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66793, 66799, 66792,
67103, 66762

Banks Derringer® Diesel Tuner
2020-2023 GM 2500 L5P 6.6L
Duramax

EO #: D-161-136 (for parts:
66582, 66592, 66792, 66682,
66692, 66793)

Please note: CARB E.O. in
process for 2023.

**Tools required:**

Zip-ties (6" or longer)
Cutting tool (i.e. Diagonal Cutters)
Standard flat-blade screwdriver
Push-rivet removal tool
10mm socket
Socket wrench
Electrical tape (optional)
Metal coat hanger (optional)

11:11



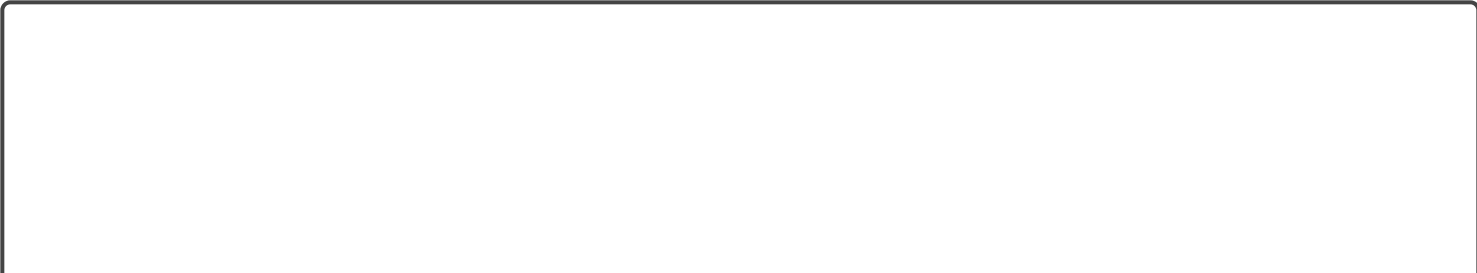
General Installation Practices

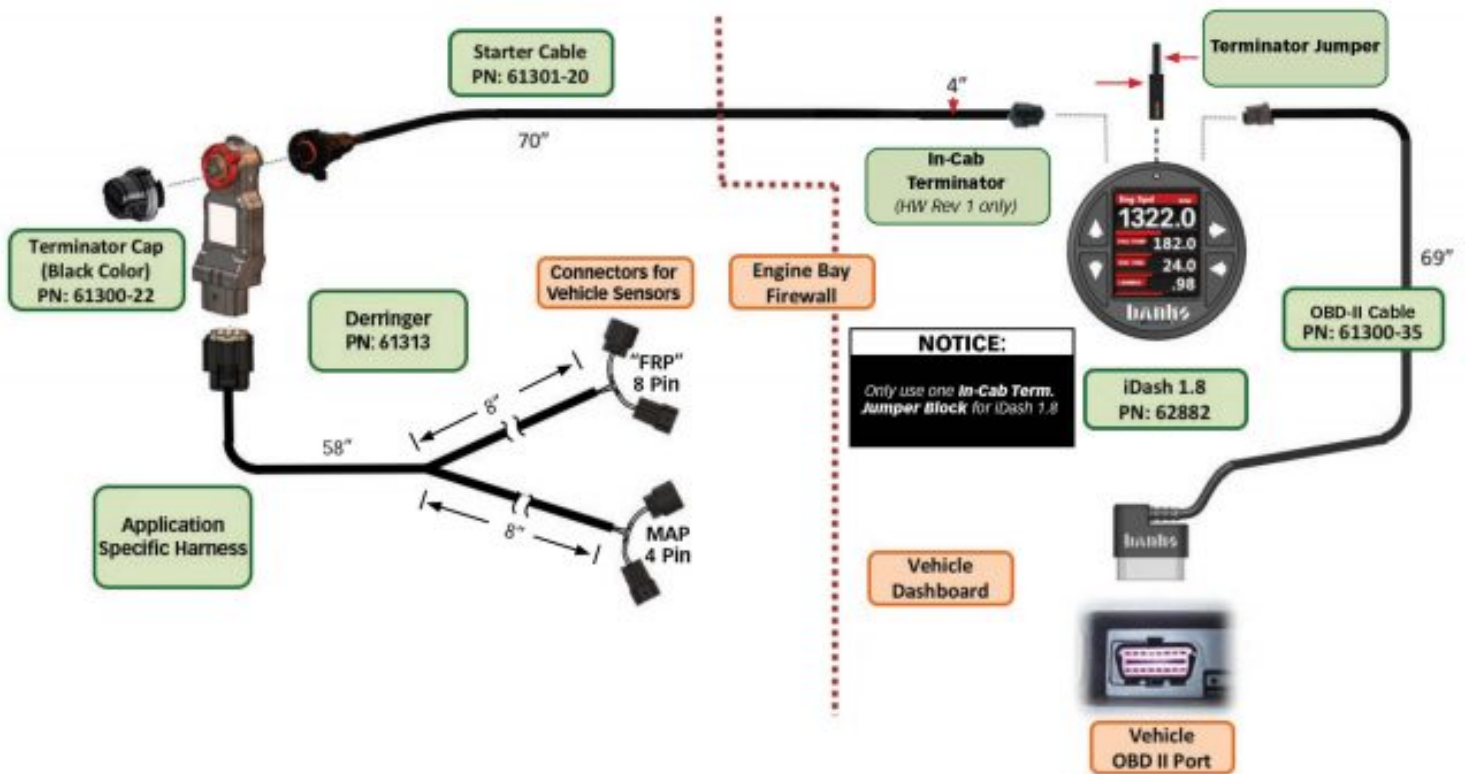
Installation Practices

Disclaimers

Disclaimers

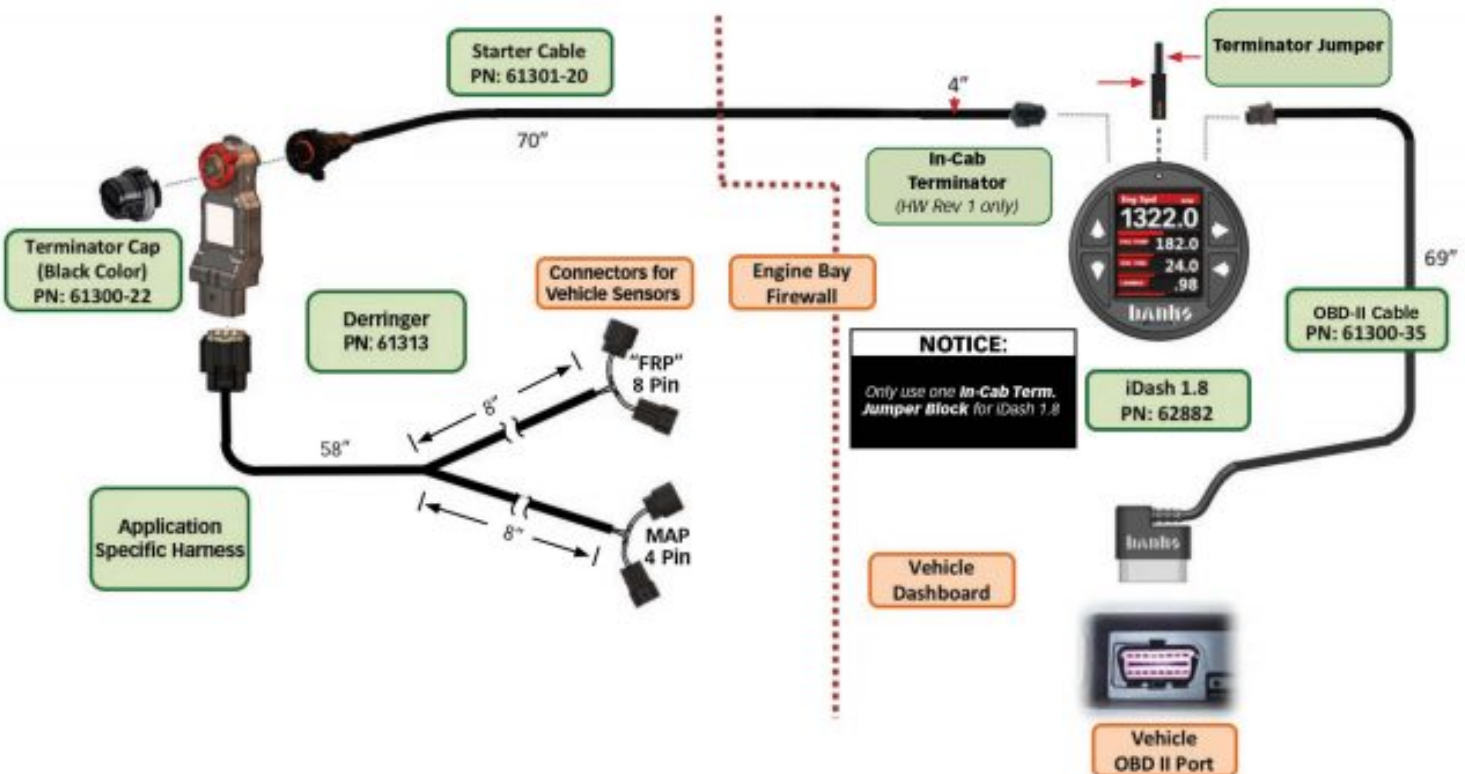
Section 1: Installation of Wire Harness and Derringer Tuner





