

Product: EXCAVATOR

Model: 320C EXCAVATOR RAW

Configuration: 320C & 320C L Excavators RAW00001-UP (MACHINE) POWERED BY 3066 Engine

Operation and Maintenance Manual

Product Link - 121SR/321SR/420/421/ 522/523

Media Number -SEBU8142-04

Publication Date -01/01/2013

Date Updated -24/10/2017

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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Safety Signs and Labels

SMCS - 7606



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

Safety Messages

The warning film in Illustration 1 can be found in a location such as the dash. The warning film will be clearly visible to the operator during the normal operation of the machine.

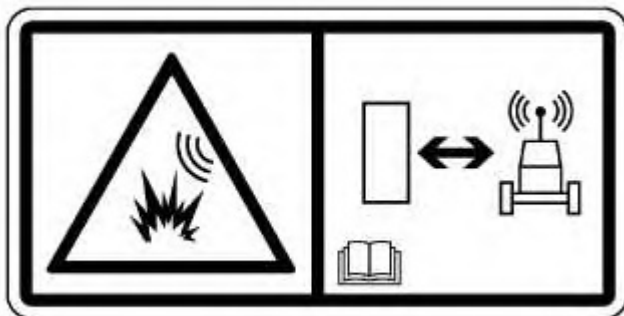


Illustration 1

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, 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.

The blast site is defined as the area that handles explosive material during loading. Included is the perimeter that is formed by the loaded blast holes.

If the machine is required to work in or near a blasting site, the operator must disable the Product Link. That is, either the 121SR system or the 522/523 system must be disabled. One of the following methods are suggested in order to deactivate the Product Link 121SR system or the Product Link 522/523 system:

- Install a Product Link disconnect switch in the machine cab. This switch will allow the Product Link 121SR system or the Product Link 522/523 system module to be shut off. Refer to Special Instruction, REHS2365, "An Installation Guide for the Product Link PL121SR and for the PL300" or Special Instruction, REHS2368, "Installation Procedure For Product Link PL522/523 (Cellular)" for more details and installation instructions.
- While the blast site switch is in the OFF position, the Product Link 121SR system or the Product Link 522/523 system will no longer track Service Meter Unit (SMU) hours or VIMS data. A Service Meter Hours (SMH) adjustment will be required after power is restored to the Product Link system. Consult your Caterpillar dealer if there are any questions.
- Disconnect the Product Link 121SR system or the Product Link 522/523 system module from the main power source. This action is performed by disconnecting the wiring harness at the Product Link module.

Other Films

The film in Illustration 2 can be found in a clearly visible location. A clearly visible location during the normal operation of the machine is described as the dash.



Illustration 2

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The film in Illustration 2 is intended to inform the operator that the machine is equipped with a wireless transmitting device. Machine data, the condition of the machine, and the operation of the machine will be transmitted by the Product Link. The information is transmitted to Caterpillar and/or Caterpillar dealers to serve the customer better and to improve upon Caterpillar products and services. Transmission of information using Product Link is subject to legal requirements that may vary from location to location.

Refer to the Operation and Maintenance Manual, SEBU8142, "Operation" and the Operation and Maintenance Manual, SEBU8142, "Regulatory Compliance Section" for additional information.

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General Hazard Information

SMCS - 7606



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

Foreword

This document is a supplement to the Operation and Maintenance Manual for the machine. Permanently attach this document to the Operation and Maintenance Manual for the machine.

Introduction

This document provides information about the operation of the following:

- Product Link 121SR/321SR systems
- Product Link 522/523 systems
- Product Link 420/421 systems

Machine operation and maintenance must not occur unless the instructions and warnings in the Operation and Maintenance Manual have been read and understood. The contents of this document must be understood before a machine that is equipped with any of the following:

- Product Link 121SR/321SR system

- Product Link 522/523 system
 - Product Link 420/421 system
-

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Regulatory Compliance

SMCS - 1400; 4203; 4450; 7347; 7451; 7490; 7606

NOTICE

The transmission of information using a Caterpillar Product Link communication device is subject to legal requirements. The legal requirements may vary from location to location, including, but not limited to, radio frequency use authorization. The use of a Caterpillar Product Link communication device must be limited to those locations where all legal requirements for the use of the Caterpillar Product Link communication device and communication network have been satisfied.

