

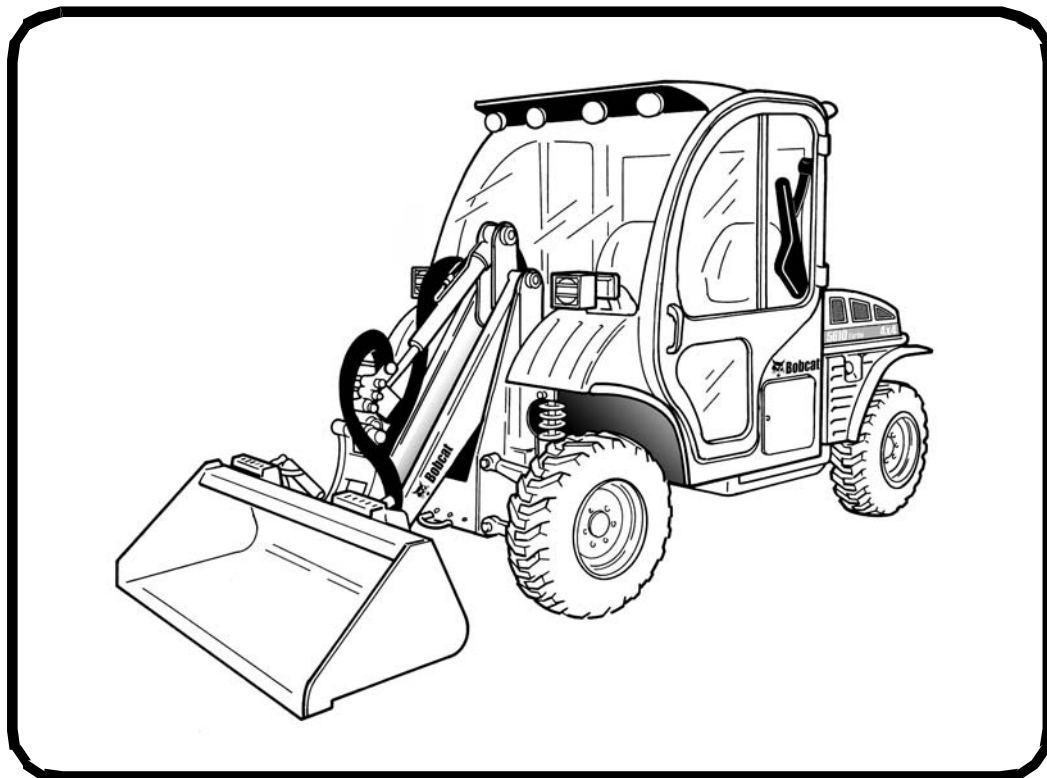


Bobcat®

Service Manual

Toolcat™ 5610 Utility Work Machine

S/N A7Y711001 & Above



EQUIPPED WITH
TOOLCAT INTERLOCK

CONTROL SYSTEM (TICS) All 783 pages at:

<https://www.arespairmanual.com/downloads/2011-bobcat-toolcat-5610-utility-work-machine-service-repair-workshop-manual6986804>

6986804 (3-11)

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Product: 2011 Bobcat Toolcat? 5610 Utility Work Machine Service Repair Workshop Manual(6986804)

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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 machine without instructions.

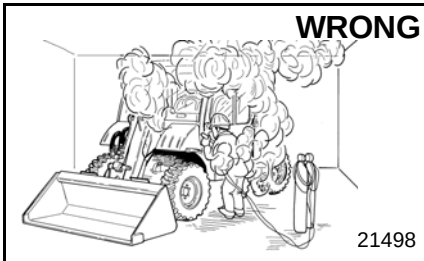
CORRECT



B-23860

⚠ Cleaning and maintenance are required daily.

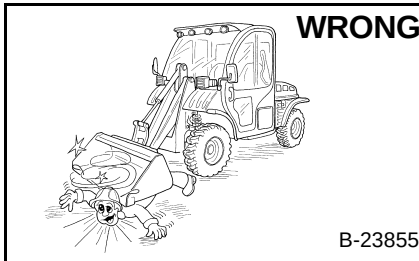
WRONG



21498

- ⚠ Have good ventilation when welding or grinding painted parts.
- ⚠ Wear dust mask when grinding painted parts. Toxic dust and gas can be produced.
- ⚠ Avoid exhaust fume leaks which can kill without warning. Exhaust system must be tightly sealed.

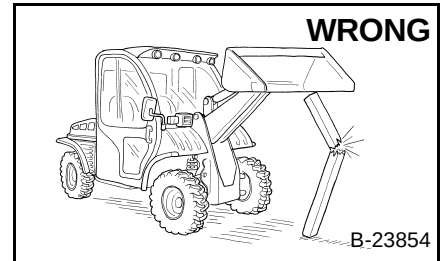
WRONG



B-23855

- ⚠ Disconnecting or loosening any hydraulic tubeline, hose, fitting, component or a part failure can cause lift arm or implement to drop. Do not go under lift arm when raised unless supported by an approved lift arm support device or under raised implement without proper supported. Replace if damaged.

