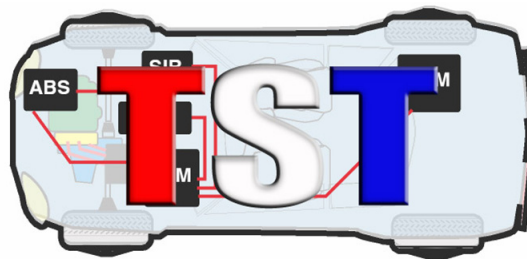


November 2010



Technicians Service Training

INSIDE THIS ISSUE:

Durango in Disguise

P. 1 - 16

Durango in Disguise

I was called in to a body shop for a complaint on a Dodge Durango that was in a front end collision. The truck suffered only minor damage, but the ABS warning light was on.



Upcoming Seminars:

Fuel System Solutions for Driveability Problems

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The body shop inspected all the wheel speed sensors for visual damage and made sure the ABS module was properly latched. They also checked all the fuse panels for blown fuses. The shop did not have a scan tool to retrieve any onboard service codes, so I was called in.

It's not uncommon to see a body shop that doesn't own a scan tool, or is even unwilling to hire a diagnostic tech to resolve onboard computer issues. Most of these shops will use a test light and some old-school tactics to get by. This is not their fault because even if the employees invested in diagnostic equipment or diagnostic training there would be no compensation for their efforts because diagnostic time is usually not allowed in collision estimates.

(Con't on page 3)

Editor

Jerry "G" Truglia

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Technicians Service Training

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Currently there are **TST chapters in Connecticut, Massachusetts, New Jersey, New York** and membership continues to grow. For more information you can call

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Durango in Disguise (con't from p. 1)

This is not their fault because even if the employees invested in diagnostic equipment or diagnostic training there would be no compensation for their efforts because diagnostic time is usually not allowed in collision estimates. Their job function is strictly to put damaged vehicles back together the way they were built at the factory. This task alone is a huge project involving much precision work and patience.

When the car is completed, all the onboard controllers will do an integrity check of the whole vehicle. If there are any problems, they are pretty much guaranteed to illuminate a service light.

DTCs - ABS			
Code	Status	Description	Clear Stored DTCs
C2202	Active	Original VIN Mismatch/Missing	
			Environ. Data

When I arrived at the shop, I started the vehicle and noticed that the ABS light was the only lamp illuminated. I next connected my Chrysler Star Mobile to scan the ABS module, and pulled a code C2202 (Above Picture-Original VIN Mismatch/Missing).

This code by its description alone indicated to me that the internal ID of the ABS module did not match the internal ID of the PCM. A lot of manufactures will store all the vehicle configuration and VIN in the PCM, and other modules on board may be required to match that data.

This is why you cannot simply place a new or used module on board without holding a welcoming party to make sure this replacement module is properly set up. There is usually a mass of confusion among my garages about reprogramming a module, so I need to clear the air here.

(Con't on p. 7)



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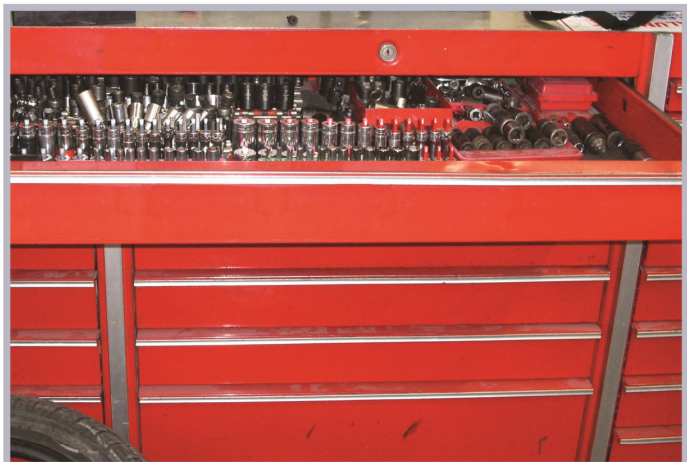
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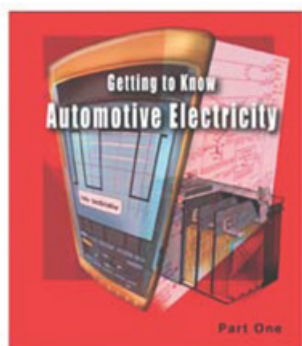
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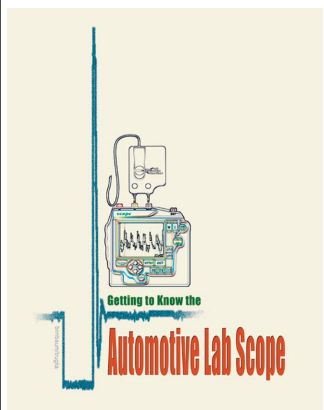
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Durango in Dsiguise (con't from page 3)

