

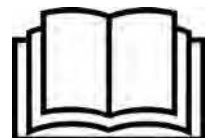
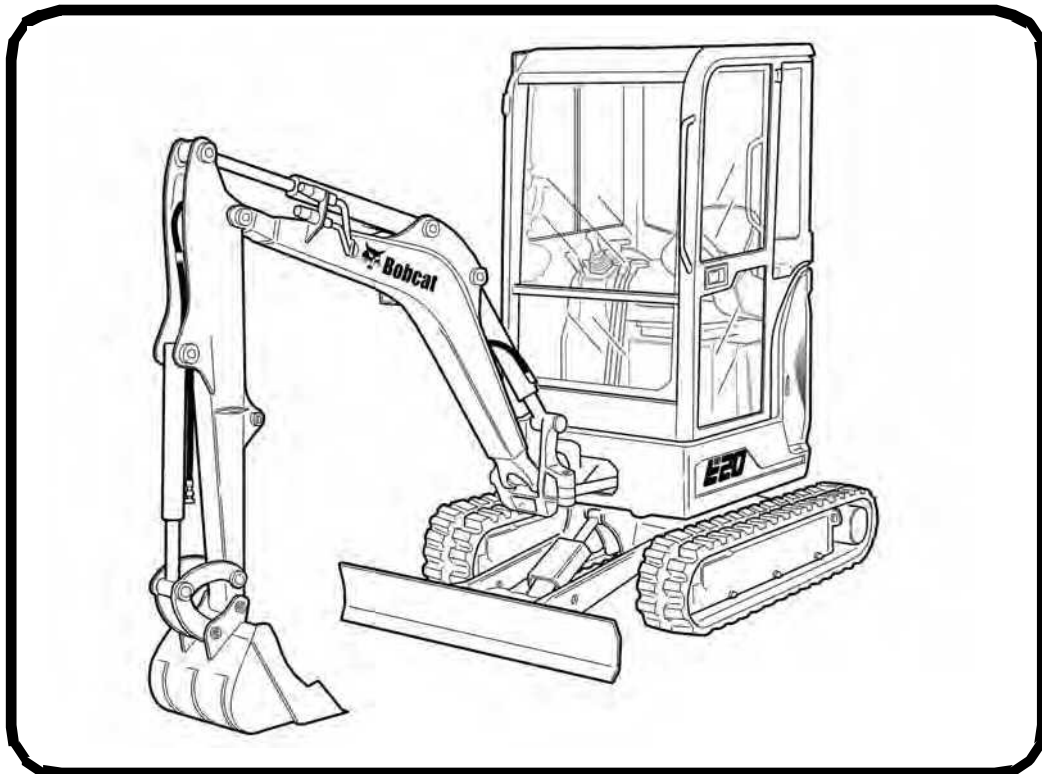


Bobcat®

EN

Operation & Maintenance Manual E20 Compact Excavator

S/N AWRH11001 & Above



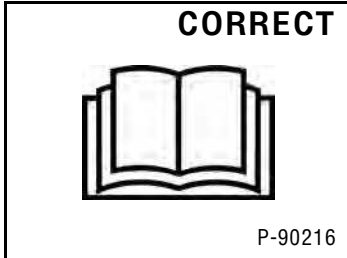
OPERATOR SAFETY WARNING

! WARNING

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

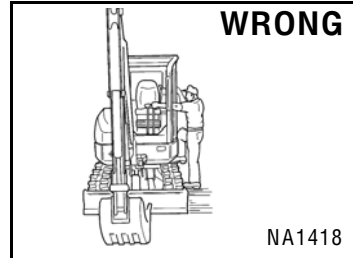
W-2001-0502

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



! Never operate without instructions.

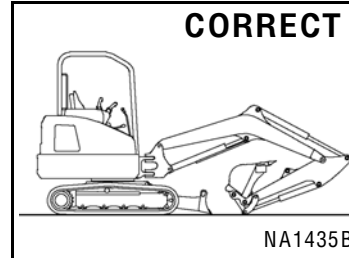
! Read machine signs, and Operation & Maintenance Manual, and Operator's Handbook.



! Do not grasp control handles when entering cab / canopy.