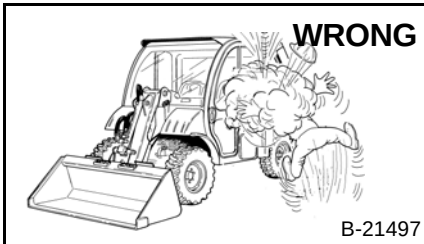
WRONG



B-23854

- ⚠ Never work on the machine with lift arm up unless supported by an approved support device. Replace if damaged. Never work on a raised implement unless it is properly supported.
- ⚠ Never modify equipment or add attachments or implements not approved by Bobcat Company.
- ⚠ DO NOT service this machine or an implement with the PTO system engaged.

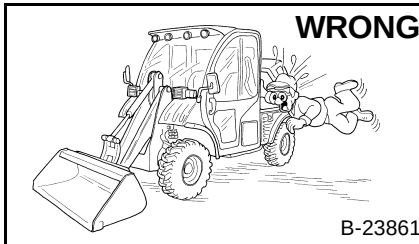
WRONG



B-21497

- ⚠ 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-23861

- ⚠ 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 side access doors and rear cover closed except for service.

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**.

MSW34-0409



CONTENTS

SAFETY & MAINTENANCE	10-01
HYDRAULIC SYSTEM	20-01
HYDROSTATIC SYSTEM	30-01
DRIVE SYSTEM	40-01
MAINFRAME	50-01
ELECTRICAL SYSTEM & ANALYSIS	60-01
ENGINE SERVICE	70-01
HEATING, VENTILATION, AIR CONDITIONING	80-01
SPECIFICATIONS	SPEC-01
ALPHABETICAL INDEX	INDEX-01



FOREWORD

FOREWORD	1-7
SAFETY INSTRUCTIONS	1-10
Use Safety Rules	1-11
Safety Rules For Power Take-Off (PTO) Driven Implements	1-12
FIRE PREVENTION	1-12
Maintenance	1-12
Operation	1-12
Electrical	1-12
Hydraulic System	1-13
Fueling	1-13
Starting	1-13
Spark Arrestor Exhaust System	1-13
Welding And Grinding	1-13
Fire Extinguishers	1-13
SERIAL NUMBER LOCATIONS	1-14
Utility Work Machine Serial Number	1-14
Engine Serial Number	1-14
DELIVERY REPORT	1-15
UTILITY WORK MACHINE IDENTIFICATION	1-16



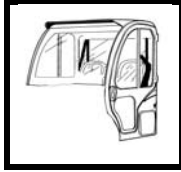
Bobcat®

FOREWORD

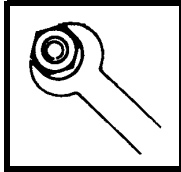
This manual is for the Toolcat Utility Work Machine mechanic. It provides necessary servicing and adjustment procedures for the Toolcat Utility Work Machine and its component parts and systems. Refer to the for operating instructions, starting procedure, daily checks, etc.

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

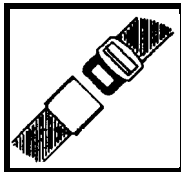
1. Check that the ROPS/FOPS (Including front and rear window) is in good condition and is not modified.



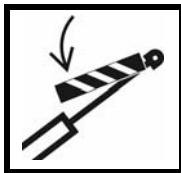
2. Check that ROPS mounting hardware is tightened and is Bobcat approved.



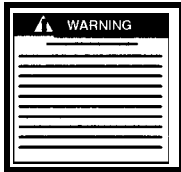
3. The operator and passenger seat belts must be correctly installed, functional and in good condition.



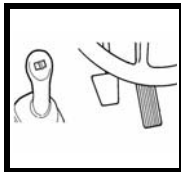
5. Check lift arm support device, replace if damaged.



6. Machine signs (decals) must be legible and in the correct location.



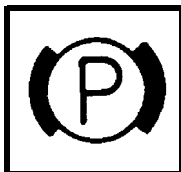
7. Joystick control lever and foot pedals must return to neutral.



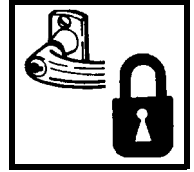
8. Check for correct function of the work lights.



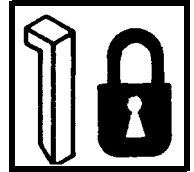
9. The parking brake must function correctly.



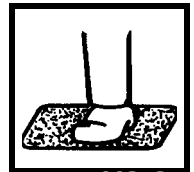
10. Enclosure door latches must open and close freely.



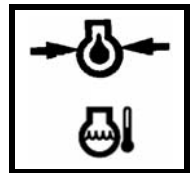
11. Bob-Tach wedges and linkages must function correctly and be in good condition.



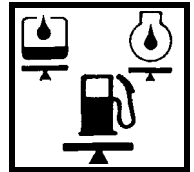
12. Safety treads and floor mats must be in good condition.



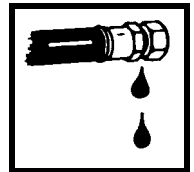
13. Check for correct function of indicator lamps.



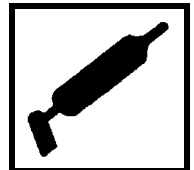
14. Check hydraulic fluid level, engine oil level and fuel supply.



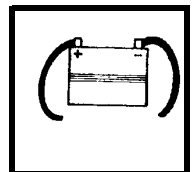
15. Inspect for fuel, oil or hydraulic fluid leaks.



