

Product: EXCAVATOR

Model: 320D2 FM EXCAVATOR BW2

Configuration: 320D2 FOREST MACHINE BW200001-UP (MACHINE) POWERED BY C7.1 Engine

## **Operation and Maintenance Manual 320D2 Forest Machine**

Media Number -SEBU9336-02

Publication Date -01/09/2015

Date Updated -21/02/2018

s00514343

## **Foreword**

### **Literature Information**

This manual should be stored in the literature holder.

This manual contains safety information, operation instructions, and maintenance recommendations.

Some photographs or illustrations in this publication show details or attachments that can be different from your product.

Continuing improvement and advancement of product design might have caused changes to your product which are not included in this publication. Read, study and keep this manual with the product.

Whenever a question arises regarding your product, or this publication, please consult your Cat dealer for the latest available information.

## **Safety**

The safety section lists basic safety precautions. In addition, this section identifies the text and locations of warning signs and labels used on the product.

## **Operation**

The operation section is a reference for the new operator and a refresher for the experienced operator. This section includes a discussion of gauges, switches, product controls, attachment controls, and programming information.

Photographs and illustrations guide the operator through correct procedures of checking, starting, operating and stopping the product.

Operating techniques outlined in this publication are basic. Skill and techniques develop as the operator gains knowledge of the product and its capabilities.

# Maintenance

The maintenance section is a guide to equipment care.

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i05989009

## Safety Messages

SMCS - 7000; 7405

There are several specific safety messages on this machine. The exact location of the hazards and the description of the hazards are reviewed in this section. Please become familiarized with all safety messages.

Make sure that all of the safety messages are legible. Clean the safety messages or replace the safety messages if you cannot read the words. Replace the illustrations if the illustrations are not visible. When you clean the safety messages, use a cloth, water, and soap. Do not use solvent, gasoline, or other harsh chemicals to clean the safety messages. Solvents, gasoline, or harsh chemicals could loosen the adhesive that secures the safety message. Loose adhesive will allow the safety message to fall.

Replace any safety message that is damaged, or missing. If a safety message is attached to a part that is replaced, install a safety message on the replacement part. Any Caterpillar dealer can provide new safety messages.

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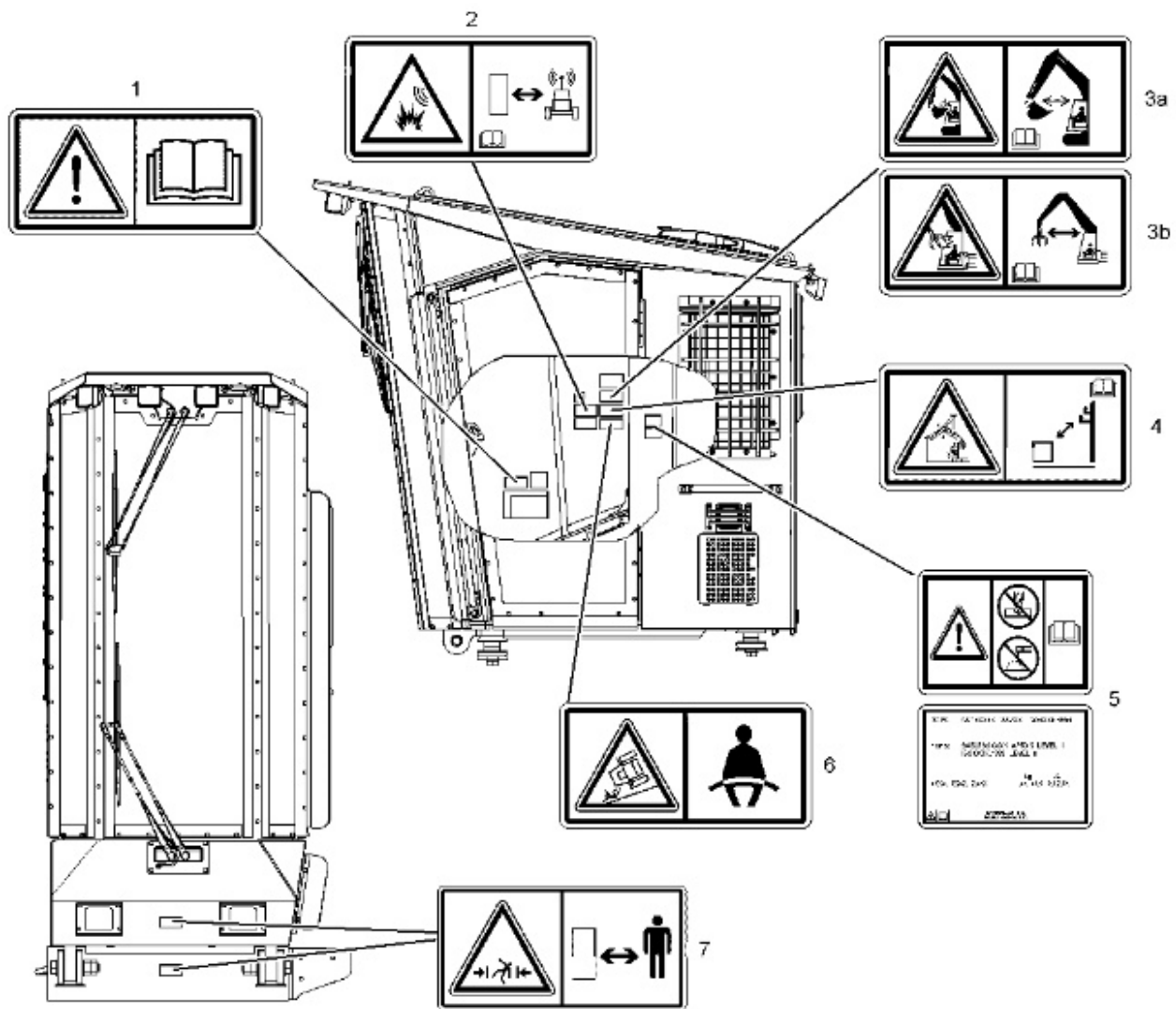