Setting up a module may require up to three different procedures. The first may be as simple as installing a VIN as part of a Configuring/Coding procedure. When entering a VIN, you need to be very careful. Make sure you're wearing your best bifocals to enter the correct letters and numbers because some manufactures may only allow a new or rebuilt module to VIN once.

After that the module is locked, and you own it. The next part of the Configuration/Coding procedure is to enter the proper options for the vehicle. This may be done through a series of Yes/No selections, entering Tire/Axle Ratio, entering a vehicle specific 4-7 digit coding number, or by going through a lengthy process of string-coding as many as 50 two-to-four digit numbers.

The second procedure is the actual reprogramming phase that involves the loading of operating software into the module. This software is usually available from a manufacture website as a download, or from a manufacture CD subscription.

To install the software, a user needs a generic J2534-compliant device or a factory scan tool to be used as a pass-through. This software is usually VIN-specific and is updated as needed by the manufactures to resolve vehicle glitches.

The third procedure I call "adaptation." This "relearns" the computer so that it may properly control the vehicle.

This may include relearning throttle angle, crankshaft position, fuel trim, steering angle, occupant seat weight, power window position, or theft key ID. Now that you have a basic explanation of the process, we can move on to the next diagnostic check.

(Con't on p. 9)

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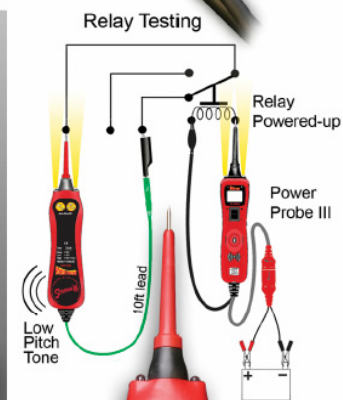


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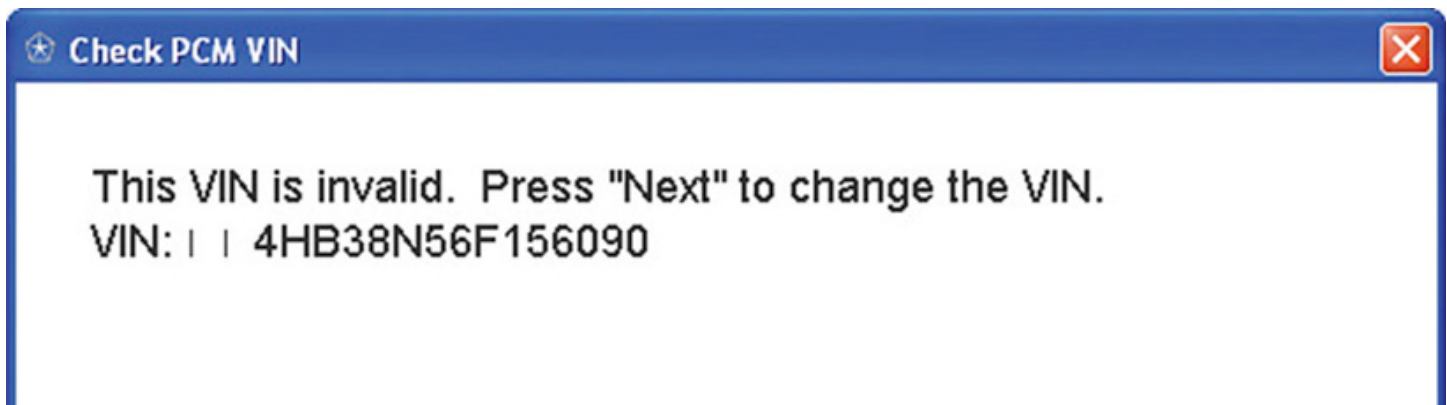
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Durango in Disguise (con't from page 7)

