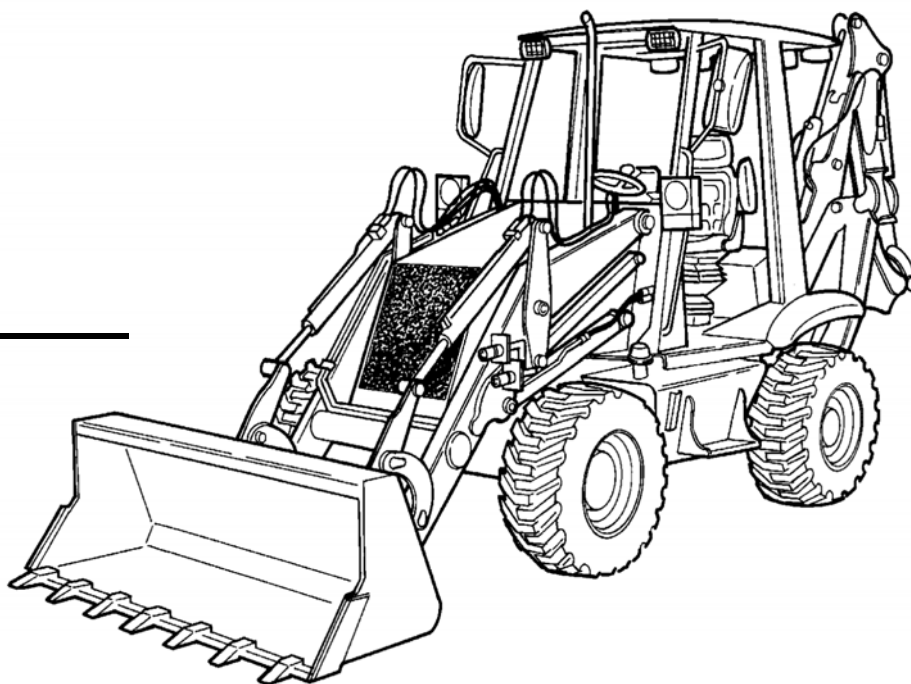


BL-470
BL-475



Service Manual

BL 470 (S/N 570511001 & Above)
BL 475 (S/N 571911001 & Above)



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.




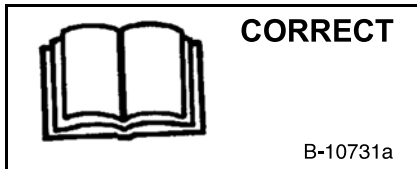
MAINTENANCE SAFETY


WARNING

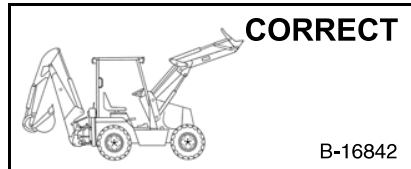
Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual, Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments,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


W-2003-0199


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

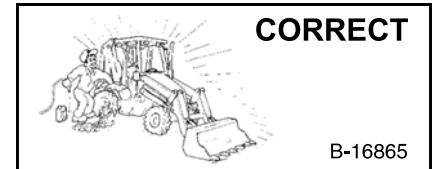



 Never service the Ingersoll-Rand Loader Backhoe without instructions.




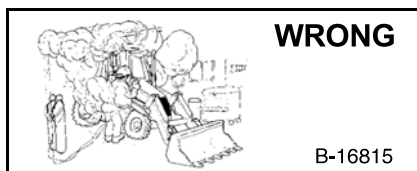
 Always use an approved lift arm support device when servicing the loader backhoe with the lift arm raised. Replace the lift arm support device if damaged or missing.


 Disconnecting or loosening any hydraulic tubeline, hose, fitting component, or part failure can cause lift arms or backhoe boom to drop.




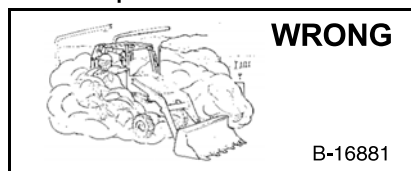
 Cleaning and maintenance are required daily.


 NEVER modify equipment or add attachments not approved by Ingersoll-Rand.




 Have good ventilation when welding or grinding painted parts.


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




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


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





 Never work on loader backhoe with lift arms raised unless supported by an approved lift arm support device.


 Always lower the backhoe bucket to the ground before doing any maintenance.




 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.