! Be sure controls are in neutral before starting.

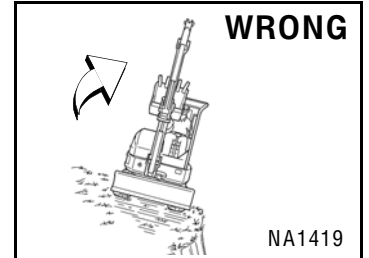
! Sound horn and check behind machine before starting.



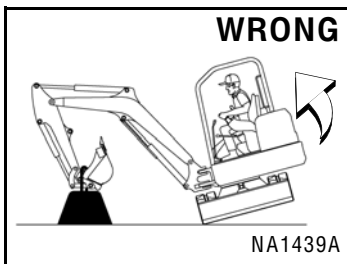
! Never operate without approved cab / canopy.

! Never modify equipment.

! Never use attachments not approved by Bobcat Company.

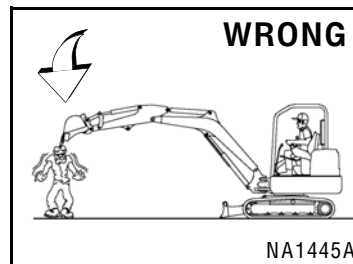


! Avoid steep areas or banks that could break away.



! Use caution to avoid tipping - do not swing heavy load over side of track.

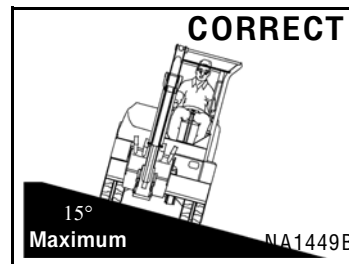
! Operate on flat, level ground.



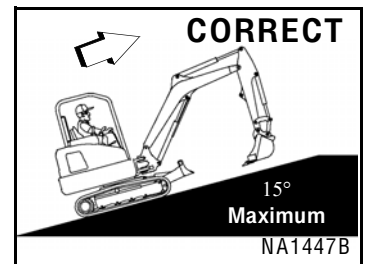
! Keep bystanders out of maximum reach area.

! Do not travel or turn with bucket extended.

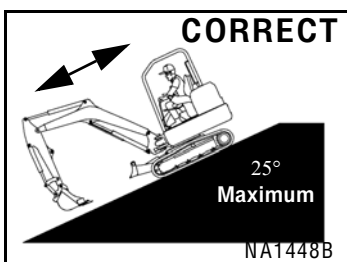
! Never carry riders.



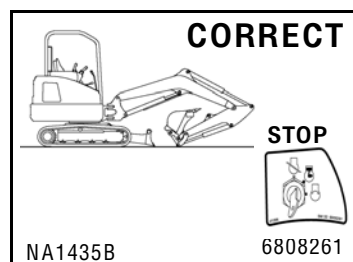
! Never exceed a 15° slope to the side.



! Never travel up a slope that exceeds 15°.

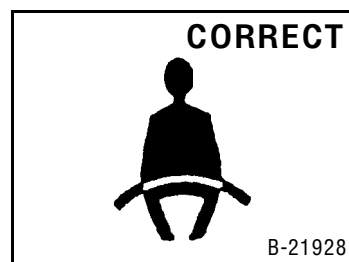


! Never exceed 25° when going down or backing up a slope.



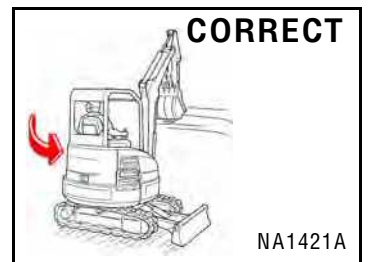
! To leave excavator, lower the work equipment and the blade to the ground.

! Stop the engine.



! Fasten seat belt securely.

! Operate controls only from operator's seat.



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

SAFETY EQUIPMENT

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

1. SEAT BELT: Check belt fasteners and check for damaged webbing or buckle.
2. 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.