16. Lubricate the machine.

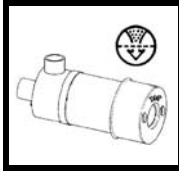


17. Check the condition of the battery and cables.

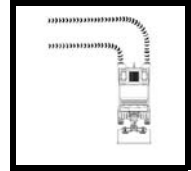


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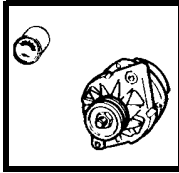
18. Inspect the air cleaner for damage or leaks. Check the condition of the element.



23. Operate the machine and check all functions.



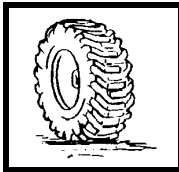
19. Check the electrical charging system.



23. Check for correct function of the Toolcat Interlock Control System (TICS) before the machine is returned to the customer.



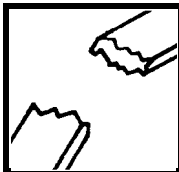
20. Check tires for wear and pressure. Use only approved tires.



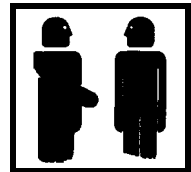
25. Check function or condition of all equipped options and accessories (examples: back-up alarm, fire extinguisher, rotating beacon, etc.).



21. Inspect for loose or broken parts or connections.



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



22. Check for any field modification not completed.



**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.



SAFETY INSTRUCTIONS



Safety Alert Symbol

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



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

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 following publications provide information on the safe use and maintenance of the Bobcat machine and attachments / implements:

- 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 / implement 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 / implement. 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 Service Manual and Parts Manual are available from your dealer for use by mechanics to do shop-type service and repair work.
- The Utility Work Machine Operator Training Course is available through your local dealer or at www.training.bobcat.com or www.bobcat.com. This course is intended to provide rules and practices of correct operation of the Utility Work Machine. The course is available in English and Spanish versions.
- The Utility Work Machine Safety Video is available from your Bobcat dealer or at www.training.bobcat.com or www.bobcat.com.

SI TC3PT-0608 SM

SAFETY INSTRUCTIONS (CONT'D)

Use Safety Rules

- Read and follow instructions in the machine and the attachment's / implement's Operation & Maintenance Manual before operating.
- Check for underground lines before operating attachment / implement (if applicable).
- In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.
- Check that the Bob-Tach levers are in the locked position and the wedges are fully engaged into the mounting holes of the attachment (if applicable).
- Check that the implement is securely fastened to the machine.
- Operate the attachment / implement according to the Operation & Maintenance Manual.
- When learning to operate the attachment / implement, do it at a slow rate in an area clear of bystanders.
- DO NOT permit personnel to be in the work area when operating the machine and attachment / implement.
- The attachment / implement must be used ONLY on approved machines. See your Bobcat dealer for updated list of approved attachments / implements for each machine model.
- DO NOT modify equipment or add attachments / implements that exceed manufacturer's specifications.
- DO NOT make any adjustments or repairs on the machine or attachment / implement while the engine is running.
- Keep shields and guards in place. Replace if damaged.

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.).



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.

SAFETY INSTRUCTIONS (CONT'D)

Safety Rules For Power Take-Off (PTO) Driven Implements

- Keep PTO shields and all guards in place. Replace damaged or missing shields and guards before operating.
- Follow warnings and instructions on machine signs (decals). Replace damaged or missing decals.
- Do not wear loose or bulky clothing around the PTO or other moving parts.
- Keep bystanders away from PTO driven equipment, and never allow children near machines.
- Read and understand the manuals for the PTO driven equipment and be aware of safe operating procedures and hazards that may not be readily apparent.
- Always walk around equipment to avoid coming near a turning PTO driveline. Stepping over, leaning across or crawling under a turning PTO driveline can cause entanglement.
- Position the machine and implement hitch correctly to prevent driveline stress and separation.
- Use caution when turning. Turning too sharp can cause driveline damage.
- Use caution when raising PTO driven implement. Excessive driveline angle can cause driveline damage. Use stops if needed.

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.

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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).

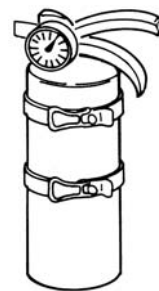
Welding And Grinding

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

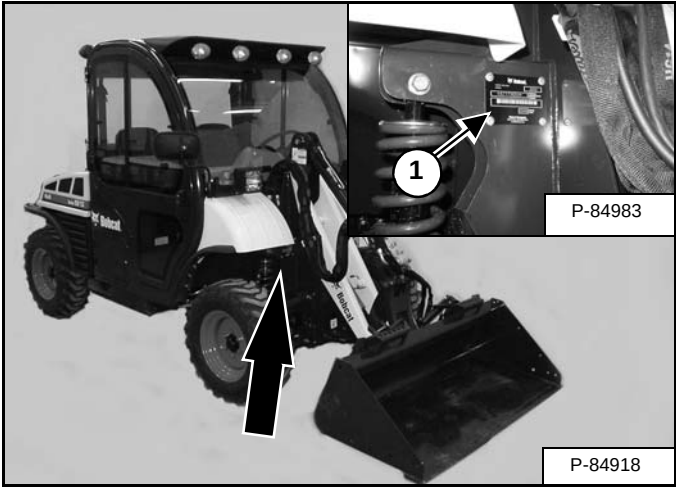


Know where fire extinguishers and first aid kits are located and how to use them. Inspect the fire extinguisher and service the fire extinguisher regularly. Obey the recommendations on the instructions plate.

SERIAL NUMBER LOCATIONS

Always use the serial number of the machine 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.

