



Operation and Maintenance Manual

**Product Link - PL121, PL321, PL522,
and PL523**

Important Safety Information

Most accidents that involve product operation, maintenance and repair are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs. A person must be alert to potential hazards, including human factors that can affect safety. This person should also have the necessary training, skills and tools to perform these functions properly.

Improper operation, lubrication, maintenance or repair of this product can be dangerous and could result in injury or death.

Do not operate or perform any lubrication, maintenance or repair on this product, until you verify that you are authorized to perform this work, and have read and understood the operation, lubrication, maintenance and repair information.

Safety precautions and warnings are provided in this manual and on the product. If these hazard warnings are not heeded, bodily injury or death could occur to you or to other persons.

The hazards are identified by the "Safety Alert Symbol" and followed by a "Signal Word" such as "DANGER", "WARNING" or "CAUTION". The Safety Alert "WARNING" label is shown below.



The meaning of this safety alert symbol is as follows:

Attention! Become Alert! Your Safety is Involved.

The message that appears under the warning explains the hazard and can be either written or pictorially presented.

A non-exhaustive list of operations that may cause product damage are identified by "NOTICE" labels on the product and in this publication.

Caterpillar cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this publication and on the product are, therefore, not all inclusive. You must not use this product in any manner different from that considered by this manual without first satisfying yourself that you have considered all safety rules and precautions applicable to the operation of the product in the location of use, including site-specific rules and precautions applicable to the worksite. If a tool, procedure, work method or operating technique that is not specifically recommended by Caterpillar is used, you must satisfy yourself that it is safe for you and for others. You should also ensure that you are authorized to perform this work, and that the product will not be damaged or become unsafe by the operation, lubrication, maintenance or repair procedures that you intend to use.

The information, specifications, and illustrations in this publication are on the basis of information that was available at the time that the publication was written. The specifications, torques, pressures, measurements, adjustments, illustrations, and other items can change at any time. These changes can affect the service that is given to the product. Obtain the complete and most current information before you start any job. Cat dealers have the most current information available.

NOTICE

When replacement parts are required for this product Caterpillar recommends using original Caterpillar® replacement parts.

Other parts may not meet certain original equipment specifications.

When replacement parts are installed, the machine owner/user should ensure that the machine remains in compliance with all applicable requirements.

In the United States, the maintenance, replacement, or repair of the emission control devices and systems may be performed by any repair establishment or individual of the owner's choosing.

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Foreword

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, 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 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, 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.

Safety Section

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Safety Signs and Labels

SMCS Code: 7606

WARNING

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.

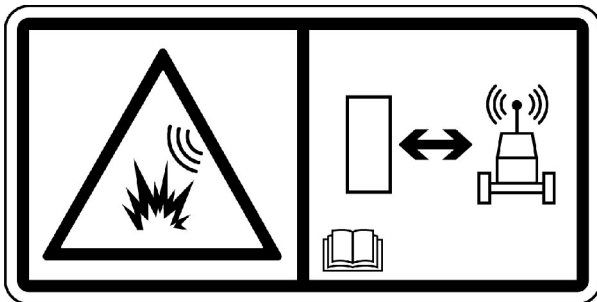


Illustration 1

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Film

WARNING

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 PL121 system or the PL522 / PL523 system must be disabled. One of the following methods are suggested to deactivate the PL121 or the PL522 / PL523 system:

- Install a Product Link disconnect switch in the machine cab. This switch will allow the PL121 or the PL522 / PL523 system module to be shut OFF. Refer to Special Instruction, REHS2365, "Installation Guide for the Product Link PL121 and PL321" or Special Instruction, REHS2368, "Installation Procedure For Product Link PL522 and PL523 (Cellular)" for more details and installation instructions.
- While the blast site switch is in the OFF position, the PL121 or the PL522 / PL523 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 PL121 or the PL522 / PL523 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 device. 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 devices 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 Code: 7606

WARNING

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 PL121 / PL321 systems
- Product Link PL522 / PL523 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 PL121 / PL321 systems
- Product Link PL522 / PL523 systems

Regulatory Compliance Information

Radio Frequency Components

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Product Link (PL522 and PL523 - If Equipped)

SMCS Code: 7490; 7606

S/N: PL51-Up

NOTICE

The transmission of information using a Cat 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 Cat Product Link communication device must be limited to those locations where all legal requirements for the use of the Cat Product Link communication device and communication network have been satisfied.

If equipment outfitted with the Cat 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.

Reference: Refer to the Operation and Maintenance Manual of your product for additional information.

Specifications

WARNING

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.