Illustration 1

g02109833

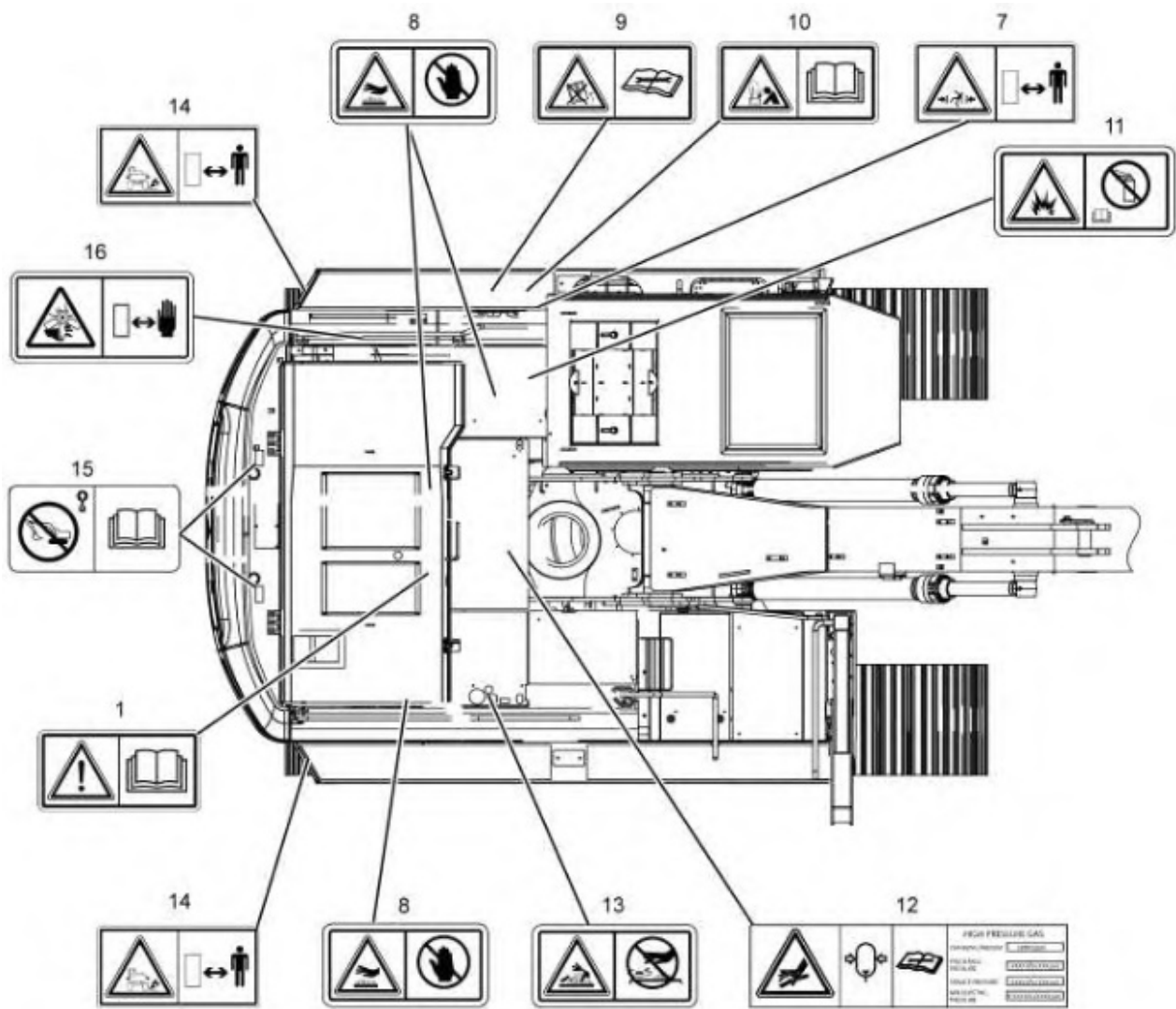


Illustration 2

g03750138

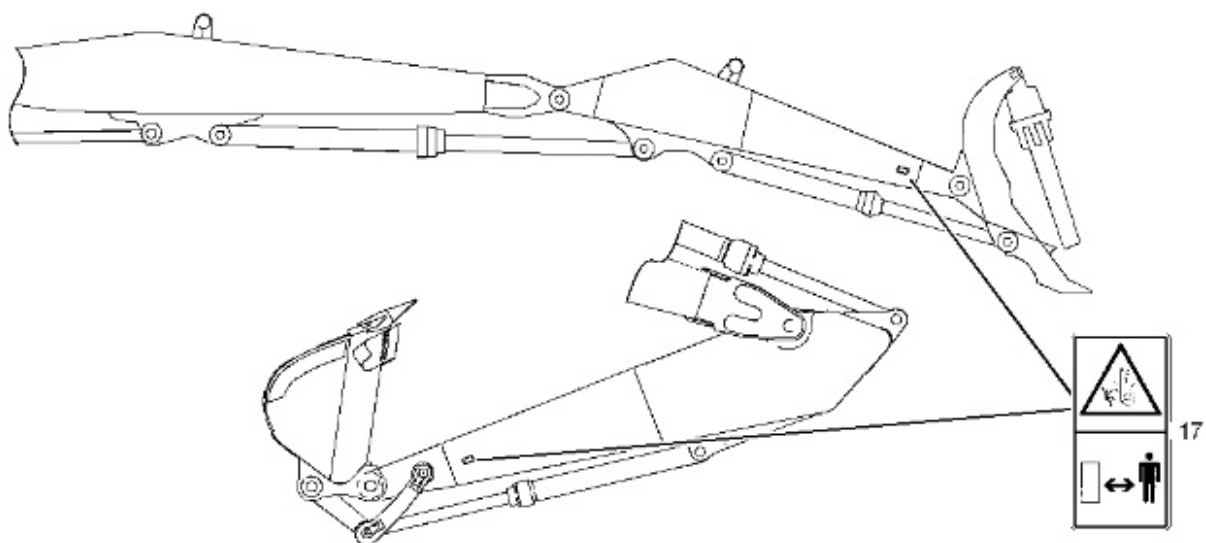


Illustration 3

g02149090

**(1) Do Not Operate**

This safety message is located in the cab on the right side window and also on the engine.

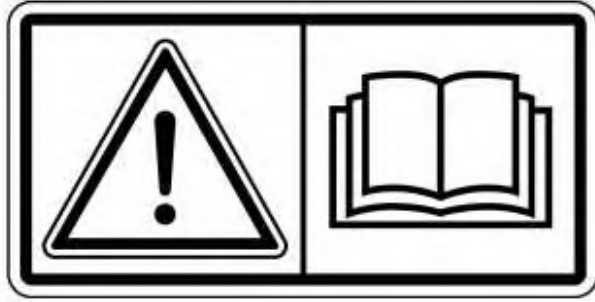


Illustration 4

g01370904



**Do not operate or work on this machine unless you have read and understand the instructions and warnings in the Operation and Maintenance Manual. Failure to follow the instructions or heed the warnings could result in injury or death. Contact any Caterpillar dealer for replacement manuals. Proper care is your responsibility.**

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### Product Link (2)

This safety message is located in the cab on the right side window.

