How to bypass the VATS (PASSKey II) system in a late model GM vehicle

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This document pertains to the following vehicles:

Pontiac

1994-1996 Grand Prix

1992-1999 Bonneville

1989-2002 Firebird/Trans Am/Firehawk

Buick

1997-2005 Century

1994-2004 Regal

1992-1999 LeSabre

1991-1996 Park Avenue

1991-1996 Roadmaster

1990-1999 Riviera

1990-1992 Reatta

Oldsmobile

1994-1997 Cutlass Supreme

1990-1999 Eighty Eight/LSS/Ninety Eight/Regency

1991-1996 Custom Cruiser Wagon

1990-1993 Toronado

1995-1999 Aurora

Chevrolet

1995-1999 Monte Carlo

1995-2001 Lumina

1989-2002 Camaro

1986-1996 Corvette (C4)

1994-1996 Caprice/Impala SS

Cadillac

1989-1993 Allante

1989-1997 Seville/STS

1989-2003 Eldorado

1990-1996 Concours

1990-1999 DeVille

1991-1996 Brougham

1991-1996 Fleetwood

This is not a comprehensive list, so it also pertains to any other GM Vehicle with the VATS or PASSKey II system. If the ignition key looks like either pictured below, then your vehicle has VATS.

Key "A" :

Key "B" :

If you have a 1996-2005 GM vehicle without the chip in the key and are having trouble starting the vehicle CLICK HERE

First, to make sure you're having a VATS related problem, answer the following questions:

-- When you insert your ignition key and attempt to start the car, will the starter not crank over? Does the "Security" light flash during any time you're attempting to start the car?

If the answer is "YES" to both questions, the simple solution is to first clean off the chip on your key or try another key for the same car. If that also does not work, then follow my instructions for a fast, simple, and relatively inexpensive repair.

****NOTE** After performing the following procedure, your vehicle's factory starter interrupter (VATS) will be disabled. It will be considerably easier for a thief to steal your car.**

*****Now that being said, I want to stress that I am not an expert on the VATS system, by no means. I simply stumbled across a way to bypass a malfunctioning "reader" in the ignition lock cylinder.** On my 92 LeSabre, the wires running from under the dash to the "reader" broke inside the steering column, and I didn't feel like pulling the column apart to fix or replace the lock cylinder. Using a Factory Service Manual, I located the wires in question and created the "resistor pack" to jumper accross them.

Just to reiterate: **I am not an expert on this system, and know nothing more than how to bypass the "reader" in the ignition lock cylinder. I can only give 100% confirmation that this trick works on W-Body and H-Body vehicles. I have never tried the bypass on any Cadillac, Camaro, Riviera, or Corvette VATS system, so they could possibly be slightly different that what I've posted here (and the trick might not work exactly as described.)**

Please follow the links at the end of this document for further help.

If you have a 1996-2005 GM vehicle without the chip in the key and are having trouble starting the vehicle CLICK HERE

With that out of the way, here's an explanation of the VATS system (which I culled from a locksmith selling VATS blanks on eBay.)

WHAT IS VATS?

Vats stands for Vehicle Anti Theft System. Lots of people refer to this type of key, as a " computer Chip key". This key or "Chip" has nothing to do with a computer, nor is it a chip. But because of the popularity of calling it a computer chip key, so will we. So that we don't confuse. The black chip on the blade of the key, is actually a resistor. GM first started using the Vats key in 1986 on the Corvetts, then some of the Cadillacs, ect. GM uses 15 different resistors in their VATS keys. Just by looking at the keys you can't tell the difference.

How does the VATS System work?

Each VATS key has it's own unique cuts on the key to operate the lock. but the cuts alone will not allow the car to crank. This is called a mechanical key. Each car has a VATS module (Brain) under the dash that communicates to the starter, fuel pump, and the ignition lock. Each VATS module is randomly given a # (value) from the manufacturer. When the proper mechanical keys, along with the proper VATS chip (resistor value) turns the ignition lock, the VATS module reads the chip on the key . If it is the correct chip, the VATS module will tell the starter and the fuel pump to operate. If the wrong chip is read, the VATS module will tell the starter and the fuel pump to shut down.