The following Cat 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		
Model	Transmitter Frequency Range	Transmitter Power
PL522 and PL523	824 MHz - 849 MHz	0.5W typical, 2W max
	880 MHz - 915 MHz	
	1710 MHz - 1755 MHz	
	1850 MHz - 1910 MHz	

Table 2

Operating Voltage and Current Draw		
Model	Voltage Range	Maximum Current Draw Range
PL522 and PL523	9-32V	850mA-225mA

Certification Notice

Canada Notice to Users

This device complies with Industry Canada 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.

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.

Regulatory Compliance Information
PL522 and PL523 - If Equipped

- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with FCC Part 22, Part 24, and 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.

Declaration of Conformity - European Union

Table 3

CATERPILLAR®
EU Declaration of Conformity

This Declaration of Conformity is issued under the sole responsibility of the manufacturer.

The undersigned, representing the manufacturer:

CATERPILLAR INC
100 N.E. Adams Street
Peoria, IL 61629
USA

hereby declares that the product, object of this description:

500 Radio Product Cellular Radio Telematics Device,

Brand: Caterpillar	Model: 500 Radio Product (Cat 522 and Cat 523)
Antenna Part Number: 346-9376	Part Number: 351 - 8490 and 351 - 8492

Are in conformity with the relevant Union harmonization legislation:

Directive 2014/53/EU
Directive 2011/65/EU

Conformity is shown by compliance with the applicable requirements of the following documents:

Conformity Assessment Procedure: Annex II, Annex III, Annex IV

2014/53/EU:	LVD (Sec 3.1a):	EN60950-1:2006+A11:2009+A1:2010+A12:2011 +A2:2013 EN 62311:2008
	EMC (Sec 3.1b):	EN 301 489-1 V2.2.0 EN 301 489-3 V2.1.1 EN 301 489-19 V2.1.0 EN 301 489-52 V1.1.0
	RF (Sec 3.2)	EN 301 511 V12.5.1 EN 300 440 V2.1.1
2011/65/EU:	RoHs	EN 50581:2012

Signature: *Michael Caruthers*
Name: *Michael Caruthers*
Place: *Peoria, IL*

Title: *Engineering Manager*
Date: *7 Sept 2017*

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Product Link (PL121SR - If Equipped)

SMCS Code: 7490; 7606

S/N: PL11–Up

S/N: FDB1–Up

S/N: W1B1–Up

S/N: W1C1–Up

NOTICE

The transmission of information using a Cat 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 Cat Product Link communication device must be limited to those locations where all legal requirements for the use of the Cat Product Link communication device and communication network have been satisfied.

If equipment outfitted with the Cat 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.

Reference: Refer to the Operation and Maintenance Manual of your product for additional information.

Specifications

WARNING

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.

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

Table 4

Radio Transmitter Specifications		
Model	Transmitter Frequency Range	Transmitter Power
PL121SR	148 MHz - 150 MHz	5W Typical 10W Max

Certification Notices

Canada Notice to Users

Update Industry Canada Notice to Users section to the following:

This device complies with Industry Canada's 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.
- This radio transmitter has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.
- This device has been designed to operate with the antenna(s) listed below, and having a maximum gain of 3 dBi. Antennas not included in this list or having a gain greater than 2.14 dBi are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

Antennas for use:

- 351-8485 Antenna As Hard Mount

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.

Operation Section

Operation

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Product Link

SMCS Code: 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

WARNING

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 - PL121, PL321, PL522, and PL523”
- Operation and Maintenance Manual, SEBU8832, “Product Link PLE702, PLE602, PLE601, PL641, PL631, PL542, PL240, PL241, PL243, PL141, PL131, PL161, PL083 and PL042 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, REHS7339, “Installation Procedure for Product Link PLE640 Systems”
- Special Instruction, REHS8850, “Installation Procedure for the Elite Product Link PLE601, PLE641, and PLE631 Systems”

Operation Section
Product Link

- Special Instruction, SEHS0377, "Installation Procedure for the Product Link PL131, PL141, and PL161 Systems"
- Special Instruction, REHS9111, "Installation Procedure for the Pro Product Link PL641 and PL631 Systems"
- Special Instruction, M0098124, "Installation Procedure for Pro Product Link PL243 Systems"
- Special Instruction, M0109130, "Installation Procedure for Product Link PL683 and PL783 Systems"

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Product and Dealer Information

Note: For product identification plate locations, see the section "Product Identification Information" in the Operation and Maintenance Manual.

Delivery Date: _____

Product Information

Model: _____

Product Identification Number: _____

Engine Serial Number: _____

Transmission Serial Number: _____

Generator Serial Number: _____

Attachment Serial Numbers: _____

Attachment Information: _____

Customer Equipment Number: _____

Dealer Equipment Number: _____

Dealer Information

Name: _____ Branch: _____

Address: _____

Dealer Contact

Phone Number

Hours

Sales: _____

Parts: _____

Service: _____