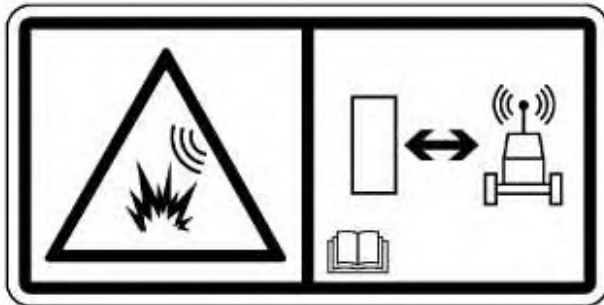


Illustration 5

g01370917



**This machine is equipped with a Caterpillar Product Link communication device. When electric detonators are used, this communication device should be deactivated within 12 m (40 ft) of a blast site for satellite-based systems and within 3 m (10 ft) of a blast site for cellular based systems, or within the distance mandated under applicable legal requirements. Failure to do so could cause interference with blasting operations and result in serious injury or death.**

**In cases where the type of Product Link module cannot be identified, Caterpillar recommends that the device be disabled no less than 12 m (40 ft) from the blast perimeter.**

---

Refer to Operation and Maintenance Manual , "Product Link" for further information.

### **Crushing Hazard (3a)**

If equipped, this safety message is located in the cab on the right side window.

---



Illustration 6

g01373971

 **WARNING**

**Crushing Hazard! Certain machine front linkage combinations (boom, stick, quick coupler, work tool) may require keeping the work tool away from the cab during operation. Personal injury or death may result if the work tool contacts the cab during operation.**

---

### **Crushing Hazard (3b)**

If equipped, this safety message is located in the cab on the right side window.

---

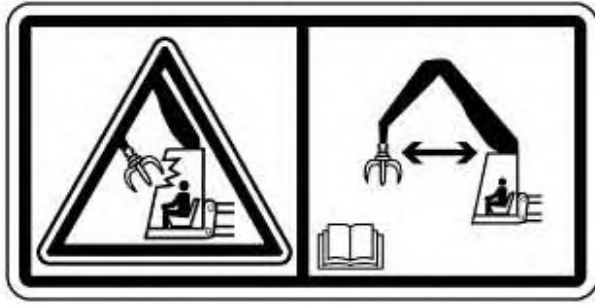


Illustration 7

g01382703

## **WARNING**

**Crushing Hazard!** Certain machine front linkage combinations (boom, stick, quick coupler, work tool) may require keeping the work tool away from the cab during operation. Personal injury or death may result if the work tool contacts the cab during operation.

## Electrical Power Lines (4)

This safety message is located in the cab on the right side window.

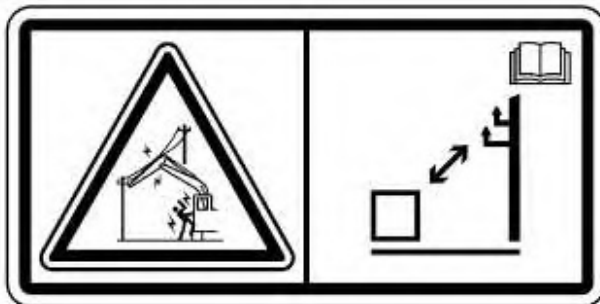


Illustration 8

g01374045

## **DANGER**

**Electrocution Hazard!** Keep the machine and attachments a safe distance from electrical power. Stay clear 3 m (10 ft) plus twice the line insulator length. Read and understand the instructions and warnings in the

**Operation and Maintenance Manual. Failure to follow the instructions and warnings will cause serious injury or death**

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Refer to Operation and Maintenance Manual, "Specifications" for further information.

**Do Not Weld on the FOPS (5)**

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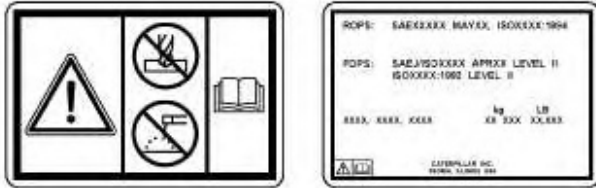


Illustration 9

g01212098

This warning label is located on the inside of the cab on the right side pillar.



