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1. Introduction:

Congratulations on the purchase of your VTCM System! I hope this product will help increase your enjoyment of your LX Vehicle. So let's get started...

Please follow these instructions carefully and do not hesitate to contact me with any questions. Email: TRStone_00@hotmail.com or call 661 -236 -1997.

2. Disclaimer:

As much as I hate to say it, here it is...

This product comes with no warranties or guarantees of any kind. Both installation and use of this system in any vehicle is done at the risk of the owner / operator of the vehicle. The developer / seller of this system cannot be held responsible for any loss, damages or injury caused either directly or indirectly by the installation or use of this system. The system is intended for off road use only. Be advised that the system will produce changes in the drivability of your vehicle. Extreme care and caution should be taken when using this system on wet or snow covered surfaces.

3. Software / Drivers:

a. Plugging in the controller:

The VTCM controller is based on an MBED microcontroller. The MBED has its own memory space (like a memory stick) where all the VTCM files are held... When you first connect the controller to your computer via the USB cable, you will see it install the device driver that allows you to open the MBED in windows explorer...

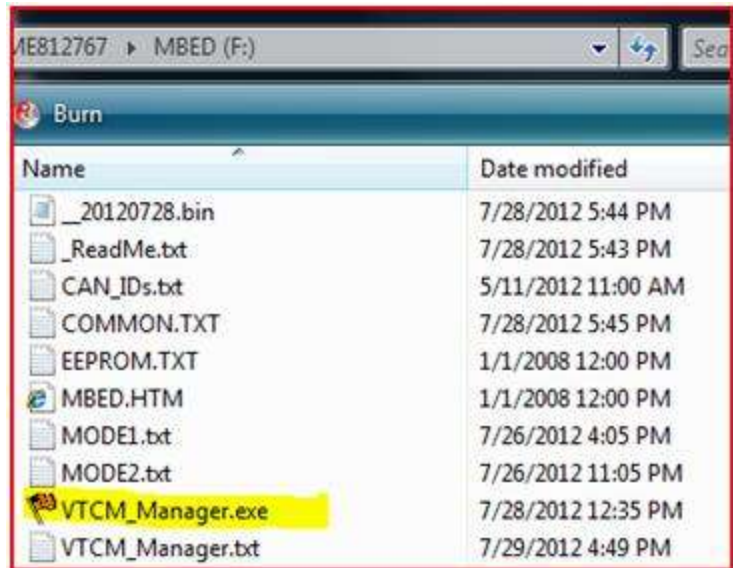


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b. Install 4.0 .NET Frame work:

Once you open the MBED window you will see all of the VTCM files... The management program is called VTCM_Manager.exe (*see highlighted file below).

The VTCM Manager is written in (C# .net). In order to run this program you need to have Microsoft's 4.0 .NET Frame work installed on your computer. The easiest way to see if you have the proper frame work installed is to try and open the Manager app. If it opens up, you can move on... If it does not open, please install the 4.0 .NET frame work from the link below...



<http://www.microsoft.com/net/download.aspx>

c. Install COM port driver:

So at this point you should be able to open the VTCM Manager App... (**note: The Manager MUST always be run from with-in the controller for it to work properly. You cannot run it from the desktop or any other location...)*

Even though the manager opens, it still cannot "Talk" to the controller without installing the mbed serial COM port driver. To install this driver please perform the following steps....

- Click on this link and download the driver to your desktop... Do Not Run it or open it. Just save it to the desktop... [MBED COM DRIVER](#)

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- ***Critical Step! Now CLOSE all explorer windows that are open on your computer. Do Not unplug the MBED controller from your computer.**
- With all explorer windows closed & the controller still plugged in, run the COM port driver installer program from your desktop...



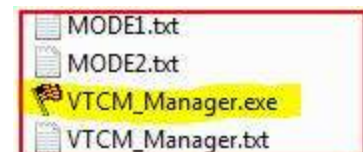
- If you get any warnings etc... keep pressing the "Continue Anyway" button until the driver installs successfully...



d. Validate software and driver Install:

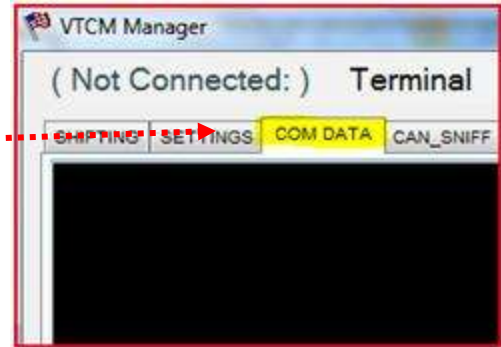
To validate that the necessary software and driver was installed please do the following...

- Double click and open the VTCM_Manager.exe from with-in the controller.

