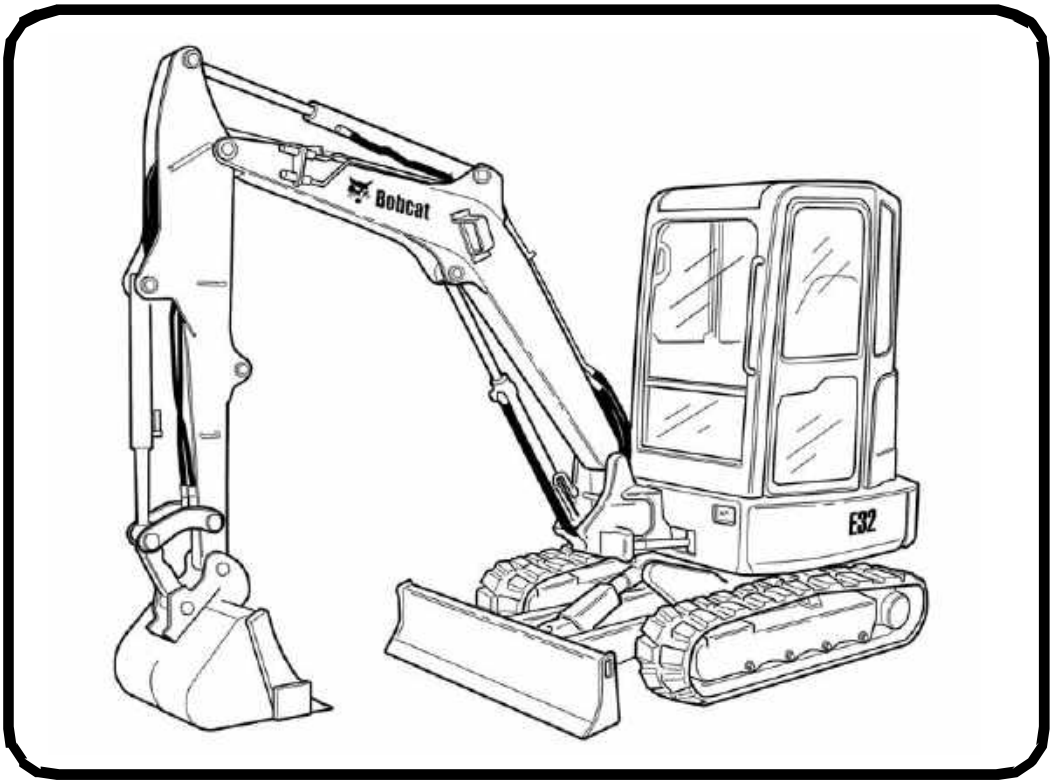
Operation & Maintenance Manual
E32 Compact Excavator

S/N A94H11001 & Above



6987270 (2-12) Revised (10-12) (6)

Printed in U.S.A.

OPERATOR SAFETY WARNING

⚠ WARNING

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

W-2001-0502

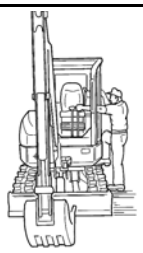
Safety Alert Symbol: **This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.**

CORRECT

P-90216

- **Never operate without instructions.**
- **Read machine signs, and Operation & Maintenance Manual, and Operator's Handbook.**

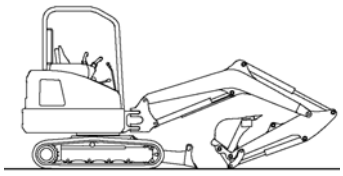
WRONG



NA1418

- **Do not grasp control handles when entering cab / canopy.**
- **Be sure controls are in neutral before starting.**
- **Sound horn and check behind machine before starting.**

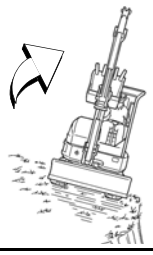
CORRECT



NA1435B

- **Never operate without approved cab / canopy.**
- **Never modify equipment.**
- **Never use attachments not approved by Bobcat Company.**

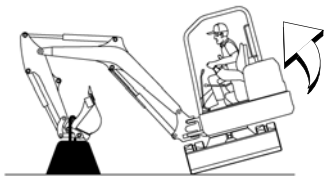
WRONG



NA1419

- **Avoid steep areas or banks that could break away.**

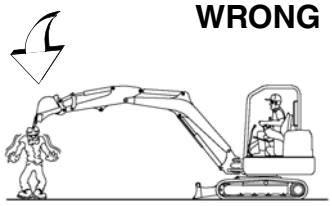
WRONG



NA1439A

- **Use caution to avoid tipping - do not swing heavy load over side of track.**
- **Operate on flat, level ground.**

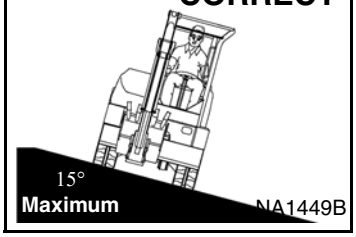
WRONG



NA1445A

- **Keep bystanders out of maximum reach area.**
- **Do not travel or turn with bucket extended.**
- **Never carry riders.**

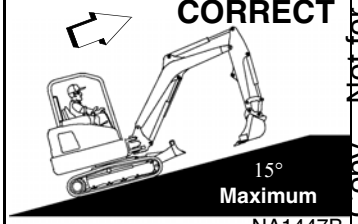
CORRECT



NA1449B

- **Never exceed a 15° slope to the side.**

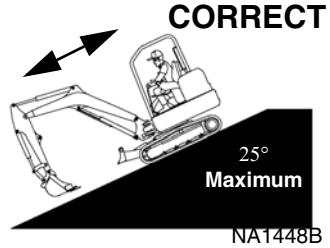
CORRECT



NA1447B

- **Never travel up a slope that exceeds 15°.**

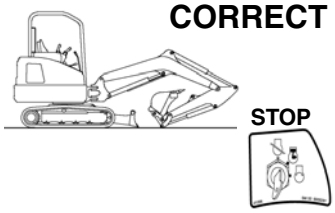
CORRECT



NA1448B

- **Never exceed 25° when going down or backing up a slope.**

CORRECT



NA1435B 6808261

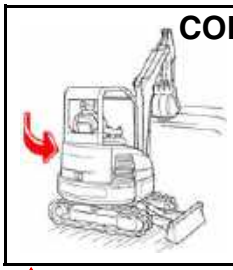
- **To leave excavator, lower the work equipment and the blade to the ground.**
- **Stop the engine.**

CORRECT

B-21928

- **Fasten seat belt securely.**
- **Operate controls only from operator's seat.**

CORRECT



NA1421A

- **Look in the direction of rotation and make sure no bystanders are in the work area.**

SAFETY EQUIPMENT

The excavator must be equipped with safety items necessary for each job. Ask your dealer about attachments and accessories.

1. **SEAT BELT: Check belt fasteners and check for damaged webbing or buckle.**
2. **OPERATOR CAB / CANOPY (ROPS and TOPS): Check condition and mounting hardware.**
3. **OPERATOR'S HANDBOOK: Must be in the cab / canopy.**
4. **LEFT HAND CONSOLE: When raised must deactivate the travel and hydraulic functions.**
5. **SAFETY SIGNS (DECALS): Replace if damaged.**
6. **GRAB HANDLES: Replace if damaged.**
7. **INTEGRATED SLEW LOCK BRAKE.**
8. **SAFETY TREAD.: Replace if damaged.**

CONTENTS

REFERENCE INFORMATION

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

Excavator Serial Number _____

Engine Serial Number _____

NOTES:

_____

_____

_____

_____

YOUR BOBCAT DEALER:

_____

ADDRESS:

_____

PHONE:

_____

Bobcat Company
P.O. Box 128
Gwinner, ND 58040-0128

Bobcat Company Europe
Drève Richelle 167
B-1410 WATERLOO
Belgium

FOREWORD

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

BOBCAT COMPANY IS IS0 9001 CERTIFIED

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

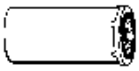
British Standards Institute (**BSI**) is the Certified Registrar Bobcat Company chose to assess the Company's compliance with the ISO 9001 at Bobcat's manufacturing facilities in Gwinner and Bismarck, North Dakota (U.S.A.), Pontchateau (France), Dobris (Czech Republic) and the Bobcat corporate offices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

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

CALIFORNIA PROPOSITION 65 WARNING

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

REGULAR MAINTENANCE ITEMS

	ENGINE OIL FILTER (6 Pack) 6675517		BATTERY 6670251
	FUEL FILTER 6667352		HYDRAULIC FILL / BREATHER CAP 6692836
 	AIR FILTER, Outer 6672467 AIR FILTER, Inner 6672468		FLUID, Hydraulic / Hydrostatic 6903117 - (2.5 U.S. gal) 6903118 - (5 U.S. gal) 6903119 - (55 U.S. gal)
	PRIMARY HYDRAULIC FILTER 6668819 CASE DRAIN HYDRAULIC FILTER 7009365		ANTI-FREEZE, Propylene Glycol 6983128 - Premixed 6983129 - Concentrate
			RADIATOR CAP 6673313
ENGINE OIL 6903105 6903107 6903109 6903113 6903112 6903111	 SAE 15W40 CE/SG (12 qt) SAE 10W30 CE/SG (12 qt) SAE 30W CE/SG (12 qt) SAE 15W40 CE/SG (2.5 U.S. gal) SAE 10W30 CE/SG (2.5 U.S. gal) SAE 30W CE/SG (2.5 U.S. gal)	**ENGINE OIL** 6903106 6903108 6903110	 SAE 15W40 CE/SG (1 U.S. gal) SAE 10W30 CE/SG (1 U.S. gal) SAE 30W CE/SG (1 U.S. gal)

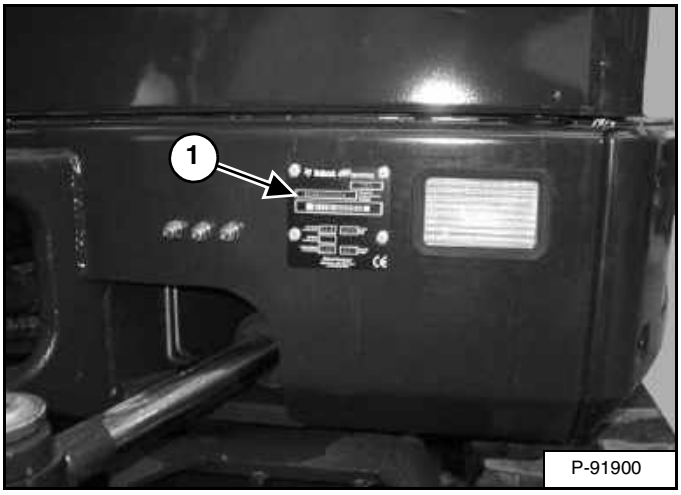
NOTE: Always verify Part Numbers with your Bobcat dealer.

SERIAL NUMBER LOCATIONS

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

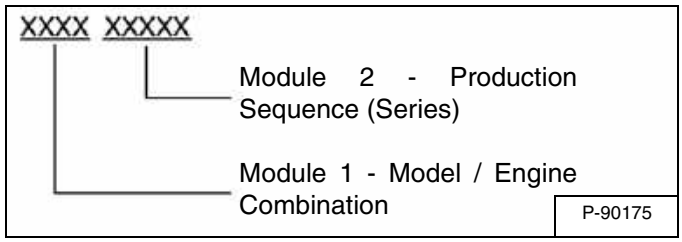
Excavator Serial Number

Figure 1



The excavator serial number plate (Item 1) **[Figure 1]** is located on the frame of the machine in the location shown.

Figure 2



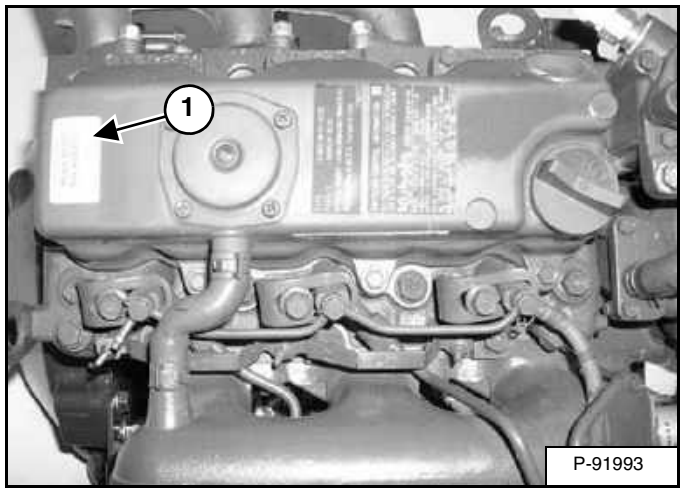
Explanation of excavator Serial Number **[Figure 2]**:

1. The four digit Model / Engine Combination Module number identifies the model number and engine combination.

2. The five digit Production Sequence Number identifies the order which the excavator is produced.

Engine Serial Number

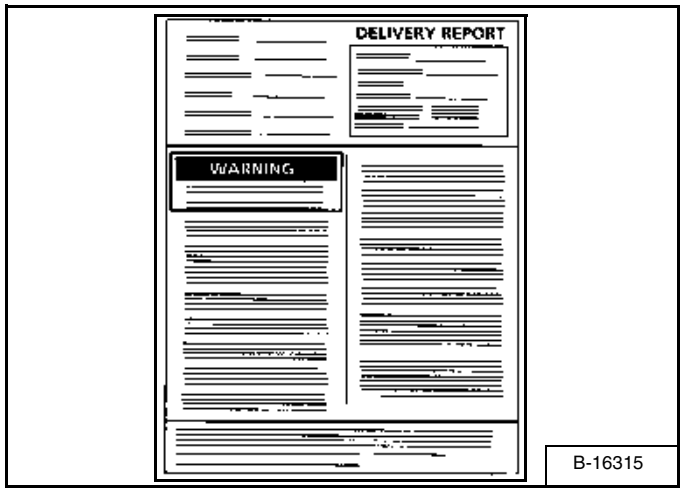
Figure 3



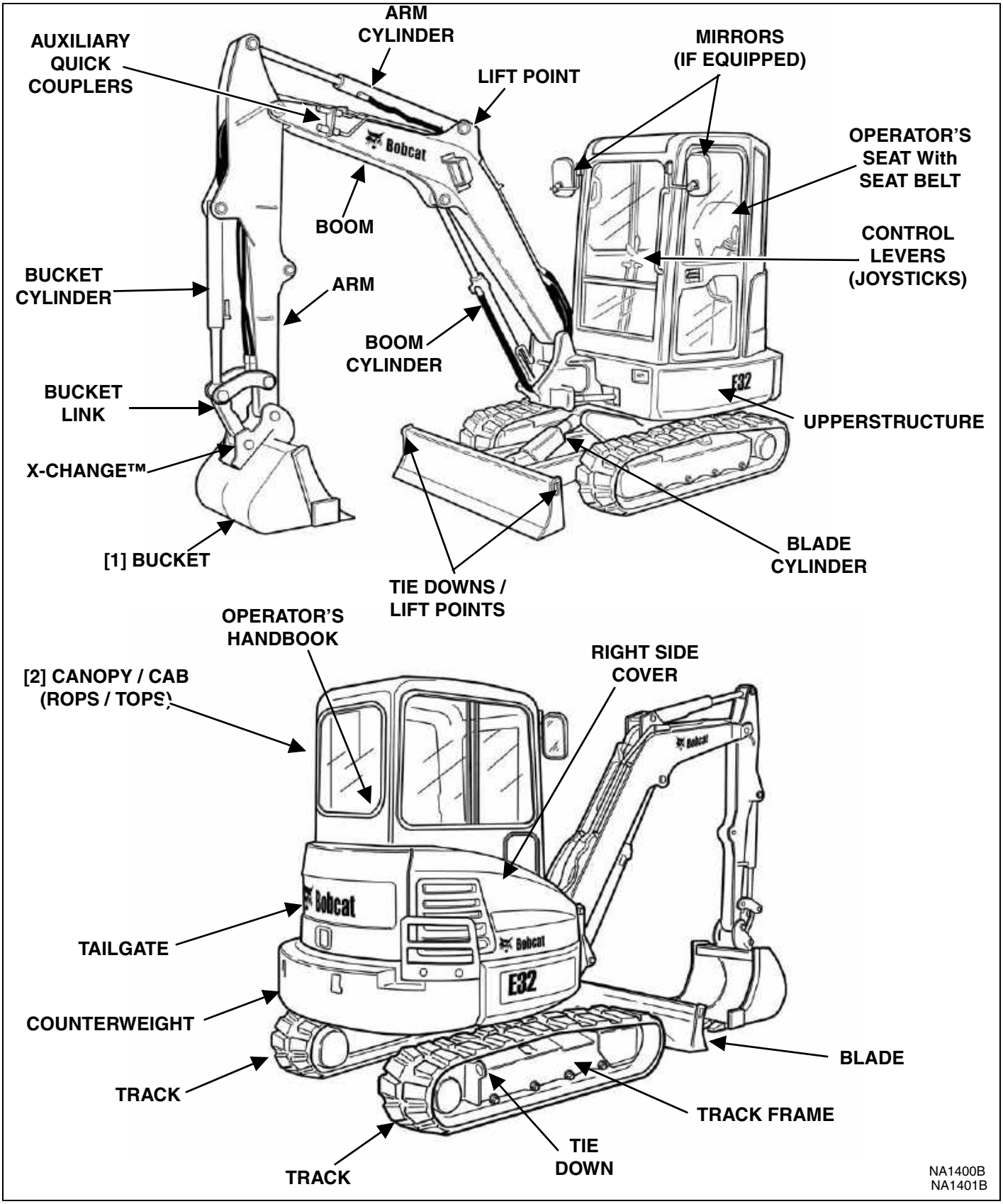
The engine serial number (Item 1) **[Figure 3]** is located on the top cover.

DELIVERY REPORT

Figure 4



The delivery report **[Figure 4]** must be filled out by the dealer and signed by the owner or operator when the Bobcat excavator is delivered. An explanation of the form must be given to the owner. Make sure it is filled out completely.



[1] BUCKET - Several different buckets and other attachments are available from the Bobcat Excavator.

[2] ROPS, TOPS - (Roll Over Protective Structure / Tip Over Protective Structure) as standard equipment. The ROPS / TOPS meets ISO 12117-2 and ISO 12117.

FEATURES, ACCESSORIES AND ATTACHMENTS

Standard Items

Model E32 Bobcat Excavators are equipped with the following standard items:

- 1520 mm (59.8 in) Dozer Blade
- Canopy with ROPS / TOPS Approval
- 320 mm (12.6 in) Rubber Tracks
- Two-Speed Travel
- Auto Shift Drive Motors
- Auxiliary Hydraulics (With Selectable Auxiliary Hydraulic Flow)
- Hydraulic and Travel Control Lockouts
- Engine Speed Control Dial With Auto Idle Feature
- Blade Float
- Work Lights - Boom and Frame Mounted
- Engine and Hydraulic system Monitor with Shut Down
- Horn
- Hydraulic Joystick Controls
- ISO / STD Control Pattern Selection Feature
- Suspension Seat
- Retractable Seat Belt
- Spark Arrester Muffler
- Advanced Diagnostics
- X-Change™
- Counterweight

Options And Accessories

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

- Enclosed Cab With Heater and A.C.
- Enclosed Cab With Heater
- Travel Motion Alarm
- Keyless Start
- Canopy / Cab Mounted Lights
- Catalytic Exhaust Purifier
- Top Guard Kit (FOGS)
- Special Application Kit
- Steel Tracks
- Long Arm
- Direct to Tank Auxiliary Hydraulics
- Counterweight (Additional)
- Hydraulic X-Change
- Extendable Arm
- Second Auxiliary Hydraulics
- Arm Mounted Auxiliary Hydraulic Couplers
- RFID Kit (Security Key Start System)

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

Attachments

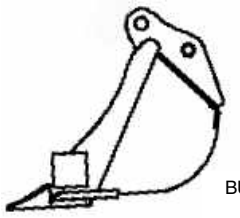
These and other attachments are approved for use on this model Bobcat Excavator. Do not use unapproved attachments. Attachments not manufactured by Bobcat may not be approved.

The versatile Bobcat Excavator quickly turns into a multi-job machine with a variety of attachments.

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

- Auger
- Breaker
- Hydraulic Clamp
- 3-Tined Grapple
- Compactor
- Power Tilt
- Ripper
- Hydro tilt
- Packer wheel
- Lazer Receiver

Buckets Available



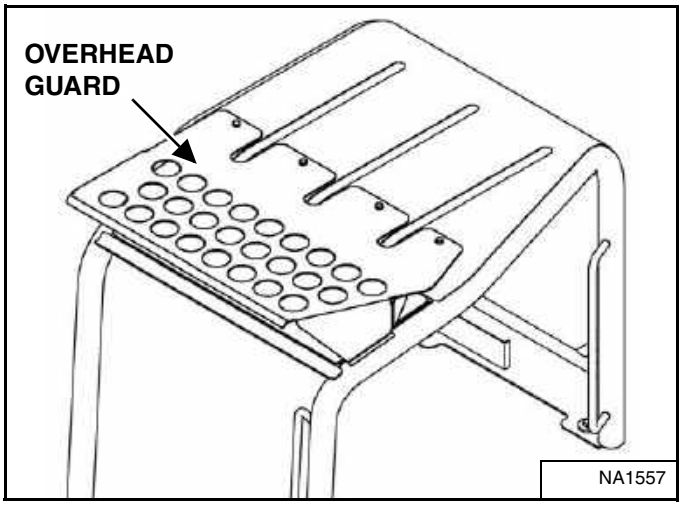
BUCKET

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 Excavator and application.

- 305 mm (12 in) Trenching
- 305 mm (13 in) Trenching
- 305 mm (13 in) Heavy duty trenching
- 406 mm (16 in) Trenching
- 457 mm (18 in) Trenching
- 457 mm (18 in) Heavy duty trenching
- 508 mm (20 in) Trenching
- 610 mm (24 in) Trenching
- 610 mm (24 in) Heavy duty trenching
- 760 mm (30 in) Trenching
- 914 mm (36 in) Trenching
- 991 mm (39 in) Grading
- 13201 mm (52 in) Grading

Falling Object Guards (FOGS)

Figure 5



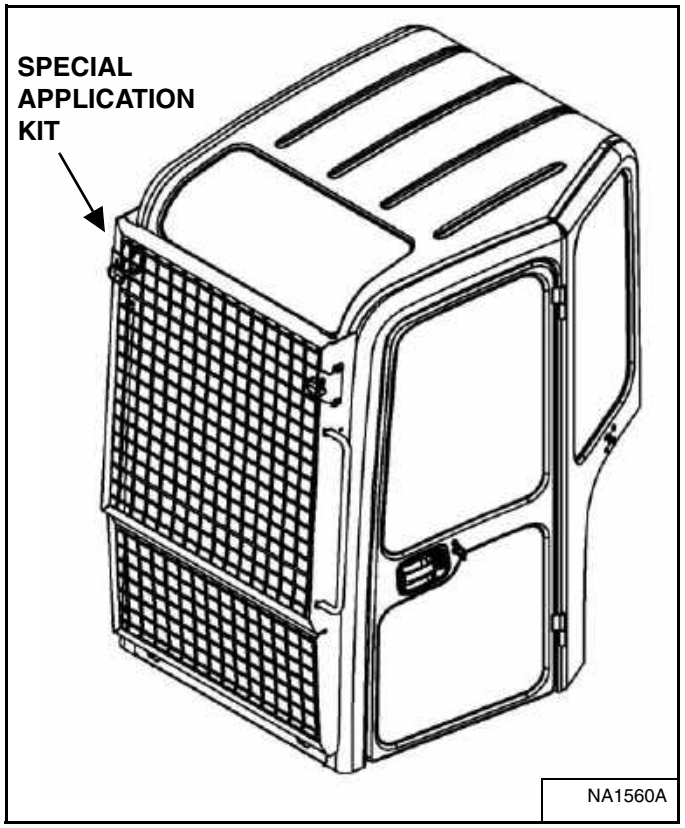
Available for special applications that require protection from smaller objects that can fall on the canopy / cab or restrict material from entering canopy / cab openings **[Figure 5]** and **[Figure 6]**.

The excavator must have the overhead guard **[Figure 5]** installed to meet the top guard requirements in ISO 10262.

See your Bobcat Dealer for more information.

Special Applications Kit

Figure 6



The excavator must have the special applications kit **[Figure 6]** installed to meet the front guard requirements in ISO 10262 - level 1.

Kit includes an upper and lower screen guard.

See your Bobcat Dealer for more information.

Special Applications Kit Inspection And Maintenance

The Special Applications Kit must be regularly inspected and maintained. Inspect the screen for damage. Replace parts as necessary.

SAFETY & TRAINING RESOURCES

SAFETY INSTRUCTIONS

Before Operation

Carefully follow the operating and maintenance instructions in this manual.

The Bobcat excavator 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 excavator usage.

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

The dealer explains the capabilities and restrictions of the Bobcat excavator 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 Lift Capacity. They are designed for secure fastening to the Bobcat excavator. The user must check with the dealer, or Bobcat literature, to determine safe loads of materials of specified densities for the machine - attachment combination.

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

- The Delivery Report is used to assure that complete instructions have been given to the new owner and that the machine and attachment is in safe operating condition.

- The Operation & Maintenance Manual delivered with the machine or attachment gives operating information as well as routine maintenance and service procedures. It is a part of the machine and can be stored in a container provided on the machine. Replacement Operation & Maintenance Manuals can be ordered from your Bobcat dealer.

- Machine signs (decals) instruct on the safe operation and care of your Bobcat machine or attachment. The signs and their locations are shown in the Operation & Maintenance Manual. Replacement signs are available from your Bobcat dealer.

- An Operator's Handbook is fastened to the operator cab of the excavator. It's brief instructions are convenient to the operator. The handbook is available from your dealer in an English edition or one of many other languages. See your Bobcat dealer for more information on translated versions.

- The AEM Safety Manual delivered with the machine gives general safety information.

- The Compact Excavator Operating Training Course is available through your Bobcat dealer. This course is intended to provide rules and practices of correct operation of the Bobcat excavator. The course is available in English and Spanish versions.

- Service Safety Training Courses are available from your Bobcat dealer. They provide information for safe and correct service procedures.

- See the PUBLICATIONS AND TRAINING RESOURCES Page in this manual or your Bobcat dealer for Service and Parts Manuals, printed materials, videos, or training courses available. Also check the Bobcat web sites **www.training.bobcat.com** or **www.bobcat.com**

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

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

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

SI EXC-0511

Safe Operation Is The Operator's Responsibility

Safety Alert Symbol

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

WARNING

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

W-2001-0502

IMPORTANT

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

I-2019-0284

DANGER

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

D-1002-1107

WARNING

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

W-2044-1107

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

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

Safe Operation Needs A Qualified Operator

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

A Qualified Operator Must Do The Following:

Understand the Written Instructions, Rules and Regulations

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

Have Training with Actual Operation

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

Know the Work Conditions

- Know the weight of the materials being handled. Avoid exceeding the Rated Lift Capacity of the machine. Material which 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. Call local utilities or the TOLL FREE phone number found in the *Before Operation* section of this manual.
- Wear tight fitting clothing. Always wear safety glasses when doing maintenance or service. Safety glasses, respiratory equipment, hearing protection or Special Applications Kits are required for some work. See your Bobcat dealer about Bobcat safety equipment for your model.

SI EXC-0511

Avoid Silica Dust

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

FIRE PREVENTION

Maintenance

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

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

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

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

Operation

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

Electrical

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

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

SI EXC-0511

FIRE PREVENTION (CONT'D)

Hydraulic System

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

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

Fueling

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

Starting

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

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

Spark Arrester Exhaust System

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

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

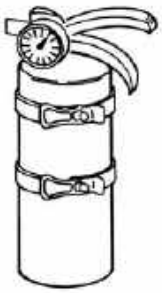
Welding And Grinding

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

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

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

Fire Extinguishers



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

SI EXC-0511

PUBLICATIONS AND TRAINING RESOURCES

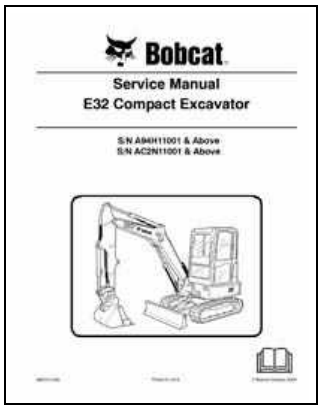
The following publications are also available for your Bobcat Excavator. You can order them from your Bobcat dealer.

For the latest information on Bobcat products and the Bobcat Company, visit our web site at **www.bobcat.com**; you can also order Operator and Service Training materials online through **www.bobcatstore.com**

OPERATION & MAINTENANCE MANUAL

6987270

- Complete instructions on the correct operation and the routine maintenance of the BOBCAT Excavator.



SERVICE MANUAL

6987272

- Complete maintenance instructions for your BOBCAT Excavator.

SAFETY MANUAL
(English & Spanish)

6901951

- Provide basic safety procedures and warnings for your BOBCAT Excavator in both English and Spanish.

OPERATOR'S HANDBOOK

6987271

Gives basic operation instructions and safety warnings

COMPACT EXCAVATOR OPERATOR TRAINING COURSE

6903186

Introduces operator to step-by-step basics of Compact Excavator operation. Also available in Spanish P/N 6903228

EXCAVATOR SERVICE SAFETY COURSE

6900916

Introduces Service Technicians to step-by-step basics of proper and safe excavator maintenance and servicing procedures

OPERATOR SAFETY DVD

6904762

Provides basic safety instructions contained in all Bobcat Safety Videos in both English and Spanish.

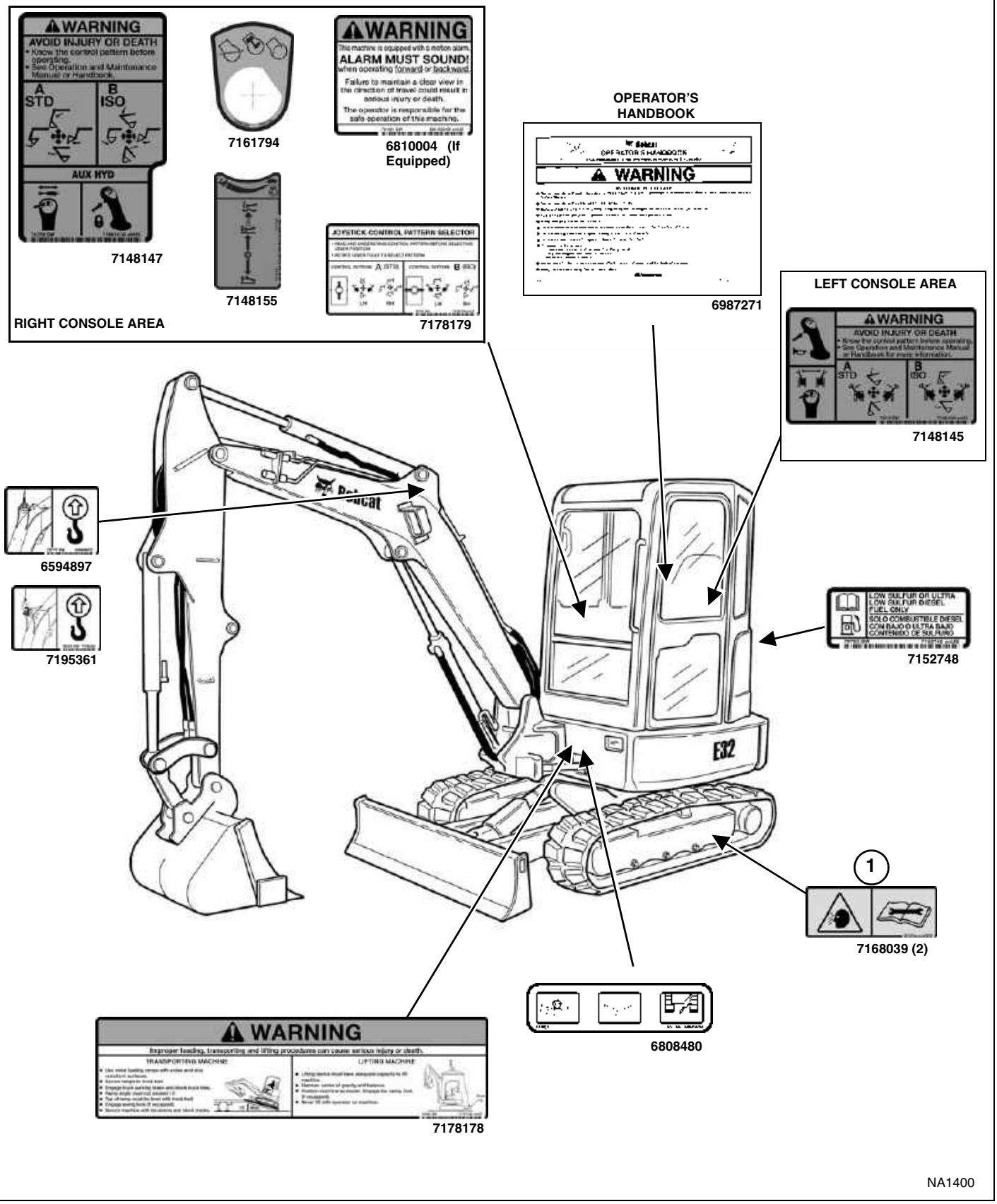
EXCAVATOR SAFETY VIDEO

(Mobile device with quick response code application required)

Scan the code above to watch the excavator safety video or view at **www.training.bobcat.com**.

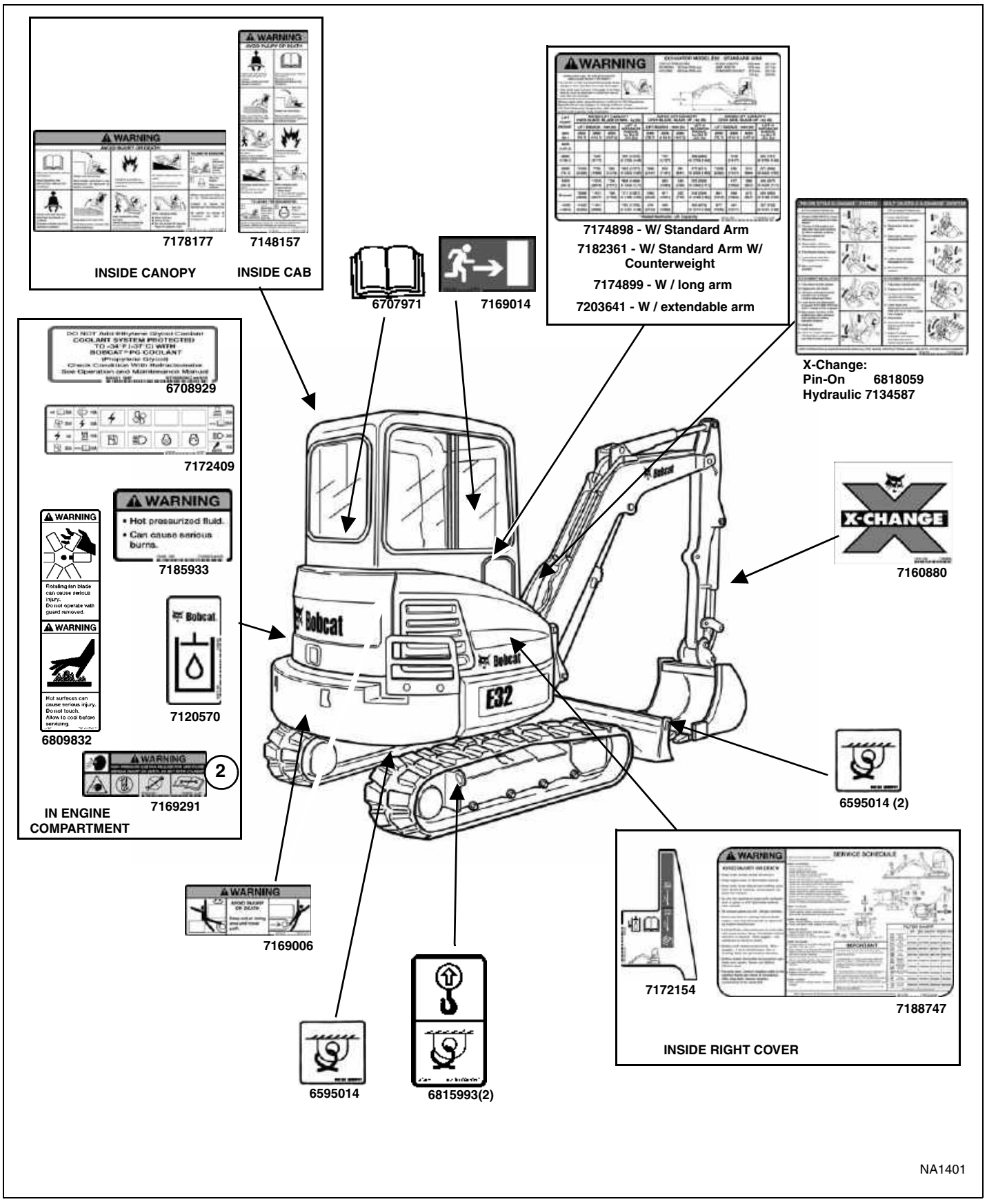
MACHINE SIGNS (DECALS)

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



MACHINE SIGNS (DECALS) (CONT'D)

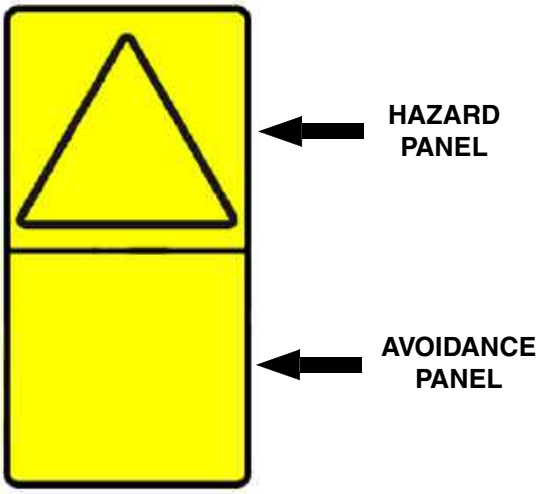
Follow the instructions on all the Machine Signs (Decals) that are on the excavator. Replace any damaged machine signs and be sure they are in the correct locations. Machine signs are available from your Bobcat Excavator dealer.



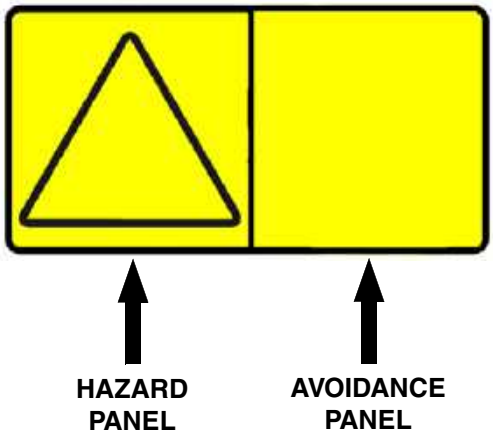
No-Text Safety Signs

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

Vertical Configuration



Horizontal Configuration



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

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

Avoidance panels depict actions required to avoid the hazards.

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

NOTE: See the numbered MACHINE SIGNS (DECALS) on Page 20 and Machine Signs (Decals) (Cont'd) on Page 21 for the machine location of each corresponding numbered no-text decals as shown below.

1. Thrown Or Flying Objects (7120574)

This safety sign is located on the outside of both tracks.

WARNING

High pressure grease can cause serious injury. Do not loosen grease fitting. Do not loosen bleed fitting more than 1 - 1/2 turns.

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

W-2516-0110

2. Thrown or Flying Objects (7169291)

This safety sign is located on the gas spring in the engine compartment.

WARNING

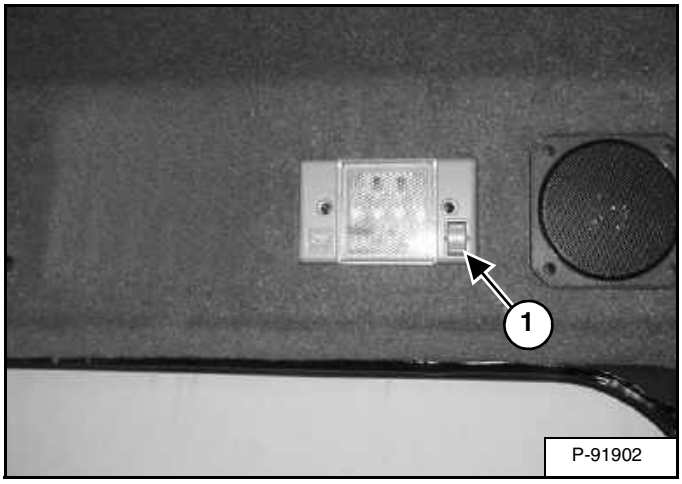
High pressure gas can cause serious injury or death. Do not open. Opening cylinder can release rod.

W-2523-0106

INSTRUMENTS AND CONSOLES

Cab Interior Light (If Equipped)

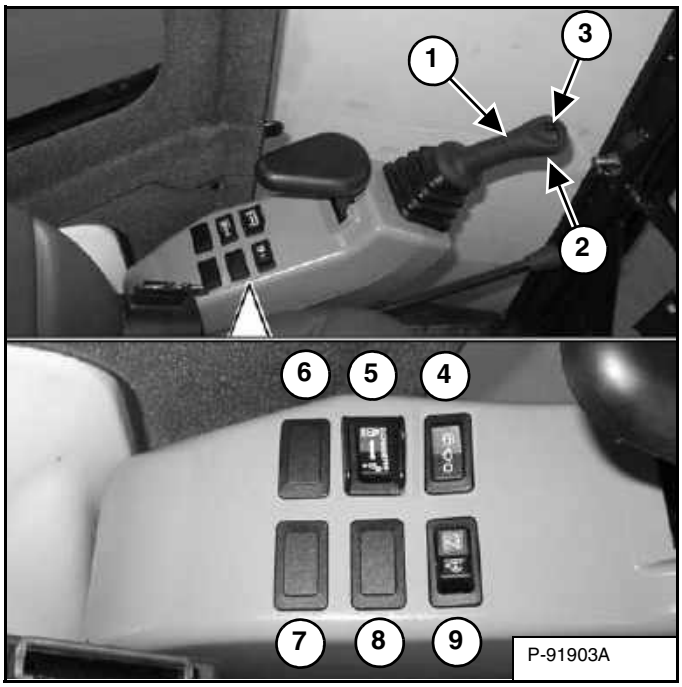
Figure 7



Press the top of the switch (Item 1) **[Figure 7]** to turn the light ON. Press the bottom of the switch to turn OFF.

Left Console

Figure 8



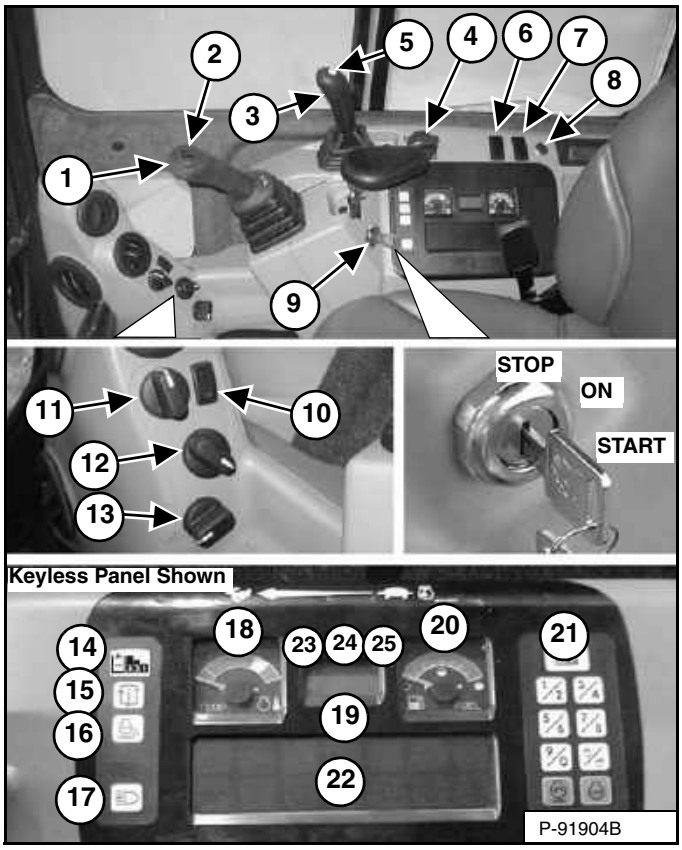
Left Console **[Figure 8]**

REF. NO.	DESCRIPTION	FUNCTION / OPERATION
1	Left Joystick	(See HYDRAULIC CONTROLS on Page 42.)
2	Horn	Press the switch on the bottom of the left joystick to sound horn.
3	Boom Swing Switch / Secondary Auxiliary Hydraulic (If Equipped)	Move the switch to the left to swing the boom to the left. Move the switch to the right to swing the boom to the right. (See Secondary Auxiliary Hydraulics and Boom Swing in this manual.)
4	Wiper / Washer Switch (If Equipped)	Press the switch to the left to turn wiper ON. Press and hold switch to the left to activate window washer. Press the switch to the right to turn wiper OFF.
5	Hydraulic X-Change Switch (If Equipped)	Press and hold the switch to the right to fully retract hydraulic pins. Press and hold the switch to the left to fully extend hydraulic pins.
6	Beacon / Strobe Light (If Equipped)	Press switch to the left to turn ON the beacon / Strobe light. Press the switch to the right to turn OFF.
7	Not Used	- - -
8	Not Used	- - -
9	Boom Swing Switch / Secondary Auxiliary Hydraulic	Move the switch to the right to activate the secondary auxiliary hydraulics. Move the switch to the left for boom swing function. (See Secondary Auxiliary Hydraulics and Boom Swing in this manual.)

INSTRUMENTS AND CONSOLES (CONT'D)

Right Console

Figure 9



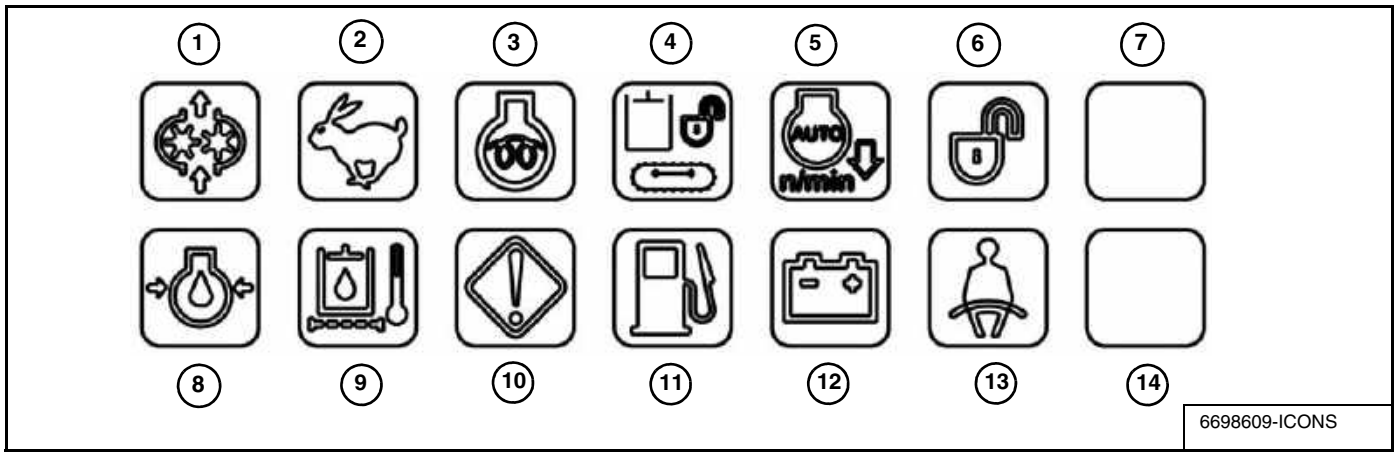
Right Console **[Figure 9]**

REF	DESCRIPTION	FUNCTION / OPERATION
1	Right Joystick	(See HYDRAULIC CONTROLS in this manual.)
2	Auxiliary Hydraulic Switch	Controls the fluid flow to the auxiliary quick couplers (attachment). (See Auxiliary Hydraulics in this manual.)
3	Blade Control Lever	Controls raising and lowering the blade. Pushed all the way forward puts blade in float position. (See BLADE LEVER CONTROL in this manual).
4	Engine Speed Control Dial	Controls rpm of the engine. (See ENGINE SPEED CONTROL DIAL in this manual).
5	Two Speed Button	Engages and disengages High Range Travel Speed. (See Two-Speed Travel in this manual).
6	Motion Alarm Cancel Switch	This switch temporarily disables the motion alarm. (See MOTION ALARM SYSTEM (IF EQUIPPED) on Page 39.)
7	Not Used	---
8	Auxiliary Power Outlet	12 volt receptacle for accessories.
9	Key Switch (STANDARD Panel Only)	Always perform the *PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE in this manual)*, before starting the engine. (See STARTING THE ENGINE in this manual).
10	Air Conditioning Switch (If Equipped)	Press top of switch to turn air conditioner ON (light in switch will be ON), Press bottom of switch to turn OFF.
11	Fan Motor Switch (If Equipped)	Turn clockwise to increase fan speed; counterclockwise to decrease.
12	Temperature Control (If Equipped)	Turn clockwise to increase temperature; counterclockwise to decrease.
13	Recirculation / Fresh Air Control	Turn clockwise for fresh air; counterclockwise for recirculation. (Use recirculation mode for increased heating and cooling efficiency.)
14	Auxiliary Hydraulic Button	Activates and deactivates auxiliary hydraulic function (Selectable Auxiliary Hydraulic Flow) (Audible beep sounds each time the button is pressed.) (See Auxiliary Hydraulics in this manual).
15	Information	Cycles through (after each button press): Hours, Job Clock, Engine RPM, Selectable Auxiliary Hydraulic Flow (when activated); in the data Display, Item 19.)
16	Auto Idle Feature	Press once to turn Auto Idle Feature ON, press a second time to turn OFF. (See Auto Idle Feature in this manual).
17	Lights	Press once to turn lights ON; press again to turn lights OFF.
18	Temperature	Shows the engine coolant temperature.
19	Data Display Screen	The data display screen shows the Hourmeter during normal operation of the excavator. When preheat is activated, the display screen will show the remaining preheat time. Can also be used to display Job Clock, Engine rpm, and Selectable Auxiliary Hydraulic Flow. (See Job Clock in this manual).
20	Fuel Gauge	Shows the amount of fuel in the tank.
21	Keyless (OPTIONAL)	(Always perform the *PRE-STARTING PROCEDURE,* (See PRE-STARTING PROCEDURE in this manual), before starting the engine. (See STARTING THE ENGINE in this manual).
22	Indicator Icons	(See Indicator Icons in this manual).
23	Job	On when Job Clock is activated.
24	RPM	On when Engine rpm is activated.
25	Selectable Auxiliary Hydraulic Flow	On for two seconds when Auxiliary Hydraulics are activated, indicates flow selected: Aux3-Aux2-Aux1. (See Auxiliary Hydraulics in this manual).

NOTE: Always turn key switch and all accessories to OFF position when the engine is stopped, the battery will discharge if the key is left ON. Audible alarm will sound if the key is in the ON position with the engine stopped.

Indicator Icons

Figure 10



The right console contains the instrument panel with Indicator Icons **[Figure 10]**.

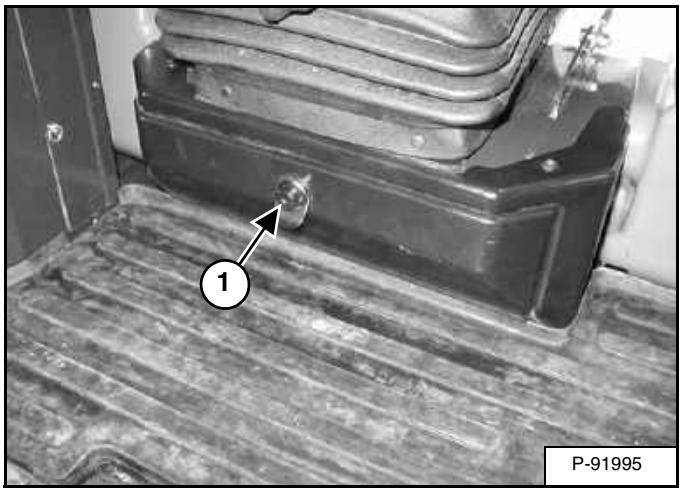
NOTE: If a Warning Icon (Icons 8, 9, 10 and 12) is illuminated or flashes, appropriate action is needed to avoid potential machine damage. Service the machine as soon as possible when conditions are present.

REF. NO.	INDICATOR ICONS		
	When Indicator Icon Is Illuminated	*When Indicator Icon Is OFF*	*When Indicator Icon Is Flashing*
1	Auxiliary Hydraulics Engaged	Auxiliary Hydraulics Disengaged	See Error Codes in SA section
2	High Range Engaged	Low Range Engaged	See Error Codes in SA section
3	Glow Plugs Energized	Glow Plugs OFF	See Error Codes in SA section
4	Hydraulic Traction Drive Activated	Hydraulic Traction Drive Deactivated	See Error Codes in SA section
5	Auto Idle System Activated	Auto Idle System Deactivated	See Error Codes in SA section
6	Keypad Unlocked	Keypad Locked	------
7	Future Use		
8	Low Engine Oil Pressure	Engine Oil Pressure in operating range	Extremely Low Engine Oil Pressure, Engine will shut down in 10 seconds, See Error Codes in SA section
9	Plugged Hydraulic Filter or High Hydraulic Oil Temperature	Hydraulic Filter and Oil in operating range.	Extremely High Hydraulic Oil Temperature, Engine will shut down in 10 seconds, See Error Codes in SA section
10	General Warning	All system in operating range	Extremely High Coolant Temperature or Extremely High Engine rpm, Engine will shut down in 10 seconds, See Error Codes in SA section
11	Low Fuel Level	Fuel level in operating range	----
12	Extremely Low Battery Voltage, Engine will shut down in 10 seconds, See Error Codes in SA section	Battery Voltage in operating range	High or Low Battery Voltage
13	Fasten Seat Belt Reminder - Light stays on for 45 seconds to remind operator to fasten seat belt.	----	----
14	Future Use		

STD / ISO Selector Valve

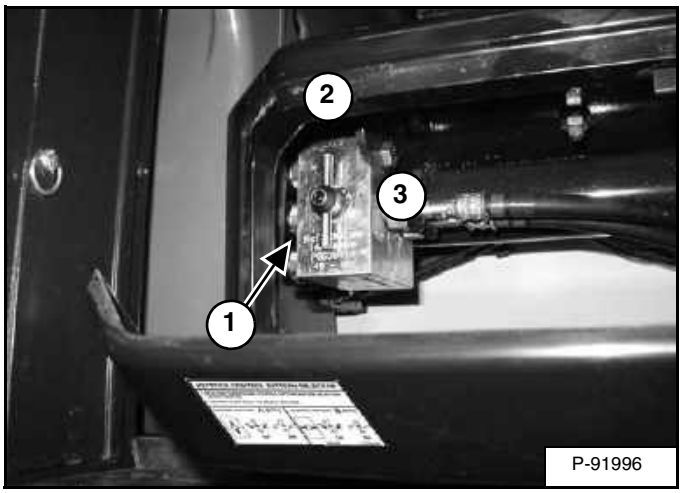
The STD / ISO selector valve is located below the operator's seat, inside the tool box.

Figure 11



From below the operator's seat, open the tool box cover (Item 1) **[Figure 11]**.

Figure 12



The joystick hydraulic function can be switched from Standard control pattern to ISO control pattern.

Rotate the lever (Item 1) counterclockwise (Item 2) to select STANDARD Control Pattern. Rotate the lever clockwise (Item 3) to select ISO Control Pattern **[Figure 12]**.

Raising And Lowering The Console

Raise the console before exiting the cab.

Figure 13

Pull up on the release handle **[Figure 13]**. The lift spring will assist in raising the console.

Lower the console before operating the excavator.

Push down on the lever **[Figure 13]** until the latch is engaged.

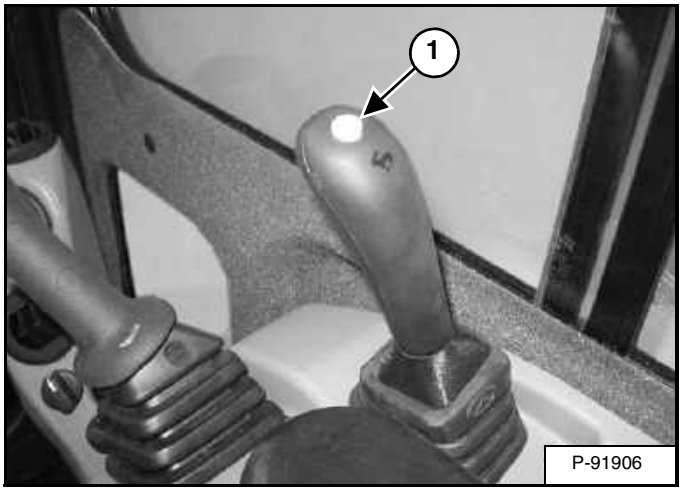
NOTE: When the console is raised, the hydraulic and traction system functions are locked and will not operate.

If the engine stops, the boom / bucket (attachments) can be lowered to the ground using hydraulic pressure in the accumulator.

The control console must be in the locked down position, and the key switch in the ON position.

Two-Speed Travel

Figure 14



Press the button (Item 1) **[Figure 14]** to engage the High Range. Press a second time to disengage.

Figure 15

When High Range is engaged, the two speed travel icon (Item 1) **[Figure 15]** will illuminate.

Press the button (Item 1) **[Figure 14]** again to disengage.

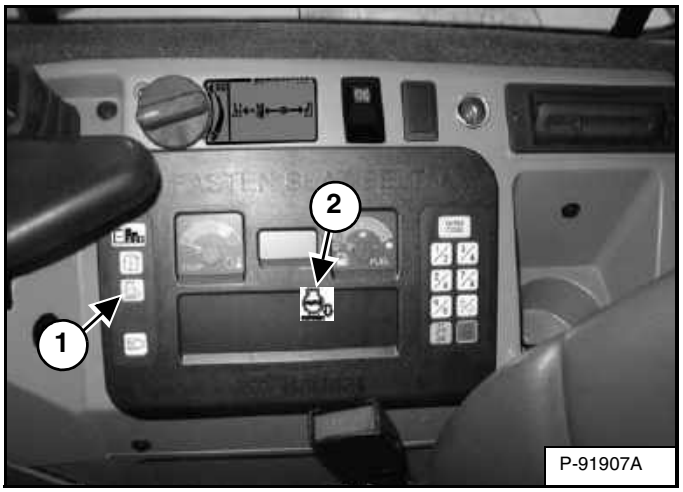
Auto Shift Drive Motors

The travel motors are equipped with an auto shift feature that senses hydraulic pressure. When in high range, the travel motors will automatically shift to low range when more torque is required and return to high range when hydraulic pressure decreases.

NOTE: Always set the travel speed to low range when loading or unloading the excavator onto a transport vehicle.

Auto Idle Feature

Figure 16



The auto idle feature (when engaged) will reduce the engine speed to low idle when the control levers (joystick, blade, travel, etc.) are in neutral and not used for approximately four seconds. The engine rpm will return to the set position as soon as any control lever is activated.

The automatic idle switch (Item 1) **[Figure 16]** is used to engage or disengage the automatic idle feature.

Press the switch (Item 1) once to engage automatic idle and the icon (Item 2) will illuminate. Press the switch (Item 1) a second time to disengage automatic idle, the icon (Item 2) **[Figure 16]** will be OFF.

NOTE: Always disengage the auto idle feature when loading or unloading the excavator onto a transport vehicle.

OPERATOR CANOPY (ROPS / TOPS)

Description

The Bobcat excavator has an operator canopy (ROPS / TOPS) as standard equipment to protect the operator if the excavator is tipped over. The seat belt must be worn for ROPS / TOPS protection.

Check the ROPS / TOPS canopy, mounting, and hardware for damage. Never modify the ROPS / TOPS canopy. Replace the canopy and hardware if damaged. See your Bobcat dealer for parts.

ROPS / TOPS - Roll Over Protective Structure per ISO 12117-2, and Tip Over Protective Structure per ISO 12117.

⚠ WARNING

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

W-2069-0200

OPERATOR CAB (ROPS / TOPS)

Description

The Bobcat excavator has an optional operator cab (ROPS / TOPS) as standard equipment to protect the operator if the excavator is tipped over. The seat belt must be worn for ROPS / TOPS protection.

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

ROPS / TOPS - Roll Over Protective Structure per ISO 12117-2, and Tip Over Protective Structure per ISO 12117.

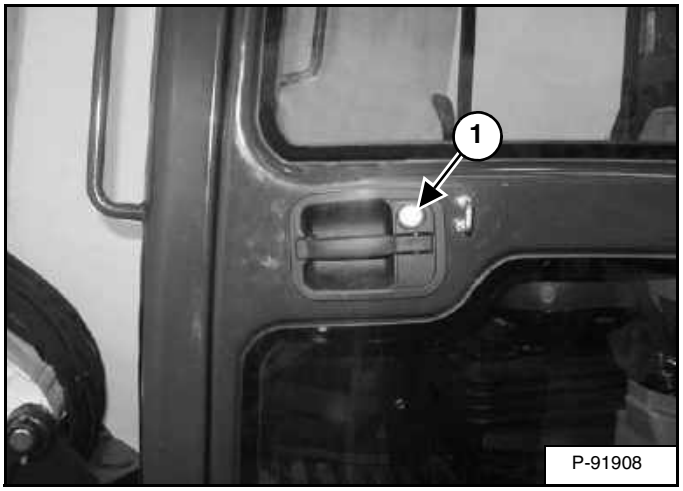
⚠ WARNING

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

W-2069-0200

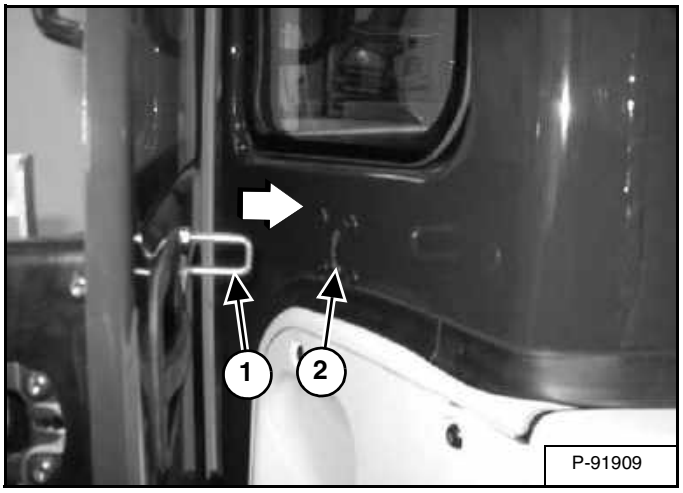
Cab Door

Figure 17



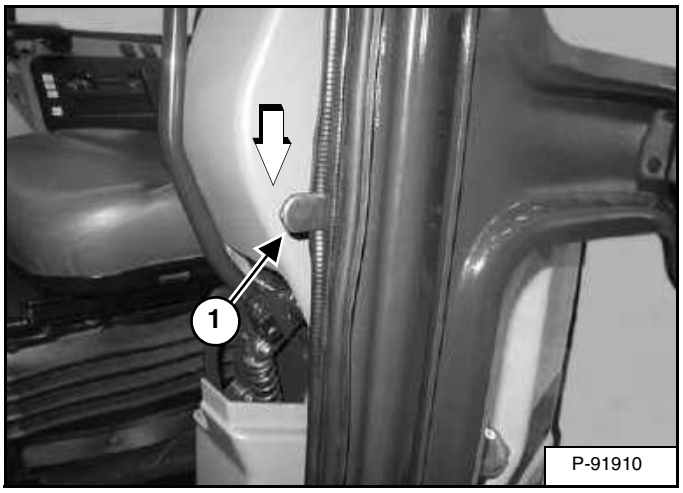
The cab door can be locked (Item 1) **[Figure 17]** with the same key as the starter switch.

Figure 18



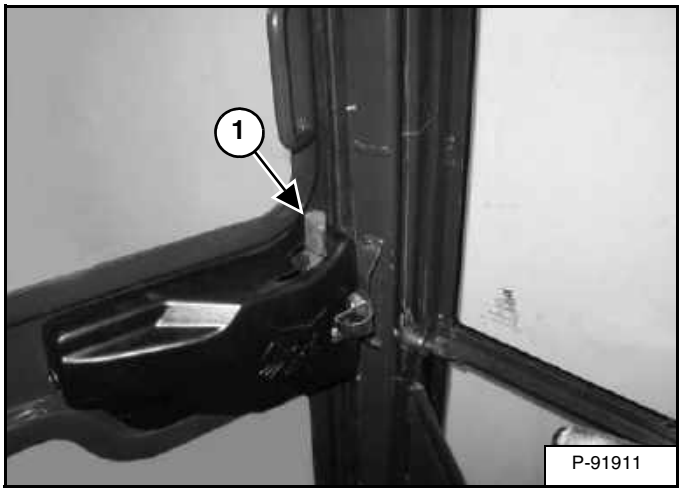
Push the door all the way open until the latch post (Item 1) engages in the latch (Item 2) **[Figure 18]** to hold the door in the open position.

Figure 19



When the door is in the open position, push down on the latch (Item 1) **[Figure 19]** and close the door.

Figure 20

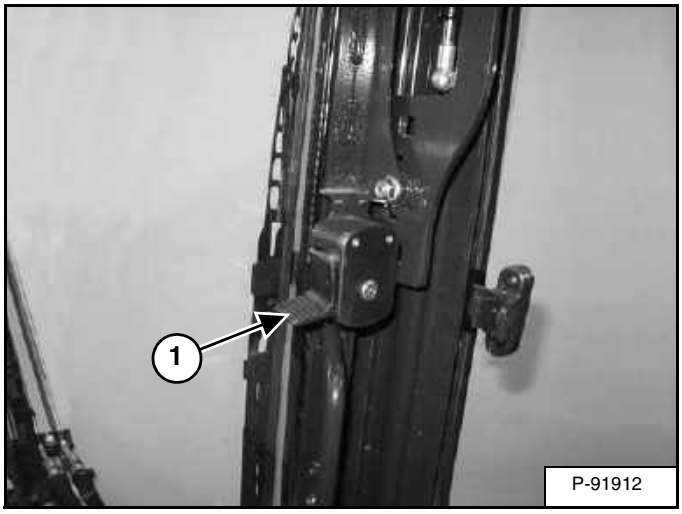


From inside the cab, open the door using handle (Item 1) **[Figure 20]**.

Front Window

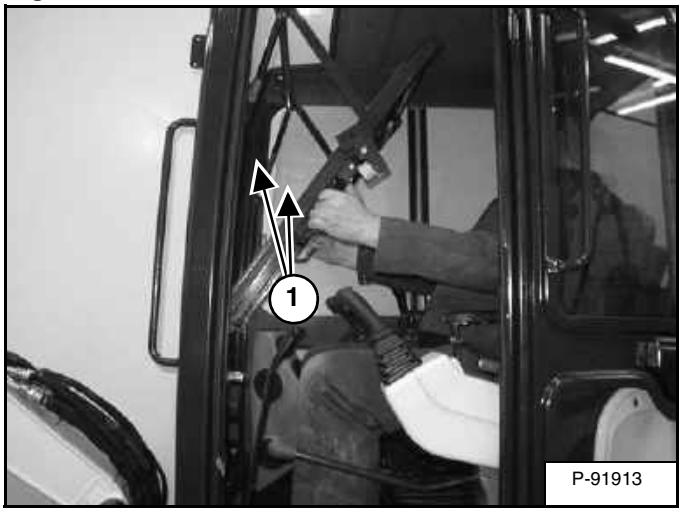
Opening The Front Window (Early Models)

Figure 21



Press the top window latch (Item 1) **[Figure 21]** (both sides).

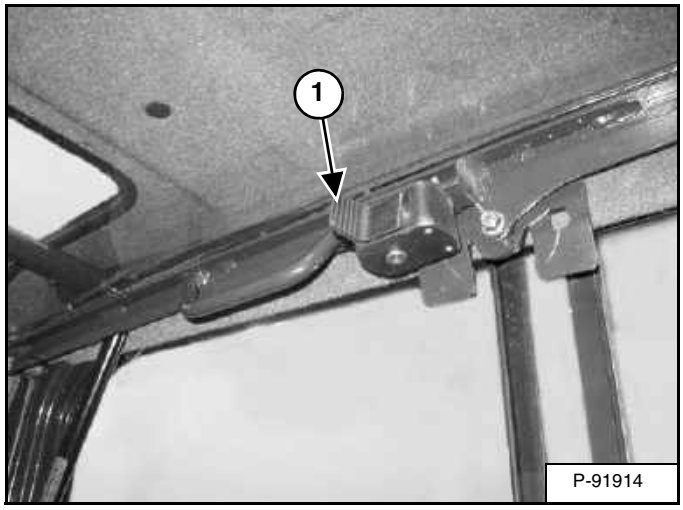
Figure 22



Use both window grab handles (Item 1) **[Figure 22]** to pull the top of the window in.

Continue moving the window in and up over the operator's head until the window is fully raised.

Figure 23



When the window is fully raised, the latch (Item 1) **[Figure 23]** (both sides) will close on the bracket in the latched position.

Pull down slightly on the window to make sure it is fully latched.

Closing The Front Window (Early Models)

Support the window while releasing the window latch (Item 1) **[Figure 23]** (both sides).

Use both window grab handles (Item 1) **[Figure 22]** to pull the window down fully.

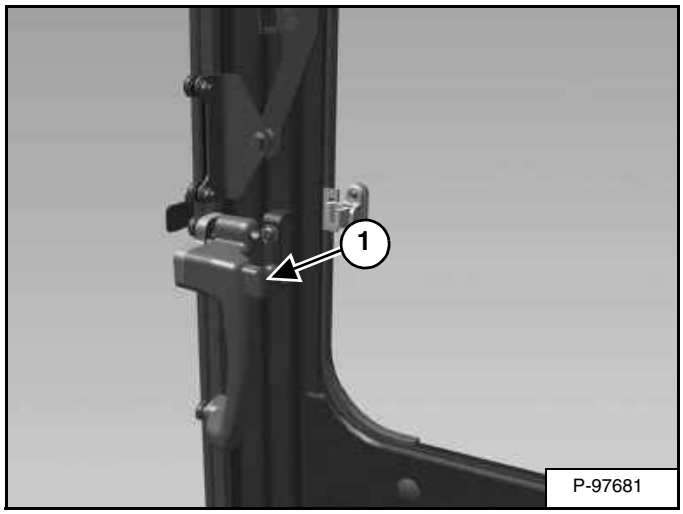
Press the top of the window in until the latch (Item 1) **[Figure 21]** locks into the latched position (both sides).