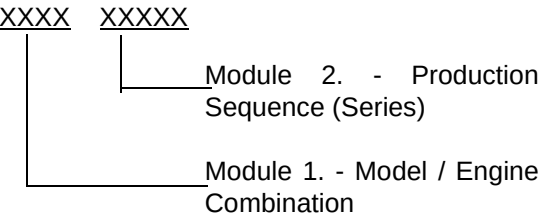
Figure 1



Utility Work Machine Serial Number

The Toolcat™ utility work machine serial number plate (Item 1) [Figure 1] is located on the front of the frame below the right fender.

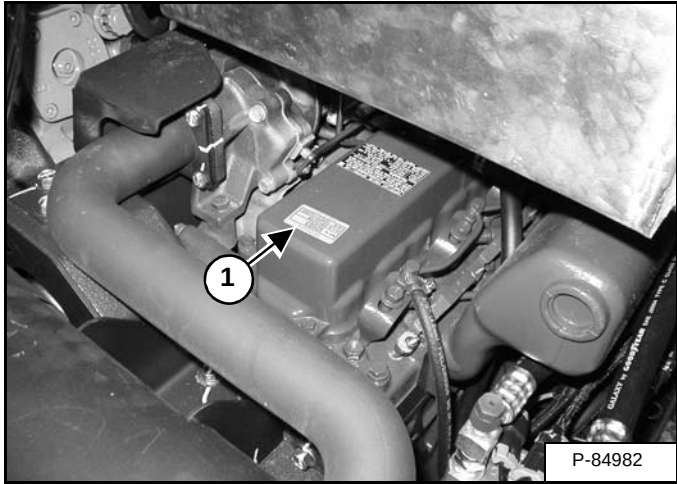
Explanation of machine Serial Number:



- 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 machine is produced.

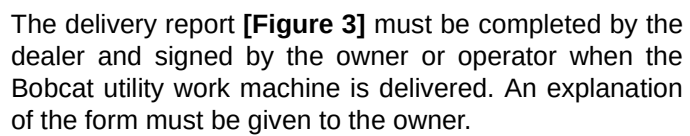
Engine Serial Number

Figure 2

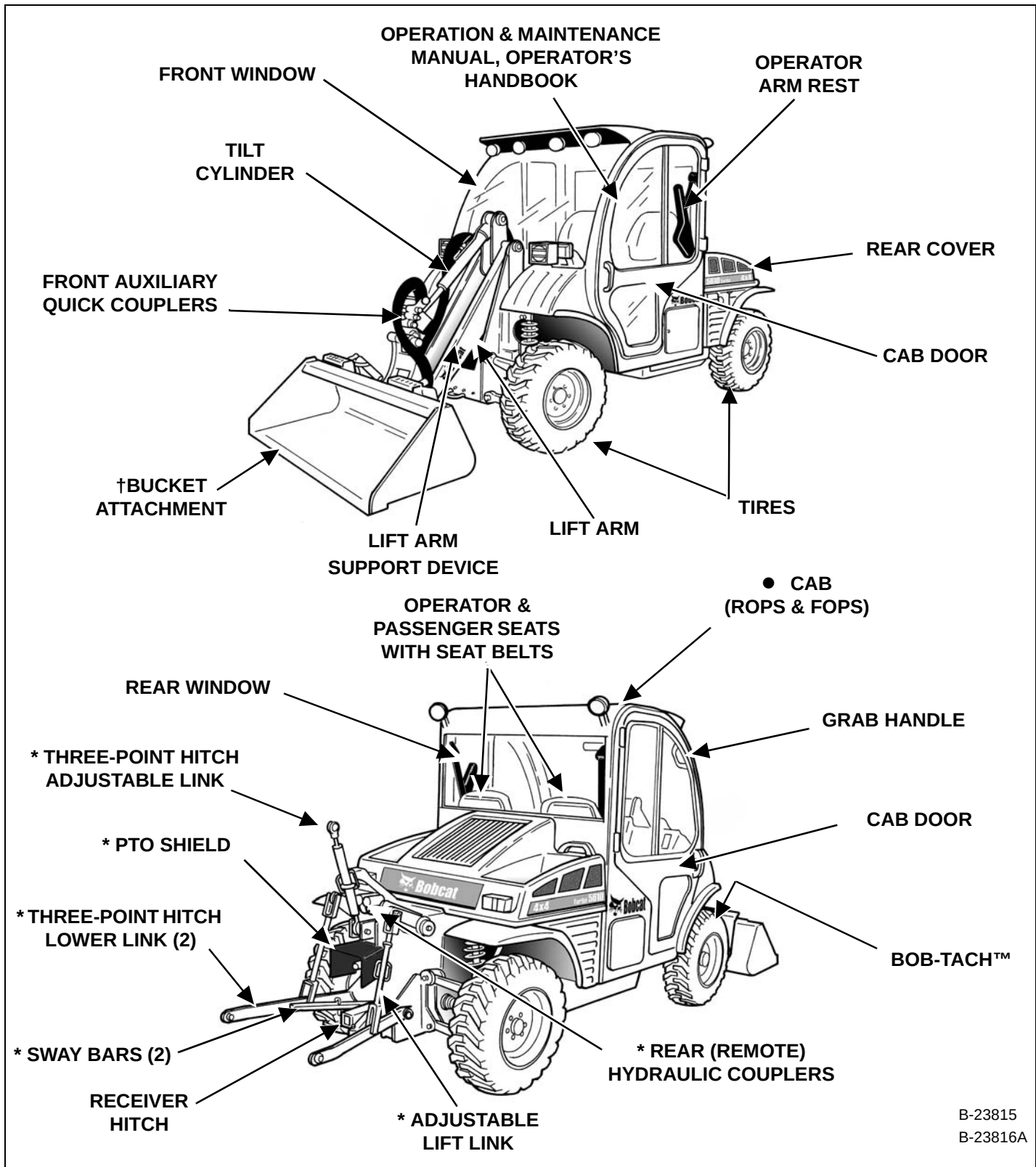


The engine serial number is located on the valve cover (Item 1) [Figure 2].

