		<ol> <li>Then press the "OK" button. The Cat ET will display the following message.</li> </ol>
Data and Time		
Date and Time	B 22	
Time Zone:		
(GMT-06:00) Central Time (US & Canada)	<b>▼</b>	
Date:	Get PC	Cat Electronic Technician
5/14/2015	Date/Time	
Time:		Time Zone: (GMT-06:00) Central Time (US & Canada)
11:51:24 AM	×	• Date: 6/29/2015
ſ	OK Cancel	11118. 12.00.00 AM
		Are you sure you want to program these parameters?
		Yes No
ustration 49	g03866585	
ïme Zone		
. Select the local time zone fro	om the drop-down list.	Illustration 52 g03866593
		Cat ET Time Confirmation
Date and Time Time Zone: [GMT-06:00) Central Time (US & Canada) (GMT-06:00) Guadalajara, Mexico City, Monterrey (GMT-06:00) Guadalajara, Mexico City, Monterrey (GMT-06:00) Guadalajara, Mexico City, Monterrey - (GMT-06:00) Guadalajara, Mexico City, Monterrey - (GMT-06:00) Saskatchewan	?X V New	date and time or click on the "No" button in order to cancel the change. The Cat ET will display the new time on a 24 hour clock.
(GMT-05:00) Bogota, Lima, Quito, Rio Branco (GMT-05:00) Eastern Time (US & Canada) (CMT 05:00) Eastern Time (US & Canada)		- ECD Obstrime Ony:
(GMT-05:00) Indiana (East) (GMT-04:30) Caracas		wonday
(GMT-04:00) Asuncion (GMT-04:00) Atlantic Time (Canada)		
		6/29/2015
		12:01:48 AM
lustration 50	g03866589	Time Zone:
ocal Date and Time		Central Daylight Time
<ol> <li>Enter the local date and time reference to set the time.</li> </ol>	e. Use an accurate	Change
	a sure to a surel second because	Illustration 53 q03866595

**Note:** Laptop clocks are not accurate and may have a different time than the local time.

Date and Time		? ×
Time Zone:		
(GMT-06:00) Central Time (US & Canada)		•
Date:		1
6/29/2015	-	Get PC
Time:	_	Dater Time
12:00:00 AM	×	
	ок	Cancel

Cat ET Display 24 Hour Clock

3-----

i06229333

# **Software - Uninstall** ("Immobilizer" Feature)

#### SMCS Code: 7631-011

The "Uninstall" feature of the Machine Security System MSS allows the user to uninstall the Immobilizer feature from other electronic control modules.

The MSS3s ECM should be removed after the immobilizer software has been successfully uninstalled. If the MSS3s ECM is not removed, the LED for the status of the MSS will give a false indication.

The "Uninstall" screen for the Machine Security System consists of the areas that are listed below:

**"Status Line"** – The "status line" displays messages regarding the process of this function.

**Display Area** – The "Uninstall" display for the Machine Security System consists of two columns. The two columns are the "ECM" column and the "Security System Status" column. The "ECM" column lists every ECM that is installed on the machine with the immobilizer feature. The "Security System Status" column lists the status of the immobilizer feature of the Machine Security System. The status of the immobilizer feature is either "Installed" or "Not Installed".

**"Uninstall Button"** – The "Uninstall" button starts the "Uninstall" process.

Perform the steps that are listed below in order to uninstall the Machine Security System:

**Note:** You will need to obtain a factory password in order to perform this procedure. A master electronic key will not allow the user to uninstall the Machine Security System. Refer to the Testing and Adjusting, "Factory Password - Obtain" section of this manual for information on obtaining a factory password.

- 1. Connect a laptop Computer with the Caterpillar <sup>®</sup> ET to the machine via the communication adapter.
- 2. Place a key in the key start switch.
- 3. Turn the key to the "ON" position.
- **4.** Start the Electronic Technician and establish communications with the MSS3s ECM.
- Obtain a factory password. Refer to the Testing and Adjusting, "Factory Password - Obtain" section of this manual for information on obtaining a factory password.
- 6. Select the "Machine Security System Uninstall" option from the "Service" menu. This selection will cause the Cat<sup>®</sup> ET to display the message that is shown in Illustration 54.

<b>Cat Electronic Technician - Machine Security System Immobilizer U</b> File View Diagnostics Information Service Utilities Help	ninstall
	50 😽 😴 🔁 🖅 🕐
Brees Uningtall to besi	a the uninetall pressoo
	n die uninstan process.
Transmission 938	Immobilizer Status Installed
<u>U</u> ninstall	
	Machine Security System

Illustration 54 Machine Security System Uninstall screen

7. Click on the "Uninstall" button that is located at the lower left-hand corner of the "Machine Security System Uninstall" screen. This button will cause the ET to display the "Factory Password Screen" that is shown in Illustration 55.