Pull inward slightly on the window to make sure it is fully latched in the closed position.

Front Window (Cont'd)

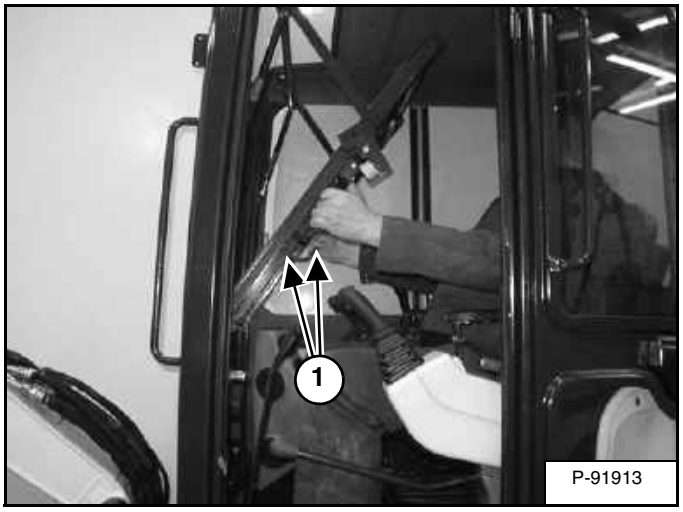
Opening The Front Window (Later Models)

Figure 24



Press the window latch button (Item 1) **[Figure 24]** (both sides).

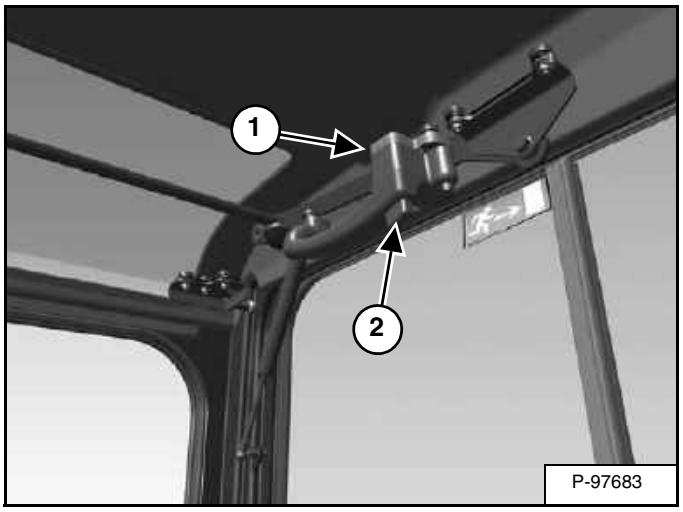
Figure 25



Use both window grab handles (Item 1) **[Figure 25]** to pull the top of the window in.

Continue moving the window in and up over the operator's head until the window is fully raised.

Figure 26



When the window is fully raised, the latch (Item 1) **[Figure 26]** (both sides) will close on the bracket in the latched position.

Pull down and forward slightly on the window to make sure it is fully latched.

Closing The Front Window (Later Models)

Use both window grab handles to support the window while pressing the window latch button (Item 2) **[Figure 26]** (both sides).

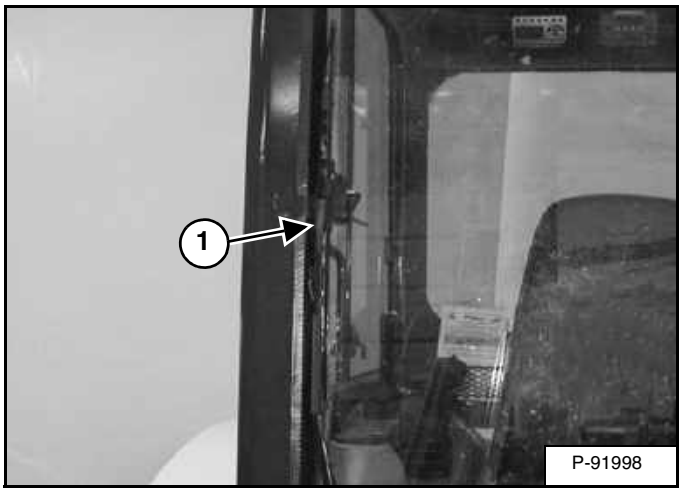
Use both window grab handles (Item 1) **[Figure 25]** to pull the window down fully.

Press the top of the window in until the latch locks into the latched position (both sides) **[Figure 24]**.

Pull inward and upward slightly on the window to make sure it is fully latched in the closed position.

Front Wiper

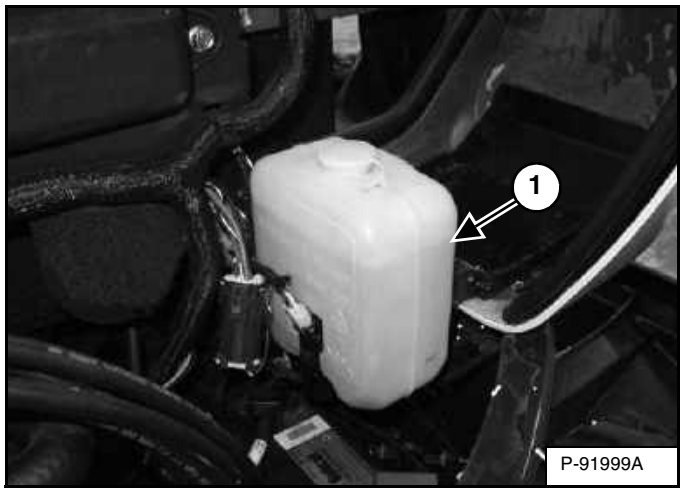
Figure 27



The front window is equipped with a wiper (Item 1) **[Figure 27]** and washer.

Window Washer Reservoir

Figure 28

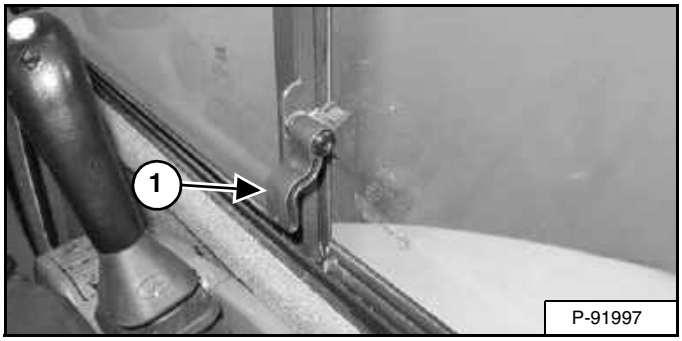


The window washer reservoir (Item 1) **[Figure 28]** is located under the right side cover.

Right Side Windows

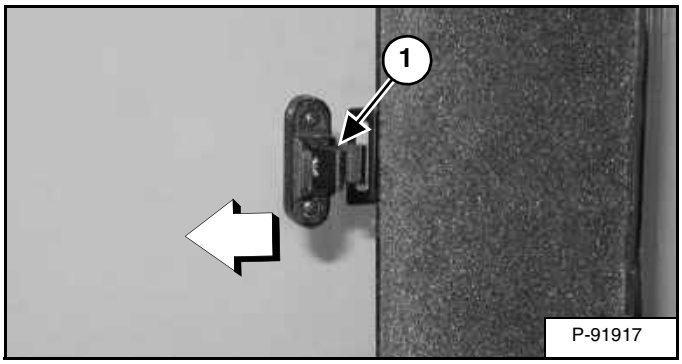
Opening The Right Rear Window

Figure 29



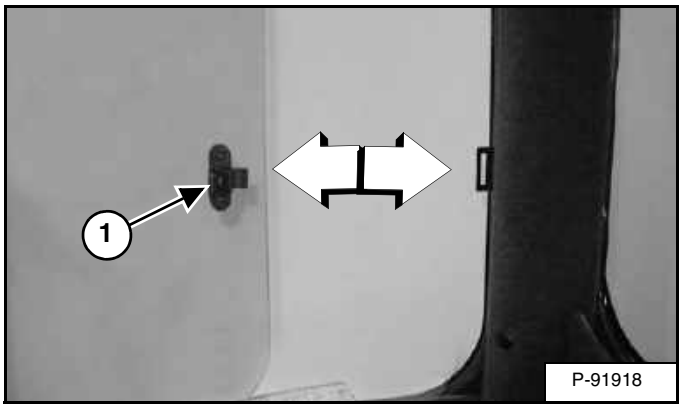
Raise the latch (Item 1) **[Figure 29]** located at the rear of the front window.

Figure 30



Pull out on the latch (Item 1) **[Figure 30]**.

Figure 31



Pull the latch (Item 1) **[Figure 31]** forward to open the window. When the window is in the open position, push down on the latch (Item 1) **[Figure 29]**.

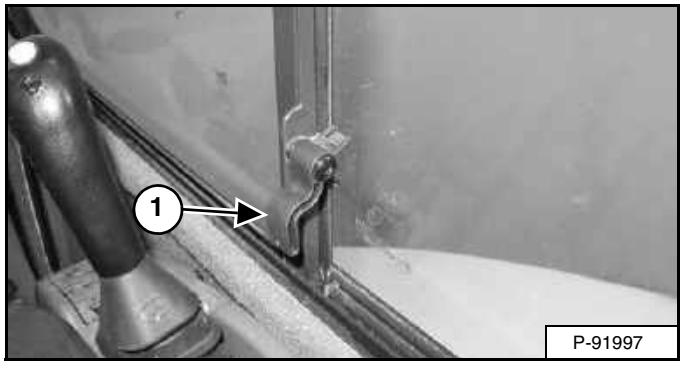
Closing The Right Rear Window

Raise the latch (Item 1) **[Figure 32]**.

Push the latch (Item 1) **[Figure 31]** back to close the window. Rotate the latch (Item 1) **[Figure 29]** down.

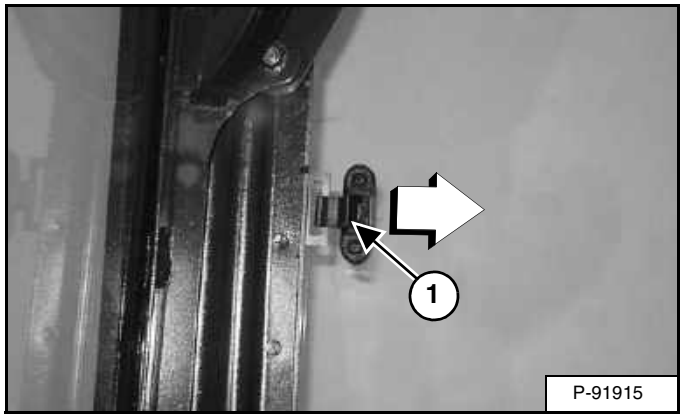
Opening The Right Front Window

Figure 32



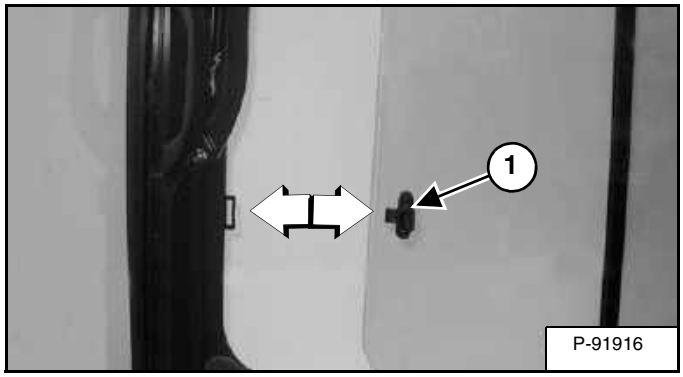
Raise the latch (Item 1) **[Figure 32]** located at the rear of the front window.

Figure 33



Pull back on the latch (Item 1) **[Figure 33]**.

Figure 34



Pull the latch (Item 1) **[Figure 34]** back to open the window.

When the window is in the open position, push down on the latch (Item 1) **[Figure 32]**.

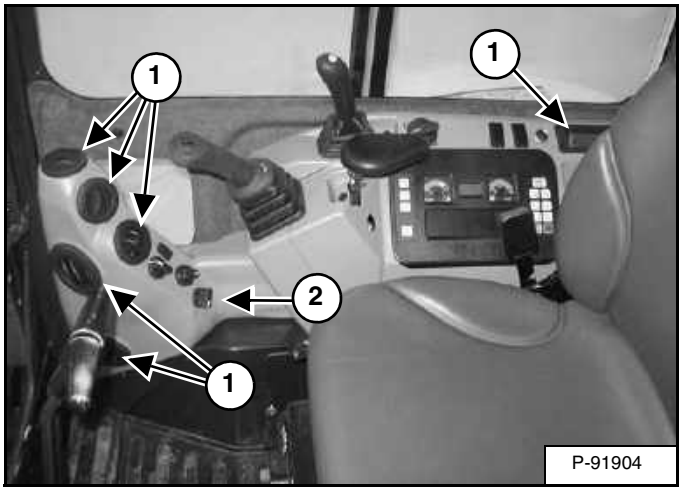
Closing The Right Front Window

Raise the latch (Item 1) **[Figure 32]**.

Push the handle (Item 1) **[Figure 34]** forward to close the window. Rotate the latch (Item 1) **[Figure 32]** down.

Heating, Ventilation, and Air Conditioning Ducting

Figure 35



The HVAC louvers (Item 1) **[Figure 35]** can be positioned as needed to direct the air flow to various areas in the cab.

Operating Tip: To increase heating or cooling efficiency, move the Recirculation / Fresh Air Control knob (Item 2) **[Figure 35]** *to the recirculation position. This will allow the air to recirculate through the HVAC system and improve temperature control. If left in the fresh air position, the HVAC system will also need to heat or cool the ambient air that is drawn in from the outside, slowing and / or reducing the temperature change inside the cab.*

EMERGENCY EXIT

The door, the right side rear window and the front window provide exits.

Right Side Rear Window

Figure 36

Exit through the window **[Figure 36]**.

Front Window

Figure 37

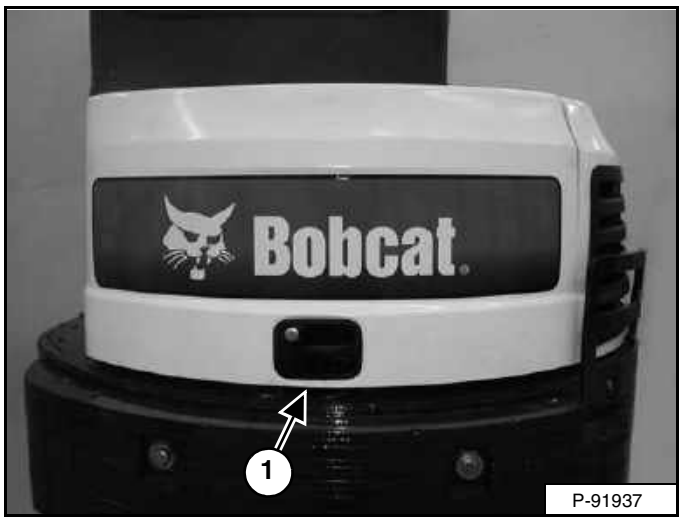
Open the front window and exit **[Figure 37]**.

NOTE: If the excavator has a Special Applications Kit installed, the front window is NOT an emergency exit.

MOTION ALARM SYSTEM (IF EQUIPPED)

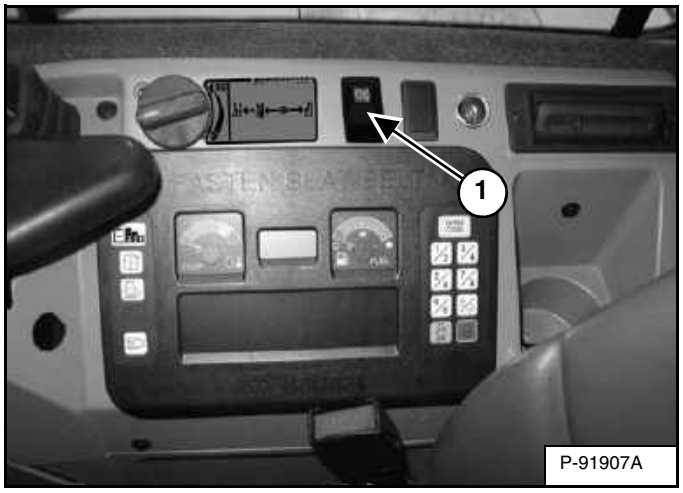
Operation

Figure 38



This excavator may be equipped with a motion alarm system. The motion alarm (Item 1) **[Figure 38]** is located inside the rear of the excavator.

Figure 39



The motion alarm can be temporarily disabled by pressing the motion alarm switch (Item 1) **[Figure 39]** while the machine is moving. As soon as the travel levers are returned to the neutral position, the motion alarm will be enabled.

⚠ WARNING

This machine is equipped with a motion alarm.
ALARM MUST SOUND!
when operating forward or backward.

Failure to maintain a clear view in the direction of travel could result in serious injury or death.

The operator is responsible for the safe operation of this machine.

W-2786-0309

The motion alarm will sound when the operator moves the travel control levers (Item 1) **[Figure 40]** in either the forward or reverse direction.

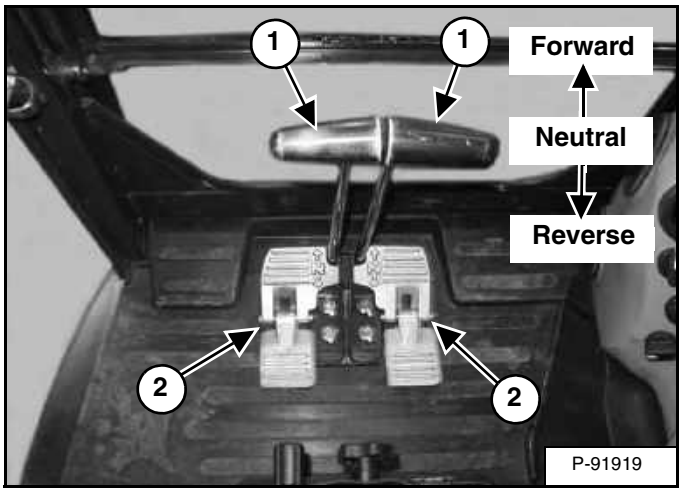
If alarm does not sound or for adjustment instructions, see inspection and maintenance instructions for the motion alarm system in the preventive maintenance section of this manual. (See MOTION ALARM SYSTEM (IF EQUIPPED) on Page 98.)

TRAVEL CONTROLS

Forward And Reverse Travel

NOTE: The following procedures describe forward, reverse, left and right as seated in the operator's seat.

Figure 40



Put the blade so that it is at the front of the machine (as you sit in the operator's seat). Slowly move both steering levers* (Item 1) **[Figure 40]** forward for forward travel; backward for reverse travel.

* Travel can also be controlled with foot pedals (Item 2) **[Figure 40]**. Pivot the heel of the pedals forward for additional space on the floor.

⚠ WARNING

AVOID INJURY OR DEATH

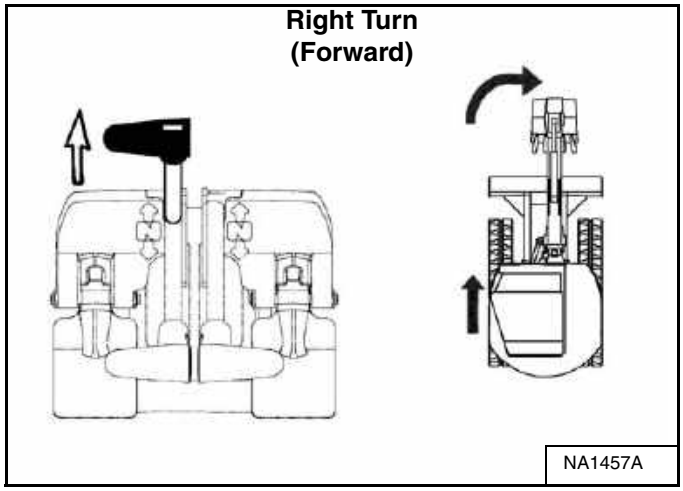
- **Check the blade location before traveling. When the blade is to the rear, operate the steering levers/foot pedals in the opposite direction to when the blade is in the front.**
- **Move the steering levers/foot pedals slowly. Abrupt lever motion will cause the machine to jerk.**

W-2235-0396

Turning

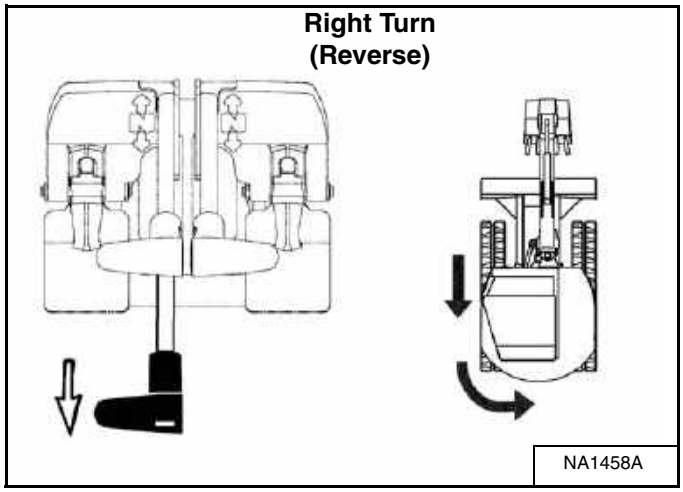
Right Turn

Figure 41



Push the left steering lever forward to turn right **[Figure 41]** while traveling forward.

Figure 42

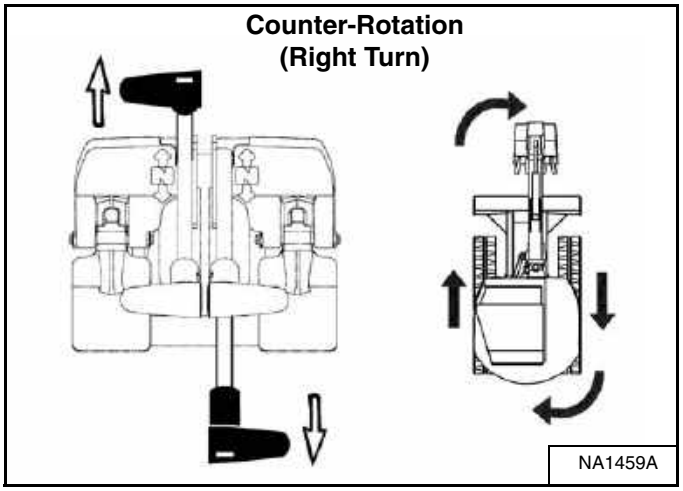


Pull the left steering lever backward to turn right while traveling backward **[Figure 42]**

Turning (Cont'd)

Counter-Rotation Right Turn

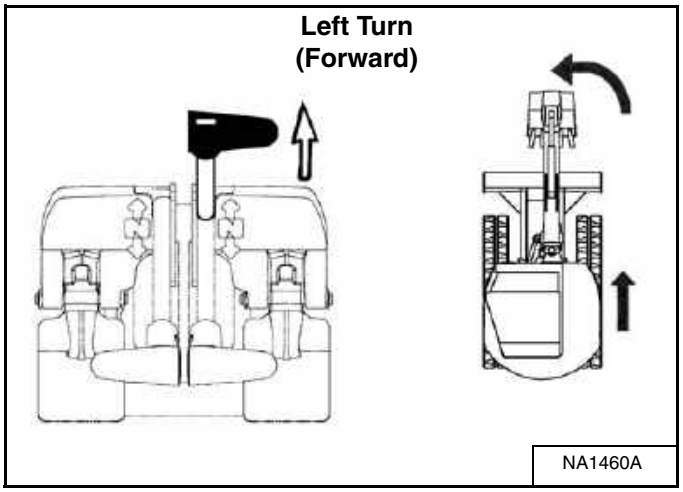
Figure 43



Push the left steering lever forward and pull the right steering lever backward **[Figure 43]**.

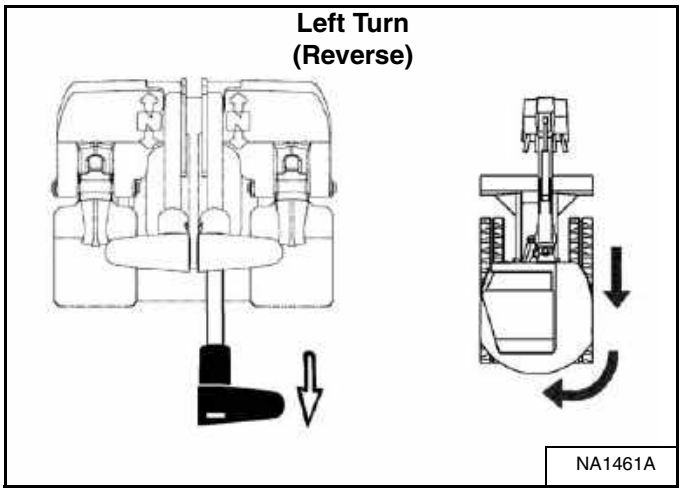
Left Turn

Figure 44



Push the right steering lever forward to turn left while traveling forward **[Figure 44]**.

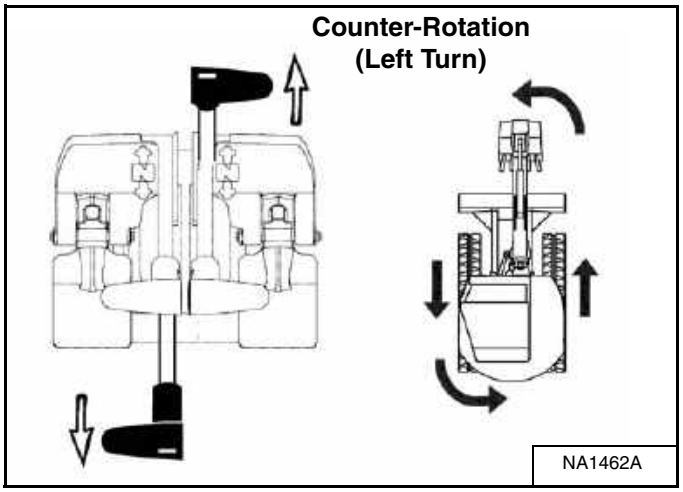
Figure 45



Pull the right steering lever backward to turn left while traveling backward **[Figure 45]**.

Counter-Rotation Left Turn

Figure 46



Push the right steering lever forward and pull the left steering lever backward **[Figure 46]**.

HYDRAULIC CONTROLS

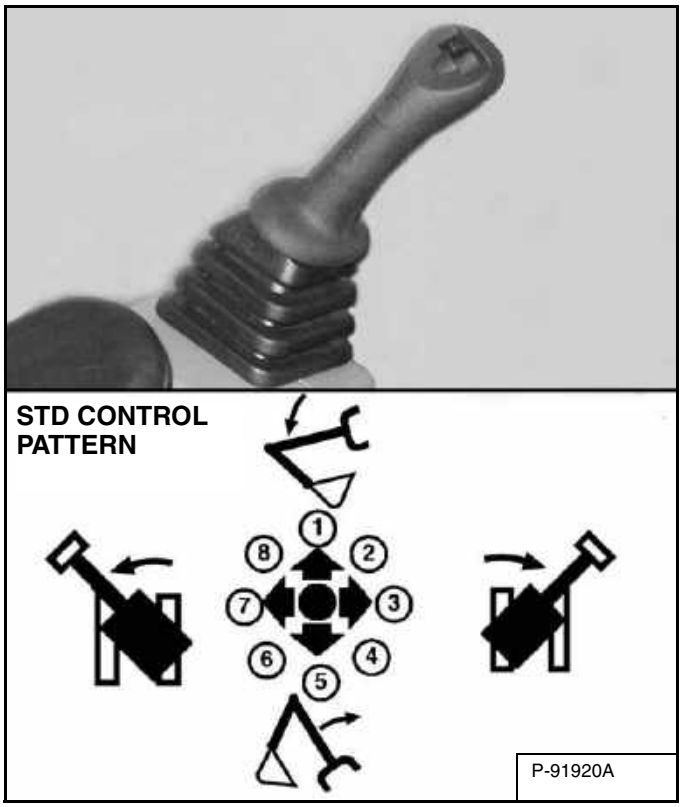
Description

The work equipment (boom, arm, bucket, and upperstructure slew) is operated by using the left and right control levers (joysticks). These joysticks can be used in either a STANDARD Control Pattern **[Figure 47]** and **[Figure 48]** or in the ISO Control Pattern **[Figure 49]** and **[Figure 50]**.

STANDARD Control Pattern

Left Control Lever (Joystick)

Figure 47

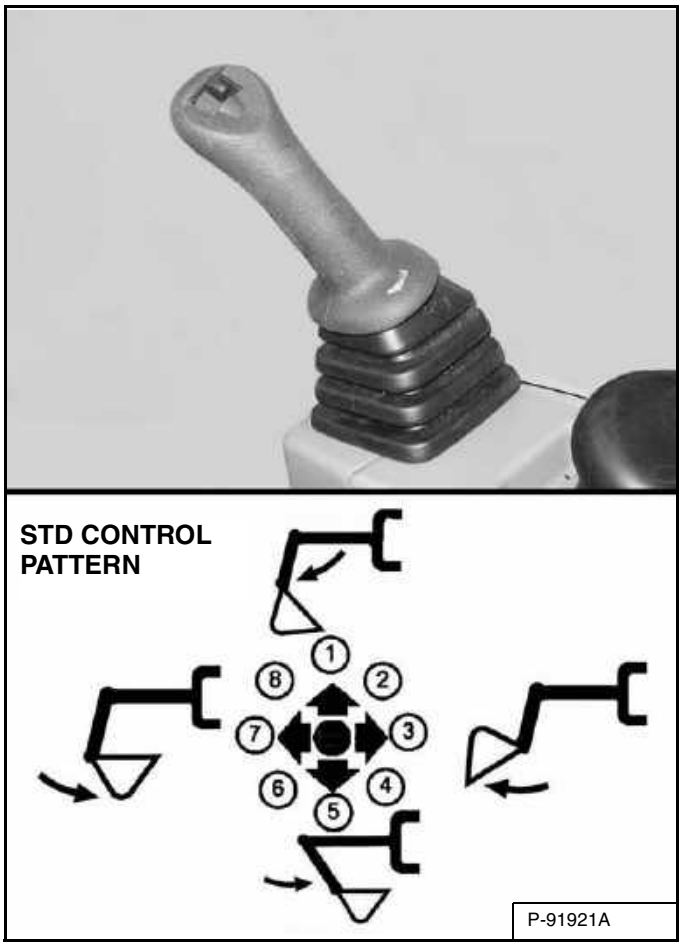


The left lever (joystick) is used to operate the boom and slew the upperstructure **[Figure 47]**.

1.Boom lower.
2.Boom lower and slew right.
3.Slew right.
4.Boom raise and slew right.
5.Boom raise.
6.Boom raise and slew left.
7.Slew left.
8.Boom lower and slew left.

Right Control Lever (Joystick)

Figure 48



The right lever (joystick) is used to operate the arm and bucket **[Figure 48]**.

1.Arm out.
2.Arm out and bucket dump.
3.Bucket dump.
4.Arm in and bucket dump.
5.Arm in.
6.Arm in and bucket curl.
7.Bucket curl.
8. Arm out and bucket curl.

⚠ WARNING

AVOID INJURY OR DEATH

Before leaving the machine:

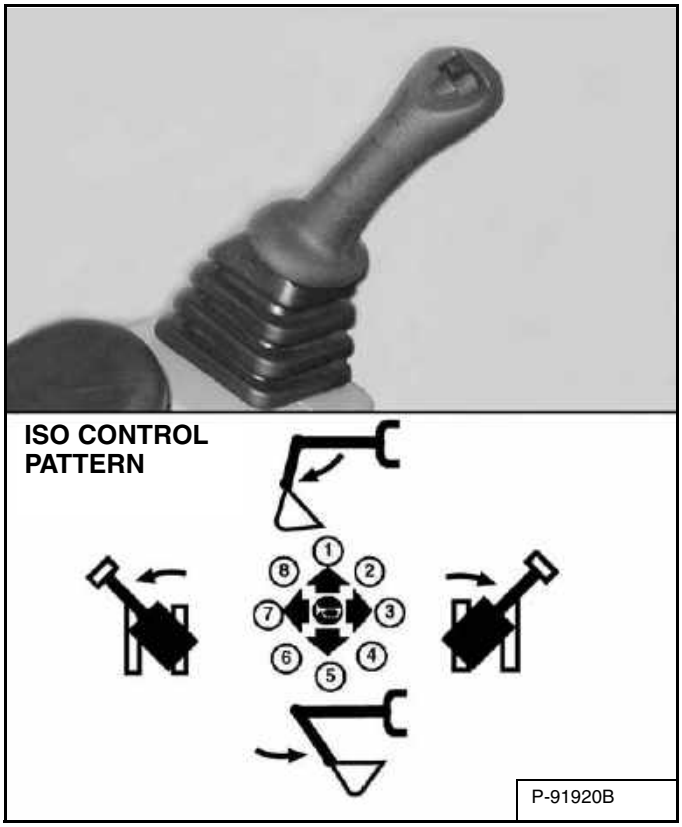
- **Lower the work equipment to the ground.**
- **Lower the blade to the ground.**
- **Stop the engine & remove the key.**
- **Raise the control console.**

W-2780-0109

ISO Control Pattern

Left Control Lever (Joystick)

Figure 49

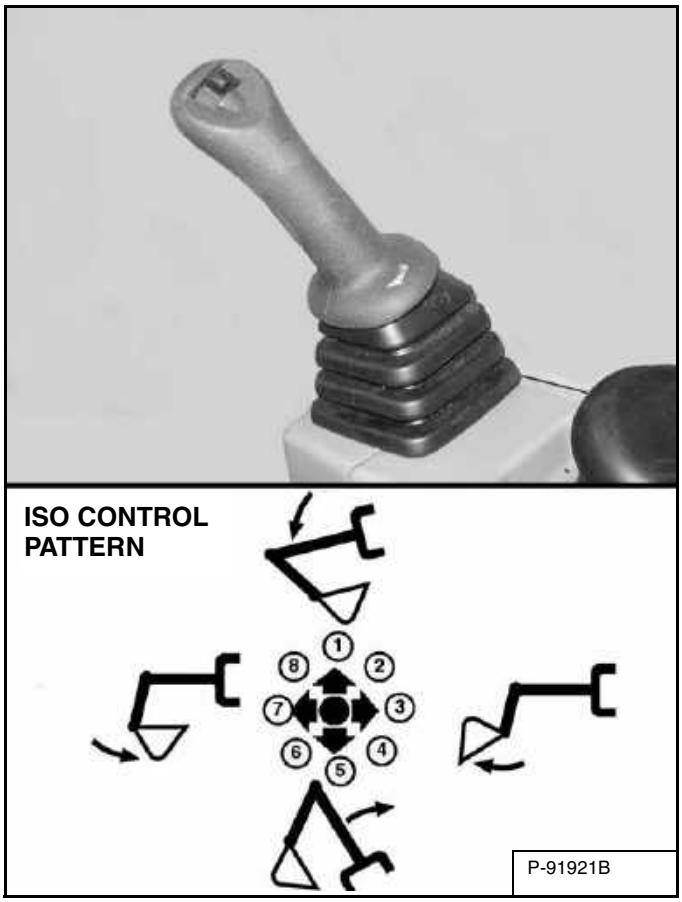


The left lever (joystick) is used to operate the arm and slew the upperstructure **[Figure 49]**.

1.Arm out.
2.Arm out and slew right.
3.Slew right.
4.Arm in and slew right.
5.Arm in.
6.Arm in and slew left.
7.Slew left.
8.Arm out and slew left.

Right Control Lever (Joystick)

Figure 50



The right lever (joystick) is used to operate the boom and bucket **[Figure 50]**.

1.Boom lower.
2.Boom lower and bucket dump.
3.Bucket dump.
4.Boom raise and bucket dump.
5.Boom raise.
6.Boom raise and bucket curl.
7.Bucket curl.
8.Boom lower and bucket curl.

⚠ WARNING

AVOID INJURY OR DEATH

Before leaving the machine:

- **Lower the work equipment to the ground.**
- **Lower the blade to the ground.**
- **Stop the engine & remove the key.**
- **Raise the control console.**

W-2780-0109

Quick Couplers

⚠ WARNING

AVOID BURNS

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

W-2220-0396

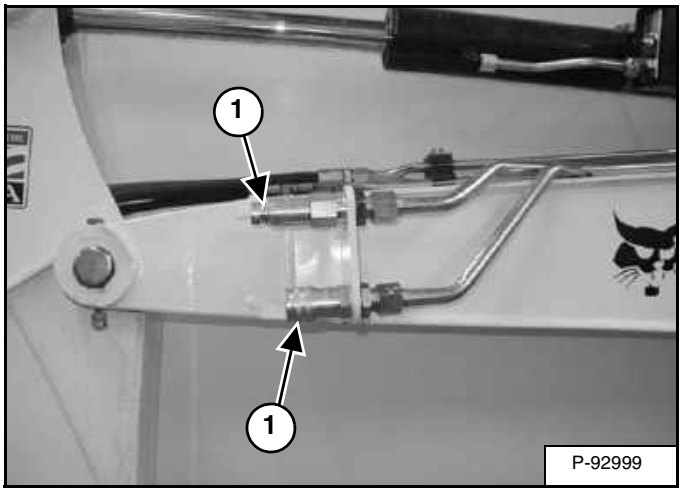
⚠ WARNING

AVOID INJURY OR DEATH

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

W-2072-0807

Figure 51



Excavators and attachments are supplied with flush faced couplers (Item 1) **[Figure 51]**.

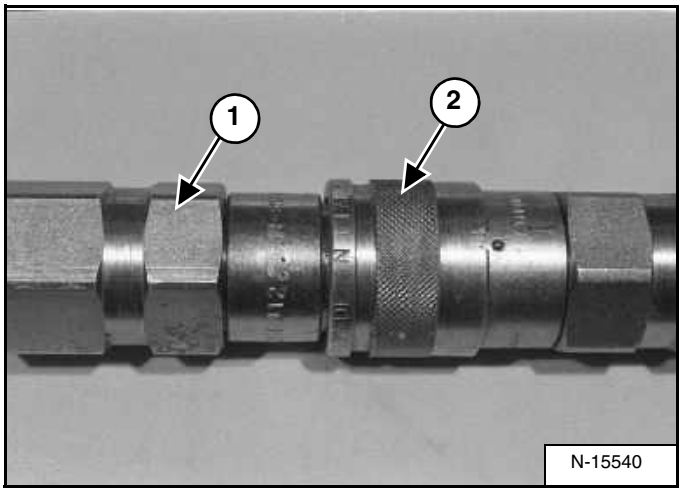
To Connect:

Remove any dirt or debris from the surface of both the male and female couplers, and from the outside diameter of the male coupler. Visually check the couplers for corroding, cracking, damage, or excessive wear, if any of these conditions exist, the coupler(s) (Item 1) **[Figure 51]** must be replaced.

Install the male coupler into the female coupler. Full connection is made when the ball release sleeve slides forward on the female coupler.

To Disconnect:

Figure 52

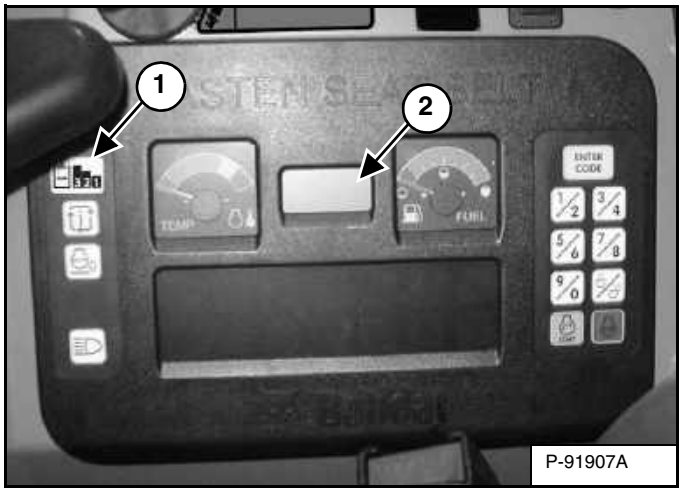


Hold the male coupler (Item 1). Retract the sleeve (Item 2) **[Figure 52]** on the female coupler until the couplers disconnect.

Auxiliary Hydraulics

The primary auxiliary hydraulics has Selectable Auxiliary Hydraulic Flow. This allows the operator to select a hydraulic flow that matches the attachment hydraulic requirements. The auxiliary hydraulics can be set to Aux3, Aux2, Aux1 or off. Aux3 allows maximum hydraulic flow, Aux2 allows medium hydraulic flow and Aux1 allows low hydraulic flow.

Figure 53



Press the Auxiliary Hydraulics button on the right console (Item 1) **[Figure 53]** (an audible beep will sound each time the auxiliary button is pressed).

The first time the Auxiliary Hydraulics button is pressed, the last selected auxiliary hydraulic flow (Aux3, Aux2 or Aux1) will appear in the data display (Item 2) **[Figure 53]** for approximately two seconds and then the data screen will revert back to the previous information on the data display.

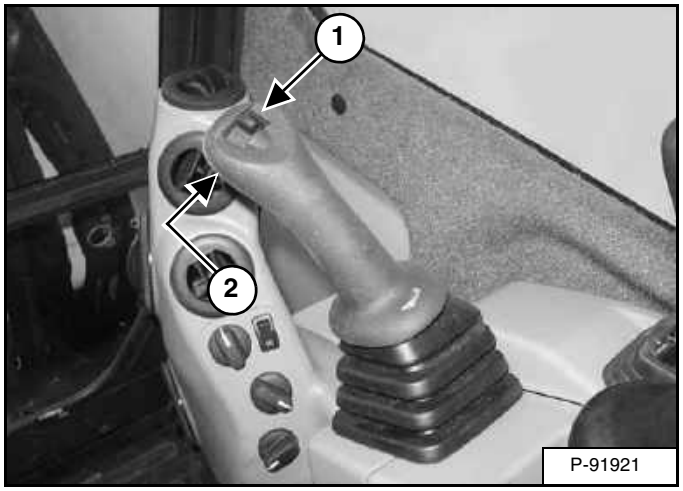
To change the auxiliary flow, press the Auxiliary Hydraulics button (Item 1) to toggle through the settings, each time the button is pressed, the next setting will appear in the data display (Item 2) **[Figure 53]**. Once the desired setting is selected, it will stay at that setting until a different auxiliary flow is selected by the operator. (Example: If Aux2 has been selected, after key OFF and engine restart, the Aux2 setting will still be the active hydraulic flow when auxiliary hydraulics are activated.)

Examples For Setting Selectable Auxiliary Hydraulic Flow And The Attachment Used:

AUX FLOW SETTING	FLOW	ATTACHMENTS
Aux3	Maximum	Breaker, Vibratory Plate Compactor, Auger
Aux2	Medium	Clamp, Grapple
Aux1	Low	Power Tilt, Hydra Tilt

NOTE: Use only approved attachments for your model excavator. Attachments are approved for each model of excavator based on various factors. Using unapproved attachments could cause damage to the attachment or to the excavator.

Figure 54



Move the switch (Item 1) **[Figure 54]** on the right control lever to the right to supply hydraulic flow to the female coupler. Move the switch to the left to supply hydraulic flow to the male coupler. If you move the switch halfway, the auxiliary functions move at approximately one-half speed.

Press the switch (Item 2) **[Figure 54]** on the front of the handle to provide constant flow to the female coupler.

NOTE: Pressing the switch (Item 1) to the left <u>while</u> pressing the switch (Item 2) [Figure 54] on the front of the handle will provide constant flow to the male coupler.

Press the switch (Item 2) **[Figure 54]** a second time to stop auxiliary flow to the quick couplers.

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.

Relieve Hydraulic Pressure (Excavator And Attachment)

Excavator:

Put the attachment flat on the ground.

Stop the engine and turn the key to ON (Standard) or press ENTER CODE Button (Keyless).

NOTE: The left console must be fully lowered for relieving hydraulic pressure.

Press AUX HYD Button (Item 1) **[Figure 53]** and then move the switch (Item 1) **[Figure 54]** to the right and left several times.

Attachments:

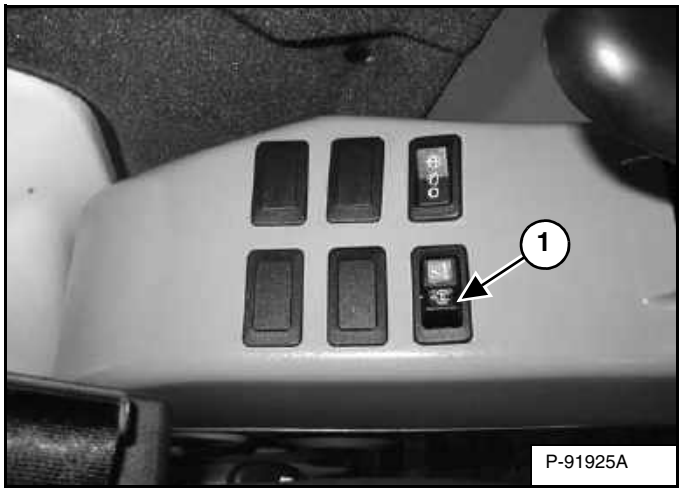
- Follow procedure above to release pressure in excavator.
- Connect male coupler from attachment to female coupler of excavator then repeat procedure above. This will release pressure in the attachment.
- Connect the female coupler from the attachment.

Hydraulic pressure in the auxiliary hydraulic system can make it difficult to engage quick couplers to an attachment.

Secondary Auxiliary Hydraulics (If Equipped)

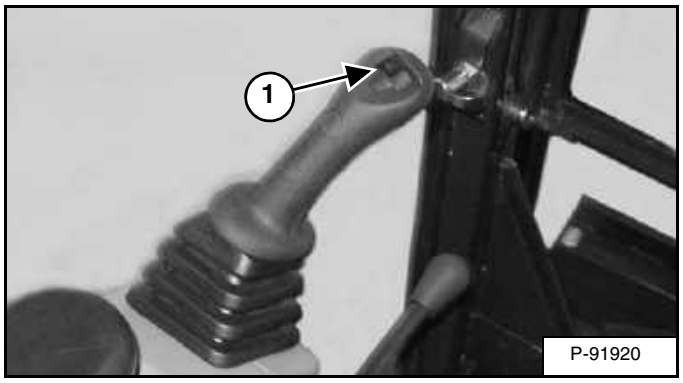
When equipped with secondary auxiliary hydraulics, the second set of hydraulic couplers will be mounted on the right side of the arm.

Figure 55



Move the boom swing / secondary auxiliary hydraulic switch (Item 1) **[Figure 55]** to the right, secondary auxiliary hydraulic position.

Figure 56



Move the switch (Item 1) **[Figure 56]** on the left control lever to the right to supply hydraulic flow to the female coupler. Move the switch to the left to supply hydraulic flow to the male coupler. If you move the switch halfway, the auxiliary functions move at approximately one-half speed.

Relieve Hydraulic Pressure (Excavator And Attachment)

Excavator:

Put the attachment flat on the ground.

Stop the engine and turn the key to ON (Standard) or press ENTER CODE Button (Keyless).

NOTE: The left console must be fully lowered for relieving hydraulic pressure.

Move the boom swing / secondary auxiliary hydraulic switch (Item 1) **[Figure 55]** to the right, secondary auxiliary hydraulic position.

Move the switch (Item 1) **[Figure 56]** to the right and left several times.

Attachments:

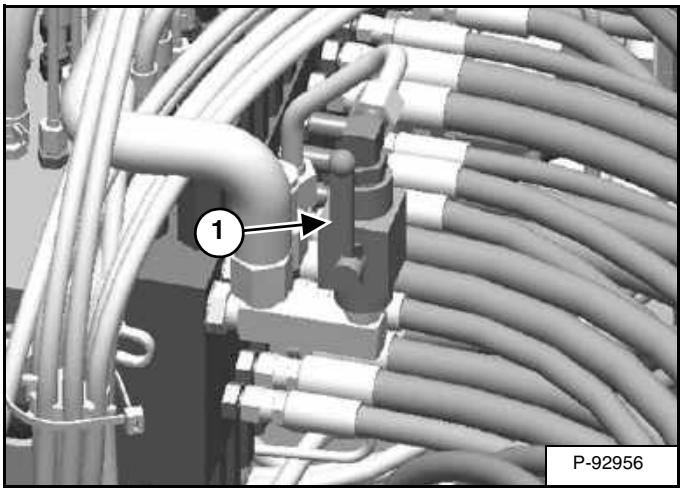
- Follow procedure above to release pressure in excavator.
- Connect male coupler from attachment to female coupler of excavator then repeat procedure above. This will release pressure in the attachment.
- Connect the female coupler from the attachment.

Hydraulic pressure in the auxiliary hydraulic system can make it difficult to engage quick couplers to an attachment.

Return To Tank Valve (If Equipped)

The return to tank valve is located under the right side cover at the front of the control valve.

Figure 57



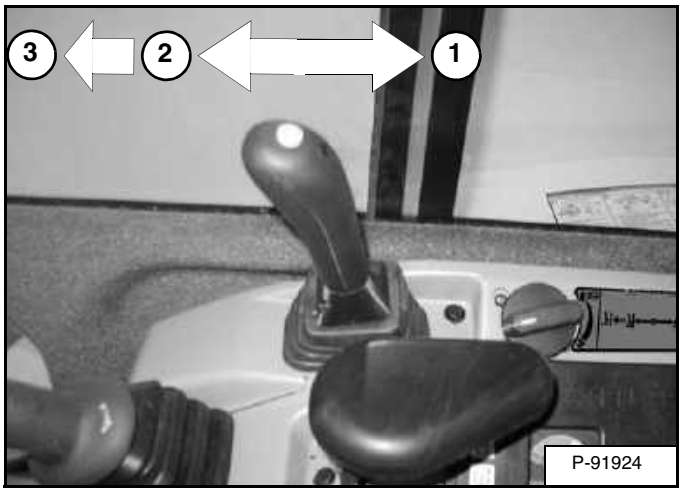
Rotate the lever (Item 1) **[Figure 57]** clockwise to direct auxiliary return hydraulic fluid to the reservoir.

Rotate the lever (Item 1) **[Figure 57]** counterclockwise for two way hydraulic auxiliary flow operation.

BLADE CONTROL LEVER

Raising And Lowering Blade

Figure 58



Pull the lever backward to raise the blade (Item 1) **[Figure 58]**.

Push the lever forward to lower the blade (Item 2) **[Figure 58]**.

Push the lever (Item 3) **[Figure 58]** forward until the lever is in the locked position to put the blade in the *float* position.

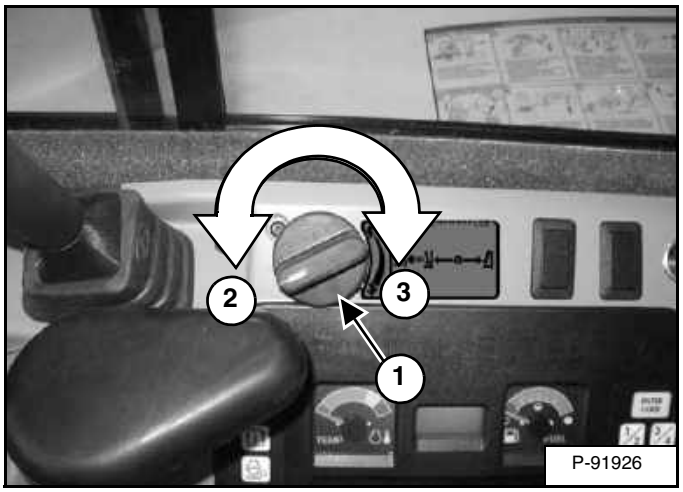
Pull the lever backward to unlock from the *float* position.

NOTE: Keep blade lowered for increased digging performance.

ENGINE SPEED CONTROL DIAL

Setting Engine Speed (RPM)

Figure 59



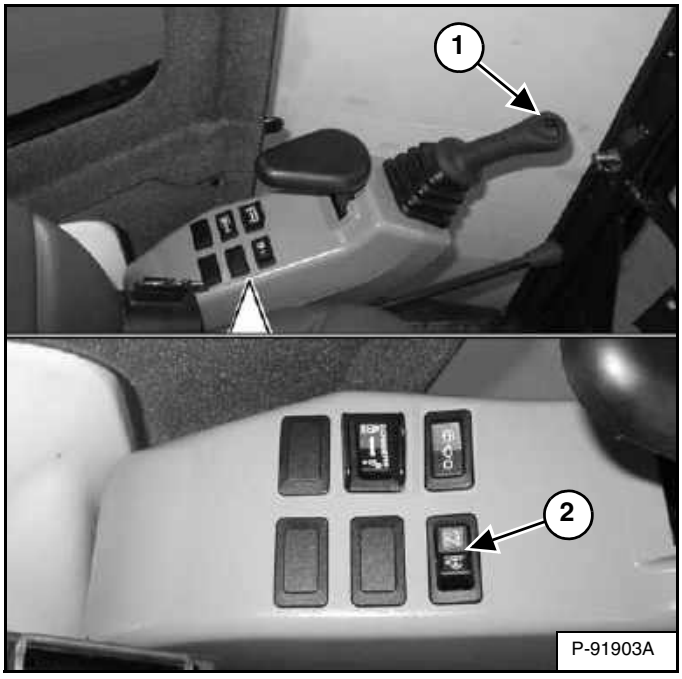
The engine speed control dial (Item 1) **[Figure 59]** controls engine rpm.

Rotate the engine speed control dial counterclockwise (Item 2) to reduce engine rpm. Rotate the engine speed control dial clockwise (Item 3) **[Figure 59]** to increase engine rpm.

BOOM SWING

Operation

Figure 60



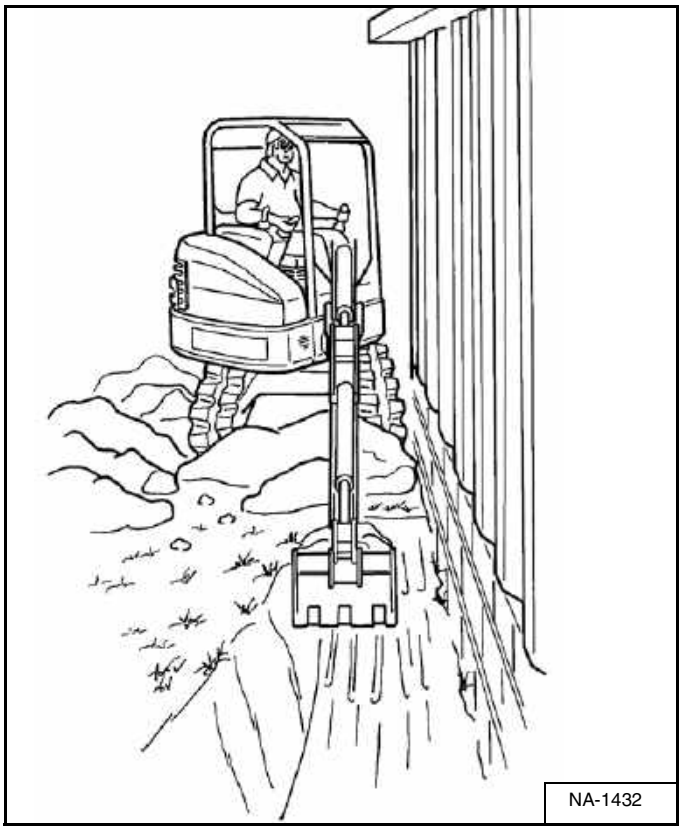
The switch (Item 1) **[Figure 60]** on the left control lever (joystick) controls boom swing. Move the switch to the left to swing the boom to the left. Move the switch to the right to swing the boom to the right.

If Equipped With Secondary Auxiliary Hydraulics:

If the machine is equipped with secondary auxiliary hydraulic couplers, the switch (Item 2) **[Figure 60]** is used to select either the boom swing function or the secondary auxiliary hydraulic function.

Move the switch (Item 2) **[Figure 60]** to the left to select boom swing function, move the switch to the right to select secondary auxiliary hydraulic function.

Figure 61



NOTE: The purpose of the boom swing is to offset the boom with respect to the upperstructure for digging close to a structure [Figure 61].

BOOM LOAD HOLDING VALVE (IF EQUIPPED)

Description

The boom load holding valve (if equipped) will hold the boom in it's current position in the event of hydraulic pressure loss.

⚠ WARNING

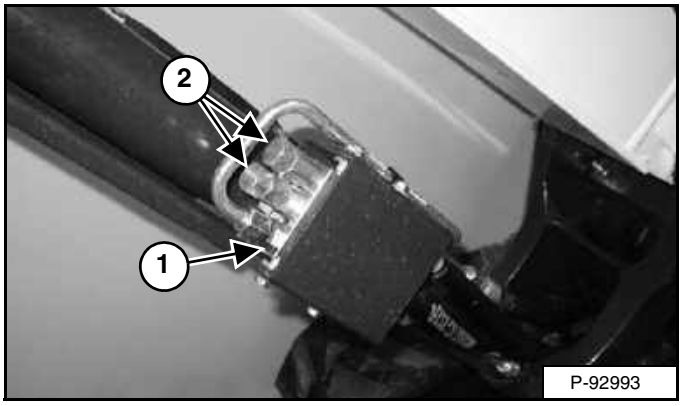
AVOID INJURY OR DEATH

Do Not work or stand under raised work equipment or attachment.

W-2793-0409

Lowering Boom With Load Holding Valve

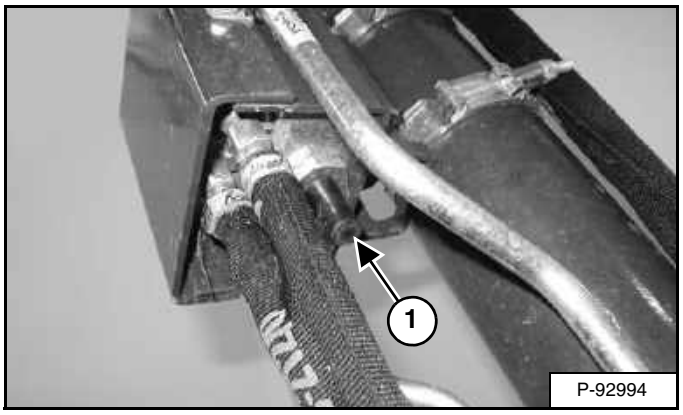
Figure 62



If the excavator is equipped with a boom load holding valve (Item 1) **[Figure 62]**, it will be attached to the boom cylinder at the base end.

NOTE: DO NOT remove or adjust the two port relief valves (Item 2) [Figure 62]. If the port relief valves have been tampered with, see your Bobcat dealer for service.

Figure 63



Remove the plastic protective cap (Item 1) **[Figure 63]** from the valve.

⚠ WARNING

AVOID BURNS

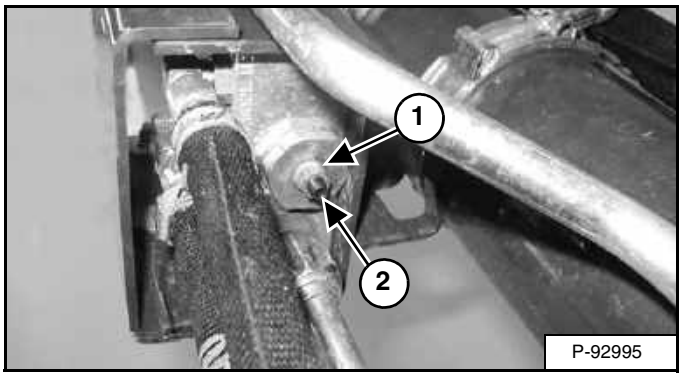
Hydraulic fluid, tubes, fittings and quick couplers can get hot when running machine and attachments. Be careful when connecting and disconnecting quick couplers.

W-2220-0396

BOOM LOAD HOLDING VALVE (IF EQUIPPED) (CONT'D)

Lowering Boom With Load Holding Valve (Cont'd)

Figure 64



Lowering procedures:

With base end hose failure:

Loosen the jam nut (Item 1). Install a hex wrench into the valve screw (Item 2) **[Figure 64]** and slowly rotate the screw clockwise 1/8 to 1/4 turn and allow the boom to lower to the ground.

After the boom is fully lowered, rotate the screw counterclockwise (Item 2) 1/8 to 1/4 turn and tighten the lock nut (Item 1) **[Figure 64]**.

With rod end hose failure - with accumulator pressure:

Place a container under the valve and hose end to contain hydraulic fluid. Enter the excavator and turn the key to the ON position or press the ENTER CODE Button (Keyless Panel), but do not start the engine. Slowly move the joystick boom lower function and allow the boom to lower to the ground.

With rod end hose failure and NO accumulator pressure:

Remove the boom base end hose from the boom load holding valve. Place a container under the valve and base end hose to contain hydraulic fluid.

Loosen the jam nut (Item 1). Install a hex wrench into the valve screw (Item 2) **[Figure 64]** and slowly rotate the screw clockwise 1/8 to 1/4 turn and allow the boom to lower to the ground.

After the boom is fully lowered, rotate the screw (Item 2) counterclockwise 1/8 to 1/4 turn and tighten the lock nut (Item 1) **[Figure 64]**. Reinstall the base end hose.

Loss of hydraulic pressure:

Use the same procedure as: **With rod end hose failure and NO accumulator pressure**.

ARM LOAD HOLDING VALVE (IF EQUIPPED)

Description

The arm load holding valve (if equipped) will hold the arm in it's current position in the event of hydraulic pressure loss.

⚠ WARNING

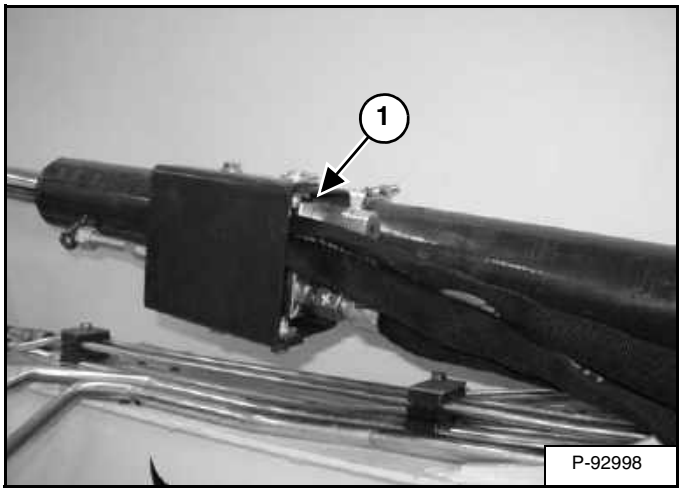
AVOID INJURY OR DEATH

Do Not work or stand under raised work equipment or attachment.

W-2793-0409

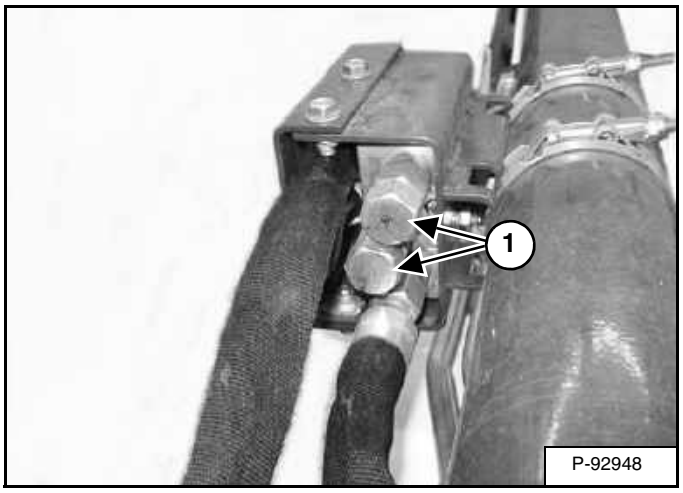
Lowering Arm With Load Holding Valve

Figure 65



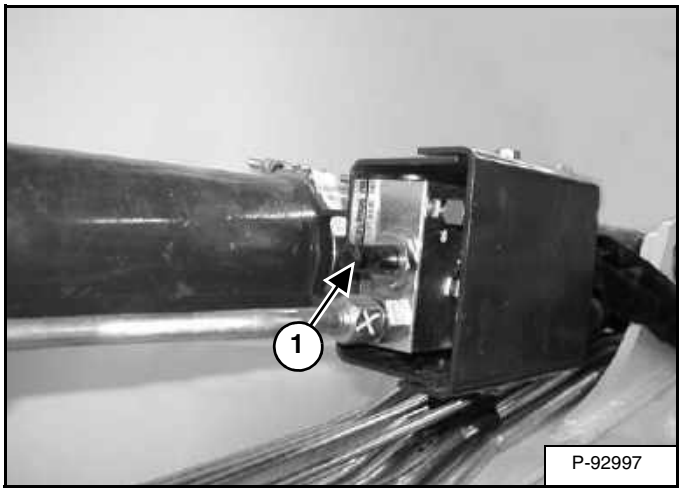
If the excavator is equipped with arm load holding valve (Item 1) **[Figure 65]**, it will be attached to the arm cylinder base end as shown.

Figure 66



NOTE: DO NOT remove or adjust the two port relief valves (Item 1) [Figure 66]. If the port relief valves have been tampered with, see your Bobcat dealer for service.

Figure 67



Remove the plastic protective cap (Item 1) **[Figure 67]** from the valve.

⚠ WARNING

AVOID BURNS

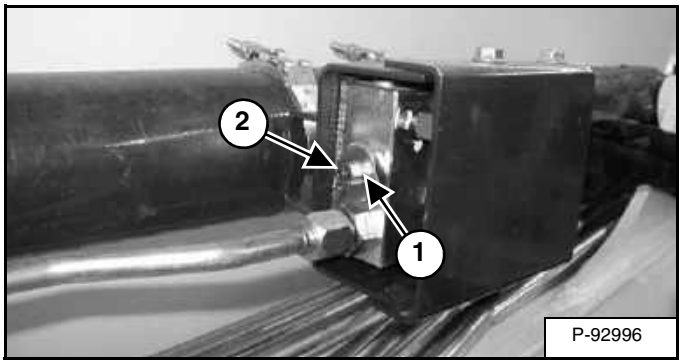
Hydraulic fluid, tubes, fittings and quick couplers can get hot when running machine and attachments. Be careful when connecting and disconnecting quick couplers.

W-2220-0396

ARM LOAD HOLDING VALVE (IF EQUIPPED) (CONT'D)

Lowering Arm With Load Holding Valve (Cont'd)

Figure 68



Lowering procedures:

With base end hose failure:

Loosen the jam nut (Item 1). Install a hex wrench into the valve screw (Item 2) **[Figure 68]** and slowly rotate the screw clockwise 1/8 to 1/4 turn and allow the arm to lower.

After the arm is lowered, rotate the screw counterclockwise (Item 2) the same 1/8 to 1/4 turn and tighten the lock nut (Item 1) **[Figure 68]**.

With rod end hose failure - with accumulator pressure:

Place a container under the valve and hose end to contain hydraulic fluid. Enter the excavator and turn the key to the ON position or press the ENTER CODE Button (Keyless Panel), but do not start the engine. Move the joystick arm retract function to slowly lower the arm.

With rod end hose failure and NO accumulator pressure:

Remove the arm base end hose from the arm load holding valve. Place a container under the valve and base end hose to contain hydraulic fluid.

Loosen the jam nut (Item 1). Install a hex wrench into the valve screw (Item 2) **[Figure 68]** and slowly rotate the screw clockwise 1/8 to 1/4 turn and allow the arm to lower.

After the arm is lowered, rotate the screw (Item 2) counterclockwise 1/8 to 1/4 turn and tighten the lock nut (Item 1) **[Figure 68]**. Reinstall the base end hose.

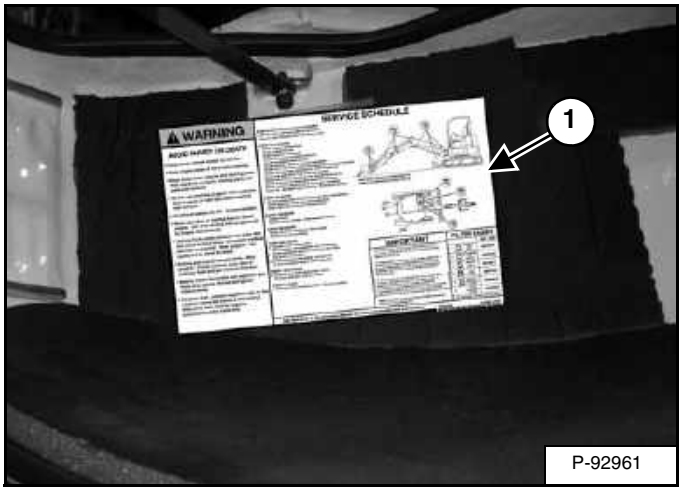
Loss of hydraulic pressure:

Use the same procedure as: **With rod end hose failure - with NO accumulator pressure** above.

DAILY INSPECTION

Daily Inspection And Maintenance

Figure 69



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 Excavator. The decal (Item 1) **[Figure 69]** is located on the rear door top of the right side cover. (See SERVICE SCHEDULE on Page 95.)

Check the following items before each day of operation:

- Operator Canopy or Cab (ROPS / TOPS) and mounting hardware.
- Seat belt and mounting hardware. Replace seat belt if damaged.
- Check for damaged decals, replace as needed.
- Check control console lockout.
- Check X-Change System (if equipped) for damage or loose parts.
- Air cleaner and intake hoses / clamps.
- Engine oil level and engine for leaks.
- Engine coolant level and engine for leaks.
- Check engine area for flammable materials.
- Check hydraulic fluid level and system for leaks.
- Check indicator lights for correct operation.
- Grease all pivot points.
- Check cylinder and attachment pivot points.
- Check the track tension.
- Repair broken and loose parts.
- Clean cab heater filter (if equipped).
- Check front horn and motion alarm (if equipped) for proper function.

WARNING

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

W-2001-0502

Fluids such as engine oil, hydraulic fluid, coolants, 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. See local, state, and federal regulations for correct disposal.

IMPORTANT

PRESSURE WASHING DECALS

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

I-2226-0910

IMPORTANT

This machine is factory equipped with a U.S.D.A. Forestry Service approved spark arrester exhaust system.

The spark arrester muffler, if equipped, must be cleaned to keep it in working condition. The spark arrester muffler must be serviced by dumping the spark chamber every 100 hours of operation.

On some models, the turbocharger functions as the spark arrester and must operate correctly for proper spark arrester function.

