



# Bobcat®

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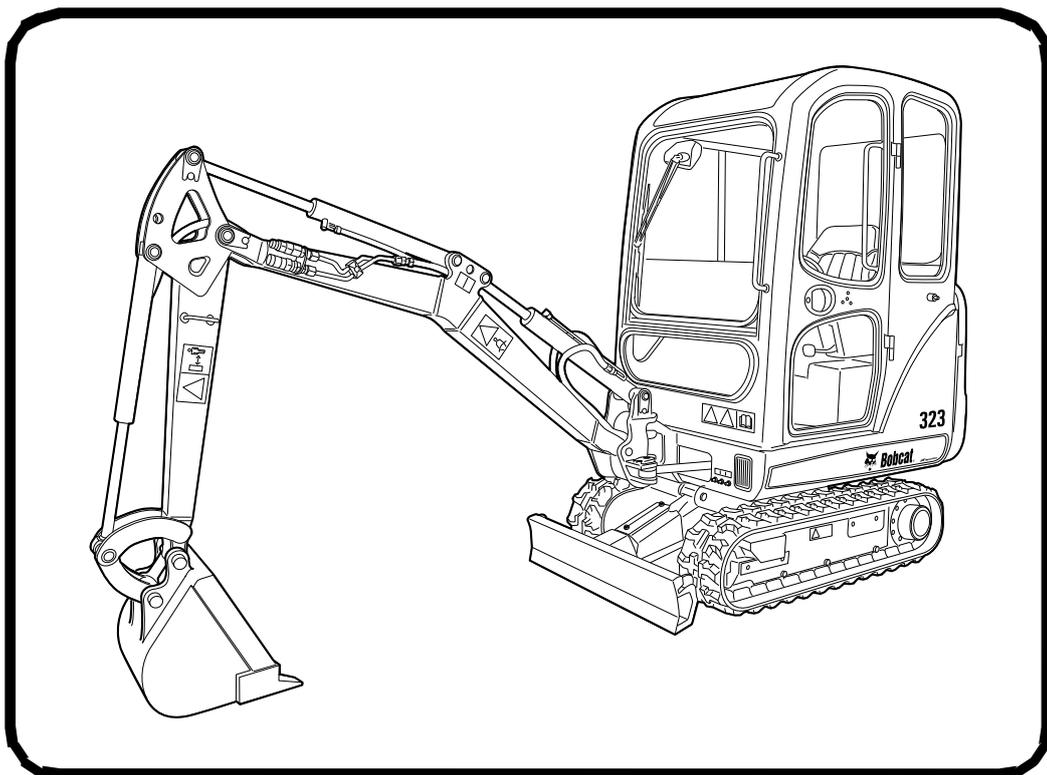
## Service Manual

# 321-323 Compact Excavator

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**321 - S/N A76511001 & Above**

**323 - S/N A01711001 & Above**



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Printed in Belgium





# MAINTENANCE SAFETY



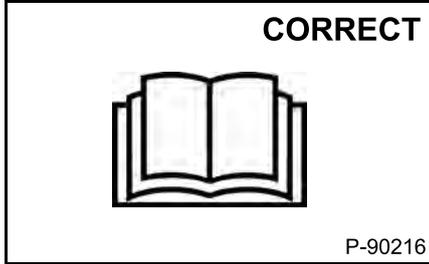
## WARNING

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

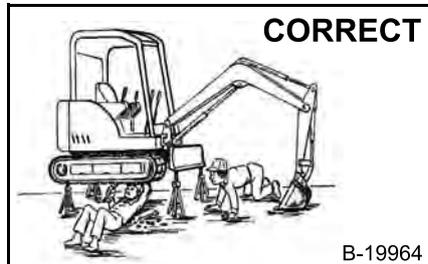


**Safety Alert Symbol:** This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.



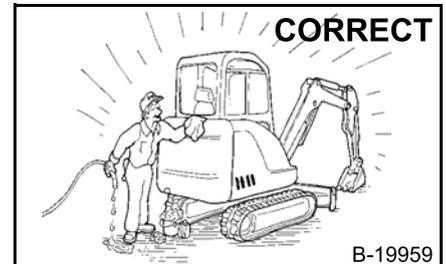
P-90216

- ⚠ Never service the Bobcat Excavator without instructions.