If equipment outfitted with the Caterpillar Product Link communication device is located in or relocated to a location where (i) legal requirements are not satisfied or (ii) transmitting or processing of such information across multiple locations would not be legal, Caterpillar disclaims any liability related to such failure to comply, and Caterpillar may discontinue the transmission of information from that equipment.

Consult your Cat dealer with any questions that concern the operation of the Product Link system in a specific country.

PL121 and PL321 Radio Notices

FCC Notice

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/tv technician for help

Changes or modifications to this device without the express approval of Caterpillar may void the users authority to use this device.

Industry Canada Notice to Users

This device complies with Industry Canadas license exempt RSSs. Operation is subject to the following two conditions:

- This device may not cause interference
- This device must accept any interference, including interference that may cause undesired operation of the device.

EU Notice to Users

The PL121 and PL321 have been so constructed that they can be operated in Belgium without infringing applicable requirements on the use of their radio spectrum.

PL522 and PL523 Radio Notices

FCC Notice

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/tv technician for help

Changes or modifications to this device without the express approval of Caterpillar may void the users authority to use this device.

Industry Canada Notice to Users

This device complies with Industry Canadas license exempt RSSs. Operation is subject to the following two conditions:

- This device may not cause interference
- This device must accept any interference, including interference that may cause undesired operation of the device.

EU Notice to Users

The PL522 and PL523 have been so constructed that they can be operated in Belgium without infringing applicable requirements on the use of their radio spectrum.

Data Broadcast

The following Caterpillar Product Link communication device specifications are provided to aid in conducting any related hazard assessment and to ensure compliance with all local regulations:

Table 1

Radio Transmitter Specifications		
Radio Model (Maximum)	Transmitter Frequency Range	Transmitter Power
PL121	148 MHz - 150 MHz	5W typical, 10W max
PL420	824 MHz - 849 MHz	0.5W typical, 2W max
	880 MHz - 915 MHz	

	1710 MHz - 1785 MHz	
	1850 MHz - 1910 MHz	
PL421	824 MHz - 849 MHz	0.5W typical, 2W max
	880 MHz - 915 MHz	
	1710 MHz - 1785 MHz	
	1850 MHz - 1910 MHz	
PL522	824 MHz - 849 MHz	0.5W typical, 2W max
	880 MHz - 915 MHz	
	1710 MHz - 1785 MHz	
	1850 MHz - 1910 MHz	
PL523	824 MHz - 849 MHz	0.5W typical, 2W max
	880 MHz - 915 MHz	
	1710 MHz - 1785 MHz	
	1850 MHz - 1910 MHz	

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Product Link

SMCS - 7606

Note: Your machine may be equipped with the Cat[®] Product Link[™] system.

The Cat Product Link communication device utilizes cellular and/or satellite technology to communicate equipment information. This information is communicated to Caterpillar, Cat dealers, and Caterpillar customers. The Cat Product Link communication device uses Global Positioning System (GPS) satellite receivers.

The capability of two-way communication between the equipment and a remote user is available with the Cat Product Link communication device. The remote user can be a dealer or a customer.

Data Broadcasts

Data concerning this machine, the condition of the machine, and the operation of the machine is being transmitted by Cat Product Link to Caterpillar and/or Cat dealers. The data is used to serve the customer better and to improve upon Cat products and services. The information transmitted may include: machine serial number, machine location, and operational data, including but not limited to: fault codes, emissions data, fuel usage, service meter hours, software, and hardware version numbers and installed attachments.