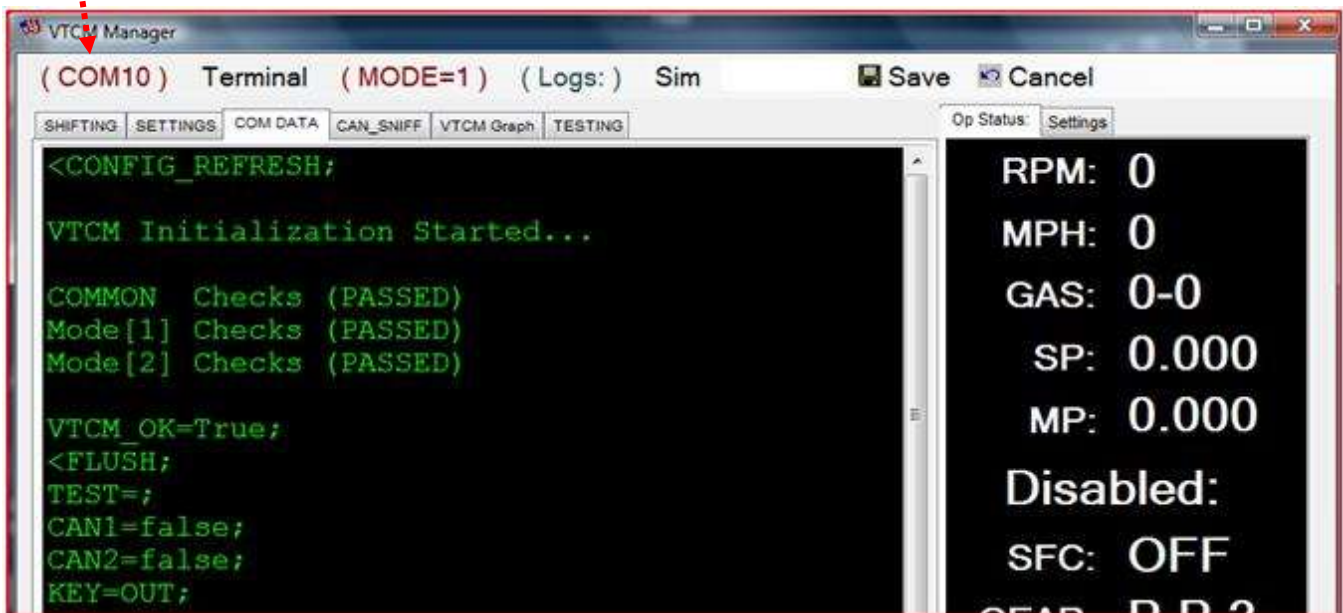


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- With the manager open, select the “COM_DATA” Tab.



- Using the “Connection Menu” (top left menu) select a COM Port from the list (Usually the last on the list) until the manager establishes communication with the controller. Successful connection is illustrated below...



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4. Install Main Board & Controller:

a. Remove D/S Lower Panel:

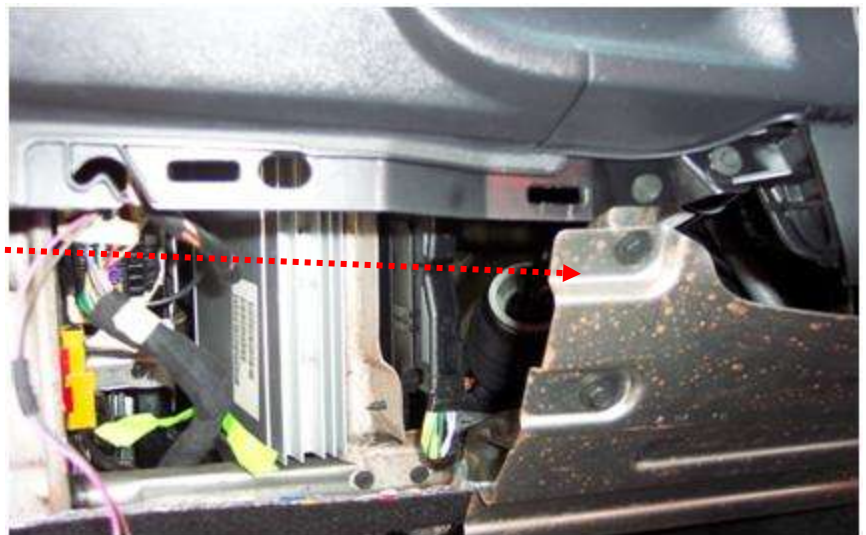
The TCM is mounted under the dash on the drivers' side of the vehicle. To gain access you need to remove the beauty strip just to the left of the dash in the door jamb. Just pull it off toward you. It is held on with two clips only.

With the strip removed, a Phillips head screw can be seen in the center of where the strip was; this must be removed.

Just to the right of the hood release on the bottom side of the Panel, there is another Philips screw that must also be removed.

Once these two screws have been removed the lower dash cover may be removed. It is held on by several clips. Simply pull it toward you to release it from the dash.