**Structural damage, an overturn, modification, alteration, or improper repair can impair this structure's protection capability thereby voiding this certification. Do not weld on or drill holes in the structure. Consult a Caterpillar dealer to determine this structure's limitations without voiding its certification.**

---

**"Rollover Protective Structure (ROPS) and Falling Object Protective Structure (FOPS) Certification"**

"The structure, when properly installed on a machine which is not altered to exceed the certification test mass meets, at the time of installation, criteria established by: **SAE J396, SAE J1040 April 88, ISO 3471 1986, ISO 3471 1994, SAE J231 January 81 and ISO 3449 1992 LEVEL II.**"

Refer to Operation and Maintenance Manual, "Guards (Operator Protection)" for more information.

**Seat Belt (6)**

This safety message is located in the cab on the right side window.

---



Illustration 10

g01370908

 **WARNING**

**A seat belt should be worn at all times during machine operation to prevent serious injury or death in the event of an accident or machine overturn. Failure to wear a seat belt during machine operation may result in serious injury or death.**

**Crush Hazard (7)**

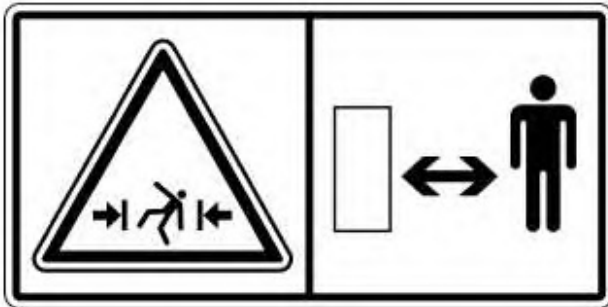


Illustration 11

g01371644

This safety message is located on the front of the cab, on the front of the cab riser, and behind the cab on the left front access door.

 **WARNING**

**Crushing Hazard! Stay back a safe distance. There is no clearance for a person in this area when the machine turns. Failure to follow these instructions could cause serious injury or death.**

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## Hot Surface (8)

This safety message is located in three locations on the engine hood.

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Illustration 12

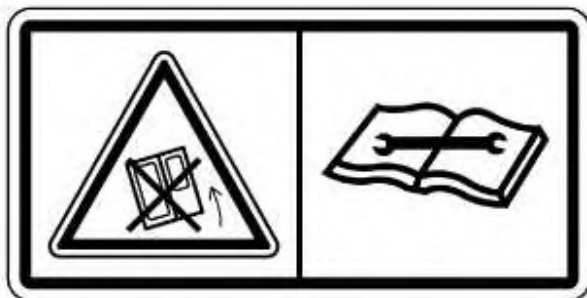
g01372256



**Engine hood and engine hood parts can be hot while engine is running or immediately after engine shutdown. Hot parts or hot components can cause burns or personal injury. Do not allow these parts to contact your skin, when engine is running or immediately after engine shutdown. Use protective clothing or protective equipment to protect your skin.**

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## Tilting the Cab (9)



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Illustration 13

g01384815

This safety message is positioned on the front access door on the left side of the machine.

## **WARNING**

**Do not tilt the cab when occupied. Before tilting the cab remove all loose articles from the cab, secure all windows and emergency exits, and then close the cab and cab riser doors. Failure to do so can result in personal injury or damage to the machine.**

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### **Jump Start Cables (10)**

This safety message is positioned on the circuit breaker panel.

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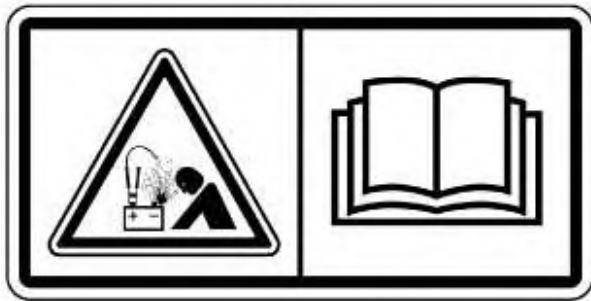


Illustration 14

g01370909

## **WARNING**

**Explosion Hazard! Improper jumper cable connections can cause an explosion resulting in serious injury or death. Batteries may be located in separate compartments. Refer to the Operation and Maintenance Manual for the correct jump starting procedure.**

---

Refer to Operation and Maintenance Manual, "Engine Starting with Jump Start Cables" for further information.

### **Aerosol Starting Aid (11)**

This safety message is positioned on the cover of the intake duct of the air cleaner. The following information is not applicable to machines that are equipped with an ether starting aid.

