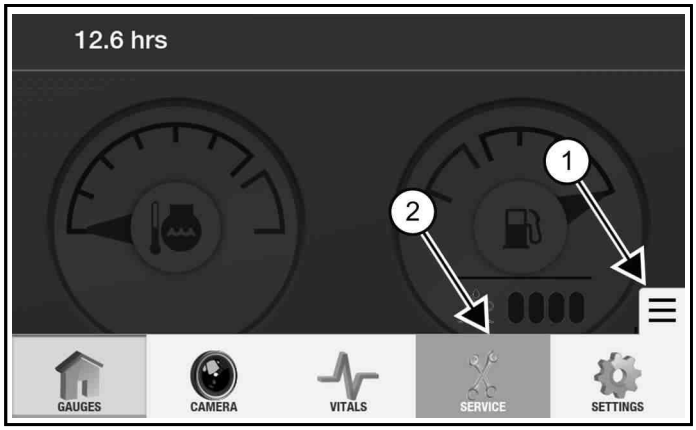
Figure 333



NA3697B

The service schedule information is based off the machine service schedule. The display will notify the operator 10 hours prior to the next service due and continue until the service is completed (Item 1) [Figure 333].

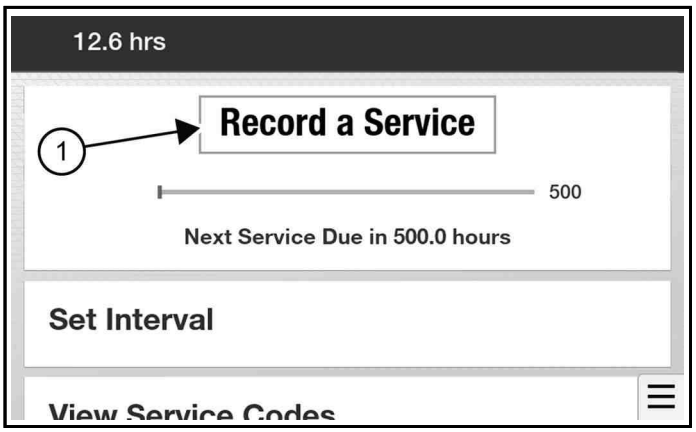
Figure 334



NA3700B

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 334].
2. Select **[SERVICE]** (Item 2) [Figure 334].

Figure 335

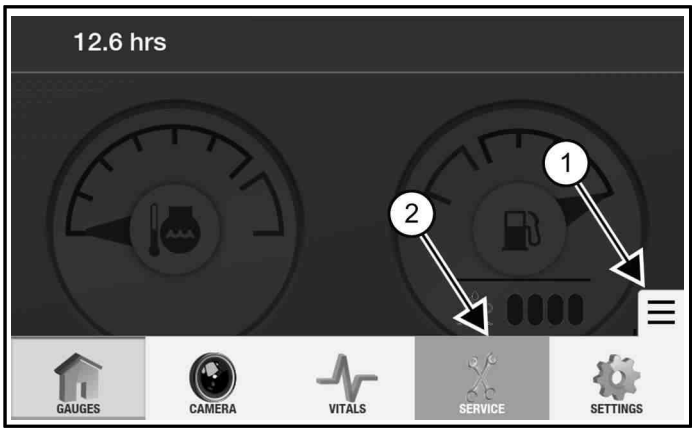


C216733A

3. Select **[RECORD A SERVICE]** (Item 1) [Figure 335] to record the service as completed.

Set Interval

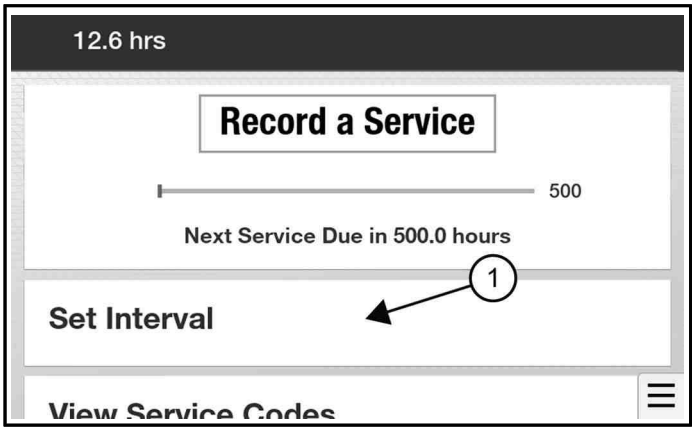
Figure 336



NA3700B

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 336].
2. Select **[SERVICE]** (Item 2) [Figure 336].

Figure 337



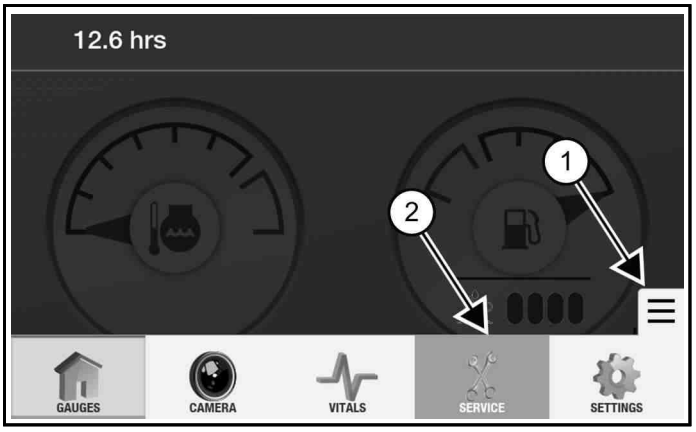
C216733B

3. Select **[SET INTERVAL]** (Item 1) [Figure 337].

4. Enter desired interval.

View Service Codes

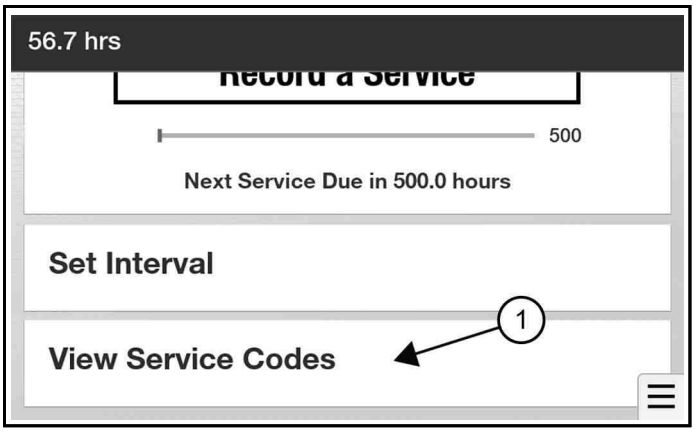
Figure 338



NA3700B

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 338].
2. Select **[SERVICE]** (Item 2) [Figure 338].

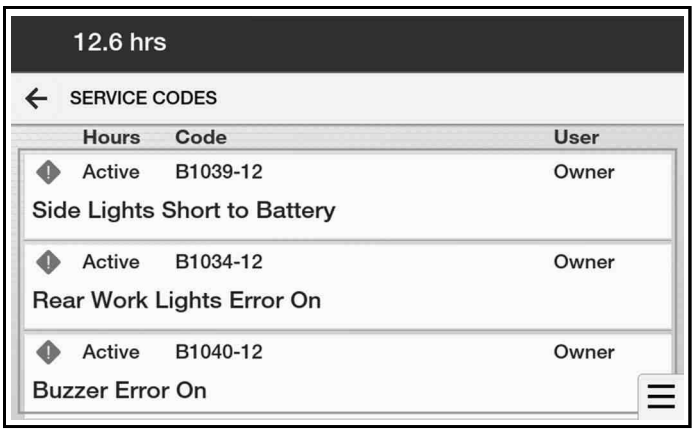
Figure 339



C216734A

3. Select **[VIEW SERVICE CODES]** (Item 1) [Figure 339].

Figure 340



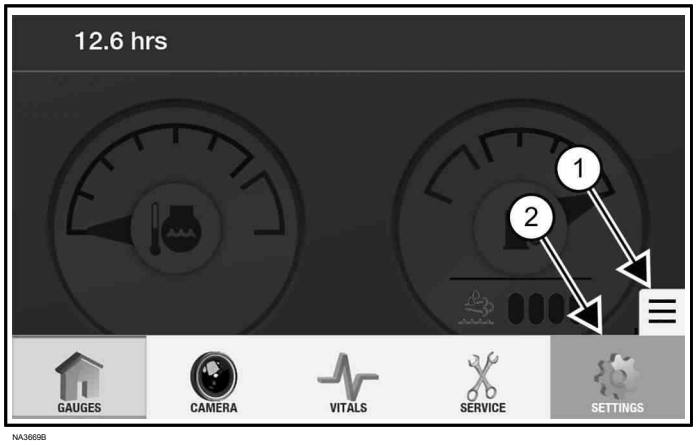
NA3698

4. Scroll down if necessary to see all service codes [Figure 340].

SETTINGS (STANDARD DISPLAY)

Display Settings

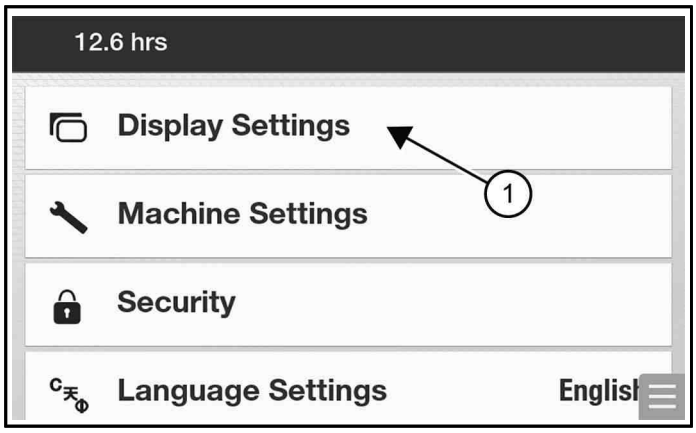
Figure 341



NA3669B

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 341].
2. Select **[SETTINGS]** (Item 2) [Figure 341].

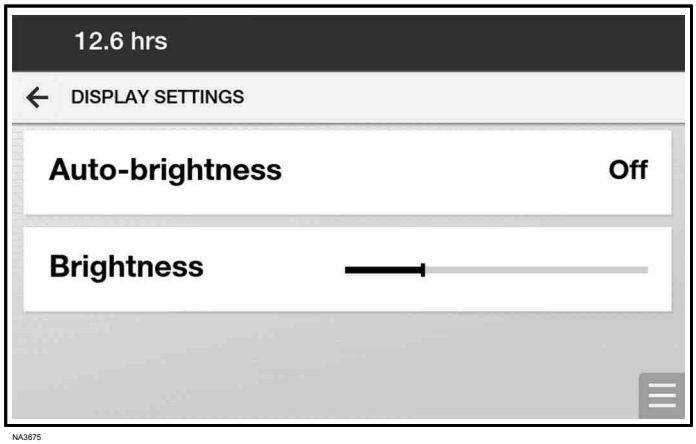
Figure 342



NA3668B

3. Select **[DISPLAY SETTINGS]** (Item 1) [Figure 342].

Figure 343

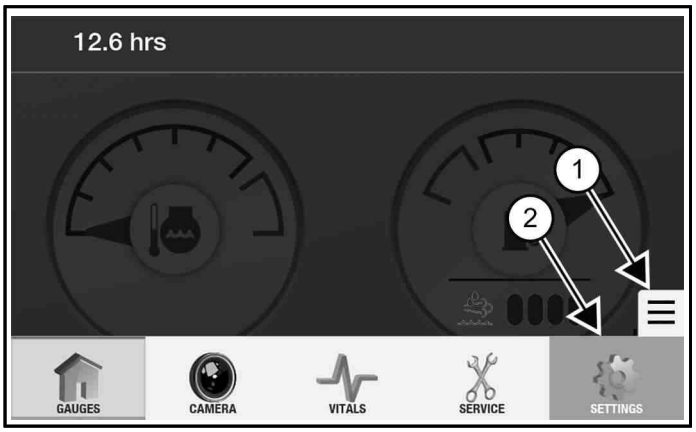


NA3675

4. The following display settings are available [Figure 343]:
   - Auto brightness on or off
   - Screen brightness adjustment

Machine Settings

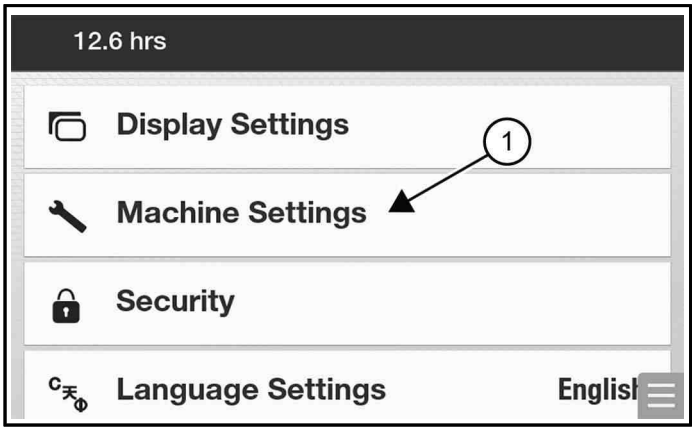
Figure 344



NA3669B

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 344].
2. Select **[SETTINGS]** (Item 2) [Figure 344].

Figure 345



NA3668A

3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 345].

Figure 346

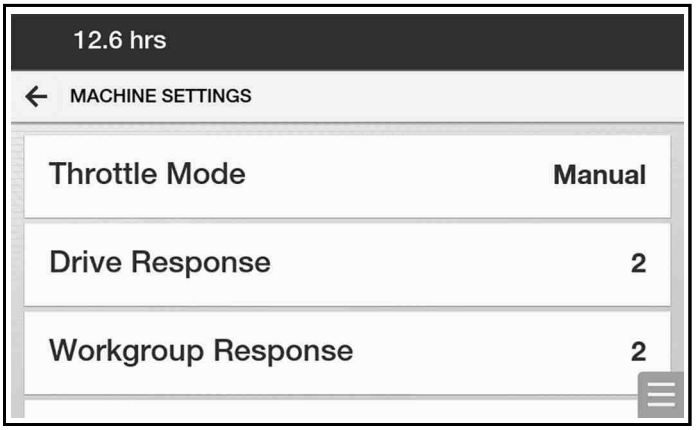


Figure 347

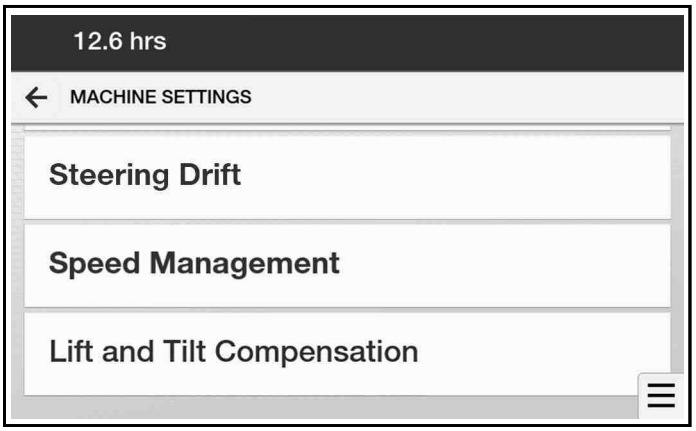
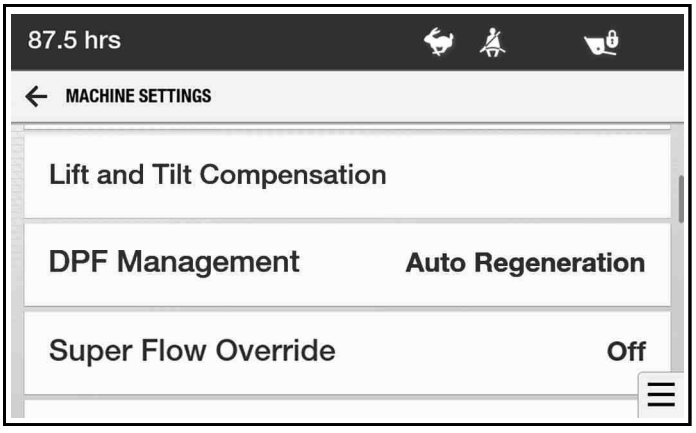