If this machine is operated on flammable forest, brush, or grass covered land, it must be equipped with a spark arrester attached to the exhaust system and maintained in working order. Failure to do so will be in violation of California State Law, Section 4442. PRC. Refer to local laws and regulations for spark arrester requirements.

I-2284-0111

Operation & Maintenance Manual And Operator's Handbook Locations

Figure 70

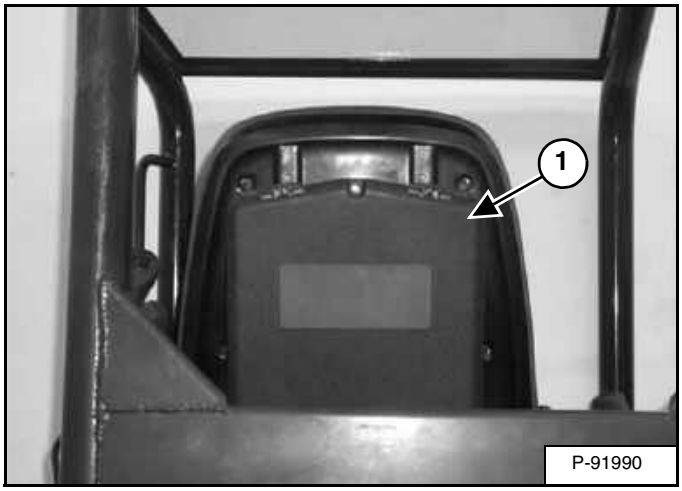
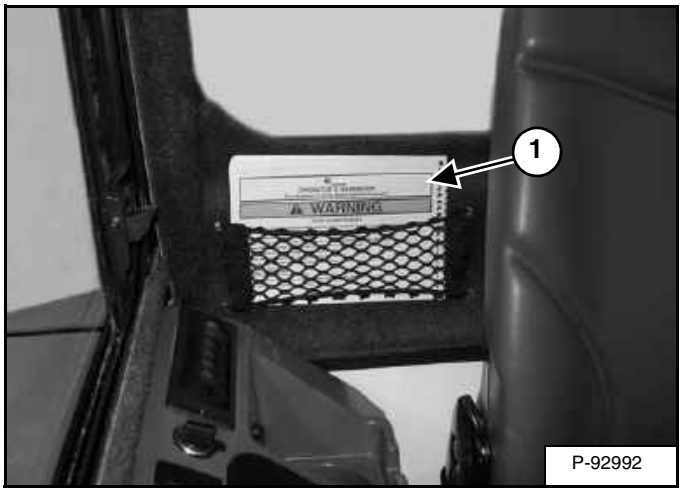


Figure 71



Read and understand the Operation & Maintenance Manual (Item 1) **[Figure 70]** (located inside the storage box on the back of the operator's seat) and the Operator's Handbook (Item 1) **[Figure 71]** before operating.

Entering The Excavator

Figure 72

Use the grab handles and tracks to enter the canopy / cab **[Figure 72]**.

⚠ WARNING

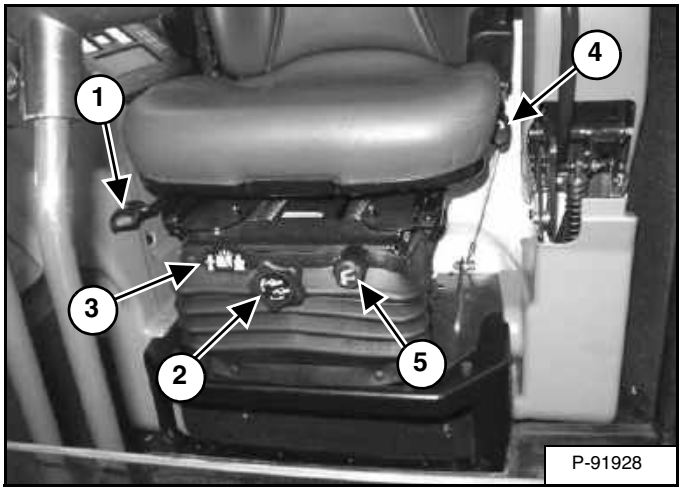
AVOID INJURY OR DEATH

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

W-2003-0807

Seat Adjustment

Figure 73



Release the seat lever (Item 1) **[Figure 73]** to adjust the seat forward or back.

Turn the handle (Item 2) to change the adjustment for operator weight. Turn the handle until the operator's weight is shown in the window (Item 3) **[Figure 73]**.

Release the lever (Item 4) **[Figure 73]** to change the incline of the seat back.

Sit in the seat and turn the knob (Item 5) **[Figure 73]** to adjust the height of the seat.

Seat Belt

Figure 74

Fasten the seat belt **[Figure 74]**.

Control Console

Figure 75

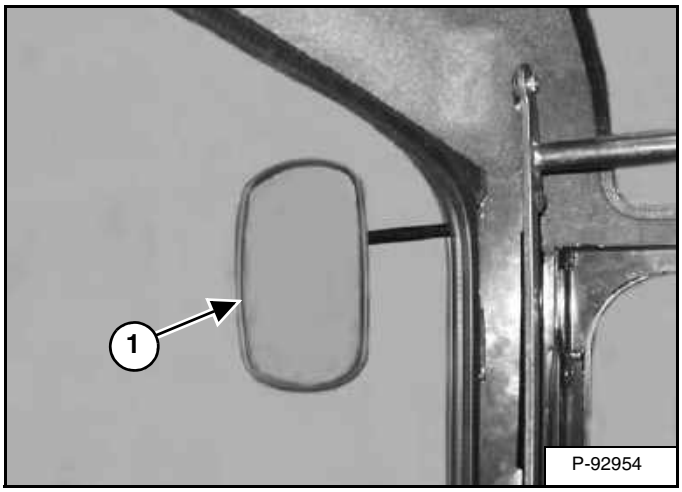
Lower the control console **[Figure 75]**.

NOTE: There is a control lock sensor in the left console which deactivates the hydraulic control levers (joysticks) and the traction drive system when the control console is raised. The console must be in the locked down position for the hydraulic control levers (joysticks) and traction system to operate.

NOTE: If the control lock sensor does not deactivate the control levers and traction system when console is raised, see your Bobcat dealer for service.

Mirror Adjustment (If Equipped)

Figure 76



Adjust mirrors (Item 1) **[Figure 76]** (if equipped).

STARTING THE ENGINE

Key Switch

WARNING

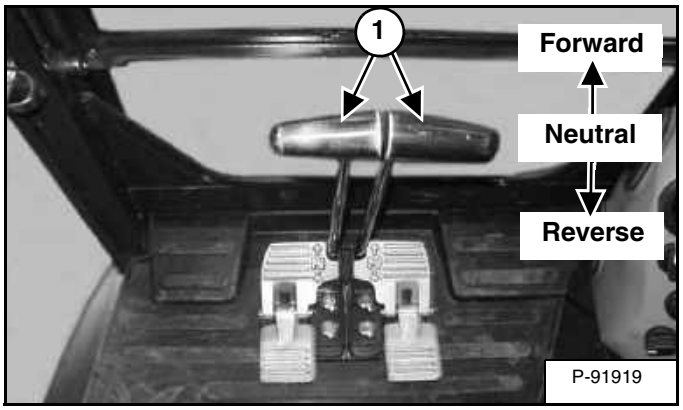
AVOID INJURY OR DEATH

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

W-2135-1108

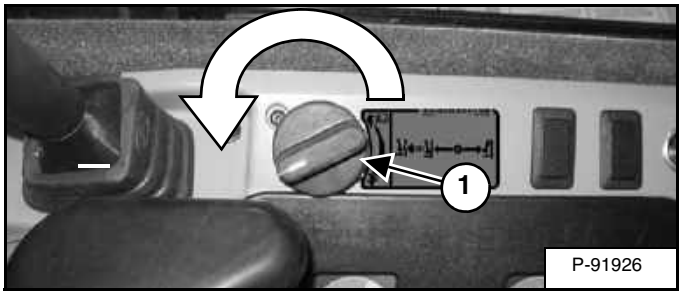
Perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 56.)

Figure 77



Put control levers (Item 1) **[Figure 77]** in the neutral position.

Figure 78



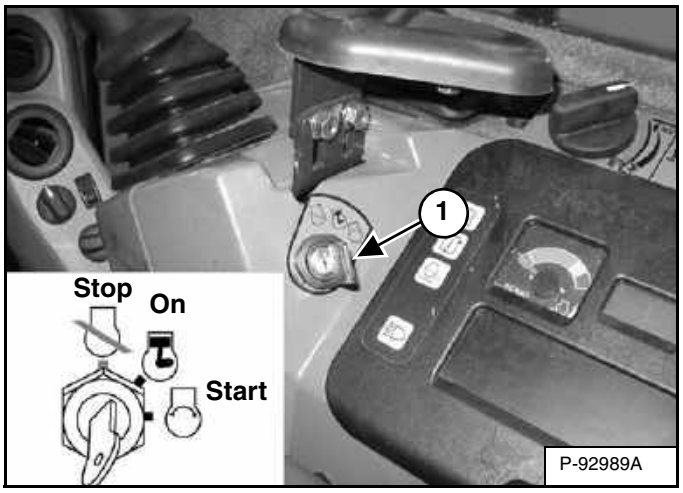
Turn the engine speed control dial (Item 1) **[Figure 78]** counterclockwise to low idle.

IMPORTANT

Do not engage the starter for longer than 15 seconds at a time. Longer use can damage the starter by overheating. Allow starter to cool for one minute before using starter again.

I-2034-0700

Figure 79



Turn the key (Item 1) **[Figure 79]** to the ON position. If preheating is required, the glow plugs will automatically cycle and the remaining preheat time (in seconds) will show in the data display screen. (Preheat icon will be ON).

Turn the key to START and release the key when the engine starts. It will return to the ON position **[Figure 79]**.

Stop the engine if the warning lights and alarm do not go OFF. Check for the cause before starting the engine again.

Turn the key switch OFF to stop the engine.

WARNING

AVOID INJURY OR DEATH

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

W-2050-0807

WARNING

AVOID SERIOUS INJURY OR DEATH

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

W-2051-0212

Keyless

⚠ WARNING

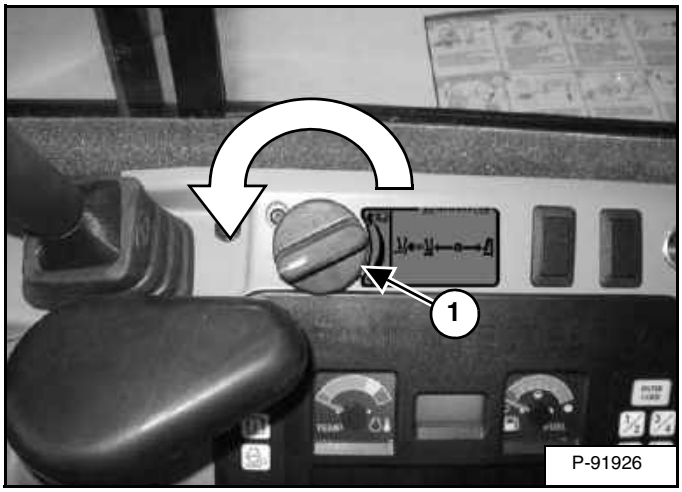
AVOID INJURY OR DEATH

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

W-2135-1108

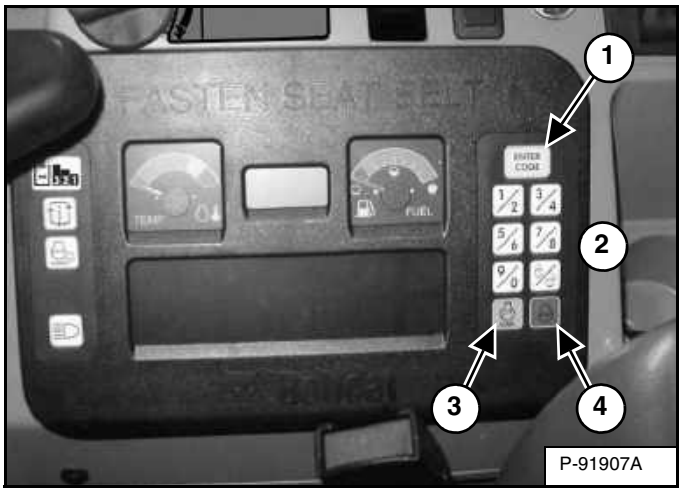
Perform the PRE-STARTING PROCEDURE. (See PRE-STARTING PROCEDURE on Page 56.)

Figure 80



Rotate the engine speed control dial (Item 1) **[Figure 80]** to low idle.

Figure 81



Press ENTER CODE Button (Item 1) **[Figure 81]**. The display will become lighted and there will be two short beeps, CodE will appear on the data display screen.

Use the keypad (Item 2) **[Figure 81]** to enter the password. For each digit that you enter, a dash will appear on the data display screen. (You have 40 seconds to enter the password or the process will abort and you will need to start over.) If the password was entered correctly, there will be one long beep.

NOTE: If the password was incorrect there will be three short beeps and "Error" will appear on the data display screen. Press the ENTER CODE Button again and start over. After three failed attempts, you must wait three minutes to try again.

Press the START Button (Item 3) **[Figure 81]** and hold it until the engine starts.

IMPORTANT

Do not engage the starter for longer than 15 seconds at a time. Longer use can damage the starter by overheating. Allow starter to cool for one minute before using starter again.

I-2034-0700

Press the STOP button (Item 4) **[Figure 81]** to stop the engine.

Stop the engine if the warning lights and alarm do not go OFF.

Check for the cause before starting the engine again.

Password Lockout Feature

See Password Lockout Feature. (See Password Lockout Feature on Page 142.)

Cold Temperature Starting

WARNING

AVOID INJURY OR DEATH

Do not use ether with glow plug (preheat) systems. Explosion can result which can cause injury, death, or severe engine damage.

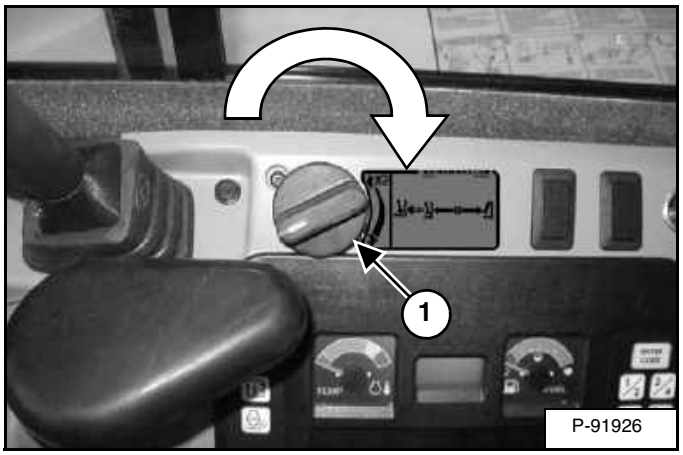
W-2071-0907

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

- Replace the engine oil with the correct type and viscosity for the anticipated starting temperature. (See Engine Oil Chart on Page 109.)
- Make sure the battery is fully charged.
- Install an engine heater.

NOTE: If the battery is discharged (but not frozen) a booster battery can be used to jump start the excavator. (See Using A Booster Battery (Jump Starting) on Page 117.)

Figure 82



Rotate the engine speed control dial (Item 1) **[Figure 82]** clockwise to high idle.

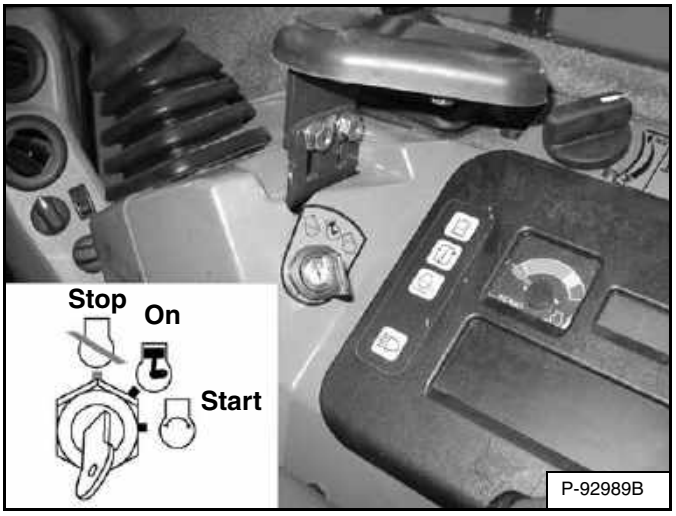
IMPORTANT

Do not engage the starter for longer than 15 seconds at a time. Longer use can damage the starter by overheating. Allow starter to cool for one minute before using starter again.

I-2034-0700

Key Switch

Figure 83



Turn the key to the ON position **[Figure 83]**.

Figure 84

The preheat icon (Item 1) **[Figure 84]** will illuminate. The glow plugs will automatically cycle. When the icon goes off, turn the key to start.

Release the key when the engine starts, it will return to the ON position.

Stop the engine if the warning lights and alarm do not go off. Check for the cause before starting the engine again.

When the engine speed increases, move the engine speed control dial to idle position until the engine warms.

Cold Temperature Starting Procedure (Cont'd)

Keyless

Follow STARTING PROCEDURE (See Keyless on Page 60.)

If the preheat icon comes ON, wait for it to go off before pressing the START Button **[Figure 84 on Page 61]**.

The remaining preheat time (in seconds) will count down in the data display screen.

IMPORTANT

Do not engage the starter for longer than 15 seconds at a time. Longer use can damage the starter by overheating. Allow starter to cool for one minute before using starter again.

I-2034-0700

IMPORTANT

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

I-2015-0284

⚠ WARNING

AVOID INJURY OR DEATH

Do not use ether with glow plug (preheat) systems. Explosion can result which can cause injury, death, or severe engine damage.

W-2071-0907

Warming The Hydraulic System

IMPORTANT

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

I-2007-0910

Let the engine run at least 5 minutes to warm the engine and hydraulic fluid before operating the excavator.

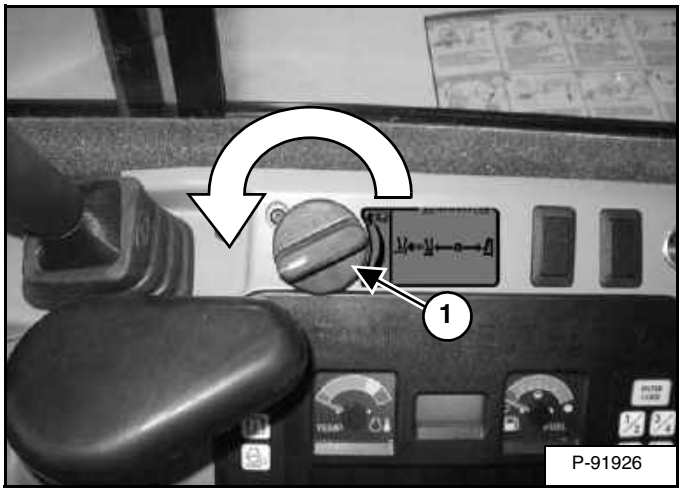
STOPPING THE ENGINE AND LEAVING THE EXCAVATOR

Procedure

Figure 85

Stop the machine on level ground. Lower the work equipment and the blade to the ground **[Figure 85]**.

Figure 86



Rotate the engine speed control dial (Item 1) **[Figure 86]** counterclockwise to low idle.

Run the engine at idle speed for about 5 minutes to allow it to cool.

Figure 87

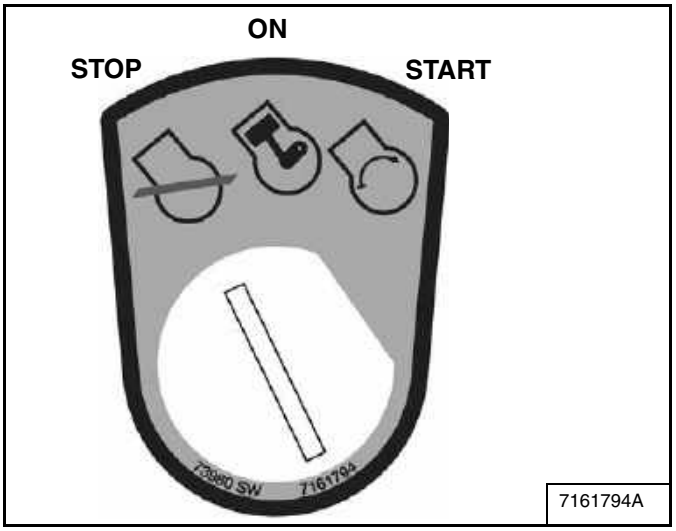
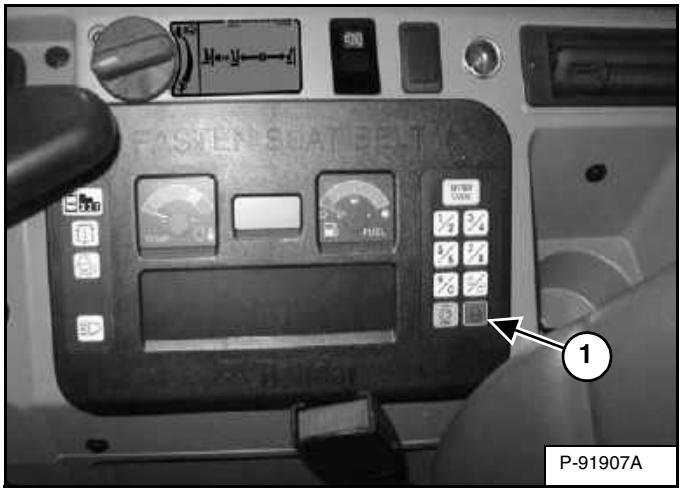


Figure 88



Turn the key switch to STOP **[Figure 87]** or press the STOP Button (Keyless Panel) (Item 1) **[Figure 88]**.

Disconnect the seat belt. Remove the key from the switch to prevent operation of machine by unauthorized personnel. Raise the control console and exit the machine.

Installing And Removing The Attachment (Hydraulic X-Change)

Installation

NOTE: Installation and removal of the bucket is shown. The procedure is the same for other attachments. Disconnect any hydraulic lines that are operated by hydraulic power before removing any attachments (breaker, auger, etc.).

⚠ WARNING

AVOID INJURY OR DEATH

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

W-2052-0907

⚠ WARNING

Both hydraulic pins must be fully extended through the attachment mounting holes and locked with both retainer pins and clips. Failure to fully engage and lock hydraulic pins can allow attachment to come off and cause serious injury or death.

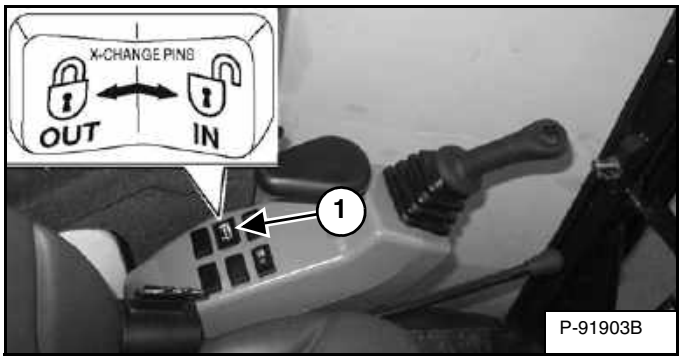
W-2507-0706

Figure 89

Start the engine.

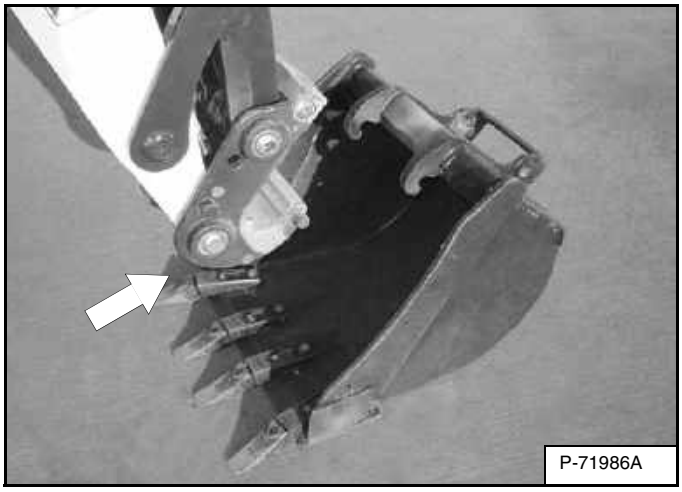
Swing the excavator arm fully to the left **[Figure 89]** (for better operator visibility when connecting attachments).

Figure 90



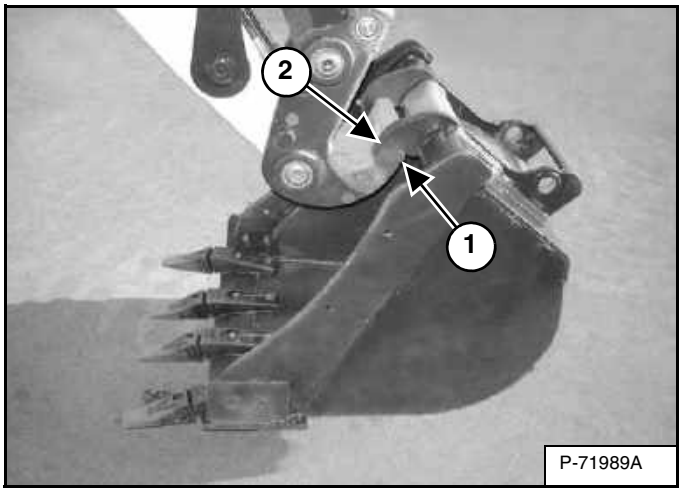
Press and hold the X-Change switch (Item 1) **[Figure 90]** to the right (IN) to fully retract the hydraulic pins.

Figure 91



Move the arm toward the attachment **[Figure 91]**.

Figure 92

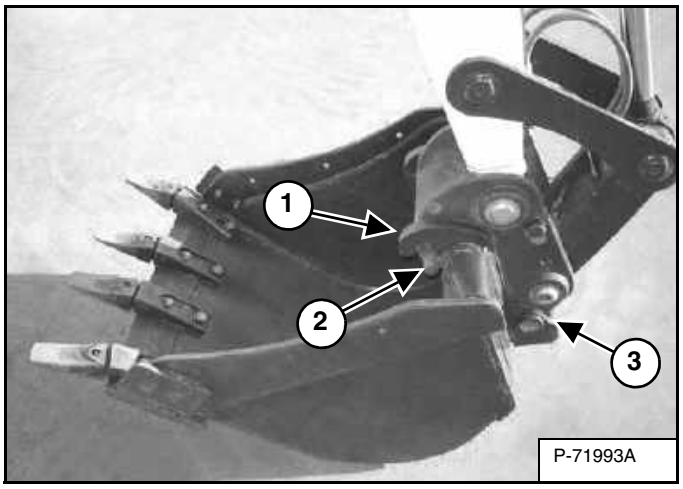


Raise the boom until the X-Change pins (Item 1) engage the attachment hooks (Item 2) **[Figure 92]** on the bucket.

Installing And Removing The Attachment (Hydraulic X-Change) (Cont'd)

Installation (Cont'd)

Figure 93



Raise the boom and extend (curl in) the bucket cylinder until the X-Change contacts the back of the attachment **[Figure 93]**.

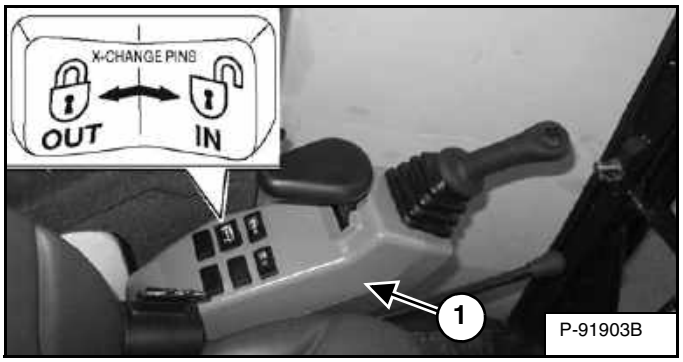
With the arm vertical, lower the boom until the hooks (Item 1) of the bucket disengage the X-Change pins (Item 2) and the plate (Item 3) **[Figure 93]** fully engages into the bucket crossmember.

⚠ WARNING

Keep all bystanders 6 m (20 ft) away from equipment when operating. Contact with moving parts, a trench cave-in or flying objects can cause injury or death.

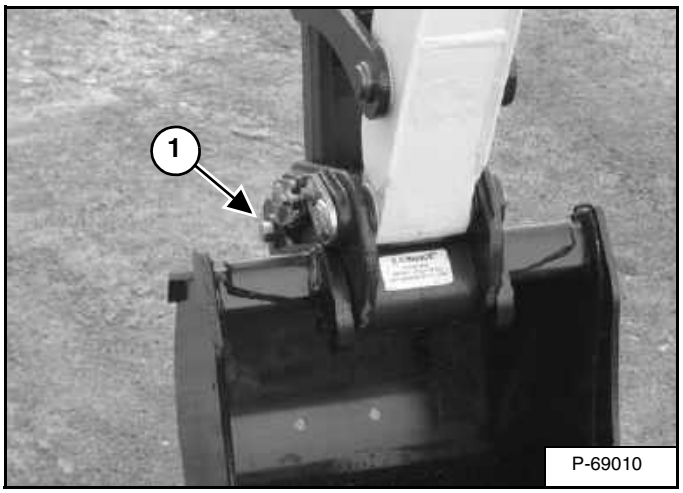
W-2119-0910

Figure 94



Press and hold the X-Change switch (Item 1) **[Figure 94]** to the left (OUT) and **FULLY EXTEND** the hydraulic pins.

Figure 95



Check that both hydraulic pins (Item 1) **[Figure 95]** are fully engaged to secure the attachment.

⚠ WARNING

AVOID INJURY OR DEATH

Both hydraulic pins must be fully extended through the attachment mounting holes. Failure to fully engage the hydraulic pins can allow attachment to come off.

W-2935-0512

Installing And Removing The Attachment (Hydraulic X-Change) (Cont'd)

Removal

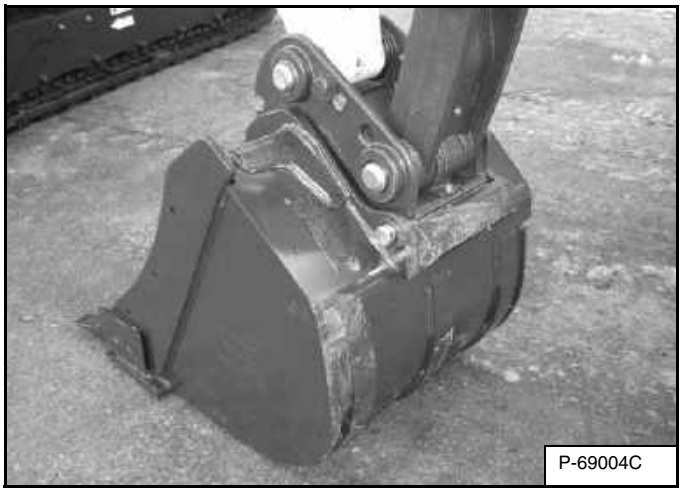
NOTE: Removal and installation of the bucket is shown. The procedure is the same for other attachments. Disconnect any hydraulic lines that are operated by hydraulic power before removing any attachments (breaker, auger, etc.).

⚠ WARNING

Keep all bystanders 6 m (20 ft) away from equipment when operating. Contact with moving parts, a trench cave-in or flying objects can cause injury or death.

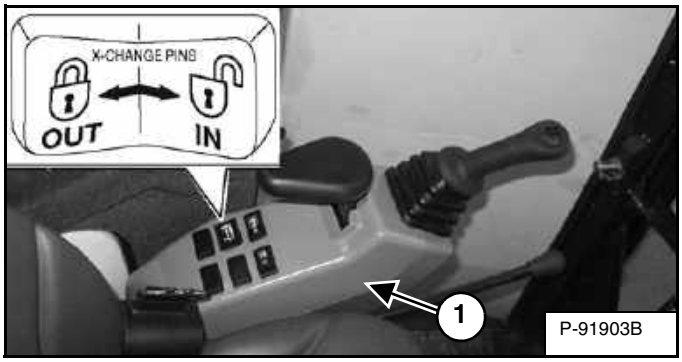
W-2119-0910

Figure 96



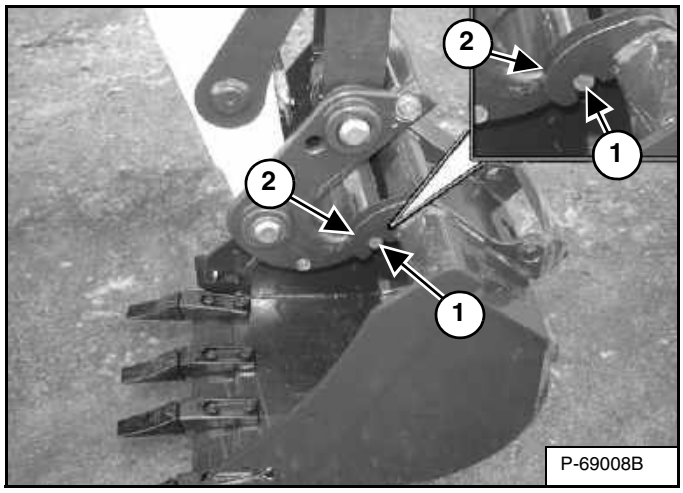
Park the excavator on a flat level surface. Put the attachment on the ground.

Figure 97



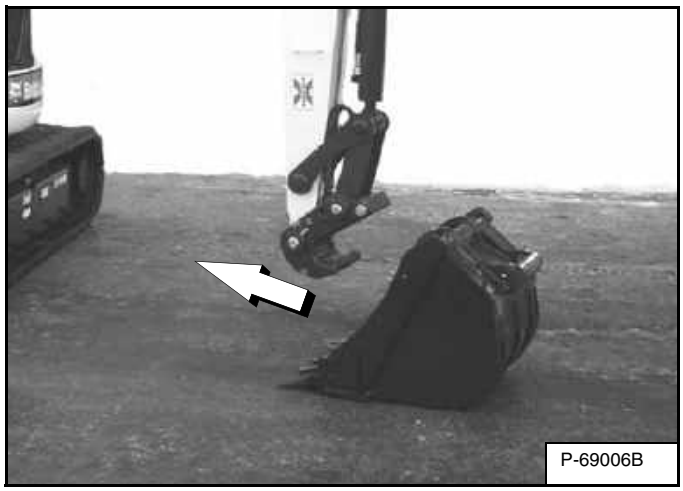
Press and hold the X-Change switch (Item 1) **[Figure 97]** on the left console to the right (IN) to **FULLY RETRACT** the hydraulic pins.

Figure 98



Raise the boom and retract the bucket cylinder until the X-Change pins (Item 1) engage the attachment hooks (Item 2) **[Figure 98]** on the bucket.

Figure 99



Fully retract the bucket cylinder (bucket dump).

Lower the boom and arm until the attachment is on the ground and the X-Change pins are disengaged from the attachment hooks.

Move the arm toward the excavator until the X-Change pins are clear of the attachment **[Figure 99]**.

Installing And Removing The Attachment (Pin-On X-Change)

Installation

NOTE: Installation and removal of the bucket is shown. The procedure is the same for other attachments. Disconnect any hydraulic lines that are operated by hydraulic power before removing any attachments (breaker, auger, etc.).

⚠ WARNING

AVOID INJURY OR DEATH

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

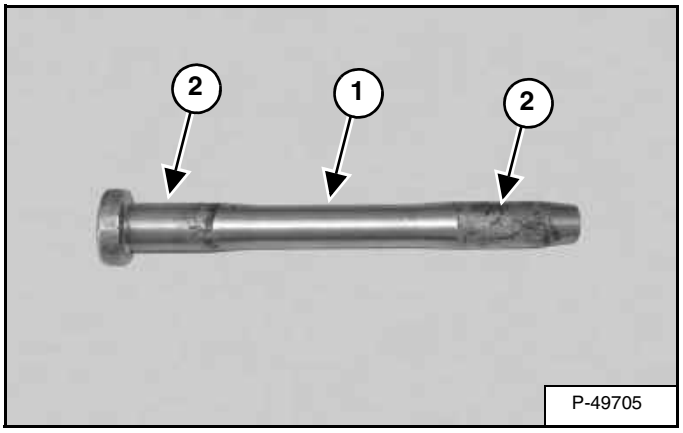
W-2052-0907

⚠ WARNING

Both hydraulic pins must be fully extended through the attachment mounting holes and locked with both retainer pins and clips. Failure to fully engage and lock hydraulic pins can allow attachment to come off and cause serious injury or death.

W-2507-0706

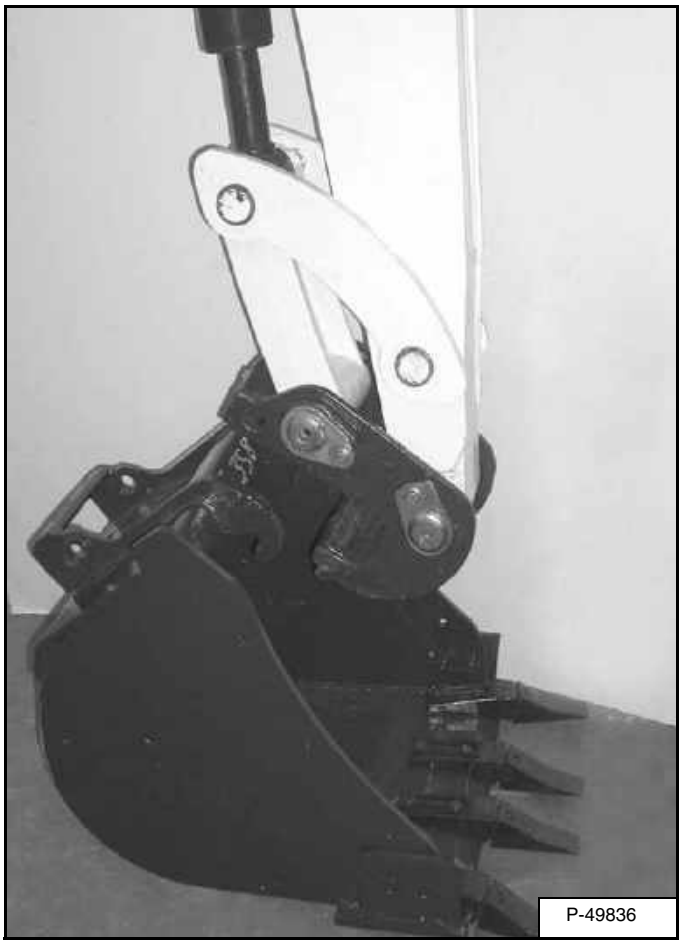
Figure 100



Inspect the pin (Item 1) **[Figure 100]** for wear or damage. Replace the pin as needed.

Apply a light coat of grease to the ends of the pin (Item 2) **[Figure 100]**.

Figure 101

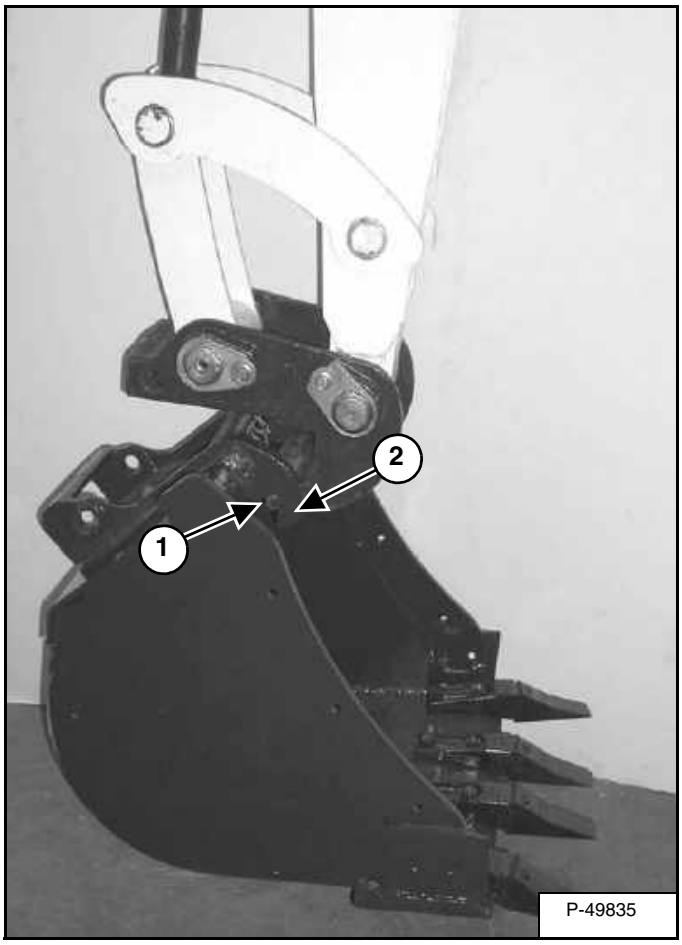


Start the engine and move the arm toward the bucket **[Figure 101]**.

Installing And Removing The Attachment (Pin-On X-Change) (Cont'd)

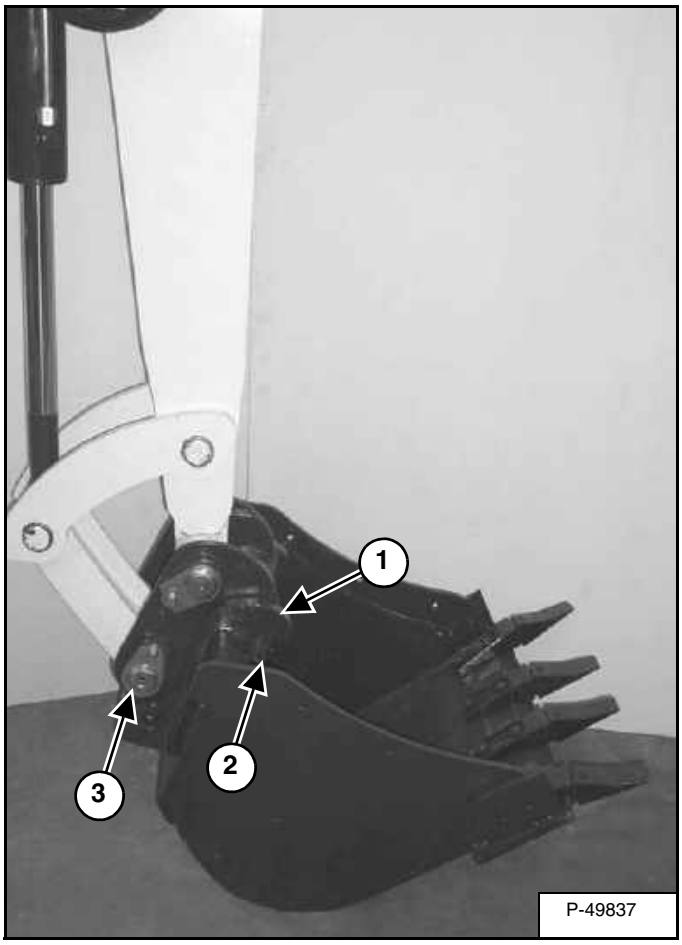
Installation (Cont'd)

Figure 102



Raise the boom until the pins (Item 1) engage the hooks (Item 2) **[Figure 102]** on the bucket.

Figure 103



Raise the boom and extend the bucket cylinder until the X-Change contacts the attachment back **[Figure 103]**.

With the arm vertical, lower the boom until the hooks (Item 1) of the bucket disengage the pins (Item 2) of the X-Change and the plate (Item 3) **[Figure 103]** fully engages in the bucket crossmember.

⚠ WARNING

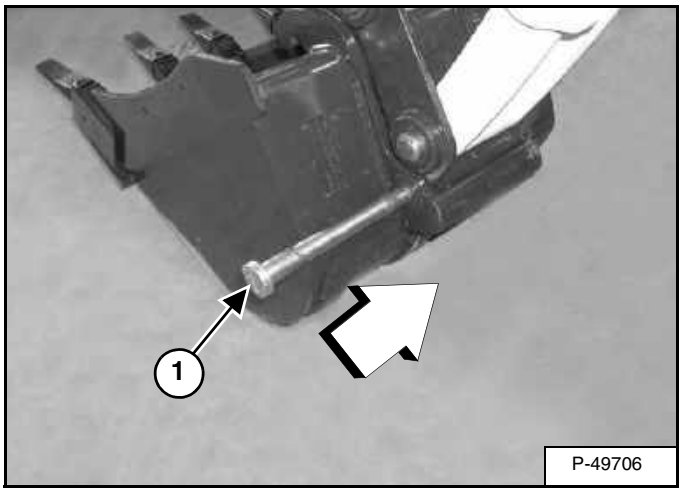
Keep all bystanders 6 m (20 ft) away from equipment when operating. Contact with moving parts, a trench cave-in or flying objects can cause injury or death.

W-2119-0910

Installing And Removing The Attachment (Pin-On X-Change) (Cont'd)

Installation (Cont'd)

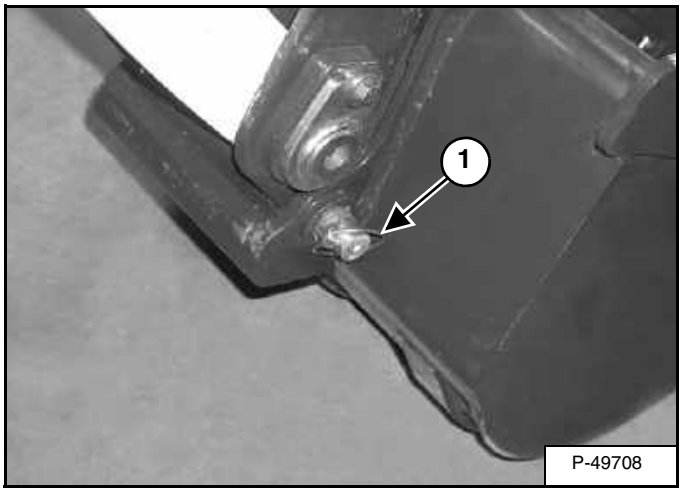
Figure 104



Stop the engine. Turn the start key to the ON position and move both hydraulic control levers to relieve hydraulic pressure.

Drive the pin (Item 1) **[Figure 104]** through the bucket mount and X-Change.

Figure 105



Install the retainer pin (Item 1) **[Figure 105]**.

Check for proper installation.

Lift the attachment and fully extend and retract the bucket cylinder.

Installing And Removing The Attachment (Pin-On X-Change) (Cont'd)

Removal

Use the pin on X-Change when installing new attachments that are equipped with the pin on X-Change bracket.

NOTE: Removal and installation of the bucket is shown. The procedure is the same for other attachments. Disconnect any hydraulic lines that are operated by hydraulic power before removing any attachments (breaker, auger, etc.).

⚠ WARNING

AVOID INJURY OR DEATH

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

W-2052-0907

Figure 106

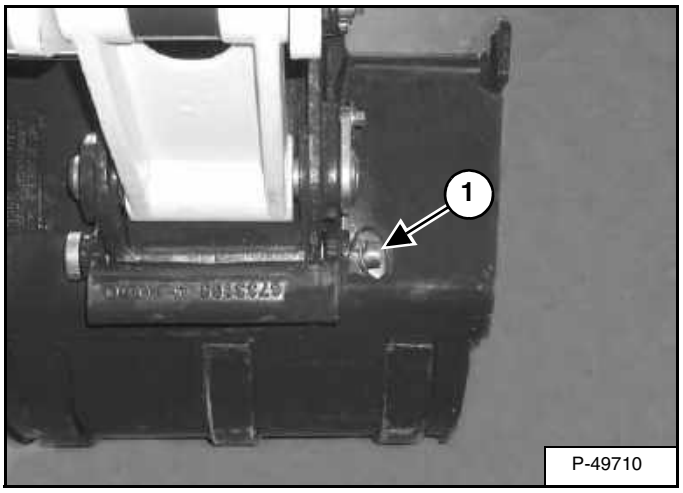
Park the excavator on a flat level surface. Put the bucket on the ground **[Figure 106]**.

With the engine off, turn the start key to the ON position and move both hydraulic control levers to relieve hydraulic pressure.

Installing And Removing The Attachment (Pin-On X-Change) (Cont'd)

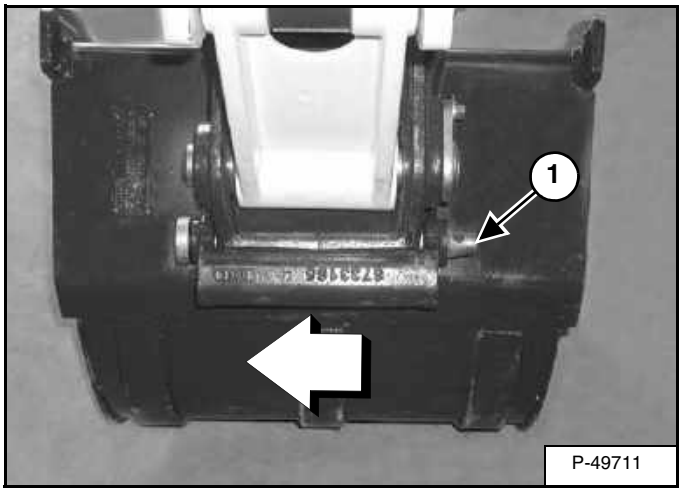
Removal (Cont'd)

Figure 107



Remove the retainer pin (Item 1) **[Figure 107]**.

Figure 108



Drive the pin (Item 1) **[Figure 108]** out of the bucket and X-Change mount.

⚠ WARNING

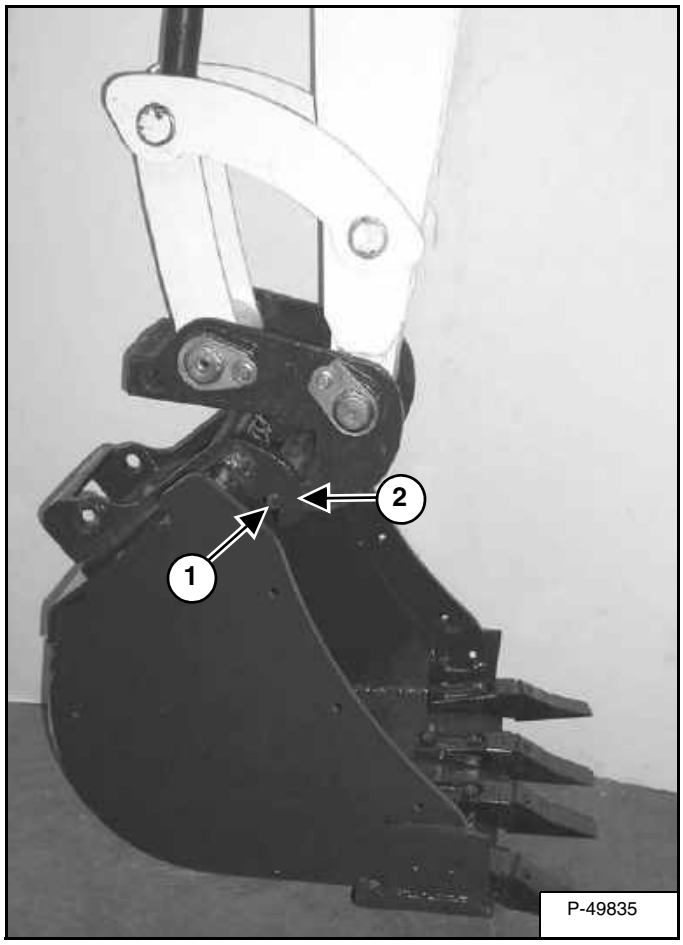
AVOID INJURY OR DEATH

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- **When fluids are under pressure.**
- **Flying debris or loose material is present.**
- **Engine is running.**
- **Tools are being used.**

W-2019-0907

Figure 109

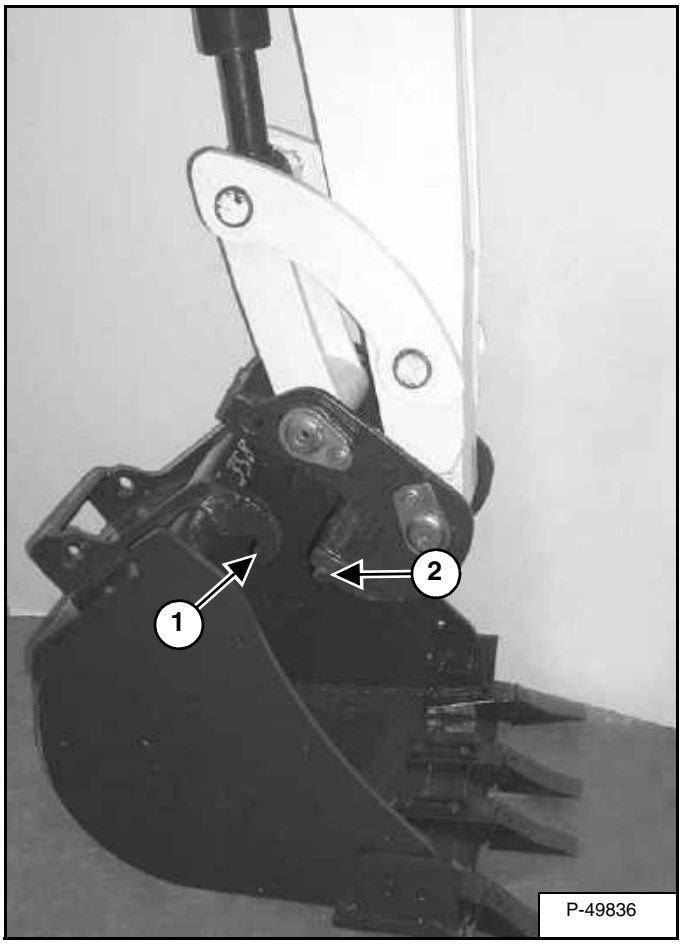


Start the engine, raise the boom approximately one foot and retract the bucket cylinder until the X-Change pins (Item 1) engage the hooks (Item 2) **[Figure 109]** on the bucket.

Installing And Removing The Attachment (Pin-On X-Change) (Cont'd)

Removal (Cont'd)

Figure 110



Fully retract the bucket cylinder and lower the boom and arm until the bucket is on the ground, and the X-Change pins (Item 1) are disengaged from the hooks (Item 2) **[Figure 110]**.

Move the arm toward the excavator until the X-Change pins are clear of the bucket.

Installing And Removing The Attachment (Pin-On Attachment)

Installation

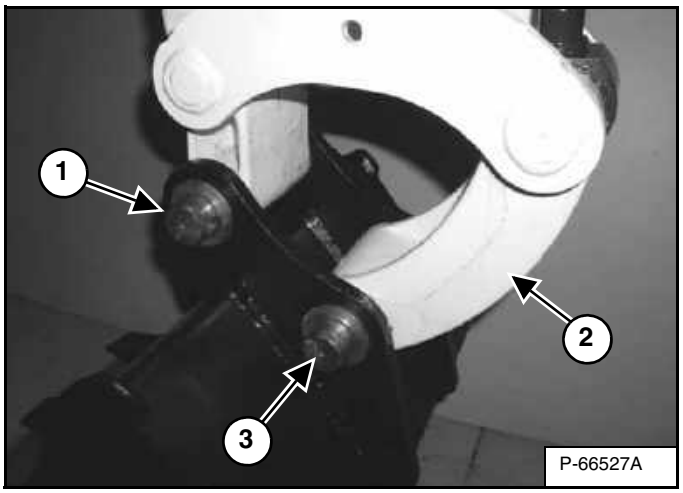
⚠ WARNING

AVOID INJURY OR DEATH

Stop the machine on a firm flat surface. When removing or installing attachments (such as a bucket), always have a second person in the operator's seat, give clear signals and work carefully.

W-2140-0189

Figure 111

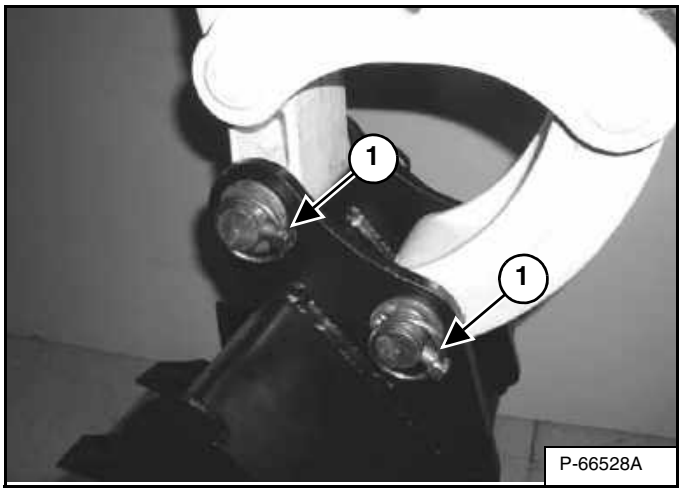


Install the arm into the bucket and align the mounting hole.

Install the pin (Item 1) **[Figure 111]** and washers.

Install the link (Item 2) in the bucket and align the mounting hole. Install the pin (Item 3) **[Figure 111]** and washers

Figure 112



Install the two retainer pins (Item 1) **[Figure 112]**. Install grease in the grease fittings.

Removal

Park the excavator on a flat surface and lower the bucket fully.

Remove the two retainer pins (Item 1) **[Figure 112]**.

Remove the washers and pins (Items 1 and 3) **[Figure 111]**.

Do not damage the dust seals in the arm.

⚠ WARNING

AVOID INJURY OR DEATH

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

W-2052-0907

OPERATING PROCEDURE

Inspect The Work Area

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

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

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

Always check ground conditions before starting your work:

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

Basic Operating Instructions

When operating on a public road or highway, always follow local regulations. For example: A slow moving vehicle (SMV) sign, or direction signals may be required.

Run the engine at low idle speed to warm the engine and hydraulic system before operating the excavator.

IMPORTANT

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

I-2015-0284

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

Operating Near An Edge Or Water

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

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

Lowering The Work Equipment (Engine STOPPED)

The hydraulic control levers control the movement of the boom, arm, bucket and upperstructure slew functions.

The console must be in the locked down position, and the key switch in the ON position.

Use the control lever to lower the boom.

Figure 113

The joystick lock switch disengages the hydraulic control functions from the joysticks when the console are raised **[Figure 113]**.

NOTE: If the engine stops, the boom / bucket (attachments) can be lowered to the ground using hydraulic pressure in the accumulator.

The control console must be in the locked down position, and the key switch in the ON position.

Use the control lever to lower the boom.

Lower the control console to engage the hydraulic control functions of the joysticks **[Figure 113]**.

Object Handling

Do not exceed the Rated Lift Capacity. (See Lift Chart (7174898) With Standard Arm on Page 151.), (See Lift Chart (7182361) With Standard Arm And Counterweight on Page 154.), (See Lift Chart (7174899) With Long Arm on Page 157.) or (See Lift Chart (7203641) With Extendable Arm on Page 160.)

⚠ WARNING

AVOID INJURY OR DEATH

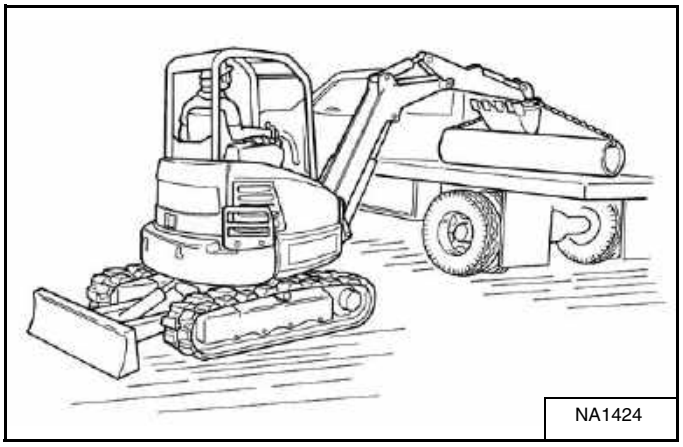
Do not exceed rated lift capacity. Excessive load can cause tipping or loss of control.

W-2374-0500

Extend the bucket cylinder completely and lower the boom to the ground. Stop the engine.

Wrap the chain assembly around the bucket mounting plate.

Figure 114



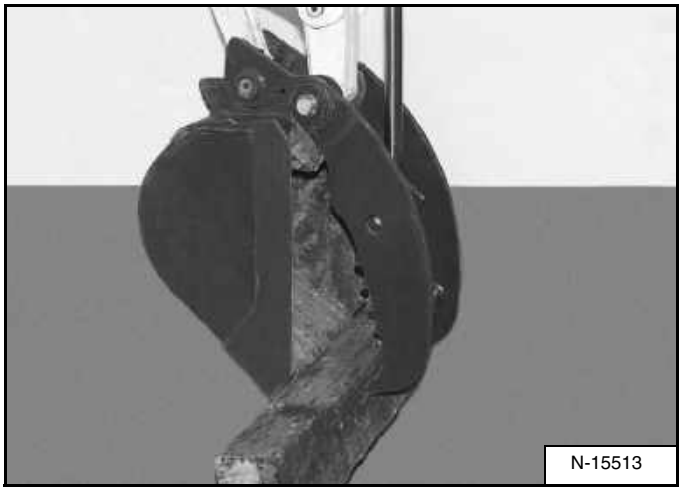
Make sure the load is evenly weighted and centered on the lifting chain, and is secured to prevent the load from shifting **[Figure 114]**.

Lift and position the load. Once the load is in position and tension is removed from the lift chain (secondary lift system), remove the secondary lift system.

NOTE: When transporting the excavator, when using hydraulically operated attachments, or when lifting objects, the extendable arm must be locked in the retracted position. Fully retract the arm and install the pin and the retainer pin in the locked position. (See Extending The Arm (If Equipped) on Page 84.)

Using The Clamp (If Equipped)

Figure 115



The optional lifting clamp attachment gives the excavator a wider range of use and mobility for debris removal **[Figure 115]**.

The lifting clamp cylinder must be fully retracted when the machine is being used for excavating.

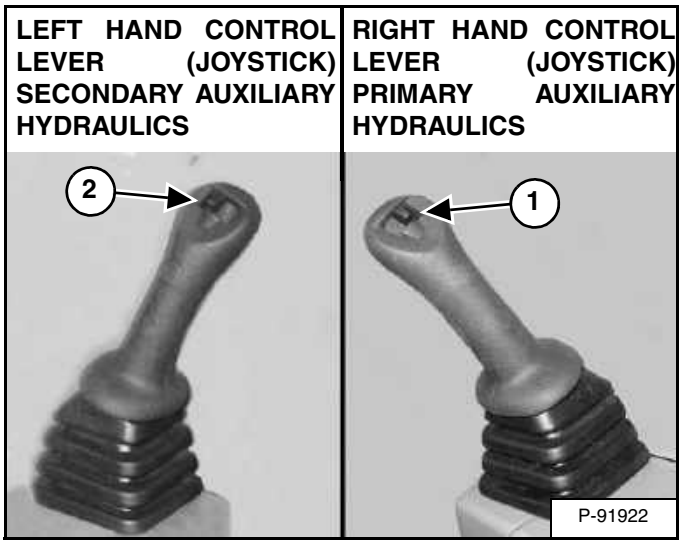
The lift capacities are reduced by 122 Kg (270 lb) if the excavator is equipped with the optional lifting clamp.

NOTE: Do NOT fully extend the lifting clamp cylinder if the bucket is removed. If the machine is equipped with an X-Change and the bucket and clamp cylinders are both fully extended with the bucket removed, the clamp cylinder rod will strike the X-Change and the clamp cylinder may be damage.

When Using Primary Auxiliary Hydraulics To Activate Clamp

Engage the auxiliary hydraulics and toggle to the Aux2 setting. (See Auxiliary Hydraulics on Page 45.)

Figure 116



Move the switch (Item 1) **[Figure 116]** on the right control lever to the left to open the clamp. Move the switch to the right to close the clamp.

When Using Secondary Auxiliary Hydraulics To Activate Clamp

Move the switch (Item 2) **[Figure 116]** on the left control lever to the right open the clamp. Move the switch to the left to close the clamp.

NOTE: The lifting clamp will be connected to the secondary auxiliary hydraulic quick couplers when equipped with the optional extendable arm.

Excavating

⚠ WARNING

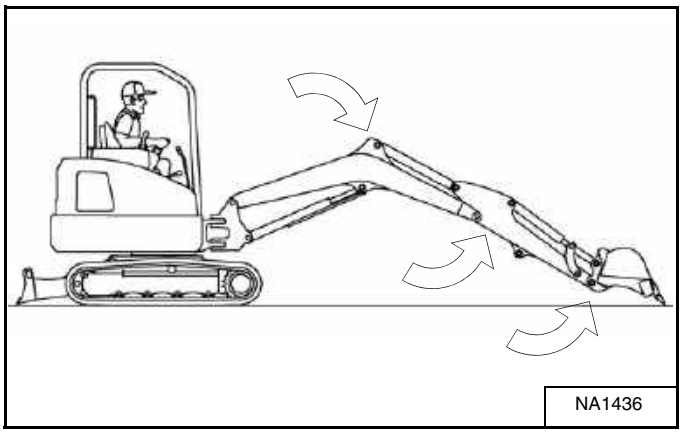
AVOID INJURY OR DEATH

Check area to be excavated for overhead or underground lines such as electrical, gas, oil, water, etc. DIAL 811 (USA Only) or 1-888-258-0808 (USA & Canada) and consult local utilities before digging. Extreme caution must be used in areas where utility lines are present.

W-2686-1007

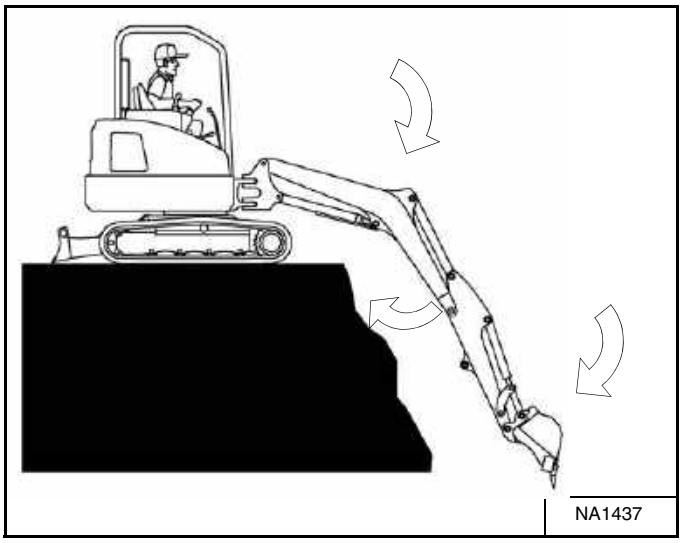
Lower the blade to increase digging performance.

Figure 117



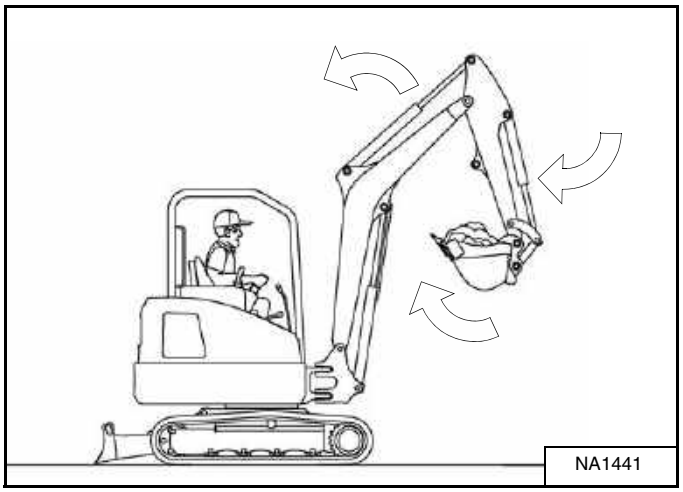
Extend the arm, lower the boom, and open the bucket **[Figure 117]**.

Figure 118



Retract the arm, while lowering boom and curling the bucket **[Figure 118]**.

Figure 119



Raise the boom, retract the arm and curl the bucket **[Figure 119]**.

Rotate the upperstructure.

NOTE: Do not allow the bucket teeth to contact the ground when swinging the upperstructure.

⚠ WARNING

Keep all bystanders 6 m (20 ft) away from equipment when operating. Contact with moving parts, a trench cave-in or flying objects can cause injury or death.

W-2119-0910

⚠ WARNING

AVOID INJURY OR DEATH

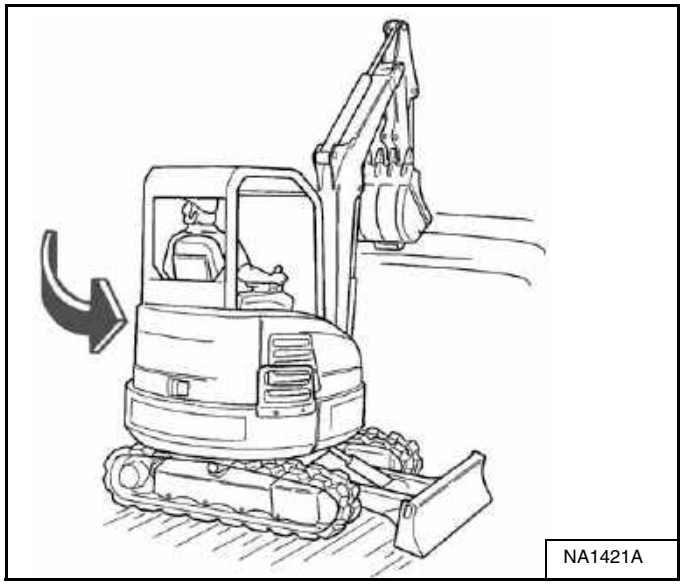
Check area to be excavated for overhead or underground electrical power lines. Keep a safe distance from electrical power lines.

LINE VOLTAGE	MINIMUM APPROACH DISTANCE
50 kV	At least 3 m (10 ft)
230 kV	At least 5 m (17 ft)
740 kV	At least 10 m (33 ft)

W-2757-0910

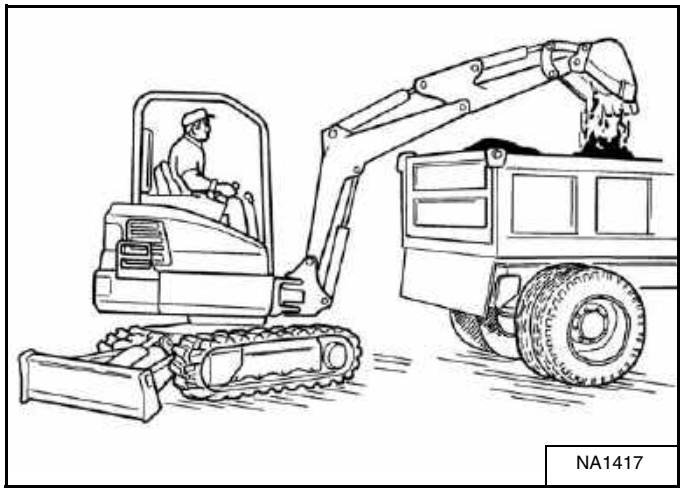
Excavating (Cont'd)

Figure 120



Look in the direction of rotation and make sure there are no bystanders in the work area before rotating the upperstructure **[Figure 120]**.