Derringer Tuner System Configuration

1.1 Derringer Tuner System Configuration



1.2 Derringer Sensor Harness Installation

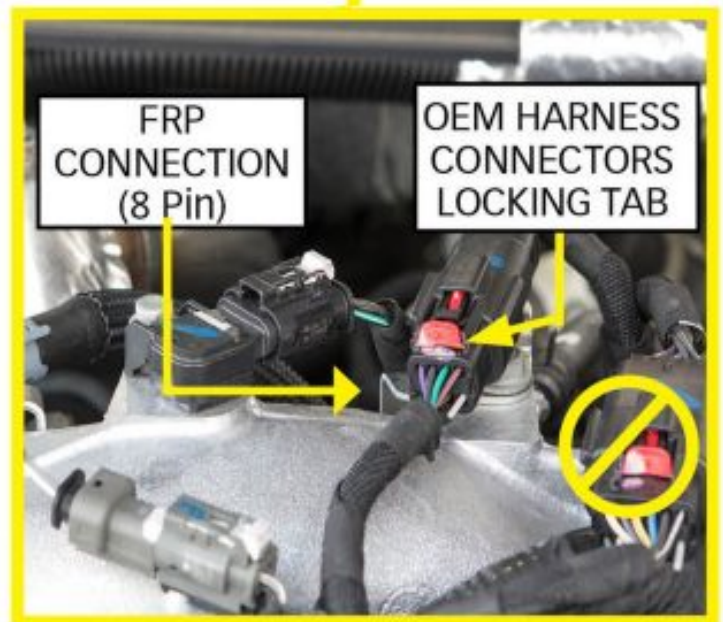
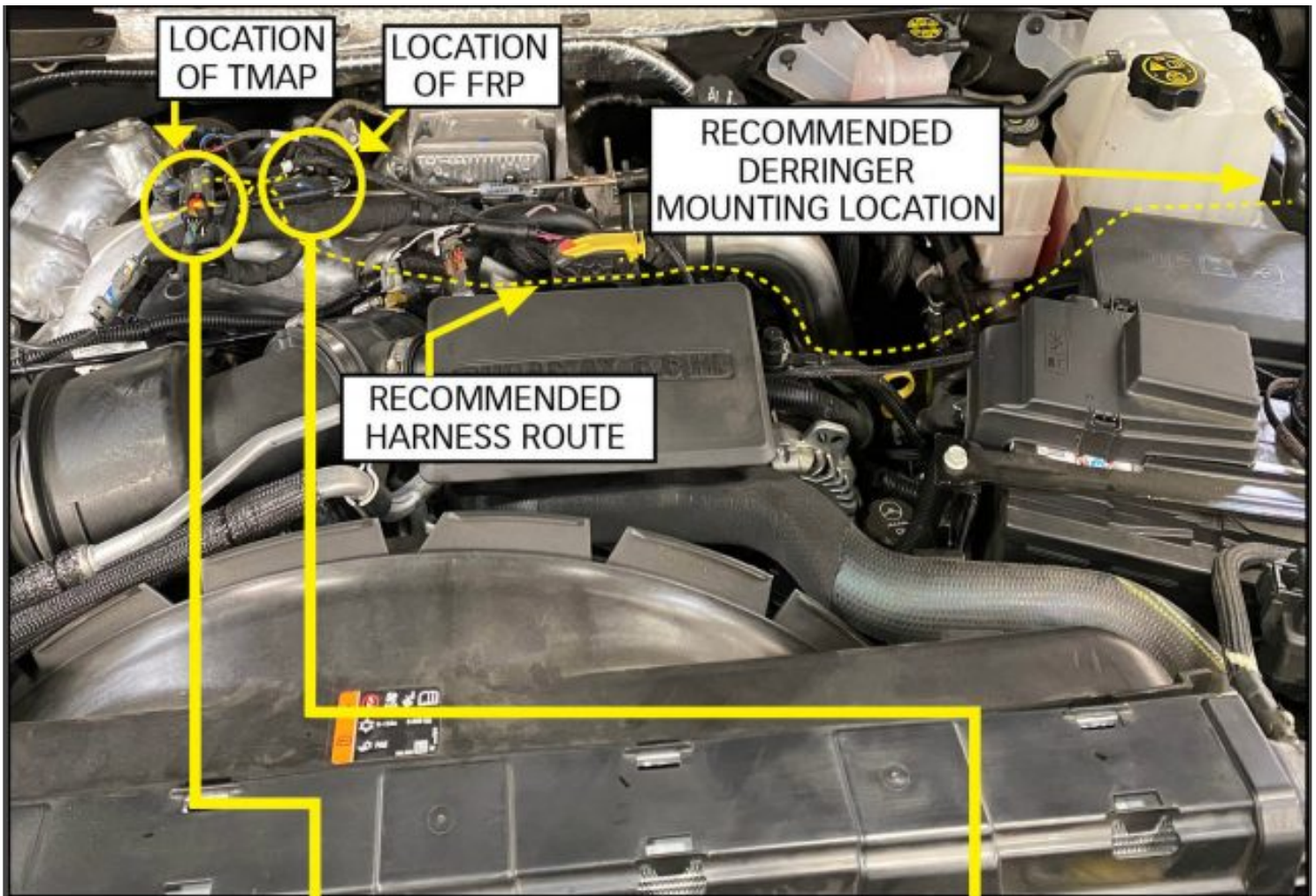