Caterpillar and/or Cat dealers may use this information for various purposes. Refer to the following list for possible uses:

- Providing services to the customer and/or the machine
- Checking or maintaining Cat Product Link equipment
- Monitoring the health of the machine or performance
- Helping maintain the machine and/or improve the efficiency of the machine
- Evaluating or improving Cat products and services
- Complying with legal requirements and valid court orders

- Performing market research
- Offering the customer new products and services

Caterpillar may share some or all the collected information with Caterpillar affiliated companies, dealers, and authorized representatives. Caterpillar will not sell or rent collected information to any other third party and will exercise reasonable efforts to keep the information secure. Caterpillar recognizes and respects customer privacy. For more information, please contact your local Cat dealer.

Operation in a Blast Site for Product Link Radios



This equipment is equipped with a Cat[®] Product Link communication device. When electric detonators are being used for blasting operations, radio frequency devices can cause interference with electric detonators for blasting operations which can result in serious injury or death. The Product Link communication device should be deactivated within the distance mandated under all applicable national or local regulatory requirements. In the absence of any regulatory requirements Caterpillar recommends the end user perform their own risk assessment to determine safe operating distance.

Refer to your products Operation and Maintenance Manual Supplement, "Regulatory Compliance Information" for more information.

For information regarding the methods to disable the Cat Product Link communication device, please refer to your specific Cat Product Link manual listed below:

- Operation and Maintenance Manual, SEBU8142, "Product Link - 121SR/321SR/420/421/522/523"
- Operation and Maintenance Manual, SEBU8832, "Product Link PLE601, PL641, PL631, PL542, PL240, PL241, PL141, PL131, PL161, and G0100 Systems"

Note: If no radio disable switch is installed and the equipment will be operating near a blast zone, a Product Link radio disable switch may be installed on the equipment. The switch will allow the Cat Product Link communication device to be shut off by the operator from the equipment control panel. For more details and installation procedures, refer to the following:

- Special Instruction, "Installation Procedure for Product Link PLE640 Systems" REHS7339
- Special Instruction, "Installation Procedure for the Elite Product Link PLE601, PLE641, and PLE631 Systems", REHS8850
- Special Instruction, "Installation Procedure for the Product Link PL131, PL141, and PL161 Systems", SEHS0377

- Special Instruction, "Installation Procedure for the Pro Product Link PL641 and PL631 Systems", REHS9111
-

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Operation and Maintenance Manual 320C Excavator

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s00037320

Foreword

SMCS - 7606

Literature Information

This manual should be stored in the operator's compartment in the literature holder or seat back literature storage area.

This manual contains safety information, operation instructions, transportation information, lubrication information and maintenance information.

Some photographs or illustrations in this publication show details or attachments that can be different from your machine. Guards and covers might have been removed for illustrative purposes.

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

Whenever a question arises regarding your machine, 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 machine.

Read and understand the basic precautions listed in the safety section before operating or performing lubrication, maintenance and repair on this machine.

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, machine controls, attachment controls, transportation and towing information.

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

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

Maintenance

The maintenance section is a guide to equipment care. The Maintenance Interval Schedule (MIS) lists the items to be maintained at a specific service interval. Items without specific intervals are listed under the "When Required" service interval. The Maintenance Interval Schedule lists the page number for the step-by-step instructions required to accomplish the scheduled maintenance. Use the Maintenance Interval Schedule as an index or "one safe source" for all maintenance procedures.

Maintenance Intervals

Use the service hour meter to determine servicing intervals. Calendar intervals shown (daily, weekly, monthly, etc.) can be used instead of service hour meter intervals if they provide more convenient servicing schedules and approximate the indicated service hour meter reading. Recommended service should always be performed at the interval that occurs first.

Under extremely severe, dusty or wet operating conditions, more frequent lubrication than is specified in the maintenance intervals chart might be necessary.

Perform service on items at multiples of the original requirement. For example, at every 500 service hours or 3 months, also service those items listed under every 250 service hours or monthly and every 10 service hours or daily.

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.

