EN

Operation & Maintenance Manual

Compact Track Loader



T76 S/N: B4ZZ11001 & Above

7399015enGB (K)
July 2025

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Original Instructions

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S5–B

OPERATOR SAFETY WARNINGS



• Never operate without instructions. Obey all warnings and instructions on machine signs (decals), in the Operation & Maintenance Manual, and in the Operator's Handbook.
• Operator must have instruction 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 raised, 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: "Obey instructions for proper operations." Obey 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!” Obey 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 raised.**
- **Load, unload, and turn on flat level ground.**



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



- **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

FOREWORD 10

INTRODUCTION 10
MANUFACTURER 10
North America 10
Czech Republic 10
SERIAL NUMBER LOCATIONS 11
Machine Serial Number Location 11
Engine Serial Number Location 11
DELIVERY REPORT 11
MACHINE IDENTIFICATION 12
Front View 12
Rear View 12
FEATURES, ACCESSORIES, AND ATTACHMENTS 13
Standard Items 13
Options And Accessories 13
Buckets Available 14
Attachments 14
High-Flow Attachments 14
Clear Side Enclosed Cab Option 15
Inspecting And Maintaining Clear Side Enclosed Cab Option 15
Special Applications Kit 15
Inspecting And Maintaining Special Applications Kit 15
Land Management Door And Window Kit 16
Inspecting And Maintaining Land Management Door And Window Kit 16

SAFETY AND TRAINING RESOURCES 17

SAFETY INSTRUCTIONS 17
Before Operation 17
Safe Operation Is The Operator's Responsibility 17
Safe Operation Needs A Qualified Operator 17
A Qualified Operator Must Do The Following 18
Silica Dust Exposure 18
FIRE PREVENTION 18
Maintenance 18
Operation 18
Electrical 18
Hydraulic System 18
Fueling (Diesel) 19
Starting 19
Exhaust System 19
Welding And Grinding 19
Fire Extinguishers 19
PUBLICATIONS AND TRAINING RESOURCES 20
PICTORIAL ONLY SAFETY SIGNS 21
T76 SAFETY SIGNS (DECALS) 22

OPERATING INSTRUCTIONS 39

INTENDED USE 39
INSTRUMENT PANEL OVERVIEW 40
4.3–INCH DISPLAY 41
STANDARD DISPLAY 43
TOUCH DISPLAY 45
LEFT CONTROL PANEL 47
RIGHT CONTROL PANEL 47
JOG SHUTTLE 48

Jog Shuttle (Standard Display) 48
Jog Shuttle (Touch Display) (If Equipped) 48
HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) CONTROLS 49
TOUCH DISPLAY RADIO INPUT PORTS 49
KEYED IGNITION 50
RADIO 50
Radio Identification 50
Adjusting Radio Settings 51
Operating Radio Timer 51
Operating The Radio Clock 52
RADIO (BLUETOOTH) 52
Radio Identification 52
Navigating Audio Menu 53
Navigating System Menu 53
Pairing A Bluetooth Device 53
REAR VIEW CAMERA SYSTEM 54
Rear View Camera System Description (Standard And Touch Displays) 54
Maintaining Rear View Camera System 54
Adjusting Rear View Camera System (Standard And Touch Displays) 55
CONTROL IDENTIFICATION 56
Selectable Joystick Controls (SJC) Identification 56
OPERATOR CAB 57
Operator Cab Description 57
Operating Loader Lights 57
Operating Front Wiper And Washer 57
Operating Front Door 58
Filling Front Washer Tank 58
Operating Side Windows 58
BOBCAT INTERLOCK CONTROL SYSTEM (BICS) 59
Bobcat Interlock Control System (BICS) Description 59
Operating Bobcat Interlock Control System (BICS) 59
SEAT BAR RESTRAINT SYSTEM 60
Seat Bar Restraint System Description 60
Operating Seat Bar Restraint System 60
DIESEL PARTICULATE FILTER (DPF) SYSTEM 61
DPF Description 61
DPF Regeneration Status Icons 61
DPF Regeneration Tables 62
Automatic Regeneration Operation (4.3-Inch Display) 63
Forced Regeneration Operation (4.3-Inch Display) 63
Forced Parked Regeneration Operation (4.3-Inch Display) 63
Inhibit Mode Operation (4.3-Inch Display) 64
Automatic Regeneration Operation (Standard And Touch Displays) 64
Forced Regeneration Operation (Standard And Touch Displays) 65
Forced Parked Regeneration Operation (Standard And Touch Displays) 66
Inhibit Mode Operation (Standard And Touch Displays) 68
PARKING BRAKE 69
Operating Parking Brake 69
Operating Hydraulic Controls With Parking Brake Engaged 69
ENGINE SPEED CONTROL 70
Operating Engine Speed Control (Hand) 70
Operating Engine Speed Control (Foot) 70
AUTO IDLE 71
Auto Idle Description 71
Operating Auto Idle (4.3–Inch Display) 71
Operating Auto Idle (Standard And Touch Displays) 71
AUTO THROTTLE 73

Auto Throttle Description 73
Activating Auto Throttle (Standard And Touch Displays) 73
Operating Auxiliaries With Auto Throttle 74
LIFT ARM BYPASS CONTROL 75
Operating Lift Arm Bypass Control 75
EMERGENCY EXITS 75
Emergency Exit Locations 75
Making An Emergency Exit Through Rear Window With Rubber Cord 75
Making An Emergency Exit Through Rear Window With Latches 76
Removing Rear Window With Latches From Outside Machine 76
Removing Rear Window With Latches From Outside Machine With Knob Kit 76
Removing Rear Window With Rubber Cord From Outside Machine 76
Making An Emergency Exit Through Front Door 77
Front Door Reassembly 77
BACK-UP ALARM SYSTEM 78
Back-Up Alarm Description 78
Operating Back-Up Alarm 78
DRIVING AND STEERING THE LOADER 79
Operating SJC In 'ISO' Control Pattern 79
Operating SJC In 'H' Control Pattern 80
STOPPING THE LOADER 81
Stopping Loader Using Joysticks 81
TWO-SPEED CONTROL 82
Two-Speed Control Description 82
Operating Two-Speed 82
SPEED MANAGEMENT 83
Speed Management Description 83
Operating Speed Management (4.3–Inch Display) 83
Operating Speed Management (Standard And Touch Displays) 83
Changing Speed Management Default Setting (Standard And Touch Displays) 84
DRIVE RESPONSE 85
Drive Response Description 85
Adjusting Drive Response (4.3–Inch Display) 85
Adjusting Drive Response (Standard And Touch Displays) 86
STEERING DRIFT COMPENSATION 87
Steering Drift Compensation Description 87
Adjusting Steering Drift Compensation (4.3–Inch Display) 87
Adjusting Steering Drift Compensation (Standard And Touch Displays) 87
LIFT AND TILT COMPENSATION 89
Lift And Tilt Compensation Description 89
Adjusting Lift And Tilt Compensation (4.3–Inch Display) 89
Adjusting Lift And Tilt Compensation (Standard And Touch Displays) 90
WORKGROUP RESPONSE 93
Workgroup Response Description 93
Adjusting Workgroup Response (4.3–Inch Display) 93
Adjusting Workgroup Response (Standard And Touch Displays) 93
HYDRAULIC CONTROLS 94
Hydraulic Controls Description 94
Operating SJC Hydraulic Controls In 'ISO' Control Pattern 94
Operating SJC Hydraulic Controls In 'H' Control Pattern 95
Operating Dual Direction Bucket Positioning 95
Operating Automatic Ride Control 96
Operating Reversing Fan 96
Operating Front Auxiliary Hydraulics 97
Operating Front Auxiliary Hydraulics In Continuous Flow Mode 97
Operating Front Auxiliary Hydraulics In Reverse Continuous Flow Mode 98
Operating Rear Auxiliary Hydraulics 99

Operating High-Flow Auxiliary Hydraulics 99
Connecting And Disconnecting Auxiliary Hydraulic Couplers 100
Troubleshooting Auxiliary Hydraulic Couplers 101
Relieving Auxiliary Hydraulic Pressure (Front Auxiliary Couplers) 101
Relieving Auxiliary Hydraulic Pressure (Rear Auxiliary Couplers) 101
ATTACHMENT CONTROL DEVICE (ACD) 102
Attachment Control Device (ACD) Description 102
DAILY INSPECTION 103
Daily Inspection And Maintenance List 103
Cleaning The Machine 104
PRE-STARTING PROCEDURE 105
Entering The Machine 105
Operation & Maintenance Manual And Operator's Handbook Locations 105
Adjusting Seat 106
Adjusting Suspension Seat 106
Adjusting Heated Cloth Air Ride Suspension Seat 107
Adjusting Retractable Seat Belt 107
Adjusting 3-Point Restraint Seat Belt With Detachable Shoulder Belt 107
Adjusting 3-Point Restraint Seat Belt With Integrated Shoulder Belt 108
Lowering Seat Bar 108
Adjusting Joystick Position 108
STARTING THE ENGINE 109
Quick Start Description (Standard And Touch Displays) 109
Starting Engine 109
Warming The Hydraulic / Hydrostatic System 111
Cold Temperature Starting Tips 111
Cold Temperature Engine Speed Control Description 112
Cold Temperature Hydrostatic Drive Description 112
MONITORING THE DISPLAY 112
Monitoring 4.3–Inch Display During Operation 112
Monitoring Standard Display During Operation 113
Monitoring Touch Display During Operation 113
Derate And Shutdown Conditions 114
Derate Description — 4.3–Inch Display 114
STOPPING THE ENGINE AND LEAVING THE MACHINE 115
Stopping The Engine And Leaving The Machine Procedure 115
COUNTERWEIGHTS 116
Counterweight Description 116
Effect Of Counterweight Use On The Loader And Loader Operation 116
When To Consider Using Counterweights 116
When To Consider Removing Counterweights 116
Accessories That Affect Machine Weight 116
ATTACHMENTS 116
Rated Operating Capacity Description 116
Choosing The Correct Bucket 116
Calculating The Rated Operating Capacity For Buckets 117
Pallet Fork Information 117
Inspecting Pallet Fork 118
INSTALLING AND REMOVING ATTACHMENTS (HAND LEVER BOB-TACH SYSTEM) 118
Installing Attachments 118
Removing Attachments 120
INSTALLING AND REMOVING ATTACHMENTS (POWER BOB-TACH SYSTEM) 121
Installing Attachments 121
Removing Attachments 123
TRACK UNDERCARRIAGE SYSTEM 125
Track Loader Introduction 125
Compact Track Loader Operating And Maintenance Tips 125

OPERATING PROCEDURE 127
Inspect The Work Area 127
Basic Operating Instructions 127
Driving On Public Roads 127
Operating On Slopes With A Full Bucket 127
Operating On Slopes With An Empty Bucket 128
TOWING THE MACHINE 128
Towing Procedure 128
LIFTING THE MACHINE 129
Single-Point Lift Description 129
Four-Point Lift Description 129
TRANSPORTING THE MACHINE 130
Loading And Unloading Machine 130
Fastening Machine To Transport Vehicle 130

PREVENTIVE MAINTENANCE 132

MAINTENANCE SAFETY WARNINGS 132
MAINTENANCE SAFETY WARNINGS 133
SERVICE SCHEDULE 134
Maintenance Intervals 134
Every 10 Hours (Before Starting The Machine) 135
First 100 Hours 135
Every 100 Hours 135
Every 500 Hours Or Every 12 Months 136
Every 1000 Hours Or Every 12 Months 136
Every 1500 Hours Or Every 24 Months 136
Inspection Checkbook 136
BOBCAT INTERLOCK CONTROL SYSTEM (BICS) 136
Inspecting The Bobcat Interlock Control System (BICS) 136
Inspecting The Lift Arm Bypass Control 138
SEAT BAR RESTRAINT SYSTEM 139
Seat Bar Restraint System Control Description 139
Inspecting Seat Bar Restraint System 139
Maintaining Seat Bar Restraint System 140
SEAT BELT 141
Inspecting And Maintaining The Seat Belt 141
LIFT ARM SUPPORT 142
Lift Arm Support Description 142
Installing Lift Arm Support 142
Removing Lift Arm Support 143
BACK-UP ALARM SYSTEM 145
Inspecting Back-Up Alarm System 145
OPERATOR CAB 146
Inspecting Operator Cab 146
Cab Door Sensor Description 146
Raising Operator Cab 146
Lowering Operator Cab 147
REAR DOOR (TAILGATE) 148
Opening And Closing Rear Door 148
Using Rear Door Stop 148
Adjusting Rear Door Latch 149
REAR GRILLE 149
Raising Rear Grille 149
Lowering Rear Grille 150
HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) 150
Cleaning HVAC Filters 150
Cleaning Air Conditioning Evaporator And Heater Coil 151

Cleaning Air Conditioning Condenser 152
Lubricating Air Conditioning System 152
Troubleshooting HVAC System 152
ENGINE AIR CLEANER 153
Replacing Engine Air Filter Element (Outer) 153
Replacing Engine Air Filter Element (Inner) 153
FUEL SYSTEM 155
Fuel Specifications 155
Biodiesel Blend Fuel 155
Filling The Fuel Tank 155
Removing Water From Main Fuel Filter 156
Replacing Fuel Pre-Filter 156
Replacing Main Fuel Filter 157
Replacing Fuel Tank Vent Filter 158
ENGINE LUBRICATION SYSTEM 160
Checking And Adding Engine Oil 160
Engine Oil Chart 160
Replacing Engine Oil And Filter 160
ENGINE COOLING SYSTEM 163
Cleaning Engine Cooling System 163
Coolant Types 164
Coolant Concentration 165
Checking And Adding Coolant 165
Replacing Coolant 165
ELECTRICAL SYSTEM 168
Electrical System Description 168
Fuse And Relay Identification 168
Battery Maintenance 172
Maintaining Battery Charge Level 173
Battery Service During Machine Storage 173
Testing The Battery 173
Battery Charging 173
Using A Booster Battery (Jump Starting) 174
Replacing Battery 175
HYDRAULIC SYSTEM 176
Checking And Adding Hydraulic Fluid (Earlier Models) 176
Checking And Adding Hydraulic Fluid 177
Hydraulic Fluid Information 178
Hydraulic Fluid Chart 178
Replacing Hydraulic Fluid 178
Replacing Main Hydraulic Filter 181
Replacing Hydraulic Case Drain Filter 183
Replacing Hydraulic Charge Filter 184
Replacing Hydraulic Reservoir Vent Filter 185
DIESEL PARTICULATE FILTER (DPF) SYSTEM 186
DPF Service Description 186
DPF Service Regeneration (4.3–Inch Display) 186
DPF Service Regeneration (Standard And Touch Displays) 186
DPF Cleaning 186
TRACK TENSION 187
Checking Track Tension 187
Increasing Track Tension 187
Decreasing Track Tension 188
HYDROSTATIC DRIVE MOTOR 190
Replacing Brake Cavity Fluid 190
TRACK SPROCKET MAINTENANCE 190
Checking Track Sprocket Torque 190

BELTS 191
Adjusting Belt (Machines Without Air Conditioning) 191
Replacing Belt (Machines Without Air Conditioning) 191
Adjusting Belt (Machines With Air Conditioning) 191
Replacing Belt (Machines With Air Conditioning) 191
AUTOMATIC RIDE CONTROL ACCUMULATOR 193
Checking Automatic Ride Control Accumulator Charge 193
PIVOT PINS 193
Checking Pivot Pin Torque 193
MACHINE LUBRICATION 194
Lubricating Grease Fittings 194
BOB-TACH SYSTEM (HAND LEVER) 195
Inspecting And Maintaining Hand Lever Bob-Tach System 195
BOB-TACH SYSTEM (POWER) 196
Inspecting And Maintaining Power Bob-Tach System 196
MACHINE STORAGE AND RETURN TO SERVICE 198
Machine Extended Storage Procedure 198
Machine Return To Service Procedure 198

SYSTEM SETUP AND ANALYSIS 199

VITALS (4.3–INCH DISPLAY) 199
Vital Detail 199
ALERTS (4.3–INCH DISPLAY) 199
Alert Detail 199
WARNINGS (4.3–INCH DISPLAY) 200
Warning Detail 200
SETTINGS (4.3–INCH DISPLAY) 201
Machine Settings 201
Service Settings 201
Security Settings 202
Display Setting 203
Units 203
Software 203
NAVIGATION (STANDARD DISPLAY) 204
Navigation Bar 204
Viewing Active Shortcuts 204
VITALS (STANDARD DISPLAY) 205
Vital Detail And Machine Performance 205
SERVICE (STANDARD DISPLAY) 206
Record A Service 206
Set Interval 207
View Service Codes 207
SETTINGS (STANDARD DISPLAY) 208
Display Settings 208
Machine Settings 209
Security Settings 210
Security Settings (Manage Operators) 210
Language Settings 211
Units 212
Software 212
GAUGES (TOUCH DISPLAY) 213
Vital Detail And Machine Performance 213
Notification Drawer 214
CAMERA (TOUCH DISPLAY) 215
Camera Settings 215
PHONE (TOUCH DISPLAY) 216

AUDIO (TOUCH DISPLAY) 216
SERVICE (TOUCH DISPLAY) 217
Record A Service 217
View Service Schedule 218
View Service Record 218
View Service Codes 219
ATTACHMENTS (TOUCH DISPLAY) 221
Attachment Information 221
SETTINGS (TOUCH DISPLAY) 222
Favorites 222
Display Settings 223
Machine Settings 224
Security Settings 225
Security Settings (Manage Operators) 226
Operator Statistics 228
Job Clocks 228
Adding And Removing Job Clocks 229
Language Settings 230
Units 231
Camera Settings 231
Bluetooth Settings 231
Audio Settings 231
Dealer 231
Software 232
DIAGNOSTIC SERVICE CODES 233
Service Codes List 233

SPECIFICATIONS 247

MACHINE DIMENSIONS 247
MACHINE SPECIFICATIONS 249
Performance Specifications 249
Specification Bucket Specifications 249
Engine Specifications 249
Drive System Specifications 250
Control Specifications 250
Hydraulic System Specifications 251
Hydraulic Cylinder Specifications 251
Electrical System Specifications 251
Fluid Capacities 251
Tracks 252
Ground Pressure 252
Environmental 252
Temperature Range 253
TORQUE SPECIFICATION FOR BOLTS 254
Torque For General SAE Bolts 254
Torque For General Metric Bolts 254
HYDRAULIC CONNECTION SPECIFICATIONS 256
O-ring Face Seal Connection 256
Straight Thread O-ring Fitting 256
Tubelines And Hoses 256
Tightening The Flare Fitting 256
O-ring Flare Fitting 257
Port Seal Fitting 259
Push To Connect Fittings 259

WARRANTY 262

MACHINE WARRANTY 262

REGULATORY DOCUMENTATION 263

EC DECLARATION OF CONFORMITY (MACHINE) 263
UK DECLARATION OF CONFORMITY (MACHINE) 264
DECLARATION OF CONFORMITY (TOUCH DISPLAY) 265
DECLARATION OF CONFORMITY (RADIO) 266
DECLARATION OF CONFORMITY (HYDROFLUOROCARBON) 268

INTRODUCTION

This Operation & Maintenance Manual was written to give the owner / operator instructions on the safe operation and maintenance of the Bobcat machine. Obey all warnings and instructions in 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.

Unless otherwise specified, the terms right, left, front, and rear are used referring to the operator being in the operator's position facing in the direction of forward travel.

MANUFACTURER

North America

Bobcat Company
250 E. Beaton Drive
West Fargo, ND 58078
USA
1–800–743–4340, option 3

Czech Republic

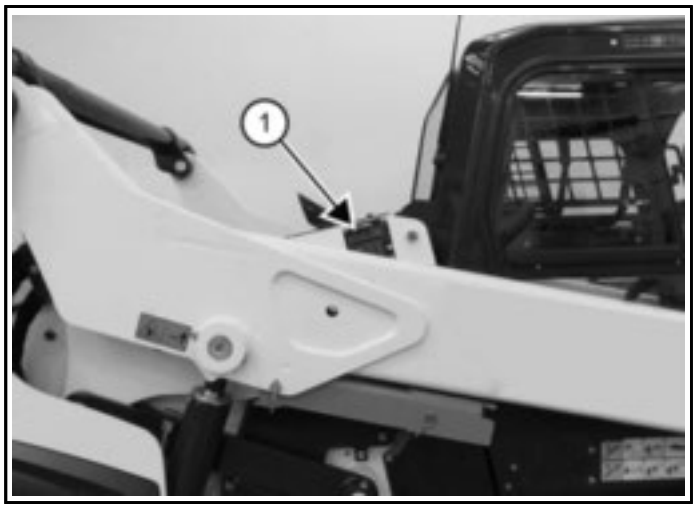
Doosan Bobcat EMEA s.r.o.
U Kodetky 1810
263 12 Dobřiš
Czech Republic

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

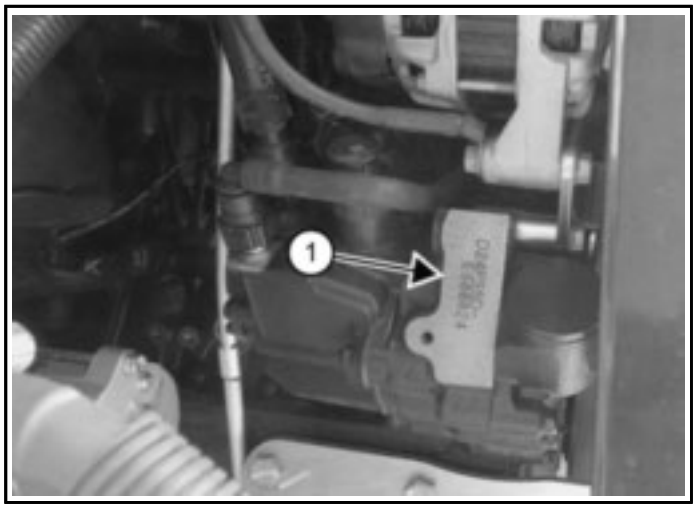


C200190C

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



C200191a

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

DELIVERY REPORT

Figure 3



NA15473

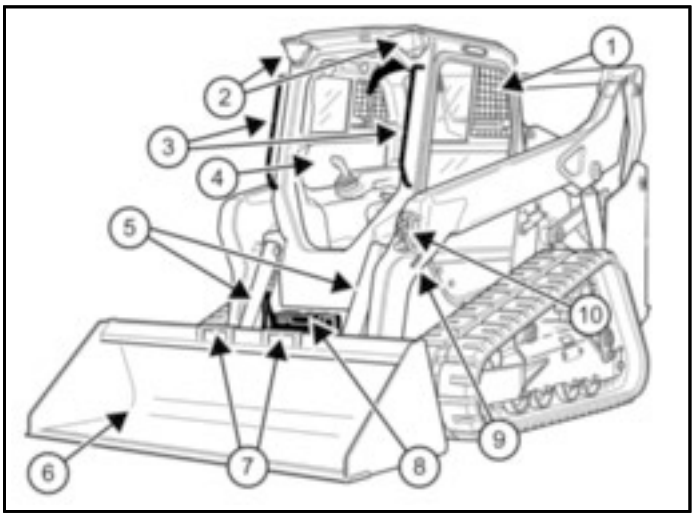
The delivery report contains a list of items that must be explained or shown to the owner or operator by the dealer when the machine is delivered.

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

MACHINE IDENTIFICATION

Front View

Figure 4



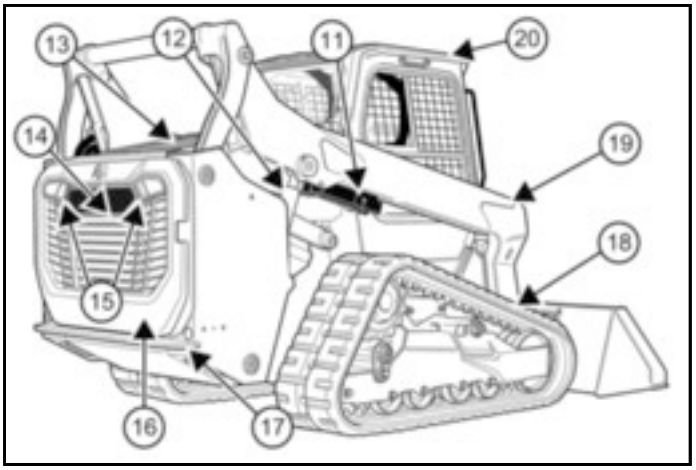
NA15790A

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 machine.

Rear View

Figure 5



NA15791A

REF	DESCRIPTION
11	Lift Arm Support
12	Lift Cylinder (Both Sides)
13	Rear Grille
14	Back-up Alarm
15	Rear Work Lights and Taillights
16	Rear Door
17	Rear Tie-down (Both Sides) Front Tie-down located behind Bucket
18	Track [A]
19	Lift Arm
20	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 T76 Bobcat loader is equipped with the following standard items:

- 55 kW Bobcat Engine Turbo Stage 5 Diesel Engine
- Adjustable Suspension Seat
- Auto Idle
- Auxiliary Hydraulics: Variable Flow
- Back-up Alarm
- Battery Disconnect Switch
- Bobcat 4.3-Inch Display
- Bobcat Interlock Control System (BICS™)
- Bob-Tach® Attachment Mounting System
- Controls: Selectable Joystick Controls (SJC) (Selectable 'ISO' or 'H' Pattern Control)
- Cylinder Cushioning (Lift and Tilt)
- 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
- Retractable Seat Belt
- SDPF Management with built-in spark arrester
- Seat Bar
- Solid-Mounted Undercarriage with 4 Rollers per side
- Sound Reduction (Reduces noise at operator ear)
- Tailgate Lock
- Tracks, Rubber – 450 mm (17.7 in)

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.

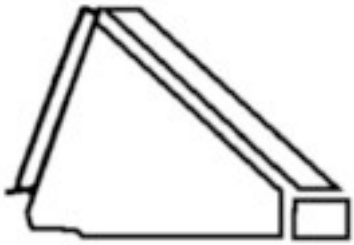
- Adjustable Heated Air Ride Suspension Seat
- Air Conditioning
- Air Filter Precleaner
- Attachment Control Device (ACD) (7-Pin, 14-Pin)
- Auto HVAC
- Automatic Ride Control
- Auxiliary Hydraulics Coupler Guard
- Bobcat Standard Display
- Bobcat Touch Display
- Cab Door with Emergency Exit
- Cab Heater
- Cab Reseal Plug Kit
- Clear Side Enclosed Cab
- Counterweight Kit
- Debris Seal Kit
- Dual Direction Bucket Positioning (With On / Off Selection)
- 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
- High-Flow Auxiliary Hydraulics
- Hose Guide
- Hydraulic Muffler
- LED Side Lighting
- Lift Kit (Four-Point, Single-Point)
- Power Bob-Tach Attachment Mounting System
- Premium LED Front Lights
- Radio
- Rear Auxiliary Hydraulics
- Rear Bumper Kit
- Rear Camera Kit
- Rear Window Wiper
- Reversing Fan
- Road Kit
- Rotating Beacon
- Seat Belt with 3-Point Restraint (Standard on Two-Speed Models)
- Special Applications Kit
- Strobe Light
- Tailgate Guard Kit
- Torsion Suspension Undercarriage with 4 Rollers per side
- Track:
  - Multi-Bar Lug – 450 mm (17.7 in)
  - Rubber – 320 mm (12.6 in)
- Two-Speed Travel
- 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.



NA3117

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

⚠ WARNING

MODIFICATION HAZARD
Unapproved attachments and implements can cause serious injury or death.

- **Never use attachments, implements, or buckets that are not approved by Bobcat Company.**
- **Attachments, implements, and buckets for safe loads of specified densities are approved for each model.**
- **Obey the load capacity information for the attachment / implement you are using.◂**

W-2392

These attachments are approved for use on this Bobcat machine. Do not use unapproved attachments.

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.

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

- Angle Broom
- Asphalt Spreader
- Auger
- Backhoe
- Blades — Box, Dozer, Snow, Snow V-Blade
- Breaker, Hydraulic
- Brush Saw
- Brushcat™ Rotary Cutter
- Buckets
- Combination Bucket
- Concrete Mixer
- Concrete Pump
- Drop Hammer
- Dumping Hopper
- Flail Cutter
- Grader
- Grapples — Farm / Utility, Industrial, Root
- Landplane
- Landscape Rake
- Laser Equipment
- Mixing Bucket
- Pallet Fork
- Planer
- Pressure Washer
- Rock Bucket
- Rotary Grinder
- Sand Cleaner
- Scarifier
- Scraper
- Snow Pusher
- Snowblower
- Sod Layer
- Soil Conditioner
- Spreader
- Stabilizer, Rear
- Stump Grinder
- Sweeper
- Tiller
- Tree Spade
- Trench Compactor
- Trencher
- Utility Fork
- Utility Frame
- Vibratory Roller
- Water Kit

High-Flow Attachments

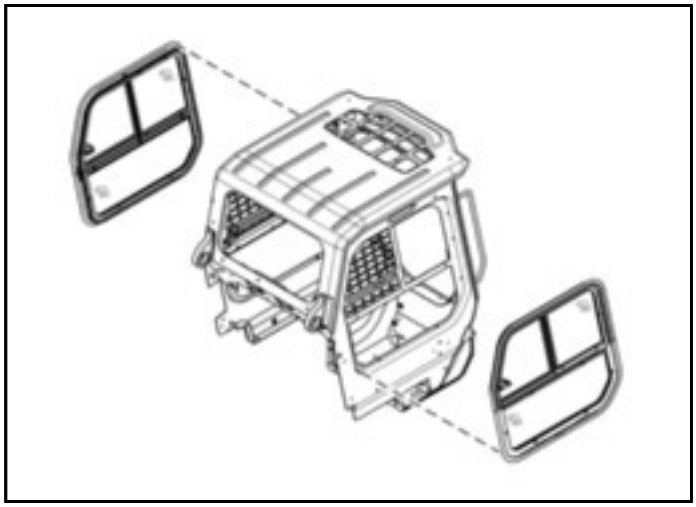
The following attachments are approved for use on High-Flow machines. See your Bobcat dealer for an updated list of approved attachments.

- Auger
- Brushcat™ Rotary Cutter
- Chipper
- Concrete Pump

- Flail Cutter
- Forestry Cutter
- Planer
- Rotary Grinder
- Snowblower
- Soil Conditioner
- Stump Grinder
- Tiller
- Trencher
- Wheel Saw

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
Failure to obey instructions will 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
Failure to obey instructions can cause machine damage.
To 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

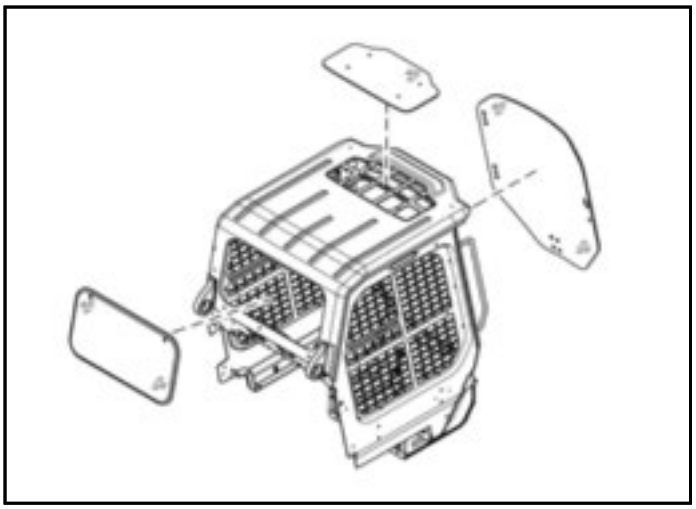
Special Applications Kit

⚠ 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.

Inspecting And Maintaining Special Applications Kit

Inspect frames and polycarbonate panels, including windows and door, for cracks or damage. Replace if required. See your Bobcat dealer for parts.

When cleaning:

- Prerinse with water to remove gritty materials;
- Using a sponge or soft cloth, wash with a mild household detergent and warm water;
- Rinse well with water and dry with a clean, soft cloth or rubber squeegee.

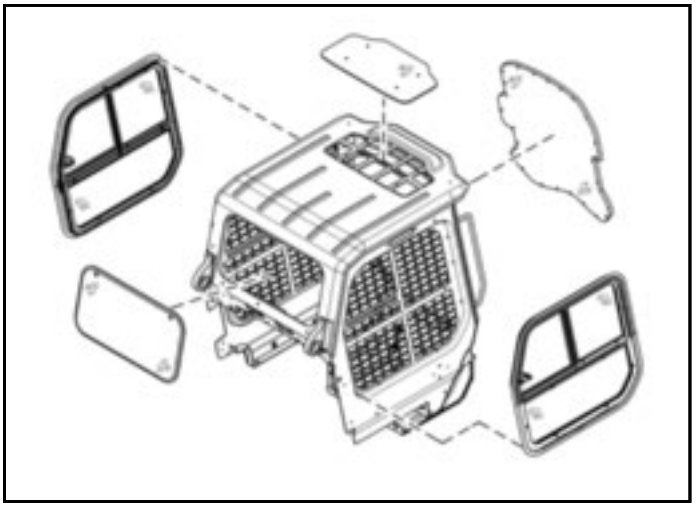
⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Failure to obey instructions can cause machine damage.
To 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

Land Management 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 Land Management Door And Window Kit to restrict material from entering cab openings.

Inspecting And Maintaining Land Management Door And Window Kit

Inspect frames and polycarbonate panels, including windows and door, for cracks or damage. Replace if required. See your Bobcat dealer for parts.

When cleaning:

- Prerinse with water to remove gritty materials;
- Using a sponge or soft cloth, wash with a mild household detergent and warm water.
- Rinse well with water and dry with a clean, soft cloth or rubber squeegee.

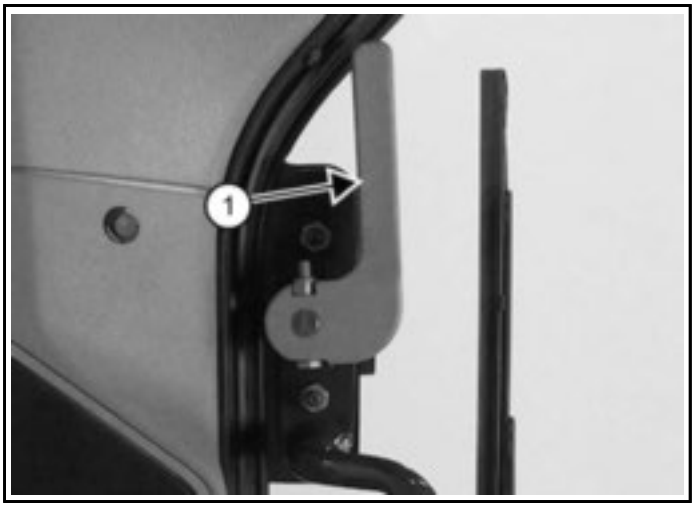
⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Failure to obey instructions can cause machine damage.
To 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

Land Management Door Emergency Exit

Figure 9



P200197b

- 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 obey instructions can cause serious injury or death.
Operators must have adequate training and instruction before operating.◂
W-2001

Obey the operating and maintenance instructions in this manual.

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

The signal word IMPORTANT in the manuals indicates a potentially hazardous situation which, if not avoided, could result in damage to the machine.◂
I-2019

Bobcat Company cannot anticipate every possible use that might involve a potential hazard. The warnings in this publication and on the product are, therefore, not all-inclusive. If you have questions about your specific application, please see your Bobcat dealer or Bobcat customer service.

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 8 Hours section or as shown in the Operation & Maintenance Manual.

Safe Operation Needs A Qualified Operator

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

Age, physical ability, and mental capacity can be factors in equipment-related injuries. Operators should evaluate their ability to operate the machine safely to protect themselves and others from serious injury.

A Qualified Operator Must Do The Following

- Obey 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 authorizing 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 top guard / front guard are required for some work. See your Bobcat dealer about Bobcat safety equipment for your model.

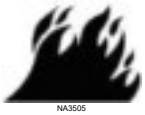
Silica Dust Exposure



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, some attachments, and some implements 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, grass clippings, etc.) must be removed regularly. If flammable debris is allowed to accumulate, it can cause a fire hazard. Clean often to avoid this accumulation. Flammable debris in the engine compartment is a potential fire hazard.

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

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

Operation

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

Electrical



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 gasoline or diesel fuel for cleaning parts. Use commercial nonflammable solvents.

Fueling (Diesel)



C229937

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

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

Starting

Do not use ether or starting fluids, including on engines that have 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 controllers (if equipped) before welding. Cover rubber hoses, battery, and all other flammable parts. Keep a fire extinguisher near the machine when welding.

Have adequate 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 regularly. Service or replace as needed. 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.

7399015



SERVICE MANUAL

Complete maintenance instructions for your Bobcat loader.

7399016



OPERATOR'S HANDBOOK

Gives basic operation instructions and safety warnings.

7399017

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

SKID-STEER 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)

⚠ WARNING

INSUFFICIENT INSTRUCTION HAZARD
Failure to obey instructions can cause serious injury or death.

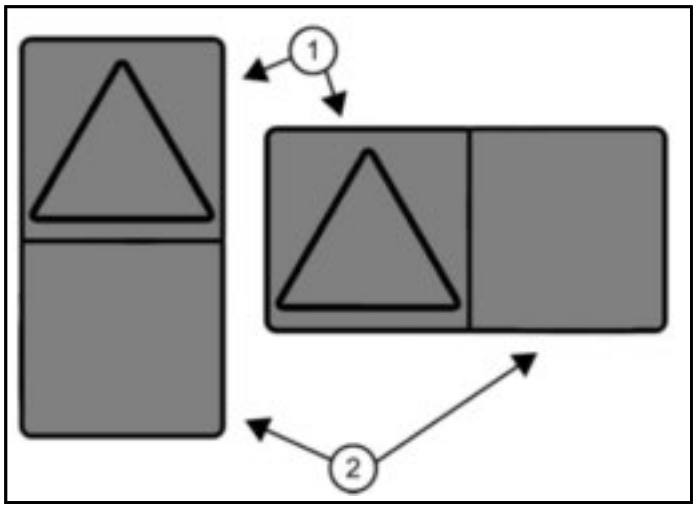
- **Obey all warnings and instructions in the Operation & Maintenance Manual and on decals on the machine and attachment.**
- **Always refer to reliable sources such as the Operation & Maintenance Manual, Service Manual, and trainings and videos available from Bobcat Company.**

W-3313

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 the safety signs section. Please become familiarized with all safety signs installed on the machine.

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.

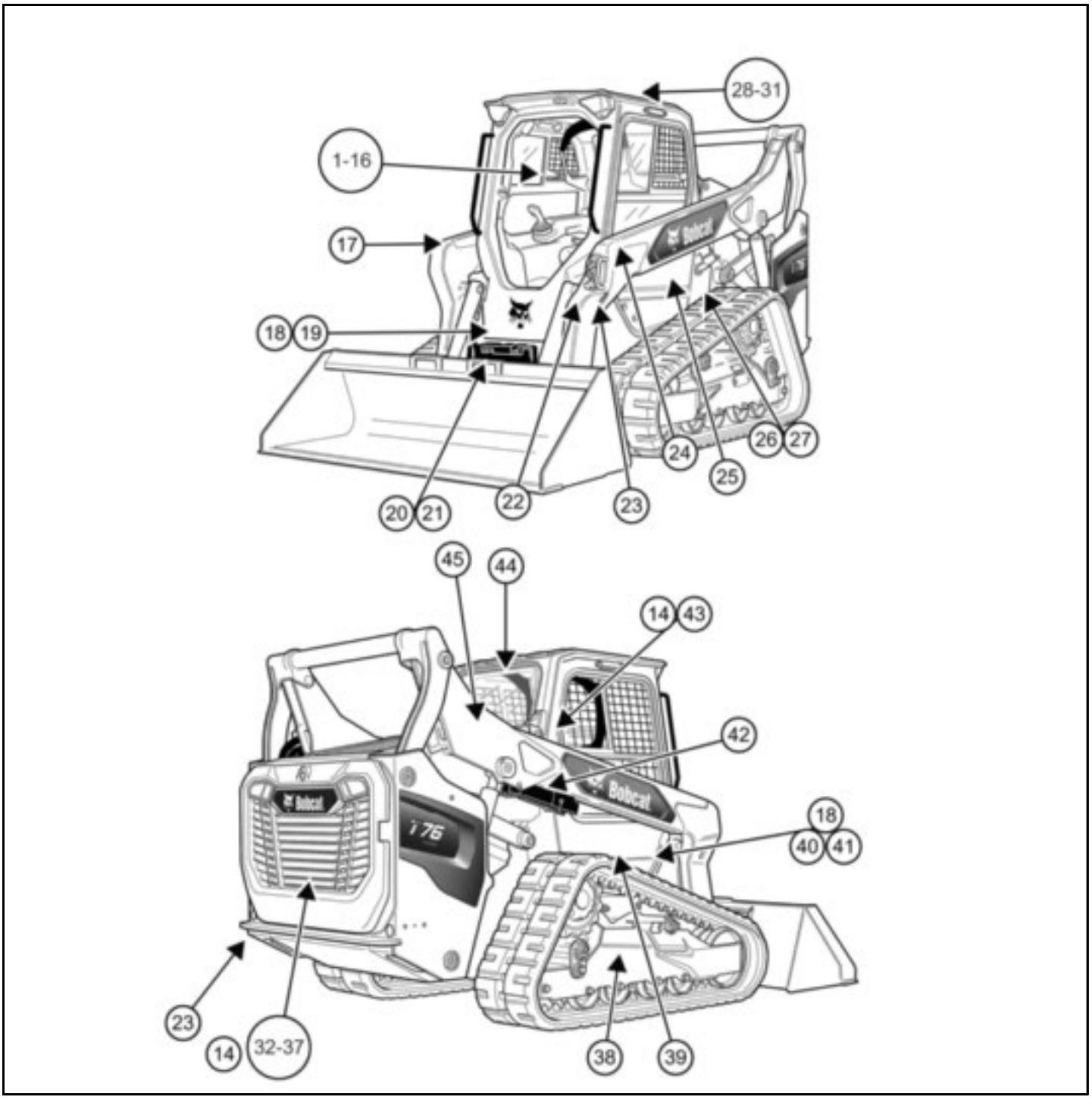
Avoidance Panels: Depict actions required to avoid the hazards.

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

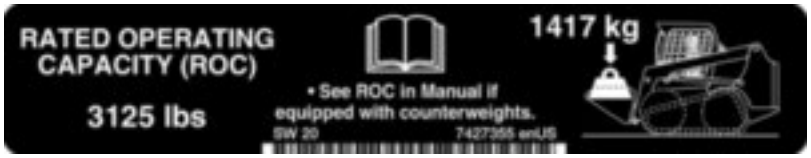
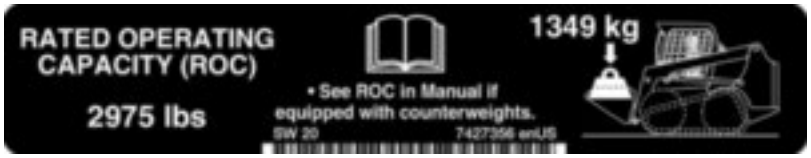
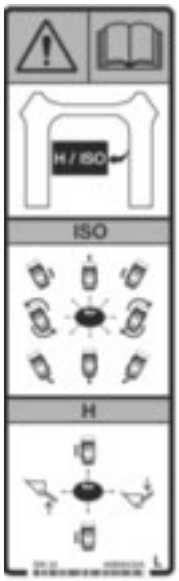
T76 SAFETY SIGNS (DECALS)

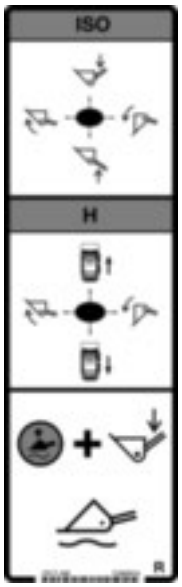
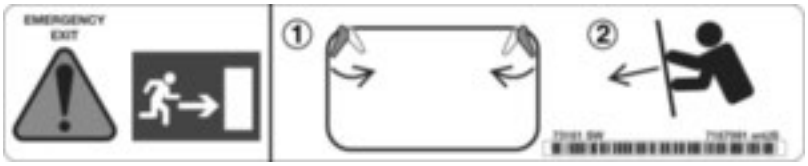
Obey the instructions on all Safety Signs (Decals) that are on the machine. Replace any damaged safety signs and be sure they are in the correct locations. Safety signs are available from your Bobcat dealer.

Figure 11



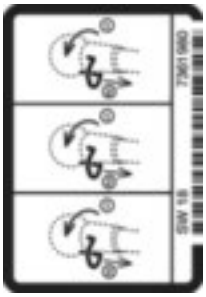
NA3838C

REF	DECAL	HAZARD AND INSTRUCTIONS (IF APPLICABLE)
1	Rated Operating Capacity (7427355) This machine sign is located inside the operator cab on the left side of loaders equipped with a solid-mounted undercarriage. 	
2	Rated Operating Capacity (7427356) This machine 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 (46908432) This safety sign is located inside the operator cab on the left armrest of loaders equipped with SJC controls. 	**WARNING** **UNINTENDED MACHINE MOVEMENT HAZARD** **Unintended 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.** **OBEY WARNINGS AND INSTRUCTIONS IN THE OPERATION & MAINTENANCE MANUAL.** W-2788

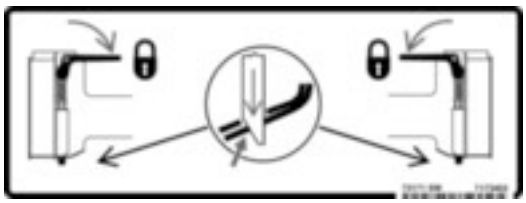
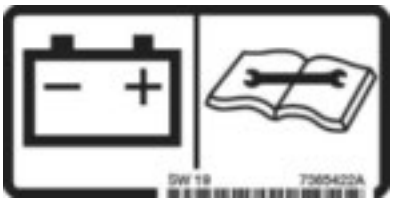
REF	DECAL	HAZARD AND INSTRUCTIONS (IF APPLICABLE)
5	SJC Controls (7168081) This machine sign is located inside the operator cab on the right armrest of loaders equipped with SJC controls. 	
6	Rear Window Exit (7167991) This machine sign is located inside the operator cab on the rear window of loaders 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 obey 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. Engage the parking brake.** **3. Shut down the machine.** **4. Raise seat bar.** **5. Exit the loader.** W-2839

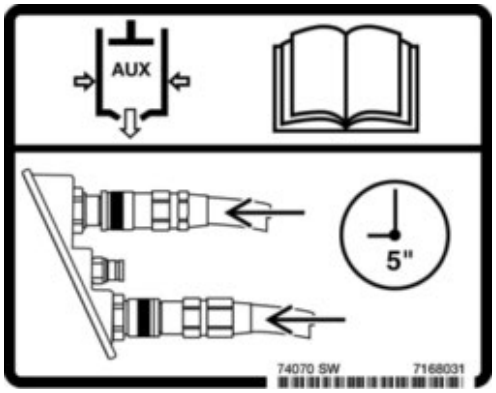
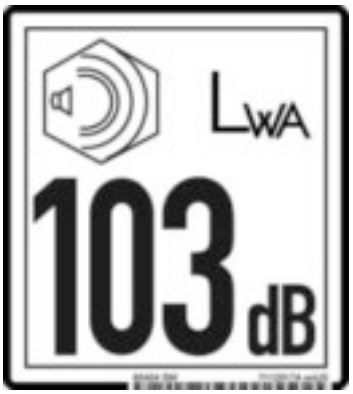
REF	DECAL	HAZARD AND INSTRUCTIONS (IF APPLICABLE)
8	SJC Controls Operation (7326103) This machine sign is located inside the operator cab on the lower left side of loaders equipped with SJC controls. 	
9	General Hazard Warning (7323814) This safety sign is located inside the operator cab on the lower right side. 	**WARNING** **GENERAL HAZARD** **Untrained operators or failure to obey instructions can cause serious injury or death.** • **Operators must have adequate training and instruction before operating the machine.** • **Obey all warnings and instructions in the Operation & Maintenance Manual and Operator's 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 raised.** • **Load, unload, and turn on flat level ground.** • **DO NOT exceed Rated Operating Capacity (ROC). (See decal in cab.)** W-2837

REF	DECAL	HAZARD AND INSTRUCTIONS (IF APPLICABLE)
10	Back-Up Alarm (7342336) This safety sign is located inside the operator cab on the lower right side. 	**WARNING** **CRUSHING HAZARD** **Contact with operating 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
11	Emergency Door Exit (7344613) This machine 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 obey instructions can cause serious injury or death.** **Operators must have adequate training and instruction before operating.** W-2001

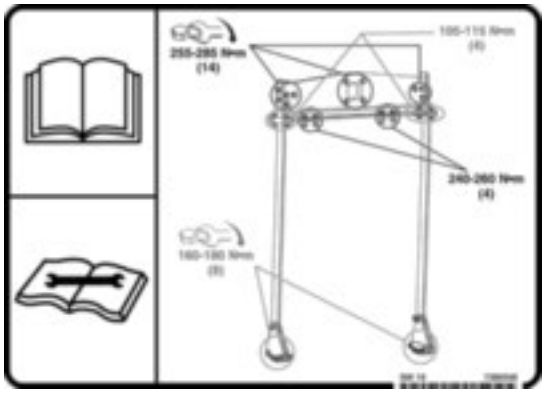
REF	DECAL	HAZARD AND INSTRUCTIONS (IF APPLICABLE)
13	Spring Removal (7361980) This machine sign is located inside the operator cab on the gas spring component of loaders equipped with a front door. 	
14	High Pressure Gas (7347041) (2 or 3) This safety sign is located on the gas spring component(s) supporting the operator cab, the radiator, and on loaders equipped with a front door. 	**WARNING** **IMPACT HAZARD** **Cylinders are under high pressure. Opening cylinder can release rod and cause serious injury or death.** • **Do not open cylinders.** • **See your Bobcat dealer for service.** W-2523
15	No Ammonia (7397975) (2) This machine sign is located inside the operator cab on the left and right side of loaders equipped with clear side enclosed cab.  7397975	

REF	DECAL	HAZARD AND INSTRUCTIONS (IF APPLICABLE)
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.  7401182	**DANGER** **MODIFICATION HAZARD** **Failure to obey instructions will 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
17	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
18	Lift Arm Crushing (7341273) (1) 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

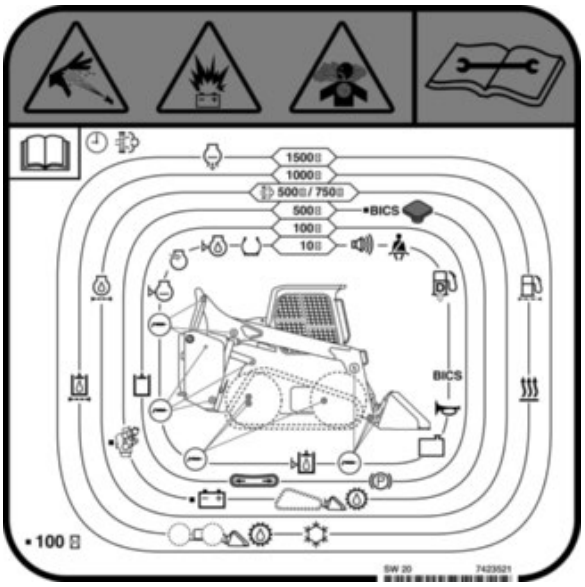
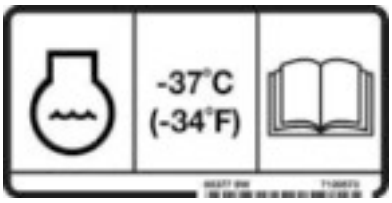
REF	DECAL	HAZARD AND INSTRUCTIONS (IF APPLICABLE)
19	Frame Raising (7341274) This safety sign is located on the left side front frame. 	**DANGER** **CRUSHING HAZARD** **Frame raising into the lift arms will cause serious injury or death. Attachment can be forced against the ground and cause front frame to raise. Never go under or reach under lift arms or lift cylinder without an approved lift arm support installed.** D-1021
20	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
21	Bob-Tach (7173403) This machine sign is located on the Bob-Tach crossmember. 	
22	Battery Access (7365422) This machine sign is located on the lower left side outside the operator cab. 	

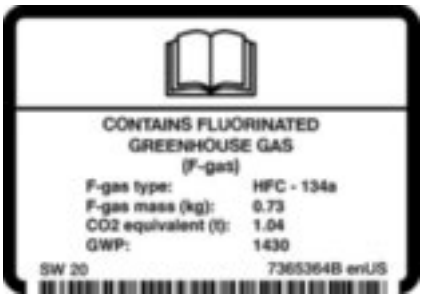
REF	DECAL	HAZARD AND INSTRUCTIONS (IF APPLICABLE)
23	Tie-Down (6727595) (5) This machine sign is located next to the front and rear loader tie-down locations. 	
24	Auxiliary Couplers (7168031) This machine sign is located on top of the left side lift arm. 	
25	Sound Power (7112817) This machine sign is located on the lower left side outside the operator cab. 	

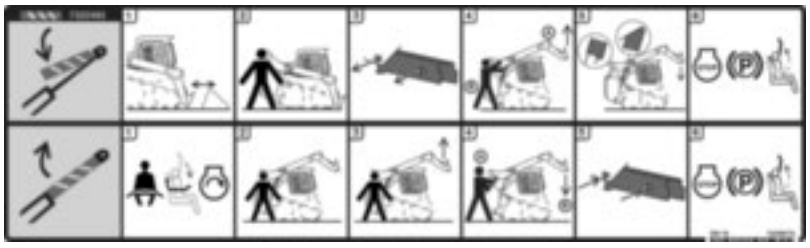
REF	DECAL	HAZARD AND INSTRUCTIONS (IF APPLICABLE)
26	Hydraulic Fluid Sight Gauge (7173294) This machine sign is located on the left side of the loader next to the hydraulic fluid sight gauge. 	
27	Hydraulic Fluid (7120570) This machine sign is located on the left side of the loader on the hydraulic fill cover. 	
28	Hook (6533898) (2) This machine sign is located on both sides of the top crossmember of the single-point lift kit. 	

REF	DECAL	HAZARD AND INSTRUCTIONS (IF APPLICABLE)
29	Service (7390548) (2) This machine sign is located on both sides of the top crossmember of the single-point lift kit. 	
30	Single-Point Lift (7142142) (2) This safety sign is located on both side arms of the single-point lift kit. 	**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

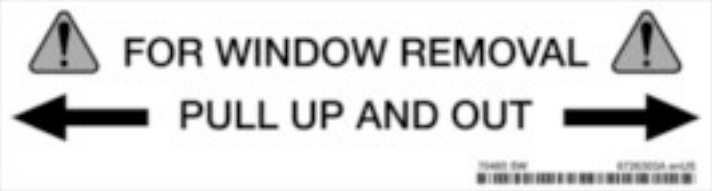
REF	DECAL	HAZARD AND INSTRUCTIONS (IF APPLICABLE)
	Four-Point Lift (7168020) This safety sign is located on the front of loaders with the four-point lift kit.	
31		**WARNING** **CRUSHING HAZARD** **Failure of the lift assembly can cause serious injury or death.** **BEFORE LIFTING LOADER:** **1. Check 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	HAZARD AND INSTRUCTIONS (IF APPLICABLE)
32	Service Checklist and Schedule (7423521) This safety sign is located inside the rear door on the belt shield. 	**WARNING** **GENERAL HAZARD** **Failure to obey 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 a 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.** • **A battery makes flammable and explosive gas. Keep arcs, sparks, flames, and lighted tobacco away.** • **When jump starting, connect the negative cable to the machine engine last (never at the battery). After a jump start, remove negative connection at the engine first.** • **Exhaust gases can kill. Always ventilate.** W-2782
33	Engine Coolant (7120573) This machine sign is located inside the rear door on the engine coolant tank. 	

REF	DECAL	HAZARD AND INSTRUCTIONS (IF APPLICABLE)
34	Hot Pressurized 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
35	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** **Failure to keep away from the operating machine can cause serious injury or death.** • **Keep away from fan and moving parts. Do not operate with fan guard removed.** • **Do not touch hot surfaces. Allow to cool before servicing.** W-2521
36	Exchanger (7324952) This machine sign is located inside the rear door on the radiator cooling package. 	
37	Fluorinated Greenhouse Gas (7365364) This machine sign is located on the condenser inside the rear door of loaders equipped with air conditioning. 	

REF	DECAL	HAZARD AND INSTRUCTIONS (IF APPLICABLE)
38	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 or death.** • **Do not loosen grease fitting.** • **Do not loosen bleed fitting more than 1.5 turns.** • **Obey warnings and instructions in the Operation & Maintenance Manual.** W-2516
39	Lift Arm Support (7323627) This machine sign is located on the lower right side outside the operator cab. 	(See Lift Arm Support on Page 142)
40	Pressurized 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** **Failure to obey instructions can cause serious injury or death.** • **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.** **Obey warnings and instructions in the Operation & Maintenance Manual and Service Manual for lift arm bypass control instructions.** W-3015
41	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** **Failure to obey instructions will cause serious injury or death.** • **Disconnecting hydraulic lines can cause the lift arms or attachment to drop.** • **Always use an approved lift arm support when lift arms are in a raised position for service.** D-1008

REF	DECAL	HAZARD AND INSTRUCTIONS (IF APPLICABLE)
42	Pinch Hazard (7418028) This safety sign is located on the lift arm support. 	**WARNING** **PINCHING HAZARD** **Contact with a moving lift arm can cause serious injury or death.** **Keep hands clear during lift arm movement.** W-3072
43	Latching Mechanism Release (7169877) This machine sign is located on the latching mechanism release attached to the gas spring supporting the operator cab. 	

REF	DECAL	HAZARD AND INSTRUCTIONS (IF APPLICABLE)
44	Rear Window (6726303) This machine sign is located outside the operator cab on the rear window of loaders equipped with externally removable window. 	
45	Pinch Hazard (7325691) (2) This safety sign is located on the side of each lift arm. 	**WARNING** **PINCHING HAZARD** **Contact with a moving lift arm can cause serious injury or death.** **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, leveling, lifting, carrying, and loading loose materials such as earth, gravel, or crushed rock.

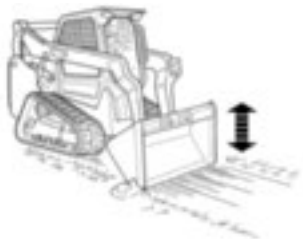
Additional Bobcat approved attachments allow this machine to perform other tasks described in the attachment Operation & Maintenance Manuals. Bobcat cannot anticipate every possible use that might involve a potential hazard. The warnings in this publication and on the product are, therefore, all inclusive. If you have questions about your specific application, please see your Bobcat dealer or Bobcat customer service.

⚠ WARNING

INSUFFICIENT INSTRUCTION HAZARD
Failure to obey instructions can cause serious injury or death.
- **Obey all warnings and instructions in the Operation & Maintenance Manual and on decals on the machine and attachment.**
- **Always refer to reliable sources such as the Operation & Maintenance Manual, Service Manual, and trainings and videos available from Bobcat Company.**

W-3313

Examples of intended use include:

Digging	
Backfilling	
Leveling	
Piling Material	
Loading Material	
Moving Palletized 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 obstacle, such as a post, that can enter the operator cab.

W-2057

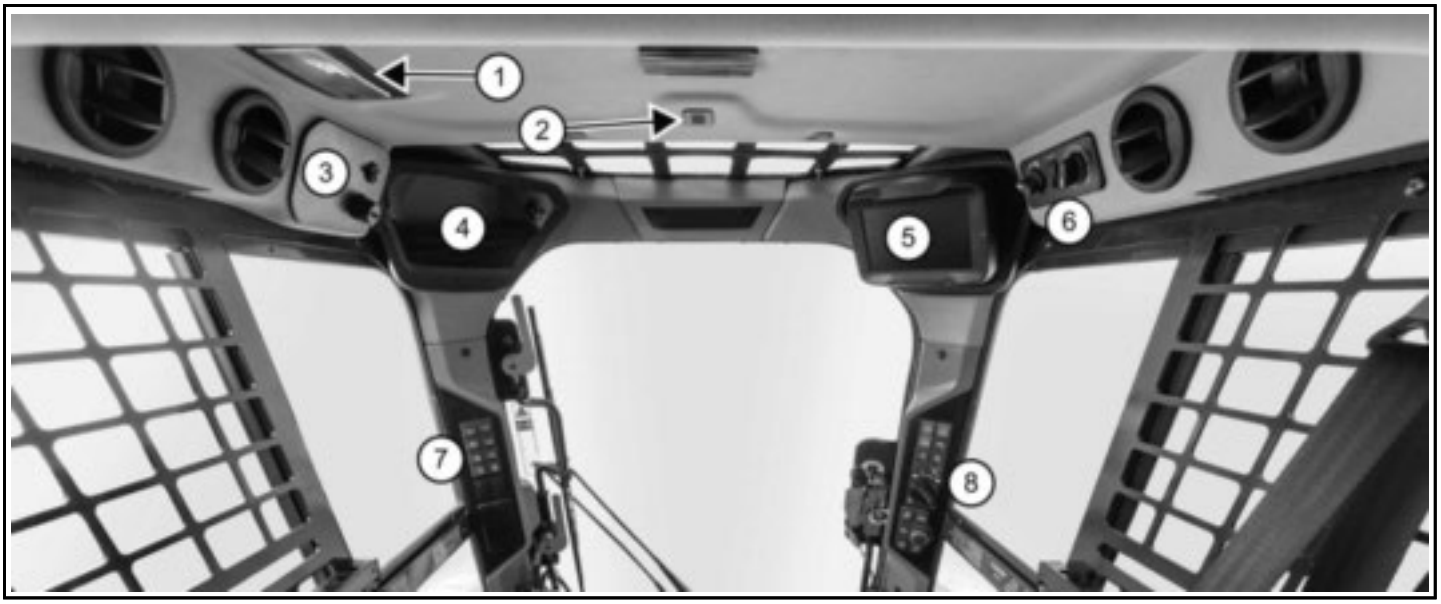
⚠ IMPORTANT

MACHINE DAMAGE HAZARD
When operating the machine in the float position with a bucket, damage to the lift arms or hydraulics can occur.
- **Never drive forward with the lift arms in the float position with a bucket attached.**
- **Consult the attachment manual for proper float use for your attachments.**

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. Touch display only.
3	Touch Display Radio Input Ports	(See Touch Display Radio Input Ports on Page 49)
	Standard Display Optional Radio	(See Radio Identification on Page 50) (See Radio (Bluetooth) on Page 52)
4	Storage Compartment	Storage compartment and 12 volt power port for accessories.
5	4.3–Inch Display	(See 4.3–Inch Display on Page 41)
	Standard Display	(See Standard Display on Page 43)
	Touch Display	(See Touch Display on Page 45)
6	HVAC Controls (If equipped)	(See Heating, Ventilation, And Air Conditioning Controls on Page 49)
7	Left Control Panel	Option controls. (See Left Control Panel on Page 47)
8	Right Control Panel	Includes keyless start. (See Right Control Panel on Page 47)

4.3–INCH DISPLAY

The 4.3–inch display is a visual interface that provides control of certain machine settings and operating information through the use of buttons located below the screen. The 4.3–inch display is scratch resistant and weather resistant.

Figure 13



C230310a

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

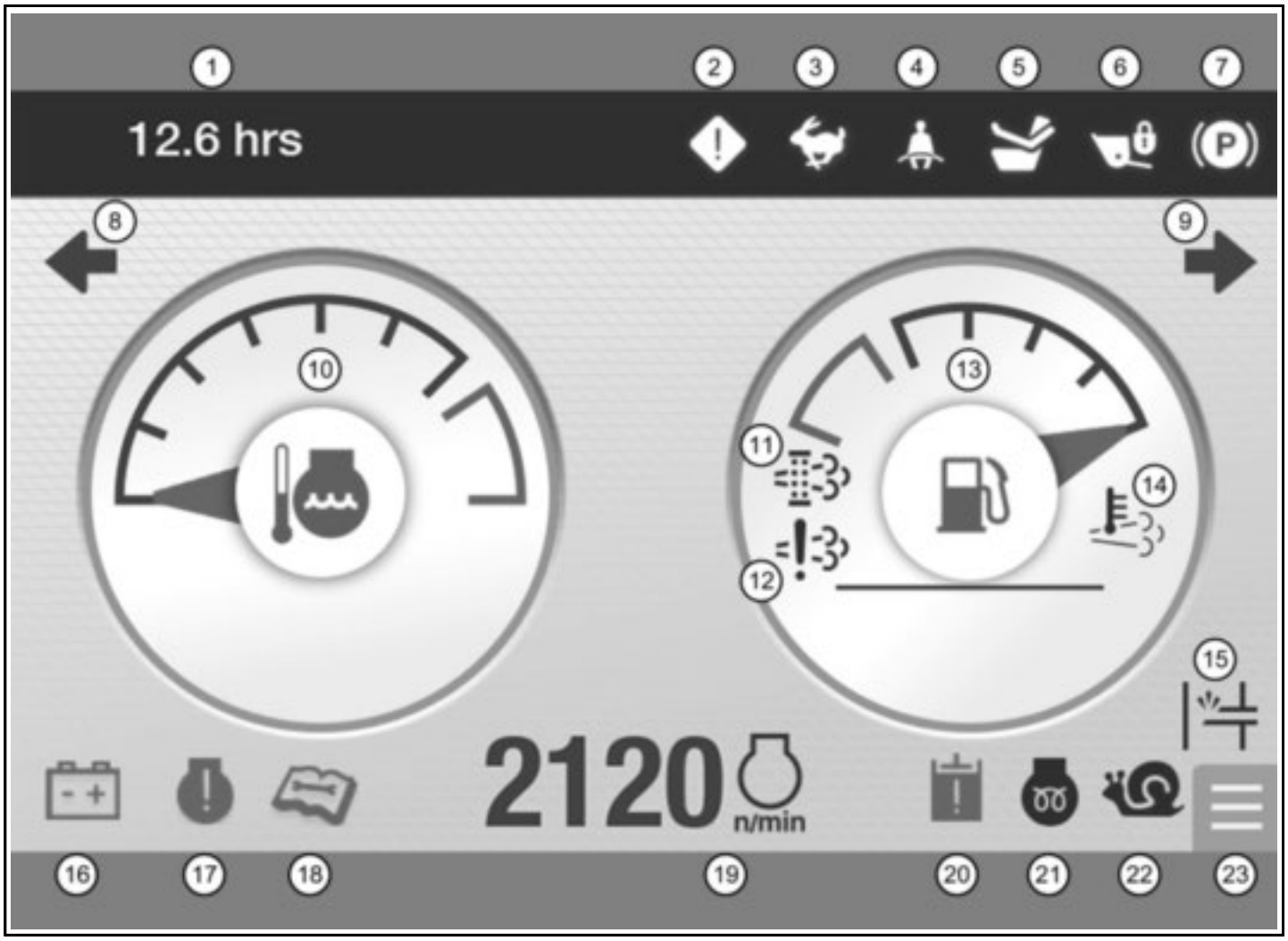
REF	DESCRIPTION	FUNCTION
	General Warning — Orange	Malfunction with one or more machine functions.
	Speed Management — White	Indicates speed management is engaged.
	Two-Speed — White	High range selected.
	Seat Belt Reminder — Red	Instructs operator to fasten seat belt. The 3-point seat belt icon will appear here when high range is selected.
	Seat Bar Raised — Red	This icon is ON when the seat bar is UP.
	Lift and Tilt Lockout — Red	This icon is ON when the lift and tilt functions cannot be operated.
	Parking Brake Engaged — Red	This icon is ON when the machine cannot be driven.
	Emissions Error — Orange	DPF malfunction or failure.
	Left Turn Signal — Green	Indicates left turn signal is ON.
	Right Turn Signal — Green	Indicates right turn signal is ON.
	Check Engine — Red	Engine malfunction or failure.
	High Exhaust System Temperature (HEST) — Orange	This icon is ON when the exhaust temperature is higher than normal operation.
	Fuel Priming in Process — White	This icon is ON when the fuel pump is priming the fuel system. Wait to start the machine until this icon is OFF.
	Diesel Particulate Filter (DPF) — Orange	This icon is ON when the DPF is regenerating. The inhibit icon will display here when inhibit mode is selected.
	Boom Float — White	This icon is ON when boom float is engaged.
	Service Due — Orange	Indicates service is due.
	Low Battery Voltage — Red	Battery voltage is low.
	Low Hydraulic Charge Pressure — Red	Hydraulic charge pressure is low.
	Fuel Gauge — White	Bar graph above this icon shows the amount of fuel in the tank. The bar graph will change to red when level is low.
	Automatic Ride Control — White	This icon is ON when automatic ride control is engaged.

REF	DESCRIPTION	FUNCTION
	Engine rpm — White	Shows engine rpm.
	Engine Coolant Temperature Gauge — White	Bar graph above this icon shows the engine coolant temperature. The bar graph will change to red when temperature is high.
	Glow Plugs Activated — White	This icon is ON when the glow plugs are ON. Wait to start the machine until this icon is OFF.
	Vitals — White	Pressing the button below this icon will change the display to machine vitals shown in a digital format. (See Vitals (4.3–Inch Display) on Page 199)
	Alerts — White	Pressing the button below this icon will show any active alerts. (See Alerts (4.3–Inch Display) on Page 199)
	Warnings — White	Pressing the button below this icon will show all the latest service codes. (See Warnings (4.3–Inch Display) on Page 200)
	Settings — White	Pressing the button below this icon will change the display to the settings screen. (See Settings (4.3–Inch Display) on Page 201)

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 14



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

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 raised.
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	Diesel Particulate Filter (DPF)	This icon is ON when the DPF is regenerating. The inhibit icon will display here when inhibit mode is selected.
12	Emissions Error	DPF 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 exhaust temperature is higher than normal operation.
15	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.
16	Low Battery Voltage	Battery voltage is low.
17	Check Engine	Engine malfunction or failure.
18	Service Due	Indicates service is due. (See Record A Service on Page 206)
19	Engine rpm	Shows engine rpm.
20	Low Hydraulic Charge Pressure	Hydraulic charge pressure is low.
21	Glow Plugs Activated	This icon is ON when the glow plugs are ON. Wait to start the machine until this icon is OFF.
22	Speed Management	Indicates speed management is engaged.
23	Navigation Handle	This icon is used to open the navigation bar. (See Navigation Bar on Page 204)

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 (if equipped). 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 15



NA3441C

The following table shows the description and function for the icons located on the gauges (home) screen [Figure 15].

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 222)
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	Emissions Error	DPF malfunction or failure.
12	Diesel Particulate Filter (DPF)	This icon is ON when the DPF is regenerating. The inhibit icon will display here when inhibit mode is selected.
13	High Exhaust System Temperature (HEST)	This icon is ON when the exhaust temperature is higher than normal operation.
14	Hydraulic Fluid Temperature Gauge	Shows the hydraulic fluid temperature.
15	Engine Coolant Temperature Gauge	Shows the engine coolant temperature.
16	Fuel Level Bar Graph	Shows the amount of fuel in the tank. This will remain visible on most screens.
17	Status Indicators	These icons show: Fuel Priming in Process, Low Hydraulic Charge Pressure, Low Battery Voltage, and Speed Management Engaged.
18	Left Turn Signal	Indicates left turn signal is on.
19	Engine rpm	Shows engine rpm.
20	Right Turn Signal	Indicates right turn signal is on.
21	Status Indicators	These icons show: Service Due, Glow Plugs Activated, and Engine Malfunction.
22	Gauges	Changes display to this screen. (See Gauges (Touch Display) on Page 213)
23	Camera	Changes display to the camera screen. (See Camera (Touch Display) on Page 215)
24	Phone	Changes display to the phone screen. (See your Touch Display User Guide.)
25	Audio	Changes display to the audio screen. (See your Touch Display User Guide.)
26	Service	Changes display to the service screen. (See Service (Touch Display) on Page 217)
27	Active Service Code Indicator	Indicates active service code. (See View Service Codes on Page 219)
28	Attachments	Changes display to the attachments screen. (See Attachments (Touch Display) on Page 221)
29	Settings	Changes display to the settings screen. (See Settings (Touch Display) on Page 222)

LEFT CONTROL PANEL

Figure 16

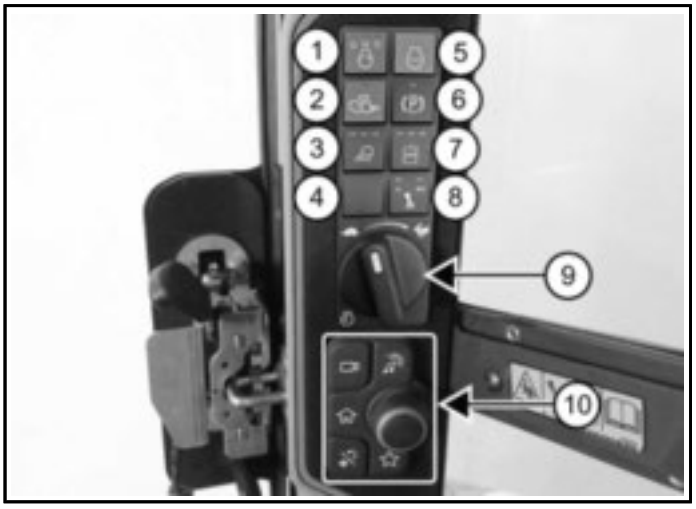


C200193a

REF	DESCRIPTION	FUNCTION
1	Windshield Wiper (If equipped)	(See Operating Front Wiper And Washer on Page 57)
2	Windshield Washer (If equipped)	(See Operating Front Wiper And Washer on Page 57)
3	Dual Direction Bucket Positioning (If equipped)	(See Operating Dual Direction Bucket Positioning on Page 95)
4	Auto Ride Control (If equipped)	(See Operating Automatic Ride Control on Page 96)
5	Power Bob-Tach Wedges Up (If equipped)	(See Installing And Removing Attachments (Power Bob-Tach System) on Page 121)
6	Power Bob-Tach Wedges Down (If equipped)	(See Installing And Removing Attachments (Power Bob-Tach System) on Page 121)
7	Not Used	- - -
8	Reversing Fan (If equipped)	(See Operating Reversing Fan on Page 96)
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 17



C200320A

REF	DESCRIPTION	FUNCTION
1	Run / Start	(See Starting Engine on Page 109)
2	Operate	(See Starting Engine on Page 109)
3	Lights	(See Operating Loader Lights on Page 57)
4	Not Used	- - -
5	Stop	(See Stopping The Engine And Leaving The Machine Procedure on Page 115)
6	Parking Brake	(See Parking Brake on Page 69)
7	Auxiliary Hydraulics	(See Operating Front Auxiliary Hydraulics on Page 97)
8	Selectable Joystick Controls (SJC)	(See Driving and Steering the Loader on Page 79)
9	Engine Speed Control	(See Engine Speed Control on Page 70)
10	Jog Shuttle (Option for touch display)	(See Jog Shuttle (Standard Display) on Page 48) (See Jog Shuttle (Touch Display) (If Equipped) on Page 48)

JOG SHUTTLE

Jog Shuttle (Standard Display)

Figure 18



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) (If Equipped)

Figure 19

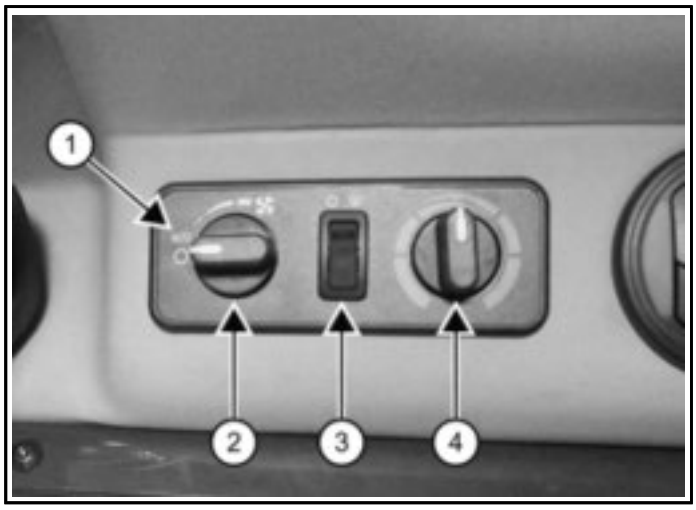


C200199a

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 counterclockwise 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 222)

HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) CONTROLS

Figure 20



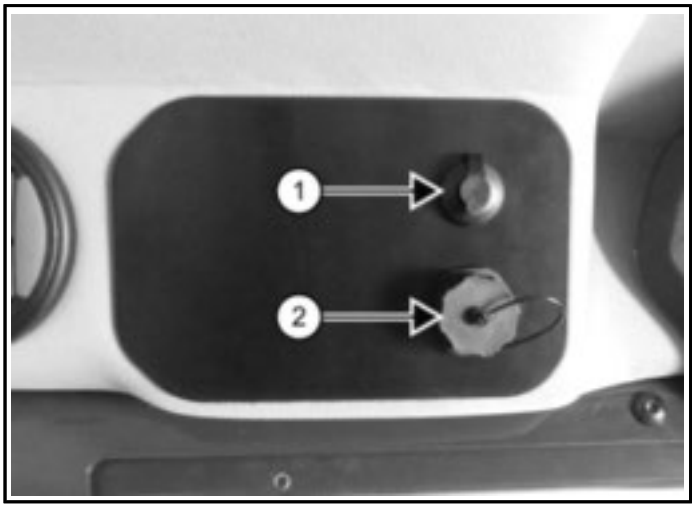
C200198a

The HVAC control panel [Figure 20] is installed if the machine is equipped with a cab heater or air conditioning.

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 counterclockwise 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 (If equipped)	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 counterclockwise to decrease.

TOUCH DISPLAY RADIO INPUT PORTS

Figure 21



C200196a

The touch display radio input ports [Figure 21] 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 22



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.

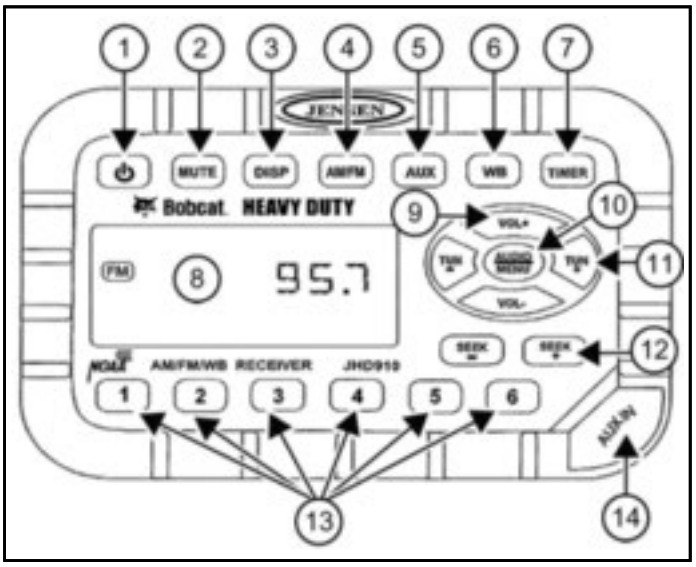
The Run / Start and Stop buttons on the right control panel are functional after the key switch is turned to the Run position.

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 23



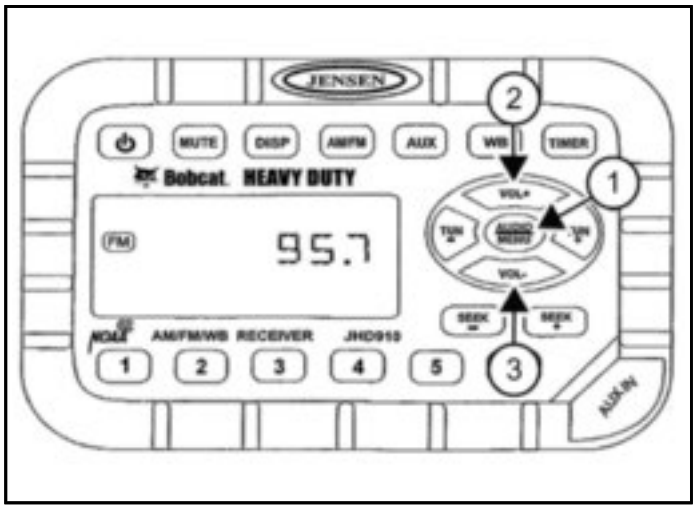
NA3090h

REF.	DESCRIP-TION	FUNCTION
1	POWER	Turns the radio on / off.
2	MUTE	Mutes audio output.
3	DISP	Switches between display operation functions of the radio. (See Operating The Radio Clock on Page 52)
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 51)
7	TIMER	Accesses timer mode. (See Operating Radio Timer on Page 51)
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.