With the D/S lower panel removed, you can now remove the metal reinforcing panel located directly under the steering column. It is held on with four 10mm hex head bolts.



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b. Install the Main Board @ TCM:

The lower connector on the TCM must now be removed. There is a latch on the right side of the connector, press it in, and pull on the connector to separate it from the TCM.



Supplied with the kit is a small right angle bracket. This bracket gets installed on the bottom TCM mounting screw (T25 torx head). Attach the bracket as shown and be sure to tighten down on TCM screw.

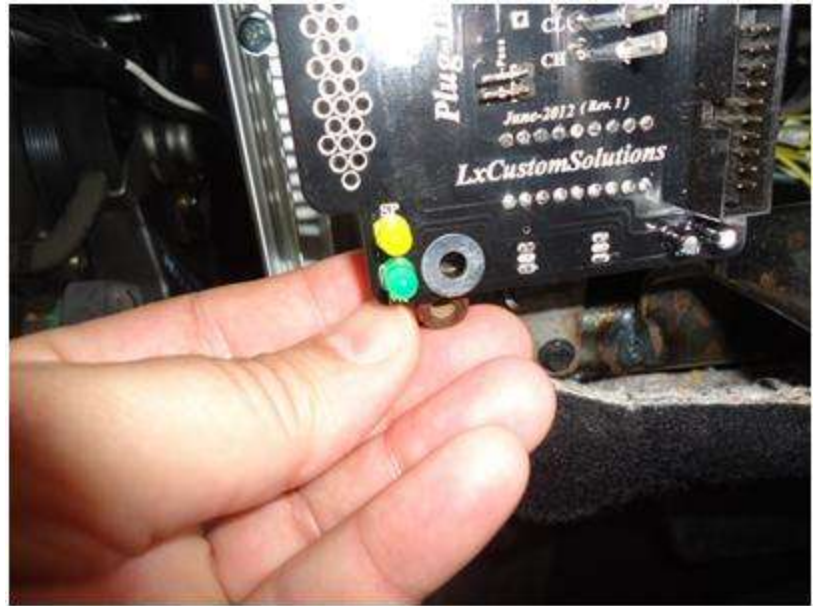
***Note: Be sure to install one of the star washers between the screw head & the bracket for a good grounding connection.**



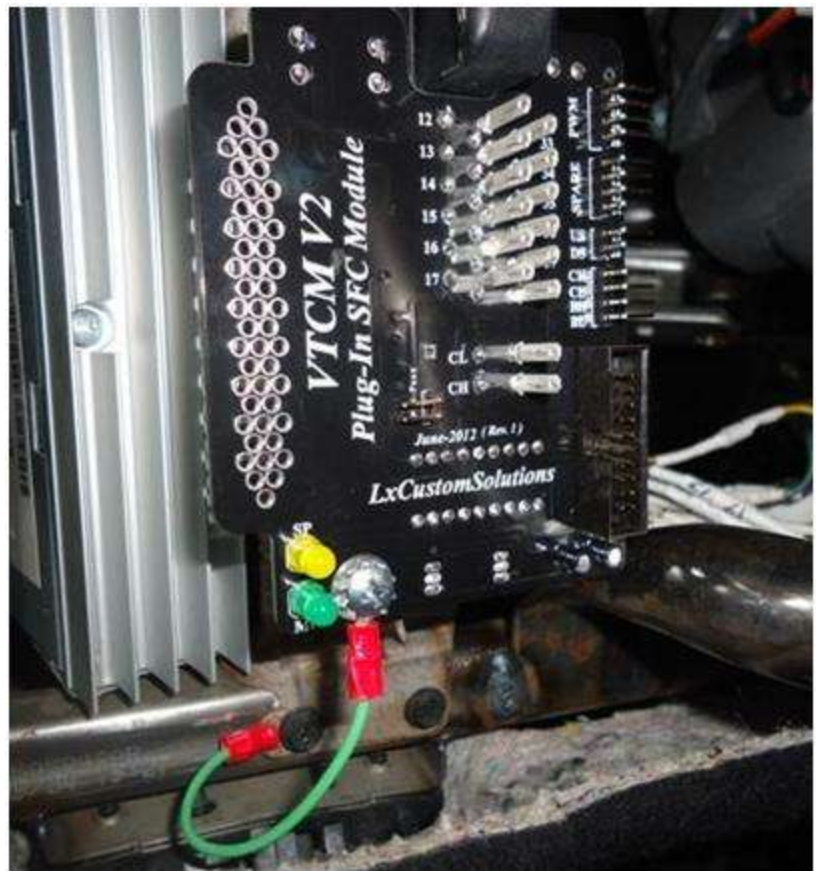
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Next, the main interface board must be attached to the TCM. Care must be taken, using feel, to ensure the connector sockets on the board slide onto the blade pins on the TCM correctly. ***DO NOT FORCE!**

Place the 1/4" spacer between the board and the bracket before installing the mounting screw. Be sure to use the star washer on the mounting screw.