**Note:** A factory password is required to perform the "Machine Security System Uninstall". A master electronic key will not allow you to uninstall the Machine Security System. Refer to the Testing and Adjusting, "Factory Password - Obtain" section of this manual for information on obtaining a factory password.

g01097964

/		
Factory Passwords - Machine Security System (ABC12	345)	
Service Tool Serial Number:	ETN22707-8-VT	OK
Product ID:	ABC12345-N0	Ŭ.
ECM Serial Number:	34416190QQ-TN	Cancel
Total Tattletale:	0	
Reason:	4	Print
Diagnostic Clock: Software Part Number: Important: Enter all items exactly as dash. NOTE: Special (non-alphanum	hours 3498573-00-R4 displayed above, inclu neric) characters may bo	ding the dash and characters after the e entered using the special keypad.
Factory Password #1:		Suppiel Kouwad
Factory Password #2:		Special Keypad
Note: Factory Password is 10 Charac	ters long.	
You may obtain Factory Passwords online b information to a file for online use at a diffe	by selecting the hyperline rent computer.	ık below, or you may save the
https://fpsdma.cat.co	<u>m/fpsdma/</u>	Save to File

Illustration 55 Factory Password screen

8. The factory passwords are provided by the Factory Password System. Enter the factory passwords in the dialog boxes that are provided on the "Enter Factory Password" screen. Once the ET accepts the passwords, the screen shown in Illustration 56 will be displayed.

Uninstall Confirmation	
Are you sure you want t Machine Security Syste	o uninstall the m?
Yes	<u>N</u> o

**Note:** Pressing the "No" button aborts the "uninstall" of the Machine Security System.

	Machine Security	System Uninstall pr	ocess in progress	
Mach	ne Security System U	Joinstall process in p	progress	
	, , ,			
-				

Illustration 57

g01097989

g00831242

Process in Progress screen

**Note:** Once the Machine Security System has been successfully uninstalled, the ET will display the message that is shown in Illustration 58.

Uninstall Confirmation screen

Illustration 56

9. Press the "Yes" button if you want to proceed with the "uninstall" of the Machine Security System. This button will cause the ET to display the message that is shown in Illustration 57.



Machine Security System Immobilizer Uninstall Successful.

Note: To reactivate the immobilizer, you must first disconnect the MSS ECM, power on the machine, wait 30 sec, power off, then reconnect the MSS ECM.

<u>0</u>K

Illustration 58

g00916867

Uninstall Successful screen

**10.** Press the "OK" button in order to return to the "Machine Security System Uninstall" screen.

**Note:** If the Machine Security System has not been successfully uninstalled, the ET will display the message that is shown in Illustration 59.

Machine Se	curity System Uninst	all Failed.
One or mor properly. Y	e of the ECMs failed to us on the uning the un	to uninstall stall again.
	<u>0</u> K	

g00921613

Uninstall Failed screen

Illustration 59

- **11.** Press the "OK" button in order to return to the "Machine Security System Uninstall" screen. The "Uninstall" button that is located on the "Machine Security System Uninstall" screen will be labeled "Retry". Press the "Retry" button in order to restart the uninstall.
- 12. Turn the key switch to the OFF position.
- **13.** Remove the MSS3s ECM from the machine.

**Note:** If the MSS3s ECM is configured to control other devices, (start relay and/or main power relay), those devices must be reconnected in accordance with the machine Electrical Schematic.

i06229289

## **Glossary of Terms**

SMCS Code: 7631

**Armed** – The state of the security system when the machine is disabled.

**Disarmed** – The state of the security system when the machine is able to operate normally.

**Electronic Control Module** – The portion of the MSS that contains the microprocessor and memory

**EID** – Event Identifier

**Exciter Coil** – The exciter coil is a small coil of fine wire. The wire is molded into the bezel of a keyswitch with harness wiring. The exciter coil provides a path of communication. The electronic key and the electronic control module communicate via radio frequency.

**Immobilizer** – The MSS Immobilizer is a feature within another ECM (engine and/or transmission) that restricts the operation of the machine until the Machine Security System disarms.

**Master Access Level** – Keys that are programmed for this level of access permit the operation of the machine and the key allows the user to add new keys. Also, keys that are already programmed can be modified.