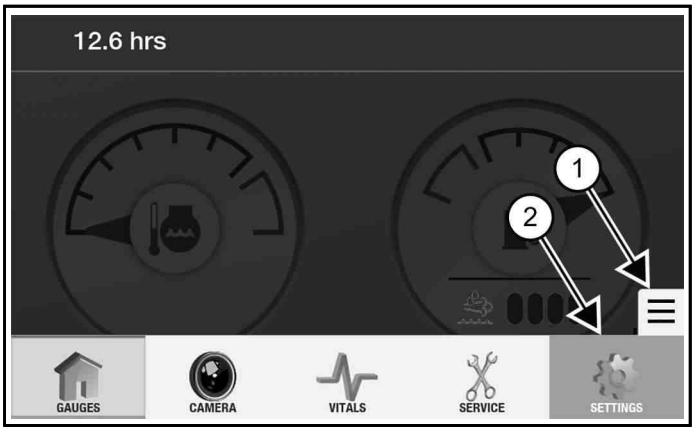
Figure 348



4. The following machine settings may be available depending on machine configuration [Figure 346] [Figure 347] [Figure 348]:
   - Throttle Mode (See Auto Idle on Page 71)
   - Drive Response (See Drive Response on Page 82)
   - Workgroup Response (See Workgroup Response on Page 88)
   - Steering Drift (See Steering Drift Compensation on Page 83)
   - Speed Management (See Speed Management on Page 80)
   - Lift and Tilt Compensation (See Lift and Tilt Compensation on Page 85)
   - DPF Management (See DPF Description on Page 62)
   - Super Flow Override (See Operating Super-Flow Auxiliary Hydraulics on Page 95)

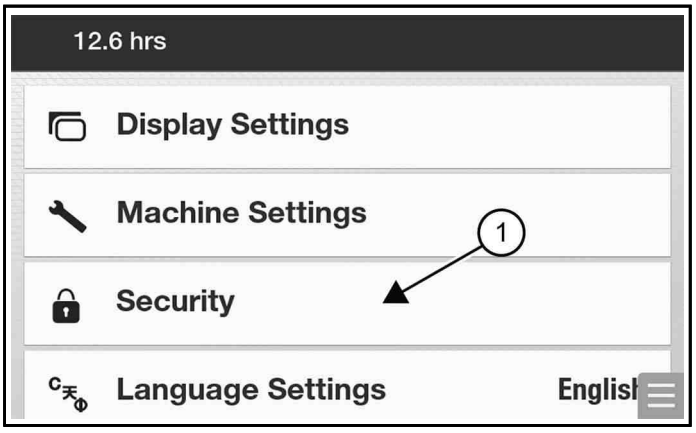
Security Settings

Figure 349



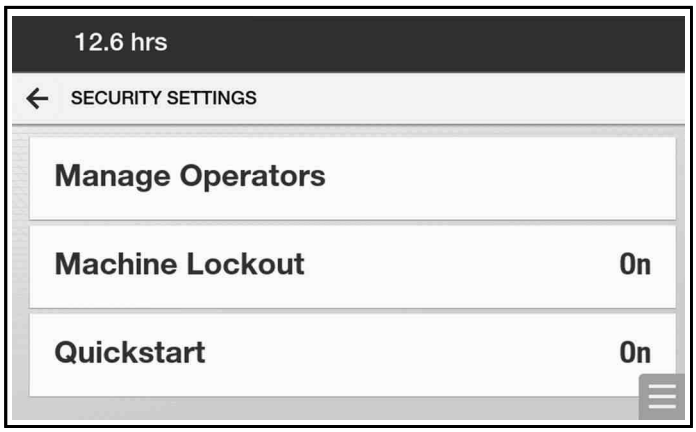
1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 349].
2. Select **[SETTINGS]** (Item 2) [Figure 349].

Figure 350



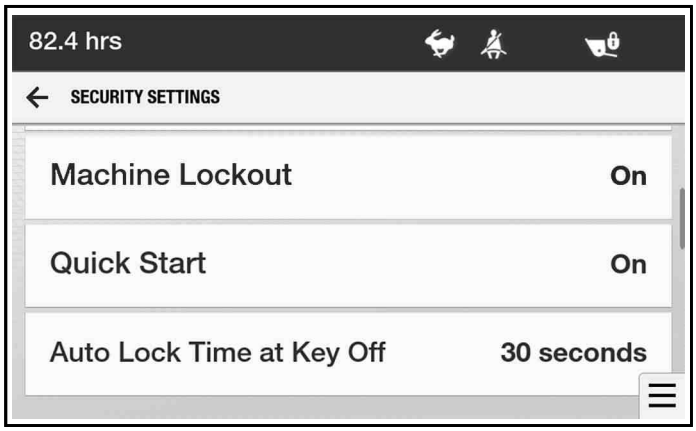
3. Select **[SECURITY]** (Item 1) [Figure 350].

Figure 351



NA3676

Figure 352

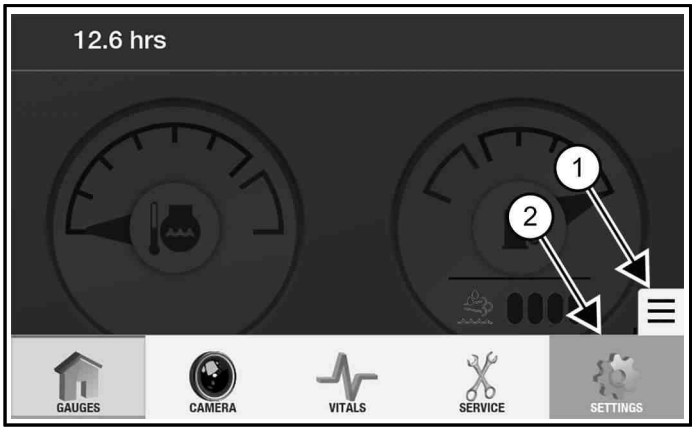


C216731

4. The following security settings are available [Figure 351] [Figure 352]:
   - Manage Operators (See Security Settings (Manage Operators) on Page 193)
   - Machine Lockout - When on, requires password to use machine
   - Quick Start - When on, allows the machine to be started before the display finishes booting up
   - Auto Lock Time at Key Off - Amount of time allowed to restart the machine without re-entering a password - Adjustable between immediate and 15 minutes

Security Settings (Manage Operators)

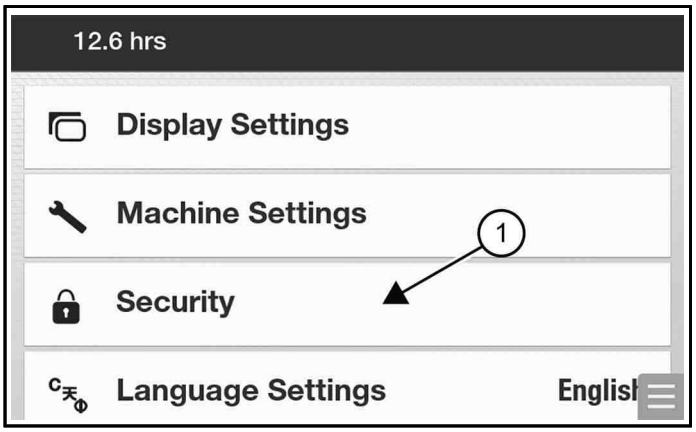
Figure 353



NA3669B

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 353].
2. Select **[SETTINGS]** (Item 2) [Figure 353].

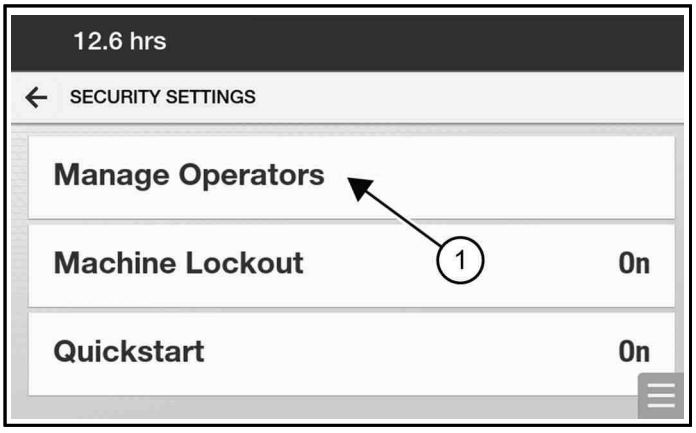
Figure 354



NA3668C

3. Select **[SECURITY]** (Item 1) [Figure 354].

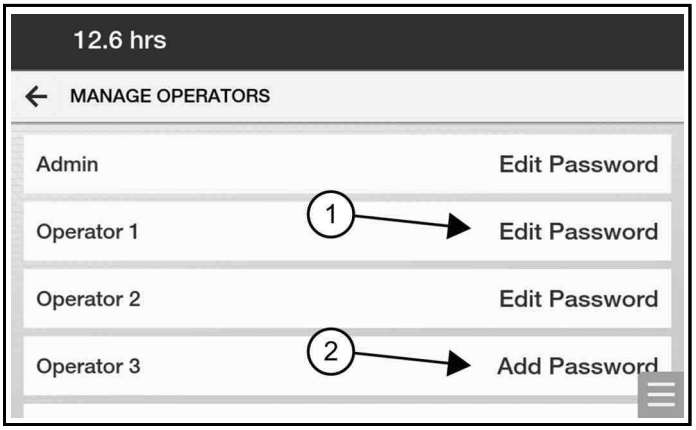
Figure 355



NA3676A

4. Select **[MANAGE OPERATORS]** (Item 1) [Figure 355].

Figure 356



NA3717A

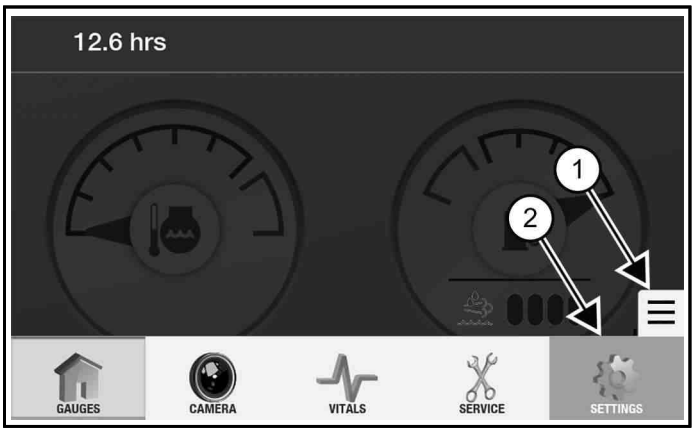
5. Select **[ADD PASSWORD]** (Item 2) [Figure 356] to enter a new operator.

   A maximum of four operators can be assigned.

6. Select **[EDIT PASSWORD]** (Item 1) [Figure 356] to change a password or remove an operator.

Language Settings

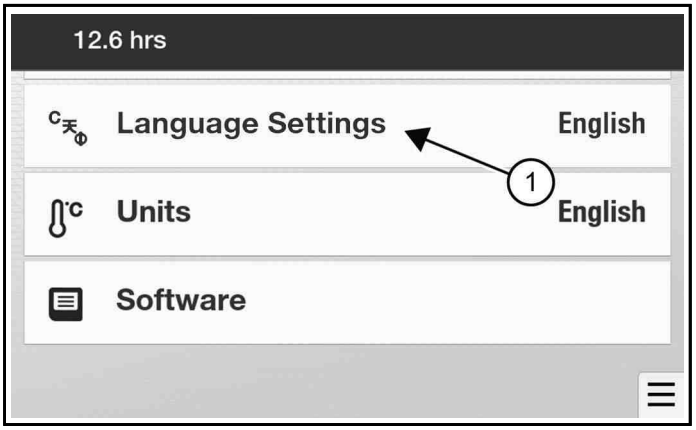
Figure 357



NA3669B

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 357].
2. Select **[SETTINGS]** (Item 2) [Figure 357].

Figure 358



NA3678A

3. Select **[LANGUAGE SETTINGS]** (Item 1) [Figure 358].

Figure 359

NA3718

4. Scroll up or down and select the desired language [Figure 359]. The selected language will take effect immediately.

Units

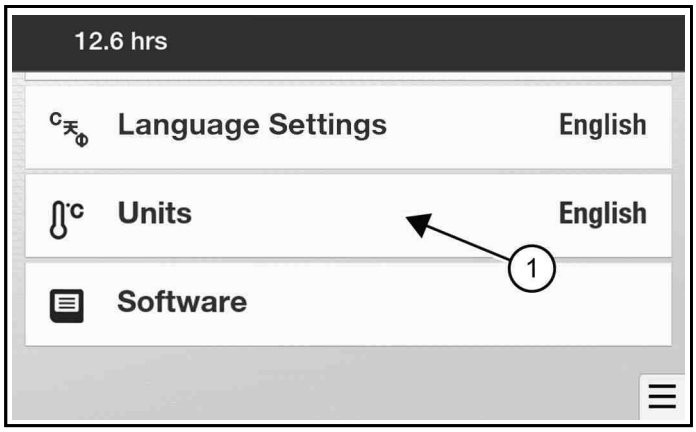
Figure 360

NA3669B

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 360].

2. Select **[SETTINGS]** (Item 2) [Figure 360].

Figure 361

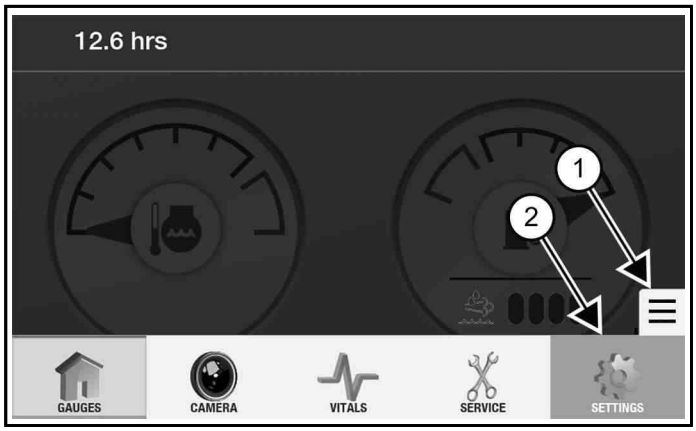


NA3678B

3. Scroll down and select **[UNITS]** (Item 1) [Figure 361] to toggle between English and Metric.

Software

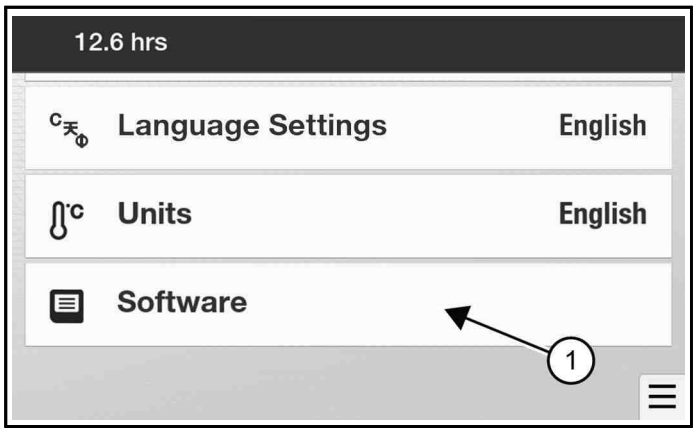
Figure 362



NA3669B

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 362].
2. Select **[SETTINGS]** (Item 2) [Figure 362].