REF.	DESCRIP-TION	FUNCTION
10	AUDIO / MENU	Adjusts radio settings. (See Adjusting Radio Settings on Page 51)
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 24



NA3090g

- Press the AUDIO / MENU button (Item 1) [Figure 24] to cycle through bass, treble, and balance settings.
  - ▹ Use the VOL+ (Item 2) and VOL- (Item 3) buttons [Figure 24] to adjust the desired option displayed.

  Normal operation will resume automatically.
- Press and hold the AUDIO / MENU button (Item 1) [Figure 24] for three seconds to enter menu adjustment settings.
  - ▹ Press the AUDIO / MENU button (Item 1) [Figure 24] 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 Color: Set display screen backlight color (amber or green).

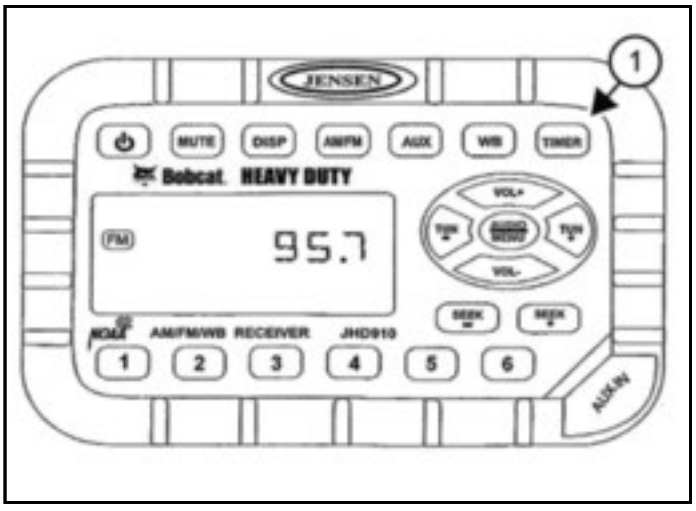
    Power On Volume: Sets default volume setting when radio is turned on.

    WB Alert: Determines if weather band alert features is activated.
  - ▹ Use the VOL+ (Item 2) and VOL- (Item 3) buttons [Figure 24] to adjust the active setting.

  Normal operation will resume automatically.

Operating Radio Timer

Figure 25

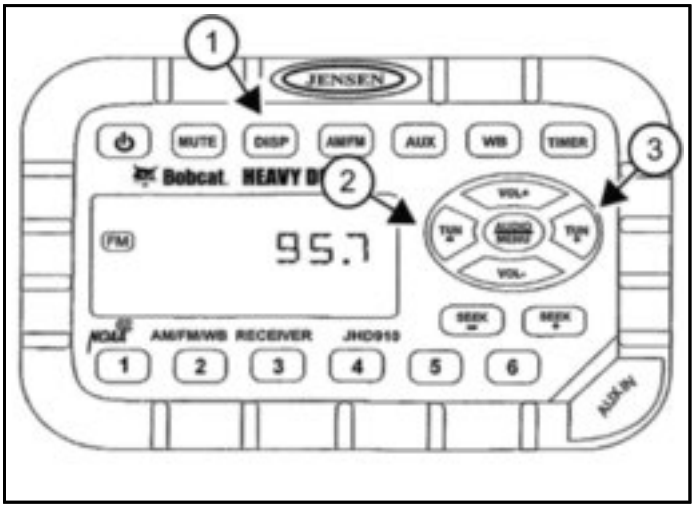


NA3090f

- Press the TIMER (Item 1) [Figure 25] button to start the timer function.
- Press TIMER (Item 1) [Figure 25] again to stop timer.
- Press and hold TIMER (Item 1) [Figure 25] to reset timer and exit from timer mode.

Operating The Radio Clock

Figure 26



NA3090c

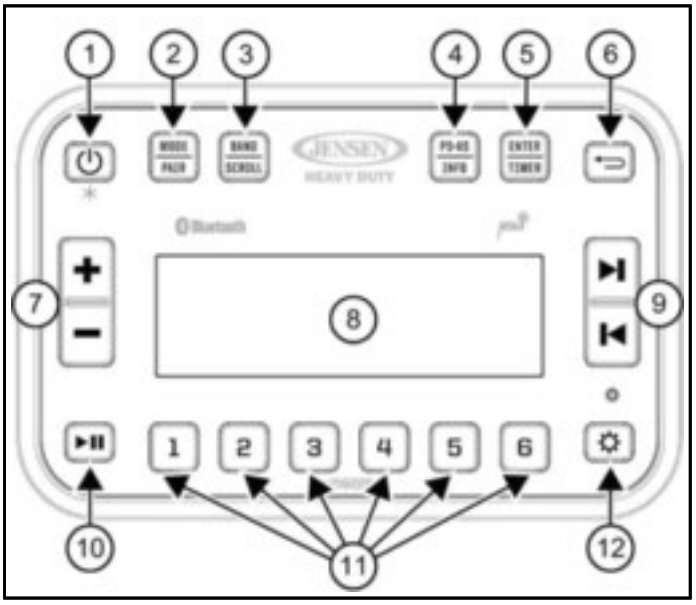
- Press and hold the DISP (Item 1) button [Figure 26] to enter clock setting mode.
- Use TUN – button (Item 2) [Figure 26] to adjust hours.
- Use TUN + button (Item 3) [Figure 26] to adjust minutes.

Normal operation will resume automatically.

RADIO (BLUETOOTH)

Radio Identification

Figure 27



C227881a

REF.	DESCRIPTION	FUNCTION
1		Power button.
2	MODE / PAIR	Press to select mode or to pair device.
3	BAND / SCROLL	Press to select band: FM1, FM2, AM1, AM2.
4	PS•AS / INFO	Present Scan / Automatically Store Press to scan stations stored in the current band. Press and hold for 2 seconds to store a station.
5	ENTER / TIMER	(See Navigating System Menu on Page 53)
6		Press to select option.
7		Press to adjust ranges or volume.
8	Display Screen	Displays the time, frequency, and activated functions.
9		Press to navigate menu. (See Navigating System Menu on Page 53)

REF.	DESCRIPTION	FUNCTION
10	▶II	Press to pause or mute audio output.
11	Preset Stations	Press and hold to store current station. Press to recall station.
12	☼	Press to access menu. (See Navigating System Menu on Page 53)

Navigating Audio Menu

1. Press the ☼ button to access the audio menu.
2. Navigate through the audio menu by pressing the ▶I and I◀ buttons.
3. Once the desired menu item appears on the display, adjust that option by pressing + or − buttons within 5 seconds.

   The following items can be adjusted:
   - Loudness
   - Bass Level
   - Treble Level
   - Balance.

Navigating System Menu

1. Press and hold the ☼ button for more than 2 seconds to access the system menu.
2. Navigate through the system menu by pressing the ▶I or I◀ buttons.
3. Once the desired menu item appears on the display, adjust that option by pressing the ⮌ button.
4. Press ENTER / TIMER to select the desired item.

   The following items can be adjusted:
   - LCD Dimmer
   - Bluetooth Devices
   - Clock Set
   - Low Voltage Alarm (On / Off)
   - Low Voltage Auto Off (On / Off)
   - Preset-Only Tuning (On / Off)
   - Tuning Region
   - USA Tuning Region
   - Europe or Japan Tuning Regions

Pairing A Bluetooth Device

1. On your personal Bluetooth device, enter the Bluetooth settings list. Make sure your device has Bluetooth turned on and is searching for new devices.
2. Press and hold MODE / PAIR for 3 seconds to make the radio available on your Bluetooth device.
3. Select JHD922BT on your Bluetooth device.

   Enter pairing password (0000) if requested.
4. During playback, press the ▶I or I◀ buttons to play the previous or next track.
5. During playback, press the ▶II button to pause the Bluetooth player.

   Press again to resume playback.

REAR VIEW CAMERA SYSTEM

Rear View Camera System Description (Standard And Touch Displays)

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 28



NA3636A

The camera view is shown on the display [Figure 28] by selecting **[CAMERA]** on the display or pressing the camera button on the jog shuttle.

The rotating icon (Item 1) [Figure 28] 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 operating 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 29



NA3584A

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

- Pressing the camera button on the jog shuttle (if equipped).
- Touching anywhere on the camera view.
- Selecting the **[FULL SCREEN]** icon (Item 2) [Figure 29].

Camera settings are accessed by selecting the **[SETTINGS]** icon (Item 1) [Figure 29].
(See Camera Settings on Page 215)

Maintaining Rear View Camera System

Figure 30



C200200A

The rear view camera (Item 1) [Figure 30] 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 (Standard And Touch Displays) on Page 55) Adjust camera if necessary.
- Replace damaged rear view camera system components. See your Bobcat dealer for service and parts.

Adjusting Rear View Camera System (Standard And Touch Displays)

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.

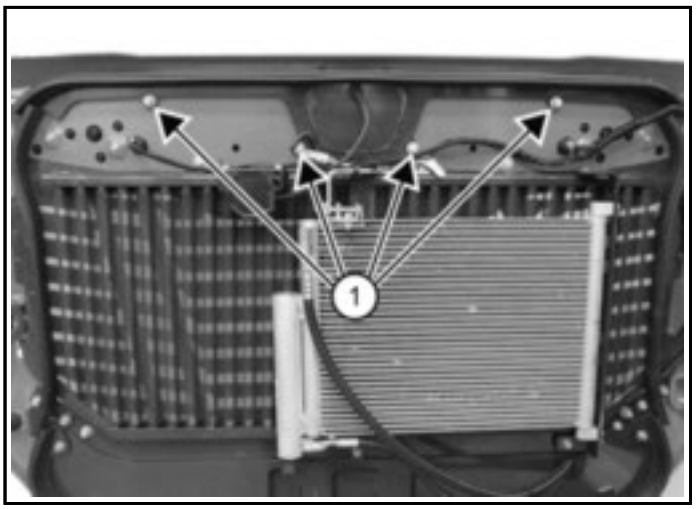
Figure 31



NA3636B

3. Ensure the camera is centered left and right. The mark on the ground (Item 2) [Figure 31] from step 1 should be visible on the display. Continue with procedure if necessary.

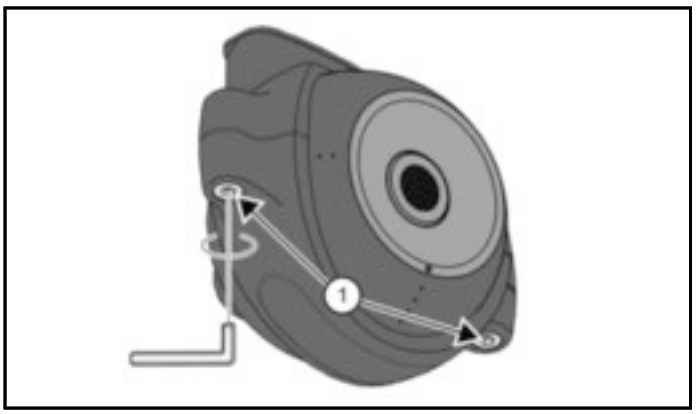
Figure 32



C200205C

4. Remove the bolts (Item 1) [Figure 32] while supporting the bracket.

Figure 33



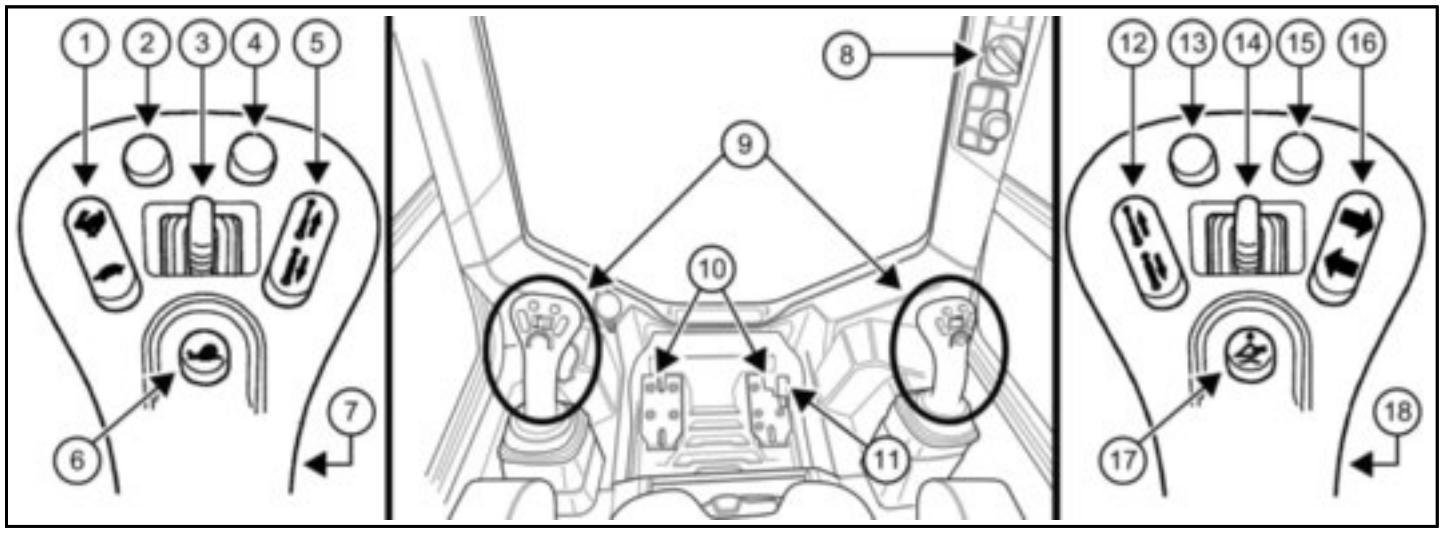
NA3351A

5. Loosen the screws (Item 1) [Figure 33] 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 centered left and right. The mark on the ground (Item 2) [Figure 31] 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 32].
9. Verify proper camera adjustment [Figure 31].
10. Repeat steps 4 through 9 if necessary.
11. Turn the machine OFF.

CONTROL IDENTIFICATION

Selectable Joystick Controls (SJC) Identification

Figure 34



NA3801A

REF	DESCRIPTION	FUNCTION
1	TWO-SPEED CONTROL (If equipped)	(See Two-speed Control on Page 82)
	Also: SPEED MANAGEMENT	(See Speed Management on Page 83)
2 [A]	STEERING DRIFT COMPENSATION	(See Steering Drift Compensation on Page 87)
3 [A]	REAR AUXILIARY HYDRAULICS (If equipped)	(See Operating Rear Auxiliary Hydraulics on Page 99)
4 [A]	STEERING DRIFT COMPENSATION	(See Steering Drift Compensation on Page 87)
5	ATTACHMENT FUNCTION CONTROL	(See Attachment Control Device (ACD) on Page 102)
6	SPEED MANAGEMENT	(See Speed Management on Page 83)
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 79) (See Hydraulic Controls on Page 94)
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 102)
13	ATTACHMENT FUNCTION CONTROL	(See Attachment Control Device (ACD) on Page 102)
14	FRONT AUXILIARY HYDRAULICS	(See Operating Front Auxiliary Hydraulics on Page 97)
15	ATTACHMENT FUNCTION CONTROL	(See Attachment Control Device (ACD) on Page 102)
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 94)
18	CONTINUOUS FLOW CONTROL FOR AUXILIARY HYDRAULICS	(See Operating Front Auxiliary Hydraulics In Continuous Flow Mode on Page 97) (See Operating Front Auxiliary Hydraulics In Reverse Continuous Flow Mode on Page 98)

[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 ROPS and Falling-Object Protective Structure (FOPS) protection. 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 35



C200320b

The lights button (Item 1) [Figure 35] 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 36



C200193h

The front wiper and washer controls (Items 1 and 2) [Figure 36] are located on the left control panel.

1. Press the wiper button (Item 1) [Figure 36] 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 36] for washer fluid. The wiper will start automatically.

Operating Front Door

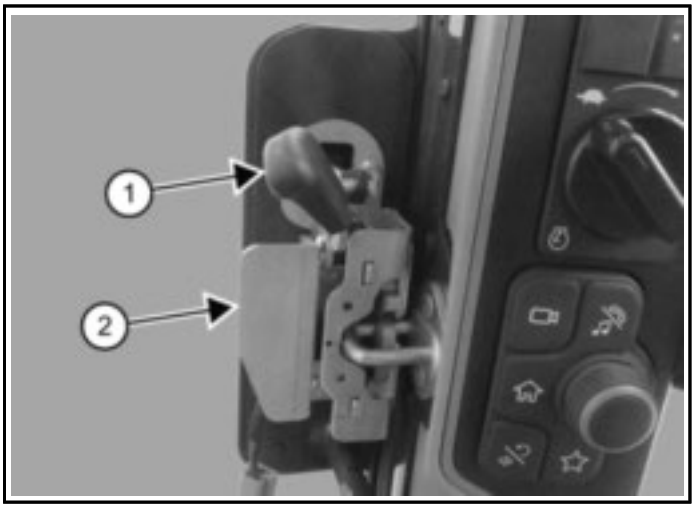
Figure 37



C200224a

- Pull the handle (Item 1) to open the front door. A lock (Inset) [Figure 37] is provided to lock the front door when the machine is not in use.

Figure 38



C200225a

- Pull the front door closed using the handle (Item 2) [Figure 38].
- Push the lever (Item 1) to unlatch the front door. Push on the handle (Item 2) [Figure 38] to open the front door.

Filling Front Washer Tank

Figure 39



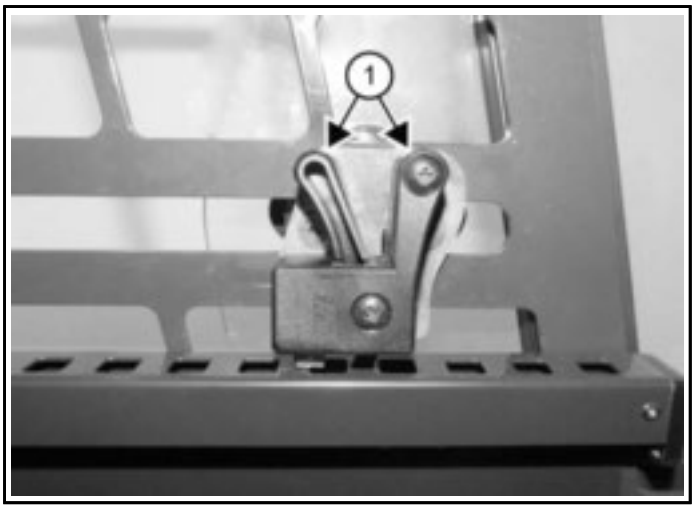
C200201a

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 39].
- Remove the cap (Item 1) [Figure 39] to add washer fluid.

Operating Side Windows

Figure 40



C200194a

1. Pinch the lever (Item 1) [Figure 40] 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 41



C214222A

The Bobcat Interlock Control System (BICS) has a pivoting seat bar with armrests (Item 1) [Figure 41]. The operator controls the use of the seat bar.

⚠ WARNING

GENERAL HAZARD
Failure to obey 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 operator's position with the seat bar fully lowered and all controls in the neutral position 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 42



NA3635

- Three icons [Figure 42] must be OFF to fully operate the machine.
- When the seat bar is lowered, the engine is running, all controls are in neutral, 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 obey instructions can cause serious injury or death.
Before leaving the operator's position:
- **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 raised. See your Bobcat dealer for service if controls do not deactivate.**
- **Shut down the machine.**

W-3175

SEAT BAR RESTRAINT SYSTEM

Seat Bar Restraint System Description

Figure 43



C214222A

The seat bar restraint system has a pivoting seat bar with armrests (Item 1) [Figure 43].

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 obey 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 lowered, 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 obey instructions can cause serious injury or death.
Before leaving the operator's position:
- **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 raised. See your Bobcat dealer for service if controls do not deactivate.**
- **Shut down the machine.**

W-3175

DIESEL PARTICULATE FILTER (DPF) SYSTEM

DPF Description

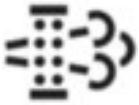
The engine exhaust system is equipped with a Diesel Particulate Filter (DPF).

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 (4.3-Inch Display) on Page 63) (See Automatic Regeneration Operation (Standard And Touch Displays) 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 (4.3-Inch Display) on Page 63) (See Forced Regeneration Operation (Standard And Touch Displays) 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 (4.3-Inch Display) on Page 63) (See Forced Parked Regeneration Operation (Standard And Touch Displays) on Page 66)
Service Regeneration	Your Bobcat dealer uses specialized equipment to perform a service regeneration. (See DPF Service Regeneration (4.3–Inch Display) on Page 186) (See DPF Service Regeneration (Standard And Touch Displays) on Page 186)
Inhibit Mode	Active regeneration will not occur. This selection requires confirmation. (See Inhibit Mode Operation (4.3-Inch Display) on Page 64) (See Inhibit Mode Operation (Standard And Touch Displays) on Page 68)

DPF Regeneration Status Icons

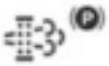
Icon	Definition
	DPF - Appears on the display during regeneration. Machine is requesting that operator activate a forced or forced parked regeneration when flashing slowly.
	Hot Exhaust System Temperature (HEST) - Appears on the display during regeneration to indicate that exhaust and exhaust gases can 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 obey instructions can cause damage to the DPF.
Never shut down the machine 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 Color	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 (Standard And Touch Displays) on Page 186)	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 (4.3-Inch Display)

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.

1. Press the button below the  icon.
2. Press the button below the  icon when the  icon is highlighted.
3. Press the button below the  icon when the  icon is highlighted.
4. Press the button below the  icon to select automatic regeneration when the  icon is highlighted.
5. Press the button below the  icon to activate automatic regeneration when the  icon is highlighted.

   The  icon will become orange with an orange  icon.

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 (4.3-Inch Display)

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.

1. Press the button below the  icon.
2. Press the button below the  icon when the  icon is highlighted.
3. Press the button below the  icon when the  icon is highlighted.
4. Press the button below the  icon to select forced regeneration when the  icon is highlighted.

   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
5. Increase engine speed to high idle.
6. Press the button below the  icon to start regeneration.

   The  icon will become orange with an orange  icon.

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

Forced Parked Regeneration Operation (4.3-Inch Display)

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.

1. Press the button below the  icon.
2. Press the button below the  icon when the  icon is highlighted.
3. Press the button below the  icon when the  icon is highlighted.

4. Press the button below the  icon to select forced parked regeneration when the  icon is highlighted.

IMPORTANT

MACHINE DAMAGE HAZARD
Failure to obey instructions can cause damage to the DPF.
Never shut down the machine 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

5. Decrease engine speed to low idle.

6. Press the button below the  icon to start regeneration.

The  icon will become orange with an orange  icon.

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

Inhibit Mode Operation (4.3-Inch Display)

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 can cause damage to the DPF.
Place the machine in automatic regeneration mode as soon as possible.
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.

1. Press the button below the  icon.

2. Press the button below the  icon when the  icon is highlighted.

3. Press the button below the  icon when the  icon is highlighted.

4. Press the button below the  icon to select inhibit mode when the  icon is highlighted.

5. Press the button below the  icon to inhibit regeneration.

The  icon will become orange with an orange  icon.

6. 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.
   - Perform a forced parked regeneration if possible.

Automatic Regeneration Operation (Standard And Touch Displays)

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.

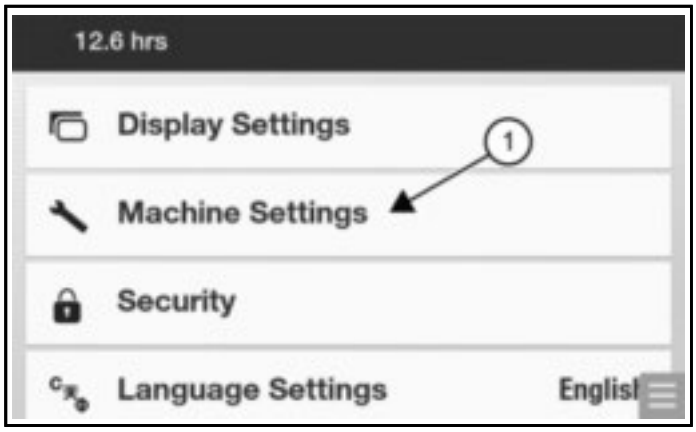
Figure 44



NA3669A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 44].
2. Select **[SETTINGS]** (Item 2) [Figure 44].

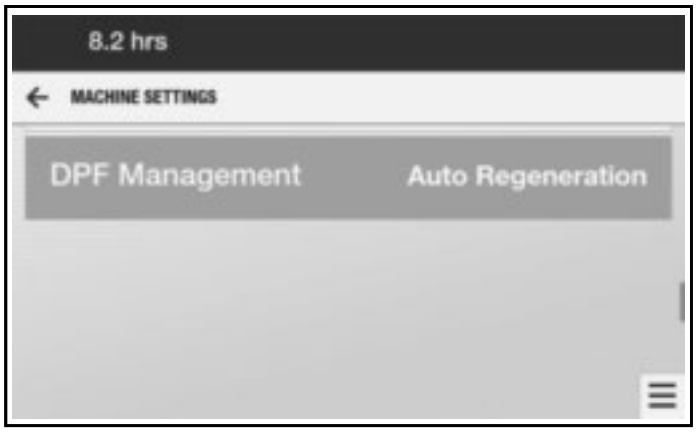
Figure 45



NA3668A

3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 45].

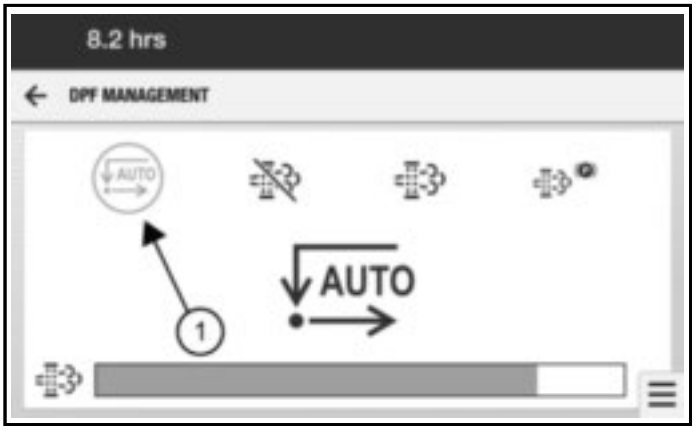
Figure 46



NA3856

4. Scroll down and select **[DPF MANAGEMENT]** [Figure 46].

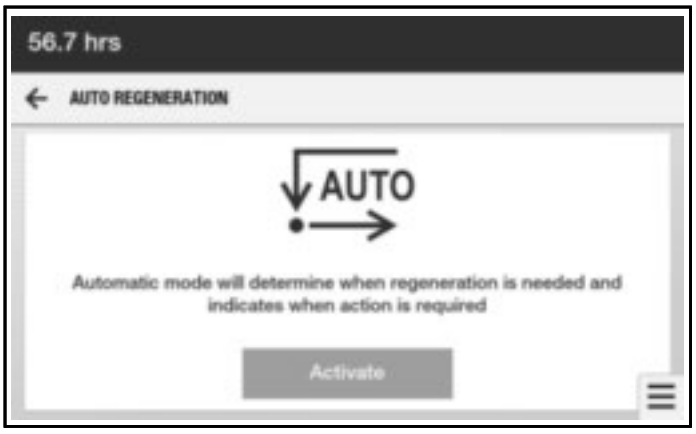
Figure 47



NA3862A

5. Select the automatic regeneration icon (Item 1) [Figure 47].

Figure 48



NA3865

6. Select **[ACTIVATE]** [Figure 48] 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.

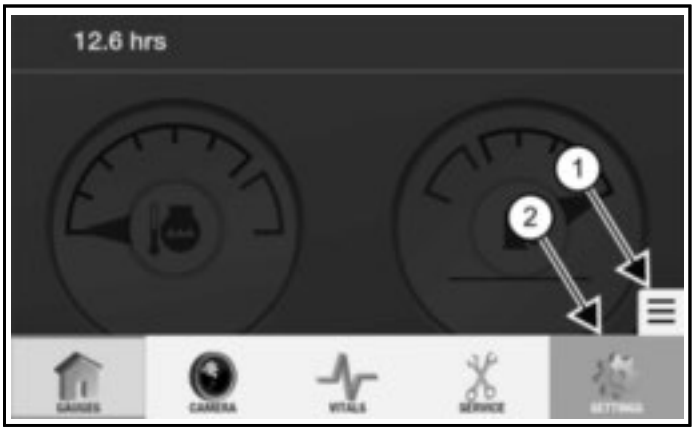
   It is recommended to allow the regeneration cycle to finish before turning the machine off.

Forced Regeneration Operation (Standard And Touch Displays)

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.

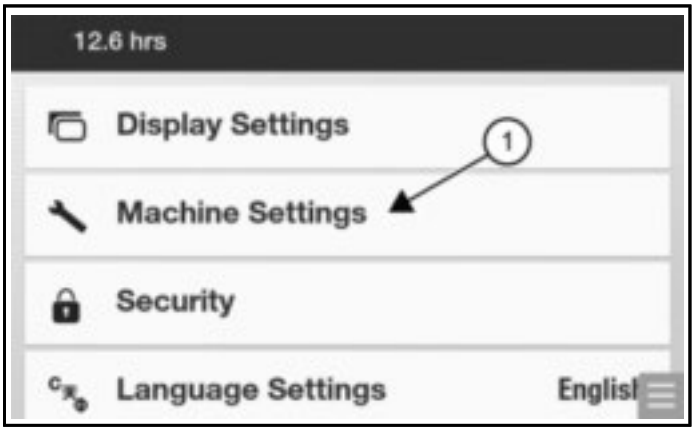
Figure 49



NA3669A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 49].
2. Select **[SETTINGS]** (Item 2) [Figure 49].

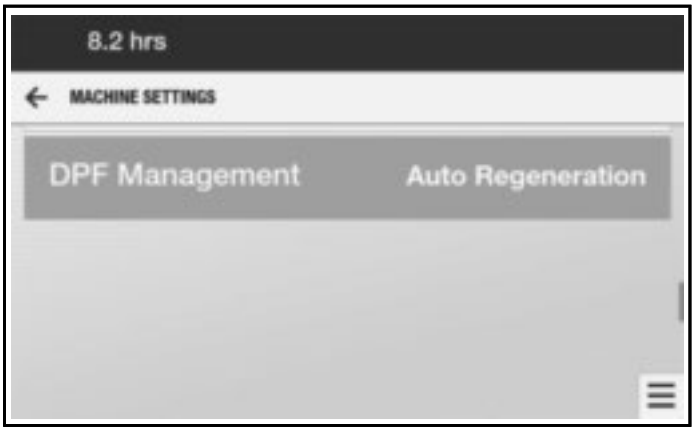
Figure 50



NA3668A

3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 50].

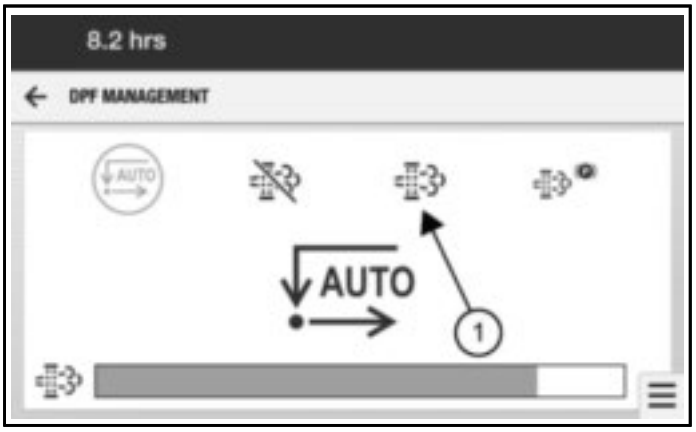
Figure 51



NA3856

4. Scroll down and select **[DPF MANAGEMENT]** [Figure 51].

Figure 52



NA3862B

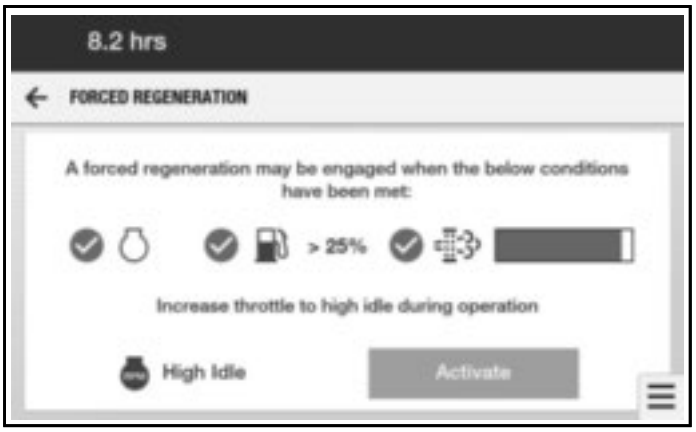
5. Select the forced regeneration icon (Item 1) [Figure 52].

   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 53



NA3864

7. Select **[ACTIVATE]** [Figure 53] to start regeneration.

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

Forced Parked Regeneration Operation (Standard And Touch Displays)

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.

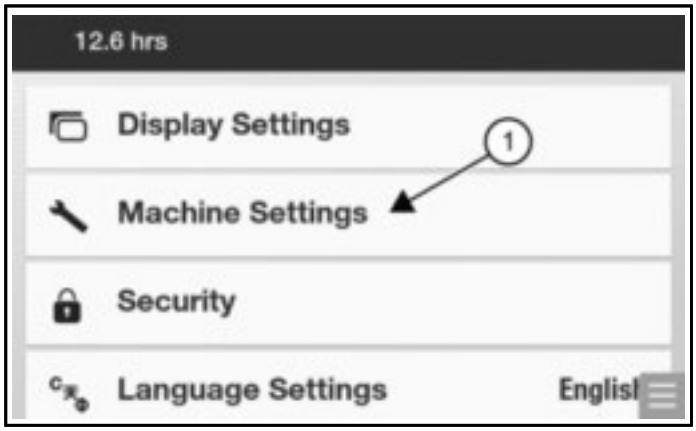
Figure 54



NA3669A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 54].
2. Select **[SETTINGS]** (Item 2) [Figure 54].

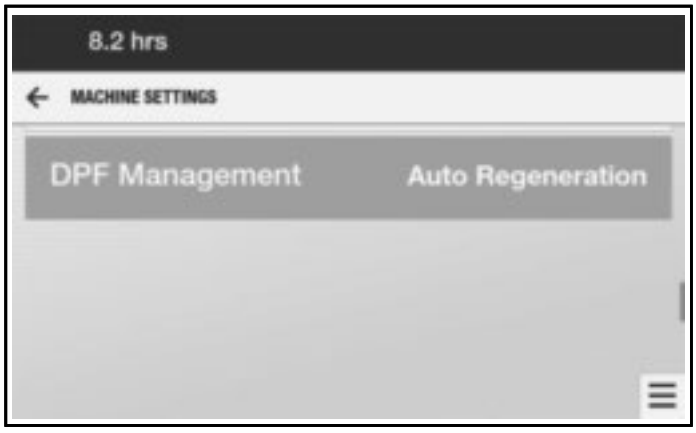
Figure 55



NA3668A

3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 55].

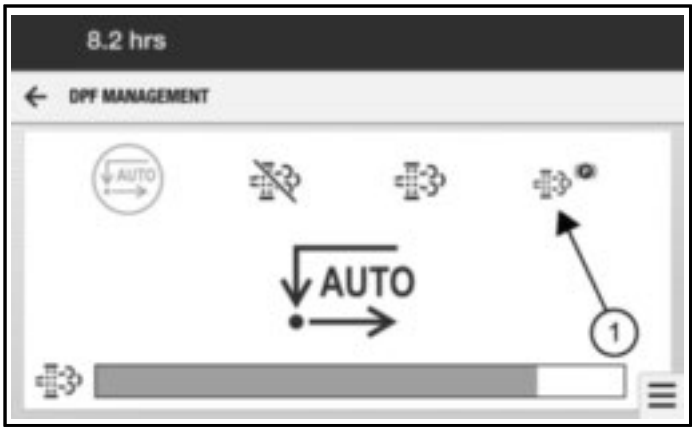
Figure 56



NA3856

4. Scroll down and select **[DPF MANAGEMENT]** [Figure 56].

Figure 57



NA3862C

5. Select the forced parked regeneration icon (Item 1) [Figure 57].

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Failure to obey instructions can cause damage to the DPF.
Never shut down the machine during the regeneration cycle. This will by-pass the programmed cool down cycle required after a high temperature regen.

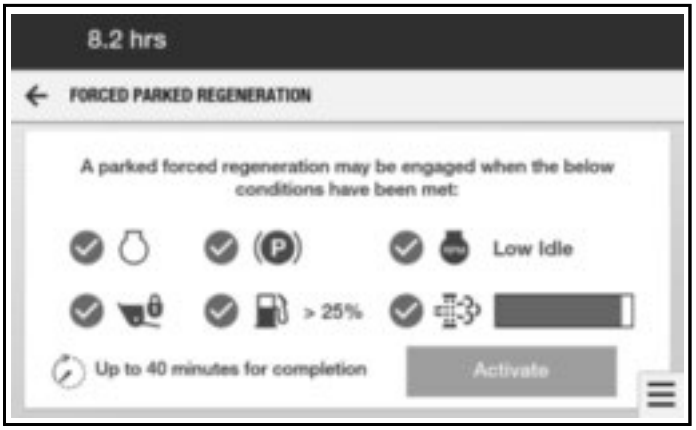
I-2352

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 58



NA3857

7. Select **[ACTIVATE]** [Figure 58] to start regeneration.

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

Inhibit Mode Operation (Standard And Touch Displays)

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 can cause damage to the DPF.
Place the machine in automatic regeneration mode as soon as possible.
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.

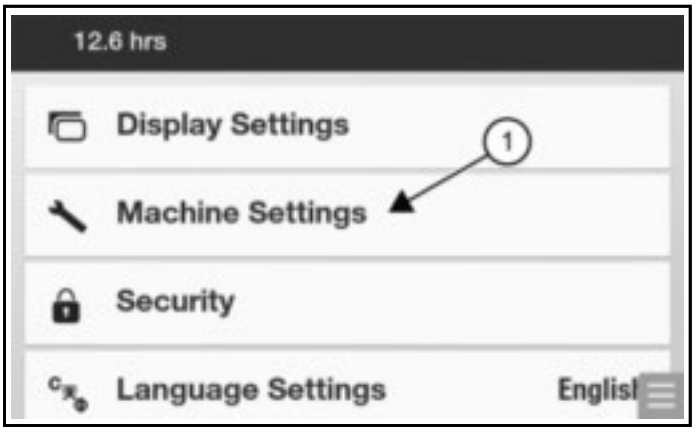
Figure 59



NA3669A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 59].
2. Select **[SETTINGS]** (Item 2) [Figure 59].

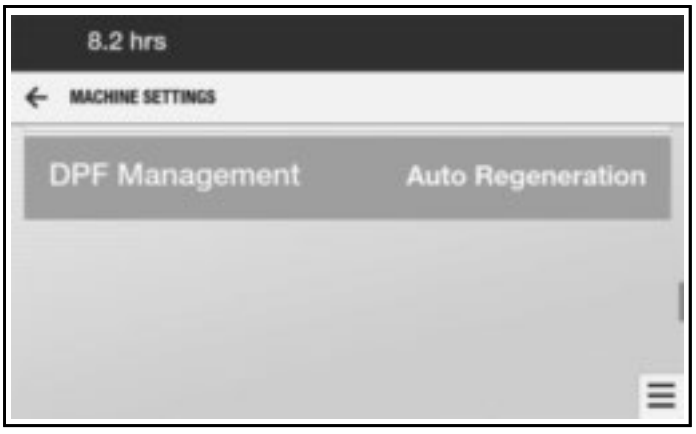
Figure 60



NA3668A

3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 60].

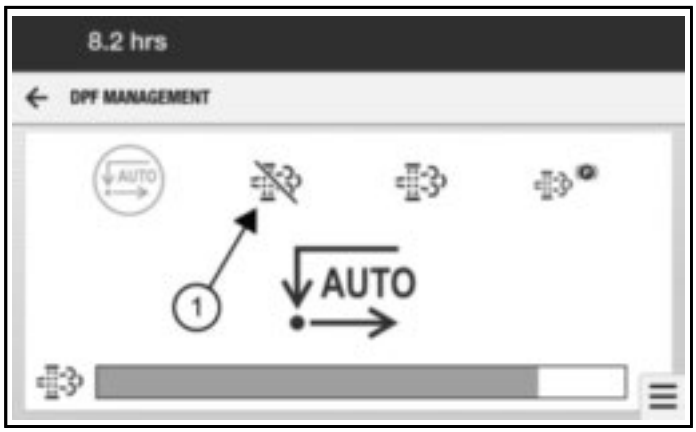
Figure 61



NA3856

4. Scroll down and select **[DPF MANAGEMENT]** [Figure 61].

Figure 62



NA3862D

5. Select the inhibit mode icon (Item 1) [Figure 62].

Figure 63



NA3863

6. Select **[ACTIVATE]** [Figure 63] 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 64



C200321A

1. Press the parking brake button (Item 1) [Figure 64] 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.

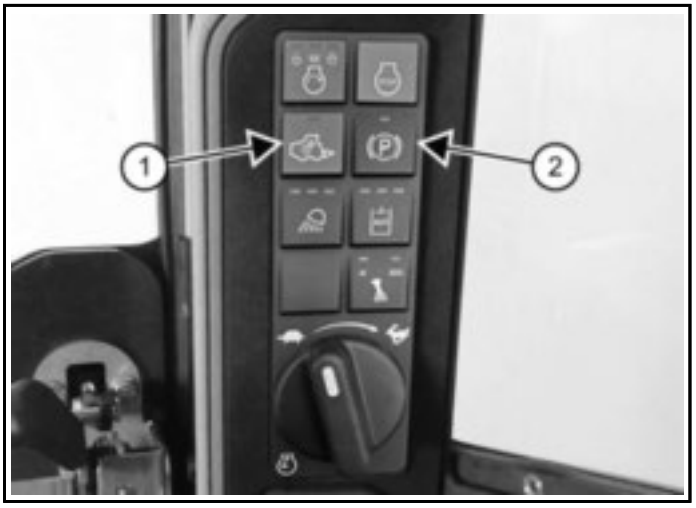
   The LED in the button will turn off. The traction drive system is unlocked.

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 65



C200321h

1. Press and hold the parking brake button (Item 2) [Figure 65] on the right control panel.
2. Press and hold the operate button (Item 1) [Figure 65] on the right control panel.
3. Release both buttons.

ENGINE SPEED CONTROL

Operating Engine Speed Control (Hand)

Figure 66



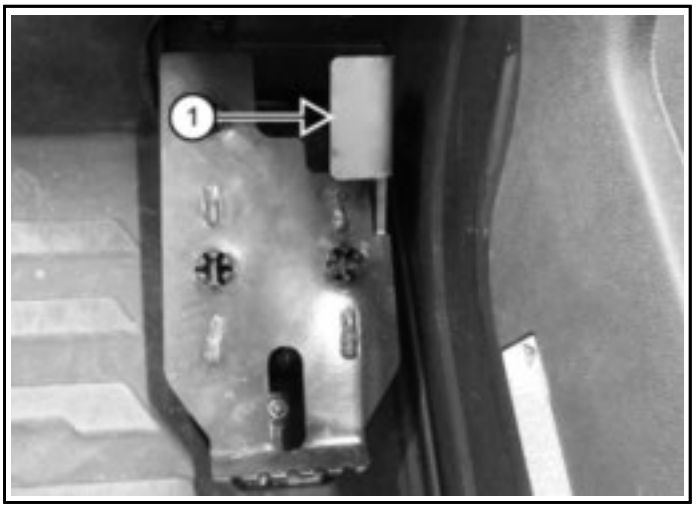
The engine speed control (Item 1) [Figure 66] is located on the right control panel.

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

NOTE: The full range of the engine speed control will not be available until the engine controller determines the machine is adequately warmed. (See Cold Temperature Engine Speed Control Description on Page 112)

Operating Engine Speed Control (Foot)

Figure 67



C200202A

This machine has a foot operated engine speed control pedal (Item 1) [Figure 67] 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 224)

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 224)

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 (4.3–Inch Display)

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

1. Press the button below the  icon.
2. Press the button below the  icon when the  icon is highlighted.
3. Press the button below the  icon when the  icon is highlighted.
4. Press the buttons below the  and  icons to toggle between auto idle on or off .
5. Press the button below the  icon when your selection is highlighted.
6. The  icon replaces the  icon on the gauges screen when auto idle is engaged.

Operating Auto Idle (Standard And Touch Displays)

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

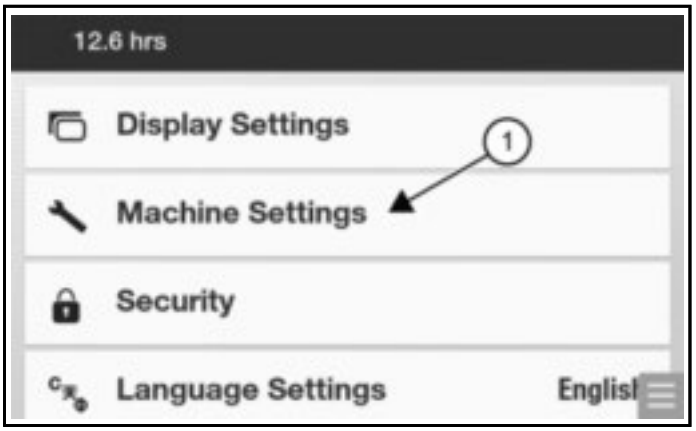
Figure 68



NA3669A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 68].
2. Select **[SETTINGS]** (Item 2) [Figure 68].

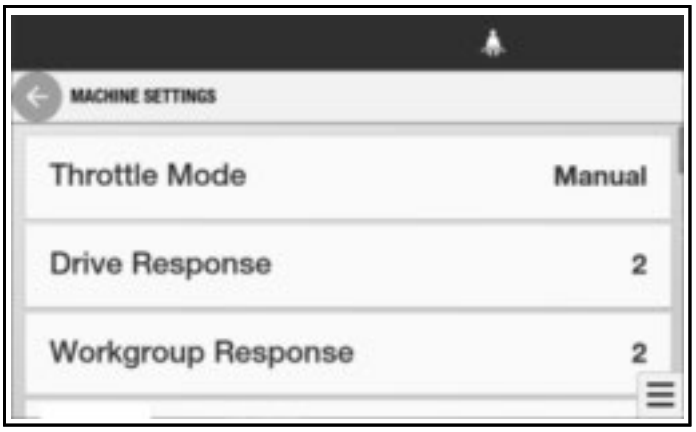
Figure 69



NA3668A

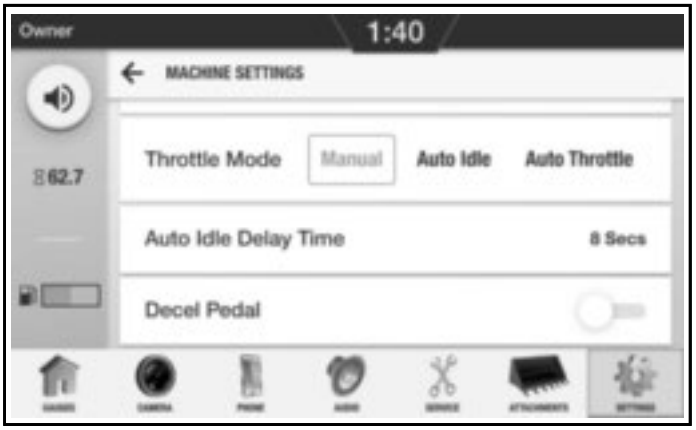
3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 69].

Figure 70



NA3889

Figure 71



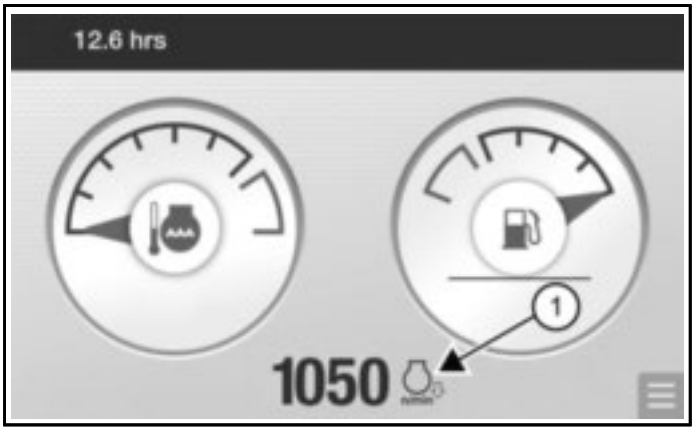
NA3887

4. On the standard display, select **[THROTTLE MODE]** [Figure 70], and on the next screen select **[AUTO IDLE]**.

   OR

   On the touch display, select **[AUTO IDLE]** as the Throttle Mode [Figure 71].

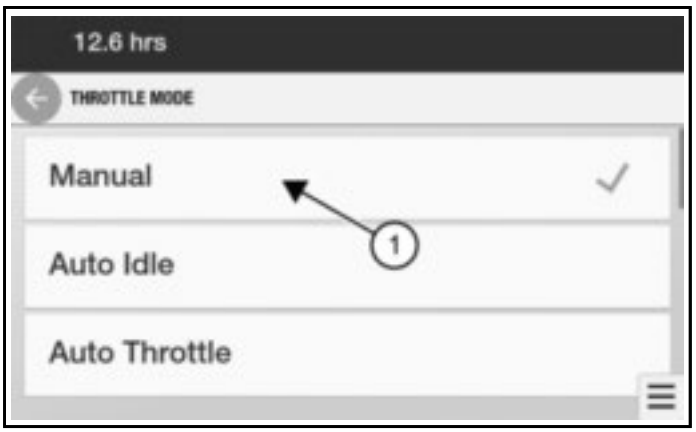
Figure 72



NA3670A

5. The auto idle icon (Item 1) [Figure 72] replaces the RPM icon on the display when auto idle is engaged.

Figure 73



NA3954A

6. Select **[MANUAL] [THROTTLE MODE]** (Item 1) [Figure 73] to turn auto idle off.

AUTO THROTTLE

Auto Throttle Description

Auto Throttle is a feature that is available as a part of Bobcat Features On Demand.

When you activate the Auto Throttle feature, the throttle will adjust automatically so you don't have to manually adjust it while operating the machine.

With the addition of this feature, there are now three different throttle settings to choose from: Manual, Auto Idle, or Auto Throttle. For both Auto Idle and Auto Throttle, maximum engine speed is set with the engine speed control dial.

The primary differences between Auto Idle and Auto Throttle are described below.

Auto Idle vs. Auto Throttle	
Auto Idle	Auto Throttle
Engine speed decreases to idle after a period of time when controls are moved to neutral.	Engine speed decreases dynamically as joysticks are moved toward neutral.
Engine speed increases to the throttle setting when controls are reactivated.	Engine speed increases dynamically as joysticks are moved away from neutral.

NOTE: The Auto Throttle feature requires Selectable Joystick Controls (SJC).

Activating Auto Throttle (Standard And Touch Displays)

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

Figure 74



C200321b

1. Set desired maximum engine speed with the engine speed control dial (Item 1) [Figure 74], which is located on the right control panel.

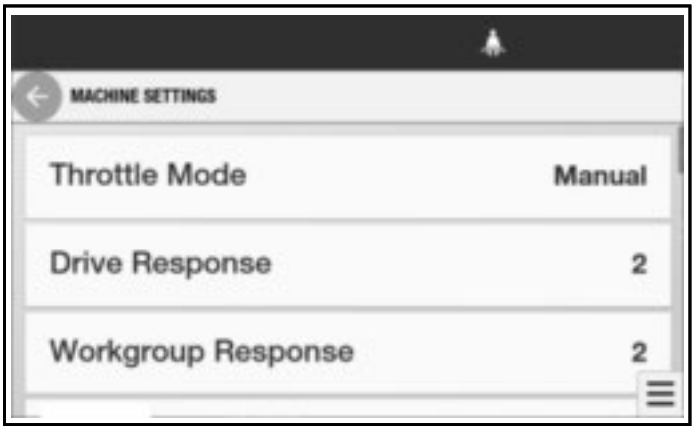
2. On the standard display, select **[NAVIGATION HANDLE]**→ **[SETTINGS]**→ **[MACHINE SETTINGS]**.

   OR

   On the touch display, select **[SETTINGS]**→ **[MACHINE SETTINGS]**.

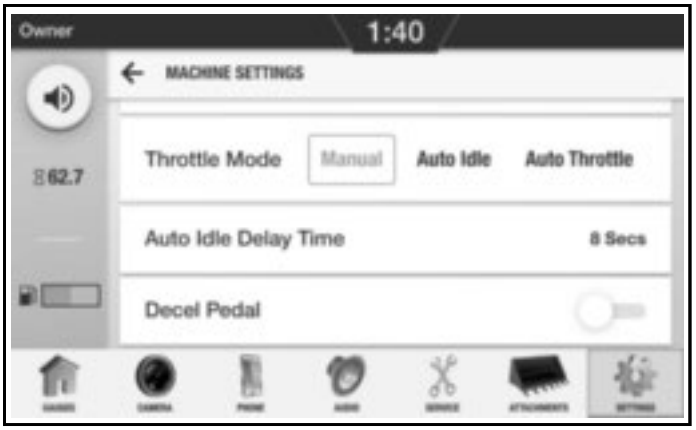
   Manual is the default throttle setting.

Figure 75



NA3889

Figure 76



NA3887

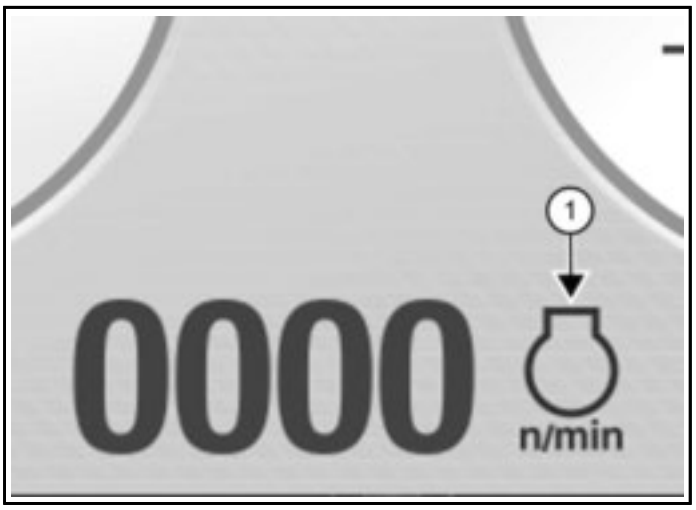
3. On the standard display, select **[THROTTLE MODE]** [Figure 75], and on the next screen select **[MANUAL]**, **[AUTO IDLE]**, or **[AUTO THROTTLE]**.

   OR

   On the touch display, select **[MANUAL]**, **[AUTO IDLE]**, or **[AUTO THROTTLE]** as the Throttle Mode [Figure 76].

   Auto Throttle will be visible, but not selectable, until the feature has been activated by your Bobcat dealer.

Figure 77



NA3888a.tif

The engine icon (Item 1) [Figure 77] at the bottom of the **GAUGES** screen will indicate which setting is currently enabled: Manual, Auto Idle, or Auto Throttle. See table below for a description of the icons.

Icon	Description
	Manual throttle enabled
	Auto Idle enabled
	Auto Throttle enabled

NOTE: You can use the foot throttle to temporarily override the Auto Throttle feature. This will not turn Auto Throttle off.

Operating Auxiliaries With Auto Throttle

The Auto Throttle feature only responds to the joystick position.

When using auxiliaries, choose one of the following:

- Use the foot throttle to speed up when necessary.
- Go to machine settings on the screen and toggle the Auto Throttle feature 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 78



C200577a

3. Press down on the latch (Item 1) [Figure 78] to allow the cover to hinge open at the bottom of the cover.

Figure 79



C200204

4. Turn the knob [Figure 79] 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 80



C218128

1. Pull on the tag [Figure 80] on the top of the rear window to remove the rubber cord.
2. Push the rear window out of the rear of the operator cab.
3. Exit through the rear of the operator cab.

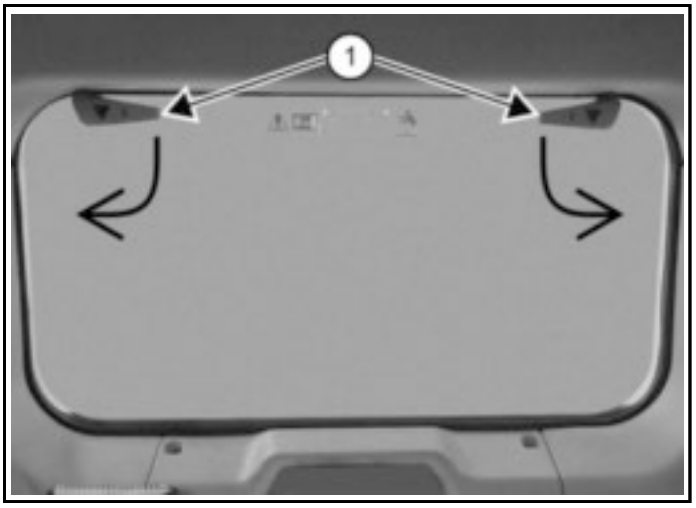
⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Failure to obey instructions can result in machine damage.
Only use this procedure to remove the rear window in emergency conditions.

I-2511

Making An Emergency Exit Through Rear Window With Latches

Figure 81



P200419a

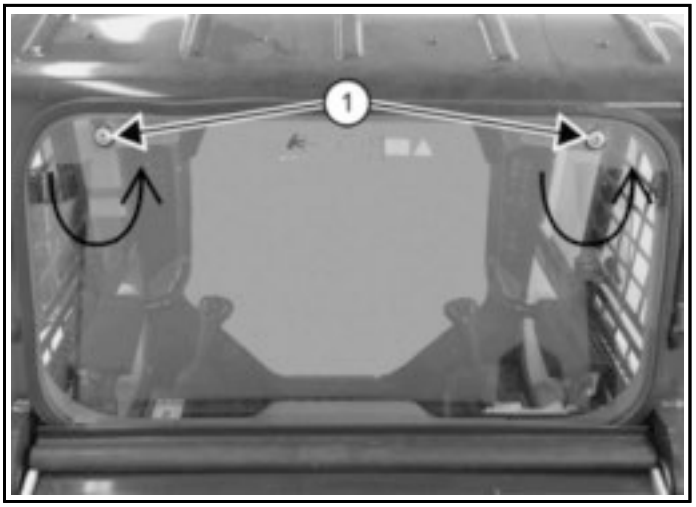
1. Turn both latches (Item 1) [Figure 81] down until they disengage from the window frame.
2. Push the rear window out of the rear of the operator cab.
3. Exit through the rear of the operator cab.

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Failure to obey instructions can result in machine damage.
Only use this procedure to remove the rear window in emergency conditions.
I-2511

Removing Rear Window With Latches From Outside Machine

Figure 82



P200567a

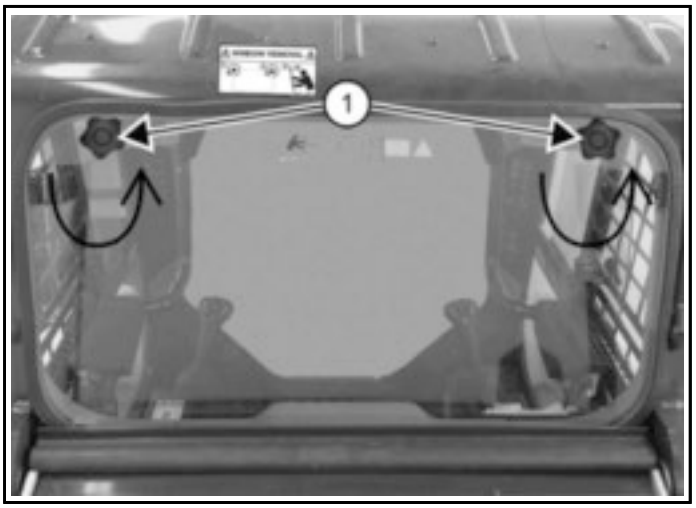
The rear window can be removed from outside the machine using a T40 TORX® drive tool.

1. Turn both screws (Item 1) [Figure 82] counterclockwise 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 Machine 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 83



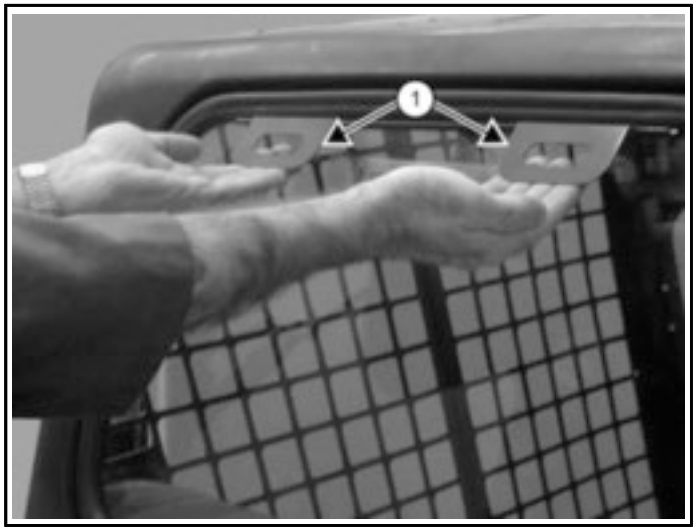
P200568a

1. Turn both knobs (Item 1) [Figure 83] counterclockwise 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 Machine

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 84

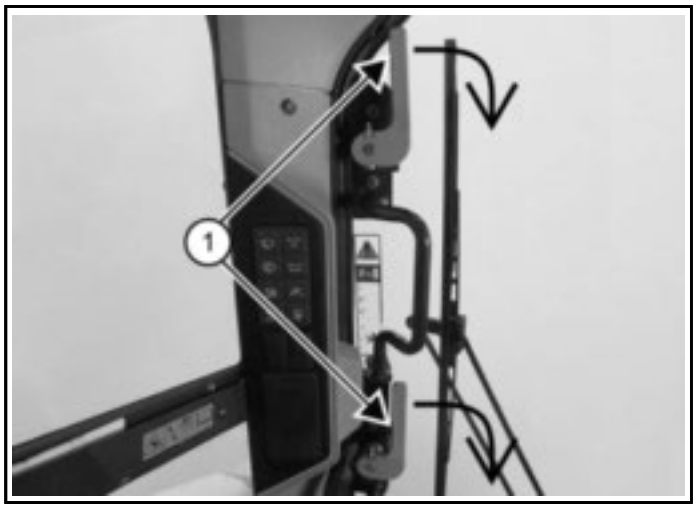


P13982a

1. Pull both handles (Item 1) [Figure 84] up and out to remove the rear window seal.
2. Remove the rear window.

Making An Emergency Exit Through Front Door

Figure 85



C200197a

1. Turn both latches (Item 1) [Figure 85] down until they disengage from the door frame.
2. Push the door out of the operator cab door frame and exit through the opening.

⚠ IMPORTANT

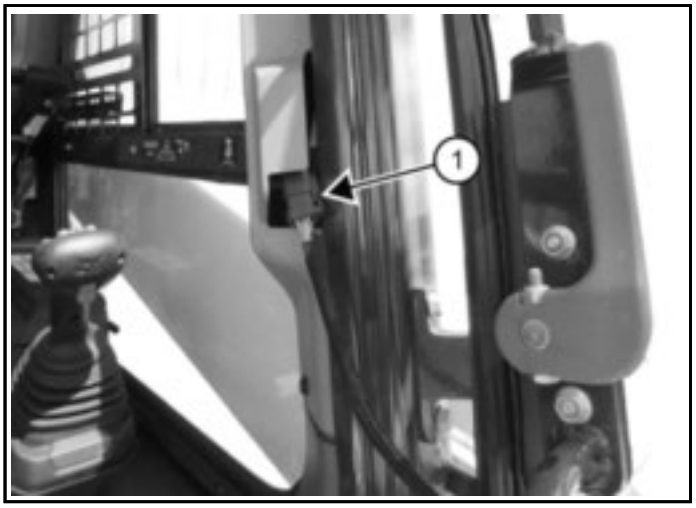
MACHINE DAMAGE HAZARD
Failure to obey instruction can result in machine damage.
Only use this procedure to remove the front door in emergency conditions.

I-2512

Front Door Reassembly

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

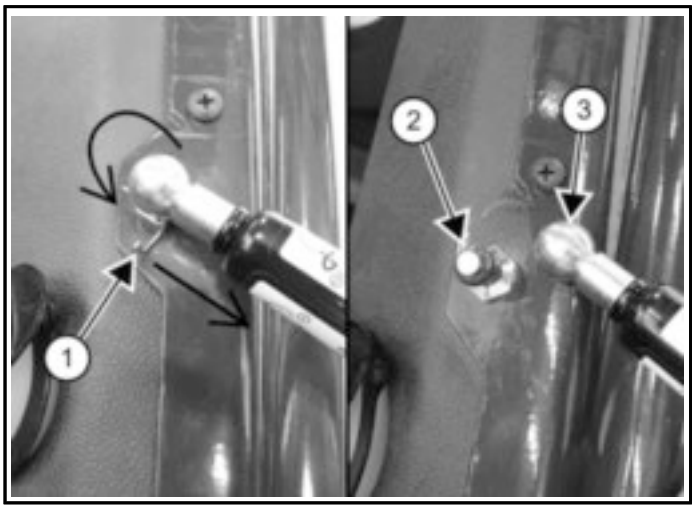
Figure 86



C200569A

1. Disconnect electrical connector (Item 1) [Figure 86].

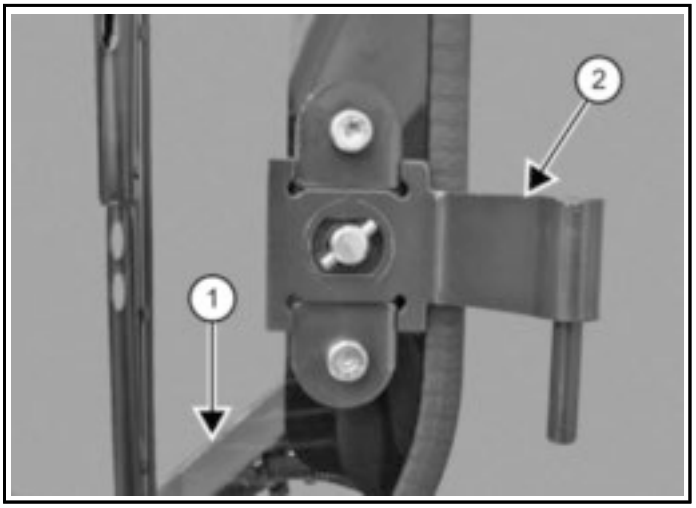
Figure 87



P200209a

2. Rotate and pull the clip (Item 1) [Figure 87] out of the gas spring socket.
3. Pull the gas spring socket (Item 3) straight off the ball stud fitting (Item 2) [Figure 87].
4. Remove the door hinges from the machine.

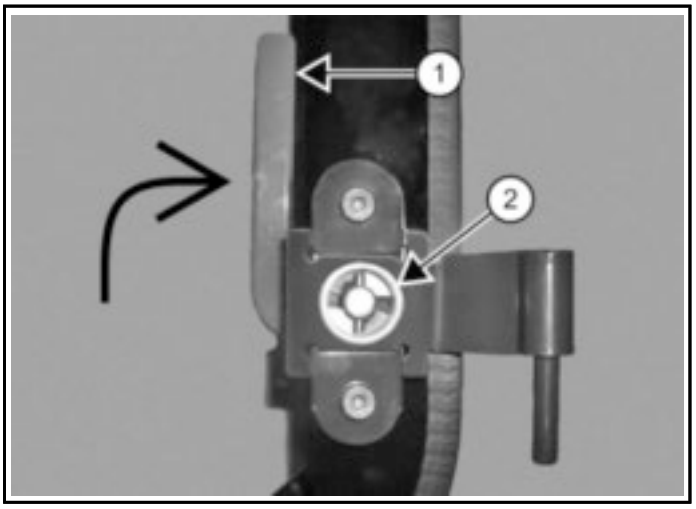
Figure 88



P90685a

5. Orient the latches as shown (Item 1) and install the door hinges (Item 2) [Figure 88] on the door. (Bottom hinge shown.)

Figure 89



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 89] 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 87].

9. Install the clip into the hole in the gas spring socket [Figure 87].

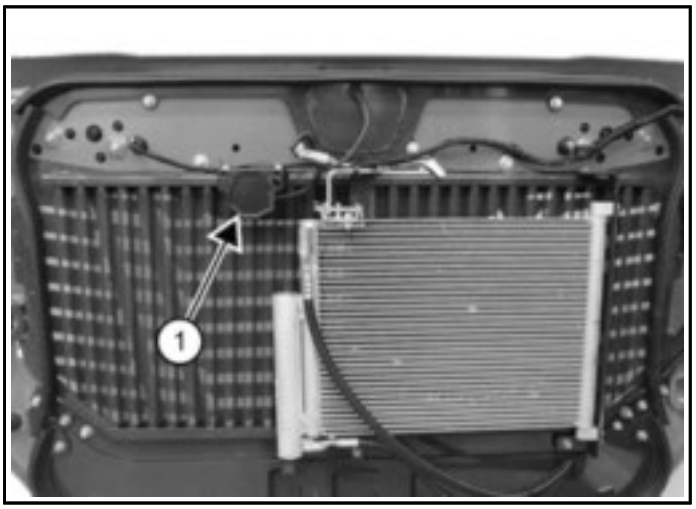
10. Rotate the clip to lock into position [Figure 87].

11. Connect electrical connector [Figure 86].

BACK-UP ALARM SYSTEM

Back-Up Alarm Description

Figure 90



C2002205a

The back-up alarm (Item 1) [Figure 90] 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 operating 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. (See Inspecting Back-Up Alarm System on Page 145)

DRIVING AND STEERING THE LOADER

Operating SJC In 'ISO' Control Pattern

Figure 91



C200321c

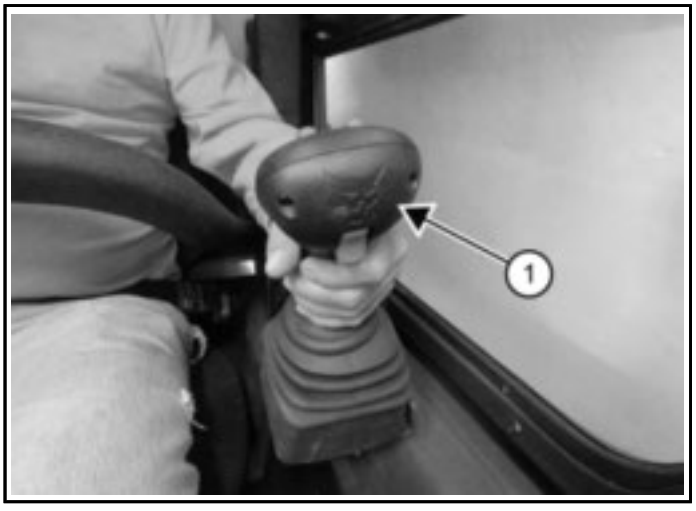
Select the 'ISO' control pattern by pressing the SJC control mode button (Item 1) [Figure 91] on the right control panel until the 'ISO' LED flashes. BICS can then be activated by pressing the operate button.

⚠ WARNING

GENERAL HAZARD
Failure to obey 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 92

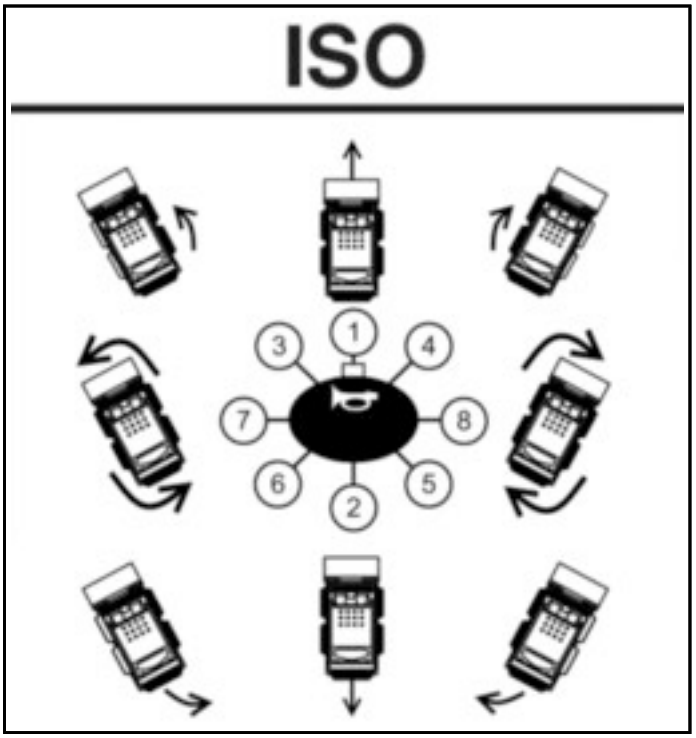


C200579a

The joystick that controls drive and steering is on the left side in front of the seat (Item 1) [Figure 92].

Move the joystick smoothly. Avoid sudden starting and stopping.

Figure 93



NA3469A

Left Joystick Functions (Drive And Steering) [Figure 93]:

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 94



C200321c

Select the ‘H’ control pattern by pressing the SJC control mode button (Item 1) [Figure 94] 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 obey 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 95

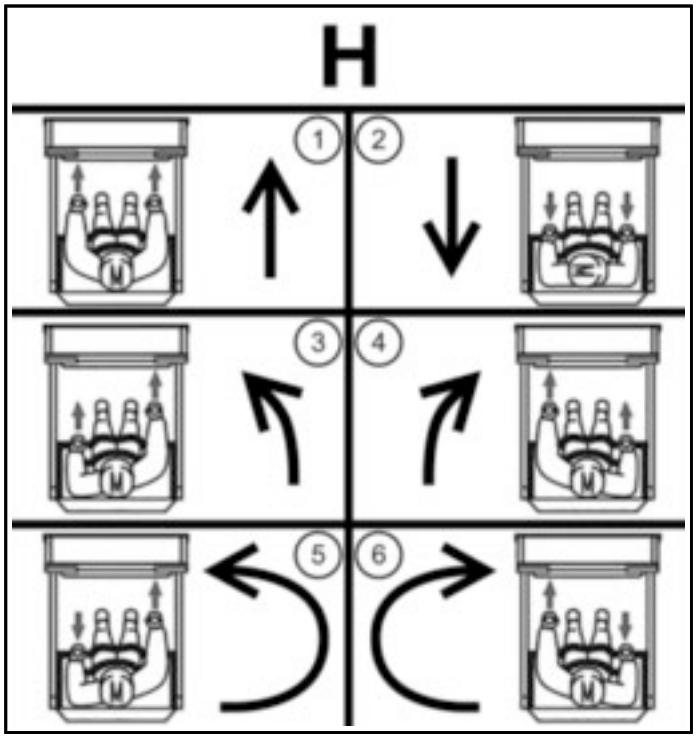


C214222B

Both joysticks control drive and steering and are located on the left and right side in front of the seat (Item 1) [Figure 95].

Move the joysticks smoothly. Avoid sudden starting and stopping.

Figure 96



Joystick Functions (Drive And Steering) [Figure 96]:

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 may be 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 traveling from one jobsite to another at faster speeds.

Operating Two-Speed

1. Ensure seat belt is fastened and shoulder belt is adjusted correctly.
   (See Adjusting 3-Point Restraint Seat Belt With Integrated Shoulder Belt on Page 108)

Figure 97

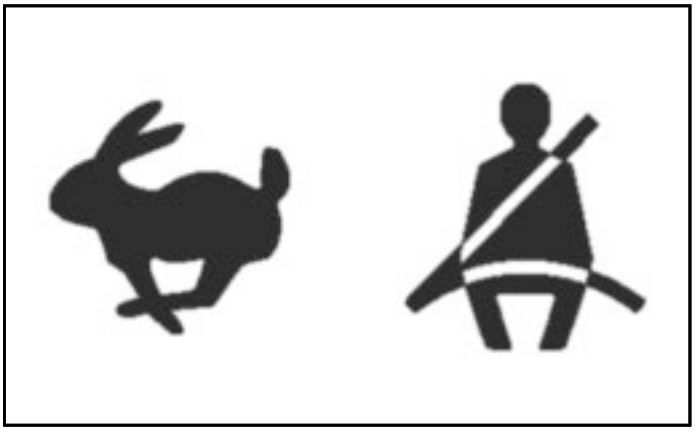


P200213A

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

2. Press the top of the switch (Item 1) [Figure 97] on the left joystick for high range.

Figure 98



NA3638

The two-speed and seat belt icons [Figure 98] located on the upper right display will turn on.

3. 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 112)

SPEED MANAGEMENT

Speed Management Description

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

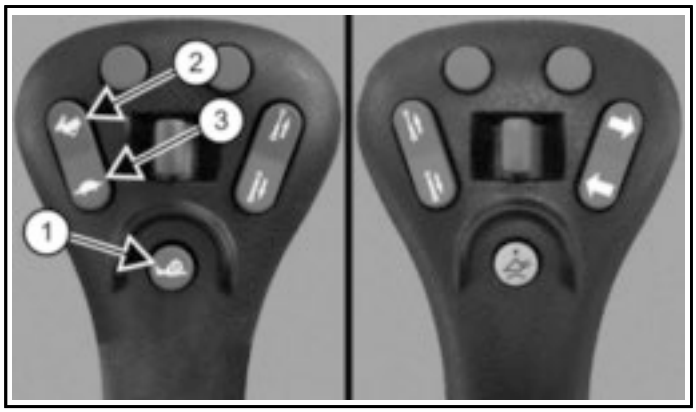
This feature can be useful when installing attachments, loading or unloading, and certain applications. (EXAMPLES: Landscaping, tilling, trenching)

Operating Speed Management (4.3–Inch Display)

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

Engaging:

Figure 99



- Press the button (Item 1) [Figure 99] on the left joystick once to engage speed management.

The speed management  icon will appear on the gauges screen 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.

Adjusting:

1. Press the top of the speed control switch (Item 2) [Figure 99] to increase the speed up to 99%.
2. Press the bottom of the switch (Item 3) [Figure 99] to decrease the speed down to 1%.
3. Press button (Item 1) [Figure 99] 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.

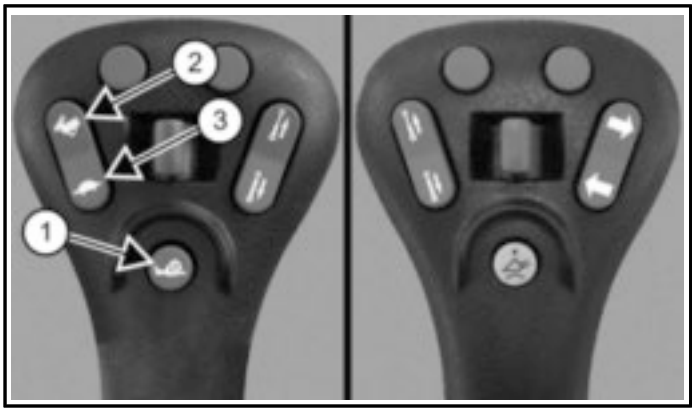
NOTE: Two-Speed Loaders Only – You must disengage speed management before you can select high range.