Figure 121



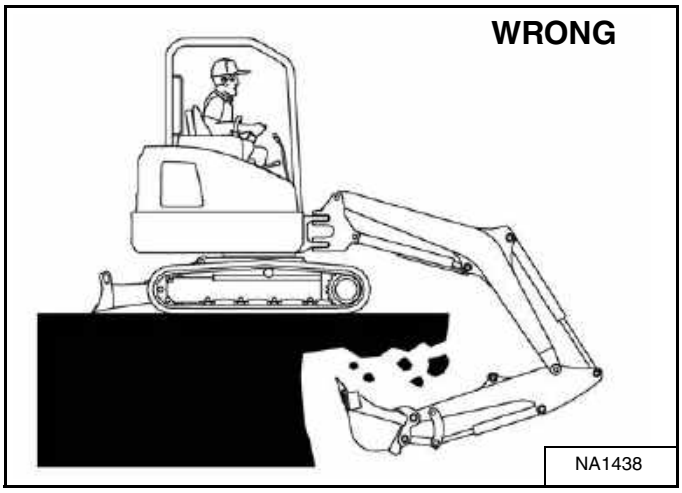
Extend the arm and uncurl the bucket to dump the material into a pile or truck **[Figure 121]**.

IMPORTANT

Avoid operating hydraulics over relief pressure. Failure to do so will overheat hydraulic components.

I-2220-0503

Figure 122



Do not dig under the excavator **[Figure 122]**.

Do not use the bucket as a breaker or pile driver. It is better to excavate hard or rocky ground after breaking it with other equipment. This will reduce damage to the excavator.

Do not move the excavator while the bucket is in the ground.

Dig only by moving the boom and arm toward the excavator.

Do not back dig (digging by moving the boom and arm away from the excavator). Damage to the X-Change and attachments may occur.

Boom Swing

Figure 123

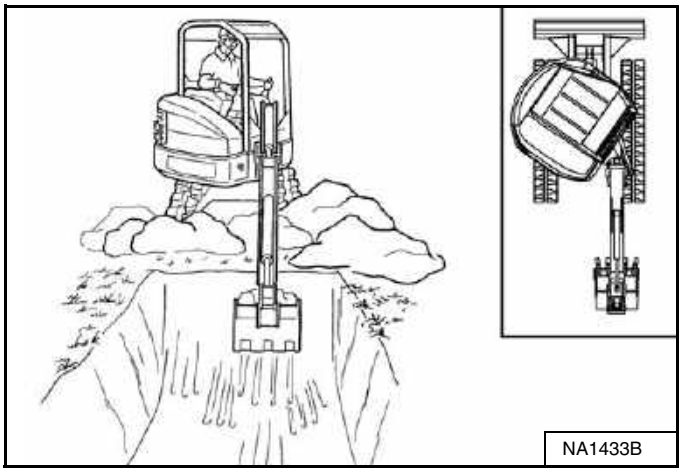


Figure 124

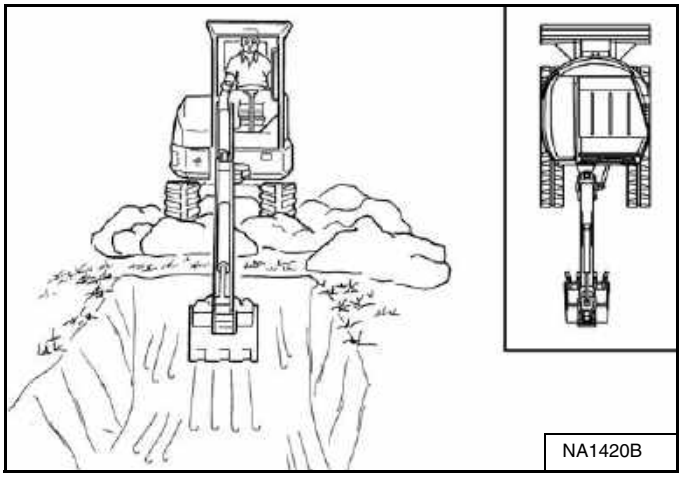
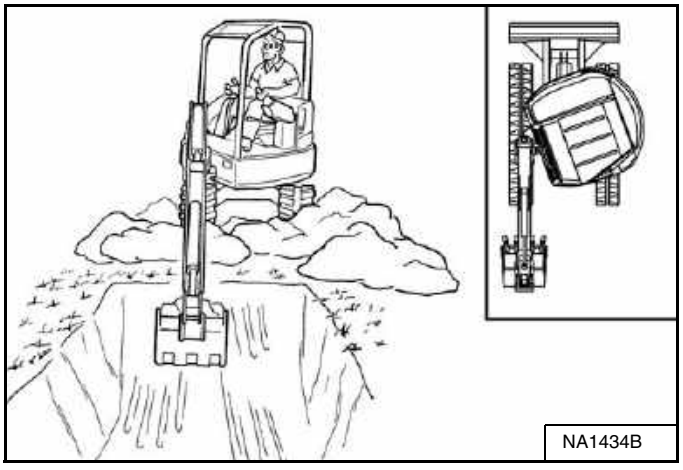
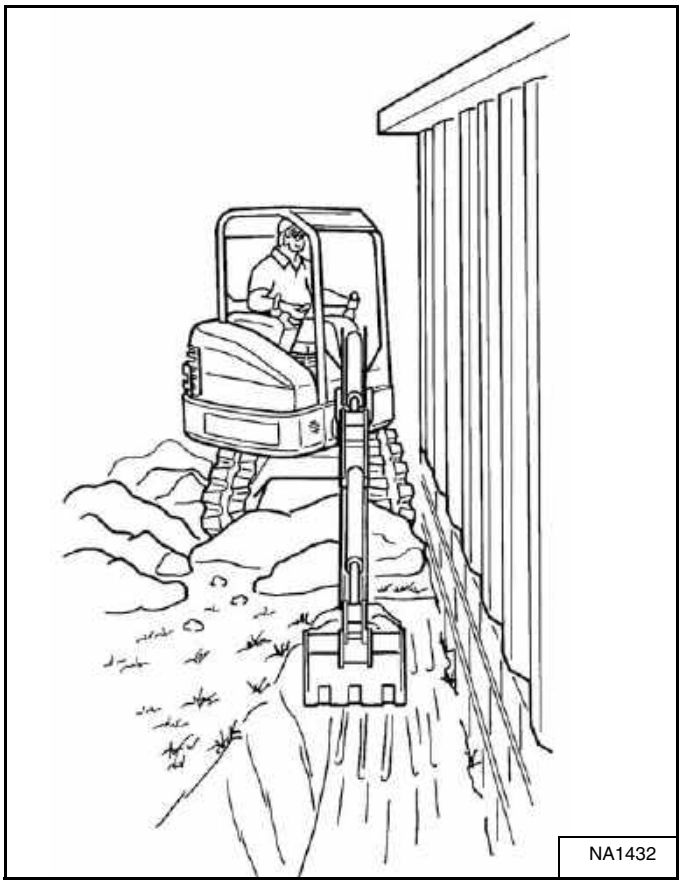


Figure 125



Slew the upperstructure, swing the boom to the right **[Figure 123]**, center **[Figure 124]** and left **[Figure 125]** to dig a square hole the width of the machine without repositioning the excavator.

Figure 126



The boom swing allows the operator to offset the boom and dig close to buildings and other structures **[Figure 126]**.

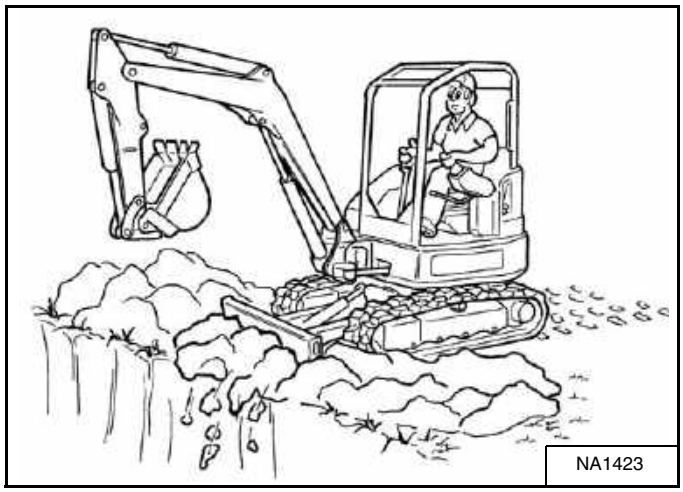
Backfilling

IMPORTANT

Avoid impacting objects with the blade. Damage to blade and undercarriage components may occur.

I-2256-0507

Figure 127



Use the blade to backfill the trench or hole after excavating **[Figure 127]**.

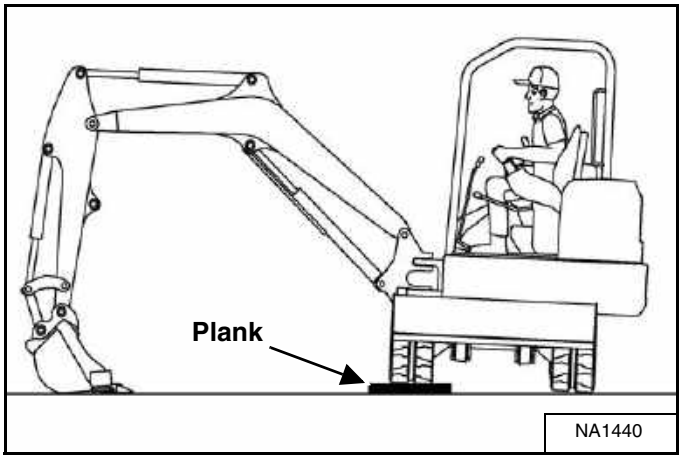
Driving The Excavator

When operating on uneven ground, operate as slow as possible and avoid sudden changes in direction.

Avoid traveling over objects such as rocks, trees, stumps, etc.

When working on wet or soft ground, put planks on the ground to provide a solid base to travel on and prevent the excavator from getting stuck.

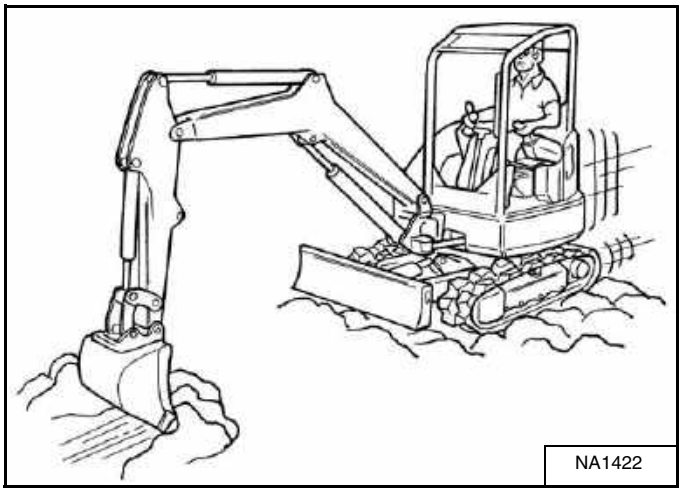
Figure 128



If one or both tracks have become stuck in soft or wet ground, raise one track at a time by turning the upperstructure and pushing the bucket against the ground **[Figure 128]**.

Put planks under the tracks and drive the excavator to dry ground.

Figure 129



The bucket may also be used to pull the excavator. Raise the blade, extend the arm and lower the boom. Operate the boom and arm in a digging manner **[Figure 129]**.

Operating On Slopes

⚠ WARNING

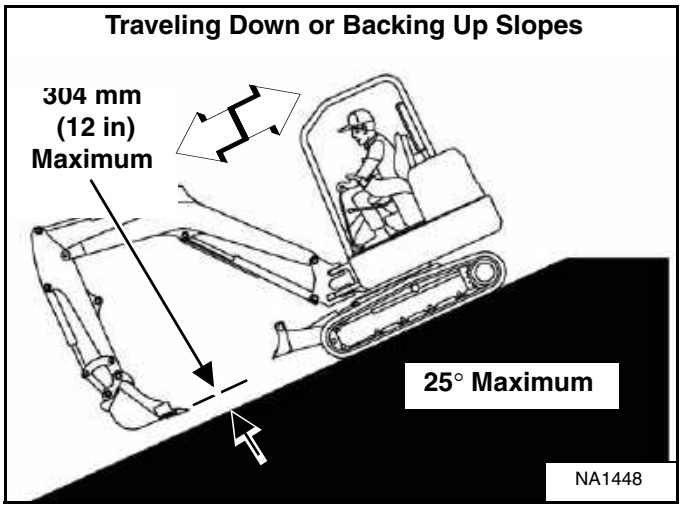
AVOID INJURY OR DEATH

- **Do not travel across or up slopes that are over 15 degrees.**
- **Do not travel down or back up slopes that exceed 25 degrees.**
- **Look in the direction of travel.**

W-2497-0304

When going down a slope, control the speed with the steering levers and the engine speed control dial.

Figure 130



When going down grades that exceed 15 degrees, put the machine in the position shown, and run the engine slowly **[Figure 130]**.

Operate as slow as possible and avoid sudden changes in lever direction.

Avoid traveling over objects such as rocks, trees, stumps, etc.

Stop the machine before moving the upper equipment controls. Never allow the blade to strike a solid object. Damage to the blade or hydraulic cylinder can result.

⚠ WARNING

AVOID INJURY OR DEATH

- **Avoid steep areas or banks that could break away.**
- **Keep boom centered and attachments as low as possible when traveling on slopes or in rough conditions. Look in the direction of travel.**
- **Always fasten seat belt.**

W-2498-0304

Figure 131

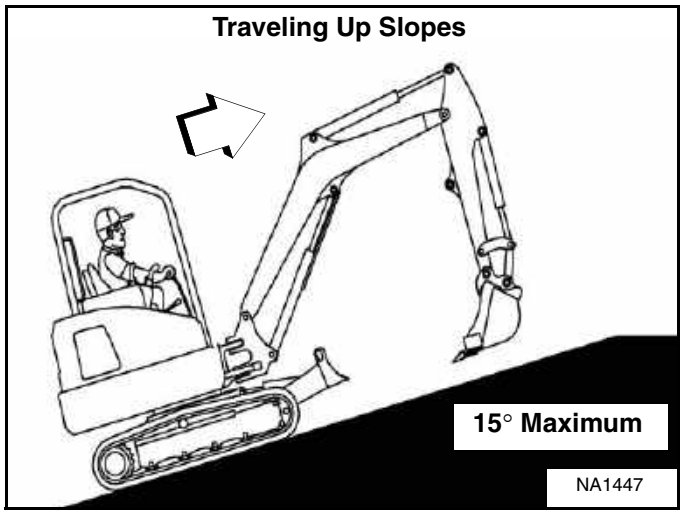
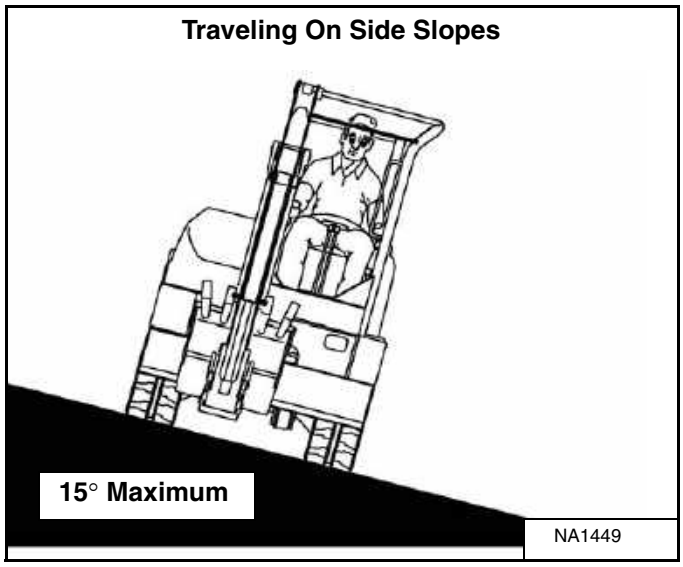


Figure 132

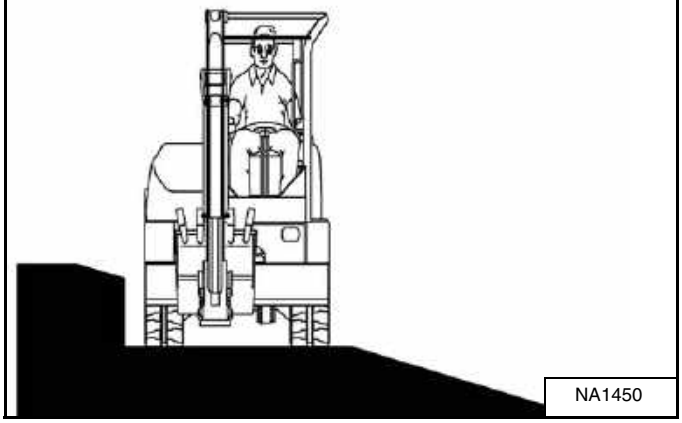


When traveling up slopes or on side slopes that are 15 degrees or less, position the machine as shown and run the engine slow **[Figure 131]** and **[Figure 132]**.

Operating On Slopes (Cont'd)

Figure 133

Recommended Position For Working On A Slope



When operating on a slope, level the work area before beginning **[Figure 133]**.

If this is not possible, the following procedures should be used:

Do not work on slopes which are over 15 degrees.

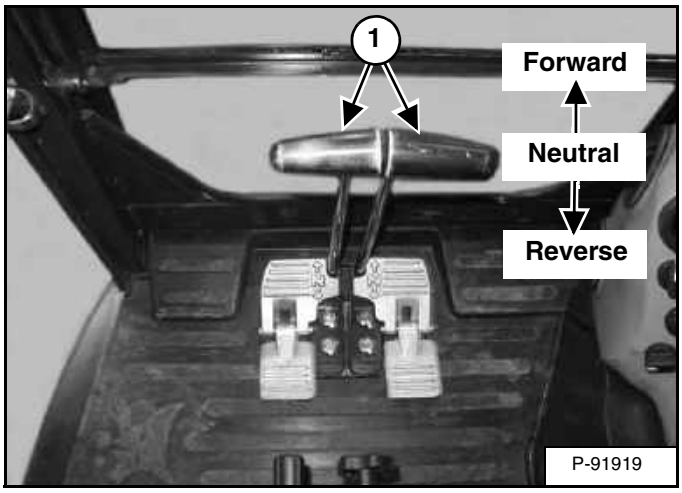
Use a slow work cycle.

Avoid working with the tracks across the slope. This will reduce stability and increase the tendency for the machine to slide. Position the excavator with the blade downhill and lowered.

Avoid swinging or extending the bucket more than necessary in a down hill direction. When you must swing the bucket downhill, keep the arm low and skid the bucket downhill.

When working with the bucket on the uphill side, keep the bucket as close to the ground as possible. Dump the spoil far enough away from the trench or hole to prevent the possibility of a cave in.

Figure 134



To brake the machine when going down a slope, move the steering levers (Item 1) **[Figure 134]** to the *NEUTRAL* position. This will engage the hydrostatic braking.

When the engine stops on a slope, move the steering levers to the neutral position. Lower the boom / bucket to the ground.

NOTE: If the engine stops, the boom / bucket (attachments) can be lowered to the ground using hydraulic pressure which is stored in the accumulator.

The console must be in the locked down position, and the key switch in the ON position.

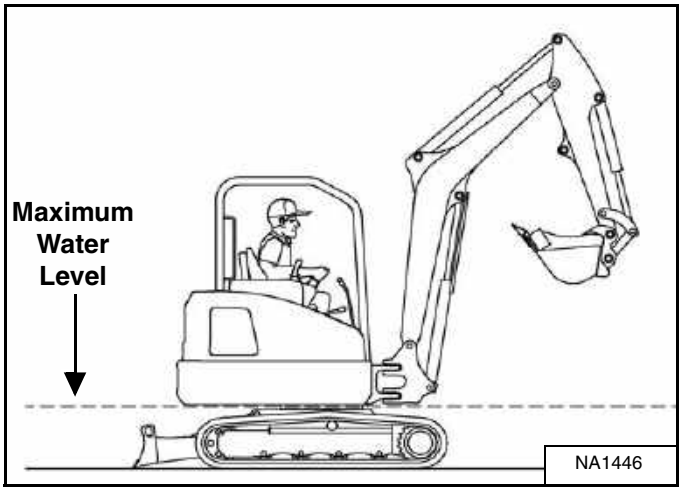
Use the control lever to lower the boom.

Start the engine and resume operation.

Operating In Water

Mud and water should be removed from the machine before parking. In freezing temperatures, park the machine on boards or concrete to prevent the track or undercarriage from freezing to the ground and preventing machine movement.

Figure 135



Do not operate or immerse the excavator in water higher than the bottom of the swing bearing **[Figure 135]**.

Grease the excavator when it has been operated or immersed in water for a period of time. Greasing forces the water out of the lubrication areas.

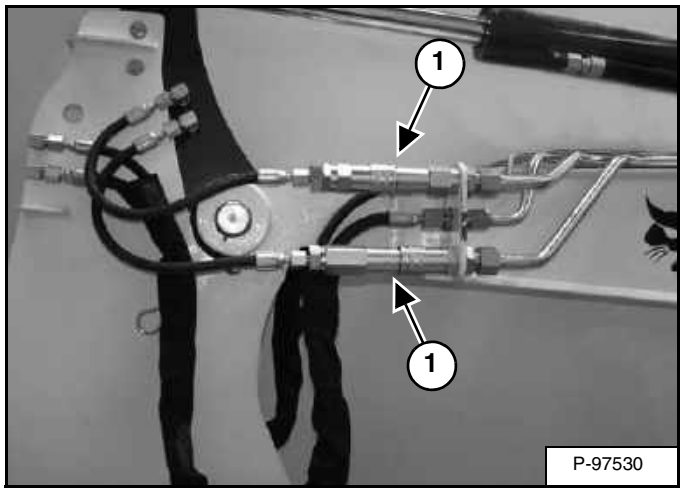
Water must be removed from the cylinder rods. If water freezes to the cylinder rod, the cylinder seals can be damaged when the rod is retracted.

Extending The Arm (If Equipped)

The extendable arm can be extended to increase the reach of the excavator.

NOTE: Do not extend or retract the extendable arm while digging or lifting a load. Extend or retract the arm to the desired length and then use the arm, boom and bucket functions as needed.

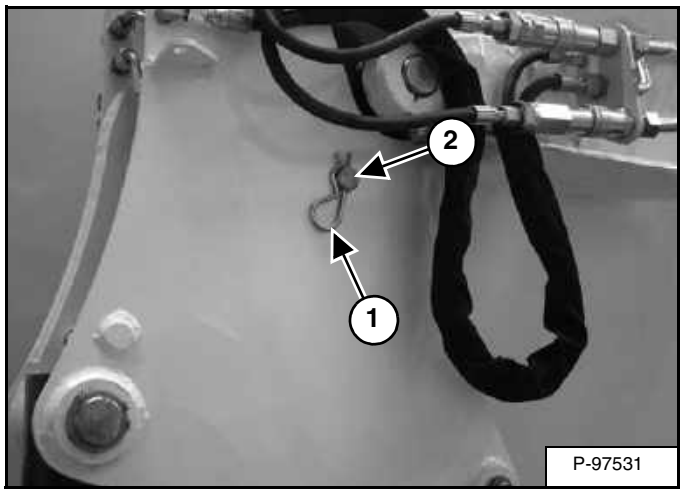
Figure 136



Relieve the hydraulic pressure. (See Relieve Hydraulic Pressure (Excavator And Attachment) on Page 46.)

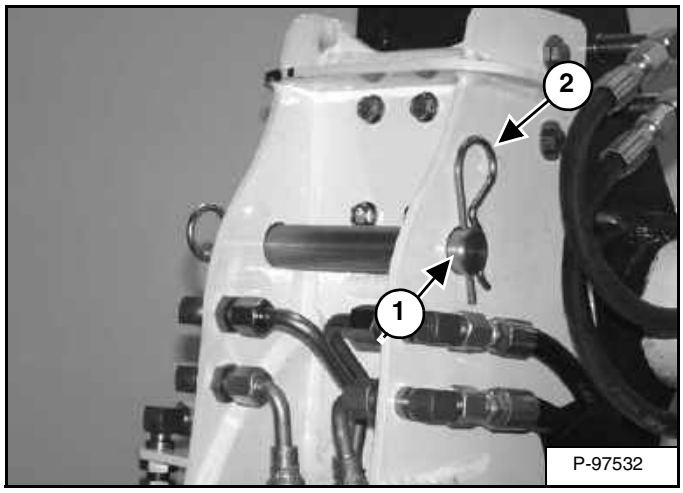
Connect the extendable arm hydraulic couplers (Item 1) **[Figure 136]** to the auxiliary hydraulic couplers.

Figure 137



Before the arm can be extended, the arm lock pin (Item 2) **[Figure 137]** must be removed.

Figure 138



Remove the extendable arm retainer pin (Item 1) and the pin (Item 2) **[Figure 137]** from the locked position and install the pin (Item 1) and the retainer pin (Item 2) **[Figure 138]** into the storage position.

Extending The Arm (If Equipped) (Cont'd)

Figure 139

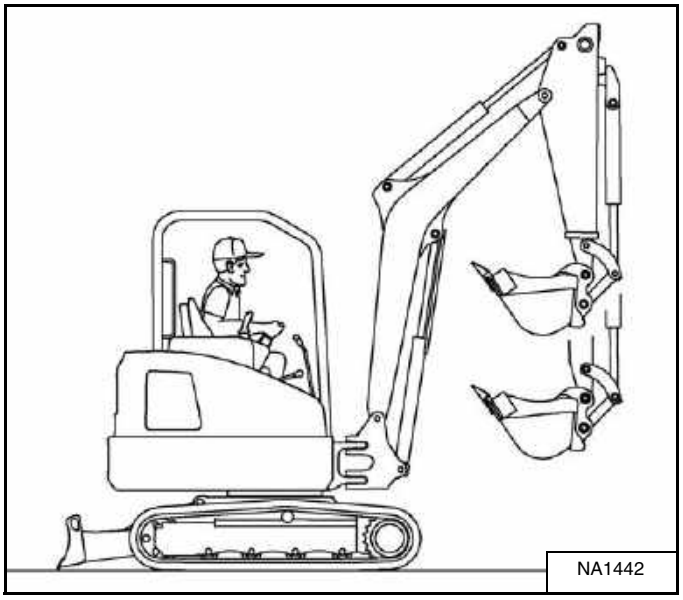
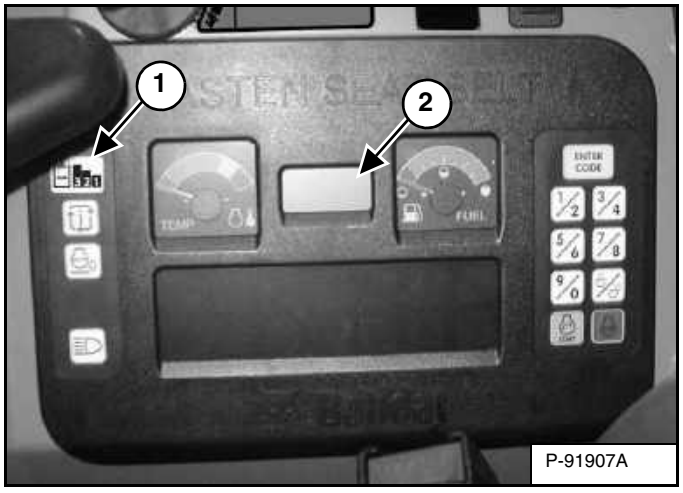
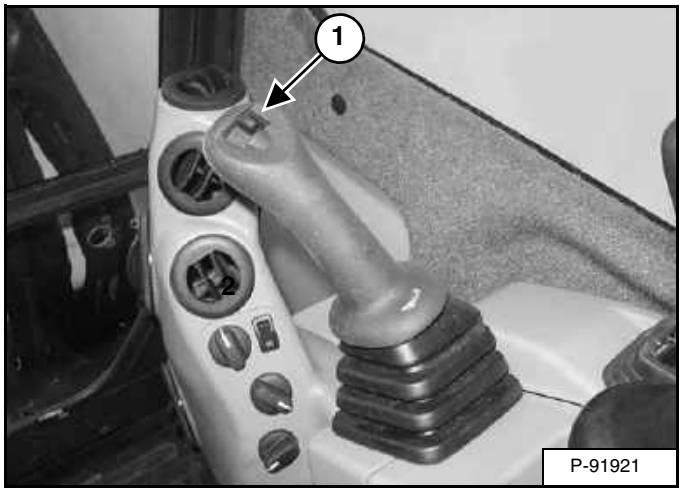


Figure 140



Press the Auxiliary Hydraulics button on the right console (Item 1) **[Figure 140]** (an audible beep will sound each time the auxiliary button is pressed). The recommended Selectable Auxiliary Hydraulic Flow setting for extendable arm operation is Aux3. (See Auxiliary Hydraulics on Page 45.)

Figure 141



Move the switch (Item 1) **[Figure 141]** on the right control lever to the right to extend the arm or to the left to retract the arm **[Figure 139]**.

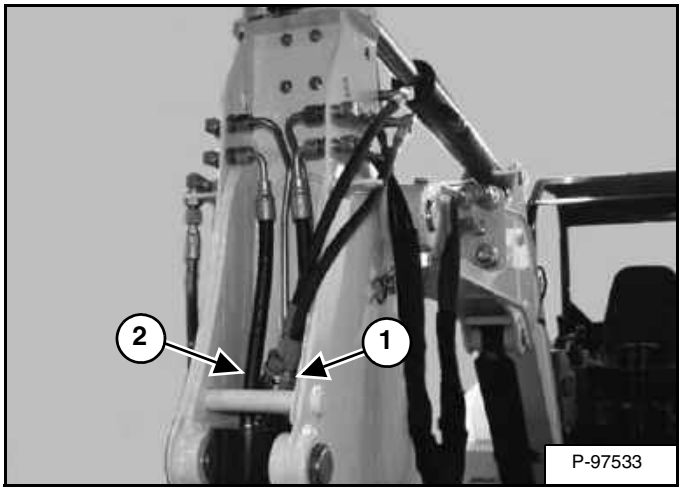
⚠ WARNING

Keep all bystanders 6 m (20 ft) away from equipment when operating. Contact with moving parts, a trench cave-in or flying objects can cause injury or death.

W-2119-0910

NOTE: When transporting the excavator, when using hydraulically operated attachments, or when lifting objects, the extendable arm must be locked in the retracted position. Fully retract the arm and install the pin and the retainer pin in the locked position. (See Extending The Arm (If Equipped) on Page 84.)

Figure 142



When the extendable arm hydraulic couplers (Items 1 and 2) **[Figure 142]** are disconnected, store the couplers by positioning them between the front of the arm and the bucket cylinder.

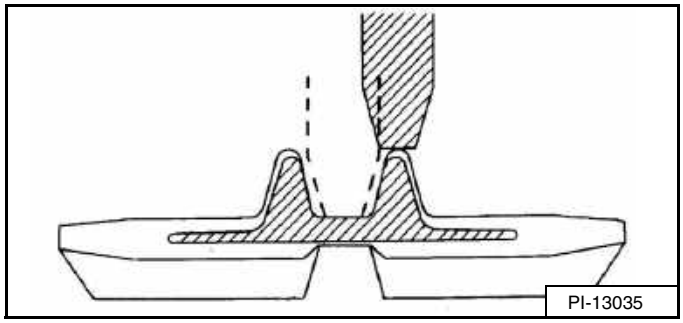
OPERATING PROCEDURE (CONT'D)

Avoiding Track Damage

Mud and water should be removed from the machine before parking. In freezing temperatures, park the machine on boards or concrete to prevent the track or undercarriage from freezing to the ground and preventing machine movement.

Some cause of track damage:

Figure 143

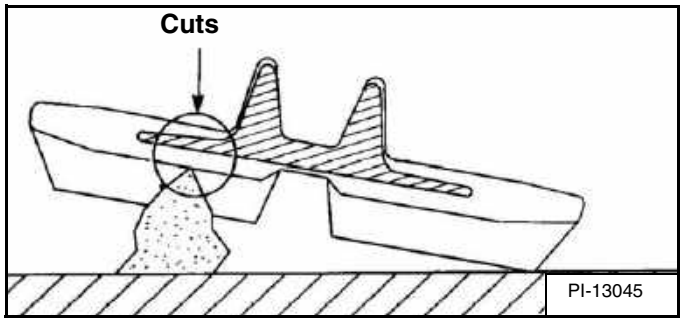


Incorrect track tension: When the rubber track is detracting, the idler or sprocket rides on the projections of the embedded metal **[Figure 143]** causing the embedded metal to be exposed to corrosion. (See TRACK TENSION on Page 124.)

If rubber track is clogged with stones or foreign objects, these can get wedged between the sprocket / rollers and cause detracting and track stress.

When moisture invades through cuts on the track, the embedded steel cords will corrode. The deterioration of the design strength may lead to the breaking of the steel cords.

Figure 144

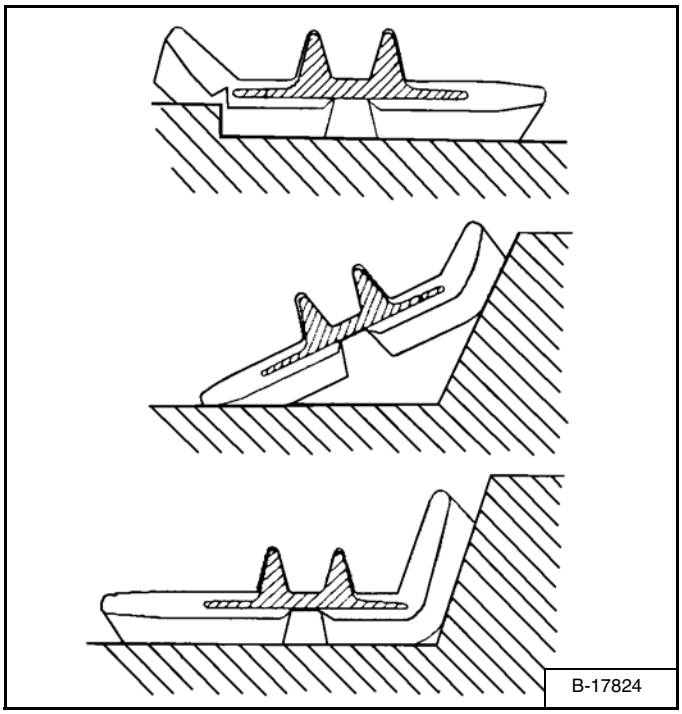


When rubber tracks drive over projections or sharp objects in the field, the concentrated forces applied cause cuts on the lug side rubber surface **[Figure 144]**. In case of making turns on projections, the lug side rubber surface will have an even higher chance to be cut. If the cuts run through the embedded steel cords, it might result in the steel cords' breakage due to their corrosion.

Avoid quick turns on bumpy and rocky fields.

Driving over sharp objects should be avoided. If this is impossible, do not make turns while driving over sharp objects.

Figure 145



When rubber tracks drive over sharp projections, intensive stress is applied to the lug side rubber surface, especially at the edges of embedded metals, causing cracks and cuts in the area around the embedded metals **[Figure 145]**.

Avoid extensive stress applied to the lug root where metals are embedded. Operators should try to avoid driving over stumps and ridges.

TOWING THE EXCAVATOR

Procedure

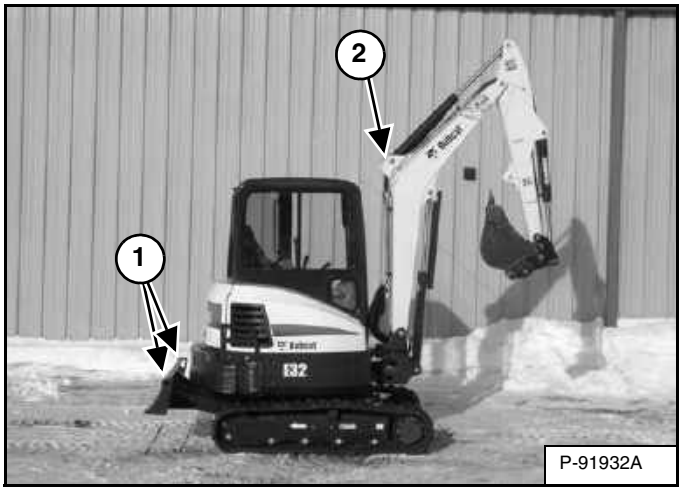
There is not a recommended towing procedure for the excavators.

- The excavator can be lifted onto the transport vehicle.
- The excavator can be skidded a short distance for service (EXAMPLE: Move onto a transport vehicle) without damage to the hydraulic system. (The tracks will not turn.) There might be slight wear to the tracks when the excavator is skidded.
- The towing chain (or cable) must be rated at 1.5 times the weight of the excavator. (See Performance on Page 185.)

LIFTING THE EXCAVATOR

Procedure

Figure 146



Fully extend the cylinders of the bucket, arm, and boom so that the excavator is in the position as shown **[Figure 146]**.

Raise the blade all the way.

Put all the control levers in neutral.

⚠ WARNING

AVOID INJURY OR DEATH

- **Use a lifting fixture with sufficient capacity for the weight of the excavator plus any added attachments.**
- **Maintain center of gravity and balance when lifting.**
- **Do not swing boom or upperstructure.**
- **Never lift with operator on machine.**

W-2434-0502

Figure 147

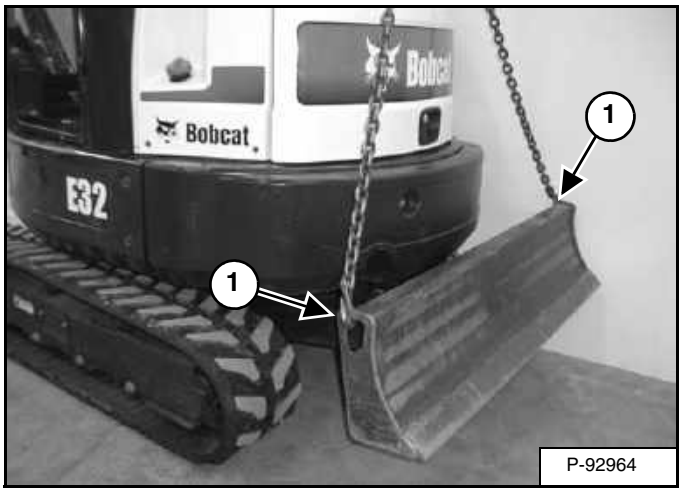
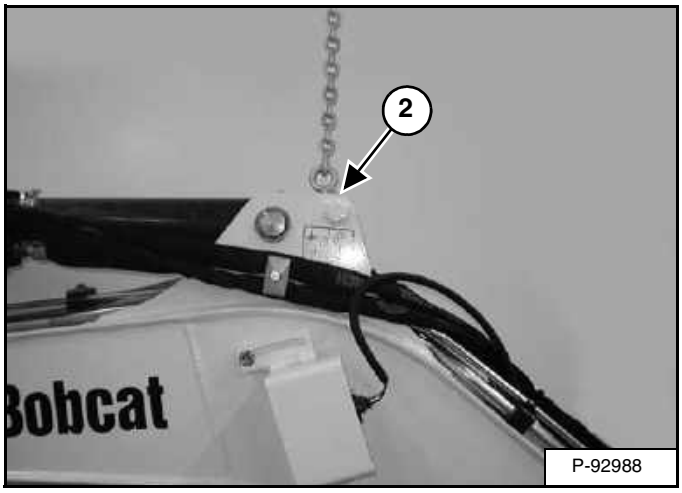


Figure 148



Fasten chains to the ends of the blade (Item 1) **[Figure 146]** and **[Figure 147]** and up to a lifting fixture above the canopy / cab. The lifting fixture must extend over the sides of the canopy / cab to prevent the chains from hitting the ROPS / TOPS.

Fasten a chain (Item 2) **[Figure 148]** from the rod to the lift fixture.

TRANSPORTING THE EXCAVATOR ON A TRAILER

Loading And Unloading

When transporting the machine, observe the rules, motor vehicle laws, and vehicle limit ordinances. Use a transport and towing vehicle of adequate length and capacity.

Secure the parking brakes and block the wheels of the transport vehicle.

Align the ramps with the center of the transport vehicle. Secure the ramps to the truck bed and be sure ramp angle does not exceed 15 degrees.

Use metal loading ramps with a slip resistant surface.

Use ramps that are the correct length and width and can support the weight of the machine.

The rear of the trailer must be blocked or supported when loading or unloading the machine to prevent the front of the transport vehicle from raising.

Determine the direction of the track movement before moving the machine (blade forward).

Disengage the auto idle feature and move the two speed travel to the low range position.

If equipped with the extendable arm, retract the arm and lock the arm in the retracted position. (See Extending The Arm (If Equipped) on Page 84.)

Figure 149

Move the machine forward onto the transport vehicle **[Figure 149]**.

Do not change direction of the machine while it is on the ramps.

Lower the boom, arm, bucket, and blade to the transport vehicle.

Stop the engine and remove the key (if equipped).

Put blocks at the front and rear of the tracks.

Fastening

Figure 150

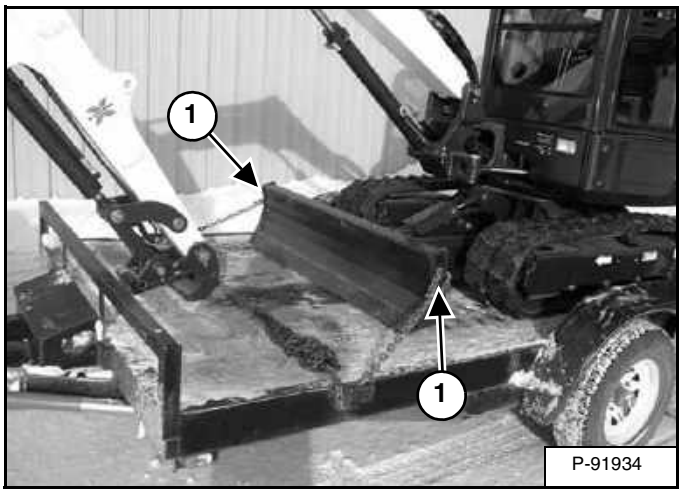
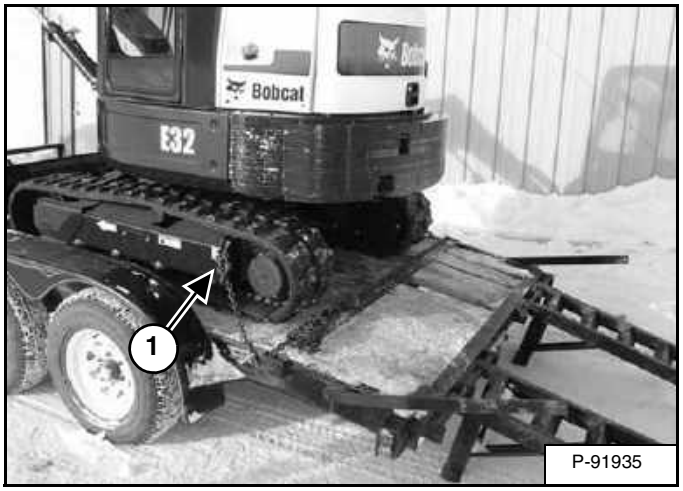


Figure 151



Fasten chains to the front corners of the blade (Item 1) **[Figure 150]** and to the tie down loop at both sides of the track frame (Item 1) **[Figure 151]** to prevent it from moving when going up or down slopes or during sudden stops.

Use chain binders to tighten the chains and then safely tie the chain binder levers to prevent loosening.

⚠ WARNING

AVOID SERIOUS INJURY OR DEATH

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

W-2058-0807

PREVENTIVE MAINTENANCE

MAINTENANCE SAFETY

WARNING

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

W-2003-0807

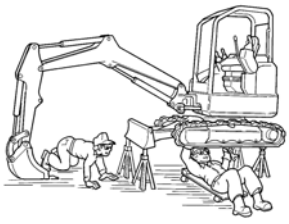
Safety Alert Symbol: This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.

CORRECT

P-90216

Never service the Bobcat Compact Excavator without instructions.

CORRECT



NA1428

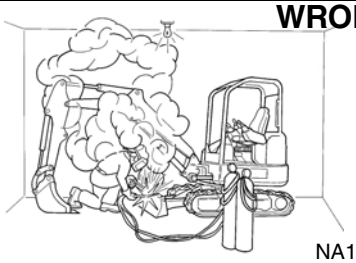
Use the correct procedure to lift and support the excavator.

CORRECT

NA1425

Cleaning and maintenance are required daily.

WRONG



NA1427

Have good ventilation when welding or grinding painted parts.

Wear dust mask when grinding painted parts. Toxic dust and gas can be produced.

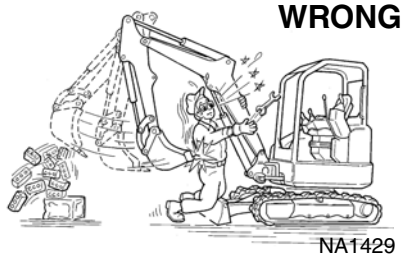
WRONG

NA1426

Vent exhaust to outside when engine must be run for service.

Exhaust system must be tightly sealed. Exhaust fumes can kill without warning.

WRONG

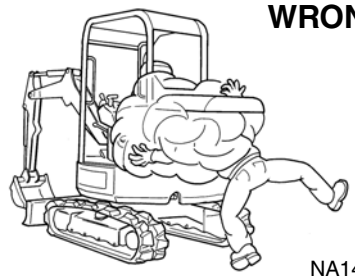


NA1429

Always lower the bucket and blade to the ground before doing any maintenance.

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

WRONG



NA1430

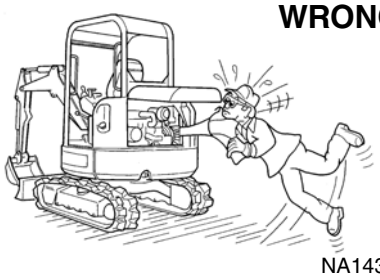
Stop, cool and clean engine of flammable materials before checking fluids.

Never service or adjust machine 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.

WRONG



NA1431

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 protections approved for type of welding.

Keep tailgate closed except for service. Close and latch tailgate before operating the excavator.

WRONG

B-19798

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.

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

MSW38-0409

SERVICE SCHEDULE

Chart

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 Excavator.

⚠ WARNING

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

W-2003-0807

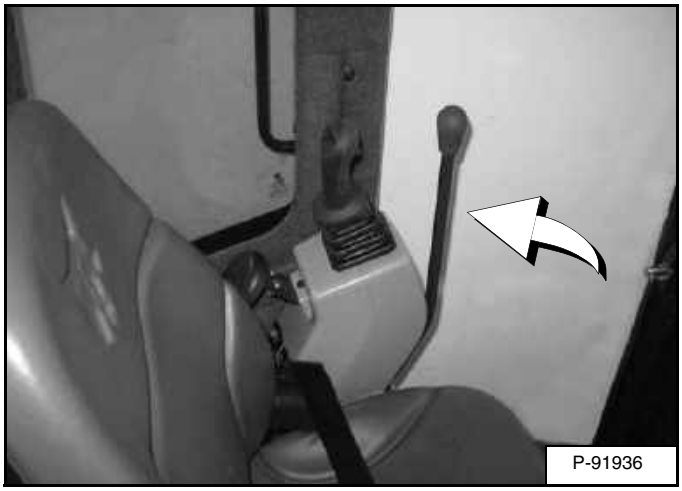
SERVICE SCHEDULE		HOURS					
ITEM	**SERVICE REQUIRED**	**8-10**	**50**	**100**	**250**	**500**	**[4] 1000**
Engine Coolant	Check coolant level. Add premixed coolant as needed.						
Engine Oil	Check the engine oil level and add as needed.						
Hydraulic Fluid, Hoses and Tubelines, Reservoir Breather Cap	Check the hydraulic fluid level and add as needed. Check for damage and leaks. Repair or replace as needed.						
Engine Air Filter and Air System	Check condition indicator and empty dust cup as needed. Check air system for leaks.						
Tracks	Check and adjust track tension as needed.						
Indicators and Lights	Check for correct operation of all indicators and lights.						
Horn and Motion Alarm **[1]**	Check for correct operation and repair as needed.						
Operator Canopy/Cab	Check condition. Check mounting hardware.	**[1]**					
Seat Belt	Check condition. Check mounting hardware.						
Safety Signs (Decals)	Check for damaged signs (decals). Replace any signs that are damaged.						
Pivot Points	Grease all machinery pivot points.						
Cab / Heater Air Filters	Clean the filters as needed.	**[1]**					
Console Lockout	Check console lockout for proper operation.						
X-Change **[1]**	Lubricate and inspect for damage or loose parts.	**[1]**					
Swing Circle and Pinion	Grease two fittings		**[2]**				
Fuel Tank and Filter	Drain water and sediment from fuel tank and fuel filter.						
Battery	Check battery, cables, connections and electrolyte level. Add distilled water as needed.						
Spark Arrester Muffler	Clean the spark chamber.						
Fuel Filter	Replace fuel filter.		**[3]**				
Travel Motor	Check oil level in both motors.						
Engine Oil and Filter	Replace oil and filter.		**[3]**				
Radiator, Oil Cooler, A/C Condenser **[1]**	Clean debris from the radiator fins.						
Hydraulic Filter, Case Drain Filter and Reservoir Breather	Replace the hydraulic filter, case drain filter and reservoir breather.		**[3]**				
Alternator and Starter	Check the alternator and starter connections.		**[3]**				
Belt(s)	Check condition of belt and replace as needed.		**[3]**				
Engine Valves	Check and adjust the engine valve clearance.						
Hydraulic System	Replace the hydraulic fluid and filters. Clean the reservoir.						
Travel Motor	Replace the lubricant in both travel motors.		**[3]**				
Extendable Arm Wear Pads	If equipped with the extendable arm, check for wear and replace as needed.						
Engine Coolant	Drain and flush the cooling system. Replace the coolant.	Every 2 years					

[1] If Equipped.
[2] Service every 10 hours when operating in water.
[3] Service at the first 50 hours, then as scheduled.
[4] Or every 12 months.

CONTROL CONSOLE LOCKOUTS

Inspection And Maintenance

Figure 152



When the left console is raised **[Figure 152]**, the hydraulic control levers (joysticks) and traction system must not function.

Sit in the operator's seat, fasten the seat belt and start the engine.

Raise the left console **[Figure 152]**.

Move the joystick control levers. There should be no movement of the boom, arm, slew or bucket.

Move the steering control levers. There should be no movement of the excavator tracks.

Service the system if these controls do not deactivate when the left control console is raised. (See your Bobcat dealer for service.)

SEAT BELT

Inspection And Maintenance

WARNING

Failure to properly inspect and maintain the seat belt can cause lack of operator restraint resulting in serious injury or death.

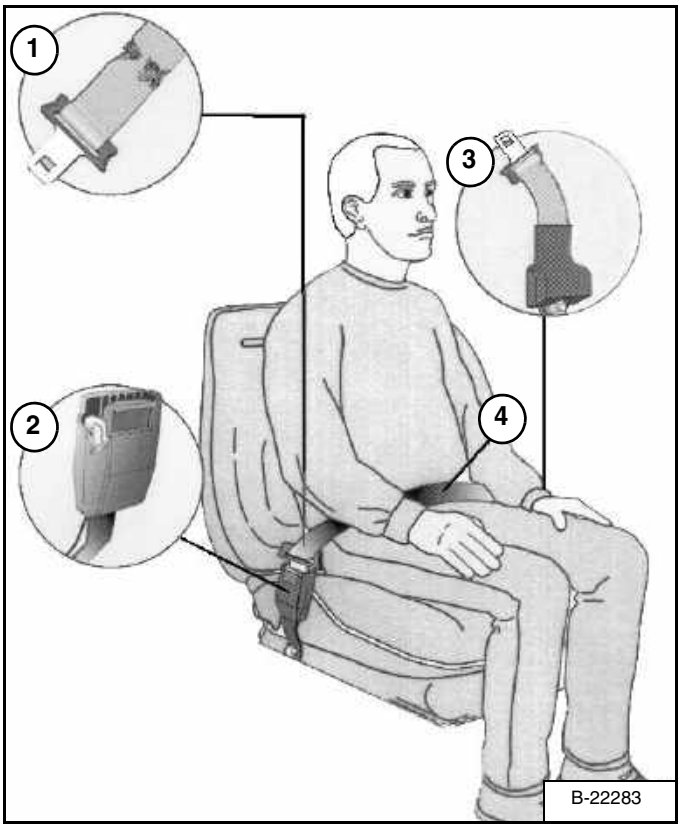
W-2466-0703

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.

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.

Figure 153



The items below are referenced in **[Figure 153]**.

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, deformed or buckle is not damaged or casing 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.

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

MOTION ALARM SYSTEM (IF EQUIPPED)

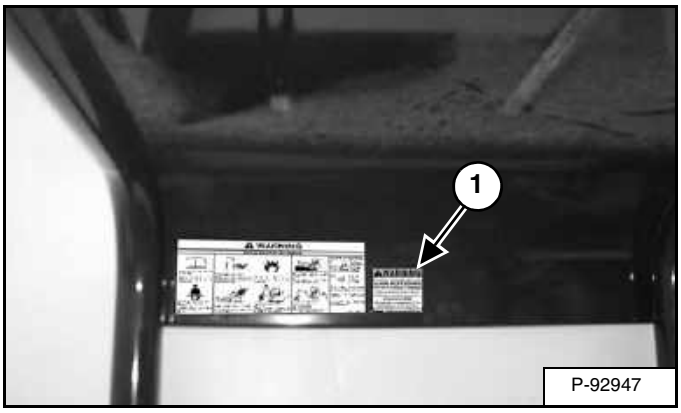
Description

This excavator may be equipped with a motion alarm system. The motion alarm will sound when the operator moves the travel control levers in either the forward or reverse direction. Slight movement of the steering levers in either the forward or reverse direction is required with hydraulic components before the motion alarm will sound.

Inspecting

Figure 154

Figure 155



Inspect for damaged or missing motion alarm decal (Item 1) **[Figure 154]** (cab machine) or (Item 1) **[Figure 155]** (canopy machine). Replace if required.

NOTE: The excavator will need to be moved slightly in both the forward and reverse direction to test the motion alarm. Keep all bystanders away from machine during test.

WARNING

AVOID INJURY OR DEATH

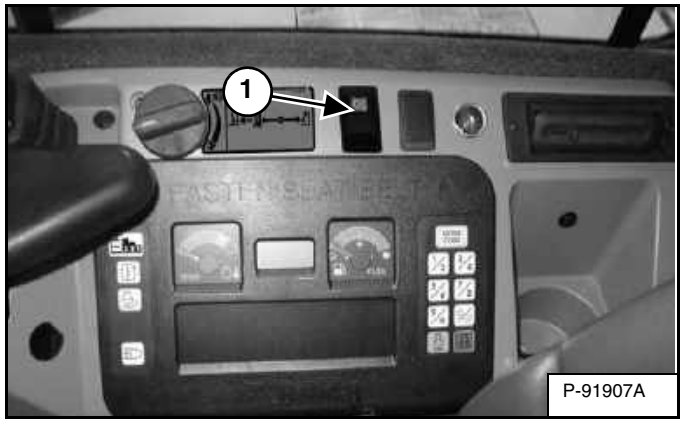
When an engine is running in an enclosed area, fresh air must be added to avoid concentration of exhaust fumes. If the engine is stationary, vent the exhaust outside. Exhaust fumes contain odorless, invisible gases which can kill without warning.

W-2050-0807

Sit in the operator's seat and fasten the seat belt. Start the engine. (See PRE-STARTING PROCEDURE on Page 56.)

Move the travel control levers (one lever at a time) in the forward direction. The motion alarm must sound. Move the travel control levers (one lever at a time) in the reverse direction. The motion alarm must sound.

Figure 156



Slightly move both travel control levers in the forward direction (until the machine is slowly moving forward) and then press the motion alarm cancel switch (Item 1) **[Figure 156]**. The motion alarm will shut off. With the machine still moving forward, move one of the levers to the neutral position, the motion alarm must sound.

Slightly move both travel control levers in the reverse direction (until the machine is slowly moving backward) and then press the motion alarm cancel switch (Item 1) **[Figure 156]** (the switch icon will be illuminated when the motion alarm is deactivated). The motion alarm will shut off. With the machine still moving backward, move one of the levers to the neutral position, the motion alarm must sound.

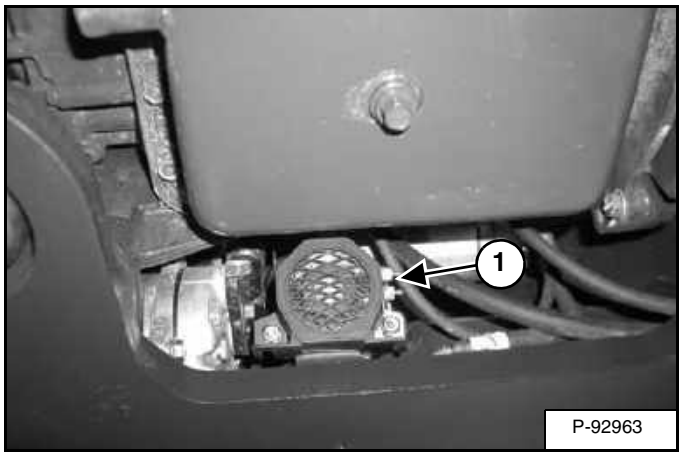
Return both levers to neutral and turn excavator key to OFF position. Exit the excavator. (See STOPPING THE ENGINE AND LEAVING THE EXCAVATOR on Page 63.)

MOTION ALARM SYSTEM (IF EQUIPPED) (CONT'D)

Inspecting (Cont'd)

The motion alarm is mounted to the bottom rear of the excavator. (To the front of the engine oil pan.)

Figure 157

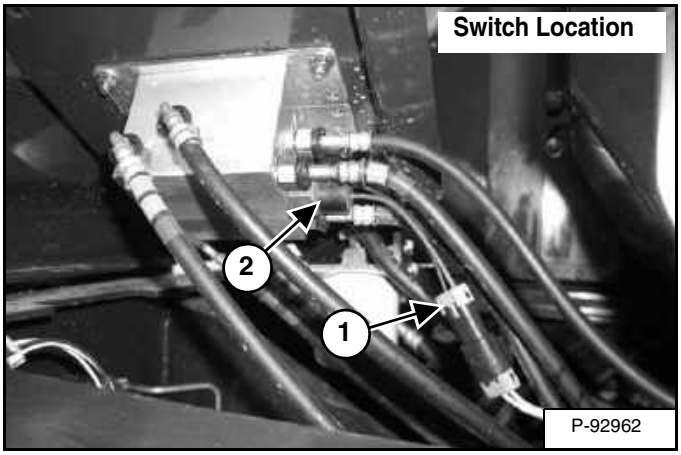


Inspect the motion alarm electrical connections and wire harness (Item 1) **[Figure 157]**, wire harness (Item 1) **[Figure 158]** and motion alarm switch (Item 2) **[Figure 158]** for tightness and damage. Repair or replace any damaged components.

If the motion alarm switch requires adjustment, see the following information.

Adjusting Switch Position

Figure 158



The motion alarm switch (Item 2) **[Figure 158]** is located in the travel control valve located under the floor plate. Remove the floor mat and the floor plate to access the switch.

The switch (Item 2) **[Figure 158]** is non-adjustable. It must be fully installed into the travel control valve housings and tightened. Tighten the switch to 18 - 20 N•m (13 - 15 ft-lb).

Inspect the motion alarm system for proper function after switch replacement.

⚠ WARNING

This machine is equipped with a motion alarm.
ALARM MUST SOUND!
when operating forward or backward.

Failure to maintain a clear view in the direction of travel could result in serious injury or death.

The operator is responsible for the safe operation of this machine.

W-2786-0309

TAILGATE

Opening And Closing

WARNING

AVOID INJURY OR DEATH

Never service or adjust the machine when the engine is running unless instructed to do so in the manual.

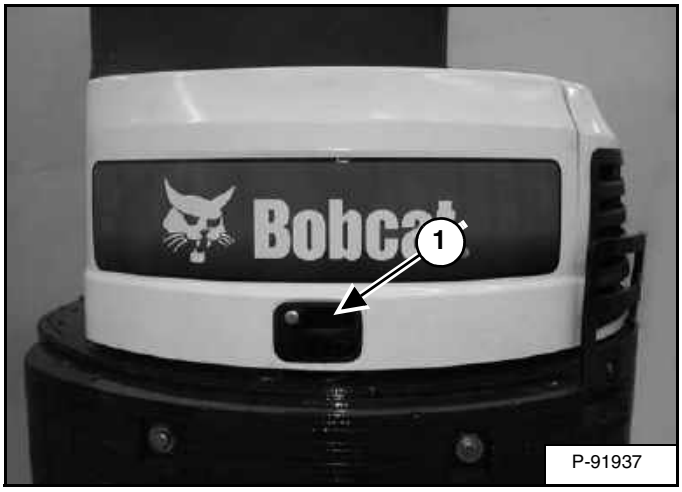
W-2012-0497

WARNING

Keep the rear door closed when operating the machine. Failure to do so could seriously injure a bystander.

W-2020-1285

Figure 159



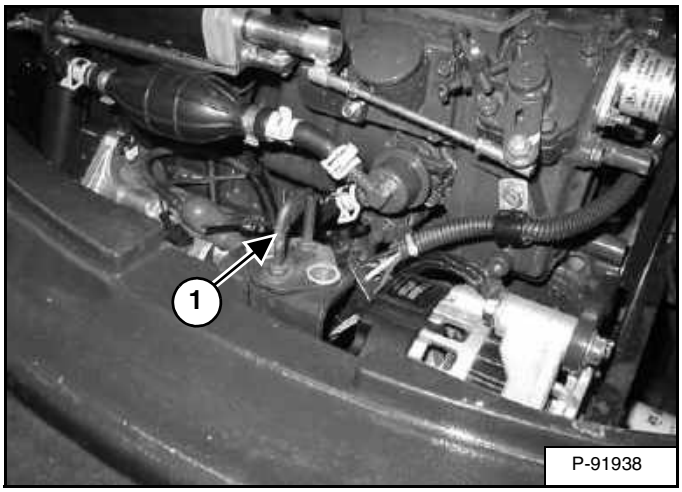
Pull the latch (Item 1) **[Figure 159]** and open the tailgate.

Push firmly to close the tailgate.

NOTE: The tailgate can be locked using the start key.

Adjusting The Latch

Figure 160



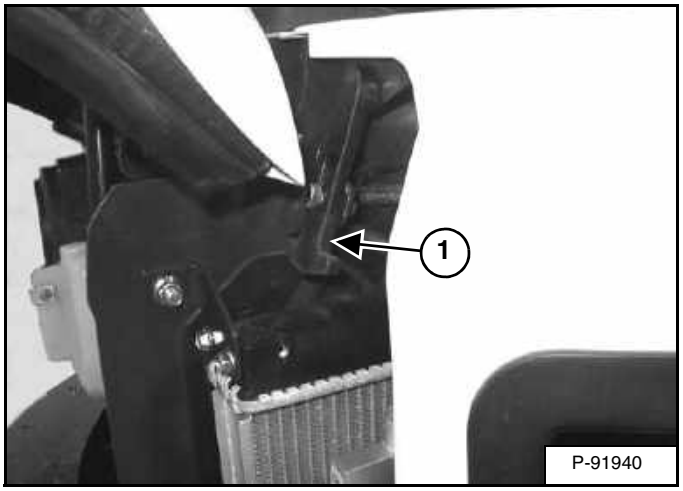
The tailgate latch (Item 1) **[Figure 160]** can be adjusted by loosening the two bolts, moving the latch, and tightening the two bolts.

Close the tailgate before operating the excavator.

RIGHT SIDE COVER

Opening And Closing

Figure 161

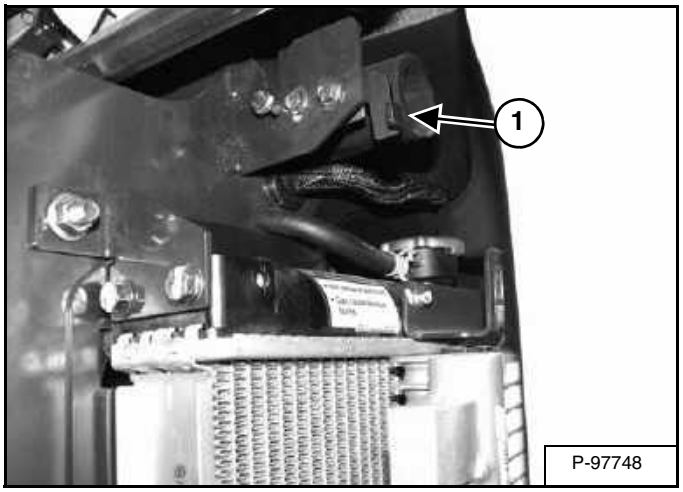


Early Models

Open the tailgate to access the right side cover latch (Item 1) **[Figure 161]**.

Pull down and out the rubber latch (Item 1) **[Figure 161]** until it is away from the latch post.

Figure 162

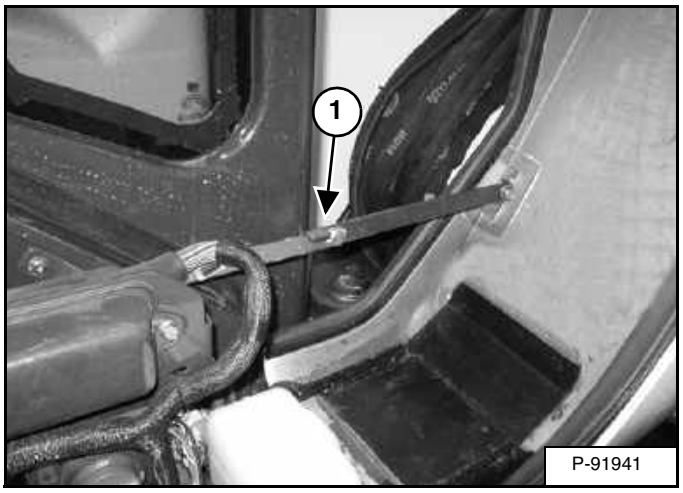


Later Models

Open the tailgate to access the right side cover latch (Item 1) **[Figure 162]**.

Pull out on the latch (Item 1) **[Figure 162]** to release cover.

Figure 163



Raise the right side cover and rotate forward until it is held open by the retainer (Item 1) **[Figure 163]**.

To close the right side cover, lift up on the retainer (Item 1) **[Figure 163]** while raising the right side cover. Rotate the cover back until it is in the fully closed position.

Early Models

Secure the right side cover with the latch (Item 1) **[Figure 161]**.

Later Models

Close the cover fully until the latch (Item 1) **[Figure 162]** locks the cover in the closed position.

CAB FILTERS

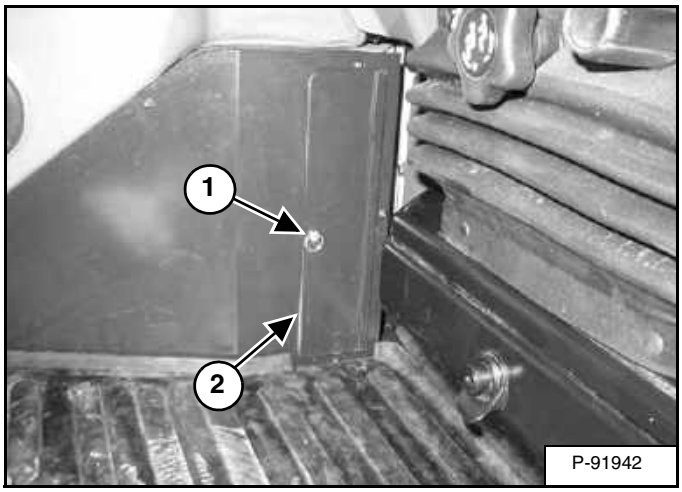
Cleaning And Maintenance

The recirculation filter and the fresh air filter must be cleaned regularly. (See SERVICE SCHEDULE on Page 95.)

The recirculation filter is located to the right of the operator seat and the fresh air filter is located under the right side cover.

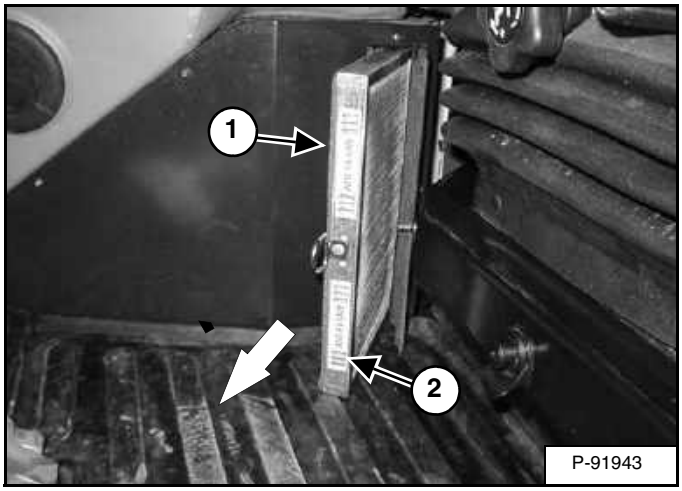
Recirculation Filter

Figure 164



Turn the fastener (Item 1) 1/4 turn and open the cover (Item 2) **[Figure 164]**.

Figure 165



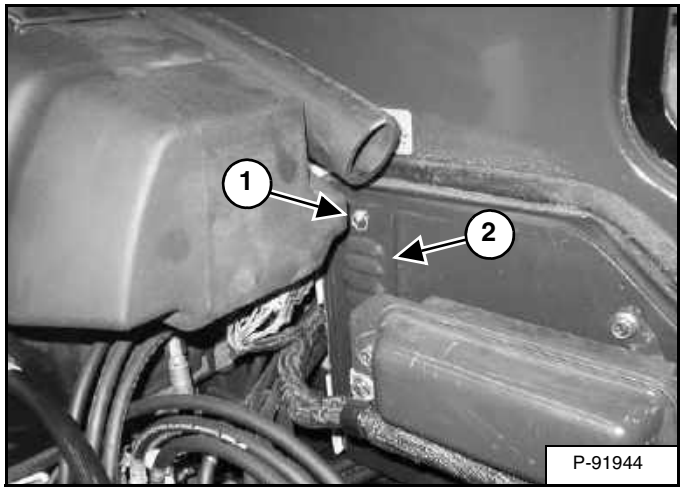
Pull the filter (Item 1) **[Figure 165]** out of the heater housing.

