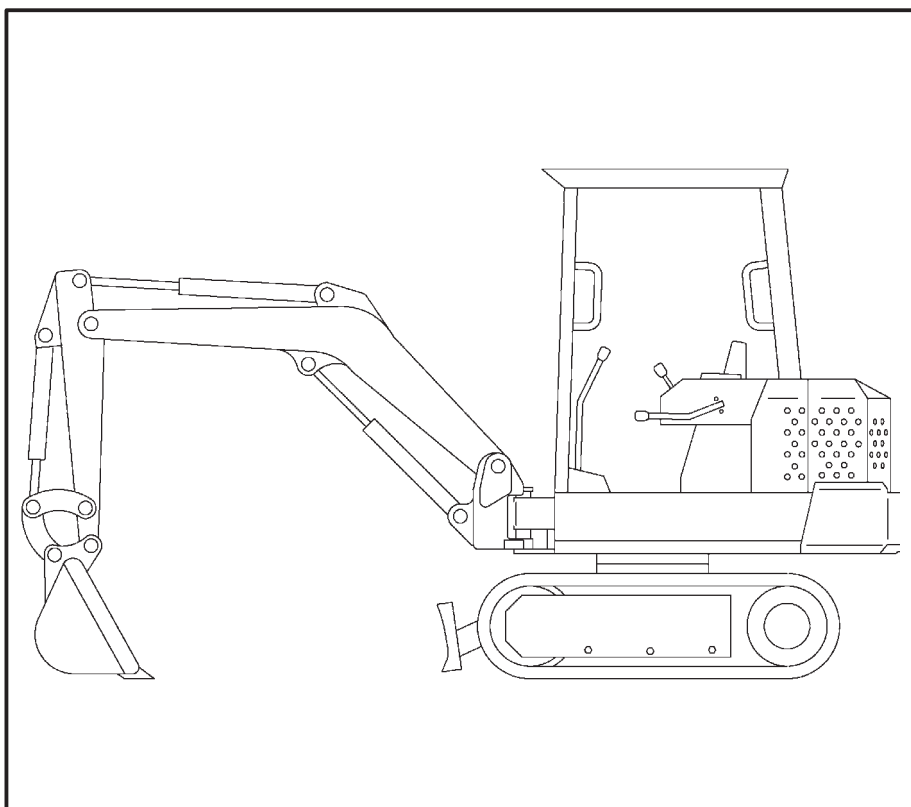


# X 231

## Excavator

## Service Manual

(S/N 508911999 & Below)



Doosan purchased Bobcat Company from Ingersoll-Rand Company in 2007. Any reference to Ingersoll-Rand Company or use of trademarks, service marks, logos, or other proprietary identifying marks belonging to Ingersoll-Rand Company in this manual is historical or nominative in nature, and is not meant to suggest a current affiliation between Ingersoll-Rand Company and Bobcat Company or the products of either.

**MELROE**  
**INGERSOLL-RAND**

6720496 (6-12)

Printed in U.S.A.

 **bobcat**<sup>®</sup>  
© Melroe Company 1990



# MAINTENANCE SAFETY



## WARNING

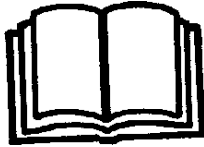
Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual, Operator's Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after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

W-2003-0903



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

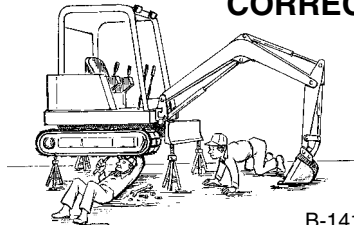
### CORRECT



B-10731a

- ⚠ Never service the Bobcat Hydraulic Excavator without instructions.

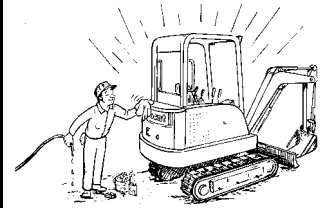
### CORRECT



B-14148

- ⚠ Use the correct procedure to lift and support the excavator.
- ⚠ Always lift the blade fully before installing jackstands.

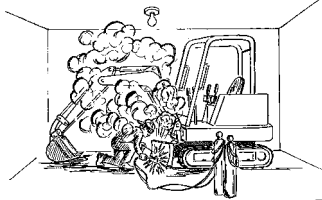
### CORRECT



B-14142

- ⚠ Cleaning and maintenance are required daily.

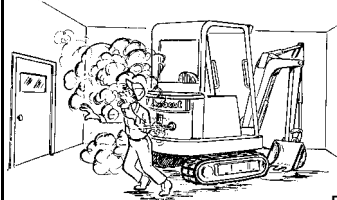
### WRONG



B-14147

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

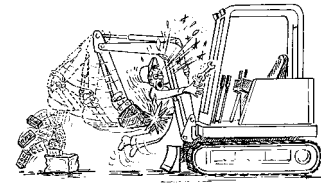
### WRONG



B-14141

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

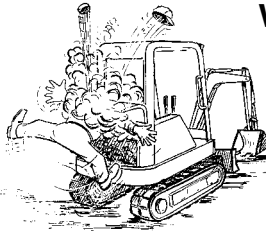
### WRONG



B-14145

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

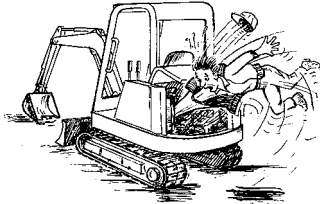
### WRONG



B-14146

- ⚠ 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



B-14143

- ⚠ Keep body, jewelry and clothing away from moving parts, electrical contact, hot parts and exhaust.
- ⚠ Wear eye protection to guard from battery acid, compressed springs, fluids under pressure and flying debris when engines are running or tools are used. Use eye protection approved for type of welding.
- ⚠ Keep rear door closed except for service. Close and latch door before operating the excavator.

### WRONG



B-6589

- ⚠ 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.



**Bobcat®**

## CONTENTS

|                                          |      |
|------------------------------------------|------|
| SAFETY INSTRUCTIONS .....                | v.   |
| SERIAL NUMBER LOCATIONS .....            | .vi. |
| DELIVERY REPORT .....                    | .vi. |
| HYDRAULIC EXCAVATOR IDENTIFICATION ..... | .vii |
| PREVENTIVE MAINTENANCE .....             | 1-1  |
| HYDRAULIC SYSTEM .....                   | 2-1  |
| DRIVE SYSTEM .....                       | 3-1  |
| UPPER WORKS & SWING SECTION .....        | 4-1  |
| MAIN FRAME & TRACKS .....                | 5-1  |
| ELECTRICAL SYSTEM .....                  | 6-1  |
| ENGINE SERVICE .....                     | 7-1  |
| TECHNICAL DATA .....                     | 8-1  |

### PREVENTIVE MAINTENANCE

### HYDRAULIC SYSTEM

### DRIVE SECTION

### UPPER WORKS & SWING SECTION

### MAIN FRAME & TRACKS

### ELECTRICAL SYSTEM

### ENGINE SERVICE

### TECHNICAL DATA

It's a preview. You can download the full file by clicking the link below.

**<https://shop servicemanual.com/>**

Service Manuals from 2\$