

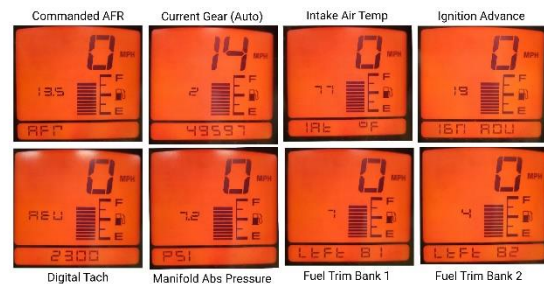


Installation Instructions

C4 Gen 2 LCD Controller



NEW GAUGES





Safety:

Before rushing in with excitement to upgrade your LT engine with TORQHEAD LTD components, take the time to ensure your safety is not jeopardized. This instruction is a guide only and the steps within are a suggestion only. It is up to you, the customer, to ensure during each step you use every precaution applicable to keep yourself safe. During the installation you will be in contact with tools, engine fluids, and other elements that must be treated with caution. It is assumed that you will have all the appropriate tools, knowledge and safety equipment to perform the job correctly. Never use a tool for a purpose it was not intended. If you do not feel capable of performing the installation or you do not have the basic tools to perform the installation, it is recommended that you seek help from a qualified person.

TORQHEAD LTD. will not be held liable for any injuries or damage.





Introduction

For best results it is recommended that you read and understand these instructions completely prior to commencing installation. For best results this instruction manual should always be supplemented with a factory service manual or repair manual. Improper installation can result in damage to the components or yourself.

This instruction covers the installation of the TORQHEAD LTD C4 LCD Controller.

Prerequisite: It is assumed your vehicle is or will be running a non-factory PCM and that the PCM being used is a LS Gen 3 24x PCM.

This kit comes with the following components:

- Gen 2 C4 LCD Controller and various wiring, connectors and components

This controller will be connected to wiring under the dash and also this device will be mounted under the dash. Once complete the device will be operational and if required can be removed to wiring returned to factory by simply connecting a few of the connectors included in this kit together and bypassing the controller.

This kit is as plug and play as it can be. There is no splicing and no soldering.

Start to finish, depending on skill and how comfortable with wiring this installation will take approx. 2-3 hours. Give yourself time, don't rush and always double check your work.

Recommendation: A full color and electronic version of this instruction manual is available for download on www.torqhead.com/support

Dissassembly:

1. Disconnect the negative terminal on the cars battery.
2. Follow the below link on how to remove the gauge cluster and gain access to the DIC display center on your C4. Please note the main large connector on DIC display does not need to be disconnected. Simply keep the DIC hanging in place and ready to be worked on. All parts, screws, and cluster can be set aside. Organize all parts to ensure re-assembly is more successful.
 - a. https://www.youtube.com/watch?v=DSzlZbRoi_c
 - b. <https://www.youtube.com/watch?v=ROozkF34EBg>
3. Unhook the small 5 pin connector on the back of the DIC display. Figure 1



Figure 1

4. Install the included PCB circuit board assembly onto the DIC display connector pin header as shown and connect the factory 5 pin connector to the PCB board as well. Note all orientations and ensure all connection land. Figure 2



Figure 2

5. Route 3 pin connector labelled "DIC" from under cluster bezel, up and behind DIC display cavity in dish. It will come out the same hole where main DIC harness comes through. Figure 3 and Figure 4.