Your kit may (or may not) include a grounding wire. If it's included, use it. The angle bracket (if installed with the star washers and secured tightly) should provide an adequate grounding. If you want to add a grounding strap it will be added assurance of a proper ground.



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c. Run Ribbon Cable to Glove box:

The ribbon cable must now be routed to the location you choose to place your controller. I recommend installing it in the glove box.

Using a stiff wire as a guide, **gently** pull the ribbon cable behind the HVAC control head across to the glove compartment.

**Note: There is a vertical bracket behind the HVAC panel. Route the ribbon between this bracket and the HVAC panel as there is a motorized lever on the firewall side of the bracket which could interfere / damage the cable.*

The glove compartment may be removed by unhooking the retractor cable from the right side of the glove box, then pulling in the travel limiters. At that point the box can be lifted from the lower hinge slots and removed. This makes routing the ribbon much easier.



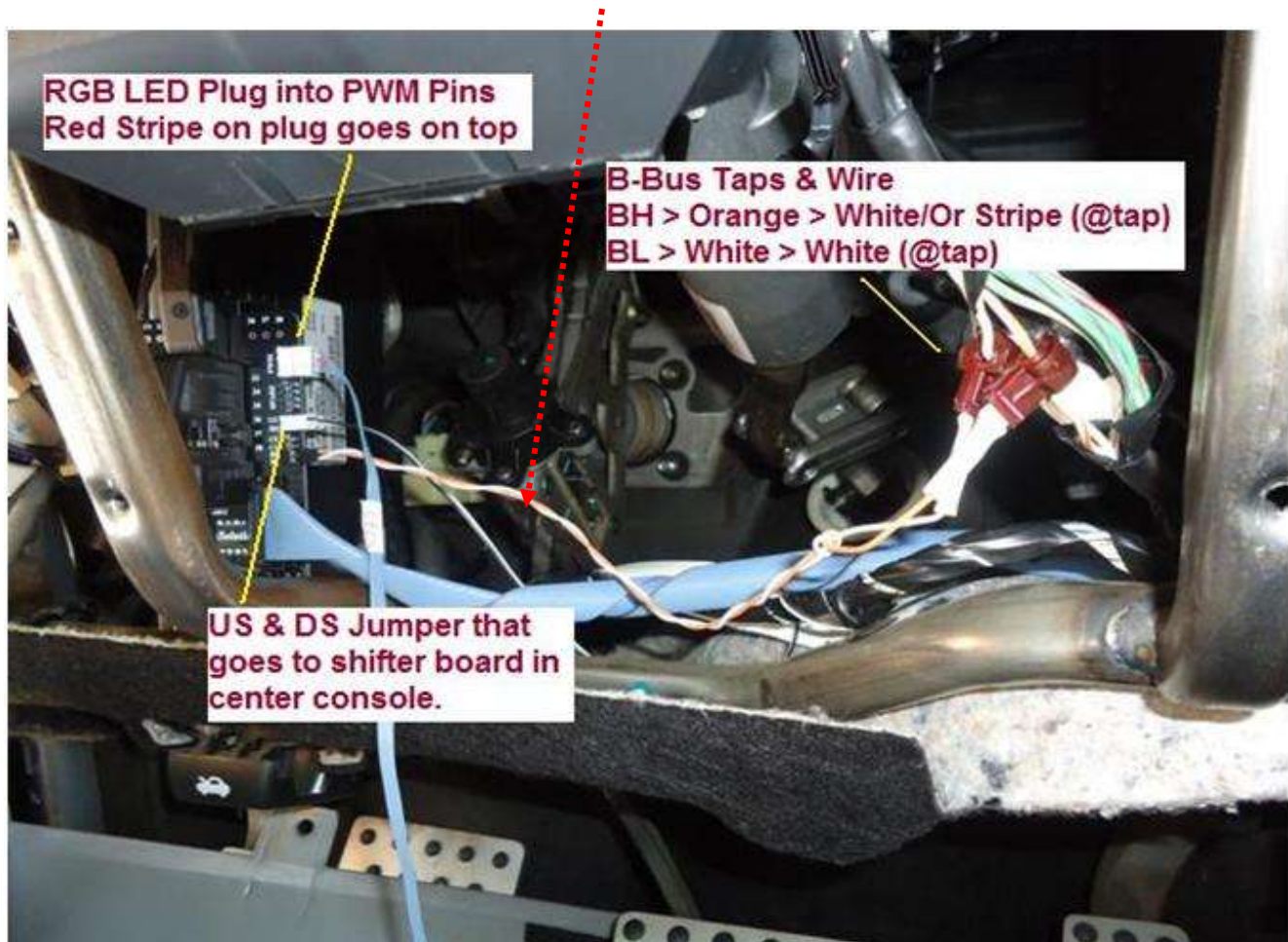
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d. Connect B-Bus Taps & Wires:

The 'B' Can bus taps can now be connected, this is the orange and white twisted pair. Below the steering column is a wire loom, once the spiral wrap has been opened, a twisted pair can be found, it is white with an orange stripe twisted to a solid white wire. Install the two red "T-Tap" connectors onto the twisted pair.