Battery posts, terminals and related accessories contain lead and lead compounds. **Wash hands after handling.**

Certified Engine Maintenance

Proper maintenance and repair is essential to keep the engine and machine systems operating correctly. As the heavy duty off-road diesel engine owner, you are responsible for the performance of the required maintenance listed in the Owner Manual, Operation and Maintenance Manual, and Service Manual.

It is prohibited for any person engaged in the business of repairing, servicing, selling, leasing, or trading engines or machines to remove, alter, or render inoperative any emission related device or element of design installed on or in an engine or machine that is in compliance with the

regulations (40 CFR Part 89). Certain elements of the machine and engine such as the exhaust system, fuel system, electrical system, intake air system and cooling system may be emission related and should not be altered unless approved by Caterpillar.

Machine Capacity

Additional attachments or modifications may exceed machine design capacity which can adversely affect performance characteristics. Included would be stability and system certifications such as brakes, steering, and rollover protective structures (ROPS). Contact your Cat dealer for further information.

Cat Product Identification Number

Effective First Quarter 2001 the Cat Product Identification Number (PIN) has changed from 8 to 17 characters. In an effort to provide uniform equipment identification, Caterpillar and other construction equipment manufacturers are moving to comply with the latest version of the product identification numbering standard. Non-road machine PINs are defined by ISO 10261. The new PIN format will apply to all Cat machines and generator sets. The PIN plates and frame marking will display the 17 character PIN. The new format will look like the following:

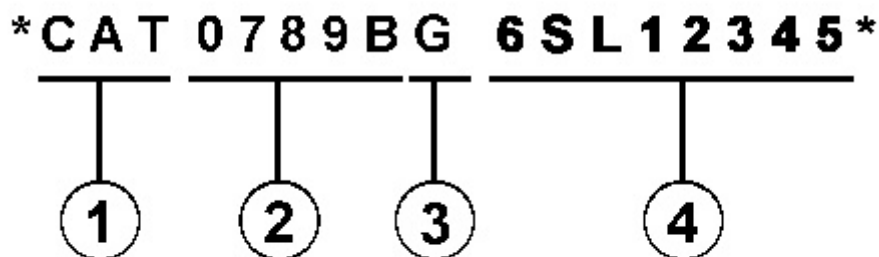


Illustration 1

g00751314

Where:

1. Caterpillar's World Manufacturing Code (characters 1-3)
2. Machine Descriptor (characters 4-8)
3. Check Character (character 9)
4. Machine Indicator Section (MIS) or Product Sequence Number (characters 10-17). These were previously referred to as the Serial Number.

Machines and generator sets produced before First Quarter 2001 will maintain their 8 character PIN format.

Components such as engines, transmissions, axles, etc. and work tools will continue to use an 8 character Serial Number (S/N).

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Safety Messages - Arrangement II