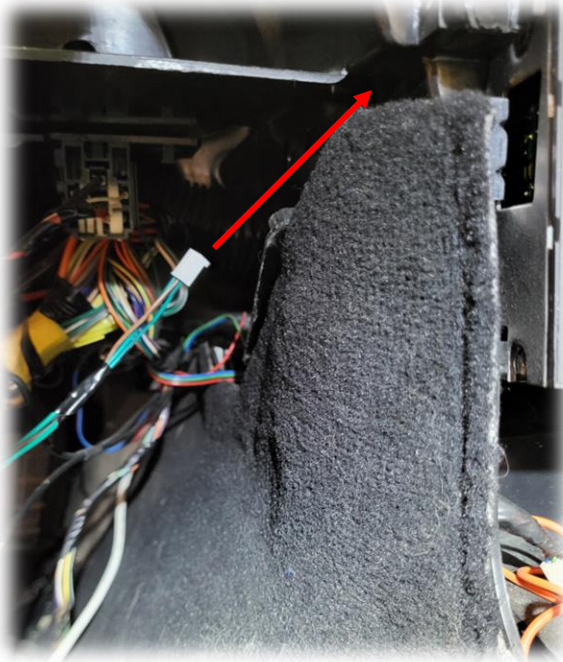


Figure 3

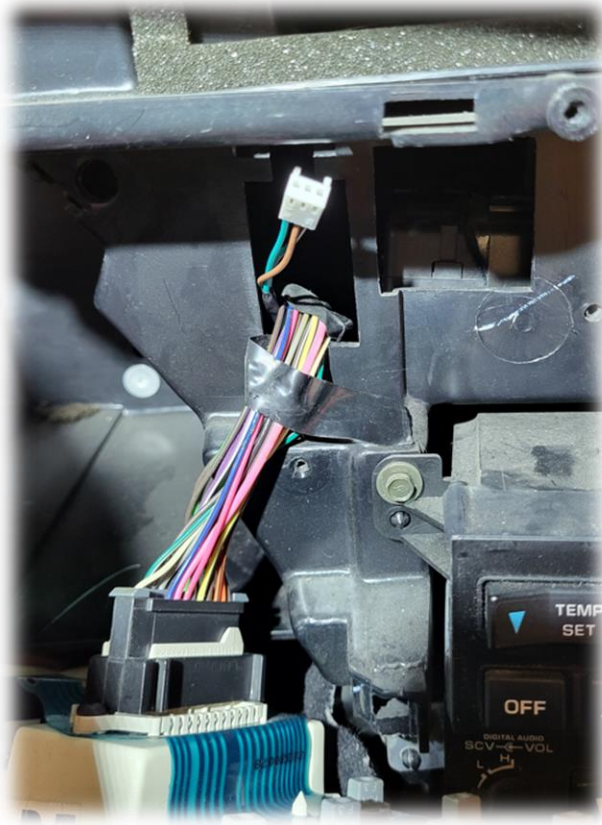


Figure 4

6. Connect 3 pin connector labelled "DIC" to the PCB circuit board that was installed on DIC. Note orientations of connector clasps to ensure connected correctly. Figure 5.

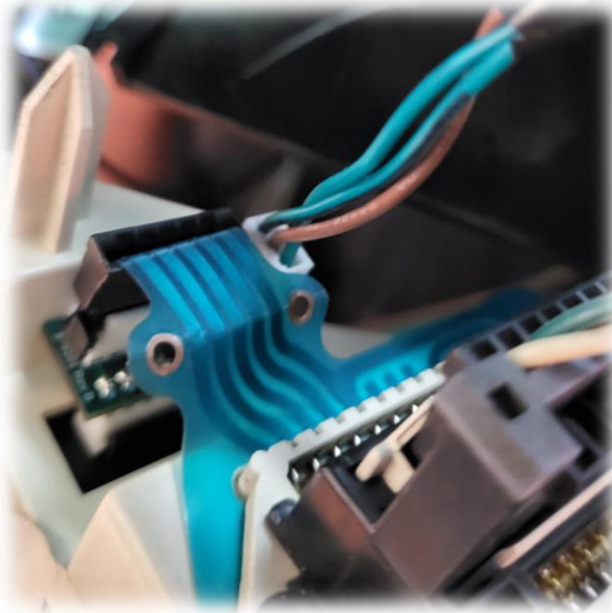


Figure 5

7. The DIC assembly can be installed back into dash cavity. Push wires thru and back into dash as needed to keep anything from binding or bundling up. Figure 6.



Figure 6

8. With the cluster removed and already set aside in previous step it is time to work on the main cluster wiring connector. Figure 7.

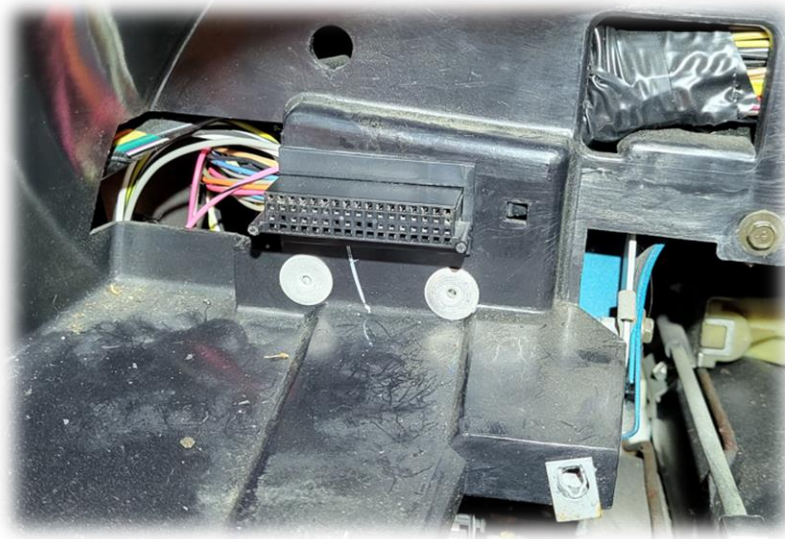


Figure 7

9. Using a screwdriver push in on the cluster connector retaining tab. It can then be slid to the left so it can be removed. Figure 8 and Figure 9.