Included in the kit is an Orange & White jumper wire with two female spade connectors on one end. The spade connectors plug into the T-Taps. The orange spade plugs into white with orange stripe wire tap, and white spade plugs into the solid white wire.

On the other end of this jumper tap wire is a two position JST plug. The Orange wire plugs into the main board pin marked BH. While the white wire plugs into pin BL.



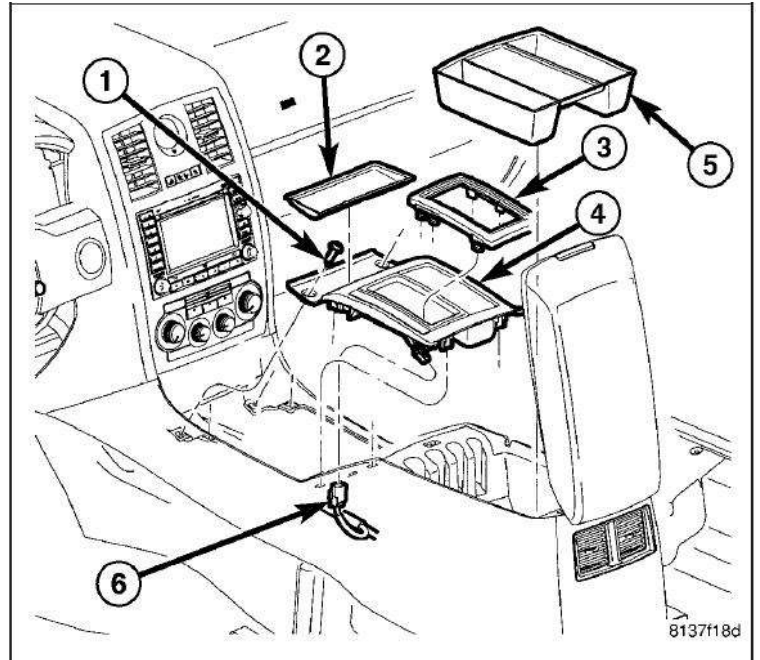
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5. Install Shifting Board:

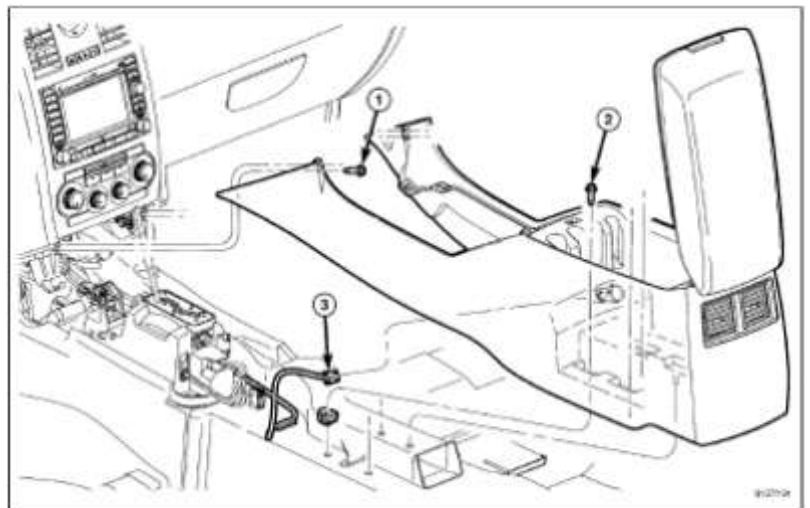
a. Shifter Board << 2005 - 2007 >> Models:

To gain access to the shifter you need to remove / push back the center console. We need to gain access to the back side of the shifter assembly.

- Remove parts #2, #3 & #5
- Remove 2 screws (#1)
- Remove part #4 (* Snaps in)



- Remove Screws (#1) at front of console.
- Remove 3 screws (#2) inside of storage
- Slide console back and undo power to Cigarette lighter (#3)
- Remove console from car



Note: Be careful not to poke headliner or cause other damage due to sharp edges when removing console from car...