SMCS - 7000; 7405

S/N - AMC1-UP

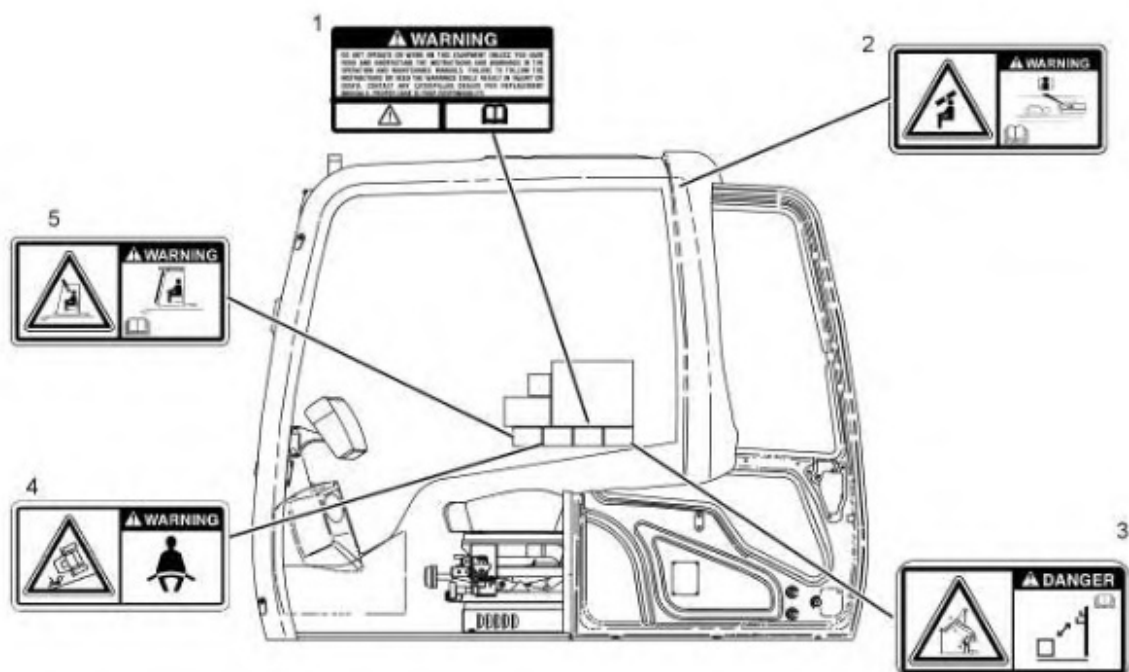
S/N - ANB1-UP

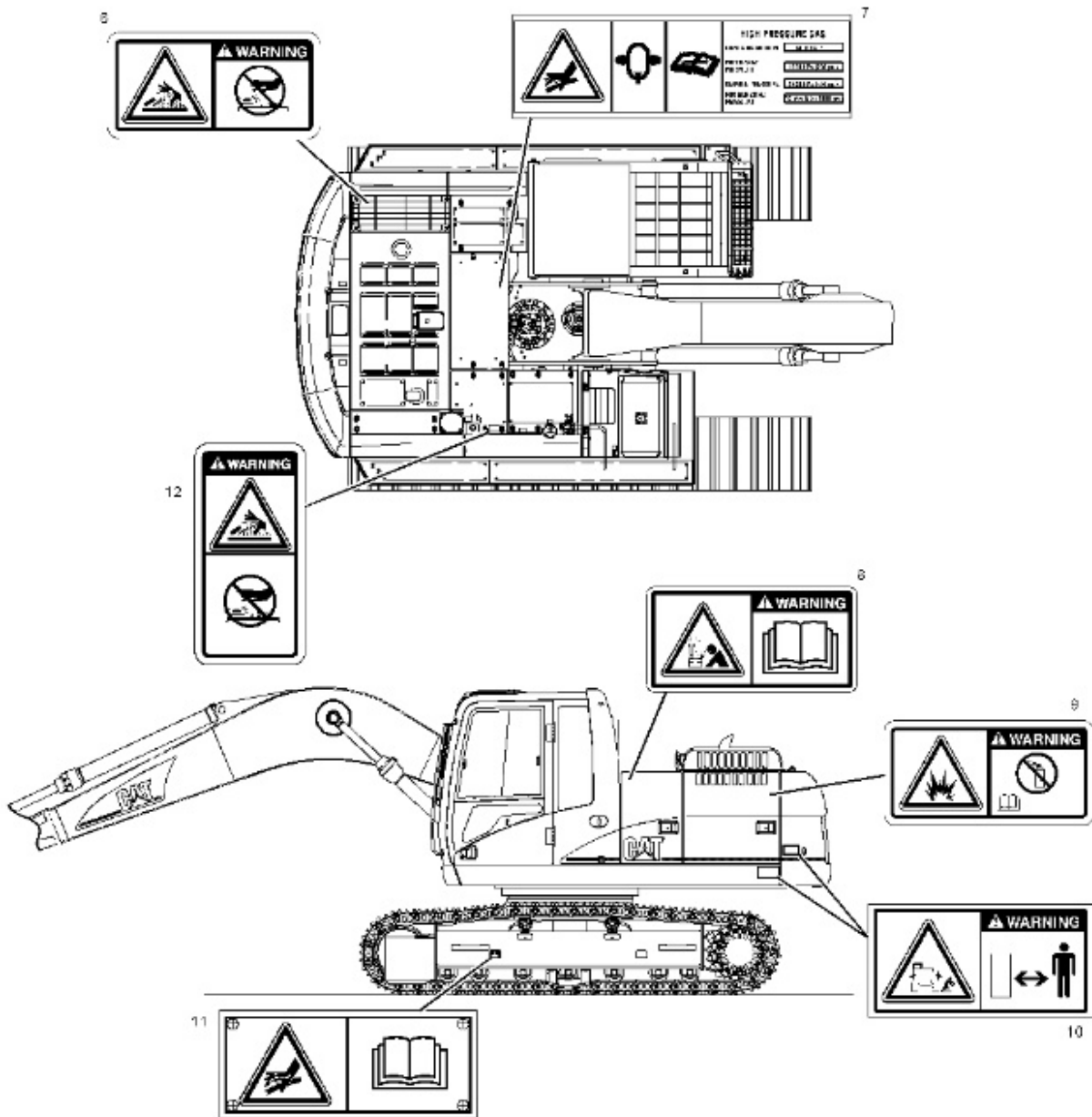
S/N - MAB1-UP

S/N - PAB1-UP

S/N - RAW1-UP

S/N - SBN1-UP





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.

(1) Do Not Operate



Illustration 3

g00930652

This safety message is located in the cab.



Do not operate or work on this machine unless you have read and understand the instructions and warnings in the Operation and Maintenance Manuals. 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.

(2) Crushing Hazard



Illustration 4

g01067551

This safety message is located in the cab.



Personal injury can result if the window is not latched in the overhead position; ensure the auto lock is engaged.

(3) Electrical Power Lines



Illustration 5

g01067566

This safety message is located in the cab.



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

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

(4) Seat Belt



Illustration 6

g01067563

This safety message is located in the cab.



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.

(5) Crushing Hazard



Illustration 7

g01130693

This safety message is located in the cab.



