



Operation and Maintenance Manual

10 Hz Global Navigation Satellite System (GNSS) Receiver

ZEB 1-UP (D6T Tractor-
Track Type)

Language : Original Instructions



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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. 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

i07990093

Safety Messages

SMCS Code: 7405

Important Safety Information

Work safely. 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. This person should also have the necessary training, skills, and tools to perform these functions properly.

Safety precautions and warnings are provided in this instruction and on the product. If these hazard warnings are not heeded, bodily injury or death could occur to you or to other persons. Caterpillar cannot anticipate every possible circumstance that might involve a potential hazard. Therefore, the warnings in this publication and the warnings that are on the product are not all inclusive.

If a tool, a procedure, a work method, or an operating technique that is not recommended by Caterpillar is used, ensure that the tool, procedure, work method, or operating technique is safe to use. Ensure that the product will not be damaged or the product will not be made unsafe by the operation, lubrication, maintenance, or repair procedures used.

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.

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.

Place a Do Not Operate tag at the Start/Stop switch location to inform personnel that the equipment is being worked on.

Use steps and handholds whenever you mount the machine. Use steps and handholds whenever you dismount the machine. Before you mount the machine, clean the step and the handholds. Inspect the step and handholds. Make all necessary repairs.

Face the machine whenever you mount the machine and whenever you dismount the machine. Maintain a three-point contact with the step and with handholds.

Note: Three-point contact can be two feet and one hand. Three-point contact can also be one foot and two hands. Refer to Illustration 1 .

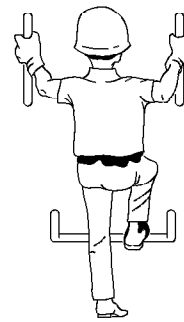


Illustration 1

g00037860

Do not mount a moving machine. Do not dismount a moving machine. Never jump off the machine. Do not try to mount the machine when you carry tools or supplies. Do not try to dismount the machine when you are carrying tools or supplies. Use a hand line to pull equipment onto the platform. Do not use any controls as handholds when you enter the cab or when you exit the cab.

Falling Hazard - Do Not Climb

WARNING

Falling Hazard. Do not climb onto the drum in order to access the GPS receiver. Climbing on the drum could result in a fall which could cause serious injury or death. Use the raise and lower mechanism to access the GPS receiver for all required maintenance and service. For more information, refer to Operation and Maintenance Manual, "Getting Started".



Illustration 2

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⚠ WARNING
Do not use this surface as a step or platform. This surface may not support additional weight or may be slippery. Serious injury or death could occur from a fall.

Regulatory Compliance Information

Radio Frequency Components

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Wireless Device (G6:M6 GPS Receiver - If Equipped)

SMCS Code: 7008; 7600-ZM

sDoC

(Simplified Declaration of Conformity)

European Union

Caterpillar Inc. 100 NE Adams Peoria, IL
61529 USA

Hereby, Caterpillar Inc. declares this radio equipment is in compliance with directive "2014/53/EU". The full text of the European Declaration of Conformity is available at the following web address:

<https://www.cat.com/radio-compliance>

Great Britain

Caterpillar Inc. 100 NE Adams Peoria, IL
61529 USA

Hereby, Caterpillar Inc. declares this radio equipment is in compliance with the relevant statutory requirements. The full text of the Great Britain Declaration of Conformity is available at the following web address:

<https://www.cat.com/radio-compliance>

Caterpillar suggests that the Declaration of Conformity is obtained shortly after purchase.

Specifications

Table 1

Operating Voltage and Current Draw		
Model	Voltage Range	Maximum Current Draw Range
G6:M6	9 - 32V	80mA - 30mA

Certification Notices

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.

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

Regulatory Compliance Information
G6:M6 GPS Receiver - If Equipped

- 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.

Certification Markings



**EAEU – (Russia, Belarus, Kazakhstan,
Armenia, Kyrgyzstan)**

The G6:M6 GPS Receiver product description in the EAEU: Global Navigation Satellite System (GNSS) Receiver Cat[®] brand, model G6:M6.

Product Information Section

General Information

i07918172

System Components

SMCS Code: 7220

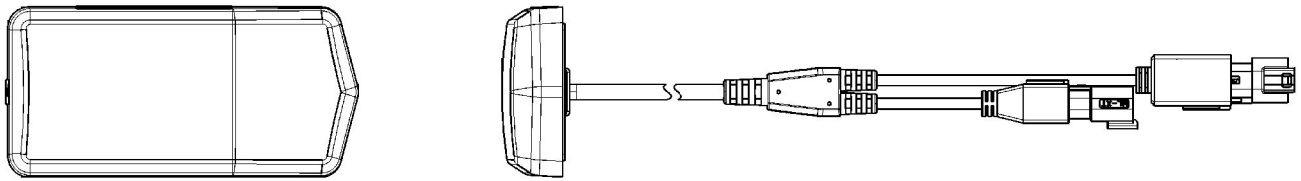


Illustration 3

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Enclosure and cable/connector

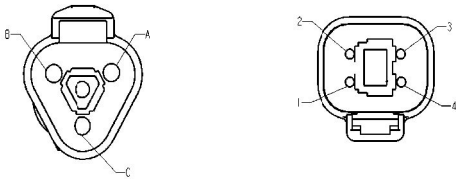


Illustration 4

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Pin numbering and locations within the connectors

Table 2

Wire Pinout Table	
Pin Number	Function
1	CAN High +
2	CAN Low -
3	1 PPS Output +
4	NC
A	+ Battery
B	- Battery
C	Keypad

Identification Information

i07989993

Manufacturing Information

SMCS Code: 7606

Date of Manufacture

Contact an authorized dealer to determine the date of manufacture using the serial number.