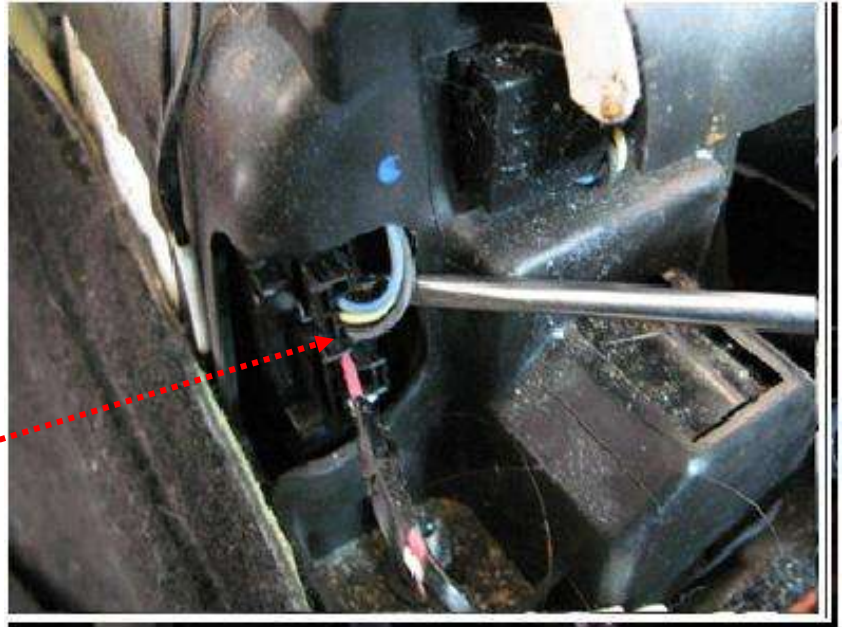
TIP: Simply push console backward into rear seat area...

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On the back side of the shifter remove the top plug with the Blue / Yellow / Black wires...

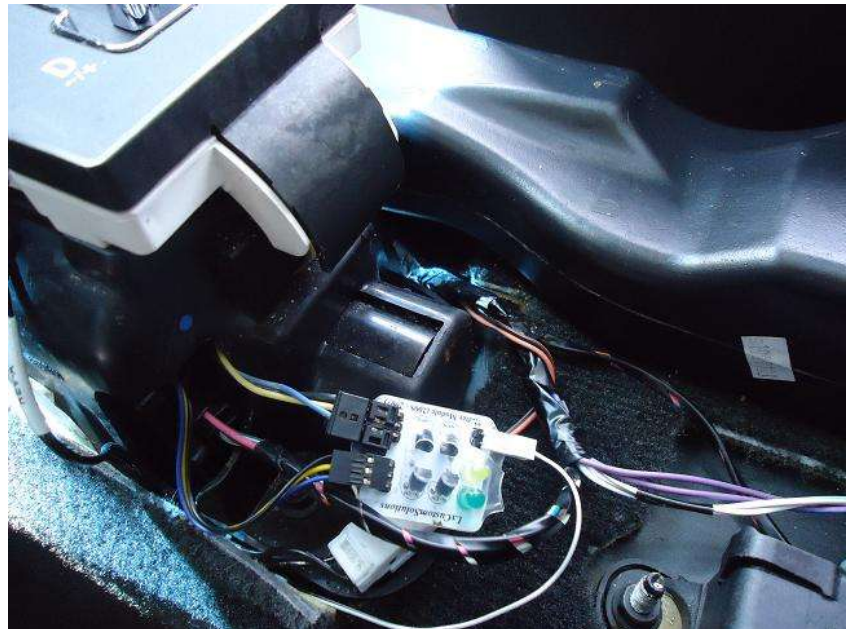
There is a latch on the backside of the plug used to release it. A screw driver helps.

***Note that the Black wire (-) is in the bottom position.**



The shifter board included in the kit may now be hooked up. Referring to the following photograph, you can see how the plugs are arranged.

On the right side of this photo you can see the 4' long two wire cable that connects the shifter board to the main board mounted on the TCM. Run this cable along the console between the two boards. Insure that the U & D pins on the shifter board are connected to the US & DS pins located on the TCM Main board.



***It's recommended that you run a functional test to be sure everything is working before completely closing up the center console.**

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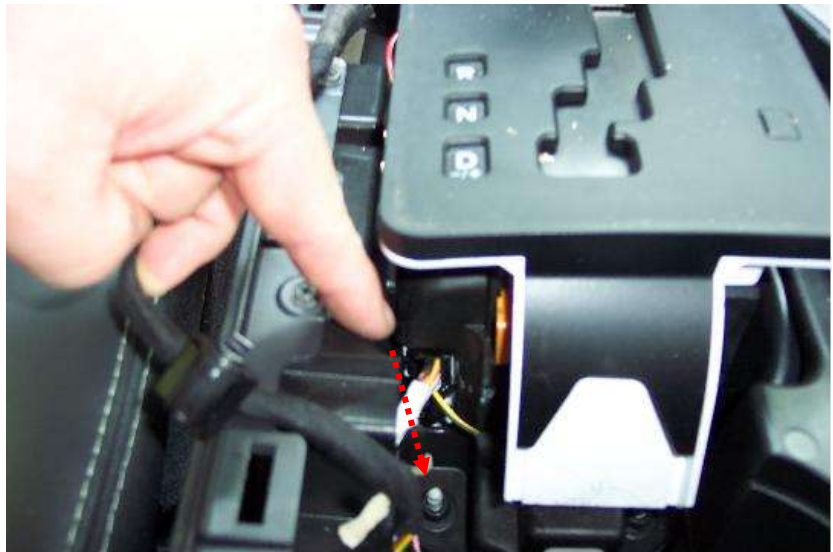
b. Shifter Board << 2008 & UP >> Models:

Some disassembly of the console must be done to connect to the manual shift switches on the shifter assembly. Firmly grabbing the aft of the console right around the cup holders, the back of the console area will lift up. Carefully remove the connector for the cup holder lights, then pull slightly aft to release the front of the console, it can be carefully moved out of the way.



