

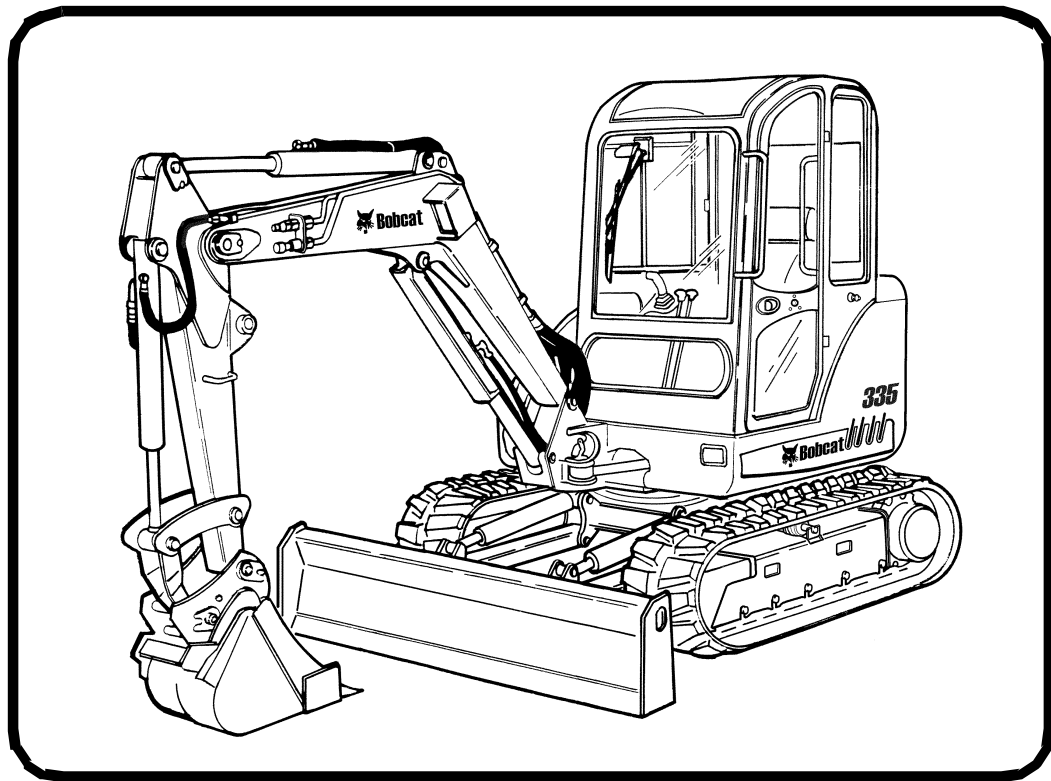


Bobcat®

Service Manual

335 Compact Excavator

S/N A16U11001 & Above



MAINTENANCE SAFETY



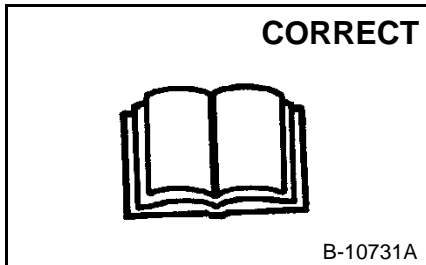
WARNING

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

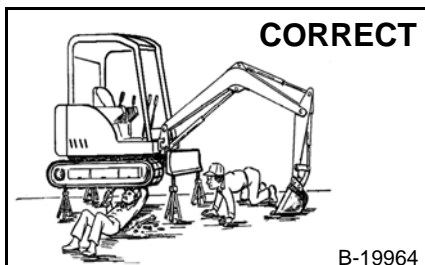


Safety Alert Symbol: This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.



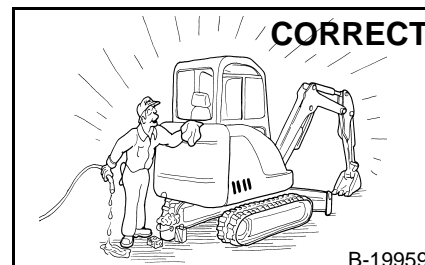
B-10731A

- ⚠ Never service the Bobcat Compact Excavator without instructions.



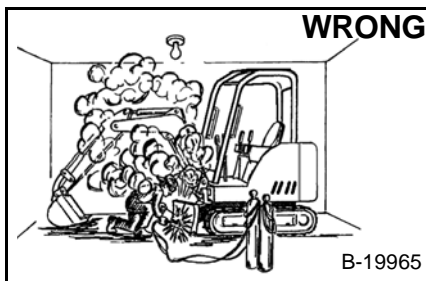
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- ⚠ Use the correct procedure to lift and support the excavator.



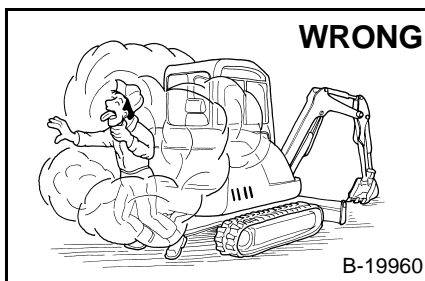
B-19959

- ⚠ Cleaning and maintenance are required daily.



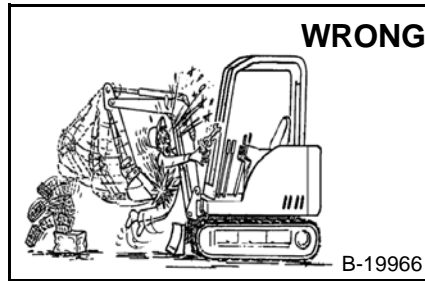
B-19965

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



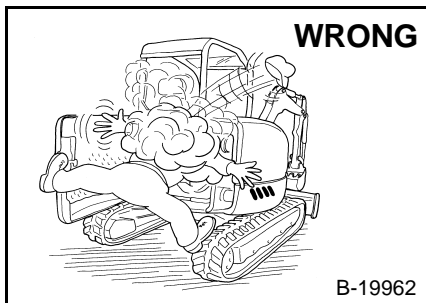
B-19960

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



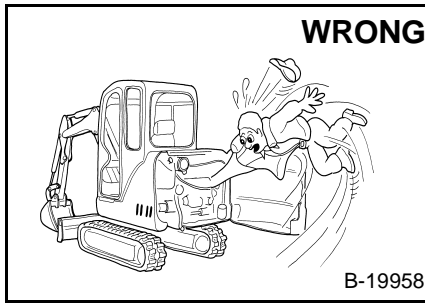
B-19966

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



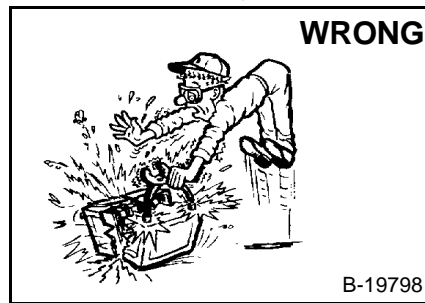
B-19962

- ⚠ 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.

