

Product: EXCAVATOR
Model: 320C EXCAVATOR GAA
Configuration: ISJ HEX COMMONALITY CHART GAA00001-UP (MACHINE)

Operation and Maintenance Manual 311C-330C, 345B Series II, 365B and 385B Excavators

Media Number -SEBU7957-01

Publication Date -01/12/2003

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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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Foreword

SMCS - 1273-543

Literature Information

This manual should be read carefully before using this product for the first time and before performing maintenance. This manual should be stored in the product literature holder or in the product literature storage area. Immediately replace this manual if lost, damaged, or unreadable. This manual may contain 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 product. Guards and covers might have been removed for illustrative purposes. Continuing improvement and advancement of product design might have caused changes to your product, which are not included in this publication. Whenever a question arises regarding your product, or this publication, consult your dealer for the latest available information.

Safety

The safety section, if present, lists basic safety precautions. In addition, this section identifies the text and locations of safety messages used on the product. Read and understand the basic precautions listed in the safety section before operating or performing lubrication, maintenance, and repair on this product.

Operation

The operation section, if present, is a reference for the new operator and a refresher for the experienced operator. This section includes a discussion of gauges, switches, controls, attachment controls, transportation, and towing information (if applicable). 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.

Product Information

The product information section, if present, may provide specification data, product intended use, product identification plate locations, and certification information.

Maintenance

The maintenance section, if present, is a guide to equipment care. Proper maintenance and repair are essential to keep the equipment and systems operating correctly. As the owner, you are responsible for the performance of the required maintenance listed in the Owner Manual, Operation and Maintenance Manual, and Service Manual. The Maintenance Interval Schedule 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.

Product Capacity

Additional attachments or modifications may exceed product design capacity, which can adversely affect product performance characteristics, safety, reliability, and applicable certifications. Contact your dealer for further information.

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General Hazard Information

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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 Caterpillar AM/FM Radio System.

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 Caterpillar AM/FM Radio System is operated.

Warnings and Compliance

Thank you for purchasing this product, read the manual carefully before operating, and reserve manual for future reference.

Precaution

- Use only in a 12-volt DC negative- ground electrical system.
- Disconnect the vehicles negative battery terminal while mounting and connecting the unit.
- When replacing the fuse, be sure to use one with an identical amperage rating.
- Using a fuse with a higher amperage rating may cause serious damage to the unit.
- Make sure that pins or obstacles do not get inside the unit, pins and obstacles may cause malfunctions, or create safety hazards such as electrical shock.
- If you have parked the vehicle for a long time in hot or cold weather, wait until the temperature in the vehicle becomes normal before operating the unit.

Before Operation

Do not raise the volume level too high. Keep the volume at a level at which you can hear outside warning sounds (horns sirens, and so on).

Stop the vehicle before performing any complicated operations.

Caution

Do not open the cover and do not repair. Ask your authorized dealer for help.

Note: According to models with different wiring harness to connect the definition of the specific content, refer to the model label.

Note: Specifications and the design are subject to change without notice due to improvements in technology.

Operation and Maintenance Manuals(OMM) are currently available at: www.cat.com/radio-owners-manual

For mobile equipment or equipment that is located in areas where direct internet access is not available while the product is in use, a paper copy of the OMM must be printed and kept with the product.

For more information or for a paper copy of the OMM contact your nearest Cat Dealer:
www.cat.com/en_US/support/dealer-locator.html

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Regulatory Compliance

SMCS - 7606

FCC Notice

The following notices are provided.

Modification Statement

Caterpillar has not approved any changes or modifications to this device by the user. Any changes or modifications could void the users authority to operate the equipment.

Interference

This device complies with Part 15 of the FCC Rules and Industry Canada license - exempt RSS standards. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Radiation Exposure

This device complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines. RF Exposure guidelines can be found in Supplement C to OET65. The device also complies with RSS-102 of the IC radio frequency (RF) Exposure rules. Do not locate the transmitter near an antenna or operating with any other antenna or transmitter.

FCC Class B digital device notice

This equipment has been tested and found to comply with the 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. If the equipment is not installed and used in accordance with the instructions, it 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 may void the user's authority to use this device.

CAN ICES-3 (B) / NMB (B)

This Class B digital apparatus complies with Canadian ICES-003.

Simplified EU Declaration of Conformity/RED 2014/53/ EU Directive

This device has been evaluated against the essential requirements of the 2014/53/EU Directive.

Radio Frequency Range

The following Driver Safety System communication device specifications are provided to aid in conducting any related hazard assessment and to ensure compliance with all local regulations:

Table 1

Bluetooth	
Frequency Range:	2402–2480 MHz carrier frequencies
Maximum RF output power:	+4dBm
Modulations:	GFSK: $\pi/4$ -DQPSK and 8DPSK
Channel Spacing:	1 MHz
Number of channels:	79
Channel bandwidth:	1 MHz for GFSK,
Type of Antenna:	Brand Amotech part number: AL.A321C3 chip antenna/Gain 2.3dbi
Antenna gain:	+2.3dBi Max

Note: The DEA 500 radio can operate in Belgium without infringing on applicable requirements on the use of Belgium's radio spectrum.

Table 2

AM	
Frequency Range:	531 kHz to 1602 kHz
Maximum RF output power:	+/- 6dBi typical
Modulations:	Amplitude modulation
Channel Spacing:	9kHz
Type of Antenna:	0.75m typical monopole
Antenna gain:	0dBuV to 130dBuV

Table 3

FM	
Frequency Range:	87 MHz to 108 MHz
Maximum RF output power:	+/- 6dBi typical
Modulations:	Frequency modulation
Channel Spacing:	100 kHz
Type of Antenna:	0.75m typical monopole
Antenna gain:	0dBuV to 130dBuV

Table 4

English	Hereby, Caterpillar declares that this DEA500 is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EC.
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To satisfy the essential requirements of 2014/53/EC Directive, the product is compliant with the following standards:

Caterpillar declares on our sole responsibility that the following product is in compliance with Directive 2014/53/EU and the essential requirements of Car Radio.

Type Designation:

- DEA500
- HW Rev A SW Rev B Services
- Frequency range and max output power: Bluetooth 2402 - 2480 Mhz 4dBm (2.5 mW) EIRP
- AM 531–1602 kHz
- FM 87.5–108.0 MHz

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