OSW66-EN-0117



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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
UNITED STATES OF AMERICA

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



FOREWORD

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

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DECLARATION OF CONFORMITY

For Model E20

Contents of EC Declaration of Conformity

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

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

<p>Manufacturer</p>  <p>Bobcat Company World Headquarters 250 East Beaton Drive West Fargo, ND 58078-6000 UNITED STATES OF AMERICA</p>	<p>Directive 2000/14/EC: Noise Emission in the Environment by Equipment For Use Outdoors</p> <p>Notified Body Technical and Test Institute for Construction Prague, Czech Republic Notified Body Number: 1020</p> <p>EC Certificate No. 1020-090-022395</p>				
<p>Technical Documentation Homologation Manager Doosan Bobcat Engineering s.r.o. U Kodetky 1978 263 12 Dobris CZECH REPUBLIC</p>	<p>Conformity Assessment Procedure(s) 2000/14/EC, Annex VIII, Full Quality Assurance</p> <p>Sound Power Levels [Lw(A)]</p> <table data-bbox="836 1108 1388 1176"><tr><td>Measured Sound Power</td><td>92dBA</td></tr><tr><td>Guaranteed Sound Power</td><td>93dBA</td></tr></table>	Measured Sound Power	92dBA	Guaranteed Sound Power	93dBA
Measured Sound Power	92dBA				
Guaranteed Sound Power	93dBA				
<p>Description of Equipment Type of Equipment: Excavator Model Name: E20 Model Code: AWRH</p> <p>Engine Manufacturer: Kubota Engine Model: D722-E2B-BCZ-7 Engine Power: 10,2 kW @ 2500 RPM</p>	<p>Equipment conforms to CE Directive(s) Listed Below 2006/42/EC: Machinery Directive 2004/108/EC: Electromagnetic Compatibility Directive</p>				
<p>Declaration of Conformance This equipment conforms to the requirements specified in all the EC Directives listed in this declaration.</p>					
<p>Effective From:</p> <p>03 September 2014</p>					



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BOBCAT COMPANY IS ISO 9001 CERTIFIED








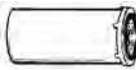




ISO 9001 is an international standard that specifies requirements for a quality management system that controls the processes and procedures which we use to design, develop, manufacture and distribute Bobcat products.

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

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

REGULAR MAINTENANCE ITEMS

	ENGINE OIL FILTER 6671057		BATTERY 6670251
	FUEL FILTER 6667352 FUEL FILTER - Pre-Filter 7247169		HYDRAULIC FILL / BREATHER CAP 6692836
	AIR FILTER, Outer 6673752		FLUID, Hydraulic / Hydrostatic 6903117 - 9,5 L (2.5 U.S. gal) 6903118 - 18,9 L (5 U.S. gal) 6903119 - 208 L (55 U.S. gal)
	AIR FILTER, Inner 6673753		
	PRIMARY HYDRAULIC FILTER 6661248		ANTI-FREEZE, Propylene Glycol 6983128 - Premixed 6983129 - Concentrate
			RADIATOR CAP 7257434

NOTE: Always verify Part Numbers with your Bobcat dealer.