MSW28-0805

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The full manual is available for immediate download.

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**SAFETY AND
MAINTENANCE**

**HYDRAULIC
SYSTEM**

UNDERCARRIAGE

**UPPERSTRUCTURE
& SWING
SECTION**

**ELECTRICAL
SYSTEM AND
ANALYSIS**

**ENGINE
SERVICE**

HVAC

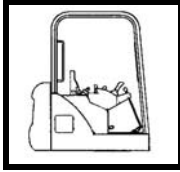
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FOREWORD

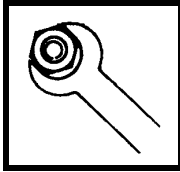
This manual is for the Bobcat Hydraulic Excavator mechanic. It provides necessary servicing and adjustment procedures for the hydraulic excavator and its component parts and systems. Refer to the Operation & Maintenance Manual for operating instructions, starting procedure, daily checks, etc.

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

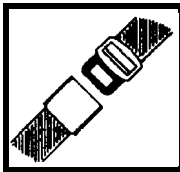
1. Check that the ROPS/TOPS/FOPS is in good condition and is not modified.



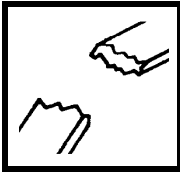
2. Check that ROPS/TOPS mounting hardware is tightened and is Bobcat approved.



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



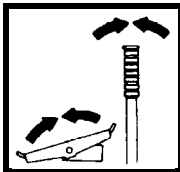
4. Inspect for loose or broken parts or connections.



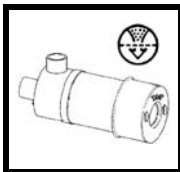
5. Machine signs must be legible and in the correct location.



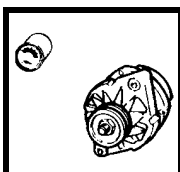
6. Steering levers, control levers and foot pedals must return to neutral. Check that foot pedals lock and control lever locks are in working order.



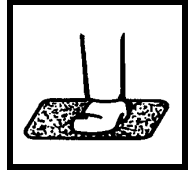
7. Inspect the air cleaner for damage or leaks. Check the condition of the element.



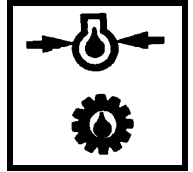
8. Check the electrical charging system.



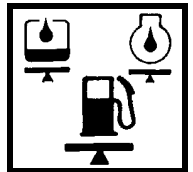
9. Safety treads must be in good condition.



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



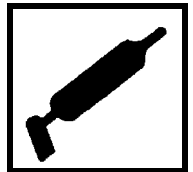
11. Check hydraulic fluid level, engine oil level and fuel supply.



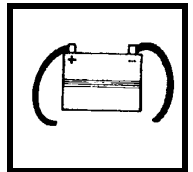
12. Inspect for fuel, oil or hydraulic fluid leaks.



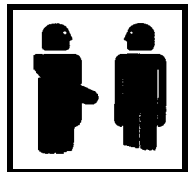
13. Lubricate the excavator.



14. Check the condition of the battery and cables.



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



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



WARNING

Warnings on the machine and in the manuals are for your safety. Failure to obey warnings can cause injury or death.

W-2044-1285

IMPORTANT

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

I-2019-0284

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 or 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 or 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 or www.bobcat.com.

SI EXC-0206 SM

SAFETY INSTRUCTIONS (CONT'D)

Fire Prevention

The machine and 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.

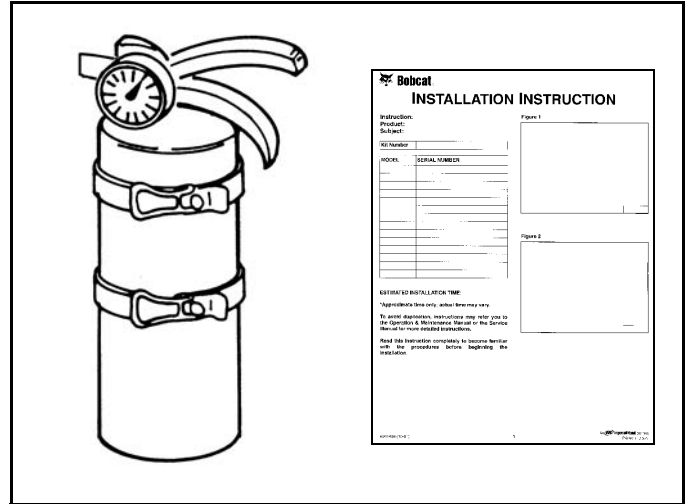
Flammable debris (leaves, straw, etc.) must be removed regularly. If flammable debris is allowed to accumulate, it will increase fire hazard. Clean often to avoid this accumulation. Flammable debris in the engine compartment is a potential hazard.

The spark arrestor muffler 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 hazard 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 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 a 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).

Figure 1



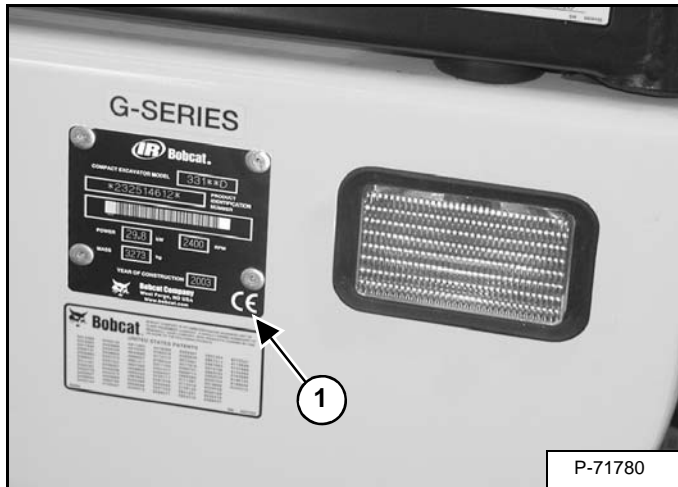
- Know where fire extinguishers and first aid kits are located and how to use them. Fire extinguishers are available from your Bobcat dealer [Figure 1].