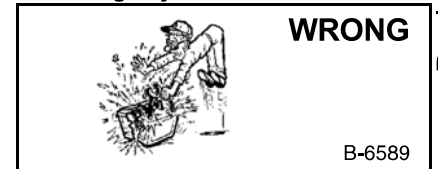
 Never fill fuel tank with engine running, while smoking or when near open flame.





 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 engine cover closed except for service. Close and latch engine cover before operating the loader backhoe



 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 INGERSOLL-RAND SERVICE PERSONNEL**. Always use genuine Ingersoll-Rand replacement parts.

MSW18-0602

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**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**



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**SAFETY &
MAINTENANCE**

**HYDRAULIC
SYSTEM**

**HYDROSTATIC
SYSTEM**

**DRIVE
SYSTEM**

MAIN FRAME

**ELECTRICAL
SYSTEM &
ANALYSIS**

**ENGINE
SERVICE**

SPECIFICATIONS

FOREWORD

This manual is for the Ingersoll Rand loader mechanic. It provides necessary servicing and adjustment procedures for the Ingersoll Rand loader 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 loader has had service or repair:

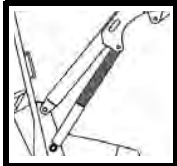
1. Check that ROPS mounting hardware is tightened and is Ingersoll Rand approved.



2. The seat belt must be correctly installed, functional and in good condition.



3. Check lift arm support device, replace if damaged.



4. Machine signs must be legible and in the correct location.



5. Foot pedal must return to neutral.



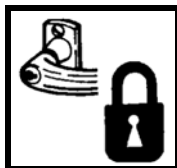
6. Check for correct function of the work lights



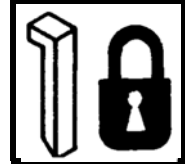
7. The parking brake must function correctly.



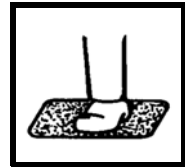
8. Enclosure door latches must open and close freely.



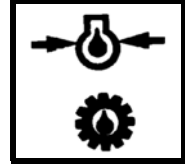
9. Bob-Tach wedges and linkages must function correctly and be in good condition.



10. Safety treads must be in good condition.



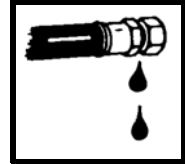
11. Check for correct function of indicator lamps (Optional on some models.



12. Check hydraulic fluid level, engine oil level and fuel supply.



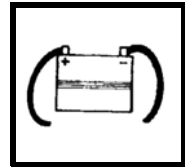
13. Inspect for fuel, oil or hydraulic fluid leaks.



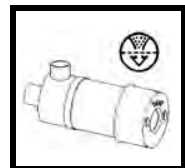
14. Lubricate the loader backhoe.



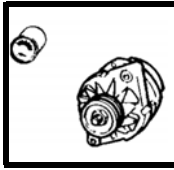
15. Check the condition of the battery and cables.



16. Inspect the air cleaner for damage or leaks. Check the condition of the element.



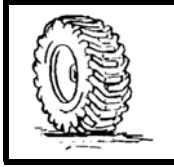
17. Check the electrical charging system.



20. Operate the loader and check all functions.



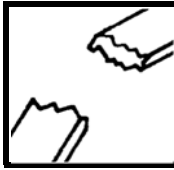
18. Check tires for wear and pressure.



21. Check for any field modification not completed.



19. Inspect for loosen or broken parts or connections.



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



**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.



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SAFETY INSTRUCTIONS FOR INGERSOLL RAND LOADER BACKHOE AND ATTACHMENTS

SAFE OPERATION IS THE OPERATOR'S RESPONSIBILITY

Carefully follow the operating and maintenance instructions in this manual.

The Ingersoll Rand loader backhoe 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 Ingersoll Rand loader backhoe usage.

The Ingersoll Rand loader backhoe has an internal combustion engine with resultant heat and exhaust. All exhaust gases can kill or cause illness so use the loader backhoe with adequate ventilation. The loader backhoe has a spark arrestor exhaust system or muffler which is required for operation in certain areas.

The dealer explains the capabilities and restrictions of the Ingersoll Rand loader backhoe and attachments for each application. The dealer demonstrates the safe operation according to Ingersoll Rand instructional materials, which are also available to operators. The dealer can also identify unsafe modifications or use of unapproved attachments. The attachments and buckets are designed for a Rated Operating Capacity (some have restricted lift heights) and secure fastening to the Ingersoll Rand loader backhoe. The user must check with the dealer, or Ingersoll Rand literature, to determine safe loads of materials of specified densities for the loader backhoe-attachment combination.

