

GENERAL PRODUCT INFORMATION: NISSAN IMMOBILIZER Step5

The Immobilizer Step5 being certified for Nissan Corporation has been designed by:

Siemens Automotive Corporation
2400 Executive Hills Drive
Auburn Hills, MI 48326-2980
FCC Grantee Code: M3N

under the management of:

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The Immobilizer Step5 will be manufactured by:

Siemens Sistemas Automotrices S.A. de C.V.
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under the management of:

Mr. Sauter, Plant Manager
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The homologation of the Immobilizer Step5 will be carried out by:

Siemens Automotive
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under the management of:

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The Immobilizer Step5 will be distributed by Nissan Corporation and will be serviced by its authorized automobile dealers and service shops in the United States of America, Canada and other countries.

USER MANUAL / FUNCTIONAL DESCRIPTION OF THE NISSAN IMMOBILIZER Step5

System Components

The Nissan System is a vehicle immobilization system. The electronic devices in the Nissan System are the Immobilizer Step5 and a Cryptographic Transponder. The Immobilizer Step5 is located near the vehicle's ignition lock. The Transponder is located within the ignition key. The Transponder is magnetically coupled to the Control Module. The Immobilizer Step5 is connected via a wire harness to vehicle power, vehicle ground, vehicle ignition, and a Nissan ECCS vehicle communications bus. The ECCS communications bus is a single line 0V to +12V, ISO9141-2 compatible interface, and allows communications between the Immobilizer Step5 and the Engine Management System.

System Operation

The Immobilizer System is a passive immobilization system. The Immobilizer Step5 uses a magnetic couple to read the Transponder's identification code. The communication between the Immobilizer and Transponder is encrypted. The Module compares the identification code received from the Transponder with identification codes stored in its non-volatile memory. If the identification code from the Transponder matches one of the identification codes stored in memory, the Module sends a "Valid Key" message and associated "rolling code" to the Engine Management System controller. If there is no match, the Module sends an "Invalid Key" message to the Engine Management System controller. This causes the Engine Management System to turn off the engine.

The Module remains in a low-power "sleep" mode while vehicle ignition is off. When vehicle ignition is turned on, the Control Module wakes up, runs some internal diagnostics, and then attempts to communicate with the Transponder. Once the results of the Transponder communications have been sent to the Engine Management System, the Control Module goes into an idle mode. The Control Module remains in this mode until ignition is turned off. At this point, the Engine Management System passes a new "rolling code" to the Control Module and then enters the low-power "sleep" mode.

The Control Module will attempt to communicate with the Transponder up to five times. Once successful communications have occurred the Control Module stops communicating with the Transponder. Each attempt consists of the following steps: Charge mode, Transmit mode, Receive mode, and Delay for internal processing.

EXPLANATION OF VARIATION BETWEEN NISSAN DEVICES

The products to be certified are the Immobilizer Step5 for the Nissan System Step5. There are three devices to be approved. The parts have the same printed circuit board and housing, but different assembly for use in different car series of Nissan. The modules will all use the same FCC and Canada ID Numbers, and are identified as follows:

Siemens type designation: Step5

FCC ID: M3NSTEP5

Variants of immobilizer Step5:

5WK4 8644 – assembly B

5WK4 8643 – reduced assembly A

5WK4 8645 – reduced assembly C

For USA/Canada:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

7, May, 1998

To whom it may concern,

This is a confirmation stating that there is no difference in the antenna transponder communication among the three different versions of the Nissan Immobilizer type Step5. The same Software, Hardware and PCB are used for all three versions.

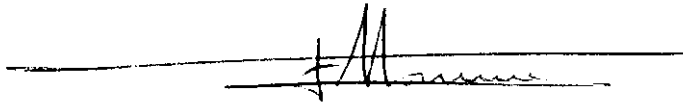
The differences among the three versions are as follows:

For version A, there is a 10400 Baud communication to the engine controller, with no link to the radio and alarm system.

For version B, there is a 10400 Baud communication to the engine controller, and a 9600 Baud communication to the radio and link to the alarm system.

For version C, there is a 14 Baud communication to the engine controller with no link to the radio or alarm system.

For Siemens Automotive Corporation

A handwritten signature in black ink, appearing to read 'F. Bonhoure', is written over a horizontal line.

Mr. Francis Bonhoure
Program Director, North America

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TESTING INSTRUCTIONS FOR THE NISSAN IMMOBILIZER Step5

To test the Nissan Immobilizer Step5 the following equipment is needed:

- Nissan Immobilizer Step5 modified for constant charge mode.
- Cryptographic Transponder glued into the immobilizer antenna
- Nissan Immobilizer Step5 Test Box (see diagram #1).
- Nissan Immobilizer Step5 Test Cable.
- 12V Automotive Battery or 12V D.C. Power Supply.

Follow this procedure to prepare the Nissan Immobilizer Step5 for testing:

- Set the switch on the immobilizer Test Box to the "OFF" position.
- Use the Test Cable to connect the immobilizer to the Test Box. The Test Cable should not loop around or near the Control Module.
- Connect the Battery or D.C. Power Supply to the Test Box (red plug=12V, black plug=ground).

Follow this procedure to activate the immobilizer in order to measure its emissions level:

- Set the switch on the Test Box to the "ON" position.
- Wait for 3 seconds for the Control Module to settle into constant transmit mode. The immobilizer will transmit until ignition is removed. **NOTICE:** A normal immobilizer will never transmit for more than 3 seconds after ignition has been turned on.
- In case of problems please contact Chris Parise (248-253-2967) or Hubert Limbrunner (248-253-2966) at Siemens Automotive Corporation, Auburn Hills MI.

DIAGRAM #1