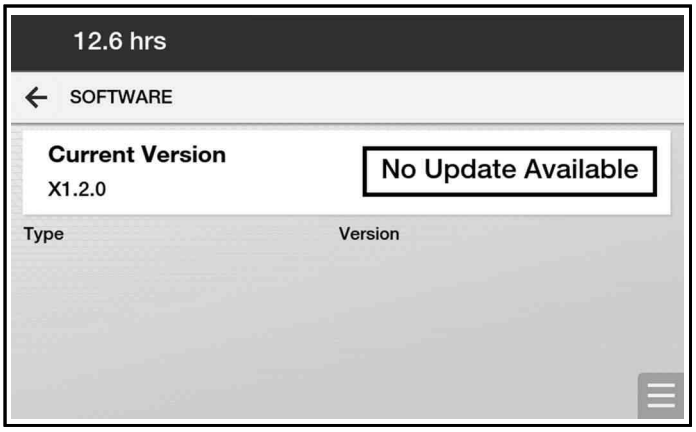
Figure 363



NA3678C

3. Scroll down and select **[SOFTWARE]** (Item 1) [Figure 363].

Figure 364



NA3677

4. Your machine's current software version is shown [Figure 364]. Software updates can only be performed by your dealer.

GAUGES (TOUCH DISPLAY)

Vital Detail And Machine Performance

Figure 365

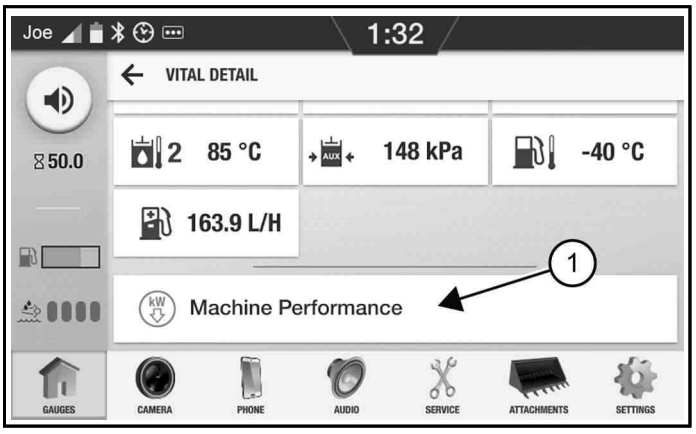
C216735G

1. Select the **[VITAL DETAIL]** icon (Item 1) [Figure 365].

Figure 366

NA3593A

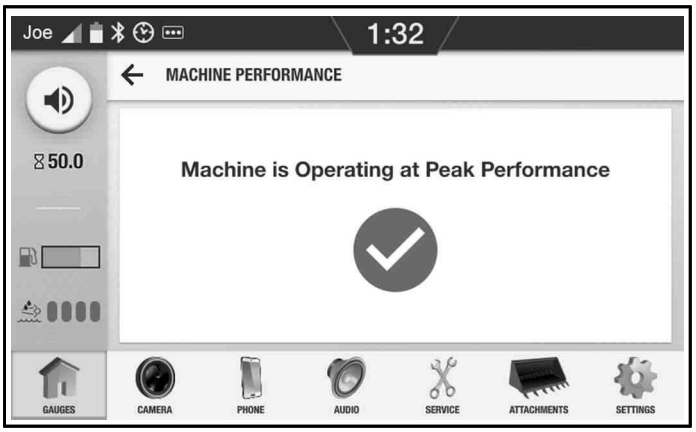
Figure 367



NA3594C

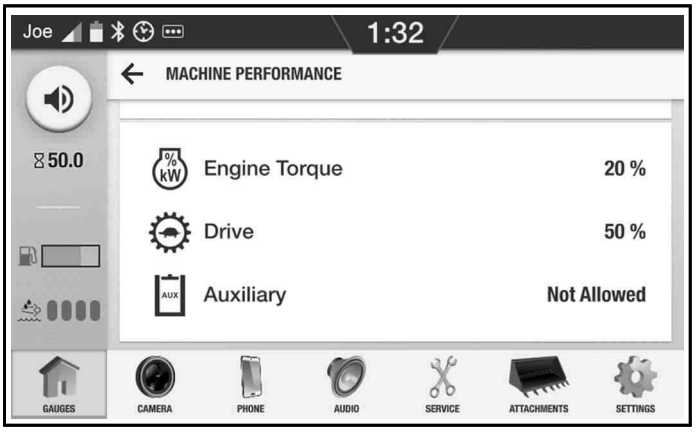
2. The following vitals can be viewed in a digital format [Figure 366] and [Figure 367]:
   - Engine Speed (rpm)
   - System Voltage
   - Engine Oil Pressure
   - Engine Coolant Temperature
   - Intake Air Temperature
   - Hydraulic Fluid Temperature - Pump Case Drain
   - Hydraulic Fluid Temperature - Drive Motor Case Drain
   - Auxiliary Hydraulic Fluid Pressure
   - Fuel Temperature
   - Fuel Consumption
3. Select **[MACHINE PERFORMANCE]** (Item 1) [Figure 367] to view limitations or restrictions that prevent machine damage.

Figure 368



NA3644A

Figure 369



NA3645A

Examples of machine performance screens are shown in [Figure 368] [Figure 369]. Associated service codes may also be listed with a link to take you directly to the service codes screen.

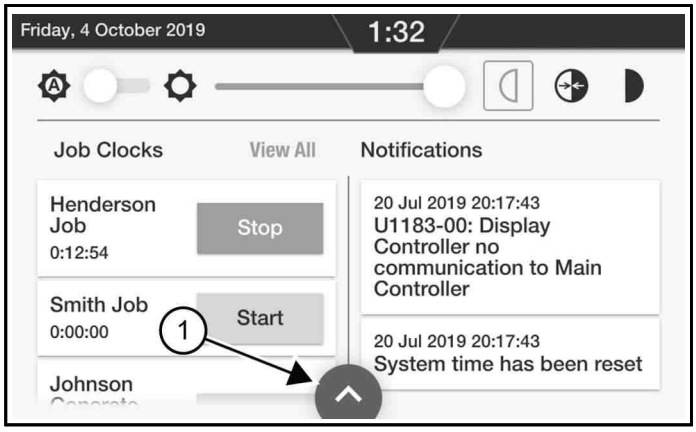
Notification Drawer

Figure 370

C216735B

1. Select the **[CURRENT TIME]** icon (Item 1) [Figure 370] to open the notification drawer.

Figure 371



NA3595A

2. The notification drawer [Figure 371] provides quick access to:
   - Automatic screen brightness on / off setting
   - Screen brightness adjustment
   - Day / Night Mode settings (day, auto, night)
   - Job Clocks (See Job Clocks on Page 211)
   - Notifications - Selecting a notification will take you to the associated screen. Swiping right will dismiss the notification.
3. Select the **[ARROW UP]** icon (Item 1) [Figure 371] to close the notification drawer.

CAMERA (TOUCH DISPLAY)

Camera Settings

Figure 372

C216735C

1. Select **[CAMERA]** (Item 1) [Figure 372].

Figure 373

NA3584E

2. Select the **[CAMERA SETTINGS]** icon (Item 1) [Figure 373].

Figure 374

NA3585C

3. The following camera settings are available [Figure 374]:
   - Back-up lines on or off.
   - Adjustment of the back-up lines.
   - Centre line on or off.
4. Select the **[BACK ARROW]** icon (Item 1) [Figure 374] to return to the **CAMERA** screen.

PHONE (TOUCH DISPLAY)

See your Touch Display User Guide for more information about phone settings.

AUDIO (TOUCH DISPLAY)

See your Touch Display User Guide for more information about audio settings.

SERVICE (TOUCH DISPLAY)

Record A Service

Figure 375

NA3647C

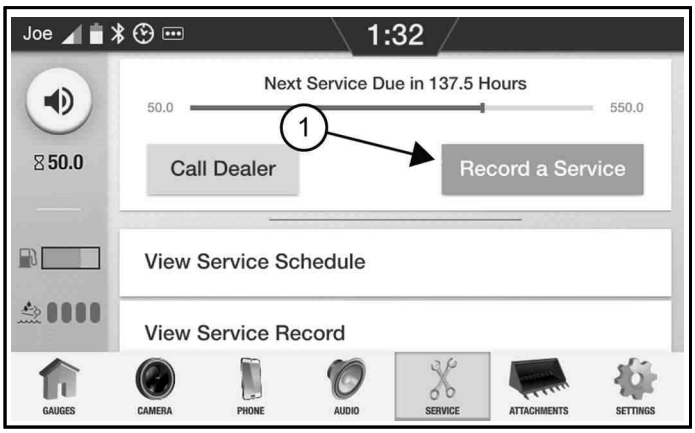
The service schedule information is based off the machine service schedule. The display will notify the operator 10 hours prior to the next service due and continue until the service is completed (Item 1) [Figure 375].

Figure 376

C216735D

1. Select **[SERVICE]** Item 1) [Figure 376].

Figure 377

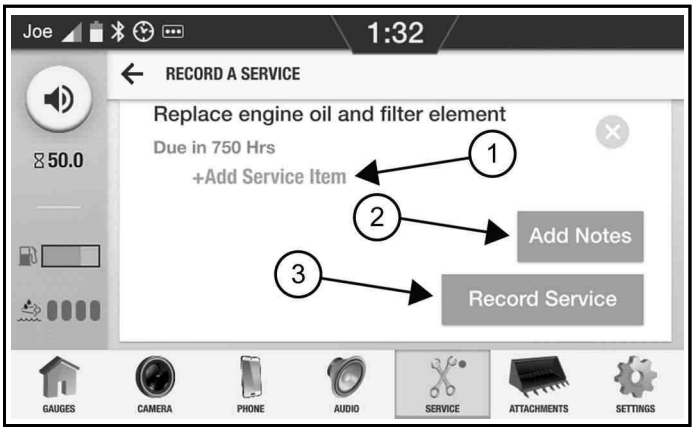


NA3596D

The time until next service due can be viewed at the top of the screen.

2. Select **[RECORD A SERVICE]** (Item 1) [Figure 377].

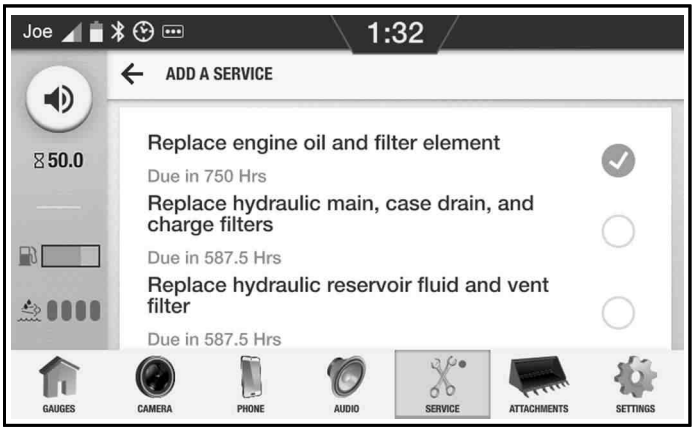
Figure 378



NA3598c

3. Select **[ADD SERVICE ITEM]** (Item 1) [Figure 378] to add new service items.

Figure 379



NA3646A

4. Select or deselect service items you want to add or remove from the service being recorded. Select **[BACK ARROW]** to return to **RECORD A SERVICE** screen [Figure 379].

5. Select **[ADD NOTES]** (Item 2) [Figure 378] to add any information you wish to save about the service being recorded.

6. Select **[RECORD SERVICE]** (Item 3) [Figure 378] to record the service.

View Service Schedule

Figure 380

NA3647C

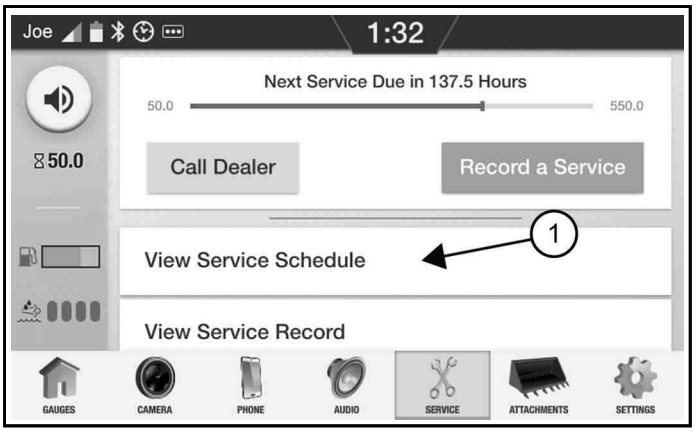
The service schedule information is based off the machine service schedule. The display will notify the operator 10 hours prior to the next service due and continue until the service is completed (Item 1) [Figure 380].

Figure 381

C216735D

1. Select **[SERVICE]** (Item 1) [Figure 381].

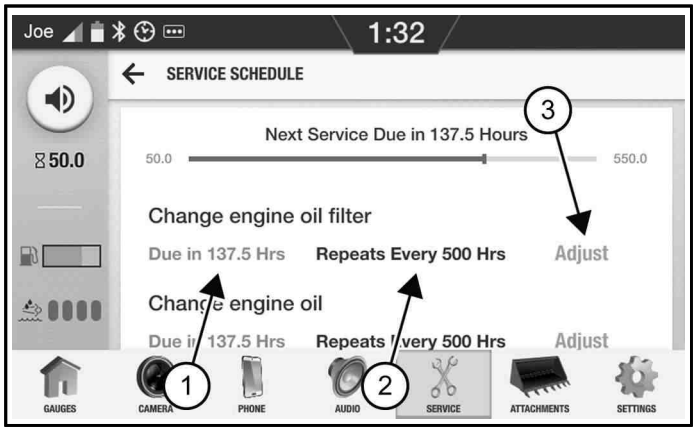
Figure 382



NA3596E

2. Select **[VIEW SERVICE SCHEDULE]** (Item 1) [Figure 382].

Figure 383

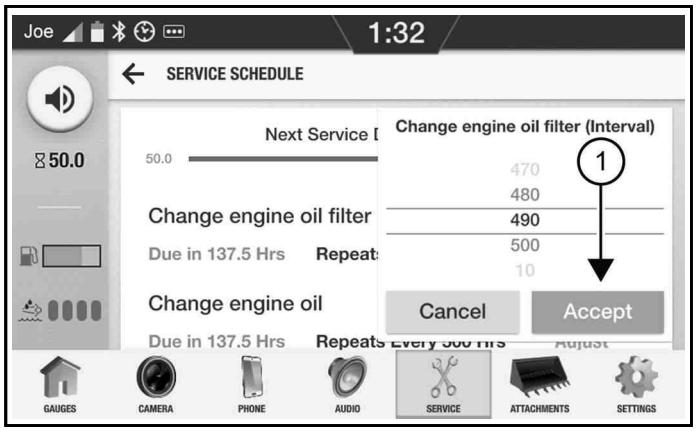


NA3599C

The time until the next service is due (Item 1) and the maintenance interval (Item 2) [Figure 383] are shown for each service item.

3. Select **[ADJUST]** (Item 3) [Figure 383] to change the maintenance interval of any service item. The interval can be more frequent, but cannot extend past the base requirement.

Figure 384



NA3600C

4. Scroll to the desired maintenance interval and select **[ACCEPT]** (Item 1) [Figure 384] to change the maintenance interval for that service item.

View Service Record

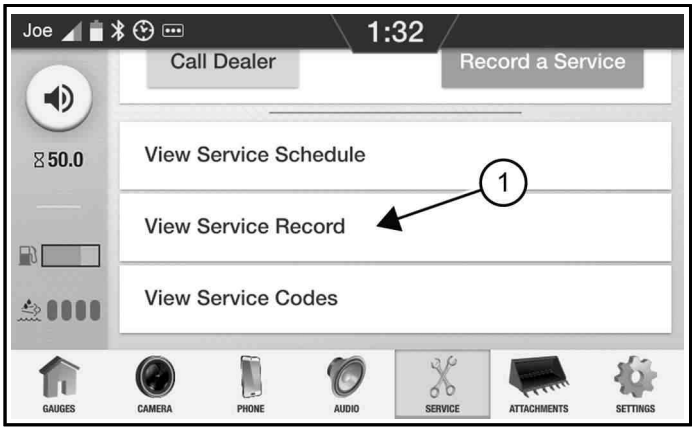
The service record is a list of all completed services for your machine.

Figure 385

C216735D

1. Select **[SERVICE]** (Item 1) [Figure 385].

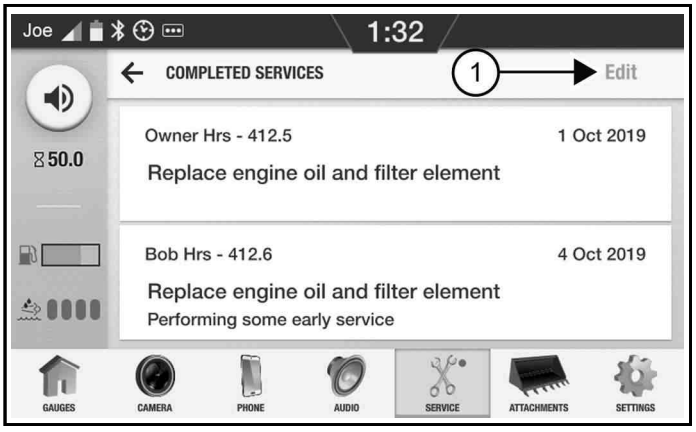
Figure 386



NA3597D

2. Scroll down and select **[VIEW SERVICE RECORD]** (Item 1) [Figure 386].

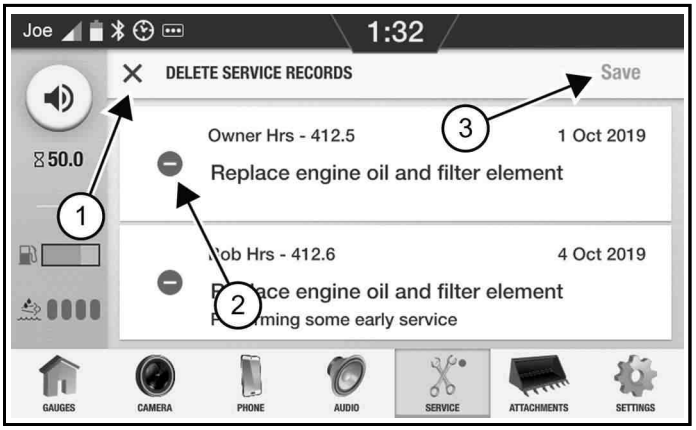
Figure 387



NA3601C

3. Select **[EDIT]** (Item 1) [Figure 387] to remove a record. The master or owner password must be entered to continue if not already logged in with the owner password.

Figure 388



NA3602C

4. Scroll to the record you want to remove. Select the **[-]** icon (Item 2) and select **[SAVE]** (Item 3) to remove the service record or select the **[X]** icon (Item 1) [Figure 388] to cancel.