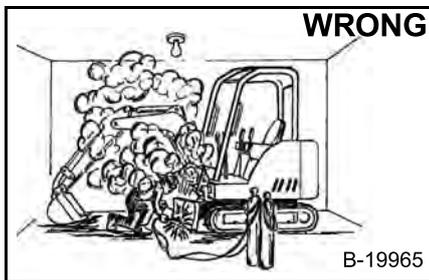
B-19964

- ⚠ Use the correct procedure to lift and support the excavator.



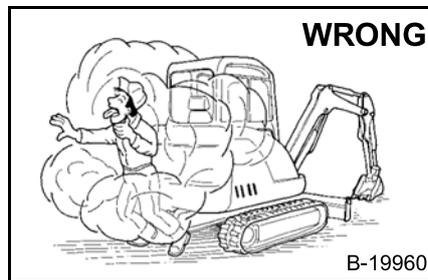
B-19959

- ⚠ Cleaning and maintenance are required daily.



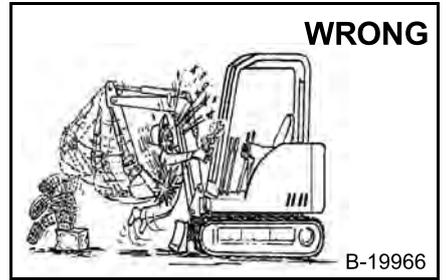
B-19965

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



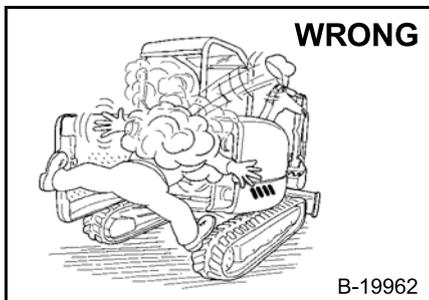
B-19960

- ⚠ Vent exhaust to outside when engine must be run for service.
- ⚠ Exhaust system must be tightly sealed. Exhaust fumes can kill without warning.



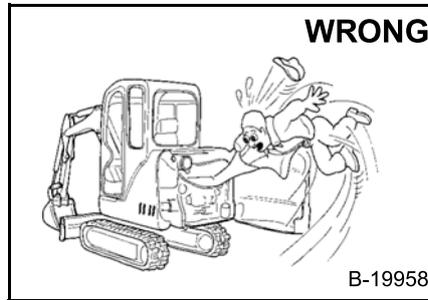
B-19966

- ⚠ Always lower the bucket and blade to the ground before doing any maintenance.
- ⚠ Never modify equipment or add attachments not approved by Bobcat Company.



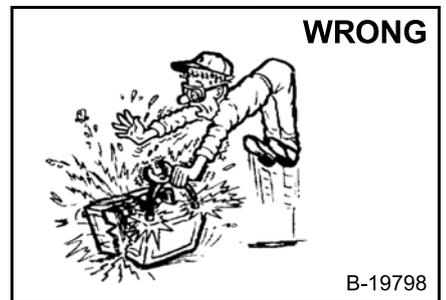
B-19962

- ⚠ 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.



B-19958

- ⚠ 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.



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.