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.

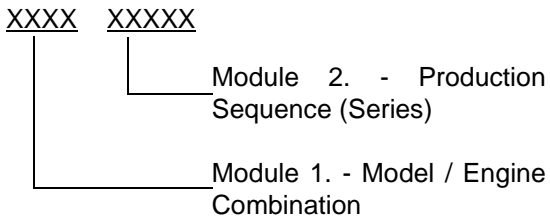
Excavator Serial Number

Figure 1



The excavator serial number plate (Item 1) is located on the frame of the machine in the location shown [Figure 1].

Explanation of excavator 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 excavator is produced.

Engine Serial Number

Figure 2

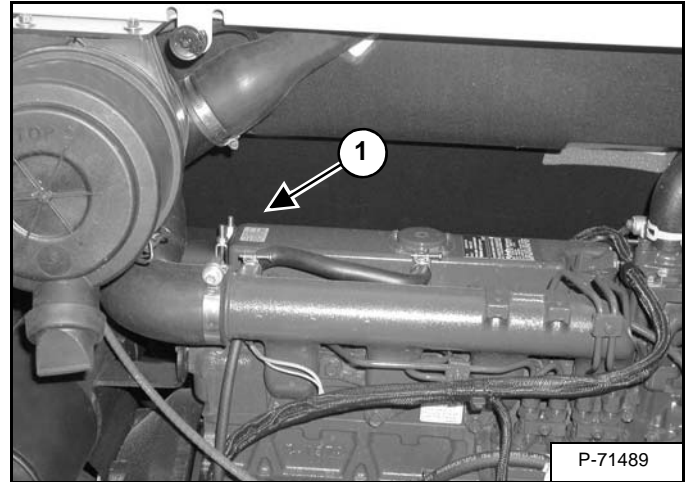
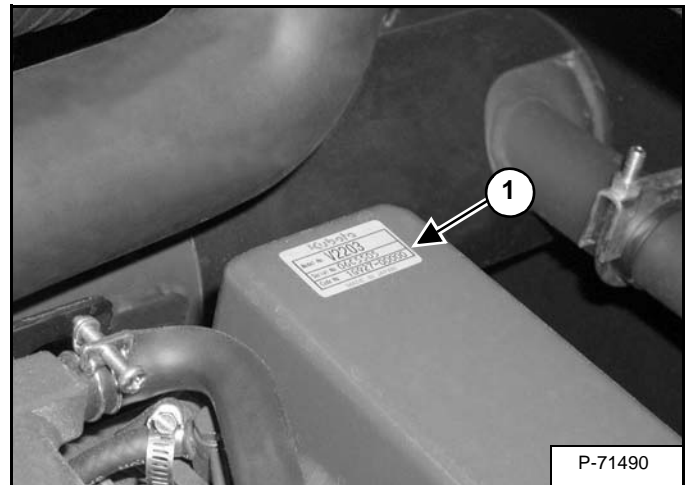


Figure 3



The engine serial number (Item 1) [Figure 2] & [Figure 3] is located on the engine in the locations shown.

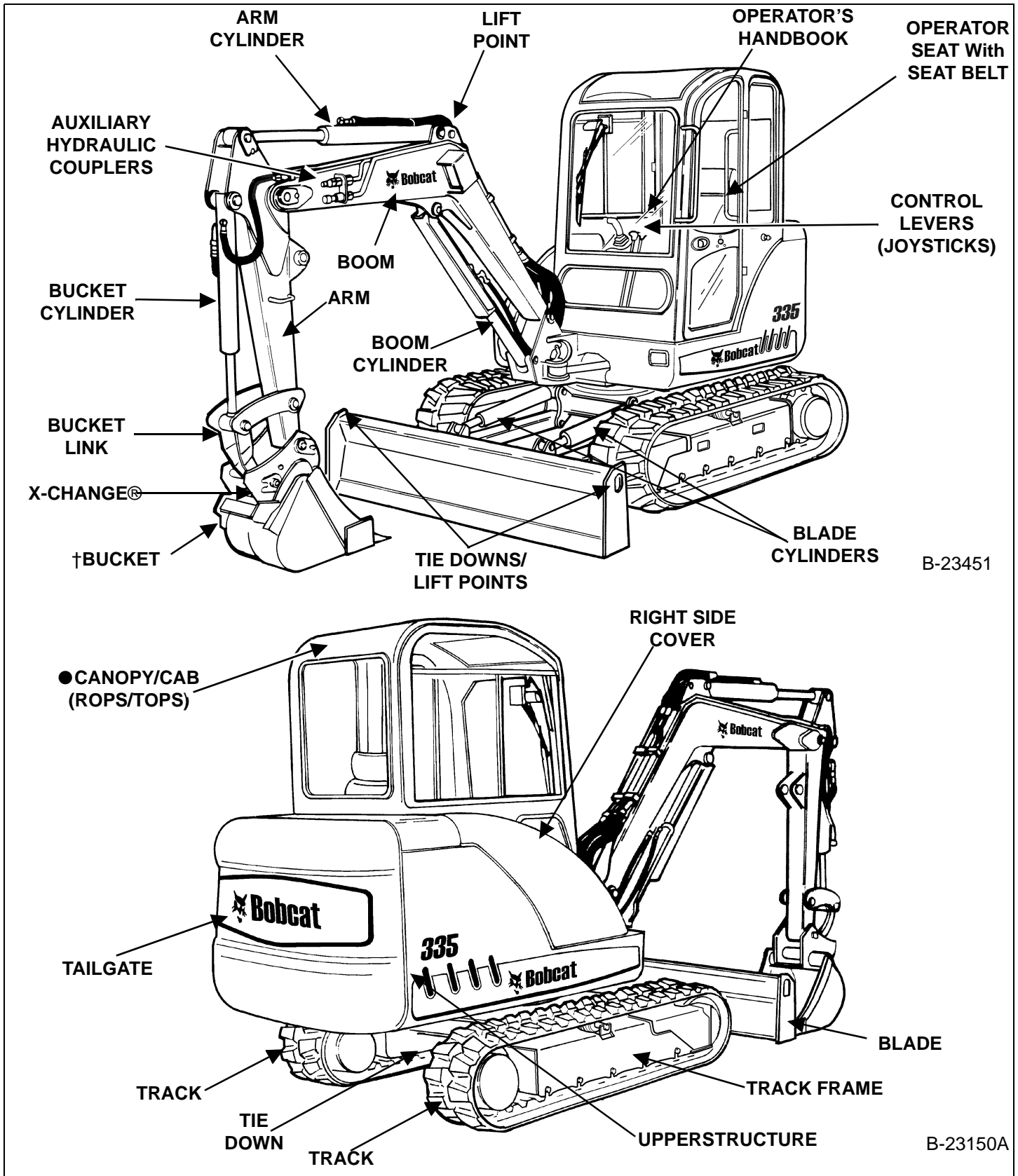
DELIVERY REPORT

Figure 4

The diagram shows a form titled "DELIVERY REPORT". At the top left, there are several horizontal lines for text entry. To the right of this is a smaller box titled "WARNING" with a dark background and white text. Below the "WARNING" box and the top section are two columns of horizontal lines, representing text input areas. At the bottom right of the form, there is a small rectangular box containing the text "B-16315".