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Illustration 15

g01372254



**Explosion Hazard! Spraying uncontrolled ether into the air inlet system can cause explosions or fire that may result in personal injury or death. Read and follow the starting procedures in the Operation and Maintenance Manual.**

Refer to Operation and Maintenance Manual, "Engine Starting" for the proper starting procedure.

**High Pressure Gas (12)**

This safety message is positioned on the accumulator.

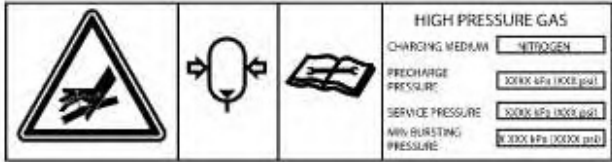


Illustration 16

g01374065



**This system contains high pressure gas. Failure to follow the instructions and warnings could cause an explosion, resulting in possible injury or death.**

**Do not expose to fire. Do not weld. Do not drill. Relieve pressure before discharging.**

**See Operation and Maintenance Manual for charging and discharging.  
See your Caterpillar Dealer for tools and detailed information.**

---

Refer to Operation and Maintenance Manual, "Equipment Lowering with Engine Stopped" for further information.

### **Relieve Hydraulic Tank Pressure (13)**

This safety message is located on top of the hydraulic tank.

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Illustration 17

g01371640

 **WARNING**

### **HYDRAULIC TANK**

**RELIEVE TANK PRESSURE WITH ENGINE OFF BY REMOVING  
CAP SLOWLY TO PREVENT BURNS FROM HOT OIL.**

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### **Crushing Hazard (14)**

This safety message is located on the rear of each side of the machine. This safety message is also located on each side of the counterweight.

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Illustration 18

g01374060

**! WARNING**

**Machine swings. Stay back. Crushing hazard could cause serious injury or death.**

**Lifting Restriction/Counterweight Only (15)**

This safety message is located on top of the counterweight.

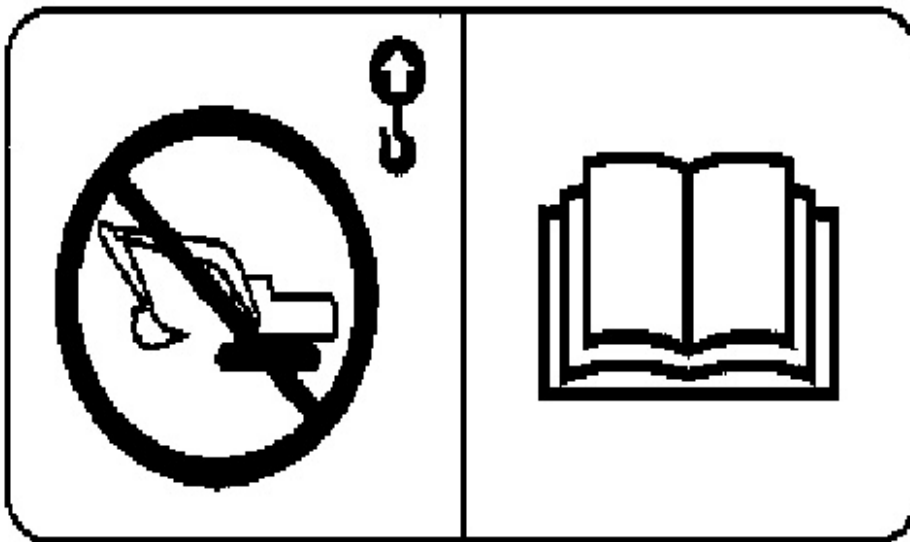


Illustration 19

g03481698

**! WARNING**

**The rear link on the counterweight should be used for the counterweight only. Do not lift the whole Machine by these counterweight links. This**

**could cause serious injury or death. Read Operation and Maintenance Manuals.**

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See the Operation and Maintenance Manual , "Lifting and Tying Down the Machine" and "Counterweight Removal and Installation" for information on your product.

### **Rotating Fan (16)**

This safety message is located near the engine fan.