How to determine the Value of your key:

By chance you may know what VATS key you now have. Most people do not. There are basically two ways to determine what VATS key you have. Remember, there are 15 different possibilities. First, your key can be "read" in a VATS tester. Most locksmiths have these readers, and don't change anything to tell you. There is another way for you to read the key value yourself. If you have a Volt Meter you can test the OHMS (resistance value) of the chip yourself. Just set your Volt meter to check OHMS, take each lead and place it on each side of the "chip" on your key. A number will appear. Take that number on your volt meter and apply it to the OHMS chart below. Keep in mind that it may not be exact. Just pick the closest value to your reading.

This chart is for any GM product, Buick, Cadillac, Oldsombile, Chevrolet, and Pontiac that has a VATS key (single or double-sided.)

VATS # (K)OHMS (Set your meter to the 20k ohm setting)

1———— 0.402
2———— 0.523
3———— 0.681
4————-0.887
5————-1.130
6————-1.470
7————-1.870
8————-2.370
9————-3.010
10————3.740
11————4.750
12————6.040
13————7.500

14————9.530
15————11.801

Here is a page that offers up further explanation.

Okay, onward we go!

Tools and supplies needed:

Soldering Iron

Wire Cutters/Strippers/Crimper

Voltmeter/Ohmmeter (DMM)

Approx. 8 inches of 16 ga. wire (speaker wire works great)

"Bullet-Style" solderless connectors

Heat Shrink Tubing

Resistors of varying values (totalling the resistance measured across the key's "pellet") I get asked quite frequently what the wattage of said resistors should be. I've used **1/2 Watt** resistors with much success.

Alright, let's begin the madness:

1. Take your DMM, set it to measure Ohms (use the 20k setting.) Measure the resistance across the pellet of the ignition key. Place one probe on the silver part of one side of the pellet, and the other probe on the other side. Write this value down.

2. Purchase a resistor or resistors that add up to the value measured in step 1. Radio Shack is a great place to go for the resistors, heat shrink tubing, and the "bullet-style" solderless connectors.

3. Take the 16 ga. wire and cut into 2 four-inch pieces.

4. Strip off approx 1/16" of insulation off each side of both wire pieces.

5. Put your resistors together in series (or if you're lucky and have a chip that has a resistance that matches a single resistor) and solder one wire to one end of the resistor(s) and the other wire to the other side.

Example: You measure 11.72 on the 20k (k meaning kilo or 1,000) scale. The closest match is 11.801 which is a #15 "chip." Always remember that resistors have a tolerance of 2%, meaning the resistance value of the "pellet" can be either 2% higher or 2% lower than 11.801 k ohms (11.72 falls in tolerance range.) You will want to aim for 11,801 ohms. So when you go to Radio Shack you want to pick up a 10,000 ohm (10k,) a 1,000 ohm (1k,) and an 800 ohm resistors to wire together in series to achieve the 11.801k ohm value.

Here's an example of how you'd connect the above mentioned resistors in "series"

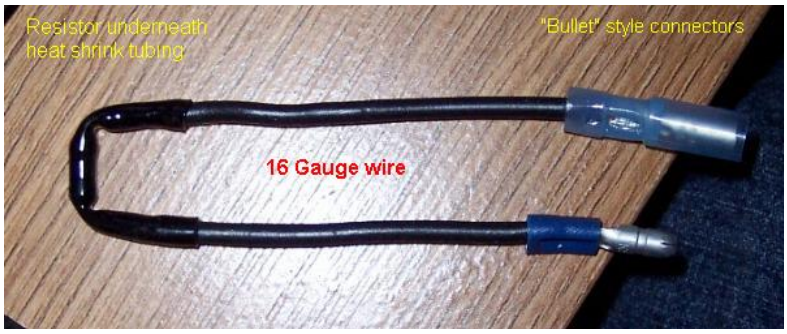
wire------10k ohm------I------1k ohm------I------800 ohm------wire

6. Measure the resistance across the 2 wires now that the resistors are soldered to them. Be absolutely sure the value matches that of the resistor pellet in the ignition key (within 2% up or down.)