The delivery report must be filled out by the dealer and signed by the owner or operator when the Bobcat Excavator is delivered. An explanation of the form must be given to the owner. Make sure it is filled out completely **[Figure 4]**.

EXCAVATOR IDENTIFICATION



B-23451

B-23150A

- † BUCKET - Several different buckets and other attachments are available from the Bobcat Excavator.
- ROPS, TOPS - (Roll Over Protective Structure / Tip Over Protective Structure) as standard equipment. The ROPS/TOPS meets SAE J1040, ISO 3471 and ISO 12117.

SAFETY AND MAINTENANCE

SAFETY & MAINTENANCE

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LIFTING AND BLOCKING THE EXCAVATOR

Procedure

Always park the machine on a level surface.

! 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.

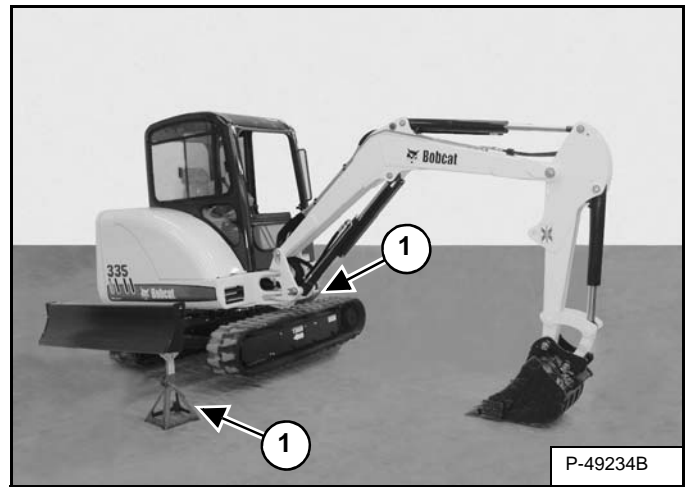
W-2003-0807

! WARNING

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

W-2017-0286

Figure 10-10-1



Raise one side of the machine (approximately four inches) using the boom and arm [Figure 10-10-1].

Raise the blade fully and install jack stands under the blade and track frame (Item 1) [Figure 10-10-1]. Raise the boom until all machine weight is on the jack stands.

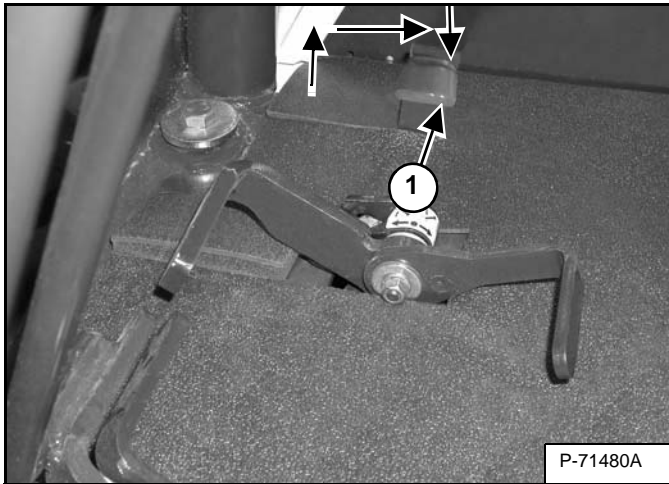
Repeat the procedure for the other side.

Stop the engine.

NOTE: For machines equipped with angle blade, make sure blade is in the straight position prior to lifting.

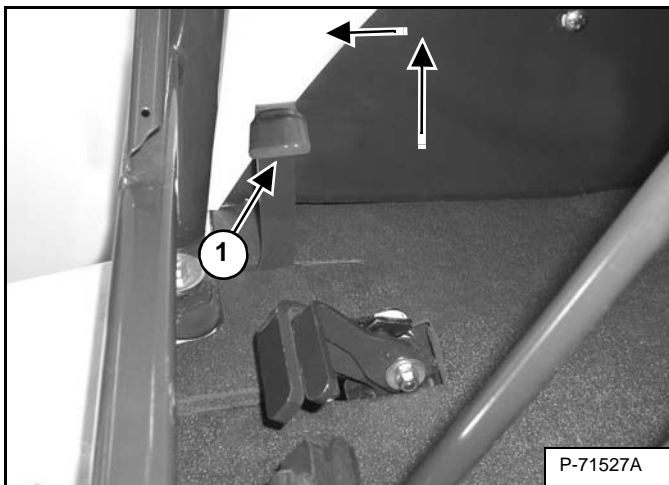
Operation

Figure 10-11-1



Move the lever (Item 1) [Figure 10-11-1] *up* slightly, then to the rear and down to engage the upperstructure slew lock.

Figure 10-11-2



Move the lever (Item 1) [Figure 10-11-2] *up* and then forward to disengage the upperstructure slew lock.

NOTE: Upperstructure must be in the straight forward or straight rearward position for upperstructure to lock.

WARNING

AVOID INJURY

The upperstructure slew lock lever must be engaged when transporting the machine.

WARNING

AVOID INJURY OR DEATH

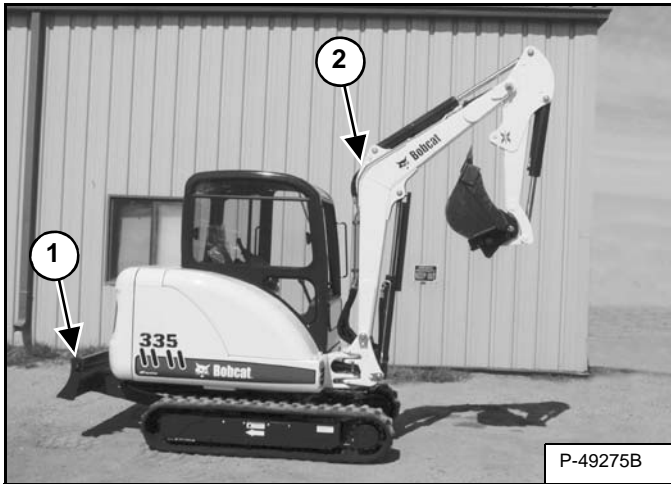
Never use attachments or buckets which are not approved by Bobcat Company. Buckets and attachments for safe loads of specified densities are approved for each model. Unapproved attachments can cause injury or death.