The impact from objects that strike the front of the cab or the top of the cab could result in a crushing hazard with the potential for personal injury or death.

The front guard and the top guard should be installed on the cab for applications where the hazard of falling objects exist. Read the Operation and Maintenance Manual.

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

(6) Pressurized System



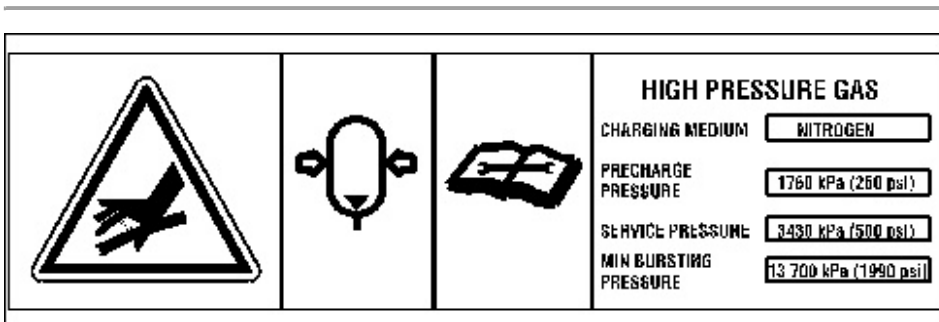
This safety message is located on the radiator.



Pressurized system! Hot coolant can cause serious burns, injury or death. To open the cooling system filler cap, stop the engine and wait until the cooling system components are cool. Loosen the cooling system pressure cap slowly in order to relieve the pressure. Read and understand the Operation and Maintenance Manual before performing any cooling system maintenance.

Refer to Operation and Maintenance Manual, "Cooling System Coolant Level - Check" for further information.

(7) High Pressure Gas



This safety message is located on the accumulator.



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.

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