The following publications and training materials provide information on the safe use and maintenance of the Ingersoll Rand loader backhoe and attachments:

- The Delivery Report is used to assure that complete instructions have been given to the new owner and that the Ingersoll Rand loader backhoe and attachment is in safe operating condition.
- The Operation & Maintenance Manual delivered with the Ingersoll Rand loader backhoe 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 inside the cab of the loader backhoe. Replacement Operation & Maintenance Manuals can be ordered from your Ingersoll Rand dealer.
- Machine signs (decals) instruct on the safe operation and care of your Ingersoll Rand loader backhoe or attachment. The signs and their locations are shown in the Operation & Maintenance Manual. Replacement signs are available from your Ingersoll Rand dealer.
- An Operator's Handbook is fastened to the operator cab of the loader backhoe. Its 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 Ingersoll Rand dealer for more information on translated versions.
- The Safety Manual delivered with the Ingersoll Rand loader gives general safety information.
- See the *ADDITIONAL PUBLICATIONS* Page in this manual or your Ingersoll Rand dealer for Service and Parts Manuals, printed materials, videos, or training courses available. Also check the Ingersoll Rand web site **[www.ingersoll Rand.com](http://www.ingersoll-rand.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 must ask the dealer for recommendations on the new use.



Call Before You Dig 1-888-258-0808

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

SI17-0402

**BL-470, BL-475 Loader Backhoe
Service Manual**

FIRE PREVENTION

The machines and some attachments have components that are at high temperature 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 spark arrestor exhaust system (if equipped) 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.

- Do not use the machine where exhaust, arcs, sparks or hot components can contact flammable material, explosive dust or gases.
- The operator cab, engine compartment and engine cooling system must be inspected every day and cleaned if necessary to prevent fire hazards and overheating.
- Check all electrical wiring and connections for damage. Keep the battery terminals clean and tight. Repair or replace any damaged part.
- Check fuel and hydraulic tubes, hoses and fittings for damage and leakage. Never use open flame or bare skin to check for leaks. 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.
- Do not use ether or starting fluids on any engine which has glow plugs. These starting aids can cause explosion and injure you or bystanders.
- Always clean the machine, disconnect the battery, and disconnect the wiring from the electronic 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.
- Stop the engine and let it cool before adding fuel. No smoking!
- Use the procedure in the Operation & Maintenance Manual for connecting the battery and for jump starting.
- Use the procedure in the Operation & Maintenance Manual for cleaning the spark arrestor muffler (if equipped).
- Know where fire extinguishers and first aid kits are located and how to use them.

SI19-0402

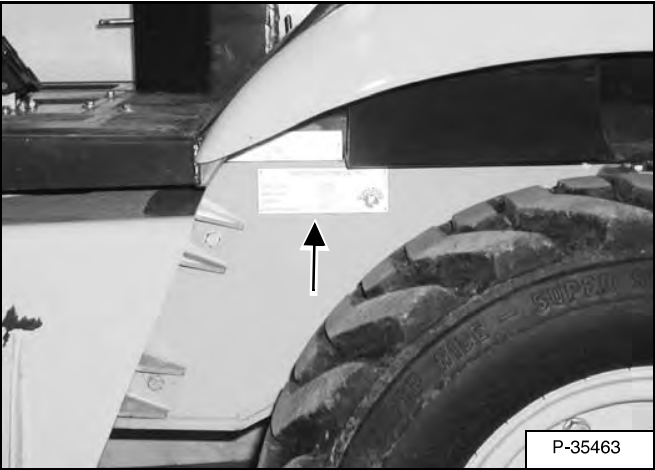
**BL-470, BL-475 Loader Backhoe
Service Manual**

SERIAL NUMBER LOCATION

Always use the serial number of the loader backhoe 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.

Loader Backhoe Serial Number

Figure 1



The loader backhoe serial number plate is located under the fender in front of the left rear tire [Figure 1].

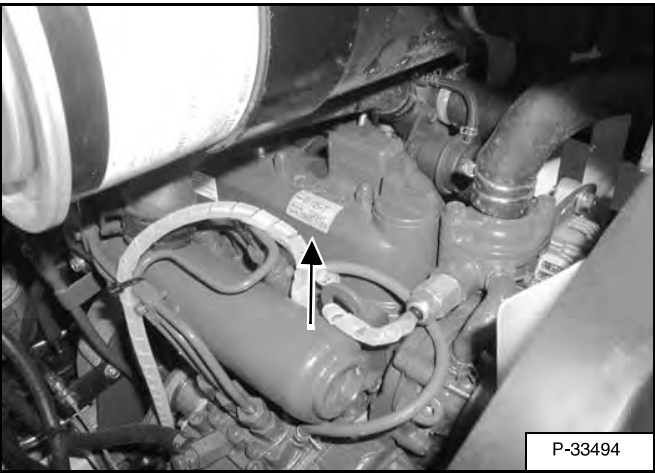
Explanation of loader Serial Number:

XXXX	XXXXX
Model 1.-Model/ Engine Combination	Model 2.-Production Sequence (Series)

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 loader is produced.