View Service Codes

Figure 389

C216735D

1. Select **[SERVICE]** (Item 1) [Figure 389].

Figure 390

NA3597E

2. Scroll down and select **[VIEW SERVICE CODES]** (Item 1) [Figure 390].

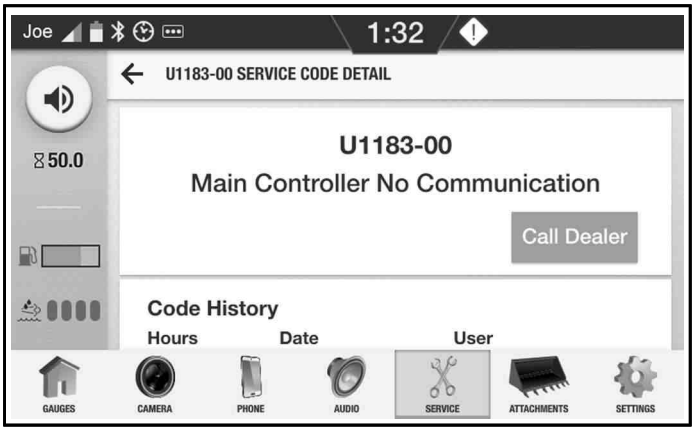
Figure 391

NA3603B

3. Scroll down if necessary to see all service codes [Figure 391].

4. Select any service code to see detailed information [Figure 391].

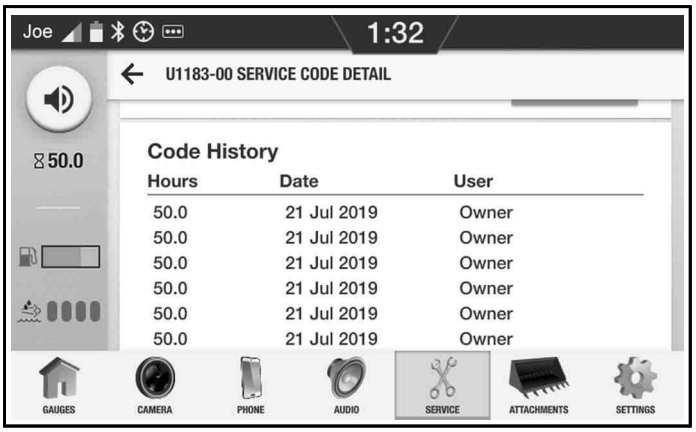
Figure 392



NA3604B

The **SERVICE CODE DETAIL** screen allows calling your dealer if they entered their phone number on the dealer screen and a phone is paired to the machine [Figure 392].

Figure 393



NA3605B

5. Scroll down to see a history that shows the machine hours, the date, and the operator logged in each time the code was activated [Figure 393].

ATTACHMENTS (TOUCH DISPLAY)

Attachment Information

The display has basic operating information and helpful tips for many attachments.

Refer to the attachment list for approved attachments for this machine.
(See Features, Accessories, And Attachments on Page 18)

Always read and understand your attachment Operation & Maintenance Manual before using attachments.

Figure 394

C216735E

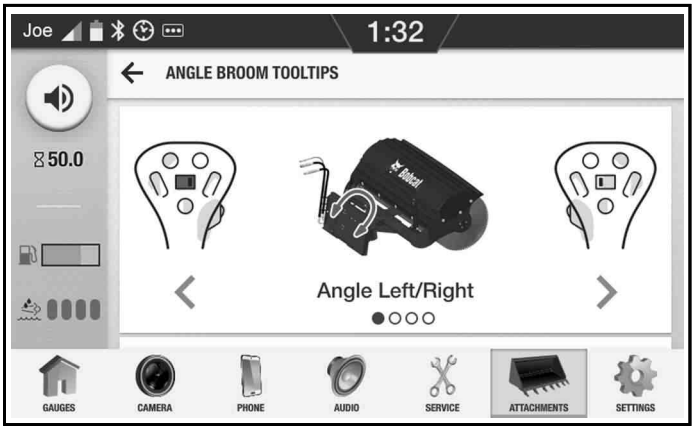
1. Select **[ATTACHMENTS]** (Item 1) [Figure 394].

Figure 395

NA3606A

2. Scroll up or down and select the desired attachment [Figure 395].

Figure 396

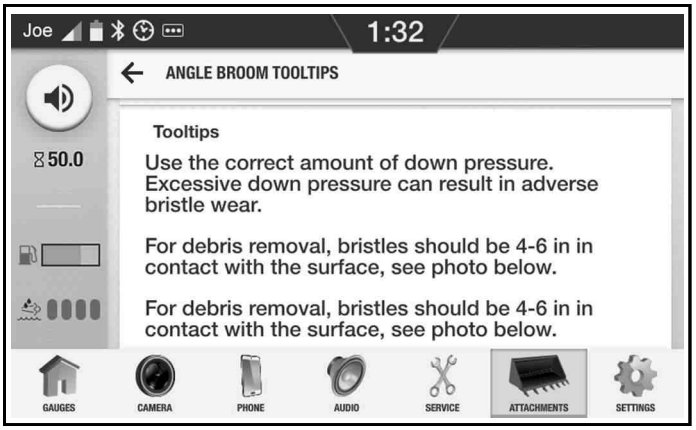


NA3607B

The basic control information for the attachment is shown [Figure 396].

3. Some attachments have more than one operating instruction. Select the **[LEFT]** or **[RIGHT]** arrow icons to view the additional instructions [Figure 396].

Figure 397



NA3608B

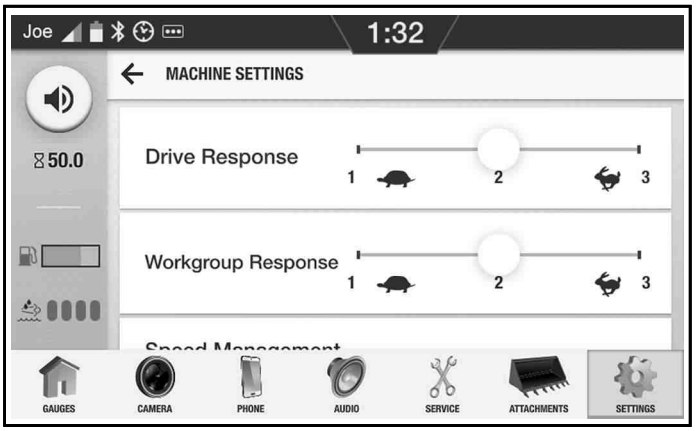
4. Scroll down to read the Tooltips for efficient use of the attachment [Figure 397].

SETTINGS (TOUCH DISPLAY)

Favorites

The favorite button on the jog shuttle can be configured to take you directly to screens that you commonly use.

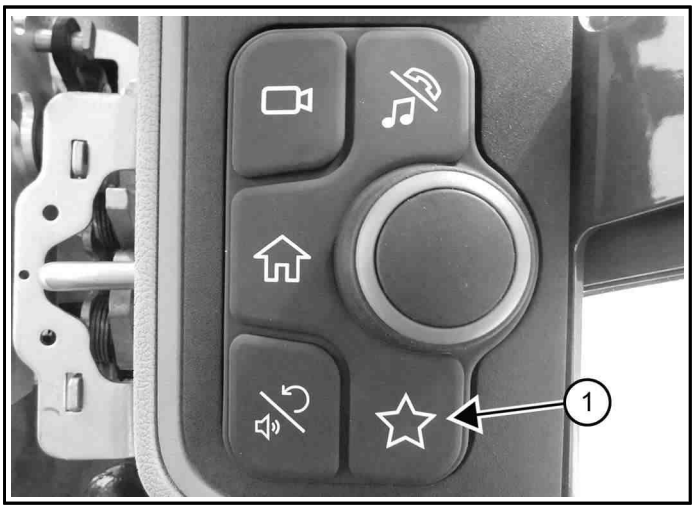
Figure 398



NA3519B

1. Navigate to a screen you commonly access [Figure 398].

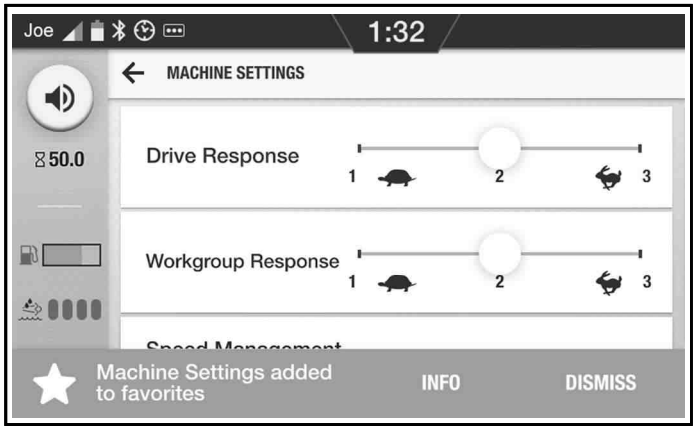
Figure 399



C200199B

2. Press and hold the **[FAVORITE]** button (Item 1) [Figure 399] on the jog shuttle.

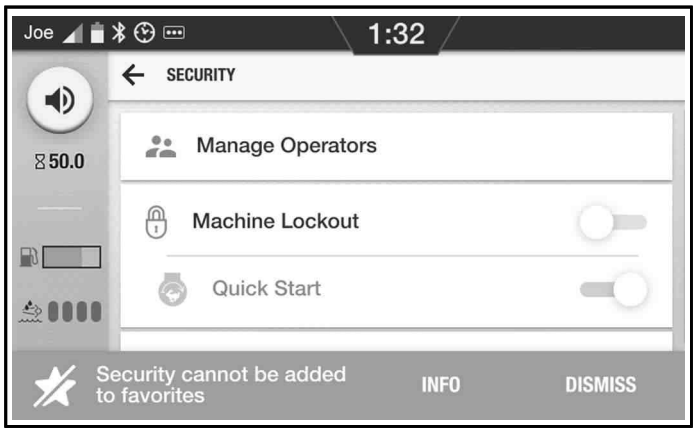
Figure 400



NA3612B

3. A notification will tell you that a favorite screen has been added [Figure 400].

Figure 401



NA3611B

Some screens are not allowed to be added to favorites [Figure 401].

Figure 402

C216735F

4. Select **[SETTINGS]** (Item 1) [Figure 402].

Figure 403

NA3613F

5. Select **[FAVORITES]** (Item 1) [Figure 403].

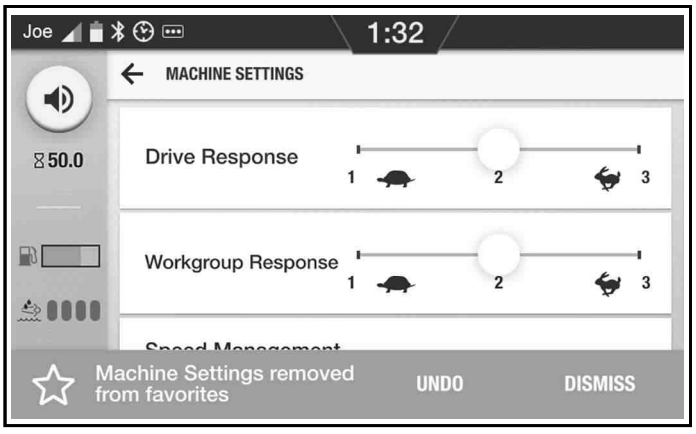
Figure 404

NA3609B

Your favorite screens are displayed [Figure 404].

Each press of the favorite button on the jog shuttle will cycle through your favorite screens.

Figure 405



NA3610B

6. Navigate to a screen you want to remove from favorites. Press and hold the **[FAVORITE]** button on the jog shuttle to remove the screen from your favorites [Figure 405].

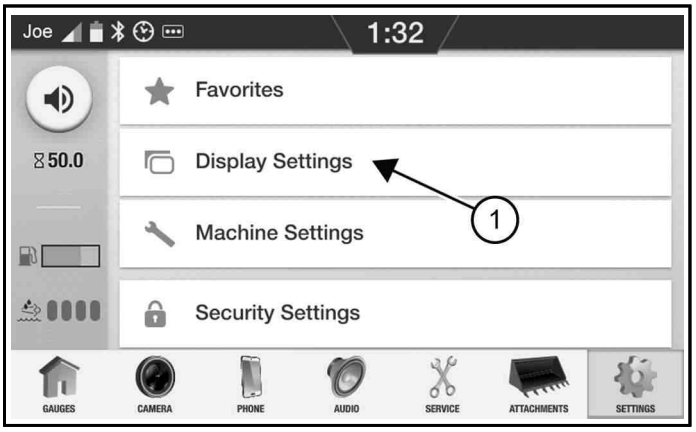
Display Settings

Figure 406

C216735F

1. Select **[SETTINGS]** (Item 1) [Figure 406].

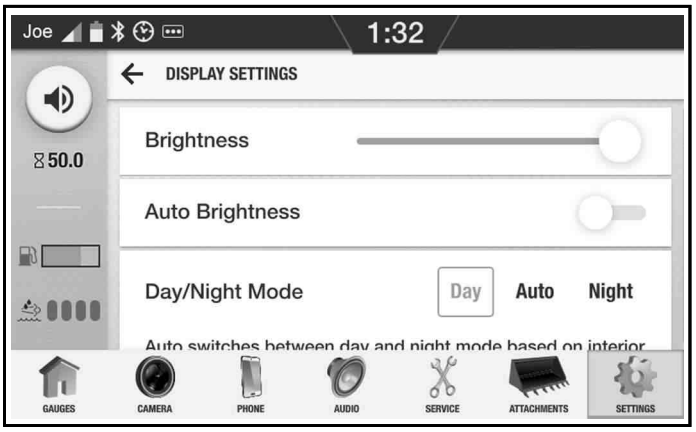
Figure 407



NA3613G

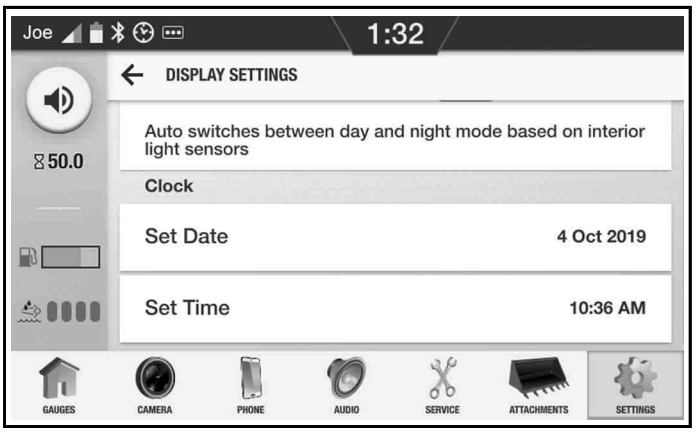
2. Select **[DISPLAY SETTINGS]** (Item 1) [Figure 407].

Figure 408



NA3648A

Figure 409



NA3649A

3. The following display settings are available [Figure 408] [Figure 409]:
   - Screen brightness adjustment (Not available when auto brightness is on.)
   - Auto brightness on or off
   - Day / night mode settings
   - Set date
   - Set time

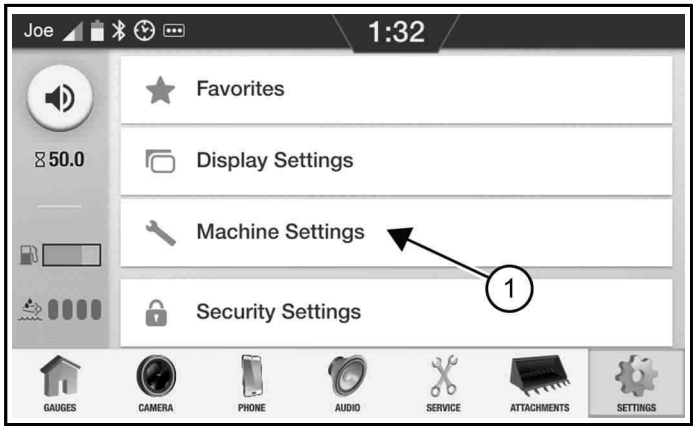
Machine Settings

Figure 410

C216735F

1. Select **[SETTINGS]** (Item 1) [Figure 410].

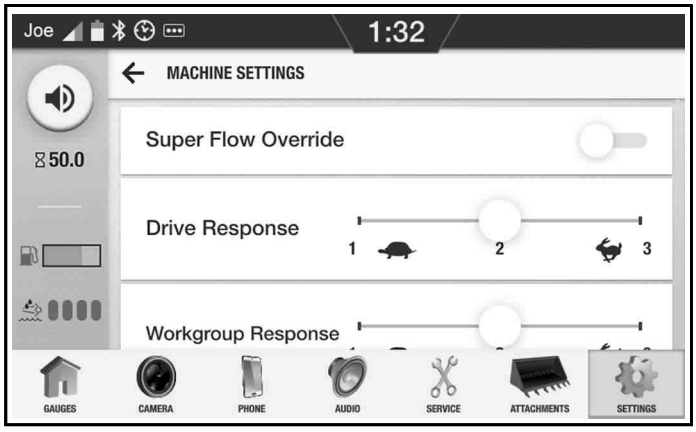
Figure 411



NA3613H

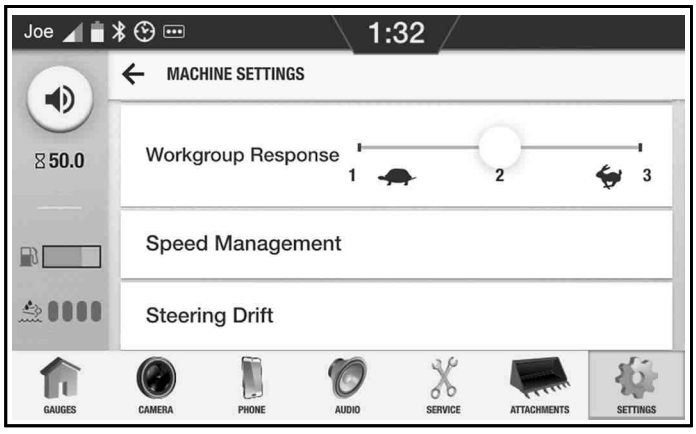
2. Select **[MACHINE SETTINGS]** (Item 1) [Figure 411].