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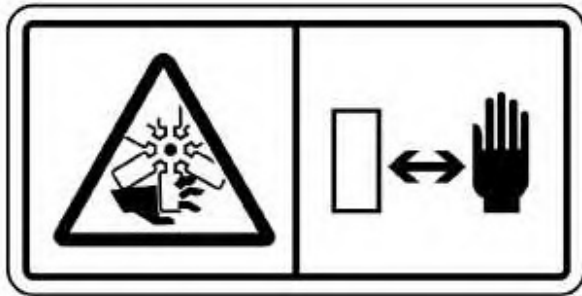


Illustration 20

g01385578



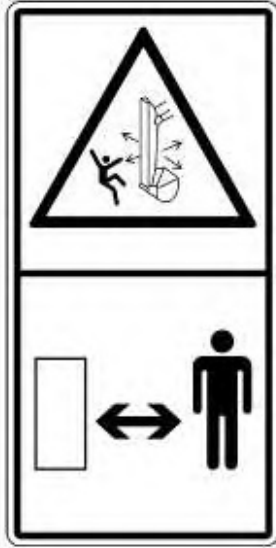
**Cutting Hazard! Keep hands clear of fan while engine is running. May cause serious injury or death.**

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### **Crushing Hazard (17)**

This safety message is located on both sides of the stick.

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Illustration 21

g01385579

 **WARNING**

**A crushing hazard exists when the stick and boom are in motion and when the machine is being used in object handling applications. Failure to stay clear of the stick and boom when the machine is in operation can result in personal injury or death. Stay clear of the stick and boom when the machine is in operation.**

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### Additional Messages

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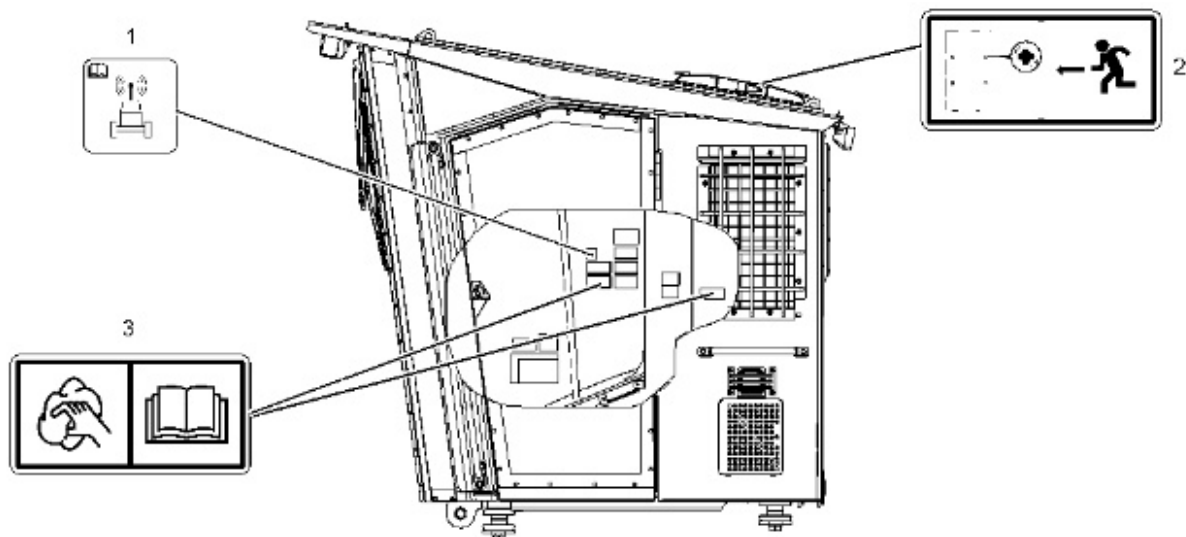