7. Cut a length of heat-shrink tubing to cover up the resistors, allowing a small bit to hang over onto each of the 2 wires. Use a lighter or heat gun to shrink the tubing.

8. On one of the wires, crimp on a male bullet connector, and on the other wire crimp on a female bullet connector.

9. Now what you have should look like this:

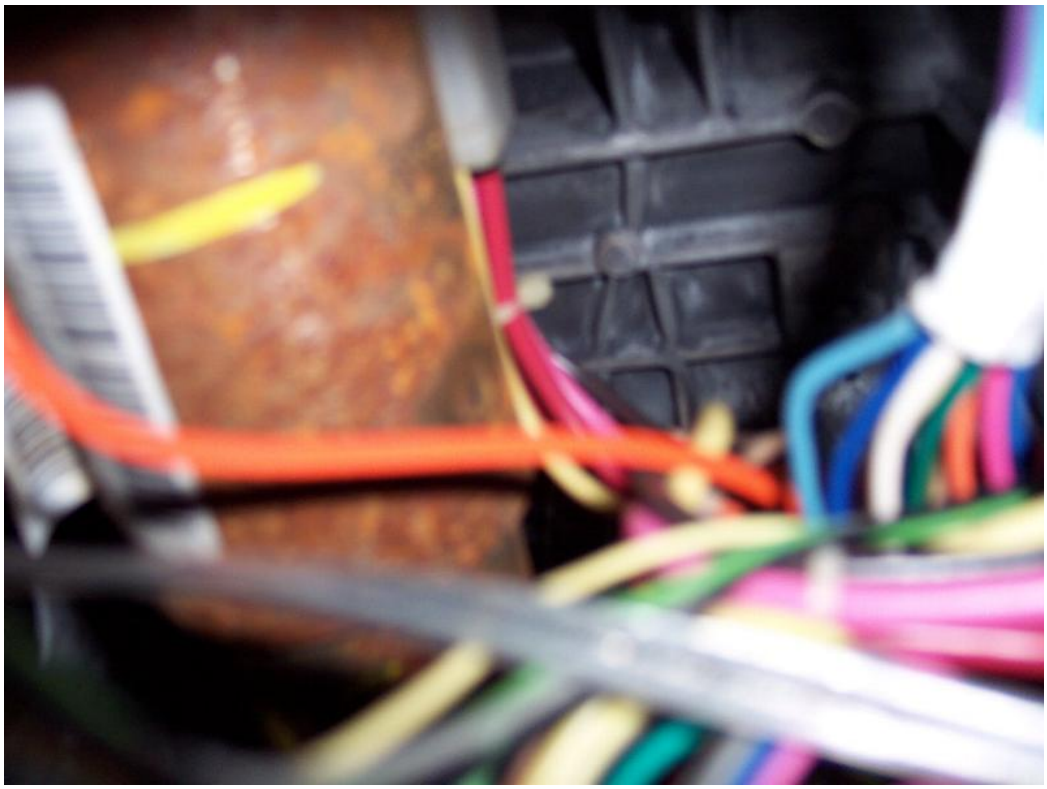


Notice in the above "resistor pack" I lucked out and only needed 1 resistor to match the pellet's resistance. You may not be so lucky...

10. Now move to the car. Remove the under-dash kick panel.

11. Compare your key to the images near the top of the document. If you have Key "A", look for an ORANGE wire running down the steering column. If you have Key "B", look for a BLACK wire running down the steering column. Regardless of color, this wire should have a "rubbery" feel to it, and should be separate from any other cluster of wires.