Figure 412



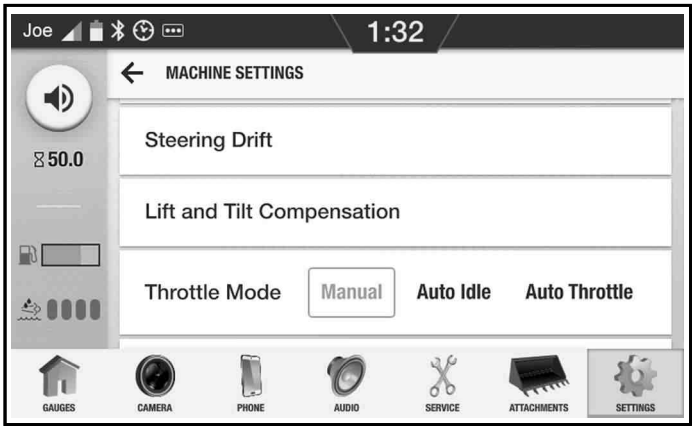
NA3650A

Figure 413



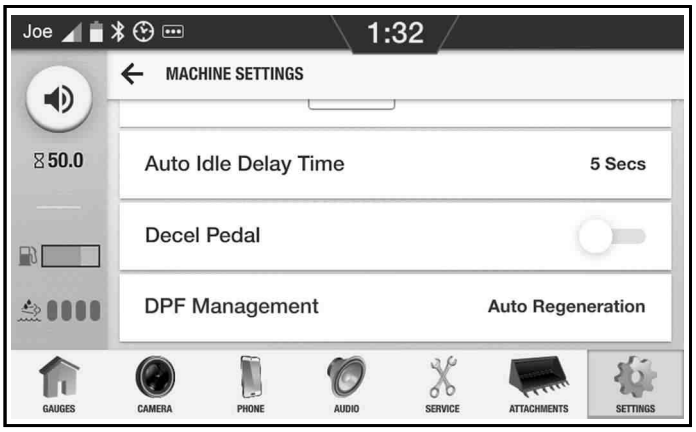
NA3650B

Figure 414



NA3650C

Figure 415



NA3650A

3. The following machine settings may be available depending on machine configuration [Figure 412] [Figure 413] [Figure 414] [Figure 415]:
   - Super-Flow Override (See Operating Super-Flow Auxiliary Hydraulics on Page 95)
   - Drive Response (See Drive Response on Page 82)
   - Workgroup Response (See Workgroup Response on Page 88)
   - Speed Management (See Speed Management on Page 80)
   - Steering Drift (See Steering Drift Compensation on Page 83)
   - Lift and Tilt Compensation (See Lift and Tilt Compensation on Page 85)
   - Throttle Mode (See Auto Idle on Page 71)
   - Auto Idle Delay Time - Adjustable from 4 seconds to 250 seconds
   - Decel Pedal (See Decel Pedal on Page 70)
   - DPF Management (See DPF Description on Page 62)

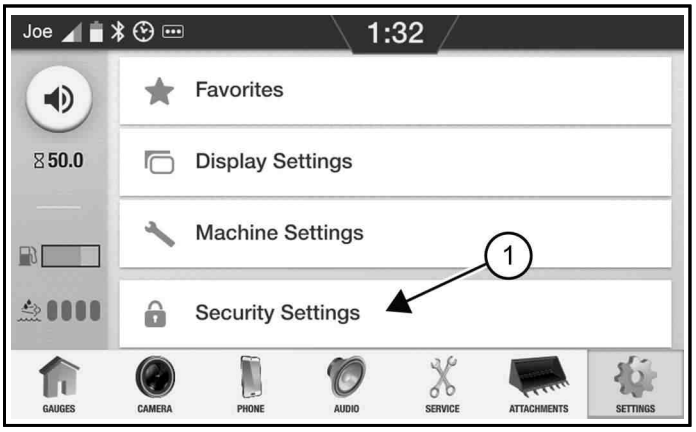
Security Settings

Figure 416

C216735F

1. Select **[SETTINGS]** (Item 1) [Figure 416].

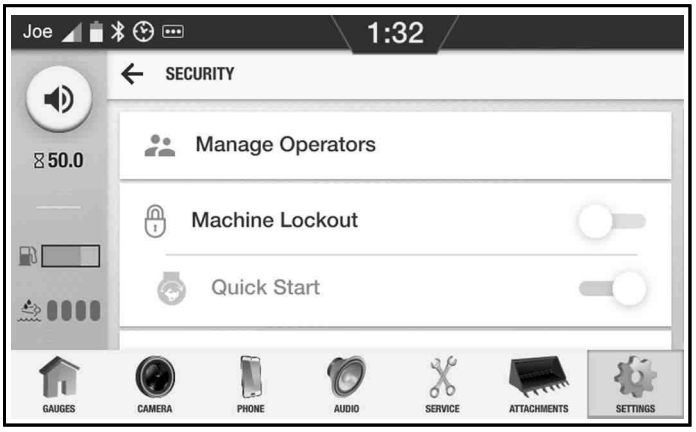
Figure 417



NA3613J

2. Select **[SECURITY SETTINGS]** (Item 1) [Figure 417].

Figure 418



NA3653B

Figure 419

NA3654A

3. The following security settings are available [Figure 418] and [Figure 419]:

- Manage Operators
  (See Security Settings (Manage Operators) on Page 208)
- Machine Lockout - When on, requires password to use machine
- Quick Start - When on, allows the machine to be started before the display finishes booting up
- Auto Lock Time at Key Off - Amount of time allowed to restart the machine without re-entering a password - Adjustable between immediate and 15 minutes
- System Sleep Time at Key Off - Amount of time display will remain in sleep mode before turning off; sleep mode requires less time for the display to boot - Adjustable between off and 4 hours
- Password Error Lockout - When on, five incorrect password attempts will temporarily lock out the machine.

Security Settings (Manage Operators)

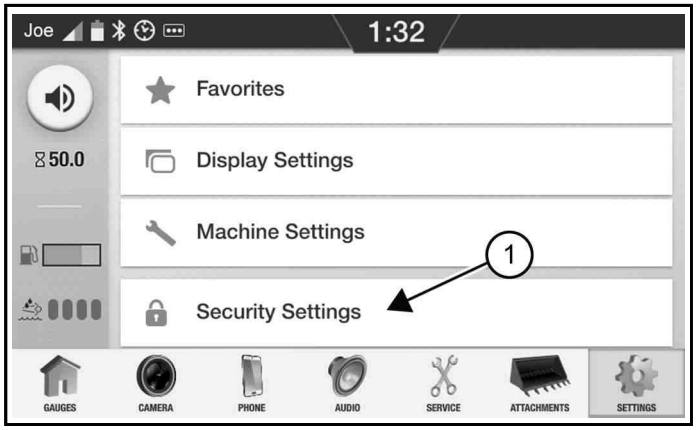
Add Operator

Figure 420

C216735F

1. Select **[SETTINGS]** (Item 1) [Figure 420].

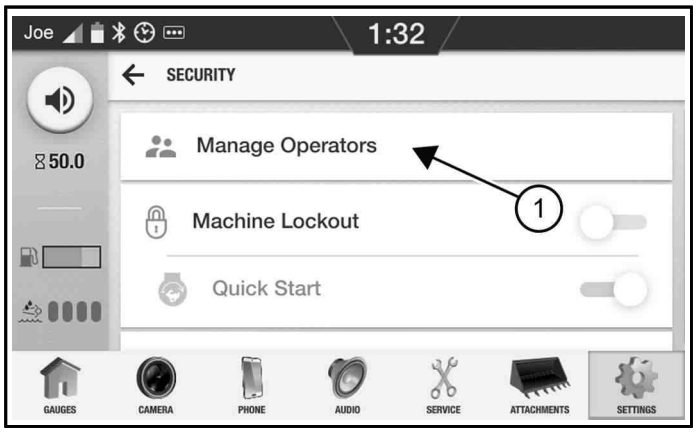
Figure 421



NA3613J

2. Select **[SECURITY SETTINGS]** (Item 1) [Figure 421].

Figure 422



NA3653C

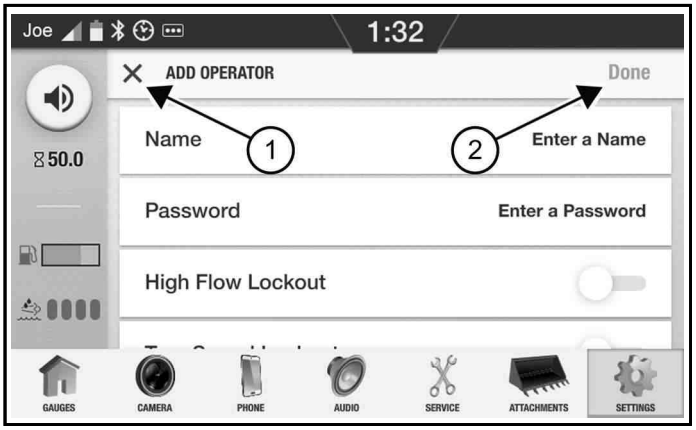
3. Select **[MANAGE OPERATORS]** (Item 1) [Figure 422].

Figure 423

NA3655D

4. Select **[ADD AN OPERATOR]** (Item 1) [Figure 423] to enter a new operator.

Figure 424



NA3657C

5. The following information can be added [Figure 424]:
   - Operator Name
   - Operator Password
   - High-Flow Lockout on or off - When on, operator cannot activate high-flow auxiliary hydraulics
   - Super-Flow Lockout on or off - When on, operator cannot activate super-flow auxiliary hydraulics
   - Two-Speed Lockout on or off - When on, operator cannot select high range speed
   - Radio Lockout on or off - When on, operator cannot operate radio
   - Phone Lockout on or off - When on, operator cannot connect phone
   - Max Forward - limits operator maximum travel speed in forward as a percentage of machine full travel speed
   - Max Reverse - limits operator maximum travel speed in reverse as a percentage of machine full travel speed
6. Select **[DONE]** (Item 2) to save changes or select the **[X]** icon (Item 1) [Figure 424] to cancel.

Edit Operator

Figure 425

C216735F

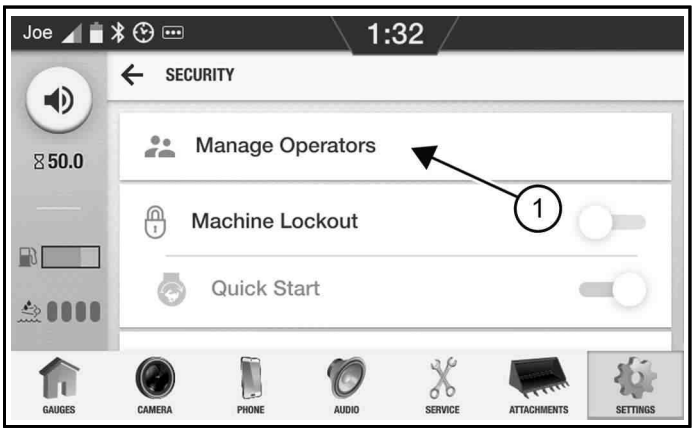
1. Select **[SETTINGS]** (Item 1) [Figure 425].

Figure 426

NA3613J

2. Select **[SECURITY SETTINGS]** (Item 1) [Figure 426].

Figure 427



NA3653C

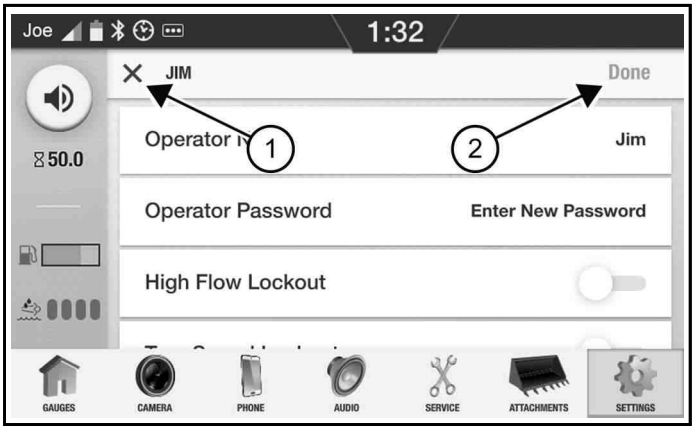
3. Select **[MANAGE OPERATORS]** (Item 1) [Figure 427].

Figure 428

NA3655E

4. Select an **[OPERATOR'S NAME]** (Item 1) [Figure 428] to edit their information.

Figure 429



NA3656C

5. The following information can be edited [Figure 429]:
   - Operator Name
   - Operator Password
   - High-Flow Lockout on or off - When on, operator cannot activate high-flow auxiliary hydraulics
   - Super-Flow Lockout on or off - When on, operator cannot activate super-flow auxiliary hydraulics
   - Two-Speed Lockout on or off - When on, operator cannot select high range speed
   - Radio Lockout on or off - When on, operator cannot operate radio
   - Phone Lockout on or off - When on, operator cannot connect phone
   - Max Forward - limits operator maximum travel speed in forward as a percentage of machine full travel speed
   - Max Reverse - limits operator maximum travel speed in reverse as a percentage of machine full travel speed
   - Delete Operator - Removes operator
6. Select **[DONE]** (Item 2) to save changes or select the **[X]** icon (Item 1) [Figure 429] to cancel.

Operator Statistics

Figure 430

C216735F

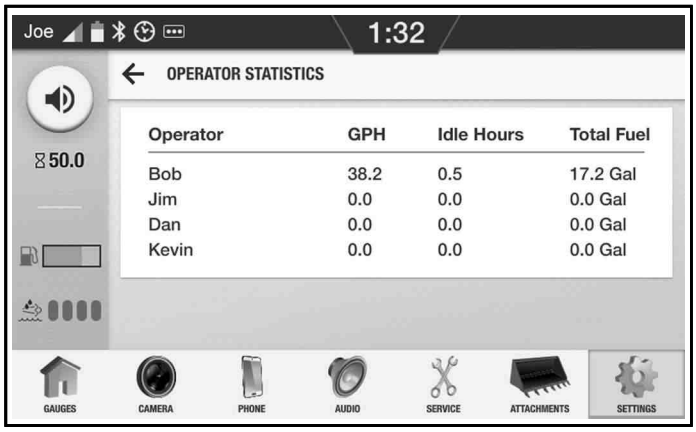
1. Select **[SETTINGS]** (Item 1) [Figure 430].

Figure 431

NA3614E

2. Scroll down and select **[OPERATOR STATISTICS]** (Item 1) [Figure 431].

Figure 432



NA3658A

3. The following information can be viewed for each operator [Figure 432]:
   - Operator Name
   - Fuel used per hour
   - Idle Hours
   - Total Fuel used

Job Clocks

Figure 433

C216735F

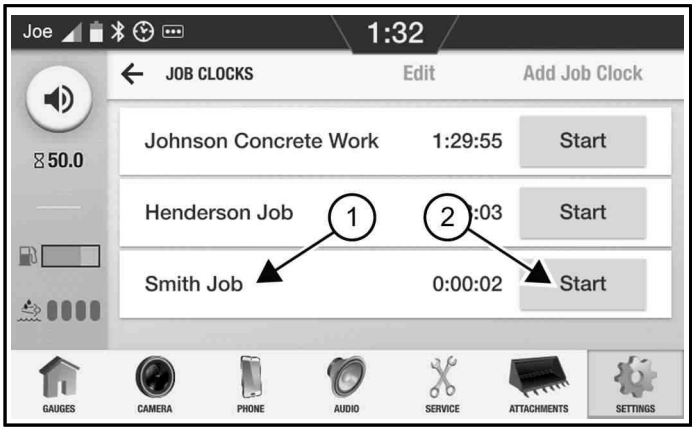
1. Select **[SETTINGS]** (Item 1) [Figure 433].