WARNING:

Ensure the engine bay is cool. Remove keys from the ignition. Disconnect the battery GROUND (-) cables. Secure the cables so that they do not come in contact with the battery posts during the installation.

NOTE: If the ECU is powered on when the sensors are disconnected, your vehicle will show diagnostic trouble codes. These codes can be cleared later using the iDash.

Sensor Location/Connection Instructions



1. GM L5P Derringer harness connects to FRP and TMAP sensors. When

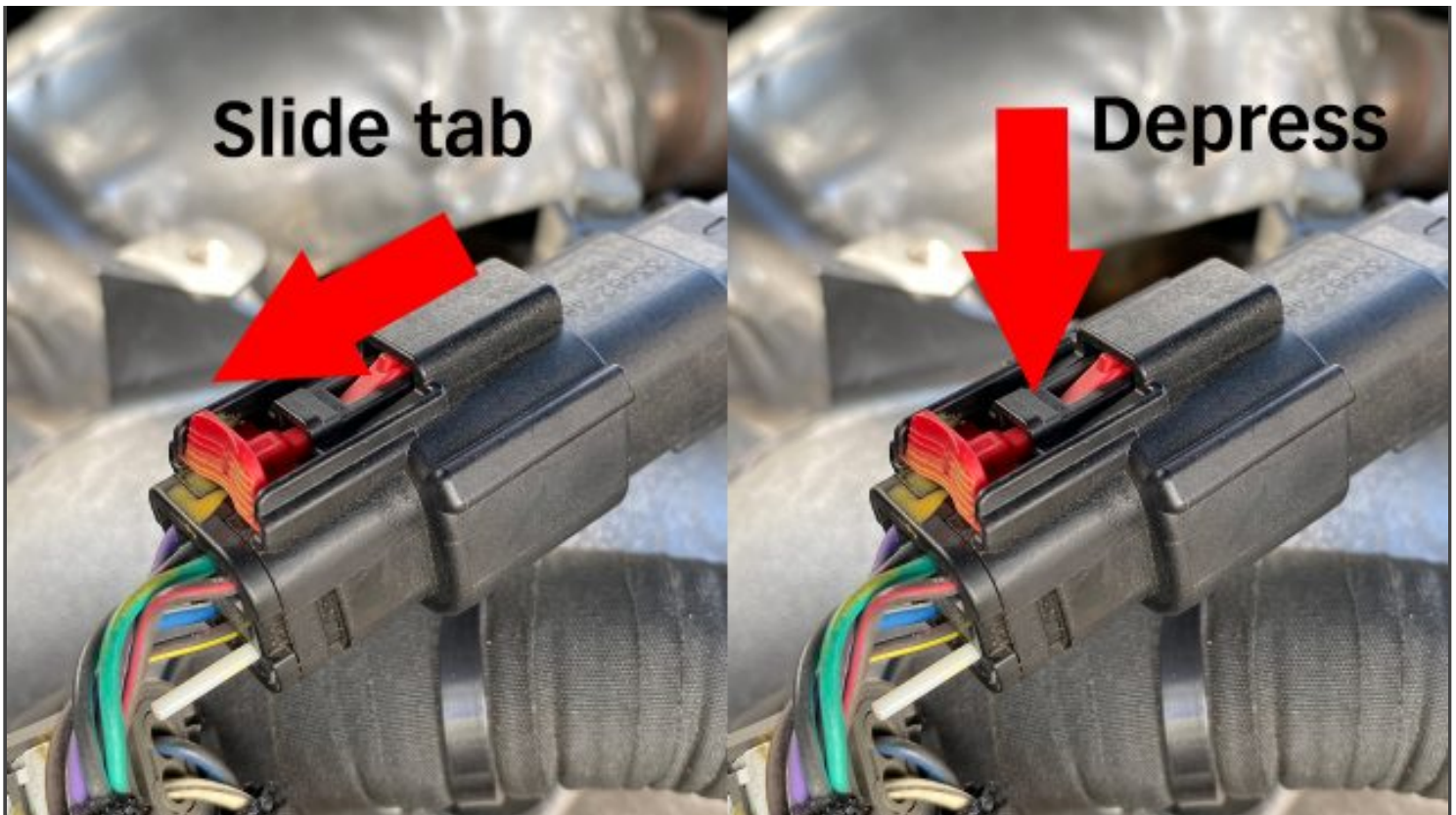
disconnecting the plugs, pull only on the connector, do not pull on the wires. (No tools required)