****WARNING** Do not tamper with any of the wires near the column wrapped in yellow harness tape, any yellow wire, or any yellow electrical connector. These wires/connectors are for the airbag. Tampering with any of these wires could result in the airbag discharging.**



The above pic is unfocused, so I've included some stock photos of various VATS ignition lock cylinders to clarify what exactly you should be looking for:

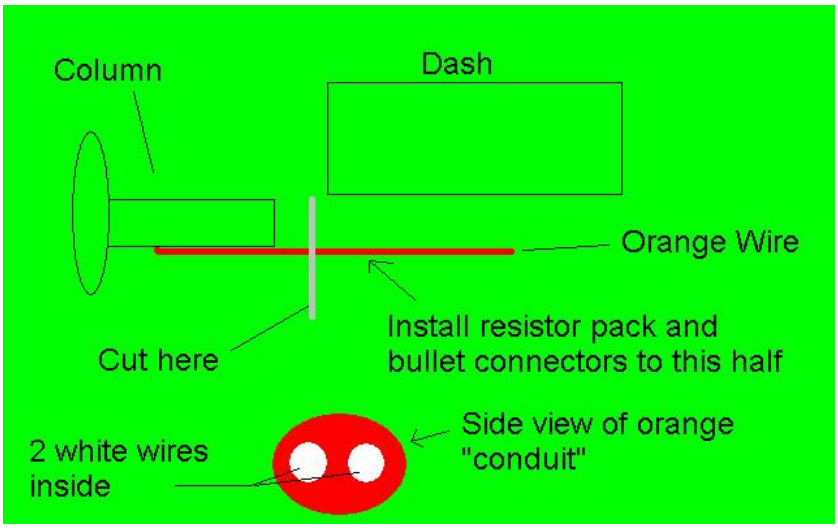
Key "A" type:

Key "B" type:

12. Cut the ORANGE (Key "A") or BLACK (Key "B") conduit as seen above and locate the 2 small wires inside. On airbag equipped models, the small wires inside the conduit are white. On some of the older non-airbag equipped vehicles, the wires may be yellow. Strip back the insulation on the wires on the opposite side of the steering column.

13. Install a male bullet connector to one of the 2 wires, and a female on the other.

14. Plug in your "resistor pack" that you made by mating the male and female bullet connectors.

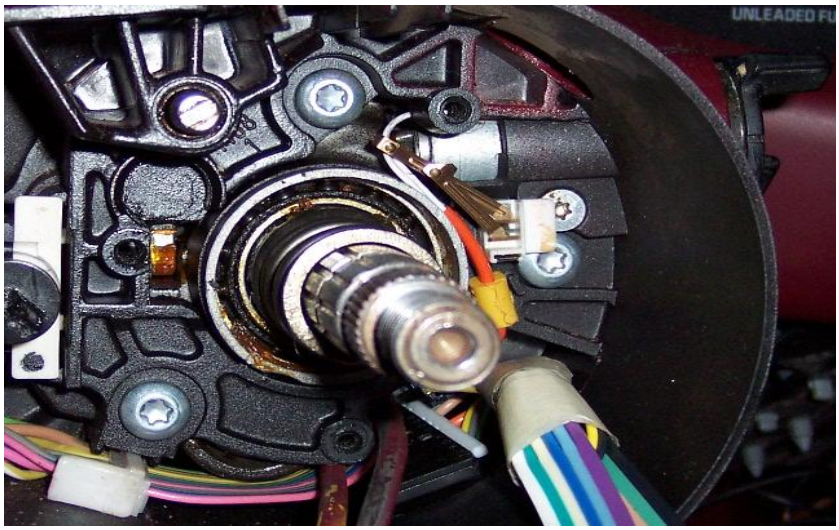


15. Attempt to start the car. If your problem was with the VATS reader in the ignition lock cylinder, this will start the car.