Operating Speed Management (Standard And Touch Displays)

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

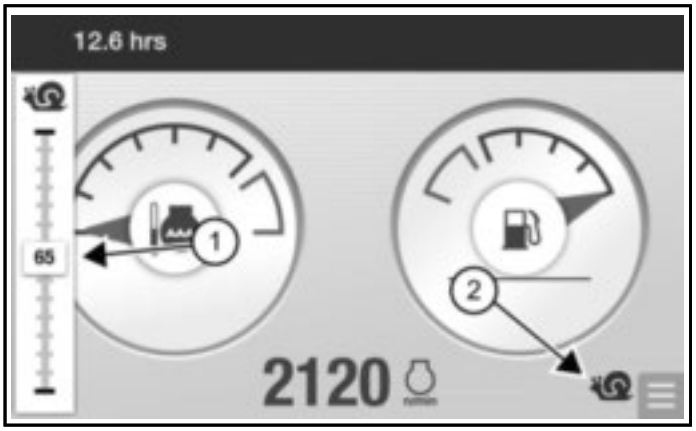
Engaging:

Figure 100



- Press the button (Item 1) [Figure 100] on the left joystick once to engage speed management.

Figure 101



The speed management icon (Item 2) [Figure 101] 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 101].

NOTE: The default percentage setting can be changed by the operator.
(See Changing Speed Management Default Setting (Standard And Touch Displays) on Page 84)

Adjusting:

1. Press the top of the speed control switch (Item 2) [Figure 100] to increase the speed up to 99%.

   The percentage graph will appear in the display (Item 1) [Figure 101] while adjusting.

2. Press the bottom of the switch (Item 3) [Figure 100] to decrease the speed down to 1%.

   The percentage graph will appear in the display (Item 1) [Figure 101] while adjusting.

3. Press button (Item 1) [Figure 100] 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 (Standard And Touch Displays) on Page 84)

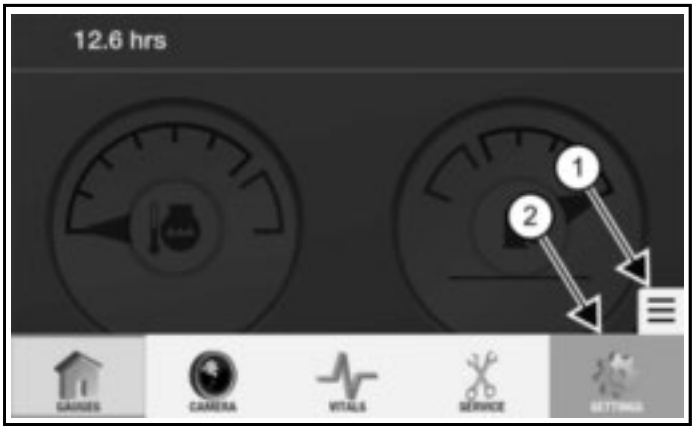
NOTE: Two-Speed Loaders Only – You must disengage speed management before you can select high range.

Changing Speed Management Default Setting (Standard And Touch Displays)

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 102

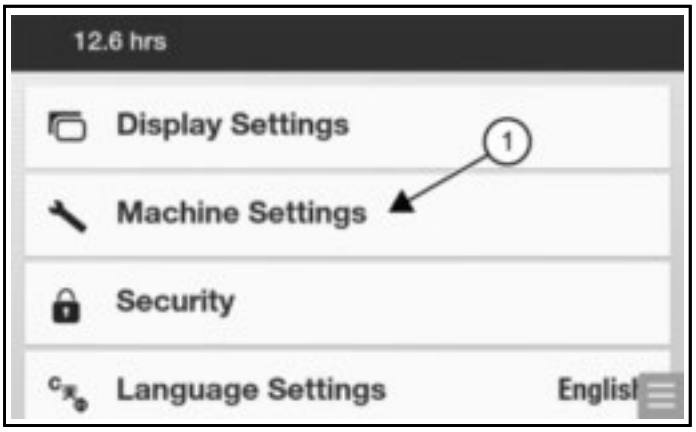


NA3669A

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

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

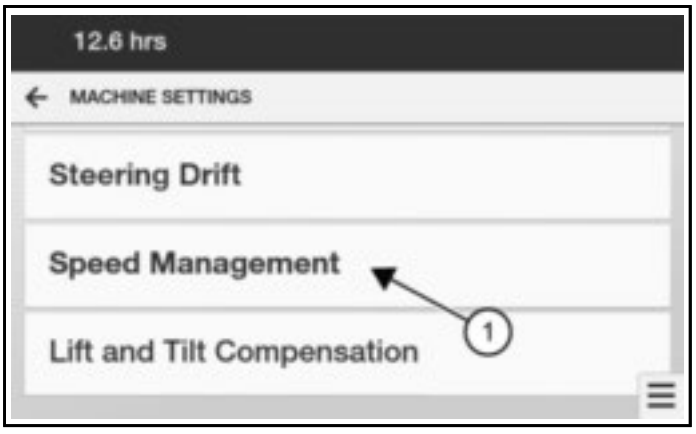
Figure 103



NA3668A

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

Figure 104

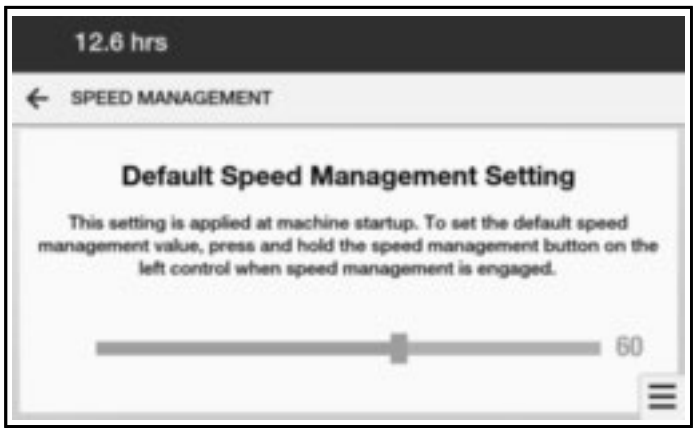


NA3671A

4. Select **[SPEED MANAGEMENT]** (Item 1) [Figure 104].

5. Scroll down to Default Speed Management Setting.

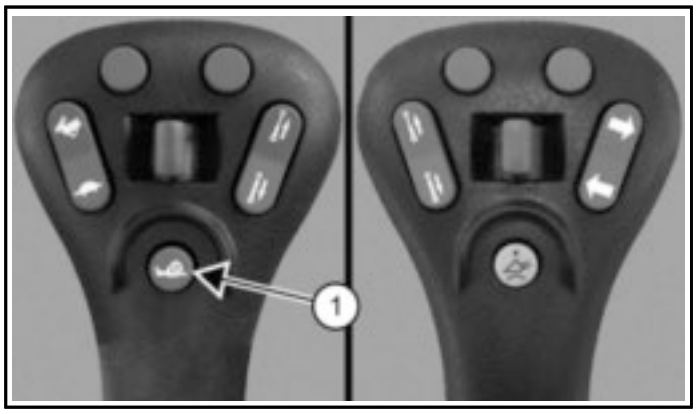
Figure 105



NA3715

6. Use the slider bar [Figure 105] to adjust to desired default setting.

Figure 106



P200213k

7. Press and hold the button (Item 1) [Figure 106] 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 106] 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 (4.3–Inch Display)

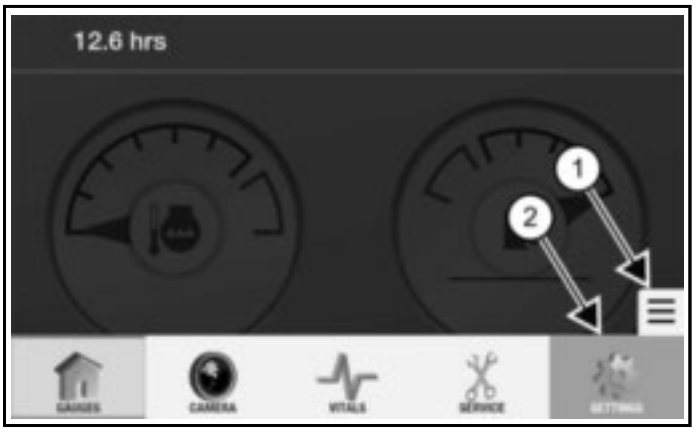
1. Press the button below the  icon.
2. Press the button below the  icon when the  icon is highlighted.
3. Press the button below the  icon when the  icon is highlighted.
4. Select the desired drive response setting using the buttons below the  and  icons.

   Drive response settings are saved individually for each operator.

5. Press the button below the  icon to save your desired drive response setting.

Adjusting Drive Response (Standard And Touch Displays)

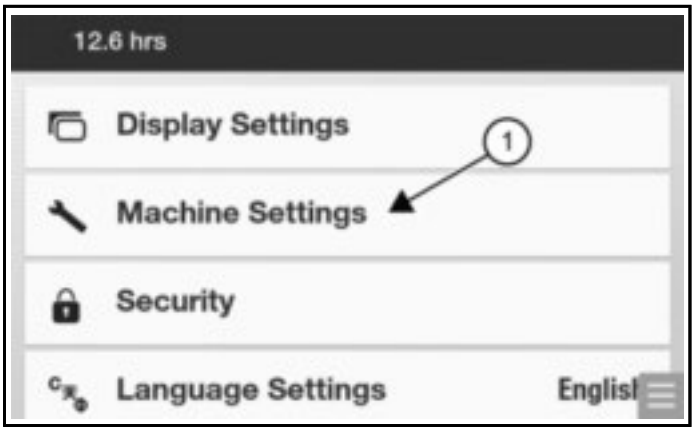
Figure 107



NA3669A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 107].
2. Select **[SETTINGS]** (Item 2) [Figure 107].

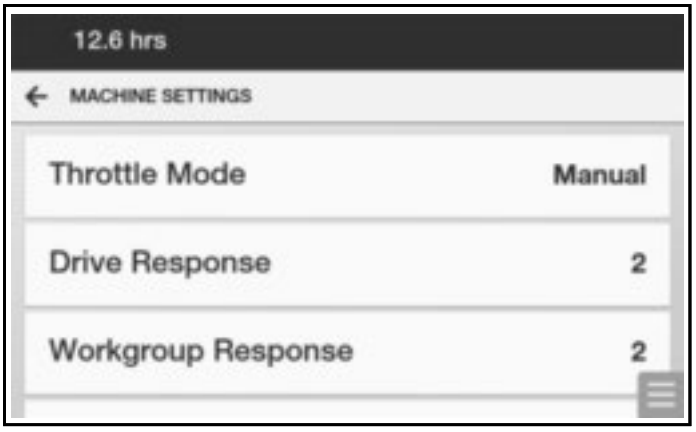
Figure 108



NA3668A

3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 108].

Figure 109



NA3666

4. Select the desired drive response setting [Figure 109].

   The current drive response setting is automatically saved.

   Drive response settings are saved individually for each operator.

STEERING DRIFT COMPENSATION

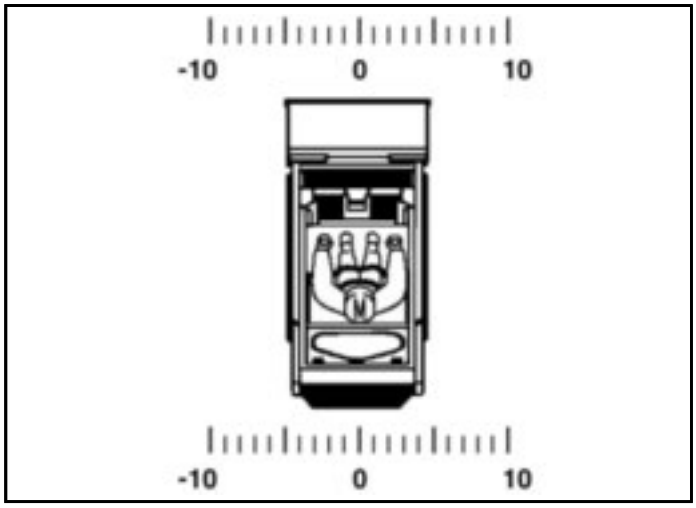
Steering Drift Compensation Description

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 110



NA3232F

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 110].

Adjusting Steering Drift Compensation (4.3–Inch Display)

Steering drift compensation is adjusted during machine operation.

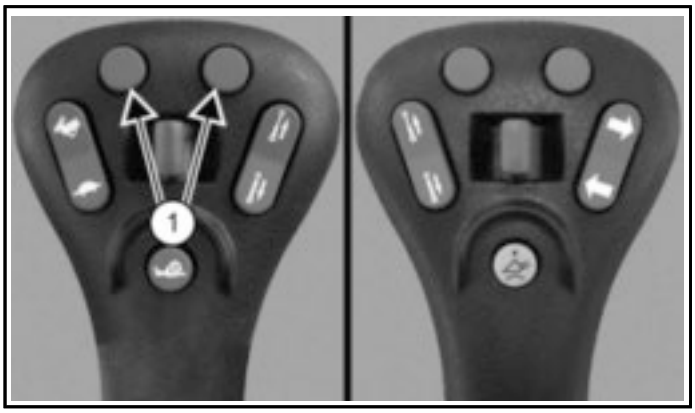
1. Press the button below the  icon.
2. Press the button below the  icon when the  icon is highlighted.
3. Press the button below the  icon when the  icon is highlighted.

   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 111



P200213j

4. Press the left or right button (Item 1) [Figure 111] on the left joystick to adjust the setting.
5. The bar graph on the display will show the current steering drift settings for forward and reverse.

   The current steering drift settings are automatically saved.

Adjusting Steering Drift Compensation (Standard And Touch Displays)

Steering drift compensation is adjusted during machine operation.

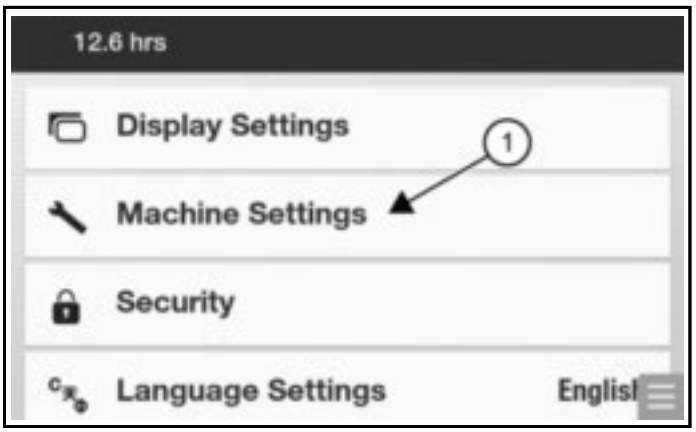
Figure 112



NA3669A

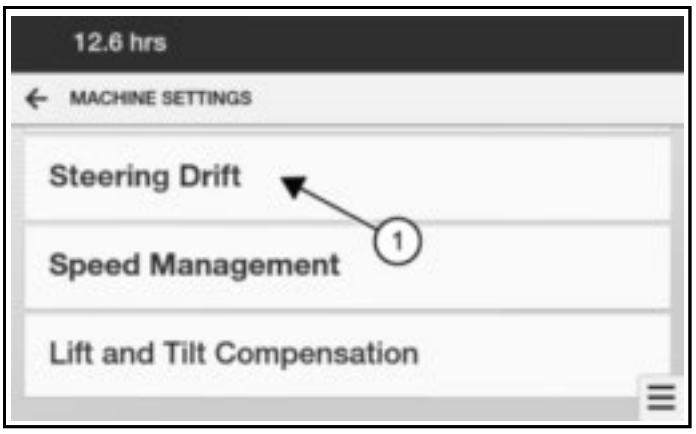
1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 112].
2. Select **[SETTINGS]** (Item 2) [Figure 112].

Figure 113



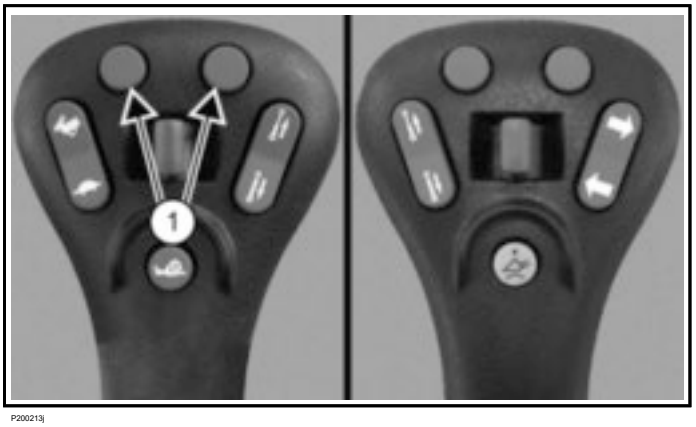
3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 113].

Figure 114



4. Select **[STEERING DRIFT]** (Item 1) [Figure 114].

Figure 115



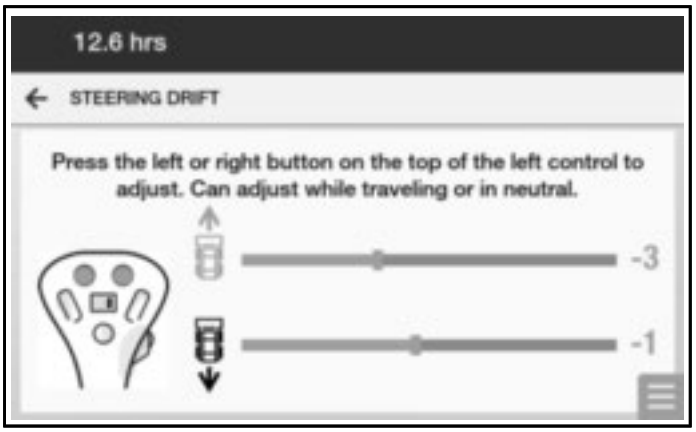
5. Press the left or right button (Item 1) [Figure 115] on the left joystick to adjust the setting.

   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 116



6. The bar graphs on the display will show the current steering drift settings for forward and reverse [Figure 116].

   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 (4.3–Inch Display)

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.
10. Press the button below the  icon.
11. Press the button below the  icon when the  icon is highlighted.
12. Press the button below the  icon when the  icon is highlighted.
13. Enter the owner password if required.
14. Press the button below the  icon to confirm that the instructions in the Operation & Maintenance Manual have been reviewed.
15. Press the operate button.

    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 117



C231201

16. The display will show a reminder to review the Operation & Maintenance Manual while adjusting lift and tilt compensation [Figure 117].

Figure 118

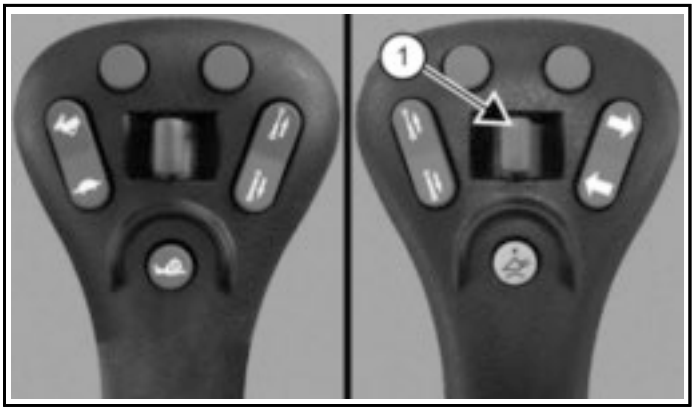


C231202

17. Activate lift down control and hold.

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

Figure 119



P200213b

18. 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.)

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

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

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

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

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

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

25. 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.

26. Press the operate button to continue machine operation.

27. Repeat procedure if desired.

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

Adjusting Lift And Tilt Compensation (Standard And Touch Displays)

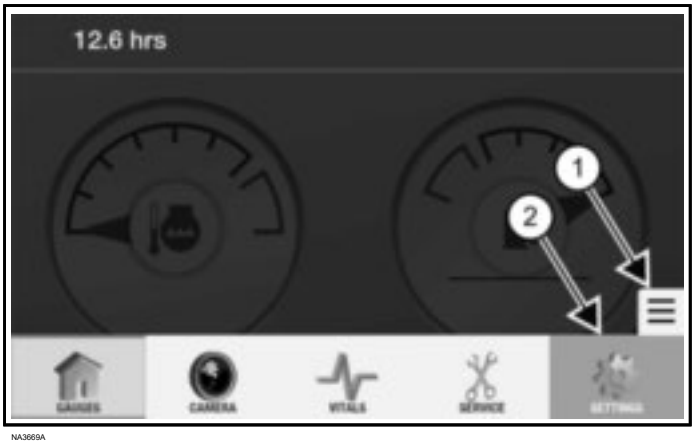
NOTE: Ensure the following conditions have been met before adjusting Lift and Tilt Compensation:

- 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.

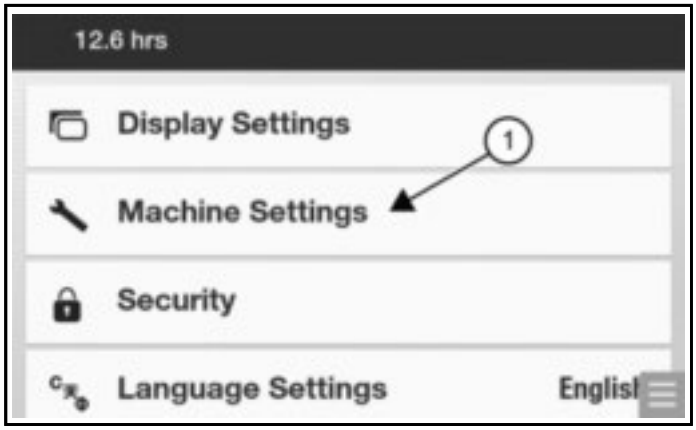
Figure 120



NA3669A

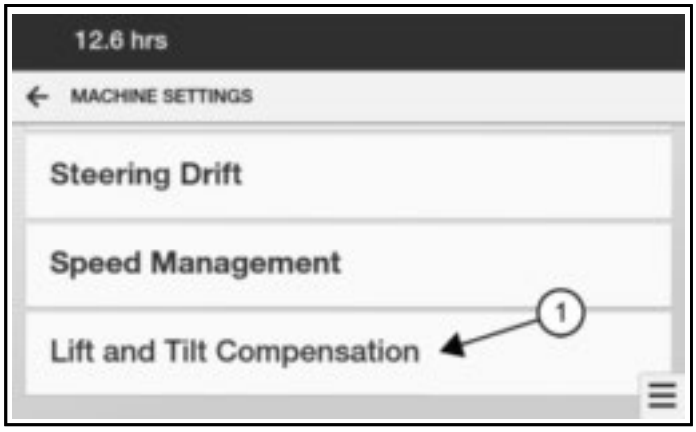
10. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 120].
11. Select **[SETTINGS]** (Item 2) [Figure 120].

Figure 121



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

Figure 122



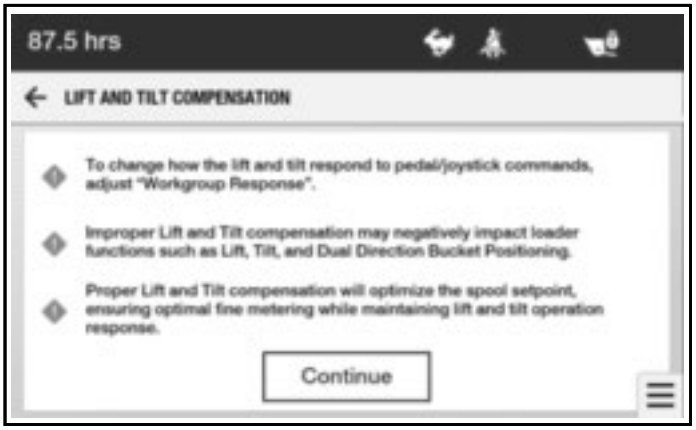
13. Scroll down and select **[LIFT AND TILT COMPENSATION]** (Item 1) [Figure 122].

Figure 123



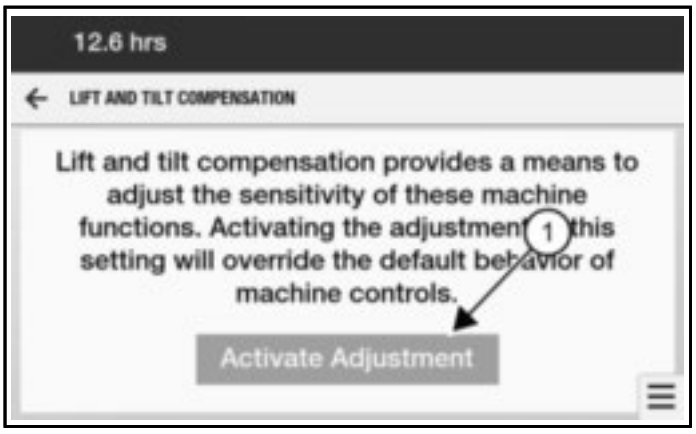
14. Enter the owner password [Figure 123].

Figure 124



15. Review the caution statements and select **[CONTINUE]** [Figure 124].

Figure 125



16. Select **[ACTIVATE ADJUSTMENT]** (Item 1) [Figure 125].

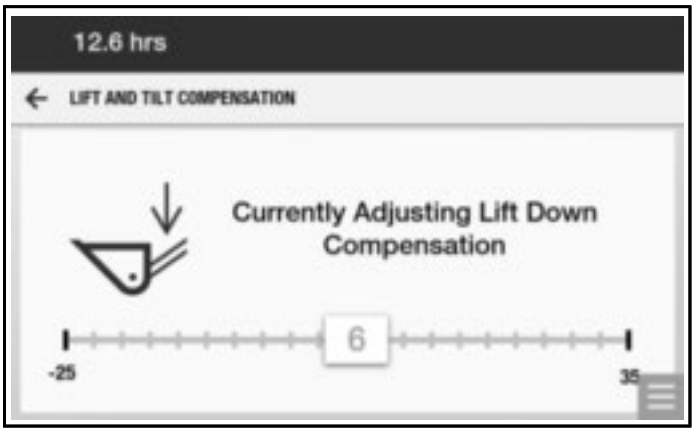
Figure 126



17. Press the operate button [Figure 126].

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 127

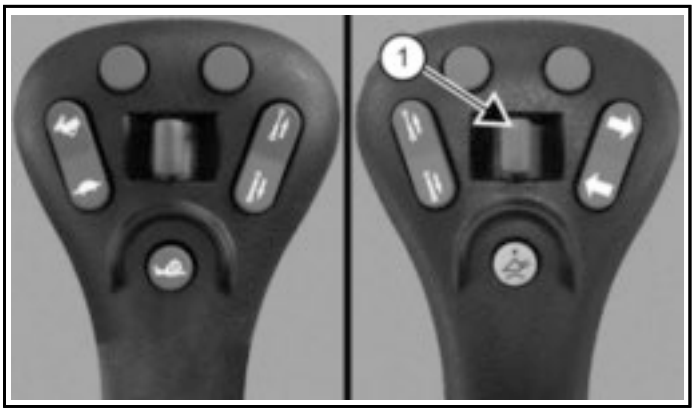


NA3673

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 127].

Figure 128



P200213b

19. Move the switch (Item 1) [Figure 128] 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 128] 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 128] 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 128] 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 128] 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 foot pedals or 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 (4.3–Inch Display)

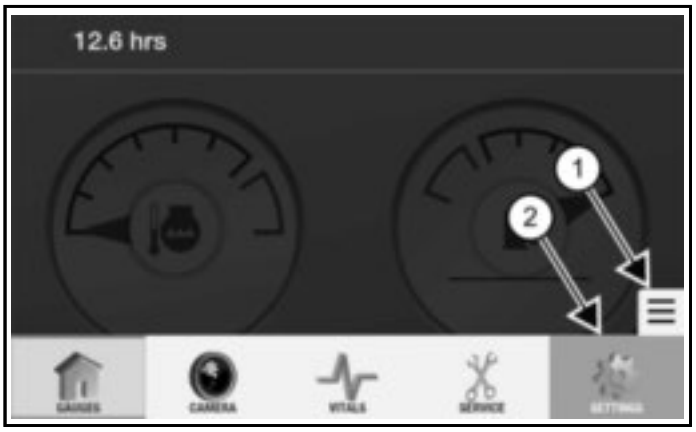
1. Press the button below the  icon.
2. Press the button below the  icon when the  icon is highlighted.
3. Press the button below the  icon when the  icon is highlighted.
4. Press the button below the  and  icons to select the desired workgroup response setting.
5. Press the button below the  icon to save your selection.

   Workgroup response settings are saved individually for each operator.

NOTE: If changing the workgroup response setting does not produce the desired response rate from the controls, perform the lift and tilt compensation procedure.
(See Lift and Tilt Compensation on Page 89)

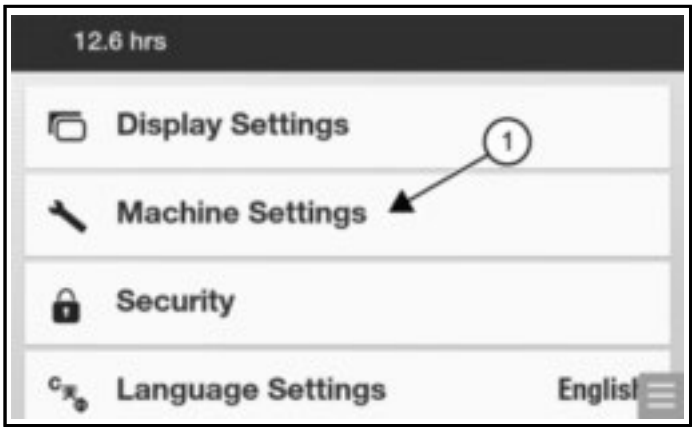
Adjusting Workgroup Response (Standard And Touch Displays)

Figure 129



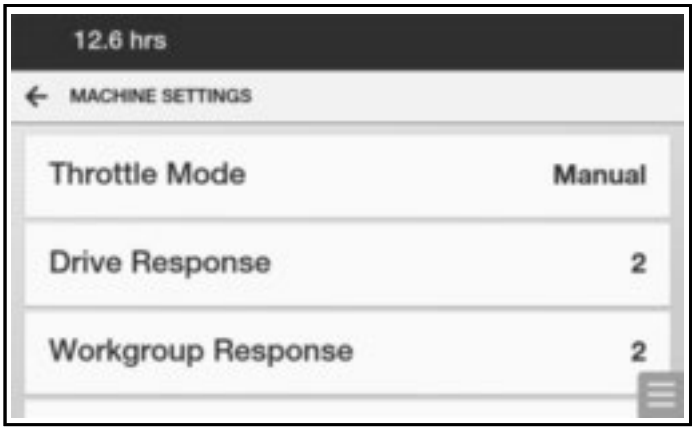
1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 129].
2. Select **[SETTINGS]** (Item 2) [Figure 129].

Figure 130



3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 130].

Figure 131



4. Select the desired workgroup response setting [Figure 131].

   The current workgroup response setting is automatically saved.

   Workgroup response settings are saved individually for each operator.

   NOTE: If changing the workgroup response setting does not produce the desired response rate from the controls, perform the lift and tilt compensation procedure.
   (See Lift and Tilt Compensation on Page 89)

HYDRAULIC CONTROLS

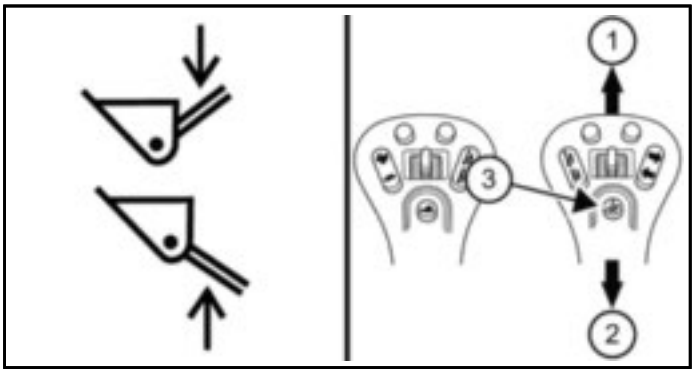
Hydraulic Controls Description

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 132



Lift Arm Operation — (Right Joystick)

1. Move the right joystick forward (Item 1) [Figure 132] to lower the lift arms.

2. Move the right joystick backward (Item 2) [Figure 132] to raise the lift arms.

Lift Arm Float Position — (Right Joystick)

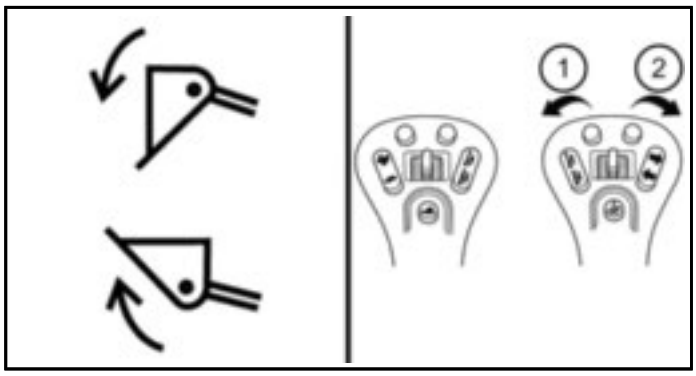
1. Move the right joystick forward to lift arm down position (Item 1), then press the Float button (Item 3) [Figure 132].

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 132] to disengage.

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

Figure 133



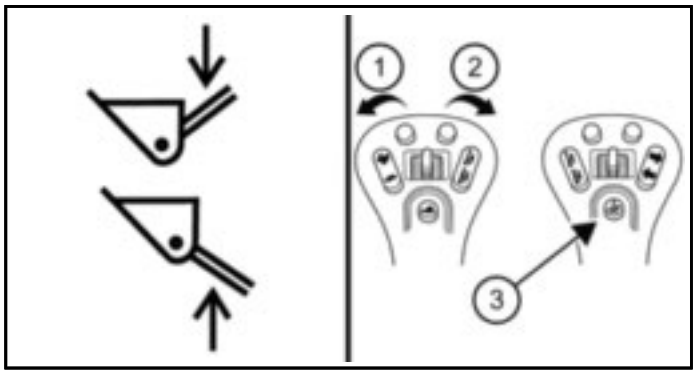
NA3805B

Tilt Operation (Right Joystick)

1. Move the right joystick inward (Item 1) [Figure 133] to tilt the bucket backward.
2. Move the right joystick outward (Item 2) [Figure 133] to tilt the bucket forward.

Operating SJC Hydraulic Controls In 'H' Control Pattern

Figure 134



NA3806B

Lift Arm Operation — (Left Joystick)

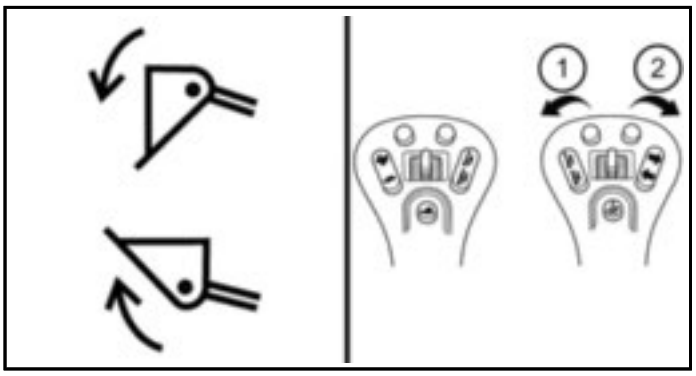
1. Move the left joystick outward (Item 1) [Figure 134] to raise the lift arms.
2. Move the left joystick inward (Item 2) [Figure 134] to lower the lift arms.

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 134].
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 134] to disengage.

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

Figure 135



NA3805B

Tilt Operation (Right Joystick)

1. Move the right joystick inward (Item 1) [Figure 135] to tilt the bucket backward.
2. Move the right joystick outward (Item 2) [Figure 135] to tilt the bucket forward.

Operating Dual Direction Bucket Positioning

This machine may be equipped with dual direction bucket positioning. The function is to keep the bucket or other attachment at the same approximate angle as the lift arms are raised and lowered.

Figure 136



C200193b

1. Press the dual direction bucket positioning button (Item 1) [Figure 136] on the left control panel to engage the bucket positioning function.

   Self leveling 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 136] a second time.

   Self leveling 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 traveling over uneven ground with heavy loads or in heavy digging applications.

Figure 137



C200193c

1. Press the automatic ride control button (Item 1) [Figure 137] 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 193)

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

⚠ WARNING

UNINTENDED MACHINE MOVEMENT HAZARD
Operating with the Automatic Ride Control ON can 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 138



C200193d

Automatic

1. Press the reversing fan button (Item 1) [Figure 138] 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 138] 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 163)

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 139

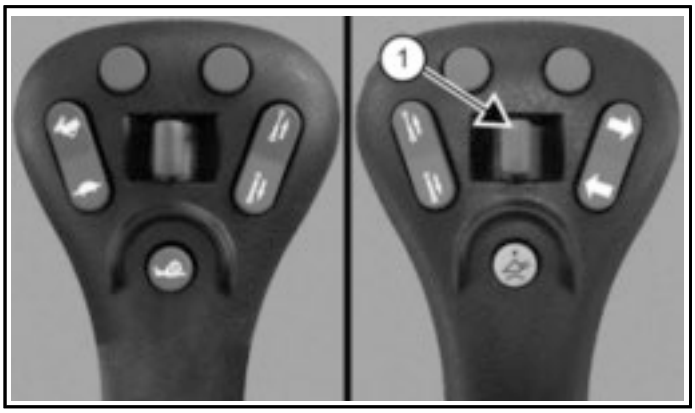


C200321d

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.

Figure 140



P200213b

2. Move the front auxiliary hydraulic switch (Item 1) [Figure 140] 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 Without High-Flow Hydraulics

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

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.

Operating Front Auxiliary Hydraulics In Continuous Flow Mode

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

Figure 141

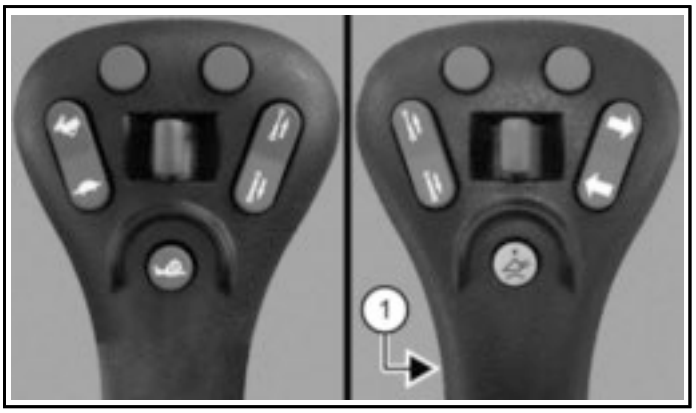


C200321d

1. Press the auxiliary hydraulics button (Item 1) [Figure 141] on the right control panel once to activate auxiliary hydraulics.

   The left LED in the button will light.

Figure 142



P200213h

2. Press the Continuous Flow Control switch (Item 1) [Figure 142].

3. Press the Continuous Flow Control switch (Item 1) [Figure 142] 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 pressurized):

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 143

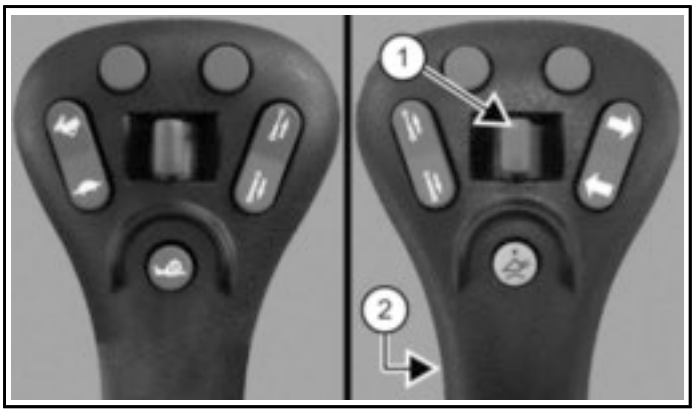


C200321d

1. Press the auxiliary hydraulics button (Item 1) [Figure 143] on the right control panel once to activate auxiliary hydraulics.

   The left LED in the button will light.

Figure 144



P200213c

2. Move the front auxiliary hydraulic switch (Item 1) [Figure 144] to the left and hold.

3. Press the continuous flow control switch (Item 2) [Figure 144].

4. Release the front auxiliary hydraulic switch.

5. Press the continuous flow control switch (Item 2) [Figure 144] 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 145

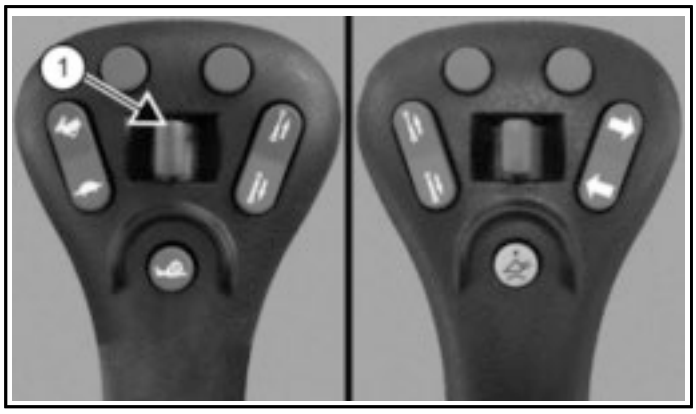


C200321d

1. If equipped with rear auxiliary hydraulics, press the auxiliary hydraulics button (Item 1) [Figure 145] on the right control panel once to activate auxiliary hydraulics.

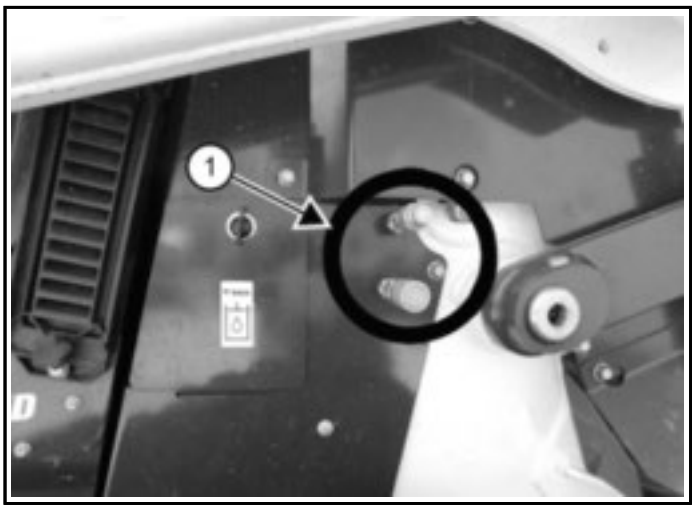
   The left LED in the button will light.

Figure 146



P200213d

Figure 147



C216684A

2. Move the rear auxiliary hydraulic switch (Item 1) [Figure 146] to the right or left to change direction of the auxiliary hydraulic fluid flow to the rear quick couplers (Item 1) [Figure 147]. (Left side shown.)

3. Release the switch to stop fluid flow.

Loaders Without High-Flow Hydraulics

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

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.

Operating High-Flow Auxiliary Hydraulics

This machine may be equipped with 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.

Figure 148



C200321d

1. Press the auxiliary hydraulics button (Item 1) [Figure 148] 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 148] 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 148] 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.

Connecting And Disconnecting Auxiliary Hydraulic Couplers

⚠ WARNING

INJECTION HAZARD
Pressurized 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

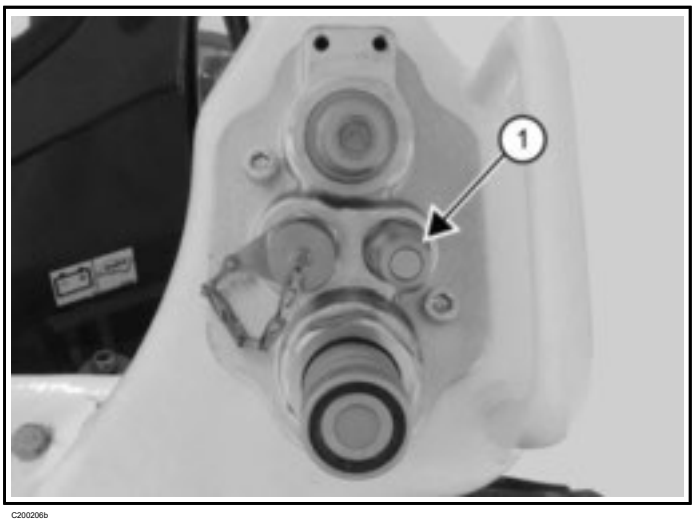
⚠ WARNING

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

W-2220

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

Figure 149



C200206b

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) [Figure 149] 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) [Figure 149] .

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)

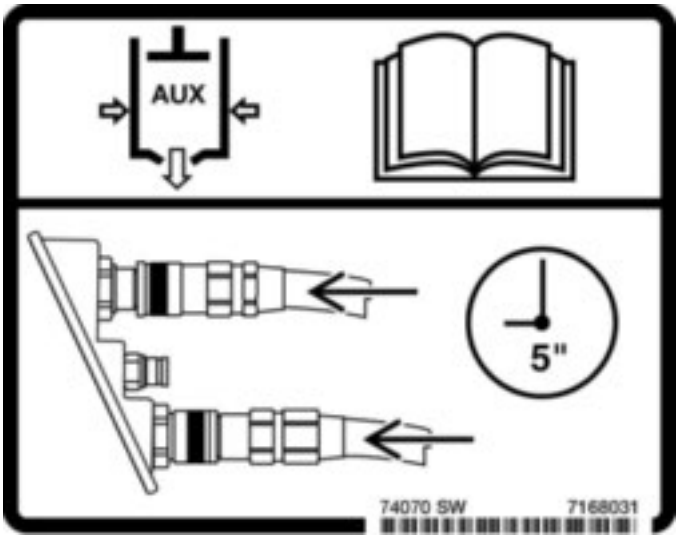
⚠ WARNING

BURN HAZARD
Hydraulic fluid, tubes, fittings and quick couplers can get hot when running machine and attachments. Use caution when connecting and disconnecting quick couplers.
W-2220

⚠ WARNING

INJECTION HAZARD
Pressurized 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.

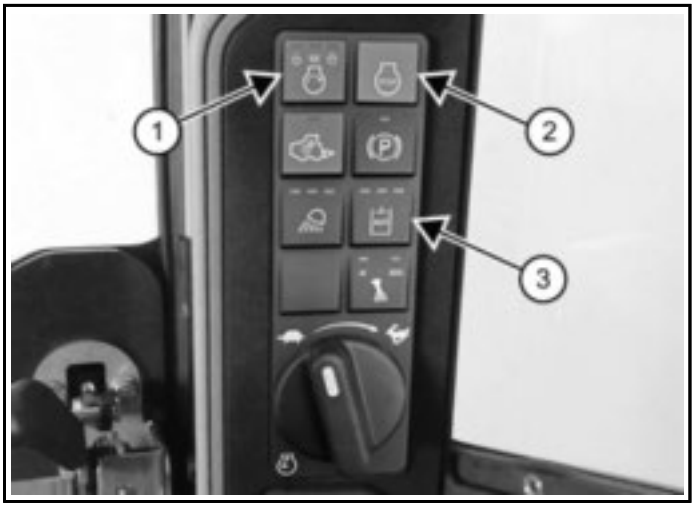
   The pressure is automatically relieved as the couplers are installed.

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 150

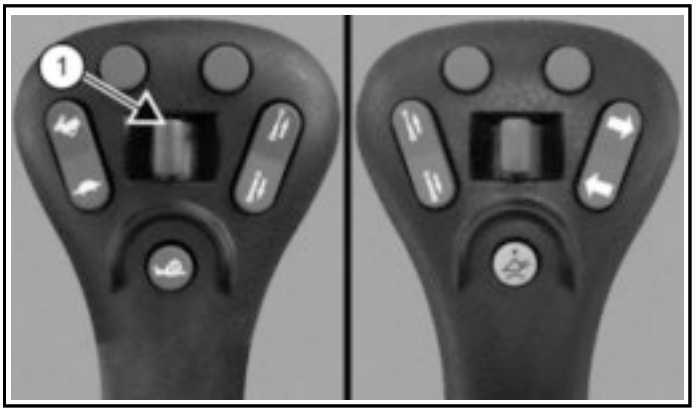


C200321e

3. Press the run button (Item 1) [Figure 150] 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 150] on the right control panel once to activate auxiliary hydraulics.

Figure 151



P200213d

5. Move the rear auxiliary hydraulic switch (Item 1) [Figure 151] to the left and right several times.

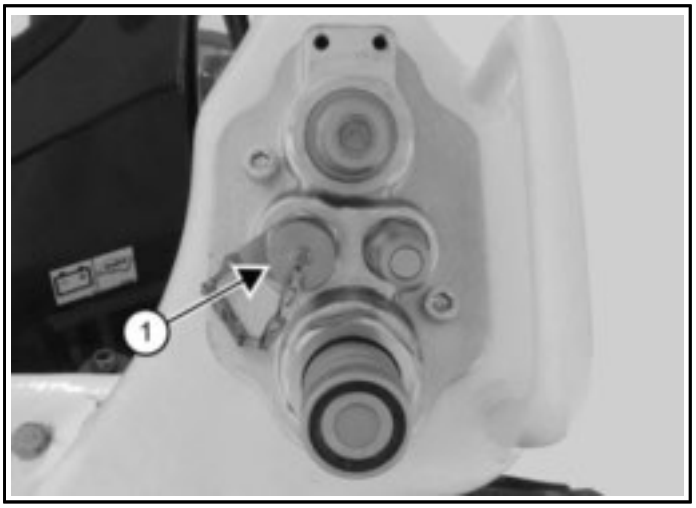
6. Press the stop button (Item 2) [Figure 150] on the right control panel or turn the key switch to stop.

ATTACHMENT CONTROL DEVICE (ACD)

Attachment Control Device (ACD) Description

This machine may be equipped with an attachment control device.

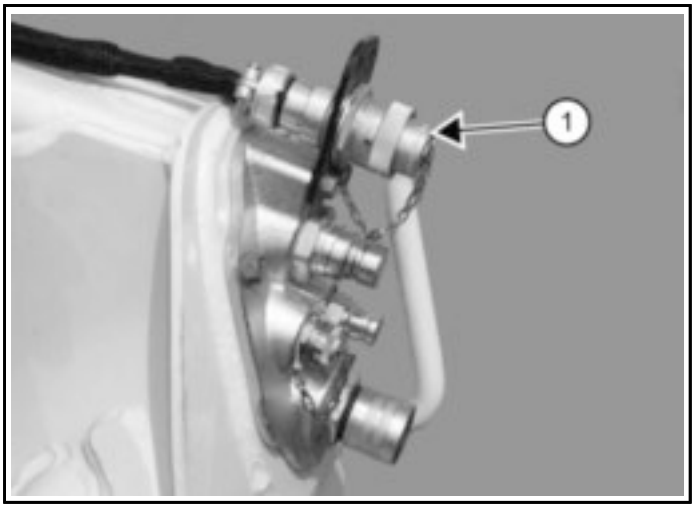
Figure 152



C200206a

The attachment electrical harness (if equipped) connects to the attachment control device (Item 1) [Figure 152].

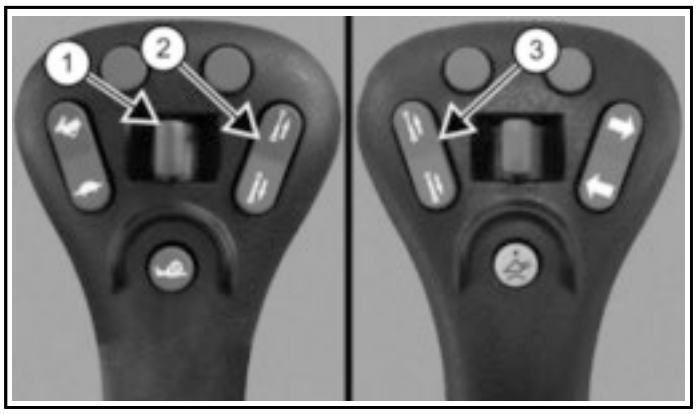
Figure 153



P85313a

You will need the 14-Pin ACD kit (Item 1) [Figure 153] to operate early model attachments. See your Bobcat dealer.

Figure 154



P200213e

Additional switches (Items 1, 2, and 3) [Figure 154] 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 154] from rear auxiliary hydraulics when an attachment electrical harness is attached to the ACD.

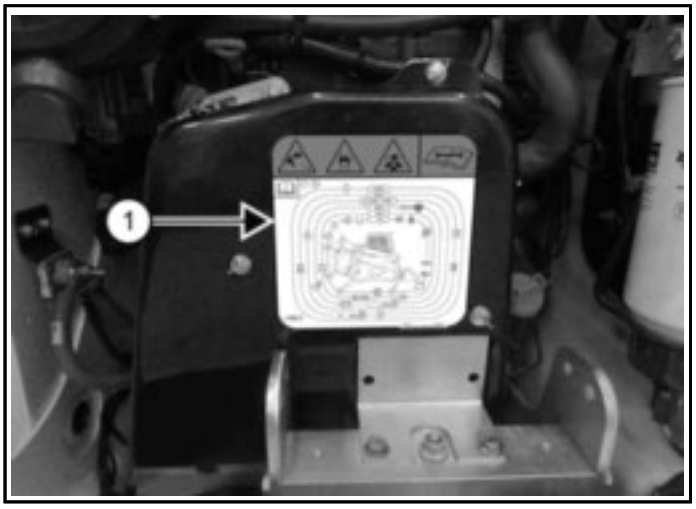
See the appropriate attachment Operation & Maintenance Manual for control details.

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 155



C200215A

The Service Checklist And Schedule (Item 1) [Figure 155] is located on the belt guard inside the rear door of the machine.

A description of the symbols is located inside the back cover of this manual.

A complete list of scheduled maintenance tasks is also located in the Preventive Maintenance section of this manual. (See Service Schedule on Page 134)

⚠ WARNING

GENERAL HAZARD
Failure to obey 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 a 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.**
- **A battery makes flammable and explosive gas. Keep arcs, sparks, flames, and lighted tobacco away.**
- **When jump starting, connect the negative cable to the machine engine last (never at the battery). After a jump start, remove negative connection at the engine first.**
- **Exhaust gases can kill. Always ventilate.◂**

W-2782

⚠ IMPORTANT

ENVIRONMENTAL HAZARD
Fluids such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. Obey local disposal regulations.◂

I-2067

⚠ WARNING

INSUFFICIENT INSTRUCTIONS HAZARD
Untrained operators or failure to obey 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 (if equipped) – Check for proper function
- Grease Pivot Pins (Lift Arms, Lift Links, Bob-Tach Frame, 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.
Consult the service schedule for the correct service interval. If this machine is operated on forest-covered land, brush-covered land, or grass-covered land, the engine must be equipped with a spark arrester and maintained in working order. Obey local laws and regulations for spark arrester requirements.◂

I-2419

Cleaning The Machine

⚠ IMPORTANT

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

I-2226

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 HAZARD
Failure to obey instructions can cause 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 156



C200589

- Use the bucket or attachment steps, grab handles, and safety treads (on the machine lift arms and frame) to enter and exit the machine, maintaining a three-point contact at all times [Figure 156]. 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

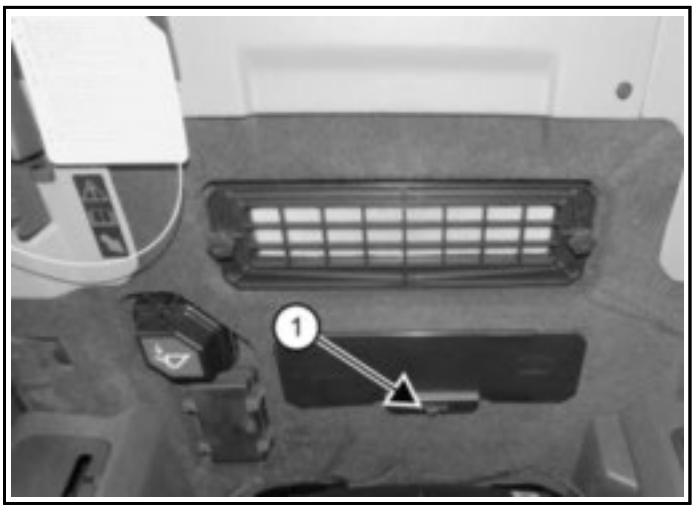
Figure 157



C200216a

Obey all warnings and instructions in the Operation & Maintenance Manual and the Operator's Handbook (Item 1) [Figure 157] while operating the machine.

Figure 158



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 158] to open the cover.

⚠ WARNING

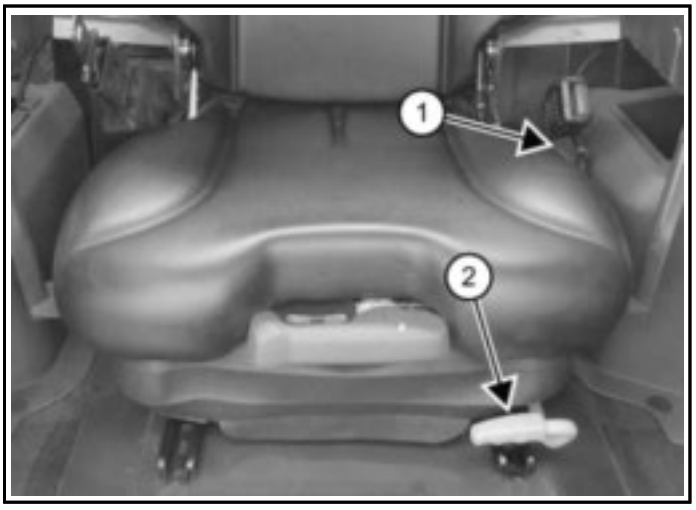
INSUFFICIENT INSTRUCTIONS HAZARD
Untrained operators or failure to obey instructions can cause serious injury or death.

- **Obey warnings and instructions in the Operation & Maintenance Manual, Operator's Handbook, and decals on machine.**
- **Obey 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 159

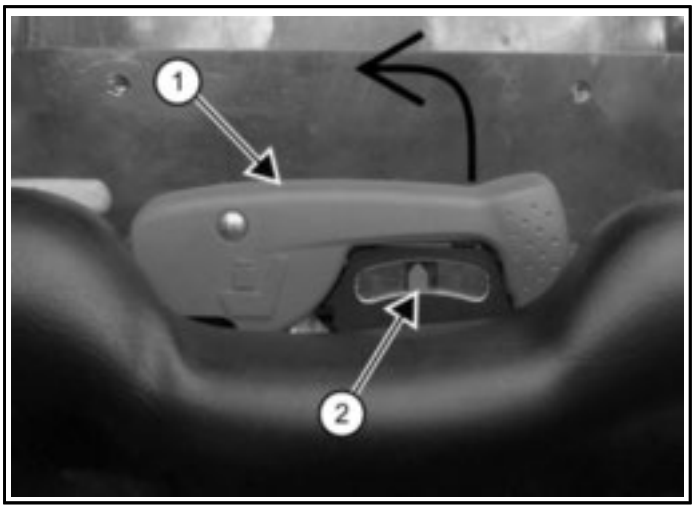


C200219a

- Pull the lever (Item 1) [Figure 159] up to adjust the angle of the seat back.
- Pull the lever (Item 2) [Figure 159] up to adjust the seat position for comfortable operation of the machine controls.

Adjusting Suspension Seat

Figure 160



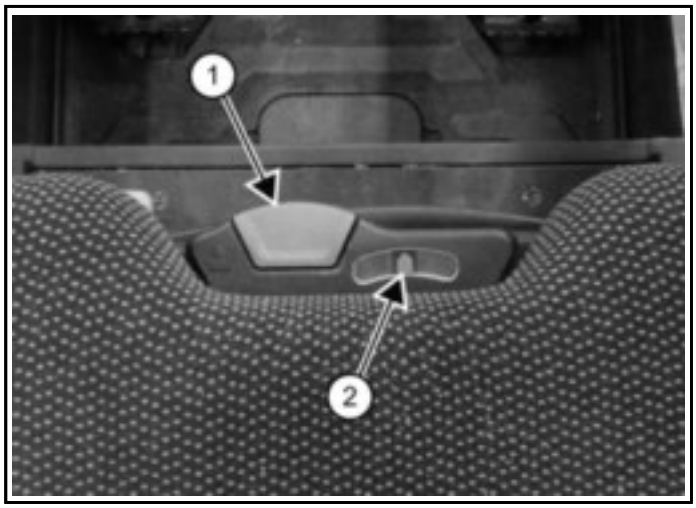
C200220a

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 160] centered in the gauge with the operator normally seated.

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

Adjusting Heated Cloth Air Ride Suspension Seat

Figure 161



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 161] centered in the gauge with the operator normally seated.

- Pull the lever (Item 1) [Figure 161] 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 162



C200590

The switch [Figure 162] to turn the heated seat on or off is located behind the seat back on the left side.

Adjusting Retractable Seat Belt

Figure 163

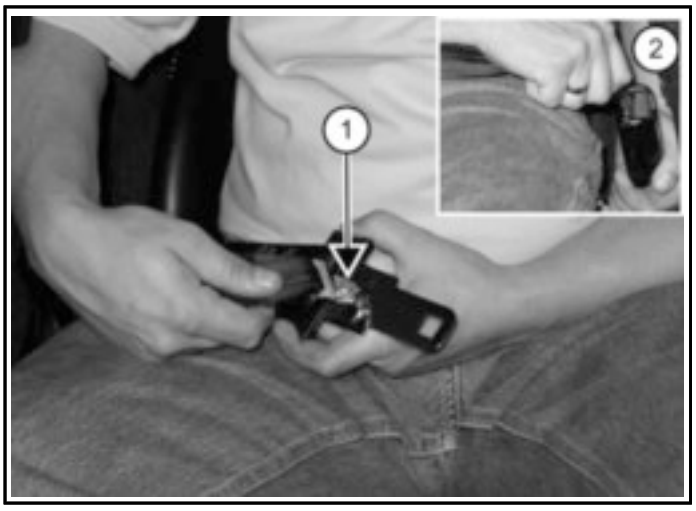


C200578

- The lap belt fastens on the left side of the seat [Figure 163].
- Adjust it so the belt fits snugly across your hips.
- Check the seat belt retractor for correct operation. Keep retractor clean and replace as necessary.

Adjusting 3-Point Restraint Seat Belt With Detachable Shoulder Belt

Figure 164



P200415a

1. Connect the shoulder belt to the lap belt (Item 1) [Figure 164].
2. Pull the lap belt across to the left side of the seat and fasten (Item 2) [Figure 164].

The shoulder belt must be positioned over your right shoulder and adjust the lap belt so it fits snugly across your hips.

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

Adjusting 3-Point Restraint Seat Belt With Integrated Shoulder Belt

Figure 165



C227008

1. Pull the lap belt across to the left side of the seat and fasten [Figure 165].

The shoulder belt must be positioned over your right shoulder and adjust the lap belt so it fits snugly across your hips.

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

Lowering Seat Bar

Figure 166



C227009

1. Lower the seat bar [Figure 166].
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.

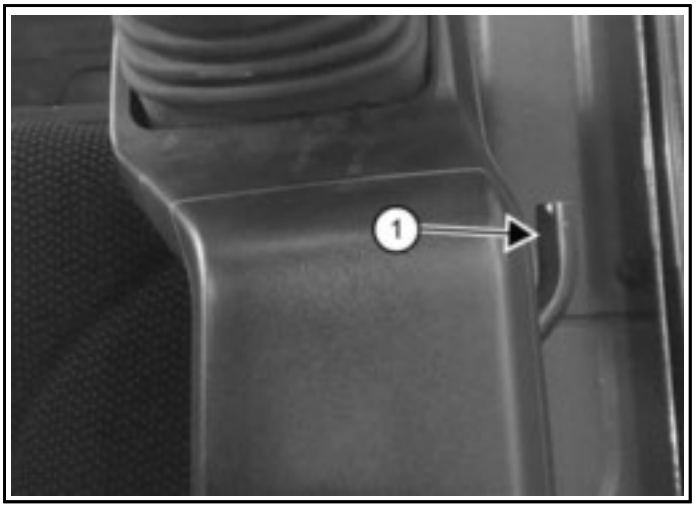
⚠ WARNING

GENERAL HAZARD
Failure to obey 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 167



C200603A

- Pull the joystick adjustment lever (Item 1) [Figure 167] up to slide the joystick forward or backward to adjust for comfortable operation. (Right side shown.)

STARTING THE ENGINE

Quick Start Description (Standard And Touch Displays)

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 225)

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

Figure 168



NA3639

Unlocked with quick start on [Figure 168]:

- 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 169



NA3640

Locked with quick start on [Figure 169]:

- 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 170



NA3641

Locked with quick start off [Figure 170]:

- 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 210)
(See Security Settings on Page 225)

NOTE: Quick start can be turned on or off.
(See Security Settings on Page 210)
(See Security Settings on Page 225)

Starting Engine

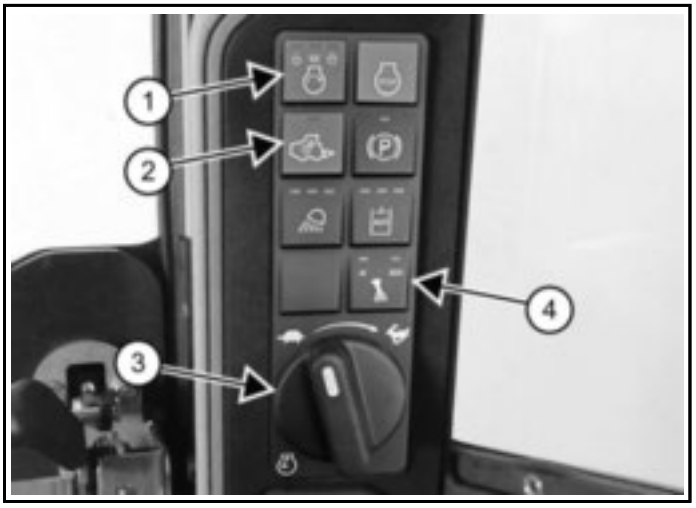
⚠ WARNING

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 105)

Figure 171



C200321J

2. Set the engine speed control (Item 3) [Figure 171] to the low idle position.

3. Press the run button (Item 1) [Figure 171] or turn the key switch to run. (See Keyed Ignition on Page 50) The left LED in the run button will light.

   Standard and touch displays: 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 (Standard And Touch Displays) on Page 109)

Figure 172



C231046

Figure 173

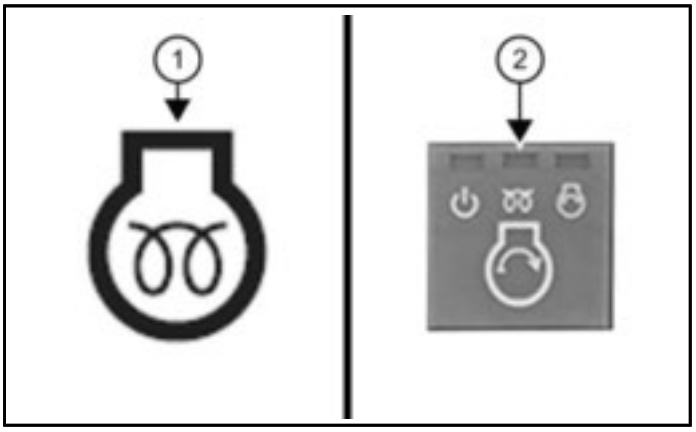


NA3719

4. Use the numeric keypad [Figure 172] or [Figure 173] to enter the password if the machine lockout feature is activated. (See Security Settings on Page 202) (See Security Settings on Page 210) (See Security Settings on Page 225)

   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 unauthorized use of your machine. (See Security Settings on Page 202) (See Security Settings (Manage Operators) on Page 210) (See Edit Operator on Page 227) Keep your password in a safe location for future needs.

Figure 174



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 174] 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 171] 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 112)

   NOTE: Make sure all controls 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 obey instructions can cause serious injury or death.
- **Fasten seat belt. Start and operate only from the operator's position.**
- **Never wear loose clothing when working near machine.◂**

W-2135

6. Select 'ISO' or 'H' Control Pattern (Item 4) [Figure 171].

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

7. Press the operate button (Item 2) [Figure 171] 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 112)
  (See Cold Temperature Hydrostatic Drive Description on Page 112)

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Failure to obey instructions 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 obey instructions can cause serious injury, death, or 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.

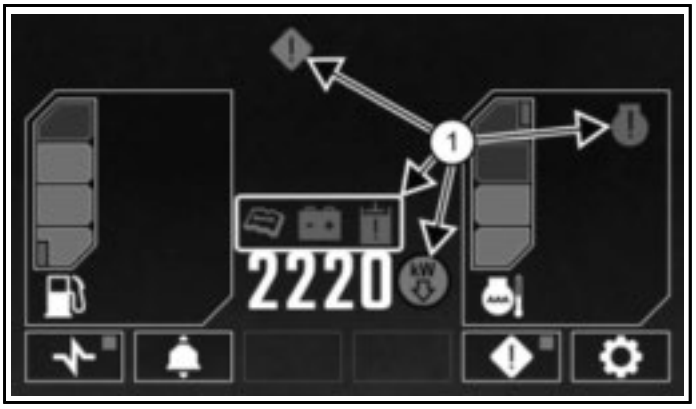
Drive will be allowed, but limited when the hydraulic fluid has warmed sufficiently. The machine will gradually allow faster travel as the hydraulic fluid continues to warm. The joystick(s) must be returned to neutral momentarily to allow full travel speed.

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

MONITORING THE DISPLAY

Monitoring 4.3–Inch Display During Operation

Figure 175



C231054a

Figure 176

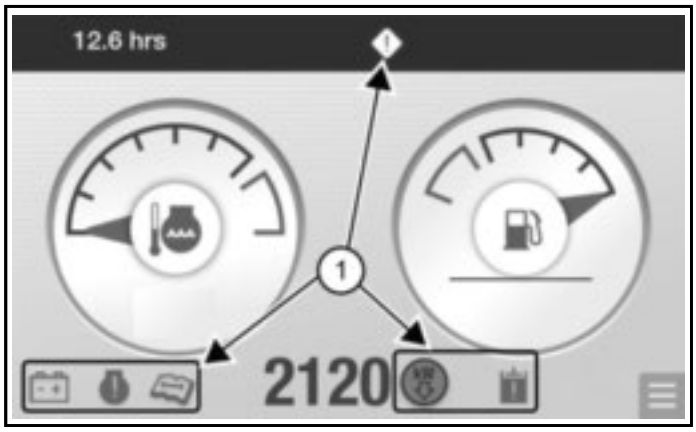


C231055

- Frequently monitor the **GAUGES** or **VITALS** screens [Figure 175] and [Figure 176].
- These icons (Item 1) [Figure 175] indicate machine conditions that may require service.
  (See 4.3–Inch Display on Page 41)
- An orange square next to **[WARNINGS]** or **[VITALS]** [Figure 175] indicates an active service code.
  (See Service Codes List on Page 233)

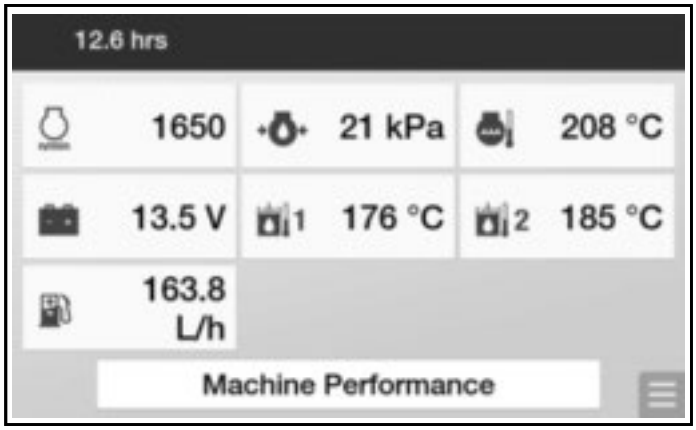
Monitoring Standard Display During Operation

Figure 177



NA3712A

Figure 178



NA3701

- Frequently monitor the **GAUGES** or **VITALS** screens [Figure 177] and [Figure 178].
- These icons (Item 1) [Figure 177] indicate machine conditions that may require service.
  (See Standard Display on Page 43)
- Selecting **[MACHINE PERFORMANCE]** on the vitals screen can also provide details on machine condition.
  (See Vital Detail And Machine Performance on Page 205)

Figure 179



NA3705D

- Active shortcuts (Item 1) [Figure 179] can appear in place of, or next to, the navigation handle that also indicate a need for service.
  (See Viewing Active Shortcuts on Page 204)
- A red dot next to **[SERVICE]** [Figure 179] indicates an active service code.
  (See View Service Codes on Page 207)

Monitoring Touch Display During Operation

Figure 180



NA3713A

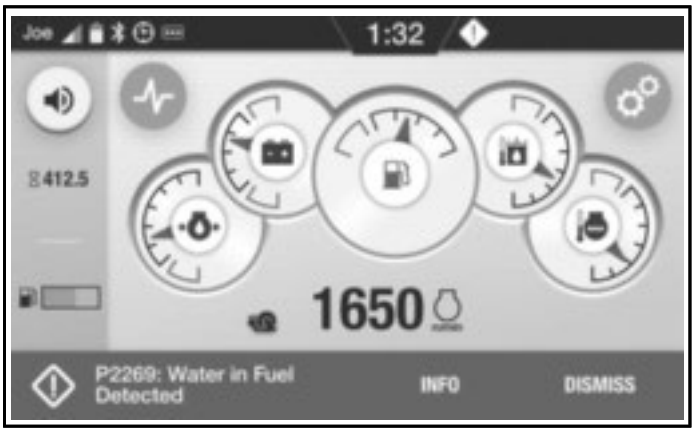
Figure 181



NA3594

- Frequently monitor the **GAUGES** [Figure 180] or **VITALS** [Figure 181] screens.
- These icons (Item 1) [Figure 180] indicate machine conditions that may require service.
  (See Touch Display on Page 45)
- The red dot next to SERVICE [Figure 180] indicates an active service code.
  (See View Service Codes on Page 219)
- The center icon in the gauges will change from black to red to indicate a problem [Figure 180].
- Selecting **[MACHINE PERFORMANCE]** on the vitals screen [Figure 181] can also provide details on machine condition.
  (See Vital Detail And Machine Performance on Page 213)

Figure 182



NA3591

- A notification [Figure 182] 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.

If either “U1201-00: Engine Disabled” or “M8899: Engine Disabled” service codes appear on the display, the engine has been remotely disabled. Your engine will continue to operate normally for a brief period, and then will begin to derate.
(See Stopping The Engine And Leaving The Machine on Page 115) Once the engine is turned off, it cannot be restarted. Contact the machine owner or your Bobcat dealer for more details.

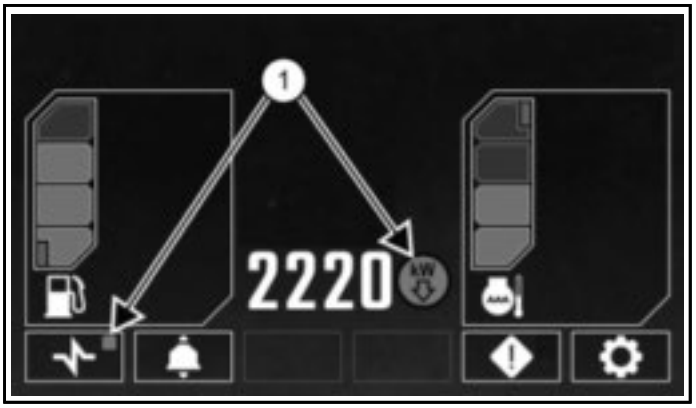
Derate Description — 4.3–Inch Display

Figure 183



C147120

Figure 184



C231054B

The display will briefly show a “derate indicator” [Figure 183]. The display will return to the gauges screen. An orange square will appear next to “vitals” and “derate” will replace “rpm” (Item 1) [Figure 184] when a derate condition is active.

Derate icons are described later in this manual.

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 185



C200321g

3. Set the engine speed control (Item 3) [Figure 185] to the low idle position.
4. Engage the parking brake (Item 2) [Figure 185].

Figure 186



C200594b

5. Press the stop button (Item 1) [Figure 185] or turn the key switch (if equipped) to the Stop position (Item 1) [Figure 186] to stop the engine and turn the machine's electrical system OFF.

   NOTE: If the machine 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 unauthorized personnel.

   NOTE: Activate the machine lockout feature to require a password before the machine can be operated.
   (See Security Settings on Page 202)
   (See Security Settings on Page 210)
   (See Security Settings on Page 225)

Figure 187



C200319

9. Exit the machine using grab handles, safety tread, and steps (maintaining a three-point contact) [Figure 187].

⚠ WARNING

GENERAL HAZARD
Failure to obey instructions can cause serious injury or death.
Before leaving the operator's position:

- **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 raised. See your Bobcat dealer for service if controls do not deactivate.**
- **Shut down 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 obey 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 palletized loads.
- Using grapples or bale fork.
- Using buckets to handle loose material without digging.

When To Consider Removing Counterweights

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

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

Accessories That Affect Machine Weight

If your machine is already equipped with accessories like water tanks or rear stabilizers; installing counterweights may not be necessary.

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

ATTACHMENTS

Rated Operating Capacity Description

⚠ WARNING

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

The ROC for this machine is shown on a decal in the operator area and in the Performance section of the Specifications (See Specifications on Page 247) . The buckets and attachments are approved for ROC and for secure fastening to the Bob-Tach system.

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

The ROC for a machine is determined by using a specification bucket and material of normal density, such as dirt or dry gravel. Using a different bucket changes the machine's ROC
(See Calculating The Rated Operating Capacity For Buckets on Page 117) . Options such as larger buckets, counterweights, or rear stabilizers also impact the machine's ROC. If extremely dense material is loaded, the volume must be reduced to prevent overloading.

The weights for attachments can be found in documentation, including serial number plates, name plates, in the attachment Operation & Maintenance Manual, or by contacting your Bobcat dealer.

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 ROC and for secure fastening to the Bob-Tach system.

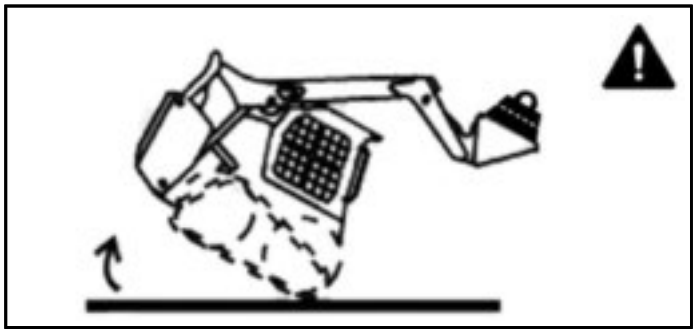
The ROC for this machine is shown on a decal in the operator cab. (See Machine Specifications on Page 249)

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 center moves forward and

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

Figure 188



NA3475

Exceeding the ROC [Figure 188] 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

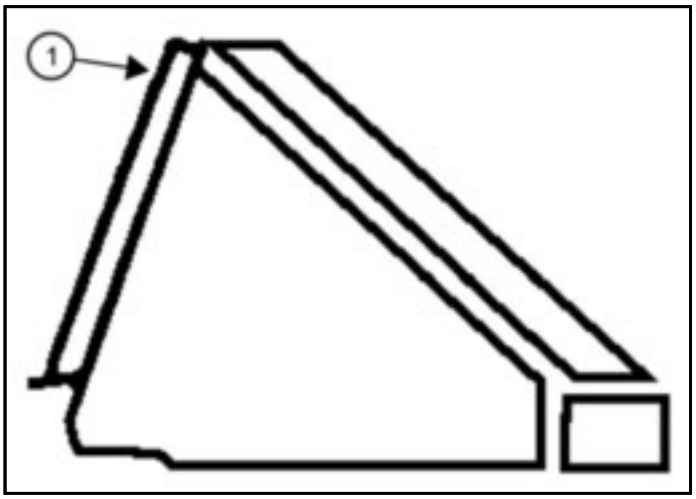
Calculating The Rated Operating Capacity For Buckets

The ROC for a machine is determined by using a specification bucket and material of normal density, such as dirt or dry gravel. Using a different bucket changes the machine's ROC. Options such as larger buckets, counterweights, or rear stabilizers also impact the machine's ROC. If extremely dense material is loaded, the volume must be reduced to prevent overloading. Use the following process to estimate the ROC for other approved buckets. This process does not take variable bucket lengths and centers of gravity into account.

1. Find the ROC for the machine.
   (See Specifications on Page 247)
2. Add the weight of the specification bucket
   (See Specifications on Page 247) to the ROC.