Figure 434

NA3614F

2. Scroll down and select **[JOB CLOCKS]** (Item 1) [Figure 434].

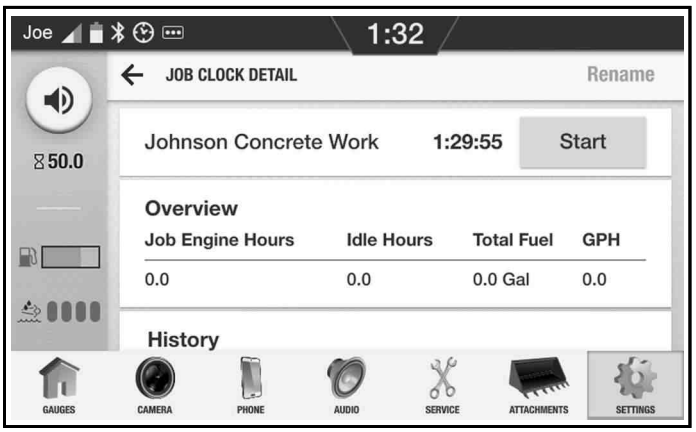
Figure 435



NA3665F

3. Existing job clocks can be started by selecting **[START]** (Item 2). Job clock details can be viewed by selecting the **[JOB CLOCK NAME]** (Item 1) [Figure 435].

Figure 436



NA3662A

Figure 437

NA3663C

4. The job clock detail screen provides the following information [Figure 436] and [Figure 437]:
   - Job name
   - Accumulated job time
   - Job Engine Hours
   - Idle Hours
   - Total Fuel used
   - Fuel used per hour
   - History by operator
5. The job clock name can be changed by selecting **[RENAME]** (Item 1) [Figure 437].

Adding And Removing Job Clocks

Add Job Clock

Figure 438

C216735F

1. Select **[SETTINGS]** (Item 1) [Figure 438].

Figure 439

NA3614F

2. Scroll down and select **[JOB CLOCKS]** (Item 1) [Figure 439].

Figure 440

NA3665G

3. Select **[ADD JOB CLOCK]** (Item 1) [Figure 440] and add the name on the next screen.

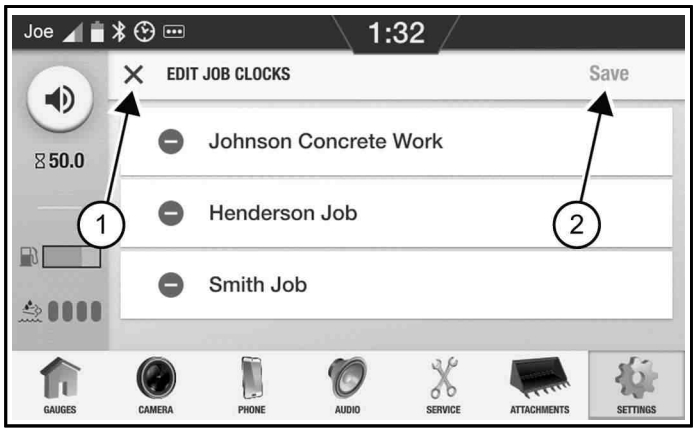
Remove Job Clock

Figure 441

NA3665H

1. Select **[EDIT]** (Item 1) [Figure 441].

Figure 442



NA3664C

2. Select the **[-]** icon next to the job clock name you want to remove [Figure 442].
3. Select **[SAVE]** (Item 2) to save changes or select the **[X]** icon (Item 1) [Figure 442] to cancel.

Language Settings

Figure 443

C216735F

1. Select **[SETTINGS]** (Item 1) [Figure 443].

Figure 444

NA3614G

2. Scroll down and select **[LANGUAGE SETTINGS]** (Item 1) [Figure 444].

Figure 445

NA3659C

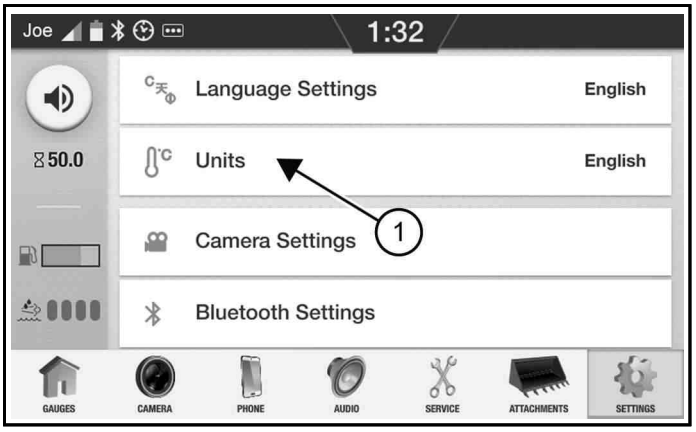
3. The current language is identified by a check mark icon (Item 1) [Figure 445].
4. Scroll up or down and select the desired language. The selected language will take effect immediately and is set for each operator.

Units

Figure 446

1. Select **[SETTINGS]** (Item 1) [Figure 446].

Figure 447



2. Scroll down and select **[UNITS]** (Item 1) [Figure 447] to toggle between English and Metric.

Camera Settings

(See Camera Settings on Page 197)

Bluetooth Settings

See your Touch Display User Guide for more information about phone settings.

Audio Settings

See your Touch Display User Guide for more information about audio settings.

Dealer

Figure 448

1. Select **[SETTINGS]** (Item 1) [Figure 448].

Figure 449

2. Scroll down and select **[DEALER]** (Item 1) [Figure 449].

Figure 450

3. Your Bobcat dealer's information can only be changed by your dealer [Figure 450].

4. Press **[CALL]** (Item 1) [Figure 450] to call your dealer if they entered their phone number on this screen and a phone is connected to the machine.

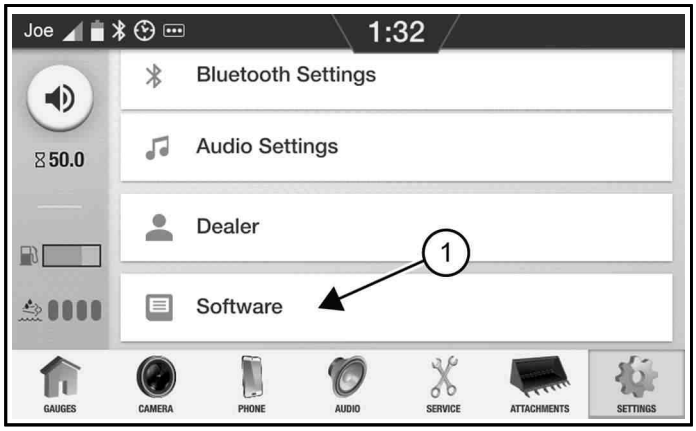
Software

Figure 451

C216735F

1. Select **[SETTINGS]** (Item 1) [Figure 451].

Figure 452



NA3616E

2. Scroll down and select **[SOFTWARE]** (Item 1) [Figure 452].

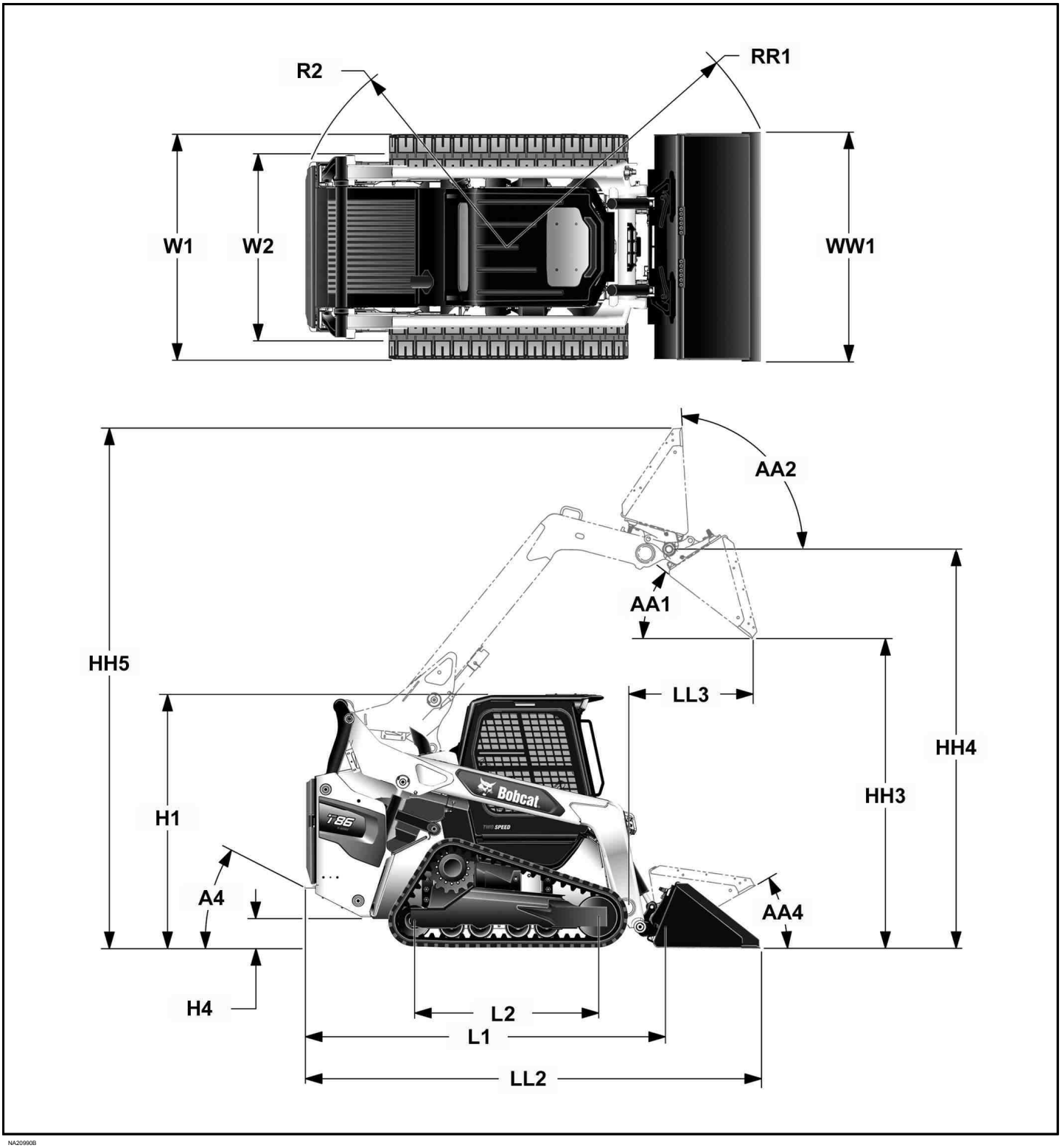
Figure 453

NA3661A

3. Your machine's current software versions are shown [Figure 453]. Software updates can only be performed by your dealer.

MACHINE DIMENSIONS

Figure 454



- Dimensions are given for loader equipped with standard tracks and 80 in. Heavy Duty bucket and may vary with other bucket types.
- Where applicable, specifications conform to SAE or ISO standards and are subject to change without notice.

R2	Rear of machine clearance radius	1950 mm (76.8 in)
RR1	Carry position machine clearance radius	2255 mm (88.8 in)
W1	Overall width	1981 mm (78.0 in)
W2	Track Gauge	1531 mm (60.3 in)
WW1	Bucket width	2032 mm (80.0 in)
HH5	Overall operating height	4345 mm (171.1 in)
H1	Overall height	2111 mm (83.1 in)
A4	Angle of departure	30 degrees
H4	Ground clearance	218 mm (8.6 in)
L2	Crawler Base	1683 mm (66.3 in)
L1	Length without attachment	3059 mm (120.4 in)
LL2	Overall length	3900 mm (153.5 in)
AA2	Maximum rollback - fully raised	93 degrees
AA1	Dump angle	40 degrees
LL3	Reach - fully raised	976 mm (38.4 in)
HH3	Dump height	2586 mm (101.8 in)
AA4	Maximum rollback - carry position	31 degrees
HH4	Height to hinge pin	3353 mm (132.0 in)

Changes of structure or weight distribution of the loader can cause changes in control and steering response, and can cause failure of the loader parts.

LOADER SPECIFICATIONS

Certain specification(s) are based on engineering calculations and are not actual measurements. Specification(s) are provided for comparison purposes only and are subject to change without notice. Specification(s) for your individual Bobcat equipment will vary based on normal variations in design, manufacturing, operating conditions, and other factors.

Performance Specifications

	TORSION SUSPENSION UNDERCARRIAGE	SOLID-MOUNTED UNDERCARRIAGE
Rated Operating Capacity (ISO 14397–1)	1746 kg (3850 lb)	1780 kg (3925 lb)
with 200 Pound Frame Mounted Counterweight Kit (ISO 14397–1)	1803 kg (3975 lb)	1848 kg (4075 lb)
with 300 Pound Frame Mounted Counterweight Kit (ISO 14397–1)	1837 kg (4050 lb)	1882 kg (4150 lb)
with 400 Pound Frame Mounted Counterweight Kit (ISO 14397–1)	1860 kg (4100 lb)	1916 kg (4225 lb)
Tipping Load (ISO 14397–2)	4990 kg (11000 lb)	5087 kg (11214 lb)
Operating Weight	5898 kg (13002 lb)	5643 kg (12442 lb)
Breakout Force – Lift	3298 kg (7270 lb)	3248 kg (7160 lb)
Breakout Force – Tilt	3472 kg (7654 lb)	3375 kg (7440 lb)
Travel Speed:		
— Low Range	0 – 8,9 km/h (0 – 5.5 mph)	0 – 8,9 km/h (0 – 5.5 mph)
— High Range	0 – 17,2 km/h (0 – 10.7 mph)	0 – 17,2 km/h (0 – 10.7 mph)

Engine Specifications

Make / Model	Bobcat Engine / 3,4L Bobcat Engine, V2 Stage V
Fuel	Ultra Low Sulfur Diesel
Cooling	53% Propylene Glycol / 47% Water Mixture
Horsepower:	
— ISO 9249 EEC / SAE J1349 Net	74,8 kW (100.3 hp) @ 2600 rpm
— ISO 14396 Gross	78,3 kW (105.0 hp) @ 2600 rpm
— SAE J1995Gross	78,7 kW (105.5 hp) @ 2600 rpm
— Rated Power	78,3 kW (105.0 hp) @ 2600 rpm
Torque:	
— ISO 9249 EEC / SAE J1349 Net	398,7 N•m (294.1 ft-lb) @ 1600 rpm
— ISO 14396 Gross	407,0 N•m (300.2 ft-lb) @ 1600 rpm
— SAE J1995 Gross	409,0 N•m (301.7 ft-lb) @ 1600 rpm
— Rated Torque	407,0 N•m (300.2 ft-lb) @ 1600 rpm
Low Idle rpm	1025 - 1075
High Idle rpm	2575 - 2625

Number of Cylinders	4
Displacement	3409 cm^3 (208.0 in^3)
Bore / Stroke	98 mm / 113 mm (3.9 in / 4.4 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
Starting Aid	Glow plugs automatically activated as needed in RUN position

Drive System Specifications

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

Control Specifications

Machine Steering	Direction and speed controlled by joystick(s)
Loader Hydraulics:	
— Lift and Tilt	Controlled by joystick(s)
— Front Auxiliary	Controlled by electrical switch on Right Hand joystick
— Rear Auxiliary (If equipped)	Controlled by electrical switch on Left Hand 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; key-type start switch or keypad and function error shutdown
Service Brake	Two independent hydrostatic systems controlled by joystick(s)
Secondary Brake	One of the hydrostatic transmissions
Parking Brake	Spring applied pressure release multi-disc brake activated by manually operated button on right control panel

Hydraulic System Specifications

Pump Type	Engine driven variable displacement axial piston type
Pump Capacity – Standard-Flow	87,1 L/min (23.0 U.S. gpm)
Pump Capacity – High-Flow	138,5 L/min (36.6 U.S. gpm)
Pump Capacity – Super-Flow	159,0 L/min (42.0 U.S. gpm)
System Relief at Quick Couplers – Standard-Flow and High-Flow	23,8 – 24,5 MPa (238 – 245 bar) (3450 – 3550 psi)

System Relief at Quick Couplers – Super-Flow	27,7 – 28,3 MPa (277 – 283 bar) (4011 – 4111 psi)
Filter (Main Hydraulic)	Replaceable ß 10(c) ≥ 200 ISO 16889, drop in element
Filter (Charge)	Replaceable ß 12(c) ≥ 200 ISO 16889, spin on element
Filter (Case Drain)	Replaceable ß 20(c) ≥ 200 ISO 16889, spin on element
Filter (Hydraulic Reservoir Vent)	Replaceable 3 micron, barbed vent
Control Valve	3-Spool, open centre with electric actuator controlled lift with float and tilt; Electro-hydraulic piloted auxiliary spool
Fluid Lines	SAE Standard tubelines, hoses, and fittings
Hydraulic Function Time:	
— Raise Lift Arms	4.5 seconds
— Lower Lift Arms	3.0 seconds
— Bucket Dump	2.8 seconds
— Bucket Rollback	2.0 seconds