LUBRICANTS AND FLUIDS

Packaging		Bobcat Equipment						Only for Wheeled EXC and AL								
		ENGINE / LOADER TRANSMISSION		HYDRAULIC/ HYDROSTATIC		ANTIFREEZE COOLANT		AXLE / TRANSMISSION	BRAKE FLUID							
Lineart	Linear	Bobcat Engine Power SAE 0W30		Bobcat Superior SH Hydraulic/Hydrostatic		Bobcat PG Coolant Concentrated		Bobcat Axle / Transmission oil SAE 85W90 LS		Bobcat Brake Fluid LHM						
		Bobcat Engine Power SAE 10W30		Bobcat Bio Hydraulic Hydraulic/Hydrostatic		Bobcat PG Coolant Concentrated		Bobcat Axle / Transmission Oil ISO 100								
		Bobcat Engine Power SAE 15W40		Bobcat Superior SH Hydraulic/Hydrostatic		Bobcat EG Coolant Concentrated		Bobcat Axle / Transmission Oil ISO 100								
		Bobcat Engine Power SAE 15W40 Cj4		Bobcat Bio Hydraulic Hydraulic/Hydrostatic		Bobcat EG Coolant Premixed		Bobcat Axle / Transmission Oil ISO 100								
		Bobcat Engine Power SAE 20W50		Bobcat Superior SH Hydraulic/Hydrostatic		Bobcat EG Coolant Concentrated		Bobcat Axle / Transmission Oil ISO 100								
		Bobcat Engine Power SAE 15W40		Bobcat Bio Hydraulic Hydraulic/Hydrostatic		Bobcat EG Coolant Premixed		Bobcat Axle / Transmission Oil ISO 100								
5 L Can		6987796A	6987789A	6987818A	6987819A	6987790A	6987797A	6987791A	6987792A	6987800A	6987803A	6987804A	6987805A	6987794A	6987795A	
25 L Container		6987796B	6987789B	6987818B	6987819B	6987790B	6987797B	6987791B	6987792B	6987800B	6987803B	6987804B	6987805B	6987794B		
209 L Drum		6987796C	6987789C	6987818C	6987819C	6987790C	6987797C	6987791C	6987792C	6987800C	6987803C	6987804C	6987805C	6987794C		
1000 L Tank		6987796D	6987789D	6987818D	6987819D	6987790D	6987797D	6987791D	6987792D	6987800D	6987803D	6987804D	6987805D			
		Bobcat Multi-Purpose Grease									6987888					
		Bobcat Supreme HD Grease									6987889					
		Bobcat Extreme HP Grease									6987890					

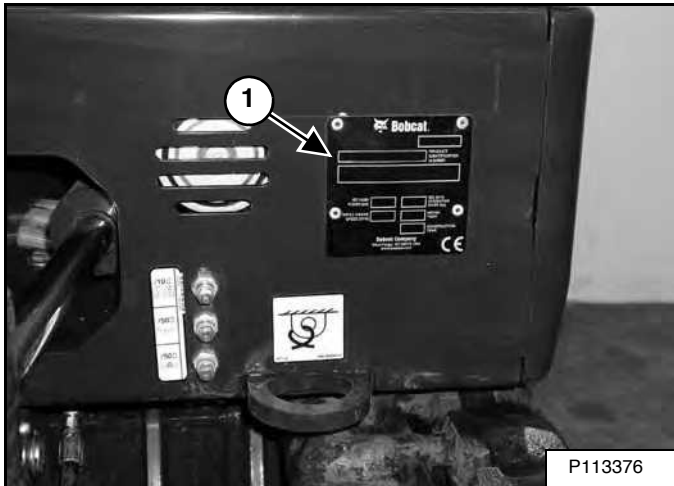
4700300-EN (06-13)

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.

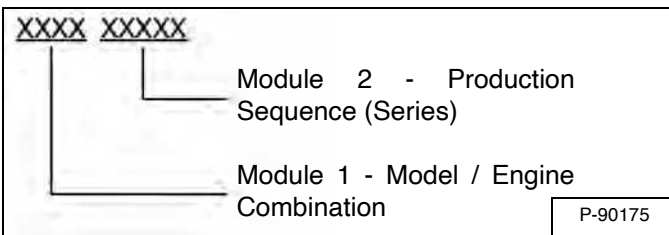
Excavator Serial Number

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

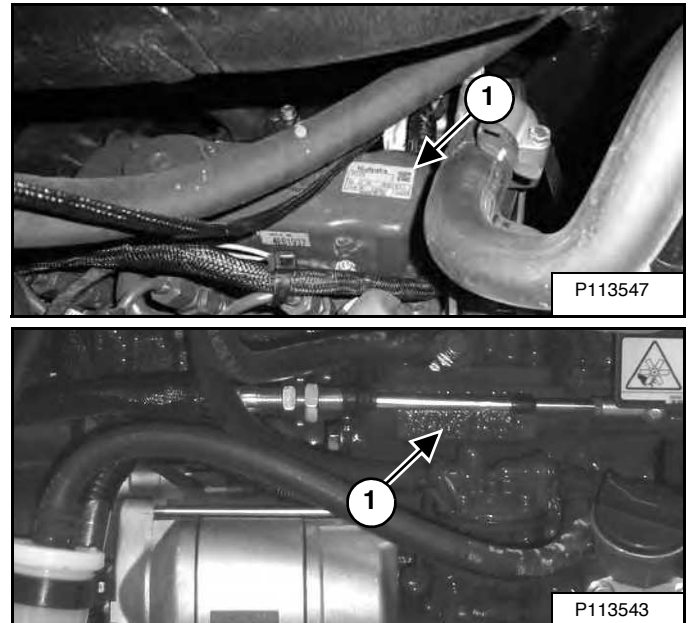


Explanation of excavator Serial Number [Figure 2]:

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

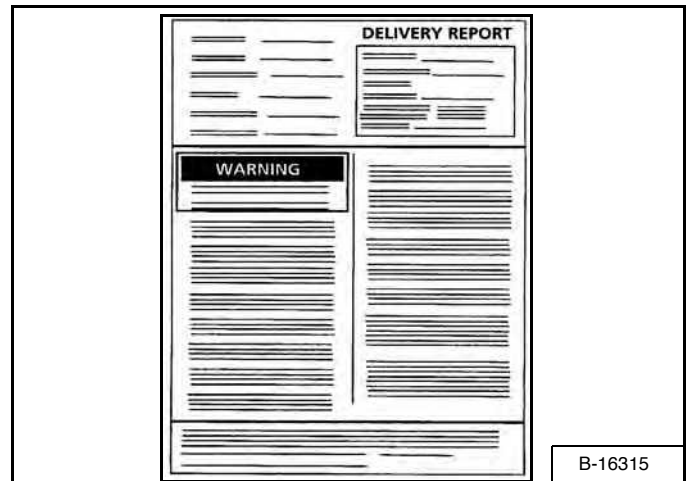
Figure 3



The engine serial number is located on the top cover (Item 1) or on the side of the engine block (Item 2) [Figure 3] above the fuel pump.

DELIVERY REPORT

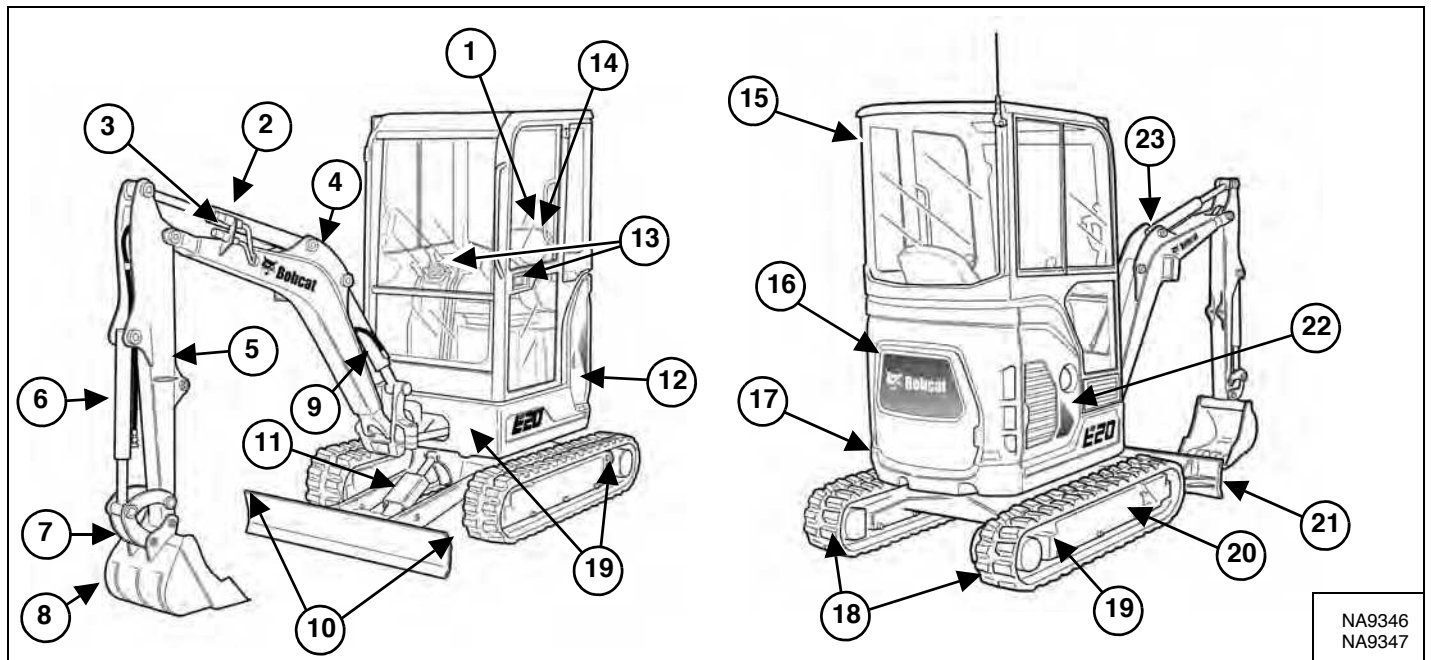
Figure 4



The delivery report [Figure 4] contains a list of items that must be explained or shown to the owner or operator by the dealer when the Bobcat excavator is delivered.

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

EXCAVATOR IDENTIFICATION



ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Operator's Handbook	15	Cab (ROPS / TOPS) [B]
2	Arm Cylinder	16	Rear Cover
3	Auxiliary Quick Couplers	17	Counterweight
4	Boom	18	Tracks
5	Arm	19	Tie Downs (Both Sides)
6	Bucket Cylinder	20	Track Frames
7	Bucket Link / Attachment Coupler (If Equipped) [C]	21	Blade
8	Bucket [A]	22	Right Side Cover
9	Boom Cylinder	23	Lift Point
10	Tie Downs / Lift Points		
11	Blade Cylinder		
12	Upperstructure		
13	Control Levers (Joysticks)		
14	Operator's Seat with Seat Belt		

[A] BUCKET - Several different buckets and other attachments are available for the Bobcat excavator.

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

[C] ATTACHMENT COUPLERS - Optional attachment couplers are available.

FEATURES, ACCESSORIES AND ATTACHMENTS

Standard Items

Model E20 Bobcat excavators are equipped with the following standard items:

- Canopy with ROPS / TOPS Approval