Figure 3



UTILITY WORK MACHINE IDENTIFICATION



† BUCKET - Buckets and other attachments are available for the Toolcat™ utility work machine.

● ROPS, FOPS - Roll Over Protective Structure, per ISO 3471, and Falling Object Protective Structure per ISO 3449, Level I.

* OPTIONAL OR FIELD ACCESSORIES (Not Standard Equipment).

SAFETY & MAINTENANCE

LIFTING AND BLOCKING THE UTILITY WORK MACHINE	10-10-1
Procedure For Jackstand Placement On The Control Arms	10-10-1
Procedure For Jackstand Placement On The Frame	10-10-2
LIFT ARM SUPPORT DEVICE	10-20-1
Installing	10-20-1
Removing	10-20-1
OPERATOR CAB	10-30-1
Description	10-30-1
TRANSPORTING THE UTILITY WORK MACHINE ON A TRAILER	10-40-1
Loading And Unloading	10-40-1
Fastening	10-40-1
TOWING THE UTILITY WORK MACHINE	10-50-1
Procedure	10-50-1
REMOTE START TOOL KIT-MEL1563	10-60-1
Remote Start Tool - MEL1563	10-60-1
Service Tool Harness Control - MEL1565	10-60-2
Service Tool Harness Communicator - MEL1566	10-60-3
Remote Start Procedure	10-60-4
REMOTE START TOOL (SERVICE TOOL) KIT - 6689779	10-61-1
Description	10-61-1
Remote Start Tool (Service Tool) - 6689778	10-61-2
Service Tool Harness - 6689747	10-61-3
Computer Service Tool Harness - 6689746	10-61-4
Remote Start Procedure	10-61-5
SERVICE SCHEDULE	10-70-1
Chart	10-70-1
AIR CLEANER SERVICE	10-80-1
Replacing Filter Elements	10-80-1
ENGINE COOLING SYSTEM	10-90-1
Cleaning	10-90-1
Checking Level	10-90-2
Removing And Replacing Coolant	10-90-3

FUEL SYSTEM	10-100-1
Fuel Specifications	10-100-1
Biodiesel Blend Fuel	10-100-1
Filling The Fuel Tank	10-100-2
Fuel Filter	10-100-2
Removing Air From The Fuel System	10-100-3
Filling A Portable Fuel Container	10-100-3
ENGINE LUBRICATION SYSTEM	10-110-1
Checking And Adding Engine Oil	10-110-1
Engine Oil Chart	10-110-1
Removing And Replacing Oil And Filter	10-110-2
HYDRAULIC / HYDROSTATIC SYSTEM	10-120-1
Checking Fluid	10-120-1
Hydraulic / Hydrostatic Fluid Chart	10-120-1
Adding Fluid	10-120-1
Removing And Replacing Hydraulic / Hydrostatic And Case Drain Filters	10-120-2
Removing And Replacing Hydraulic Fluid	10-120-3
Breather Cap	10-120-4
TRANSAXLE (FRONT AND REAR)	10-130-1
Checking And Adding Lubricant	10-130-1
Removing And Replacing Lubricant	10-130-2
BOB-TACH (HAND LEVER)	10-140-1
Inspection And Maintenance	10-140-1
BOB-TACH (POWER)	10-141-1
Inspection And Maintenance	10-141-1
LUBRICATING THE UTILITY WORK MACHINE	10-150-1
Lubrication Locations	10-150-1
TIRE MAINTENANCE	10-160-1
Wheel Nuts	10-160-1
Rotating	10-160-1
Mounting	10-160-1
SPARK ARRESTER MUFFLER	10-170-1
Cleaning Procedure	10-170-1
PIVOT PINS	10-180-1
Inspection And Maintenance	10-180-1
UTILITY WORK MACHINE STORAGE AND RETURN TO SERVICE	10-190-1
Storage	10-190-1
Return To Service	10-190-1

STOPPING THE ENGINE AND LEAVING THE UTILITY WORK MACHINE	10-200-1
Procedure	10-200-1
Emergency Exit	10-200-1
SEAT BELT	10-210-1
Inspection And Maintenance	10-210-1

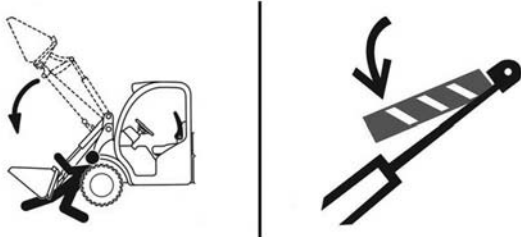


Bobcat®

LIFTING AND BLOCKING THE UTILITY WORK MACHINE

Procedure For Jackstand Placement On The Control Arms

NOTE: For jackstand placement procedure used when removing upper and lower control arms, CV shafts, shocks, spindles and upper control arm stops (See Procedure For Jackstand Placement On The Frame on Page 10-10-2.)