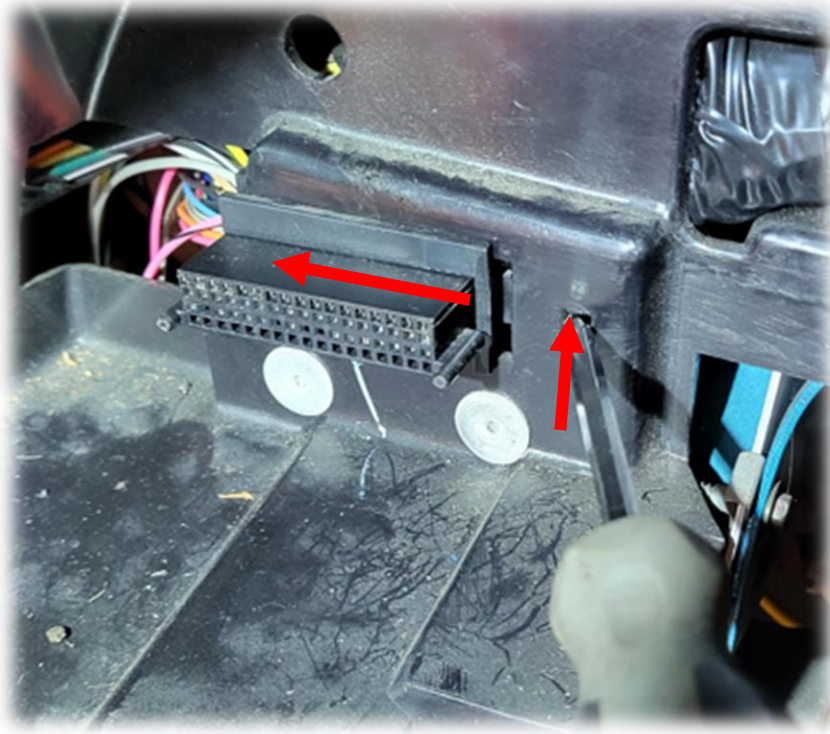
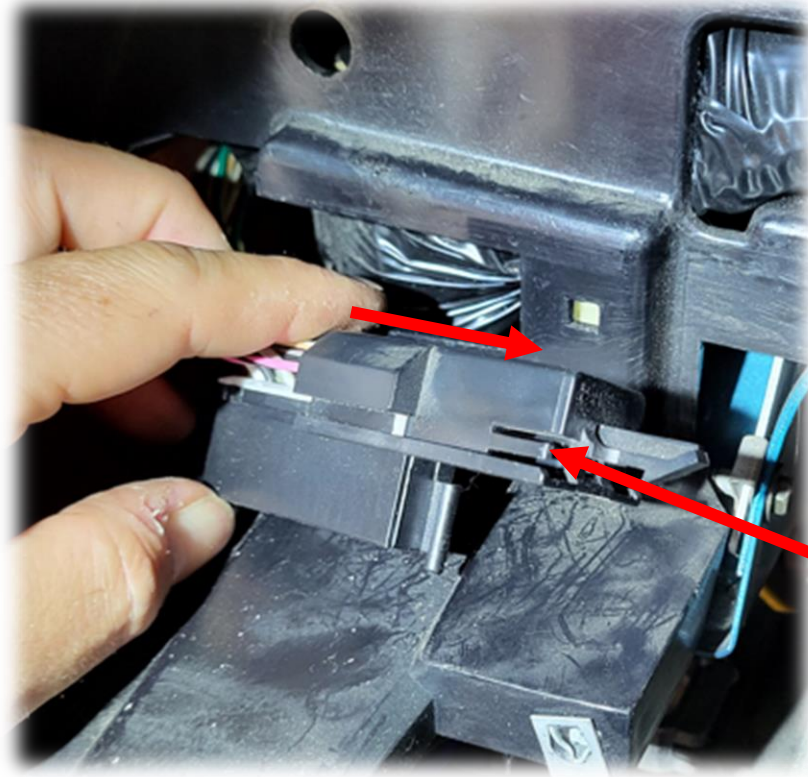


Figure 8



Figure 9

10. Next the back wiring cover can be removed from the connector. There are two small clips on the one end that need to be spread open slightly and then the wiring cover will slide off the end. Figure 10.



Clip. One on each side

Figure 10

11. With the wiring cover removed the terminal retention inserts can be removed. There is one on each side of the connector and they are white. Use a small screwdriver to pull them up and out of place. Figure 11.



Figure 11

12. The main cluster connector is now disassembled and ready to wiring changes. You will have the connector, wiring cover and two terminal retention clips as shown in Figure 12.

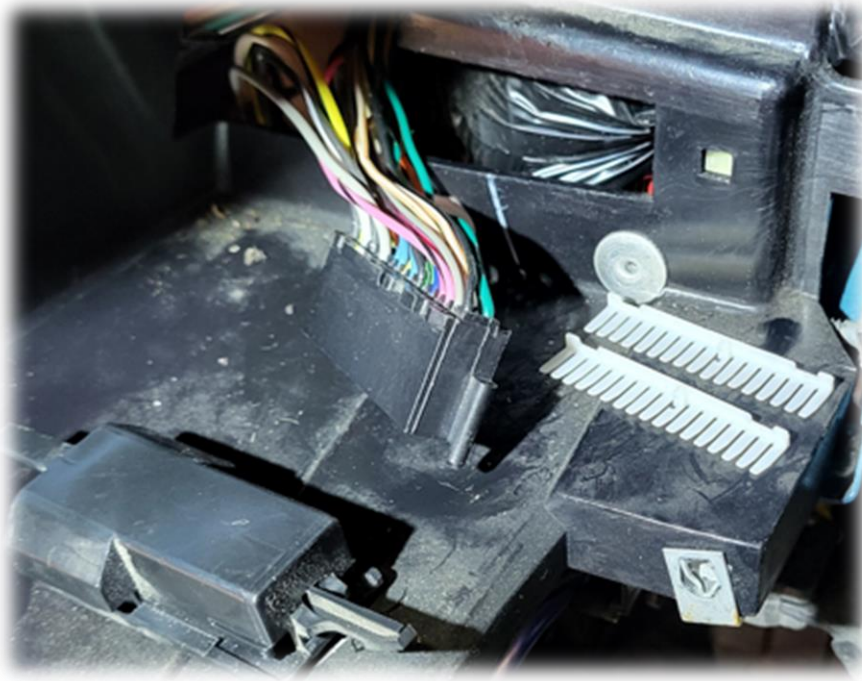


Figure 12

13. It is now time to install the included wiring harness labelled "OUT" and also the connector labelled "IN". We will be removing one wire at a time from the main cluster connector and inserting it into connector "IN". At the same time a wire from the "OUT" harness will be put back into the removed wires place in the main cluster connector. Work one wire at a time to ensure best accuracy. The instructions will guide you through one wire and then the same steps can be following for the remaining 5 wires.
14. Remove the wire that is pink with a black stripe. It will be third from the right in the top row (A3). To do this use the included Delphi terminal removal tool. It is inserted in the top hole as shown by red arrow. See figure 13 and figure 14. When inserted the goal is to depress the retention tang so that the wire can be pulled out from the back of the connector Figure 15. It can be helpful to look at the "OUT" harness terminals to see what the terminal looks like and location of locking tang. See figure 13/14-B.