   Machine ROC (A)
   Specifications Bucket Weight (B)
   New Bucket (C)
   A + B = D
   D - C = Estimated Adjusted ROC with new bucket

Figure 189

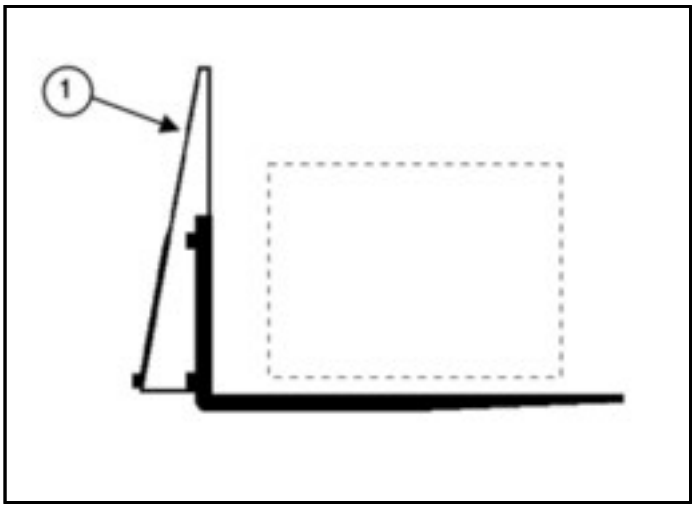


NA3117a

3. Subtract the weight of the new bucket to be used. Many buckets have a plate or stamped information located on the bucket (Item 1) [Figure 189].

Pallet Fork Information

Figure 190



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 190].

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.

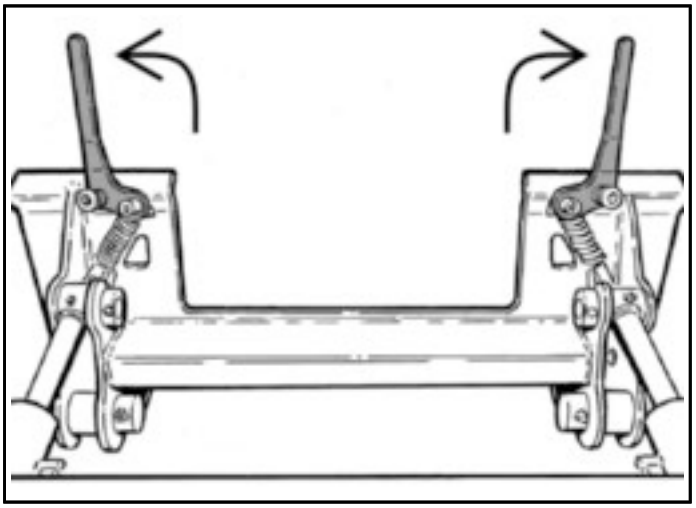
- Surface Cracks - The fork shall be thoroughly examined visually for cracks and if considered necessary, subjected to a nondestructive crack detection process. This inspection for cracks must also include any special mounting mechanisms of the fork blank to the fork carrier. The fork shall not be returned 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 (HAND LEVER BOB-TACH SYSTEM)

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

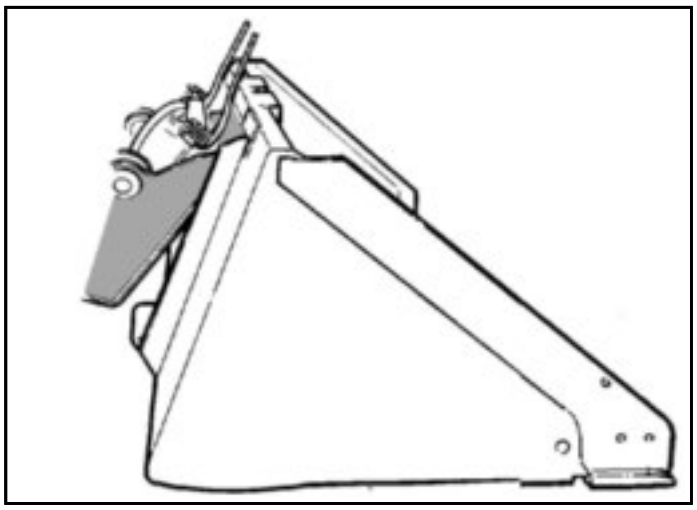
Installing Attachments

Figure 191


NA3445A

1. Pull the Bob-Tach levers up until they are fully raised (wedges fully raised) [Figure 191].
2. Enter the machine and perform the pre-starting procedure.
(See Pre-Starting Procedure on Page 105)
3. Start the engine.
4. Press the operate button
5. Release the parking brake.
6. Lower the lift arms and tilt the Bob-Tach frame forward.

Figure 192

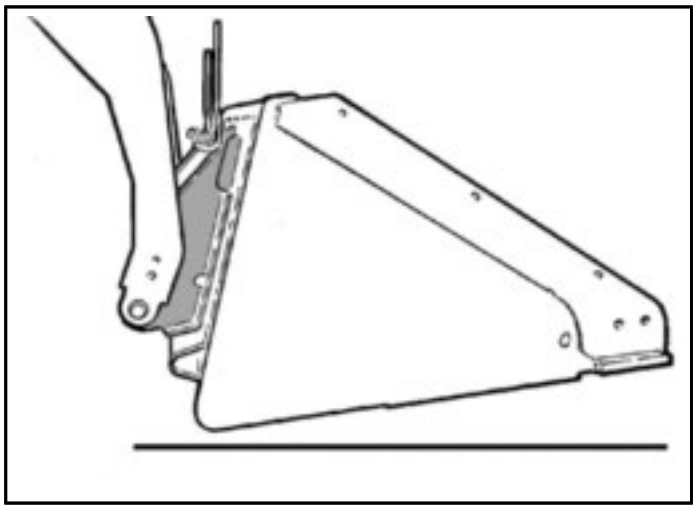


NA3451

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 192] (or other attachment).

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

Figure 193



NA3447

8. Tilt the Bob-Tach frame backward until the cutting edge of the bucket (or other attachment) is slightly off the ground [Figure 193].

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

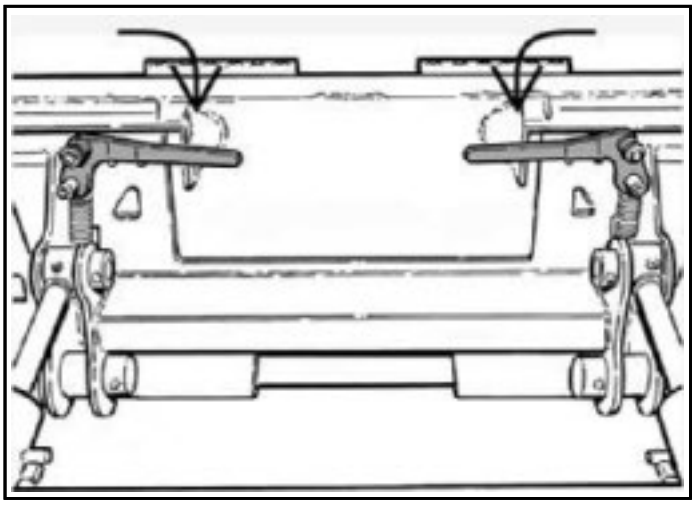
⚠ WARNING

GENERAL HAZARD
Failure to obey instructions can cause serious injury or death.
Before leaving the operator's position:
- **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 raised. See your Bobcat dealer for service if controls do not deactivate.**
- **Shut down the machine.**

W-3175

9. Stop the engine and exit the machine. (See Stopping The Engine And Leaving The Machine Procedure on Page 115)

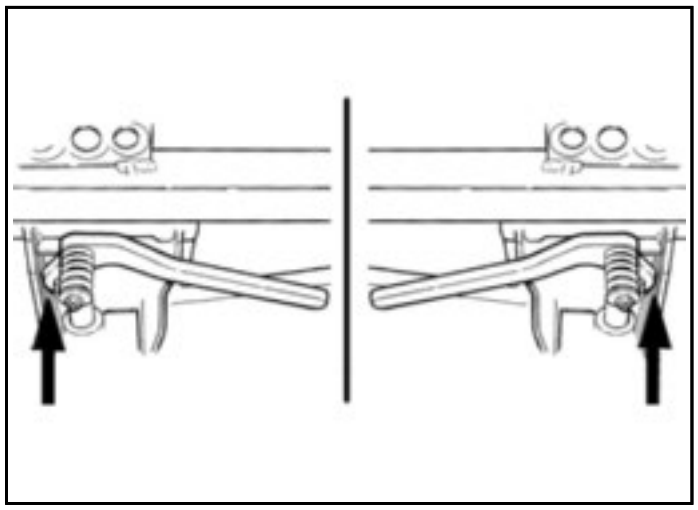
Figure 194



NA3448A

10. Push down on the Bob-Tach levers until they are fully engaged in the locked position [Figure 194] (wedges fully extended through the attachment mounting frame holes).

Figure 195



NA3449

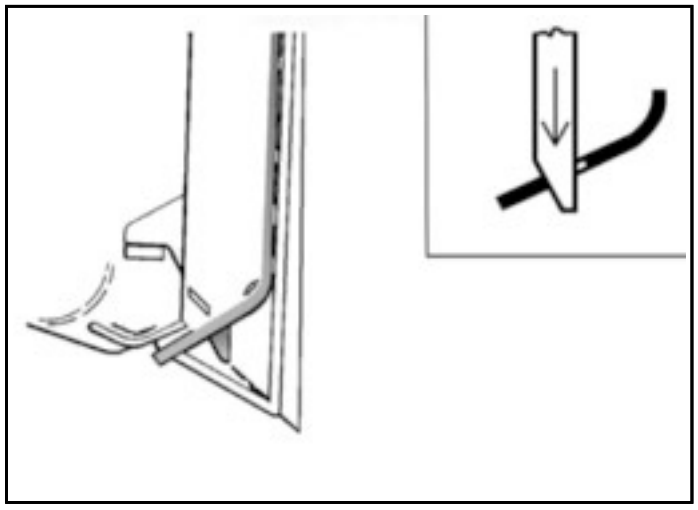
11. Both levers must contact the frame as shown when locked [Figure 195].

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

⚠ WARNING

CRUSHING HAZARD
Failure to secure Bob-Tach 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 must be fully down and locked.
W-2102

Figure 196



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 196].

Removing Attachments

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

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

⚠ WARNING

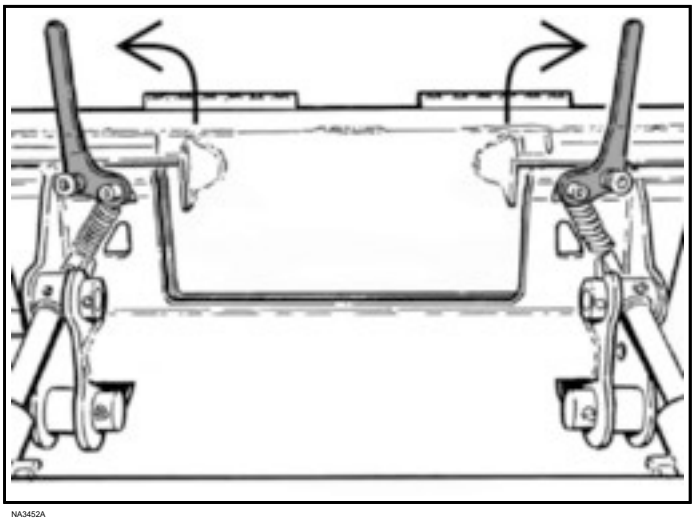
GENERAL HAZARD
Failure to obey instructions can cause serious injury or death.
Before leaving the operator's position:
- **Lower the lift arms and put the attachment flat on the ground.**
- **Engage the parking brake.**
- **Raise the seat bar.**
- **Move all controls to the NEUTRAL position to make sure the lift, tilt, and traction drive functions are deactivated.**
- **The seat bar system must deactivate these functions when the seat bar is raised. See your Bobcat dealer for service if controls do not deactivate.**
- **Shut down the machine.**

W-3175

3. Stop the engine and exit the machine.
(See Stopping The Engine And Leaving The Machine Procedure on Page 115)

4. Disconnect attachment electrical harness and water or hydraulic lines, if applicable, from the machine.
(See Relieving Auxiliary Hydraulic Pressure (Front Auxiliary Couplers) on Page 101)

Figure 197



NA3452A

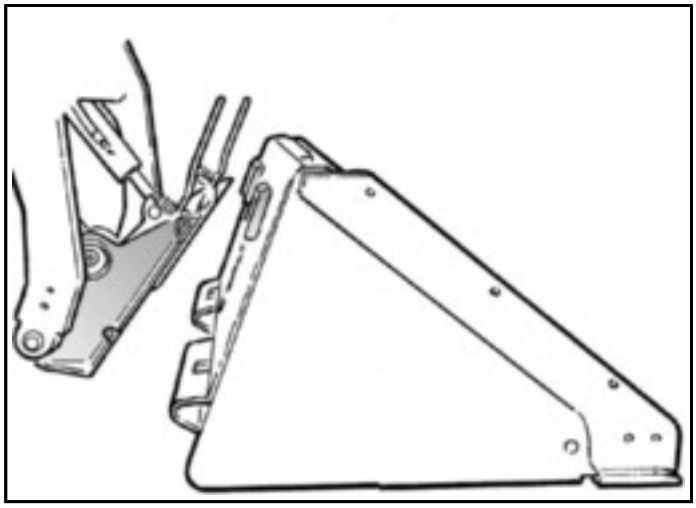
5. Pull the Bob-Tach levers up until they are fully raised (wedges fully raised) [Figure 197].

6. Enter the machine and perform the pre-starting procedure.
(See Pre-Starting Procedure on Page 105)

7. Start the engine.

8. Press the operate button.
9. Release the parking brake.

Figure 198



NA3446

10. Tilt the Bob-Tach frame forward and drive the machine backward, away from the bucket or attachment [Figure 198].

INSTALLING AND REMOVING ATTACHMENTS (POWER BOB-TACH SYSTEM)

This machine may be equipped with a 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

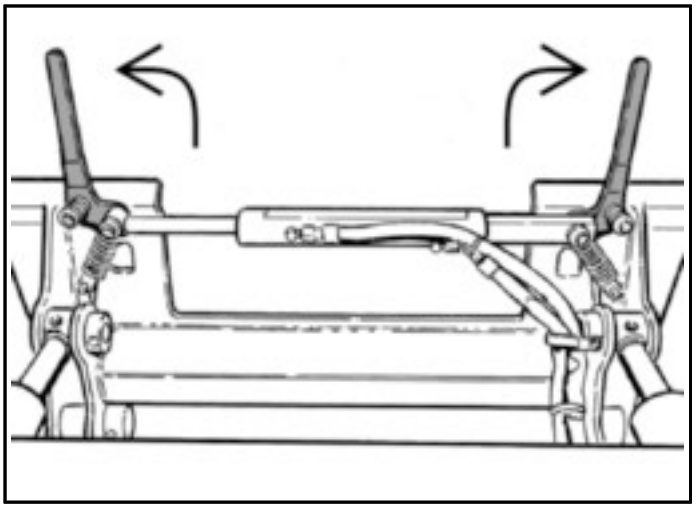
1. Enter the machine and perform the pre-starting procedure.
(See Pre-Starting Procedure on Page 105)
2. Start the engine.
3. Press the operate button
4. Release the parking brake.
5. Lower the lift arms and tilt the Bob-Tach frame forward.

Figure 199



C200193e

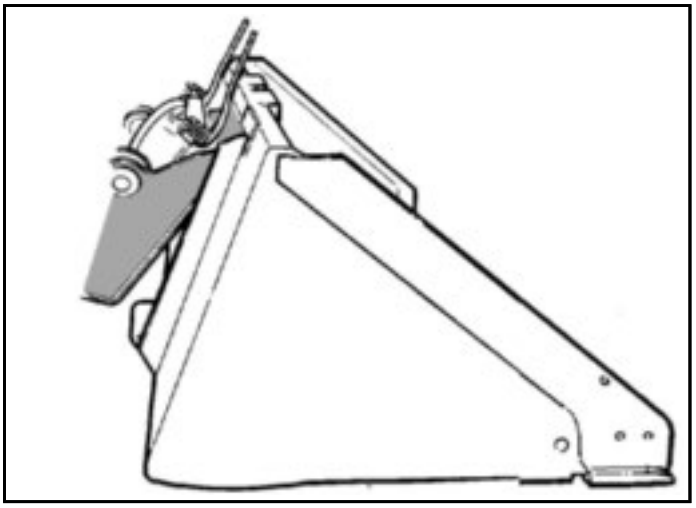
Figure 200



NA3453A

6. Push and hold Bob-Tach Wedges Up button (Item 1) [Figure 199] on the left control panel until levers are fully raised (wedges fully raised) [Figure 200].

Figure 201

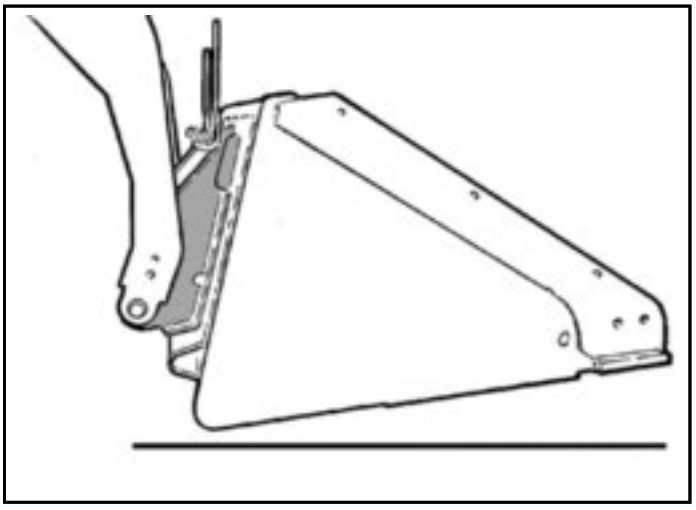


NA3451

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 201] (or other attachment).

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

Figure 202



NA3447

8. Tilt the Bob-Tach frame backward until the cutting edge of the bucket (or other attachment) is slightly off the ground [Figure 202].

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

Figure 203



C200193e

9. Push and hold Bob-Tach Wedges Up button (Item 1) [Figure 203] on the left control panel until levers are fully raised (wedges fully raised).

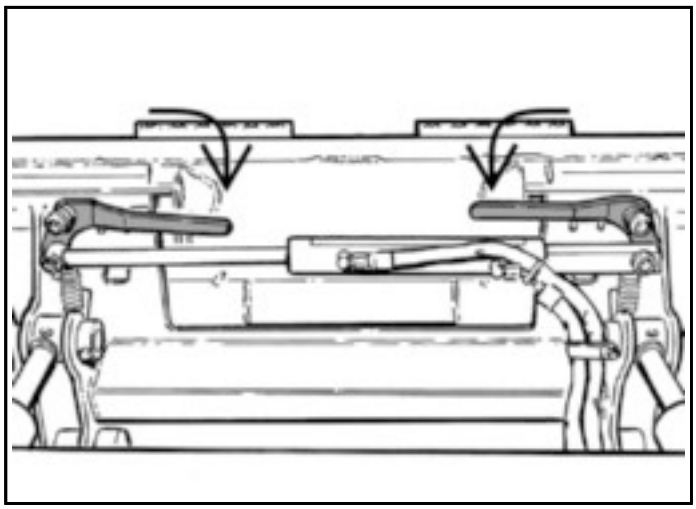
   NOTE: The Bob-Tach system uses continuously pressurized hydraulic fluid to keep the wedges in the engaged position and prevent attachment disengagement. Because the wedges can slowly lower, the operator may need to reactivate the button (Bob-Tach Wedges Up) to be sure both wedges are fully raised before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

Figure 204



C200193f

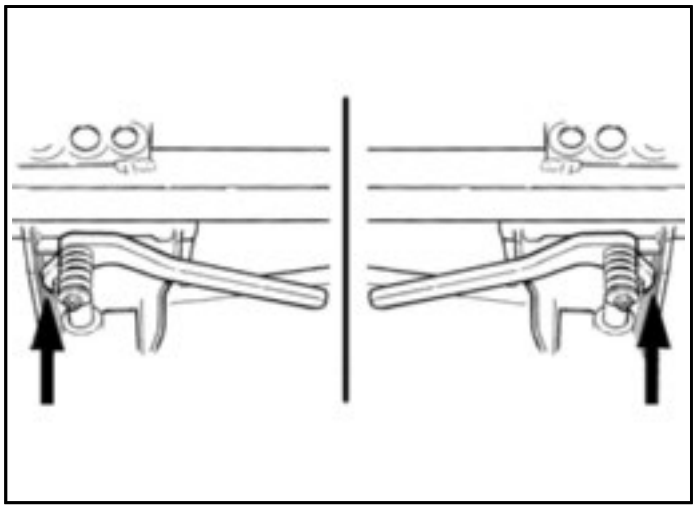
Figure 205



NA3454A

10. Push and hold Bob-Tach Wedges Down button (Item 1) [Figure 204] on the left control panel until levers are fully engaged in the locked position [Figure 205] (wedges fully extended through the attachment mounting frame holes).

Figure 206



NA3449

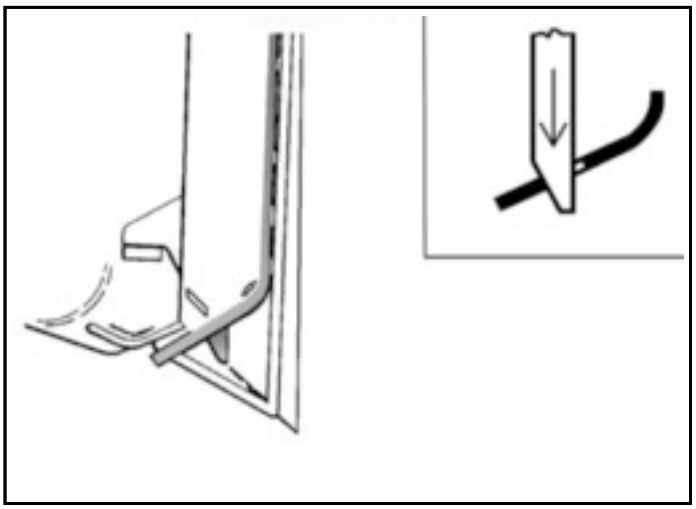
11. Both levers must contact the frame as shown when locked [Figure 206].

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

⚠ WARNING

CRUSHING HAZARD
Failure to secure Bob-Tach 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 must be fully down and locked.
W-2102

Figure 207



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 207].

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 obey instructions can cause serious injury or death.
Before leaving the operator's position:
- **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 raised. See your Bobcat dealer for service if controls do not deactivate.**
- **Shut down the machine.**

W-3175

   a. Stop the engine and exit the machine. (See Stopping The Engine And Leaving The Machine Procedure on Page 115)

   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 101)

c. Enter the machine and perform the pre-starting procedure.
(See Pre-Starting Procedure on Page 105)

d. Start the engine.

e. Press the operate button.

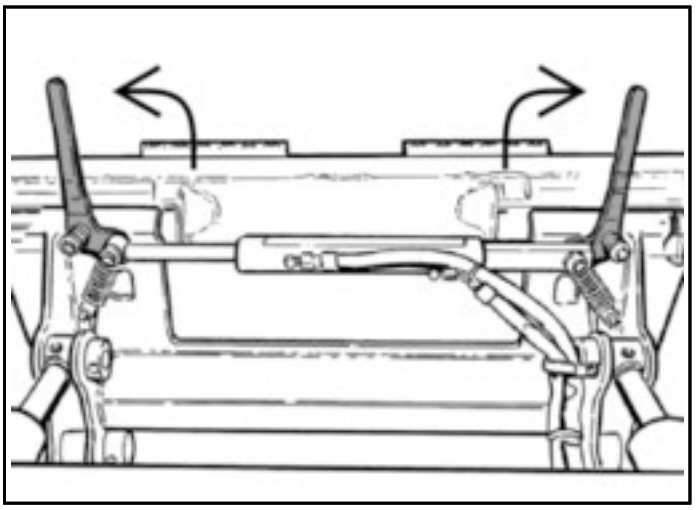
f. Release the parking brake.

Figure 208



C200193e

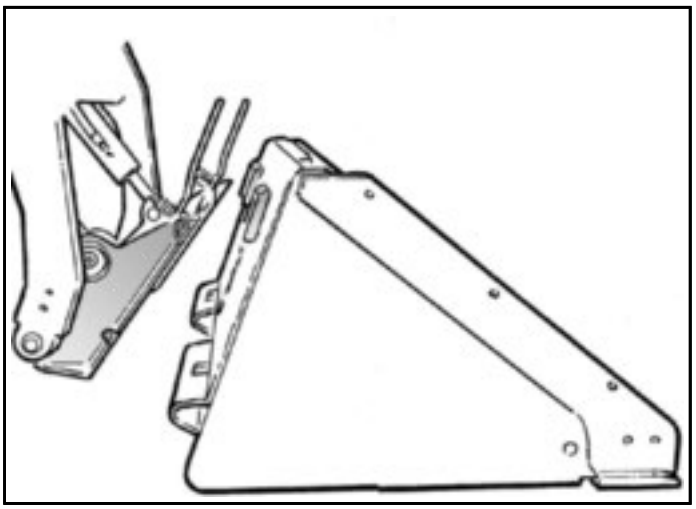
Figure 209



NA3455A

4. Push and hold Bob-Tach Wedges Up button (Item 1) [Figure 208] on the left control panel until levers are fully raised (wedges fully raised) [Figure 209].

Figure 210



NA3446

5. Tilt the Bob-Tach frame forward and drive the machine backward, away from the bucket or attachment [Figure 210].

   NOTE: The Power Bob-Tach system uses continuously pressurized hydraulic fluid to keep the wedges in the engaged position and prevent attachment disengagement. Because the wedges can slowly lower, the operator may need to reactivate the button (Bob-Tach Wedges Up) to be sure both wedges are fully raised before removing the attachment.

TRACK UNDERCARRIAGE SYSTEM

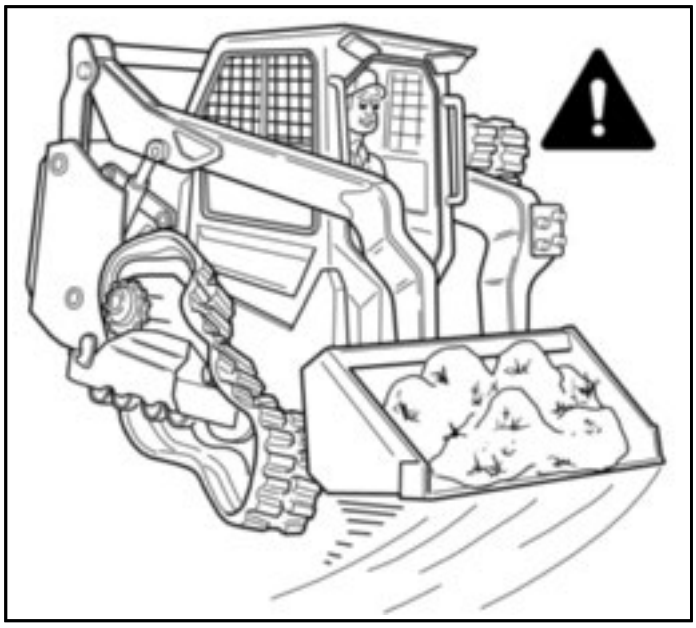
Track Loader Introduction

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 187)

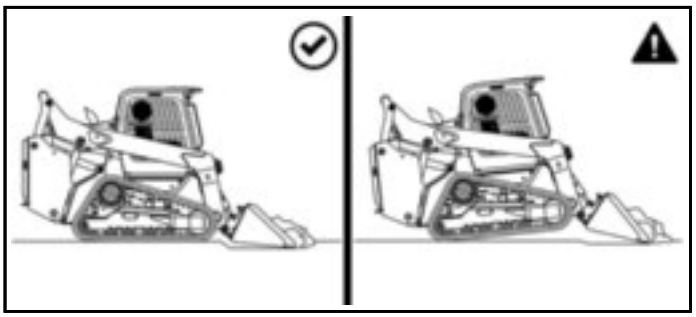
Figure 211



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 211].
  - ▷ Always carry the load low.

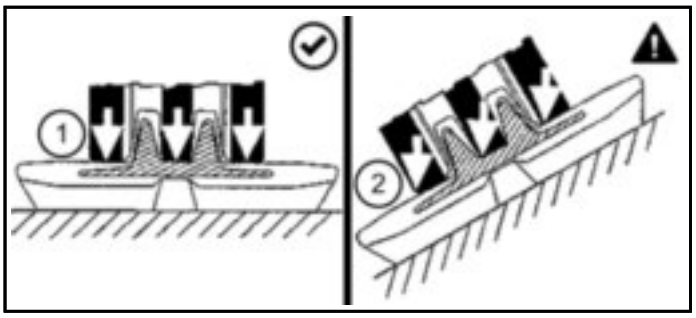
Figure 212



NA3828

- Digging And Leveling:
  - ▷ Keep the full length of the tracks in contact with the ground [Figure 212] for best traction.
  - ▷ Raising the front end of the tracks off the ground [Figure 212] 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.

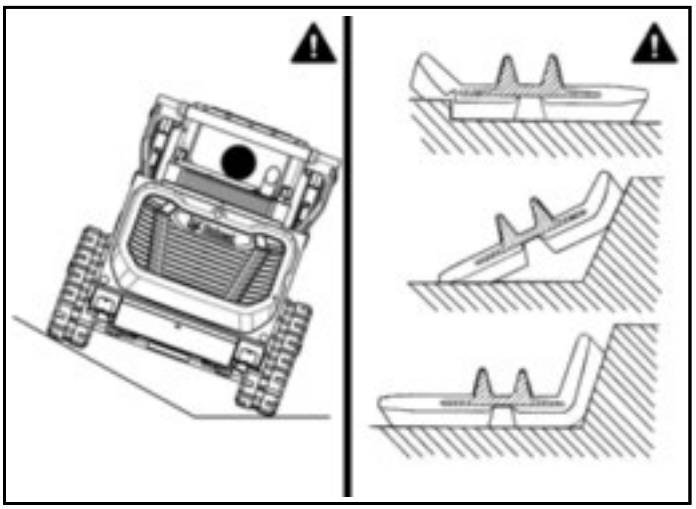
Figure 213



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 213].
  - ▷ 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 213] which causes increased wear.

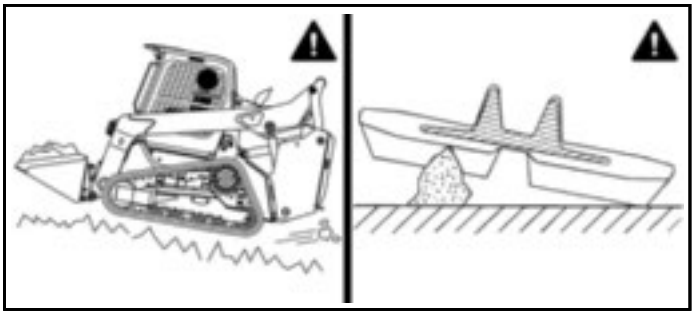
Figure 214



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 curb or mound [Figure 214]. This can cause the tracks to derail, cracks in the edge of the tracks, or cracks at the edges of the embedded metal.

Figure 215



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 215].
- 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

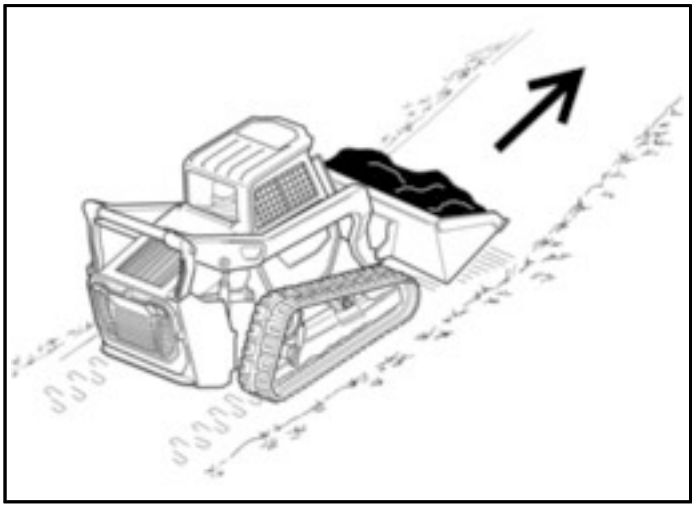
When operating on a public road or highway, always obey local regulations. For example; Slow Moving Vehicle emblem or direction signals may be required.

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

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

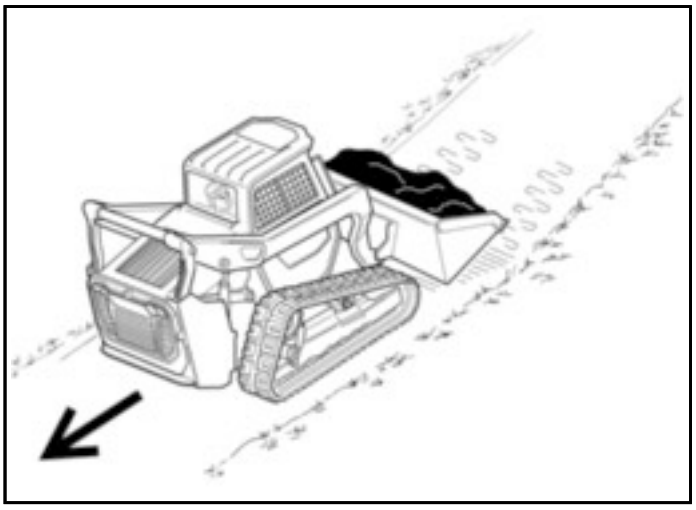
Operating On Slopes With A Full Bucket

Figure 216



NA15864A

Figure 217

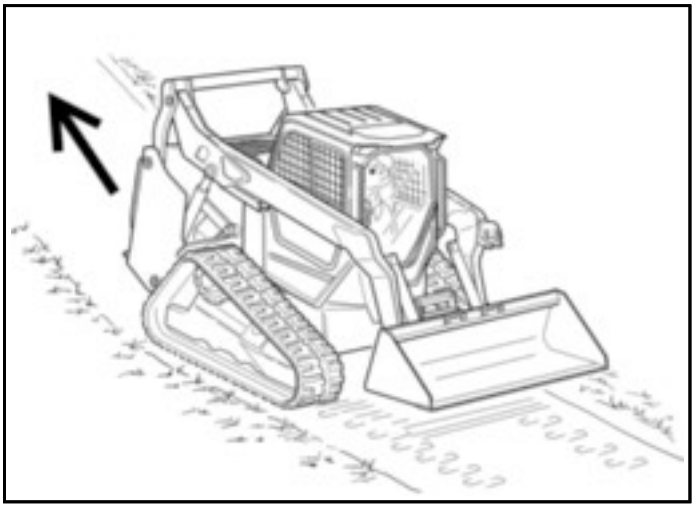


NA15865A

- With a full bucket, go up or down the slope with the heavy end toward the top of the slope [Figure 216] and [Figure 217].
- Raise the bucket only high enough to avoid obstacles on rough ground.

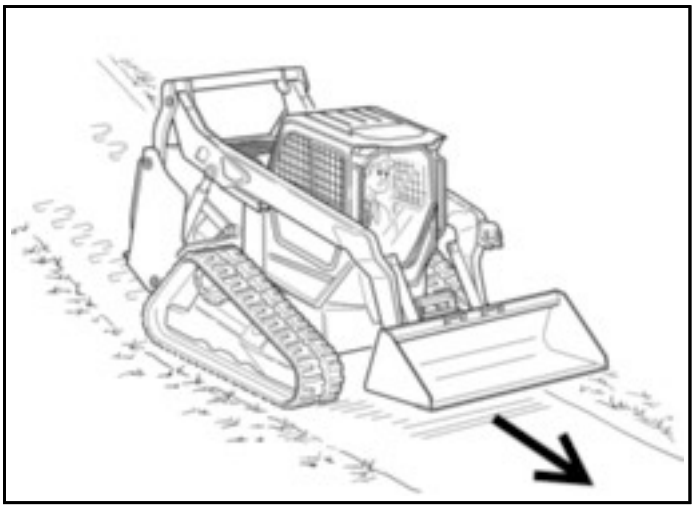
Operating On Slopes With An Empty Bucket

Figure 218



NA15866A

Figure 219



NA15867A

- With an empty bucket, go up or down the slope with the heavy end toward the top of the slope [Figure 218] and [Figure 219].
- Raise the bucket only high enough to avoid obstacles 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 Machine Specifications on Page 249)

LIFTING THE MACHINE

Single-Point Lift Description

⚠ WARNING

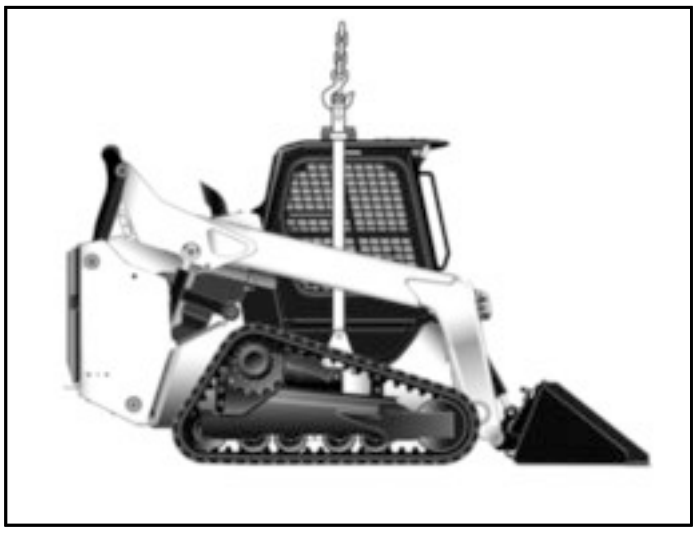
CRUSHING HAZARD
Falling machine can cause serious injury or death.
- **Before lifting, check fasteners on single point lift and operator cab.**
- **Assemble front cab fasteners as shown in this manual.**
- **Never allow riders in the cab or bystanders within 5 m (15 ft) while lifting the machine.**

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 ROPS / FOPS features of the operator cab.

Figure 220



NA18143

- Attach lift to lift eye [Figure 220].

NOTE: Be sure the lifting equipment is of adequate size and capacity for the weight of the machine.
(See Machine Specifications on Page 249)

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.

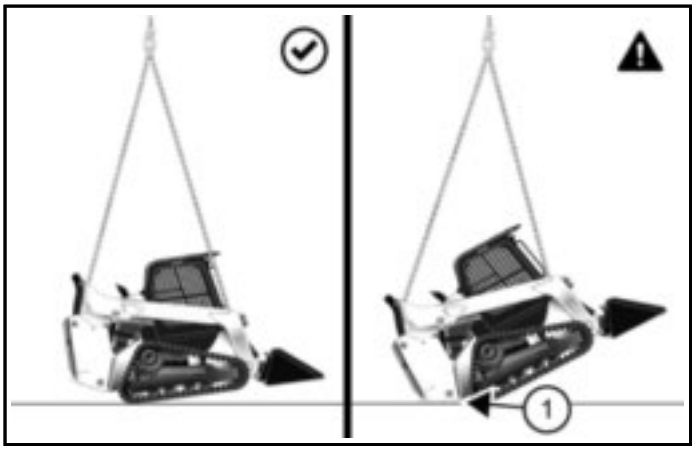
Figure 221



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 221] provided in the specifications section.
(See Specifications on Page 247)

Figure 222



NA3765A

- Attach cables or chains to lift eyes [Figure 222].

  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 222] 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 Machine Specifications on Page 249)

TRANSPORTING THE MACHINE

Loading And Unloading Machine

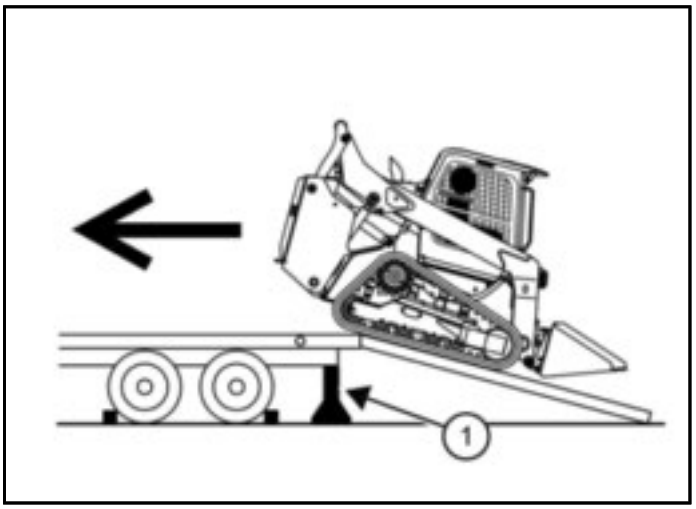
⚠ WARNING

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 Machine Specifications on Page 249)

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 Auto Throttle on Page 73)
(See Engine Speed Control on Page 70)

Figure 223



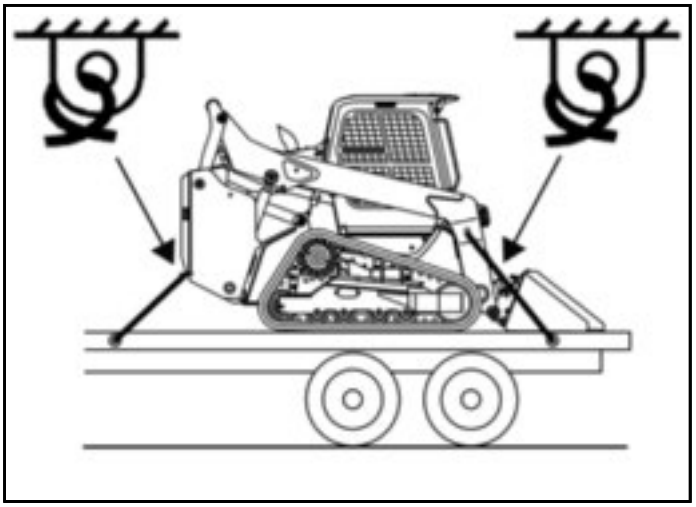
NA18110B

A machine with an empty bucket or no attachment must be loaded backward onto the transport vehicle [Figure 223].

The rear of the trailer must be blocked or supported (Item 1) [Figure 223] when loading or unloading the machine to prevent the front end of the trailer from raising up.

Fastening Machine To Transport Vehicle

Figure 224



NA18112A

Use the following procedure to fasten the Bobcat machine to the transport vehicle to prevent the machine from moving during sudden stops, or when going up or down slopes [Figure 224].

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

Figure 225



C200575

4. Install chains at both rear tie-down positions [Figure 225]. (Right side shown.)

Figure 226



C200584

5. Install chains at the front tie-down position [Figure 226]. (Lift arms shown raised for visual clarity.)

Figure 227



C200574

6. Alternate front tie-down - Install chains at both front tie-down positions on the lift arms [Figure 227]. (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. Obey all warnings and instructions in the Operation & Maintenance Manual, Operator's Handbook, and safety signs (decals) on machine. Obey 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 obey instructions can cause injury or death.**

Maintenance procedures that are given in the Operation & Maintenance Manual can be performed by the owner / operator without any specific technical training. Maintenance procedures that are not in the Operation & Maintenance Manual must be performed ONLY BY QUALIFIED SERVICE PERSONNEL. Always use genuine Bobcat replacement parts.

	**This check mark means: "Obey instructions for proper operations." Obey 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!” Obey 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.

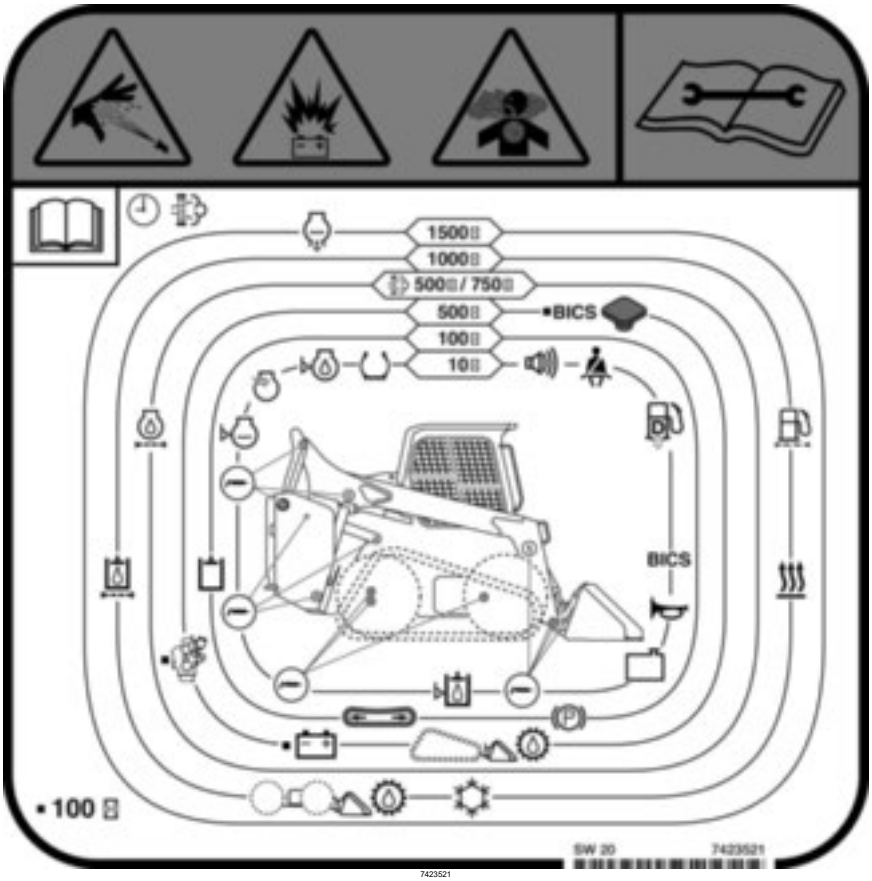
The service schedule decal is a guide for correct maintenance of the Bobcat machine. See the inside page of the back cover for symbols and identification.

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 obey instructions can cause serious injury or death.
- **Obey warnings and instructions in the Operation & Maintenance Manual, Operator's Handbook, and decals on machine.**
- **Obey warnings and instructions in the manuals when making repairs, adjustments or servicing.**
- **Check for correct function after adjustments, repairs, or service.**

W-2003

Every 10 Hours (Before Starting The Machine)

Engine Oil	Check level and add as needed. (See Page 160)
Engine Air Intake Ducting	Check for loose connections and damaged components. (See Page 153)
Engine Cooling System	Clean debris from radiator cooling package, air conditioning condenser (if equipped), rear grilles, and engine compartment. Check coolant level COLD and add premixed coolant as needed. (See Page 165)
Fuel Filter	Remove the trapped water. (See Page 156)
Lift Arms, Lift Links, Cylinders, Bob-Tach Pivot Pins and Wedges, and Torsion Axle Spindles (if equipped)	Lubricate with multipurpose lithium based grease. (See Page 194)
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 139)
Bobcat Interlock Control System (BICS)	Check for correct function. Lift and Tilt functions MUST NOT operate with seat bar raised. (See Page 136)
Front Horn, Back-up Alarm, Rear View Camera (if equipped)	Check for proper function. (See Page 56) (See Page 145) (See Page 54)
Operator Cab	Check the fastening bolts, washers, and nuts. Check the condition of the cab. (See Page 146)
Indicators and Lights	Check for correct operation of all indicators and lights. (See Page 43) (See Page 45)
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 17) (See Page 105)
Hydraulic Fluid	Check fluid level and add as needed. (See Page 176) (See Page 177)
Heater and Air Conditioning Filters	Clean or replace filters as needed. (See Page 150)

First 100 Hours

Accessory Drive Belt (Alternator, air conditioning, water pump)	Check condition. Replace as needed. (See Page 191)
Bobcat Interlock Control System (BICS)	Check the function of the lift arm bypass control. (See Page 138)
Battery	Check cables and connections. (See Page 172)

Every 100 Hours

Hydraulic Hoses and Tubelines	Check for damage and leaks. Repair or replace as needed.
Parking Brake and Joysticks	Check for correct operation. Repair or adjust as needed.
Track Drive Sprocket Bolts	Check for loose sprocket bolts and tighten to correct torque. (See Page 190)
Track Tension	Check tension and adjust as needed. (See Page 187)

Every 500 Hours Or Every 12 Months

Engine Oil and Filter	Replace oil and filter element. (See Page 160)
Accessory Drive Belt (Alternator, air conditioning, water pump)	Check condition. Replace as needed. (See Page 191)
Bobcat Interlock Control System (BICS)	Check the function of the lift arm bypass control. (See Page 138)
Battery	Check cables and connections. (See Page 172)
Track Drive Motor Brake Cavity	Replace fluid. (See Page 190)

Every 1000 Hours Or Every 12 Months

Hydraulic Filters	Replace the hydraulic main, case drain, and charge filters. (See Page 181) (See Page 183) (See Page 184)
Hydraulic Reservoir	Replace the fluid and reservoir vent filter. (See Page 178) (See Page 185)
Heater Coil and Air Conditioning Evaporator (if equipped)	Clean the heater coil and air conditioning evaporator. Clean the plenum drain. (See Page 151)
Fuel System	Replace main fuel filter. (See Page 157) 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 156) (See Page 158)
Engine Air Filters and Air System	Replace outer air filter element. Check for leaks and damaged components. Clean or replace as necessary. (See Page 153) Replace inner air filter element every second time the outer air filter element is replaced.

Every 1500 Hours Or Every 24 Months

Coolant	Replace the coolant. (See Page 165)

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 authorized dealer or by Bobcat Europe, should a breakdown occur on the Bobcat machine.

BOBCAT INTERLOCK CONTROL SYSTEM (BICS)

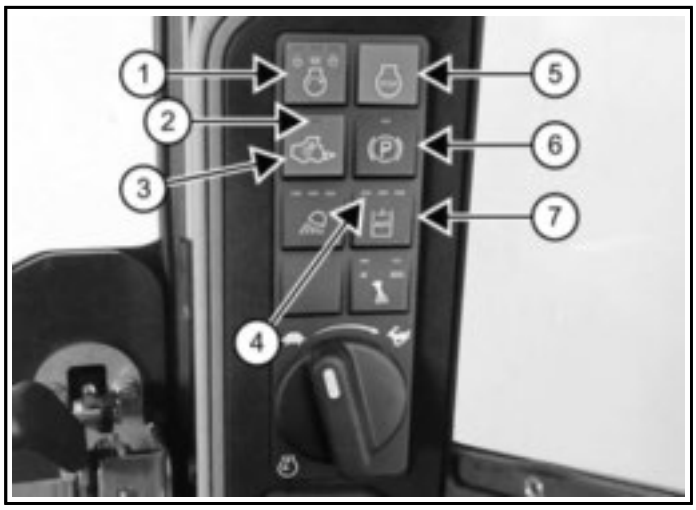
Inspecting The Bobcat Interlock Control System (BICS)

See the service schedule for the correct service interval. (See Service Schedule on Page 134)

⚠ WARNING

MODIFICATION HAZARD
Modifying the machine can cause serious injury or death.
The 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

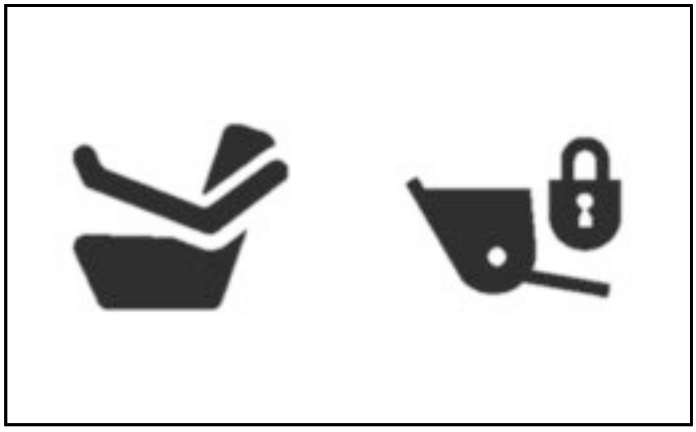
Figure 228



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 228] 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 228] to disengage parking brake.
    f. Press the operate button (Item 3) [Figure 228].

Figure 229



NA3635A

    g. Verify two BICS icons [Figure 229] (Seat Bar Raised and Lift and Tilt Lockout) on the display are off.
    h. Verify the LED in the operate button (Item 2) [Figure 228] is on.
    i. Raise the seat bar fully.

Figure 230



NA3635

    j. Verify all three BICS icons [Figure 230] (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 228] 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 228].
    c. Press the auxiliary hydraulics button (Item 7) [Figure 228].
    d. Verify the LED in the auxiliary hydraulics button (Item 4) [Figure 228] is on.
    e. Raise the seat bar fully.
    f. Verify the LED in the auxiliary hydraulics button (Item 4) [Figure 228] is off.
3. Inspect the seat bar sensor (Engine RUNNING):
    a. Lower the seat bar.
    b. Press the parking brake button (Item 6) [Figure 228] to engage parking brake.
    c. Start the engine and operate at low idle.
    d. Press the operate button (Item 3) [Figure 228].
    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 228] to disengage parking brake.

c. Press the operate button (Item 3) [Figure 228].

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 228].

h. Press the parking brake button (Item 6) [Figure 228] 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 228].

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

   c. Press the stop button (Item 5) [Figure 228] and wait for the engine to come to a complete stop.

   d. Press the run button (Item 1) [Figure 228].

   e. Press the operate button (Item 3) [Figure 228].

   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 228] 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 134)

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

Figure 231



C200321k

4. Press the run button (Item 1) [Figure 231] or turn the key switch to run.
5. Press the parking brake button (Item 4) [Figure 231] to engage parking brake.
6. Start the engine and operate at low idle.
7. Press the operate button (Item 2) [Figure 231].
8. Raise the lift arms 2 m (6 ft) off the ground.
9. Press the stop button (Item 3) [Figure 231] or turn the key switch to stop and wait for the engine to come to a complete stop.

Figure 232



C200577a

10. Press down on the latch (Item 1) [Figure 232] to allow the cover to hinge open at the bottom of the cover.

Figure 233



C200204

11. Turn the knob [Figure 233] 90° clockwise.
12. Pull out and hold the knob until the lift arms lower.
13. Close the cover.

SEAT BAR RESTRAINT SYSTEM

Seat Bar Restraint System Control Description

⚠ WARNING

GENERAL HAZARD
Failure to obey 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 234



C200588B

The seat bar and seat belt are part of the operator restraint system. The seat bar has a pivoting seat bar with armrests (Item 1) [Figure 234].

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, all controls in neutral, 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

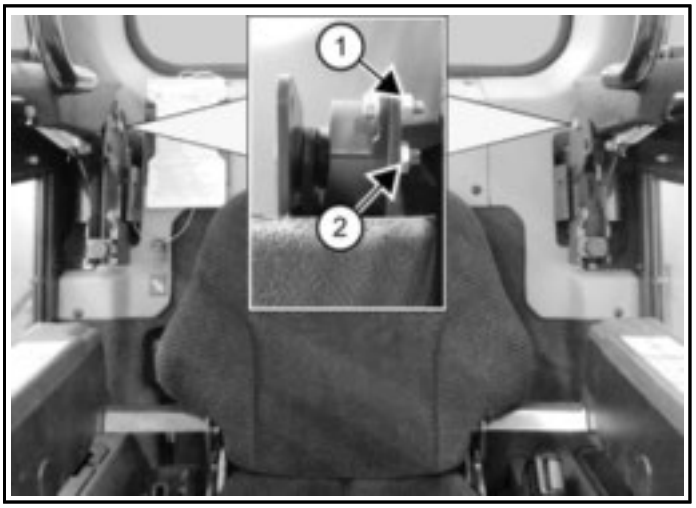
See the service schedule for the correct service interval. (See Service Schedule on Page 134)

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 235



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 235] torque is 6 – 8 N•m (50 – 70 in-lb).

   The correct hinge nut (both sides) (Item 2) [Figure 235] 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 obey 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

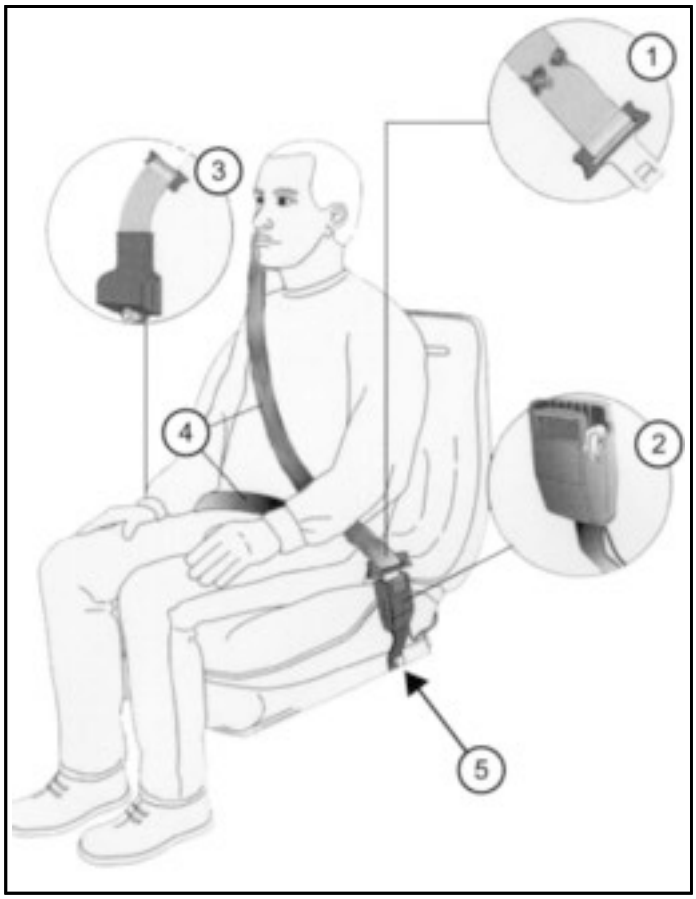
SEAT BELT

Inspecting And Maintaining The Seat Belt

⚠ WARNING

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

Figure 236



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 236].

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 color 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 discolorations 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

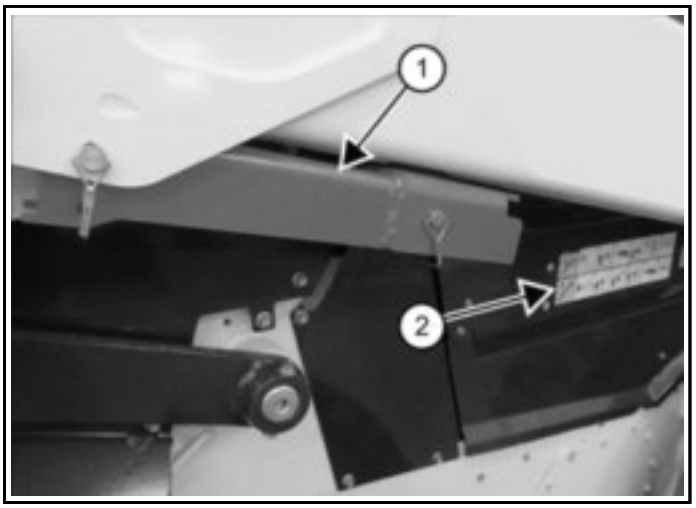
Lift Arm Support Description

⚠ 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 237



C200235A

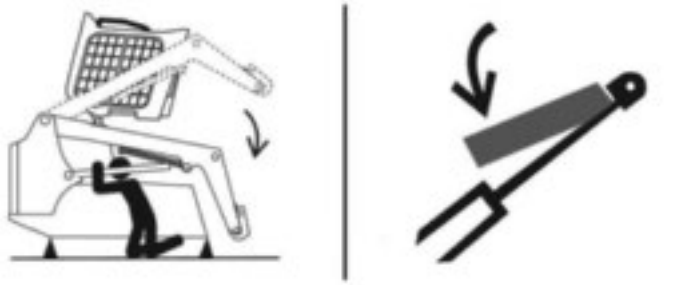
The lift arm support (Item 1) [Figure 237] is used to support the lift arms while working on a machine with the lift arms up.

A decal (Item 2) [Figure 237] 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 142)
(See Removing Lift Arm Support on Page 143)

Installing Lift Arm Support

⚠ DANGER



CRUSHING HAZARD
Failure to obey instructions will cause serious injury or death.
- **Disconnecting or loosening any hydraulic tubeline, hoses, fitting, or 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 120)
(See Removing Attachments on Page 123) .

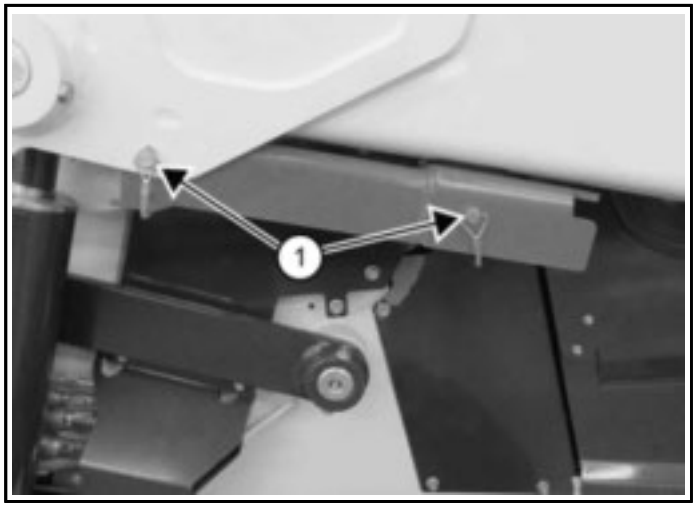
Figure 238



C200233

2. Put jackstands under the rear of the machine frame [Figure 238].

Figure 239



C200234A

3. Remove the pins (Item 1) [Figure 239] to remove the lift arm support from the storage position.

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

4. Start the engine and fully raise the lift arms.

Figure 240



C200585

5. Have a second person install the lift arm support over the rod of one of the lift cylinders [Figure 240].

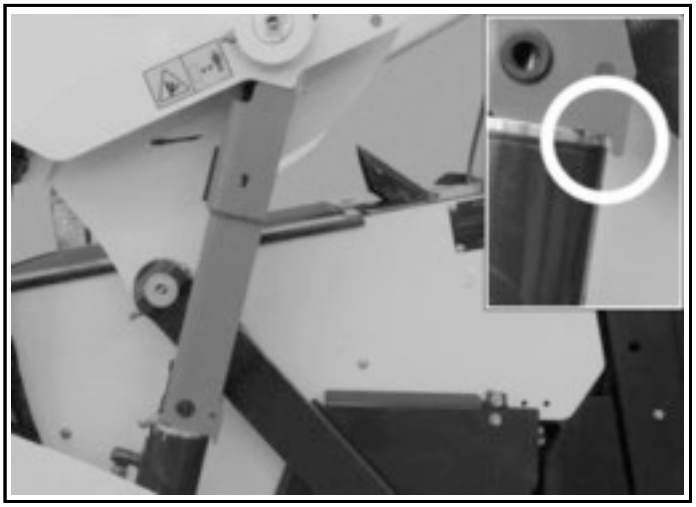
   The lift arm support must be tight against the cylinder rod.

⚠ WARNING

PINCHING HAZARD
Contact with a moving lift arm can cause serious injury or death.
Keep hands clear during lift arm movement.

W-3072

Figure 241



C200239A

6. Lower the lift arms slowly until the lift arm support is held between the lift arms and the lift cylinder [Figure 241].

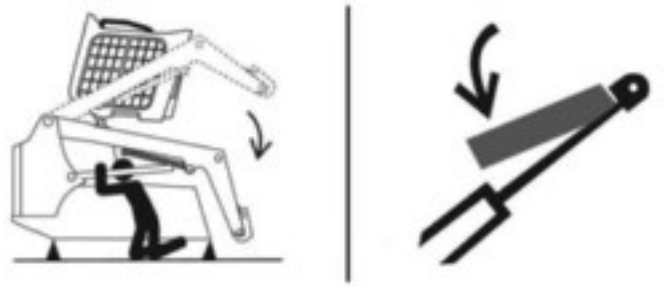
   The tabs of the lift arm support must go past the end of the cylinder (Inset) [Figure 241].

   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
Failure to obey instructions will cause serious injury or death.
- **Disconnecting or loosening any hydraulic tubeline, hoses, fitting, or 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 fully lowered.

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 fully raise the lift arms.

⚠ WARNING

PINCHING HAZARD
Contact with a moving lift arm can cause serious injury or death.
Keep hands clear during lift arm movement.
W-3072

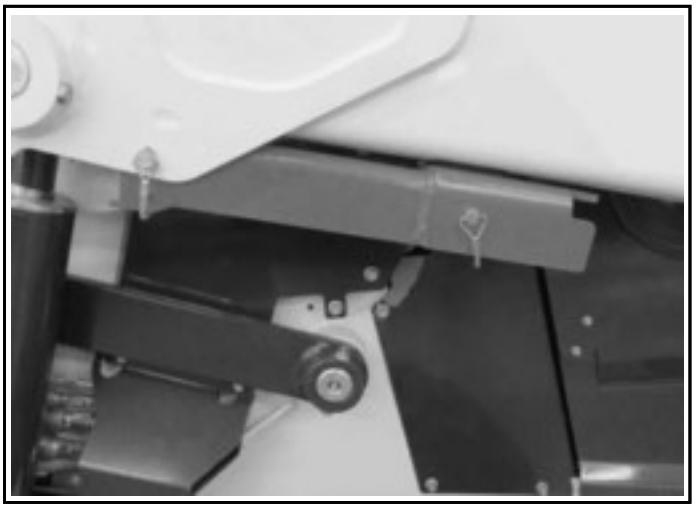
Figure 242



C200585

2. Have a second person remove the lift arm support [Figure 242].
3. Fully lower the lift arms.
4. Stop the engine.

Figure 243



C200234

5. Return the lift arm support to the storage position and install the pins [Figure 243].
6. Remove the jackstands.

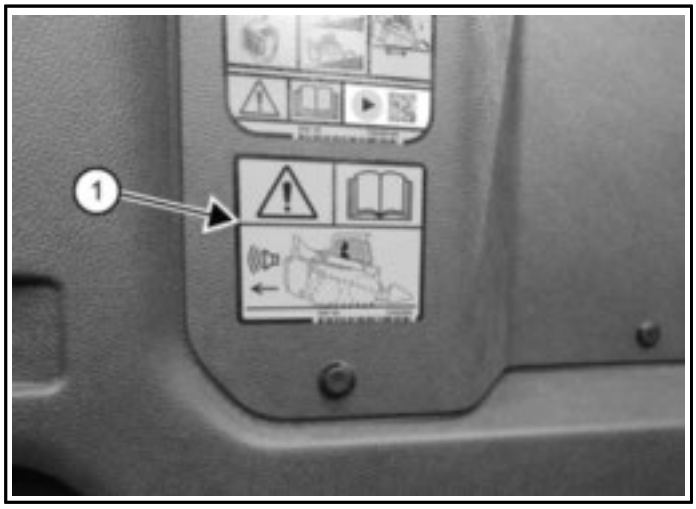
BACK-UP ALARM SYSTEM

Inspecting Back-Up Alarm System

See the service schedule for the correct service interval. (See Service Schedule on Page 134)

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 244

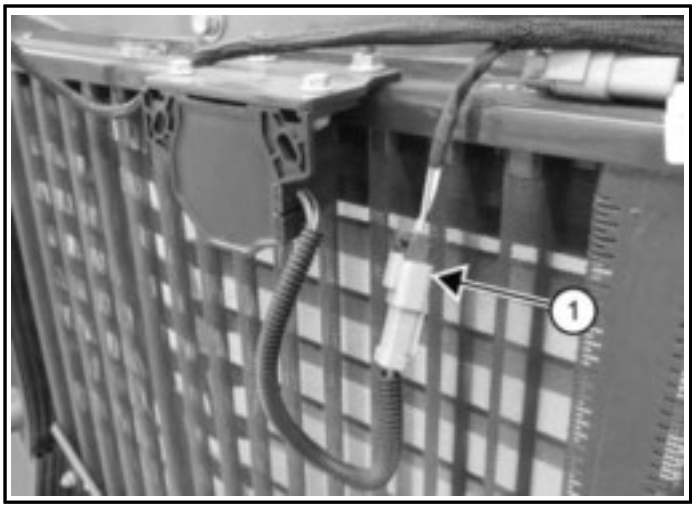


C200245A

1. Inspect for damaged or missing back-up alarm decal (Item 1) [Figure 244] 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. Fully lower the seat bar.
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 245



C200246A

10. Inspect the back-up alarm electrical connector (Item 1) [Figure 245] 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 machine 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.

- Inspect 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: highway 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 ROPS and FOPS protection.
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 246



NA3635B

The lift and tilt lockout icon [Figure 246] 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 246] 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 142)

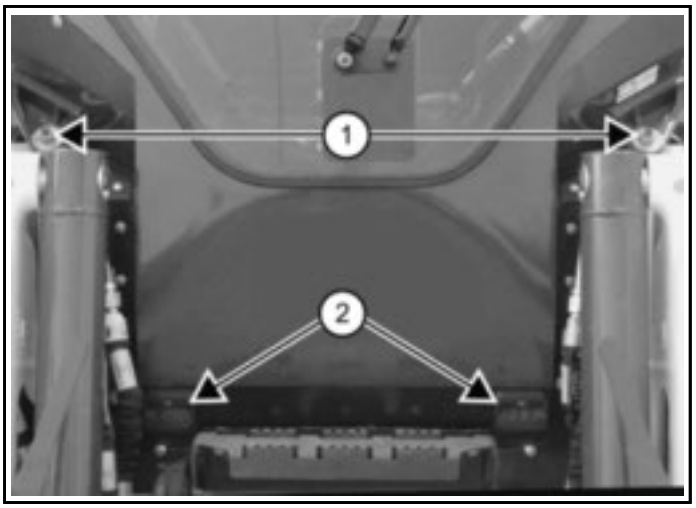
Figure 247



C200233

3. Install jackstands under the rear of the machine frame [Figure 247].

Figure 248



C200249A

4. Close the cab door.

5. Remove the nuts and washers (Item 1) [Figure 248] at the front corners of the operator cab.

6. Lift on the grab handles (Item 2) [Figure 248] at the bottom of the operator cab.

Figure 249



C200595

7. Push the bottom of the operator cab [Figure 249] 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 250



C200596

1. Pull down on the bottom of the operator cab until stopped by the latching mechanism [Figure 250].

   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 251



C200252

2. Support the operator cab [Figure 250] while a second person releases the latching mechanism [Figure 251]. Remove your hand from the latch mechanism when the operator cab is past the latch stop.

Figure 252

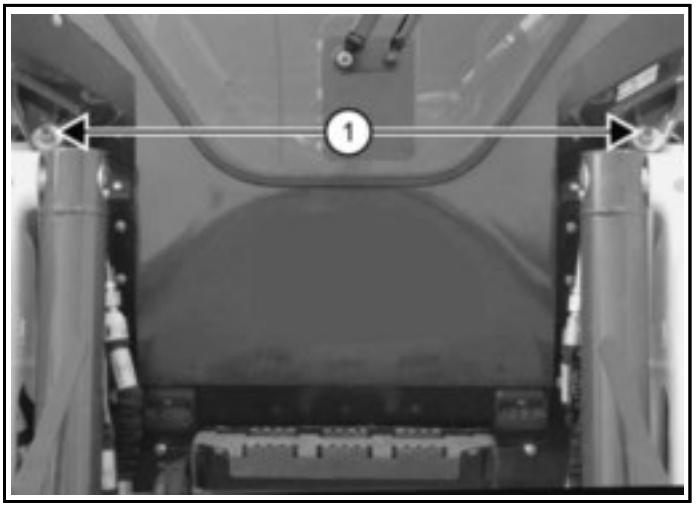


C200597

3. Use both hands on the grab handles to lower the operator cab all the way down [Figure 252].

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

Figure 253



C200249B

4. Install the washers and nuts (Item 1) [Figure 253] (both sides).
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 254



C200254

1. Reach into the slot on the right side of the rear door and pull the latch handle [Figure 254].
2. Pull the rear door open.

⚠ WARNING

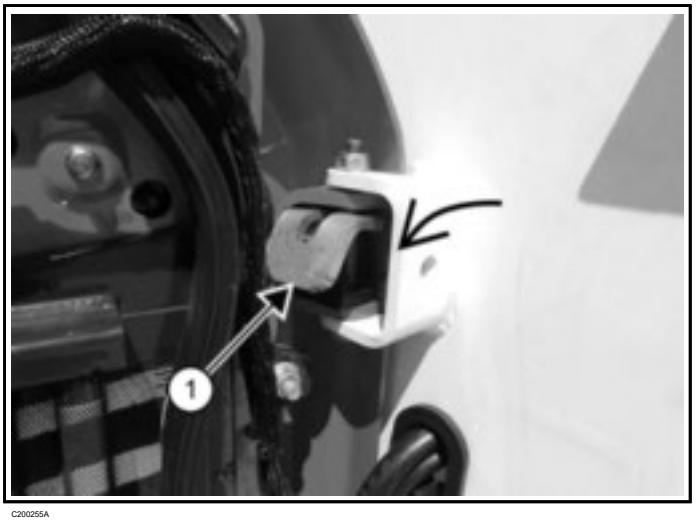
IMPACT HAZARD
Swinging rear door can seriously injure a bystander.
Keep the rear door closed when operating the machine.
W-2020

3. Close the rear door.

Using Rear Door Stop

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

Figure 255

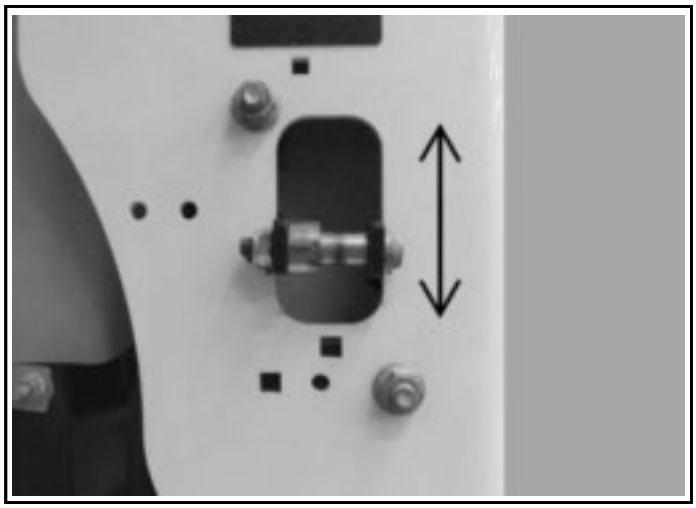


C200255A

1. Move the door stop (Item 1) [Figure 255] 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 256



C200256A

The door latch striker [Figure 256] can be adjusted up or down for alignment with the door latch.

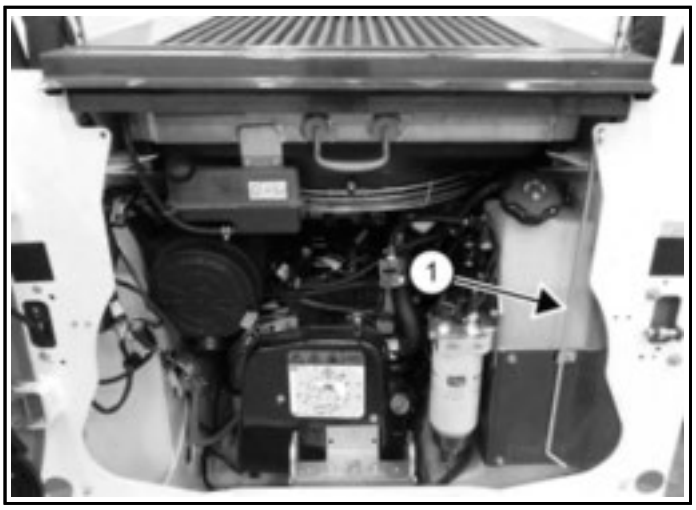
The rear door must be closed before operating the machine.

REAR GRILLE

Raising Rear Grille

1. Stop the engine.
2. Open the rear door.

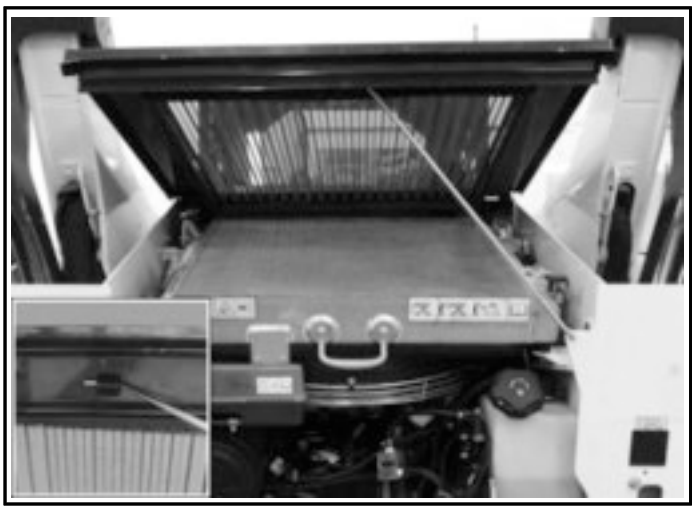
Figure 257



C200259A

The prop rod (Item 1) [Figure 257] for the rear grille is stored alongside the fuel tank.

Figure 258

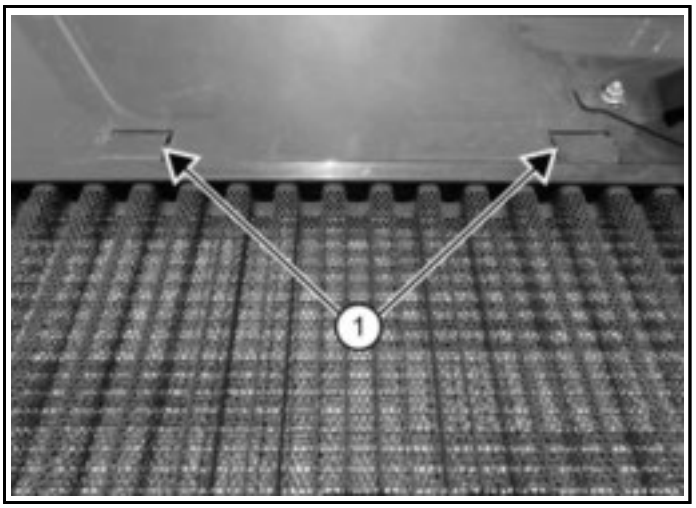


P200261

3. Raise the rear grille [Figure 258].
4. Insert the prop rod into the rear grille (Inset) [Figure 258].

Removing And Installing Rear Grille

Figure 259

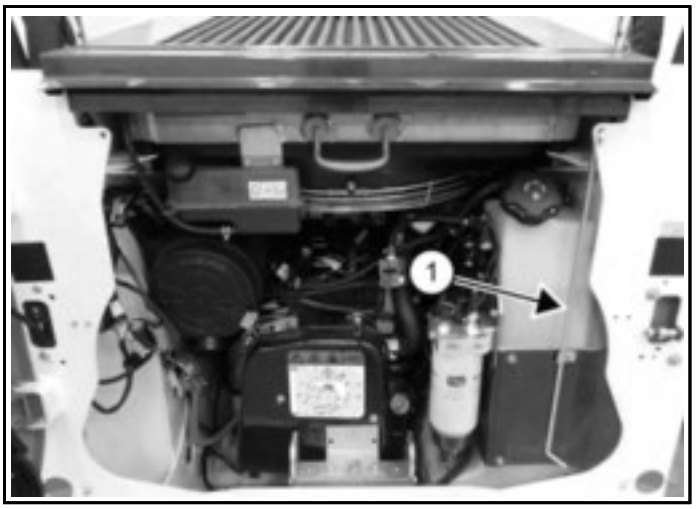


C200260A

1. Raise the rear grille.
2. Pull the rear grille backward until the tabs (Item 1) [Figure 259] are free from the slots. This allows the rear grille to be removed for increased access.
3. Insert both tabs (Item 1) [Figure 259] into the slots and lower to install the rear grille.

Lowering Rear Grille

Figure 260



C200259A

1. Remove the prop rod from the rear grille and lower the rear grille.
2. Clip the prop rod back into the storage position (Item 1) [Figure 260].
3. Close the rear door.