MSS - Machine Security System

**PID** – A parameter identifier is used to identify specific parameters that are used by the MSS.

**Product ID** – The Product ID is an 8 digit alphanumeric number that identifies the machine.

**Programming** – Programming refers to the process of storing information in the memory of the control module.

**Standard Access Level** – Keys that are programmed for this level of access permit the operation of the machine.

**Tattletale** – The tattletale is a counter in the ECM that is used as part of the calculation for the factory password. The tattletale is incremented after a factory password is used. The affected parameter will have an increase in the specific parameter of the tattletale and the total tattletale will reflect the increase as well. Once you use the factory password, the factory password will no longer be valid. Another password will be required for changes on the same ECM at a later date.

i06227306

## System Schematic

#### SMCS Code: 7566

Refer to the corresponding schematic of the machine or Special Instruction.

## Index

## С

Cat Data Link - Test	37
Diagnostic Trouble Code Procedure	37
Theft Deterrent Module ECM	37
Circuit Tests	37
Connector Contact Description	59
ECM Pull Down Voltage	59
ECM Pull Up Voltage	59
Input/Output	60
Inputs	59
Outputs	60
Connector Locations	17

## D

Data Links	16
Determining Diagnostic Trouble Codes	24
Diagnostic Capabilities	18
The Cat <sup>®</sup> Electronic Technician (Cat ET) Servic	e
Тоо!	19
Diagnostic Operation	10
Active Diagnostics	11
Logged Diagnostics	11
Diagnostic Trouble Codes	-25
Component Identifier (CID)	25
Detailed FMI Explanations	25
Diagnostic Codes	29
Failure Mode Identifier (FMI)	25
Module Identifier (MID)	25
Troubleshooting Procedures	27

## Ε

ECM - Configure	.52
Cat <sup>®</sup> Electronic Technician (Cat ET) Service To	ol
Configuration Procedure	52
ECM - Replace	.52
ECM Output Driver - Test	. 39
Diagnostic Trouble Code Procedure	.40
Theft Deterrent Module ECM	. 39
ECM Software - Install	. 52
Electrical Connector - Inspect	.43
Guidelines	.43
Important Safety Information	.43
Tests	.43
Electrical Power Supply - Test	.46
Diagnostic Trouble Code Procedure	.47
Theft Deterrent Module ECM	.46
Electronic Control Module (ECM)	. 14
ECM Inputs	. 15
ECM Outputs	. 15
FCC NOTICE	.14
Industry Canada Notice to Users	. 14
Emerging Symptom Information	30
Engine Does Not Crank and Status Indicator Is	
Green	31
Engine Does Not Start and Status Indicator Is	~ .
_Continuously Red	
Events	. 11
Cat " Electronic Technician (Cat EI)	. 11
Loggea Events	.13

#### F

Factory Password - Obtain	79
Internet	80
Telephone Help Line	85

## G

General Information4,	17,61
Cat <sup>®</sup> Electronic Key	
Security Management using Cat <sup>®</sup> Electronic	
Technician (Cat ® ET)	61
Glossary of Terms	91

## L

Important Safety Information	2
Introduction	17

## κ

Key - Program	63
"Fleet/Key Configuration"	70
Programming with a Service Tool	63
Key Information	8
Áccess Level	9
Expiration Date	9
Security ID	9
Security Type	9

## L

Lost Key (MSS)	
	36
	~~
Lost Key (MSS3S)	ł۶

## Μ

Machine Preparation for Troubleshooting	22
General Procedure	22
Warnings	22

## Ν

Normal Operation	7
Armed	7
Disarm	7
Reading the ID of a Key	7
Timeouts	7

## 0

Operation of Status Indicator	7
Status Indicator	8

## Ρ

Product Identification Number - Program	61
Protected Functions	13

## S

Scheduled Access ( "Security System Bypass	
_ limes" )	10
Service	52
Service Operation Using Machine Security	
System	14
Service Operation Using Service Tool	14
Service Tools	17
Software - Uninstall ( "Immobilizer" Feature)	87
Symptom Procedures	30
Symptom Troubleshooting	30
Determine Possible Causes	30
Know the Machine	30
Provide Feedback to Caterpillar	30
Test and Repair the System	30
Understand the Symptom	30
Use Available Service Literature	30
Verify the Symptom	30
System Components	15
Cat® Electronic Key	15
Exciter Coil	15
Status Indicator	16
System Disarm - Program (Security System	
Bypass)	78
System Överview	6
System Schematic	92
Systems Operation Section	4

## т

Table of Contents	3
Testing and Adjusting	61
Testing and Adjusting Section	61
Time - Set	86
Troubleshooting Section	

### v

Visual Inspection	.23
Check the Electrical System	.23

#### W

Wiring Harness (Open Circuit) - Test	49
Test For An Open Circuit	50
Wiring Harness (Short Circuit) - Test	50
Test For A Short Circuit	51



UENR7061 ©2016 Caterpillar All Rights Reserved CAT, CATERPILLAR, their respective logos, "Caterpillar Yellow", and the POWER EDGE trade dress as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

**96** August 2016