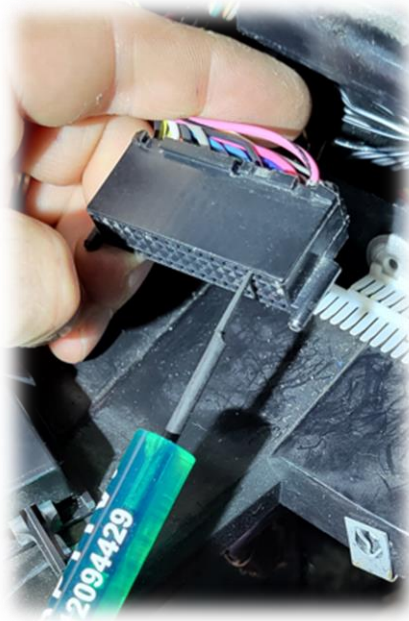


Figure 13

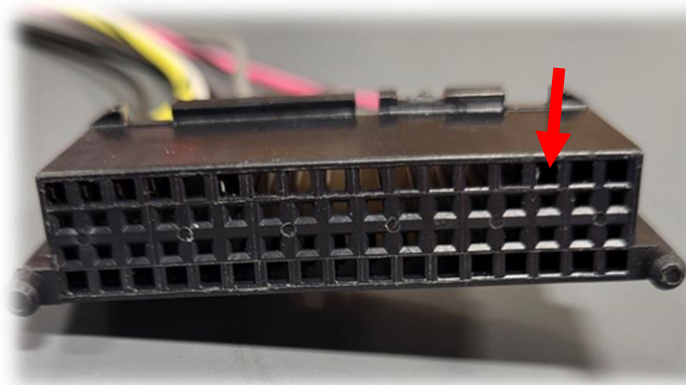


Figure 14

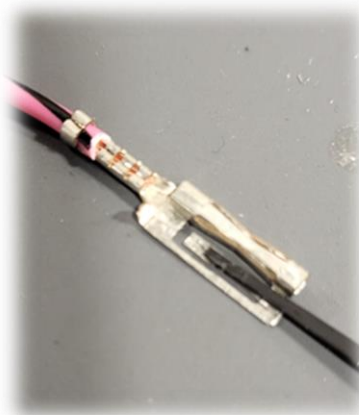


Figure 13/14 -B – The terminal tool when inserted will push down the tang as seen above. The wire can then be pulled out the back.

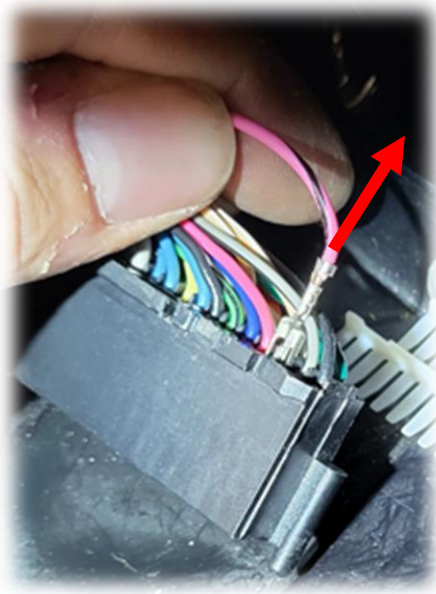


Figure 15

15. With the wire removed from the main harness connector. Use the delphi terminal tool to bend the retention tang of the terminal back into position. They can become flattened during removal. Bending them back into position is so that the terminal will click back into place when installing it into included connector labelled "IN". You can also look at the new terminals on "OUT" harness to know how the tangs should look. Figure 16

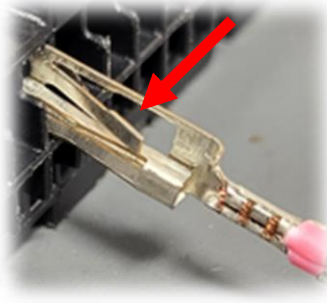


Figure 16 - A – Retention tang shown in correct position, ready to be inserted into connector.

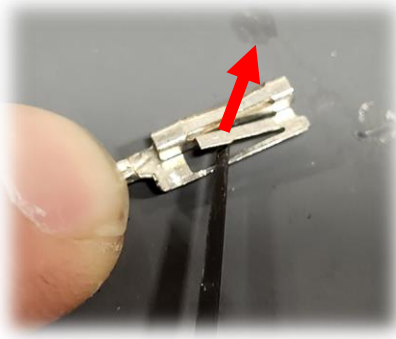


Figure 16 - B

16. Install the pink/black wire which was removed from cluster connector into Pin 10 of the "IN" connector. The connector has small embossed pin location numbers on it. When inserting it will only go in one way and then "click" into place. It should stay fully seated and not be able to pull out. Figure 17.