MSW28-0409

**Thanks very much for your reading,  
Want to get more information,  
Please click here, Then get the complete  
manual**

**JustClickHere** 

**NOTE:**

**If there is no response to click on the link above,  
please download the PDF document first, and then  
click on it.**

**Have any questions please write to me:  
[admin@servicemanualperfect.com](mailto:admin@servicemanualperfect.com)**



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## ALPHABETICAL INDEX

ACCUMULATORS.....	20-01	LIFTING AND BLOCKING THE EXCAVATOR.....	10-01
AIR CLEANER.....	60-01	LIFTING THE EXCAVATOR.....	10-01
AIRCLEANER SERVICE.....	10-01	LIGHTS.....	50-01
ALTERNATOR.....	50-01	LUBRICATION OF THE HYD. EXCAVATOR.....	10-01
ALTERNATOR BELT.....	10-01		
ARM.....	40-01	MAIN RELIEF VALVE.....	20-01
ARM CYLINDER.....	20-01	MANIFOLD ASSEMBLY / ACCUMULATOR.....	20-01
		MICROSWITCH.....	50-01
BATTERY.....	50-01		
BLADE.....	30-01	OIL COOLER.....	20-01
BLADE CONTROL.....	40-01	OPERATOR CAB (ROPS / TOPS).....	10-01
BLADE CYLINDER.....	20-01		
BLADE / TRACK EXPANSION SOLENOID BLOCK.....	20-01	PORT RELIEF VALVES.....	20-01
BOOM.....	40-01	PRESSURE REDUCING VALVE.....	20-01
BOOM CYLINDER.....	20-01		
BOOM SWING CYLINDER.....	20-01	RADIATOR.....	60-01
BUCKET.....	40-01	RECONDITIONING THE ENGINE.....	60-01
BUCKET CYLINDER.....	20-01	REGULATOR MAINTENANCE.....	70-01
		RIGHT CONSOLE.....	40-01
CAB.....	40-01	RIGHT CONTROL LEVER (JOYSTICK).....	20-01
CAB FILTER.....	10-01	RIGHT PEDAL.....	40-01
CONTROL CONSOLE LOCKOUTS.....	10-01	ROPS CANOPY.....	40-01
CONTROL LINKAGE ASSEMBLY.....	40-01		
CONVERSIONS.....	SPEC-01	SEAT AND SEAT MOUNT.....	40-01
CROSSPORT RELIEF VALVES.....	20-01	SEAT BELT.....	10-01
		SERVICE SCHEDULE.....	10-01
DE-AERATION.....	10-01	SLEW LOCK VALVE.....	20-160
		SPARK ARRESTOR MUFFLER.....	10-01 & 60-01
ELECTRICAL SYSTEM INFORMATION.....	50-01	SPECIFICATIONS 321 EXCAVATOR.....	SPEC-01
ENGINE.....	60-01	SPECIFICATIONS 323 EXCAVATOR.....	SPEC-01
ENGINE COMPONENTS AND TESTING.....	60-01	STARTER.....	50-01
ENGINE COOLING SYSTEM.....	10-01	SWING CIRCLE GEAR.....	30-01
ENGINE FLYWHEEL.....	60-01	SWING FRAME.....	40-01
ENGINE LUBRICATION SYSTEM.....	10-01	SWING MOTOR.....	20-01
ENGINE SPEED CONTROL.....	40-01	SWIVEL JOINT.....	20-01
FLOORMAT AND FLOORPLATES.....	40-01	TAILGATE.....	10-01 & 40-01
FLYWHEEL AND HOUSING.....	60-01	TORQUE SPECIFICATIONS FOR BOLTS.....	SPEC-01
FUEL LEVEL SENDER.....	50-01	TRACK DAMAGE IDENTIFICATION.....	30-01
FUEL SYSTEM.....	10-01	TRACK FRAME.....	30-01
FUEL TANK.....	40-01	TRACK IDLER.....	30-01
		TRACK FRAME EXPANSION CYLINDER.....	20-01
HEATER COIL.....	70-01	TRACK ROLLER.....	30-01
HEATER FAN.....	70-01	TRACKS.....	30-01
HEATER SYSTEM.....	70-01	TRANSPORTING THE EXCAVATOR.....	10-01
HEATER UNIT.....	70-01	TRAVEL CONTROLS.....	40-01
HEATER VALVE.....	70-01	TRAVEL MOTOR.....	10-01 & 20-01
HORN.....	40-01	TROUBLESHOOTING.....	60-01
HYDRAULIC CONNECTION SPECIFICATIONS.....	SPEC-01	TWO-SPEED BOOST SWITCH.....	50-01
HYDRAULIC CONTROL VALVE.....	20-01		
HYDRAULIC FILTER MOUNT.....	20-01	UPPERSTRUCTURE.....	40-01
HYDRAULIC FLUID SPECIFICATIONS.....	SPEC-01	UPPERSTRUCTURE SLEW LOCK.....	10-01 & 40-01
HYDRAULIC PUMP.....	20-01		
HYDRAULIC RESERVOIR.....	20-01		
HYDRAULIC SYSTEM.....	10-01		
HYDRAULIC SYSTEM INFORMATION.....	20-01		
LEFT CONSOLE.....	40-01		
LEFT CONTROL LEVER (JOYSTICK).....	20-01		
LEFT PEDAL.....	40-01		