W-2052-0907

LIFTING THE EXCAVATOR

Procedure

Figure 10-12-1



Fully extend the cylinders of the bucket, arm, and boom so that the excavator is in the position as shown [Figure 10-12-1].

Raise the blade all the way.

Put all the control levers in neutral.

WARNING

AVOID INJURY OR DEATH

- Use a lifting fixture with sufficient capacity for the weight of the excavator plus any added attachments.
- Maintain center of gravity and balance when lifting.
- Do not swing boom or upperstructure. Engage the upperstructure slew lock.
- Never lift with operator on machine.

W-2202-0607

Figure 10-12-2

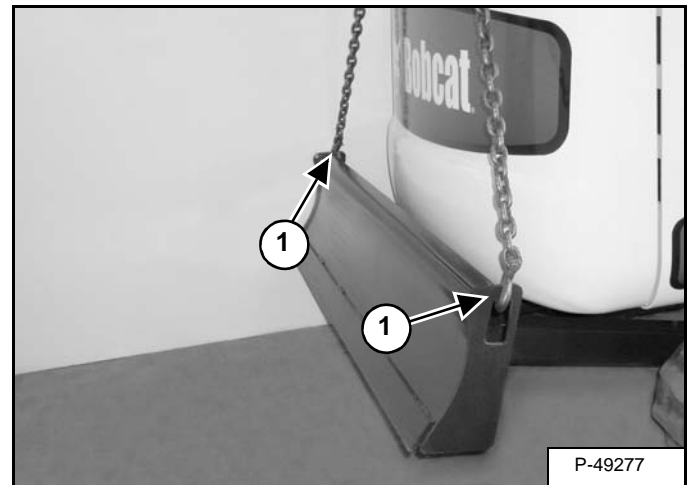
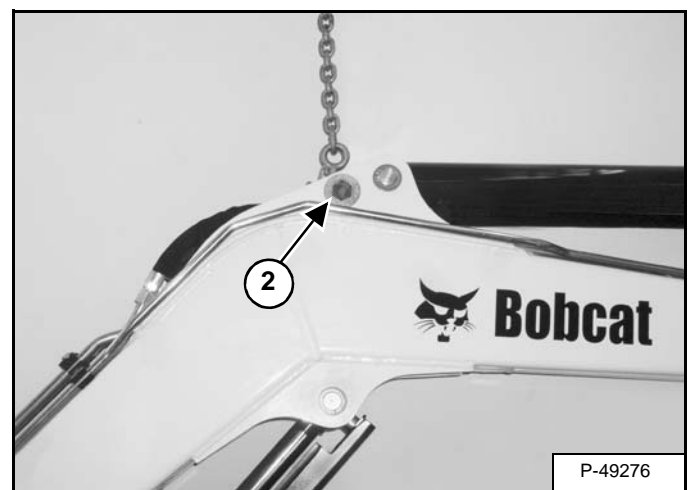


Figure 10-12-3



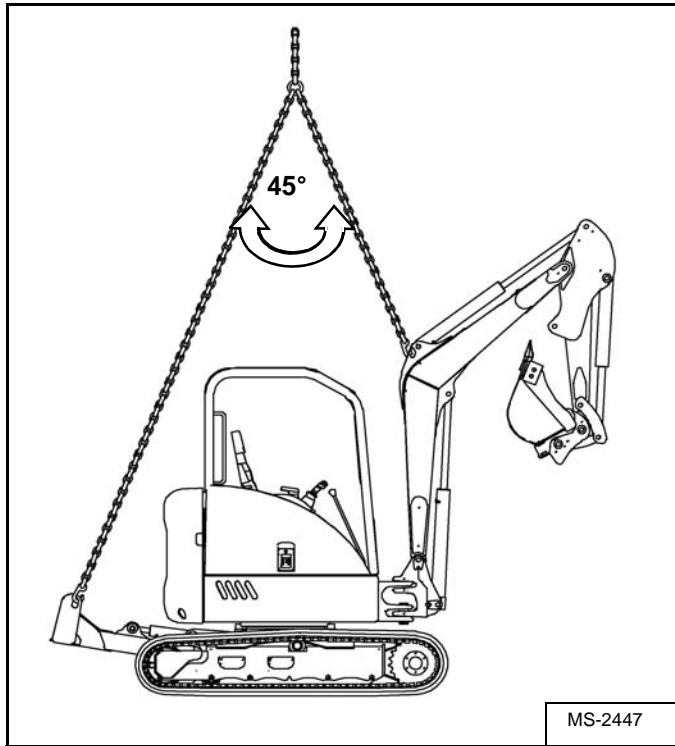
Fasten chains to the ends of the blade (Item 1) [Figure 10-12-2] and [Figure 10-12-3] and up to a lifting fixture above the canopy/cab. The lifting fixture must extend over the sides of the canopy/cab to prevent the chains from hitting the ROPS/TOPS.

Install a one inch (25 mm) bolt and nut (Grade 5 or 8) through the holes in the boom (Item 2) [Figure 10-12-1] and [Figure 10-12-3]. Fasten a chain from the bolt to the lift fixture.

LIFTING THE EXCAVATOR (CONT'D)

Procedure (Cont'd)

Figure 10-12-4



Keep the angle between the front and rear chains less than 45° [Figure 10-12-4].

OPERATOR CAB (ROPS / TOPS)

Description

The excavator has an optional operator cab (ROPS/TOPS) (Roll Over Protective Structure/Tip Over Protective Structure). The ROPS/TOPS meets ISO 3471 and ISO 12117.

An enclosed cab (ROPS/TOPS) is an Option or can be installed as a Field Accessory.

Both the cab and canopy provide operator protection if the excavator is tipped over. The seat belt must be worn for ROPS /TOPS protection.