2. Locate the TMAP and FRP connectors on the GM L5P engine bay.

3. On the top of the L5P engine, you will find a Temp/Manifold Absolute Pressure (TMAP) sensor mounted on the intake manifold. Disconnect the TMAP sensor plug (4 Pin) by sliding the back of the grey locking tab on the OEM harness connector.

After sliding back the locking tab, pull the plug from the TMAP sensor. If the connector doesn't easily pull away from the sensor, use your thumb to slightly depress the grey locking tab. Jiggling the connector gently should allow it to slide off the sensor.

There are two similar-looking OEM connectors next to the previously mentioned TMAP sensor. The following FRP connection that will be utilized is the 8 pin connector **CLOSEST** to the TMAP sensor.



4. To disconnect the OEM harness from the FRP connection, slide back the OEM harness connector's red locking tab.

Use your thumb to depress the black plastic tab just in front of the red tab. This will release the connector and you can pull it away from the OEM FRP connection.

5. Plug the Derringer harness connectors labeled MAP between the MAP sensor and MAP OEM harness. Next, plug the Derringer harness connectors labeled FRP between the FRP connection and the FRP OEM harness.

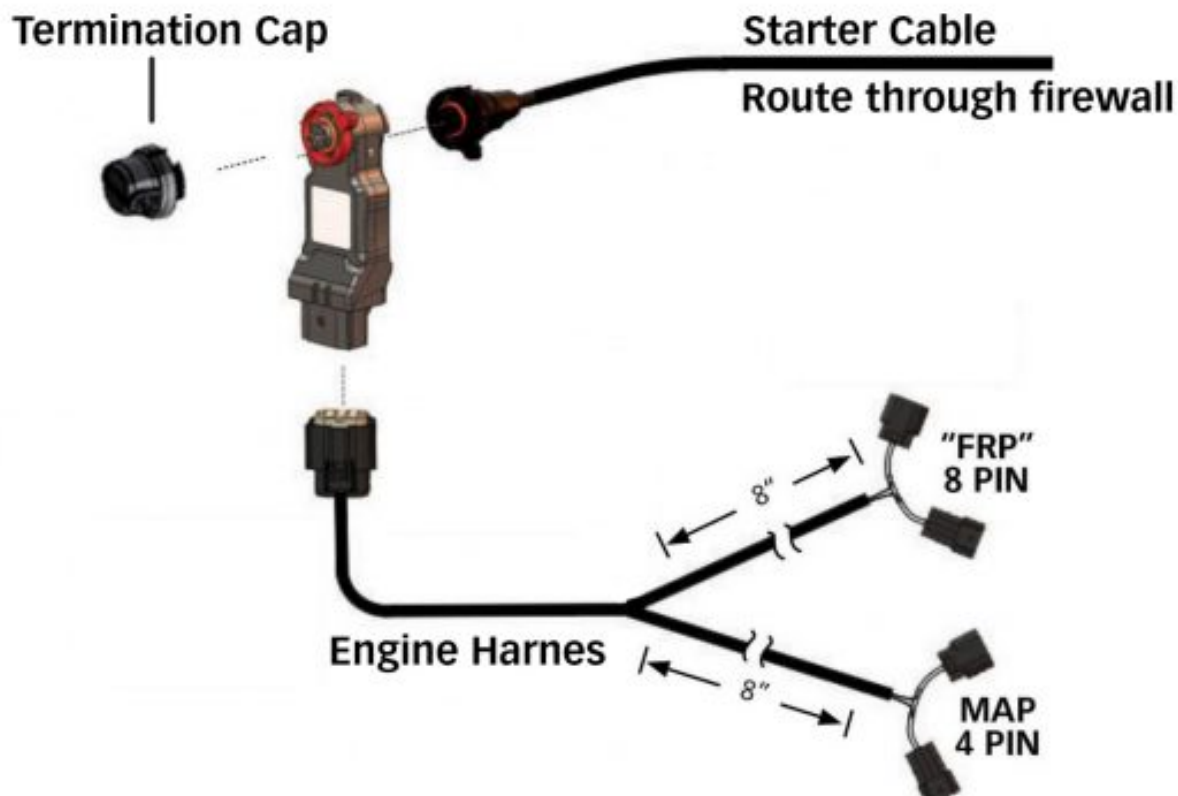
6. It is suggested to route the rest of the Derringer harness along the OEM harness route.