HEATING, VENTILATION, AND AIR CONDITIONING (HVAC)

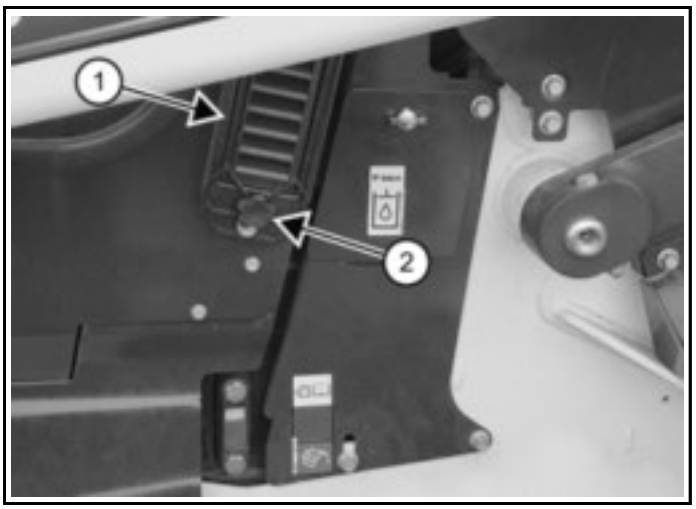
Cleaning HVAC Filters

See the service schedule for the correct service interval. (See Service Schedule on Page 134)

Fresh Air Filter

The fresh air filter is located behind the left side window outside the operator cab.

Figure 261



C211217B

1. Remove the clamping knob (Item 2) and the filter cover (Item 1) [Figure 261].

⚠ WARNING

IMPACT HAZARD
Flying debris or pressurized fluids can cause serious injury or death.
Always wear eye protection while cleaning the machine with compressed air.

W-3271

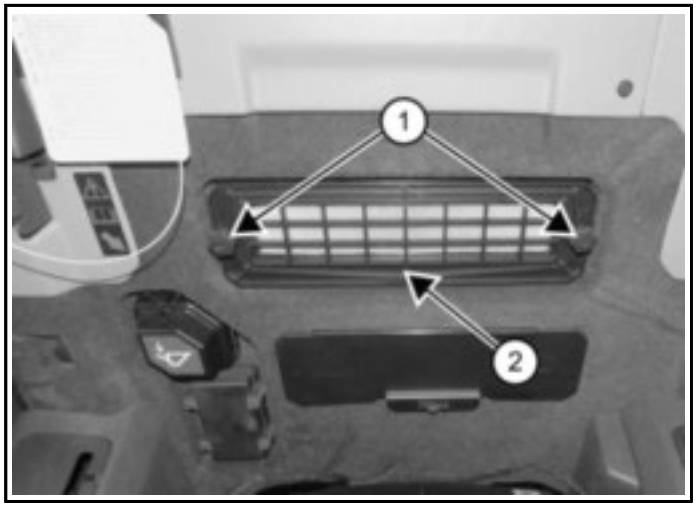
2. Shake the filter or use low pressure air to remove dirt.

   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 262



C200577C

1. Remove two clamping knobs (Item 1) and the filter cover (Item 2) [Figure 262].

⚠ WARNING

IMPACT HAZARD
Flying debris or pressurized fluids can cause serious injury or death.
Always wear eye protection while cleaning the machine with compressed air.
W-3271

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.

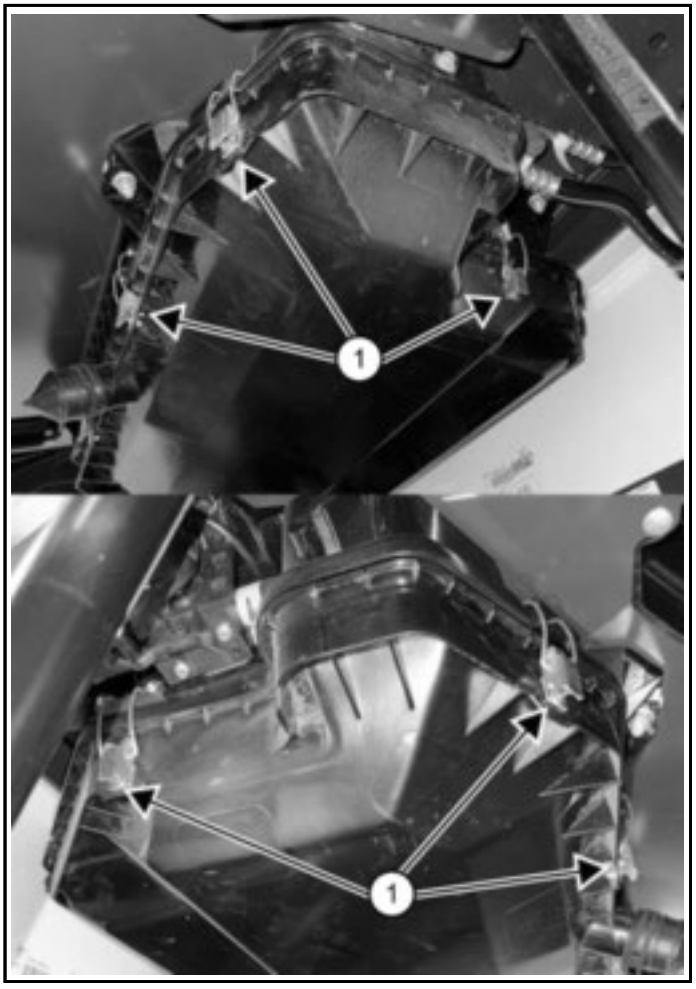
Cleaning Air Conditioning Evaporator And Heater Coil

See the service schedule for the correct service interval. (See Service Schedule on Page 134)

The HVAC unit is located on the back of the operator cab.

1. Stop the engine.
2. Raise the operator cab.
   (See Raising Operator Cab on Page 146)

Figure 263

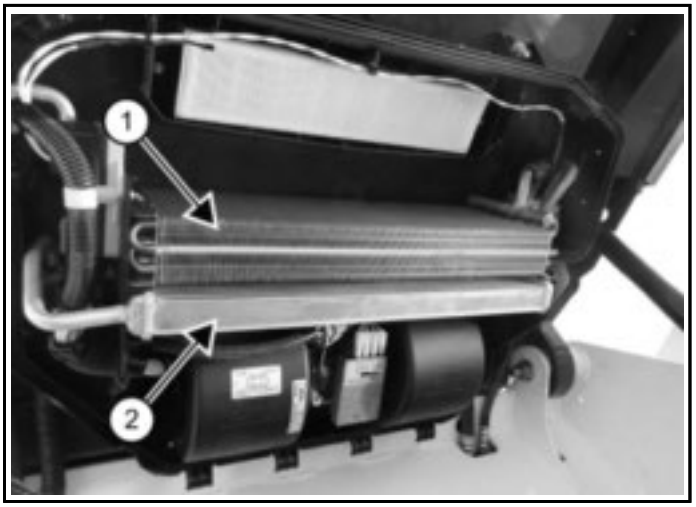


C233413a

3. Unhook six cover latches (Item 1) [Figure 263] on three sides of the HVAC cover.
4. Allow the HVAC cover to swing open on the rear hinges.

   The cover can be removed at the hinge for increased access.

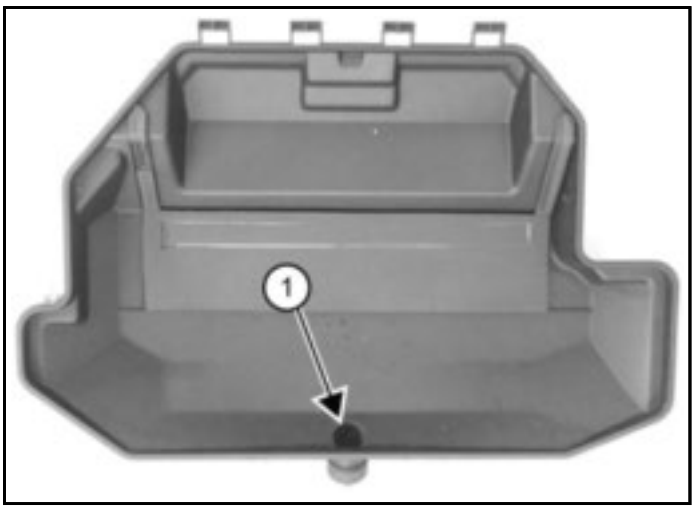
Figure 264



C200267A

5. Use low pressure air or water to remove debris from the evaporator (Item 1) and heater coil (Item 2) [Figure 264].

Figure 265



C200268A

6. Clean the plenum drain (Item 1) [Figure 265] to ensure it is not plugged by debris.
7. Swing the cover up into position.
8. Fasten the six cover latches [Figure 263].

   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.

9. Lower the operator cab.
   (See Lowering Operator Cab on Page 147)

Cleaning Air Conditioning Condenser

The condenser should be cleaned with the radiator cooling package.
(See Engine Cooling System on Page 163)

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 168) 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 134)

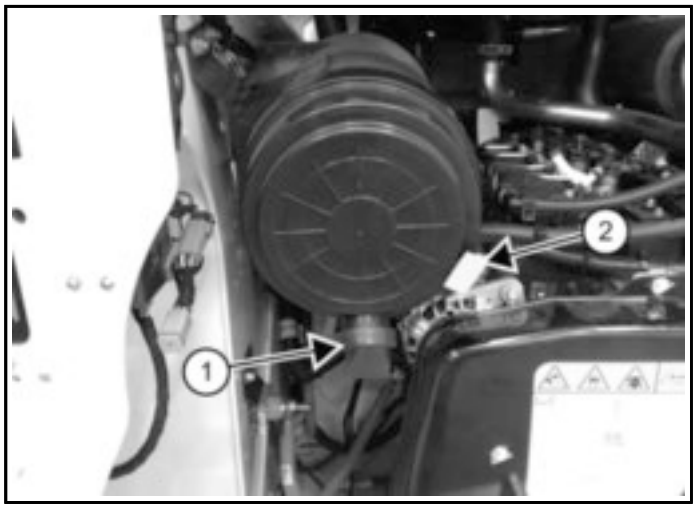
Replace the inner filter every second time the outer filter is replaced.

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.

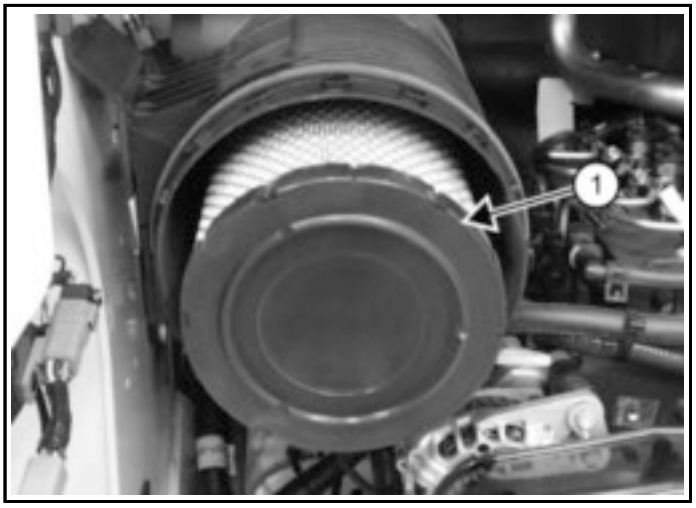
Figure 266



P200269B

3. Pull the tab (Item 2) [Figure 266] to unlock the cover.
4. Rotate the cover counterclockwise a small amount to remove.

Figure 267



P200270A

5. Remove the outer filter (Item 1) [Figure 267] 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 266] is pointed down.
8. Rotate the cover clockwise a small amount.
9. Push the tab (Item 2) [Figure 266] in to lock the cover in place.
10. Close the rear door.

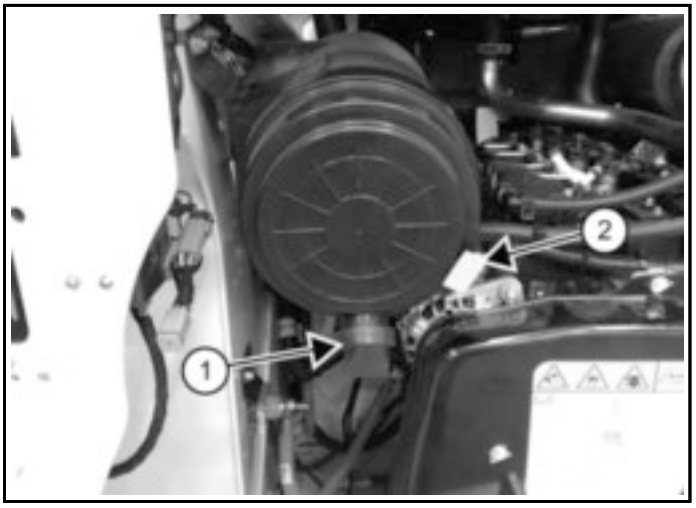
Replacing Engine Air Filter Element (Inner)

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.

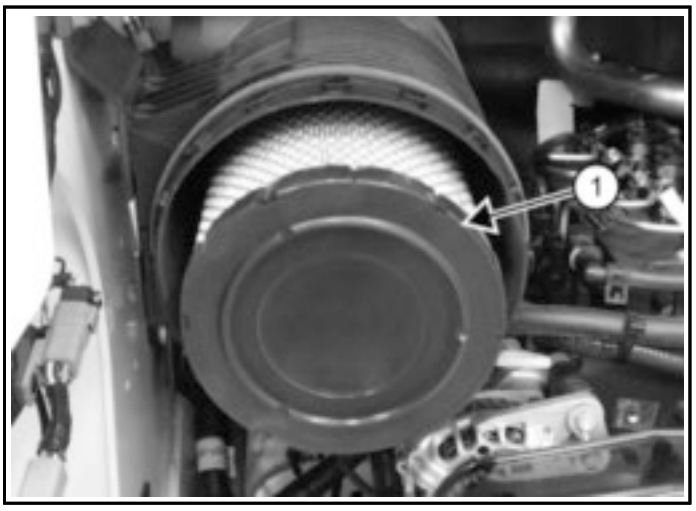
Figure 268



P200269B

3. Pull the tab (Item 2) [Figure 268] to unlock the cover.
4. Rotate the cover counterclockwise a small amount to remove.

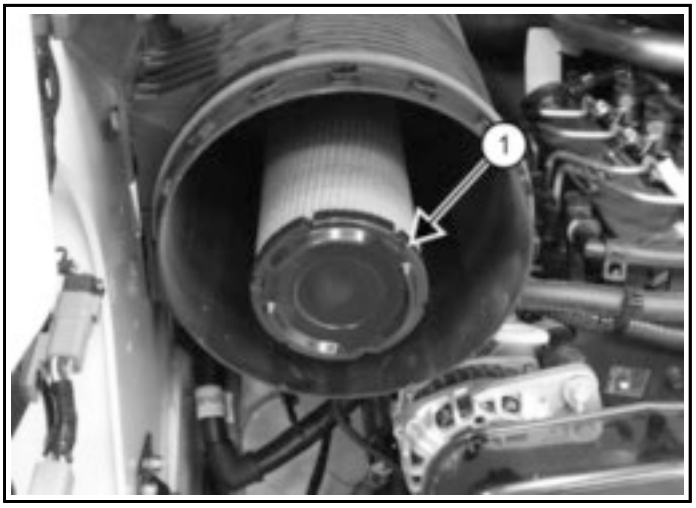
Figure 269



P200270A

5. Remove the outer filter (Item 1) [Figure 269].

Figure 270



P200271A

6. Remove the inner filter (Item 1) [Figure 270] 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 269]. Push in until the filter contacts the base of the housing.
9. Install the cover so that the evacuator valve (Item 1) [Figure 268] is pointed down.
10. Rotate the cover clockwise a small amount.
11. Push the tab (Item 2) [Figure 268] 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 No. 1-D or 2-D, that meets ASTM D975 specifications.

Ultra-low sulfur diesel fuel must be used in this machine. Ultra-low sulfur is defined as 15 mg/kg (15 ppm) sulfur maximum.

Use only clean fuel that meets ISO4406 with a minimum cleanliness level of 18/16/13.

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%

Biodiesel blend fuel may also be used in this machine. Biodiesel blend fuel must contain no more than 5% 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.

Paraffinic fuels such as HVO (Hydrotreated Vegetable Oil) and GTL (Gas to Liquid) that comply with EN15490 are approved for this engine. Paraffinic fuels have lower density, which may cause a noticeable reduction in machine performance. Paraffinic fuels that don't comply with EN15490 can cause irreversible fuel system damage.

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.

Use only clean fuel that meets ISO4406 with a minimum cleanliness level of 18/16/13.

Biodiesel blend fuel may also be used in this machine. Biodiesel blend fuel must contain no more than 7% 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.

Paraffinic fuels such as HVO (Hydrotreated Vegetable Oil) and GTL (Gas to Liquid) that comply with EN15490 are approved for this engine. Paraffinic fuels have lower density, which may cause a noticeable reduction in machine performance. Paraffinic fuels that don't comply with EN15490 can cause irreversible fuel system damage.

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 155)

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 stabilizer, 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.

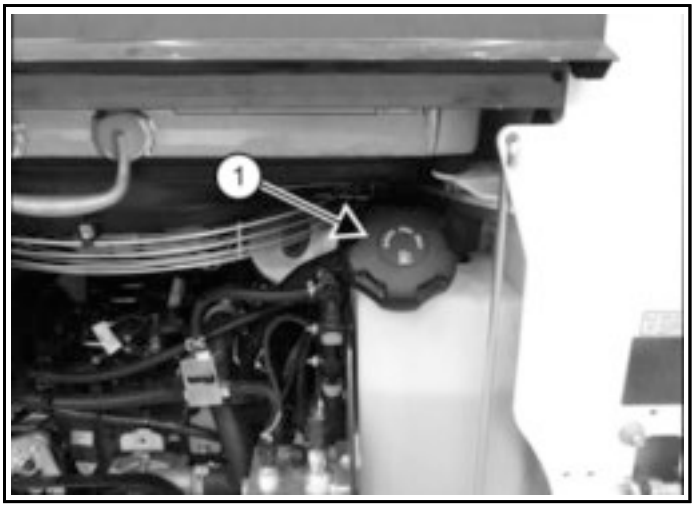
Filling The Fuel Tank

⚠ WARNING

FIRE AND EXPLOSION HAZARD
Failure to obey instructions can cause serious injury or death.
Shut down the machine and allow it to cool before adding fuel. NO SMOKING!
W-2063

1. Stop the engine.
2. Open the rear door.

Figure 271



P200272A

3. Remove the fuel fill cap (Item 1) [Figure 271].
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!
5. Install and tighten the fuel fill cap (Item 1) [Figure 271].

   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

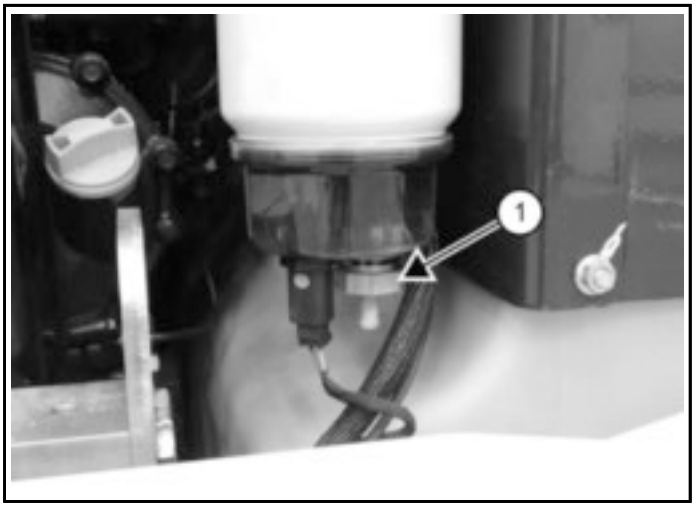
Removing Water From Main Fuel Filter

See the service schedule for the correct service interval. (See Service Schedule on Page 134)

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 272



P200273A

3. Attach a 9 mm (3/8 in) hose to the drain (Item 1) [Figure 272] 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 272] 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.

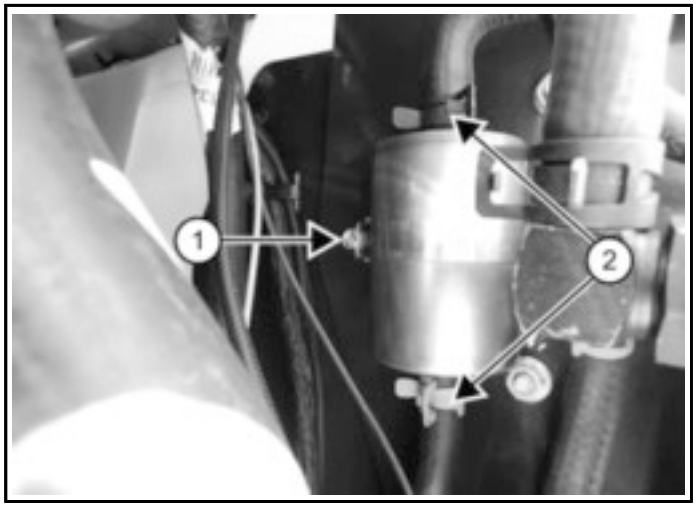
Replacing Fuel Pre-Filter

See the service schedule for the correct service interval. (See Service Schedule on Page 134)

1. Stop the engine.
2. Open the rear door.

   The fuel pre-filter is located behind the main fuel filter.

Figure 273



P200274A

3. Pinch off the upper and lower hoses to prevent spilled fuel while the hoses are disconnected from the pre-filter.
4. Move the upper and lower hose clamps (Item 2) [Figure 273] and remove the hoses from the pre-filter.
5. Loosen the clamp (Item 1) [Figure 273].
6. Remove the pre-filter and discard.
7. Install new pre-filter into clamp (Item 1) [Figure 273] and tighten clamp.
8. Install upper and lower hoses.
9. Move hose clamps (Item 2) [Figure 273] back into the correct position as shown.
10. Remove tools used to pinch off the upper and lower hoses.

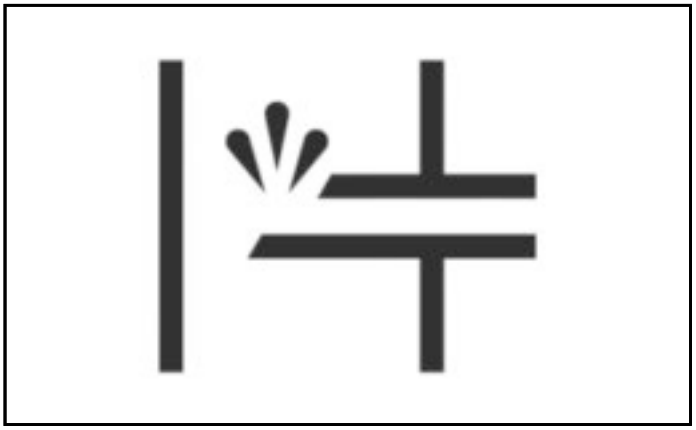
⚠ WARNING

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 274



NA3643

13. Wait for the fuel priming in process icon [Figure 274] on the display to turn off.
14. Start the engine and allow to operate for one minute.
15. Stop the engine.

⚠ WARNING

INJECTION HAZARD
Pressurized 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.

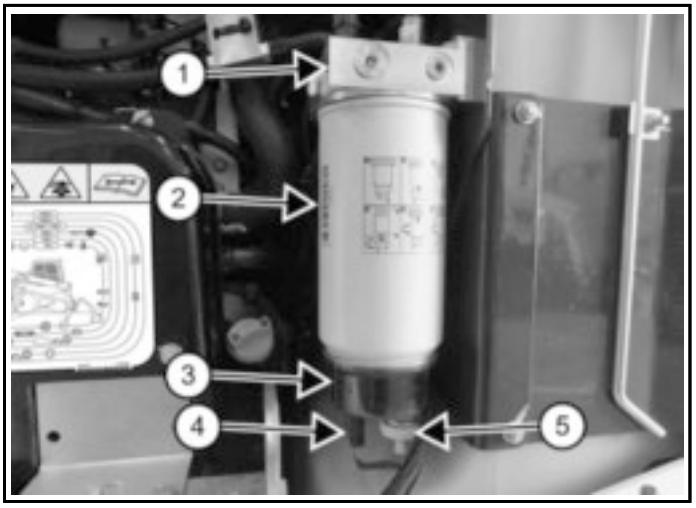
Replacing Main Fuel Filter

See the service schedule for the correct service interval. (See Service Schedule on Page 134)

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 275



P200414A

3. Attach a 9 mm (3/8 in) hose to the drain (Item 5) [Figure 275] at the bottom of the main fuel filter.
4. Route the other end of the hose to a container.
5. Loosen the drain (Item 5) [Figure 275] to empty the filter.
6. Tighten the drain.
7. Remove the hose.

⚠ IMPORTANT

ENVIRONMENTAL HAZARD
Fluids such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. Obey local disposal regulations.

I-2067

8. Disconnect the electrical connector (Item 4) [Figure 275].
9. Remove the fuel water separator (Item 3) from the fuel filter element (Item 2) [Figure 275].
10. Remove the fuel filter element (Item 2) from the fuel filter head (Item 1) [Figure 275].

    NOTE: DO NOT fill the new fuel filter element with fuel at this time.

11. Put clean oil on two new fuel filter element O-rings.
12. Install the fuel water separator onto new fuel filter element.

    Tighten three-fourths of a turn after the O-ring makes contact.

13. Install assembly onto fuel filter head.

    Tighten three-fourths of a turn after the O-ring makes contact.

14. Connect the electrical connector.
15. Verify the drain is fully closed.

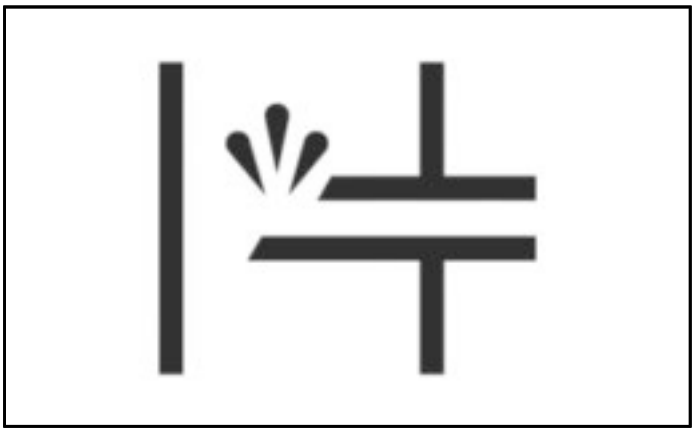
⚠ WARNING

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

16. Close the rear door.
17. Press run button on right control panel.

Figure 276



NA3643

18. Wait for the fuel priming in process icon [Figure 276] on the display to turn off.
19. Start the engine and allow to operate for one minute.
20. 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

21. 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 134)

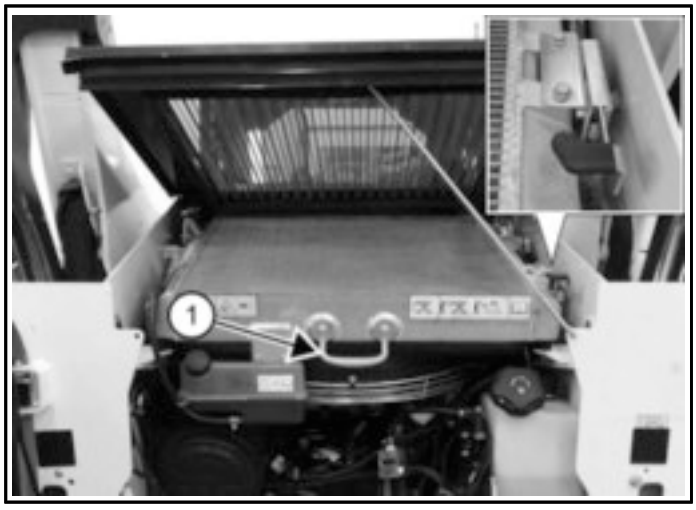
1. Stop the engine.
2. Open the rear door.
3. Raise the rear grille.
   (See Raising Rear Grille on Page 149)

⚠ WARNING

CUTTING AND BURN HAZARD
Failure to keep away from the operating machine can cause serious injury or death.
- **Keep away from fan and moving parts. Do not operate with fan guard removed.**
- **Do not touch hot surfaces. Allow to cool before servicing.**

W-2521

Figure 277

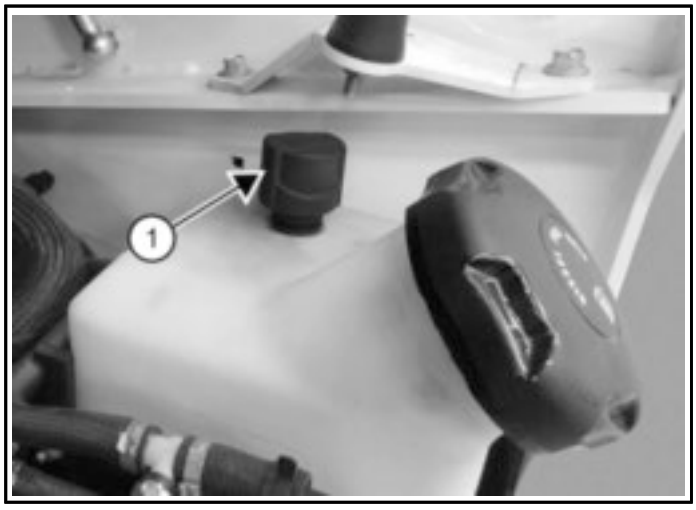


P200277A

4. Press the release lever (Inset) [Figure 277] down.
5. Raise the radiator cooling package using the handle (Item 1) [Figure 277].

   NOTE: Do not start the engine, add coolant, or add hydraulic fluid while the radiator cooling package is raised.

Figure 278



P200275A

6. Remove the fuel tank vent filter (Item 1) [Figure 278] 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 277].
9. Lower the rear grille.
   (See Lowering Rear Grille on Page 150)
10. Close the rear door.

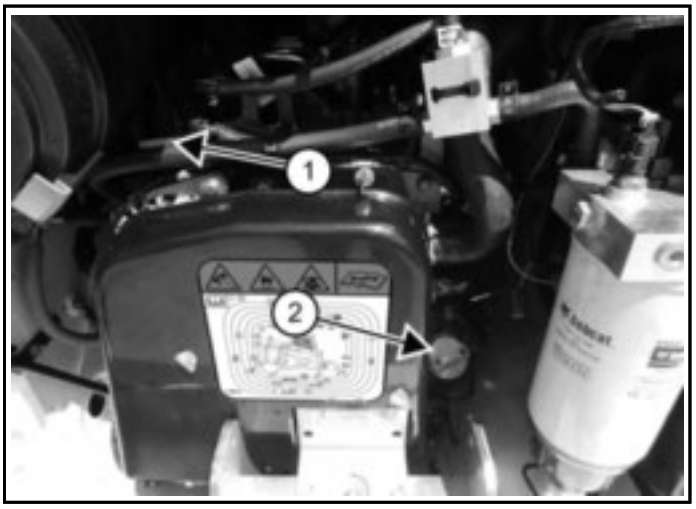
ENGINE LUBRICATION SYSTEM

Checking And Adding Engine Oil

See the service schedule for the correct service interval. (See Service Schedule on Page 134)

1. Park the machine on a level surface.
2. Stop the engine.
3. Open the rear door.

Figure 279



C200278B

4. Remove the dipstick (Item 1) [Figure 279].
5. Keep the oil level between the marks on the dipstick. Do not overfill.

   It is recommended to maintain the oil level at the full mark on the dipstick if you are operating on slopes or if your engine has an oil level sensor and you receive code “P250F: Check Engine Oil Level Immediately”.
6. Remove the oil fill cap (Item 2) [Figure 279] to add engine oil.

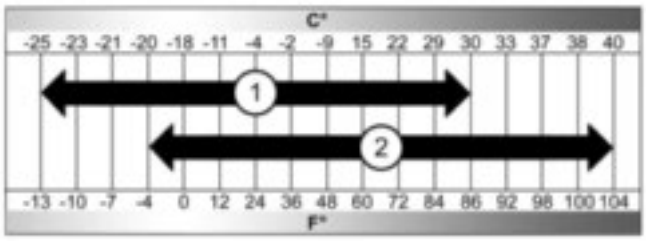
⚠ WARNING

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 obey instructions can result in engine damage.
Use of API Service Category FA-4 engine oil is not approved and may cause damage to the engine.

I-2384

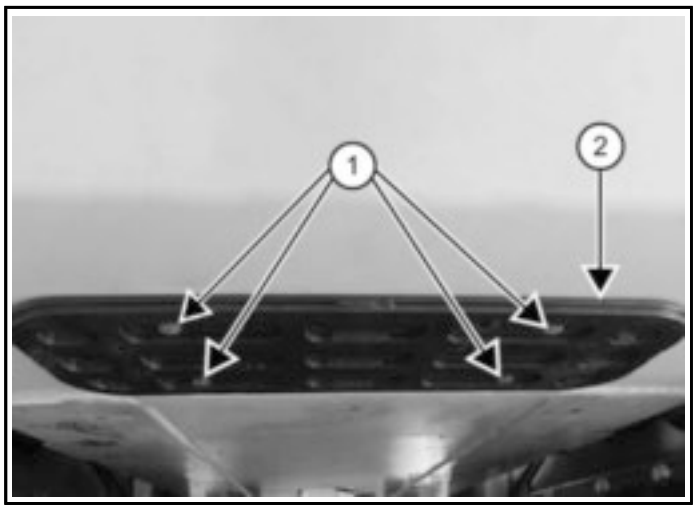
Replacing Engine Oil And Filter

See the service schedule for the correct service interval. (See Service Schedule on Page 134)

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 280



P200325A

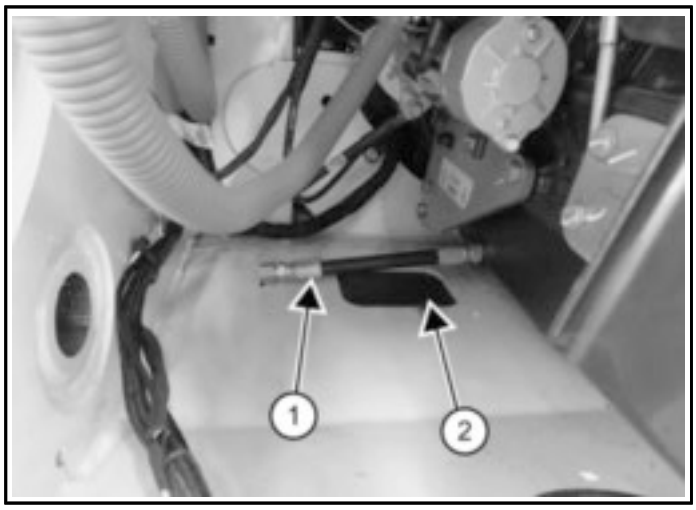
3. Remove the access cover mounting bolts (Item 1) and remove the access cover (Item 2) [Figure 280].

   The access cover is located under the rear of the machine.

4. Open the rear door.

Earlier Models

Figure 281

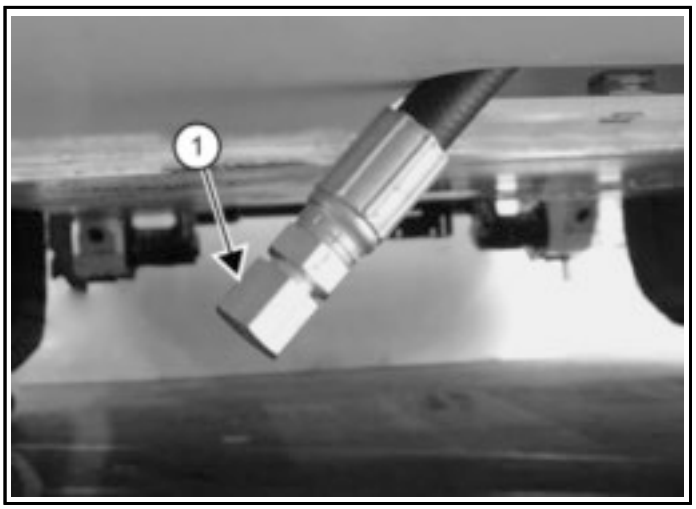


P200326A

5. Route the oil drain hose (Item 1) through the opening (Item 2) [Figure 281].

   The oil drain hose is located on the left side of the engine compartment.

Figure 282



P200327A

6. Remove the oil drain cap (Item 1) [Figure 282] from the oil drain hose and drain the oil into a container.

7. Install the cap onto the drain hose and tighten when the fluid stops draining [Figure 282].

8. Remove the oil drain hose from the opening [Figure 281].

Later Models

Figure 283



C215514a

9. Remove the oil drain plug (Item 1) and drain the oil into a container [Figure 283].

10. Install and tighten the plug when the fluid stops draining.

All Models

11. Install the access cover and the cover mounting bolts [Figure 280].

⚠ IMPORTANT

ENVIRONMENTAL HAZARD
Fluids such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. Obey local disposal regulations.
I-2067

Figure 284



P200279A

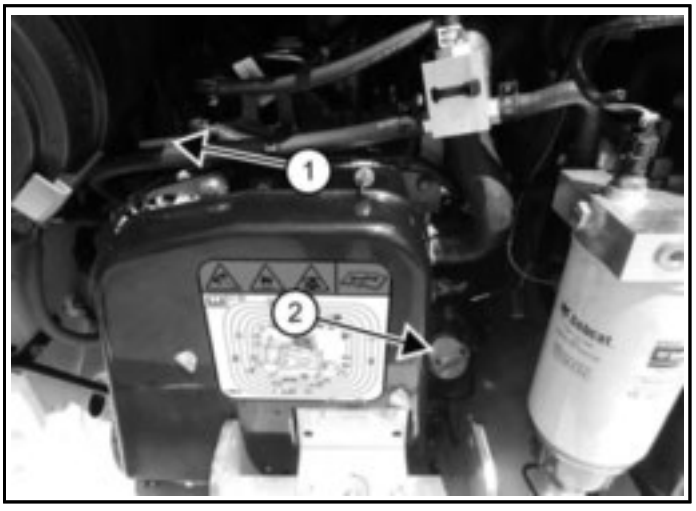
12. Remove the oil filter (Item 1) [Figure 284].

    The oil filter is located on the right side of the engine.

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.

Figure 285



C200278B

16. Remove the oil fill cap (Item 2) [Figure 285].
17. Put oil into the engine and replace the oil fill cap. (See Machine Specifications on Page 249) Do not overfill.
18. Start the engine and allow to operate for several minutes.
19. Stop the engine.
20. Check for leaks at the filter.
21. Remove the dipstick (Item 1) [Figure 285] and check the oil level.
22. Add oil as needed if oil level is not at the top mark on the dipstick.
23. Install the dipstick.
24. 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 134)

1. Stop the engine.

⚠ WARNING

IMPACT HAZARD
Flying debris or pressurized fluids can cause serious injury or death.
Always wear eye protection while cleaning the machine with compressed air.
W-3271

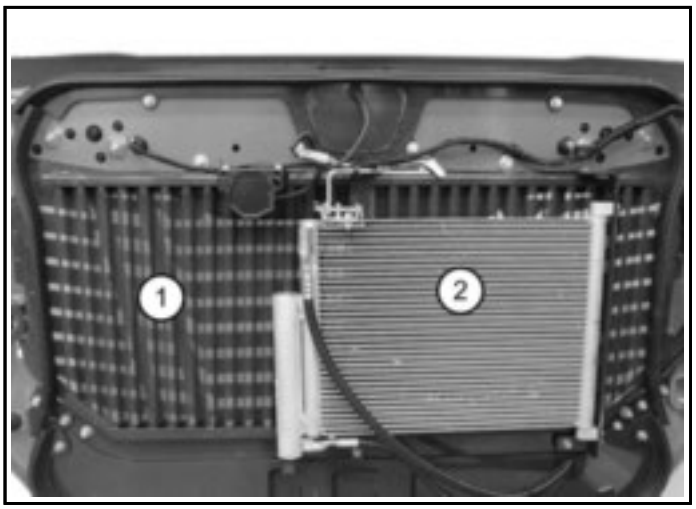
Figure 286



P200200B

2. Use low air pressure to clean the top of the rear grille (Item 1) [Figure 286].
3. Use low air pressure to clean the outside grille of the rear door (Item 2) [Figure 286].
4. Open the rear door.

Figure 287

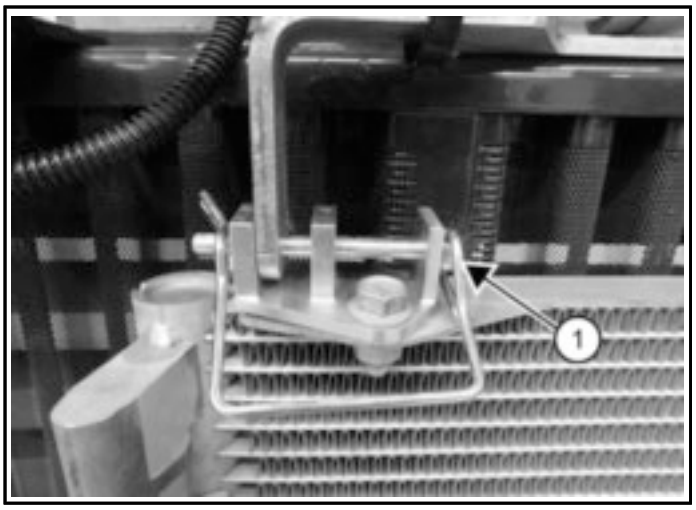


C200205B

5. Use low air pressure to clean the inside grille of the rear door (Item 1) [Figure 287].
6. Use low air pressure to clean the air conditioning condenser (Item 2) [Figure 287], if equipped.

   The condenser can be swung open to allow greater access for cleaning the area between the rear door and the condenser.

Figure 288



P200280A

7. Remove the pin (Item 1) [Figure 288] at the top of the condenser.

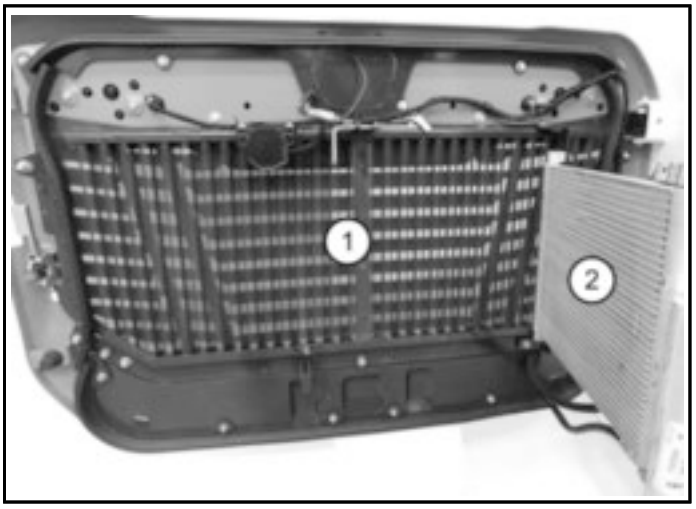
Figure 289



P200281A

8. Unhook the rubber strap (Item 1) [Figure 289] at the bottom of the condenser.

Figure 290



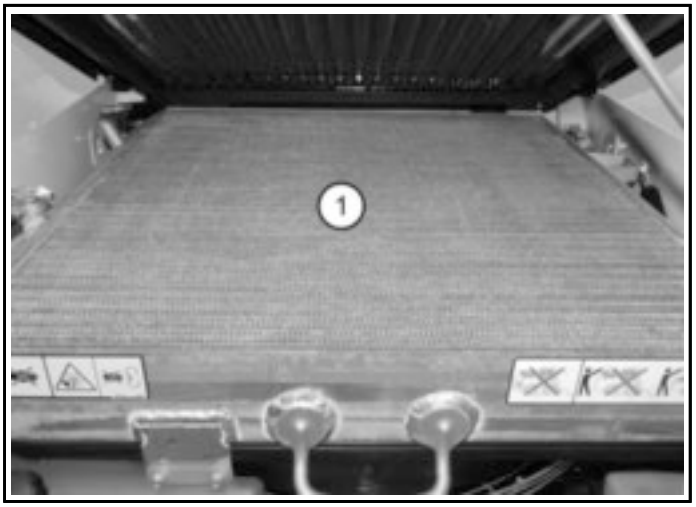
P200283A

9. Use low air pressure to clean the inside grille of the rear door (Item 1) [Figure 290].

10. Use low air pressure to clean the air conditioning condenser (Item 2) [Figure 290], if equipped.

11. Raise the rear grille.
(See Raising Rear Grille on Page 149)

Figure 291



P200282A

12. Use low air pressure to clean the top of the radiator cooling package (Item 1) [Figure 291].

13. Lower the rear grille.
(See Lowering Rear Grille on Page 150)

14. Close the rear door.

Coolant Types

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Failure to use the correct coolant can reduce cooling system efficiency, service life, and corrosion protection, causing premature engine or cooling system failure.
Never mix different types of coolant.
Always fully drain the system when switching coolant types.

I-2491

Your machine was factory filled with one of these coolants. Before refilling or replacing coolant, identify the coolant by color:

- Propylene Glycol (PG) is purple (S/N B4ZY11001 – B4ZY16853).
- Bobcat Advanced Coolant Ethylene Glycol (EG) is red (S/N B4ZY16854 & Above).

If coolant cannot be identified by color, drain coolant completely and refill tank with Bobcat Advanced Coolant Ethylene Glycol.

When adding coolant to the tank, add the same type of coolant. Do not mix different types of coolants. Mixing coolants can negatively affect the cooling system performance and corrosion protection.

To switch between different types of coolants, first completely drain existing coolant.

Coolant Concentration

Bobcat Company recommends using pre-mixed coolant. If you choose to mix it yourself, use the following concentration.

Propylene Glycol (PG) Concentration

The correct mixing ratio of propylene glycol (PG) is 47% distilled water or deionized water and 53% PG. This will provide -37°C (-34°F) freeze protection. Mix 3,8 L (1 U.S. gal) PG concentrate with 3,3 L (3.5 qt) distilled water to obtain this ratio.

Ethylene Glycol (EG) Concentration

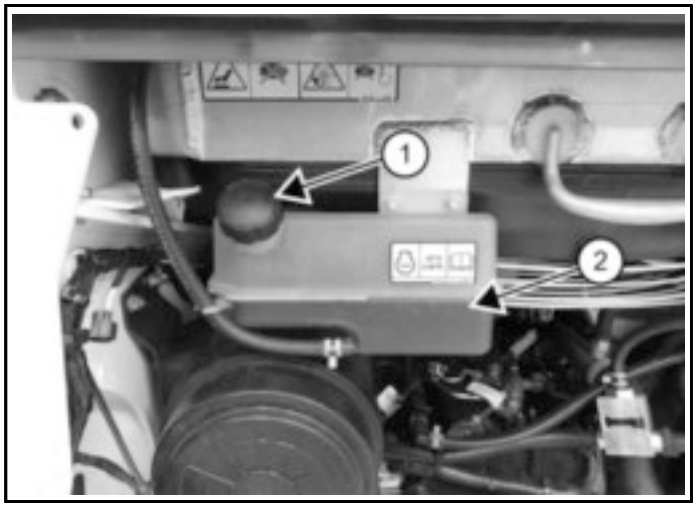
The correct mixing ratio of ethylene glycol (EG) is 50% distilled water or deionized water and 50% EG. This will provide -37°C (-34°F) freeze protection. Mix 3,8 L (1 U.S. gal) EG concentrate with 3,8 L (1 U.S. gal) distilled water to obtain this concentration.

Checking And Adding Coolant

See the service schedule for the correct service interval. (See Service Schedule on Page 134)

1. Stop the engine.
2. Open the rear door.

Figure 292



P200284A

3. Check the coolant level when the engine is cold. Coolant must be at the full cold mark (Item 2) [Figure 292].

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

⚠ WARNING

BURN HAZARD
Failure to obey instructions can cause serious burns.
Shut down the machine and allow it to cool before removing the radiator cap or adding coolant.
W-2070

4. Remove the coolant fill cap (Item 1) [Figure 292] to add coolant.
5. Before adding coolant, identify coolant type in machine. (See Coolant Types on Page 164)

⚠ 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

6. Add premixed coolant to the coolant tank until the coolant level reaches the upper level marker on the tank [Figure 292].
   (See Coolant Concentration on Page 165)
7. Install the coolant fill cap [Figure 292].
8. Close the rear door.

Replacing Coolant

See the service schedule for the correct service interval. (See Service Schedule on Page 134)

NOTE: This procedure requires the use of a spare 19 mm (3/4 in) coolant hose approximately 600 mm (24 in) long.

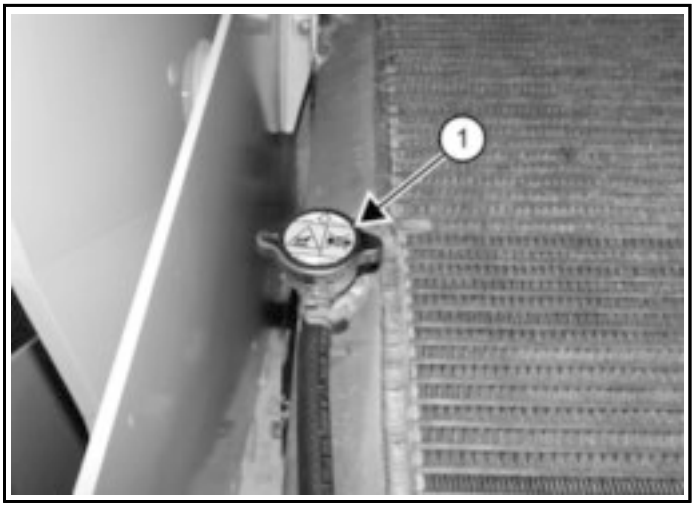
1. Stop the engine.
2. Open the rear door.
3. Raise the rear grille.
   (See Raising Rear Grille on Page 149)

⚠ WARNING

BURN HAZARD
Failure to obey instructions can cause serious burns.
Shut down the machine and allow it to cool before removing the radiator cap or adding coolant.
W-2070

4. Identify the type of engine coolant in the machine. (See Coolant Types on Page 164)

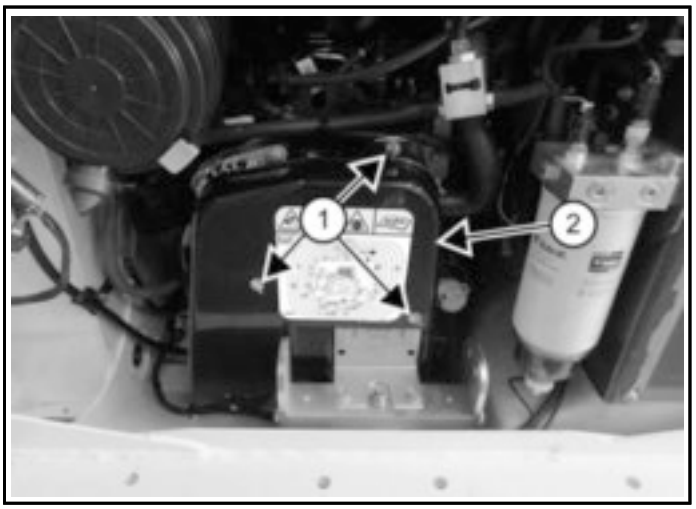
Figure 293



P200287A

5. Remove the radiator cap (Item 1) [Figure 293] to relieve cooling system pressure.
6. Install the radiator cap.

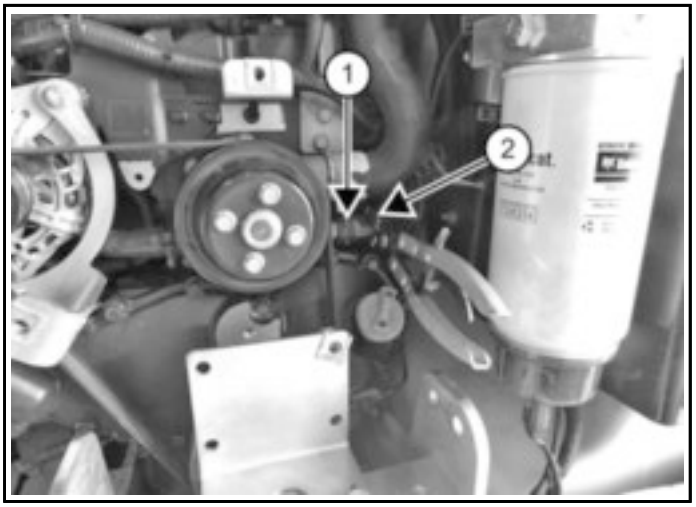
Figure 294



P200310A

7. Loosen three fasteners (Item 1) and remove belt shield (Item 2) [Figure 294].

Figure 295



P200286A

8. Pinch off the lower coolant hose using a locking hose pinching plier (Item 2) [Figure 295] or similar tool.
9. Remove the clamp (Item 1) [Figure 295] and disconnect the hose.

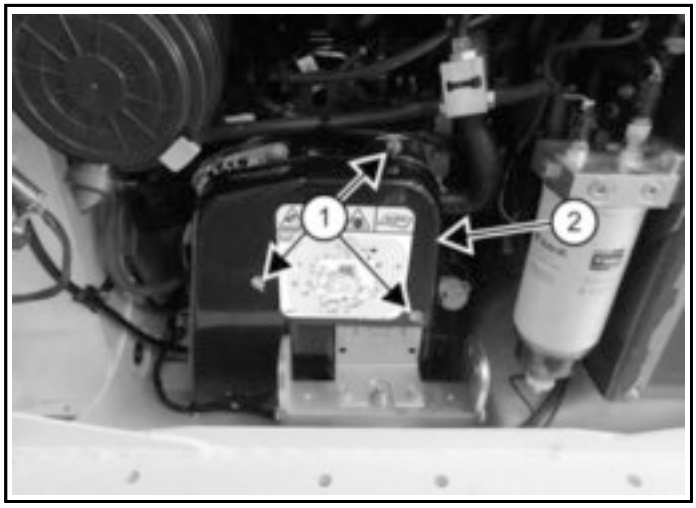
Figure 296



P200288A

10. Quickly install the spare 19 mm (3/4 in) coolant hose (Item 1) [Figure 296].
11. Drain the coolant into a container.
12. Remove the radiator cap (Item 1) [Figure 293] to relieve cooling system pressure to drain the coolant faster.
13. Remove the spare 19 mm (3/4 in) coolant hose when the coolant has drained.
14. Install the coolant hose and clamp.
15. Remove the tool used to pinch off the coolant hose.

Figure 297



P200310A

16. Install belt shield (Item 2) and tighten three fasteners (Item 1) [Figure 297].

IMPORTANT

ENVIRONMENTAL HAZARD
Fluids such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. Obey local disposal regulations.

I-2067

17. Add premixed coolant to the radiator tank until the coolant level reaches the bottom of the fill neck.
(See Coolant Concentration on Page 165)
(See Machine Specifications on Page 249)

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. Do not install the radiator cap at this time.
19. Close the rear door and operate the engine at low idle for two minutes.
20. Stop the engine.
21. Open the rear door.
22. Add premixed coolant to the radiator tank until the coolant level again reaches the bottom of the fill neck.
23. Install the radiator cap.
24. Lower the rear grille.
(See Lowering Rear Grille on Page 150)
25. Ensure coolant level in coolant tank is at the full cold mark.
(See Checking And Adding Coolant on Page 165)
26. Close the rear door.
27. Operate the engine until coolant reaches normal operating temperature.
28. Stop the engine.
29. 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.
30. Check the coolant level in coolant tank when cool. Add premixed coolant as needed.
(See Checking And Adding Coolant on Page 165)

ELECTRICAL SYSTEM

Electrical System Description

The machine has a 12 volt, negative ground, alternator charging system.

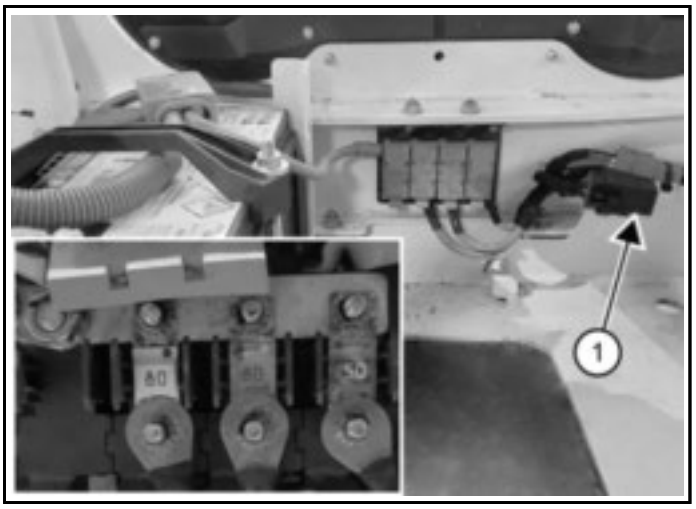
The electrical system is protected by fuses located in a master fuse panel, an operator cab fuse panel, and a mainframe fuse panel.

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 298



C200289B

The master fuses (Inset) [Figure 298] are located next to the battery under the operator cab.
(See Raising Operator Cab on Page 146)

The glow plug relay (Item 1) [Figure 298] is located in the harness next to the master fuse panel under the operator cab. (See Raising Operator Cab on Page 146)

Operator Cab Fuse Panel

Figure 299

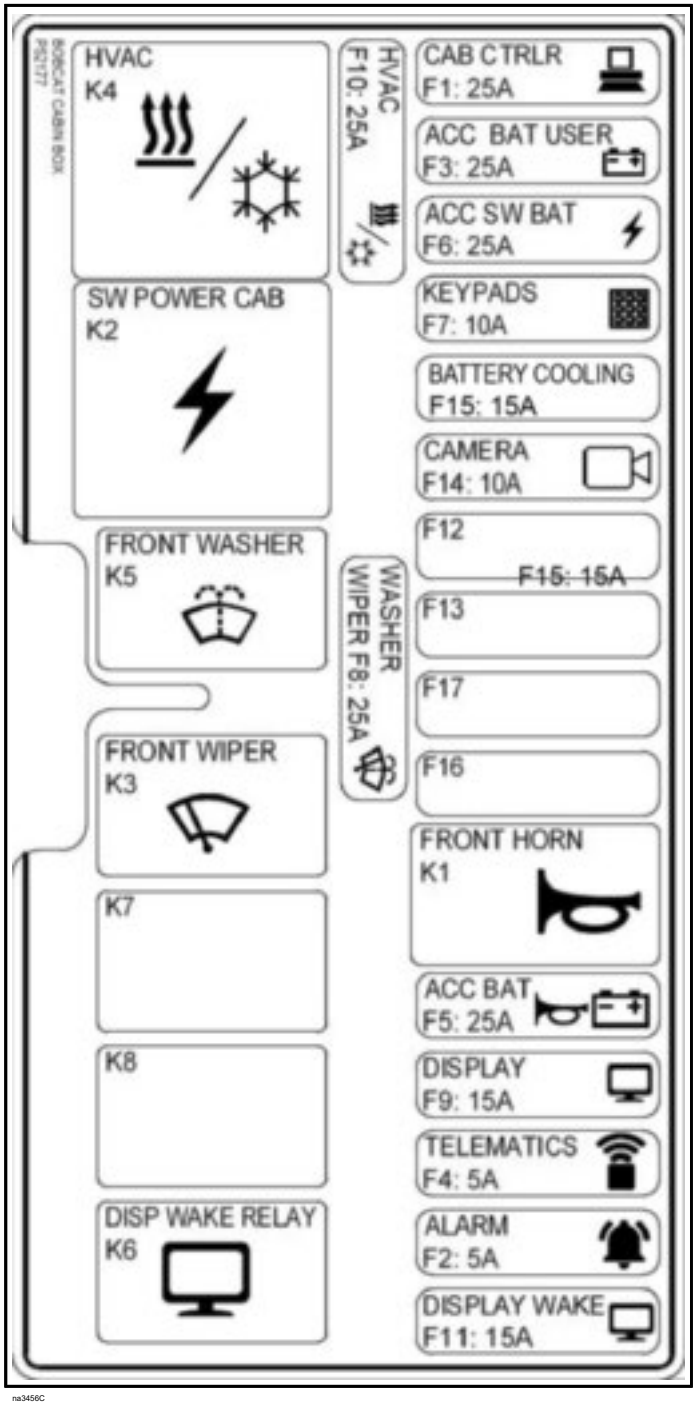


C200577D

The operator cab fuse panel is located behind the operator's seat on the right side. The cover (Item 1) [Figure 299] can be removed by opening four latches while pressing the cover tightly closed.

A decal [Figure 300] located inside the fuse panel cover indicates fuse and relay location and fuse amperage ratings.

Figure 300



na3456C

A table is provided with details on amperage ratings and the circuits affected by each fuse and relay.
(See Operator Cab Fuse Panel on Page 168)

Fuse location and amperage ratings are shown in the table below and on the decal [Figure 300]. Relays are identified by the letter ‘R’ in the AMP column.

⚠ WARNING

ELECTROCUTION AND BURN HAZARD
Using incorrectly sized fuses can cause an electrical overload and lead to injury or death.
- **Always replace fuses using the specified type and capacity.**
- **Never use a higher capacity fuse to replace a blown fuse.**
- **Never bypass or short a fuse.**

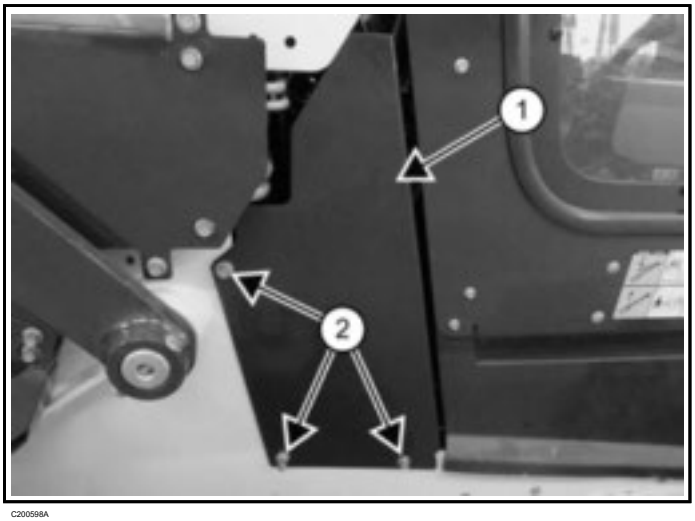
W-3347

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	- -

REF	ICON	DESCRIPTION	AMP
F14		Camera	10
F15		Battery Cooling	15
F16		Not Used	- -
F17		Not Used	- -
K1		Front Horn	R
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

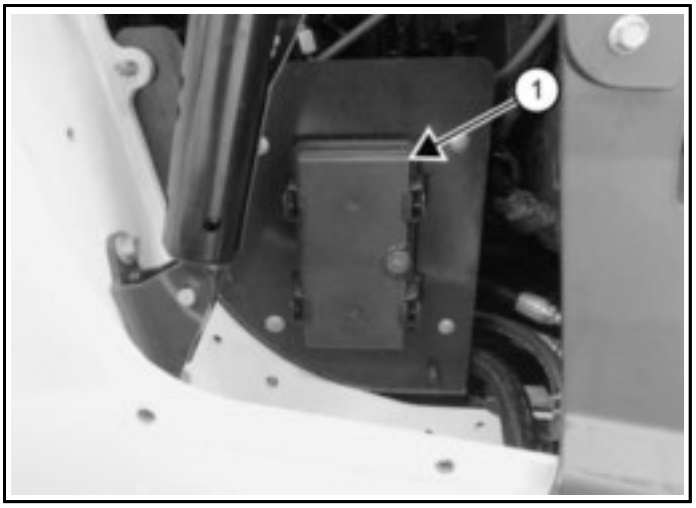
Figure 301



C200598A

Remove the bolts (Item 2) and the access panel (Item 1) [Figure 301] located on the right side of the machine behind the operator cab.

Figure 302

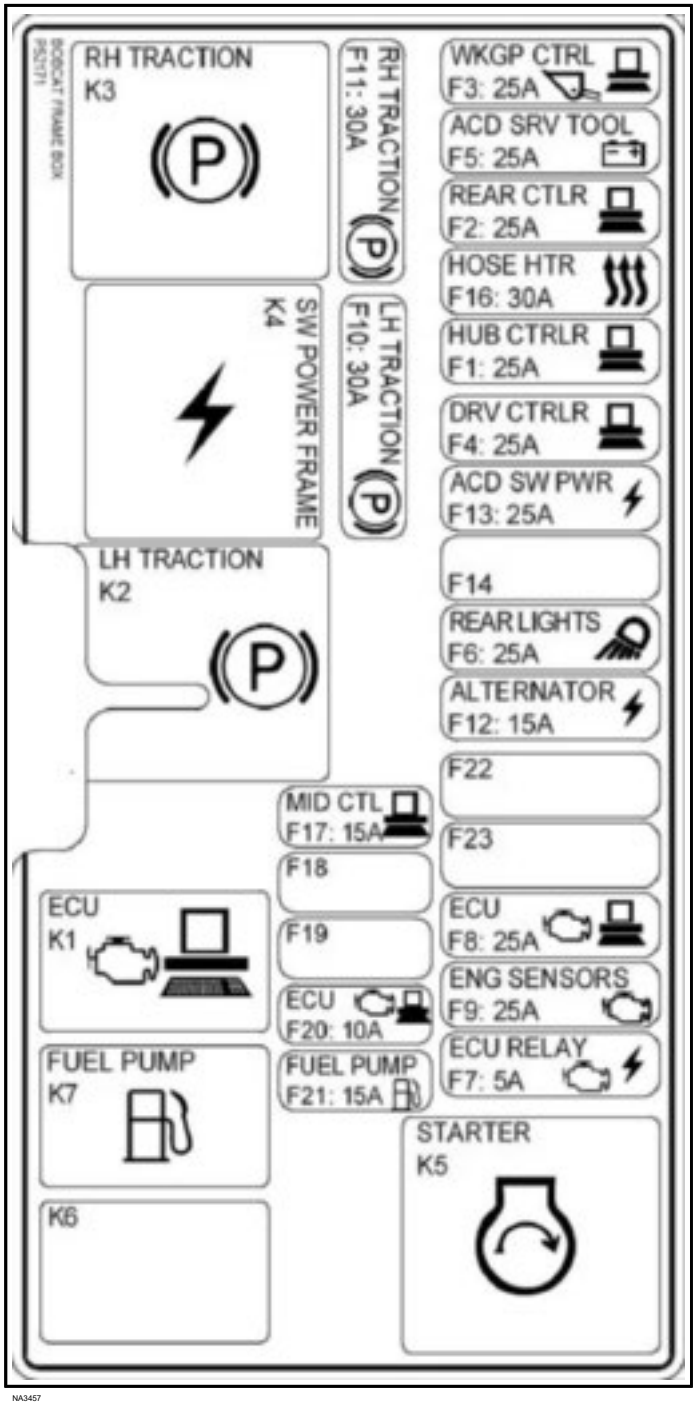


C200294A

The cover (Item 1) [Figure 302] 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 303



NA3457

A table is provided with details on amperage ratings and the circuits affected by each fuse and relay.
(See Mainframe Fuse Panel on Page 170)

Fuse location and amperage ratings are shown in the table below and on the decal [Figure 303]. Relays are identified by the letter ‘R’ in the AMP column.

⚠ WARNING

ELECTROCUTION AND BURN HAZARD
Using incorrectly sized fuses can cause an electrical overload and lead to injury or death.
- **Always replace fuses using the specified type and capacity.**
- **Never use a higher capacity fuse to replace a blown fuse.**
- **Never bypass or short a fuse.**

W-3347

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

REF	ICON	DESCRIPTION	AMP
F13		Attachments	25
F14		Not Used	- -
F16		DEF Hoses	30
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 134)

The Bobcat brand battery supplied with your machine is sealed and does not require watering. Proper charging and storage are important to maximize the life of all batteries.

⚠ WARNING

ELECTROCUTION AND BURN HAZARD
High current arcs / shorts can cause serious injury or death.
- **Remove watches, rings, and other metal objects.**
- **Wear protective equipment including eye protection.**
- **Ensure that the work area is dry and free of any moisture.**
- **Keep tools away from battery terminals to prevent arcs and sparks.**
- **Disconnect negative battery cable first.**
- **Connect negative battery cable last.**

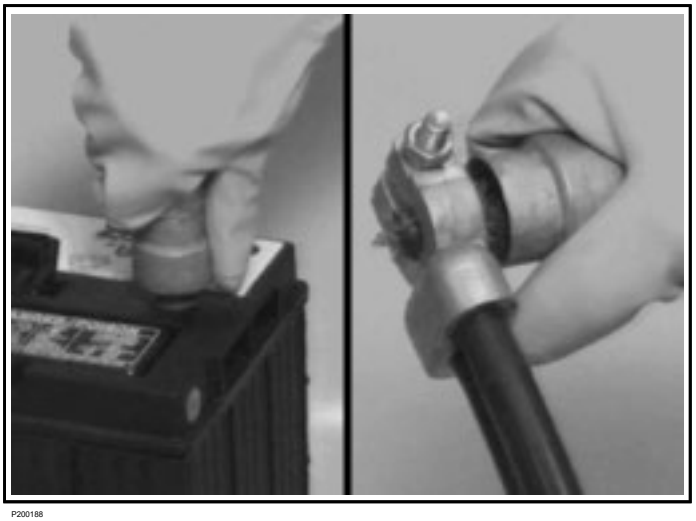
W-3343

⚠ 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

Figure 304



P200188

Simple steps for reliability and long battery life:

- Keep battery posts and terminals clean [Figure 304].
- 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 173)
- Check the battery state of charge every 30 days on machines that are not frequently used. (See Testing The Battery on Page 173)

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 high 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 305



P30836a

The simplest and most common check to determine battery state of charge is to use a digital multimeter or voltmeter (Item 1) [Figure 305].

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 hour	1.3 hours	2.5 hours
12.2 V	50%	1.9 hours	2.7 hours	5.1 hours
12.0 V	25%	2.9 hours	4.3 hours	7.8 hours
11.8 V	0%	4.0 hours	5.7 hours	10.7 hours

NOTE: Use a good quality automatic 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 a booster battery, make the final connection (negative) at the 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 a booster battery, make the final connection (negative) at the 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

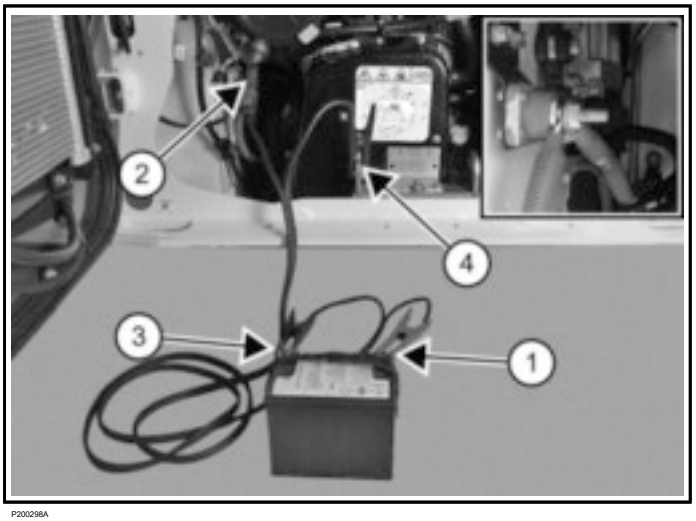
⚠ WARNING

ELECTROCUTION AND BURN HAZARD
High current arcs / shorts can cause serious injury or death.
- **Remove watches, rings, and other metal objects.**
- **Wear protective equipment including eye protection.**
- **Ensure that the work area is dry and free of any moisture.**
- **Keep tools away from battery terminals to prevent arcs and sparks.**
- **Disconnect negative battery cable first.**
- **Connect negative battery cable last.**

W-3343

1. Stop the engine.
2. Open the rear door.

Figure 306



P200298A

3. Connect the end of the first cable (Item 1) [Figure 306] 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 306] on the machine frame.

5. Connect the end of the second cable (Item 3) [Figure 306] to the negative (-) terminal of the booster battery.

6. Connect the other end of the same cable (Item 4) [Figure 306] to the engine mount.

7. Keep cables away from moving parts. Start the engine. (See Starting Engine on Page 109)

8. After the engine has started, remove the negative (-) cable (Item 4) [Figure 306] first.

9. Remove the cable from the positive (+) terminal (Item 2) [Figure 306].

10. Remove the cables from the booster battery.

11. Close the rear door.

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Failure to obey instructions can result in alternator damage.
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

⚠ WARNING

ELECTROCUTION AND BURN HAZARD
High current arcs / shorts can cause serious injury or death.
- **Remove watches, rings, and other metal objects.**
- **Wear protective equipment including eye protection.**
- **Ensure that the work area is dry and free of any moisture.**
- **Keep tools away from battery terminals to prevent arcs and sparks.**
- **Disconnect negative battery cable first.**
- **Connect negative battery cable last.**

W-3343

⚠ 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 a booster battery, make the final connection (negative) at the 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.**

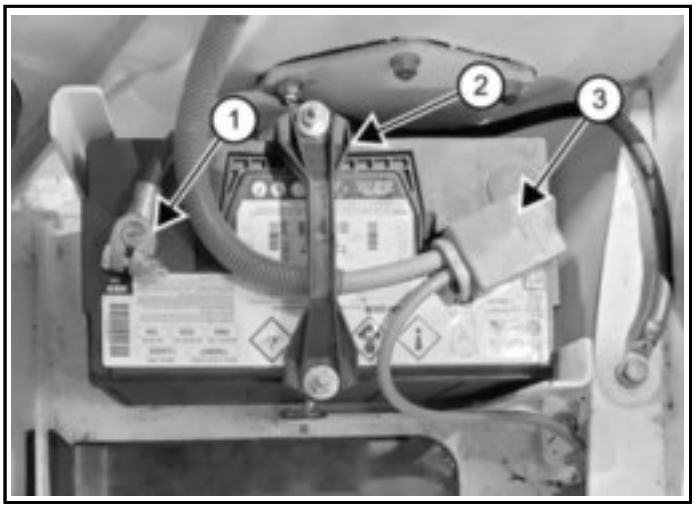
W-2066

1. Stop the engine.

2. Raise the operator cab.
(See Raising Operator Cab on Page 146)

   Do not touch any metal parts with the battery terminals.

Figure 307



C200302A

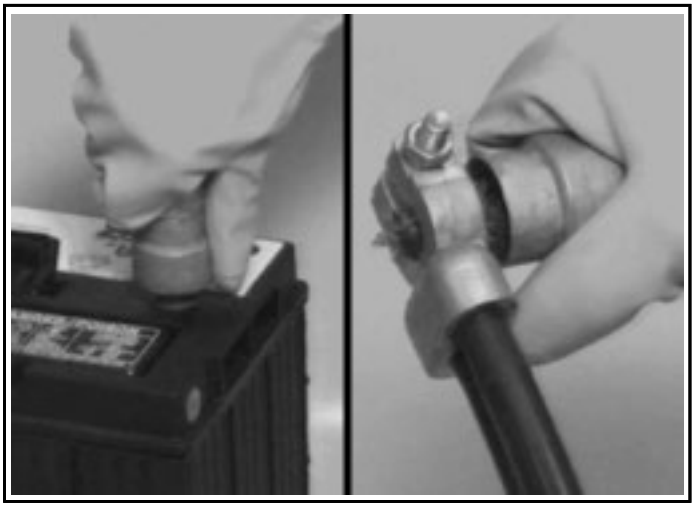
3. Disconnect the negative (-) cable (Item 1) [Figure 307] from the battery.

4. Remove the battery hold-down clamp (Item 2) [Figure 307].

5. Disconnect the positive (+) cable (Item 3) [Figure 307] from the battery.

6. Remove the battery from the machine.

Figure 308



P200188

7. Always clean the battery terminals and cable ends when installing a new or used battery [Figure 308].

   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.
    (See Lowering Operator Cab on Page 147)

HYDRAULIC SYSTEM

Checking And Adding Hydraulic Fluid (Earlier Models)

See the service schedule for the correct service interval.
(See Service Schedule on Page 134)

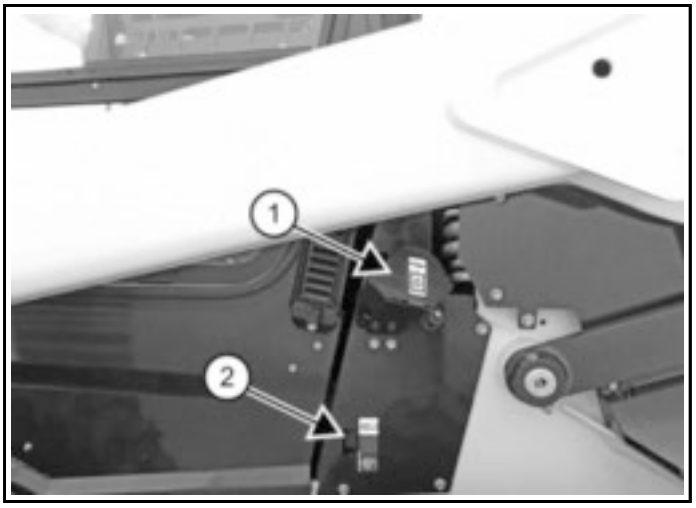
1. Park the machine on a level surface.

2. Lower the lift arms.

3. Put the attachment flat on the ground or tilt the Bob-Tach frame fully back if no attachment is installed.

4. Stop the engine.

Figure 309

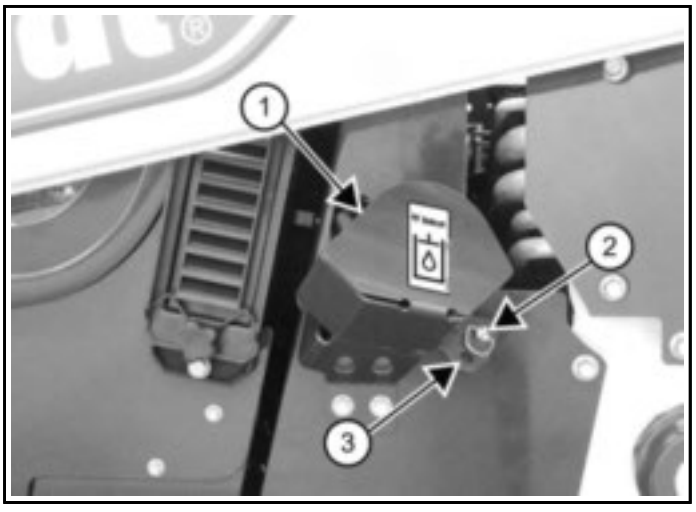


P200300A

5. Check the hydraulic fluid level in the sight gauge (Item 2) [Figure 309] on the left side of the machine. Keep the fluid level within the operating range.

   The hydraulic fluid fill (Item 1) [Figure 309] is located on the left side of the machine.

Figure 310

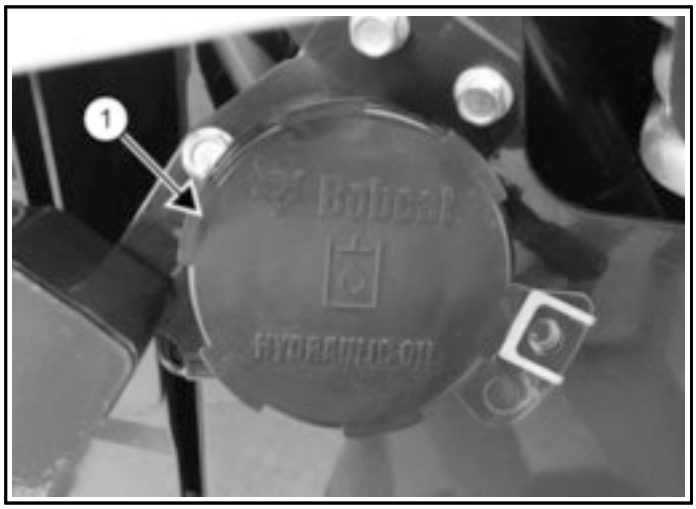


C200262B

6. Remove the fastener (Item 2) [Figure 310].
7. Rotate the hydraulic fill cover (Item 1) [Figure 310] open.

   A lock can be installed in this hole (Item 3) [Figure 310] in the hydraulic fill cover.