Illustration 1

g02110542



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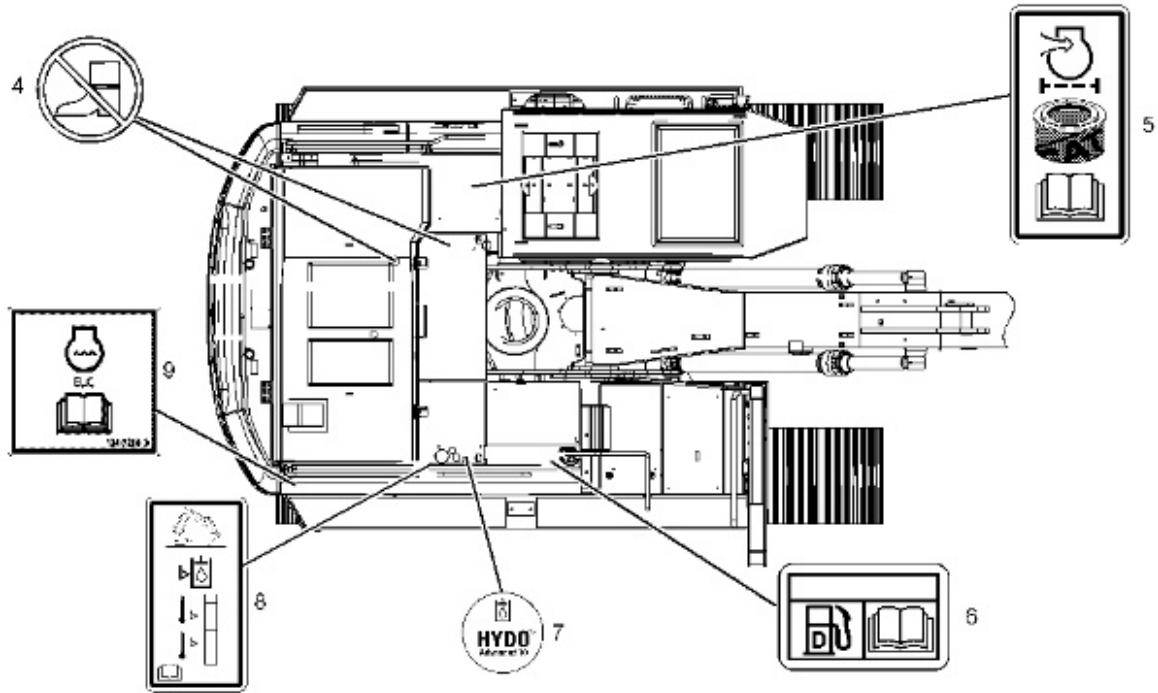


Illustration 2

g03750196

## Data Privacy (1)



Illustration 3

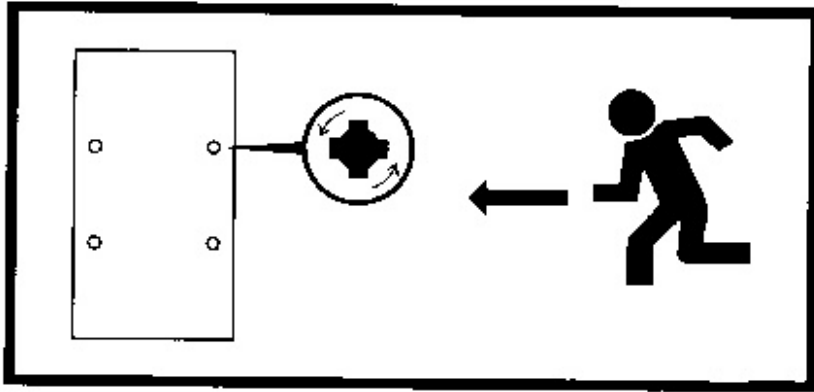
g01418953

The Product Link System is a satellite communication device that transmits information regarding the machine back to Caterpillar and Caterpillar dealers and customers. All logged events and diagnostic codes that are available to the Caterpillar Electronic Technician (ET) on the CAT data link can be sent to the satellite. Information can also be sent to the Product Link System. The information is used to improve Caterpillar products and Caterpillar services.

Refer to Operation and Maintenance Manual, "Product Link" for more information.

## Alternate Exit (2)

This message is located on the roof hatch.



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Illustration 4

g01124557

If the primary exits are blocked, exit the machine through the roof hatch.

For more information, refer to Operation and Maintenance Manual, "Alternate Exit".

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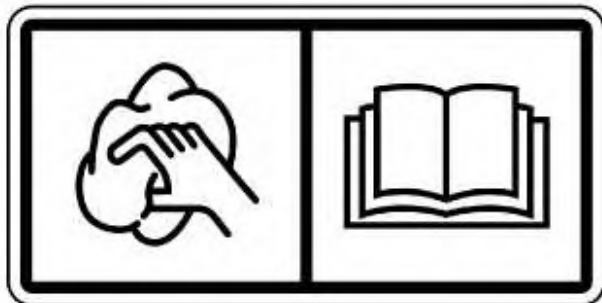
**NOTICE**

**Clean windows with a wet cloth or sponge. Dry cloth or sponge may scratch window material.**

---

**Cleaning Windows (3)**

This message is located in three places on the cab windows.



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Illustration 5

g01134495

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