Engine Serial Number

Figure 2



The engine serial number is located on the valve cover at the right side of the engine [Figure 2].

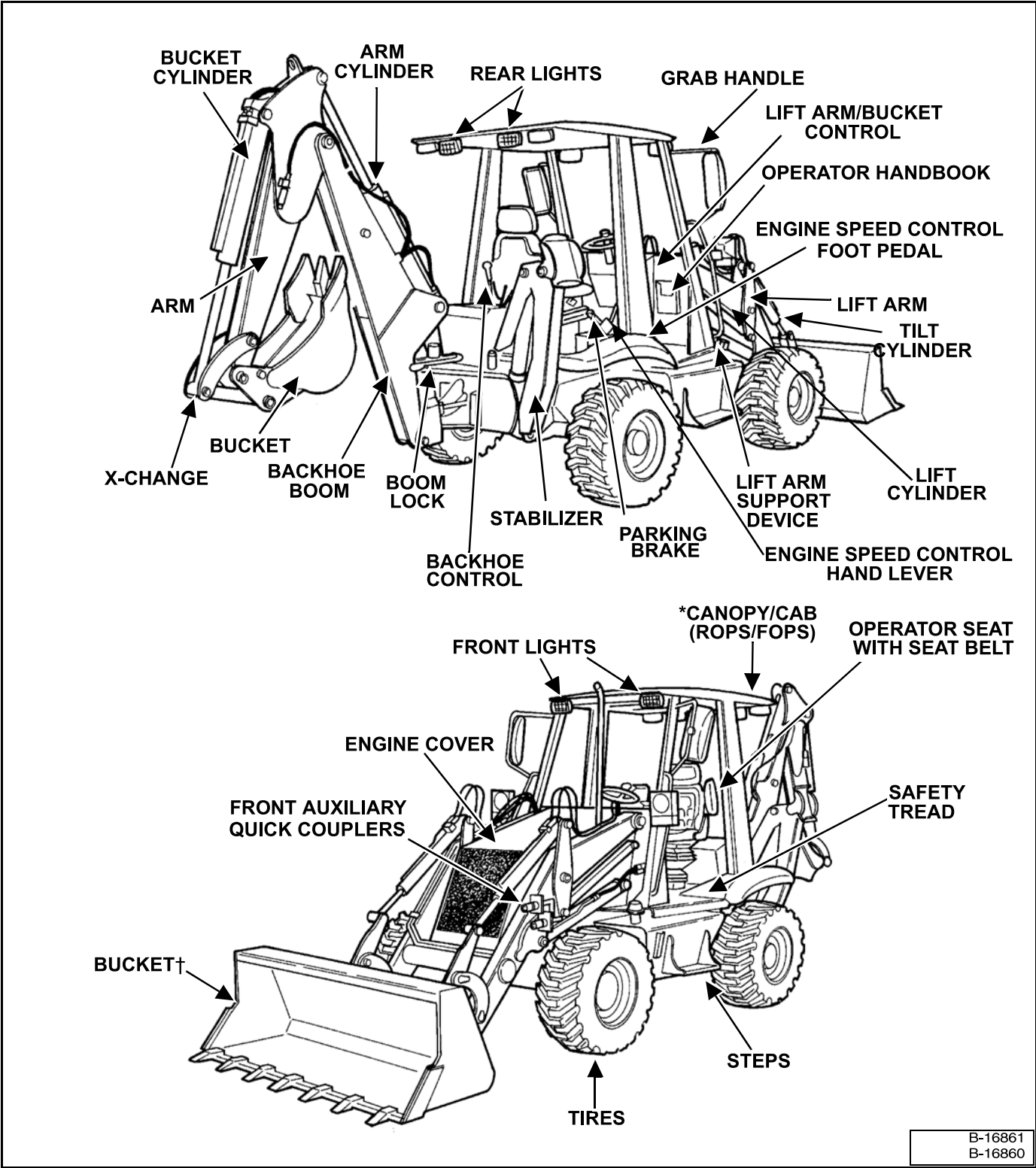
DELIVERY REPORT

Figure 3

The Delivery Report must be filled out by the dealer and signed by the owner or operator when the Ingersoll Rand loader backhoe is delivered. An explanation of the form must be given to the owner. Make sure it is filled out completely [Figure 3].