I wanted to view the entire network to see what the other controllers on board were seeing and to get more clues so I could dot the “I’s” and cross the “T’s.” I selected the “All DTC’s” menu and discovered that the ABS controller was not the only one pointing a finger. The CCN, FCM and ORC also complained of a VIN mismatch as well as a configuration error.

All DTCs				Clear All Stored DTCs
ECU	Code	Status	Description	
TCM	P1684	Stored	Battery Was Disconnected	Clear ECU DTCs
ABS	C2202	Active	Original VIN Mismatch/Missing	
CCN	B222C	Active	Vehicle Configuration Not Programmed	Environ. Data
FCMCGW	B210D	Stored	Battery Voltage Low	
FCMCGW	B2206	Active	Current VIN Missing / Mismatch	Tech Tips
OCM	B210D	Stored	Battery Voltage Low	
ORC	U1415	Stored	Implausible/Missing Vehicle Configuration Data	More Options
ORC	B210D	Stored	Battery Voltage Low	
RADIO	B1421	Active	Audio CD Read Error / Inoperable Disc	
SAS	C2103	Stored	System Voltage High	
SAS	C2102	Stored	System Voltage Low	

This now ruled out the ABS module as a possible suspect because too many other network fingers were pointing in the direction of the PCM. The body shop told me that they never replaced any controller on board. They also called the owner of the vehicle who stated that, “There never were any lights on before the accident.” But you know how that goes. So, my next move was to go to the PCM “Miscellaneous Functions” menu to check the PCM VIN. When I did this, I was surprised to see the “This VIN is Invalid.”



This was not a case of a wrong VIN, but of one that was corrupted. The first two characters of the VIN were actually vertical space bars. There was no way someone could have typed these in to the PCM because the factory tool does not supply these characters as a selection and the scan tool would never validate such an entry.

(Con't on p. 12)

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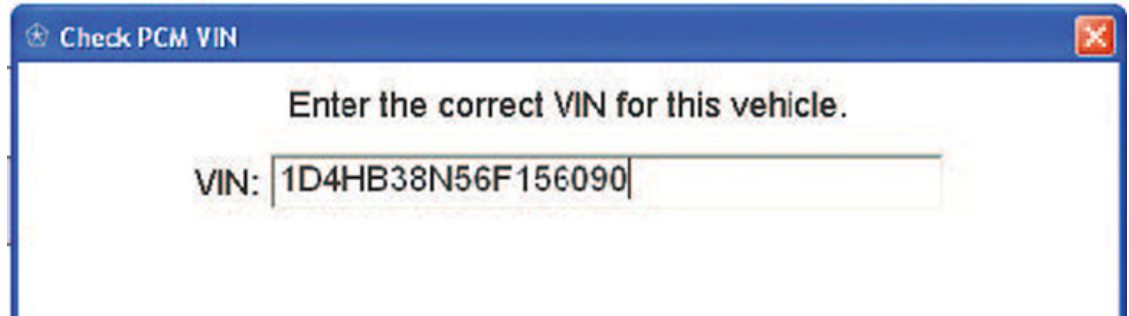
Please ask a fellow technician to come and check-out our seminars so we can continue to bring you the best available information each month.