Connect the Derringer module to the Derringer sensor harness.

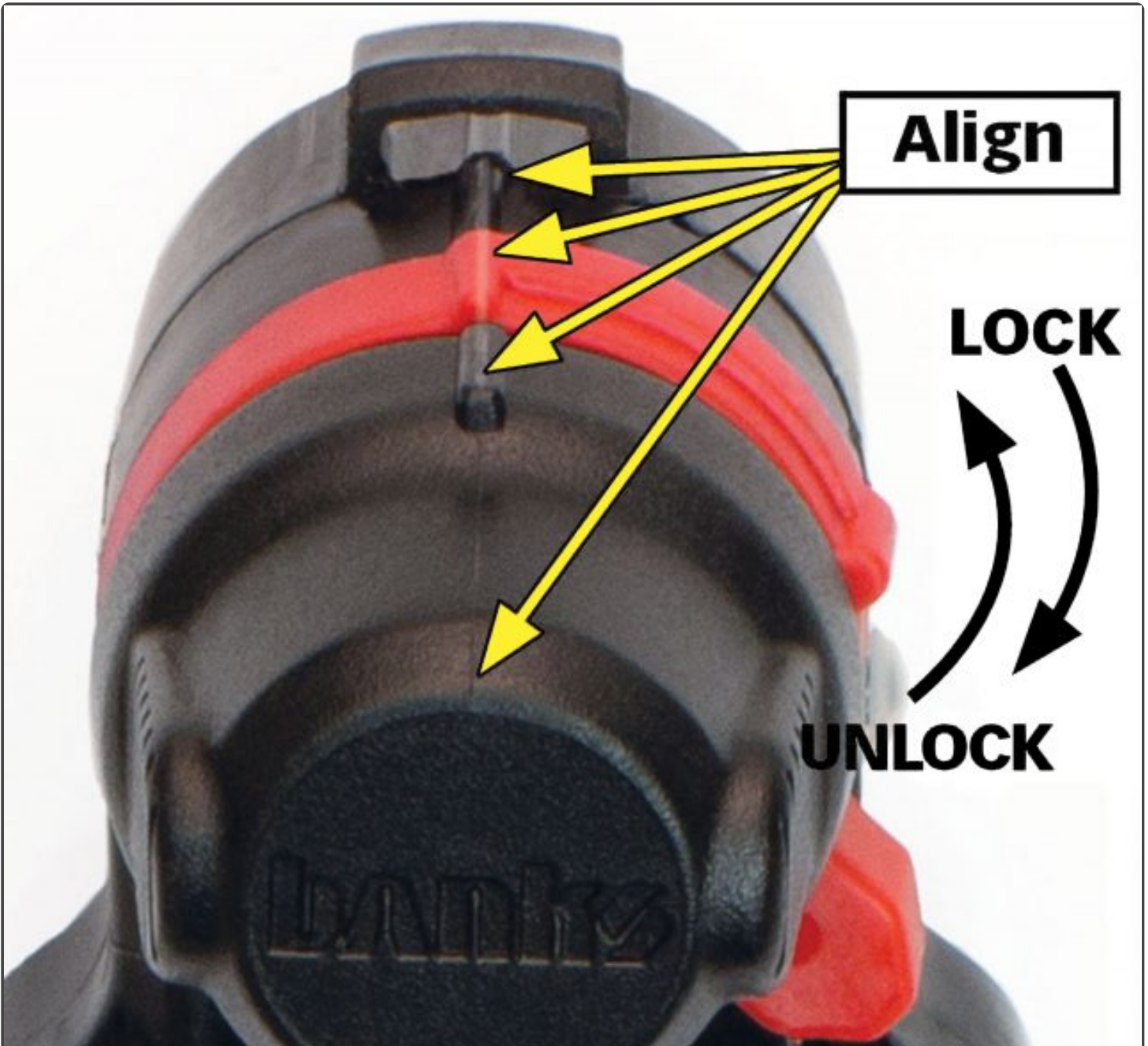
Locate a place to secure the Derringer module near or along the fender, then zip-tie it in place.

The pictured mounting location of the Derringer Tuner is optional. It is best to mount close to the firewall and route the harness along with the OEM harness.