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# CONTENTS

FOREWORD .....	.iii
SAFETY INSTRUCTIONS .....	v
SERIAL NUMBER LOCATIONS .....	ix
DELIVERY REPORT .....	x
BOBCAT EXCAVATOR IDENTIFICATION .....	xi
SAFETY AND MAINTENANCE .....	10-01
HYDRAULIC SYSTEM .....	20-01
UNDERCARRIAGE .....	30-01
UPPERSTRUCTURE AND SWING SECTION .....	40-01
ELECTRICAL SYSTEM AND ANALYSIS .....	50-01
ENGINE SERVICE .....	60-01
HEATER .....	70-01
SPECIFICATIONS .....	SPEC-01

**SAFETY AND  
MAINTENANCE**

**HYDRAULIC  
SYSTEM**

**UNDER-  
CARRIAGE**

**UPPER-  
STRUCTURE &  
SWING SECTION**

**ELECTRICAL  
SYSTEM AND  
ANALYSIS**

**ENGINE  
SERVICE**

**HEATER**

**SPECIFICATIONS**



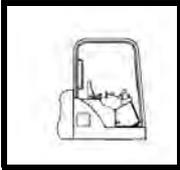
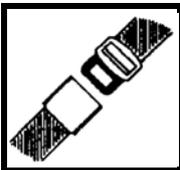
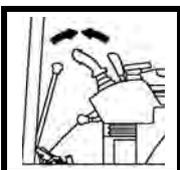
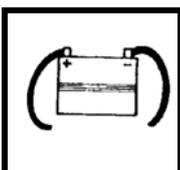
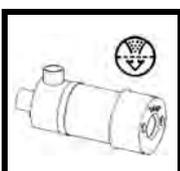
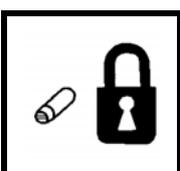
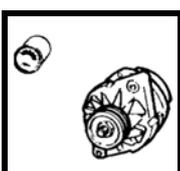
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# FOREWORD

This manual is for the Bobcat excavator mechanic. It provides necessary servicing and adjustment procedures for the Bobcat excavator and its component parts and systems. Refer to the Operation & Maintenance Manual for operating instructions, starting procedure, daily checks, etc.