P-90775

AVOID DEATH

- Never reach under or stand under raised lift arm unless supported by an approved lift arm support.
- Moving a lift arm control or failure of a part can cause lift arm to drop.

D-1010-0709

Install the approved lift arm support device. (See Installing on Page 10-20-1.)

Always park the machine on a level surface.

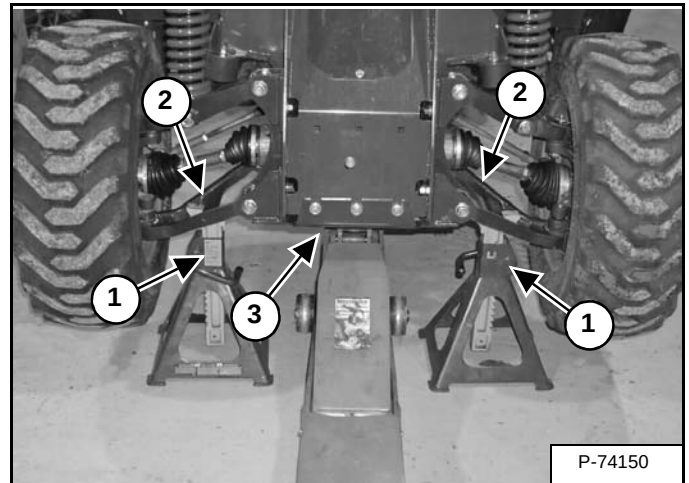


AVOID INJURY OR DEATH

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

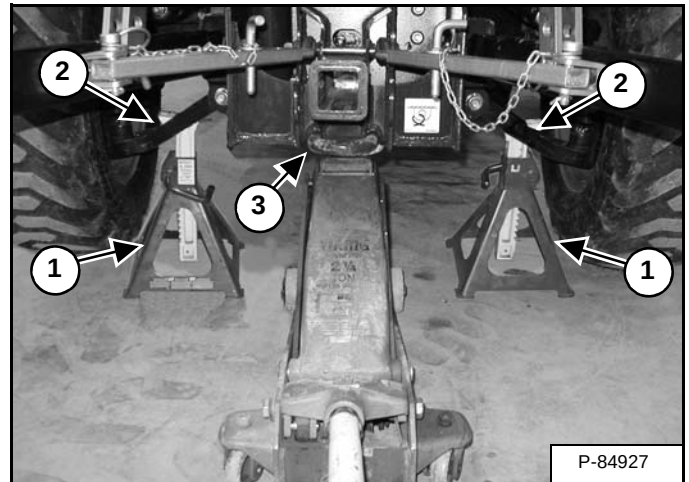
Figure 10-10-1



Place the jackstands (Item 1) on the control arms (Item 2) [Figure 10-10-1] at the front of the machine.

NOTE: When lifting the machine place the jack under the transaxle (Item 3) [Figure 10-10-1].

Figure 10-10-2



Place the jackstands (Item 1) on the control arms (Item 2) [Figure 10-10-2] at the rear of the machine.

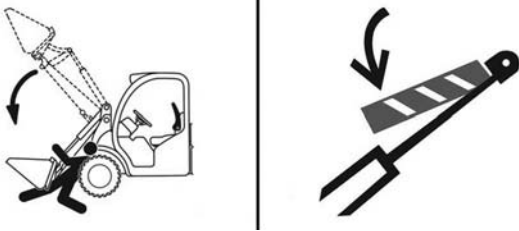
NOTE: When lifting the machine place the jack under the transaxle (Item 3) [Figure 10-10-2].

LIFTING AND BLOCKING THE UTILITY WORK MACHINE (CONT'D)

Procedure For Jackstand Placement On The Frame

NOTE: This procedure is shown for the removal of upper and lower control arms, CV shafts, shocks, spindles and upper control arm stops.

! DANGER



P-90775

AVOID DEATH

- Never reach under or stand under raised lift arm unless supported by an approved lift arm support.
- Moving a lift arm control or failure of a part can cause lift arm to drop.

D-1010-0709

Install the approved lift arm support device. (See Installing on Page 10-20-1.)

! 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.

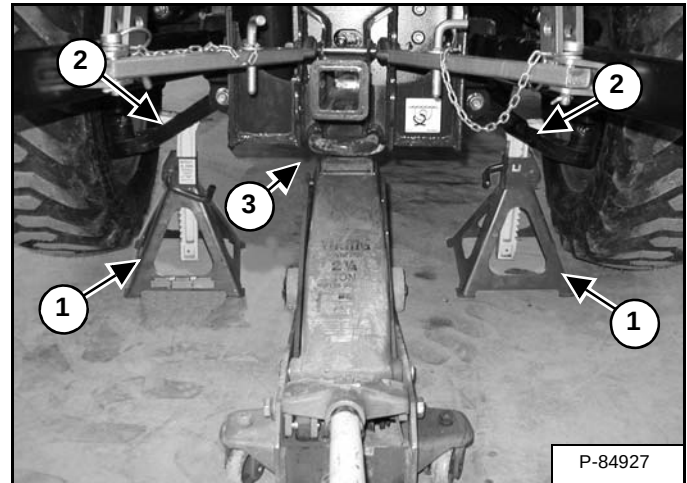
W-2003-0807

Always park the machine on a level surface.

