

Technical Notes — March '09' - Technical Wizardry — It's Wonderful



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Technical wizardry. It's wonderful, isn't it? Well, the C6 Corvette has some pretty advanced electronics to go with all that brut horsepower under the hood. Unique to this generation of Corvette is its Remote Keyless Entry (RKE) system. This system has advantages over previous locking and starting system using keys. First, the system can be programmed to lock the car when you move far enough away. Thus, your car is always locked even if you forget to do it manually with the key FOB. Also, the RKE system makes it difficult to lock your keys in the vehicle. That's a good thing if you remember a previous Tech article about the Florida law concerning leaving keys in an unattended vehicle. It also avoids locksmith charges. And since there is no ignition key to start the car, a thief has a much more difficult time stealing your Corvette. However, as you all know, electronics can be prone to an occasional glitch. This month's article will cover an unexpected anomaly with the RKE system.

The RKE system is common to other vehicles in the GM stable including the Hummer, Cadillac, Saab, and so forth. A GM Corporate Bulletin #99-08-52-005C covers operational characteristics of the RKE system. It gives technicians programming information, testing tool use, and warranty coverage limitations. For example, it reminds technicians that for successful reprogramming, all transmitters (FOBs) must be present if any one of them is reprogrammed. This is a useful piece of information for the consumer. Remember to bring all your FOBs to the dealer if you suspect a malfunction in any one of them.

This bulletin goes on to discuss a system limitation we, as consumers, would likely not suspect: Electronic jamming. The bulletin first reminds all involved that the system operates on the line-of-sight principle. So, if you have something obstructing the vehicle from your FOB like a building or another car, your transmitter may not function properly. Nevertheless, even while sitting in the driver's seat with the FOB lying in my lap, I had a situation where I could not start my '07 Vette. Only after referring to the aforementioned bulletin did I realize that the RKE system was being jammed. Look at this discussion in the bulletin.

“The General Motors RKE systems operate on high frequency radio signals. Therefore, they may be subject to radio signal interference which will affect RKE operation. Some of the typical conditions which result in reduced RKE transmitter operation are listed below.

- ***[Discussion about pressing buttons and the delays involved, etc.]***
- ***[Discussion of the trunk button procedures]***
- ***[Discussion of the Line of sight problem above]”***

and then there are these additional operational problems listed in the bulletin:

- ***“Proximity to radio towers, airports, police or fire towers.***
- ***The presence of florescent lighting.***
- ***Installation of some aftermarket accessories have been known to affect the RKE performance as well.***
 - ***Some brands of radar detectors, CB radios, walkie talkies, mobile radios, cell phone chargers and cell phones (especially 3-watt bag phones which are placed on the floor of the vehicle) have jammed radio frequencies of the RKE system.***

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- Remember, these devices do not have to be in the customer's vehicle. They may be in another vehicle which is in close proximity. However, if the customer has one of these devices in their vehicle and if the RKE system works with these aftermarket devices unplugged, refer the customer to the aftermarket supplier. The aftermarket device may not meet the requirements of the FCC code"

In my case, the problem turned out to be a Verizon Wireless cell phone charger. Both chargers I owned jammed the RKE system when the charger was plugged into the console auxiliary power outlet. It did not matter if the cell phone was plugged into the charger, or even if it were in the vehicle, the car would fail to start when I pressed the start button. Amazingly, the start button was illuminated green seeming to indicate that the FOB was detected. Also, when I plugged the charger into the cigarette lighter outlet in the ashtray, the jamming did not occur. Finally, once the car started, it continued to run and jamming was not an issue. Remember that the vehicle detects a properly associated FOB to allow a start. The FOB is not necessary for continued operation.

Well, why is this phenomenon so important to the consumer? First, you obviously don't want to take the time or effort to take the car into the dealer for service when it isn't necessary. So, if your C6 has a starting problem, first try unplugging all chargers or removing any possible transmitters listed above. You may also consider some other emitters not listed above, such as GPS units, garage door openers, radar detectors, iPods, and so forth. Such units do not have to be built with transmission of a radio frequency as an intended function. If it has a power source (battery or outlet) and an electronic circuit, it can emit radio waves.

Second, there is also a safety issue here. Consider this scenario. You have a manual transmission and through poor clutch technique you wind up stuck on a railroad track, intersection, dangerous curve, or some other situation where you need to start the car quickly. With an ignition key, this is no problem. But with the RKE it could take a dangerously long period of time to remove the offending jammer. Another possible safety scenario could occur if you are in a parking lot, dark street, etc. and you suspect someone is stalking you. Clearly, you would like to jump in your car and get away quickly. You should take precautions to avoid this jamming phenomenon from causing serious damage or personal injury. Fortunately, as the GM bulletin says, there is an FCC code that applies to transmitting devices. The code specifies control of the frequency spectrum emitted by such devices. So I strongly suspect most cell phones, blackberries, GPS devices, and so forth would not cause jamming. However, aftermarket chargers, low cost walkie talkies and so forth may not have such quality controls.

Finally, if you are having difficulty starting your C6 and it is clearly not jamming related, you still may need to take your car to the dealer for computer analysis. Let's say the car will start, but only if the FOB is located in certain locations in the cockpit. C6s produced prior to the fall of 2007 have one less detection zone than newer models. Thus, Chevrolet has a fix that will install another "detection zone" on the driver's side of the vehicle, which may make the location of the FOB in the cockpit a less critical issue.

Now here's this month's extra credit question: The battery in the FOB is considered a consumable. Is there a factory warranty on this battery and if so, for how long?