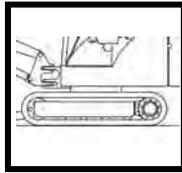
A general inspection of the following items must be made after the excavator has had service or repair:

- |  |   |   |   |
|--|---|---|---|
| <p>1. Check that the ROPS/TOPS/FOPS is in good condition and is not modified.</p>  |    | <p>9. Safety treads must be in good condition.</p>  |    |
| <p>2. Check that ROPS/TOPS mounting hardware is tightened and is Bobcat approved.</p>  |    | <p>10. Check for correct function of indicator lamps.</p>                                   |    |
| <p>3. The seat belt must be correctly installed, functional and in good condition.</p>   |    | <p>11. Check hydraulic fluid level, engine oil level and fuel supply.</p>                   |    |
| <p>4. Machine signs (decals) must be legible and in the correct location.</p>  |   | <p>12. Inspect for fuel, oil or hydraulic fluid leaks.</p>                                  |   |
| <p>5. Travel levers, control levers and foot pedals must return to neutral. Check that the pedal locks are in working order.</p> |  | <p>13. Lubricate the excavator.</p>   |  |
| <p>6. Check for correct function of the work lights.</p>   |  | <p>14. Check the condition of the battery and cables.</p>                                   |  |
| <p>7. Enclosure door latches must open and close freely.</p>   |  | <p>15. Inspect the air cleaner for damage or leaks. Check the condition of the element.</p> |  |
| <p>8. Attachment locking pins must function correctly and be in good condition.</p>  |  | <p>16. Check the electrical charging system.</p>  |  |

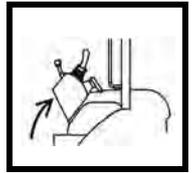
FW EXC-0308 SM

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20. Check tracks for wear and tension. Use only approved tracks.



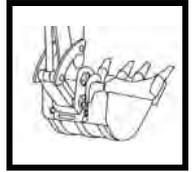
24. Check the control console interlocks for correct function.



21. Inspect for loose or broken parts or connections.



25. Inspect the X-Change for wear or damage. Repair or replace damaged parts.



22. Check for any field modification not completed.



26. Check function or condition of all equipped options and accessories (examples: special applications kit, motion alarm, etc.).



23. Operate the machine and check all functions.



27. Recommend to the owner that all necessary corrections be made before the machine is returned to service.



FW EXC-0308 SM

## SAFETY INSTRUCTIONS

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



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



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 following publications 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 is in safe operating condition.

- The Operation & Maintenance Manual delivered with the machine or attachment contains 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 fastened to the operator cab. 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 Service Manual and Parts Manual are available from your dealer for use by mechanics to do shop-type service and repair work.
- The Compact Excavator Operator Training Course is available through your local dealer or at [www.training.bobcat.com](http://www.training.bobcat.com) or [www.bobcat.com](http://www.bobcat.com). 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 or at [www.training.bobcat.com](http://www.training.bobcat.com) or [www.bobcat.com](http://www.bobcat.com). They provide information for safe and correct service procedures.
- The Bobcat compact excavator Safety Video is available from your Bobcat dealer or at [www.training.bobcat.com](http://www.training.bobcat.com) or [www.bobcat.com](http://www.bobcat.com).

SI EXC EMEA-0409 SM

## SAFETY INSTRUCTIONS (CONT'D)

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.



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

## FIRE PREVENTION



### Maintenance

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

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

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

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

### Operation

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

### Electrical



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

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

SI EXC EMEA-0409 SM

## 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. 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 Arrestor Exhaust System

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

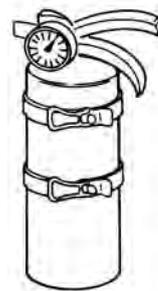
## Welding And Grinding

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.