1.3 Derringer Tuner Installation



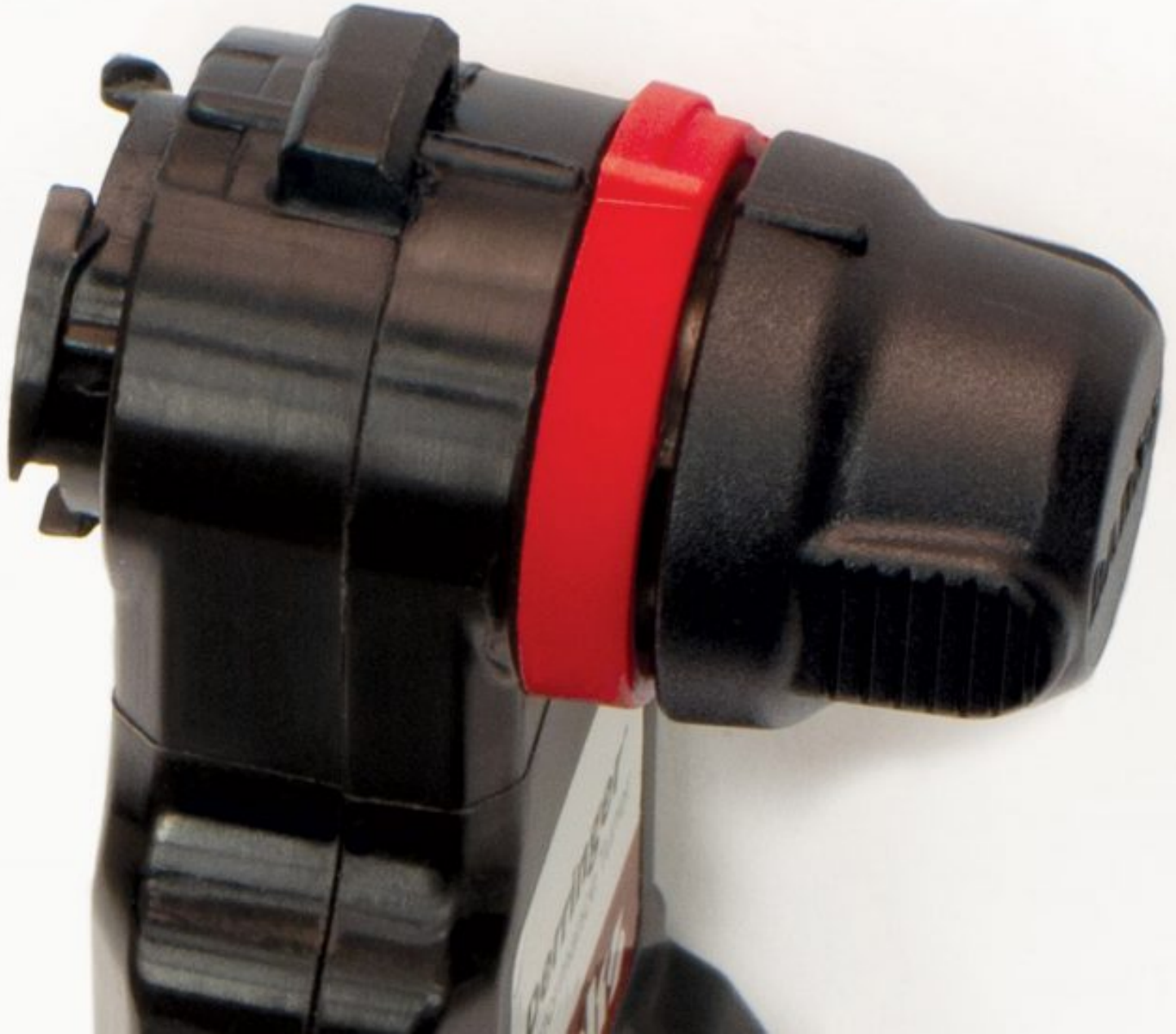
1. Connect the **Derringer Module** to the **Derringer Sensor Harness** and the **Starter Cable**.



2. Rotate the locking ring so all marks line up at the 12 o'clock position then connect

the mating ends together ensuring proper alignment using the 12 o'clock marks.

Pushing the pieces together without proper alignment could result in bent pins.



3. Rotate the locking ring clockwise towards the lock icon until you feel a click.



4. Locate a place to secure the Derringer module near or along the fender, then zip-tie it in place. Ensure the LED indicator is viewable. If there is extra cable length, secure it out of the way with zip-ties.

NOTE: The pictured mounting location of the Derringer Tuner is optional. It is best to mount close to the firewall and route the harness along the OEM harness.

5. Check all connectors for proper installation, then connect the battery terminal(s).

1.4 Starter Cable Firewall Installation – Side Cable Sidewall Access



1. Route the starter cable behind the driver-side reservoir under the foam

divider through the fender and retrieve it while the driver-side door is open.



