

Low Voltage and Electrical Interference They Can Play Havoc with the Vehicle's Electronics

In a recent OTL article titled: IMPROVING YOUR BATTERY KNOWLEDGE, we illustrated the importance of good battery maintenance. In addition to a no-start condition, we cautioned that low voltage conditions and electrical interference could create some major challenges with the vehicle's electronics and electrical accessories. Following are those concerns.

Imagine a customer with a high-end vehicle such as a Cadillac, Corvette or Buick LaCrosse and being unable to enter the vehicle, or having a "No Fob Detected" message displayed on the dash and a no-start condition. The system is referred to as a Keyless Access System, which allows vehicle entry and starting with the fob still positioned in a purse, briefcase or pocket. When the driver approaches the vehicle, they simply squeeze the door handle switch. If a known fob is recognized, the door will unlock and open. Once the driver is inside the vehicle, they can start the engine by depressing the brake pedal and pushing the start button, assuming the fob is recognized. The system functions via several antennas, radio frequency signals, a remote control door lock receiver module (RCDLR), ECM and BCM. When using a complex radio frequency system, there are certain limitations and challenges that may arise affecting how the system functions, often leaving the customer locked out of the vehicle or unable to start the engine.

NO FOB DETECTED

Some challenging encounters with this dreaded "No Fob Detected" message should involve some basic tests prior to diving into the diagnostics or re-programming devices.

- 1) The first consideration should be the voltage level of the fob battery. A "Low Fob Battery" message should be displayed on the dash if the voltage drops below 2.6 volts for 3 consecutive ignition cycles.
- 2) The voltage of the starting, lighting and ignition battery must be above 10 volts for the system to accurately detect the fob. Voltage in the 10 volt range can prevent vehicle entry.
- 3) If the battery voltage drops to 9 volts or exceeds 16 volts, the driver and passenger door module codes will be set, often resulting in the replacement of some expensive modules, needlessly.

LOW BATTERY VOLTAGE CONDITIONS

Many of the "No Fob Detected" complaints come from vehicle owners who do not drive their vehicles on a daily basis. Vehicles parked for periods of 2-3 weeks often encounter a low battery voltage condition due to parasitic current drain. Never leave the key fob within 25 feet of the vehicle when parked. Sensing the fob's presence prevents the computers from going to sleep, resulting in a parasitic current drain. Some leave the fob on the console when parked in the garage, or maybe the spouse has a second fob in their vehicle glove box parked next to the vehicle in question. This can keep the computers awake, promoting battery drain, leaving the owner locked out of their vehicle.

In the case of the Corvette, manual transmissions must be placed in reverse during engine shut-down. If not, the engine will shut off, but the ignition switch will remain in the accessory mode and the computers will remain awake, promoting a battery drain condition. Further, vehicles left in this state can be started without a fob present. When placed in Park, automatic transmission equipped vehicles will power down in 10 minutes.

ELECTRICAL INTERFERENCE

Whenever using a complex radio frequency system to determine the fob proximity, certain limitations and conditions may occur. For example, the system may not recognize a fob placed too close to a door switch, or require moving the fob to different locations in the passenger compartment to start the engine when interference conditions occur. Following are some radio frequency interference (RFI) conditions that can affect system operation: RFI created by devices such as radar detectors, 2-way radios, cellphones and chargers (regardless of whether the cell phone is plugged in or not), computers and other electronic devices, fluorescent lighting, aftermarket accessories, high RF traffic areas such as pay-at-the-pump gas stations, or devices from another vehicle in close proximity. Charging devices for MP3 players, GPS units, and DVD players are also a consideration. These are real world conditions that you must be prepared to deal with.



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"AT A MOST INOPPORTUNE TIME, HAROLD FINALLY UNDERSTANDS WHAT IT MEANS TO BE ROYALLY FOBBED.."