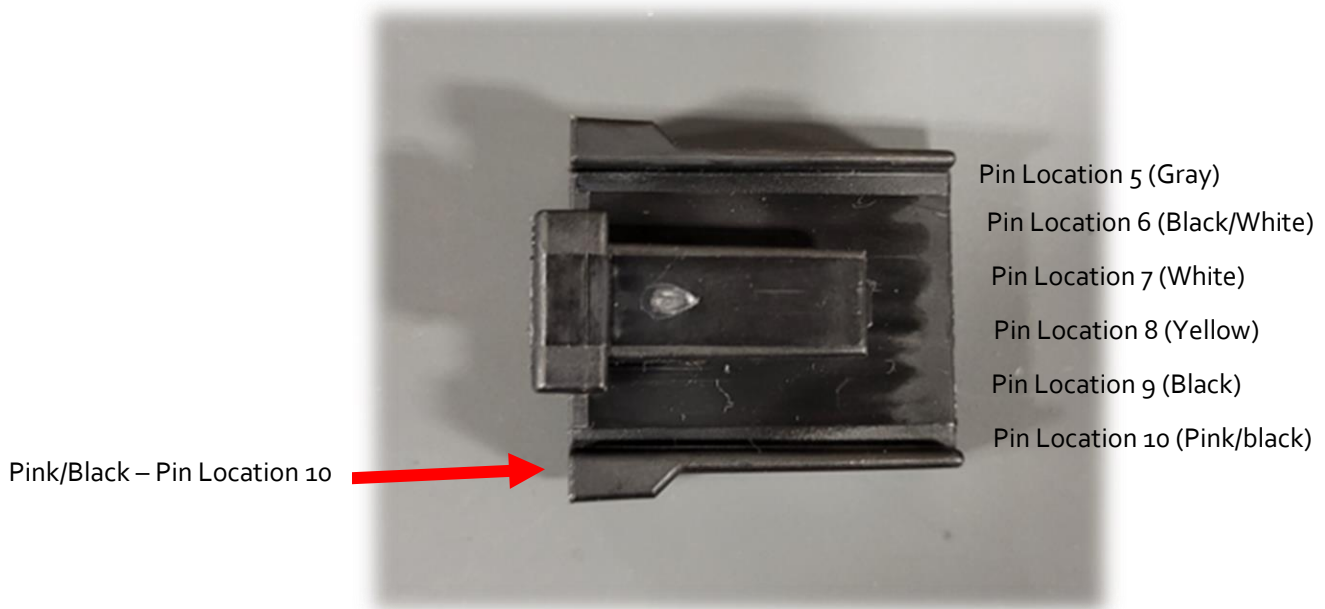


Figure 17

17. Find the pink/black wire on the "OUT" labelled harness. The raw terminal end of the pink/black wire will be inserted into the main cluster connector where the pink/black wire was removed. Location which is three from the right on top row, A3. Figure 18.

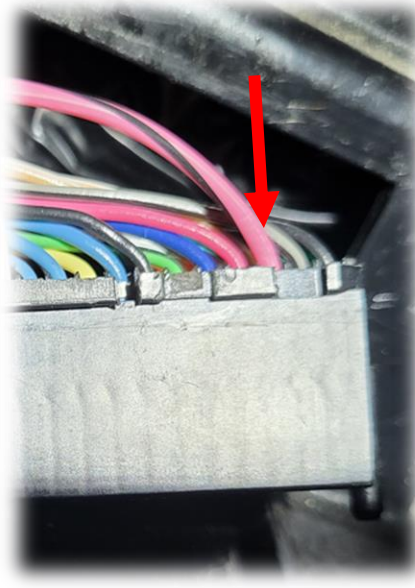


Figure 18

18. The rest of the wires can be completed using the same steps and method as mentioned above in steps 13-17. The only difference is the wire location to be removed and installed. The wire colors are unique. Go slowly, carefully and wire by wire to ensure accuracy of work. When you are finished the connectors and wiring will look as in figure 19, 20, and 21. **DOUBLE CHECK YOUR WORK!!**. No wires should be loose.
- a. Remove black wire from farthest left position (A17) on main cluster connector. Install it into pin 9 location on "IN" connector. Install black wire from "OUT" harness back into the pin location (A17) that the black wire was removed.
 - b. Remove yellow wire from 2nd to left position (A16) on main cluster connector. Install it into pin 8 location on "IN" connector. Install yellow/black wire from "OUT" harness back into the pin location (A16) that the yellow wire was removed.
 - c. Remove white wire from 3rd to left position (A15) on main cluster connector. Install it into pin 7 location on "IN" connector. Install white wire from "OUT" harness back into the pin location (A15) that the white wire was removed.
 - d. Remove black/white wire from 4th to left position (A14) on main cluster connector. Install it into pin 6 location on "IN" connector. Install black/white wire from "OUT" harness back into the pin location (A14) that the black/white wire was removed.
 - e. Remove Gray wire from 6th to left position (A12) on main cluster connector. Install it into pin 5 location on "IN" connector. Install gray wire from "OUT" harness back into the pin location (A12) that the gray wire was removed. **ATTENTION:** There is also a gray wire at 5th from the left on cluster connector, Position A13. Do not remove or use this wire. You will see it is skipped position in Figure 20 example wire color locations.