Hydraulic Cylinder Specifications

Double-acting; lift cylinders have cushioning feature on lower, tilt cylinders have cushioning feature on dump and rollback	BORE	STROKE	ROD
Lift	76,2 mm (3.00 in)	712,0 mm (28.03 in)	44,5 mm (1.75 in)
Tilt	82,6 mm (3.25 in)	376,4 mm (14.82 in)	44,5 mm (1.75 in)

Electrical System Specifications

Alternator	Belt driven, 120 amperes, open frame
Battery	12 volt, 1000 cold cranking amperes @ -18°C (0°F), 186 minute reserve capacity @ 25 amperes
Starter	12 volt, gear type, 2,7 kW (3.62 hp)

Fluid Capacities

Fuel	119,6 L (31.6 U.S. gal)
Diesel Exhaust Fluid (DEF) / AdBlue®	20,4 L (5.4 U.S. gal)
Engine Oil with Filter Change	12,8 L (13.5 qt)
Engine Cooling System with Heater	17,1 L (18.1 qt)
Engine Cooling System without Heater	16,5 L (17.4 qt)
Hydraulic / Hydrostatic Reservoir	23,7 L (25.0 qt)
Hydraulic / Hydrostatic System	62,5 L (16.5 U.S. gal)

Hydrostatic Drive Motor Brake Cavity (Each)	517,5 mL (17.5 U.S. fl oz)
Air Conditioning Refrigerant (R-134a)	0,82 kg (1.8 lb)

Tracks

Standard Rubber	450 mm (17.7 in) Rubber
Multi-Bar Lug	450 mm (17.7 in) Rubber

Ground Pressure

	TORSION SUSPENSION UNDERCARRIAGE	SOLID-MOUNTED UNDERCARRIAGE
Rubber Track - 450 mm (17.7 in)	0,034 MPa (0,34 bar) (5.0 psi)	0,033 MPa (0,33 bar) (4.8 psi)

Environmental

DECLARED SINGLE-NUMBER NOISE EMISSION VALUES	
In accordance with ISO 4871	
Noise level per Directive 2000/14/EC — L_{wA}	105 dB(A)
Operator noise level per Directive 2006/42/EC — L_{pA}	79 dB(A)

DECLARED VIBRATION EMISSION VALUES		
In accordance with EN 12096		
	Value	Uncertainty
Whole-body vibration per ISO 2631–1	0,63 m/s^2	0,31 m/s^2
Hand-arm vibration per ISO 5349–1	1,19 m/s^2	— — —

Machine equipped with optional HVAC (air condition) contains fluorinated greenhouse gas (F-gas)	
F-gas type	HFC-134a
F-gas mass (kg)	0,82
CO2 equivalent (t)	1,17
GWP	1430

ENGINE CO_2 EMISSION VALUES	
CO_2 emission (NRSC)	810,2 g/kWh
This CO_2 measurement results from testing over a fixed test cycle under laboratory conditions a(n) (parent) engine representative of the engine type (engine family) and shall not imply or express any guarantee of the performance of a particular engine.	

Temperature Range

Operation and storage	-26° – +43°C (-15° – +110°F)

TORQUE SPECIFICATION FOR BOLTS

Torque For General SAE Bolts

The following torque values are for use in general applications and where torque values are not otherwise specified. They apply to all steel screw threaded fasteners having the same strength levels and coated with zinc phosphate and oil or zinc dichromate.

THREAD SIZE	CAP SCREW BOLT AND NUT SAE GRADE 5	CAP SCREW BOLT AND NUT SAE GRADE 8	SOCKET HEAD CAP SCREW OR 12–POINT HEAD CAP SCREW
0.250	9 – 10 N•m (80 – 90 in-lb)	13 – 14 N•m (110 – 120 in-lb)	15 – 16 N•m (130 – 145 in-lb)
0.3125	21 – 23 N•m (180 – 200 in-lb)	24 – 27 N•m (215 – 240 in-lb)	31 – 34 N•m (270 – 300 in-lb)
0.375	34 – 38 N•m (25 – 28 ft-lb)	48 – 54 N•m (35 – 40 ft-lb)	61 – 68 N•m (45 – 50 ft-lb)
0.4375	54 – 61 N•m (40 – 45 ft-lb)	82 – 88 N•m (60 – 65 ft-lb)	95 – 102 N•m (70 – 75 ft-lb)
0.500	88 – 95 N•m (65 – 70 ft-lb)	125 – 135 N•m (90 – 100 ft-lb)	150 – 160 N•m (110 – 120 ft-lb)
0.5625	125 – 135 N•m (90 – 100 ft-lb)	170 – 190 N•m (125 – 140 ft-lb)	205 – 225 N•m (150 – 165 ft-lb)
0.625	170 – 190 N•m (125 – 140 ft-lb)	240 – 260 N•m (175 – 190 ft-lb)	285 – 310 N•m (210 – 230 ft-lb)
0.750	300 – 330 N•m (220 – 245 ft-lb)	410 – 450 N•m (300 – 330 ft-lb)	490 – 540 N•m (360 – 400 ft-lb)
0.875	450 – 490 N•m (330 – 360 ft-lb)	645 – 710 N•m (475 – 525 ft-lb)	815 – 880 N•m (600 – 650 ft-lb)
1.000	645 – 710 N•m (475 – 525 ft-lb)	985 – 1085 N•m (725 – 800 ft-lb)	1220 – 1360 N•m (900 – 1000 ft-lb)
1.125	880 – 975 N•m (650 – 720 ft-lb)	1425 – 1600 N•m (1050 – 1175 ft-lb)	1770 – 1970 N•m (1300 – 1450 ft-lb)
1.250	1220 – 1360 N•m (900 – 1000 ft-lb)	2000 – 2200 N•m (1475 – 1625 ft-lb)	2510 – 2720 N•m (1850 – 2000 ft-lb)
1.375	1630 – 1830 N•m (1200 – 1350 ft-lb)	2720 – 2980 N•m (2000 – 2200 ft-lb)	3330 – 3660 N•m (2450 – 2700 ft-lb)
1.500	2040 – 2240 N•m (1500 – 1650 ft-lb)	3520 – 3870 N•m (2600 – 2850 ft-lb)	4270 – 4680 N•m (3150 – 3450 ft-lb)
1.625	2720 – 2980 N•m (2000 – 2200 ft-lb)	4680 – 5150 N•m (3450 – 3800 ft-lb)	5630 – 6240 N•m (4150 – 4600 ft-lb)
1.750	3390 – 3730 N•m (2500 – 2750 ft-lb)	5830 – 6500 N•m (4300 – 4900 ft-lb)	6920 – 7730 N•m (5100 – 5700 ft-lb)
1.875	4270 – 4750 N•m (3150 – 3500 ft-lb)	7450 – 8300 N•m (5500 – 6100 ft-lb)	8800 – 9800 N•m (6500 – 7200 ft-lb)
2.000	5150 – 5700 N•m (3800 – 4200 ft-lb)	8800 – 9800 N•m (6500 – 7200 ft-lb)	10600 – 11700 N•m (7800 – 8600 ft-lb)

NOTE: Use the torque value for the part having the lesser grade when a fastener and nut are used together but have a different grade.

Torque For General Metric Bolts

Torque values shown in table below apply to combinations of a fastener and nut having the same property class, and both being coated with zinc phosphate and oil or zinc dichromate.

Use the torque value for the part having the lesser property class when a fastener and nut are used together but have a different property class.

THREAD NOM. DIA.	PROPERTY CLASS		
	8.8	10.9	12.9
M4	2,5 – 3,5 N•m (2.0 – 2.5 ft-lb)	3,8 – 4,2 N•m (2.8 – 3.1 ft-lb)	4,7 – 5,3 N•m (3.5 – 3.9 ft-lb)
M5	5,5 – 6,5 N•m (4.0 – 5.0 ft-lb)	7,6 – 8,4 N•m (5.6 – 6.2 ft-lb)	8,5 – 9,5 N•m (6.2 – 7.0 ft-lb)
M6	9,5 – 10,5 N•m (7.0 – 7.5 ft-lb)	12,3 – 13,7 N•m (9.1 – 10.1 ft-lb)	14,2 – 15,8 N•m (10.4 – 11.6 ft-lb)
M7	15 – 17 N•m (11.0 – 12.5 ft-lb)	20 – 22 N•m (14.7 – 16.2 ft-lb)	23,7 – 26,3 N•m (17.5 – 19.5 ft-lb)
M8	24 – 26 N•m (18 – 19 ft-lb)	29,4 – 32,6 N•m (21.7 – 24.0 ft-lb)	35 – 39 N•m (25.5 – 28.5 ft-lb)
M10	43 – 47 N•m (32 – 35 ft-lb)	57 – 63 N•m (42.0 – 46.5 ft-lb)	71 – 79 N•m (52.5 – 58.5 ft-lb)
M12	75 – 85 N•m (55 – 60 ft-lb)	105 – 115 N•m (78 – 85 ft-lb)	123 – 137 N•m (91 – 110 ft-lb)
M14	125 – 140 N•m (90 – 100 ft-lb)	160 – 180 N•m (118 – 133 ft-lb)	190 – 210 N•m (140 – 155 ft-lb)
M16	190 – 210 N•m (140 – 155 ft-lb)	255 – 285 N•m (188 – 210 ft-lb)	300 – 330 N•m (225 – 245 ft-lb)
M18	260 – 290 N•m (190 – 215 ft-lb)	345 – 385 N•m (255 – 285 ft-lb)	420 – 460 N•m (310 – 340 ft-lb)
M20	370 – 410 N•m (275 – 300 ft-lb)	490 – 550 N•m (360 – 405 ft-lb)	590 – 650 N•m (440 – 490 ft-lb)
M22	500 – 550 N•m (370 – 400 ft-lb)	660 – 740 N•m (490 – 545 ft-lb)	800 – 880 N•m (590 – 650 ft-lb)
M24	640 – 700 N•m (470 – 520 ft-lb)	850 – 950 N•m (625 – 700 ft-lb)	1000 – 1120 N•m (730 – 830 ft-lb)
M27	930 – 1030 N•m (680 – 760 ft-lb)	1230 – 1370 N•m (900 – 1000 ft-lb)	1470 – 1630 N•m (1100 – 1200 ft-lb)
M30	1260 – 1400 N•m (930 – 1030 ft-lb)	1700 – 1900 N•m (1250 – 1400 ft-lb)	2000 – 2200 N•m (1500 – 1600 ft-lb)
M33	1720 – 1900 N•m (1270 – 1400 ft-lb)	2300 – 2500 N•m (1700 – 1850 ft-lb)	2700 – 3100 N•m (2000 – 2300 ft-lb)
M36	2200 – 2450 N•m (1620 – 1800 ft-lb)	2900 – 3200 N•m (2200 – 2400 ft-lb)	3500 – 3900 N•m (2600 – 2900 ft-lb)

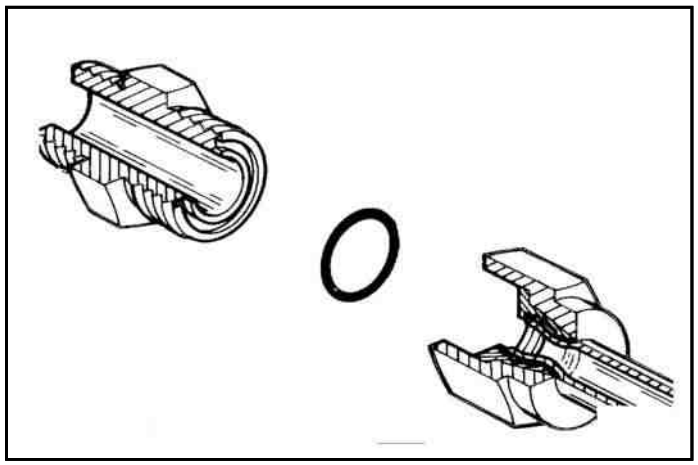
HYDRAULIC CONNECTION SPECIFICATIONS

O-ring Face Seal Connection

⚠ IMPORTANT

MACHINE DAMAGE
When repairing hydrostatic and hydraulic systems, clean the work area before disassembly and keep all parts clean.
Always use caps and plugs on hoses, tubelines, and ports to keep dirt out. Dirt can quickly damage the system.
I-2003

Figure 455

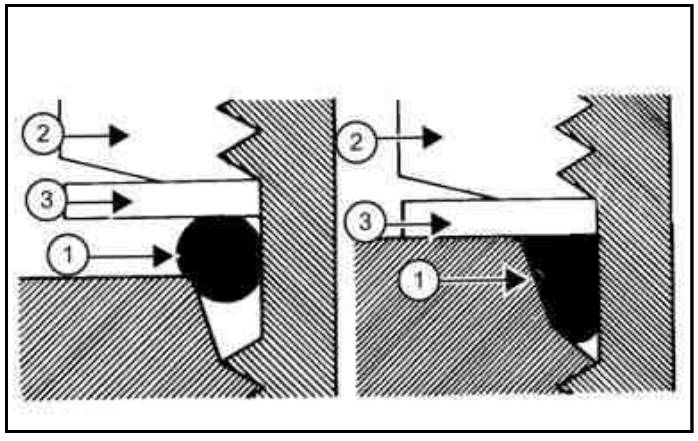


B-7575

Use petroleum jelly to hold the O-ring in position until the fittings are assembled. To eliminate leakage do not under or over tighten .

Straight Thread O-ring Fitting

Figure 456



A1852a

Lubricate the O-ring (Item 1) before installing the fitting. Loosen the nut (Item 2) and install the fitting. Loosen the nut and install the fitting. Tighten the nut until the washer (Item 3) [Figure 456] is tight against the surface.

Tubelines And Hoses

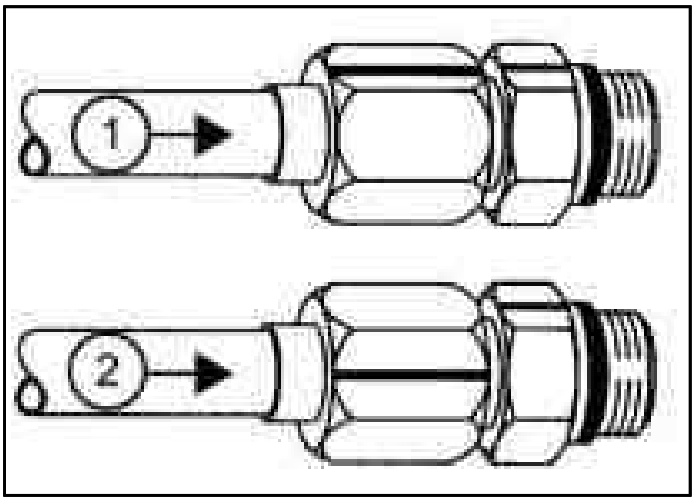
Replace any tubelines that are bent or flattened. They will restrict flow, which will slow hydraulic action and cause heat.

Replace hoses which show signs of wear, damage or weather cracked rubber.

Always use two wrenches when loosening and tightening hose or tubeline fittings.

Tightening The Flare Fitting

Figure 457



TS1619b

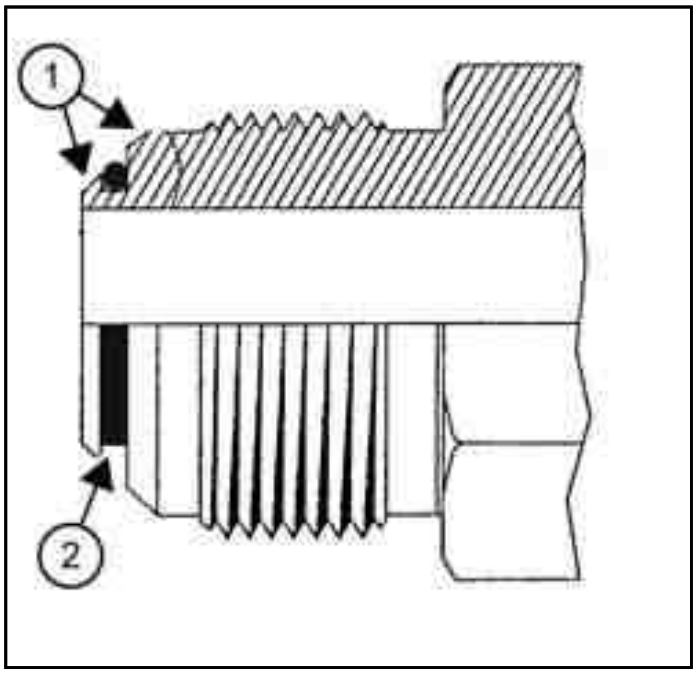
Tighten the nut until it makes contact with the seat. Make a mark across the flats of both the male and female parts of the connection (Item 1) [Figure 457].

Use the chart below to find the correct tightness needed (Item 2) [Figure 457]. If the fitting leaks after tightening, disconnect it and inspect the seat area for damage.