You need to get access to the plugs on the back side of the shifter module. You can do this by removing the center console from the car or by unbolting and lifting the shifter module upward.

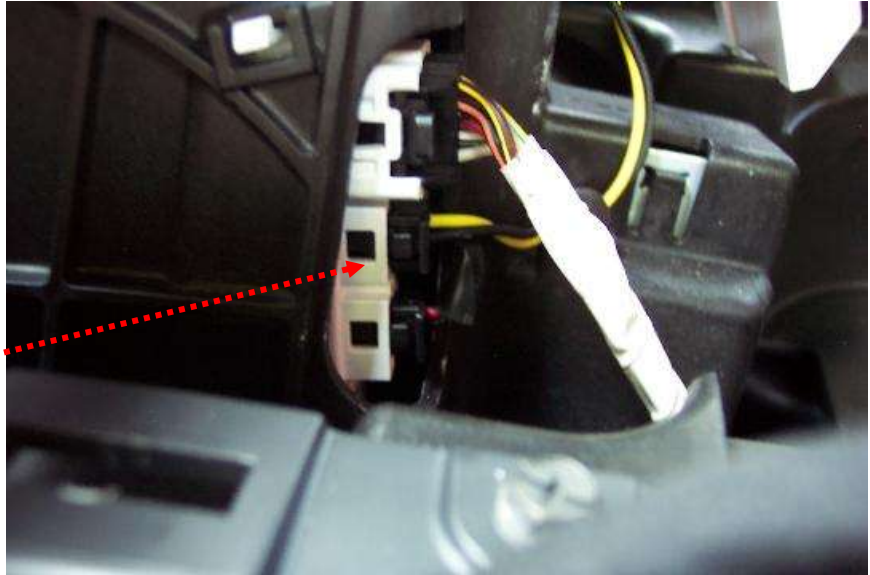
To lift the shifter module, remove the four 10mm nuts that hold it in place. Have a magnet handy to retrieve the nuts when they come loose, the two in the back will have a tendency to fall down into the console area when they are removed. Once the nuts have been removed, the rear of the shift module can carefully be lifted upward to gain access to the wire plugs.



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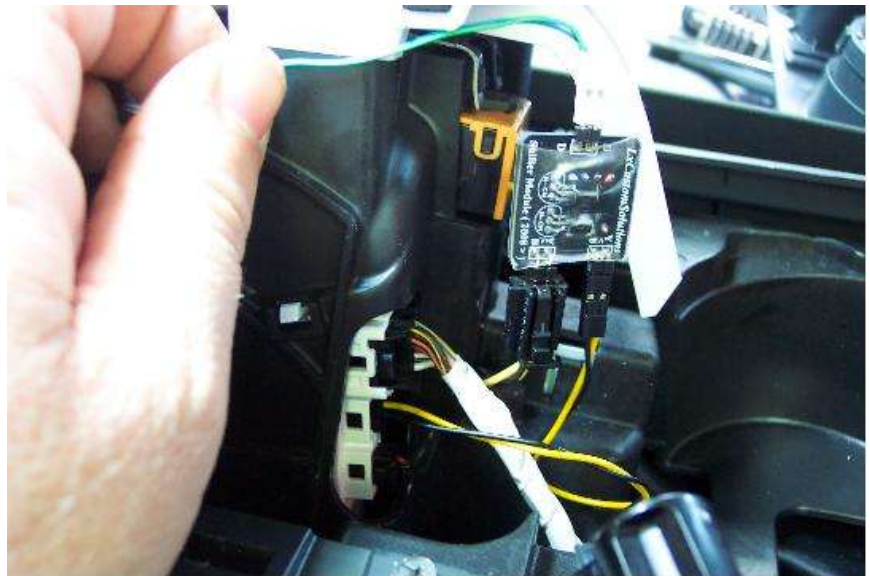
Here it is a close look at the plug we are going to disconnect. There is a latch on the connector which allows for the plug to be removed from the module.

***Note that the yellow wire is on the topside.**



The shifter board included in the kit may now be hooked up. Referring to the following photograph, you can see how the plugs are arranged.

On the top of this photo you can see the 4' long two wire cable that connects the shifter board to the main board mounted on the TCM. Run this cable along the console between the two boards. Insure that the U & D pins on the shifter board are connected to the US & DS pins located on the TCM Main board.