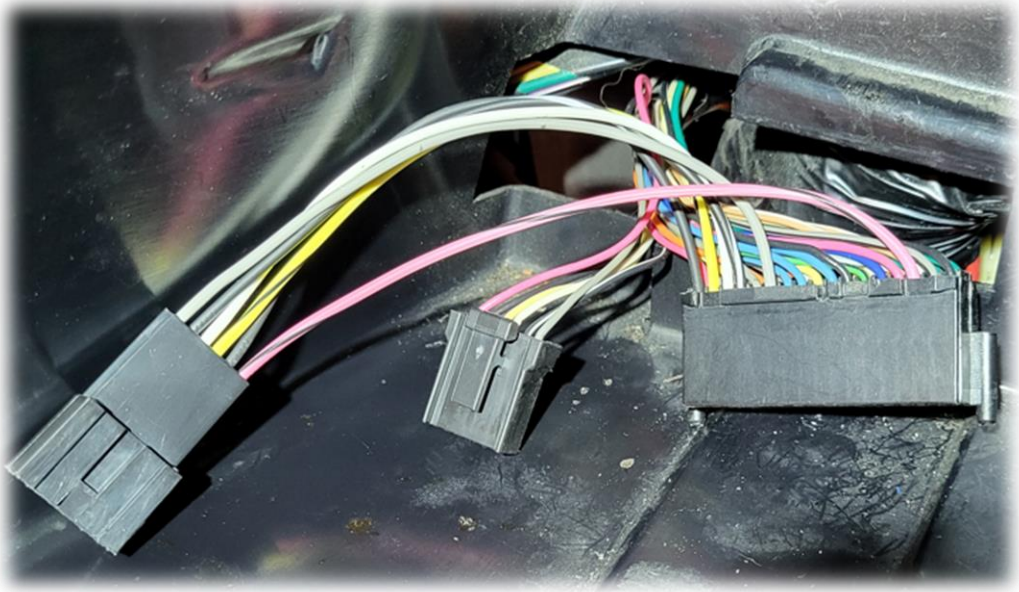


Figure 19

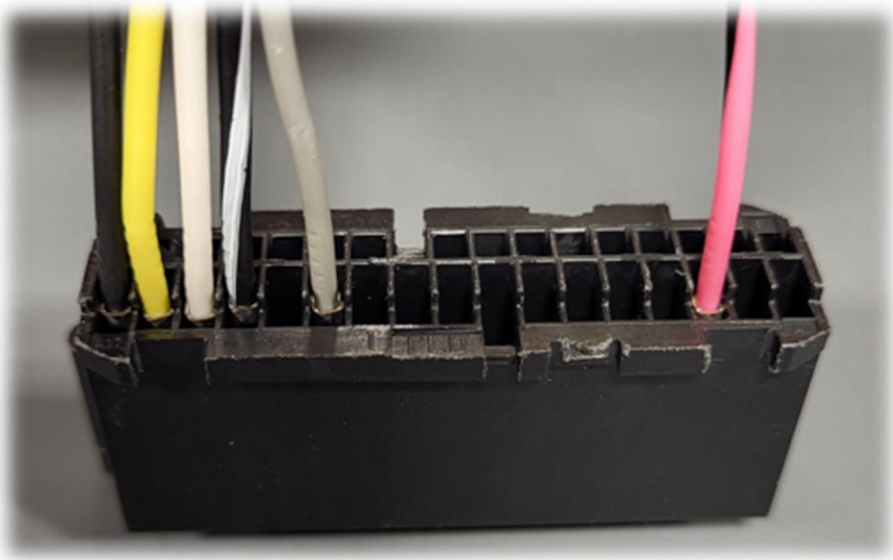


Figure 20. Other wiring removed for example and clarity



Figure 21

19. Route the "OUT" harness and "IN" connector behind the cluster bezel and down to under dash.
Figure 22.



Figure 22-A



Figure 22 - B

20. Re-install the white terminal retention clips into main cluster connector. Figure 23.



Figure 23

21. Reinstall the wiring cover to the main cluster connector. Figure 24. Then reinstall the main cluster connector back into the bezel. Figure 25.



Figure 24

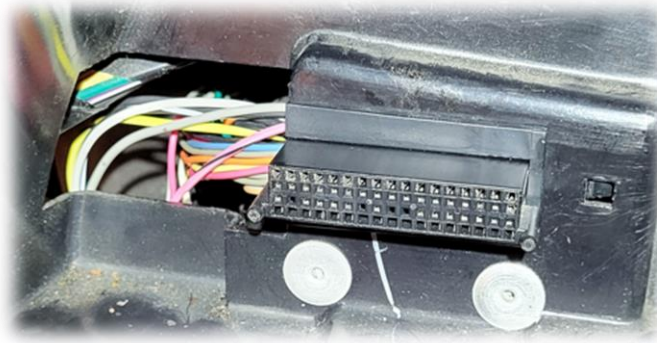


Figure 25

22. The cluster can now be reinstalled into the bezel. Do not assemble dash just yet.
23. Next we move onto the OBD2 DLC port under the dash. It might already be hanging loose, if not there are two screws that secure it under the dash. Remove these two screws to let it hang down.

24. Remove the two terminal retention tabs from the OBD2 port. Using a small screwdriver pry up lightly on the plastic and push the tabs down and back. The retention tab will slide out the back. See Figure 26.

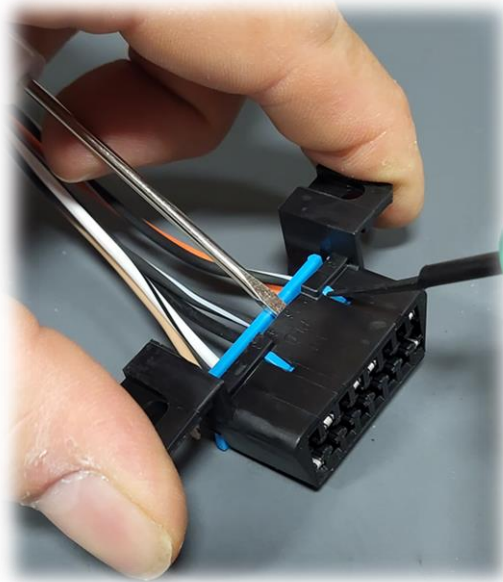


Figure 26

25. Using terminal removal tool insert it into front of OBD2 port and push down on plastic fingers that are holding terminals in place (Figure 27). Once the retention finger is moved down you can pull the wires out the back of connector. Remove the Tan wire at Pin 9, Purple wire at Pin 2, and Orange wire at Pin 16.