Figure 311



P200299A

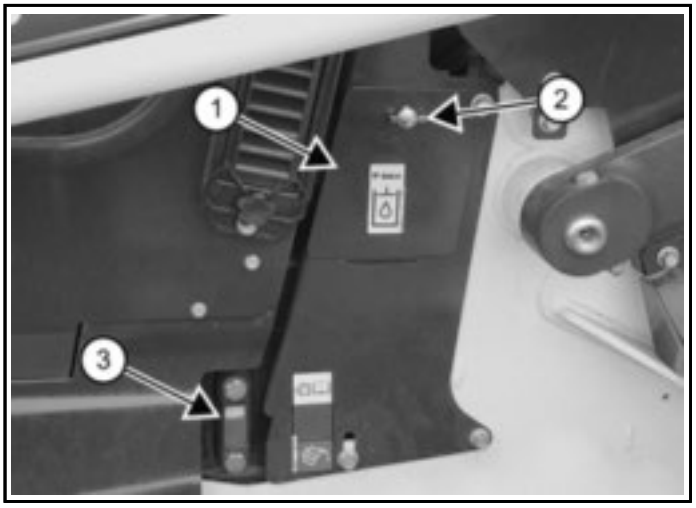
8. Remove the hydraulic fill cap (Item 1) [Figure 311].
9. Add fluid as needed to bring the level within the operating range in the sight gauge [Figure 309].
10. Install the fill cap [Figure 311].
11. Rotate the fill cover closed [Figure 310].
12. Install the fastener [Figure 310].

Checking And Adding Hydraulic Fluid

See the service schedule for the correct service interval. (See Service Schedule on Page 134)

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 frame fully back if no attachment is installed.
4. Stop the engine.

Figure 312

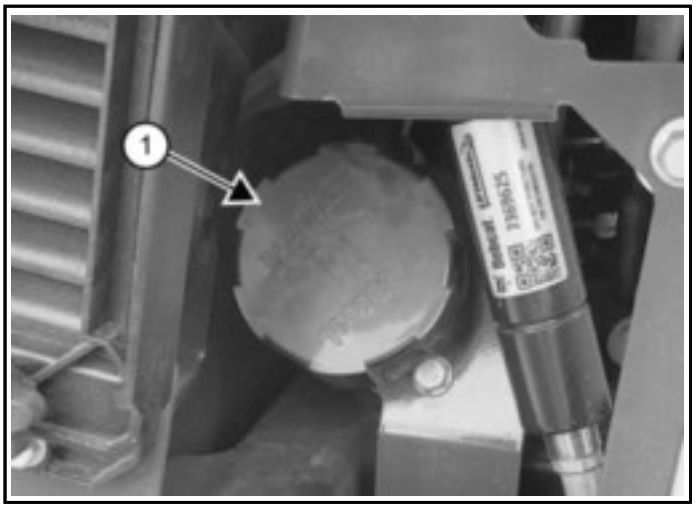


C211217A

5. Check the hydraulic fluid level in the sight gauge (Item 3) [Figure 312] on the left side of the machine. Keep the fluid level within the operating range.

   The hydraulic fluid fill (Item 1) [Figure 312] is located on the left side of the machine.
6. Loosen the fastener (Item 2) [Figure 312].
7. Allow the hydraulic fill cover (Item 1) [Figure 312] to rotate down.

Figure 313



C211218A

8. Remove the hydraulic fill cap (Item 1) [Figure 313].
9. Add fluid as needed to bring the level within the operating range in the sight gauge [Figure 312].
10. Install the fill cap [Figure 313].
11. Rotate the fill cover closed [Figure 312].
12. Tighten the fastener [Figure 312].

Hydraulic Fluid Information

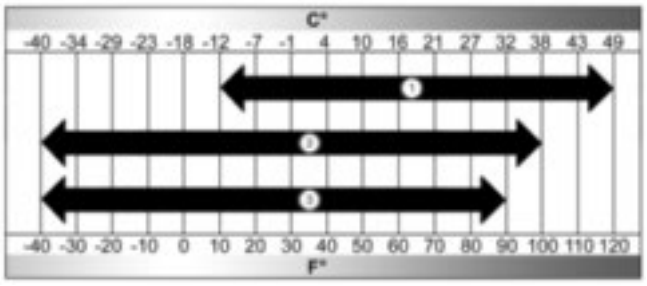
Your machine may have been shipped from the factory with different hydraulic fluids, optimized for the original shipping destination. When new, these factory hydraulic fluids appear either blue or red in color. If your machine is moved to another region, it might be required to change the hydraulic fluid.

If your machine is moved to a region that requires different hydraulic fluid, based on the Hydraulic Fluid Chart, it is required that you perform five hydraulic fluid replacements to ensure that your hydraulic system is adequately prepared for the new climate. Obey the instructions in the Operation & Maintenance Manual, using the hydraulic fluid recommended in the Hydraulic Fluid Chart, to perform the five hydraulic fluid replacements.
(See Replacing Hydraulic Fluid on Page 178)

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Machine damage caused by the use of incorrect hydraulic fluid may not be covered by machine warranty.
Obey the instructions in the Operation & Maintenance Manual, using the hydraulic fluid recommended in the Hydraulic Fluid Chart, to perform five hydraulic fluid replacements.◂
I-2435

Hydraulic Fluid Chart

HYDRAULIC FLUID
Recommended Hydraulic Fluids
 NA24157
Refer to the temperature range anticipated before next fluid change.
[1] Bobcat Max Performance – Warm Climate or ISO VG 68 HVLP fluid with minimum VI 160
[2] (Europe, Middle East, Africa Only) Bobcat Superior SH Hydraulic / Hydrostatic
[3] Bobcat Max Performance – Cool Climate or ISO VG 46 HVLP fluid with minimum VI 155

⚠ IMPORTANT

MACHINE DAMAGE HAZARD
Failure to obey instructions 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 134)

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.

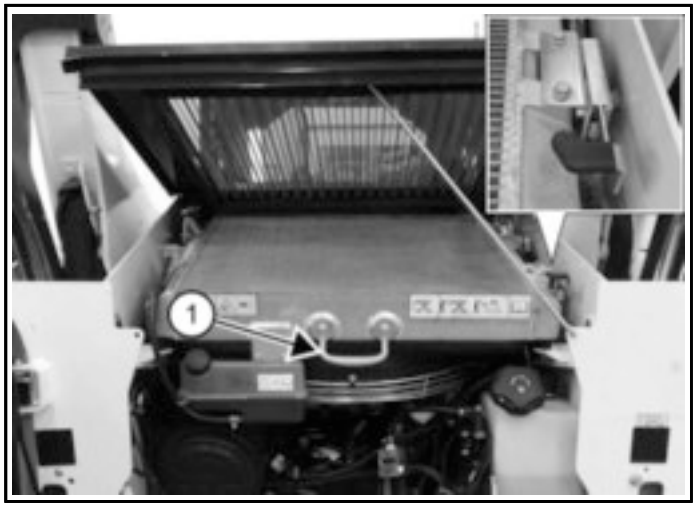
1. Stop the engine.
2. Open the rear door.
3. Raise the rear grille.
(See Raising Rear Grille on Page 149)

⚠ WARNING

CUTTING AND BURN HAZARD
Failure to keep away from the operating machine can cause serious injury or death.
- **Keep away from fan and moving parts. Do not operate with fan guard removed.**
- **Do not touch hot surfaces. Allow to cool before servicing.◂**

W-2521

Figure 314



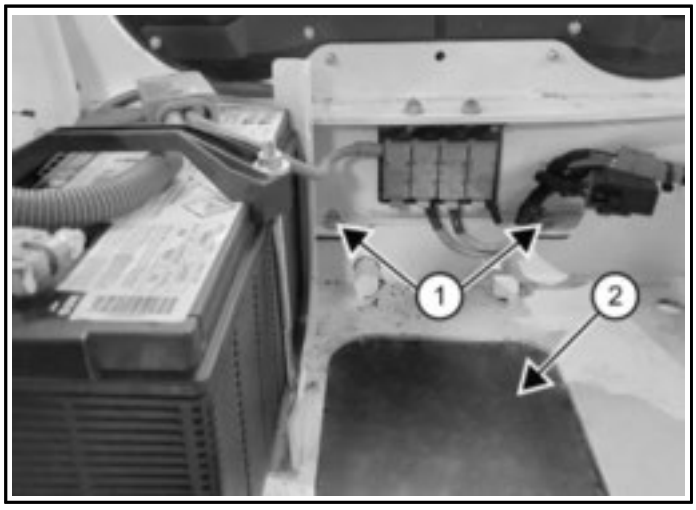
P200277A

4. Press the release lever (Inset) [Figure 314] down.
5. Raise the radiator cooling package using the handle (Item 1) [Figure 314].

   NOTE: Do not start the engine, add coolant, or add hydraulic fluid while the radiator cooling package is raised.

6. Raise the operator cab.
   (See Raising Operator Cab on Page 146)

Figure 315



C200289A

7. Remove two nuts and bolts (Item 1) [Figure 315].
8. Slide the access cover (Item 2) [Figure 315] forward.

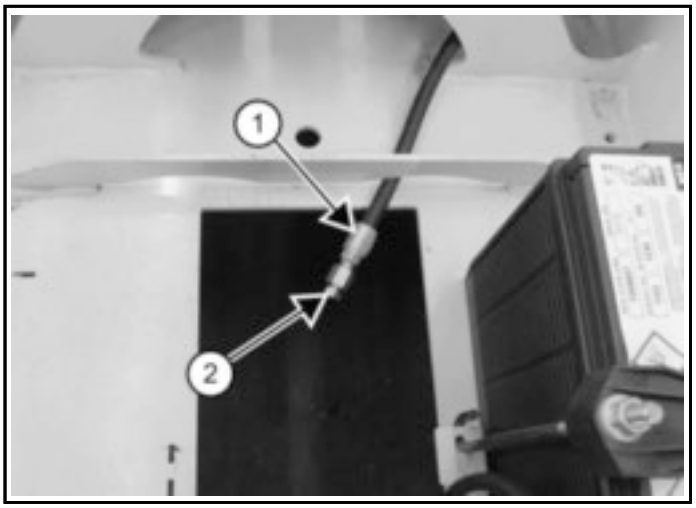
   The hydraulic fluid drain hose is stored below the front edge of the hydraulic fluid reservoir [Figure 316].

Figure 316



C200324

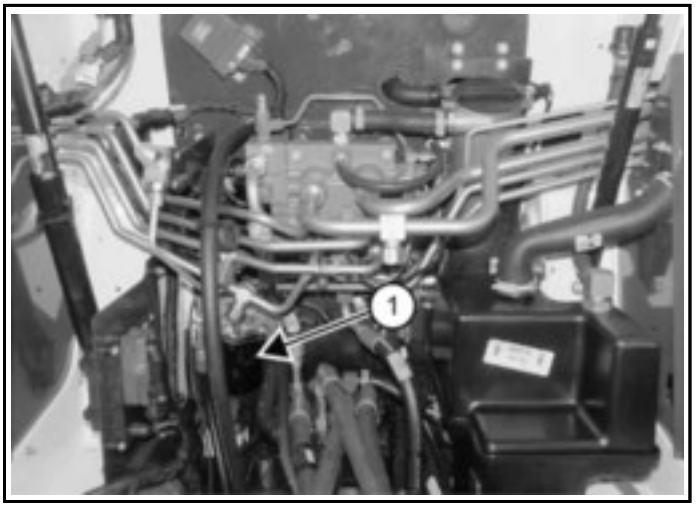
Figure 317



P200411A

9. Route the hydraulic fluid drain hose (Item 1) [Figure 317] through the access cover opening.
10. Remove the plug (Item 2) [Figure 317] from the drain hose and drain the fluid into a container.
11. Remove the hydraulic fill cap to drain the fluid faster.
    (See Checking And Adding Hydraulic Fluid (Earlier Models) on Page 176)
    (See Checking And Adding Hydraulic Fluid on Page 177)
12. Install the plug into the drain hose when the fluid stops draining and tighten to 23 N•m (17 ft-lb) torque.
13. Coil the hydraulic fluid drain hose and fasten in the storage location to prevent damage [Figure 316].

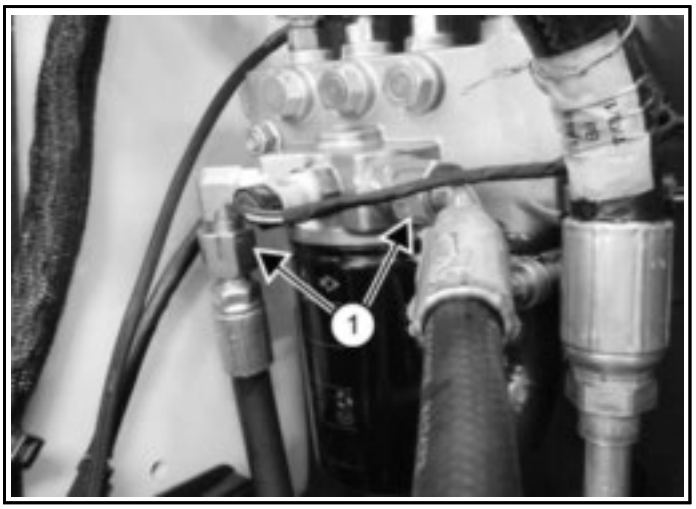
Figure 318



C200293C

14. Locate the case drain manifold above the case drain filter (Item 1) [Figure 318].
15. Route the spare 22 mm (7/8 in) rubber hose through the access cover opening.

Figure 319



C200604

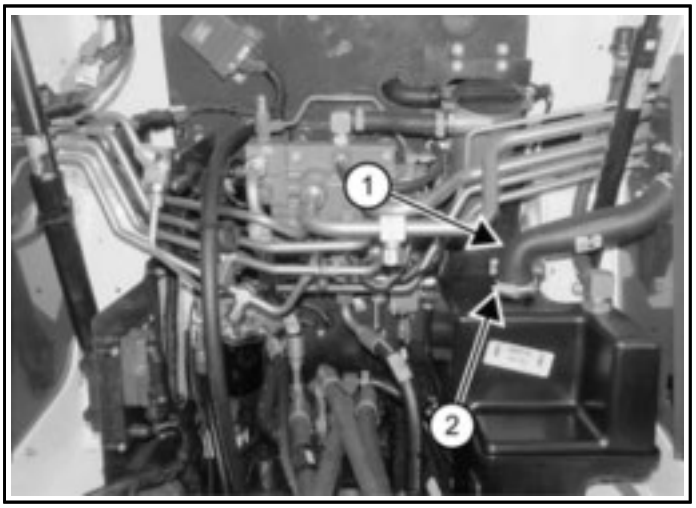
16. Remove either hose (Item 1) [Figure 319] from the case drain manifold.
17. Quickly install the spare 22 mm (7/8 in) rubber hose onto the case drain manifold fitting.
18. Drain the fluid into a container.
19. Remove the spare hose when the fluid has drained.
20. Install the hose onto the case drain manifold fitting and tighten to 55 N•m (40 ft-lb) torque [Figure 319].
21. Slide the access cover closed [Figure 315].
22. Install the access cover bolts and nuts [Figure 315].

⚠ IMPORTANT

ENVIRONMENTAL HAZARD
Fluids such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. Obey local disposal regulations.

I-2067

Figure 320



C200293A

23. Loosen the clamp (Item 2) [Figure 320].
24. Remove the hose (Item 1) [Figure 320] from the hydraulic reservoir.

Figure 321



P200413A

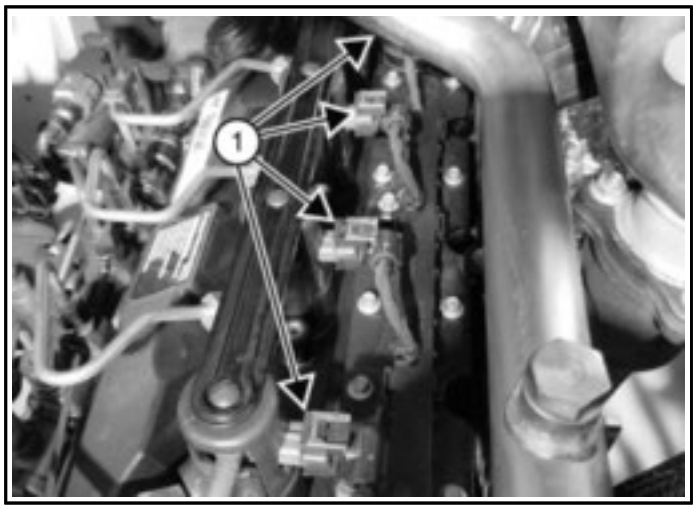
25. Remove and clean the hydraulic fill screen (Item 1) [Figure 321]. Use low air pressure to dry the screen.
26. Install hydraulic fill screen [Figure 321].
27. Install the hose and clamp onto the hydraulic reservoir [Figure 320].

28. Completely fill the hydraulic reservoir with hydraulic fluid. (See Machine Specifications on Page 249)

29. Install the hydraulic fill cap.

30. Lower the operator cab.
(See Lowering Operator Cab on Page 147)

Figure 322



C200688A

31. Disconnect four fuel injector electrical connectors (Item 1) [Figure 322] on top of the engine.

32. Lower the radiator cooling package using the handle until it locks into place [Figure 314].

33. Lower the rear grille.
(See Lowering Rear Grille on Page 150)

34. Close the rear door.

35. Run the engine starter for 5 to 10 seconds. Do not allow the reservoir to empty during this step.

36. Press the stop button or turn the key switch to the stop position.

37. 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 (Earlier Models) on Page 176)
(See Checking And Adding Hydraulic Fluid on Page 177)

38. Connect the four fuel injector electrical connectors [Figure 322].

39. Start the engine and operate the machine hydraulic controls.

40. Stop the engine.

⚠ WARNING

INJECTION HAZARD
Pressurized 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

41. Check for leaks.

42. Check the fluid level in the reservoir and add as needed.
(See Checking And Adding Hydraulic Fluid (Earlier Models) on Page 176)
(See Checking And Adding Hydraulic Fluid on Page 177)

⚠ 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

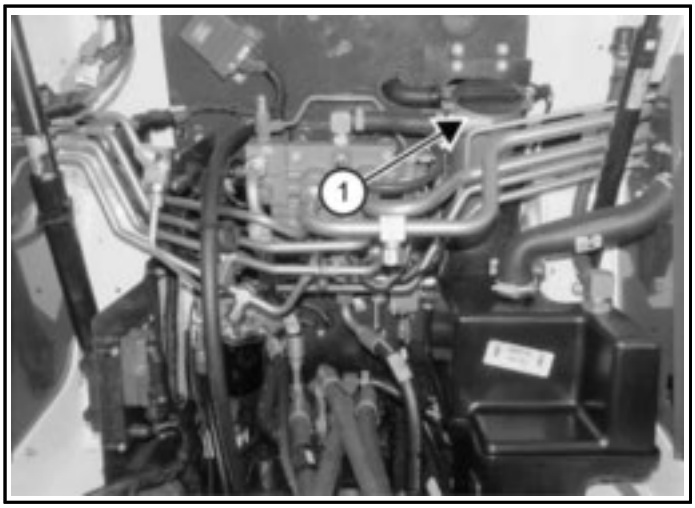
Replacing Main Hydraulic Filter

See the service schedule for the correct service interval.
(See Service Schedule on Page 134)

1. Stop the engine.

2. Raise the operator cab.
(See Raising Operator Cab on Page 146)

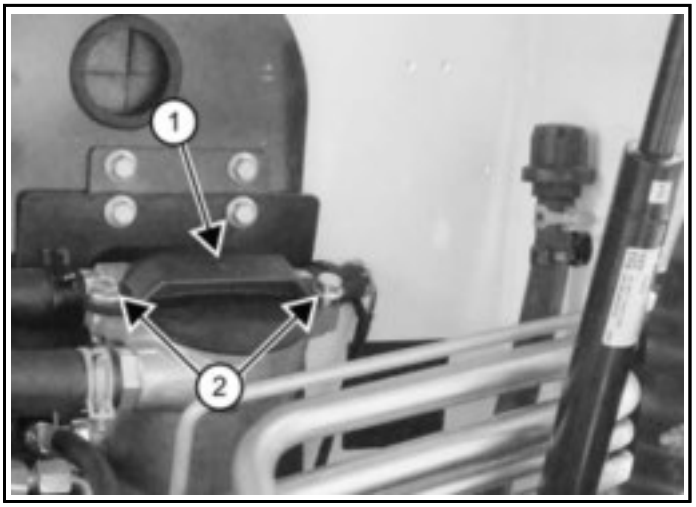
Figure 323



C200293B

3. Clean the top of the filter housing (Item 1) [Figure 323].

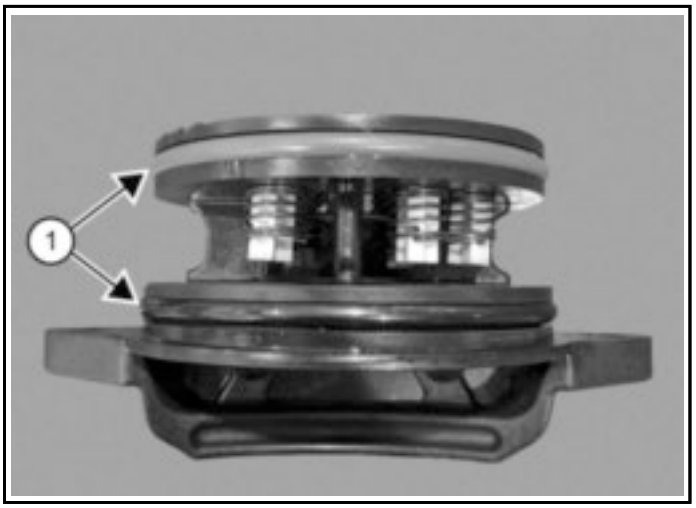
Figure 324



C200303A

4. Remove the bolts (Item 2) and rotate the filter cap (Item 1) [Figure 324] slightly.
5. Slowly pry the filter cap off the housing by hand.
6. Remove the filter element and discard.

Figure 325

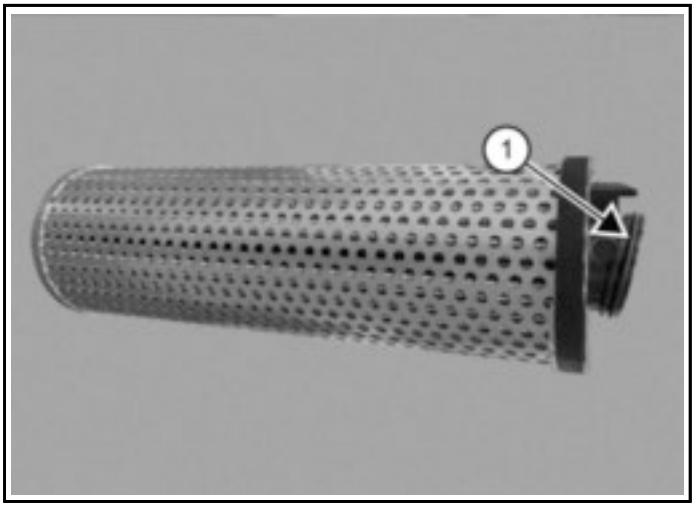


P200417A

7. Remove the filter cap O-rings (Item 1) [Figure 325] 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 326



P200418A

9. Lubricate the O-ring (Item 1) [Figure 326] 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 324]. 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.
    (See Lowering Operator Cab on Page 147)
14. Start the engine and operate the machine hydraulic controls.
15. Stop the engine.

⚠ WARNING

INJECTION HAZARD
Pressurized 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 (Earlier Models) on Page 176)
(See Checking And Adding Hydraulic Fluid on Page 177)

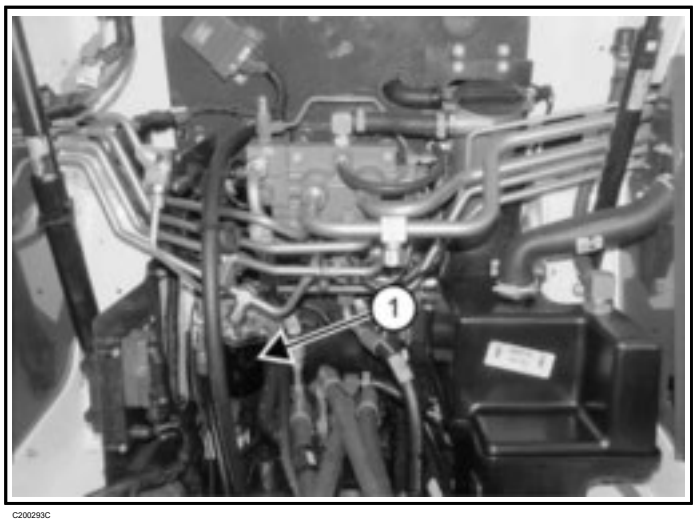
Replacing Hydraulic Case Drain Filter

See the service schedule for the correct service interval.
(See Service Schedule on Page 134)

1. Stop the engine.

2. Raise the operator cab.
(See Raising Operator Cab on Page 146)

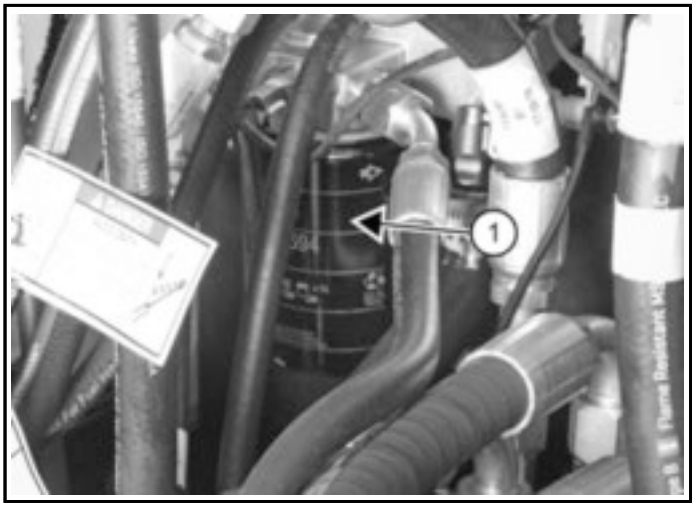
Figure 327



C200293C

3. Locate the filter (Item 1) [Figure 327].

Figure 328



P200304A

4. Put a suitable container below the filter, remove the filter (Item 1) [Figure 328] 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.

⚠ IMPORTANT

ENVIRONMENTAL HAZARD
Fluids such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. Obey local disposal regulations.

I-2067

⚠ 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. Lower the operator cab.
(See Lowering Operator Cab on Page 147)

9. Start the engine and operate the machine hydraulic controls.

10. Stop the engine.

⚠ WARNING

INJECTION HAZARD
Pressurized 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

11. Check for leaks at the filter.

12. Check the fluid level in the reservoir and add as needed.
(See Checking And Adding Hydraulic Fluid (Earlier Models) on Page 176)
(See Checking And Adding Hydraulic Fluid on Page 177)

Replacing Hydraulic Charge Filter

See the service schedule for the correct service interval.
(See Service Schedule on Page 134)

1. Stop the engine.

2. Open the rear door.

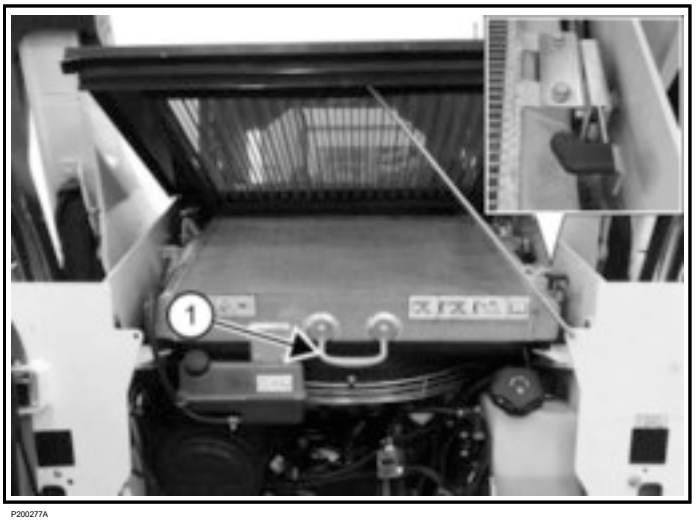
3. Raise the rear grille.
(See Raising Rear Grille on Page 149)

⚠ WARNING

CUTTING AND BURN HAZARD
Failure to keep away from the operating machine can cause serious injury or death.
- **Keep away from fan and moving parts. Do not operate with fan guard removed.**
- **Do not touch hot surfaces. Allow to cool before servicing.**

W-2521

Figure 329



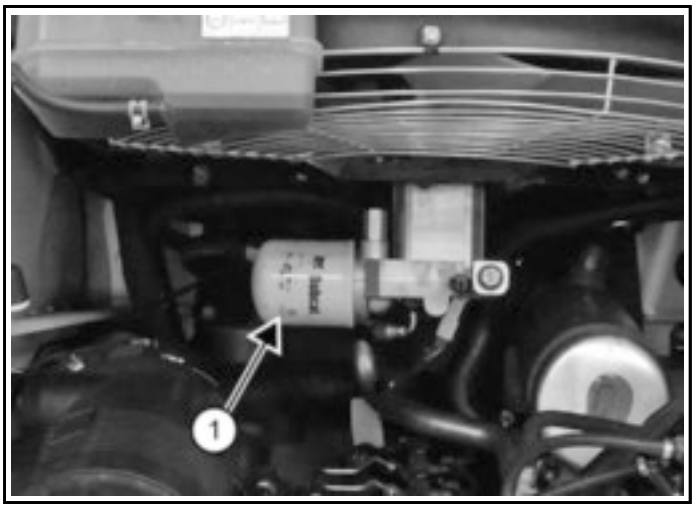
P200277A

4. Press the release lever (Inset) [Figure 329] down.

5. Raise the radiator cooling package using the handle (Item 1) [Figure 329].

NOTE: Do not start the engine, add coolant, or add hydraulic fluid while the radiator cooling package is raised.

Figure 330



P200305A

6. Put a suitable container below the filter, remove the filter (Item 1) [Figure 330] 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.

⚠ IMPORTANT

ENVIRONMENTAL HAZARD
Fluids such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. Obey local disposal regulations.

I-2067

⚠ 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

10. Lower the radiator cooling package using the handle until it locks into place [Figure 329].

11. Lower the rear grille.
(See Lowering Rear Grille on Page 150)

12. Close the rear door.

13. Start the engine and operate the machine hydraulic controls.

14. Stop the engine.

⚠ WARNING

INJECTION HAZARD
Pressurized 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

15. Check for leaks at the filter.

16. Check the fluid level in the reservoir and add as needed.
(See Checking And Adding Hydraulic Fluid (Earlier Models) on Page 176)
(See Checking And Adding Hydraulic Fluid on Page 177)

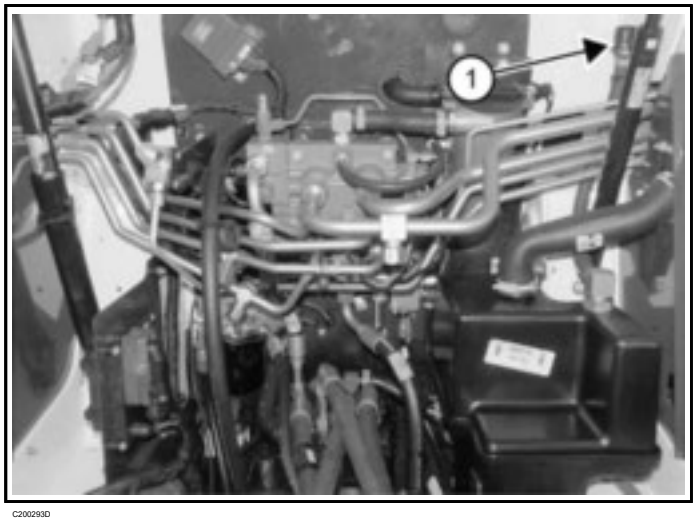
Replacing Hydraulic Reservoir Vent Filter

See the service schedule for the correct service interval.
(See Service Schedule on Page 134)

1. Stop the engine.

2. Raise the operator cab.
(See Raising Operator Cab on Page 146)

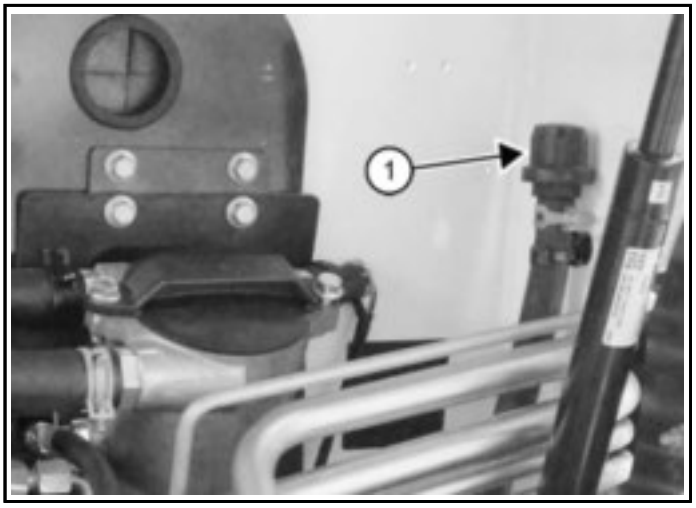
Figure 331



C200293D

3. Locate the vent filter (Item 1) [Figure 331].

Figure 332



C200303B

4. Remove the vent filter (Item 1) [Figure 332] and discard.

5. Install new vent filter.

6. Lower the operator cab.
(See Lowering Operator Cab on Page 147)

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 (4.3–Inch Display)

Figure 333



C231079

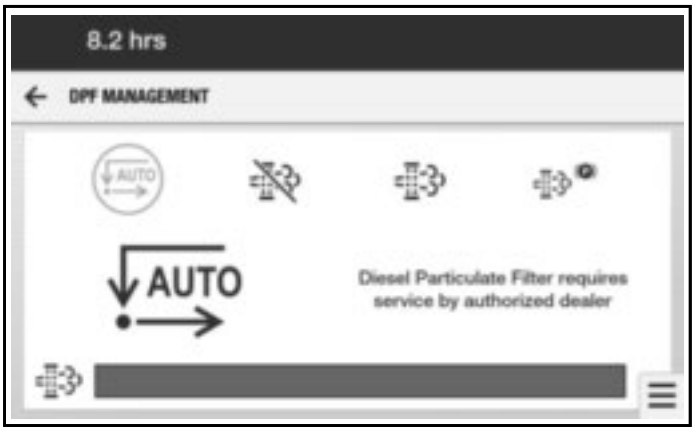
The machine will alert the operator when DPF service is required [Figure 333].

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 specialized equipment. See your Bobcat dealer for service regeneration.

DPF Service Regeneration (Standard And Touch Displays)

Figure 334



NA3858

The machine will alert the operator when DPF service is required [Figure 334].

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 specialized 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. Specialized 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 134)

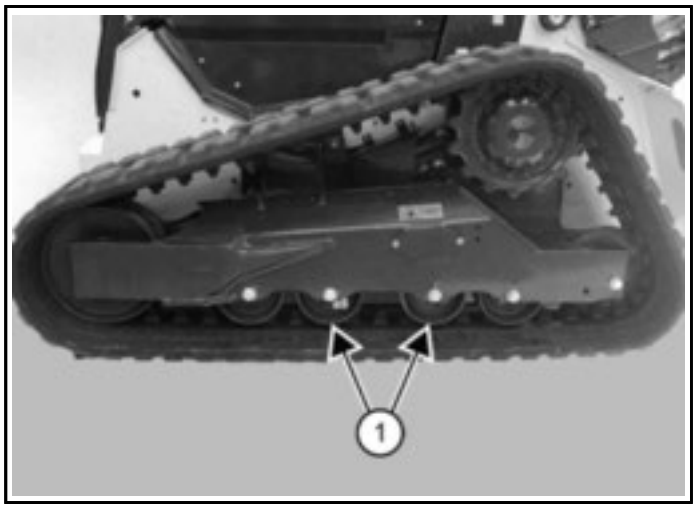
Correct track tension is important for good performance and to prevent the tracks from derailing or wearing prematurely.

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.

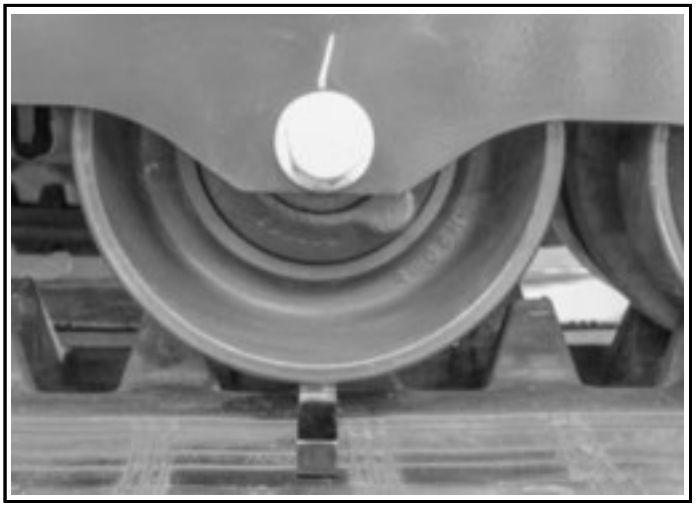
Figure 335



C200681A

4. Measure the track sag at either middle track roller (Item 1) [Figure 335].

Figure 336



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 336].

   ⚠ WARNING

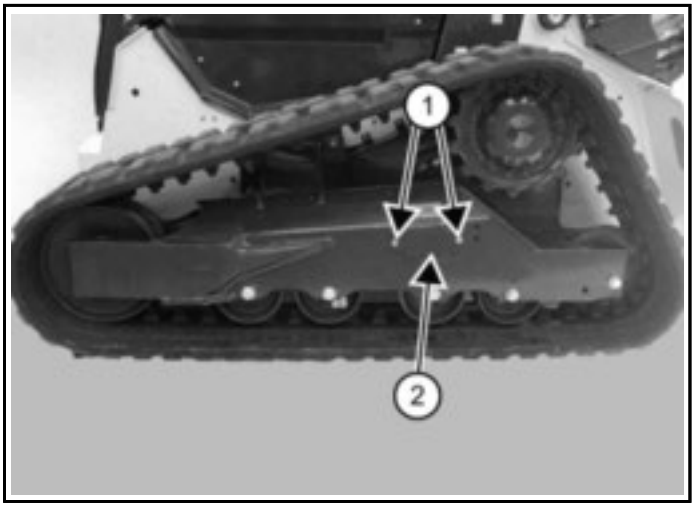
   PINCHING HAZARD
   Failure to obey instructions can cause serious injury or death.
   Keep finger and hands out of pinch points when checking the track tension.

   W-2142
6. Adjust track tension if necessary.
   (See Increasing Track Tension on Page 187)
   (See Decreasing Track Tension on Page 188)
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.

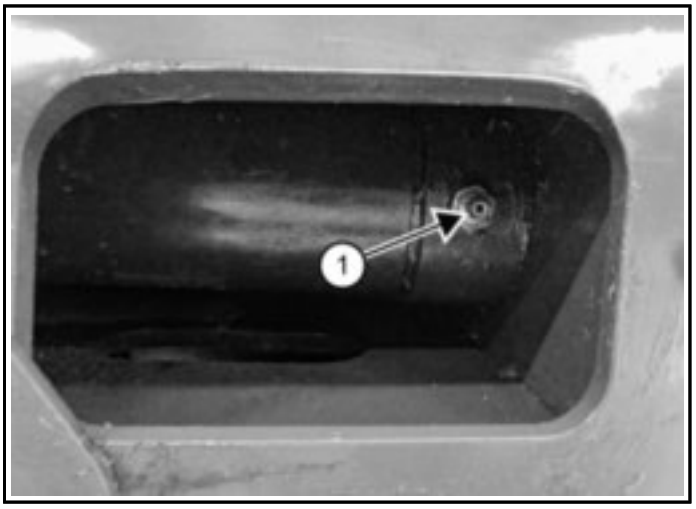
Figure 337



C200681B

1. Loosen the access cover bolts (Item 1) and pivot the access cover (Item 2) [Figure 337] open.

Figure 338



C200684A

2. Add grease to the track tension fitting (Item 1) [Figure 338] until the track adjustment is correct. (See Checking Track Tension on Page 187)

3. Repeat the procedure for the other track if necessary.

NOTE: Take care 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.

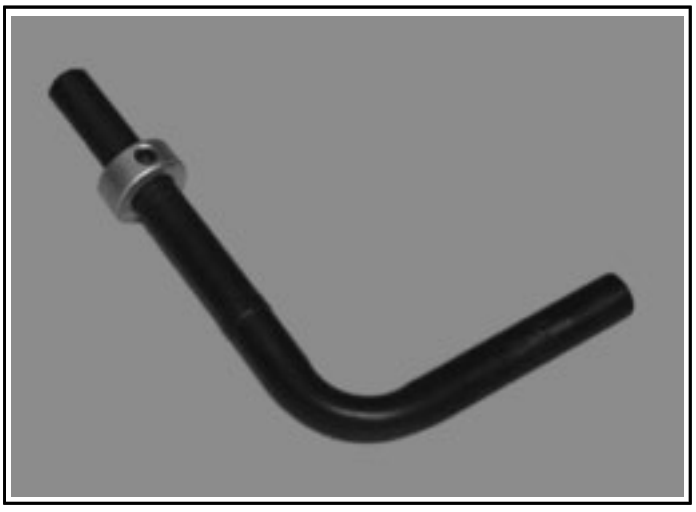
NOTE: Do not remove track tension fitting unless pressure is released. (See Decreasing Track Tension on Page 188)

NOTE: If replacement is necessary, always replace track tension fitting (Item 1) [Figure 338] 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 339



P107800

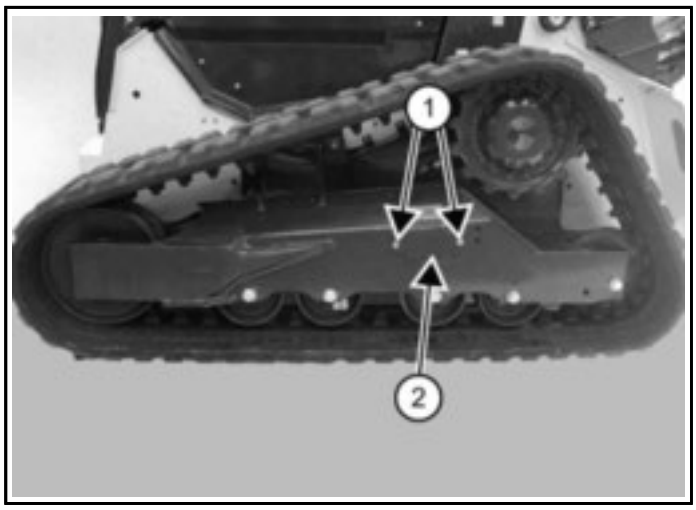
A bleed tool [Figure 339] is available and recommended to decrease track tension. The bleed tool will direct the flow of grease to aid in cleanup. See your Bobcat dealer to order bleed tool.

⚠ WARNING

INJECTION HAZARD
High pressure grease can penetrate skin and eyes, causing serious injury.
Do not loosen the track tension fitting more than 1.5 turns.

W-2994

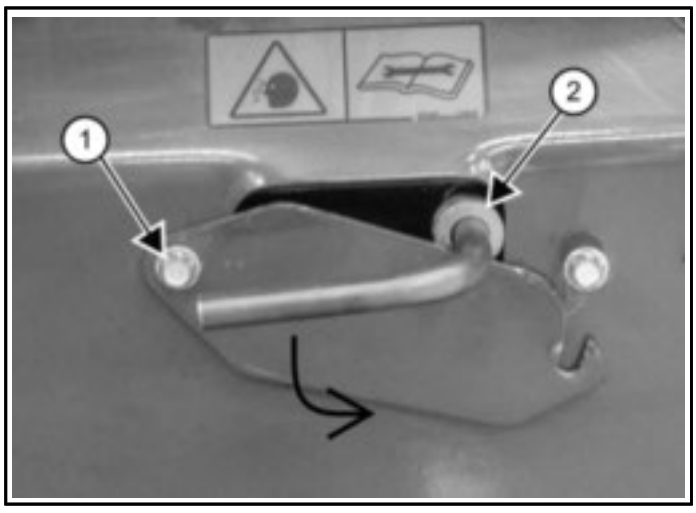
Figure 340



C200681B

1. Loosen the access cover bolts (Item 1) and pivot the access cover (Item 2) [Figure 340] open.

Figure 341



C200685A

2. Install the bleed tool on the track tension fitting [Figure 341].
3. Adjust and tighten the collar (Item 2) [Figure 341] to fit behind the edge of the access cover.
4. Tighten the access cover bolt (Item 1) [Figure 341] to secure the tool.
5. Turn the tool 90° counterclockwise and let the grease flow into a container. Release pressure until the track adjustment is correct.
(See Checking Track Tension on Page 187)
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 340].

⚠ IMPORTANT

ENVIRONMENTAL HAZARD
Fluids such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. Obey local disposal regulations.

I-2067

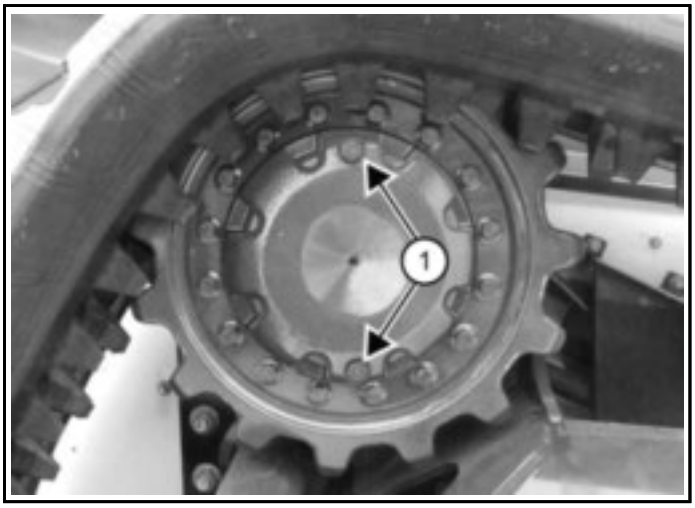
8. Repeat the procedure for the other track if necessary.

HYDROSTATIC DRIVE MOTOR

Replacing Brake Cavity Fluid

See the service schedule for the correct service interval. (See Service Schedule on Page 134)

Figure 342



C200686A

1. Park the machine on a level surface so that the plugs (Item 1) [Figure 342] 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.

⚠ IMPORTANT

ENVIRONMENTAL HAZARD
Fluids such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. Obey local disposal regulations.◂

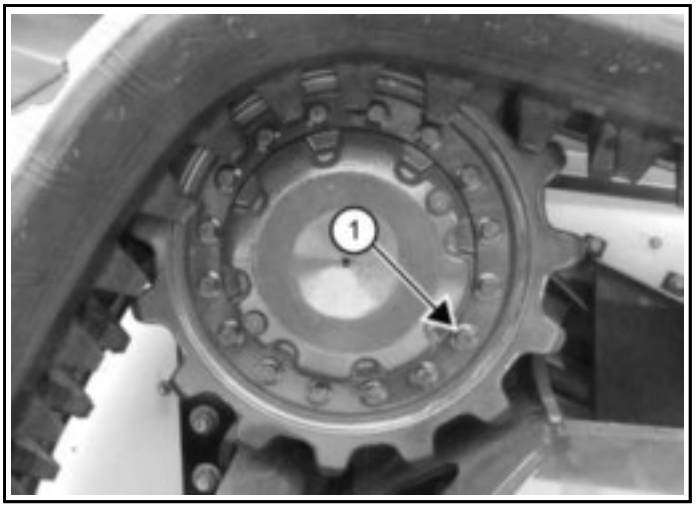
I-2067

TRACK SPROCKET MAINTENANCE

Checking Track Sprocket Torque

See the Service Schedule for the correct service interval. (See Service Schedule on Page 134)

Figure 343



C200687A

1. Check the torque of the 16 track sprocket bolts (Item 1) [Figure 343].
2. Use an alternating tightening sequence and then repeat to tighten the bolts to 125 – 140 N•m (90 – 100 ft-lb) torque.

BELTS

Adjusting Belt (Machines Without Air Conditioning)

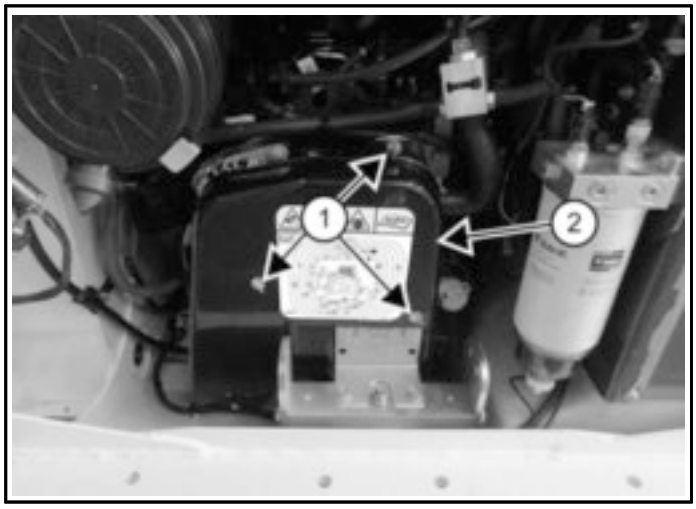
This belt is a special maintenance free type that is pretensioned over the pulleys. This belt eliminates the need for a tensioning device and does not require periodic adjustment. Contact your Bobcat dealer for replacement parts.

Replacing Belt (Machines Without Air Conditioning)

A stretch fit belt tool is required to install the new belt. The tool is commonly available from an auto parts store or tool supplier.

1. Stop the engine.
2. Open the rear door.

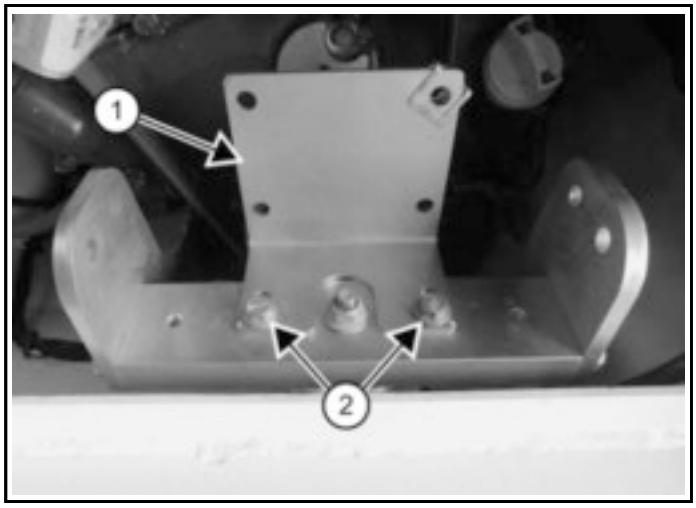
Figure 344



P200310A

3. Loosen three fasteners (Item 1) and remove belt shield (Item 2) [Figure 344].

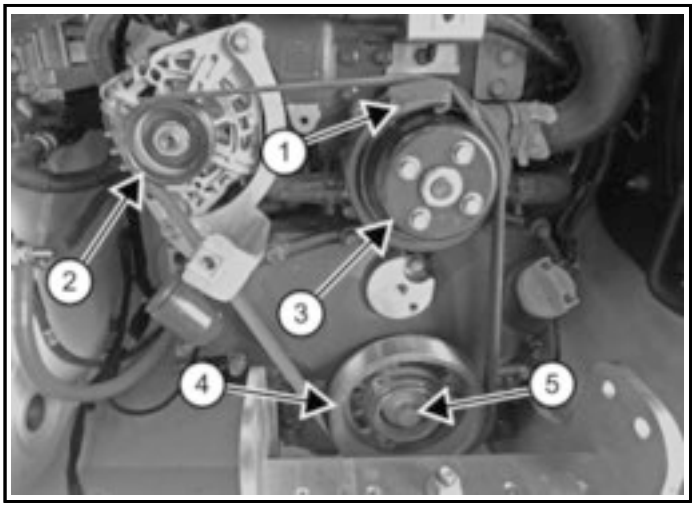
Figure 345



P200308A

4. Remove two bolts (Item 2) and bracket (Item 1) [Figure 345].
5. Cut the old belt and remove the belt from the pulleys.
6. Inspect the pulleys for wear.

Figure 346



P200309A

7. Install new belt around the crankshaft pulley (Item 4) and the alternator pulley (Item 2) [Figure 346].
8. Position the belt and the belt tool (Item 1) on the top side of the water pump pulley (Item 3) [Figure 346].
9. Rotate the engine clockwise using the large crankshaft pulley bolt (Item 5) [Figure 346].

   Do not use the alternator pulley nut or the water pump pulley bolts.
10. Ensure the belt is fully installed on all three pulleys.
11. Repeat the procedure using the belt tool on each pulley if necessary until the belt is fully installed.
12. Remove the belt tool (Item 1) [Figure 346].
13. Install the bracket (Item 1) [Figure 345].
14. Install the belt shield (Item 2) [Figure 344].
15. Close the rear door.

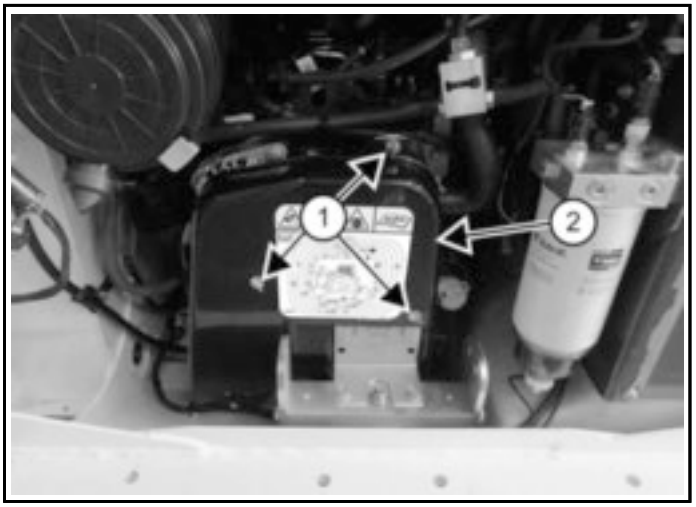
Adjusting Belt (Machines With Air Conditioning)

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.

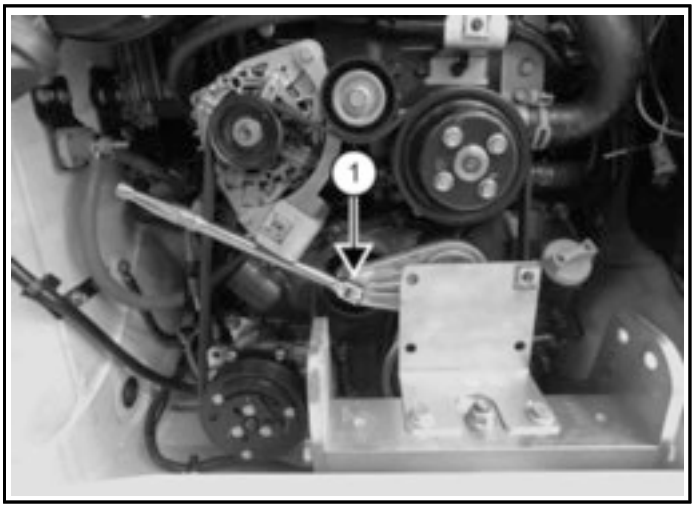
Figure 347



P200310A

3. Loosen three fasteners (Item 1) and remove belt shield (Item 2) [Figure 347].

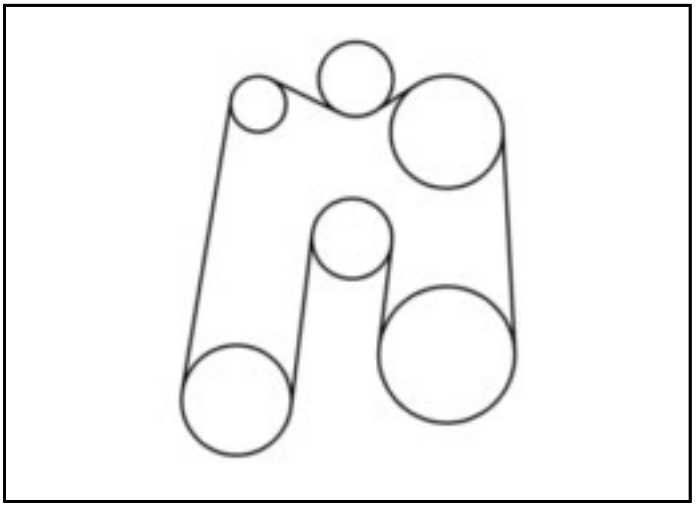
Figure 348



P200311A

4. Insert a breaker bar into the hole provided in the idler pulley (Item 1) [Figure 348] and push down to release belt tension.
5. Remove the belt from the pulleys.
6. Inspect the pulleys for wear.

Figure 349



NA15890

7. Install new belt around the pulleys using the routing diagram [Figure 349].
8. Allow idler pulley to tension belt and remove breaker bar.
9. Ensure the belt is fully installed on all six pulleys.
10. Install the belt shield (Item 2) [Figure 347].
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
Failure to obey instructions can cause serious injury or death.
- **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.**

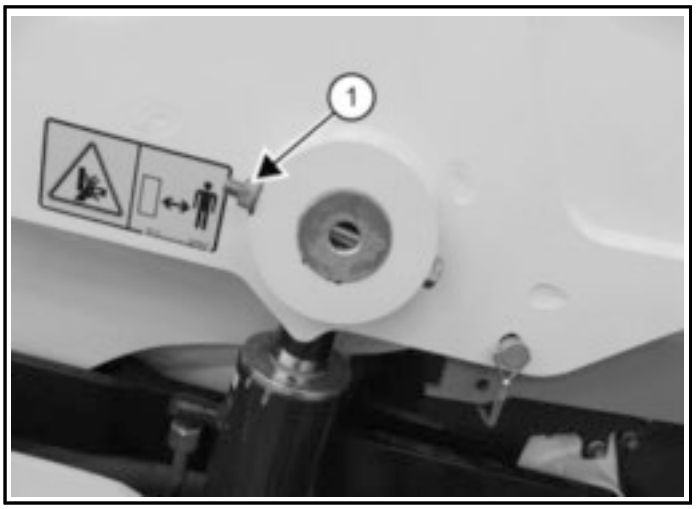
Obey warnings and instructions in the Operation & Maintenance Manual and Service Manual for lift arm bypass control instructions.
W-3015

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 350



P200240A

Some lift arm and cylinder pivots have a large pin held in position with a retainer bolt and locknut (Item 1) [Figure 350].

- 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

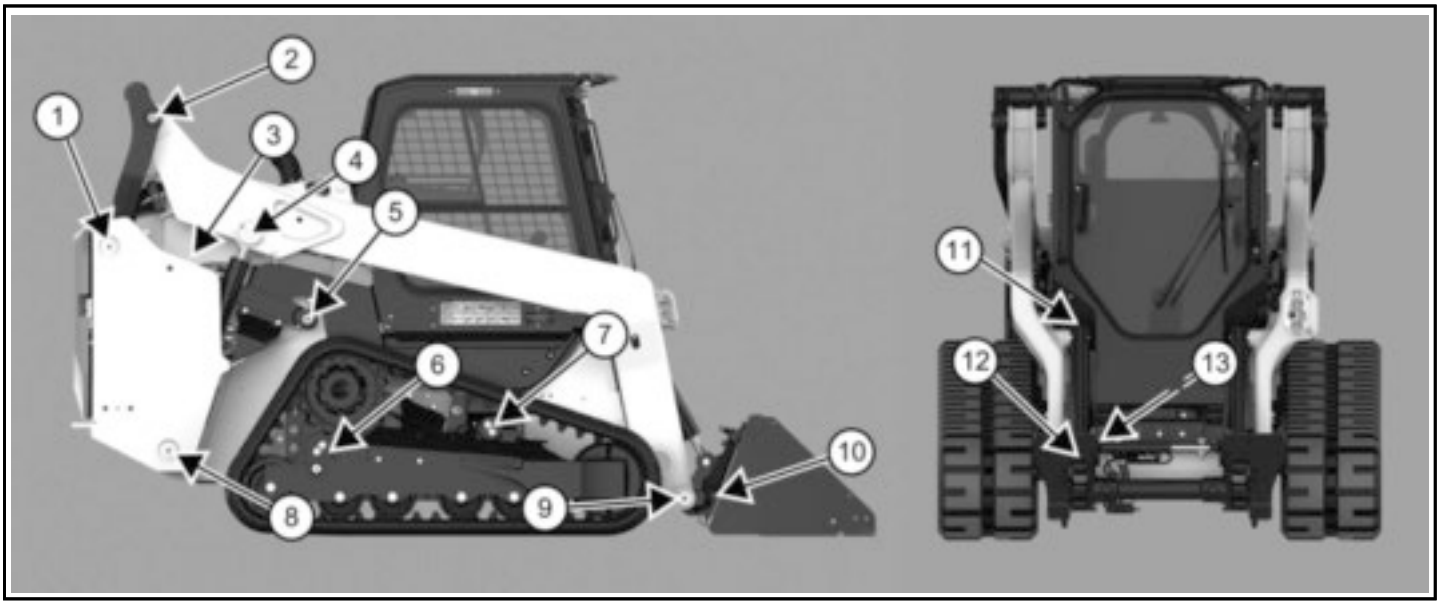
See the service schedule for the correct service interval. (See Service Schedule on Page 134)

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 120) (See Removing Attachments on Page 123)
2. Stop the engine.
3. Lubricate the following grease fittings:

Figure 351



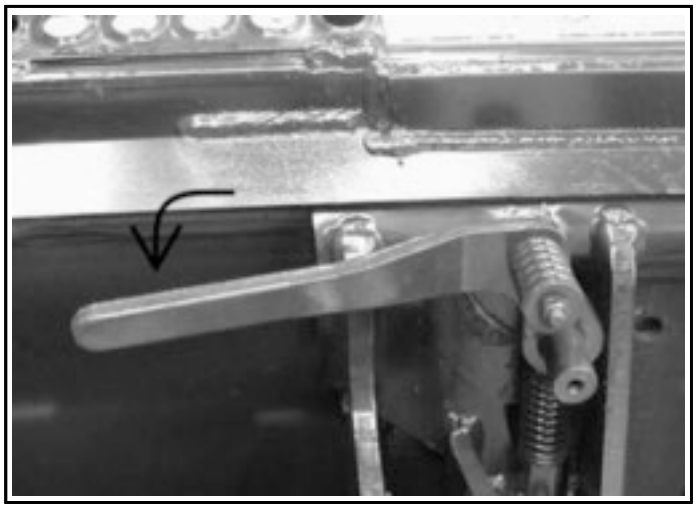
REF	DESCRIPTION	QUANTITY
1	Lower Follower Link	1 per side
2	Upper Follower Link	1 per side
3	Rear Driver Assembly	1 per side
4	Rod End Lift Cylinder	1 per side
5	Front Driver Assembly	1 per side
6	Rear Torsion Axle Spindle (If equipped)	3 per side
7	Front Torsion Axle Spindle (If equipped)	2 per side
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 SYSTEM (HAND LEVER)

Inspecting And Maintaining Hand Lever Bob-Tach System

Figure 352



P85513d

1. Move the Bob-Tach levers down to engage the wedges [Figure 352].

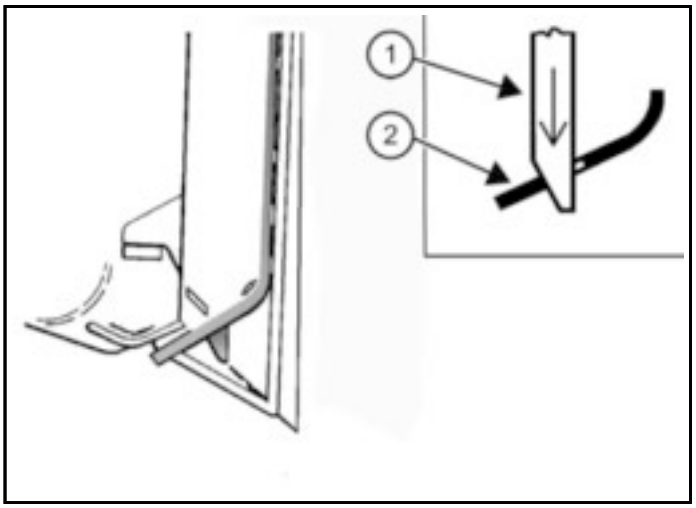
   The levers and wedges must move freely.

⚠ WARNING

CRUSHING HAZARD
Failure to secure Bob-Tach 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 must be fully down and locked.

W-2102

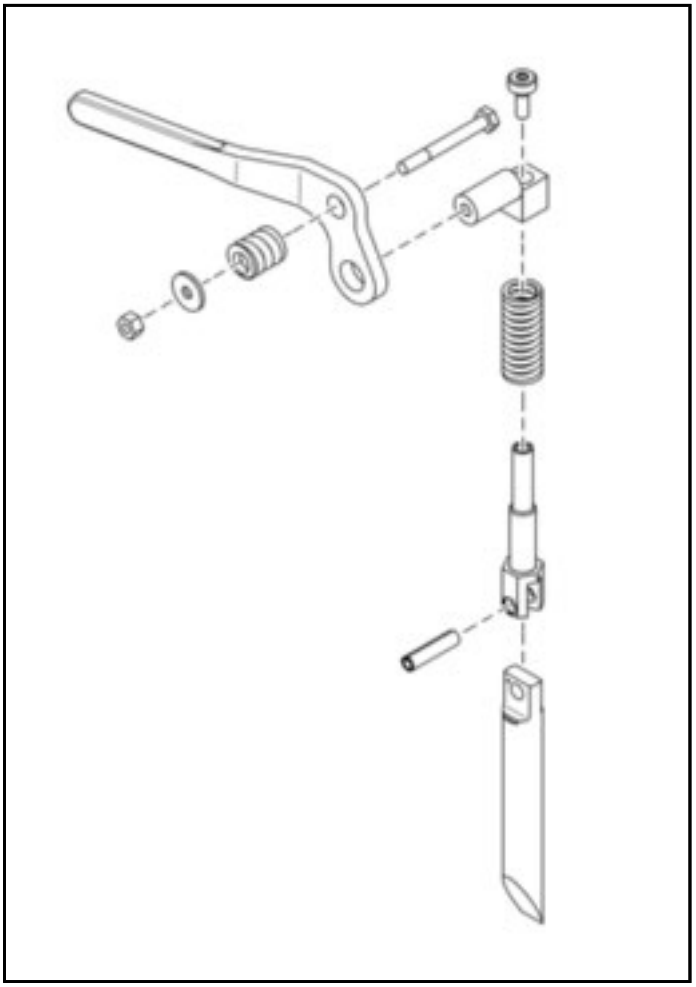
Figure 353



NA3450B

- The wedges (Item 1) [Figure 353] 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 353].
- If the wedges do not contact the lower edge of the holes [Figure 353], the attachment will be loose and can come off the Bob-Tach system.

Figure 354



2. Inspect the attachment mounting frame and Bob-Tach frame, linkages and wedges for excessive wear or damage [Figure 354].
3. Replace any parts that are damaged, bent, or missing.
4. Keep all fasteners tight.
5. Look for cracked welds.

   Contact your Bobcat dealer for repair or replacement parts.
6. Lubricate the wedges.
   (See Service Schedule on Page 134)
   (See Machine Lubrication on Page 194)

BOB-TACH SYSTEM (POWER)

Inspecting And Maintaining Power Bob-Tach System

Figure 355



C200193G

1. Push and hold the Bob-Tach wedges Up button (Item 1) [Figure 355] until wedges are fully raised.
2. Push and hold the Bob-Tach wedges Down button (Item 2) [Figure 355] until the wedges are fully down.

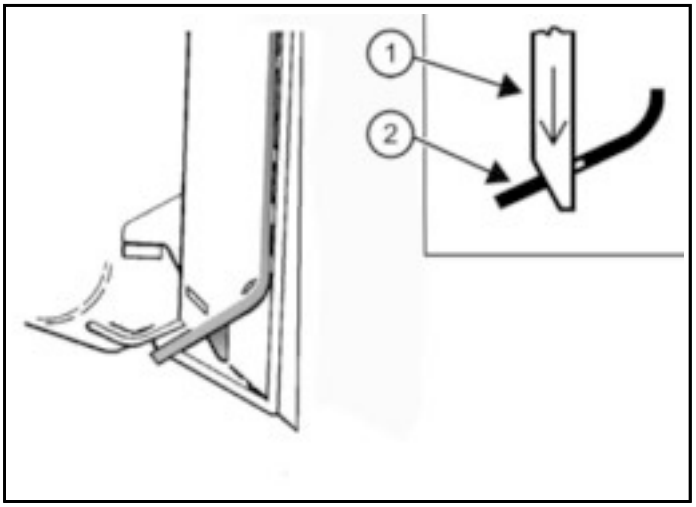
   The levers and wedges must move freely.

⚠ WARNING

CRUSHING HAZARD
Failure to secure Bob-Tach 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 must be fully down and locked.

W-2102

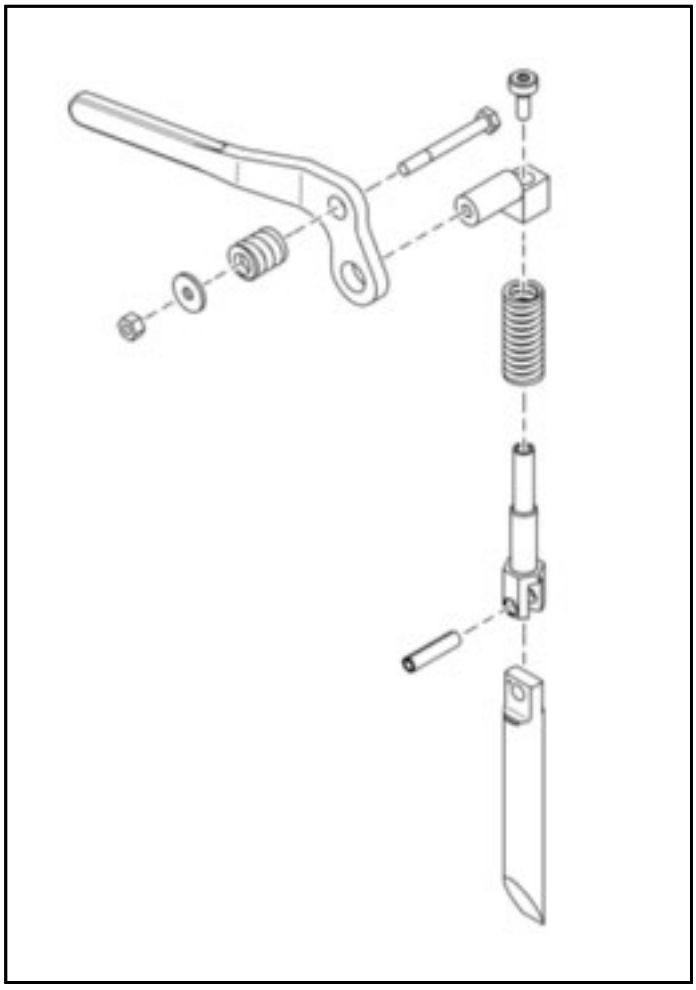
Figure 356



NA3450B

- The wedges (Item 1) [Figure 356] 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 356].
- If the wedges do not contact the lower edge of the holes [Figure 356], the attachment will be loose and can come off the Bob-Tach system.

Figure 357



NA13065S

3. Inspect the mounting frame on the attachment and Bob-Tach frame, linkages, and wedges for excessive wear or damage [Figure 357].
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 134)
   (See Machine Lubrication on Page 194)

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 stabilizer into the fuel tank and operate the engine a few minutes to circulate the stabilizer to the pump and fuel injectors.

  If biodiesel blend fuel has been used, perform the following:

  Drain the fuel tank, refill with 100% petroleum diesel fuel, add fuel stabilizer, and operate the engine for at least 30 minutes.
- Drain and flush the cooling system. Refill with premixed coolant.
- 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.
- Start the engine and operate for a few minutes while observing the instrument panels and systems for correct operation.
- Operate machine, check for correct function.
- Stop the engine.
- Check for leaks. Repair as needed.

VITALS (4.3–INCH DISPLAY)

Vital Detail

Pressing the button below the  icon will display the following vitals in a digital format.

REF	DESCRIPTION
	Hourmeter
	Engine Speed (RPM)
	System Voltage
	Engine Oil Pressure
	Engine Oil Temperature
	Engine Coolant Temperature
	Intake Air Temperature
	Hydraulic Fluid Temperature - Pump Case Drain
	Hydraulic Fluid Temperature - Drive Motor Case Drain
	Hydraulic Fluid Pressure
	Auxiliary Hydraulic Fluid Pressure
	Fuel Temperature
	Fuel Consumption

ALERTS (4.3–INCH DISPLAY)

Alert Detail

Pressing the button below the  icon will display any active alerts.

The  icon will display when there are no active alerts.

WARNINGS (4.3–INCH DISPLAY)

Warning Detail

Pressing the button below the  icon will display all the latest service codes.

Figure 358



C231119

Press the button below the  and  icons if more than one service code is displayed [Figure 358].

Inactive service codes are shown with the hourmeter reading when they occurred.

Service codes are only shown during the operating session that they occurred. They may not be shown the next time the machine is started. See your Bobcat dealer for service codes from previous operating sessions.

Press the button below the  icon to display information about the highlighted service code.

Figure 359



C230738

Scan the QR code on the display to view a description of the service code at Bobcat.com [Figure 359].

Diagnostic service codes highlighted in red are critical and could cause a shutdown condition.

A list of service code descriptions is included in this manual. (See Diagnostic Service Codes on Page 233)

The  icon will display when no active or inactive service codes have occurred during the current operating session.

SETTINGS (4.3–INCH DISPLAY)

Machine Settings

Press the button below the icon.

Press the button below the icon when the icon is highlighted.

The following machine settings may be available depending on machine configuration.

REF	DESCRIPTION	FUNCTION
	Auto Idle	(See Auto Idle on Page 71)
	Drive Response	(See Drive Response on Page 85)
	Workgroup Response	(See Workgroup Response on Page 93)
	Steering Drift Compensation	(See Steering Drift Compensation on Page 87)
	Lift And Tilt Compensation	(See Lift and Tilt Compensation on Page 89)
	Diesel Particulate Filter (DPF)	(See Diesel Particulate Filter (DPF) System on Page 186)

Service Settings

Press the button below the icon.

Press the button below the icon when the icon is highlighted.

The following service settings are available:

REF	DESCRIPTION
	View Service Schedule
	Set Service Interval
	Record A Service

View Service Schedule

Figure 360



Press the button below the icon when the icon is highlighted to view the current service interval and the time remaining until that service is due. [Figure 360]

The display will notify the operator 10 hours prior to the next service due and continue until the service is completed.

A red square will appear next to the and icons when service is overdue.

Set Service Interval

Press the button below the icon when the icon is highlighted to change the current service interval.

Figure 361



Enter the owner password if required [Figure 361].

Figure 362



Press the button below the < and > icons to change the service interval. [Figure 362]

The interval can be adjusted between 10 and 500 hours in 10 hour increments.

Press the button below the ✓ icon to save your selection.

Record A Service

Press the button below the ✓ icon when the icon is highlighted to record the service as completed.

Figure 363



Enter the owner password if required [Figure 363].

Figure 364



Press the button below the ✓ icon to record the service. [Figure 364]

Security Settings

Press the button below the ⚙ icon.

Press the button below the ✓ icon when the icon is highlighted.

Figure 365



Enter the owner password if required [Figure 365].

The following security settings are available:

REF	DESCRIPTION	FUNCTION
	Machine Lockout	When locked, password is required to start machine.
	Owner	Owner password and two-speed lockout can be changed.

REF	DESCRIPTION	FUNCTION
	Operator Two	Operator two password and two-speed lockout can be changed.
	Operator Three	Operator three password and two-speed lockout can be changed.

Machine Lockout

Press the button below the icon when the icon is highlighted to change the machine lockout setting.

Press the button below the and icons to lock or unlock the machine.

Press the button below the icon to save your selection.

Owner

Press the button below the icon when the icon is highlighted to change the password or two-speed lockout setting for the owner.

Press the button below the icon when the icon is highlighted to change the owner password.

Press the buttons below the number icons to enter the new password. The new password must be entered twice.

Press the button below the icon when the icon is highlighted to change the owner two-speed lockout.

Press the button below the and icons to lock or unlock two-speed travel.

Press the button below the icon to save your selection.

Operators Two And Three

Press the button below the icon when the or icon is highlighted to change the password or two-speed lockout setting for operator two or three.

Follow the procedures listed under the owner section above.

Display Setting

Press the button below the icon.

Press the button below the icon when the icon is highlighted.

Press the button below the and icons to adjust the screen brightness.

Press the button below the icon to save the desired setting.

Units

Press the button below the icon.

Press the button below the icon when the icon is highlighted.

Press the button below the and icons to switch between Metric or English.

Press the button below the icon to select the desired unit.

Software

Press the button below the icon.

Press the button below the icon when the icon is highlighted.

The following information is shown.

REF	DESCRIPTION
	Software Version
	Constant Data Version
SN	Machine Serial Number

REF	DESCRIPTION
	ED Number
	Open Source Software Website

NAVIGATION (STANDARD DISPLAY)

Navigation Bar

Figure 366



NA3706A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 366] 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 205)
- **SERVICE** -
(See Service (Standard Display) on Page 206)
- **SETTINGS** -
(See Settings (Standard Display) on Page 208)

Viewing Active Shortcuts

Figure 367



NA3705C

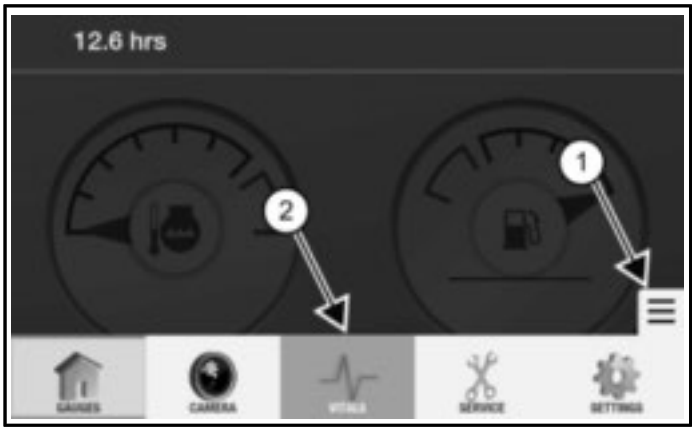
- The following icons can appear in the navigation handle position [Figure 367]. Selecting the icon will take you directly to the indicated screen.

ICON	DESCRIP-TION	FUNCTION
	Navigation Handle	Opens and closes the navigation bar (See Navigation Bar on Page 204)
	Service Due	Opens the service screen (See Record A Service on Page 206)
	Software Update	Opens the software screen (See Software on Page 212)
	Machine Derate	Opens the machine performance screen (See Vital Detail And Machine Performance on Page 205)
	Warning	Opens the service codes screen (See View Service Codes on Page 207)
	Diesel Particulate Filter	Opens the DPF management screen (See DPF Description on Page 61)

VITALS (STANDARD DISPLAY)

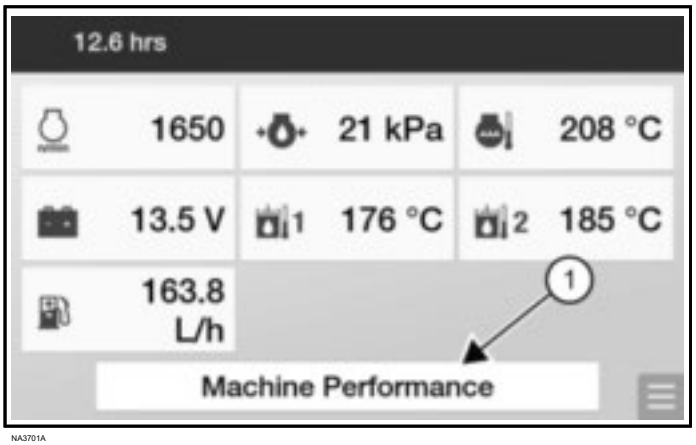
Vital Detail And Machine Performance

Figure 368



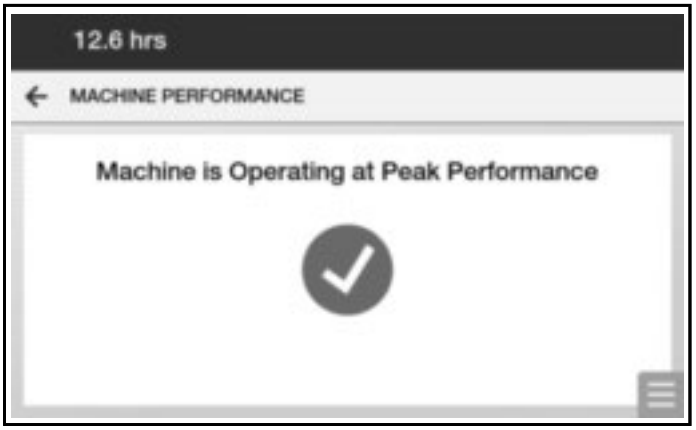
1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 368].
2. Select **[VITALS]** (Item 2) [Figure 368].