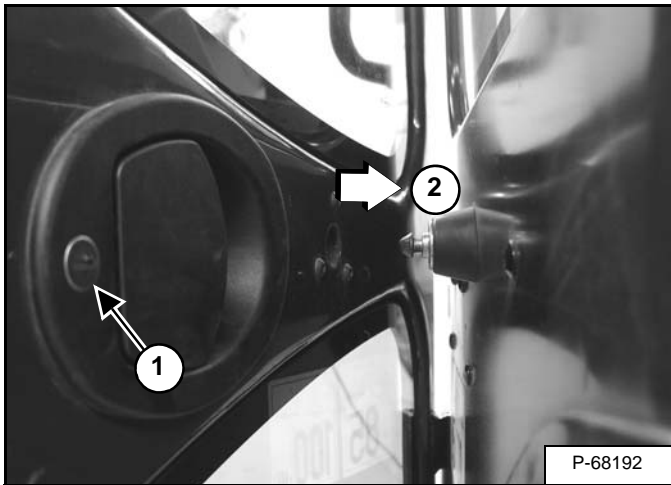
WARNING

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

Cab Door

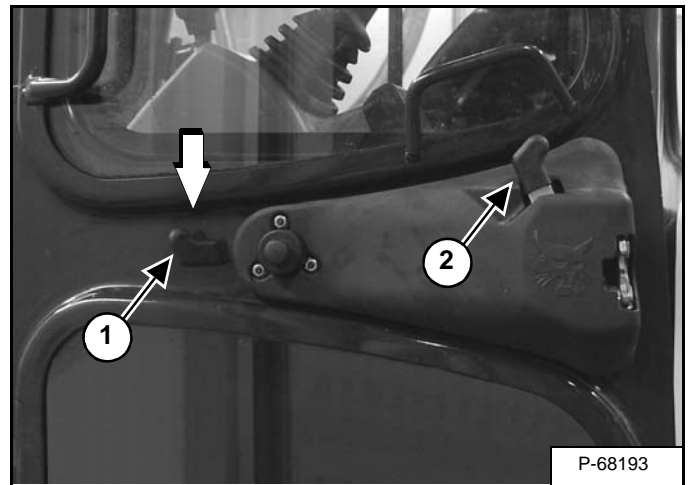
Figure 10-20-1



The cab door can be locked (Item 1) [Figure 10-20-1] with the same key as the starter switch.

Push the door all the way open (Item 2) [Figure 10-20-1] until the latch engages to hold the door in the open position.

Figure 10-20-2



When the door is in the open position, push down on the latch (Item 1) [Figure 10-20-2] and close the door.

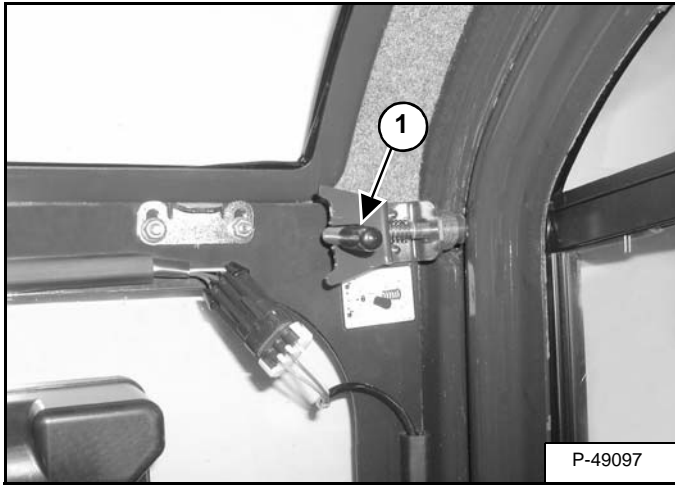
From inside the cab, open the door using handle (Item 2) [Figure 10-20-2].

OPERATOR CAB (ROPS / TOPS) (CONT'D)

Front Window

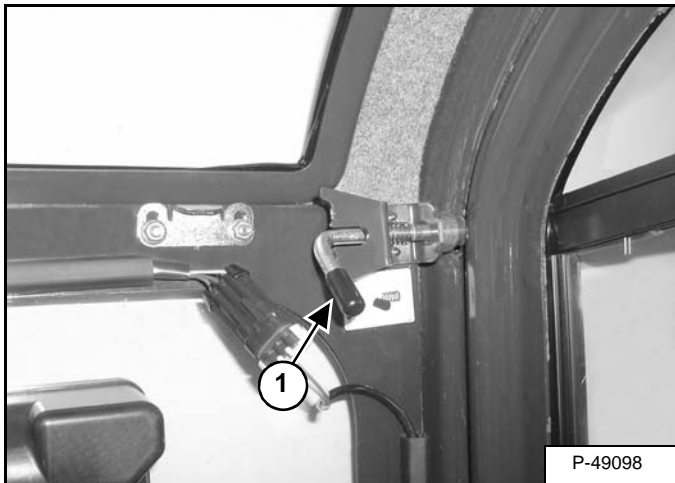
Opening The Front Window

Figure 10-20-3



Retract the two top window latch pins (Item 1) [Figure 10-20-3].

Figure 10-20-4



Turn the two top latches (Item 1) [Figure 10-20-4] to the unlocked position.

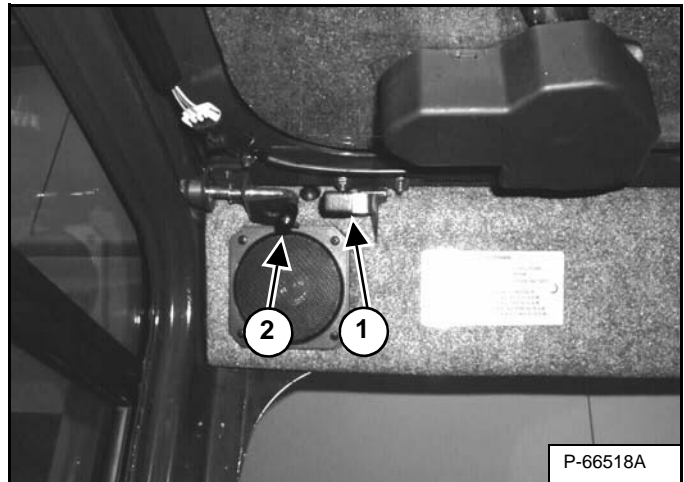
Figure 10-20-5



Use both window grab handles to pull the top of the window in [Figure 10-20-5].

Continue moving the window in and up over the operator's head until the window is fully raised.

