



April 2020

# Operation and Maintenance Manual

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## Caterpillar Trackwear Sensor (TWS)

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## 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. Caterpillar dealers have the most current information available.



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

**Failure to follow this warning may lead to premature failures, product damage, personal injury or death.**

**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 Caterpillar 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

## Safety Signs and Labels

SMCS Code: 7606

### ! WARNING

Do not operate or work on this equipment 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 Caterpillar dealer for replacement manuals. Proper care is your responsibility.

### ! WARNING

Improper operation of an access platform could result in injury or death. Operators must carry out their duties properly and follow all instructions and guidelines given for the machine and access platform.

### ! WARNING

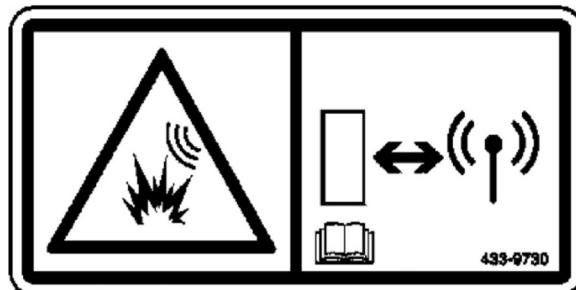
Accidental engine starting can cause injury or death to personnel working on the equipment.

To avoid accidental engine starting, disconnect the battery cable from the negative (-) battery terminal. Completely tape all metal surfaces of the disconnected battery cable end in order to prevent contact with other metal surfaces which could activate the engine electrical system.

Turn the battery disconnect switch to the OFF position and lockout the battery disconnect switch with a safety lock. Place a Special Instruction, SEHS7332, "Do Not Operate" tag at the start switch and battery disconnect location to inform personnel that the machine is being worked on.

## Safety Messages

The warning film in Illustration 1 can be found in a location such as the dash or control panel. The warning film is clearly visible to the operator during the normal operation of the equipment.



### ! WARNING

This equipment is equipped with a Cat® Trackwear Sensor. 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 Trackwear Sensor should be deactivated or rendered incapable of transmission 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 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 required, the following are suggested methods to disable the Cat® Trackwear Sensor:

- If equipped, remove the Trackwear Sensor from the equipment.

## Other Films

The film in Illustration 2 can be found in a location such as the dash or control panel. The warning film is clearly visible to the operator during the normal operation of the equipment.



Illustration 2

The film in Illustration 2 is intended to inform the operator that the equipment is equipped with a wireless transmitting device. Accordingly, data concerning this equipment, the condition of the equipment, and the operation of the equipment is being transmitted by the Cat® Product Link device to Caterpillar and is communicated to customers and Caterpillar dealers. The data is used to serve the customer better and to improve upon Caterpillar products and services. Transmission of information using a Cat® Product Link device is subject to legal requirements that may vary from location to location.

## General Hazard Information

SMCS Code: 7606

### ! WARNING

**Do not operate or work on this equipment 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 Caterpillar dealer for replacement manuals. Proper care is your responsibility.**

## Foreword

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

## Introduction

This document provides information about the operation of the Cat® Trackwear Sensor.

Operation of the equipment and the maintenance of the equipment must not occur unless the instructions and warnings in the Operation and Maintenance Manual for the equipment have been read and the instructions and the warnings are understood. The contents of this document must be understood before the equipment that is equipped with the Cat® Trackwear Sensor is operated.

# Product Information Section

## Identification Information

### Manufacturing Information

SMCS Code: 7606

### Product Information

**Entity authorized to communicate on request as required by Customs Union Technical Regulations of the Eurasian Economic Union:**

"Caterpillar Eurasia" Ltd.

Russia, Moscow, 115035 Sadovnicheskaya Emb 75

Phone: +7 (495) 2133340, Fax: +7 (495) 2133372,

email: cat\_moscow@cat.com

**Manufacturer:** Caterpillar Inc.

510 Lake Cook Road, Suite 100

Deerfield, Illinois 60015-1234

United States of America

Country of origin – USA

### Date of Manufacture

Markings on the device and or package contain information about the date of manufacture, or a link to the source of this information. If required, the date of manufacture can be obtained by the serial number of the product, by contacting your authorized dealer.

### Term and Conditions of Storage and Transportation

The product is packed in consumer packaging of the manufacturer. The product should be stored in the factory packing and storage conditions for climatic factors of Group 4 in accordance with GOST 15150-69. When loading and transportation requirements on warning labels on the boxes must be followed, shocks and bumps that can affect the appearance and performance of the device should not be allowed.

Transportation can be done by all kinds of covered transport vehicles. When transporting by air, ensure that the Trackwear Sensor is transported in a sealed compartment.

### Regulatory Compliance

SMCS Code: 7606

#### NOTICE

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

If equipment outfitted with the Cat® Product Link 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 Caterpillar dealer with any questions that concern the operation of the Cat® Product Link system in a specific country.

### Importance Notice Regarding Open Source Software

#### NOTICE

This product uses open source software that is available under one of a variety of licenses. Some of these require the license text to be included in the distribution. Visit <http://www.cat.com/opensource> for a copy of each license and source code where required.

## **⚠ WARNING**

**Care must be taken in handling lithium batteries. Lithium batteries are not a serviceable part. Personal injury can result from battery exploding. Caution must be used because there is risk of an explosion if the battery is replaced by an incorrect type. Do not dispose of battery or batteries in a fire. The battery is capable of exploding and emitting caustic chemicals. Dispose of used batteries according to federal and local laws.**

## **Trackwear Sensor 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.

*Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement*

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# Operation Section

## System Overview

SMCS Code: 7606

**Note:** Your equipment may be equipped with a Cat® Trackwear Sensor.

The Trackwear Sensor utilizes Bluetooth technology to communicate equipment information. This information is communicated to Caterpillar, Caterpillar dealers, and Caterpillar customers.

**Note:** The Cat® Trackwear Sensor does not contain a GPS receiver.

**Note:** All Cat® Trackwear Sensor with an internal antenna and all devices with an associated transmitting antenna must be located more than 20 cm (7.874 inch) from the machine operator to comply with FCC Regulations for RF human body safety.

## Data Broadcasts

Data concerning this equipment, the condition of the equipment, and the operation of the equipment is being transmitted by the Cat® Trackwear Sensor to Caterpillar and is communicated to customers and Caterpillar dealers. The data is used to serve the customer better and to improve upon Caterpillar products and services.

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

- Providing services to the customer and/or the equipment
- Monitoring the health or performance of the equipment
- Helping maintain the equipment and/or improve the efficiency of the equipment
- Evaluating or improving Caterpillar 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.

## Operation in a Blast Site for Trackwear Sensor

### ⚠ WARNING

This equipment is equipped with a Cat® Trackwear Sensor. 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 Trackwear Sensor should be deactivated or rendered incapable of transmitting 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.

**Note:** If required, the following is a suggested method to disable the Cat® Trackwear Sensor:

- Remove the Cat® Trackwear Sensor from the equipment

The following Cat® Trackwear Sensor specifications are provided to aid in conducting any related hazard assessment and to ensure compliance with all local regulations:

Radio Transmitter Specifications		
Radio Model	Transmitter Frequency Range	Transmitter Power
Caterpillar Trackwear Sensor	2.4 GHz – 2.48 GHz	2.5mW

Product Link Operating Voltage and Current Draw		
Model	Voltage Range	Maximum Current Draw Range
Caterpillar Trackwear Sensor	3.6VDC (Internal Battery)	32mA

Consult your Caterpillar dealer if there are any questions.