Use low air pressure to clean the filter. Replace the filter when very dirty.

Installation: Install the filter with the arrows that indicate air flow direction (Item 2) **[Figure 165]** pointing toward the heater housing.

Fresh Air Filter

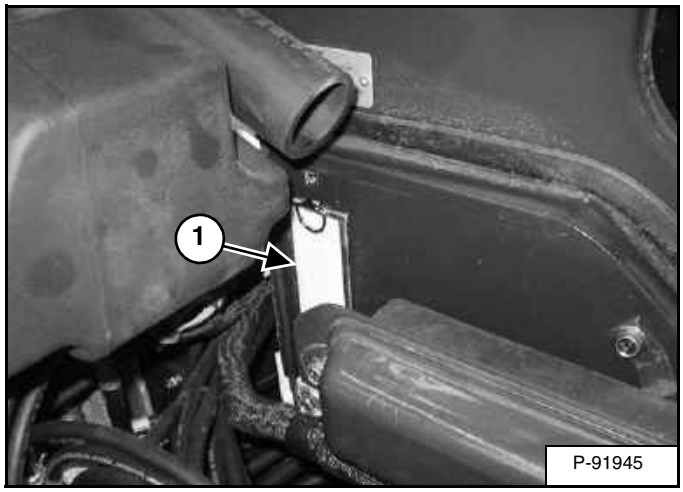
Figure 166



Open the right side cover. (See RIGHT SIDE COVER on Page 101.)

Turn the fastener (Item 1) 1/4 turn and remove the cover (Item 2) **[Figure 166]**.

Figure 167



Pull the filter (Item 1) **[Figure 167]** out of the housing.

Use low air pressure to clean the filter. Replace the filter when very dirty.

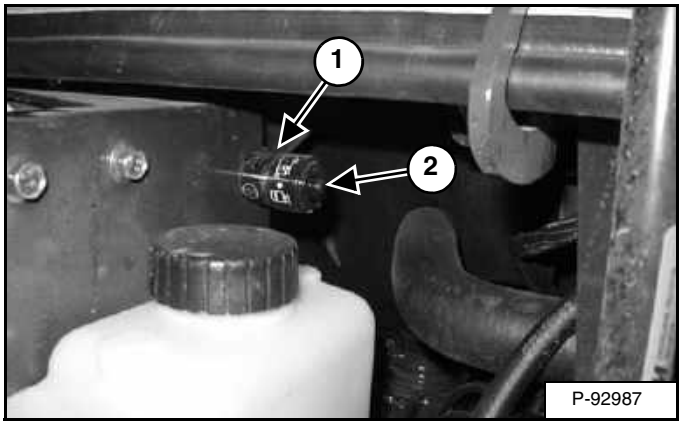
AIR CLEANER SERVICE

See the SERVICE SCHEDULE for the correct service interval. (See SERVICE SCHEDULE on Page 95.)

Daily Check

The air cleaner is located in the engine compartment. Open the tailgate to access the air cleaner for service. (See TAILGATE on Page 100.)

Figure 168



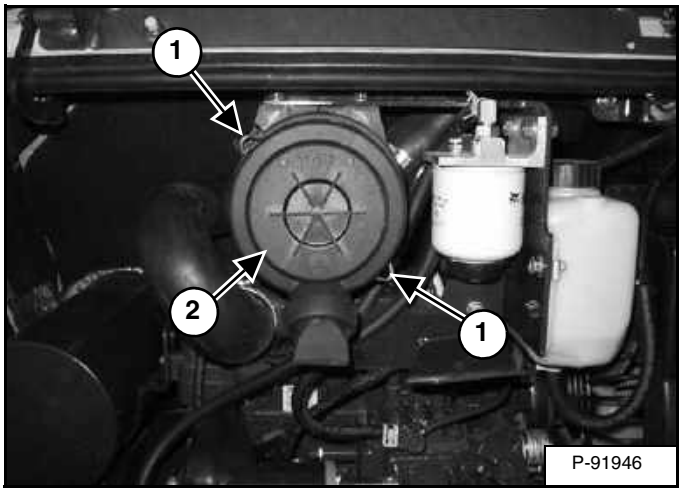
Check the condition indicator (Item 1) **[Figure 168]**. If the red ring shows in the condition indicator, the filter needs to be replaced.

Replace the inner filter every third time the outer filter is replaced or as indicated.

Replacing The Filter Elements

Outer Filter

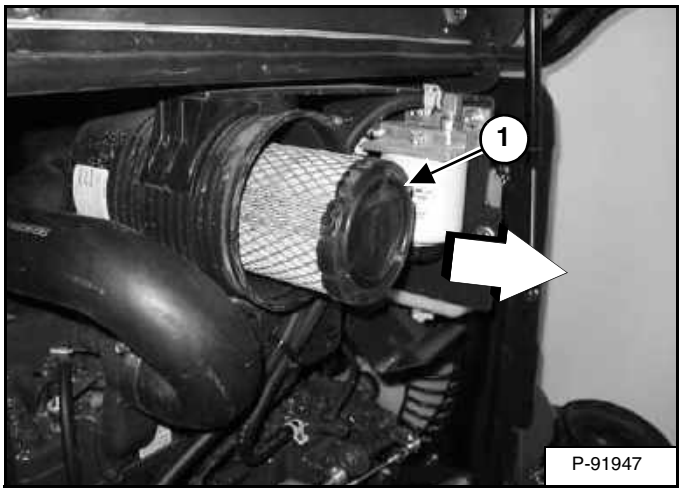
Figure 169



Release the two fasteners (Item 1) **[Figure 169]**.

Remove and clean the dust cup (Item 2) **[Figure 169]**.

Figure 170



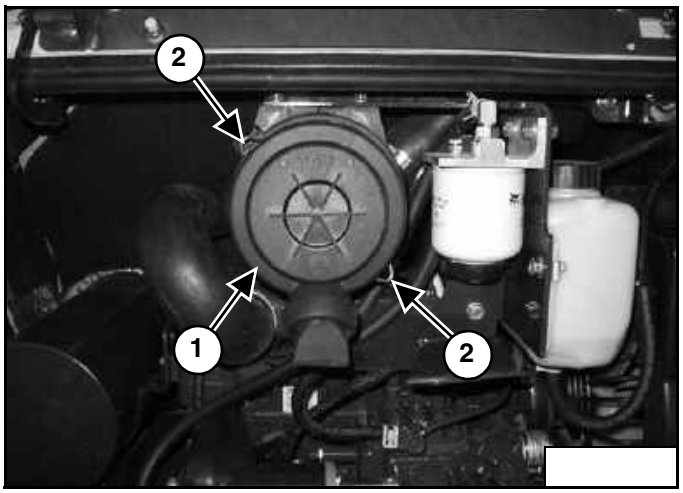
Pull the outer filter (Item 1) **[Figure 170]** from the air cleaner housing.

Check the housing for damage.

Clean the housing and the seal surface. DO NOT use compressed air.

Install a new filter.

Figure 171



Install the dust cup (Item 1) and engage the fasteners (Item 2) **[Figure 171]**.

Check the air intake hose and the air cleaner housing for damage. Make sure all connections are tight.

After the outer filter has been replaced, press the button (Item 2) **[Figure 168]** on the end of the condition indicator and start the engine. Run at full rpm, then reduce engine speed and stop the engine. If the red ring (Item 1) **[Figure 168]** shows in the condition indicator, replace the inner filter.

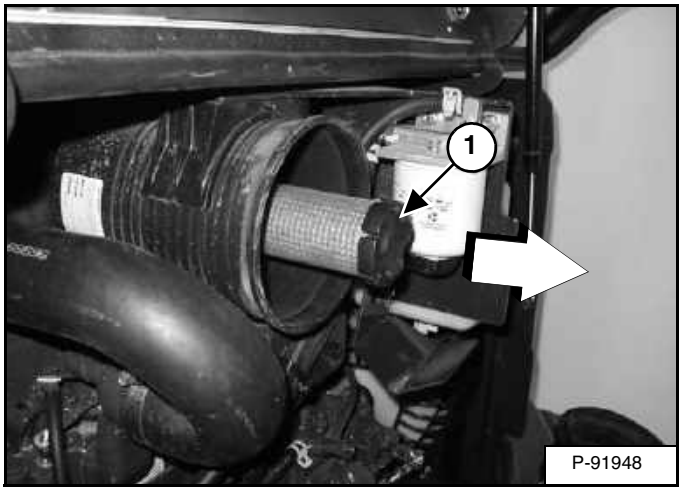
Replacing The Filter Elements (Cont'd)

Inner Filter

Only replace the inner filter under the following conditions:

- Replace the inner filter every *third* time the outer filter is replaced.
- After the outer filter has been replaced, press the button (Item 2) **[Figure 168]** on the end of the condition indicator. Start the engine. Run the engine at full rpm, then reduce engine speed. Stop the engine. If the red ring shows in the condition indicator, replace the inner filter.

Figure 172



Remove the dust cup, outer filter and inner filter (Item 1) **[Figure 172]**.

NOTE: Make sure all sealing surfaces are free of dirt and debris.

Install the new inner filter.

Install the outer filter and the dust cup.

Press the button on the condition indicator to remove the red ring.

FUEL SYSTEM

Fuel Specifications

Use only clean, high quality diesel fuel, Grade No. 2 or Grade No. 1.

The following is a suggested blending guideline which should prevent fuel gelling problems during freezing temperature

Temp. C° (F°)	No. 2	No. 1
Above -9° (+15°)	100%	0%
Down to -29° (-20°)	50%	50%
Below -29° (-20°)	0%	100%

At a minimum, low sulfur diesel fuel must be used in this machine. Low sulfur is defined as 500 mg/kg (500 ppm) sulfur maximum.

The following fuels may also be used in this machine:

- Ultra low sulfur diesel fuel. Ultra low sulfur is defined as 15 mg/kg (15 ppm) sulfur maximum.
- Biodiesel blend fuel - Must contain no more than five percent biodiesel mixed with low sulfur or ultra low sulfur petroleum based diesel. This is commonly marketed as B5 blended diesel fuel.

⚠ WARNING

AVOID INJURY OR DEATH

Stop and cool the engine before adding fuel. NO SMOKING! Failure to obey warnings can cause an explosion or fire.

W-2063-0807

⚠ WARNING

AVOID INJURY OR DEATH

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire.

W-2103-0508

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 five percent biodiesel can affect engine life and cause deterioration of hoses, tubelines, injectors, injector pump and seals.

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. Extended 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

AVOID INJURY OR DEATH

Stop and cool the engine before adding fuel. NO SMOKING! Failure to obey warnings can cause an explosion or fire.

W-2063-0807

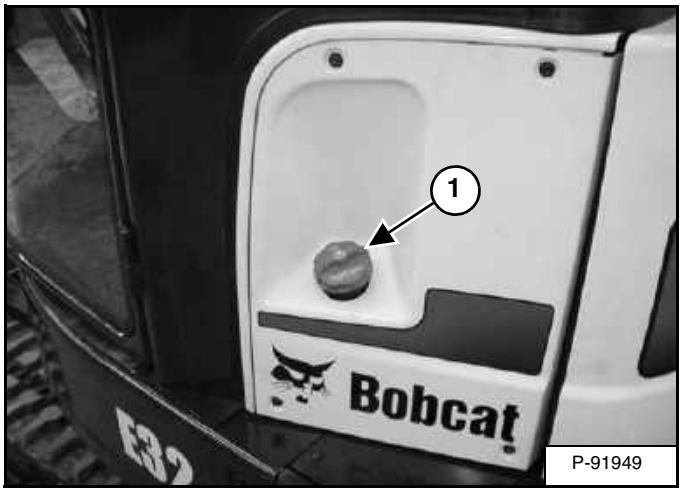
⚠ WARNING

AVOID INJURY OR DEATH

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire.

W-2103-0508

Figure 173



The fuel cap uses the start key to unlock the fuel cap.

Remove the fuel fill cap (Item 1) **[Figure 173]**.

Use a clean, approved safety container to add fuel. Add fuel only in an area that has a free movement of air and no flames or sparks. **NO SMOKING!**

Install and tighten the fuel fill cap.

Clean up any spilled fuel.

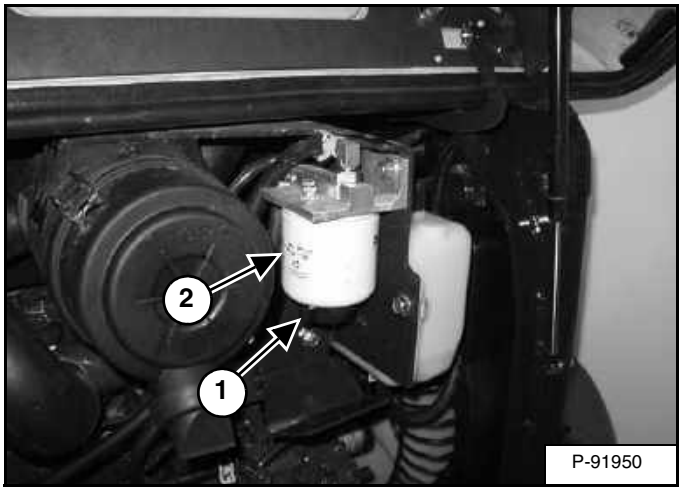
See the SERVICE SCHEDULE for the service interval when to remove water from or replace the fuel filter. (See SERVICE SCHEDULE on Page 95.)

Fuel Filters

Removing Water

Open the tailgate. (See TAILGATE on Page 100.)

Figure 174



Loosen the drain (Item 1) **[Figure 174]** at the bottom of the filter to drain water from the filter into a container.

Clean up any spilled fuel.

Replacing Elements

Remove the filter (Item 2) **[Figure 174]**.

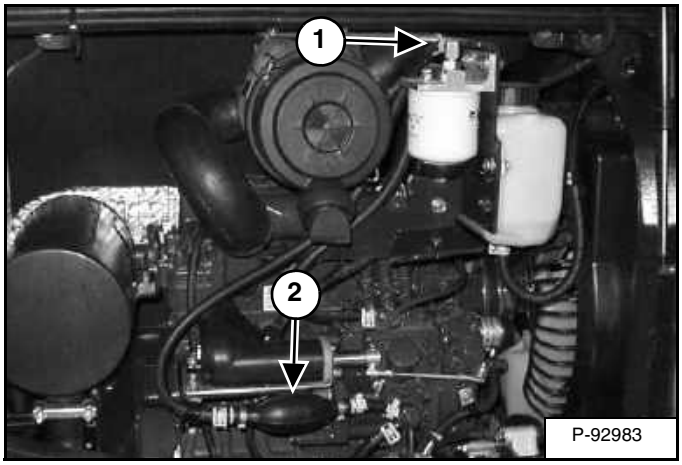
Clean the area around the filter housing. Put clean oil on the seal of the new filter. Install the fuel filter and hand tighten.

Remove the air from the fuel system. (See Removing Air From The Fuel System on Page 108.)

Draining The Fuel Tank

See the SERVICE SCHEDULE for the correct service interval. (See SERVICE SCHEDULE on Page 95.)

Figure 175



Remove the hose (Item 1) **[Figure 175]** from the fuel filter. Route the hose to a container.

Squeeze the hand pump (priming bulb) (Item 2) **[Figure 175]** to start the fuel siphoning from the fuel tank.

Drain the fuel into the container.

Reuse, recycle or dispose of fuel in an environmentally safe manner.

Reinstall the hose (Item 1) **[Figure 175]** after the fuel is removed from fuel tank.

⚠ WARNING

AVOID INJURY OR DEATH

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

W-2072-0807

Removing Air From The Fuel System

After replacing the fuel filter or when the fuel tank has run out of fuel, air must be removed from the fuel system before starting the engine.

Figure 176

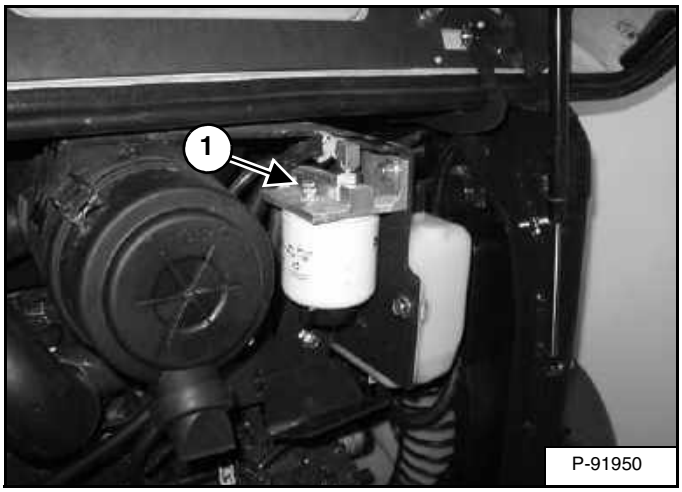
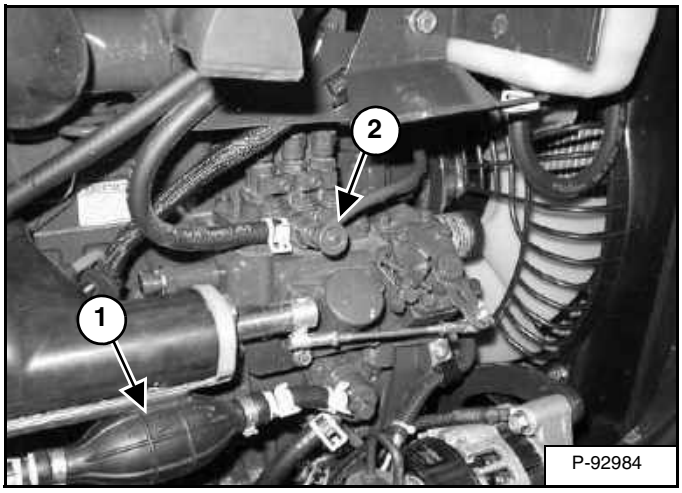


Figure 177



Open the tailgate. (See TAILGATE on Page 100.)

Open the fuel filter vent (Item 1) **[Figure 176]** and operate the hand pump (priming bulb) (Item 1) **[Figure 177]** until the fuel flows from the vent with no air bubbles.

Close the vent (Item 1) **[Figure 176]**.

Start the engine. It may be necessary to open the vent (Item 2) **[Figure 177]** (at the fuel injection pump) briefly until the engine runs smoothly.

⚠ WARNING

AVOID INJURY OR DEATH

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

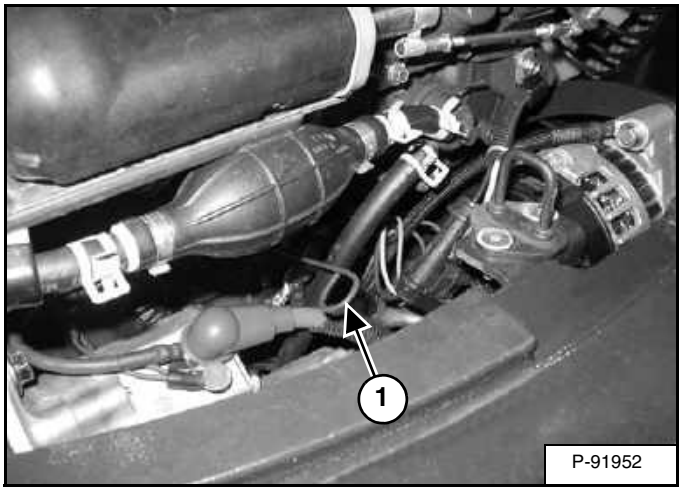
W-2072-0807

ENGINE LUBRICATION SYSTEM

Checking And Adding Engine Oil

Check the engine oil after every 8 - 10 hours of operation and before starting the engine. (See SERVICE SCHEDULE on Page 95.)

Figure 178



Open the tailgate and remove the dipstick (Item 1) **[Figure 178]**.

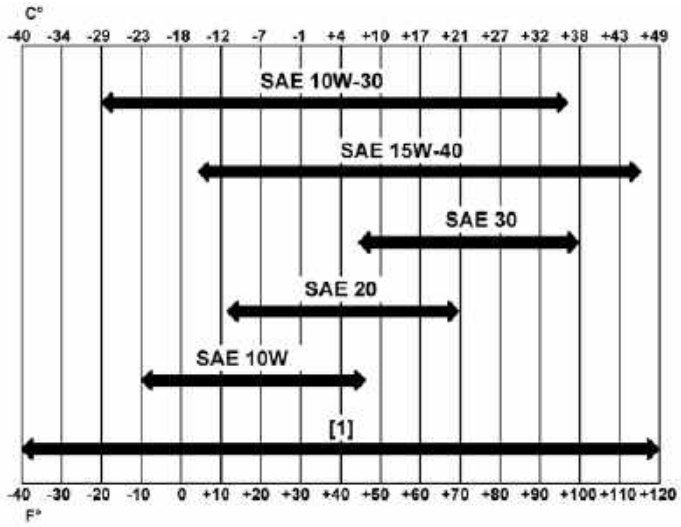
Keep the oil level between the marks on the dipstick.

Use a good quality motor oil that meets the correct API Service Classification.

Engine Oil Chart

Figure 179

ENGINE OIL
RECOMMENDED SAE VISCOSITY NUMBER
(LUBRICATION OILS FOR DIESEL ENGINE CRANKCASE)



TEMPERATURE RANGE ANTICIPATED BEFORE NEXT OIL CHANGE (DIESEL ENGINES MUST USE API CLASSIFICATION CI-4 OR BETTER)

[1] Synthetic Oil - Use recommendation from Synthetic Oil Manufacturer.

Use good quality engine oil that meets API Service Classification of CI-4 or better **[Figure 179]**.

⚠ WARNING

AVOID INJURY OR DEATH

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire.

W-2103-0508

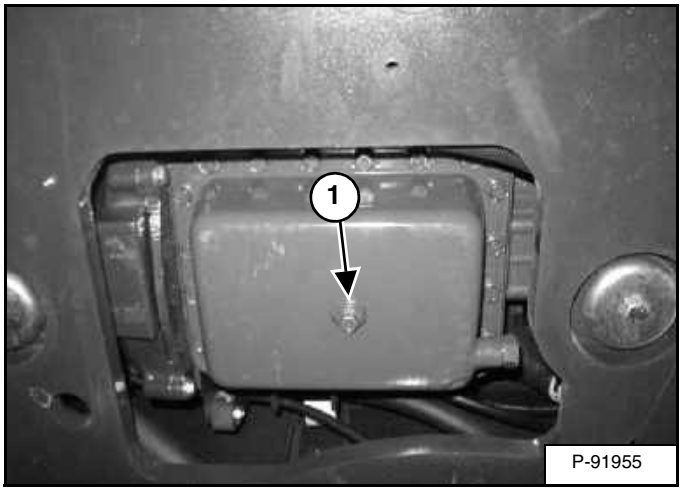
Removing And Replacing Oil And Filter

See the SERVICE SCHEDULE for the service interval for replacing the engine oil and filter. (See SERVICE SCHEDULE on Page 95.)

Run the engine until it is at operating temperature. Stop the engine.

Open the tailgate. (See TAILGATE on Page 100.)

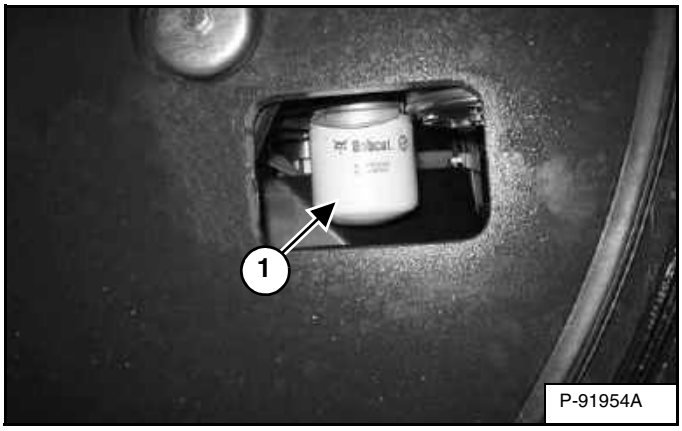
Figure 180



Place a container under the oil pan. Remove the drain plug (Item 1) **[Figure 180]** from the bottom of the engine oil pan.

Recycle or dispose of used oil in an environmentally safe manner.

Figure 181

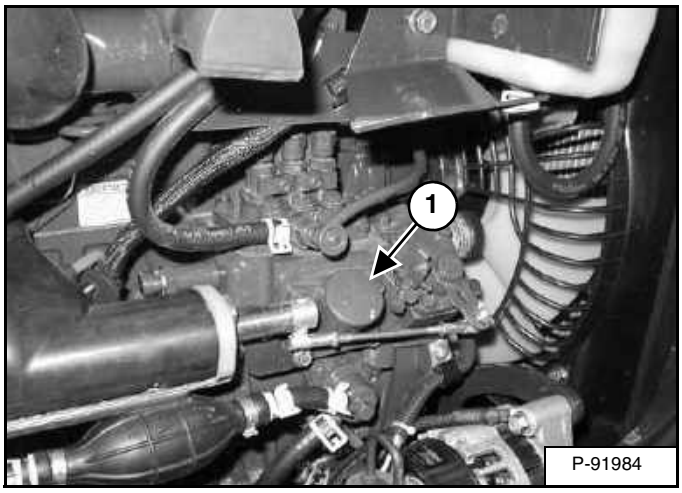


Remove the oil filter (Item 1) **[Figure 181]** and clean the filter housing surface.

Use a genuine Bobcat replacement filter. Put clean oil on the filter gasket. Install the filter and hand tighten.

Install and tighten the drain plug (Item 1) **[Figure 180]**.

Figure 182



Remove the fill cap (Item 1) **[Figure 182]**.

Put oil in the engine. (See ENGINE LUBRICATION SYSTEM on Page 109.)

Install the fill cap (Item 1) **[Figure 182]**.

Start the engine and let it run for several minutes.

Stop the engine. Check for leaks at the oil filter. Check the oil level.

Add oil as needed if it is not at the top mark on the dipstick.

ENGINE COOLING SYSTEM

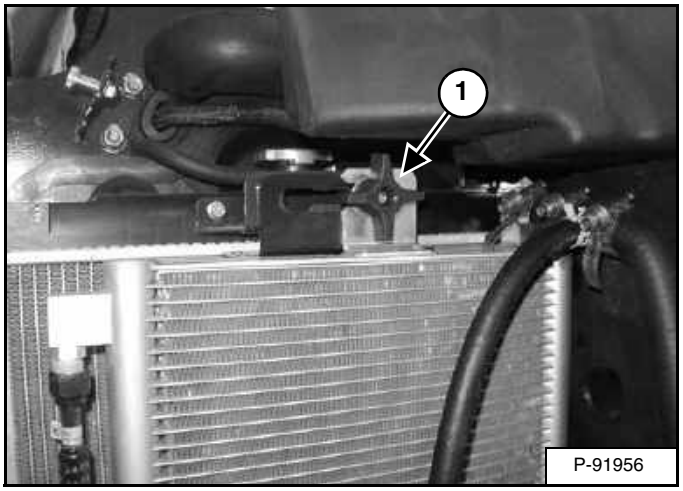
Check the cooling system every day to prevent overheating, loss of performance or engine damage. (See SERVICE SCHEDULE on Page 95.)

Cleaning

Open the right side cover. (See RIGHT SIDE COVER on Page 101.)

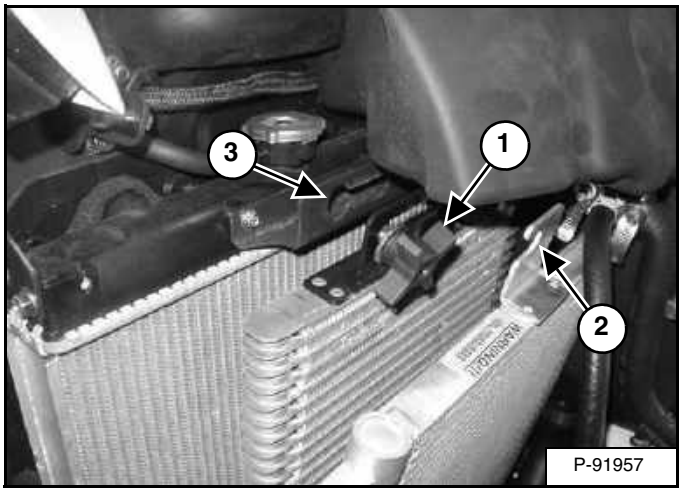
NOTE: Allow the cooling system and engine to cool before servicing or cleaning the cooling system.

Figure 183



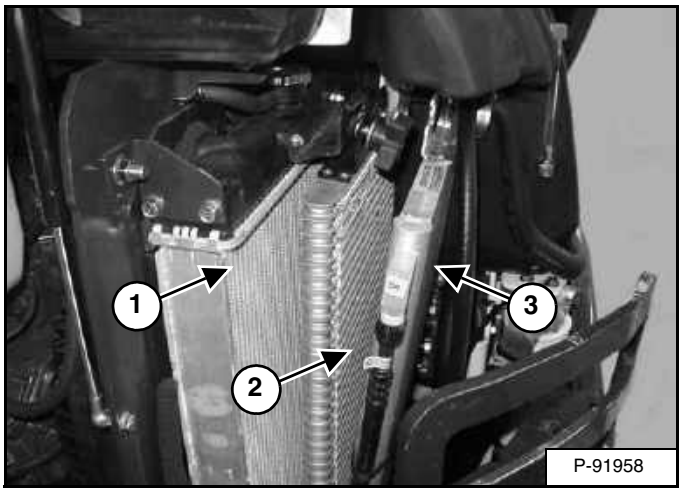
Loosen the knob (Item 1) **[Figure 183]**. Slide the know towards the rear of the machine.

Figure 184



Slide the knob (Item 1) out of the condenser mount (Item 2) (if equipped) and the radiator mounting bracket (Item 3) **[Figure 184]**. Be careful not to damage fins.

Figure 185



Use air pressure or water pressure to clean the radiator (Item 1), oil cooler (Item 2) and condenser (Item 3) **[Figure 185]** (if equipped). Be careful not to damage fins when cleaning.

Position the knob (Item 1) so it fits into the radiator mount (Item 3) and the condenser mount (Item 2) **[Figure 184]** (if equipped).

Slide the knob (Item 1) toward the front of the machine until it is fully seated in the slots of the mounting brackets. Tighten the knob (Item 1) **[Figure 183]**. Be careful not to damage fins.

Checking Level

WARNING

AVOID BURNS

Do not remove radiator cap when the engine is hot. You can be seriously burned.

W-2070-1203

WARNING

AVOID INJURY OR DEATH

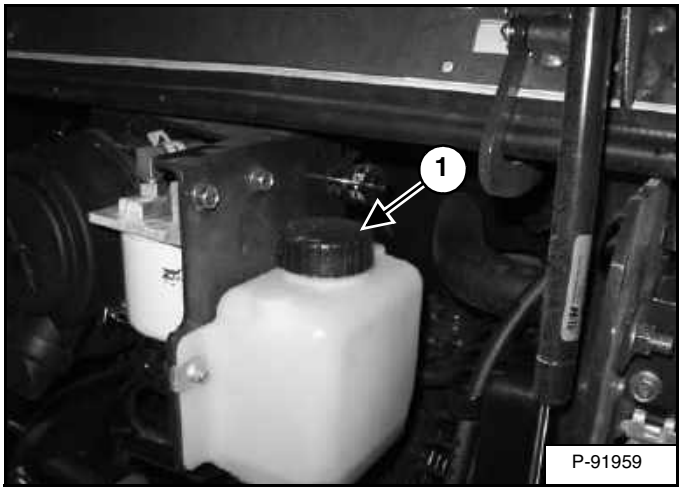
Wear safety glasses to prevent eye injury when any of the following conditions exist:

- **When fluids are under pressure.**
- **Flying debris or loose material is present.**
- **Engine is running.**
- **Tools are being used.**

W-2019-0907

Open the tailgate. (See TAILGATE on Page 100.)

Figure 186



Check the coolant level in the coolant recovery tank (Item 1) **[Figure 186]**.

The coolant level must be between the MIN and MAX marks on the coolant recovery tank when the engine is cold.

NOTE: The cooling system is factory filled with propylene glycol (purple color). DO NOT mix propylene glycol with ethylene glycol.

IMPORTANT

AVOID ENGINE DAMAGE

Always use the correct ratio of water to antifreeze.

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

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

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

I-2124-0497

Removing And Replacing Coolant

See the SERVICE SCHEDULE for correct service intervals. (See SERVICE SCHEDULE on Page 95.)

Stop the engine. Open the tailgate. (See TAILGATE on Page 100.)

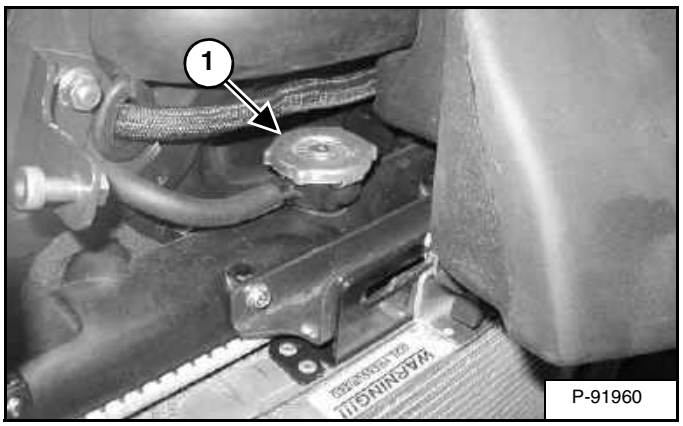
⚠ WARNING

AVOID BURNS

Do not remove radiator cap when the engine is hot. You can be seriously burned.

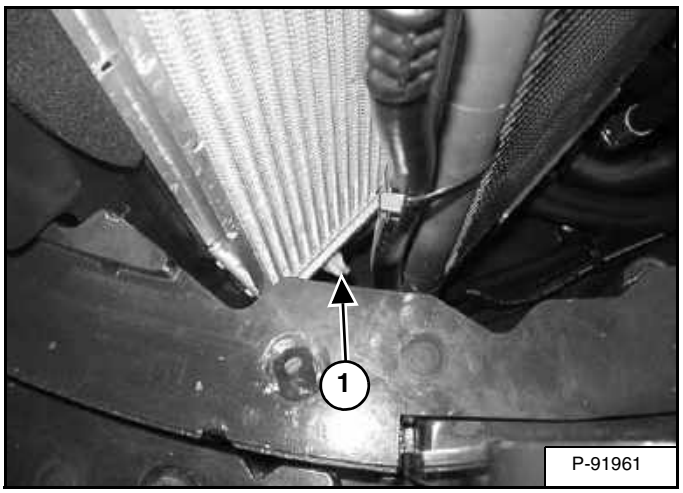
W-2070-1203

Figure 187



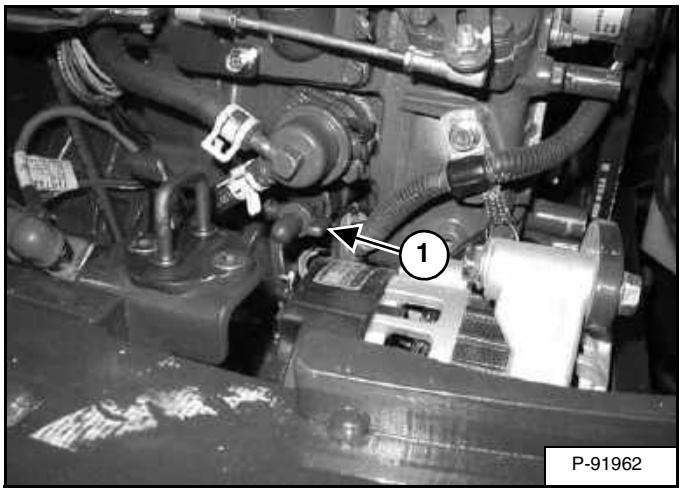
When the engine is cool, loosen and remove the radiator cap (Item 1) **[Figure 187]**.

Figure 188



Put a hose on the drain valve at the bottom of the radiator. Open the drain valve (Item 1) **[Figure 188]** and drain the coolant into a container.

Figure 189



Put a hose on the drain valve on the engine block. Open the drain valve (Item 1) **[Figure 189]** and drain the coolant into a container.

After all the coolant is removed, close both drain valves.

Recycle or dispose of the used coolant in an environmentally safe manner.

Mix the coolant in a separate container. (See Capacities on Page 188.)

NOTE: The cooling system is factory filled with propylene glycol (purple color). DO NOT mix propylene glycol with ethylene glycol.

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

Add premixed coolant; 47% water and 53% propylene glycol to the recovery tank if the coolant level is low.

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

Add premixed coolant until the level is correct.

Run the engine until it is at operating temperature. Stop the engine. Check the coolant level and add as needed. Be sure the radiator cap is tight.

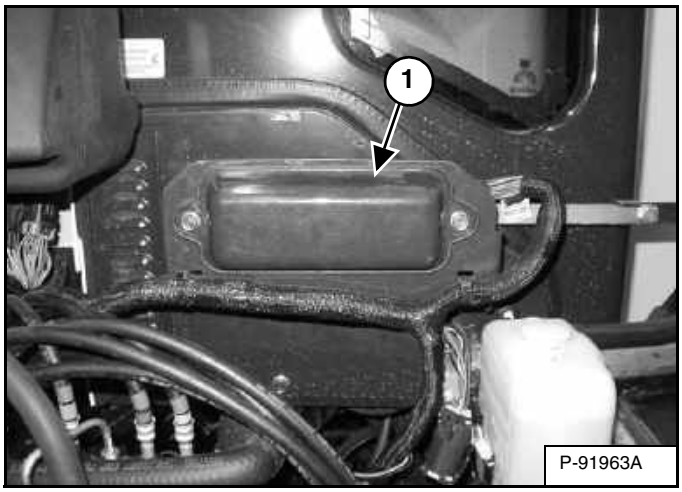
Add coolant to the recovery tank as needed.

Close the tailgate.

ELECTRICAL SYSTEM

Description

Figure 190



The excavator has a 12 volt, negative ground electrical system. The electrical system is protected by fuses located under the right side cover of the excavator (Item 1) **[Figure 190]**. The fuses will protect the electrical system when there is an electrical overload. The reason for the overload must be found and corrected before starting the engine again.

The battery cables must be clean and tight. Check the electrolyte level in the battery. Add distilled water as needed. Remove acid or corrosion from the battery and cables with a sodium bicarbonate and water solution.

Put Battery Saver P/N 6664458 or grease on the battery terminals and cable ends to prevent corrosion.

⚠ WARNING

AVOID INJURY OR DEATH

Batteries contain acid which burns eyes and skin on contact. Wear 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 15 minutes.

If electrolyte is taken internally drink large quantities of water or milk! DO NOT induce vomiting. Get prompt medical attention.

W-2065-0807

Fuse And Relay Location / Identification

A decal is inside the fuse cover to show location and amp ratings.

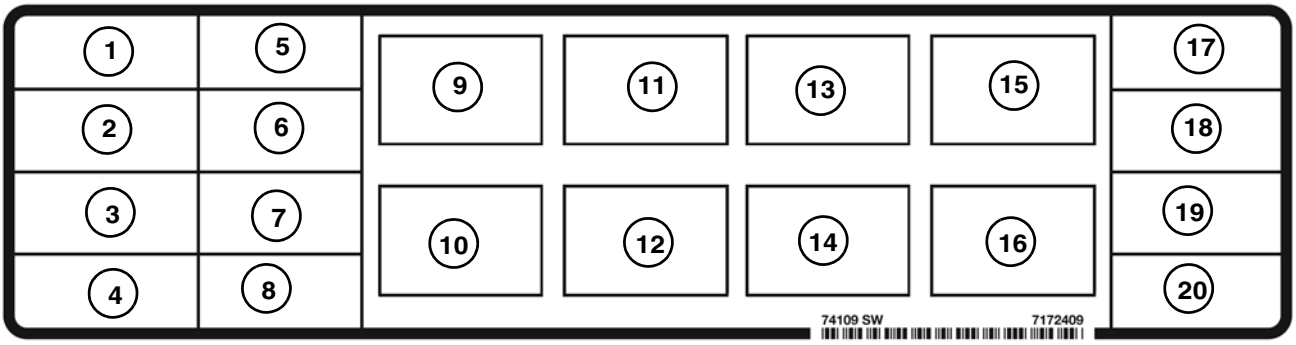
Remove the cover to check or replace the fuses and relays.

The location and sizes are shown in **[Figure 191]**.

Always replace fuses using the same type and capacity.

Fuse And Relay Location / Identification (Cont'd)

Figure 191



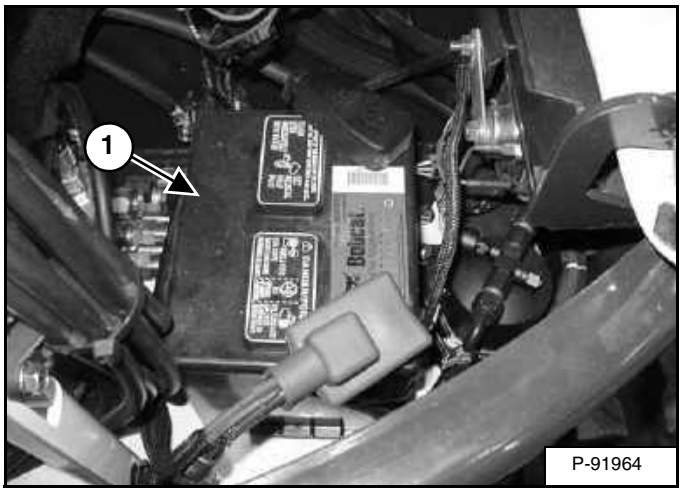
The location and sizes are shown in the table below and on the decal **[Figure 191]**. Relays are identified by the letter "R" in the AMP column.

REF	ICON	DESCRIPTION	AMP	REF	ICON	DESCRIPTION	AMP	REF	ICON	DESCRIPTION	AMP
1		CONTROLLER	20	9		Switched Power	R	17		Controller	25
2		HVAC	25	10		Fuel Shutoff	R	18		ACD	25
3		Start Key	5	11		HVAC	R	19		LIGHTS	20
4		Fuel Pull	25	12		Lights	R	20		Power Port	15
5		Wiper / Washer	10	13		NOT USED	R				
6		Switched Power	20	14		Glow Plugs	R				
7		Alternator Excite / Heater	25	15		NOT USED	R				
8		ACD	25	16		Starter	R				

Battery Maintenance

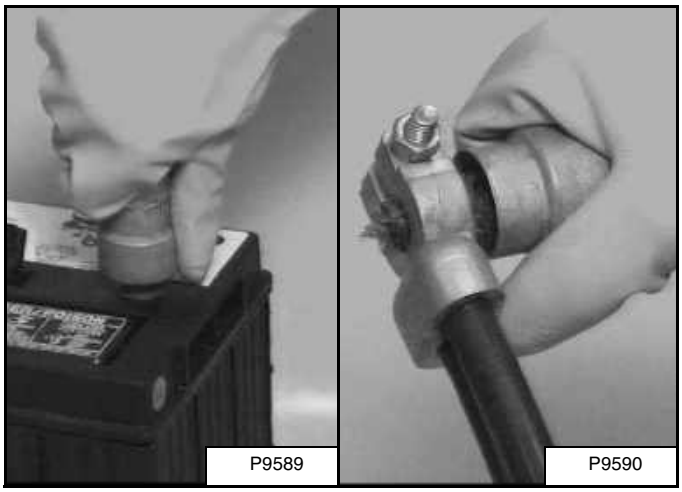
Open the right side cover. (See RIGHT SIDE COVER on Page 101.)

Figure 192



The battery (Item 1) **[Figure 192]** is located in the front of the right side upperstructure.

Figure 193



The battery cables must be clean and tight **[Figure 193]**. Remove acid or corrosion from the battery and cables using a sodium bicarbonate and water solution. Cover the battery terminals and cable ends with battery saver grease to prevent corrosion.

Check for broken or loose connections.

If the battery cables are removed for any reason, disconnect the negative (-) cable first. When installing the battery cables, make the last connection the negative (-) cable to the battery.

The original equipment battery is maintenance free. If a replacement battery is installed, check the electrolyte level in the battery.

If the electrolyte level is lower than 13 mm (0.50 in) above the plates, add distilled water only.

⚠ WARNING

AVOID INJURY OR DEATH

Batteries contain acid which burns eyes and skin on contact. Wear 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 15 minutes.

If electrolyte is taken internally drink large quantities of water or milk! DO NOT induce vomiting. Get prompt medical attention.

W-2065-0807

Using A Booster Battery (Jump Starting)

IMPORTANT

If jump starting the excavator from a second machine:

When jump starting the excavator from a battery installed in a second machine, make sure the engine is NOT running while using the glow plugs. High voltage spikes from a running machine can burn out the glow plugs.

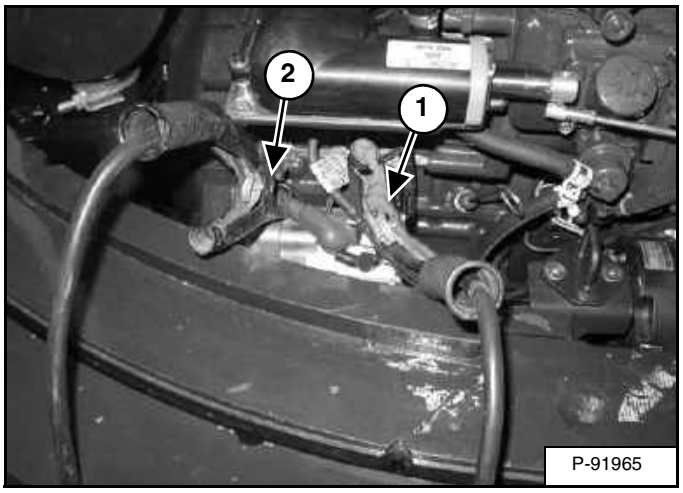
I-2060-0906

If it is necessary to use a booster battery to start the engine, BE CAREFUL! There must be one person in the operator's seat and one person to connect and disconnect the battery cables.

Be sure the key switch is OFF. The booster battery must be 12 volt.

Open the tailgate. (See TAILGATE on Page 100.)

Figure 194



Connect one end of the first cable to the positive (+) terminal of the booster battery. Connect the other end of the same cable to the positive (+) terminal (Item 1) **[Figure 194]** of the excavator starter.

Connect one end of the second cable to the negative (-) terminal of the booster battery. Connect the other end of the same cable to the starter mounting bolt (Item 2) **[Figure 194]**.

Start the engine. After the engine has started, remove the ground (-) cable first (Item 2) **[Figure 194]**.

Disconnect the cable from the excavator starter (Item 1) **[Figure 194]**.

NOTE: (See Cold Temperature Starting on Page 61.)

IMPORTANT

Damage to the alternator can occur if:

- **Engine is operated with battery cables disconnected.**
- **Battery cables are connected when using a fast charger or when welding on the excavator. (Remove both cables from the battery.)**
- **Extra battery cables (booster cables) are connected wrong.**

I-2223-0903

⚠ WARNING

AVOID INJURY OR DEATH

Batteries contain acid which burns eyes and skin on contact. Wear 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 15 minutes.

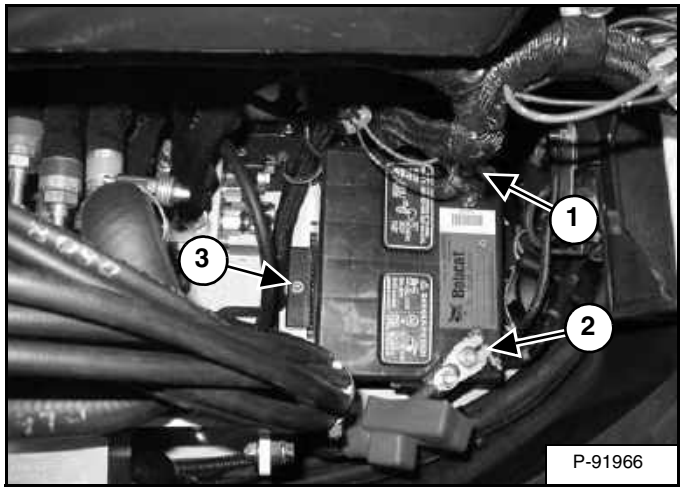
If electrolyte is taken internally drink large quantities of water or milk! DO NOT induce vomiting. Get prompt medical attention.

W-2065-0807

Removing And Installing The Battery

Open the right side cover. (See RIGHT SIDE COVER on Page 101.)

Figure 195



Disconnect the negative (-) cable (Item 1) **[Figure 195]** first.

Disconnect the positive (+) cable (Item 2) **[Figure 195]**.

Remove the bolt (Item 3) **[Figure 195]** and remove the hold down clamp.

Remove the battery.

Always clean the terminals and the cable ends, even when installing a new battery.

Install the battery. Install the hold down clamp and tighten the bolts.

Connect the battery cables. Connect the negative (-) cable (Item 1) **[Figure 195]** last to prevent sparks.

⚠ WARNING

AVOID INJURY OR DEATH

Batteries contain acid which burns eyes and skin on contact. Wear 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 15 minutes.

If electrolyte is taken internally drink large quantities of water or milk! DO NOT induce vomiting. Get prompt medical attention.

W-2065-0807

HYDRAULIC SYSTEM

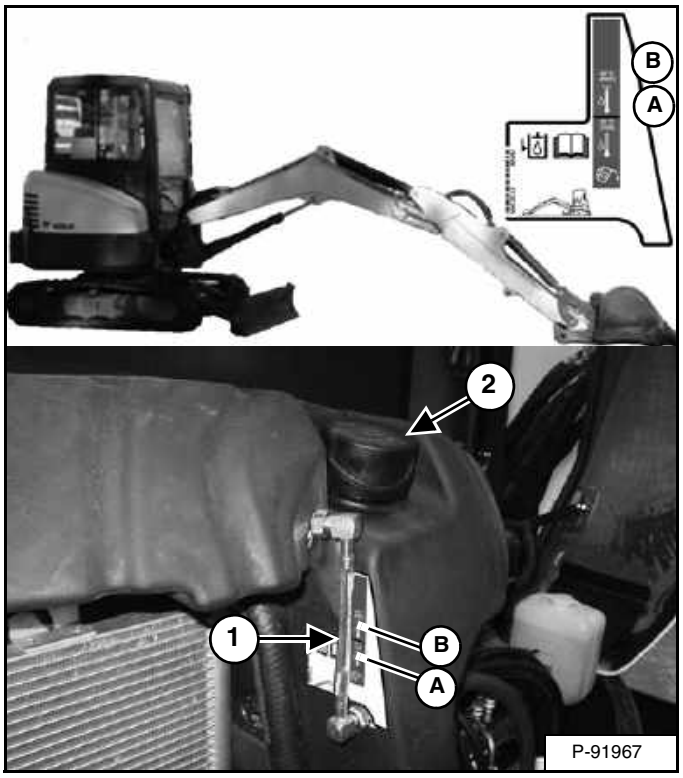
Checking And Adding Hydraulic Oil

Put the machine on a flat level surface.

Retract the arm and bucket cylinders, put the bucket on the ground and lower the blade. Stop the engine.

Open the right side cover. (See RIGHT SIDE COVER on Page 101.)

Figure 196



Park the machine in the position shown **[Figure 196]**. (The preferred method is to check the hydraulic oil when it is cold.)

Check the hydraulic oil level, it must be visible in the sight gauge (Item 1) **[Figure 196]**. The decal on the hydraulic tank shows the correct fill level.

A - Correct Oil Level COLD (Preferred)
B - Correct Oil Level HOT (Optional)

Clean the surface around the reservoir cap and remove the cap from the reservoir (Item 2) **[Figure 196]**.

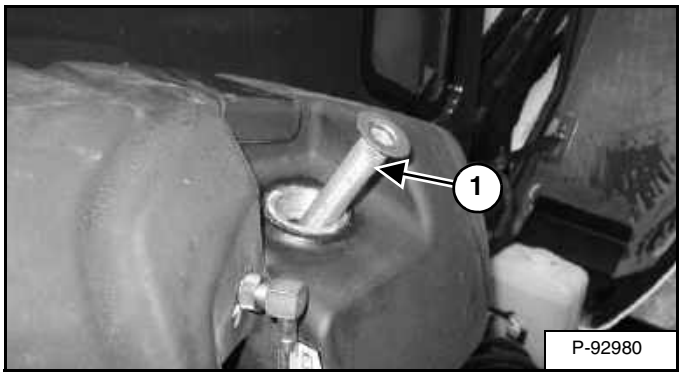
⚠ WARNING

AVOID INJURY OR DEATH

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire.

W-2103-0508

Figure 197



Check the condition of the fill strainer screen (Item 1) **[Figure 197]**. Clean or replace as necessary.

Be sure the screen is installed before adding fluid.

Add the correct fluid to the reservoir until it is visible in the sight gauge. (See HYDRAULIC SYSTEM on Page 119.)

Check the cap and clean as necessary. Replace the cap if damaged.

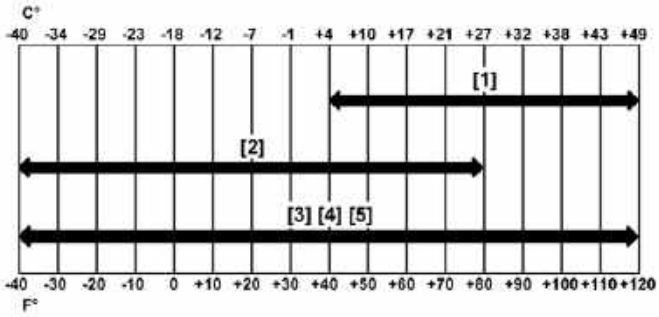
Install the cap.

Close the right side cover and tailgate.

Hydraulic / Hydrostatic Fluid Chart

Figure 198

HYDRAULIC / HYDROSTATIC FLUID RECOMMENDED ISO VISCOSITY GRADE (VG) AND VISCOSITY INDEX (VI)



TEMPERATURE RANGE ANTICIPATED DURING MACHINE USE

[1] VG 100; Minimum VI 130
[2] VG 46; Minimum VI 150
[3] BOBCAT All-Season Fluid
[4] BOBCAT Synthetic Fluid
[5] BOBCAT Biodegradable Hydraulic / Hydrostatic Fluid (Unlike biodegradable fluids that are vegetable based, Bobcat biodegradable fluid is formulated to prevent oxidation and thermal breakdown at operating temperatures.)

Install the oil fill cap.

Removing And Replacing The Hydraulic Filters

⚠ WARNING

AVOID INJURY OR DEATH

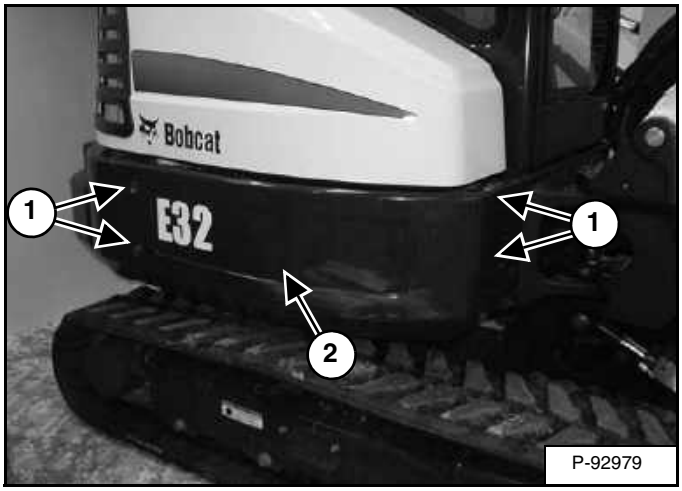
Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire.

W-2103-0508

Hydraulic Filter

See the SERVICE SCHEDULE for the correct service interval. (See SERVICE SCHEDULE on Page 95.)

Figure 199

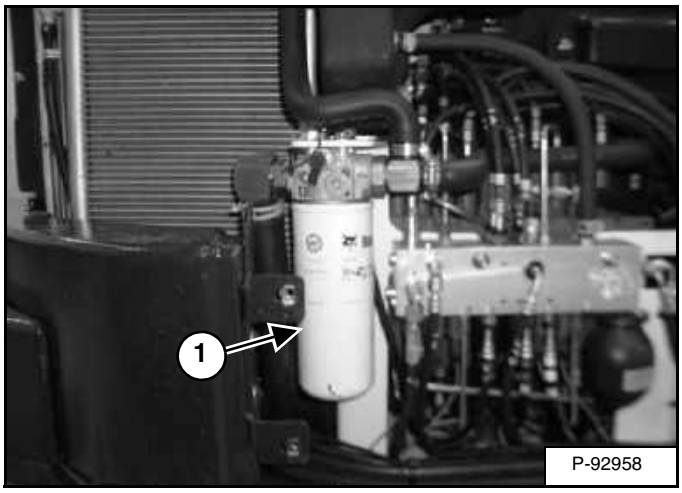


For easier access to change the hydraulic filter, remove the lower right side panel.

Remove the four bolts (Item 1) and the side panel (Item 2) **[Figure 199]**. Remove the side panel.

Open the right side cover. (See RIGHT SIDE COVER on Page 101.)

Figure 200



Remove the hydraulic filter (Item 1) **[Figure 200]**.

Clean the housing where the filter gasket makes contact.

Put clean hydraulic fluid on the gasket. Install the new filter and hand tighten only. Use a genuine Bobcat replacement filter.

Removing And Replacing The Hydraulic Filters

⚠ WARNING

AVOID INJURY OR DEATH

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire.

W-2103-0508

Case Drain Filter

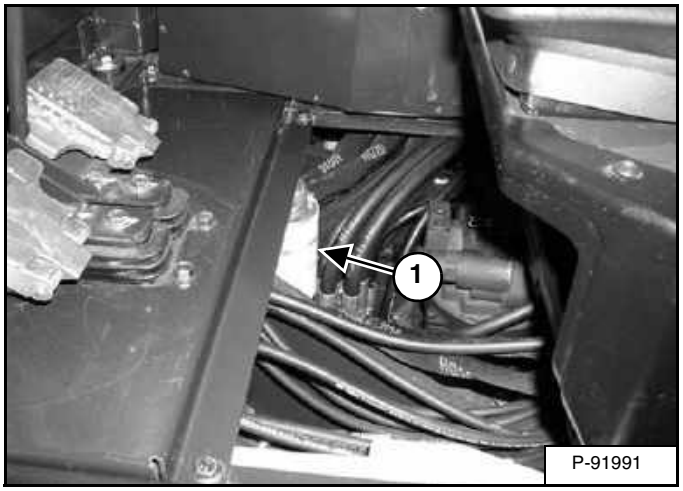
See the SERVICE SCHEDULE for the correct service interval. (See SERVICE SCHEDULE on Page 95.)

The case drain filter is located below the floor plate.

Remove the floor mat.

Remove the floor plate.

Figure 201



Remove the case drain filter (Item 1) **[Figure 201]**.

Clean the housing where the filter gasket makes contact.

Put clean hydraulic fluid on the gasket. Install the new filter and hand tighten only.

Removing And Replacing The Hydraulic Fluid

See the SERVICE SCHEDULE for the correct service interval. (See SERVICE SCHEDULE on Page 95.)

⚠ WARNING

AVOID INJURY OR DEATH

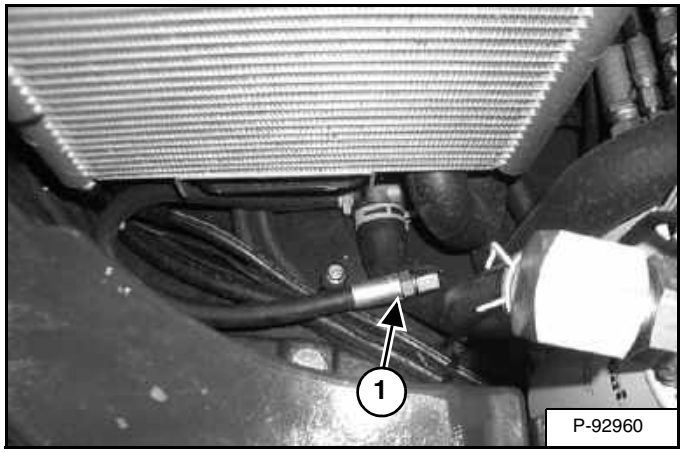
Diesel fuel or hydraulic fluid under pressure can penetrate skin or eyes, causing serious injury or death. Fluid leaks under pressure may not be visible. Use a piece of cardboard or wood to find leaks. Do not use your bare hand. Wear safety goggles. If fluid enters skin or eyes, get immediate medical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

W-2072-0807

Retract the arm and bucket cylinders, lower the bucket to the ground. Stop the engine.

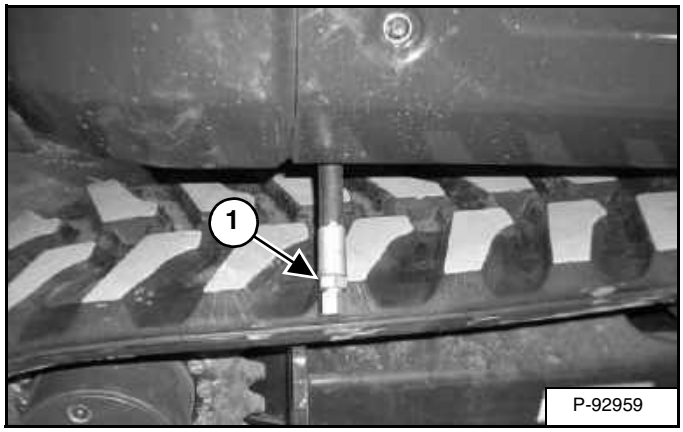
Open the tailgate. (See TAILGATE on Page 100.)

Figure 202



The hydraulic oil drain hose (Item 1) **[Figure 202]** is located below the oil cooler in the right rear corner of the upperstructure.

Figure 203



Reposition the drain hose out the bottom of the upperstructure and remove the cap (Item 1) **[Figure 203]**.

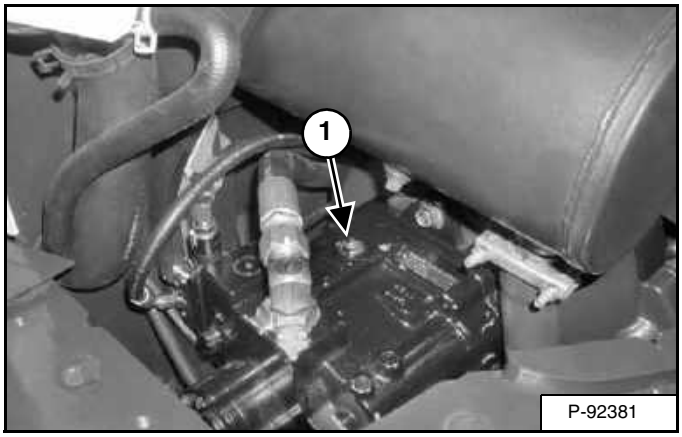
Drain the fluid into a container.

Recycle or dispose of the fluid in an environmentally safe manner.

Install the cap (Item 1) **[Figure 203]** and position the drain hose back to the storage position (Item 1) **[Figure 202]**.

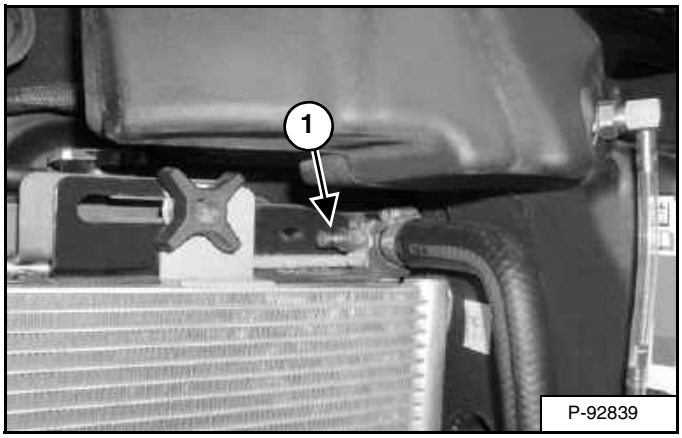
Add fluid to the reservoir. (See HYDRAULIC SYSTEM on Page 119.)

Figure 204



With the engine OFF, loosen the plug (Item 1) **[Figure 204]** on the hydraulic pump. Tighten the plug after a steady stream of hydraulic fluid, free of any air bubbles, drains from the plug. **DO NOT RUN THE MACHINE WITH THE PLUG OPEN.**

Figure 205



There is also a port (Item 1) **[Figure 205]** on the hydraulic cooler for bleeding air. Install a diagnostic coupler and hose on this fitting to allow air to be bled from the hydraulic system after the hydraulic fluid has been replaced.

Start the engine and operate the machine through the hydraulic functions. Stop the engine. Check the fluid level and add as needed.

SPARK ARRESTER MUFFLER

Cleaning Procedure

See the SERVICE SCHEDULE for the correct service interval. (See SERVICE SCHEDULE on Page 95.)

⚠ WARNING

AVOID INJURY OR DEATH

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

W-2050-0807

⚠ WARNING

Stop engine and allow the muffler to cool before cleaning the spark chamber. Wear safety goggles. Failure to obey can cause serious injury.

W-2011-1285

⚠ WARNING

Never use machine in atmosphere with explosive dust or gases or where exhaust can contact flammable material. Failure to obey warnings can cause injury or death.

W-2068-1285

⚠ WARNING

When the engine is running during service, the steering levers must be in neutral.

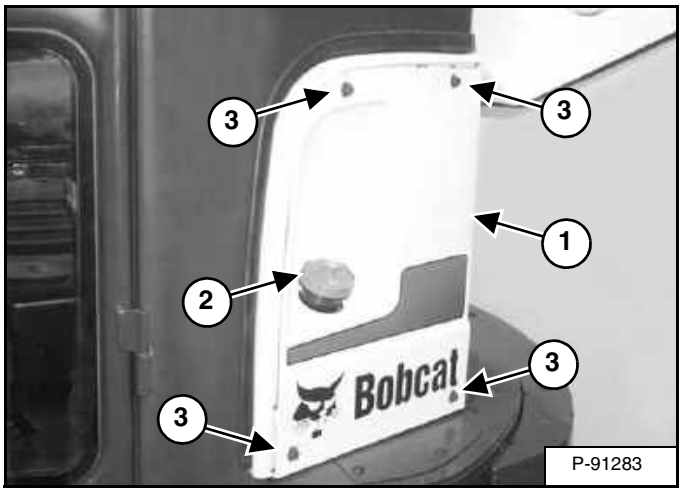
Failure to do so can cause injury or death.

W-2203-0595

Do not operate the excavator with a defective exhaust system.

Stop the engine. Open the tailgate. (See TAILGATE on Page 100.)

Figure 206

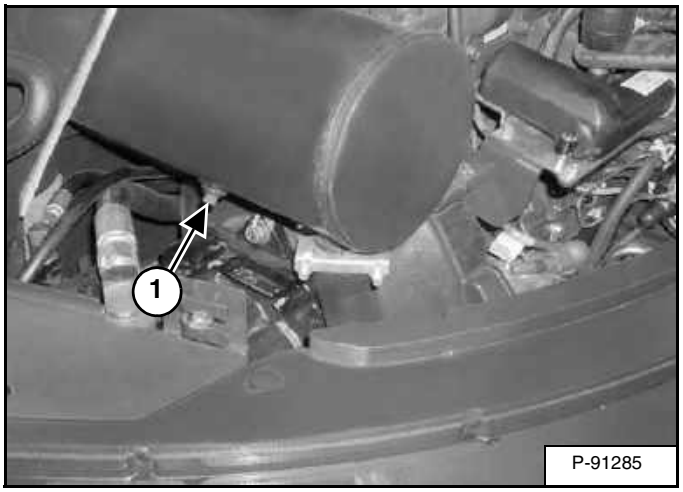


The left panel (Item 1) **[Figure 206]** will need to be removed for access to the spark arrester muffler.

Remove the fuel cap (Item 2) and the four bolts (Item 3) and remove the panel (Item 1) **[Figure 206]**.

Reinstall the fuel cap (Item 2) **[Figure 206]**.

Figure 207



Remove the plug (Item 1) **[Figure 207]** from the bottom of the muffler.

Start the engine and run for about 10 seconds while a second person, wearing safety glasses, holds a piece of wood over the outlet of the muffler. The carbon deposits will be forced out of the muffler plug hole (Item 1) **[Figure 207]**.

Stop the engine. Install and tighten the plug.

Reinstall the panel (Item 1) **[Figure 206]**.

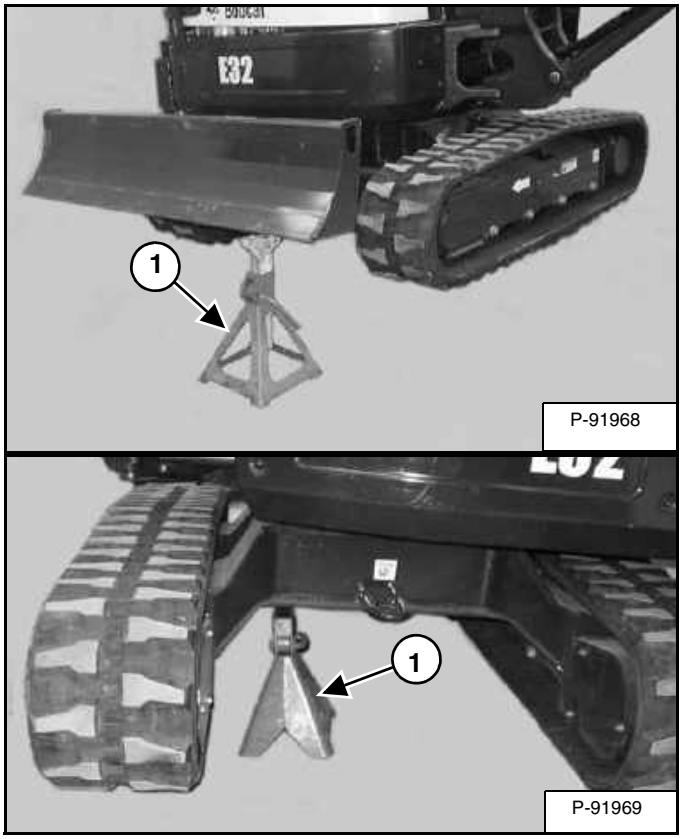
Close the tailgate.

TRACK TENSION

NOTE: The wear of the pins and bushings on the undercarriage vary with the working conditions and the different types of soil conditions. It is necessary to inspect track tension and maintain the correct tension. See SERVICE SCHEDULE for the correct service interval. (See SERVICE SCHEDULE on Page 95.)