Figure 10-20-6



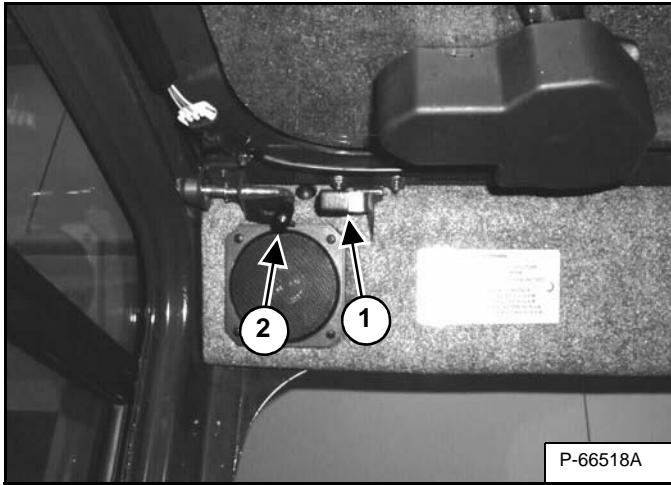
When the window is fully raised, the latch (Item 1) will close on the bracket. Turn the two top latches (Item 2) [Figure 10-20-6] to the locked position.

OPERATOR CAB (ROPS/TOPS) (CONT'D)

Front Window (Cont'd)

Closing The Front Window

Figure 10-20-7



Support the window while releasing both window latch pins and placing the pins in the unlocked position .

Support the window using the left grab handle and pull down on the latch (Item 1) [Figure 10-20-7] to release the window.

Figure 10-20-8



Use both window grab handles to pull the window down [Figure 10-20-8].

Figure 10-20-9

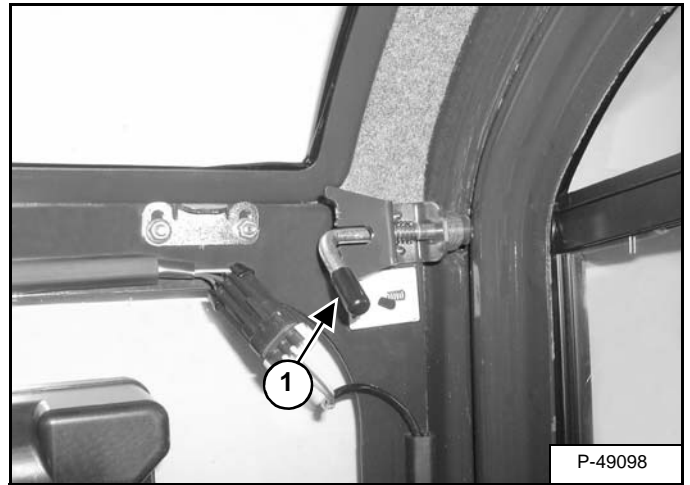
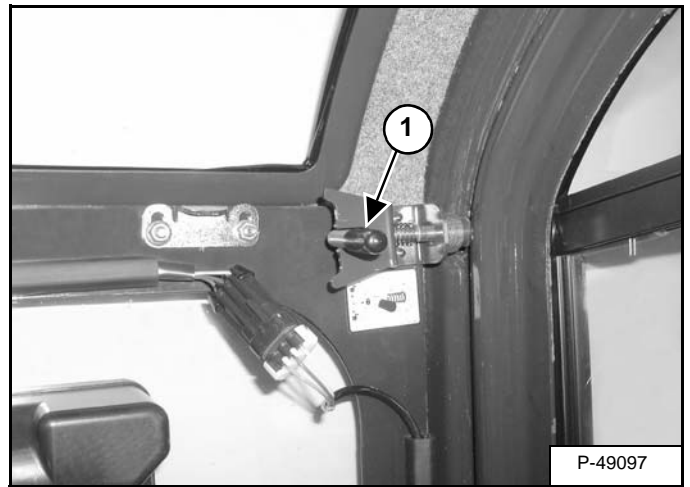


Figure 10-20-10



Rotate the top latches (Item 1) [Figure 10-20-9] to the locked position (Item 1) [Figure 10-20-10].

OPERATOR CAB (ROPS/TOPS) (CONT'D)

Front Wiper

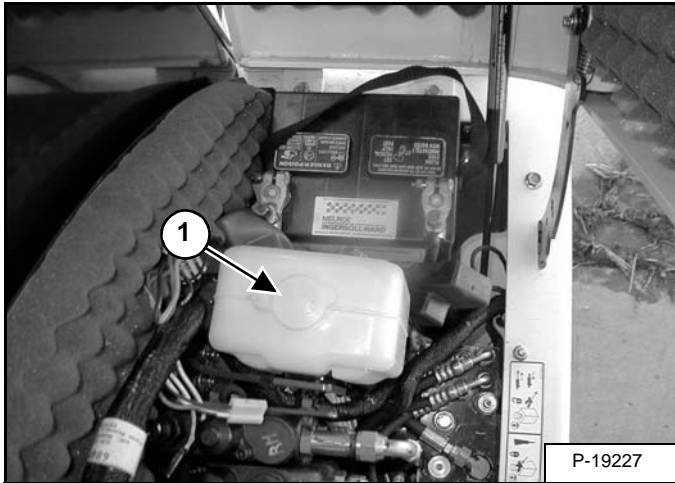
Figure 10-20-11



The front window is equipped with a wiper (Item 1) [Figure 10-20-11] and washer.

Window Washer Reservoir

Figure 10-20-12

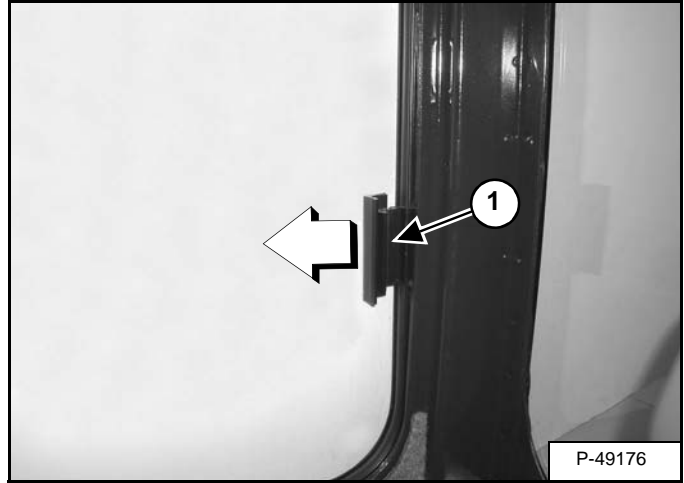


The window washer reservoir (Item 1) [Figure 10-20-12] is located under the right side cover.