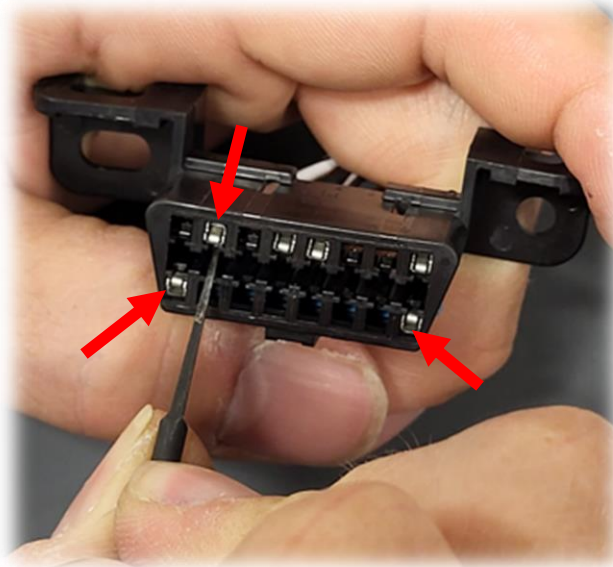


Figure 27

26. With the wires removed from the OBD2 port. We now need to modify the terminals on the wires. There are two metal tangs sticking up vertical. See Figure 28. These need to be bent down with a small screwdriver. See Figure 29 and 30.

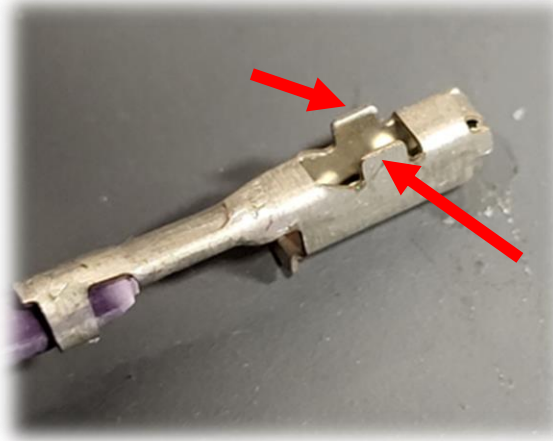


Figure 28



Figure 29

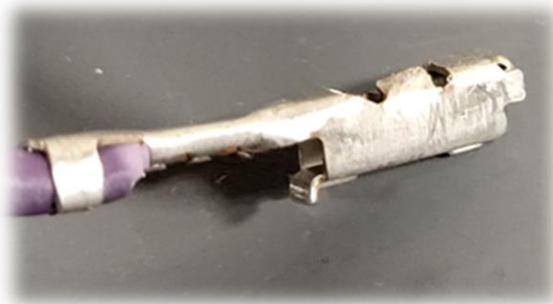


Figure 30

27. Now that the wires removed from the OBD2 port have their terminals modified we can insert them into the connector in the kit labelled 'OBD2 IN'. Insert them as shown in Figure 31. Pin A – Tan, Pin B – Purple, Pin C – Orange.