Adjusting

Figure 208



Raise one side of the machine (Approximately four inches) using the boom and arm.

Raise the blade fully and install jackstands under the blade and track frame (Item 1) **[Figure 208]**. Lower the boom until all machine weight is on the jackstands.

Stop the engine.

⚠ WARNING

AVOID INJURY

Keep fingers and hands out of pinch points when checking the track tension.

W-2142-0903

Rubber Track Clearance

Figure 209

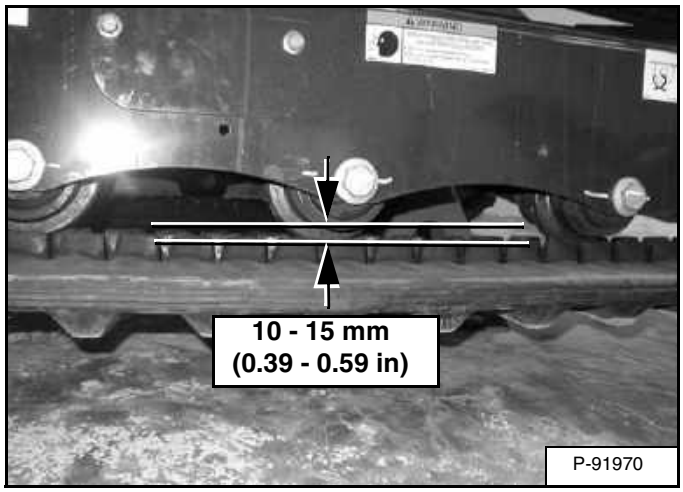
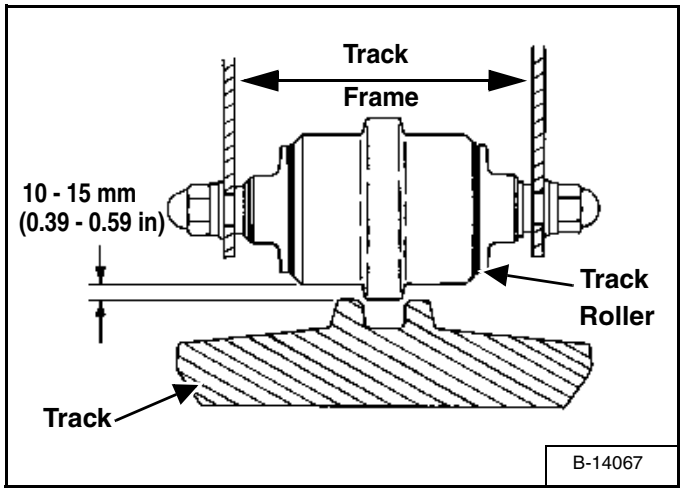


Figure 210



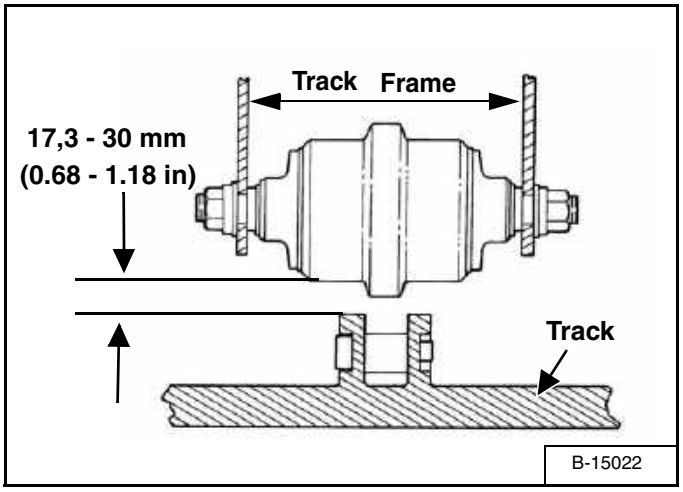
Measure the clearance at the middle track roller. Do not get fingers into pinch points between the track and the track roller. Use a bolt or a dowel of the appropriate size to check the gap between the contact edge of the roller and the top edge of the track guide **[Figure 209]** and **[Figure 210]**.

Rubber Track Clearance - 10 - 15 mm (0.39 - 0.59 in).

Adjusting (Cont'd)

Steel Track Clearance

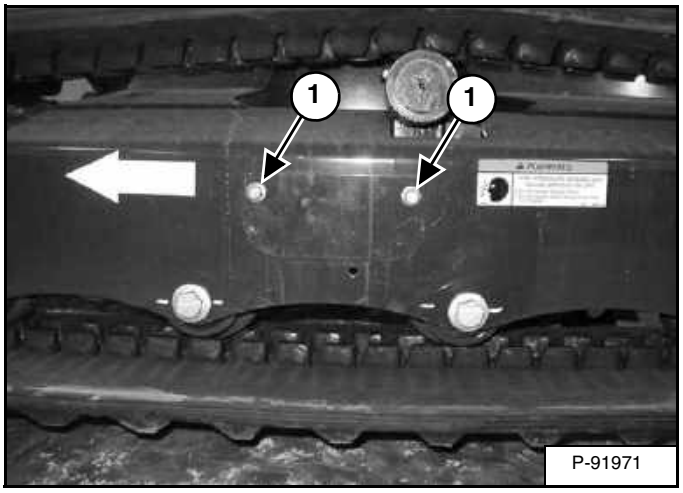
Figure 211



Measure the track clearance at the middle track roller. Do not get fingers into pinch points between the track and the track roller. Us a bolt or dowel of the appropriate size to check the gap between the contact edge of the roller and the top edge of the track guide **[Figure 211]**.

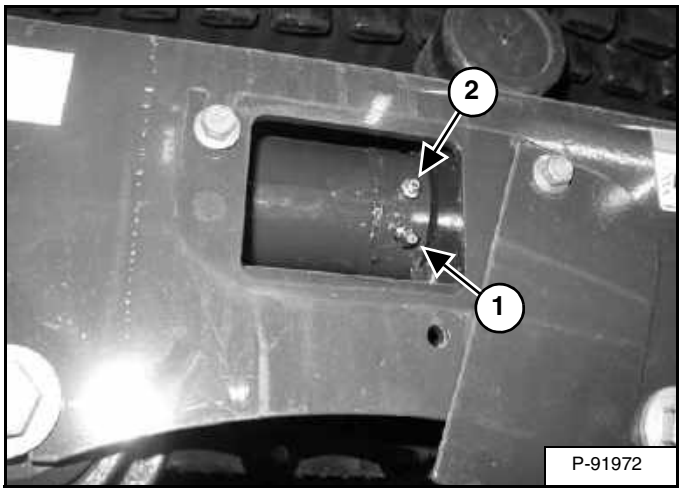
Steel Track Clearance - 17,3 - 30 mm (0.68 - 1.18 in).

Figure 212



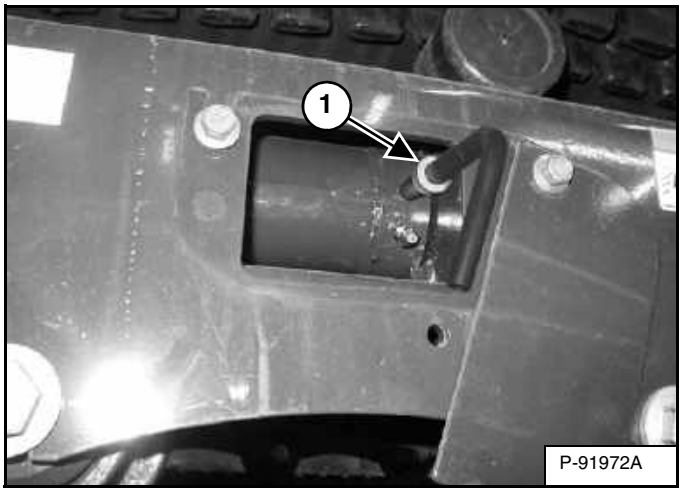
Loosen the two bolts from the cover (Item 1) **[Figure 212]**. Pivot the cover downward.

Figure 213



Add grease to the fitting (Item 1) **[Figure 213]** until the track tension is correct.

Figure 214



Use tool MEL1560 (Item 1) **[Figure 214]** to loosen the bleed fitting (Item 2) **[Figure 213]** to release tension from the track.

NOTE: Do not loosen the grease fitting (Item 1) [Figure 213].

Repeat the procedure for the other side.

⚠ WARNING

HIGH PRESSURE GREASE CAN CAUSE SERIOUS INJURY

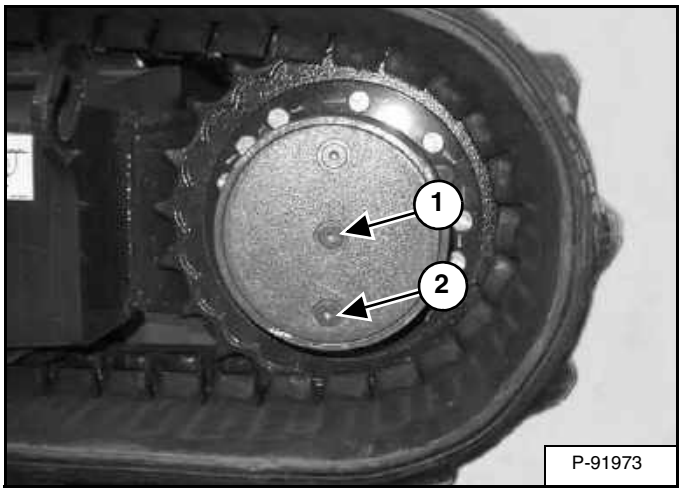
- **Do not loosen grease fitting.**
- **Do not loosen bleed fitting more than 1 - 1/2 turns.**

W-2781-0109

TRAVEL MOTOR

Checking And Adding Oil

Figure 215



Park the excavator on a level surface with the plugs (Items 1 and 2) **[Figure 215]** in the vertical position as shown.

Remove the plug (Item 1) **[Figure 215]**. The lube level must be at the bottom edge of the hole.

Add lubricant (SAE 90W) through the hole if the lube level is low.

Removing And Replacing Oil

See the SERVICE SCHEDULE for the correct service interval. (See SERVICE SCHEDULE on Page 95.)

Park the excavator on a level surface with plugs (Items 1 and 2) **[Figure 215]** in the vertical position shown. Remove both plugs and drain the lubricant into a container.

⚠ WARNING

AVOID INJURY OR DEATH

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire.

W-2103-0508

Install the bottom plug (Item 2) **[Figure 215]**. Add lubricant through the center plug hole until the lube level is at the bottom edge of the hole.

Add lubricant (SAE 90W) through the hole if the lube level is low.

Install the plug (Item 1) **[Figure 215]**.

ALTERNATOR BELT

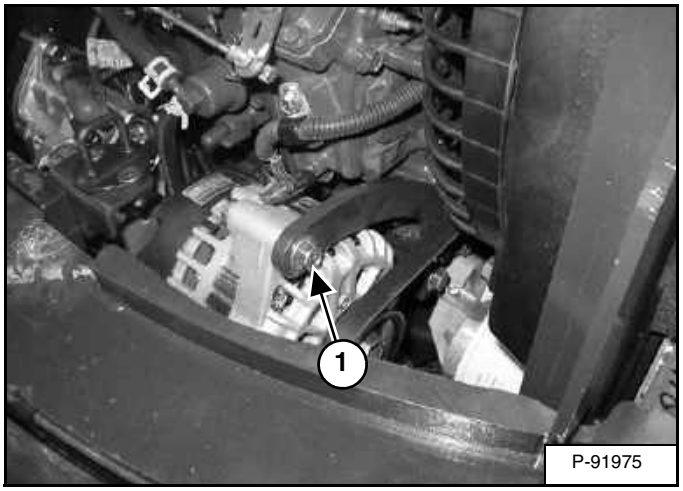
Belt Adjustment

The alternator 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.

Belt Replacement

Stop the engine and open the tailgate. (See TAILGATE on Page 100.)

Figure 216



Loosen the bolt (Item1) **[Figure 216]** and the lower alternator mounting bolt and nut (not shown).

Use a pry bar to take the pressure off of the bolt (Item 1) **[Figure 216]** and remove the top bolt.

Remove and replace the alternator belt.

Use the pry bar to position the alternator and install the bolt (Item 1) **[Figure 216]**.

Tighten the top and bottom alternator mounting bolts.

Close the tailgate.

FAN BELT

Belt Adjustment

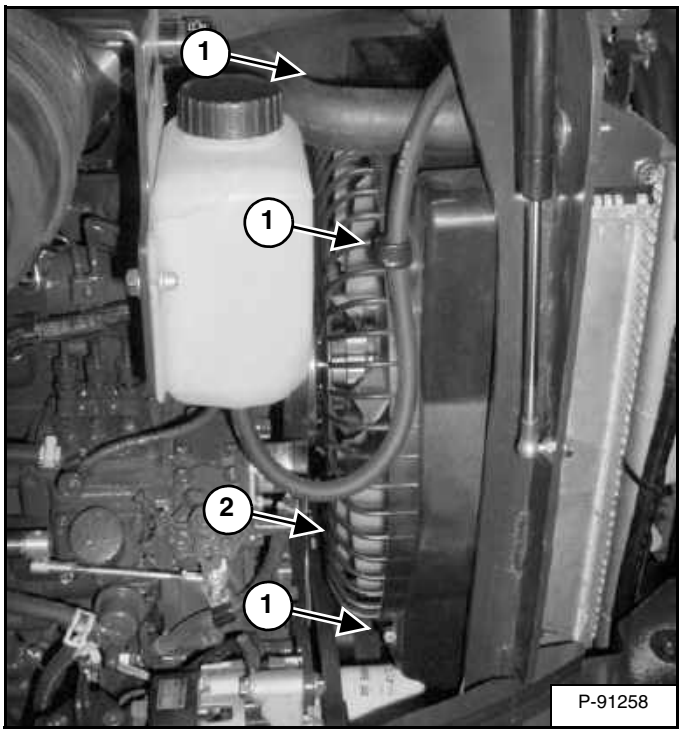
The fan belt is a special maintenance free type that is pretensioned over the pulleys. This belt eliminates the need for a tensioning device and does not require periodic adjustment. Contact your Bobcat dealer for replacement parts.

Belt Replacement

Stop the engine and open the tailgate. (See TAILGATE on Page 100.)

Remove the alternator belt. (See ALTERNATOR BELT on Page 127.)

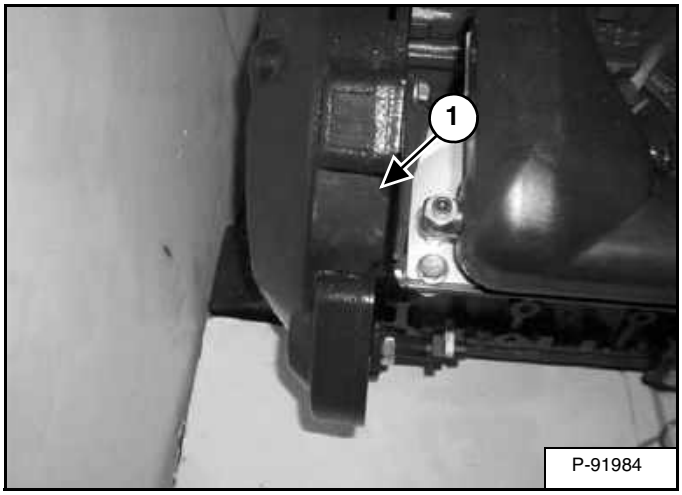
Figure 217



Remove the three bolts (Item 1) and the fan guard (Item 2) **[Figure 217]** for clearance for belt removal.

Belt Replacement (Cont'd)

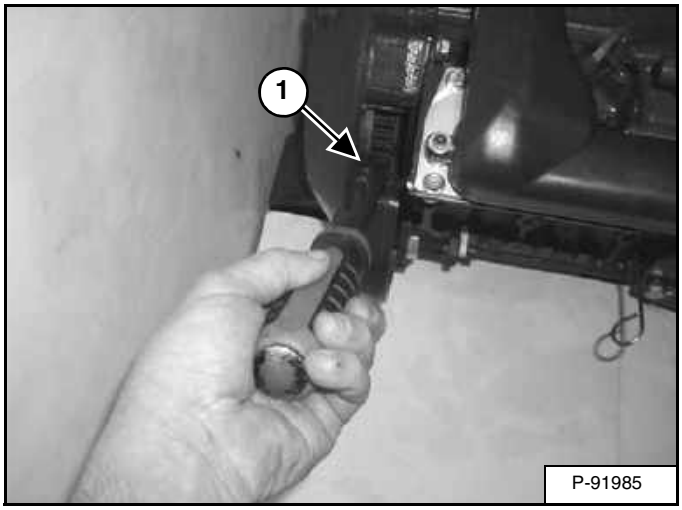
Figure 218



NOTE: The engine is removed from the machine for photo clarity only. This procedure can be performed with engine installed in machine.

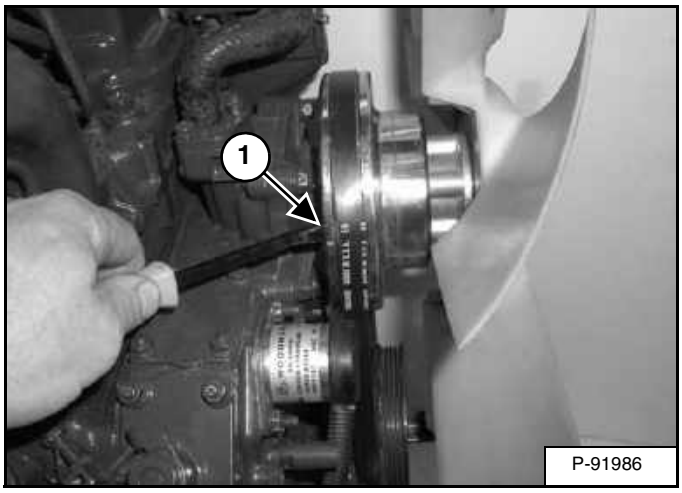
The engine will need to be rotated by hand to remove the belt. To access the flywheel, remove the plug (Item 1) **[Figure 218]** from the flywheel housing.

Figure 219



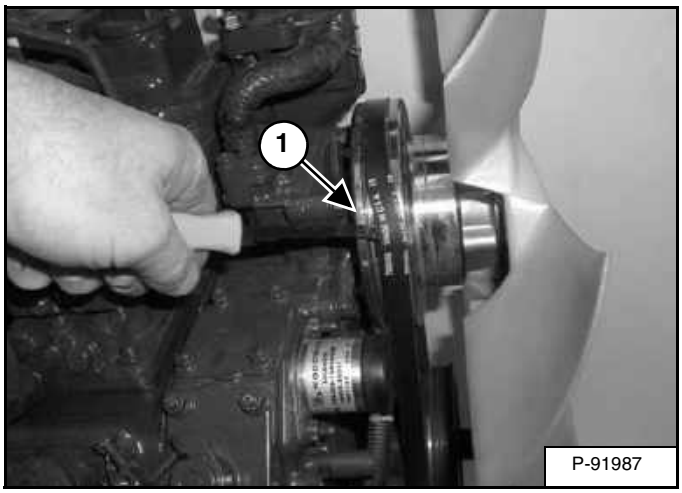
Install a pry bar (Item 1) **[Figure 219]** to the flywheel teeth.

Figure 220



Install a second pry bar (Item 1) **[Figure 220]** or flat blade screw driver between the belt and the water pump pulley.

Figure 221

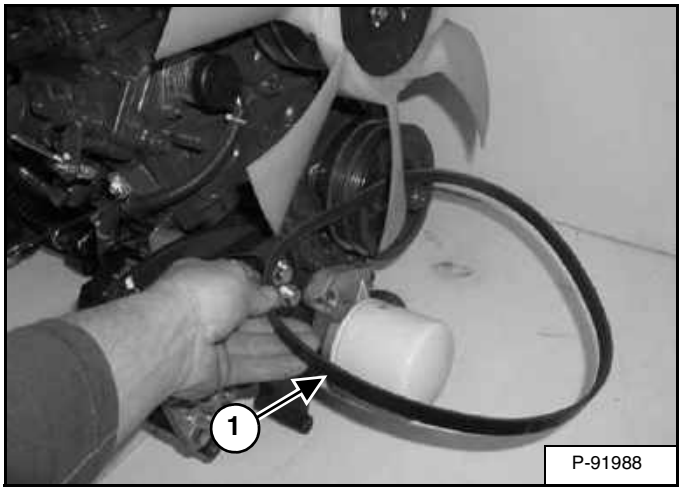


Using the pry bar (Item 1) **[Figure 219]** to rotate the engine, start to push the belt off of the pulley using the second pry bar (Item 1) **[Figure 221]**.

Continue to manually rotate the engine until the belt is off the pulley.

Belt Replacement (Cont'd)

Figure 222

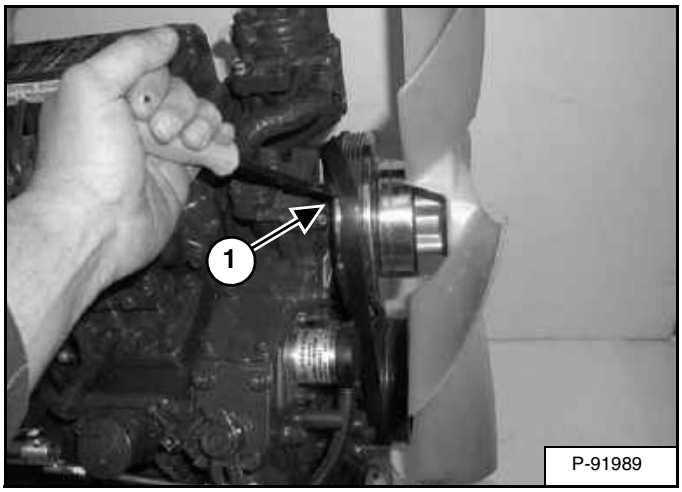


NOTE: Fan blades may be sharp, use care when removing the belt over the fan blades.

The belt (Item 1) **[Figure 222]** will need to be worked over the fan blades until it can be removed.

Install the new fan belt.

Figure 223



Position the belt over the water pump pulley and next to the engine block and align the lower part of the belt to the crankshaft pulley.

Using the pry bar (Item 1) **[Figure 219]** to rotate the engine and push the belt on the pulley using the second pry bar (Item 1) **[Figure 223]**.

Continue rotating the engine until the belt is fully installed.

Install the flywheel plug (Item 1) **[Figure 218]**.

Install the alternator belt. (See ALTERNATOR BELT on Page 127.)

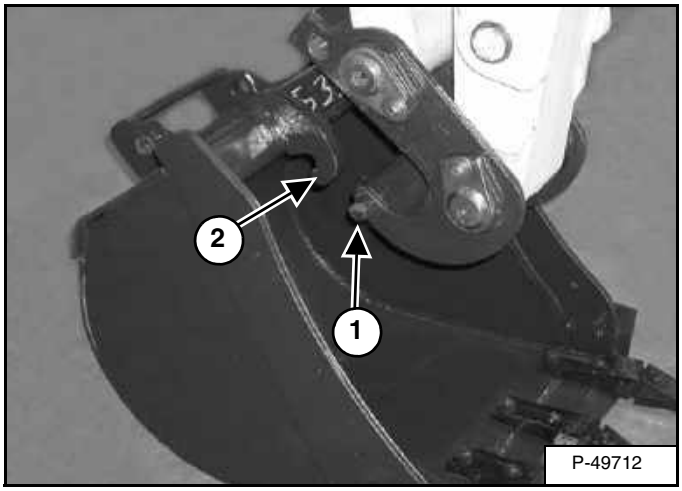
Install the fan guard (Item 1) **[Figure 217]**.

Close the tailgate.

X-CHANGE

Inspection And Maintenance

Figure 224



Inspect the X-Change for wear or damage. Inspect the X-Change pins (Item 1) and hooks (Item 2) **[Figure 224]** (on the attachment) for wear or damage.

Repair or replace damaged parts.

TRACK ROLLER AND IDLER LUBRICATION

Procedure

The track rollers and idlers require no maintenance. The bearings are a sealed design.

Bucket Teeth Removal And Installation

⚠ WARNING

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- **Pressurized fluids and springs or other stored energy components.**
- **Flying debris or loose material is present.**
- **Engine is running.**
- **Tools are being used.**

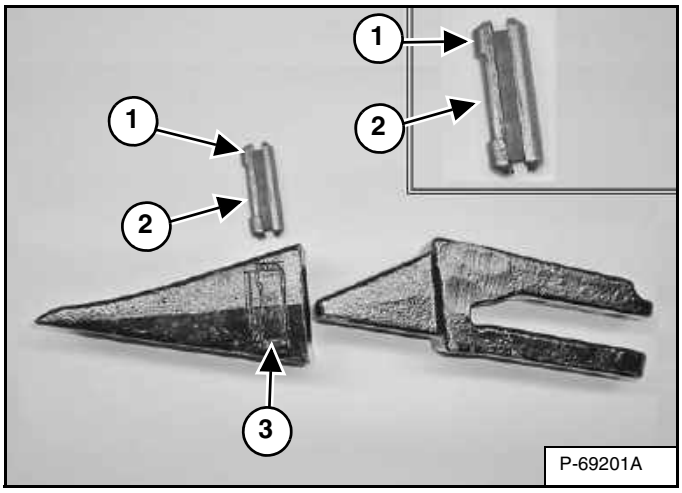
W-2505-0604

Position the bucket so the bucket teeth are at a 30° angle up from the ground for accessibility to the teeth.

Lower the boom until the bucket is fully on the ground.

Stop the engine and exit the excavator.

Figure 225



The retaining pin (Item 1) must be installed as shown [notch (Item 2) to the front] for proper fit and tooth retention. The side of the tooth point (Item 3) **[Figure 225]** also shows the correct orientation of the retaining pin.

Installation: Position the new tooth point on the shank and install a new retaining pin. Install the retaining pin until it is flush with the top of the point.

LUBRICATION OF THE HYDRAULIC EXCAVATOR

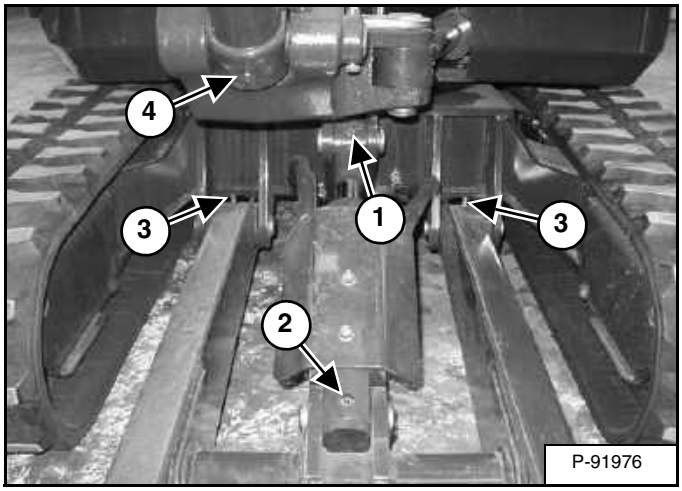
Lubrication Locations

Lubricate the excavator as specified in the SERVICE SCHEDULE for the best performance of the machine. (See SERVICE SCHEDULE on Page 95.)

Always use a good quality lithium based multipurpose grease when lubricating the machine. Apply the lubricant until extra grease shows.

Lubricate the following locations on the excavator EVERY 8-10 HOURS:

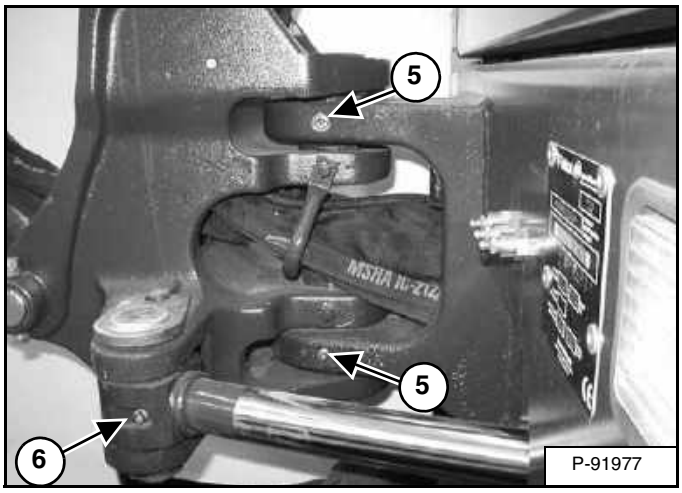
Figure 226



Ref Description (# of Fittings)

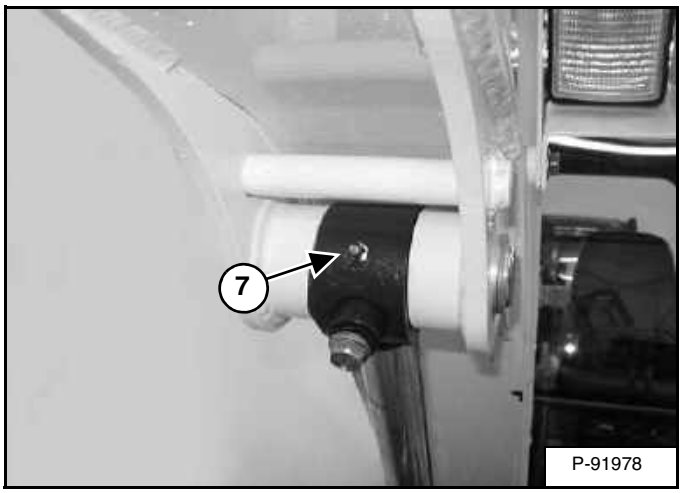
1. Blade Cylinder Rod End (1) **[Figure 226]**
2. Blade Cylinder Base End (1) **[Figure 226]**
3. Blade Pivots (2) **[Figure 226]**
4. Boom Cylinder Base End (1) **[Figure 226]**

Figure 227



5. Boom Swing Pivot (3) **[Figure 227]**
6. Boom Swing Cylinder Rod End (1) **[Figure 227]**

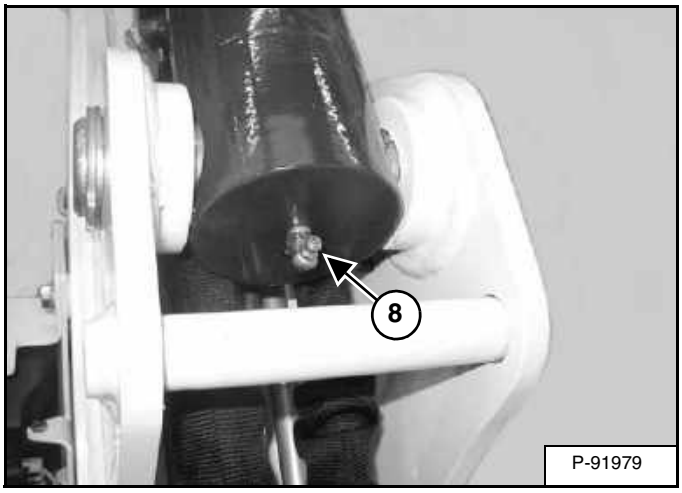
Figure 228



7. Boom Cylinder Rod End (1) **[Figure 228]**

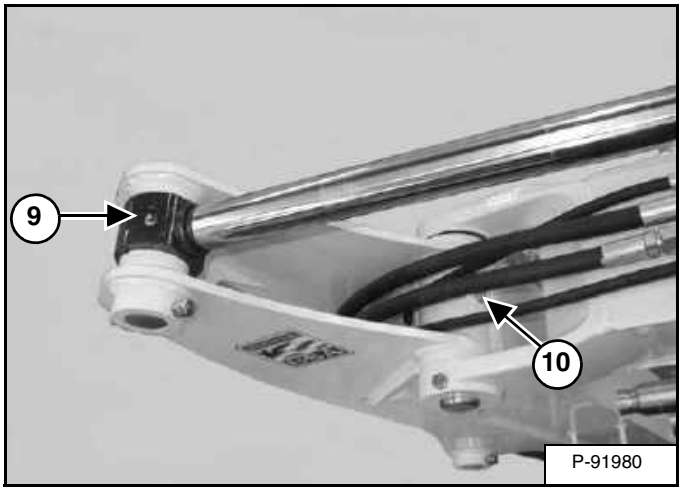
Lubrication Locations (Cont'd)

Figure 229



8. Arm Cylinder Base End (1) **[Figure 229]**

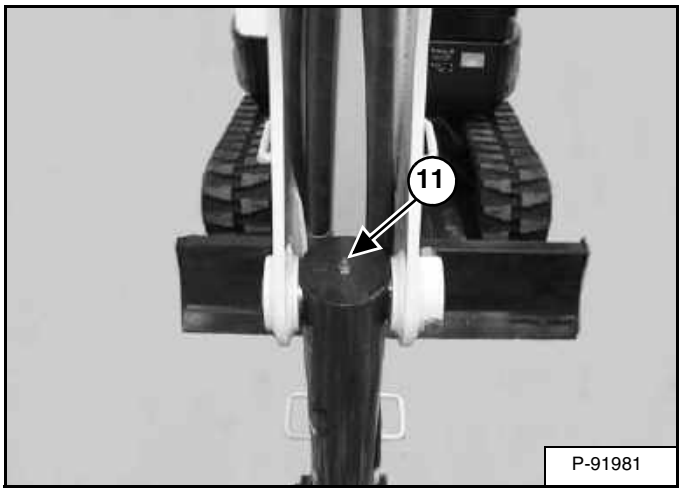
Figure 230



9. Arm Cylinder Rod End (1) **[Figure 230]**

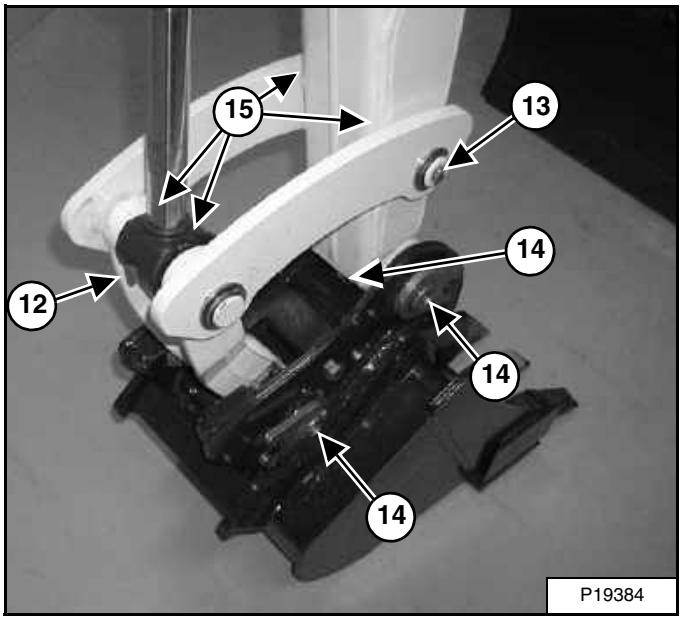
10. Arm Pivot (1) **[Figure 230]**

Figure 231



11. Bucket Cylinder Base End (1) **[Figure 231]**

Figure 232



12. Bucket Cylinder Rod End (1) **[Figure 232]**

13. Bucket Link Pin (1) **[Figure 232]**

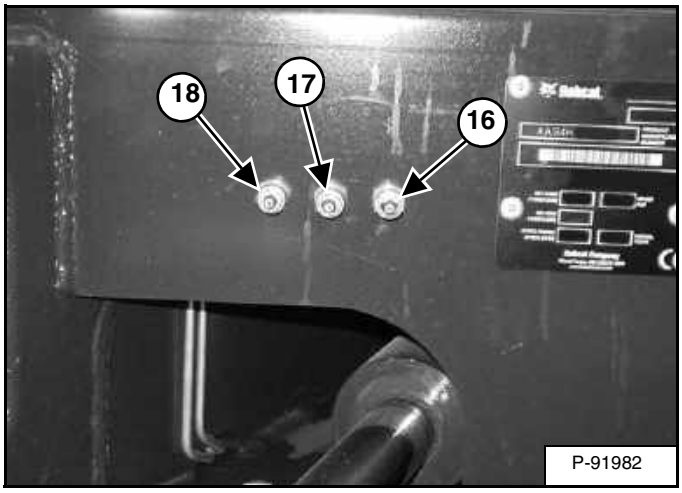
14. Bucket Pivot (3) **[Figure 232]**

15. Bucket Link - without extendable arm (2), with extendable arm (4) **[Figure 232]**

LUBRICATION OF THE HYDRAULIC EXCAVATOR (CONT'D)

Lubrication Locations (Cont'd)

Figure 233



16. Boom Swing Cylinder Base (1) **[Figure 233]**.

Lubricate the following locations on the hydraulic excavator **EVERY 50 HOURS**:

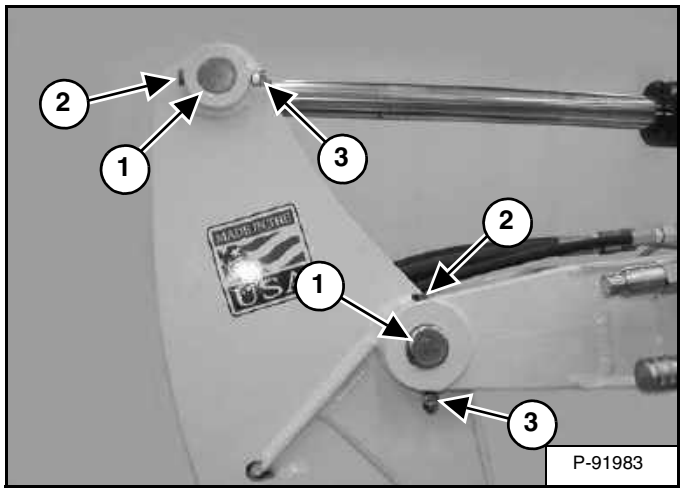
17. Swing Circle (1) **[Figure 233]**.

18. Swing Pinion (1) **[Figure 233]**. (Install 3 to 4 pumps of grease then rotate the upperstructure 90°. Install 3 to 4 pumps of grease and again rotate the upperstructure 90°. Repeat this until the slew pinion has been greased at four positions.)

PIVOT PINS

Inspection And Maintenance

Figure 234



The pivots and cylinders (Item 1) have a large pin held in position with a bolt (Item 2) and double nuts (Item 3) **[Figure 234]** securing the pin.

The the two nuts (Item 3) are used as jam nuts to hold the bolt (Item 2) with out tightening the bolt (Item 2) to the pin boss. After the nuts (Item 3) are tightened together, the bolt (Item 2) should be free to spin. See your Bobcat dealer for replacement parts.

EXCAVATOR STORAGE AND RETURN TO SERVICE

Storage

Sometimes it may be necessary to store your Bobcat Excavator for an extend period of time. Below is a list of items to perform before storage.

- Thoroughly clean the excavator including the engine compartment.
- Lubricate the excavator.
- Replace worn or damaged parts.
- Drive the excavator onto planks in a dry protected shelter.
- Lower the boom fully with the bucket flat on the ground.
- Put grease on any exposed cylinder rods.
- Put fuel stabilizer in the fuel tank and run the engine a few minutes to circulate the stabilizer to the pump and fuel injectors.
- Drain and flush the cooling system. Refill with premixed coolant.
- Replace all fluids and filters (engine, hydraulic).
- Replace all filters (i.e.: air cleaner, heater, etc.).
- Put all controls in neutral position.
- Remove the battery. Be sure the electrolyte level is correct then charge the battery. Store it in a cool dry place above freezing temperatures and charge it periodically during storage.
- Cover the exhaust pipe opening.
- Tag the machine to indicate that it is in storage condition.

Return To Service

After the Bobcat Excavator has been in storage, it is necessary to follow a list of items to return the excavator to service.

- Check the engine and hydraulic oil 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 place.
- Lubricate the excavator.
- Remove cover from exhaust pipe opening.
- Start the engine and let run for a few minutes while observing the instrument panels and systems for correct operation.
- Drive the excavator off of the planks.
- Operate machine, check for correct function.
- Stop the engine and check for leaks. Repair as needed.

Number Codes List

CODE		CODE	
C0216	Hydraulic charge filter not connected	C2005	Two speed solenoid error ON
C0217	Hydraulic charge filter plugged	C2006	Two speed solenoid error OFF
C0309	Battery voltage low	C2102	Glow plugs error ON
C0310	Battery voltage high	C2103	Glow plugs error OFF
C0311	Battery voltage extremely high		
C0314	Battery voltage extremely low	C2202	Starter error ON
C0315	Battery voltage shutdown level	C2203	Starter error OFF
C0322	Battery voltage out of range low		
		C2305	Offset base solenoid short to battery
C0414	Oil pressure extremely low	C2306	Offset base solenoid short to ground
C0415	Oil pressure shutdown level	C2307	Offset base solenoid open circuit
C0610	Engine speed high	C2405	Offset rod solenoid short to battery
C0611	Engine speed extremely high	C2406	Offset rod solenoid short to ground
C0613	Engine speed no signal	C2407	Offset rod solenoid open circuit
C0615	Engine speed shutdown level		
C0618	Engine speed out of range high	C2505	Offset return short to battery
		C2506	Offset return short to ground
C0710	Hydraulic oil temperature high	C2507	Offset return open circuit
C0711	Hydraulic oil temperature extremely high		
C0715	Hydraulic oil temperature shutdown level	C2605	Auxiliary base solenoid short to battery
C0721	Hydraulic oil temperature out of range high	C2606	Auxiliary base solenoid short to ground
C0722	Hydraulic oil temperature out of range low	C2607	Auxiliary base solenoid open circuit
C0810	Engine coolant temperature high	C2705	Auxiliary rod solenoid short to battery
C0811	Engine coolant temperature extremely high	C2706	Auxiliary rod solenoid short to ground
C0815	Engine coolant temperature shutdown level	C2707	Auxiliary rod solenoid open circuit
C0821	Engine coolant temperature out of range high		
C0822	Engine coolant temperature out of range low	C2805	Hydraulic exchange error ON
		C2806	Hydraulic exchange error OFF
C0921	Fuel level out of range high		
C0922	Fuel level out of range low	C3028	Controller memory failure (Log only)
C1221	Front auxiliary control out of range high	C3128	Interrupted power failure (Log only)
C1222	Front auxiliary control out of range low		
C1223	Front auxiliary control not in neutral	C3323	Main controller not programmed
C1305	Fuel shut-off hold solenoid short to battery	C3397	Main controller programmed (Log only)
C1306	Fuel shut-off hold solenoid short to ground		
C1307	Fuel shut-off hold solenoid open circuit		
C1402	Fuel shut-off hold solenoid short error on		
C1403	Fuel shut-off hold solenoid short error off		

DIAGNOSTICS SERVICE CODE (CONT'D)

Number Codes List (Cont'd)

CODE		CODE	
C4021	Angle blade control out of range high	E0105	Throttle actuator short to battery
C4022	Angle blade control out of range low	E0106	Throttle actuator short to ground
C4023	Angle blade control not in neutral	E0107	Throttle actuator open circuit
C4105	Angle blade base solenoid short to battery	E01233	Throttle actuator not calibrated
C4106	Angle blade base solenoid short to ground		
C4107	Angle blade base solenoid open circuit	E0321	5 volt supply out of range high
		E0322	5 volt supply out of range low
C4205	Angle blade rod solenoid short to battery		
C4206	Angle blade rod solenoid short to ground	E0421	Throttle sensor out of range high
C4207	Angle blade rod solenoid open circuit	E0422	Throttle sensor out of range low
C4321	Load sense pressure out of range high	E0421	Throttle actuator feedback out of range high
C4322	Load sense pressure out of range low	E0422	Throttle actuator feedback out of range low
C4416	Auxiliary controller not connected (Tilt rotator option only)	E3128	Interrupted power failure log only
		E3297	Controller programmed log only
C4516	Throttle controller not connected		
C6021	Offset controller out of range high		
C6022	Offset controller out of range low		
C6023	Offset controller not in neutral		
C6204	Load moment in error		
C6305	Console sensor short to battery		
C6306	Console sensor short to ground		
C6405	Switched power relay short to battery		
C6406	Switched power relay short to ground		
C6407	Switched power relay open circuit		
C6505	Work group lockout short to battery		
C6506	Work group lockout short to ground		
C6507	Work group lockout open circuit		

DISPLAY CONTROLLER PANEL SETUP

Passwords

All new machines with keyless option arrive at the Bobcat Dealerships with the panel in locked mode. This means that a password must be used to start the engine.

For security purposes, your dealer may change the password and also set it in the locked mode. Your dealer will provide you with the password.

Master Password:

A permanent, randomly selected password is set at the factory which cannot be changed. This password is used for service by the Bobcat dealer if the Owner Password is not known; or to change the Owner Password.

Owner Password:

There is only one Owner Password (**CodE 0**). It must be used to change the owner or operator passwords. See below for changing the Owner Password.

Operator Password:

There can be up to three operator Passwords (**CodE 1, CodE 2, CodE 3**). See below for changing the Operator Password.

Password Entry (For Starting and Operating the Machine)

Press ENTER CODE button (Item 1). The panel will become lighted and there will be two short beeps. **CodE** will appear on the data display screen (Item 2) **[Figure 235]**.

NOTE: After you press ENTER CODE you have 40 seconds to use the keypad (Item 3) [Figure 235] to enter the password. (If more than 40 seconds is used, the process will abort and you will need to start over.

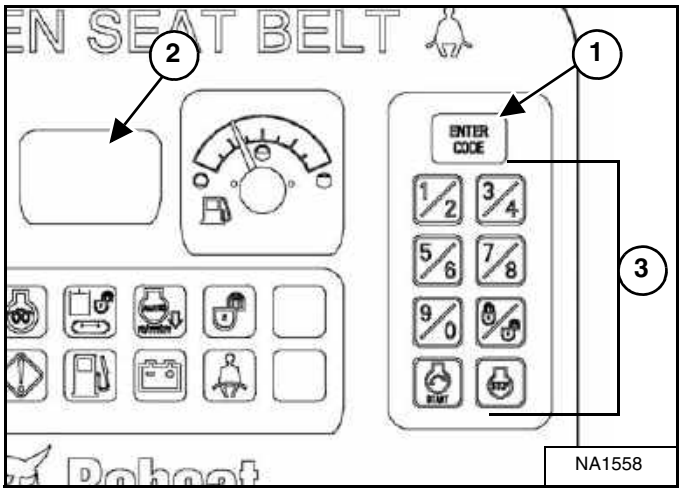
Enter the password. For each digit that you enter, a dash will appear on the data display screen. If the password was entered correctly, there will be one long beep.

NOTE: If the password was incorrect there will be three short beeps and *Error* will appear on the data display screen. Press the ENTER CODE button again and start over. After three failed attempts, you must wait three minutes to try again.

You are now ready to start and operate the machine.

If you will be changing the operator password, do not start the engine. (See Changing The Operator Password on Page 141.)

Figure 235



Changing The Operator Password

Perform Password Entry at left, but do not start the engine.

Press and hold the ENTER CODE button (Item 1) for three seconds. CodE 1 will appear on the data display screen (Item 2) **[Figure 235]**.

Press the ENTER CODE button until the desired Code (**CodE 0, CodE 1, CodE 2, CodE 3**) appears. CodE 0 is Owner Password, the other codes are Operator passwords.You now have 40 seconds to use the keypad (Item 3) **[Figure 235]** to enter each digit of a new four digit password.

Enter the new four digit password. After the fourth digit is entered, there will be two short beeps and **rPEAt** will appear.

Re-enter the new four digit password to verify. If the new passwords match, there will be two short beeps, **Code** will appear for 1 second and then the data display screen will return to HOURMETER function.

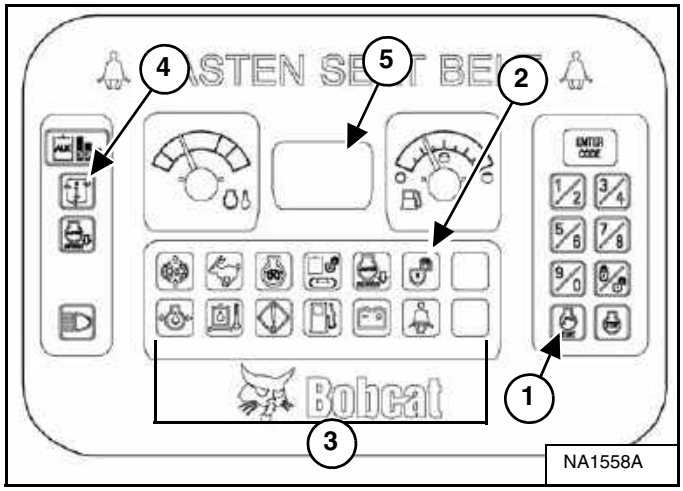
NOTE: If the new passwords do not match, there will be one long beep and Error will appear for 1 second and then the data display screen will return to HOURMETER function.

Password Lockout Feature

This allows the operator to Unlock the password feature so that a password does not need to be used every time you start the engine.

Perform Password Entry (Password Entry (For Starting and Operating the Machine) on Page 141.) (the engine can be started or stopped.) The password entry can be performed with the engine off or with the engine running.

Figure 236



Press the Lock / Unlock button (Item 1). The data display screen (Item 5) **[Figure 236]** will continuously alternate from **UnLoc** to **CodE** for 1 second periods.

Perform Password Entry again.

UnLoc will appear in the data display screen (Item 5), the Unlocked Icon (Item 2) will appear in the Icon Display Area (Item 3) **[Figure 236]** and there will be two short beeps.

To start an Unlocked system, press the ENTER CODE button and press the START button.

When you stop the engine with the system unlocked, you will hear one long beep every 3 seconds for 15 seconds.

To lock the system again, press the Lock / Unlock button (Item 1) **[Figure 236]** and enter the password during the 15 second period.

Job Clock

The JOB CLOCK can be set to record accumulated hours for a particular job.

Press and release the information button (Item 4) until JOB light is ON at the top, center of the data display screen (Item 5) **[Figure 236]**.

While the JOB light is ON, press and hold the information button (Item 4) **[Figure 236]** until the data display screen returns to zero.

This process will clear the accumulated hours and will begin recording JOB CLOCK time again. (This does not affect the HOURMETER which continues to record the total operating hours of the excavator.)

Pressing the information button (Item 1) **[Figure 236]** again or pressing the START button will return the data display screen to HOURMETER function.

RPM

The data display screen (Item 5) **[Figure 236]** can be set to display engine rpm.

With the engine running, press and release the information button (Item 4) until rpm light is ON at the top, center of the data display screen (Item 5) **[Figure 236]**.

Engine rpm is now displayed in the data display screen.

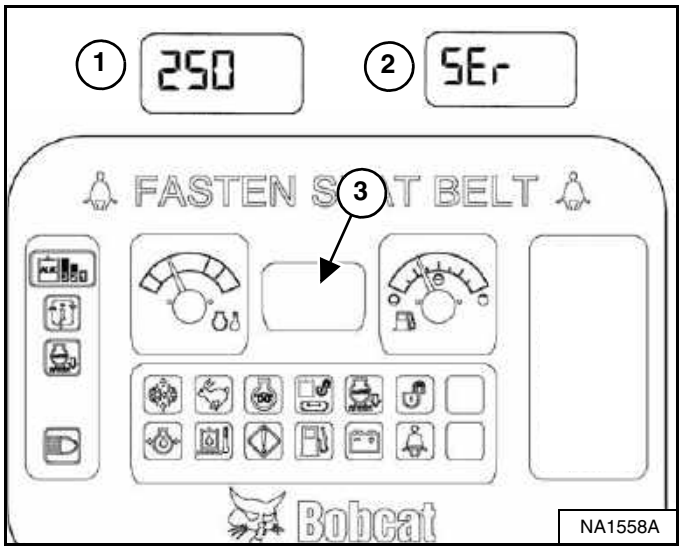
Press the information button (Item 4) **[Figure 236]** again the return to HOURMETER function.

MAINTENANCE CLOCK

Description

The Maintenance Clock alerts the operator when the next service interval is due. *EXAMPLE:* The Maintenance Clock can be set to a 250 hour interval as a reminder for the next 250 hour planned maintenance.

Figure 237



During machine operation, a two beep alarm will sound when there are less than 10 hours until the next planned maintenance.

The hours interval (Item 1) and the **[SEr]** (Item 2) will alternate in the data display screen (Item 1) **[Figure 237]** for ten seconds.

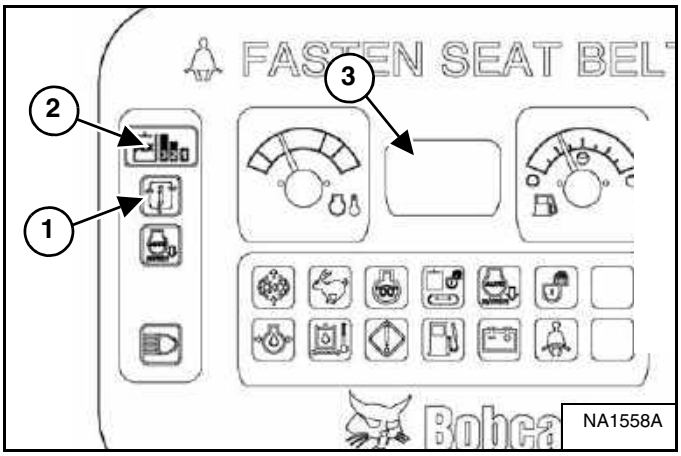
The display will then revert back to the previous display and will appear for ten seconds every time the machine is started until the maintenance clock is reset.

Setup

See your Bobcat dealer about installation of this feature.

Reset

Figure 238



To reset the panel after the scheduled maintenance is completed, do the following:

Turn the key to the OFF position or press the stop button (keyless panel).

Press the information button (Item 1) **[Figure 238]** to turn the panel on.

Press and hold the information button (Item 1) and the auxiliary hydraulic button (Item 2) simultaneously until **[rESEt]** appears in the data display screen (Item 3) **[Figure 238]**.

⚠ WARNING

AVOID INJURY OR DEATH

- Keep 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 machine in space with explosive dust or gases or with flammable material near exhaust.
- All exhaust gases can kill. Always ventilate.
- Never use ether or starting fluid on diesel engine. Use only starting aids as approved by engine manufacturer.
- Leaking fluids under pressure can enter skin and cause serious injury. Immediate medical attention is required. Wear goggles. Use cardboard to check for leaks.
- Battery acid causes severe burns. Wear goggles. If acid contacts eyes, skin or clothing, flush and get medical attention.
- Battery makes flammable and explosive gas. Keep arcs, sparks, flames and lighted tobacco away.
- For jump start, connect negative cable to the machine frame last (never at the battery). After jump start, remove negative connections at the frame first.

SERVICE SCHEDULE

■ Service at first 50 hours, then as scheduled.
♦ Service every 10 hours when operating in water.

EVERY 8-10 HOURS
Check engine coolant level.
Check engine oil level.
Check hydraulic fluid level.
Check air cleaner condition indicator.
Check and adjust track tension.
Check indicator lights for correct operation.
Check horn and motion alarm (if equipped) for proper function.
Grease all machinery pivot points. (See illustations)
Check cab and HVAC filters - clean as needed.
Check cab/canopy condition and mounting hardware.
Check seat belt condition and mounting hardware.
Check control console lockout for proper operation.
Check for damaged signs (decals) - Replace as needed.
Grease Hydraulic clamp and Angle blade if equipped.
Check X-Change (if equipped) for damage and loose parts.

EVERY 50 HOURS
♦ Grease swing pinion and swing circle. (See illustrations)
Check battery, cables and electrolyte level.
Drain water and sediment from fuel tank and fuel filter.

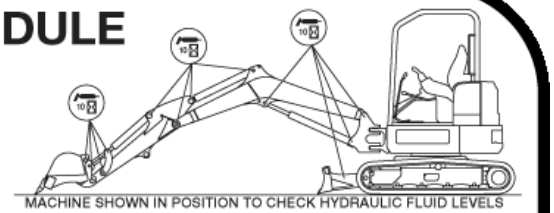
EVERY 100 HOURS
Spark Arrestor Muffler - Clean spark chamber.
■ Check and adjust V-Belt. Replace as needed. (E26)

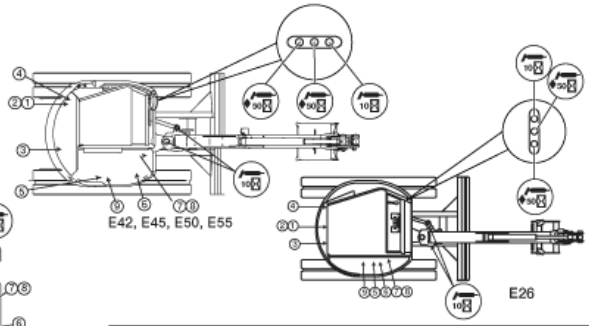
EVERY 250 HOURS
Check oil level in both final drive cases.
■ Replace Diesel fuel filter.
■ Change engine oil and filter. (Model E26)

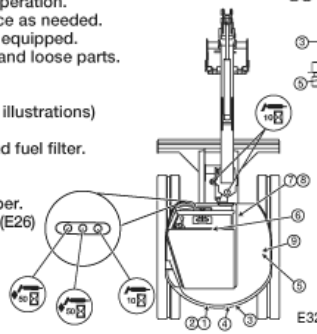
EVERY 500 HOURS
■ Change engine oil and filter. (Model E32, E35, E42, E45, E50, E55)
■ Clean radiator, oil cooler and A/C condenser. Replace primary hydraulic and case drain filter and reservoir breather.
■ Check alternator and starter connections. Check and adjust engine valve clearance.
■ Inspect ribbed belt(s) wear. Replace as needed.

EVERY 1000 HOURS
■ Replace oil in both final drive cases. Replace hydraulic fluid and filters.

EVERY 2 YEARS
Drain and flush cooling system - Replace coolant.


MACHINE SHOWN IN POSITION TO CHECK HYDRAULIC FLUID LEVELS




E32, E35

IMPORTANT

THIS MACHINE IS FACTORY EQUIPPED WITH A U.S.D.A. FORESTRY SERVICE APPROVED SPARK ARRESTOR MUFFLER.

IT IS NECESSARY TO CLEAN THIS SPARK ARRESTOR MUFFLER TO KEEP IT IN WORKING CONDITION. THE SPARK ARRESTOR MUFFLER MUST BE SERVICED BY DUMPING THE SPARK CHAMBER EVERY 100 HOURS OF OPERATION.

IF THIS MACHINE IS OPERATED ON FLAMMABLE FOREST, BRUSH OR GRASS COVERED LAND, IT MUST BE EQUIPPED WITH A SPARK ARRESTOR ATTACHED TO THE EXHAUST SYSTEM AND MAINTAINED IN WORKING ORDER. FAILURE TO DO SO WILL BE IN VIOLATION OF CALIFORNIA STATE LAW, SECTION 4442. PRC.

REFER TO LOCAL LAWS AND REGULATIONS FOR SPARK ARRESTOR REQUIREMENTS.

FILTER CHART

		E26	E32 / E35	E42 / E45	E50 / E55
1.	PRIMARY AIR FILTER	6672467	6672467	6666375	6666375
2.	SECONDARY AIR FILTER	6672468	6672468	6666376	6666376
3.	ENGINE OIL FILTER	6657635	6675517	6675517	6675517
4.	FUEL FILTER	6667352	6667352	6667352	6667352
5.	PRIMARY HYDRAULIC FILTER	6661248	6668819	6668819	6670207
6.	CASE DRAIN HYDRAULIC FILTER	7009365	7009365	6516722	6516722
7.	RECIRLCUATION FILTER	7010332	7010332	7010332	7010332
8.	FRESH AIR FILTER	7010331	7010331	7010331	7010331
9.	BREATHER FILTER	6692836	6692836	6692836	6692836

- See illustrations above for filter locations.

See Operation & Maintenance Manual for more information and instructions.

80112 SW 7188747A enUS

⚠ ADVERTENCIA

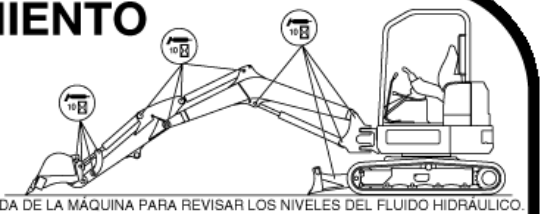
EVITE LESIONES O FATALIDADES

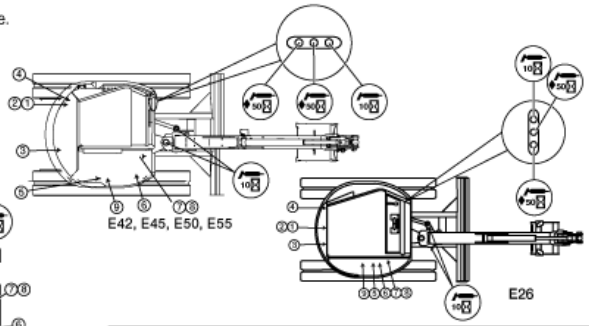
- Mantenga la cubierta cerrada salvo para dar servicio.
- Mantenga el motor libre de material inflamable.
- Mantenga el cuerpo, objetos y ropa holgada alejados de contactos eléctricos, partes que se mueven, partes calientes y el escape.
- No utilice la máquina en un espacio con polvo o gases explosivos, o con material inflamable cerca del escape.
- Todos los gases de escape pueden matar. Ventile siempre.
- Nunca utilice éter o líquidos de arranque en motores diesel con bujías de precalentamiento. Utilice solo ayudas de arranque aprobadas por el fabricante del motor.
- Los líquidos que se fugan a presión pueden penetrar la piel y provocar lesiones graves. Se requiere atención médica inmediata. Use gafas de seguridad. Utilice cartón para revisar la presencia de fugas.
- El ácido de la batería provoca quemaduras graves. Use gafas de seguridad. Si el ácido hace contacto con los ojos, piel o ropa, lave bien y busque atención médica.
- La batería crea gases inflamables y explosivos. Mantener arcos, chispas, llamas y tabaco/cigarrillo encendido alejados.
- Para arranques en puente, conecte de ultimo el cable negativo en el motor de la máquina (nunca en la batería). Después del arranque en puente, retire primero la conexión negativa del motor.

PROGRAMA DE MANTENIMIENTO

■ **Dé servicio a las primeras 50 horas, luego según lo programado.**
♦ **Dé servicio cada 10 horas cuando opere en agua.**

CADA 8-10 HORAS
Revise el nivel del enfriador del motor.
Revise el nivel del aceite de motor.
Revise el nivel del fluido hidráulico.
Revise el indicador de condición del depurador de aire.
Revise y ajuste la tensión de la oruga.
Revise que las luces indicadoras funcionen adecuadamente.
Revise que la bocina y alarma de movimiento (si están equipadas) funcionen adecuadamente.
Engrase todos los puntos de pivote de la maquinaria. (Ver ilustraciones)
Revise los filtros de la cabina y HVAC – limpiar si es del caso.
Revise la condición de la cabina/cubierta y el herraje de fijación.
Revise la condición del cinturón de seguridad y el herraje de fijación.
Revise que el seguro de la consola de control funcione adecuadamente.
Revise la presencia de calcomanías averiadas – reponer si es del caso.
Engrase la mordaza hidráulica y la pala de ángulo, si están equipadas.
Revise que el X-Change (si está equipado) no esté averiado y tenga partes flojas.

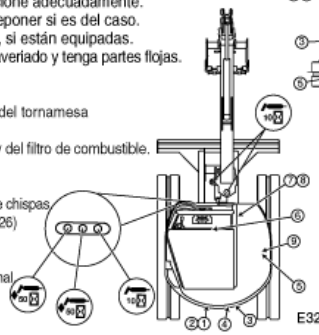

POSICIÓN ADECUADA DE LA MÁQUINA PARA REVISAR LOS NIVELES DEL FLUIDO HIDRÁULICO.



CADA 50 HORAS
♦ Engrase el piñón de giro y el piñón de la cremallera del tornamesa
Revise la batería, cables y nivel electrolítico.
Drene el agua y sedimento del tanque de combustible y del filtro de combustible.

CADA 100 HORAS
Silenciador del sistema parachispas – limpiar la cámara de chispas.
■ Revise y ajuste la correa en V. Reponer, si es del caso. (E26)

CADA 250 HORAS
Revise el nivel de aceite en ambas cajas de transmisión final.
■ Cambie el filtro de combustible diesel.
■ Cambie el aceite y filtro del motor. (Modelo E26).



CADA 500 HORAS
■ Cambie el aceite y filtro del motor. (Modelo E32, E35, E42, E50, E55)
■ Limpie el radiador, enfriador de aceite y condensador del aire acondicionado. Cambie el filtro primario hidráulico y de la caja de drenaje, y el desfogue del reservorio.
■ Revise las conexiones del alternador y arrancador. Revise y ajuste la holgura de la válvula del motor.
■ Inspeccione que la(s) correa(s) no esté(n) desgastada(s). Reponer, si es del caso.

CADA 1000 HORAS
■ Cambie el aceite de ambas cajas de transmisión final. Cambie el fluido y los filtros hidráulicos.

CADA 2 AÑOS
Drene y purgue el sistema de enfriamiento – reponer el enfriador.

IMPORTANTE

ESTA MÁQUINA ESTÁ EQUIPADA DE FÁBRICA CON UN SILENCIADOR DEL SISTEMA PARACHISPAS APROBADO.

SI NECESITA LIMPIAR EL SILENCIADOR PARA MANTENERLO EN CONDICIONES DE TRABAJO. ADEMÁS. DEBE DARLE SERVICIO VACIANDO LA CÁMARA DE CHISPAS CADA 100 HORAS DE OPERACIÓN.

SI ESTA MÁQUINA SE UTILIZA EN BOSQUES INFLAMABLES, MATORRALES O SUELOS CUBIERTOS DE GRAMA, DEBE EQUIPARSE CON UN PARACHISPAS SUJETO AL SISTEMA DE ESCAPE Y MANTENERSE EN CONDICIONES DE TRABAJO. DE LO CONTRARIO, REPRESENTA UNA VIOLACIÓN DE LA LEY ESTATAL DE CALIFORNIA, SECCIÓN 4442, PRC.

REFIÉRASE A LAS LEYES Y REGLAMENTOS LOCALES PARA CONOCER LOS REQUISITOS DE PARACHISPAS.

TABLA DE FILTROS

	E26	E32 / E35	E42 / E45	E50 / E55
1. FILTRO DE AIRE PRIMARIO	6672467	6672467	6666375	6666375
2. FILTRO DE AIRE SECUNDARIO	6672468	6672468	6666376	6666376
3. FILTRO DE ACEITE DEL MOTOR	6657635	6675517	6675517	6675517
4. FILTRO DE COMBUSTIBLE	6667352	6667352	6667352	6667352
5. FILTRO HIDRÁULICO PRIMARIO	6661248	6668819	6668819	6670207
6. FILTRO HIDRÁULICO DE CAJA DE DRENAJE	7009365	7009365	6516722	6516722
7. FILTRO DE RECIRCULACIÓN	7010332	7010332	7010332	7010332
8. FILTRO DE AIRE FRESCO	7010331	7010331	7010331	7010331
9. FILTRO DEL DESFOGUE	6692836	6692836	6692836	6692836

- Ver las ubicaciones de los filtros en las ilustraciones arriba.

Consulte más información e instrucciones en el Manual de operación y mantenimiento.

80112 SW 7188747A esAR

AVERTISSEMENT

RISQUE DE BLESSURES OU DE MORT

- Gardez le capot fermé sauf pour l'entretien.
- Débarrassez le moteur de tout matériau inflammable.
- Maintenez le corps, les objets et les vêtements lâches à l'écart des contacts électriques, des pièces mobiles, des pièces brûlantes et de l'échappement.
- N'utilisez pas la machine dans des lieux contenant des poussières ou des gaz explosifs ou avec des matériaux inflammables à proximité de l'échappement.
- Tous les gaz d'échappement sont mortels. Veillez à toujours aérer la zone.
- N'utilisez jamais d'éther ou de liquide de démarrage sur un moteur diesel. Utilisez uniquement des aides au démarrage approuvées par le fabricant du moteur.
- En cas de fuite de fluides sous pression, ceux-ci peuvent pénétrer dans la peau et provoquer des blessures graves. Dans ce cas, consultez immédiatement un médecin. Portez des lunettes de protection. Utilisez un morceau de carton pour repérer les fuites.
- L'acide d'une batterie provoque des brûlures graves. Portez des lunettes de protection. En cas de contact des yeux, de la peau ou des vêtements avec de l'acide, rincez bien et consultez un médecin.
- La batterie génère des gaz inflammables et explosifs. Maintenez-la à l'écart des arcs, des étincelles, des flammes et des cigarettes allumées.
- En cas de démarrage forcé, connectez le câble négatif au châssis de la machine en dernier (jamais à la batterie). Après un démarrage forcé, retirez en premier les connexions négatives au cadre.

TABLEAU DES ENTRETIENS

■ **Effectuez l'entretien après 50 heures, puis selon le tableau.**
♦ **Effectuez l'entretien toutes les 10 heures lors de l'utilisation dans l'eau.**

TOUTES LES 8-10 HEURES
Vérifiez le niveau du liquide de refroidissement du moteur.
Vérifiez le niveau d'huile moteur.
Vérifiez le niveau du fluide hydraulique.
Vérifiez l'indicateur d'état du filtre à air.
Vérifiez et réglez la tension des chenilles.
Vérifiez le bon fonctionnement des témoins lumineux.
Vérifiez le bon fonctionnement de l'avertisseur sonore et de l'alarme de translation (le cas échéant).
Vérifiez tous les points pivots de la machine. (Consultez les illustrations)
Vérifiez les filtres CVC et ceux de la cabine – au besoin, nettoyez-les.
Vérifiez l'état de la cabine/du cadre de protection et de la visserie de fixation.
Vérifiez l'état de la ceinture de sécurité et de ses fixations.
Contrôlez le bon fonctionnement du verrouillage de la console.
Vérifiez que les autocollants ne sont pas abîmés - Remplacez-les au besoin.
Graissez la pince hydraulique et la lame angulaire, le cas échéant.
Vérifiez le changement-X (le cas échéant) pour la présence de dommages ou de pièces desserrées.

TOUTES LES 50 HEURES
♦ Lubrifiez le pignon et le cercle d'oscillation. (Consultez les illustrations)
Vérifiez la batterie, les câbles et le niveau d'électrolyte.
Purgez le réservoir de carburant et le filtre d'alimentation de l'eau et des sédiments.

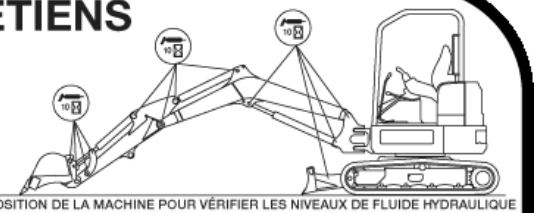
TOUTES LES 100 HEURES
Silencieux pare-étincelles - Videz la chambre à étincelles.
■ Vérifiez l'usure et ajustez au besoin la courroie trapézoïdale. Remplacez-la au besoin. (E26)

TOUTES LES 250 HEURES
Contrôlez le niveau d'huile dans les deux carters terminaux d'entraînement.
■ Remplacez le filtre du carburant diesel.
■ Changez l'huile et le filtre à huile moteur. (Modèle E26)

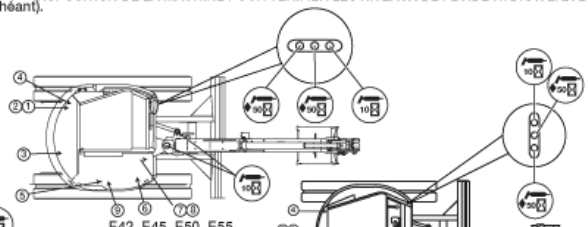
TOUTES LES 500 HEURES
■ Remplacez l'huile et le filtre moteur. (Modèles E32, E35, E42, E45, E50, E55)
■ Nettoyez le radiateur, le refroidisseur d'huile et le condenseur de climatisation. Remplacez le filtre hydraulique primaire et le filtre de retour du carter et le reniflard de réservoir.
■ Vérifiez les connexions de l'alternateur et du démarreur.
Vérifiez et réglez le jeu des soupapes du moteur.
■ Inspectez la ou les courroies striées pour la présence d'usure. Remplacez-la au besoin.

TOUTES LES 1 000 HEURES
■ Remplacez l'huile dans les deux carters de réduction finale.
Remplacez le fluide et les filtres hydrauliques.

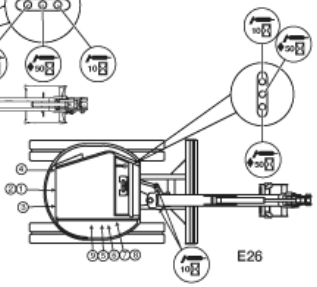
TOUS LES 2 ANS
Videz et rincez le circuit de refroidissement - Remplacez le liquide de refroidissement.



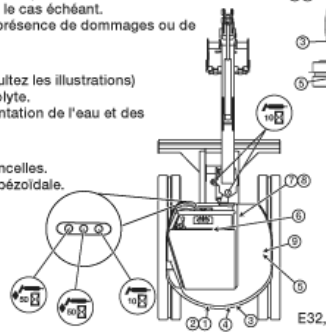
DISPOSITION DE LA MACHINE POUR VÉRIFIER LES NIVEAUX DE FLUIDE HYDRAULIQUE



E42, E45, E50, E55



E26



E32, E35

IMPORTANT

CETTE MACHINE EST ÉQUIPÉE EN USINE D'UN SILENCIEUX PARE-ÉTINCELLES APPROUVÉ PAR LE SERVICE DES FORÊTS DES ÉTATS-UNIS (U.S.D.A. FORESTRY SERVICE).

IL EST INDISPENSABLE DE NETTOYER CE SILENCIEUX AFIN DE LE MAINTENIR EN BON ÉTAT DE FONCTIONNEMENT. CET ENTRETIEN CONSISTE À VIDER LA CHAMBRE À ÉTINCELLES TOUTES LES 100 HEURES D'UTILISATION.

SI CETTE MACHINE EST UTILISÉE EN ZONE DE FORÊTS, DE BROUSSAILLES OU D'HERBAGES PRÉSENTANT DES RISQUES D'INCENDIE, ELLE DOIT ÊTRE ÉQUIPÉE D'UN PARE-ÉTINCELLES AJOUTÉ AU CIRCUIT D'ÉCHAPPEMENT ET MAINTENU EN BON ÉTAT DE MARCHE. LE NON RESPECT DE CETTE OBLIGATION CONTREVIENT À LA LOI DE L'ÉTAT DE CALIFORNIE, SECTION 4442. PRC.

REPORTEZ-VOUS AUX RÉGLEMENTATIONS LOCALES POUR LES EXIGENCES APPLICABLES DANS VOTRE CAS EN MATIÈRE DE PARE-ÉTINCELLES.

TABLEAU DES FILTRES

		E26	E32 / E35	E42 / E45	E50 / E55
1.	FILTRE À AIR PRIMAIRE	6672467	6672467	6666375	6666375
2.	FILTRE À AIR SECONDAIRE	6672468	6672468	6666376	6666376
3.	FILTRE À HUILE MOTEUR	6657635	6675517	6675517	6675517
4.	FILTRE À CARBURANT	6667352	6667352	6667352	6667352
5.	FILTRE HYDRAULIQUE PRIMAIRE	6661248	6668819	6668819	6670207
6.	FILTRE HYDRAULIQUE DE RETOUR DE CARTER	7009365	7009365	6516722	6516722
7.	FILTRE DE RECIRCULATION	7010332	7010332	7010332	7010332
8.	FILTRE À AIR FRAIS	7010331	7010331	7010331	7010331
9.	FILTRE RENIFLARD	6692836	6692836	6692836	6692836

- Consultez les illustrations ci-dessus pour les emplacements de filtres.

Consultez le manuel & d'utilisation et d'entretien pour des instructions et informations supplémentaires.

80112 SW 7188747A frCA

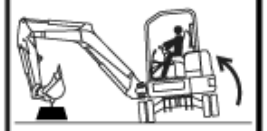
MACHINE SIGN TRANSLATIONS (CONT'D)

Warning (7178178)

WARNING

OVERLOAD CAN TIP THE EXCAVATOR AND CAUSE INJURY OR DEATH

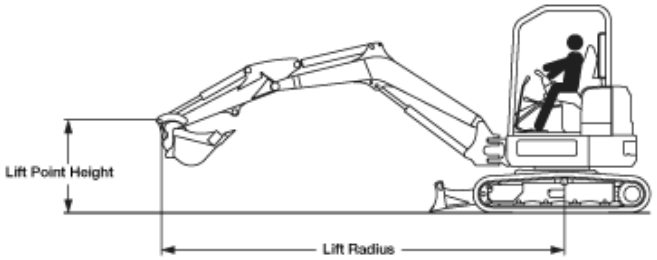
- Do not lift or hold any load that exceeds these ratings at their specified load radii and height.
- Total rated load is shown. The weight of all lifting devices must be deducted to determine the net load that can be lifted.



Where applicable, specifications conform to ISO Standards.
Specifications are subject to change without notice.
Lift Point is bucket hinge point with standard bucket attached and bucket cylinder fully extended.

EXCAVATOR MODEL E32 - STANDARD ARM

CIRCUIT PRESSURES		BOOM LENGTH	2450 mm (96.5 in)
WORKING	245 bar (3350 psi)	ARM LENGTH	1325 mm (52.2 in)
HOLDING	290 bar (4206 psi)	STANDARD BUCKET	610 mm (24.0 in)
			101 kg (224 lb)



LIFT POINT HEIGHT	RATED LIFT CAPACITY OVER BLADE, BLADE DOWN - kg (lb)				RATED LIFT CAPACITY OVER BLADE, BLADE UP - kg (lb)				RATED LIFT CAPACITY OVER SIDE, BLADE UP - kg (lb)			
	LIFT RADIUS - mm (in)			LIFT @ MAXIMUM RADIUS, kg (lb) @ mm (in)	LIFT RADIUS - mm (in)			LIFT @ MAXIMUM RADIUS, kg (lb) @ mm (in)	LIFT RADIUS - mm (in)			LIFT @ MAXIMUM RADIUS, kg (lb) @ mm (in)
mm (in.)	2000 (78.7)	3000 (118.1)	4000 (157.5)		2000 (78.7)	3000 (118.1)	4000 (157.5)		2000 (78.7)	3000 (118.1)	4000 (157.5)	
4000 (157.5)												
3000 (118.1)		*534 (1177)		*597 (1316) @ 3755 (148)		*511 (1127)		399 (880) @ 3755 (148)		*516 (1137)		354 (781) @ 3755 (148)
2000 (78.7)	*1055 (2326)	*725 (1598)	*624 (1375)	*625 (1377) @ 4202 (165)	*996 (2197)	535 (1181)	291 (641)	277 (611) @ 4202 (165)	*1026 (2262)	536 (1181)	315 (694)	271 (598) @ 4202 (165)
1000 (39.4)		*1018 (2244)	*734 (1617)	*666 (1468) @ 4335 (171)		492 (1084)	349 (769)	253 (558) @ 4335 (171)		477 (1052)	298 (657)	244 (537) @ 4335 (171)
Ground	*2089 (4606)	*1151 (2537)	*795 (1752)	*711 (1567) @ 4188 (165)	1062 (2342)	477 (1051)	322 (710)	242 (534) @ 4188 (165)	867 (1912)	456 (1004)	275 (607)	254 (560) @ 4188 (165)
-1000 (-39.4)	*1952 (4304)	*1161 (2560)		*783 (1725) @ 3721 (146)	976 (2153)	490 (1080)		305 (673) @ 3721 (146)	877 (1933)	461 (1017)		327 (722) @ 3721 (146)

* Rated Hydraulic Lift Capacity

82630 SW 7174898B enUS

Lift Chart (7174898) With Standard Arm (Cont'd)

⚠ ADVERTENCIA

UNA CARGA EXCESIVA PUEDE LADEAR LA EXCAVADORA Y PROVOCAR LESIONES O FATALIDADES

- No levante o sostenga una carga que supere estos límites a sus radios de carga especificados y altura.
- Se muestra la carga nominal total. Reste el peso de todos los dispositivos elevadores para determinar la carga neta que se puede levantar.

Donde corresponda, las especificaciones cumplen con las normas ISO.
Las especificaciones están sujetas a cambios sin previo aviso.
El punto de elevación es el punto de articulación del cucharón con un cucharón estándar instalado y con el cilindro del cucharóncompletamente extendido.

EXCAVADORA MODELO E32 – BRAZO ESTÁNDAR

PRESIONES DEL CIRCUITO
TRABAJO 245 bar (3350 psi)
SUJECIÓN 290 bar (4206 psi)

LARGO DE LA PLUMA 2450 mm (96.5 in)
LARGO DEL BRAZO 1325 mm (52.2 in)
CUCHARÓN ESTÁNDAR 610 mm (24.0 in)
101 kg (224 lb)

ALTURA DEL PUNTO DE ELEVACIÓN	CAPACIDAD DE ELEV. NOMINAL SOBRE PALA, PALA ABAJO – kg (lb)				CAPACIDAD DE ELEV. NOMINAL SOBRE PALA, PALA ARRIBA – kg (lb)				CAPACIDAD DE ELEV. NOMINAL SOBRE LADO, PALA ARRIBA – kg (lb)			
	RADIO DE ELEVACIÓN – mm (in)			ELEVACIÓN A MAX. RADIO, kg (lb) a mm (in)	RADIO DE ELEVACIÓN – mm (in)			ELEVACIÓN A MAX. RADIO, kg (lb) a mm (in)	RADIO DE ELEVACIÓN – mm (in)			ELEVACIÓN A MAX. RADIO, kg (lb) a mm (in)
mm (in.)	2000 (78.7)	3000 (118.1)	4000 (157.5)		2000 (78.7)	3000 (118.1)	4000 (157.5)		2000 (78.7)	3000 (118.1)	4000 (157.5)	
4000 (157.5)												
3000 (118.1)		*534 (1177)		*597 (1316) á 3755 (148)		*511 (1127)		399 (880) á 3755 (148)		*516 (1137)		354 (781) á 3755 (148)
2000 (78.7)	*1055 (2326)	*725 (1598)	*624 (1375)	*625 (1377) á 4202 (165)	*996 (2197)	535 (1181)	291 (641)	277 (611) á 4202 (165)	*1026 (2262)	536 (1181)	315 (694)	271 (598) á 4202 (165)
1000 (39.4)		*1018 (2244)	*734 (1617)	*666 (1468) á 4335 (171)		492 (1084)	349 (769)	253 (558) á 4335 (171)		477 (1052)	298 (657)	244 (537) á 4335 (171)
Suelo	*2089 (4606)	*1151 (2537)	*795 (1752)	*711 (1567) á 4188 (165)	1062 (2342)	477 (1051)	322 (710)	242 (534) á 4188 (165)	867 (1912)	456 (1004)	275 (607)	254 (560) á 4188 (165)
-1000 (-39.4)	*1952 (4304)	*1161 (2560)		*783 (1725) á 3721 (146)	976 (2153)	490 (1080)		305 (673) á 3721 (146)	877 (1933)	461 (1017)		327 (722) á 3721 (146)

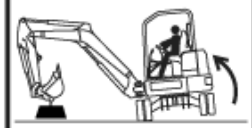
*Capacidad de elevación hidráulica nominal

82630 SW 7174898B esAR

AVERTISSEMENT

TOUTE SURCHARGE PEUT ENTRAÎNER LE RENVERSEMENT DE L'EXCAVATRICE ET PROVOQUER DES BLESSURES GRAVES, VOIRE MORTELLES

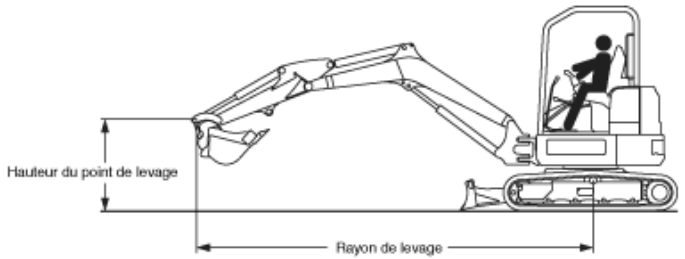
- Ne jamais lever ni porter de charges qui dépassent ces capacités au rayon et à la hauteur spécifiés.
- La charge nominale totale est indiquée. Le poids des équipements de levage doit être déduit pour calculer la charge nette de levage possible.



Lorsqu'il y a lieu, les spécifications sont conformes aux normes ISO.
Les spécifications sont sujettes à modifications sans préavis.
Le point de levage est le point d'articulation du godet, le godet standard attaché et le vérin du godet en pleine extension.

EXCAVATRICE MODÈLE E32 - BALANCIER STANDARD

PRESSION DES CIRCUITS		LONGUEUR DE FLÈCHE	2 450 mm (96,5 po)
EN EFFORT	245 bars (3 350 lb/po²)	LONGUEUR DE BALANCIER	1 325 mm (52,2 po)
EN MAINTIEN	290 bars (4 206 lb/po²)	GODET STANDARD	610 mm (24,0 po)
			101 kg (224 lb)



HAUTEUR DU POINT DE LEVAGE	CAPACITÉ DE LEVAGE EXTRÉMITÉ LAME, CELLE-CI ÉTANT BAISSÉE - kg (lb)				CAPACITÉ DE LEVAGE EXTRÉMITÉ LAME, CELLE-CI ÉTANT RELEVÉE - kg (lb)				CAPACITÉ DE LEVAGE LATÉRAL, AVEC LA LAME RELEVÉE - kg (lb)			
	RAYON DE LEVAGE - mm (po)			LEVAGE à RAYON MAX., kg (lb) à mm (po)	RAYON DE LEVAGE - mm (po)			LEVAGE à RAYON MAX., kg (lb) à mm (po)	RAYON DE LEVAGE - mm (po)			LEVAGE à RAYON MAX., kg (lb) à mm (po)
mm (po)	2 000 (78,7)	3 000 (118,1)	4 000 (157,5)		2 000 (78,7)	3 000 (118,1)	4 000 (157,5)		2 000 (78,7)	3 000 (118,1)	4 000 (157,5)	
4 000 (157,5)												
3 000 (118,1)		*534 (1 177)		*597 (1 316) à 3 755 (148)		*511 (1 127)		399 (880) à 3 775 (149)		*516 (1 137)		354 (781) à 3 715 (146)
2 000 (78,7)	*1 055 (2 326)	*725 (1 598)	*624 (1 375)	*625 (1 377) à 4 209 (166)	*996 (2 197)	535 (1 181)	291 (641)	277 (611) à 4 212 (166)	*1026 (2 262)	536 (1 181)	315 (694)	271 (598) à 4 218 (166)
1 000 (39,4)		*1 018 (2 244)	*734 (1 617)	*666 (1 468) à 4 275 (168)		492 (1 084)	349 (769)	253 (558) à 4 278 (168)		477 (1 052)	298 (657)	244 (537) à 4 335 (170)
Au niveau du sol	*2 089 (4 606)	*1 151 (2 537)	*795 (1 752)	*711 (1 567) à 4 139 (163)	1062 (2 342)	477 (1 051)	322 (710)	242 (534) à 4 167 (164)	867 (1 912)	456 (1 004)	275 (607)	254 (560) à 4 218 (166)
-1 000 (-39,4)	*1 952 (4304)	*1 161 (2 560)		*783 (1 725) à 3 689 (145)	976 (2 153)	490 (1 080)		305 (673) à 3691 (145)	877 (1 933)	461 (1 017)		327 (722) à 3 729 (147)

*** Capacité de levage hydraulique nominale**

82630 SW 7174898B frCA

⚠ WARNING

OVERLOAD CAN TIP THE EXCAVATOR AND CAUSE INJURY OR DEATH

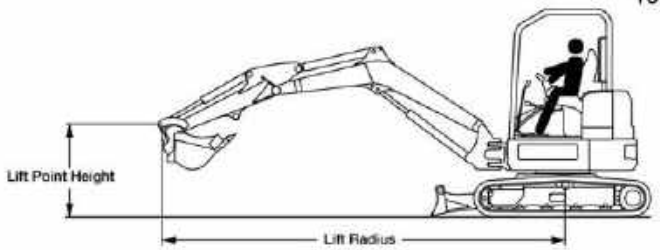
- Do not lift or hold any load that exceeds these ratings at their specified load radii and height.
- Total rated load is shown. The weight of all lifting devices must be deducted to determine the net load that can be lifted.

Where applicable, specifications conform to ISO Standards.
Specifications are subject to change without notice.
Lift Point is bucket hinge point with standard bucket attached and bucket cylinder fully extended.

EXCAVATOR MODEL E32

CIRCUIT PRESSURES
WORKING 245 bar (3350 psi)
HOLDING 290 bar (4206 psi)

BOOM LENGTH	2450 mm	(96.5 in)
ARM LENGTH	1325 mm	(52.2 in)
COUNTERWEIGHT	295 kg	(650 lb)
STANDARD BUCKET	610 mm	(24.0 in)
	101 kg	(224 lb)



LIFT POINT HEIGHT	RATED LIFT CAPACITY OVER BLADE, BLADE DOWN - kg (lb)				RATED LIFT CAPACITY OVER BLADE, BLADE UP - kg (lb)				RATED LIFT CAPACITY OVER SIDE, BLADE UP - kg (lb)			
	LIFT RADIUS - mm (in)			LIFT @ MAXIMUM RADIUS, kg (lb) @ mm (in)	LIFT RADIUS - mm (in)			LIFT @ MAXIMUM RADIUS, kg (lb) @ mm (in)	LIFT RADIUS - mm (in)			LIFT @ MAXIMUM RADIUS, kg (lb) @ mm (in)
mm (in.)	2000 (78.7)	3000 (118.1)	4000 (157.5)		2000 (78.7)	3000 (118.1)	4000 (157.5)		2000 (78.7)	3000 (118.1)	4000 (157.5)	
4000 (157.5)												
3000 (118.1)		*531 (1170)		*614 (1355) @ 3731 (147)		*508 (1120)		453 (998) @ 3732 (147)		*521 (1149)		476 (1050) @ 3755 (148)
2000 (78.7)	*1078 (2376)	*734 (1619)	*640 (1411)	*629 (1387) @ 4195 (165)	*1052 (2319)	*709 (1563)	424 (935)	341 (752) @ 4195 (165)	*1029 (2269)	*708 (1560)	424 (934)	372 (820) @ 4211 (166)
1000 (39.4)		*1022 (2252)	*751 (1656)	*677 (1493) @ 4286 (169)		689 (1519)	392 (864)	340 (749) @ 4319 (170)		638 (1406)	410 (905)	343 (756) @ 4307 (170)
Ground	*2176 (4797)	*1177 (2595)	*829 (1827)	*738 (1627) @ 4165 (164)	1332 (2936)	672 (1481)	465 (1026)	354 (782) @ 4192 (165)	1091 (2405)	597 (1316)	393 (867)	352 (777) @ 4208 (166)
-1000 (-39.4)	*2016 (4444)	*1168 (2575)		*799 (1762) @ 3695 (146)	1244 (2744)	698 (1539)		411 (906) @ 3718 (147)	1092 (2408)	594 (1309)		446 (983) @ 3744 (147)

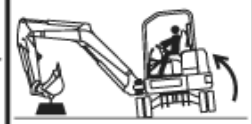
* Rated Hydraulic Lift Capacity

76191 SW 7182361A enUS

⚠ ADVERTENCIA

SI SE SOBRECARGA LA EXCAVADORA, ÉSTA PUEDE VOLCARSE Y OCASIONAR LESIONES O LA MUERTE

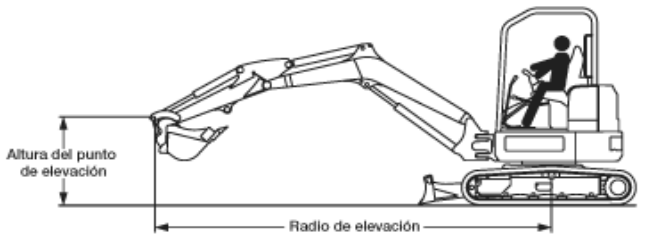
- No levante o sostenga cargas que superen estas clasificaciones a su radio y altura de carga especificados.
- Se muestra la carga total de clasificación. Para determinar el peso neto que se puede elevar debe restarse el peso de todos los dispositivos de elevación.



Las especificaciones cumplen con las Normas ISO, en los casos que correspondan.
Las especificaciones están sujetas a cambios sin previo aviso.
El Punto de elevación es el punto de la bisagra del cucharón con el cucharón estándar colocado y el cilindro de éste totalmente extendido.

EXCAVADORA MODELO E32

PRESIÓN DE CIRCUITOS EN FUNCIONAMIENTO	245 bar	(3350 psi)	LONGITUD DE LA EXTENSIÓN	2450 mm	(96.5 pulgs.)
			LONGITUD DEL BRAZO	1325 mm	(52.2 pulgs.)
SOSTENIENDO CARGAS	290 bar	(4206 psi)	CONTRAPESO	295 kg	(650 lb)
			CUCHARÓN ESTÁNDAR	610 mm	(24.0 pulgs.)
				101 Kg	(224 lb)



ALTURA DEL PUNTO DE ELEVACIÓN	CAPACIDAD DE ELEVACIÓN CLASIFICADA SOBRE LA HOJA, HOJA HACIA ABAJO - kg (lb)				CAPACIDAD DE ELEVACIÓN CLASIFICADA SOBRE LA HOJA, HOJA HACIA ARRIBA - kg (lb)				CAPACIDAD DE ELEVACIÓN CLASIFICADA SOBRE EL COSTADO, HOJA HACIA ARRIBA - kg (lb)			
	RADIO DE ELEVACIÓN - mm (pulgs.)			ELEVACIÓN AL RADIO MÁXIMO, kg (lb) a mm (pulgs.)	RADIO DE ELEVACIÓN - mm (pulgs.)			ELEVACIÓN AL RADIO MÁXIMO, kg (lb) a mm (pulgs.)	RADIO DE ELEVACIÓN - mm (pulgs.)			ELEVACIÓN AL RADIO MÁXIMO, kg (lb) a mm (pulgs.)
mm (pulgs.)	2000 (78.7)	3000 (118.1)	4000 (157.5)		2000 (78.7)	3000 (118.1)	4000 (157.5)		2000 (78.7)	3000 (118.1)	4000 (157.5)	
4000 (157.5)												
3000 (118.1)		*531 (1170)		*614 (1355) a 3731 (147)		*508 (1120)		453 (998) a 3732 (147)		*521 (1149)		476 (1050) a 3755 (148)
2000 (78.7)	*1078 (2376)	*734 (1619)	*640 (1411)	*629 (1387) a 4195 (165)	*1052 (2319)	*709 (1563)	424 (935)	341 (752) a 4195 (165)	*1029 (2269)	*708 (1560)	424 (934)	372 (820) a 4211 (166)
1000 (39.4)		*1022 (2252)	*751 (1656)	*677 (1493) a 4286 (169)		689 (1519)	392 (864)	340 (749) a 4319 (170)		638 (1406)	410 (905)	343 (756) a 4307 (170)
Nivel del suelo	*2176 (4797)	*1177 (2595)	*829 (1827)	*738 (1627) a 4165 (164)	1332 (2936)	672 (1481)	465 (1026)	354 (782) a 4192 (165)	1091 (2405)	597 (1316)	393 (867)	352 (777) a 4208 (166)
-1000 (-39.4)	*2016 (4444)	*1168 (2575)		*799 (1762) a 3695 (146)	1244 (2744)	698 (1539)		411 (906) a 3718 (147)	1092 (2408)	594 (1309)		446 (983) a 3744 (147)

* Capacidad hidráulica de elevación clasificada

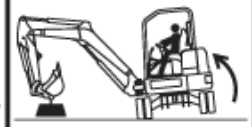
76191 SW 7182361A esAR

Lift Chart (7182361) With Standard Arm And Counterweight (Cont'd)

AVERTISSEMENT

TOUTE SURCHARGE PEUT ENTRAÎNER LE RENVERSEMENT DE L'EXCAVATRICE ET PROVOQUER DES BLESSURES GRAVES, VOIRE MORTELLES

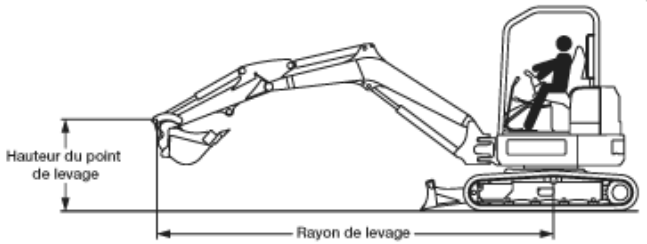
- Ne levez et ne transportez jamais des charges qui dépassent ces capacités au rayon et à la hauteur spécifiés.
- Le chiffre indiqué représente la charge nominale totale. Le poids des équipements de levage doit être déduit pour calculer la charge nette de levage possible.



Le cas échéant, les caractéristiques techniques sont conformes aux normes ISO.
Elles sont susceptibles d'être modifiées sans préavis.
Le point de levage s'entend comme le point d'articulation du godet (godet standard) avec le vérin de godet en extension complète.

EXCAVATRICE MODÈLE E32

PRESSION DES CIRCUITS			LONGUEUR DE FLÈCHE	2450 mm	(96,5 po)
EN LEVAGE	245 bars	(3350 lb/po²)	LONGUEUR DE BALANCIER	1325 mm	(52,2 po)
EN MAINTIEN	290 bars	(4206 lb/po²)	CONTREPOIDS	295 kg	(650 lb)
			GODET STANDARD	610 mm	(24,0 po)
				101 kg	(224 lb)



HAUTEUR DU POINT DE LEVAGE	CAPACITÉ DE LEVAGE AU-DESSUS DE LA LAME BAISSÉE - kg (lb)				CAPACITÉ DE LEVAGE AU-DESSUS DE LA LAME LEVÉE - kg (lb)				CAPACITÉ DE LEVAGE LATÉRAL, LAME LEVÉE - kg (lb)			
	RAYON DE LEVAGE - mm (po)			LEVAGE à RAYON MAX., kg (lb) à mm (po)	RAYON DE LEVAGE - mm (po)			LEVAGE à RAYON MAX., kg (lb) à mm (po)	RAYON DE LEVAGE - mm (po)			LEVAGE à RAYON MAX., kg (lb) à mm (po)
mm (po)	2000 (78,7)	3000 (118,1)	4000 (157,5)		2000 (78,7)	3000 (118,1)	4000 (157,5)		2000 (78,7)	3000 (118,1)	4000 (157,5)	
4000 (157,5)												
3000 (118,1)		*531 (1170)		*614 (1355) à 3731 (147)		*508 (1120)		453 (998) à 3732 (147)		*521 (1149)		476 (1050) à 3755 (148)
2000 (78,7)	*1078 (2376)	*734 (1619)	*640 (1411)	*629 (1387) à 4195 (165)	*1052 (2319)	*709 (1563)	424 (935)	341 (752) à 4195 (165)	*1029 (2269)	*708 (1560)	424 (934)	372 (820) à 4211 (166)
1000 (39,4)		*1022 (2252)	*751 (1656)	*677 (1493) à 4286 (169)		689 (1519)	392 (864)	340 (749) à 4319 (170)		638 (1406)	410 (905)	343 (756) à 4307 (170)
Au niveau du sol	*2176 (4797)	*1177 (2595)	*829 (1827)	*738 (1627) à 4165 (164)	1332 (2936)	672 (1481)	465 (1026)	354 (782) à 4192 (165)	1091 (2405)	597 (1316)	393 (867)	352 (777) à 4208 (166)
-1000 (-39,4)	*2016 (4444)	*1168 (2575)		*799 (1762) à 3695 (146)	1244 (2744)	698 (1539)		411 (906) à 3718 (147)	1092 (2408)	594 (1309)		446 (983) à 3744 (147)

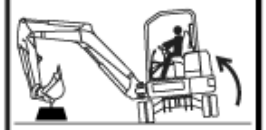
* Capacité de levage hydraulique

76191 SW 7182361A frCA

⚠WARNING

OVERLOAD CAN TIP THE EXCAVATOR AND CAUSE INJURY OR DEATH

- Do not lift or hold any load that exceeds these ratings at their specified load radii and height.
- Total rated load is shown. The weight of all lifting devices must be deducted to determine the net load that can be lifted.

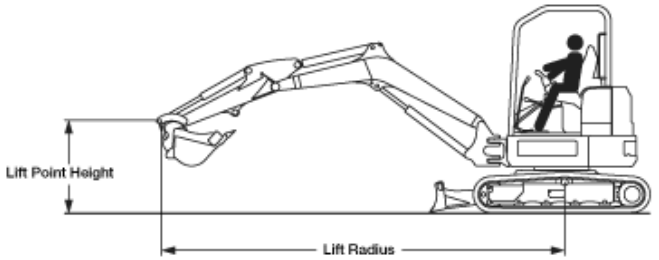


Where applicable, specifications conform to ISO Standards.
Specifications are subject to change without notice.
Lift Point is bucket hinge point with standard bucket attached and bucket cylinder fully extended.

EXCAVATOR MODEL E32 - LONG ARM

CIRCUIT PRESSURES
WORKING 245 bar (3350 psi)
HOLDING 290 bar (4206 psi)

BOOM LENGTH	2450 mm	(96.5 in)
ARM LENGTH	1625 mm	(64.0 in)
STANDARD BUCKET	610 mm	(24.0 in)
	101 kg	(224 lb)



LIFT POINT HEIGHT	RATED LIFT CAPACITY OVER BLADE, BLADE DOWN - kg (lb)				RATED LIFT CAPACITY OVER BLADE, BLADE UP - kg (lb)				RATED LIFT CAPACITY OVER SIDE, BLADE UP - kg (lb)			
	LIFT RADIUS - mm (in)			LIFT @ MAXIMUM RADIUS, kg (lb) @ mm (in)	LIFT RADIUS - mm (in)			LIFT @ MAXIMUM RADIUS, kg (lb) @ mm (in)	LIFT RADIUS - mm (in)			LIFT @ MAXIMUM RADIUS, kg (lb) @ mm (in)
mm (in.)	2000 (78.7)	3000 (118.1)	4000 (157.5)		2000 (78.7)	3000 (118.1)	4000 (157.5)		2000 (78.7)	3000 (118.1)	4000 (157.5)	
4000 (157.5)				*509 (1121) @ 3253 (128)				*499 (1101) @ 3253 (128)				*504 (1112) @ 3253 (128)
3000 (118.1)			*501 (1105)	*526 (1161) @ 4085 (161)			*485 (1068)	438 (966) @ 4085 (161)			423 (933)	419 (924) @ 4085 (161)
2000 (78.7)		*587 (1295)	*548 (1208)	*579 (1277) @ 4494 (177)		*567 (1249)	*521 (1148)	405 (893) @ 4494 (177)		*592 (1304)	430 (949)	342 (755) @ 4494 (177)
1000 (39.4)		*882 (1945)	*664 (1463)	*624 (1376) @ 4617 (182)		637 (1405)	444 (978)	374 (825) @ 4617 (182)		656 (1445)	401 (885)	314 (693) @ 4617 (182)
Ground	*2134 (4704)	*1125 (2481)	*776 (1710)	*683 (1505) @ 4481 (176)	1193 (2630)	641 (1412)	408 (899)	396 (872) @ 4481 (176)	1053 (2321)	597 (1316)	368 (811)	325 (716) @ 4481 (176)
-1000 (-39.4)	*2112 (4655)	*1166 (2570)	*756 (1667)	*745 (1643) @ 4055 (160)	1204 (2654)	624 (1376)	408 (899)	425 (937) @ 4055 (160)	1072 (2364)	568 (1253)	378 (833)	383 (844) @ 4055 (160)

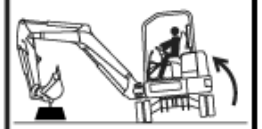
* Rated Hydraulic Lift Capacity

82630 SW 7174899B enUS

ADVERTENCIA

UNA CARGA EXCESIVA PUEDE LADEAR LA EXCAVADORA Y PROVOCAR LESIONES O FATALIDADES

- No levante o sostenga una carga que supere estos límites a sus radios de carga especificados y altura.
- Se muestra la carga nominal total. Reste el peso de todos los dispositivos elevadores para determinar la carga neta que se puede levantar.

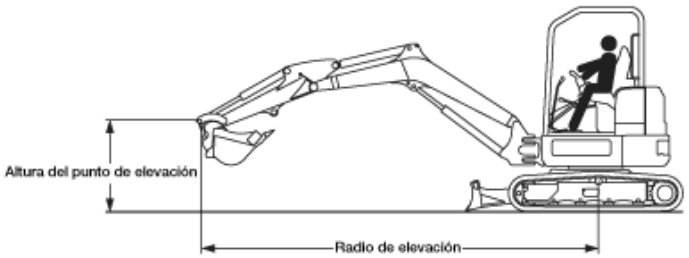


Donde corresponda, las especificaciones cumplen con las normas ISO. Las especificaciones están sujetas a cambios sin previo aviso. El punto de elevación es el punto de articulación del cucharón con un cucharón estándar instalado y con el cilindro del cucharón completamente extendido.

EXCAVADORA MODELO E32 – BRAZO LARGO

PRESIONES DEL CIRCUITO
TRABAJO 245 bar (3350 psi)
SUJECIÓN 290 bar (4206 psi)

LARGO DE LA PLUMA 2450 mm (96.5 in)
LARGO DEL BRAZO 1625 mm (64.0 in)
CUCHARÓN ESTÁNDAR 610 mm (24.0 in)
101 kg (224 lb)



ALTURA DEL PUNTO DE ELEVACIÓN mm (in.)	CAPACIDAD DE ELEV. NOMINAL SOBRE PALA, PALA ABAJO – kg (lb)				CAPACIDAD DE ELEV. NOMINAL SOBRE PALA, PALA ARRIBA – kg (lb)				CAPACIDAD DE ELEV. NOMINAL SOBRE LADO, PALA ARRIBA – kg (lb)			
	RADIO DE ELEVACIÓN – mm (in)			ELEVACIÓN A MAX. RADIO kg (lb) á mm (in)	RADIO DE ELEVACIÓN – mm (in)			ELEVACIÓN A MAX. RADIO kg (lb) á mm (in)	RADIO DE ELEVACIÓN – mm (in)			ELEVACIÓN A MAX. RADIO kg (lb) á mm (in)
	2000 (78.7)	3000 (118.1)	4000 (157.5)		2000 (78.7)	3000 (118.1)	4000 (157.5)		2000 (78.7)	3000 (118.1)	4000 (157.5)	
4000 (157.5)				*509 (1121) á 3253 (128)				*499 (1101) á 3253 (128)				*504 (1112) á 3253 (128)
3000 (118.1)			*501 (1105)	*526 (1161) á 4085 (161)			*485 (1068)	438 (966) á 4085 (161)			423 (933)	419 (924) á 4085 (161)
2000 (78.7)		*587 (1295)	*548 (1208)	*579 (1277) á 4494 (177)		*567 (1249)	*521 (1148)	405 (893) á 4494 (177)		*592 (1304)	430 (949)	342 (755) á 4494 (177)
1000 (39.4)		*882 (1945)	*664 (1463)	*624 (1376) á 4617 (182)		637 (1405)	444 (978)	374 (825) á 4617 (182)		656 (1445)	401 (885)	314 (693) á 4617 (182)
Suelo	*2134 (4704)	*1125 (2481)	*776 (1710)	*683 (1505) á 4481 (176)	1193 (2630)	641 (1412)	408 (899)	396 (872) á 4481 (176)	1053 (2321)	597 (1316)	368 (811)	325 (716) á 4481 (176)
-1000 (-39.4)	*2112 (4655)	*1166 (2570)	*756 (1667)	*745 (1643) á 4055 (160)	1204 (2654)	624 (1376)	408 (899)	425 (937) á 4055 (160)	1072 (2364)	568 (1253)	378 (833)	383 (844) á 4055 (160)

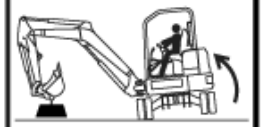
*Capacidad de elevación hidráulica nominal

82630 SW 7174899B esAR

AVERTISSEMENT

TOUTE SURCHARGE PEUT ENTRAÎNER LE RENVERSEMENT DE L'EXCAVATRICE ET PROVOQUER DES BLESSURES GRAVES, VOIRE MORTELLES

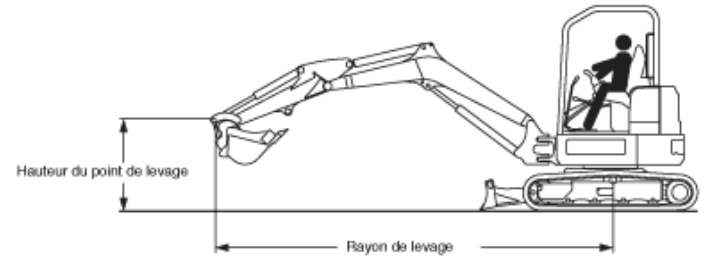
- Ne jamais lever ni porter de charges qui dépassent ces capacités au rayon et à la hauteur spécifiés.
- La charge nominale totale est indiquée. Le poids des équipements de levage doit être déduit pour calculer la charge nette de levage possible.



Lorsqu'il y a lieu, les spécifications sont conformes aux normes ISO.
Les spécifications sont sujettes à modifications sans préavis.
Le point de levage est le point d'articulation du godet, le godet standard attaché et le vérin du godet en pleine extension.

EXCAVATRICE MODÈLE E32 - BALANCIER LONG

PRESSION DES CIRCUITS		LONGUEUR DE FLÈCHE	2 450 mm (96,5 po)
EN EFFORT	245 bars (3 350 lb/po²)	LONGUEUR DE BALANCIER	1 625 mm (64,0 po)
EN MAINTIEN	290 bars (4 206 lb/po²)	GODET STANDARD	610 mm (24,0 po)
			101 kg (224 lb)



HAUTEUR DU POINT DE LEVAGE	CAPACITÉ DE LEVAGE EXTRÉMITÉ LAME, CELLE-CI ÉTANT BAISSÉE - kg (lb)				CAPACITÉ DE LEVAGE EXTRÉMITÉ LAME, CELLE-CI ÉTANT RELEVÉE - kg (lb)				CAPACITÉ DE LEVAGE LATÉRAL, AVEC LA LAME RELEVÉE - kg (lb)			
	RAYON DE LEVAGE - mm (po)			LEVAGE à RAYON MAX., kg (lb) à mm (po)	RAYON DE LEVAGE - mm (po)			LEVAGE à RAYON MAX., kg (lb) à mm (po)	RAYON DE LEVAGE - mm (po)			LEVAGE à RAYON MAX., kg (lb) à mm (po)
mm (po)	2 000 (78,7)	3 000 (118,1)	4 000 (157,5)		2 000 (78,7)	3 000 (118,1)	4 000 (157,5)		2 000 (78,7)	3 000 (118,1)	4 000 (157,5)	
4 000 (157,5)				*509 (1 121) à 3 253 (128)				*499 (1 101) à 3 226 (127)				*504 (1 112) à 3 247 (128)
3 000 (118,1)			*501 (1 105)	*526 (1 161) à 4 110 (162)			*485 (1 068)	438 (966) à 4 109 (162)			423 (933)	419 (924) à 4 121 (162)
2 000 (78,7)		*587 (1 295)	*548 (1 208)	*579 (1 277) à 4 518 (178)		*567 (1 249)	*521 (1 148)	405 (893) à 4 520 (178)		*592 (1 304)	430 (949)	342 (755) à 4 500 (177)
1 000 (39,4)		*882 (1 945)	*664 (1 463)	*624 (1 376) à 4 600 (181)		637 (1 405)	444 (978)	374 (825) à 4 600 (181)		656 (1 445)	401 (885)	314 (693) à 4 618 (182)
Au niveau du sol	*2 134 (4 704)	*1 125 (2 481)	*776 (1 710)	*683 (1 505) à 4 460 (176)	1 193 (2 630)	641 (1 412)	408 (899)	396 (872) à 4 489 (177)	1 053 (2 321)	597 (1 316)	368 (811)	325 (716) à 4 496 (177)
-1 000 (-39,4)	*2 112 (4 655)	*1 166 (2 570)	*756 (1 667)	*745 (1 643) à 4 038 (159)	1 204 (2 654)	624 (1 376)	408 (899)	425 (937) à 4 060 (160)	1072 (2 364)	568 (1 253)	378 (833)	383 (844) à 4 064 (160)

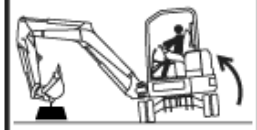
* Capacité de levage hydraulique nominale

82630 SW 7174899B frCA

⚠ WARNING

OVERLOAD CAN TIP THE EXCAVATOR AND CAUSE INJURY OR DEATH

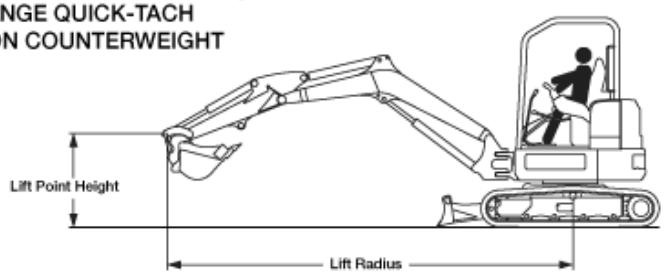
- Do not lift or hold any load that exceeds these ratings at their specified load radii and height.
- Total rated load is shown. The weight of all lifting devices must be deducted to determine the net load that can be lifted.



Where applicable, specifications conform to ISO Standards.
Specifications are subject to change without notice.
Lift Point is bucket hinge point with standard bucket attached and bucket cylinder fully extended.

EXCAVATOR MODEL E32 - EXTENDABLE ARM

ARM LENGTH: 1375 mm (54.0 in) <-> 2140 mm (84.0 in)
STANDARD BUCKET: 610 mm (24.0 in)
101 kg (224 lb)
X-CHANGE QUICK-TACH
ADD-ON COUNTERWEIGHT



LIFT POINT HEIGHT mm (in.)	RATED LIFT CAPACITY OVER BLADE, BLADE DOWN - kg (lb)				RATED LIFT CAPACITY OVER BLADE, BLADE UP - kg (lb)				RATED LIFT CAPACITY OVER SIDE, BLADE UP - kg (lb)			
	LIFT RADIUS - mm (in)				LIFT RADIUS - mm (in)				LIFT RADIUS - mm (in)			
	ARM RETRACTED			ARM EXTENDED	ARM RETRACTED			ARM EXTENDED	ARM RETRACTED			ARM EXTENDED
	3000 (118.1)	4000 (157.5)	LIFT @ MAXIMUM RADIUS, kg (lb) @ mm (in)	LIFT @ MAXIMUM RADIUS, kg (lb) @ mm (in)	3000 (118.1)	4000 (157.5)	LIFT @ MAXIMUM RADIUS, kg (lb) @ mm (in)	LIFT @ MAXIMUM RADIUS, kg (lb) @ mm (in)	3000 (118.1)	4000 (157.5)	LIFT @ MAXIMUM RADIUS, kg (lb) @ mm (in)	LIFT @ MAXIMUM RADIUS, kg (lb) @ mm (in)
4000 (157.5)				*354 (780) @3978 (156.6)				*355 (783) @3978 (156.6)				*359 (792) @3978 (156.6)
3000 (118.1)			*535 (1180) @3884 (152.9)	*378 (834) @4678 (184.2)			447 (986) @3884 (152.9)	285 (629) @4678 (184.2)			392 (863) @3884 (152.9)	271 (597) @4678 (184.2)
2000 (78.7)	*604 (1331)	*559 (1232)	*564 (1242) @4310 (169.7)	*410 (904) @4992 (196.5)	*623 (1373)	403 (888)	313 (690) @4310 (169.7)	264 (583) @4992 (196.5)	*631 (1392)	344 (758)	292 (644) @4310 (169.7)	212 (467) @4992 (196.5)
1000 (39.4)	*895 (1972)	*648 (1429)	*609 (1343) @4400 (173.2)	*451 (995) @5098 (200.7)	629 (1387)	386 (851)	289 (638) @4400 (173.2)	205 (453) @5098 (200.7)	539 (1189)	319 (704)	258 (569) @4400 (173.2)	191 (422) @5098 (200.7)
Ground	*1075 (2370)	*734 (1617)	*666 (1468) @4280 (168.5)	*503 (1108) @4980 (196.1)	604 (1331)	368 (812)	323 (711) @4280 (168.5)	245 (539) @4980 (196.1)	504 (1112)	299 (660)	271 (598) @4280 (168.5)	191 (420) @4980 (196.1)
-1000 (-39.4)	*1095 2413		*733 (1616) @3812 (150.1)	*569 (1255) @4643 (182.8)	576 (1269)		427 (941) @3812 (150.1)	263 (581) @4643 (182.8)	498 (1097)		335 (738) @3812 (150.1)	225 (496) @4643 (182.8)

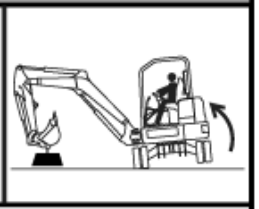
* Rated Hydraulic Lift Capacity

80013 SW 7203641 enUS

ADVERTENCIA

UNA CARGA EXCESIVA PUEDE LADEAR LA EXCAVADORA Y PROVOCAR LESIONES O FATALIDADES

- No levante o sostenga una carga que supere estos límites a sus radios de carga especificados y altura.
- Se muestra la carga nominal total. Reste el peso de todos los dispositivos elevadores para determinar la carga neta que se puede levantar.

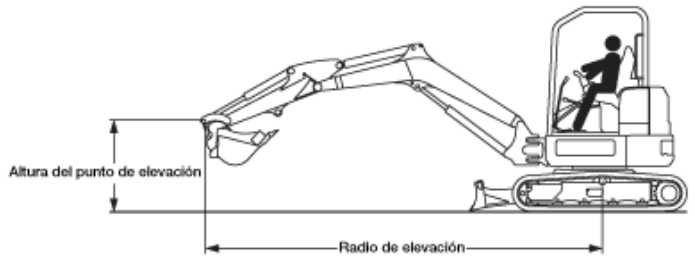


Donde corresponda, las especificaciones cumplen con las normas ISO. Las especificaciones están sujetas a cambios sin previo aviso.
El punto de elevación es el punto de articulación del cucharón con un cucharón estándar instalado y con el cilindro del cucharón completamente extendido.

EXCAVADORA MODELO E32 – BRAZO LARGO

PRESIONES DEL CIRCUITO
TRABAJO 245 bar (3350 psi)
SUJECIÓN 290 bar (4206 psi)

LARGO DE LA PLUMA 2450 mm (96.5 in)
LARGO DEL BRAZO 1625 mm (64.0 in)
CUCHARÓN ESTÁNDAR 610 mm (24.0 in) 101 kg (224 lb)



ALTURA DEL PUNTO DE ELEVACIÓN mm (in.)	CAPACIDAD DE ELEV. NOMINAL SOBRE PALA, PALA ABAJO – kg (lb)				CAPACIDAD DE ELEV. NOMINAL SOBRE PALA, PALA ARRIBA – kg (lb)				CAPACIDAD DE ELEV. NOMINAL SOBRE LADO, PALA ARRIBA – kg (lb)			
	RADIO DE ELEVACIÓN – mm (in)			ELEVACIÓN A MAX. RADIO kg (lb) á mm (in)	RADIO DE ELEVACIÓN – mm (in)			ELEVACIÓN A MAX. RADIO kg (lb) á mm (in)	RADIO DE ELEVACIÓN – mm (in)			ELEVACIÓN A MAX. RADIO kg (lb) á mm (in)
	2000 (78.7)	3000 (118.1)	4000 (157.5)		2000 (78.7)	3000 (118.1)	4000 (157.5)		2000 (78.7)	3000 (118.1)	4000 (157.5)	
4000 (157.5)				*509 (1121) á 3253 (128)				*499 (1101) á 3253 (128)				*504 (1112) á 3253 (128)
3000 (118.1)			*501 (1105)	*526 (1161) á 4085 (161)			*485 (1068)	438 (966) á 4085 (161)			423 (933)	419 (924) á 4085 (161)
2000 (78.7)		*587 (1295)	*548 (1208)	*579 (1277) á 4494 (177)		*567 (1249)	*521 (1148)	405 (893) á 4494 (177)		*592 (1304)	430 (949)	342 (755) á 4494 (177)
1000 (39.4)		*882 (1945)	*664 (1463)	*624 (1376) á 4617 (182)		637 (1405)	444 (978)	374 (825) á 4617 (182)		656 (1445)	401 (885)	314 (693) á 4617 (182)
Suelo	*2134 (4704)	*1125 (2481)	*776 (1710)	*683 (1505) á 4481 (176)	1193 (2630)	641 (1412)	408 (899)	396 (872) á 4481 (176)	1053 (2321)	597 (1316)	368 (811)	325 (716) á 4481 (176)
-1000 (-39.4)	*2112 (4655)	*1166 (2570)	*756 (1667)	*745 (1643) á 4055 (160)	1204 (2654)	624 (1376)	408 (899)	425 (937) á 4055 (160)	1072 (2364)	568 (1253)	378 (833)	383 (844) á 4055 (160)

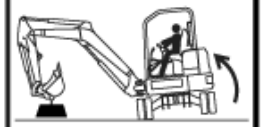
*Capacidad de elevación hidráulica nominal

82630 SW 7174899B esAR

AVERTISSEMENT

TOUTE SURCHARGE PEUT ENTRAÎNER LE RENVERSEMENT DE L'EXCAVATRICE ET PROVOQUER DES BLESSURES GRAVES, VOIRE MORTELLES

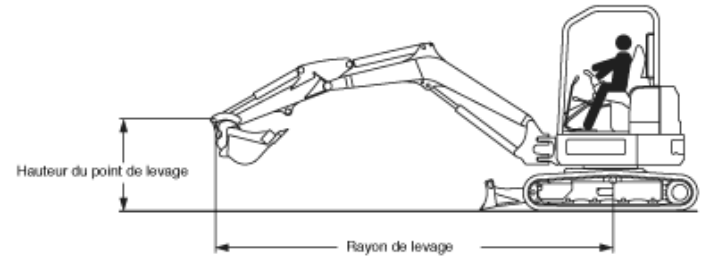
- Ne jamais lever ni porter de charges qui dépassent ces capacités au rayon et à la hauteur spécifiés.
- La charge nominale totale est indiquée. Le poids des équipements de levage doit être déduit pour calculer la charge nette de levage possible.



Lorsqu'il y a lieu, les spécifications sont conformes aux normes ISO.
Les spécifications sont sujettes à modifications sans préavis.
Le point de levage est le point d'articulation du godet, le godet standard attaché et le vérin du godet en pleine extension.

EXCAVATRICE MODÈLE E32 - BALANCIER LONG

PRESSION DES CIRCUITS		LONGUEUR DE FLÈCHE	2 450 mm (96,5 po)
EN EFFORT	245 bars (3 350 lb/po²)	LONGUEUR DE BALANCIER	1 625 mm (64,0 po)
EN MAINTIEN	290 bars (4 206 lb/po²)	GODET STANDARD	610 mm (24,0 po)
			101 kg (224 lb)

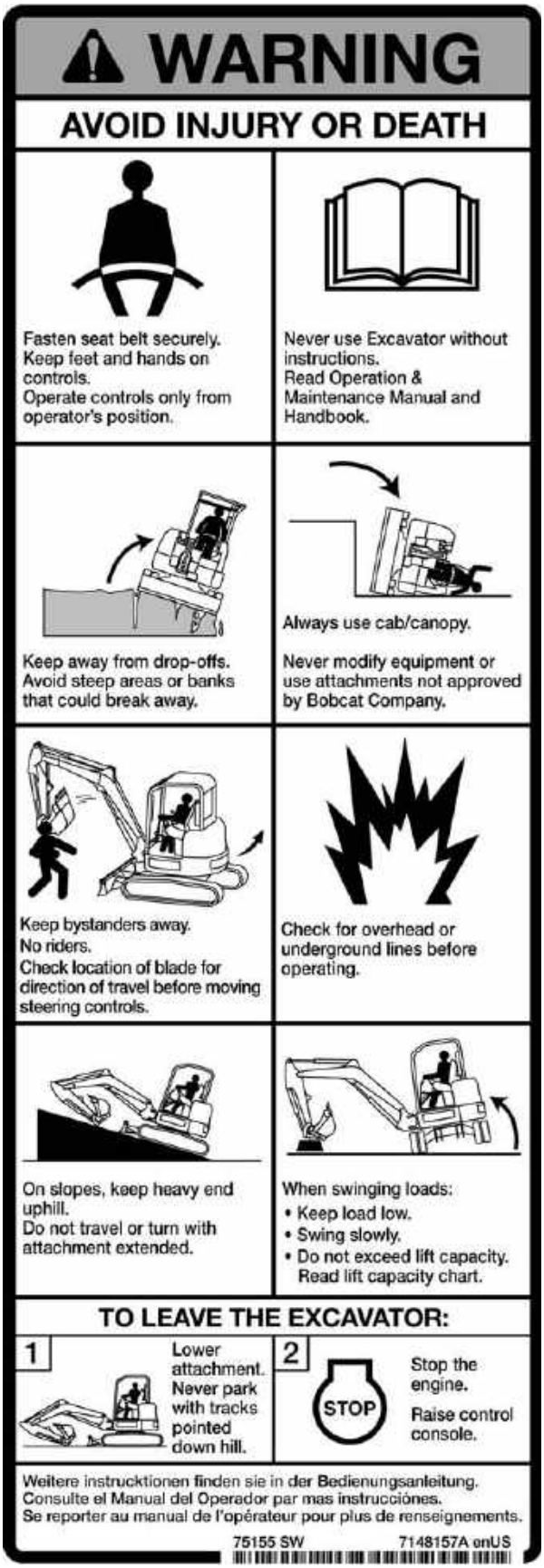


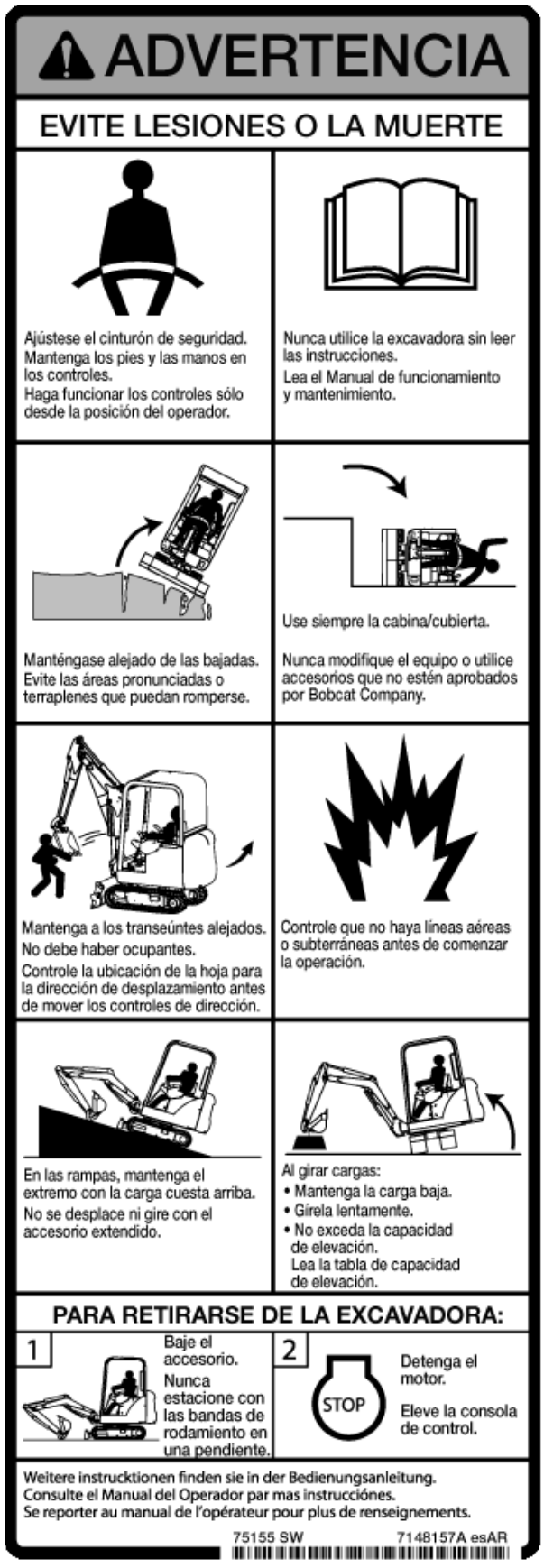
HAUTEUR DU POINT DE LEVAGE	CAPACITÉ DE LEVAGE EXTRÉMITÉ LAME, CELLE-CI ÉTANT BAISSÉE - kg (lb)				CAPACITÉ DE LEVAGE EXTRÉMITÉ LAME, CELLE-CI ÉTANT RELEVÉE - kg (lb)				CAPACITÉ DE LEVAGE LATÉRAL, AVEC LA LAME RELEVÉE - kg (lb)			
	RAYON DE LEVAGE - mm (po)			LEVAGE à RAYON MAX., kg (lb) à mm (po)	RAYON DE LEVAGE - mm (po)			LEVAGE à RAYON MAX., kg (lb) à mm (po)	RAYON DE LEVAGE - mm (po)			LEVAGE à RAYON MAX., kg (lb) à mm (po)
mm (po)	2 000 (78,7)	3 000 (118,1)	4 000 (157,5)		2 000 (78,7)	3 000 (118,1)	4 000 (157,5)		2 000 (78,7)	3 000 (118,1)	4 000 (157,5)	
4 000 (157,5)				*509 (1 121) à 3 253 (128)				*499 (1 101) à 3 226 (127)				*504 (1 112) à 3 247 (128)
3 000 (118,1)			*501 (1 105)	*526 (1 161) à 4 110 (162)			*485 (1 068)	438 (966) à 4 109 (162)			423 (933)	419 (924) à 4 121 (162)
2 000 (78,7)		*587 (1 295)	*548 (1 208)	*579 (1 277) à 4 518 (178)		*567 (1 249)	*521 (1 148)	405 (893) à 4 520 (178)		*592 (1 304)	430 (949)	342 (755) à 4 500 (177)
1 000 (39,4)		*882 (1 945)	*664 (1 463)	*624 (1 376) à 4 600 (181)		637 (1 405)	444 (978)	374 (825) à 4 600 (181)		656 (1 445)	401 (885)	314 (693) à 4 618 (182)
Au niveau du sol	*2 134 (4 704)	*1 125 (2 481)	*776 (1 710)	*683 (1 505) à 4 460 (176)	1 193 (2 630)	641 (1 412)	408 (899)	396 (872) à 4 489 (177)	1 053 (2 321)	597 (1 316)	368 (811)	325 (716) à 4 496 (177)
-1 000 (-39,4)	*2 112 (4 655)	*1 166 (2 570)	*756 (1 667)	*745 (1 643) à 4 038 (159)	1 204 (2 654)	624 (1 376)	408 (899)	425 (937) à 4 060 (160)	1072 (2 364)	568 (1 253)	378 (833)	383 (844) à 4 064 (160)

* Capacité de levage hydraulique nominale

82630 SW 7174899B frCA

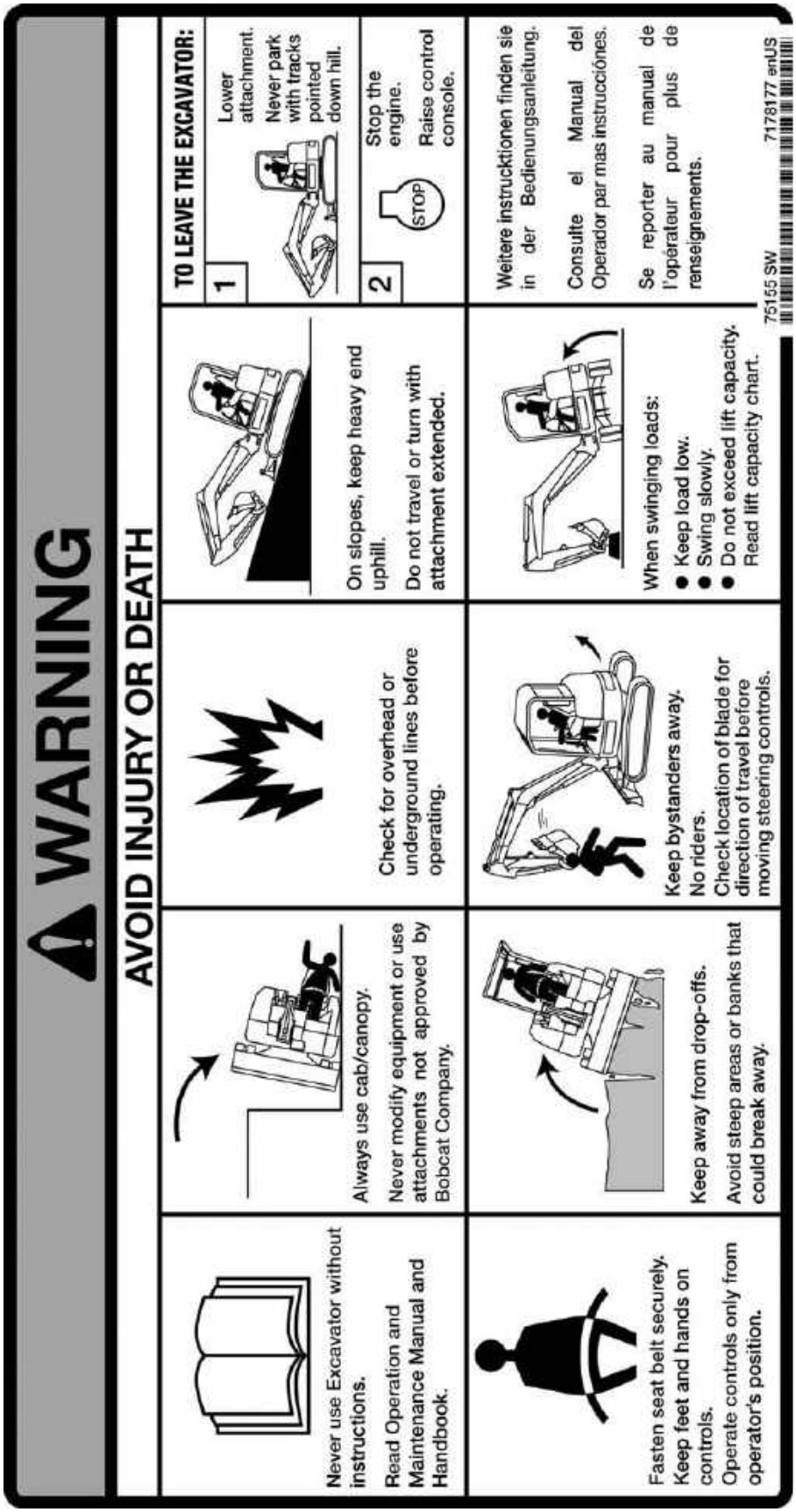
Warning (7148157)



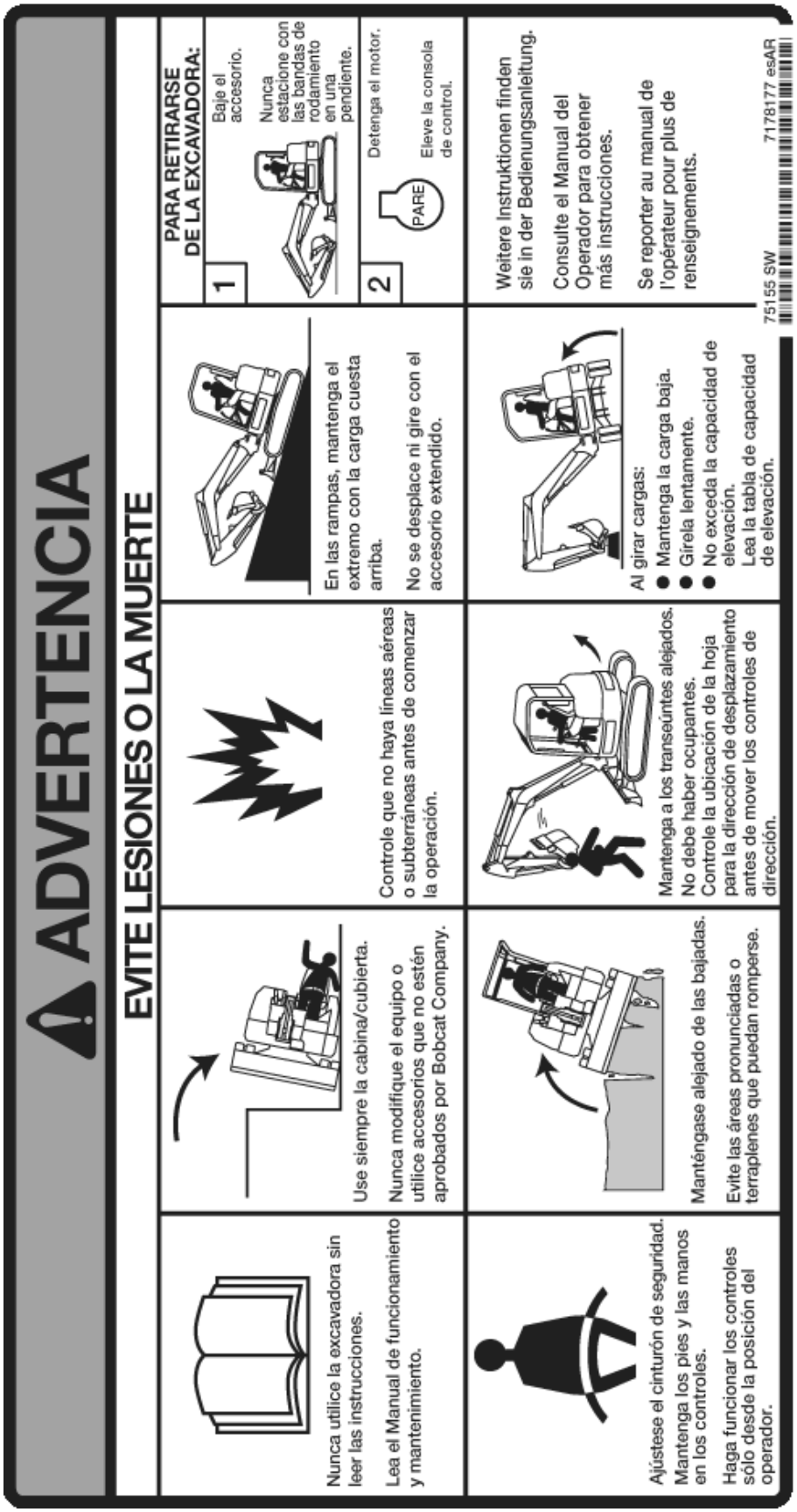


Warning (7148157) (Cont'd)

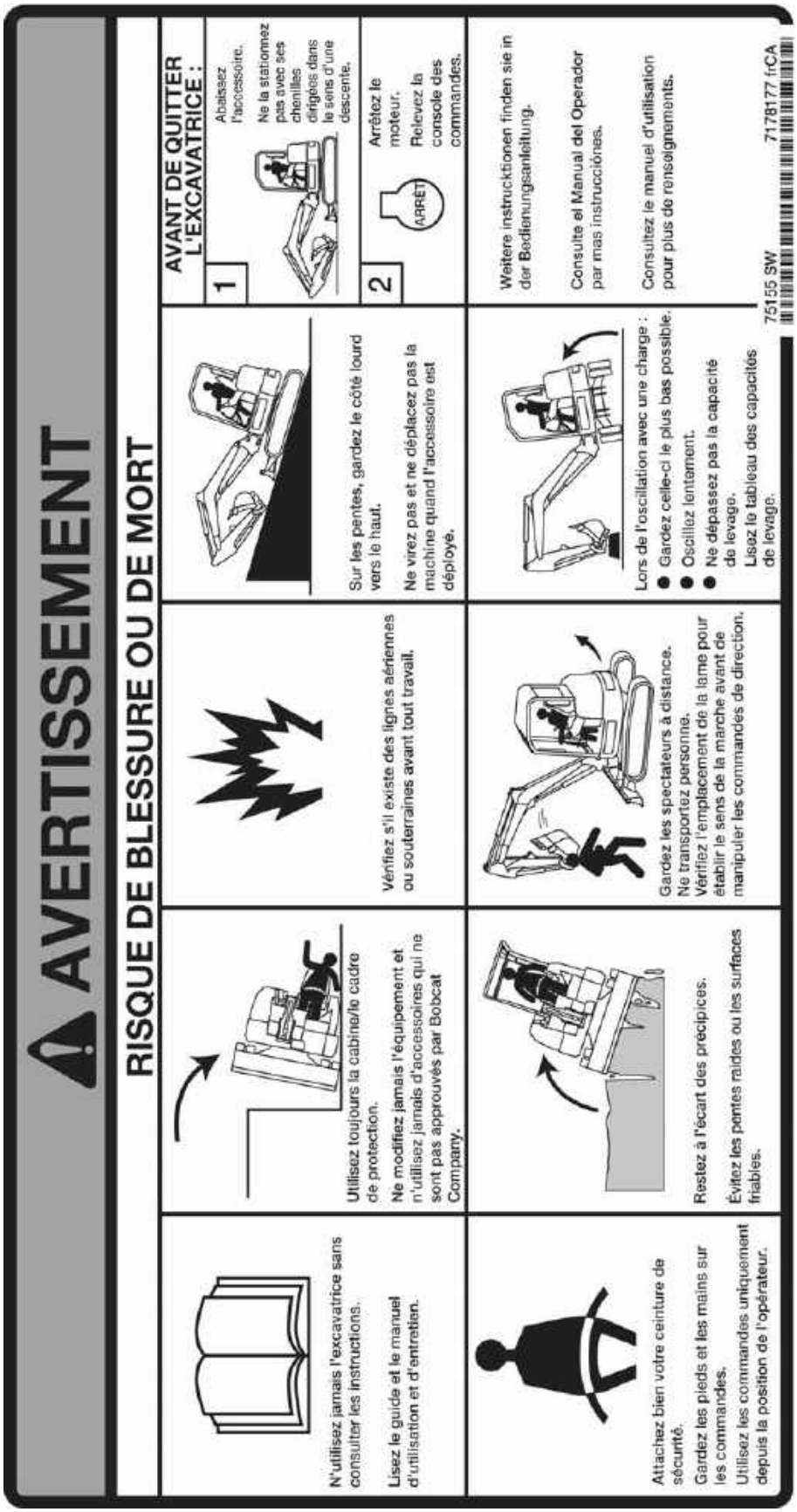
Warning (7178177)



Warning (7178177) (Cont'd)



Warning (7178177) (Cont'd)



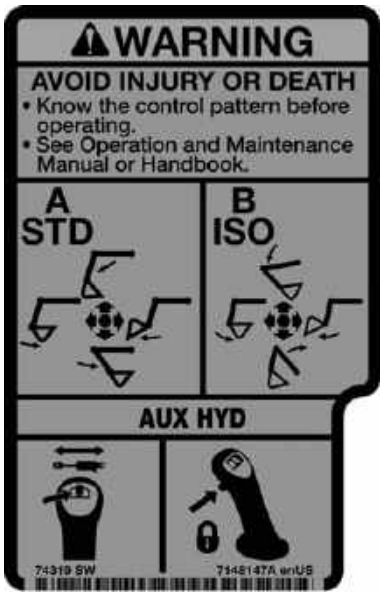
Warning (6708929)

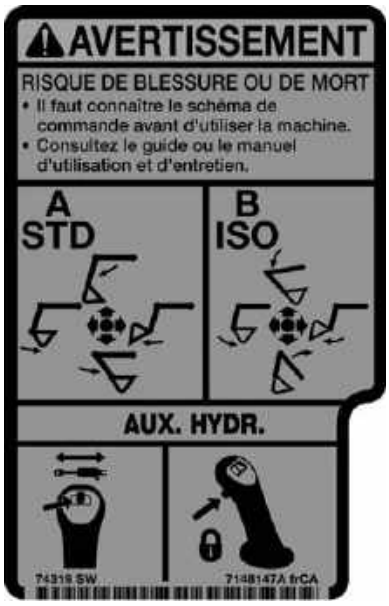
Warning (6809832)

Warning (7185933)

Warning (7148145)

Warning (7148147)



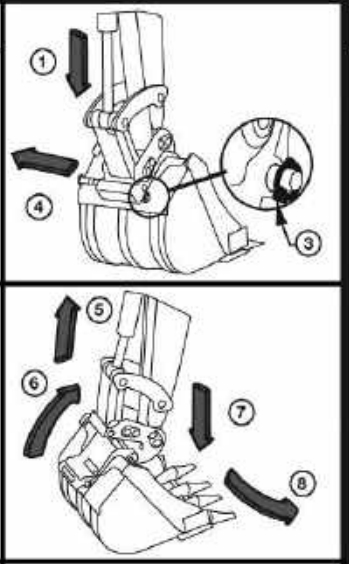


Using the X-Change (7102651)

PIN ON STYLE X-CHANGE™ SYSTEM

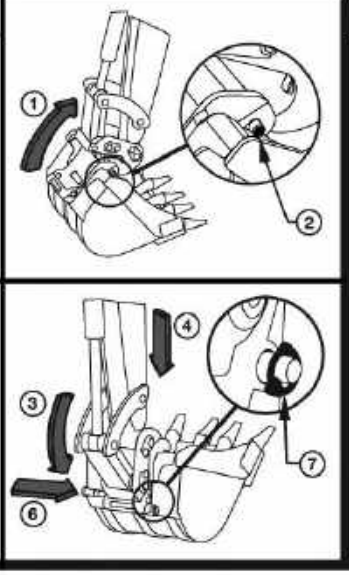
ATTACHMENT REMOVAL

1. Position ARM VERTICAL, lower attachment to ground and stop engine.
2. Turn key to ON position (not start) and move both joysticks to relieve hydraulic pressure.
3. Remove retainer pin.
4. Remove pin.
5. Start engine. Lift boom to disengage attachment.
6. Fully Retract Bucket Cylinder.
7. Lower Boom Until Pins Disengage From hooks.
8. Move arm toward operator.