***It's recommended that you run a functional test to be sure everything is working before completely closing up the center console.**

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6. Install RGB Led:

a. LED: << All LX Models: *Read This first! >>

Included in the kit is a tri-color (RGB) LED on the end of a small cable used to provide feedback of the VTCM V2 system status to the driver. The best location to install this LED is in the security (anti-theft) indicator shaft in the instrument cluster. This location is ideal since it is in plain view, minimizes visible alterations, and gives an OEM feel to the integration. In short... it's about the same amount of work to install it anywhere else and the result is better.

- Pull off the trim ring that is around the key hole



- Now pull back on the trim that goes over the top of the steering column.



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- Remove the 4 screws that hold on the trim piece that is at the base of the steering wheel column.
- Pull that trim piece back away from the dash



- Remove the screws that hold the instrument cluster in place.

***Note:** There are 2 screws on the Chrysler but the Dodge cars have 4 screws (top and bottom).



- Remove the instrument cluster from the car and place on a clean work space

***Note:** On the Dodge cars you need to rotate the cluster inward & face up to extract the cluster out from the dash cavity.



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- Remove the T-15 Torx screws that hold on the front face lens and the back cover plate.
- The cluster is like a clamshell with different layers.
- Remove the lens cover and place it off to the side. Try to not touch the lens with your fingers. Especially on the inside...
- Remove the combined (circuit board + gauge face) from the back plate



b. LED: << Chrysler 300's: >> * Dodge owners! Read this section too...

- Locate the light shaft for the anti-theft light.
- Pull back the circuit board slightly and you can see the small SMD LED that lights up the shaft.
- **Slide a business card in between the circuit board and the light shaft to protect the SMD LED**
- Drill straight into the light shaft from the side using a 3/16" drill (this is slightly smaller than the 5mm LED). **Actual size of hole will be 13/64".**



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- Carefully work the hole big enough to accept the RGB LED. **Be sure to keep the drill straight into the hole. Do not twist it around as you might hit scar the back side of the face!**

- When the size of the hole is correct, Insert the LED and reassemble the cluster in reverse order.

- *(* Optional Enhancement) paint the inside of the shaft with whiteout (*not included). Do not to get any whiteout on the back of the gauge face where the light shows through.*

- Insert the RGB LED into the hole and be sure it's snugly held in place. The whiteout actually adds a small bit of bonding support.

** Be sure not to get wet whiteout on the LED itself as it will block light.*



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c. LED: << All Dodge Models: >>

- Read through all of the Chrysler 300 instructions first as many of the steps in the procedure are similar.
- The dodge cluster has an outer skirt. Using a 3/16" drill, drill straight into the skirt as shown.



**Be sure to place the business card in between the circuit board and the face plate for protection!*

- Once you have drilled through the outer skirt, change the angle of the drill to drill straight into the security light shaft.

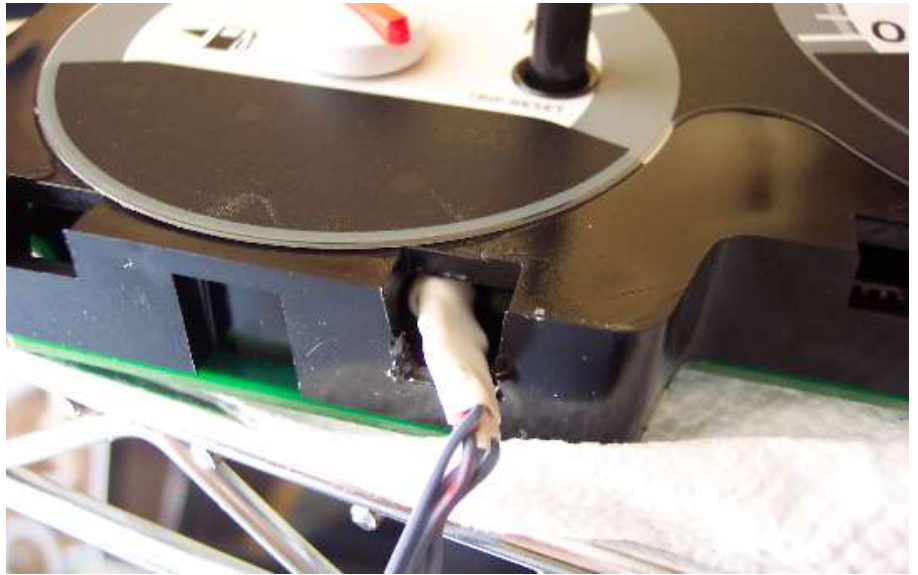


- Use a larger drill or a dremel tool to rasp out the outer skirt.



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- Insert the RGB LED into the light shaft and secure it.



- Reassemble and reinstall the cluster.
- Rout the LED lead down to the TCM area without pinching the leads



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7. Install Paddle Encoder:

a. Remove Air Bag:

b. Remove Left Side Button Cluster: