



April 18, 2006

George Person, Chief
Recall Management Division
Office of Defects Investigation
NHTSA Enforcement
Room#5326
400 Seventh Street, S.W.
Washington, D.C. 20590

05081

Dear Mr. Person:

The purpose of this letter is to respond to your question about General Motors' Special Policy Adjustment (05081) relative to the Electronic Column Lock System in 1997-2004 Chevrolet Corvette vehicles equipped with a manual transmission.

As a follow-up to our telephone conversation in July 2005 and pursuant to your request during our discussion on April 10, 2006, GM is providing NHTSA the basis for its vehicle repair for manual transmission Corvette vehicles.

GM has decided to disable the Electronic Column Lock feature in these vehicles if the customer experiences the condition where the column lock fails to unlock the steering column when the engine is started. This special policy adjustment is available to customers until February 29, 2008, regardless of vehicle ownership.

On September 24, 2004, Ms Jacqueline Glassman, Chief Counsel, issued a letter of interpretation to another automotive manufacturer regarding Federal Motor Vehicle Safety Standard 114 ("Theft Protection," see attached). The letter responds to an inquiry by the manufacturer relative to a key locking system, which includes an engine control module immobilizer. The interpretation provided by NHTSA was that the key locking system with an immobilizer meets the section S4.2 requirement to prevent forward self-mobility of the vehicle when the key is removed.

All 1997-2004 Chevrolet Corvette vehicles are equipped with the Personal Automotive Security System (PASS-Key®). The system is designed to prevent vehicle theft by disabling the engine unless an ignition key with a specific electrical resistance is used in the ignition cylinder. There are 15 different ignition key resistance values. Of the 15 different resistance values, or key codes available, only one will work with each body control module (BCM). The PASS-Key® system prevents the engine from starting by controlling the theft deterrent relay and the powertrain control module (PCM) fuel enable input. If the PCM does not sense the proper fuel enable signal, fuel will not be provided to the engine. NHTSA exempted the Corvette from parts marking requirements based on its use of this system. See 69 FR 12734 (Mar. 17, 2004, describing exemption granted in 1986).

A 1997-2004 Chevrolet Corvette with a manual transmission meets the requirements of FMVSS 114, S4.2(b) even if the steering column no longer locks. The PASS-Key® system prevents the engine from starting if the key code does not match the BCM code.

Product Investigations

Mail Code: 480-111-E18 • 30200 Mound Road • Warren, MI 48090-9022
Corvette Column Lock



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An incorrect key code prevents the BCM from sending the proper fuel enable signal to the PCM. Without the proper fuel enable signal, the PCM will not allow fuel to be delivered to the engine and the vehicle is not capable of forward self-mobility.

Please contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "G. Kent", with a long horizontal flourish extending to the right.

Gay P. Kent
Director

GM Product Investigations

attachment

[]

Dear []

This responds to your letter asking whether a key locking system, which includes an engine control module immobilizer, could be used to meet the requirements of S4.2 of Federal Motor Vehicle Safety Standard (FMVSS) No. 114, Theft Protection. More specifically, you asked whether such a system would meet the requirements of S4.2 by (a) preventing normal activation of the vehicle's engine by removal of the key, and (b) preventing vehicle forward self-mobility by the presence of the immobilizer. As discussed below, the answer to your question is yes.

Before I address your question, I note that you requested confidential treatment for the identity of your company and for yourself, as well as for additional information provided in your letter. You also provided a redacted version of your letter. I agree to keep your name and the name of your company confidential. All information in bold brackets [] in our letter will be kept confidential. The redacted version of your letter will be made public. We will send a separate letter providing a complete response to your request for confidentiality.

SECTION S4.2

FMVSS No. 114 specifies requirements for theft protection to reduce the incidence of crashes resulting from unauthorized operation of a motor vehicle. S4.2 of the standard specifies:

Each vehicle shall have a key-locking system which, whenever the key is removed, prevents:

- (a) The normal activation of the vehicle's engine or motor; and
- (b) Either steering or forward self-mobility of the vehicle or both.

As you noted in your letter, "self-mobility" is not defined in the standard. Manufacturers have typically prevented forward self-mobility by installing transmission lever locks.

YOUR SYSTEM

Your vehicle features an engine control module immobilizer system that uses a multi-level coding process (hash code), which differentiates between a constant key code and a continuously varying authorization code.

First, for normal vehicle activation, an operator must insert the properly coded electronic key into the electronic ignition lock. After insertion, a 2-way data exchange takes place for positive verification of the drive authorization. The engine can be started only after the positive verification occurs.

Second, if a key without the proper electronic code is used, or an attempt is made to bypass the electronic ignition lock in order to start the vehicle through other means (e.g. , through "hot-wiring" of the vehicle), the immobilizer will lock out the engine control module effectively

preventing engine operation.

You believe that the presence of this engine control module immobilizer prevents forward self-mobility in the context of S4.2(b) because without engine operation, the vehicle is incapable of moving forward under its own power.

DISCUSSION

We agree that the type of system you describe would meet the requirements of S4.2(a) because it prevents normal activation of the vehicle's engine when the key is removed. We also agree that the type of system you describe would meet the requirements of S4.2(b) because engine control module immobilizer prevents vehicle forward self-mobility when the key is removed.

As you discussed in your letter, the two provisions of S4.2 were intended to reduce unauthorized operation of a motor vehicle in different ways. Provision (a) was intended to prevent unauthorized operation of a motor vehicle by requiring that the vehicle could not be started without the key. Provision (b) was intended to further impede unauthorized operation of a motor vehicle by preventing vehicle operation outside the normal activation method. That is, if an attempt were made to circumvent the ignition lock (through "hot-wiring," for example), another device would prevent unauthorized operation of a motor vehicle.

We note that in promulgating FMVSS No. 114, the agency expressed concern about car thieves who could bypass the ignition lock. In response to this concern, the agency decided to require a device, which would prevent either self-mobility or steering even if the ignition lock were bypassed (see 33 FR 4471, April 27, 1968).

The engine control module immobilizer described in your letter satisfies the requirements of S4.2 (b) because it locks out the engine control module if an attempt is made to start the vehicle without the correct key or to bypass the electronic ignition system. When the engine control module is locked, the vehicle is not capable of forward self-mobility because it is incapable of moving forward under its own power.

I hope you find this information helpful. If you need further assistance, please contact George Feygin of my staff at this address or at (202) 366-2992.

Sincerely,

Jacqueline Glassman
Chief Counsel

ref:114
d.9/24/04