ATTACHMENT INSTALLATION

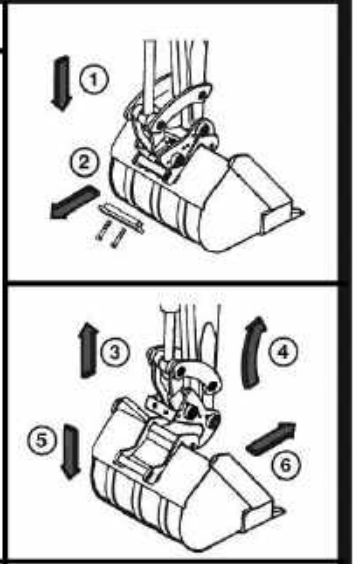
1. Fully retract bucket cylinder.
2. Engage pins into hooks.
3. Lift boom and extend bucket cylinder until X-Change contacts attachment back.
4. Lower boom and attachment to ground WITH ARM VERTICAL until X-Change is fully engaged.
5. Stop engine, turn key to ON position (not start) and move both joysticks to relieve hydraulic pressure.
6. Install pin.
7. Install retainer pin.
8. Check for proper installation. Lift attachment and fully extend and retract bucket cylinder.



BOLT ON STYLE X-CHANGE™ SYSTEM

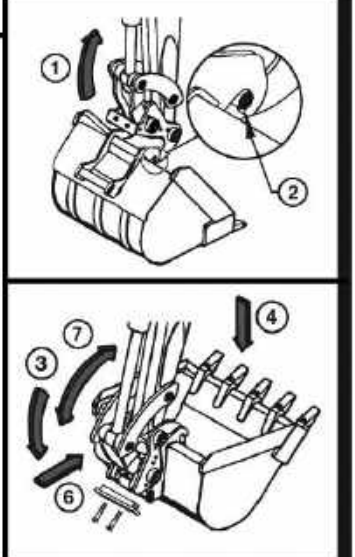
ATTACHMENT REMOVAL

1. Lower attachment to ground and stop engine.
2. Remove two bolts and plate.
3. Start engine. Lift boom to disengage attachment.
4. Fully retract bucket cylinder.
5. Lower boom until pins disengage from hooks.
6. Move arm toward operator.



ATTACHMENT INSTALLATION

1. Fully retract bucket cylinder.
2. Engage pins into hooks.
3. Lift boom and extend bucket cylinder until X-change contacts attachment back.
4. Lower boom and attachment to ground WITH ARM VERTICAL until X-Change fully engages.
5. Stop engine.
6. Insert two bolts through plate and torque to 140 ft-lbs (190 N-m).
7. Check for proper installation. Lift attachment and fully extend and retract bucket cylinder.



SEE OPERATION & MAINTENANCE MANUAL FOR MORE INSTRUCTIONS AND USE WITH OTHER ATTACHMENTS

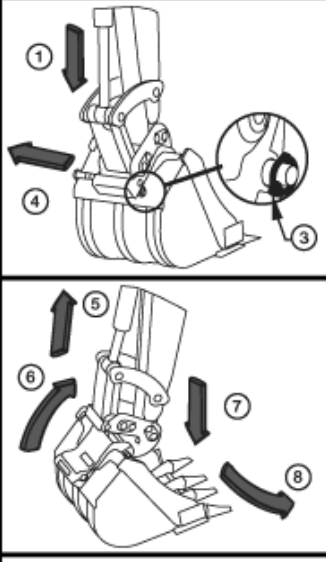
68538 SW 7102651B enUS

Using the X-Change (7102651) (Cont'd)

SISTEMA X-CHANGE™ FIJADO CON PASADOR

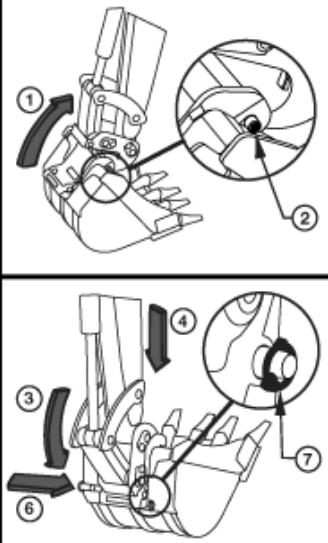
DESINSTALACIÓN DE IMPLEMENTO

1. Coloque el BRAZO en posición VERTICAL, descienda el implemento hasta el suelo y detenga el motor.
2. Gire la llave a ON (no encienda el motor) y mueva ambos joysticks para liberar la presión hidráulica.
3. Retire el pin de retención.
4. Retire el pasador.
5. Encienda el motor. Eleve el "boom" para desenganchar el implemento.
6. Retraiga del todo el cilindro del cucharón.
7. Baje el "boom" hasta que los pines se liberen de los ganchos.
8. Mueva el brazo hacia el operador.



INSTALACIÓN DE IMPLEMENTO

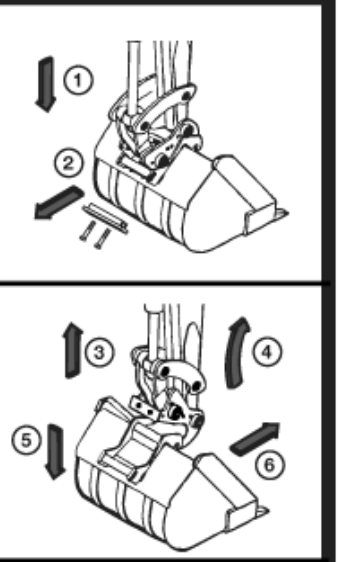
1. Retraiga del todo el cilindro del cucharón.
2. Coloque los pines en los ganchos.
3. Eleve el "boom" y extienda el cilindro del cucharón hasta que el X-Change haga contacto con el espaldar del implemento.
4. Descienda el "boom" e implemento hasta el suelo CON EL BRAZO VERTICAL hasta que el X-Change esté enganchado del todo.
5. Detenga el motor, gire la llave a ON (no encienda el motor) y mueva ambos joysticks para liberar la presión hidráulica.
6. Instale el pasador.
7. Instale el pin de retención.
8. Revise que la instalación sea correcta. Eleve el implemento, y extienda y retraiga del todo el cilindro del cucharón.



SISTEMA X-CHANGE™ FIJADO CON PASADOR

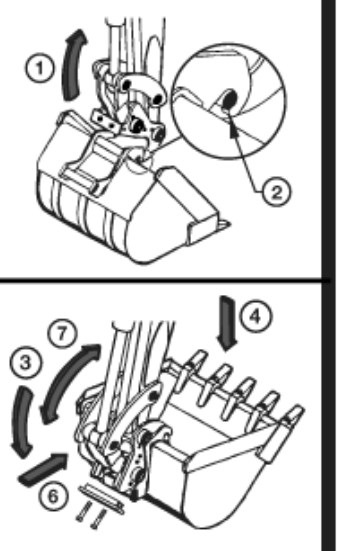
DESINSTALACIÓN DE IMPLEMENTO

1. Descienda el implemento hasta el suelo y detenga el motor.
2. Retire los dos pernos y la placa.
3. Encienda el motor. Eleve el "boom" para liberar el implemento.
4. Retraiga del todo el cilindro del cucharón.
5. Baje el "boom" hasta que los pines se liberen de los ganchos.
6. Mueva el brazo hacia adentro.



INSTALACIÓN DE IMPLEMENTO

1. Retraiga del todo el cilindro del cucharón.
2. Coloque los pines en los ganchos.
3. Eleve el "boom" y extienda el cilindro del cucharón hasta que el X-Change haga contacto con el espaldar del implemento.
4. Baje el "boom" e implemento hasta el suelo CON EL BRAZO VERTICAL hasta que el X-Change se enganche del todo.
5. Detenga el motor.
6. Inserte dos pernos a través de la placa y apriete a un torque de 140 lbs-pies (190 N-m).
7. Revise que la instalación sea correcta. Eleve el implemento, y extienda y retraiga del todo el cilindro del cucharón.



VER EL MANUAL DE OPERACIÓN Y MANTENIMIENTO PARA MAYORES INSTRUCCIONES Y USOS CON OTROS IMPLEMENTOS.

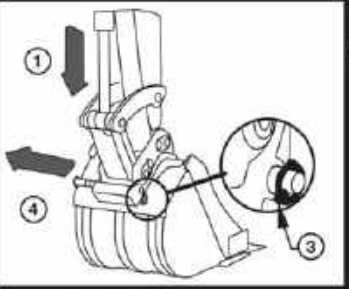
68538 SW 7102651B arAR

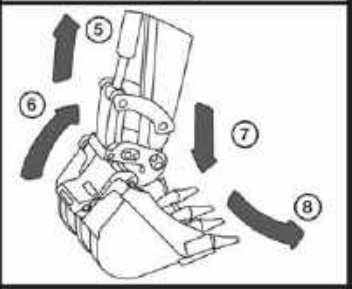
Using the X-Change (7102651) (Cont'd)

SYSTÈME X-CHANGE™ CHEVILLÉ

DÉPOSE DE L'ACCESSOIRE

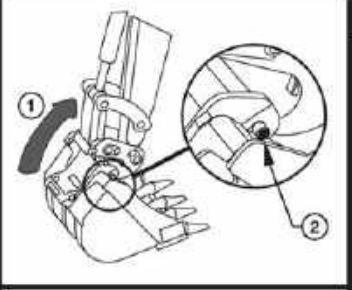
1. Placez le BRAS EN POSITION VERTICALE, abaissez l'accessoire sur le sol et arrêtez le moteur.
2. Tournez la clé en position ON (Marche) (pas en position Start [Démarrage]) et déplacez les deux manipulateurs pour libérer la pression hydraulique.
3. Retirez la goupille de retenue.
4. Retirez la cheville.
5. Démarrez le moteur. Relevez la flèche pour détacher l'accessoire.
6. Rétractez complètement le vérin du godet.
7. Abaissez la flèche jusqu'à ce que les axes se désengagent des crochets.
8. Déplacez le bras vers l'opérateur.

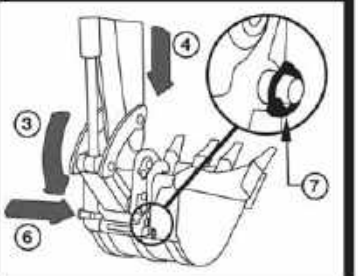




INSTALLATION DE L'ACCESSOIRE

1. Rétractez complètement le vérin du godet.
2. Engagez les axes dans les crochets.
3. Relevez la flèche et étendez le vérin du godet jusqu'à ce que le X-Change entre en contact avec l'arrière de l'accessoire.
4. Abaissez la flèche et l'accessoire sur le sol AVEC LE BRAS VERTICAL jusqu'à ce que le X-Change s'engage complètement.
5. Arrêtez le moteur, tournez la clé en position ON (Marche) (pas en position Start [Démarrage]) et déplacez les deux manipulateurs pour libérer la pression hydraulique.
6. Installez la cheville.
7. Installez la goupille de retenue.
8. Vérifiez que le montage est correct. Levez l'accessoire puis déployez et rétractez complètement le vérin du godet.

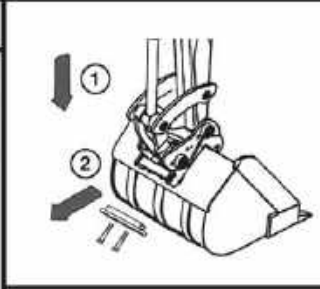


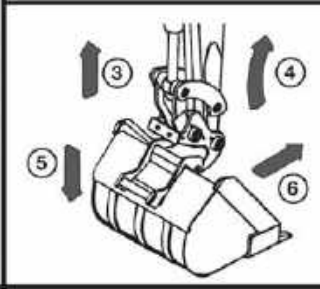


SYSTÈME X-CHANGE™ BOULONNÉ

DÉPOSE DE L'ACCESSOIRE

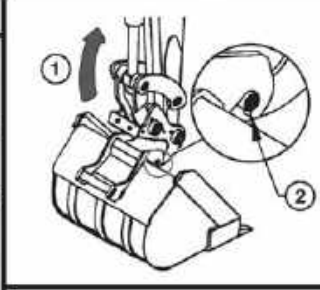
1. Abaissez l'accessoire sur le sol et arrêtez le moteur.
2. Déposez les deux boulons et la plaque.
3. Démarrez le moteur. Relevez la flèche pour détacher l'accessoire.
4. Rétractez complètement le vérin du godet.
5. Abaissez la flèche jusqu'à ce que les axes se désengagent des crochets.
6. Déplacez le bras vers l'opérateur.

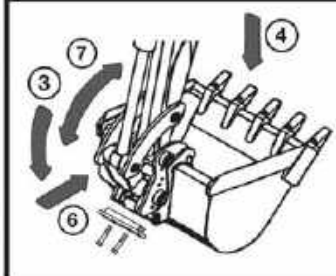




INSTALLATION DE L'ACCESSOIRE

1. Rétractez complètement le vérin du godet.
2. Engagez les axes dans les crochets.
3. Relevez la flèche et étendez le vérin du godet jusqu'à ce que le X-change entre en contact avec l'arrière de l'accessoire.
4. Abaissez la flèche et l'accessoire sur le sol AVEC LE BRAS VERTICAL jusqu'à ce que le X-Change s'engage complètement.
5. Arrêtez le moteur.
6. Insérez deux boulons à travers la plaque et serrez-les au couple de 140 lb-pi (190 N-m)
7. Vérifiez que le montage est correct. Levez l'accessoire puis déployez et rétractez complètement le vérin du godet.

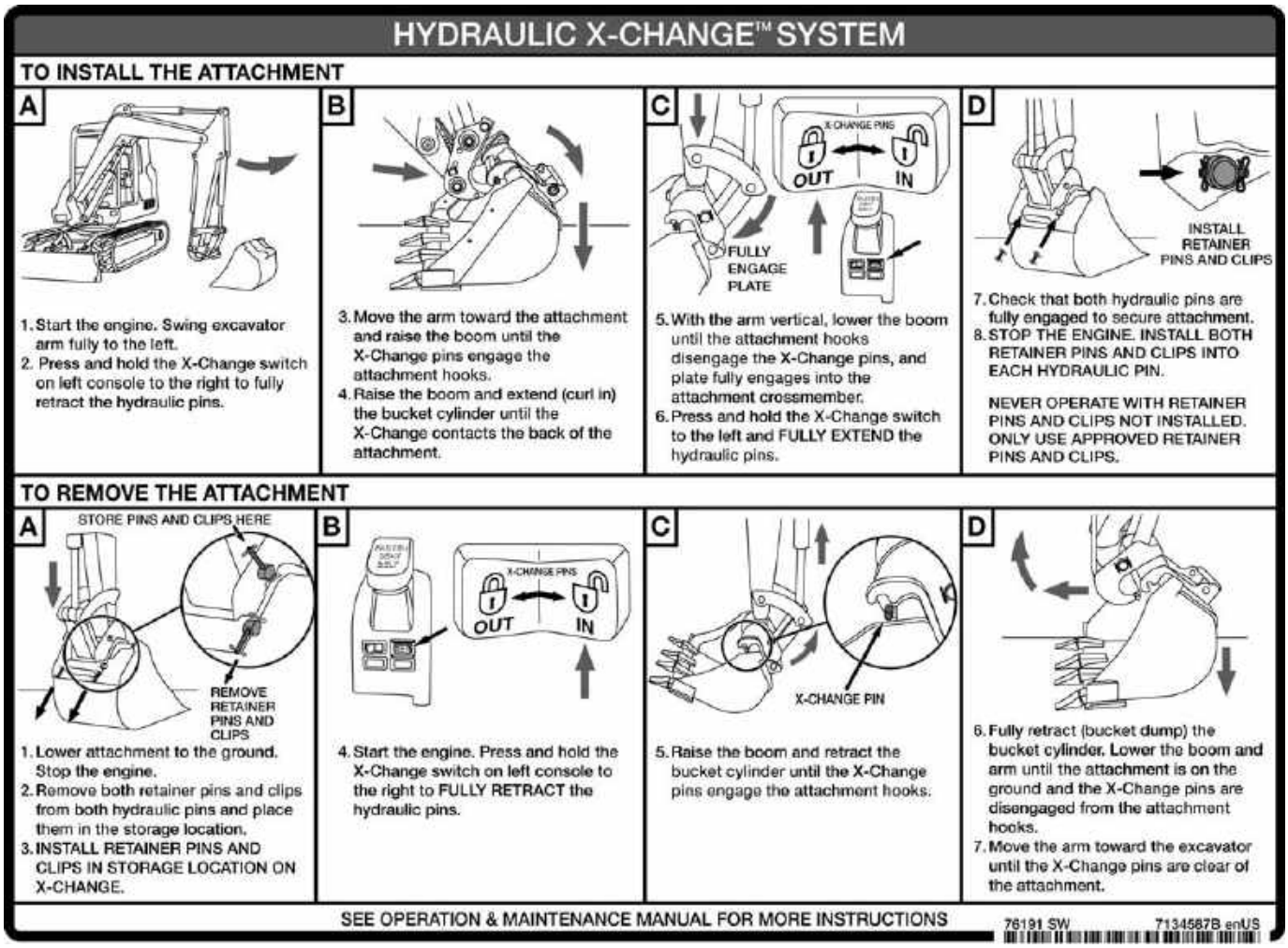




CONSULTEZ LE MANUEL D'UTILISATION ET D'ENTRETIEN POUR PLUS D'INSTRUCTIONS ET L'EMPLOI AVEC D'AUTRES ACCESSOIRES

68538 SW 7102651B frCA

Using the X-Change System (7134587)

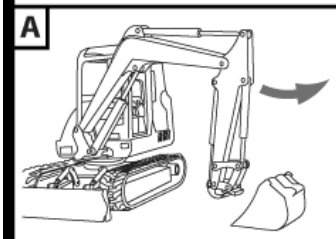


Using the X-Change System (7134587) (Cont'd)

SISTEMA HIDRÁULICO X-CHANGE ™

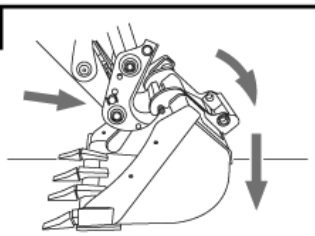
PARA INSTALAR EL ACCESORIO

A



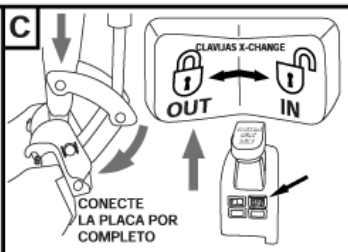
1. Encienda el motor. Gire el brazo excavador completamente hacia la izquierda.
2. Mantenga presionado hacia la derecha el interruptor X-Change de la consola izquierda para retraer por completo las clavijas hidráulicas.

B



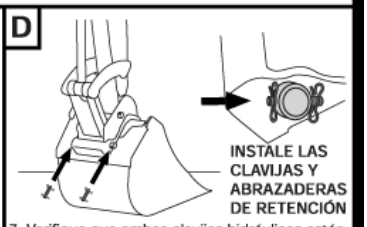
3. Mueva el brazo hacia el accesorio y levante la extensión hasta que las clavijas X-Change se conecten con los ganchos del accesorio.
4. Levante la extensión y extienda (pliegue) el cilindro del cucharón hasta que la unidad X-Change haga contacto con la parte posterior del accesorio.

C



5. Con el brazo en posición vertical, baje la extensión hasta que los ganchos del accesorio se desconecten de las clavijas X-Change y la placa se conecte totalmente con el travesaño del accesorio.
6. Mantenga presionado hacia la izquierda el interruptor X-Change y EXTIENDA POR COMPLETO las clavijas hidráulicas.

D

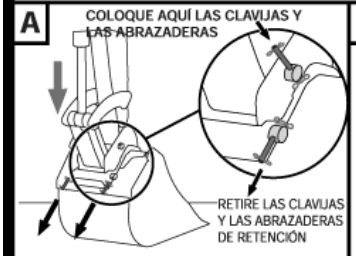


7. Verifique que ambas clavijas hidráulicas estén completamente conectadas para asegurar el accesorio.
8. DETENGA EL MOTOR. INSTALE LAS ABRAZADERAS Y CLAVIJAS DE RETENCIÓN EN LAS CLAVIJAS HIDRÁULICAS CORRESPONDIENTES.

NUNCA HAGA FUNCIONAR LA UNIDAD SIN INSTALAR LAS CLAVIJAS Y ABRAZADERAS DE RETENCIÓN. USE SÓLO ABRAZADERAS Y CLAVIJAS DE RETENCIÓN APROBADAS.

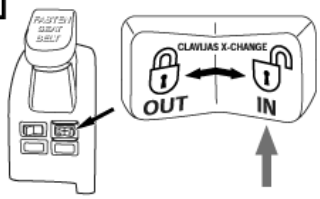
PARA RETIRAR EL ACCESORIO

A



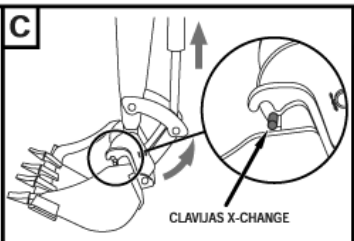
1. Baje el accesorio hasta el nivel del suelo. Detenga el motor.
2. Retire ambas abrazaderas y clavijas de retención de las dos clavijas hidráulicas y colóquelas en el espacio de almac namiento.
3. COLOQUE LAS ABRAZADERAS Y LAS CLAVIJAS DE RETENCIÓN EN EL ESPACIO DE ALMACENAMIENTO DE LA UNIDAD X-CHANGE.

B



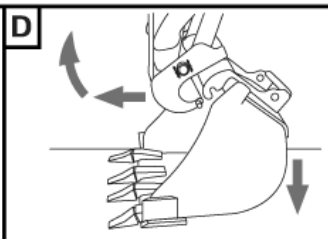
4. Encienda el motor. Mantenga presionado hacia la derecha el interruptor X-Change de la consola
izquierda para RETRAER POR COMPLETO las clavijas hidráulicas.

C



5. Levante la extensión y retraiga el cilindro del
cucharón hasta que las clavijas X-Change se conecten con los ganchos del accesorio.

D



6. Retraiga por completo el cilindro del cucharón
(en posición de vaciado). Baje la extensión y el brazo hasta que el accesorio se encuentre al nivel del suelo y las clavijas X-Change se desconecten de los ganchos del accesorio.
7. Mueva el brazo hacia la excavadora hasta retirar
las clavijas X-Change del accesorio.

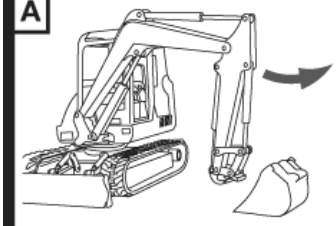
CONSULTE EL MANUAL DE FUNCIONAMIENTO Y MANTENIMIENTO PARA OBTENER MÁS INSTRUCCIONES 70036 SW 7134587A esAR

Using the X-Change System (7134587) (Cont'd)

SYSTÈME X-CHANGE™ HYDRAULIQUE

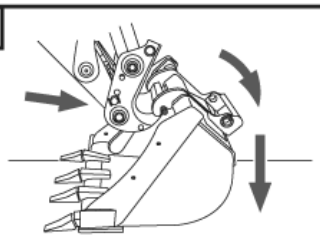
POUR INSTALLER L'ACCESSOIRE

A



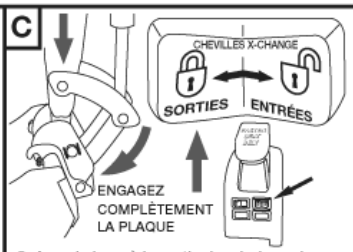
1. Démarrez le moteur. Faites tourner le bras de l'excavatrice complètement à gauche.
2. Appuyez sur la partie droite de l'interrupteur X-Change (console de gauche) et maintenez-la enfoncée pour rétracter complètement les chevilles hydrauliques.

B



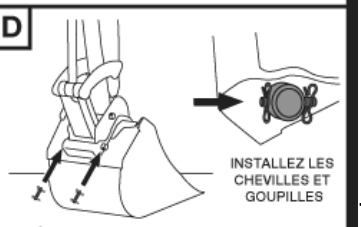
3. Déplacez le bras vers l'accessoire et levez la flèche jusqu'à ce que les chevilles X-Change s'engagent dans les crochets de l'accessoire.
4. Levez la flèche et déployez le vérin du godet (godet rétracté) jusqu'à ce que l'X-Change entre en contact avec l'arrière de l'accessoire.

C



5. Avec le bras à la verticale, abaissez la flèche jusqu'à ce que les crochets de l'accessoire se désengagent des chevilles X-Change et que la plaque s'engage complètement dans la traverse de l'accessoire.
6. Appuyez sur la partie gauche de l'interrupteur et maintenez-la enfoncée pour DÉPLOYER COMPLÈTEMENT les chevilles hydrauliques.

D

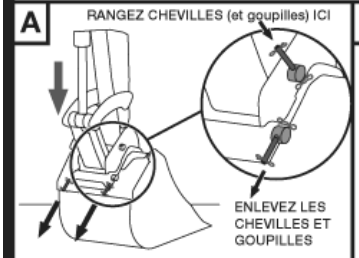


7. Vérifiez que les deux chevilles hydrauliques sont complètement engagées de façon à bien fixer l'accessoire.
8. ARRÊTEZ LE MOTEUR. INSTALLEZ LES CHEVILLES ET GOUPILLES DE RETENUE À CHAQUE CHEVILLE HYDRAULIQUE.

N'UTILISEZ PAS LA MACHINE SI LES CHEVILLES ET GOUPILLES DE RETENUE NE SONT PAS INSTALLÉES.
N'UTILISEZ QUE DES CHEVILLES ET GOUPILLES DE RETENUE APPROUVÉES.

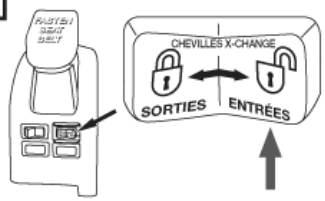
POUR ENLEVER L'ACCESSOIRE

A



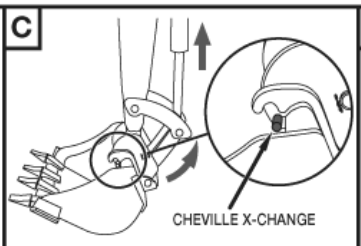
1. Abaissez l'accessoire jusqu'au sol. Arrêtez le moteur.
2. Enlevez les deux chevilles et goupilles de retenue des deux chevilles hydrauliques et placez-les dans le logement de rangement.
3. INSTALLEZ LES CHEVILLES ET GOUPILLES DE RETENUE DANS LE LOGEMENT DE RANGEMENT SUR L'X-CHANGE.

B



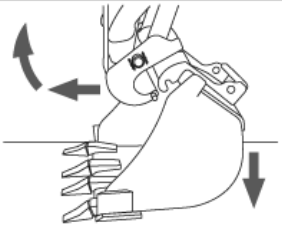
4. Démarrez le moteur. Appuyez sur la partie droite de l'interrupteur X-Change (console de gauche) et maintenez-la enfoncée pour RÉTRACTER COMPLÈTEMENT les chevilles hydrauliques.

C



5. Levez la flèche et rétractez le vérin du godet jusqu'à ce que les chevilles X-Change s'engagent dans les crochets de l'accessoire.

D

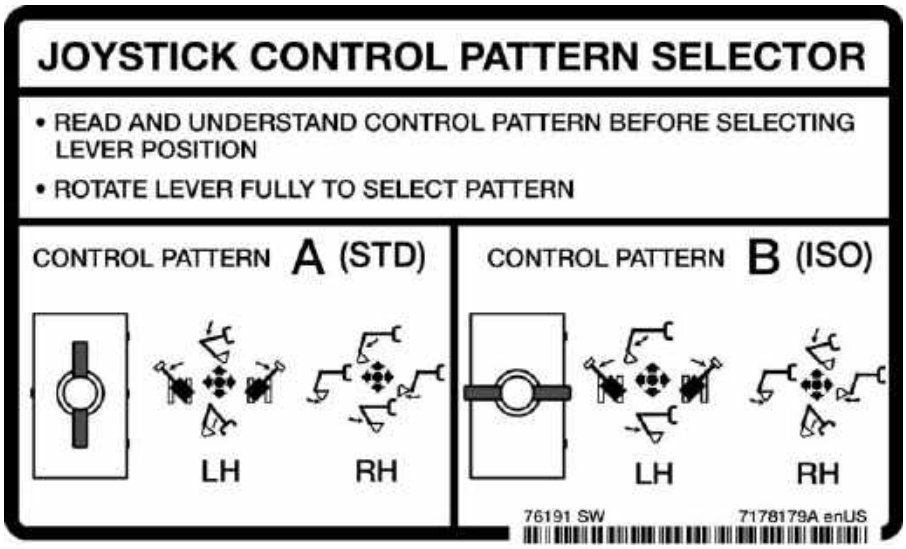


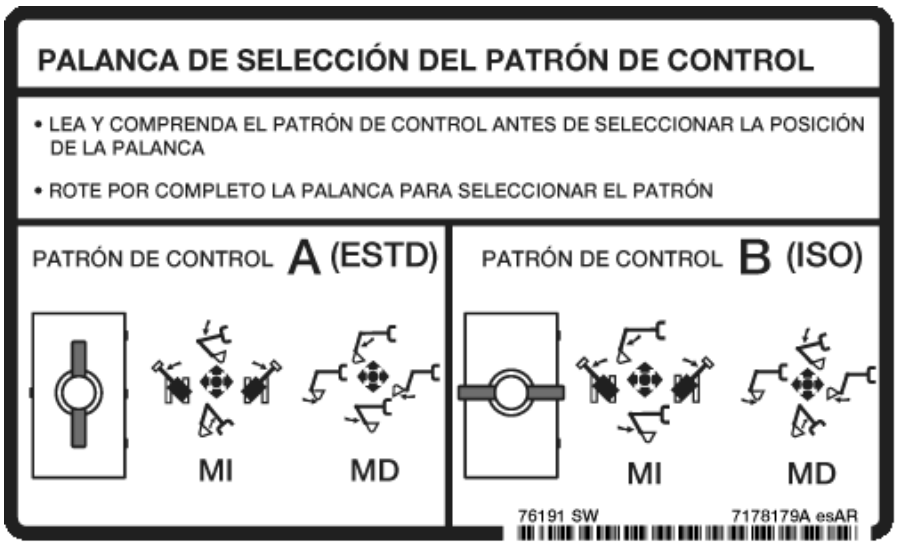
6. Rétractez complètement le vérin du godet godet déployé.
Abaissez la flèche et le bras jusqu'à ce que l'accessoire repose sur le sol et que les chevilles X-Change se désengagent des crochets de l'accessoire.
7. Déplacez le bras vers l'excavatrice jusqu'à ce que les chevilles X-Change soient dégagées de l'accessoire.

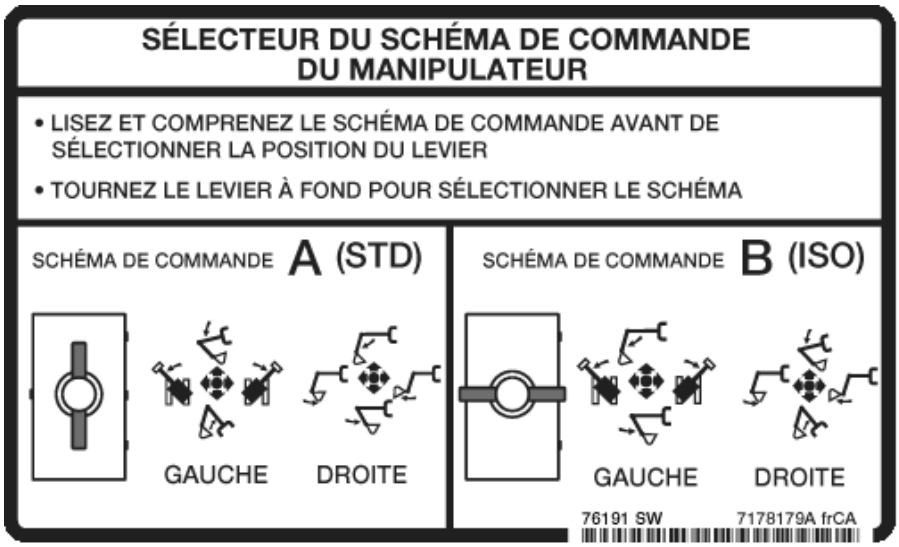
CONSULTEZ LE MANUEL D'UTILISATION ET D'ENTRETIEN POUR PLUS D'INSTRUCTIONS

76191 SW 7134587B frCA

Joystick Control Pattern Selector Lever (7178179)







Warning (6810004)

Warning (7169006)

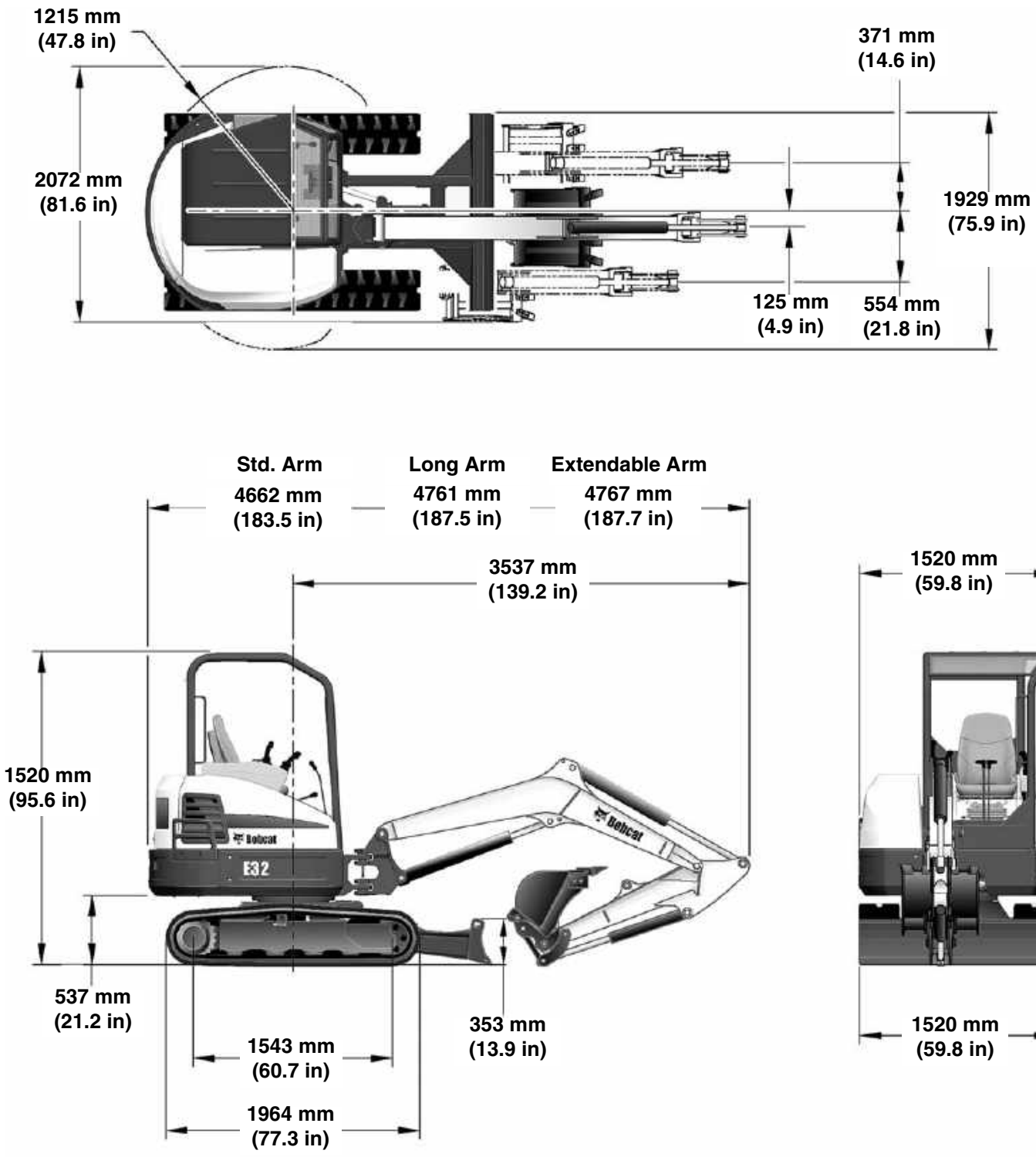
Bobcat®

SPECIFICATIONS

EXCAVATOR SPECIFICATIONS

E32 Excavator Machine Dimensions

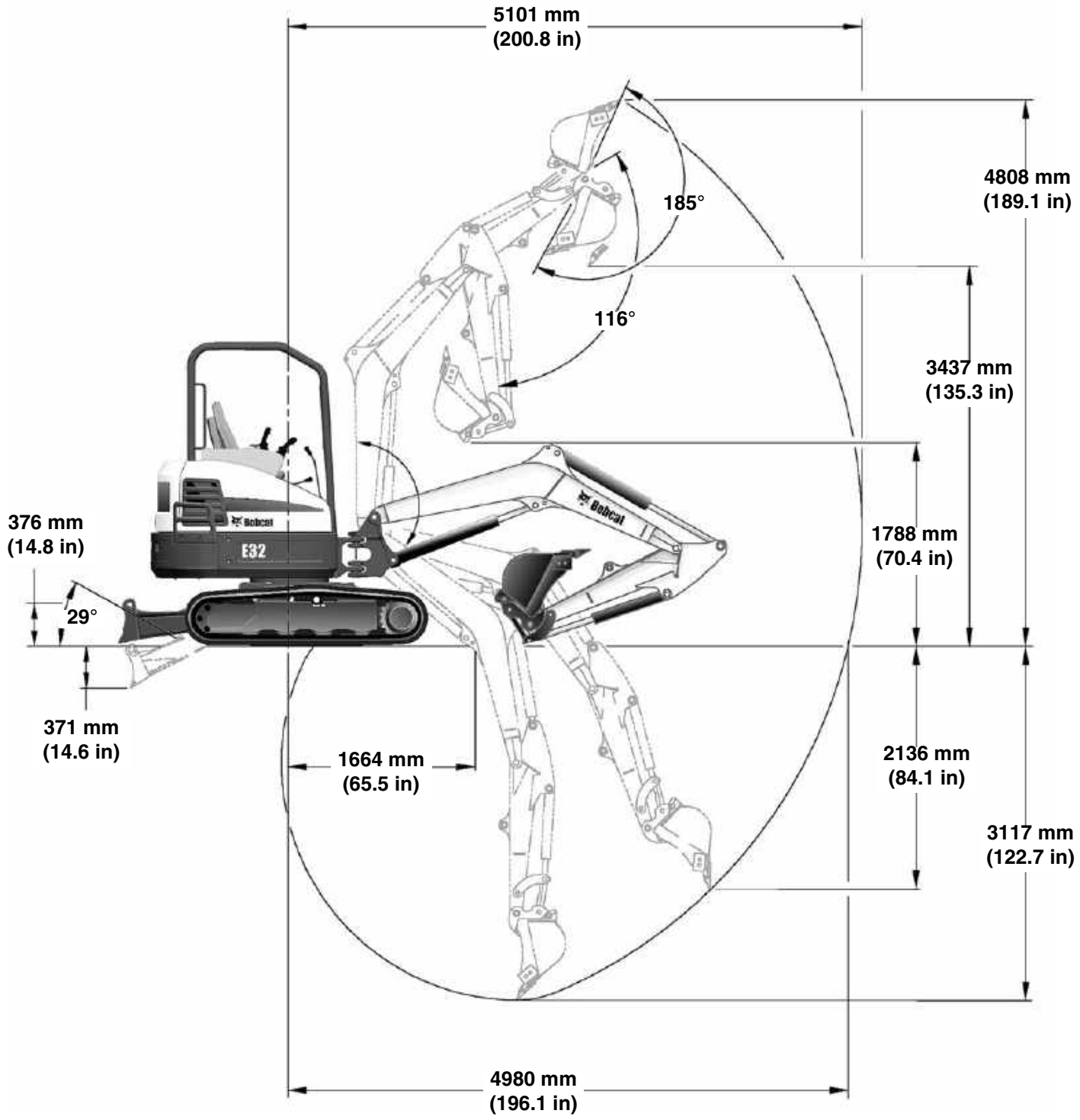
- Where applicable, specification conform to SAE or ISO standards and are subject to change without notice.



NA1478

E32 Excavator Machine Dimensions - Standard Arm

- Where applicable, specification conform to SAE or ISO standards and are subject to change without notice.

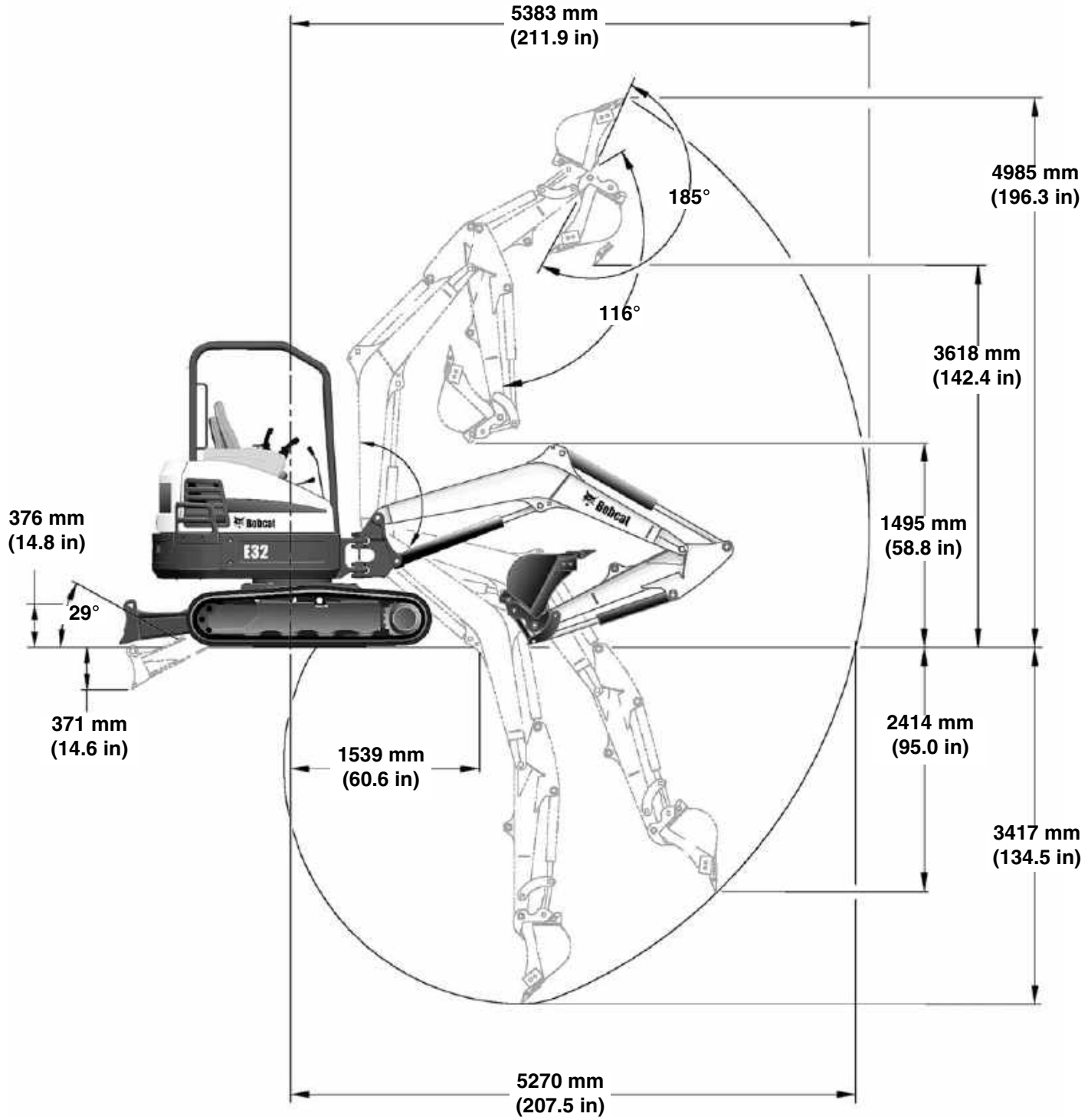


NA1477A

EXCAVATOR SPECIFICATIONS (CONT'D)

E32 Excavator Machine Dimensions - Long Arm

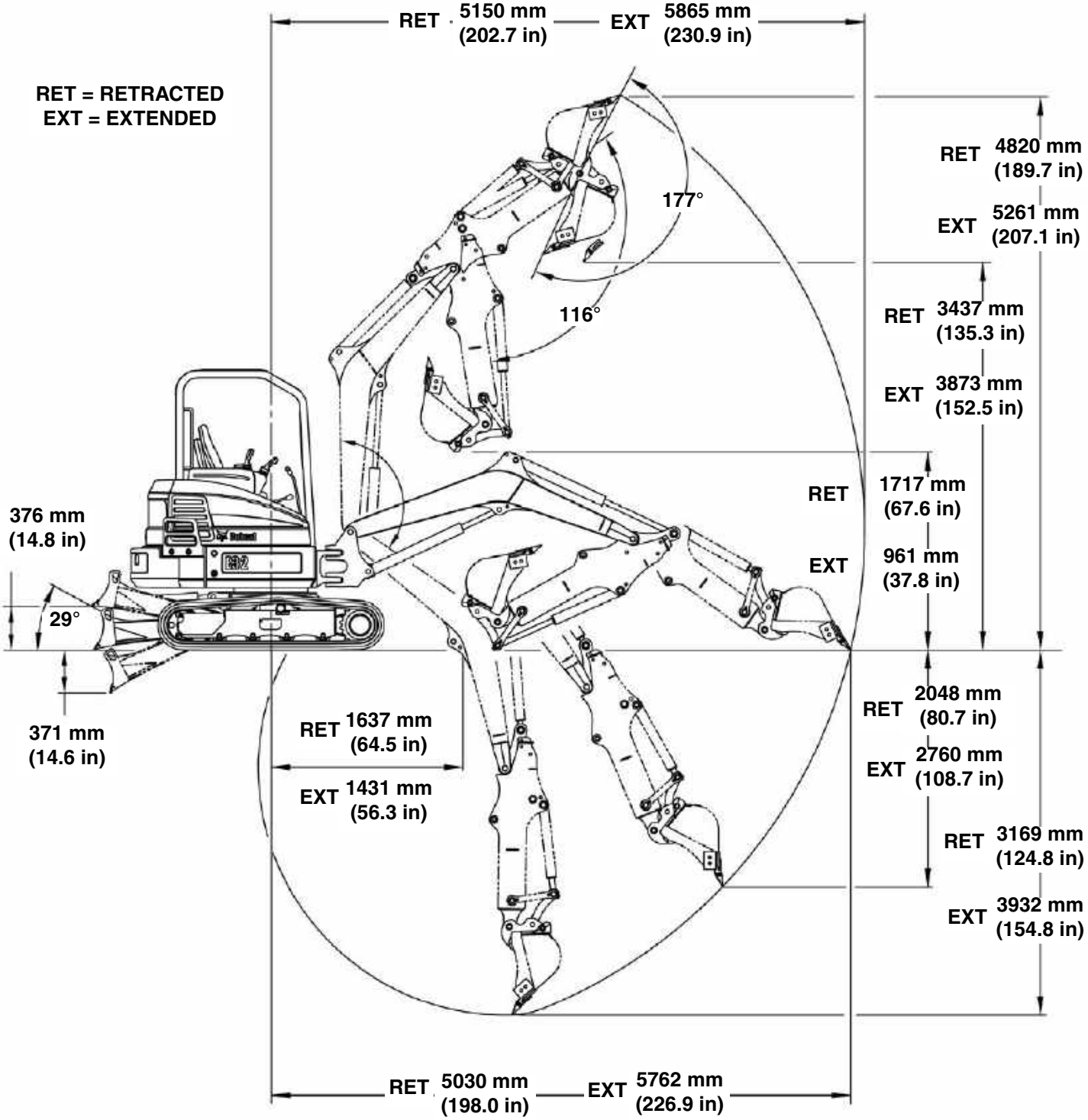
- Where applicable, specification conform to SAE or ISO standards and are subject to change without notice.



NA1477A

E32 Excavator Machine Dimensions - Extendable Arm

- Where applicable, specification conform to SAE or ISO standards and are subject to change without notice.



NA5577

Performance

E32	
operating weight (canopy w/ rubber tracks, and 609 mm (24 in) bucket)	3258 kg (7183 lb)
If equipped with the following, add:	Steel tracks, add 92 kg (212 lb); Cab w/Heater, add 121 kg (267 lb); Cab w/HVAC, add 140 kg (309 lb); Long Arm (with additional counterweight), add 306 kg (675 lb); Additional Counterweight 295 kg (650 lb) Extendable Arm, add 411 kg (906 lb)
Travel Speed (Low / High)	2.6 km/h (1.6 mph) / 4.7 km/h (2.9 mph)
Digging Force (per ISO 6015)	
With Standard Arm	Arm - 20413 N (4589 lbf) Bucket 30995 N (6968 lbf)
With Long Arm	Arm - 17734 N (3986 lbf) Bucket 30995 N (6968 lbf)
With Extendable Arm	Arm (Retracted)- 19921 N (4478 lbf) Arm (Extended)- 14472 N (3254 lbf) Bucket 30995 N (6968 lbf)

Controls

Steering	Two hand levers (optional foot pedals)
Hydraulics	Two hand operated levers (joysticks) control boom, bucket, arm and upperstructure slew
Blade	Hand lever
Two Speed	Switch on blade lever
Boom Switch	Electric switch in left joystick
Auxiliary Hydraulics	Electric switch in right joystick
Auxiliary Pressure Release	Electric switch in right joystick
Engine	Engine speed control dial with auto idle feature, key type start switch
Starting Aid	Glow Plugs - activated by key switch
Brakes Travel Service & Parking Swing Service Holding	 Hydraulic lock in motor circuit Hydraulic lock on motor Spring applied - hydraulic release

EXCAVATOR SPECIFICATIONS (CONT'D)

Engine

Make / Model	Kubota V1803-M-DI-E3B-BC-3
Fuel / Cooling	Diesel / Liquid
Horsepower (SAE Net) @ 2400 rpm	23,1 Kw (31.0 hp)
Torque @ 1400 rpm (SAE Net)	107,4 N•m (79.3 ft-lb)
Number Of Cylinders	3
Displacement	1,862 L (111.4 ci)
Bore / Stroke	87 x 102,4 mm (3.43 x 4.03 in)
Lubrication	Pressure System with Filter
Crankcase Ventilation	Closed Breathing
Air Cleaner	Dry replaceable paper dual cartridge
Ignition	Diesel-Compression
Low Idle Speed (S/N A94H11001 - A94H11199)	1125 rpm +/- 75 rpm
Low Idle Speed (S/N A94H11200 And Above)	975 rpm +/- 75 rpm
High Idle Speed	2650 rpm +/- 25 rpm
Engine Coolant	Propylene Glycol / water mixture (53% PG / 47% water)

Hydraulic System

Pump Type	Engine driven, single outlet, variable displacement, load sensing, torque limited, piston pump
Pump Capacity Piston Pump Gear Pump - Pilot	 100,8 L/min (26.6 U.S. gpm) 9,6 L/min (2.5 U.S. gpm)
Auxiliary Flow (Aux3)	63,9 L/min (16.9 U.S. gpm)
Auxiliary Flow - 2nd Aux (Female coupler) (Male Coupler)	 20,3 L/min (5.4 U.S. gpm) 15,0 L/min (4.0 U.S. gpm)
Hydraulic Filter	Full flow replaceable, 3 micron synthetic media element
Control Valve	9 spool closed center individually compensated
Fluid Type	Bobcat Fluid, Hydraulic / Hydrostatic 6903117 - (2.5 U.S. gal) 6903118 - (5 U.S. gal) 6903119 - (55 U.S. gal)
System Relief Pressure Slew Circuit Boom, Boom Swing Bucket, Arm, Auxiliary Blade Joystick Control Pressure	 21600 kPa (216 bar) (2132 psi) 24500 kPa (245 bar) (3550 psi) 24500 kPa (245 bar) (3550 psi) 24500 kPa (245 bar) (3550 psi) 3000 kPa (30 bar) (435 psi)
Auxiliary Relief	20600 kPa (206 bar) (2987 psi)
Arm Port Relief Base And Rod End	27000 kPa (270 bar) (3916 psi)
Boom Port Relief Base End And Rod End	 29000 kPa (290 bar) (4206 psi)
Bucket Port Relief Base End And Rod End	 27000 kPa (270 bar) (3916 psi)
Blade Port Relief Base End	27000 kPa (270 bar) (3916 psi)
Main Hydraulic Filter Bypass	350 kPa (3,5 bar) (50 psi)
Case Drain	140 kPa (1,4 bar) (20 psi)

Hydraulic Cylinders

Cylinder	Bore	Rod	Stroke
Boom (cushion up)	76,2 mm (3.00 in)	44,5 mm (1.75 in)	670 mm (26.38 in)
Arm (cushion retract / extend)	76,2 mm (3.00 in)	44,5 mm (1.75 in)	607 mm (23.90 in)
Bucket	69,9 mm (2.75 in)	44,5 mm (1.75 in)	466,3 mm (18.36 in)
Boom Swing	82,6 mm (3.25 in)	44,5 mm (1.75 in)	459,9 mm (18.11 in)
Blade	88,9 mm (3.50 in)	44,5 mm (1.75 in)	160 mm (6.30 in)
Extendable Arm (If Equipped) (cushion retract)	57,2 mm (2.20 in)	38,1 mm (1.50 in)	765,6 mm (30.14 in)

Hydraulic Cycle Times

Bucket Curl	2.7 Seconds
Bucket Dump	1.9 Seconds
Arm Retract	2.9 Seconds
Arm Extend	2.4 Seconds
Boom Raise	4.4 Seconds
Boom Lower	5.1 Seconds
Boom Swing Left	7.0 Seconds
Boom Swing Right	7.2 Seconds
Blade Raise	3.1 Seconds
Blade Lower	3.5 Seconds
Extendable Arm Retract	3.2 Seconds
Extendable Arm Extend	2.5 Seconds

Electrical

Starting Aid	Glow Plugs
Alternator	12 volt, 90 Amp open frame w / internal regulator
Battery	12 volt - 530 CCA @ -18°C (0°F)
Starter	12 volt; gear reduction 2.0 kw (2.7 hp)
Instrumentation	Fuel gauge, audible alarm, visual warning for engine functions and hourmeter
Lights	37.5 watt (2)

Drive System

Final Drive	Each track is driven by hydrostatic axial piston motor
Type of Reduction	48.6:1 two stage planetary

Slew System

Slew Motor	Axil piston connected to a planetary drive
Slew Circle	Single row shear type ball bearing with internal gear
Slew Speed	8.6 rpm

EXCAVATOR SPECIFICATIONS (CONT'D)

Undercarriage

Crawler Track Design	Sealed track rollers with boxed section track roller frame, grease type track adjuster with shock absorbing recoil spring
Width of crawler	1520 mm (59.8 in)

Capacities

Fuel Tank	53,1 L (14 U.S. gal)
Hydraulic Reservoir Only (Center of Sight Glass)	Tank Cap. 22,7 L (6 U.S. gal)
Hydraulic System (with Reservoir)	39,7 L (10.5 U.S. gal)
Cooling System	8.0 L (2.1 U.S. gal)
Engine Oil and Filter	5,2 L (5.5 qt)
Final Drive (each)	0,5 L (0.55 qt)

Tracks

Type	Rubber	Steel
Width	320 mm (12.6 in)	300 mm (11.8 in)
Number Of Shoes	Single Assembly	41
Number of Track Rollers (per side)	4	4

Ground Pressure

Rubber Tracks - Standard Arm Long Arm Extendable Arm	29,5 kPa (0,295 bar) (4.28 psi) 32,3 kPa (0,323 bar) (4.69 psi) 33,3 kPa (0,333 bar) (4.82 psi)
Steel Tracks - Standard Arm Long Arm Extendable Arm	32,4 kPa (0,324 bar) (4.70 psi) 35,4 kPa (0,354 bar) (5.13 psi) 36,4 kPa (0,364 bar) (5.28 psi)

WARRANTY

Bobcat Excavators

Bobcat Company warrants to its authorized dealers and authorized dealers of Bobcat Equipment Ltd., who in turn warrant to the owner, that each new Bobcat Excavator will be free from proven defects in material and workmanship with respect to (i) all components of the product except as otherwise specified herein for twelve (12) months, (ii) tracks for twelve (12) months on a prorated basis based on the remaining depth of the track at the time any defect is discovered, and (iii) Bobcat brand batteries, for an additional twelve (12) months after the initial twelve month warranty period, provided that Bobcat Company shall only reimburse a fixed portion of the cost of replacing the battery during such additional twelve months. The foregoing time periods shall all commence after delivery by the authorized Bobcat dealer to the original buyer.

During the warranty period, the authorized Bobcat dealer shall repair or replace, at Bobcat Company's option, without charge for parts and labor, any part of the Bobcat product except as otherwise specified herein which fails because of defects in material or workmanship. The owner shall provide the authorized Bobcat dealer with prompt written notice of the defect and allow reasonable time for repair or replacement. Bobcat Company may, at its option, require failed parts to be returned to the factory. Travel time of mechanics and transportation of the Bobcat product to the authorized Bobcat dealer for warranty work are the responsibility of the owner. The remedies provided in this warranty are exclusive.

This warranty does not apply to diesel engine fuel injection pumps and injectors. The owner shall rely solely on the warranty, if any, of the respective manufacturers thereof. This warranty does not cover replacement of scheduled service items such as oil, filters, tune-up parts, and other high-wear items. This warranty does not cover damages resulting from abuse, accidents, alterations, use of the Bobcat product with any accessory or attachment not approved by Bobcat Company, air flow obstructions, or failure to maintain or use the Bobcat product according to the instructions applicable to it.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES AND CONDITIONS, EXCEPT THE WARRANTY OF TITLE. BOBCAT COMPANY DISCLAIMS ALL OTHER WARRANTIES AND CONDITIONS, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL BOBCAT COMPANY OR THE AUTHORIZED BOBCAT DEALER BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, LOSS OR INTERRUPTION OF BUSINESS, LOST PROFITS, OR LOSS OF MACHINE USE, WHETHER BASED ON CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY, STATUTE OR OTHERWISE, EVEN IF BOBCAT COMPANY OR THE AUTHORIZED BOBCAT DEALER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE TOTAL LIABILITY OF BOBCAT COMPANY AND THE AUTHORIZED BOBCAT DEALERS WITH RESPECT TO THE PRODUCT AND SERVICES FURNISHED HEREUNDER SHALL NOT EXCEED THE PURCHASE PRICE OF THE PRODUCT UPON WHICH SUCH LIABILITY IS BASED.

Bobcat

6570375 (2-09)

Printed in U.S.A.

In this emissions limited warranty, the term "Manufacturer" means Kubota Corporation as the holder of the U.S. Environmental Protection Agency (U.S. EPA) Certificate of Conformity and California Executive Order for the vehicle. The emission control limited warranty is in addition to the standard limited warranty for your vehicle.

Your Bobcat dealer is authorized to perform all warranty and service repairs on your diesel engine. To locate a Bobcat dealer, visit www.bobcat.com or call 1-800-743-4340.

KUBOTA Corporation

FEDERAL & CALIFORNIA EMISSION CONTROL SYSTEMS LIMITED WARRANTY for NON-ROAD ENGINES (CI)

The U.S. Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and KUBOTA Corporation are pleased to explain the Federal and California Emission Control System Warranty on your non-road engine. In California, new heavy duty off-road engines must be designed, built and equipped to meet California's stringent anti-smog standards adopted by the Air Resources Board pursuant to its authority in Chapter 1 and 2, Part 5, Division 26 of the California Health and Safety Code. In other states of the U.S.A., new non-road engines subject to the provisions of 40 CFR 1039 subpart A must be designed, built and equipped, at the time of sale, to meet the U.S. EPA regulations for nonroad engines.

KUBOTA must warrant the emission control system on your Compression Ignition engine for the period of time listed below provided there has been no abuse, vandalism, neglect, improper maintenance or unapproved modifications to your engine. This emission warranty is applicable in all states of the U.S.A., its provinces and territories regardless of whether an individual state, province, or territory has enacted warranty provisions that differ from the Federal warranty provisions. This emission warranty is also applicable in all provinces and territories of CANADA.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, KUBOTA will repair your engine at no cost to you, including diagnosis (if the diagnostic work is performed at an authorized dealer), parts and labor.

EMISSION DESIGN AND DEFECT WARRANTY COVERAGE

The emissions warranty period for the engine begins on the original date of sale to the initial purchaser and continues for each subsequent purchaser for the period mentioned below.

The emissions warranty period for all engines rated under 19kW (25Hp) is 2000 hours of operation or two (2) years of use, whichever first occurs.

The emissions warranty period for constant speed engines rated under 37kW (50Hp) with rated speeds greater than or equal to 3000 rpm is 2000 hours of operation or two (2) years of use, whichever first occurs.

The emissions warranty period for all other engines not already listed is 3000 hours of operation or five (5) years of use, whichever first occurs.

If any emission related part on your engine is defective, the part will be repaired or replaced by KUBOTA free of charge.

OWNER'S WARRANTY RESPONSIBILITIES

(a) As the engine owner, you are responsible for the performance of the required maintenance listed in your KUBOTA operator's manual. KUBOTA recommends that you retain all receipts covering maintenance on your engine, but KUBOTA cannot deny a warranty claim solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

(b) As the engine owner, you should be aware, however, that KUBOTA may deny your warranty coverage if your engine or a part has failed due to abuse, vandalism, neglect, improper maintenance or unapproved modifications.

(c) Your engine is designed to operate on Ultra Low Sulfur Diesel Fuel only. Use of any other fuel may result in your engine no longer operating in compliance with Federal or California's emissions requirements.

(d) You are responsible for presenting your engine to the nearest dealer or service station authorized by KUBOTA when a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

(e) If you have any questions regarding your warranty rights and responsibilities or the location of the nearest authorized dealer or distributor, you should contact: KUBOTA ENGINE AMERICA CORPORATION, Service department at 1-800-532-9808, EEWRI@kubotaengine.com or KUBOTA TRACTOR CORPORATION, National Service Department at 1-800-558-2682, KubotaEmissionsWarranty@kubota.com or KUBOTA CANADA LTD at (905) 294-7477.

COVERAGE

KUBOTA warrants to the initial purchaser and each subsequent purchaser that your engine will be designed, built and equipped, at the time of sale, to meet all applicable regulations. KUBOTA also warrants to the initial purchaser and each subsequent purchaser that your engine shall be free from defects in materials and workmanship which cause the engine to fail to conform to applicable regulations for the period mentioned above from the original date of sale.

KUBOTA shall remedy warranty defects at any authorized KUBOTA engine dealer or warranty station. Any authorized work done at an authorized dealer or warranty station shall be free of charge to the owner if such work determines that a warranted part is defective. Any KUBOTA approved or equivalent replacement part (including any KUBOTA approved aftermarket part) may be used for any warranty maintenance or repairs on emission related parts, and must be provided free of charge to the owner if the part is still under warranty.

KUBOTA is liable for damages to other engine components caused by the failure of a warranted part still under warranty. The use of replacement parts not equivalent to the original parts may impair the effectiveness of your engine emission control system. If such a replacement part is used in the repair or maintenance of your engine, and KUBOTA determines it is defective or causes a failure of a warranted part, your claim for repair of your engine may be denied.

Listed below are the parts covered by the Federal and California Emission Control Systems Warranty. Some parts listed below may require scheduled maintenance and are warranted up to the first scheduled replacement point for that part. The warranted parts are (if applicable):

1) Air-Induction System
   a) Intake Manifold
   b) Turbocharger System
   c) Charge Air Cooling System (Intercooler)
2) Catalyst or Thermal Reactor System
   a) Catalytic converter
   b) Exhaust manifold
3) Fuel Injection System
   a) Fuel Supply Pump
   b) Injector
   c) Injection Pipe
   d) Common Rail
   e) Smoke Puff Limiter
   f) Speed Timer
   g) Cold Advance Timer
   h) Injection Pump
4) Electronic Control System
   a) ECU
   b) Engine Speed / Timing Sensor
   c) Accelerator Position Sensor
   d) Coolant Temperature Sensor
   e) Atmospheric Pressure Sensor
   f) Intake Pressure Sensor
   g) Intake Manifold Temperature Sensor
   h) Intake Air Flow Sensor
   i) Common Rail Pressure Sensor
5) Exhaust Gas Recirculation System
   a) EGR Valve
   b) EGR Cooler
   c) EGR Valve Opening Rate Sensor
6) Particulate Controls
   a) Any device used to capture particulate emissions.
   b) Any device used in the regeneration of the particulate control device.
   c) Control Device Enclosures and Manifolding
   d) Diesel Particulate Filter Temperature Sensor
   e) Differential Pressure Sensor
7) Miscellaneous Items
   a) Closed Breather System
   b) Hoses*, Clamps*, Fittings, Tubing*
   c) Gaskets, Seals
   d) Kubota supplied engine Wiring Harnesses
   e) Kubota supplied engine Elec. Connectors
   f) Air Cleaner Element*, Fuel Filter Element*
   g) Emission Control Information Labels

*Warranty period is equivalent to manufacturer's recommended first replacement interval as stated in the applicable model's operator's manual and/or service (workshop) manual.

MAINTENANCE REQUIREMENTS

The owner is responsible for the performance of the required maintenance as defined by KUBOTA in the operator's manual.

LIMITATIONS

This Emission Control System Warranty shall not cover any of the following;

(a) Repair or replacement required because of misuse or neglect, improper maintenance, repairs improperly performed or replacements not conforming to KUBOTA specifications that adversely affect performance and/or durability, and alteration or modifications not recommended or approved in writing by KUBOTA.

(b) Replacement of parts and other services and adjustments necessary for required maintenance at and after the first scheduled replacement point.

6990354 (10-11)

Bobcat

Printed in U.S.A.

ALPHABETICAL INDEX