If this won't start the car, then the problem is in the VATS module (also called TDM, or Theft Deterrent Module.) Most of the cars listed here have a TDM (mainly Key Type “A.”) Key Type ”B” vehicles will not have a TDM, however the VATS will be controlled by the Body Control Module (BCM.)

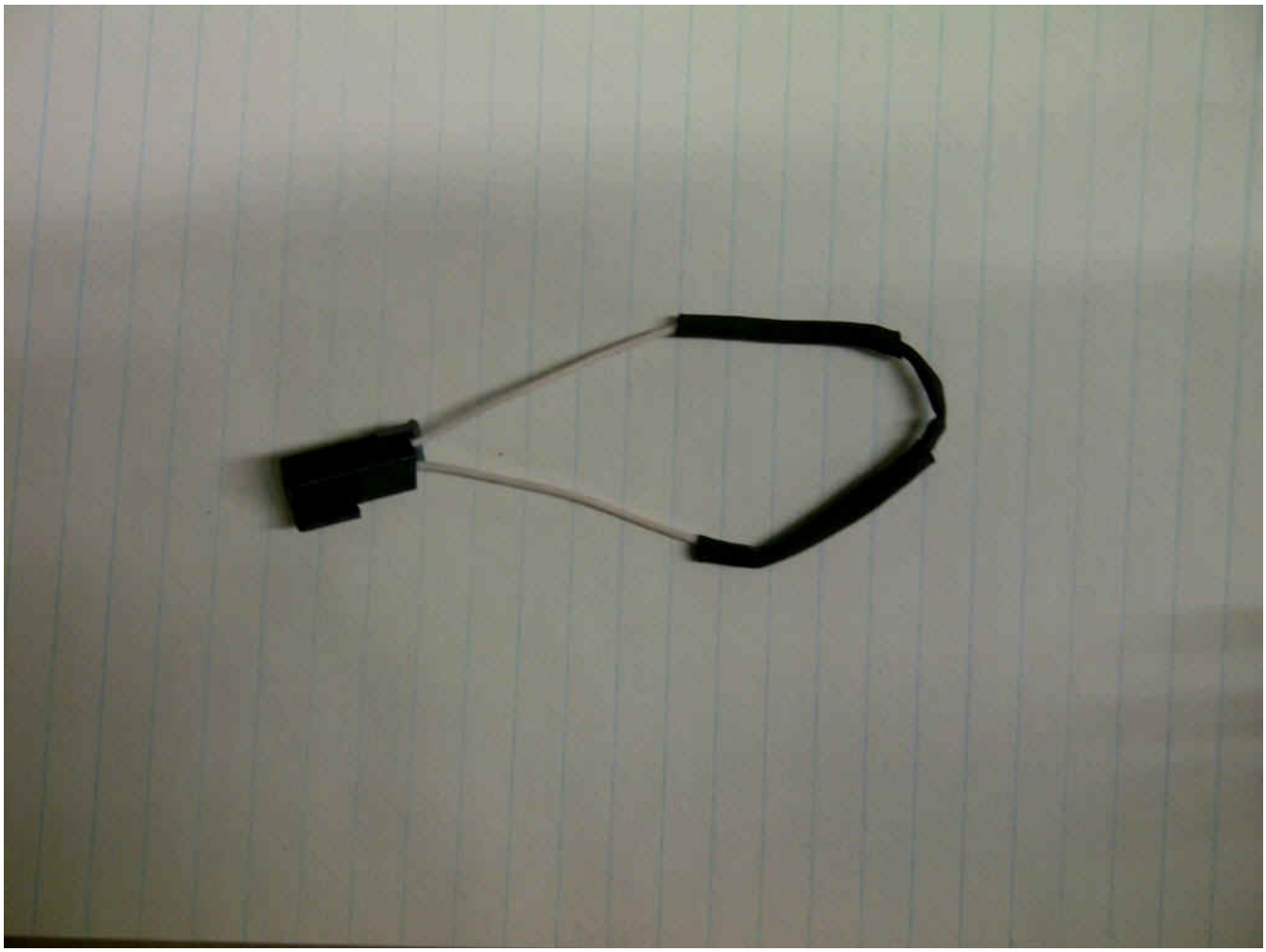
At this point, you will need to locate the TDM and replace it (Key Type “A”) or take it to a GM dealer to reprogram or replace the BCM (Key Type “B.”) Location varies per vehicle. Do a Google search to find where the TDM is located on your particular vehicle.