Manufacturer Information

Manufacturer:

Caterpillar Inc.,
100 N.E. Adams Street
Peoria, Illinois 61629, USA

Made by the order and specifications of Caterpillar Inc.. See information about the country of origin on the package.

Entity authorized by the manufacturer at the territory of Eurasian Economic Union:

Caterpillar Eurasia LLC
75, Sadovnicheskaya Emb
Moscow 115035, Russia

Specifications

Table 3

Receiver Specifications	
Input Voltage	
Operating Voltage Range	9VDC to 32VDC
Protection	Reverse Polarity
GNSS Receiver	
Satellite Constellations	GPS L1 and GLONASS L1
GPS Center Frequency	1575.42 MHz
GLONASS Center Frequency	1602 MHz
Current Consumption (max)	
Max operational current draw	80mA
Environment	
Operating Temperature	-40° C (-40.0° F) to 85° C (185.0° F)
Storage Temperature	-50° C (-58.0° F) to 85° C (185.0° F)
Vibration	9.73 Grms

Maintenance Section

Maintenance Recommendations

i07934909

General Maintenance Information

SMCS Code: 7220

Conditions for Storage, Transfer, and Disposal

For long-term storage, store in a cool and dry area. Do not exceed the temperature limits of -50°C (-58.0°F) to 85°C (185.0°F).

Never throw away the radio. Dispose of the radio in proper recycling receptacles. Contact the Cat[®] dealer to determine the disposal and transfer conditions.

Service Information Section

Configuration

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Configuration

SMCS Code: 7220

Mounting Requirements

Note: Ensure that power is disconnected from the battery during the steps of the installation.

Ensure that the following guidelines are met when mounting the Receiver:

- Mount the receiver in a horizontal orientation to the horizon
- The receiver must be exposed to a large portion of the sky. Usually the canopy/container roof usually provides an optimal view of the sky with minimal blockages
- The receiver may be mounted under a non-metallic cover, but not a metallic one. A metallic cover will block the utilization of the satellite signals
- Do not mount the receiver in an area that will expose the receiver to extreme conditions of heat
- Locate the receiver so that the connectors are not exposed to high-pressure spray or underwater immersion
- Mount the receiver at least 500 mm (19.6 inch) away from other transmitting antennas

These antennas include, but are not limited to, the following:

- Citizens Band (CB)
- Cellular/satellite
- WiFi/Data Radio
- Commercial communication radios

Bottom Exit Mounting

When using bottom exit configuration, a hole must be drilled through the mounting surface for the pigtail to pass through. The recommended hole diameter is 31.75 mm (1.250 inch).

The radio placement is critical to maintain a seal around the opening.

1. After drilling the hole, deburr the hole.
2. Clean the mounting surface to be free of dirt, debris, or oils.
3. The mounting surface should be dry and at a temperature between 21° C (69.8° F) and 38° C (100.4° F).
4. Remove the red backing paper from the VHB tape. Do not touch the tape or allow the tape to get dirty.
5. Locate the receiver onto the mounting surface and press the top of the device from one end to the other. Apply 103 kPa (15.0 psi) pressure to the top of the device for minimum of 30 seconds. At 21° C (69.8° F), 50 percent of ultimate bond strength will be achieved after 20 minutes, 90 percent after 20 hours, and 100 percent after 72 hours.

Side Exit Mounting

1. When using a side exit configuration, the rubber plug on the bottom of the device must be removed. To do that, first remove the VHB on the perforations. Remove the rubber plug out of the slot in the radio and discard.
2. Press the cable into the slot.
3. Clean the mounting surface to be free of dirt, debris, or oils.
4. The mounting surface should be dry and at a temperature between 21° C (69.8° F) and 38° C (100.4° F).
5. Remove the red backing paper from the VHB tape. Do not touch the tape or allow the tape to get dirty.
6. Locate the receiver onto the mounting surface and press the top of the enclosure from one end to the other. Apply 103 kPa (15.0 psi) pressure to the top of the device for minimum of 30 seconds. At 21° C (69.8° F), 50 percent of ultimate bond strength will be achieved after 20 minutes, 90 percent after 20 hours, and 100 percent after 72 hours.

Troubleshooting

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Common Problems

SMCS Code: 7220

Troubleshooting Faults and Corrective Actions

Before calling to the Cat[®] dealer for repair:

1. Check the integrity of the electric wires.
2. Cycle the battery power to the device.
 - a. Cycling battery power can be accomplished by:
 - Turning the machines master disconnect off and then back on
 - Unplugging the harness from the Bluetooth device and then plugging the harness back in
 - Disconnecting the negative cable from the negative battery terminal and then reconnect the cable

If these solutions do not help, call the Cat dealer for service.

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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: _____

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