Figure 369



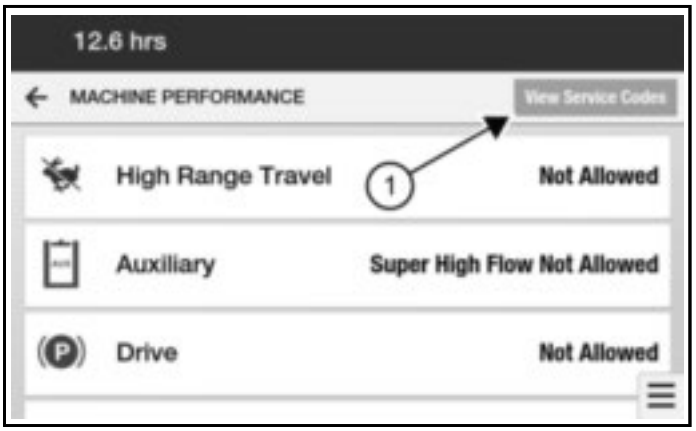
3. The following vitals can be viewed in a digital format [Figure 369]:
   - Engine Speed (rpm)
   - Engine Oil Pressure
   - Engine Coolant Temperature
   - System Voltage
   - Hydraulic Fluid Temperature - Pump Case Drain
   - Hydraulic Fluid Temperature - Drive Motor Case Drain
   - Fuel Usage Per Hour
4. Select **[MACHINE PERFORMANCE]** (Item 1) [Figure 369] to view limitations or restrictions that prevent machine damage.

Figure 370



NA3702

Figure 371



NA3703A

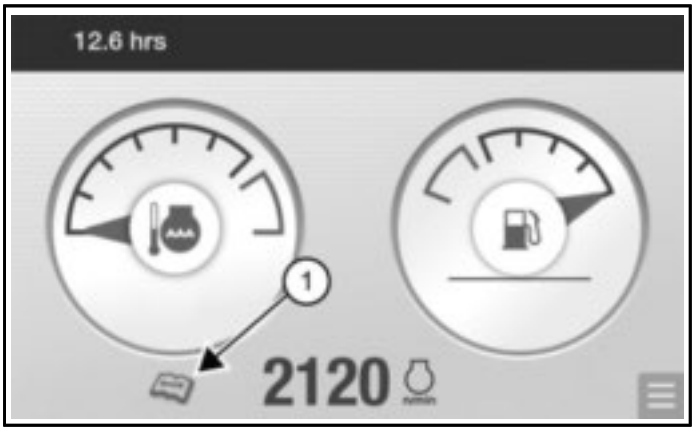
Examples of **MACHINE PERFORMANCE** screens are shown in [Figure 370] and [Figure 371]. Associated service codes may also be listed.

5. Select **[VIEW SERVICE CODES]** (Item 1) [Figure 371] to take you directly to the **SERVICE CODES** screen.

SERVICE (STANDARD DISPLAY)

Record A Service

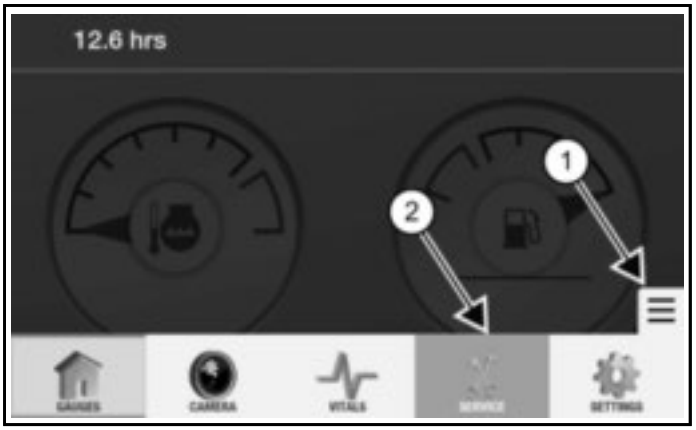
Figure 372



NA3697A

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 372].

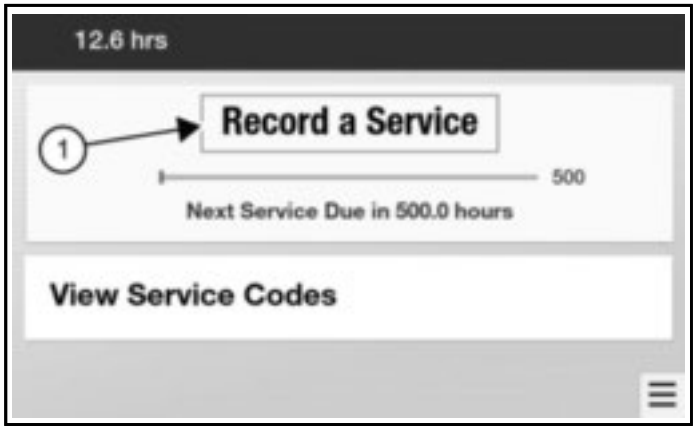
Figure 373



NA3700A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 373].
2. Select **[SERVICE]** (Item 2) [Figure 373].

Figure 374

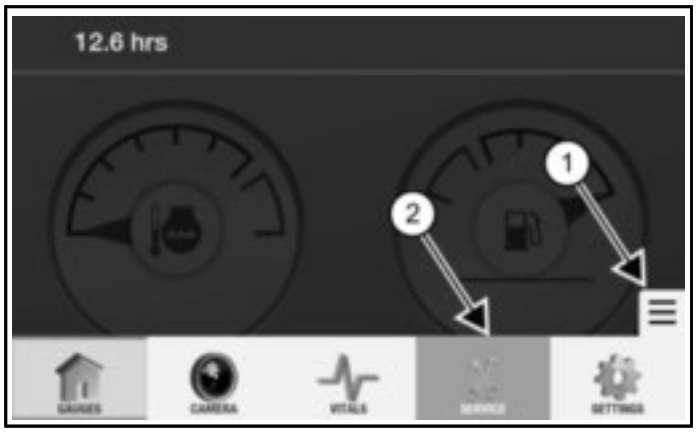


NA3699A

3. Select **[RECORD A SERVICE]** (Item 1) [Figure 374] to record the service as completed.

Set Interval

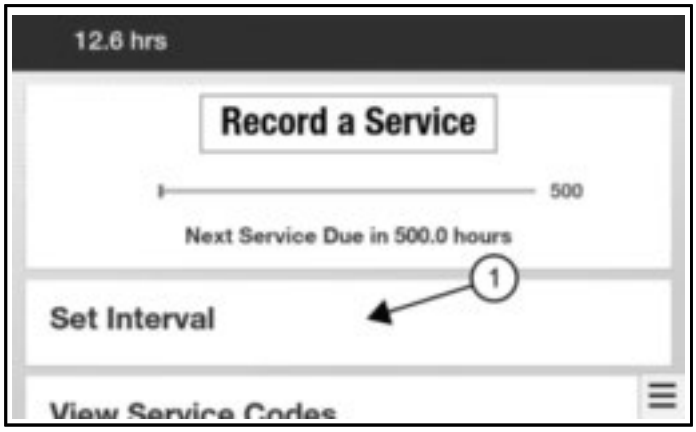
Figure 375



NA3700A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 375].
2. Select **[SERVICE]** (Item 2) [Figure 375].

Figure 376

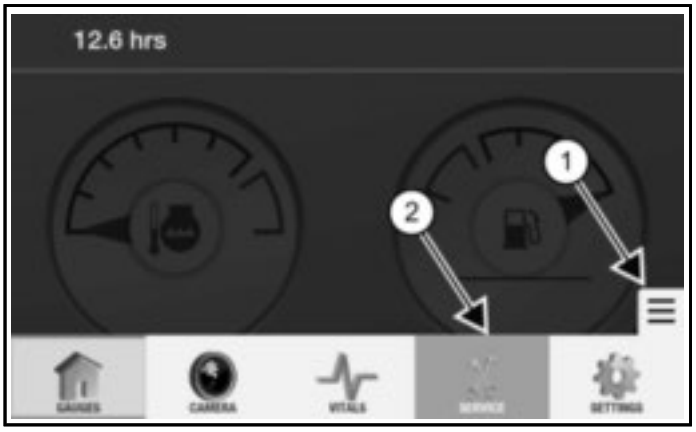


C216733B

3. Select **[SET INTERVAL]** (Item 1) [Figure 376].
4. Enter desired interval.

View Service Codes

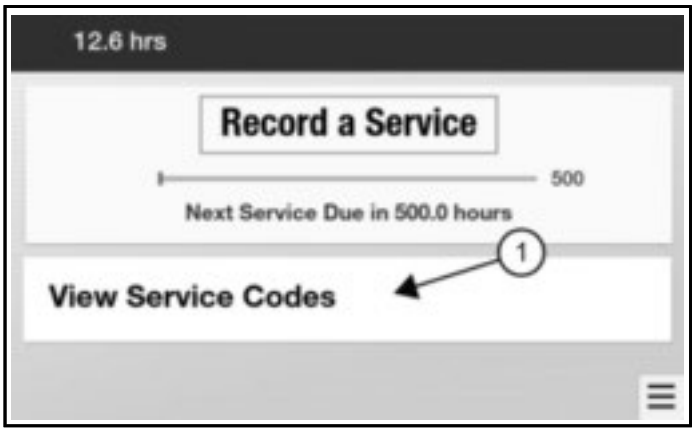
Figure 377



NA3700A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 377].
2. Select **[SERVICE]** (Item 2) [Figure 377].

Figure 378



NA3699B

3. Select **[VIEW SERVICE CODES]** (Item 1) [Figure 378].

Figure 379



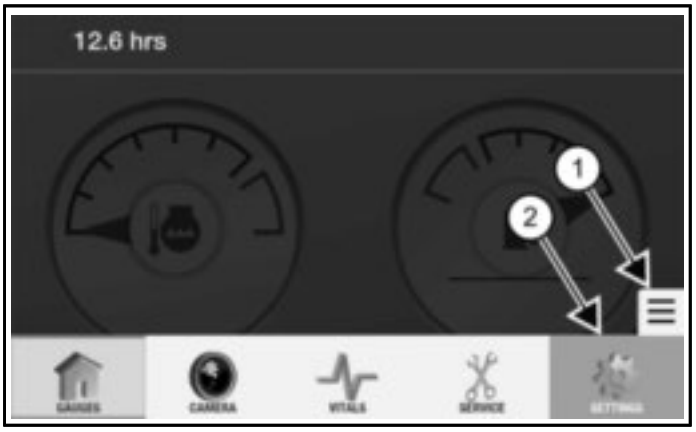
NA3698

4. Scroll down if necessary to see all service codes [Figure 379].

SETTINGS (STANDARD DISPLAY)

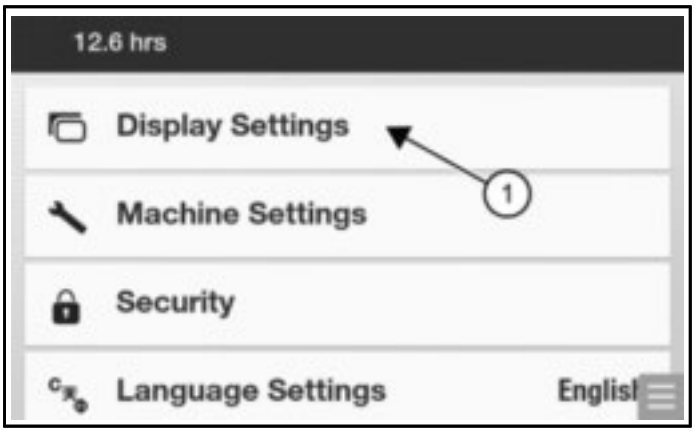
Display Settings

Figure 380



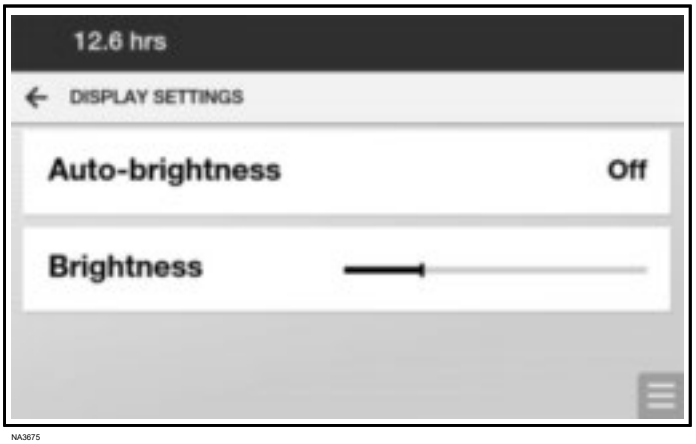
1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 380].
2. Select **[SETTINGS]** (Item 2) [Figure 380].

Figure 381



3. Select **[DISPLAY SETTINGS]** (Item 1) [Figure 381].

Figure 382



4. The following display settings are available [Figure 382]:

- Auto brightness on or off
- Screen brightness adjustment

Machine Settings

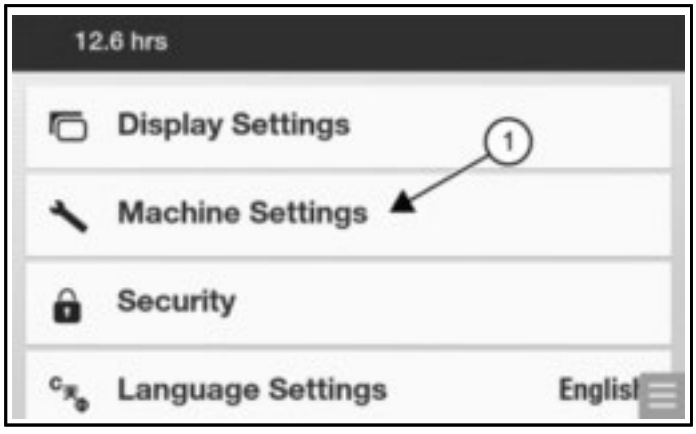
Figure 383



NA3669A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 383].
2. Select **[SETTINGS]** (Item 2) [Figure 383].

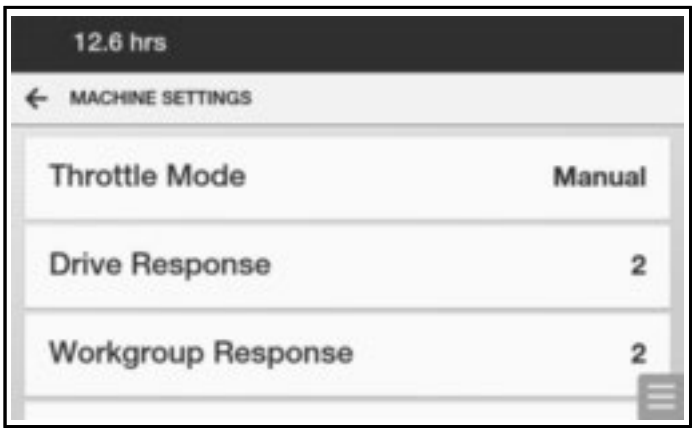
Figure 384



NA3668A

3. Select **[MACHINE SETTINGS]** (Item 1) [Figure 384].

Figure 385



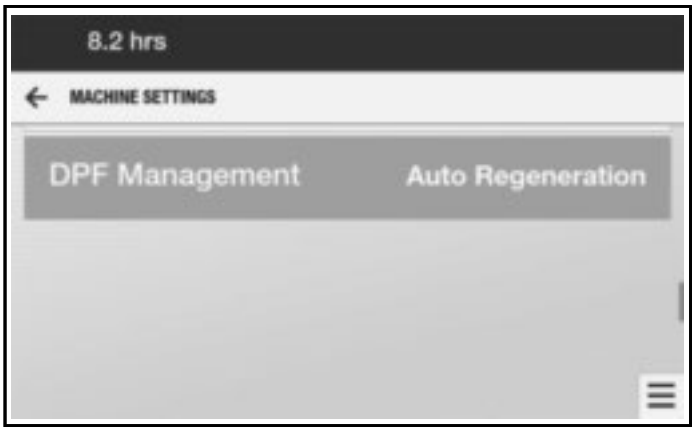
NA3666

Figure 386



NA3671

Figure 387



NA3856

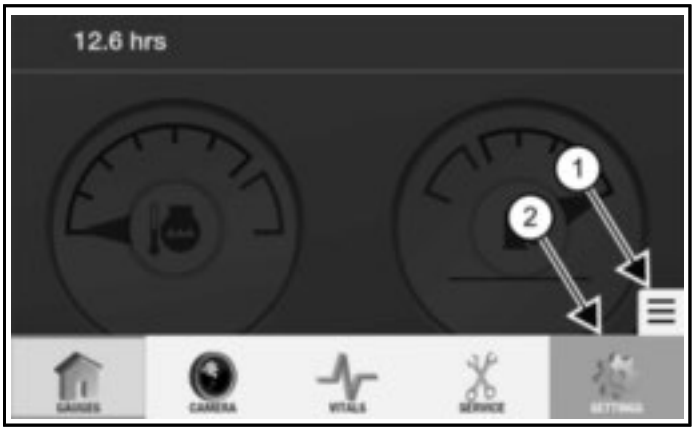
4. The following machine settings may be available depending on machine configuration [Figure 385] and [Figure 386] and [Figure 387]:

- Throttle Mode (See Auto Idle on Page 71) (See Auto Throttle on Page 73)
- Drive Response (See Drive Response on Page 85)
- Workgroup Response (See Workgroup Response on Page 93)

- Steering Drift
  (See Steering Drift Compensation on Page 87)
- Speed Management
  (See Speed Management on Page 83)
- Lift and Tilt Compensation
  (See Lift and Tilt Compensation on Page 89)
- DPF Management (See DPF Description on Page 61)

Security Settings

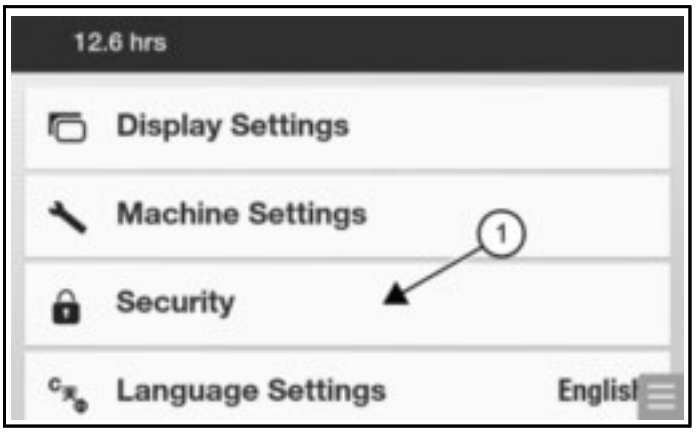
Figure 388



NA3669A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 388].
2. Select **[SETTINGS]** (Item 2) [Figure 388].

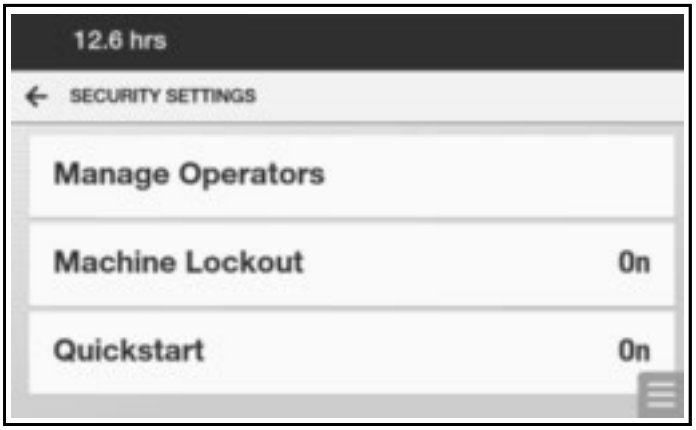
Figure 389



NA3668C

3. Select **[SECURITY]** (Item 1) [Figure 389].

Figure 390



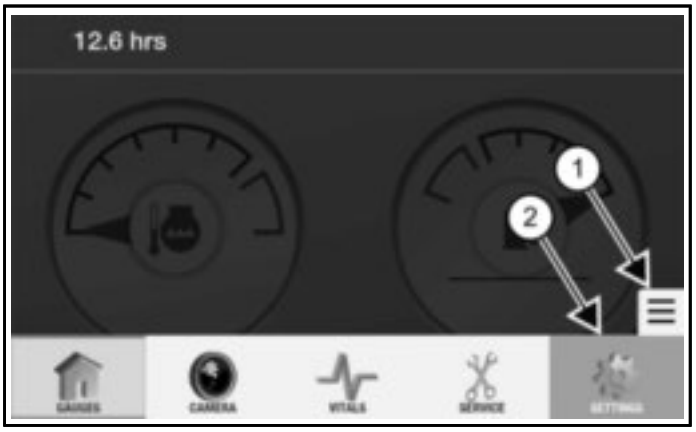
NA3676

4. The following security settings are available [Figure 390]:

- Manage Operators
  (See Security Settings (Manage Operators) on Page 210)
- 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

Security Settings (Manage Operators)

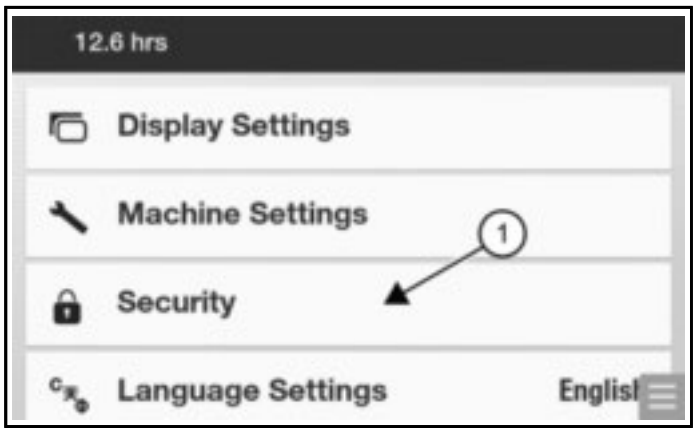
Figure 391



NA3669A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 391].
2. Select **[SETTINGS]** (Item 2) [Figure 391].

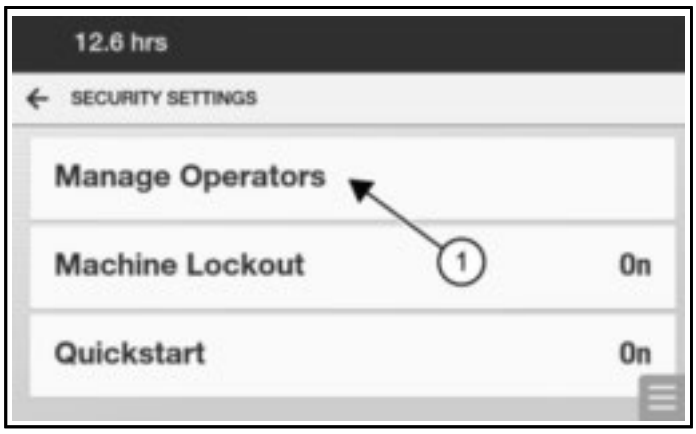
Figure 392



NA3668C

3. Select **[SECURITY]** (Item 1) [Figure 392].

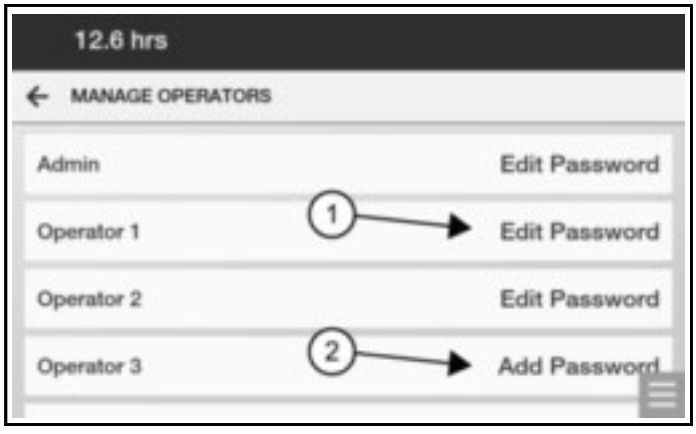
Figure 393



NA3676A

4. Select **[MANAGE OPERATORS]** (Item 1) [Figure 393].

Figure 394



NA3717A

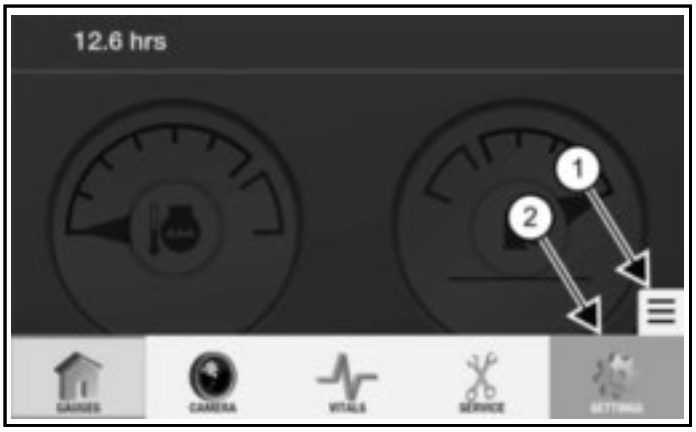
5. Select **[ADD PASSWORD]** (Item 2) [Figure 394] to enter a new operator.

   A maximum of four operators can be assigned.

6. Select **[EDIT PASSWORD]** (Item 1) [Figure 394] to change a password or remove an operator.

Language Settings

Figure 395

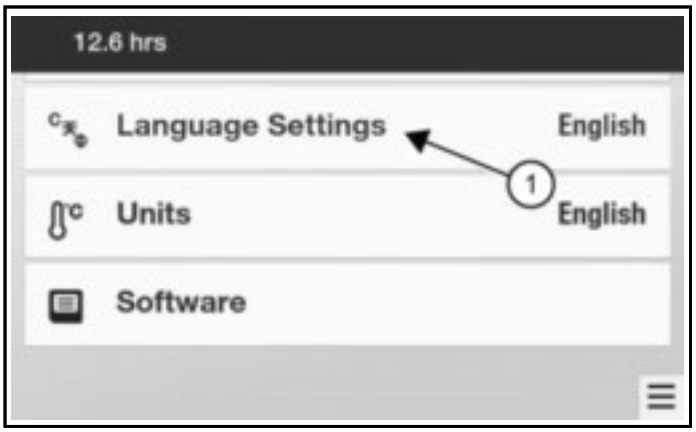


NA3669A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 395].

2. Select **[SETTINGS]** (Item 2) [Figure 395].

Figure 396



NA3678A

3. Select **[LANGUAGE SETTINGS]** (Item 1) [Figure 396].

Figure 397

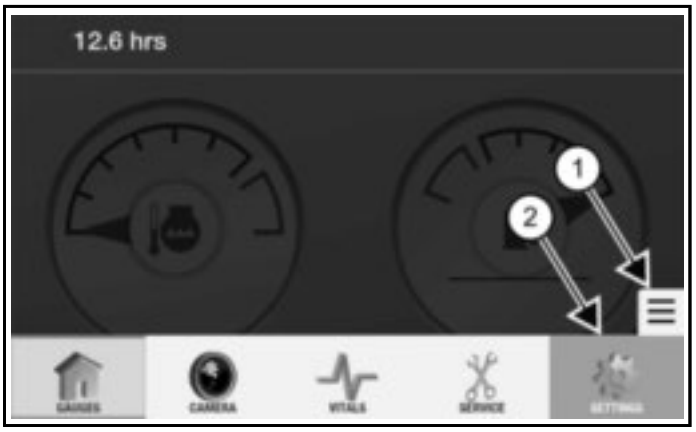


NA3718

4. Scroll up or down and select the desired language [Figure 397]. The selected language will take effect immediately.

Units

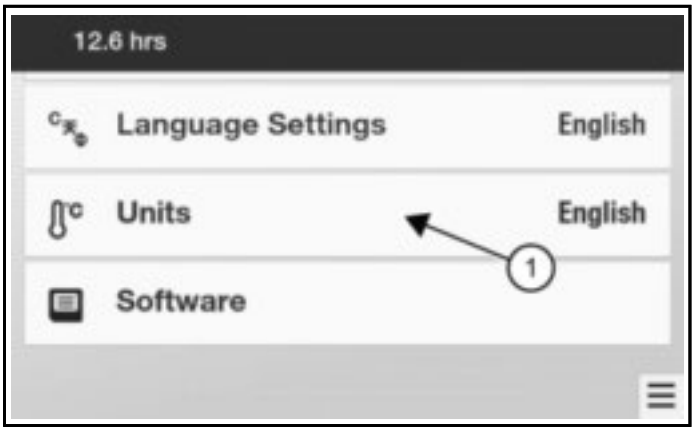
Figure 398



NA3669A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 398].
2. Select **[SETTINGS]** (Item 2) [Figure 398].

Figure 399

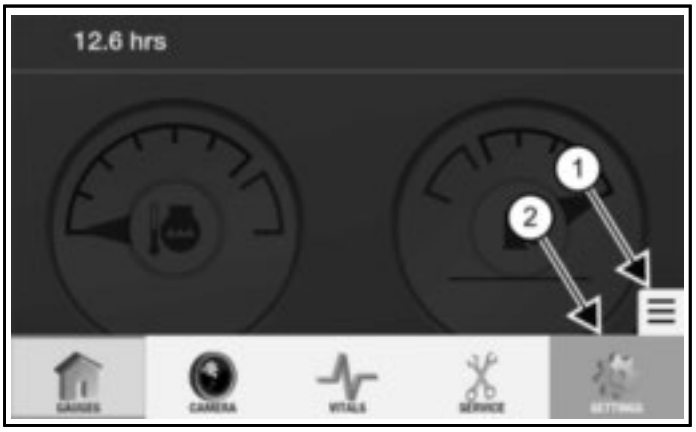


NA3678B

3. Scroll down and select **[UNITS]** (Item 1) [Figure 399] to toggle between English and Metric.

Software

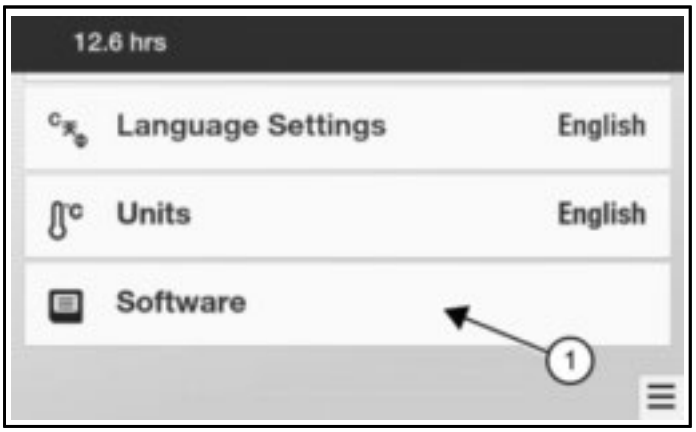
Figure 400



NA3669A

1. Select the **[NAVIGATION HANDLE]** icon (Item 1) [Figure 400].
2. Select **[SETTINGS]** (Item 2) [Figure 400].

Figure 401



NA3678C

3. Scroll down and select **[SOFTWARE INFORMATION]** (Item 1) [Figure 401].

Figure 402



NA3677

4. Your machine's current software version is shown [Figure 402]. Software updates can only be performed by your dealer.

GAUGES (TOUCH DISPLAY)

Vital Detail And Machine Performance

Figure 403



NA3444G

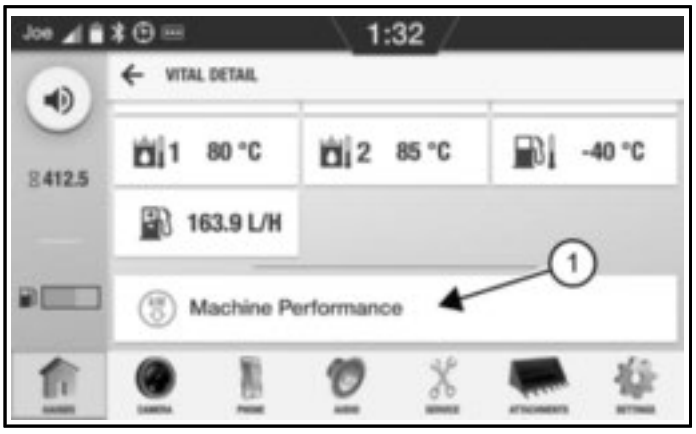
1. Select the **[VITAL DETAIL]** icon (Item 1) [Figure 403].

Figure 404



NA3593

Figure 405



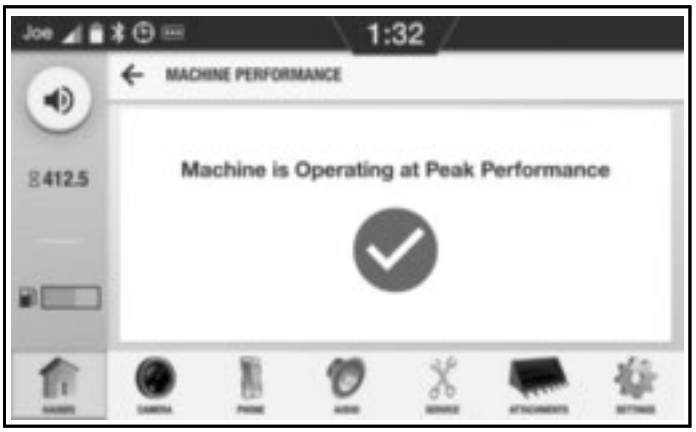
NA3594A

2. The following vitals can be viewed in a digital format [Figure 404] and [Figure 405]:

- Engine Speed (rpm)
- System Voltage
- Engine Oil Pressure
- Engine Oil Temperature
- Engine Coolant Temperature
- Intake Air Temperature
- Hydraulic Fluid Temperature - Pump Case Drain
- Hydraulic Fluid Temperature - Drive Motor Case Drain
- Fuel Temperature
- Fuel Consumption

3. Select **[MACHINE PERFORMANCE]** (Item 1) [Figure 405] to view limitations or restrictions that prevent machine damage.

Figure 406



NA3644

Figure 407



NA3645

Examples of machine performance screens are shown in [Figure 406] and [Figure 407]. Associated service codes may also be listed with a link to take you directly to the service codes screen.

Notification Drawer

Figure 408



NA3444B

1. Select the **[CURRENT TIME]** icon (Item 1) [Figure 408] to open the notification drawer.

Figure 409



NA3595A

2. The notification drawer [Figure 409] 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 228)
   - 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 409] to close the notification drawer.

CAMERA (TOUCH DISPLAY)

Camera Settings

Figure 410



1. Select **[CAMERA]** (Item 1) [Figure 410].

Figure 411



2. Select the **[CAMERA SETTINGS]** icon (Item 1) [Figure 411].

Figure 412



3. The following camera settings are available [Figure 412]:
   - Back-up lines on or off.
   - Adjustment of the back-up lines.
   - Center line on or off.
4. Select the **[BACK ARROW]** icon (Item 1) [Figure 412] 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 413



NA3647A

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 413].

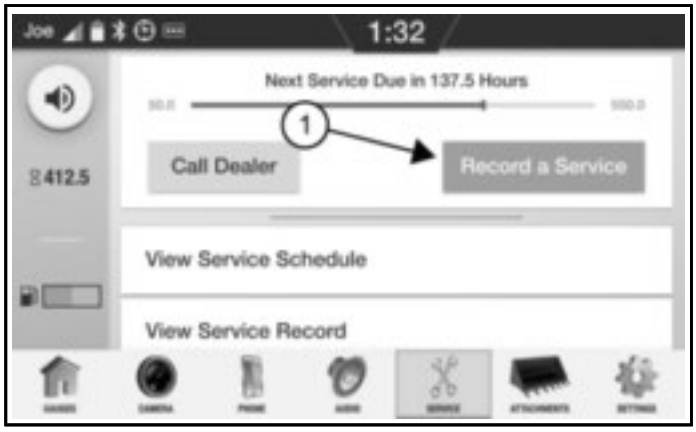
Figure 414



NA3444D

1. Select **[SERVICE]** Item 1) [Figure 414].

Figure 415

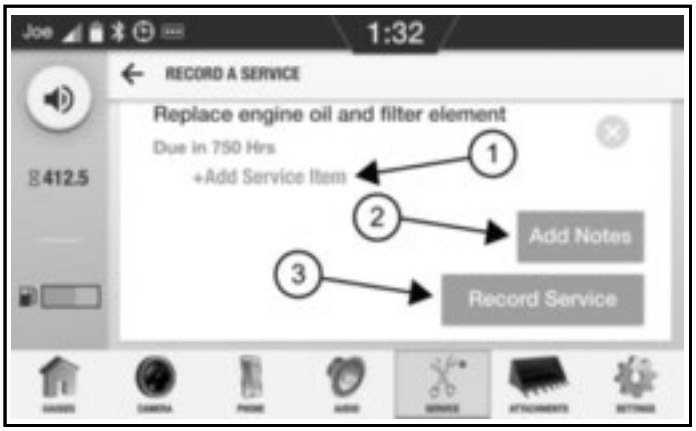


NA3596A

The time until next service due can be viewed at the top of the screen.

2. Select **[RECORD A SERVICE]** (Item 1) [Figure 415].

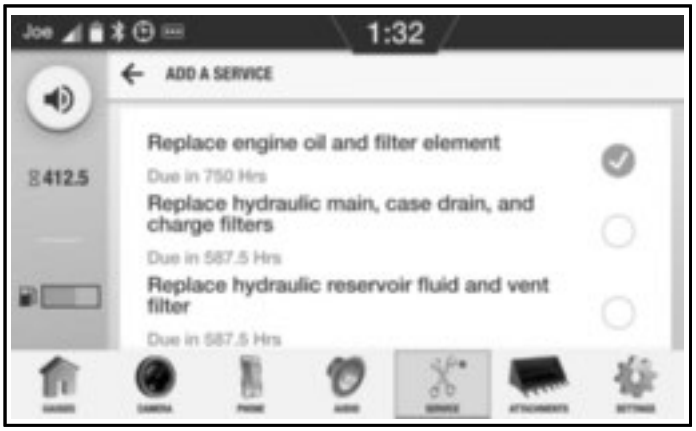
Figure 416



NA3598A

3. Select **[ADD SERVICE ITEM]** (Item 1) [Figure 416] to add new service items.

Figure 417



NA3646

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 417].

5. Select **[ADD NOTES]** (Item 2) [Figure 416] to add any information you wish to save about the service being recorded.

6. Select **[RECORD SERVICE]** (Item 3) [Figure 416] to record the service.

View Service Schedule

Figure 418



NA3647A

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 418].

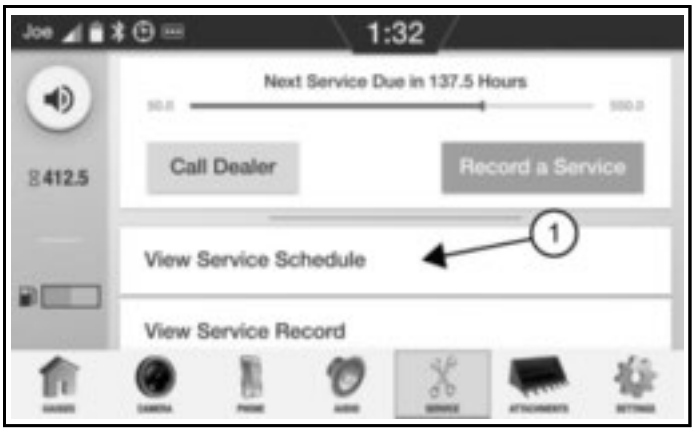
Figure 419



NA3444D

1. Select **[SERVICE]** (Item 1) [Figure 419].

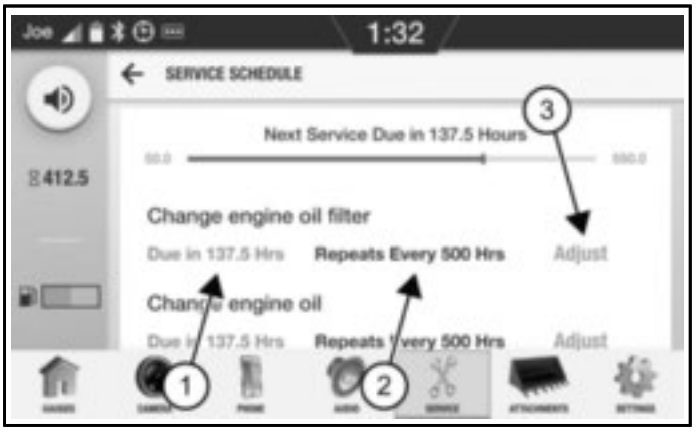
Figure 420



NA3596B

2. Select **[VIEW SERVICE SCHEDULE]** (Item 1) [Figure 420].

Figure 421

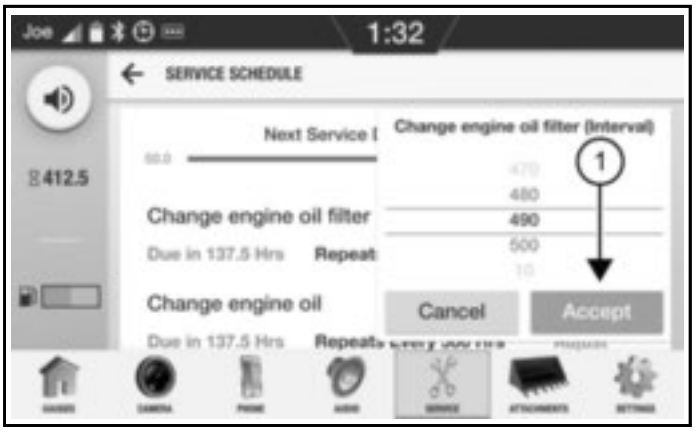


NA3599A

The time until the next service is due (Item 1) and the maintenance interval (Item 2) [Figure 421] are shown for each service item.

3. Select **[ADJUST]** (Item 3) [Figure 421] to change the maintenance interval of any service item. The interval can be more frequent, but cannot extend past the base requirement.

Figure 422



NA3600A

4. Scroll to the desired maintenance interval and select **[ACCEPT]** (Item 1) [Figure 422] 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 423



NA3444D

1. Select **[SERVICE]** (Item 1) [Figure 423].

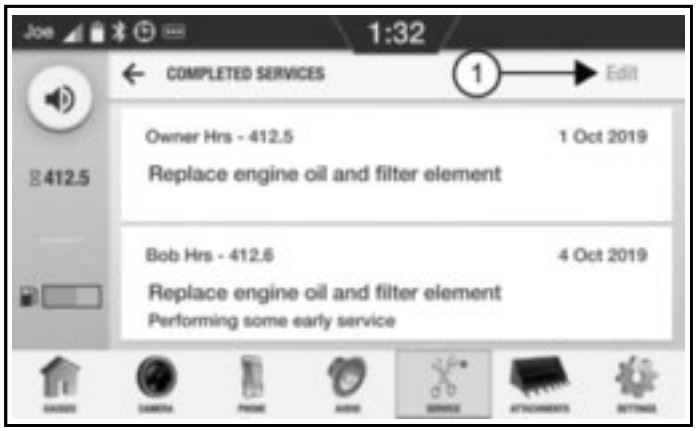
Figure 424



NA3597A

2. Scroll down and select **[VIEW SERVICE RECORD]** (Item 1) [Figure 424].

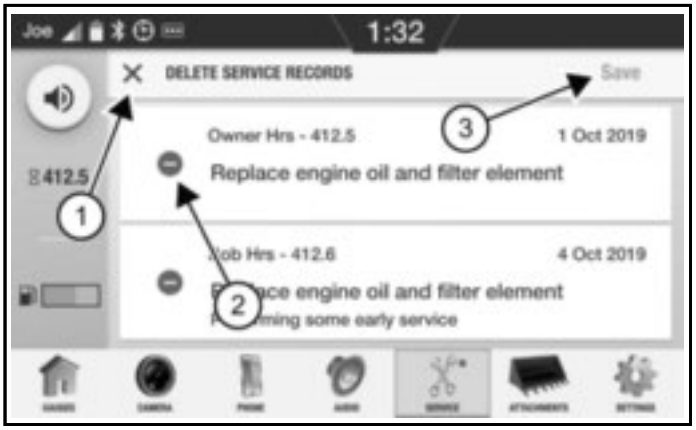
Figure 425



NA3601A

3. Select **[EDIT]** (Item 1) [Figure 425] to remove a record. The master or owner password must be entered to continue if not already logged in with the owner password.

Figure 426



NA3602A

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 426] to cancel.

View Service Codes

Figure 427



NA3444D

1. Select **[SERVICE]** (Item 1) [Figure 427].

Figure 428



NA3597B

2. Scroll down and select **[VIEW SERVICE CODES]** (Item 1) [Figure 428].

Figure 429



NA3603

3. Scroll down if necessary to see all service codes [Figure 429].

4. Select any service code to see detailed information [Figure 429].

Figure 430



NA3604

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 430].

Figure 431



NA3605

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 431].

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 13)

Obey all warnings and instructions in the attachment Operation & Maintenance Manual.

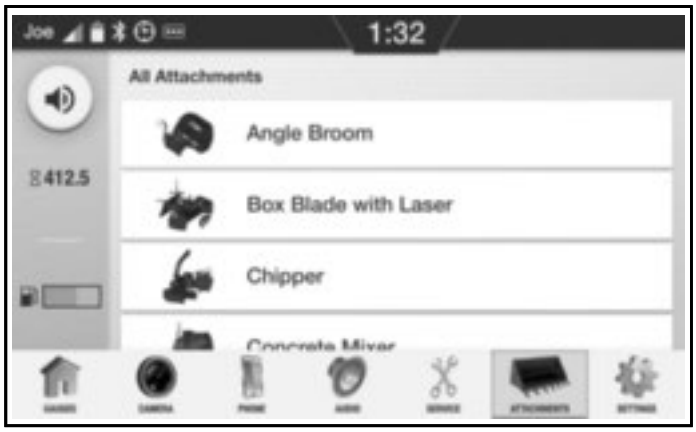
Figure 432



NA3444E

1. Select **[ATTACHMENTS]** (Item 1) [Figure 432].

Figure 433



NA3606

2. Scroll up or down and select the desired attachment [Figure 433].

Figure 434

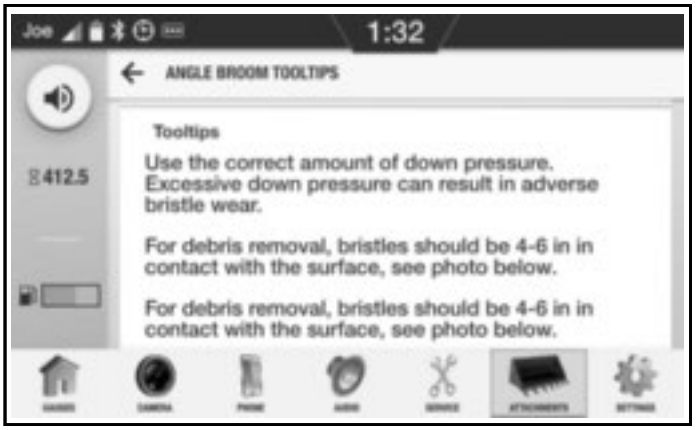


NA3607

The basic control information for the attachment is shown [Figure 434].

3. Some attachments have more than one operating instruction. Select the **[LEFT]** or **[RIGHT]** arrow icons to view the additional instructions [Figure 434].

Figure 435



NA3608

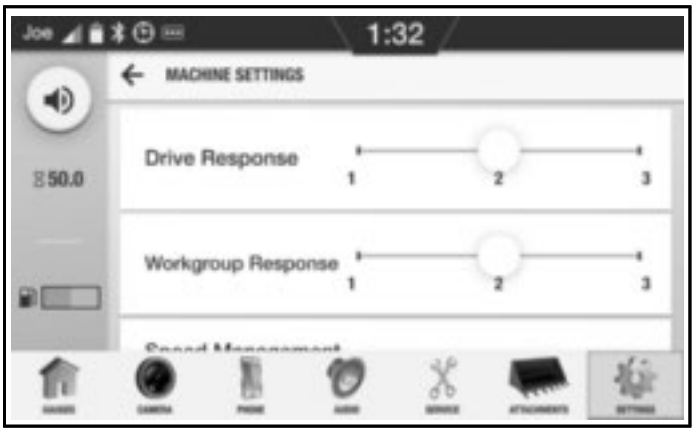
4. Scroll down to read the Tooltips for efficient use of the attachment [Figure 435].

SETTINGS (TOUCH DISPLAY)

Favorites

The favorite button on the jog shuttle (if equipped) can be configured to take you directly to screens that you commonly use.

Figure 436



NA3519

1. Navigate to a screen you commonly access [Figure 436].

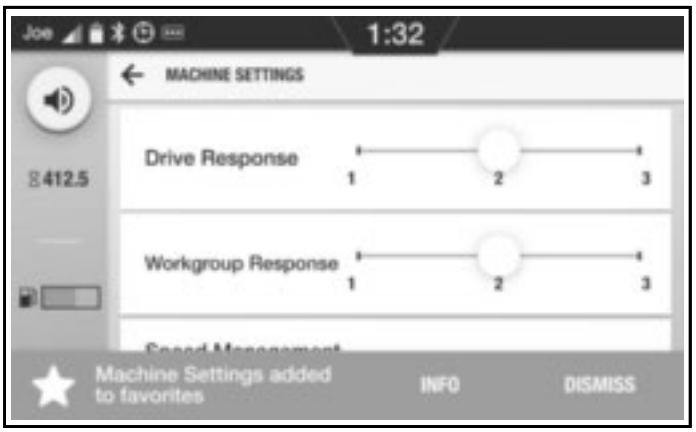
Figure 437



C200199B

2. Press and hold the **[FAVORITE]** button (Item 1) [Figure 437] on the jog shuttle.

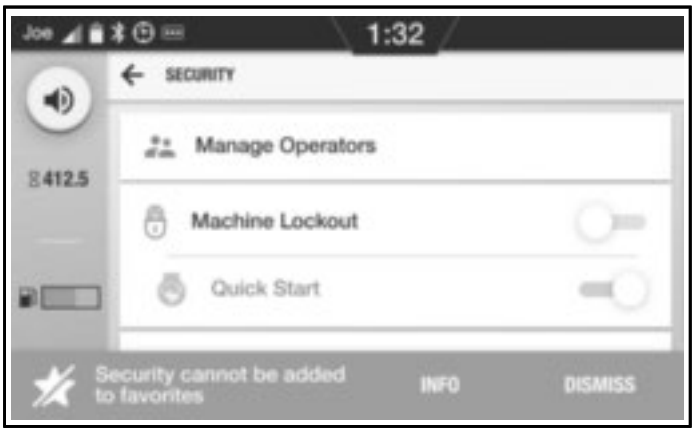
Figure 438



NA3612

3. A notification will tell you that a favorite screen has been added [Figure 438].

Figure 439



NA3611

Some screens are not allowed to be added to favorites [Figure 439].

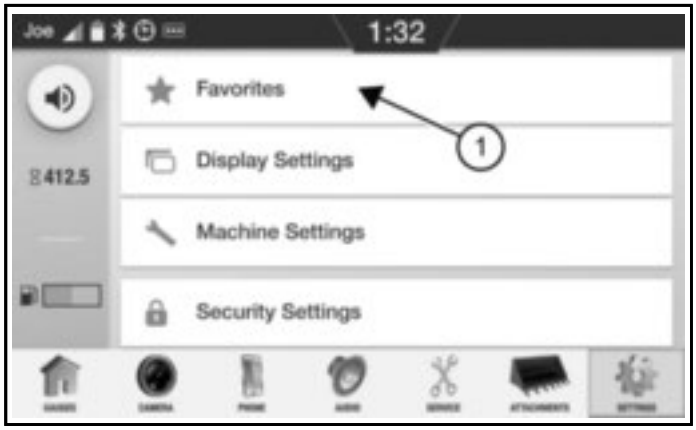
Figure 440



NA3444F

4. Select **[SETTINGS]** (Item 1) [Figure 440].

Figure 441



NA3613A

5. Select **[FAVORITES]** (Item 1) [Figure 441].

Figure 442



NA3609

Your favorite screens are displayed [Figure 442].

Each press of the favorite button on the jog shuttle will cycle through your favorite screens.

Figure 443



NA3610

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 443].

Display Settings

Figure 444



NA3444F

1. Select **[SETTINGS]** (Item 1) [Figure 444].

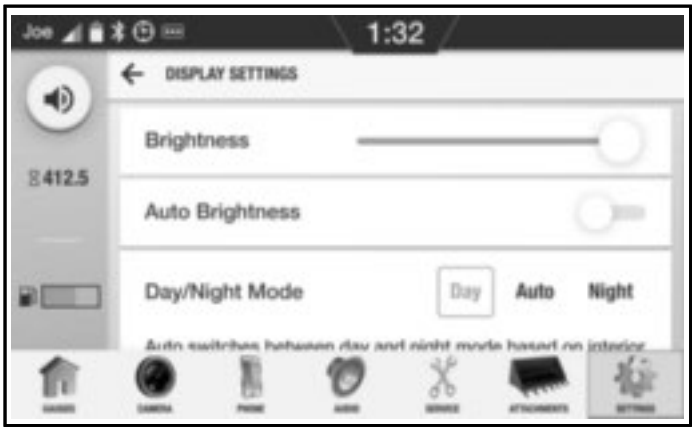
Figure 445



NA3613B

2. Select **[DISPLAY SETTINGS]** (Item 1) [Figure 445].

Figure 446



NA3648

Figure 447



NA3649

3. The following display settings are available [Figure 446] and [Figure 447]:

- 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 448



NA3444F

1. Select **[SETTINGS]** (Item 1) [Figure 448].

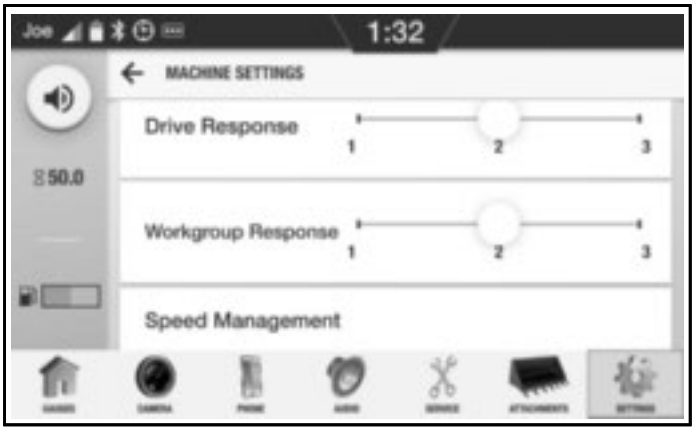
Figure 449



NA3613C

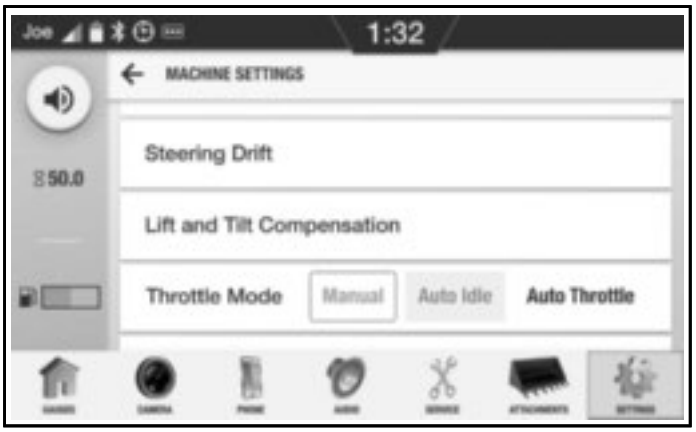
2. Select **[MACHINE SETTINGS]** (Item 1) [Figure 449].

Figure 450



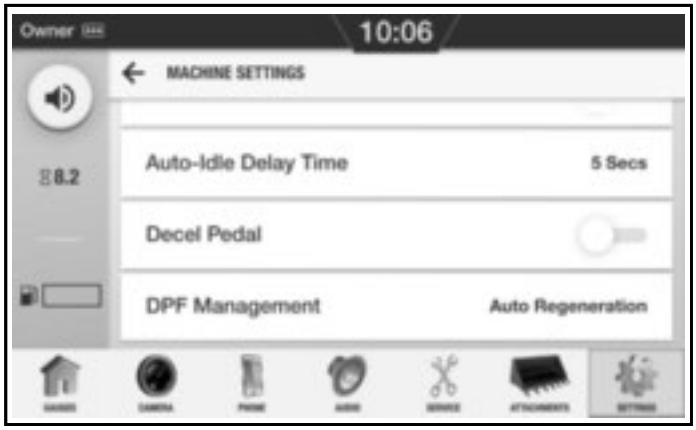
NA3650

Figure 451



NA3651

Figure 452



NA3866

3. The following machine settings may be available depending on machine configuration [Figure 450], [Figure 451], and [Figure 452]:
   - Drive Response (See Drive Response on Page 85)
   - Workgroup Response (See Workgroup Response on Page 93)
   - Speed Management (See Speed Management on Page 83)
   - Steering Drift (See Steering Drift Compensation on Page 87)
   - Lift and Tilt Compensation (See Lift and Tilt Compensation on Page 89)
   - Throttle Mode (See Auto Idle on Page 71) (See Auto Throttle on Page 73)
   - Auto Idle Delay Time - Adjustable from 4 seconds to 250 seconds
   - Decel Pedal (See Decel Pedal on Page 71)
   - DPF Management (See DPF Description on Page 61)

Security Settings

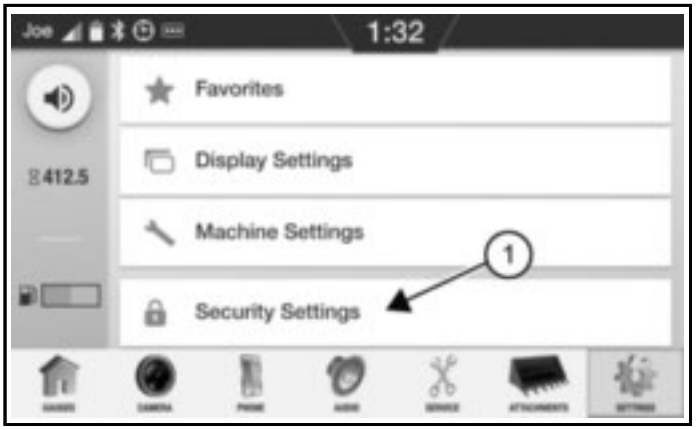
Figure 453



NA3444F

1. Select **[SETTINGS]** (Item 1) [Figure 453].

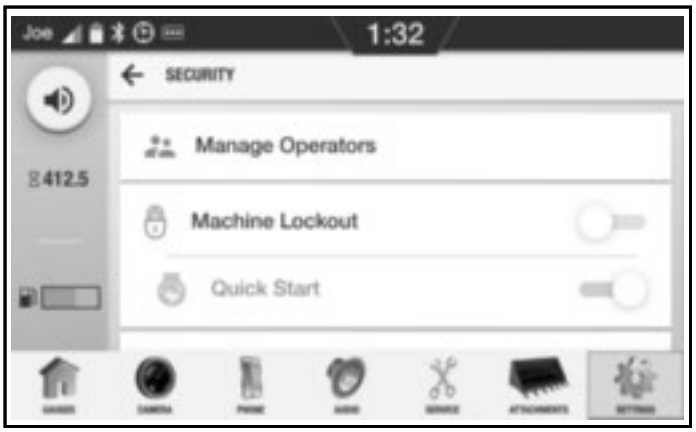
Figure 454



NA3613D

2. Select **[SECURITY SETTINGS]** (Item 1) [Figure 454].

Figure 455



NA3653

Figure 456



NA3654

3. The following security settings are available [Figure 455] and [Figure 456]:

- Manage Operators
  (See Security Settings (Manage Operators) on Page 226)
- 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 457



NA3444F

1. Select **[SETTINGS]** (Item 1) [Figure 457].

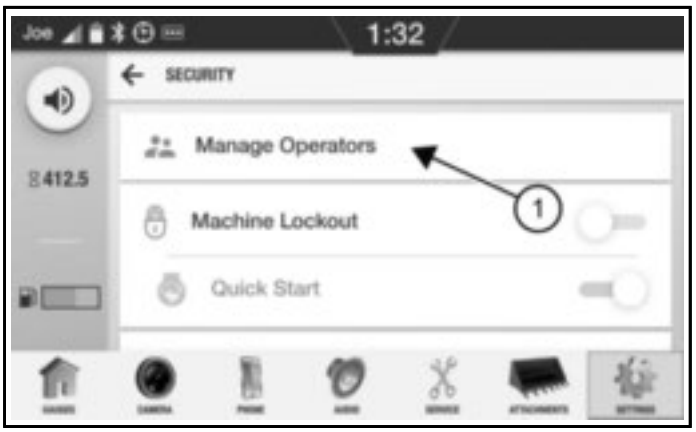
Figure 458



NA3613D

2. Select **[SECURITY SETTINGS]** (Item 1) [Figure 458].

Figure 459



NA3653A

3. Select **[MANAGE OPERATORS]** (Item 1) [Figure 459].

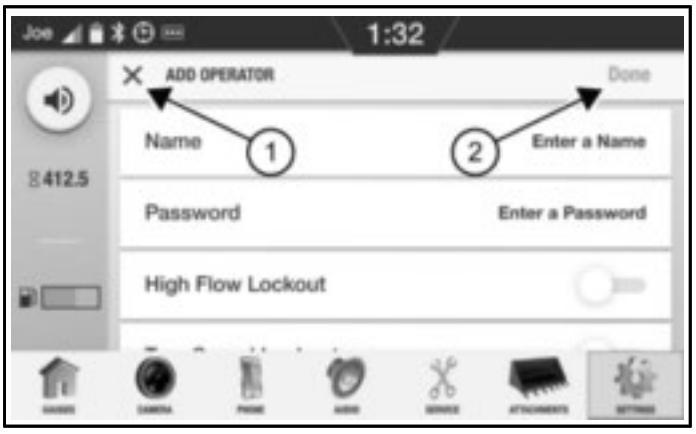
Figure 460



NA3655A

4. Select **[ADD AN OPERATOR]** (Item 1) [Figure 460] to enter a new operator.

Figure 461



NA3657A

5. The following information can be added [Figure 461]:

- Operator Name
- Operator Password
- High-Flow Lockout on or off - When on, operator cannot activate high-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 461] to cancel.

Edit Operator

Figure 462



NA3444F

1. Select **[SETTINGS]** (Item 1) [Figure 462].

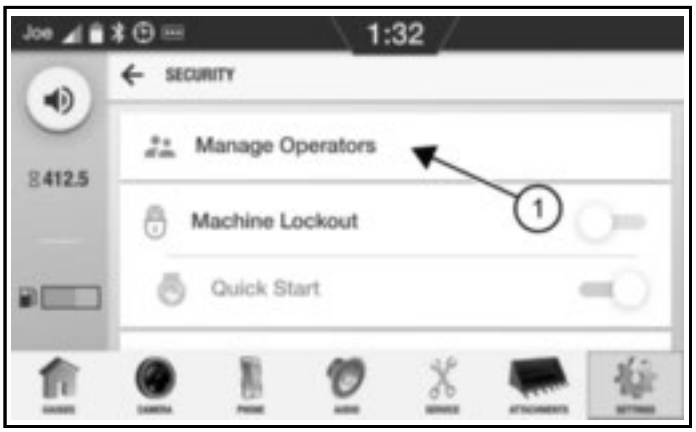
Figure 463



NA3613D

2. Select **[SECURITY SETTINGS]** (Item 1) [Figure 463].

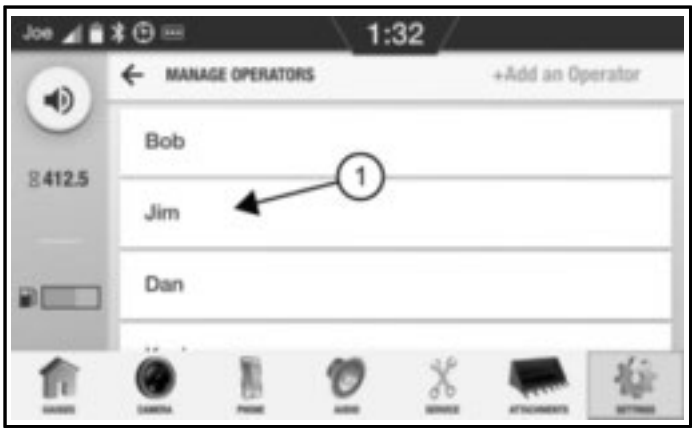
Figure 464



NA3653A

3. Select **[MANAGE OPERATORS]** (Item 1) [Figure 464].

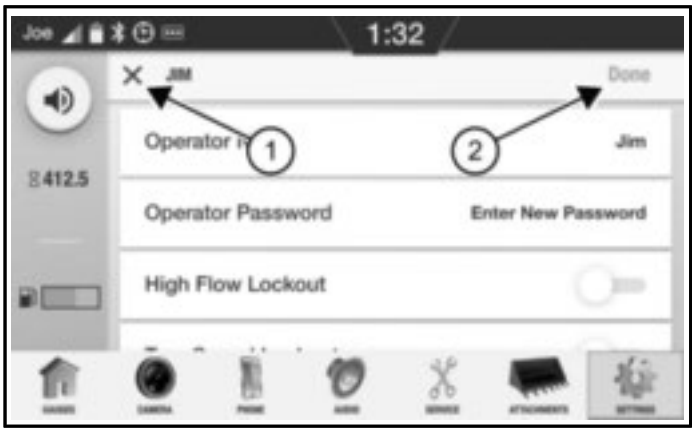
Figure 465



NA3655B

4. Select an **[OPERATOR'S NAME]** (Item 1) [Figure 465] to edit their information.

Figure 466



NA3656A

5. The following information can be edited [Figure 466]:

- Operator Name
- Operator Password
- High-Flow Lockout on or off - When on, operator cannot activate high-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 466] to cancel.

Operator Statistics

Figure 467



NA3444F

1. Select **[SETTINGS]** (Item 1) [Figure 467].

Figure 468



NA3614A

2. Scroll down and select **[OPERATOR STATISTICS]** (Item 1) [Figure 468].

Figure 469



NA3658

3. The following information can be viewed for each operator [Figure 469]:
   - Operator Name
   - Fuel used per hour
   - Idle Hours
   - Total Fuel used

Job Clocks

Figure 470



NA3444F

1. Select **[SETTINGS]** (Item 1) [Figure 470].

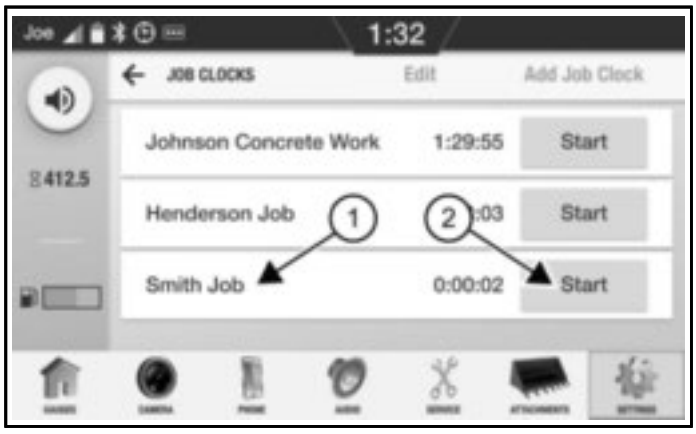
Figure 471



NA3614B

2. Scroll down and select **[JOB CLOCKS]** (Item 1) [Figure 471].

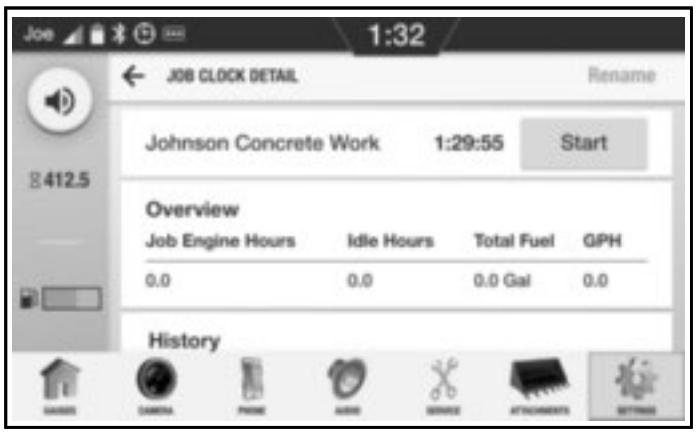
Figure 472



NA3665A

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 472].

Figure 473



NA3662

Figure 474



NA3663A

4. The job clock detail screen provides the following information [Figure 473] and [Figure 474]:
   - 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 474].

Adding And Removing Job Clocks

Add Job Clock

Figure 475



NA3444F

1. Select **[SETTINGS]** (Item 1) [Figure 475].

Figure 476



NA3614B

2. Scroll down and select **[JOB CLOCKS]** (Item 1) [Figure 476].

Figure 477



NA3665C

3. Select **[ADD JOB CLOCK]** (Item 1) [Figure 477] and add the name on the next screen.

Remove Job Clock

Figure 478



NA3665D

1. Select **[EDIT]** (Item 1) [Figure 478].

Figure 479



NA3664A

2. Select the **[-]** icon next to the job clock name you want to remove [Figure 479].

3. Select **[SAVE]** (Item 2) to save changes or select the **[X]** icon (Item 1) [Figure 479] to cancel.

Language Settings

Figure 480



NA3444F

1. Select **[SETTINGS]** (Item 1) [Figure 480].

Figure 481



NA3614C

2. Scroll down and select **[LANGUAGE SETTINGS]** (Item 1) [Figure 481].

Figure 482



NA3659A

3. The current language is identified by a check mark icon (Item 1) [Figure 482].

4. Scroll up or down and select the desired language. The selected language will take effect immediately and is set for each operator.

Units

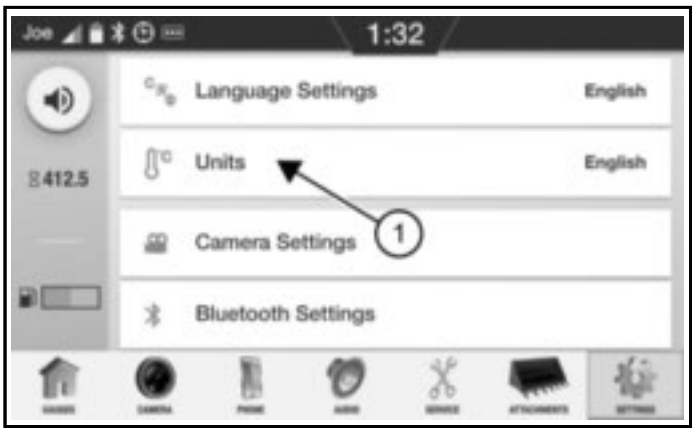
Figure 483



NA3444F

1. Select **[SETTINGS]** (Item 1) [Figure 483].

Figure 484



NA3615A

2. Scroll down and select **[UNITS]** (Item 1) [Figure 484] to toggle between English and Metric.

Camera Settings

(See Camera (Touch Display) on Page 215)

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

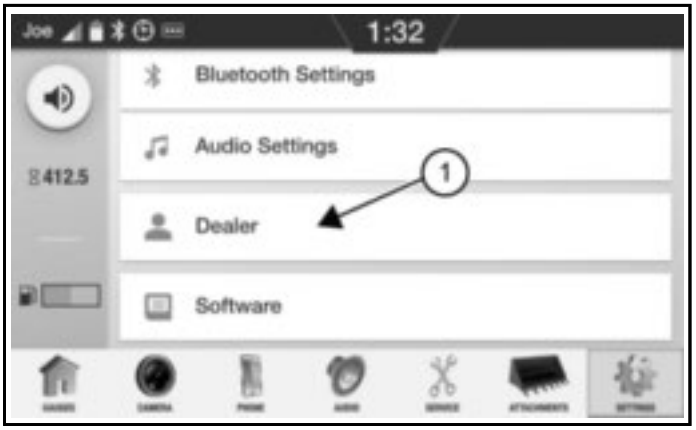
Figure 485



NA3444F

1. Select **[SETTINGS]** (Item 1) [Figure 485].

Figure 486



2. Scroll down and select **[DEALER]** (Item 1) [Figure 486].

Figure 487



3. Your Bobcat dealer's information can only be changed by your dealer [Figure 487].

4. Press **[CALL]** (Item 1) [Figure 487] to call your dealer if they entered their phone number on this screen and a phone is connected to the machine.

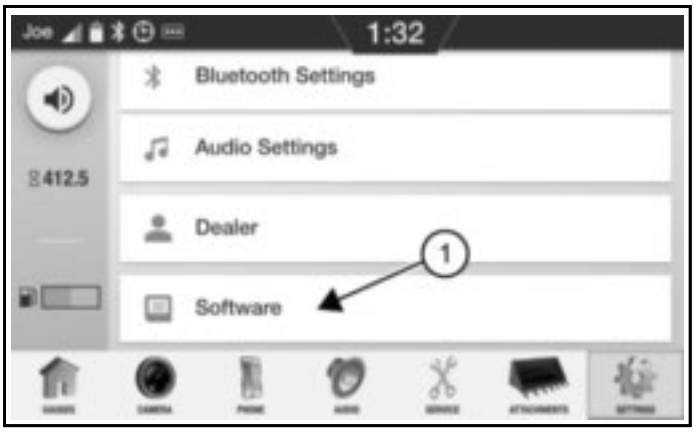
Software

Figure 488



1. Select **[SETTINGS]** (Item 1) [Figure 488].

Figure 489



2. Scroll down and select **[SOFTWARE]** (Item 1) [Figure 489].

Figure 490



3. Your machine's current software versions are shown [Figure 490]. Software updates can only be performed by your dealer.