- Rubber Tracks 230 mm (9.0 in)
- Dozer Blade 1354 mm (53.3 in) (Including extensions)
- Auxiliary Hydraulics On Boom (Double Acting)
- Hydraulic Joystick Controls
- Engine Speed Control Lever
- Hydraulic and Travel Control Lockouts
- Hydraulic Retractable Undercarriage (1360 mm to 980 mm)
- Track Retraction - Expansion Valve / Switch
- Two-Speed Travel
- Engine with Shut Down
- Work Light - Boom Mounted
- Horn
- Stationary Seat
- Retractable Seat Belt
- Spark Arrester Muffler
- Advanced Diagnostics
- Counterweight
- Battery Kill Switch
- Upperstructure with Four Point Tie Down

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.

- Auto Shift Drive Motors
- Auxiliary Hydraulics On Arm
- Enclosed Cab With Heater
- Travel Motion Alarm
- Keyless Start
- Canopy / Cab Mounted Lights
- Long Dozer Blade
- Long Arm
- Top Guard Kit (FOGS)
- Special Application Kit
- Attachment Quick Coupler (Klac)
- Attachment Quick Coupler, German Style Quick Coupler
- Object Handling Certified (boom / arm load holding valves, overload warning and lift eye)
- Load Holding Valve - Boom
- Load Holding Valve - Arm
- Lift Eye
- Adjustable Seat or Suspension Seat
- Strobe Light
- Side Mirror
- Fire Extinguisher
- Radio
- Secondary Auxiliary Hydraulics

Specifications subject to change without notice and standard items can 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 can 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
- Laser Receiver
- Reverse Coupler
- Tilt Bucket