If you’ve determined that the reader in the column is fine, remove the resistor pack and splice the 2 halves of the wiring back together as they originally were to restore the function of the VATS reader. Near the end of this document, I have posted links to sites that either sell TDM bypasses, or have plans for you to make your own.



This is what the inside of the steering column looks like torn apart down to the ignition lock cylinder. Just to the right of the steering shaft, you can see the orange "conduit" with the 2 white wires running out of it into the lock cylinder. These wires typically break off inside the column, rendering the reader useless. The purpose of this document is to save the hassle of tearing the column apart, and get the car up and running for the least amount of cost.

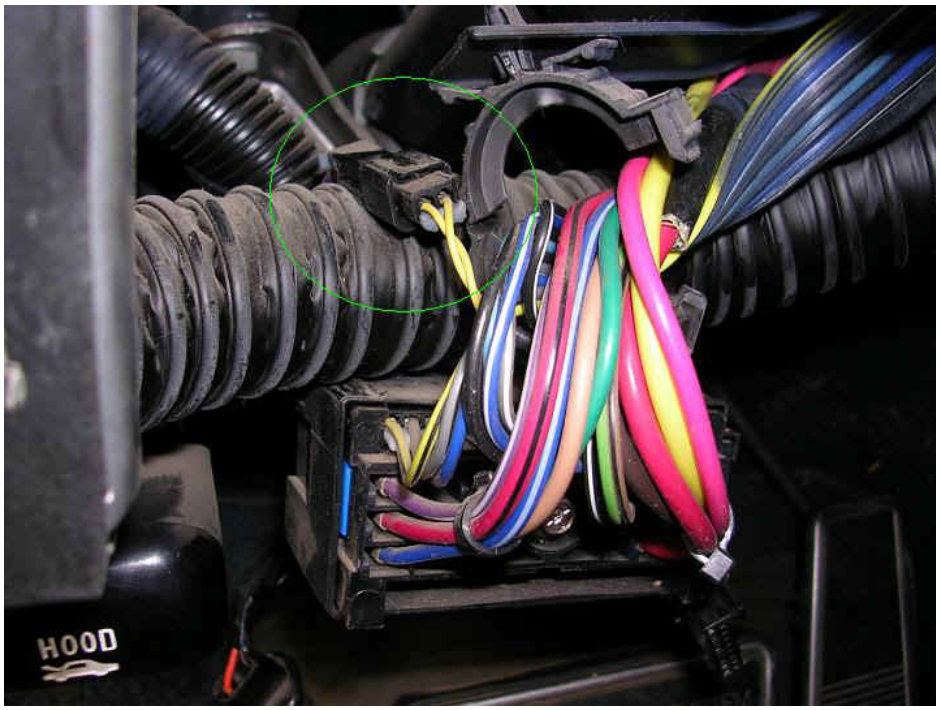
Another trick you could do is locate the connector under the dash where the VATS wires plug in and solder your resistor pack directly to the connector as such:



(Thanks to Gordon for the above image!)

This is another view of the connector:

Here's a view of the connection under the dash of an 89 Eldorado (notice the wires are YELLOW) :



(Thanks to Joe Zerby for the image!)

This "plug" is not present on the H-Bodies (88/98/LeSabre/Bonneville,) as the VATS wires run to the bulkhead connector. If you have an H-Body, you'll have to perform the bypass as originally described.