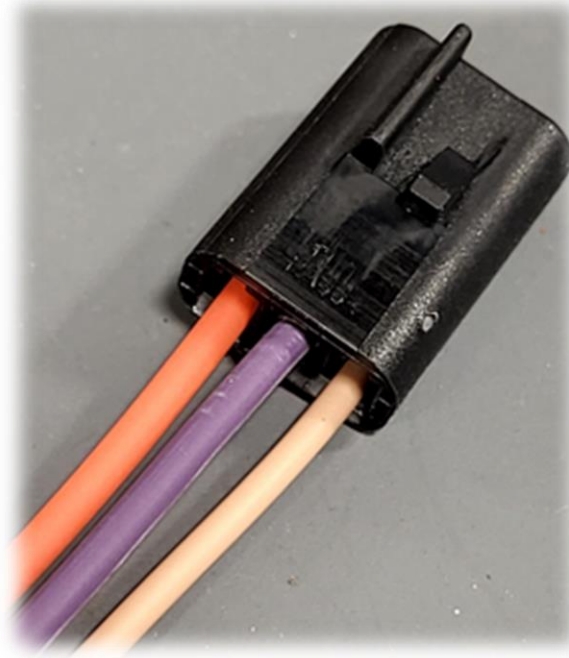


Figure 31

28. Now install the gray terminal retention clip into the connector OBD2 IN as show in Figure 32.

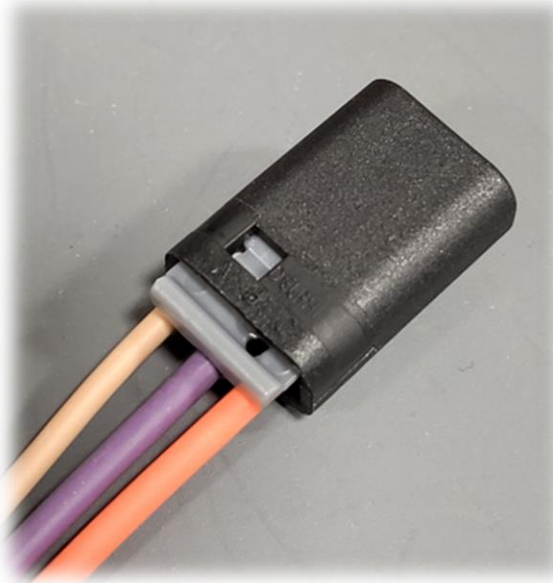
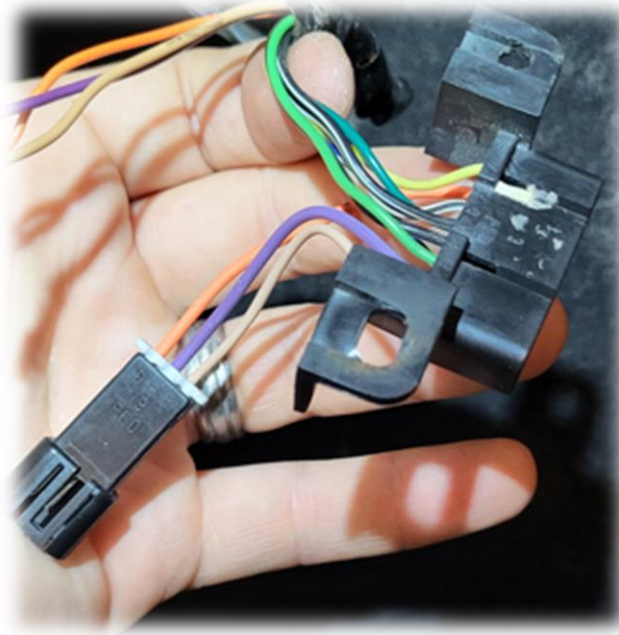


Figure 32

29. Find the connector and wire pigtail assembly labelled 'OBD2 Out'. Insert the purple, tan and orange wires into the OBD2 port where the wires previously were removed. Purple goes to Pin 2, Tan goes to Pin 9 and Orange goes to Pin 16. See figure 33.



Purple – Pin 2
Tan – Pin 9
Orange – Pin 16

Figure 33

30. The wiring at the OBD2 port is now complete and should look like figure 34.

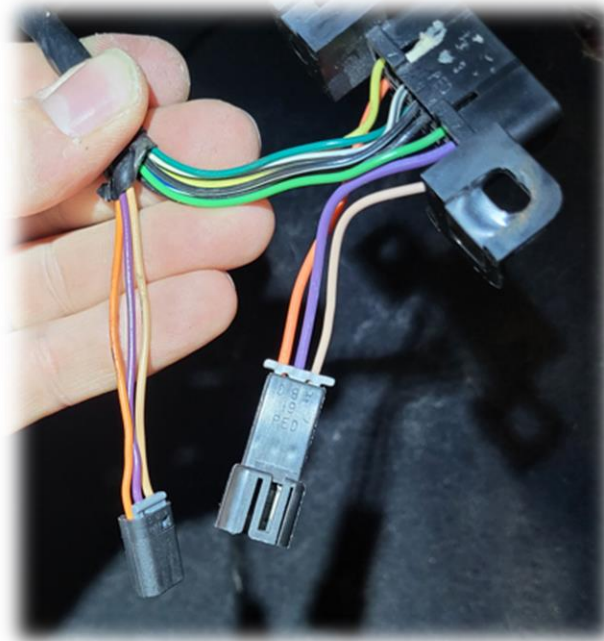


Figure 34

31. This concludes the detailed wiring of the kit. Next is simply all plug and play to the control module.

32. Connect OBD2 IN to OBD2 in connector, and connect OBD2 out to OBD2 out connector. See figure 35.

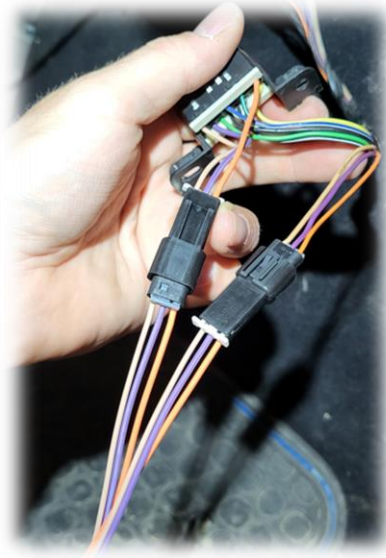


Figure 35

33. Connect harness labelled IN to the IN connector. Also connect harness labelled OUT to control module harness labelled OUT. Figure 36.



Figure 36



34. Engine oil temp sensor wire move: Find the Blue PCM connector and open the gray strain relief to expose the wires. Do the same with the Black PCM connector. Now remove the color retainers from each of these PCM connectors. Now remove the green/white wire from Blue Connector Pin #26 and put it into Black Connector Pin #32 location. Reinstall the color retainers (ensure you put them back on proper connector). Close up strain reliefs. Done.
35. If not already done so now is the time to DOUBLE or TRIPLE check your work. Review wire locations, pin locations, and other details compared to this instruction.
36. This concludes the wiring and control module connections. Before re-assembling dash it is best to test the system briefly. Make sure all PCM and ignition system components are complete and installed. Reconnect battery terminals. Using key turn ignition switch to ON position but do not start engine. Use the DIC panel controls to confirm operation of the LCD screen of normal performance and readings.
37. If everything is working. That is great move onto next steps. If something isn't work....go back and check your work, wiring, pinouts, etc.
38. Find a suitable spot to mount the control box that is secure and wont cause any damage to the control module.
39. You can now reassemble the dash in the reverse order of disassembly. Please feel free to watch videos linked in initial steps again.