Buckets Available

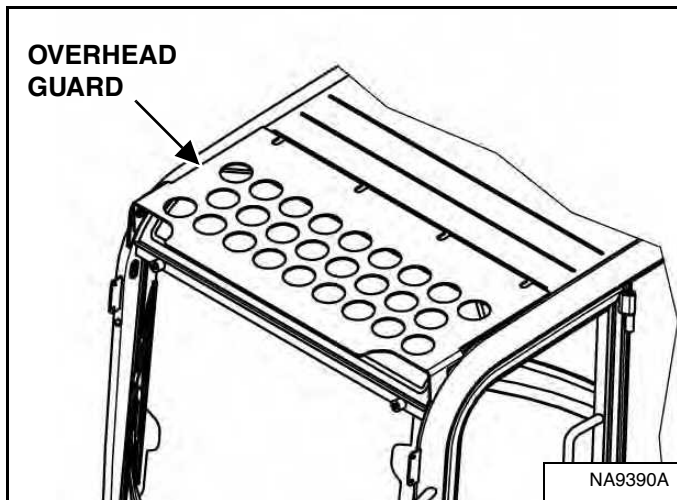
Increase the versatility of your Bobcat excavator with a variety of bucket sizes.

Many bucket styles, widths and different capacities are available for a variety of different applications. They include Trenching, Digging, Grading, Tilt, to name a few. See your Bobcat dealer for the correct bucket for your Bobcat excavator and application.

FEATURES, ACCESSORIES AND ATTACHMENTS (CONT'D)

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].

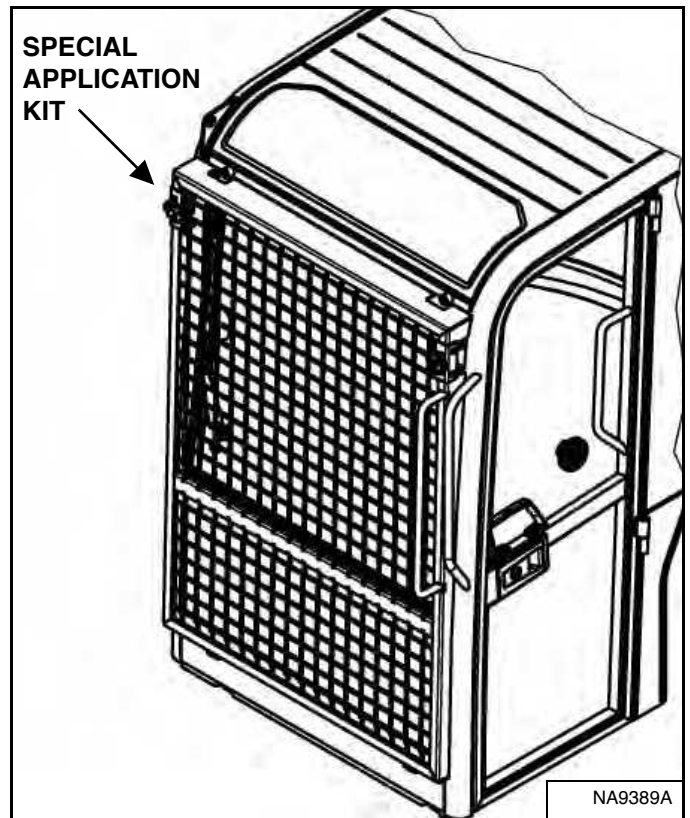
The excavator must have the overhead guard [Figure 5] installed to meet the top guard requirements in ISO 10262.

See your Bobcat Dealer for more information.

NOTE: The Falling-Object Guard is factory installed on the canopy.

Special Applications Kit

Figure 6



Available for special applications that require protection from objects entering the front of the excavator.

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.

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SAFETY INSTRUCTIONS

Before Operation

Carefully follow the operating and maintenance instructions in this manual.

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

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

SAFETY INSTRUCTIONS (CONT'D)

Safe Operation Is The Operator's Responsibility

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



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

W-2001-0502



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

I-2019-0284



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

D-1002-1107



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

W-2044-1107

The Bobcat 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 and machine signs (decals).
- Check the rules and regulations at your location. The rules may include an employer's work safety requirements. For driving on public roads, the machine must be equipped as stipulated by the local regulations authorising operation on public roads in your specific country. Regulations may identify a hazard such as a utility line.

Have Training with Actual Operation

- Operator training must consist of a demonstration and verbal instruction. This training is given by your Bobcat dealer before the product is delivered.
- The new operator must start in an area without bystanders and use all the controls until he or she can operate the machine and attachment safely under all conditions of the work area. Always fasten seat belt before operating.

Know the Work Conditions

- Know the weight of the materials being handled. Avoid exceeding the Rated 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.
- 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 EMEA-0913

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