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Before signing off, I have received some more info from a fellow W-Body.com forum member.

From **WhiteMonteZZZ** :

If VATS is disabled (via your site), then additional keys without the VATS pellet are able to be purchased (and used) at most local hardware stores. The keyblank needed would be an ILCO (or equivalent) B62 blank (this has GM's 'A' keyway, no resistor, and typically was used on Cadillac Allante vehicles). The original key can be cut onto this blank, but the head typically needs to be filed down at the part nearest the ignition lock 2-3 mms. The standard B62 blank will hit the face of the igniton lock, so by shortening the head of the blank, you're in turn lengthening the blank.

He also says you can trim the plain-ole ignition key down with a dremel tool. Here is a pic he sent to me showing the new "trimmed" key:

You can plainly see where the key is cut by the outline drawn on the paper beneath the lower key.

Adding to **WhiteMonteZZZ**'s suggestion, I recently received an idea from another W-Body.com member. **stockgp** recommends using an "AXXESS" brand key, blank #4. The head of the key is longer, and thus can be trimmed to the exact shape of a VATS key:

I've seen these keys sold at Wal-Mart in the past (not sure if they have them anymore) and **stockgp** says he bought his at "Busy Beaver" (in the Pittsburgh area.) I recall K-Mart having sold these keys as well.

Many thanks to **WhiteMonteZZZ** and **stockgp** for their very helpful suggestions!

Update 1/31/15:

“Jeff in New Jersey” has written me with some very useful info on the VATS system.

From Jeff:

“The car is a 98 Monte. The SECURITY light was ON but NOT FLASHING.

The car started and drove normally.

The first thing I did after determining that my key is a 7.5K ohm was to unplug the connector and put the key in ignition and measure to see if 7.5Kohm was present. It was NOT. The wires were broken in the steering column.

Here's what I've found out about this NOT flashing security light on my car:

If the wire breaks WHILE THE ENGINE IS RUNNING the car will NOT be disabled because the TDM (Theft Deterrent Module, a.k.a. VATS module) interprets this as a FAILURE of the system and NOT a theft attempt. The car should operate normally until such time as the battery dies or is replaced. As long as the system has battery power the FAILURE mode is saved. Once the battery power is removed and restored, the Security light will FLASH and the car will be disabled.

This point above is very difficult to find on the internet...

If the wires break when the engine is NOT running, you will get the FLASHING security light, and the car will not run because this is seen as a theft attempt by the TDM.”

Many thanks to Jeff for this discovery!!!

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Now to conclude the document, I have been shown a way to completely bypass the VATS module altogether. The VATS module (TDM) generates a 30/50hz ground pulsed signal to the ECM/PCM to enable the fuel injectors. There is a way to fool the ECM/PCM into seeing that signal. You will need to build your own signal generator with parts from Radio Shack.

Here's the link to the page with the plans:

http://home.hiwaay.net/~davida1/passkey.htm

Here's a place that sells a TDM bypass module that does the same thing as the DIY version above:

http://www.bakerelectronix.com/products_vats/

I have no association with the above links, so please do not send questions regarding them. Use at your own risk!

Also, as of 1/31/15, there is an auction on eBay for a 15-pack of resistors, each with a corresponding VATS resistance value:

http://www.ebay.com/itm/190786971851?_trksid=p2060778.m1438.l2649&ssPageName=STRK%3AMEBIDX%3AIT

This method would be much easier than cobbling together your own series of resistors.

If you have a 1996-2005 GM vehicle without the chip in the key and are having trouble starting the vehicle CLICK HERE

Any questions or comments? Feel free to drop me a line at discostudd@likeabigdog.com as I am always open to suggestions to improve this document. Just be aware that I might not be able to answer your question if it's beyond what's discussed in this write-up...

Many thanks to those of you who have sent me suggestions over the years. I truly appreciate it! If you have found this document helpful at all, please feel free to pass it along to anybody else in need...

This page was last updated on 1/31/2015