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Thank you,
G Truglia

Durango in Disguise (Con't from page 9)

The only possibility that I could come up with is that maybe when the battery went completely dead, the VIN defaulted to a corrupt insertion of VIN characters. There is also a good possibility that the nonvolatile memory of the PCM could not hold its information properly after a loss of keep-alive power.



I selected “Next” and entered the correct VIN characters.



I proceeded to the following step and the Star Mobile validated the VIN as a good entry.

ECU View			
Controller Name	Active	DTCs	Bus
PCM Powertrain Control Module	☒	0	CAN C
TCM Transmission Control Module	☒	0	CAN C
ABS Anti Lock Brakes	☒	0	CAN C
CCN Instrument Cluster/Cabin Compartment Node	☒	0	CAN B
FCMCGW Central Gateway	☒	0	DIAG CAN C
HVAC Heat, Ventilation and A/C	☒	0	CAN B
OCM Occupant Classification	☒	0	CAN B
ORC Occupant Restraint	☒	0	CAN B
RADIO Radio	☒	0	CAN B
SAS Steering Angle Sensor	☒	0	CAN C
WCM Wireless Control	☒	0	CAN B

I now went back into the “View All DTC’s” menu and cleared the entire network of error codes.

(Con't on p. 16)

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Another Mystery Solved
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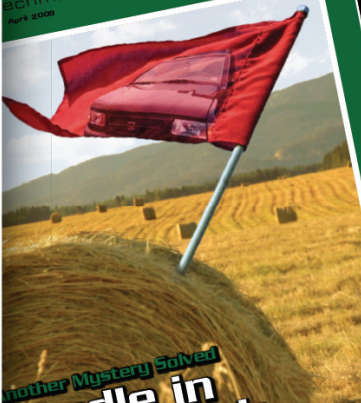


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April 2009



Another Mystery Solved
Needle in a Haystack

Business INSIDER

Inside the Insider

Five Ways to Limit Liability
By stepping out into the business world, every shop has exposure. While you cannot stop people from suing you, you can limit your business, personal assets and wallet from your liability if you take some steps to protect yourself.
(Turn to page 1)

Human Potential
The mind is a strange and powerful tool. Psychologists tell us some very interesting things about its function. First, 90% of its activity is subconscious.
(Turn to page 1)

In Times Like These
Small business is the backbone of our economy. Businesses like ours.
(Turn to page 3)

Sole Proprietorship
If you are getting started in a new business or a twenty-year business veteran, this question comes up on a regular basis. My answer to this dilemma has always been the same, it depends.
(Turn to page 6)

MT Business Insider Pricing Matrix
Businesses are based on percentages, but consumers look at prices. How do you reconcile your business' need to make a decent profit margin on parts with your customer's need to pay a fair price?
(Turn to page 8)

E Certification: The Competitive Advantage
Of the most powerful influences on a shop's success is a well-defined reputation. From finally, recommended a business based on its reputation just awarded.

Five Ways to Limit Liability For Business Owners
By stepping out into the exposure. While you can limit liability if you take some steps. First, incorporate or form a limited liability company (LLC), articles of incorporation, and a certificate of limited liability. Once you incorporate, hold your business out to the public as a corporation.

Human Potential Using What You've Got
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It's generally agreed that a human's learning ability is physical. Remember that a scrap of brain tissue no larger than a grain of rice can store more information than a computer the size of a Honda. Now consider that an average person's brain weighs about three pounds. How many ounces of yours do you actually use?

Durango in Disguise (con't from page 12)

I started the vehicle three times in a row with 10 seconds on and 10 seconds off to allow all controllers on board to perform a three-trip integrity check, and the ABS light was now extinguished. As a final check I went into the main ECU View menu and there were no codes stored in any controllers.