NOTE: This procedure allows removal of components that cannot have a jackstand located on the control arm where the work is being performed.

NOTE: The procedure shown is for front component removal. Place the jackstands under the front control arms and under the rear frame for rear component removal.

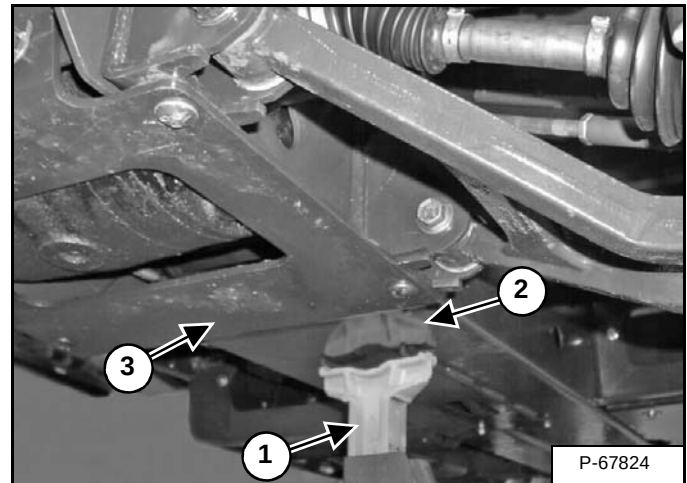
Figure 10-10-3



Place the jackstands (Item 1) on the control arms (Item 2) [Figure 10-10-3] at the rear of the machine.

NOTE: When lifting the machine place the jack under the transaxle (Item 3) [Figure 10-10-3].

Figure 10-10-4



Place the jackstand (Item 1) on the center of the frame (Item 2) behind the plate (Item 3) [Figure 10-10-4].

LIFT ARM SUPPORT DEVICE

Installing

! WARNING

Never work on a machine with the lift arm up unless the lift arm is supported by an approved lift arm support device. Failure to use an approved lift arm support device can allow the lift arm or attachment to fall and cause injury or death.

W-2447-1102

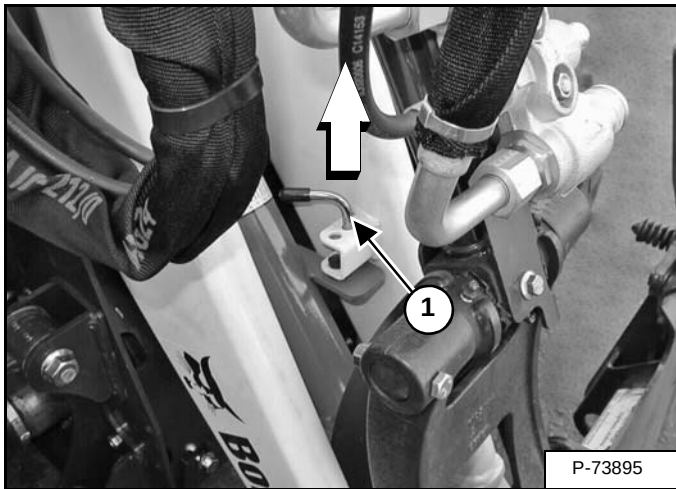
! WARNING

Service lift arm support device if damaged. Using a damaged lift arm support can cause lift arm to drop causing injury or death.

W-2448-1102

Remove any attachment from the Bob-tach and fully lower the lift arm before performing this procedure.

Figure 10-20-1



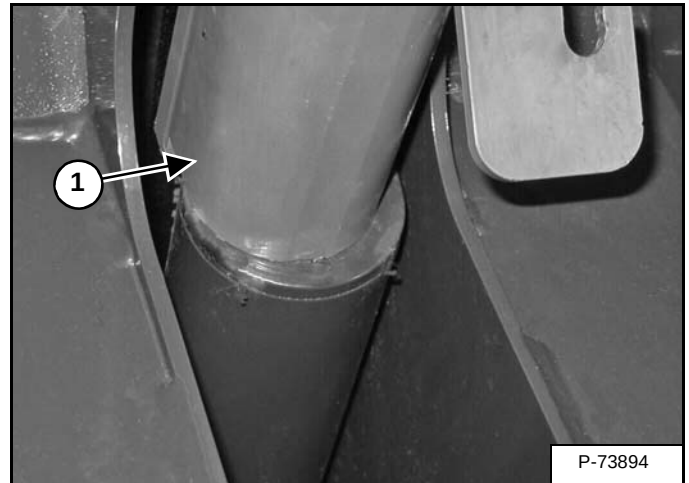
Pull the latch (Item 1) [Figure 10-20-1] up to release the lift arm support.

Enter the cab, lower the arm rest, fasten the seat belt and start the engine.

Raise the lift arm all the way up.

Stop the engine and exit the cab.

Figure 10-20-2



Swing the lift arm support (Item 1) [Figure 10-20-2] toward the cylinder rod. Raise and place into position on top of cylinder base. Lift arm support must contact cylinder rod.

The tab on each side of lift arm support (Item 2) [Figure 10-20-2] will hook in place around the cylinder base when properly installed.

Enter the cab, lower the arm rest, fasten the seat belt and start the engine.

Lower the lift arm until it is supported by the support device.

Stop the engine and exit the cab.

Removing

Enter the cab, lower the arm rest, fasten the seat belt and start the engine.