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INGERSOLL RAND LOADER IDENTIFICATION



† BUCKET - Several different buckets and other attachments are available for the Ingersoll Rand loader backhoe.
* ROPS, FOPS - Roll Over Protective Structure, Falling Object Protective Structure, per SAE j1040 and ISO 3471 and Falling Object Protective Structure per SAE J1043 and ISO 3449, Level 1.

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SAFETY AND MAINTENANCE

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Procedure	10-50-1
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Procedure	10-40-1

LIFTING AND BLOCKING THE LOADER BACKHOE

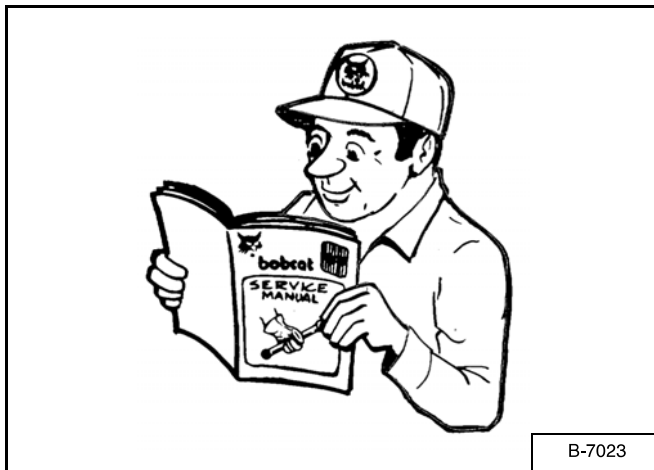
Procedure

! WARNING

Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual, 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-2003-0199

Figure 10-10-1



Read the removal and installation, disassembly and assembly, etc., completely to become familiar with the procedure before beginning [Figure 10-10-1].

Always park the loader backhoe on a level surface.

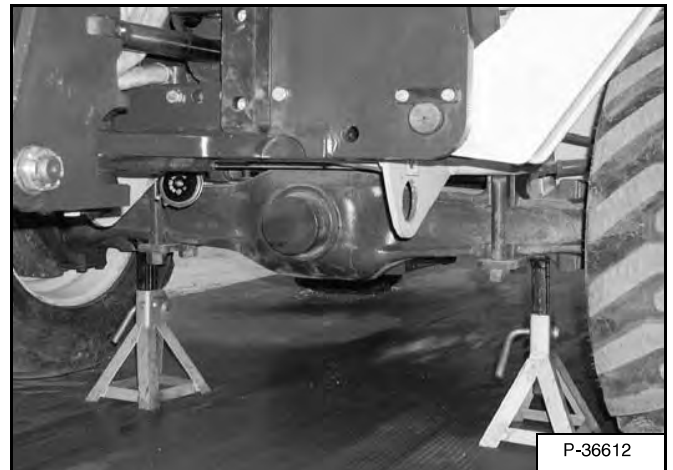
Stop the engine, and engage the parking brake.

! WARNING

Put jackstands under the front and rear axle before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

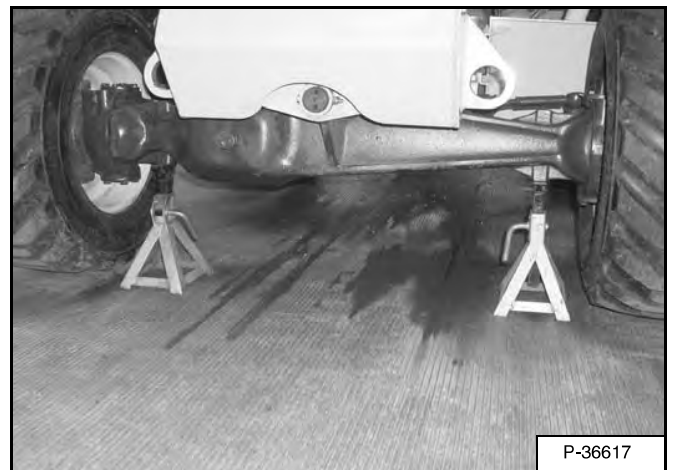
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Figure 10-10-2



Lift the rear of the loader backhoe and install jackstands [Figure 10-10-2].

Figure 10-10-3



NOTE: Loader lift arms are raised for photo clarity.

Lift the front of the loader backhoe and put jackstands under the axle [Figure 10-10-3].

Note: Make sure the jackstands do not touch the tires.

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