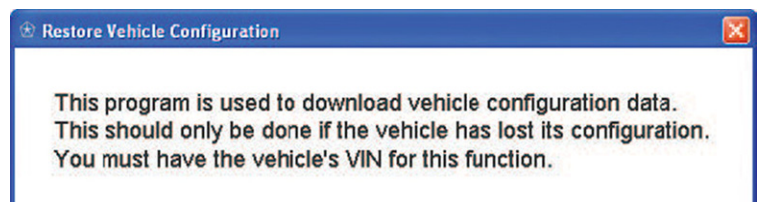
This vehicle was a perfect example of how a shop can be married to a vehicle even if a job was performed using flawless craftsmanship. When the battery is disconnected for a long period of time, most vehicles will need to go through a series of relearn procedures. Some of these procedures may even require a factory scan tool. Configuration and coding information is usually held in the nonvolatile memory of a controller and should not be lost in battery power loss situations. I have seen many cases of controllers defaulting to factory options, but have never come across one with a corrupted VIN.

While I was writing this story, I came across a 2004 Dodge Durango with a complaint of a Tire Pressure Monitor light on after a battery was disconnected. This vehicle was not equipped with a TPM system. There were also six codes stored in the Cabin Compartment Node pertaining to heated seats that the vehicle also did not have.

DTCs - CCN			
Code	Status	Description	
B1221	Active	Right Heated Seat LO Indicator Control Circuit Low	Clear Stored DTCs
B1219	Active	Right Heated Seat HI Indicator Control Circuit Low	
B1215	Active	Left Heated Seat LO Indicator Control Circuit Low	Environ. Data
B120D	Active	Left Heated Seat HI Indicator Control Circuit Low	
B1088	Active	Right Heated Seat Switch Input Circuit Low	Tech Tips
B1085	Active	Left Heated Seat Switch Input Circuit Low	

The only fix was to connect the Star Mobile to Chrysler's server and perform a vehicle restoration using the Vehicle Preparation menu found in the scan tool.

I hope this story will shed some light to help you through a similar adventure.



*Article by John Anello, Auto Tech on Wheels—AutoTechOnWheels.com
Check out more of John's articles in Mastertech Magazine—
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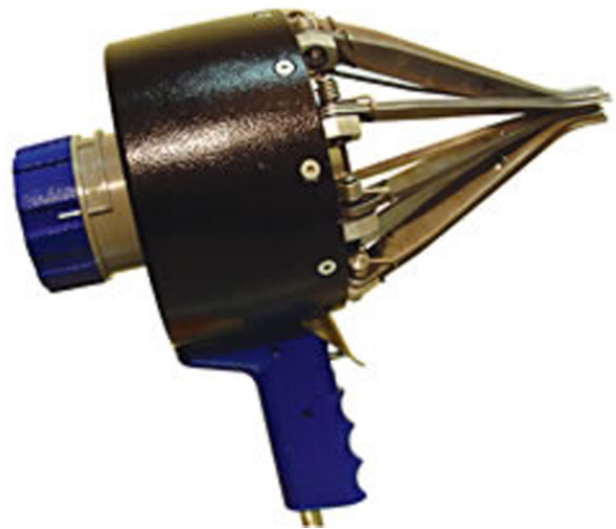
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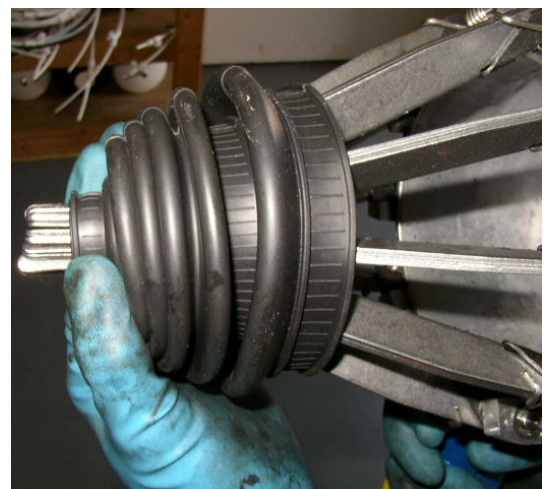
\$16.99 for Universal Truck-SUV CV Boot

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