Right Side Window

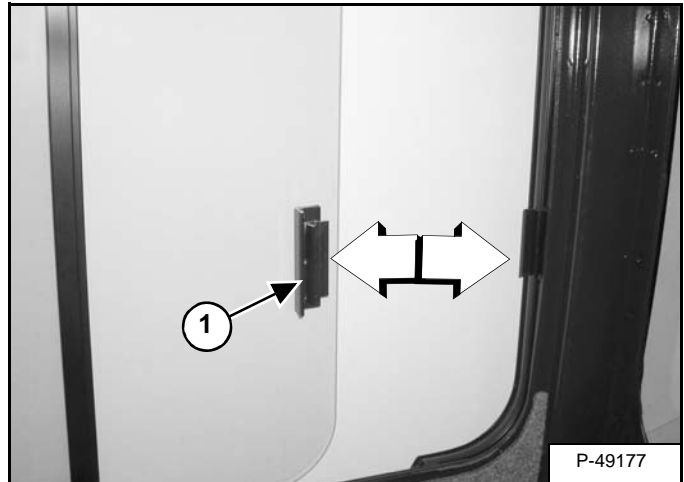
Opening The Right Rear Window

Figure 10-20-13



Pull forward on the latch / handle (Item 1) [Figure 10-20-13].

Figure 10-20-14



Pull the latch / handle (Item 1) [Figure 10-20-14] forward to open the window.

Closing The Right Rear Window

Push the handle back to close the window.



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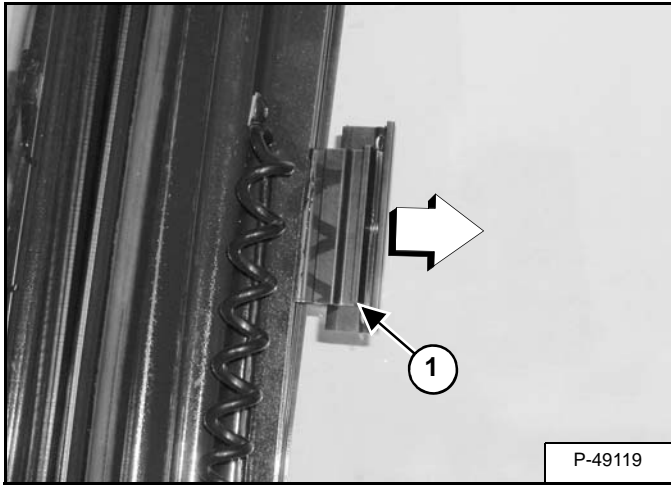
Thank you so much for reading

OPERATOR CAB (ROPS/TOPS) (CONT'D)

Right Side Window (Cont'd)

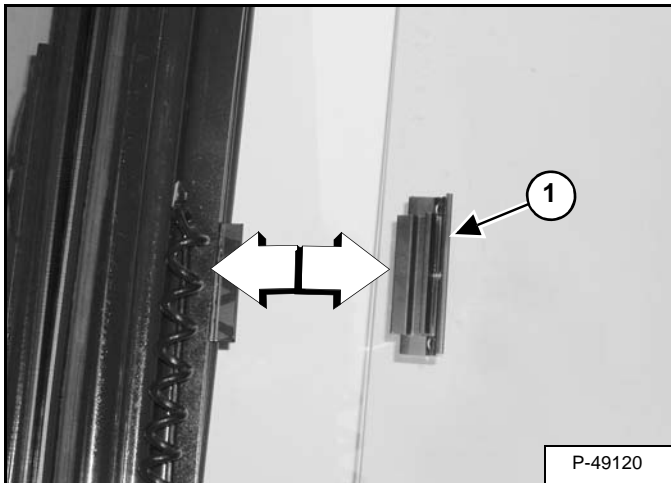
Opening The Right Front Window

Figure 10-20-15



Pull back on the latch / handle (Item 1) [Figure 10-20-15].

Figure 10-20-16



Pull the latch / handle (Item 1) [Figure 10-20-16] back to open the window.

Closing The Right Front Window

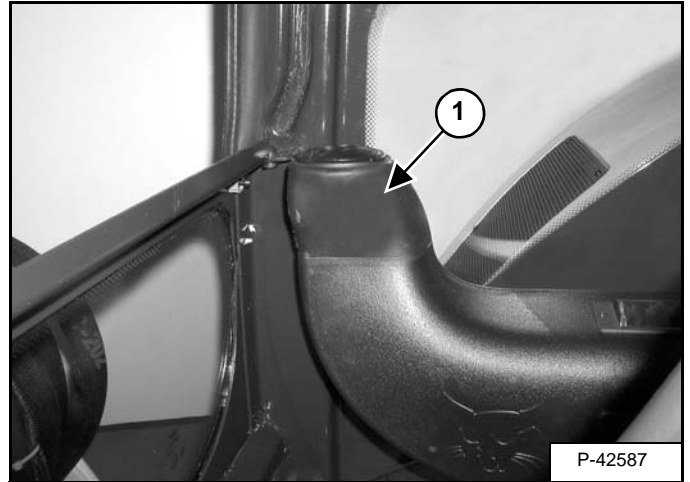
Push the handle forward to close the window.

Heating, Ventilation And Air Conditioning Duct

NOTE: The air conditioner duct can be ordered and used on heater models.

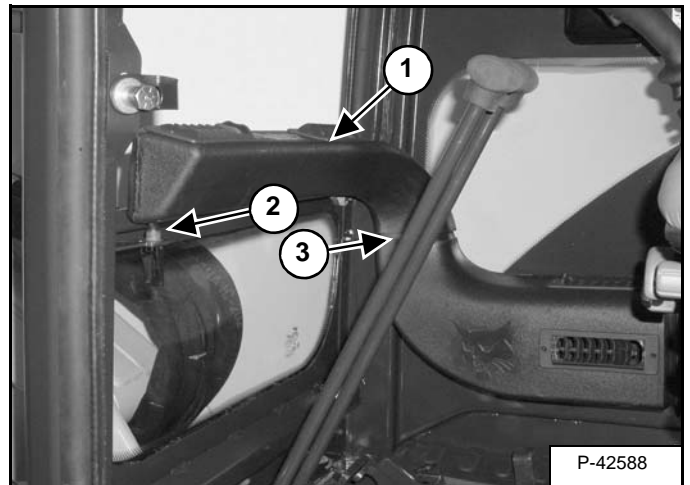
There are two air ducts that the operator can choose to install.

Figure 10-20-17



The small duct (Item 1) [Figure 10-20-17] is standard for heater use.

Figure 10-20-18



The large duct (Item 1) [Figure 10-20-18] is standard for models that have air conditioner available.

NOTE: This duct (Item 1) [Figure 10-20-18] can be removed for improved operator visibility.

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