Flare Fitting Tightening Torque					
Wrench Size	Tubeline Outside Diameter	Thread Size	TORQUE N·m (ft-lb)	NEW Rotate No. of Hex Flats	RE-ASSEMBLY Rotate No. of Hex Flats
5/8”	5/16”	1/2” – 20	23 (17)	2 - 1/2	1
11/16”	3/8”	9/16” – 18	30 (22)	2	1
7/8”	1/2”	3/4” – 16	54 (40)	2	1
1”	5/8”	7/8” – 14	81 (60)	1 - 1/2	1
1 - 1/4”	3/4”	1 - 1/16” – 12	114 (84)	1	3/4
1 - 3/8”	1”	1 - 5/16” – 12	160 (118)	3/4	3/4

O-ring Flare Fitting

Figure 458



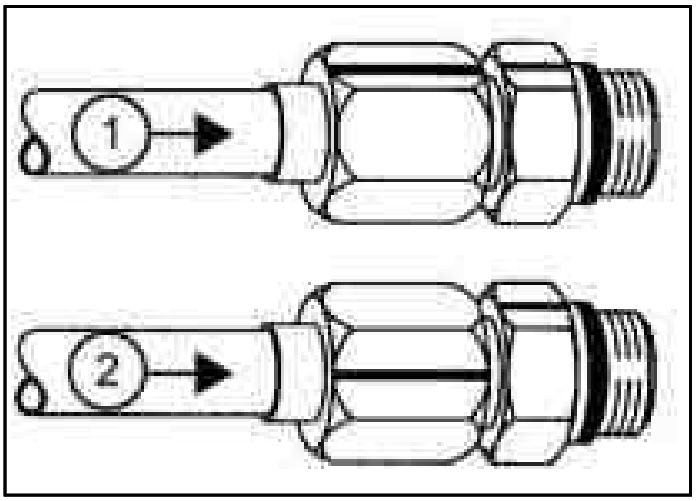
P13009a

The flare (Item 1) is the primary seal, the O-ring (Item 2) is the secondary seal and helps absorb vibration and pressure pulses at the connection [Figure 458].

If necessary, the O-ring flare fitting can be used without an O-ring.

Use the following procedure to tighten the O-ring flare fitting.

Figure 459



TS1619

Tighten the nut until it contacts with seat. Make a mark across the flats of both the male and female parts of the connection (Item 1) [Figure 459].

Use the chart below to find the correct tightness needed (Item 2) [Figure 459]. If the fitting leaks after tightening, disconnect it and inspect the seat area for damage.

O-ring Flare Fitting Tightening Torque					
			*	**	***
Wrench Size	Tubeline Outside Diameter	Thread Size	TORQUE N·m (ft-lb)	NEW Rotate No. of Hex Flats	RE-ASSEMBLY Rotate No. of Hex Flats
5/8”	5/16”	1/2” – 20	23 (17)	2 - 1/2	1

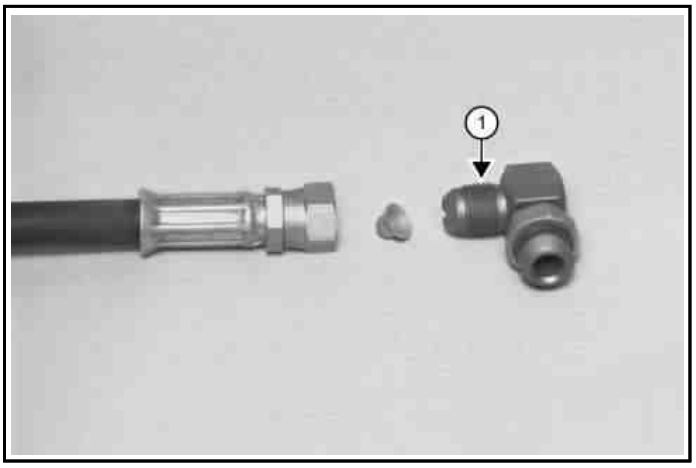
O-ring Flare Fitting Tightening Torque					
11/16”	3/8”	9/16” – 18	30 (22)	2	1
7/8”	1/2”	3/4” – 16	54 (40)	2	1
1”	5/8”	7/8” – 14	81 (60)	1 - 1/2	1
1 - 1/4”	3/4”	1 - 1/16” – 12	114 (84)	1	3/4
1 - 3/8”	1”	1 - 5/16” – 12	160 (118)	3/4	3/4

* If a torque wrench is used to tighten a new fitting to a used hose / tubeline.
** If using the hex flat tightening method to tighten a new fitting to a new hose / tubeline.
*** If using the hex flat tightening method to tighten a used fitting to a new hose / tubeline.

NOTE: O-ring flare fittings are not recommended in all applications. Use the standard flare fittings in these applications.

Do not use an O-ring flare fitting when a copper bonnet orifice to used. When tightened the connection at the bonnet may distort the flare face and prevent it from sealing.

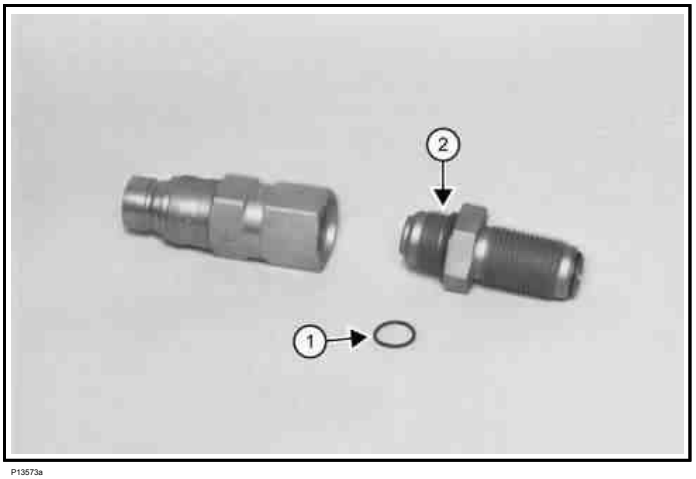
Figure 460



P13572a

Use a standard flare fitting (Item 1) [Figure 460] as shown.

Figure 461



P13573a

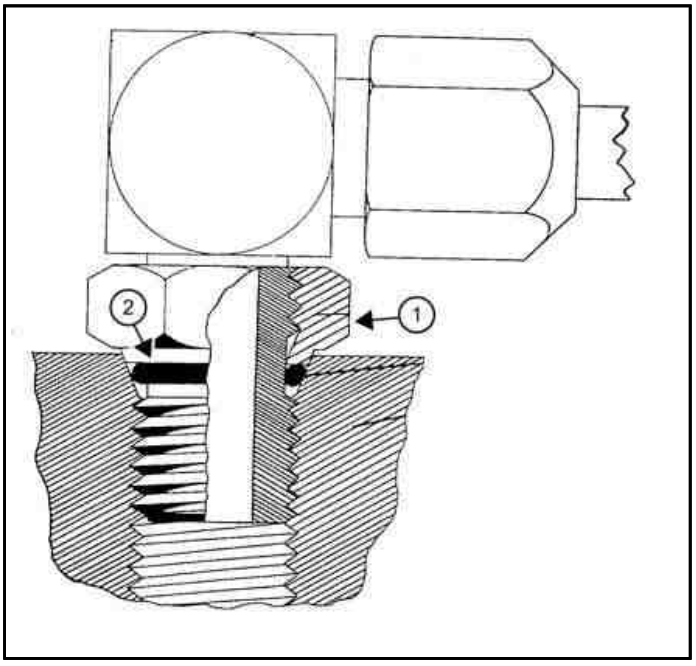
When an O-ring flare fitting is used as a straight thread port adapter the O-ring flare face is not used to seal. The O-ring may come off the fitting and enter the system.

Always remove the O-ring (Item 1) [Figure 461] from the flare face as shown.

An O-ring (Item 2) [Figure 461] is added to the flat boss of the fitting to seal the connection in this application.

Port Seal Fitting

Figure 462



P13008a

The nut (Item 1) is the primary seal, the O-ring (Item 2) [Figure 462] is the secondary seal and helps absorb vibration and pressure pulses at the connection.

The hex portion of the nut does not contact the surface of the component when the nut is tight.

Use the following procedure to tighten the port seal fitting:

Port seal and nut, washer and O-ring (O-ring Boss) fittings use the same tightening torque valve chart.

If a torque wrench cannot be used, use the following method.

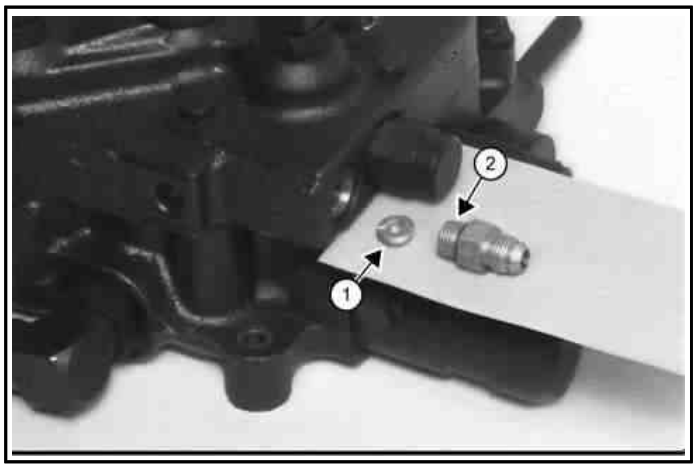
Tighten the nut until it just makes metal to metal contact, you can feel the resistance. Tighten the nut with a wrench no more than one hex flex maximum.

Do not over tighten the port seal fitting.

NOTE: If a torque wrench cannot be used, use the hex flat tightening method as an approximate guideline.

NOTE: Port seal fittings are not recommended in all applications. Use O-ring boss fittings in these applications.

Figure 463



P13571a

Do not use port seal fittings when a thread in orifice (Item 1) [Figure 463] is used in the port. The orifice may interfere with the fitting and prevent it from sealing.

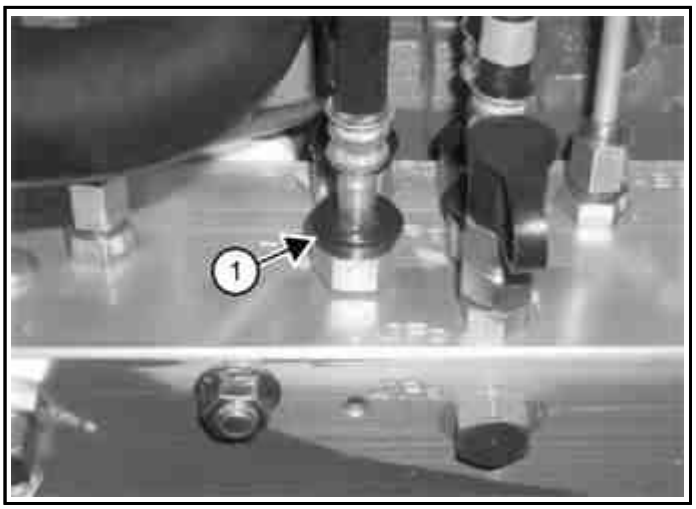
Use an O-ring boss fitting (Item 2) [Figure 463] as shown.

Port Seal and O-ring Boss Tightening Torque		
Fitting Nut Wrench Size	Thread Size	TORQUE N·m (ft-lb)
11/16”	9/16” – 18	30 (22)
15/16”	3/4” – 16	50 (40)
1 - 1/8”	7/8” – 14	81 (60)
1 - 1/4”	1 - 1/16” – 12	114 (84)
1 - 1/2”	1 - 5/16”	160 (118)

Push To Connect Fittings

The push to connect fittings provide a leak free seal that also acts as a swivel fitting.

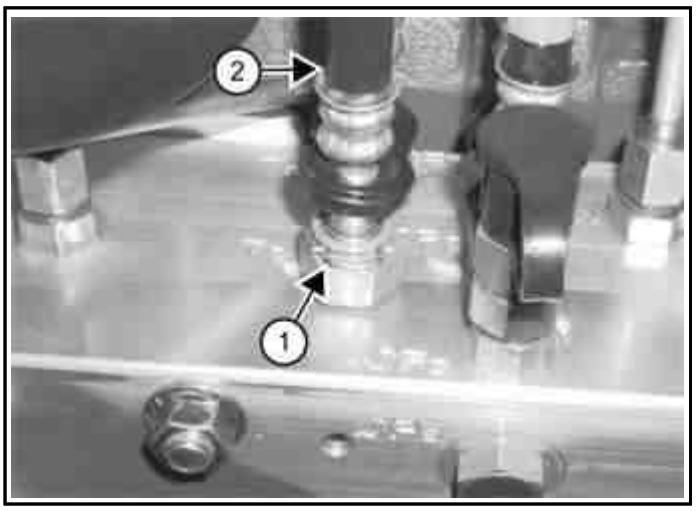
Figure 464



P91857a

1. To disconnect the hose, pull up on the grommet (Item 1) [Figure 464].

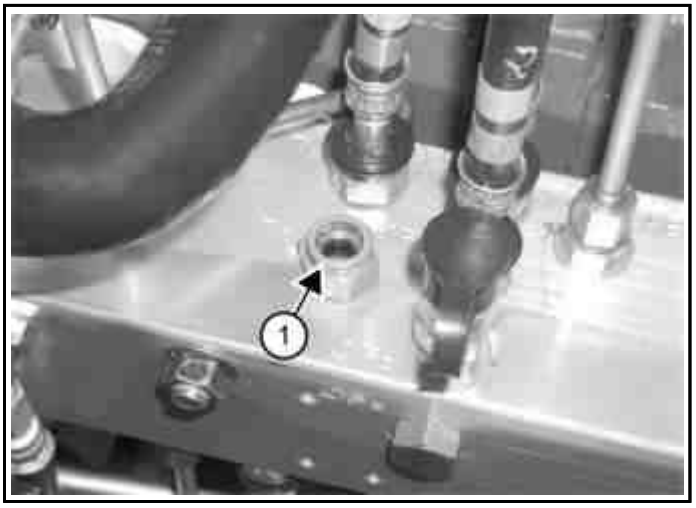
Figure 465



P91858a

2. Use an O-ring pick to remove the retainer clip (Item 1) [Figure 465].
3. Pull up on the hose (Item 2) [Figure 465] and remove the hose from the fitting.

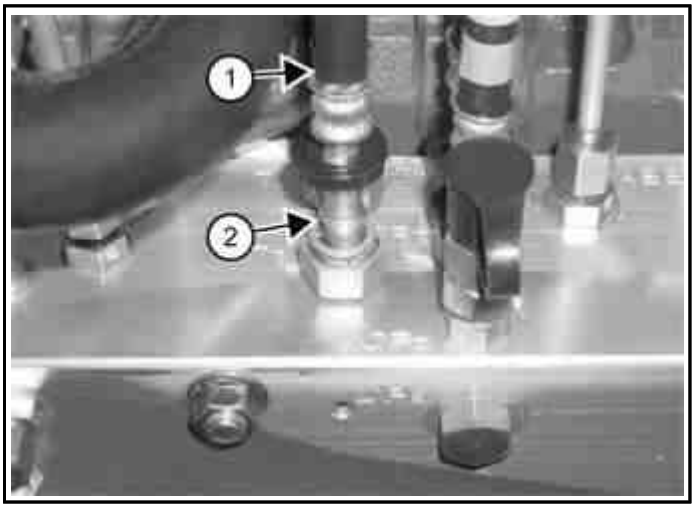
Figure 466



P91854a

4. To install the hose, install the retainer clip (Item 1) [Figure 466] in the fitting.

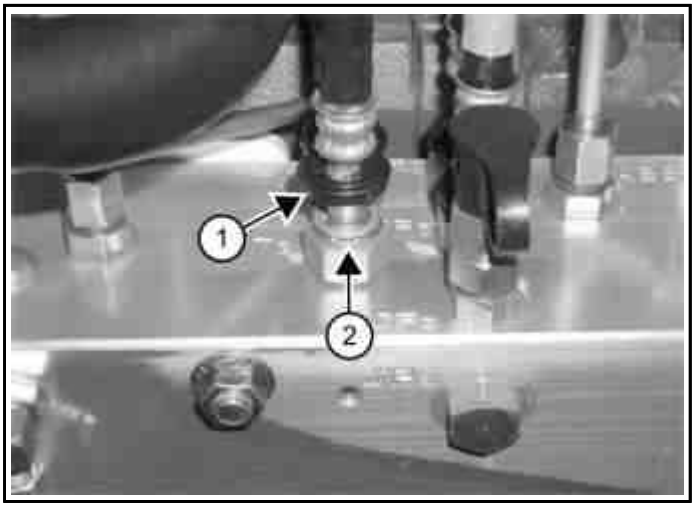
Figure 467



P91855a

5. Install the hose (Item 1) [Figure 467] into the fitting.
6. Press down on the hose until the top of the hose flare is fully seated in the fitting and the retainer clip is over the top of the hose flare (Item 2) [Figure 467].

Figure 468



P91856a

7. Push the grommet (Item 1) down and over the top of the fitting (Item 2) [Figure 468].

MACHINE WARRANTY

A statement explaining the terms and conditions of the warranty coverage that applies to your machine was provided in the literature package shipped with the machine. If this warranty statement is lost or damaged, contact your dealer or visit Bobcat.com to obtain a new copy.

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Reference Information

Compact Track Loader Serial Number:

Engine Serial Number:

NOTES:

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