Automotive Technology 6th Edition
Chapter 59 - Immobilizer Systems
Chapter 59

Name_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

1) How is the security information transferred from the key to the vehicle?

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2) An antenna coil tester is used to test what part of the immobilizer system?

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3) What faults will an immobilizer system cause?

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4) To avoid damage to the key, what precautions are needed to be performed?

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5) A typical immobilizer system consists of what parts?

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_____

1) Most immobilizer systems work as follows:
   - The key identification (ID) numbers are stored in a nonvolatile memory of the immobilizer module. At each start, the module compares the ID number of the transponder key used with those stored in the memory.
   - If the verification has been successful, the immobilizer module sends a request signal to the PCM to compare the key ID number with the numbers registered in the PCM.
   - Each immobilizer module has its unique code word that is stored in the PCM. After the verification of the ID number, the immobilizer module requests the code word from the PCM.
   - The immobilizer module controls the starter circuit and the security light and signals the PCM to activate fuel injection and ignition when the ID number and code word verification have been successful.
   - The signals between immobilizer module and PCM are transmitted via a serial data line.

   Page Ref: 709

2) Immobilizer coil detectors are used to test if the transceiver is able to transmit a signal.
   Page Ref: 714

3) Faults with the immobilizer system can be the cause of one of the following conditions, depending on the exact make and model of a vehicle:
   - No crank condition (the starter motor does not operate)
   - The engine cranks but does not start (fuel disabled in most vehicles)
   - The engine starts but then almost immediately stalls.

   Page Ref: 708

4) To avoid damage to the key, do not allow the key to:
   - Be dropped onto a hard surface
   - Get wet
   - Be exposed to any kind of magnetic field

   Page Ref: 710

5) Most security systems today use a Radio Frequency Identification (RFID) security system, which has two main components:
   1. A key fob is the object that is a decoration on a key ring and usually contains a transmitter used to unlock a vehicle.
   2. The transponder key has the transponder electronics integrated in its plastic body.

   Page Ref: 709