Raise the lift arm all the way up.

Stop the engine and exit the cab.

Position the lift arm support and latch securely into the storage position.

Enter the cab, lower the arm rest, fasten the seat belt and start the engine.

Fully lower the lift arm.

Stop the engine and exit the cab.



Bobcat®

OPERATOR CAB

Description

Figure 10-30-1



The machine has an operator cab (ROPS / FOPS) **[Figure 10-30-1]** as standard equipment to protect the operator from rollover and falling objects. The seat belt must be worn for rollover protection. Check with your dealer if the operator cab has been damaged or modified.

ROPS / FOPS - Roll Over Protective Structure per ISO 3471, and Falling Object Protective Structure per ISO 3449, Level I.

Level I

Protection from falling bricks, small concrete blocks, and hand tools encountered in operations such as highway maintenance, landscaping, and other construction site services.



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



Bobcat®

TRANSPORTING THE UTILITY WORK MACHINE ON A TRAILER

Loading And Unloading

! 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

Be sure the transport and towing vehicles are of adequate size and capacity for weight of machine.

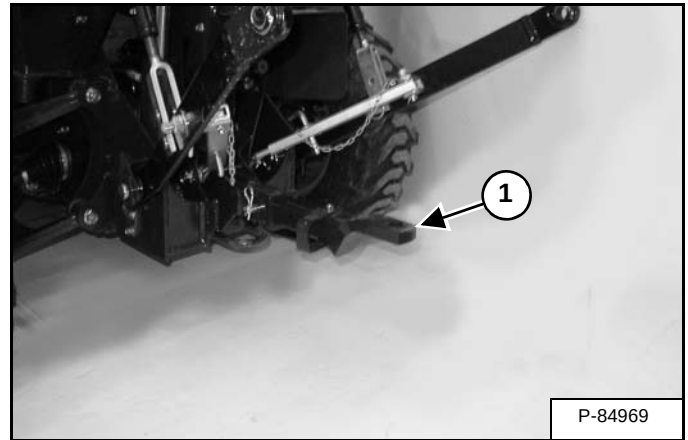
Figure 10-40-1



A machine with an attachment must be loaded or unloaded forward. A machine without an attachment can be loaded or unloaded either forward or backward [Figure 10-40-1].

The rear of the trailer must be blocked or supported [Figure 10-40-1] when loading or unloading to prevent the front end of the trailer from raising up.

Figure 10-40-2



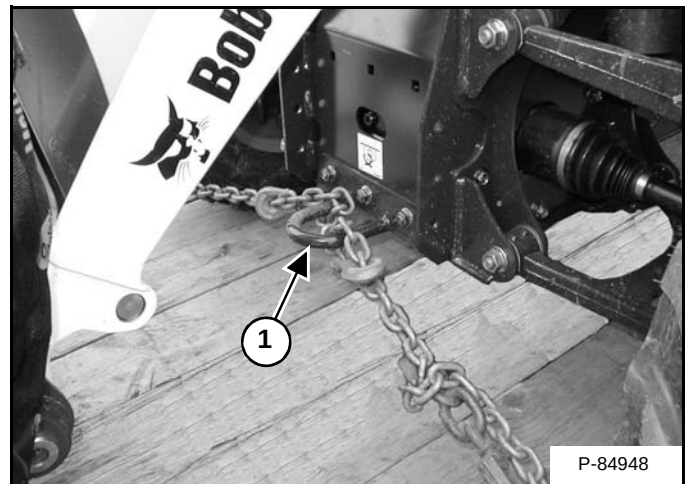
It may be necessary to remove the receiver hitch (Item 1) [Figure 10-40-2] before loading or unloading to prevent it from hitting the ground. Raise the Three-Point hitch lift arms fully (if equipped).

Fastening

Use the following procedure to fasten the machine to the transport vehicle to prevent it from moving during turns, sudden stops or when going up and down slopes.

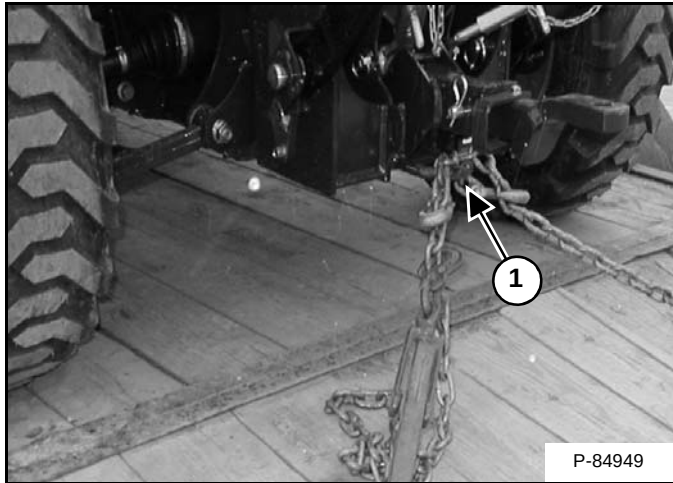
Fully lower any bucket or attachment. Put the Travel Direction Control Lever in PARK position. Stop the engine. Move the controls to neutral and raise the arm rest.

Figure 10-40-3



Fasten the front of machine using the front tie down point (Item 1) [Figure 10-40-3].

Figure 10-40-4



Fasten the rear of machine using the rear tie down point (Item 1) [Figure 10-40-4].