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## DELIVERY REPORT

Figure 3

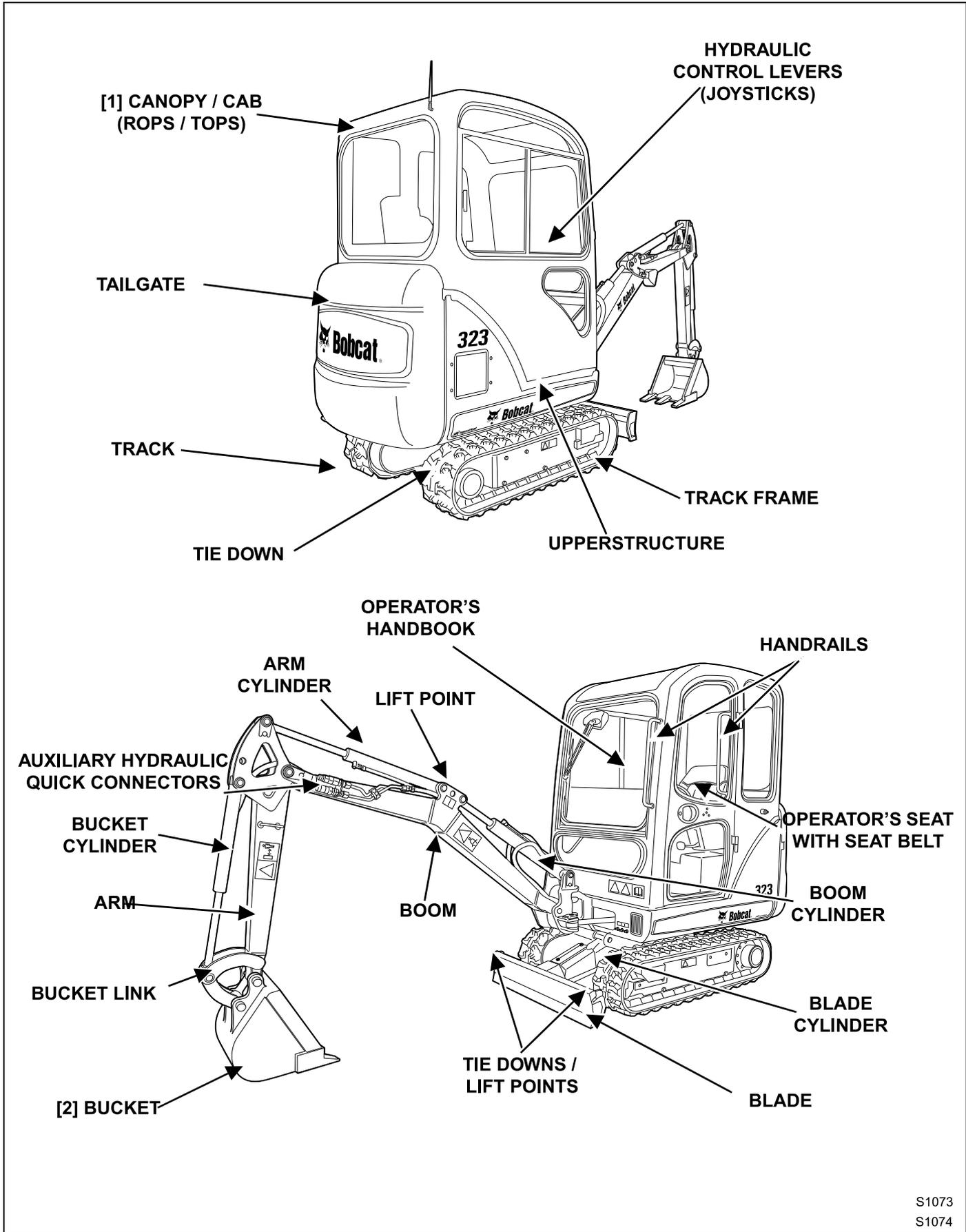
DELIVERY REPORT

WARNING

B-16315

The Delivery Report items must be explained to the owner / operator by the dealer. The dealer is to complete the form and the owner / operator signs the form to indicate his understanding **[Figure 3]**.

**BOBCAT EXCAVATOR IDENTIFICATION**



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S1073  
S1074

[1] ROPS, TOPS - (Roll Over Protective Structure - Tip Over Protective Structure) as standard equipment. The ROPS / TOPS meets ISO 3471 and ISO 12117. FOGS (Falling Object Guards) is available from your Bobcat Excavator dealer.  
[2] BUCKET - Several different buckets and other attachments are available from the Bobcat Loader.



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