DIAGNOSTIC SERVICE CODES

Service Codes List

CODE	DESCRIPTION
B1001-96	Key Switch Failure
B1005-00	Key Switch Multiple
B102A-16	Cab Controller Sensor Supply Voltage Out of Range Low
B102A-17	Cab Controller Sensor Supply Voltage Out of Range High
B1030-11	Front Left Work Light Short to Ground
B1030-12	Front Left Work Light Short to Battery
B1030-13	Front Left Work Light Open Circuit
B1031-11	Front Right Work Light Short to Ground
B1031-12	Front Right Work Light Short to Battery
B1031-13	Front Right Work Light Open Circuit
B1034-12	Rear Work Lights Short to Battery
B1034-14	Rear Work Lights Short to Ground or Open
B1035-12	Rear Left Tail Light Short to Battery
B1035-14	Rear Left Tail Light Short to Ground or Open Circuit
B1036-12	Rear Tail Lights Short to Battery
B1036-14	Rear Tail Lights Short to Ground or Open
B1037-12	Stop Lamp Short to Battery
B1037-14	Stop Lamp Short to Ground or Open Circuit
B1038-12	Registration Plate Lamp Short to Battery
B1038-14	Registration Plate Lamp Short to Ground or Open Circuit
B1039-11	Side Lights Short to Ground
B1039-12	Side Lights Short to Battery
B1039-13	Side Lights Open Circuit
B1040-12	Buzzer Short to Battery
B1040-14	Buzzer Short to Ground or Open
B1041-12	Backup Alarm Short to Battery
B1041-14	Backup Alarm Short to Ground or Open
B1042-12	Horn Relay Short to Battery
B1042-14	Horn Relay Short to Ground or Open Circuit
B1050-12	HVAC Output Short to Battery
B1050-14	HVAC Output Short to Ground or Open Circuit
B1051-93	HVAC Inside Sensor In Error
B1052-93	HVAC De-ice Sensor In Error
B1053-93	HVAC Coil Sensor In Error
B1054-11	HVAC Clutch Output Short to Ground
B1054-12	HVAC Clutch Output Short to Battery
B1054-13	HVAC Clutch Output Open Circuit
B1054-19	HVAC Clutch Output Current Out of Range High
B1055-93	HVAC Water Valve In Error
B1060-09	Lift Pedal Failure
B1060-F0	Lift Pedal Not in Neutral
B1061-16	Lift Pedal Sensor A Out of Range Low
B1061-17	Lift Pedal Sensor A Out of Range High
B1062-16	Lift Pedal Position Sensor "B" Out of Range Low
B1062-17	Lift Pedal Position Sensor "B" Out of Range High
B1063-00	Lift Pedal Sensor In Error
B1064-F0	Lift Joystick Not in Neutral
B1065-F0	Lift Input Not in Neutral
B1070-09	Tilt Pedal Failure
B1070-F0	Tilt Pedal Not in Neutral
B1071-16	Tilt Pedal Sensor A Out of Range Low
B1071-17	Tilt Pedal Sensor A Out of Range High
B1072-16	Tilt Pedal Position Sensor "B" Out of Range High
B1072-17	Tilt Pedal Position Sensor "B" Out of Range Low
B1073-00	Tilt Pedal Sensor In Error
B1074-F0	Tilt Joystick Not in Neutral
B1075-F0	Tilt Input Not in Neutral
B1080-09	Seat Bar Failure
B1080-16	Seat Bar Out of Range Low
B1080-17	Seat Bar Out of Range High

CODE	DESCRIPTION
B1090-00	Door Open
B1091-16	Door Sensor Out of Range Low
B10A0-12	Wiper Output Short to Battery
B10A0-14	Wiper Output Short to Ground or Open Circuit
B10A1-12	Washer Fluid Output Short to Battery
B10A1-14	Washer Fluid Output Short to Ground or Open Circuit
B10B0-00	Drive ISO/H Pattern Switch Flipped While Operating
B10B1-F0	Drive Input Not in Neutral
B10B3-F0	Drive X Input Not In Neutral
B10B6-F0	Drive Y Input Not In Neutral
B10B9-F0	Drive Left Input Not In Neutral
B10BC-F0	Drive Right Input Not In Neutral
B10C0-00	Camera Not Connected
B10C1-00	Camera Error
B10D0-11	Display Switched Power Output Short to Ground
B10D0-12	Display Switched Power Relay Short to Battery
B10D0-14	Display Switched Power Relay Short to Ground or Open
B1100-9E	Bobtach Engage Button Stuck On
B1101-9E	Bobtach Disengage Button Stuck On
B1110-F0	Left Primary - Not in Neutral
B1111-F0	Left Secondary Not in Neutral
B1120-F0	Right Primary Not in Neutral
B1121-F0	Right Secondary Not in Neutral
B1122-F0	Detent Not in Neutral
B116F-11	Front Left Road Light Short to Ground
B116F-12	Front Left Road Light Short to Battery
B116F-13	Front Left Road Light Open Circuit
B1177-12	Left Turn Signal Short to Battery
B1177-14	Left Turn Signal Short to Ground or Open Circuit
B117F-11	Front Right Road Light Short to Ground
B117F-12	Front Right Road Light Short to Battery

CODE	DESCRIPTION
B117F-13	Front Right Road Light Open Circuit
B1187-12	Right Turn Signal Short to Battery
B1187-14	Right Turn Signal Short to Ground or Open Circuit
C1001-16	Sensor Supply Out of Range Low
C1001-17	Sensor Supply Out of Range High
C1002-16	Sensor Supply Out of Range Low
C1002-17	Sensor Supply Out of Range High
C1003-16	Sensor Supply Out of Range Low
C1003-17	Sensor Supply Out of Range High
C1004-16	Drive Controller Sensor Supply Out of Range Low
C1004-17	Drive Controller Sensor Supply Out of Range High
C100A-11	ECU Power Short to Ground
C100A-12	ECU Power Short to Battery
C100A-13	ECU Power Open Circuit
C100B-11	Swash Plate Sensor Supply Short to Ground
C100B-15	Swash Plate Sensor Supply Short to Battery
C1015-16	Lift Spool Position Sensor Out of Range Low
C1015-17	Lift Spool Position Sensor Out of Range High
C1015-93	Lift Spool Position Sensor Unresponsive
C1015-F0	Lift Spool Position Sensor Not in Neutral
C1016-16	Tilt Spool Position Sensor Out of Range Low
C1016-17	Tilt Spool Position Sensor Out of Range High
C1016-93	Tilt Spool Position Sensor Unresponsive
C1016-F0	Tilt Spool Position Sensor Not in Neutral
C101A-16	Lift Base Pressure Out of Range Low
C101A-17	Lift Base Pressure Out of Range High
C101D-16	Tilt Rod Pressure Sensor Out of Range Low
C101D-17	Tilt Rod Pressure Sensor Out of Range High
C1020-11	Front Aux Base Solenoid Short to Ground

CODE	DESCRIPTION
C1020-12	Front Aux Base Solenoid Short to Battery
C1020-13	Front Aux Base Solenoid Open Circuit
C1020-19	Front Aux Base Solenoid Current Out of Range High
C1021-11	Front Aux Rod Solenoid Short to Ground
C1021-12	Front Aux Rod Solenoid Short to Battery
C1021-13	Front Aux Rod Solenoid Open Circuit
C1021-19	Front Aux Rod Solenoid Current Out of Range High
C1029-11	Hydraulic Lock Solenoid Short to Ground
C1029-12	Hydraulic Lock Solenoid Short to Battery
C1029-13	Hydraulic Lock Solenoid Open Circuit
C102A-11	Hydraulic Fan Short to Ground
C102A-12	Hydraulic Fan Short to Battery
C102A-13	Hydraulic Fan Solenoid Open Circuit
C102A-19	Hydraulic Fan Solenoid Current Out of Range High
C102B-11	Reverse Fan Short to Ground
C102B-12	Reverse Fan Short to Battery
C102B-13	Reverse Fan Open Circuit
C1030-00	Two Speed Shift Not Allowed
C1032-11	Brake Pull Output Short to Ground
C1032-12	Brake Pull Output Short to Battery
C1032-13	Brake Pull Output Open Circuit
C1033-11	Left Brake Hold Output Short to Ground
C1033-12	Left Brake Hold Output Short to Battery
C1033-13	Left Brake Hold Output Open Circuit
C1034-11	Right Brake Hold Output Short to Ground
C1034-12	Right Brake Hold Output Short to Battery
C1034-13	Right Brake Hold Output Open Circuit
C1035-16	Left Brake Pull Feedback Voltage Out of Range Low
C1035-17	Left Brake Pull Feedback Voltage Out of Range High
C1036-16	Right Brake Pull Feedback Voltage Out of Range Low

CODE	DESCRIPTION
C1036-17	Right Brake Pull Feedback Circuit Voltage Out of Range High
C1039-11	High Flow Solenoid Short to Ground
C1039-12	High Flow Solenoid Short to Battery
C1039-13	High Flow Solenoid Open Circuit
C1039-19	High Flow Solenoid Current Out of Range High
C103A-11	Ride Control 1 Short to Ground
C103A-12	Ride Control 1 Short to Battery
C103A-13	Ride Control 1 Open Circuit
C103B-11	Ride Control 2 Short to Ground
C103B-12	Ride Control 2 Short to Battery
C103B-13	Ride Control 2 Open Circuit
C103C-11	Bobtach Engage Short to Ground
C103C-12	Bobtach Engage Short to Battery
C103C-13	Bobtach Engage Open Circuit
C103D-11	Bobtach Disengage Short to Ground
C103D-12	Bobtach Disengage Short to Battery
C103D-13	Bobtach Disengage Open Circuit
C1040-11	Lift Actuator Short to Ground
C1040-12	Lift Actuator Short to Battery
C1040-13	Lift Actuator Open Circuit
C1040-19	Lift Actuator Current Out of Range High
C1040-77	Lift Actuator Commanded Position Not Reachable
C1041-00	Lift Spool Position Sensor Inverted Movement
C1042-00	Lift Actuator Uncommanded Motion
C1045-11	Tilt Actuator Short to Ground
C1045-12	Tilt Actuator Short to Battery
C1045-13	Tilt Actuator Open Circuit
C1045-19	Tilt Actuator Current Out of Range High
C1045-77	Tilt Actuator Commanded Position Not Reachable
C1046-00	Tilt Spool Position Sensor Inverted Movement
C1047-00	Tilt Actuator Uncommanded Motion
C104A-00	Lift Float Failed to achieve float

CODE	DESCRIPTION
C104C-00	Lift Float Failed to maintain float
C1050-11	Switched Power Relay Short to Ground
C1050-12	Switched Power Relay Short to Battery
C1050-13	Switched Power Relay Open Circuit
C1051-11	Two Speed Solenoid Short to Ground
C1051-12	Two Speed Solenoid Short to Battery
C1051-13	Two Speed Solenoid Open Circuit
C1051-19	Two Speed Solenoid Current Out of Range High
C1070-11	Rear Auxiliary Base Solenoid Short to Ground
C1070-12	Rear Auxiliary Base Solenoid Short to Battery
C1070-13	Rear Auxiliary Base Solenoid Open Circuit
C1071-11	Rear Auxiliary Base Lock Solenoid Short to Ground
C1071-12	Rear Auxiliary Base Lock Solenoid Short to Battery
C1071-13	Rear Auxiliary Base Lock Open Circuit
C1075-11	Rear Auxiliary Rod Solenoid Short to Ground
C1075-12	Rear Auxiliary Rod Solenoid Short to Battery
C1075-13	Rear Auxiliary Rod Solenoid Open Circuit
C1076-11	Rear Auxiliary Rod Lock Solenoid Short to Ground
C1076-12	Rear Auxiliary Rod Lock Solenoid Short to Battery
C1076-13	Rear Auxiliary Rod Solenoid Open Circuit
C1080-F8	Hydraulic Charge Pressure Extremely Low
C1080-F9	Hydraulic Charge Pressure Low
C1080-FA	Hydraulic Charge Pressure High
C1080-FB	Hydraulic Charge Pressure Extremely High
C1090-00	Hydraulic Filter Plugged
C1091-95	Hydraulic Main Filter Switch Not Connected
C1097-16	Hydraulic Charge Pressure Sensor Out of Range Low

CODE	DESCRIPTION
C1097-17	Hydraulic Charge Pressure Sensor Out of Range High
C10A0-16	Drive Motor Case Drain Hydraulic Oil Temperature Out of Range Low
C10A0-17	Drive Motor Case Drain Hydraulic Oil Temperature Out of Range High
C10A1-FA	Drive Motor Case Drain Hydraulic Oil Temperature High
C10A1-FB	Drive Motor Case Drain Hydraulic Oil Temperature Extremely High
C10A1-FC	Drive Motor Case Drain Hydraulic Oil Temperature Reduced Performance
C10A5-16	Pump Case Drain Hydraulic Oil Temperature Out of Range Low
C10A5-17	Pump Case Drain Hydraulic Oil Temperature Out of Range High
C10A6-FA	Pump Case Drain Hydraulic Oil Temperature High
C10A6-FB	Pump Case Drain Hydraulic Oil Temperature Extremely High
C10A6-FC	Pump Case Drain Hydraulic Oil Temperature High
C10C0-77	Right Swash Plate Commanded Position Not Reachable
C10C0-93	Right Swash Plate in Error
C10C0-F0	Right Swash Plate Not in Neutral
C10C1-16	Right Swash Plate Sensor Out of Range Low
C10C1-17	Right Swash Plate Sensor Out of Range High
C10C2-16	Right Swash Plate Secondary Circuit Out of Range Low
C10C2-17	Right Swash Plate Secondary Circuit Out of Range High
C10C5-77	Left Swash Plate Commanded Position Not Reachable
C10C5-93	Left Swash Plate in Error
C10C5-F0	Left Swash Plate Not in Neutral
C10C6-16	Left Swash Plate Sensor Out of Range Low
C10C6-17	Left Swash Plate Sensor Out of Range High
C10C7-16	Left Swash Plate Secondary Circuit Out of Range Low

CODE	DESCRIPTION
C10C7-17	Left Swash Plate Secondary Circuit Out of Range High
C10D0-54	Drive Pump Not Calibrated
C1140-16	Drive Pressure Sensor Right Forward Out of Range Low
C1140-17	Drive Pressure Sensor Right Forward Out of Range High
C1141-16	Drive Pressure Sensor Right Reverse Out of Range Low
C1141-17	Drive Pressure Sensor Right Reverse Out of Range High
C1145-16	Drive Pressure Sensor Left Forward Out of Range Low
C1145-17	Drive Pressure Sensor Left Forward Out of Range High
C1146-16	Drive Pressure Sensor Left Reverse Out of Range Low
C1146-17	Drive Pressure Sensor Left Reverse Out of Range High
C114A-16	Hydraulic Implement Pump Pressure Out of Range Low
C114A-17	Hydraulic Implement Pump Pressure Out of Range High
C114B-11	Implement Pump Solenoid Short to Ground
C114B-12	Implement Pump Solenoid Short to Battery
C114B-13	Implement Pump Solenoid Open Circuit
C114B-19	Implement Pump Solenoid Current Out of Range High
C116A-11	Bypass Valve Solenoid Short to Ground
C116A-12	Bypass Valve Solenoid Short to Battery
C116A-19	Bypass Valve Solenoid Overcurrent
C116C-11	Main Valve Relief Solenoid Short to Ground
C116C-12	Main Valve Relief Solenoid Short to Battery
C116C-13	Main Valve Relief Solenoid Open Circuit
C116C-19	Main Valve Relief Solenoid Overcurrent
C1182-A2	Alternator Voltage Low
C1182-A3	Alternator Voltage High
C1190-00	System Voltage Out of Range Low

CODE	DESCRIPTION
C1192-00	System Voltage Extremely Low
C1193-00	System Voltage Too Low
C1195-00	System Voltage High
C1196-00	System Voltage Extremely High
C11C0-11	Left Forward Drive Solenoid Short to Ground
C11C0-12	Left Forward Drive Solenoid Short to Battery
C11C0-13	Left Forward Drive Solenoid - Open Circuit
C11C0-19	Left Forward Drive Solenoid Circuit Out of Range High
C11C2-11	Left Reverse Drive Solenoid Short to Ground
C11C2-12	Left Reverse Drive Solenoid Short to Battery
C11C2-13	Left Reverse Drive Solenoid - Open Circuit
C11C2-19	Left Reverse Drive Solenoid - Current Out of Range High
C11C4-11	Right Forward Drive Solenoid Short to Ground
C11C4-12	Right Forward Drive Solenoid Short to Battery
C11C4-13	Right Forward Drive Solenoid - Open Circuit
C11C4-19	Right Forward Drive Solenoid - Current Out of Range High
C11C6-11	Right Reverse Drive Solenoid Short to Ground
C11C6-12	Right Reverse Drive Solenoid Short to Battery
C11C6-13	Right Reverse Drive Solenoid - Open Circuit
C11C6-19	Right Reverse Drive Solenoid - Current Out of Range High
LOWVLTG	Low Battery Voltage
P0002	Fuel Rail Pressure Fault
P0003	Fuel Rail Pressure Fault
P0004	Fuel Rail Pressure Fault
P000F	Fuel Rail Pressure High - Over Relief
P0072	Engine Compartment Temperature Sensor Out of Range Low

CODE	DESCRIPTION
P0073	Engine Compartment Temperature Sensor Out of Range High
P007C	Inlet Air Temperature Sensor Out of Range Low
P007D	Inlet Air Temperature Sensor Out of Range High
P0087	Fuel Rail Pressure Fault
P009B	Common Rail Pressure Relief Valve Open Count Exceeds Limit
P009C	Common Rail Pressure Relief Valve Opened
P009D	Common Rail Pressure Relief Valve Opened
P009F	High Rail Pressure
P00AC	Intake Manifold Temperature Sensor Out of Range Low
P00AD	Intake Manifold Temperature Sensor Out of Range High
P00BC	Low Manifold Absolute Pressure (Low boost)
P00BE	Air Flow Fault (MAF / MAP agreement)
P0100	Mass Air Flow Sensor Short to Battery or Open Circuit
P0101	Mass Air Flow Sensor Electrical Fault
P0102	Mass Air Flow Sensor Out of Range Low
P0103	Mass Air Flow Sensor Out of Range High
P0107	Manifold Absolute Pressure Sensor Out of Range Low
P0108	Manifold Absolute Pressure Sensor Out of Range High
P0117	Coolant Temperature Sensor Out of Range Low
P0118	Coolant Temperature Sensor Out of Range High
P011E	Coolant Temperature Low Fault
P0121	Engine Speed Control Signal Fault
P0122	Engine Speed Control Signal Fault
P0123	Engine Speed Control Signal Fault
P0124	Engine Speed Control Signal Fault
P0182	Fuel Temperature Sensor Out of Range Low

CODE	DESCRIPTION
P0183	Fuel Temperature Sensor Out of Range High
P018C	Low Fuel Filter Pressure
P018D	High Fuel Filter Pressure
P018F	Common Rail Pressure Relief Valve Open Time Exceeds Limit
P0192	Rail Pressure Sensor Out of Range Low
P0193	Rail Pressure Sensor Out of Range High
P0196	Oil Level/Temp Sensor Fault
P01C2	Fuel Filter Pressure Sensor Out of Range Low
P01C4	Low Fuel Filter Pressure Warning
P01C5	Low Fuel Filter Pressure - Derate
P01C6	Fuel Filter Pressure Sensor Out of Range High
P0201	Injector #1 Open Circuit
P0202	Injector #2 Open Circuit
P0203	Injector #3 Open Circuit
P0204	Injector #4 Open Circuit
P0215	Engine Shutoff Request Signal Detected
P0218	CAN Communication Fault - Transmission Oil Temperature
P0219	Engine Overspeed Detected
P0221	Engine Speed Control Signal Fault
P0222	Engine Speed Control Signal Fault
P0223	Engine Speed Control Signal Fault
P0224	Engine Speed Control Signal Fault
P0225-16	Throttle Pedal Sensor Out of Range Low
P0225-17	Throttle Pedal Sensor Out of Range High
P0252	Low Fuel Rail Pressure
P0254	Fuel Rail Pressure Control Fault
P025A	Fuel Metering Unit Open Circuit
P025B	Fuel Metering Unit Fault
P025C	Fuel Metering Unit Short to Ground
P025D	Fuel Metering Unit Short to Battery
P028A	Fan PWM Open Circuit
P028D	Fan PWM Short to Ground

CODE	DESCRIPTION
P028E	Fan PWM Short to Battery
P02E0	Air Control Valve H-Bridge Drive Open Circuit
P02E2	Air Control Valve H-Bridge Drive Short to Ground
P02E3	Air Control Valve H-Bridge Drive Short to Battery
P02E4	Air Control Valve Position Fault
P02E5	Air Control Valve Position Fault
P02E7	Air Control Valve Close Position Fault
P02E8	Air Control Valve Sensor Out of Range Low
P02E9	Air Control Valve Sensor Out of Range High
P02EA	Air Control Valve Close Position Fault
P02EB	Air Control Valve Close Position Fault
P02EE	Injector #1 Short Circuit
P02EF	Injector #2 Short Circuit
P02F0	Injector #3 Short Circuit
P02F1	Injector #4 Short Circuit
P0340	Cam Sensor Signal Fault
P0342	Cam Sensor Signal Fault
P0344	Cam Sensor Signal Fault
P0372	Crank Sensor Signal Fault
P0374	Crank Sensor Signal Fault
P0380	Glow Plug Relay Open Circuit
P0381	Glow Plug Lamp Open Circuit
P0383	Glow Plug Relay Short to Ground
P0384	Glow Plug Relay Short to Battery
P0406	EGR Position Sensor Out of Range High
P0407	EGR Position Sensor Out of Range Low
P0408	EGR Flow Rate Error
P0421	DOC Efficiency Fault (During Regen)
P042E	EGR Control Position Fault
P042F	EGR Control Position Fault
P0460-16	Fuel Level Sensor Out of Range Low
P0460-17	Fuel Level Sensor Voltage Out of Range High

CODE	DESCRIPTION
P049B	EGR Flow Rate Error
P0512	Engine Start Switch Stuck On
P0522	Engine Oil Pressure Sensor Out of Range Low
P0523	Engine Oil Pressure Sensor Out of Range High
P0527	Fan Speed Timeout Fault
P0528	Cooling Fan Overspeed
P0529	Cooling Fan Underspeed
P0544	Turbine Inlet Temperature Fault
P0545	Turbine Inlet Temperature Sensor Out of Range Low
P0546	Turbine Inlet Temperature Sensor Out of Range High
P055B	Oil Pressure Warning Lamp Open Circuit
P055C	Oil Pressure Warning Lamp Short to Ground
P055D	Oil Pressure Warning Lamp Short to Battery
P0562	ECU Battery Voltage Extremely Low
P0563	ECU Battery Voltage Extremely High
P056D	DEF Supply Module Communication Fault
P0591	PTO Lamp Open Circuit
P0592	PTO Lamp Short to Ground
P0593	PTO Lamp Short to Battery
P05ED	DEF Heater Line Short to Battery
P060B	ECU Calculation Error
P060C	ECU Communication Fault
P0615	Starter Relay Open Circuit
P0616	Starter Relay Short to Ground
P0617	Starter Relay Short to Battery
P062D	Injector Bank Short Circuit 1
P062E	Injector Bank Short Circuit 2
P062F	ECU Data Read Fault
P0630	ECU Data Write Fault
P0641	ECU 5V Sensor Supply Voltage Out of Range High

CODE	DESCRIPTION
P0642	ECU 5V Sensor Supply Voltage Out of Range Low
P0657	ECU Sensor Supply 1 Short to Ground
P0658	ECU Sensor Supply 1 Voltage Low
P0659	ECU Sensor 1 Voltage High
P0669	High ECU Temperature
P0685	ECU Main Relay Fault
P068A	ECU Main Relay Fault
P06AD	ECU Temperature Sensor Short to Ground
P06AE	ECU Temperature Sensor Short to Battery
P06F0	DEF Supply Module Fault
P06F1	DEF Supply Module Fault
P0C17	EGR Closed Position Fault
P0C18	EGR Closed Position Fault
P0C19	EGR Closed Position Fault
P100A-11	Starter Output Short to Ground
P100A-12	Starter Output Short to Battery
P100A-13	Starter Output Open Circuit
P100B-16	Starter Contactor Feedback Voltage Out of Range Low
P100B-17	Starter Contactor Feedback Voltage Out of Range High
P1013	Engine Speed Fault
P101A	ECU Internal Fault
P1033	High DPF Inlet Temperature
P1044	DEF Tank Temperature Sensor Error Low
P1045	DEF Tank Temperature Sensor Error High
P1060-16	Air Filter Out of Range Low
P1060-17	Air Filter Out of Range High
P1061-97	Air Filter Plugged
P1062-00	Air Filter Plugged
P1063-00	Air Filter Plugged
P106C	Low DEF Quality
P106D	High DEF Quality

CODE	DESCRIPTION
P1073	High Engine Compartment Temperature
P107D	High Inlet Air Temperature
P108A	DEF Supply Pump Motor Speed Fault
P108B	DEF Supply Pump Motor Speed Fault
P108C	DEF Supply Pump Motor Fault
P10AD	High Intake Manifold Temperature
P10D0-F8	DEF Level Extremely Low
P10D0-F9	DEF Level Low Level
P1100-FA	Engine Coolant Temperature High
P1100-FB	Engine Coolant Temperature Extremely High
P1100-FC	Engine Coolant Temperature Limiting Performance
P1110-FA	Fuel Temperature High
P1110-FB	Fuel Temperature Extremely High
P1110-FC	Fuel Temperature Limiting Performance
P1115-FA	Air Inlet Temperature Too High
P1115-FB	Air Inlet Temperature Extremely High
P1115-FC	Air Inlet Temperature Limiting Performance
P1118	High Engine Coolant Temp
P1120-00	Fuel Filter Plugged
P1121-00	Fuel Filter Derate Level 1
P1122-00	Fuel Filter Derate Level 2
P1125-00	Fuel Filter Extremely Plugged
P1130-00	Fuel Filter Inlet Pressure Sensor Derate
P1130-F8	Fuel Filter Inlet Pressure Extremely Low
P1130-F9	Fuel Filter Inlet Pressure Low
P1131-16	Fuel Pressure Out of Range Low
P1131-17	Fuel Pressure Out of Range High
P1134-11	Fuel Lift Pump Short to Ground
P1134-12	Fuel Lift Pump Short to Battery
P1134-13	Fuel Lift Pump Open Circuit
P1134-63	Fuel Lift Pump Protection Time-Out
P113B-7B	Fuel Level Low
P1183	High Fuel Temperature

CODE	DESCRIPTION
P1227	Low DEF Tank Temperature Fault
P1230	DEF Tank Level Signal Error
P12E5	EGR Fault - Level 1 Inducement
P12E6	EGR Fault - Level 2 Inducement
P12E7	EGR Fault - Level 3 Inducement
P12E8	EGR Fault - Warning
P12E9	SCR Dosing Interrupted - Level 1 Inducement
P12EA	SCR Dosing Interrupted - Level 2 Inducement
P12EB	SCR Dosing Interrupted - Level 3 Inducement
P12EC	SCR Dosing Interrupted - Warning
P12F2	DEF Quality - Level 1 Inducement
P12F3	DEF Quality - Level 2 Inducement
P12F4	DEF Quality - Level 3 Inducement
P12F5	DEF Quality - Warning
P12F6	SCR Tampering - Level 1 Inducement
P12F7	SCR Tampering - Level 2 Inducement
P12F8	SCR Tampering - Level 3 Inducement
P12F9	SCR Tampering - Warning
P1303	SCR Fault Repeat Offense - Level 1 Inducement
P1304	SCR Fault Repeat Offense - Level 2 Inducement
P1305	SCR Fault Repeat Offense - Level 3 Inducement
P1450	High DEF Pump Pressure
P1451	Low DEF Pump Pressure
P1452	High DEF Pump Pressure
P1453	DEF Pump Pressure Stabilization Fault
P1454	Low DPF Differential Pressure
P1457	Low DEF Pump Pressure
P1459	DEF Pressure Reduction Fault
P1460	DEF Afterrun Error
P1461	DEF Reverting Valve Pressure Fault
P1522	Low Engine Oil Pressure
P1546	High Turbine Inlet Temperature

CODE	DESCRIPTION
P1562	ECU Battery Voltage Low
P1563	ECU Battery Voltage High
P1564	ECU Battery Voltage Extremely High
P1565	ECU Battery Voltage Extremely Low
P160B	ECU Internal Fault
P160C	ECU Internal Fault
P160D	ECU Internal Fault
P160E	ECU Internal Fault
P160F	ECU Memory Fault
P1610	ECU Internal Fault
P1611	ECU Internal Fault
P1612	ECU Internal Fault
P1613	ECU Internal Fault
P1614	ECU Internal Fault
P1615	ECU Internal Fault
P1616	ECU Internal Fault
P1617	ECU Internal Fault
P1618	ECU Internal Fault
P1619	ECU Internal Fault
P1657	ECU Sensor Suplly 1 Voltage Fault
P1669	ECU Sensor Supply 2 Voltage Fault
P1684	ECU Sensor Suplly 3 Voltage Fault
P1893	DEF Backflow Line Pressure Fault
P1904	Glow Plug Lamp Short to Ground
P1906	DPF Regeneration Switch Inhibit Lamp Open Circuit
P1907	DPF Regeneration Switch Inhibit Lamp Short to Ground
P1908	DPF Regeneration Switch Inhibit Lamp Short to Battery
P190B	High Fuel Rail Pressure
P190C	Low Fuel Rail Pressure
P192E	Check Engine Lamp Open Circuit
P192F	Check Engine Lamp Short to Ground
P1931	Check Engine Lamp Short to Battery
P1934	Pressure Relief Valve Fault
P202D	DEF Leakage Fault

CODE	DESCRIPTION
P202E	DEF Dosing Valve Error
P2032	DPF Inlet Temperature Sensor Out of Range Low
P2033	DPF Inlet Temperature Sensor Out of Range High
P2034	DPF Inlet Temperature Fault
P203A	DEF Level Sensor Open Circuit
P203F	DEF Tank Empty
P2041	DEF Level Sensor Short Circuit
P2043	DEF Temperature Sensor Open Circuit
P2046	DEF Temperature Sensor Short Circuit
P2047	DEF Dosing Valve Short to Battery
P2048	DEF Dosing Valve Short to Ground
P2049	DEF Dosing Valve Open Circuit
P204A	DEF Pressure Fault
P204C	DEF Supply Pump Pressure Sensor Out of Range Low
P204D	DEF Supply Pump Pressure Sensor Out of Range High
P2050	DEF Dosing Valve Short to Battery
P2051	DEF Dosing Valve Short to Ground
P205E	High DEF Tank Temperature
P208A	DEF Supply Pump Motor Open Circuit
P208B	DEF Supply Pump Motor Signal Error
P208C	DEF Supply Pump Motor Short to Ground
P208D	DEF Supply Pump Motor Short to Battery
P208E	DEF Dosing Valve Blocked
P20A0	DEF Reverting Valve Open Circuit
P20A1	High DEF Reverting Valve Temperature
P20A2	DEF Reverting Valve Short to Ground
P20A3	DEF Reverting Valve Short to Battery
P20A5	DEF Reverting Valve Pressure Fault
P20AC	DEF Supply Module Heater Fault
P20AD	DEF Supply Module Heater Fault
P20B0	DEF Supply Module Temperature Fault

CODE	DESCRIPTION
P20B1	DEF Tank Heater Valve Open Circuit
P20B3	DEF Tank Heater Valve Short to Ground
P20B4	DEF Tank Heating/Coolant Valve Short to Battery
P20B9	DEF Supply Module Heater Relay Open Circuit
P20BA	DEF Supply Module Heater Fault
P20BB	DEF Supply Module Heater Relay Short to Ground
P20BC	DEF Supply Module Heater Relay Short to Battery
P20BD	DEF Pressure Line Heater Relay Open Circuit
P20BE	DEF Pressure Line Heater Fault
P20BF	DEF Pressure Line Heater Relay Short to Ground
P20C0	DEF Pressure Line Heater Relay Short to Battery
P20C1	DEF Backflow Line Heater Relay Open Circuit
P20C2	DEF Backflow Line Heater Fault
P20C3	DEF Backflow Line Heater Relay Short to Ground
P20C4	DEF Backflow Line Heater Relay Short to Battery
P20C5	DEF Suction Line Heater Relay Open Circuit
P20C6	DEF Suction Line Heater Fault
P20C7	DEF Suction Line Heater Relay Short to Ground
P20C8	DEF Suction Line Heater Relay Short to Battery
P20EE	SCR Efficiency Low
P20FF	DEF Supply Module Communication Timeout
P2135	Engine Speed Control Signal Fault
P2136	Engine Speed Control Signal Fault
P213E	ECU Internal Shutdown
P2143	EGR H-Bridge Driver Open Circuit
P2144	EGR H-Bridge Driver Short to Ground
P2145	EGR H-Bridge Driver Short to Battery
P214F	DEF Supply Module Heater Open Circuit

CODE	DESCRIPTION
P215E	DEF Suction Line Heater SC/STG Fault
P215F	DEF Suction Line Heater Open Circuit
P21C2	DEF Main Heater Relay Open Circuit
P21C3	DEF Main Heater Relay Short to Ground
P21C4	DEF Main Heater Relay Short to Battery
P21C7	SCR System Main Relay Fault
P21C8	SCR System Main Relay Short to Ground
P21C9	SCR System Main Relay Short to Battery
P21DD	DEF Supply Module Heater Short to Ground
P2202	Upstream NOx Sensor Short Circuit
P2203	Upstream NOx Sensor Open Circuit
P2215	Downstream NOx Sensor Short Circuit
P2216	Downstream NOx Sensor Open Circuit
P221C	DEF Pressure Line Heater Electrical Fault
P221D	DEF Pressure Line Heater Open Circuit
P221E	DEF Backflow Line Heater Electrical Fault
P221F	DEF Backflow Line Heater Open Circuit
P2228	Atmospheric Pressure Low Fault
P2229	Atmospheric Pressure High Fault
P225D	Low Upstream NOx Concentration
P2265	Water in Fuel Detected - Derate
P2266	Water in Fuel Sensor Out of Range Low
P2267	Water in Fuel Sensor Out of Range High
P2269	Water in Fuel Detected
P2381	Glow Plug Lamp Short to Battery
P2383	Upstream NOx Sensor Installation Fault
P2384	Downstream NOx Sensor Installation Fault
P2397	Upstream NOx Concentration Low
P2398	Downstream NOx Concentration Low
P23B2	DEF Supply Module Heater Fault
P23B3	DEF Supply Module Heater Temperature Fault

CODE	DESCRIPTION
P23B4	DEF Supply Module Heater Temperature Fault
P23B5	DEF Supply Module Temperature Fault
P23B6	DEF Supply Module Temperature Fault
P242F	High DPF Ash Content - Ash Cleaning Needed
P2454	DPF Differential Pressure Sensor Out of Range Low
P2455	DPF Differential Pressure Sensor Out of Range High
P2463	Regen Required
P2465	High DPF Differential Pressure - Electric problem
P246B	DPF Regeneration Failure
P246C	High DPF Differential Pressure - DPF Plugged
P24A3	Service Regen Required
P2505	High ECU Temperature
P2506	ECU Software Reset
P2507	ECU Internal Fault
P2508	ECU Internal Fault
P2509	ECU Internal Fault
P250A	Oil Level/Temp Sensor Open Circuit
P250C	Oil Level/Temp Sensor Short to Ground
P250D	Oil Level/Temp Sensor Short to Battery
P250F	Check Engine Oil Level Immediately
P2511	ECU Internal Fault
P2546	Multi-Torque Switch Out of Range Low
P2547	Multi-Torque Switch Out of Range High
P25BA	DPF Regeneration Inhibit and Enable Switch Fault
P25BB	DPF Regeneration Enable Switch Short to Battery
P25BC	DPF Regeneration Inhibit Switch Short to Battery
P260E	DPF Regeneration Enable Switch Lamp Open Circuit
P260F	DPF Regeneration Enable Switch Lamp Short to Ground
P2611	DPF Regeneration Enable Switch Lamp Short to Battery

CODE	DESCRIPTION
P2632	Fuel Feed Pump Open Circuit
P2633	Fuel Feed Pump Short to Ground
P2634	Fuel Feed Pump Short to Battery
P2635	Fuel Feed Pump Fault
P263D	DEF Pressure Line Heating Fault
P2669	ECU Sensor Supply 2 Short to Ground
P2670	ECU Sensor Supply 2 Out of Range Low
P2671	ECU Sensor Supply 2 Out of Range High
P2684	ECU Sensor Supply 3 Short to Ground
P2685	ECU Sensor Supply 3 Out of Range Low
P2686	ECU Sensor 3 Out of Range High
P268C	Injector #1 IQA Code Missing
P268D	Injector #2 IQA Code Missing
P268E	Injector #3 IQA Code Missing
P268F	Injector #4 IQA Code Missing
P273F	High Transmission Oil Temperature (CAN)
P274F	High Transmission Oil Temperature (H/W Switch)
P2C11	DEF Dosing Valve Fault
P304C	Low DEF Supply Pump Pressure
P304D	High DEF Supply Pump Pressure
P3052	DPF Differential Pressure Sensor Fault
P30B1	High DEF Tank Heating/Coolant Valve Fault
P30B9	High DEF Supply Module Heater Relay Fault
P30BD	High DEF Pressure Line Heater Relay Fault
P30C1	High DEF Backflow Line Heater Relay Fault
P30C5	High DEF Suction Line Heater Relay Fault
P31C5	High DEF Main Heater Relay Fault
P32EE	Injector #1 Short Circuit
P32EF	Injector #2 Short Circuit
P32F0	Injector #3 Short Circuit
P32F1	Injector #4 Short Circuit

CODE	DESCRIPTION
P350D	Oil Level/Temp Sensor Communication Fault
P350E	Oil Level/Temp Sensor Fault
P350F	Low Engine Oil Level
P360E	DPF Regeneration Active Lamp Open Circuit
P360F	DPF Regeneration Active Lamp Short to Ground
P3611	DPF Regeneration Active Lamp Short to Battery
U0028	ECU CAN Communication Fault
U0029	ECU CAN Communication Fault
U010F	ECU CAN Communication Fault
U013C	ECU CAN Communication Fault - Engine Speed
U01B7	ECU CAN Communication Fault - Regeneration Switch
U01B8	ECU CAN Communication Fault - Multiple Torque Switch
U01B9	ECU CAN Communication Fault - Engine Shut Down
U029D	ECU CAN Communication Fault - Upstream NOx Sensor
U029E	ECU CAN Communication Fault - Downstream NOx Sensor
U02A2	ECU CAN Communication Fault - DEF Tank
U030D	Upstream NOx Sensor Heating Fault
U030E	Downstream NOx Sensor Heating Fault
U043D	ECU CAN Communication Fault - Engine Speed Control
U0606	ECU CAN Communication Fault - Engine Speed Control
U0607	ECU CAN Communication Fault
U0608	ECU CAN Communication Fault - Engine Speed Control
U0619	ECU CAN Communication Fault - DEF Sensor
U0632	ECU CAN Communication Fault - Cooling Fan Control
U1001	CAN Communication Fault - Hydraulic Oil Temperature
U1003	ECU Received Engine Shutdown Request from Machine Controller

CODE	DESCRIPTION
U100A-08	Machine Control Message Failure
U1010-08	Primary Keypad No Communication
U1011-08	Options Keypad No Communication
U1015-62	Throttle Encoder Signal Failure
U1028	DEF Quality Sensor Open Circuit
U1030	DEF Quality Sensor Short Circuit
U1031	ECU CAN Communication Fault
U1032	ECU CAN Communication Fault - PTO
U1033	ECU CAN Communication Fault - Starter Relay
U1040-00	Hour Meter Changed
U1050-00	Hub Controller Power Failure
U1051-00	Cab Controller Interrupted Power Failure
U1052-00	Mid Controller Power Failure
U1053-00	Drive Controller Interrupted Power
U1054-00	Workgroup Controller Power Failure
U1056-00	Rear Auxiliary Controller Interrupted Power Failure
U1060-46	Workgroup Calibration Failed
U1060-54	Workgroup Calibration Required
U1061-00	Workgroup Calibration Passed
U1065-00	Drive Calibration Passed
U1066-00	Drive Calibration Failed
U1070-00	Hub Controller Software Updated
U1071-00	Cab Controller Software Updated
U1073-00	Drive Controller Programmed
U1074-00	Workgroup Controller Software Updated
U1075-00	Lights Controller Interrupted Power Failure
U1080-00	Drive Controller In Calibration Mode
U1084-00	Workgroup In Calibration Mode
U1090-51	Hub Controller Not Programmed
U1090-57	Hub Controller Software Error
U1091-08	Display No Communication
U1091-51	Display Not Programmed
U1091-57	Display Controller Software Error
U1091-FD	Display Shutdown

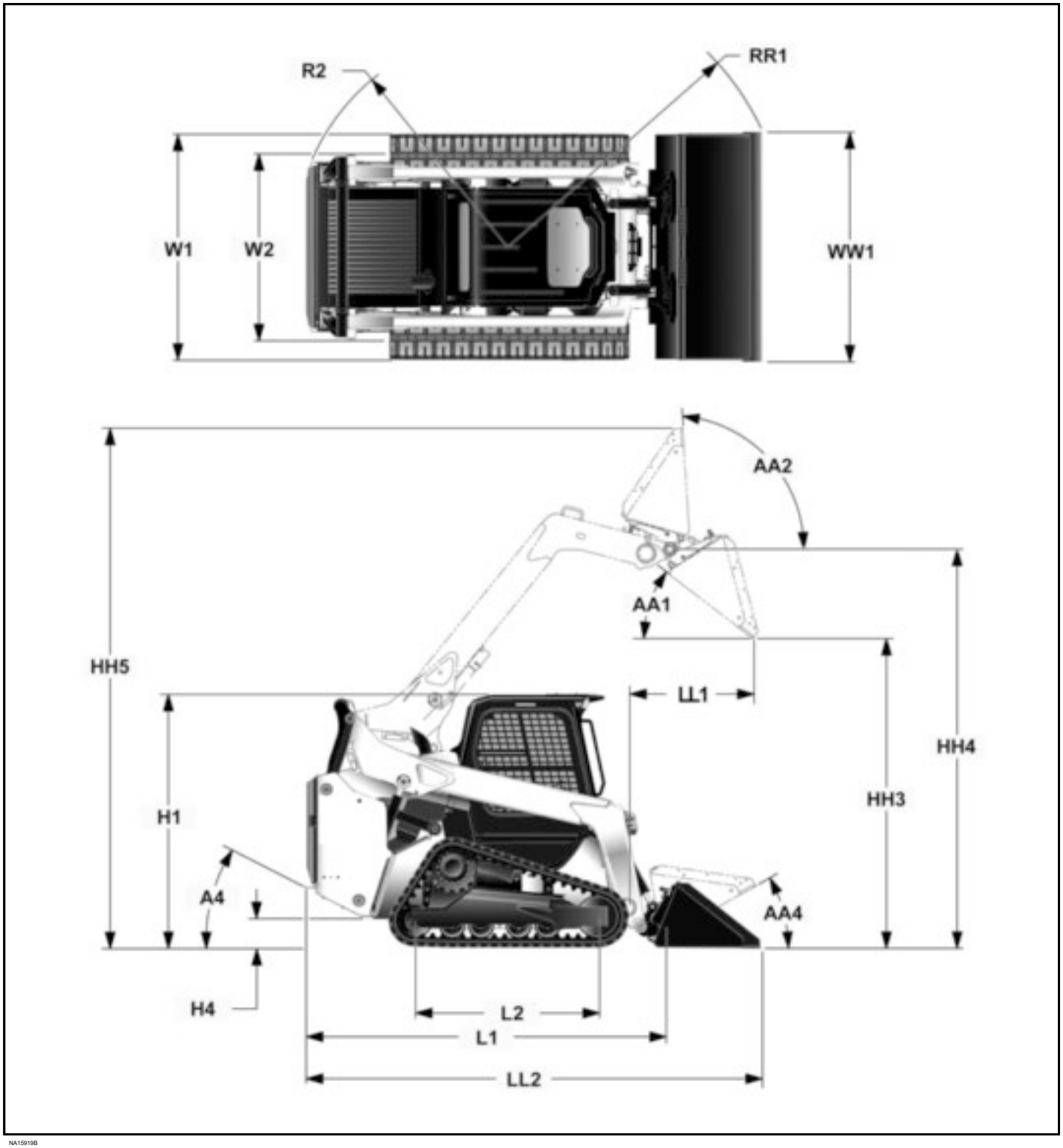
CODE	DESCRIPTION
U1092-08	Cab Controller No Communication
U1092-51	Cab Controller Not Programmed
U1092-57	Cab Controller Software Error
U1092-A2	Cab Controller System Voltage Low
U1092-A3	Cab Controller System Voltage High
U1093-08	Mid Controller No Communication
U1093-51	Mid Controller Not Calibrated
U1093-57	Mid Controller Software Error
U1093-A2	Battery Voltage Low
U1093-A3	Battery Voltage High
U1094-00	Drive Controller Software Error
U1094-08	Drive Controller No Communication
U1094-51	Drive Controller Not Progammed
U1094-57	Drive Controller Software Error
U1094-A2	Drive Controller Voltage Out of Range Low
U1094-A3	Drive Controller Voltage Out of Range High
U1095-08	Workgroup Controller No Communication
U1095-51	Workgroup Controller Not Programmed
U1095-57	Workgroup Controller Software Error
U1095-A2	Workgroup Controller System Voltage Low
U1095-A3	Workgroup Controller System Voltage High
U1096-08	ECU No Communication
U1096-56	ECU Failure
U1097-57	Attachment Controller Software Error
U1098-08	Rear Auxiliary Controller No Communication
U1098-51	Reary Auxiliary Controller Not Programmed
U1098-57	Rear Auxiliary Controller Software Version Error
U1098-A2	Rear Auxiliary Controller System Voltage Low
U1098-A3	Rear Auxiliary Controller System Voltage High
U109C-08	Lights Controller No Communication
U109C-51	Lights Controller Not Programmed

CODE	DESCRIPTION
U109C-57	Lights Controller Software Error
U109C-A2	Lights Controller Voltage Low
U109C-A3	Lights Controller Voltage High
U10A0-08	Drive Motor Case Drain Hydraulic Oil Temperature Sensor No Communication
U10A5-08	Pump Case Drain Hydraulic Oil Temperature Sensor No Communication
U10B0-08	Left Joystick Base No Communication
U10B0-49	Left Joystick Base Failure
U10B1-08	Left Joystick Grip No Communication
U10B1-49	Left Joystick Grip Failure
U10C0-08	Right Joystick Base No Communication
U10C0-49	Right Joystick Base Failure
U10C1-08	Right Joystick Grip No Communication
U10C1-49	Right Joystick Grip Failure
U10D0-08	Remote Control No Communication
U10D0-57	Remote Control Software Error
U10D0-93	Remote Control Loss Communication
U10D1-06	TPAK Controller Authentication Error
U10D1-57	TPAK Controller Software Error
U10D2-08	Radar Controller No Communication
U1110-08	Bob-Tach Angle Sensor No Communication
U1110-09	Bob-Tach Angle Sensor Component Failure
U1111-08	Bucket Angle Sensor No Communication
U1112-08	Lift Arm Angle No Communication
U1113-08	Frame Angle Sensor No Communication
U1180-00	Display Controller No Communication
U1181-00	Display Controller No Communication
U1182-00	Display Controller No Communication
U1183-00	Main Controller No Communication
U1184-00	Jog Shuttle No Communication
U1185-00	Radio No Communcation
U1200-08	Telematics No Communication
U1200-93	Telematics No Signal

CODE	DESCRIPTION
U1201-00	Engine Disabled
VRLOWVL-TG	Very Low Battery Voltage

MACHINE DIMENSIONS

Figure 491



NA15919B

- Dimensions are given for machine 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	1752 mm (69.0 in)
RR1	Carry position machine clearance radius	2202 mm (86.7 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	4131 mm (162.6 in)
H1	Overall height	2079 mm (81.8 in)
A4	Angle of departure	30 degrees
H4	Ground clearance	218 mm (8.6 in)
L2	Crawler Base	1505 mm (59.3 in)
L1	Length without attachment	2895 mm (114.0 in)
LL2	Overall length	3615 mm (142.3 in)
AA2	Maximum rollback — fully raised	94 degrees
AA1	Dump angle	37 degrees
LL1	Reach — fully raised	922 mm (36.3 in)
HH3	Dump height	2605 mm (102.6 in)
AA4	Maximum rollback — carry position	31 degrees
HH4	Height to hinge pin	3259 mm (128.3 in)

Changes of structure or weight distribution of the machine can cause changes in control and steering response, and can cause failure of the machine parts.

MACHINE 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)	1349 kg (2975 lb)	1417 kg (3125 lb)
with 200 Pound Frame Mounted Counterweight Kit (ISO 14397–1)	1406 kg (3100 lb)	1474 kg (3250 lb)
with 300 Pound Frame Mounted Counterweight Kit (ISO 14397–1)	1440 kg (3175 lb)	1508 kg (3325 lb)
Tipping Load (ISO 14397–1)	3856 kg (8500 lb)	4050 kg (8929 lb)
Operating Weight	4830 kg (10649 lb)	4565 kg (10064 lb)
Breakout Force – Lift	2967 kg (6542 lb)	3070 kg (6769 lb)
Breakout Force – Tilt	2921 kg (6439 lb)	2978 kg (6566 lb)
Travel Speed:		
— Single Speed Machine	0 – 10,9 km/h (0 – 6.8 mph)	0 – 10,9 km/h (0 – 6.8 mph)
— Two-Speed Machine (If equipped):		.
— Low Range	0 – 10,9 km/h (0 – 6.8 mph)	0 – 10,9 km/h (0 – 6.8 mph)
— High Range	0 – 14,8 km/h (0 – 9.2 mph)	0 – 14,8 km/h (0 – 9.2 mph)

Specification Bucket Specifications

Weight	256,2 kg (564.9 lb)
Heap Capacity	0,473 m^3 (16.7 ft^3)
Struck Capacity	0,354 m^3 (12.5 ft^3)
Make	Construction and Industrial Bucket, 2032 mm (80 in) wide

Engine Specifications

Make / Model	Bobcat Engine / 2,4L Bobcat Engine, V2 Stage V
Fuel	Ultra Low Sulfur Diesel
Cooling	(See Coolant Types on Page 164)
Horsepower:	
— ISO 9249 EEC / SAE J1349 Net	52,6 kW (70.5 hp) @ 2600 rpm
— ISO 14396 Gross	55,2 kW (74.0 hp) @ 2600 rpm
— SAE J1995 Gross	55,5 kW (74.4 hp) @ 2600 rpm
— Rated Power	55,2 kW (74.0 hp) @ 2600 rpm

Torque:	
— ISO 9249 EEC / SAE J1349 Net	266,1 N•m (196.3 ft-lb) @ 1800 rpm
— ISO 14396 Gross	280,0 N•m (206.5 ft-lb) @ 1800 rpm
— SAE J1995 Gross	281,4 N•m (207.5 ft-lb) @ 1800 rpm
— Rated Torque	280,0 N•m (206.5 ft-lb) @ 1800 rpm
Low Idle rpm	1025 — 1075
High Idle rpm	2575 — 2625
Number of Cylinders	4
Displacement	2400 cm^3 (146.5 in^3)
Bore / Stroke	90 mm / 94 mm (3.5 in / 3.7 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)
Machine 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, gear type
Pump Capacity – Standard-Flow	88,1 L/min (23.3 U.S. gpm)
Pump Capacity – High-Flow	114,7 L/min (30.3 U.S. gpm)
System Relief at Quick Couplers	23,8 – 24,5 MPa (238 – 245 bar) (3450 – 3550 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 10 micron, thread on cap
Control Valve	3-Spool, open center with electric actuator controlled lift with float and tilt; Electro-hydraulic piloted auxiliary spool
Fluid Lines	SAE Standard tubelines, hoses, and fittings
Fluid Type	(See Hydraulic Fluid Information on Page 178)
Hydraulic Function Time:	
— Raise Lift Arms	4.5 seconds
— Lower Lift Arms	2.9 seconds
— Bucket Dump	2.2 seconds
— Bucket Rollback	1.6 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)	724.7 mm (28.53 in)	44,5 mm (1.75 in)
Tilt	76,2 mm (3.00 in)	344,4 mm (13.56 in)	38,1 mm (1.50 in)

Electrical System Specifications

Alternator	Belt driven, 90 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, 3,0 kW (4.02 hp)

Fluid Capacities

Fuel	120,0 L (31.7 U.S. gal)
Engine Oil with Filter Change	8,1 L (8.6 qt)
Engine Cooling System with Heater	11,4 L (12.0 qt)
Engine Cooling System without Heater	10,7 L (11.3 qt)

Hydraulic / Hydrostatic Reservoir	18,9 L (20.0 qt)
Hydraulic / Hydrostatic System	51,1 L (13.5 U.S. gal)
Hydrostatic Drive Motor Brake Cavity (Each)	354,9 mL (12 U.S. fl oz)
Air Conditioning Refrigerant (R-134a)	0,73 kg (1.6 lb)

Tracks

Standard Rubber	450 mm (17.7 in) Rubber, C-Pattern

Ground Pressure

	TORSION SUSPENSION UNDERCARRIAGE	SOLID-MOUNTED UNDERCARRIAGE
Rubber Track - 450 mm (17.7 in)	0,033 MPa (0,33 bar) (4.8 psi)	0,032 MPa (0,32 bar) (4.6 psi)

Environmental

DECLARED SINGLE-NUMBER NOISE EMISSION VALUES	
In accordance with ISO 4871	
Noise level per Directive 2000/14/EC — L_{wA}	103 dB(A)
Operator noise level per Directive 2006/42/EC — L_{pA}	78 dB(A)

DECLARED VIBRATION EMISSION VALUES		
In accordance with EN 12096		
	Value	Uncertainty
Whole-body vibration per ISO 2631–1	0,71 m/s^2	0,36 m/s^2
Hand-arm vibration per ISO 5349–1	1,84 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)	0,73
CO2 equivalent (t)	1,04
GWP	1430

ENGINE CO_2 EMISSION VALUES	
CO_2 emission (NRSC)	746,9 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 minimum and maximum torque values are for use on steel hardware coated with zinc phosphate & oil and zinc dichromate in general applications and where torque values are not otherwise specified. The same torque values apply to course or fine threads.

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
1/4”	9 – 10 N•m (80 – 90 in-lb)	13 – 14 N•m (110 – 120 in-lb)	15 – 16 N•m (130 – 145 in-lb)
5/16”	21 – 23 N•m (180 – 200 in-lb)	24 – 27 N•m (215 – 240 in-lb)	31 – 34 N•m (270 – 300 in-lb)
3/8”	34 – 38 N•m (25 – 28 ft-lb)	48 – 54 N•m (35 – 40 ft-lb)	61 – 68 N•m (45 – 50 ft-lb)
7/16”	54 – 61 N•m (40 – 45 ft-lb)	82 – 88 N•m (60 – 65 ft-lb)	95 – 102 N•m (70 – 75 ft-lb)
1/2”	88 – 95 N•m (65 – 70 ft-lb)	125 – 135 N•m (90 – 100 ft-lb)	150 – 160 N•m (110 – 120 ft-lb)
9/16”	125 – 135 N•m (90 – 100 ft-lb)	170 – 190 N•m (125 – 140 ft-lb)	205 – 225 N•m (150 – 165 ft-lb)
5/8”	170 – 190 N•m (125 – 140 ft-lb)	240 – 260 N•m (175 – 190 ft-lb)	285 – 310 N•m (210 – 230 ft-lb)
3/4”	300 – 330 N•m (220 – 245 ft-lb)	410 – 450 N•m (300 – 330 ft-lb)	490 – 540 N•m (360 – 400 ft-lb)
7/8”	450 – 490 N•m (330 – 360 ft-lb)	645 – 710 N•m (475 – 525 ft-lb)	600 – 650 N•m (815 – 880 ft-lb)
1”	645 – 710 N•m (475 – 525 ft-lb)	985 – 1085 N•m (725 – 800 ft-lb)	1220 – 1360 N•m (900 – 1000 ft-lb)
1-1/8”	880 – 975 N•m (650 – 720 ft-lb)	1425 – 1600 N•m (1050 – 1175 ft-lb)	1770 – 1970 N•m (1300 – 1450 ft-lb)
1-1/4”	1220 – 1360 N•m (900 – 1000 ft-lb)	2000 – 2200 N•m (1475 – 1625 ft-lb)	2510 – 2720 N•m (1850 – 2000 ft-lb)
1-3/8”	1630 – 1830 N•m (1200 – 1350 ft-lb)	2720 – 2980 N•m (2000 – 2200 ft-lb)	3330 – 3660 N•m (2450 – 2700 ft-lb)
1-1/2”	2040 – 2240 N•m (1500 – 1650 ft-lb)	3520 – 3870 N•m (2600 – 2850 ft-lb)	4270 – 4680 N•m (3150 – 3450 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)

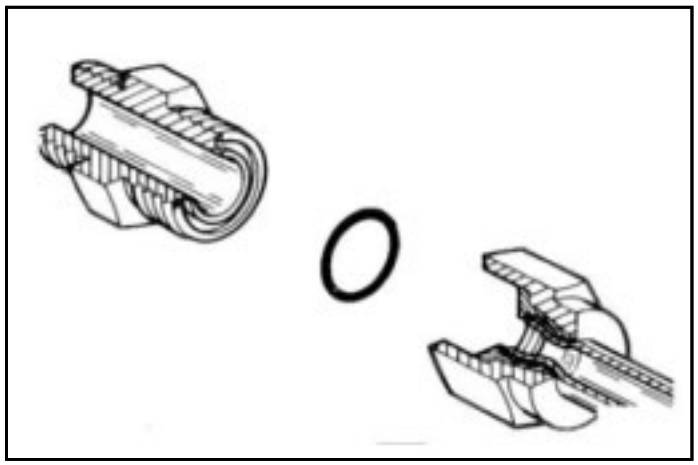
HYDRAULIC CONNECTION SPECIFICATIONS

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 492

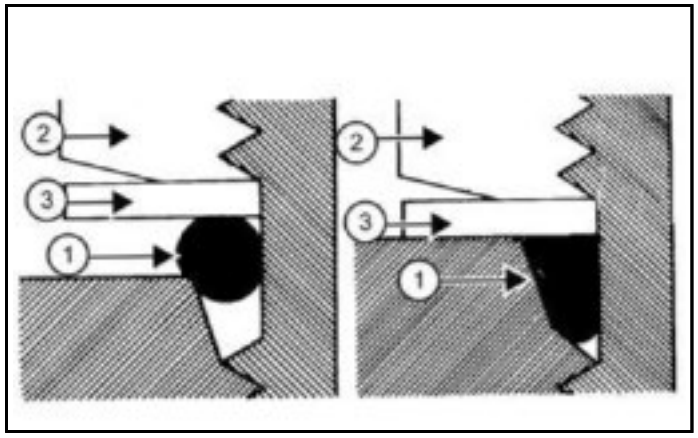


B-7575

Use petroleum jelly to hold the O-ring in position until the fittings are assembled. To eliminate leakage do not under or over tighten [Figure 492].

Straight Thread O-ring Fitting

Figure 493



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 493] is tight against the surface.

Tubelines And Hoses

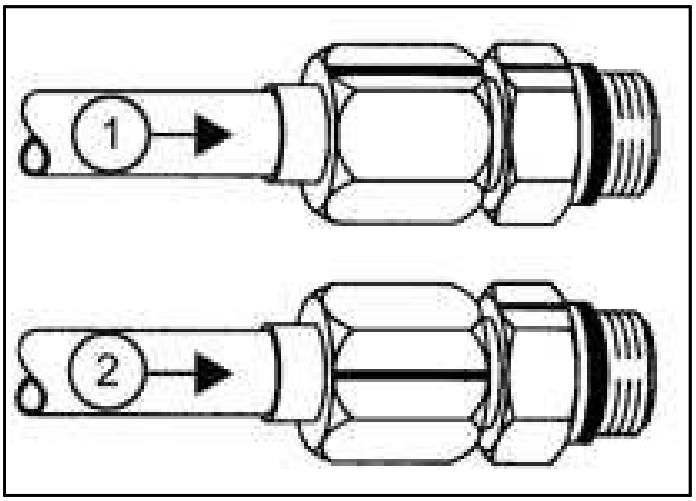
Replace any tubelines that are bent or flattened. They will restrict flow, which will slow hydraulic action and cause heat.

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 494



TS1619b

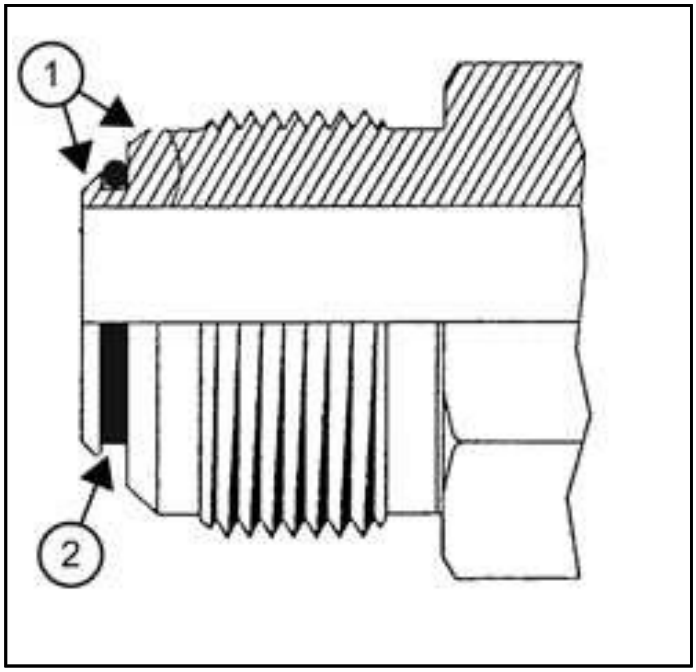
Tighten the nut until it makes contact with the seat. Make a mark across the flats of both the male and female parts of the connection (Item 1) [Figure 494].

Use the chart below to find the correct tightness needed (Item 2) [Figure 494]. 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 495



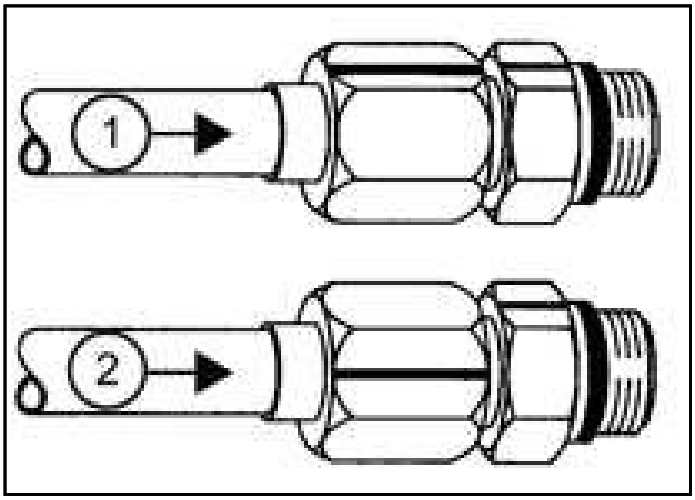
P13009a

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 495].

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 496



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 496].

Use the chart below to find the correct tightness needed (Item 2) [Figure 496]. If the fitting leaks after tightening, disconnect it and inspect the seat area for damage.

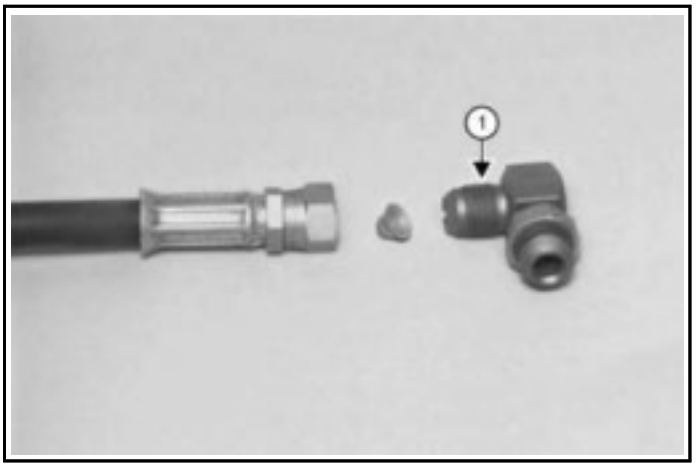
O-RING FLARE FITTING TIGHTENING TORQUE					
			*	**	***
WRENCH SIZE	TUBELINE OUTSIDE DIAMETER	THREAD SIZE	TORQUE N·M (FT-LB)	NEW ROTATE NO. OF HEX FLATS	RE-ASSEMBLY ROTATE NO. OF HEX FLATS
5/8”	5/16”	1/2” – 20	23 (17)	2 - 1/2	1
11/16”	3/8”	9/16” – 18	30 (22)	2	1
7/8”	1/2”	3/4” – 16	54 (40)	2	1
1”	5/8”	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 is used. When tightened the connection at the bonnet may distort the flare face and prevent it from sealing.

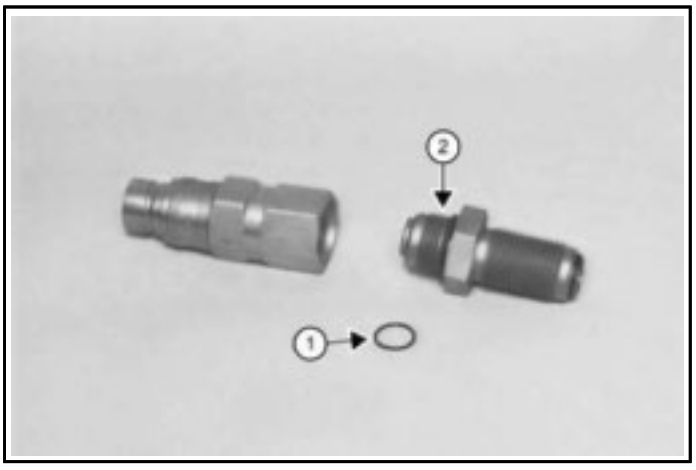
Figure 497



P13572a

Use a standard flare fitting (Item 1) [Figure 497] as shown.

Figure 498



P13573a

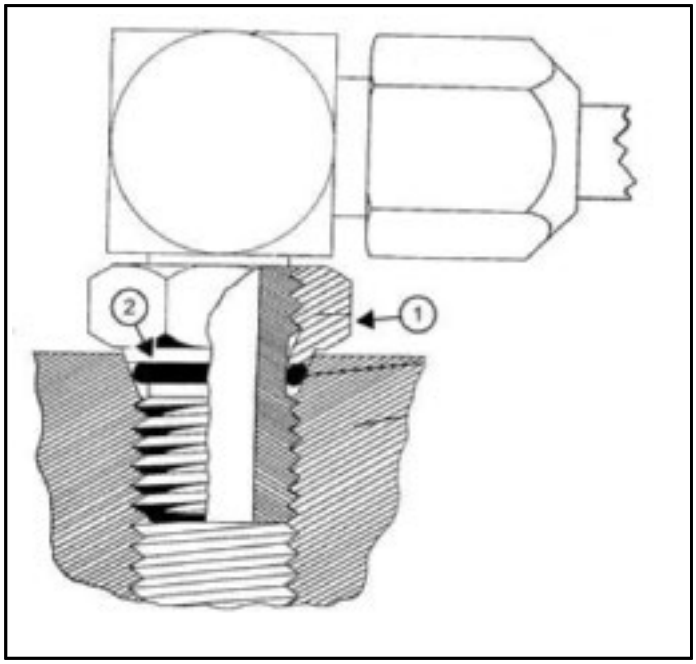
When an O-ring flare fitting is used as a straight thread port adapter the O-ring flare face is not used to seal. The O-ring may come off the fitting and enter the system.

Always remove the O-ring (Item 1) [Figure 498] from the flare face as shown.

An O-ring (Item 2) [Figure 498] is added to the flat boss of the fitting to seal the connection in this application.

Port Seal Fitting

Figure 499



P13008a

The nut (Item 1) is the primary seal, the O-ring (Item 2) [Figure 499] 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.

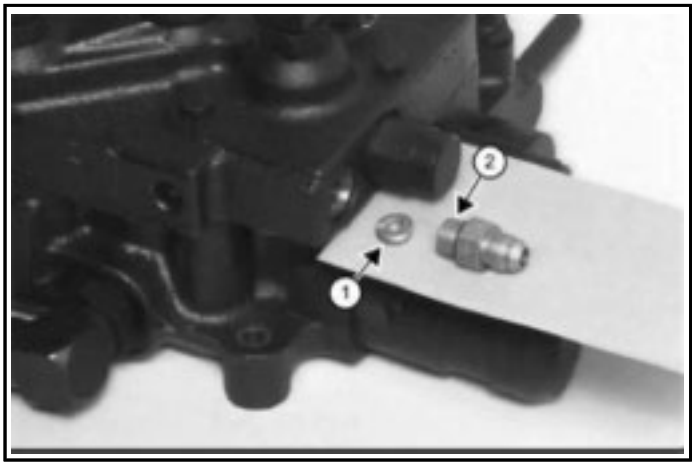
Tighten the nut until it just makes metal to metal contact, you can feel the resistance. Tighten the nut with a wrench no more than one hex flex maximum.

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 500



P13571a

Do not use port seal fittings when a thread in orifice (Item 1) [Figure 500] is used in the port. The orifice may interfere with the fitting and prevent it from sealing.

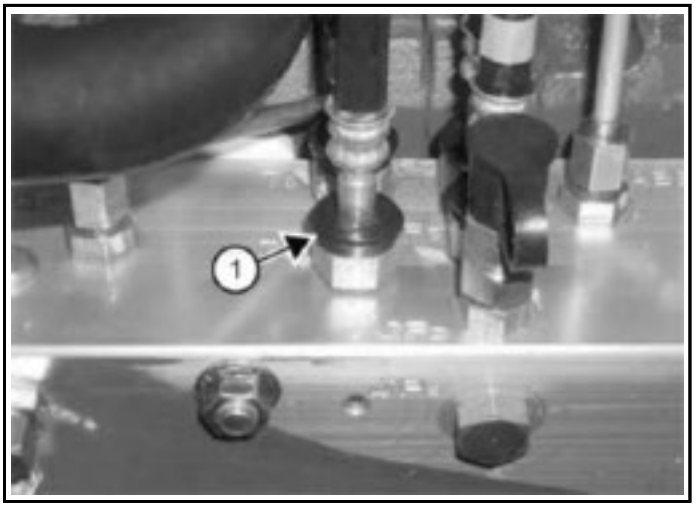
Use an O-ring boss fitting (Item 2) [Figure 500] as shown.

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.

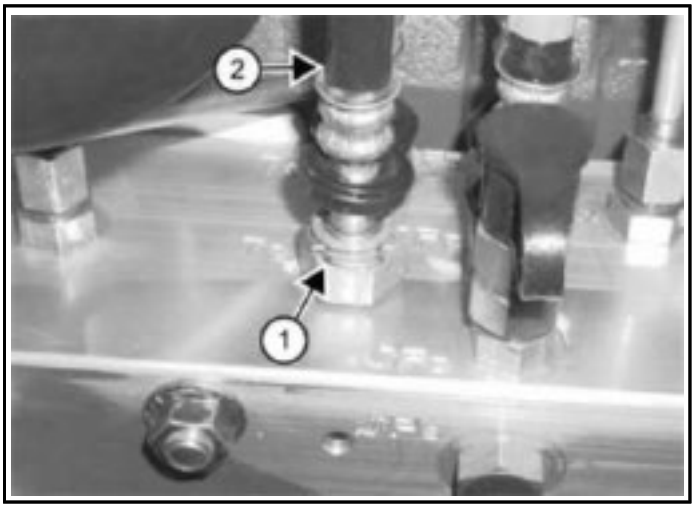
Figure 501



P91857a

1. To disconnect the hose, pull up on the grommet (Item 1) [Figure 501].

Figure 502



P91858a

2. Use an O-ring pick to remove the retainer clip (Item 1) [Figure 502].
3. Pull up on the hose (Item 2) [Figure 502] and remove the hose from the fitting.

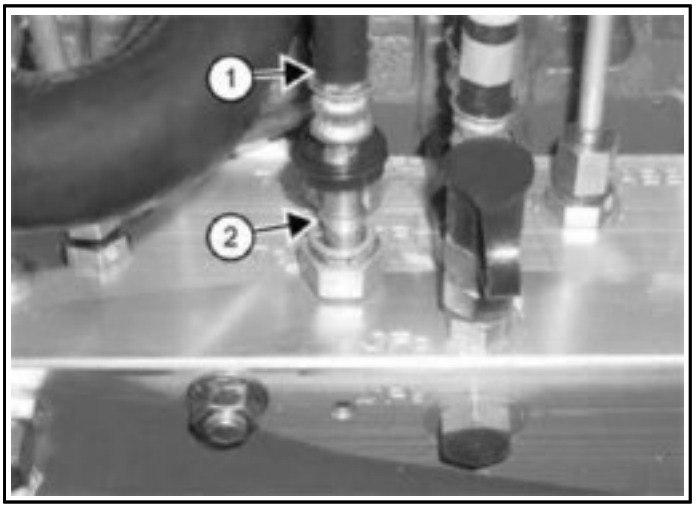
Figure 503



P91854a

4. To install the hose, install the retainer clip (Item 1) [Figure 503] in the fitting.

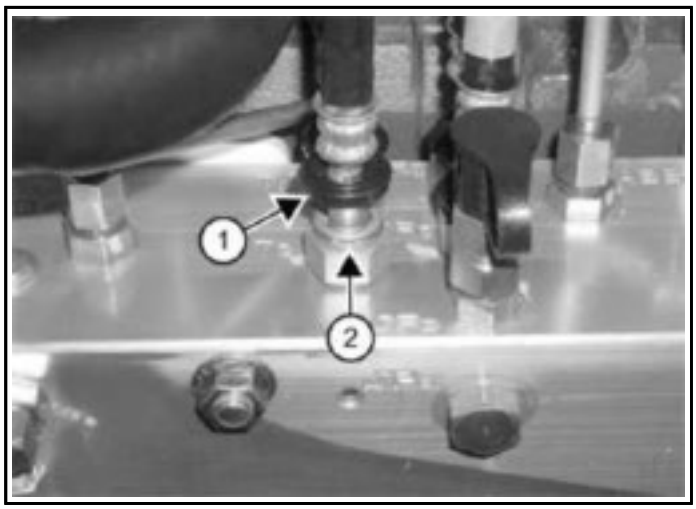
Figure 504



P91855a

5. Install the hose (Item 1) [Figure 504] 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 504].

Figure 505



P91856a

7. Push the grommet (Item 1) down and over the top of the fitting (Item 2) [Figure 505].

MACHINE WARRANTY

A statement explaining the terms and conditions of the warranty coverage that applies to your machine was provided in the documentation kit shipped with the machine. If this warranty statement is lost or damaged, contact your dealer to obtain a new copy.

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	101,4 dBA
Guaranteed Sound Power	103,0 dBA

Description of Equipment

Type of Equipment: Crawler Loader
Model Name: T76
Model Code: B4ZZ

Engine Manufacturer: Bobcat Company
Engine Model: DM02VB DM02–MFL01
Engine Power: 55,2 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:

10 August 2020

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 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

Sound Power Levels [Lw(A)]

Measured Sound Power	101,4 dBA
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Type of Equipment: Crawler Loader
Model Name: T76
Model Code: B4ZZ

Engine Manufacturer: Bobcat Company
Engine Model: DM02VB DM02–MFL01
Engine Power: 55,2 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:

30 July 2022

DECLARATION OF CONFORMITY (TOUCH DISPLAY)

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 color 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 harmonization legislation:
   Directive 2014/53/EU

   Additional relevant Union harmonization legislation:
   None.

6. References to the relevant harmonized 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)

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 color 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 harmonization legislation:
   Directive 2014/53/EU

   Additional relevant Union harmonization legislation:
   None.

6. References to the relevant harmonized 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
+420 318 532 444
www.doosanbobcat.com

Declaration of conformity with Article 19 of Regulation (EU) No 573/2024 of the European Parliament and of the Council

We Doosan Bobcat EMEA s.r.o. with VAT number CZ2648920 and F-gas Portal ID number 47062, acting in its capacity as EU only representative for the import of goods from CLARK EQUIPMENT COMPANY doing business as BOBCAT COMPANY, a corporation organized under the law 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 573/2024 as:

■ A. we hold authorisation(s) issued in accordance with Article 21 of Regulation (EU) No 573/2024 and registered in the registry referred to in Article 20 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 16 of Regulation (EU) No 573/2024 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 16(2)(c) of Regulation (EU) No 573/2024 pursuant to Article 26 of Regulation (EU) No 573/2024 and Section 5C of the Annex to Commission Implementing Regulation (EU) No 2024/2195.

☐ 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 16 of Regulation (EU) No 573/2024.

Donghyuk Kim, Vice President Finance EMEA

16th January, 2025

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

4.3–inch display 41

A

accessories 13
adjusting joystick position 108
air cleaner
  filters 153
air conditioning
  cleaning 151–152
  filters 150
  troubleshooting 152
air conditioning belt
  adjusting 191
  replacing 191
alternator belt
  adjusting 191
  replacing 191
attachment control device 102
attachments
  choosing the correct bucket 116
  high-flow list 14
  inspecting pallet fork 118
  installing and removing hand lever Bob-Tach 118
  installing and removing Power Bob-Tach 121
  installing hand lever Bob-Tach 118
  installing Power Bob-Tach 121
  list 14
  pallet fork 117
  removing hand lever Bob-Tach 120
  removing Power Bob-Tach 123
auto idle
  description 71
  operating 71
auto throttle 73
  activating 73
  operating auxiliaries 74
automatic ride control 193

B

back-up alarm
  inspecting 145
back-up alarm system
  description 78
  operating 78
basic operating instructions 127
battery
  charging 173
  during machine storage 173
  jump starting 174
  maintainer 173
  maintaining charge level 173
  maintenance 172
  replacing 175
  testing 173
belt
  air conditioning 191
  alternator 191
biodiesel blend fuel 155
Bob-Tach
  inspecting 196
Bob-Tach, hand lever
  inspecting and maintaining 195
bobcat interlock control system
  inspecting 136
  operating 59
buckets 14

C

clear side enclosed cab 15
clear side enclosed cab option
  maintaining 15
clock operation 52
controls
  selectable joystick controls 56
coolant
  checking level 165
  cleaning cooling system 163
  replacing 165
  type 164
counterweights 116

D

daily inspection and maintenance list 103
decals 22
declaration of conformity 263
  UK 264
Declaration of Conformity
  hydrofluorocarbon 268
  radio 266
  touch display 265
delivery report 11
derate and shutdown conditions 114
derate description — 4.3–Inch Display 114
diesel fuel
  safety 19
diesel particulate filter (DPF) 61, 186
  automatic regeneration operation 63–64
  description 61
  DPF Cleaning 186
  DPF Service Description 186
  DPF service regeneration 186
  forced parked regeneration operation 63, 66
  forced regeneration operation 63, 65
  icons 61
  inhibit mode operation 64, 68
  regeneration tables 62
drive response 85–86
driving and steering
  SJC in ‘H’ control pattern 80
  SJC in ‘ISO’ control pattern 79

E

electrical system 168, 170, 174–175
  battery maintenance 172
emergency exit 75
  front door 77
  front door reassembly 77
  rear window 75–76
engine
  air filters 153
  coolant 163, 165
  oil 160
  replacing oil 160
engine oil
  chart 160
engine speed control 70
  foot 70–71
ethylene glycol 164
exhaust system safety 19

F

fire prevention
  electrical 18
  fire extinguishers 19
  hydraulic system 18
flammable fluids 18
fuel
  replacing vent filter 158
fuel cleanliness level 155
fuel filter
  removing water 156
  replacing main filter 157
  replacing pre-filter 156
fuel specifications 155
fuel standards (EU) 155
fuel standards (NA) 155
fuel tank 155
fueling
  diesel 19
fuses
  identification 168, 170

G

grease
  fittings 194
grinding safety 19

H

HVAC
  cleaning 151–152
  filters 150
  troubleshooting 152
HVAC controls 49
hydraulic connection specifications
  push to connect fittings 259
hydraulic controls
  automatic ride control 96
  continuous 98
  continuous flow 97
  description 94
  dual direction bucket positioning 95
  front auxiliaries 97
  high-flow 97, 99–100
  hydraulic couplers 101
  operating SJC controls in H control pattern 95
  operating SJC controls in ISO control pattern 94
  quick couplers 100–101
  rear auxiliaries 99
  relieving auxiliary hydraulic pressure 101
  reversing fan 96–97
hydraulic fluid 178
  chart 178
hydraulic system
  checking fluid 176–177
  replacing case drain filter 183
  replacing charge filter 184
  replacing fluid 178
  replacing main filter 181
  replacing reservoir vent filter 185
  warming 111
hydrostatic drive motor
  replacing brake cavity fluid 190

I

inspection checkbook 136
instrument panel
  4.3–inch display 41
  HVAC controls 49
  jog shuttle (standard display) 48
  jog shuttle (touch display) 48
  keyed ignition 50
  left control panel 47
  overview 40
  right control panel 47
  standard display 43
  touch display 45
  touch display radio input ports 49
intended use 39
introduction 10

J

jog shuttle 48

L

land management door and window kit 16
  maintaining 16
lift and tilt compensation 89–90
lift arm bypass control 75
  inspecting 138
lift arm support
  description 142
  installing 142
  removing 143
lifting the machine
  four-point lift 129
  single-point lift 129
lights 57
lubrication
  fittings 194

M

machine identification 12
machine signs
  pictorial only safety signs 21
machine specifications 249
machine storage 173
maintenance
  schedule 134–136
maintenance safety 18
monitoring display 112–113

O

oil
  engine 160
operating on slopes 127–128
operator cab
  description 57
  door sensor 146
  front door 58
  front washer tank 58
  front wiper and washer 57
  inspecting 146
  loader lights 57
  lowering 147
  raising 146

side windows....58
options....13

P

parking brake....69
operating....69
pivot pins....193
pre-starting procedure....105–108
propylene glycol....164
public roads....127
publications....20

R

radio
adjusting settings....51
Bluetooth....52
clock operation....52
identification....50
navigating audio menu....53
navigating system menu....53
pairing a Bluetooth device....53
timer....51
rated operating capacity
buckets....117
calculating....117
description....116
rear door....148–149
rear grille....149–150
rear view camera
adjusting....55
description....54
maintaining....54
touch display....54
relay
identification....168, 170

S

safety signs....22
seat
adjusting....106–107
seat bar....108
description....60, 139
inspecting....139
maintaining....140
operating....60
seat belt
adjustment....107–108
inspecting and maintaining....141
serial number
engine....11
location....11
service
schedule....134–136
service codes list....233
service manual....20
service schedule symbols....273
special applications kit....15
maintaining....15
specifications
controls....250
drive system....250
electrical system....251
engine....249
environmental....252
flare fitting....256
fluid capacities....251
ground pressure....252
hydraulic cylinders....251
hydraulic system....251
machine dimensions....247
o-ring face seal connection....256
o-ring flare fitting....257
performance....249
port seal fitting....259
specification bucket....249
straight thread o-ring fitting....256
temperature range....253
torque for general metric bolts....254
torque for general sae bolts....254
tracks....252
tubelines and hoses....256
speed management....83–84
standard display....43
display settings....208
language settings....211
machine settings....209
navigation bar....204
record a service....206
security settings....210
set interval....207
software....212
units....212
view service codes....207
viewing active shortcuts....204
vital detail and machine performance....205
standard items....13
starting engine....109
cold temperature starting tips....111
starting safety....19
starting the engine....109
cold temperature engine speed control....112
cold temperature hydrostatic drive....112
steering drift compensation....87
stopping
loader....81
stopping the engine....115
storage
and return to service....198
preparing for....198

T

timer....51
touch display....45
add job clock....229
add operator....226
attachment information....221
audio....216
audio settings....231
bluetooth settings....231
camera settings....215, 231
dealer information....231
display settings....223
edit operator....227
favorites....222
job clocks....228
language settings....230
machine settings....224
notification drawer....214
operator statistics....228
phone....216
record a service....217

remove job clock....230
security settings....225
software version....232
units....231
view service codes....219
view service record....218
view service schedule....218
vital detail and machine performance....213
towing procedure....128
track sprocket
torque....190
track tension
checking....187
decreasing....188
increasing....187
track undercarriage
introduction....125
operating and maintenance tips....125
training resources....20
transporting the machine....130
two-speed....82
operating....82

U

ultra low sulfur fuel....155

W

warranty
machine....262
welding safety....19
workgroup response....93

SERVICE SCHEDULE SYMBOLS

These symbols are found on decal part number 7423521.

	Check tire condition and pressure		Check hydraulic hoses and tubelines for leaks
	Check back-up alarm for proper function		Check track tension, adjust as needed
	Check engine air intake ducting		Check parking brake for correct operation
	Check engine coolant level		Check accessory belt condition, replace as needed
	Lubricate grease fittings		Check battery cables and connections
	Check hydraulic fluid level		Replace engine oil and filter
	Clean engine cooling system		Replace hydraulic fluid and filters
	Check front horn for proper function		Clean air conditioning evaporator
BICS	Check BICS for correct function		Clean heater coil
	Check engine oil level		Replace main fuel filter, fuel pre-filter, and fuel tank vent filter
	Check seat belt condition		Replace engine coolant
	Drain water from main fuel filter when indicated		Replace fluid in chaincases
	Check lift arm bypass control for correct function		Replace fluid in drive motor brake cavities
	When equipped with diesel particulate filter (DPF)		

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