2. Locate the grommet on the sidewall under the cable harness which passes through the sidewall on the driver's side door jam.

3. Remove the grommet with a plastic pry tool. A flat-blade screwdriver can also be used, however, it's recommended to put electrical tape over the tip to avoid scratching the paint.



4. Cut a 1/4" hole through the grommet and feed the starter cable through it.

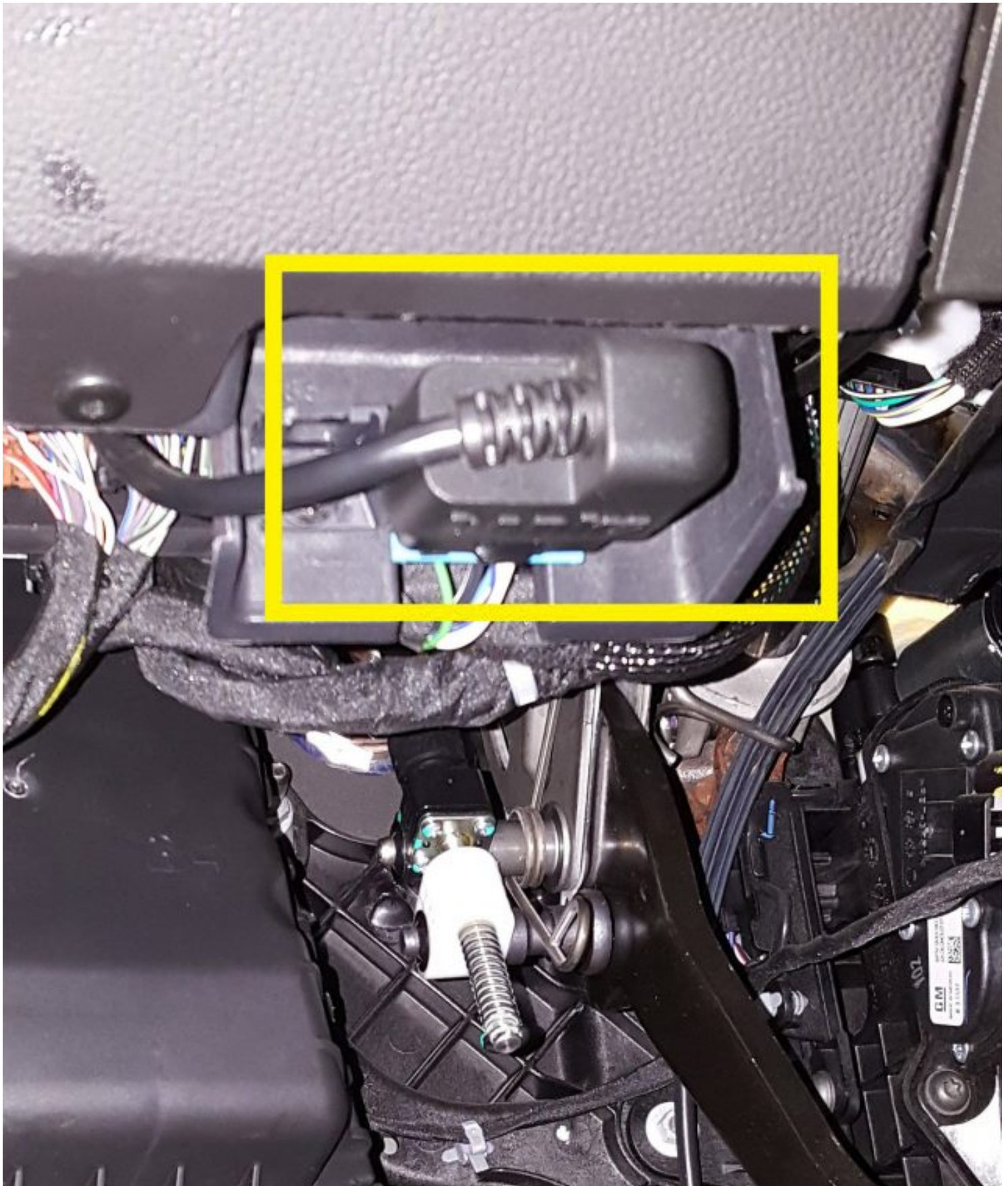


5. Run the starter cable through the door

jam and out from the footwell and pull it out.

1.5 In-Cab Installation

1. Plug the OBD-II Cable into the OBD-II port located under the dash.



2. Remove the side dash cover using a plastic pry tool or screwdriver. Route the Starter Cable and OBD-II Cable to the iDash.

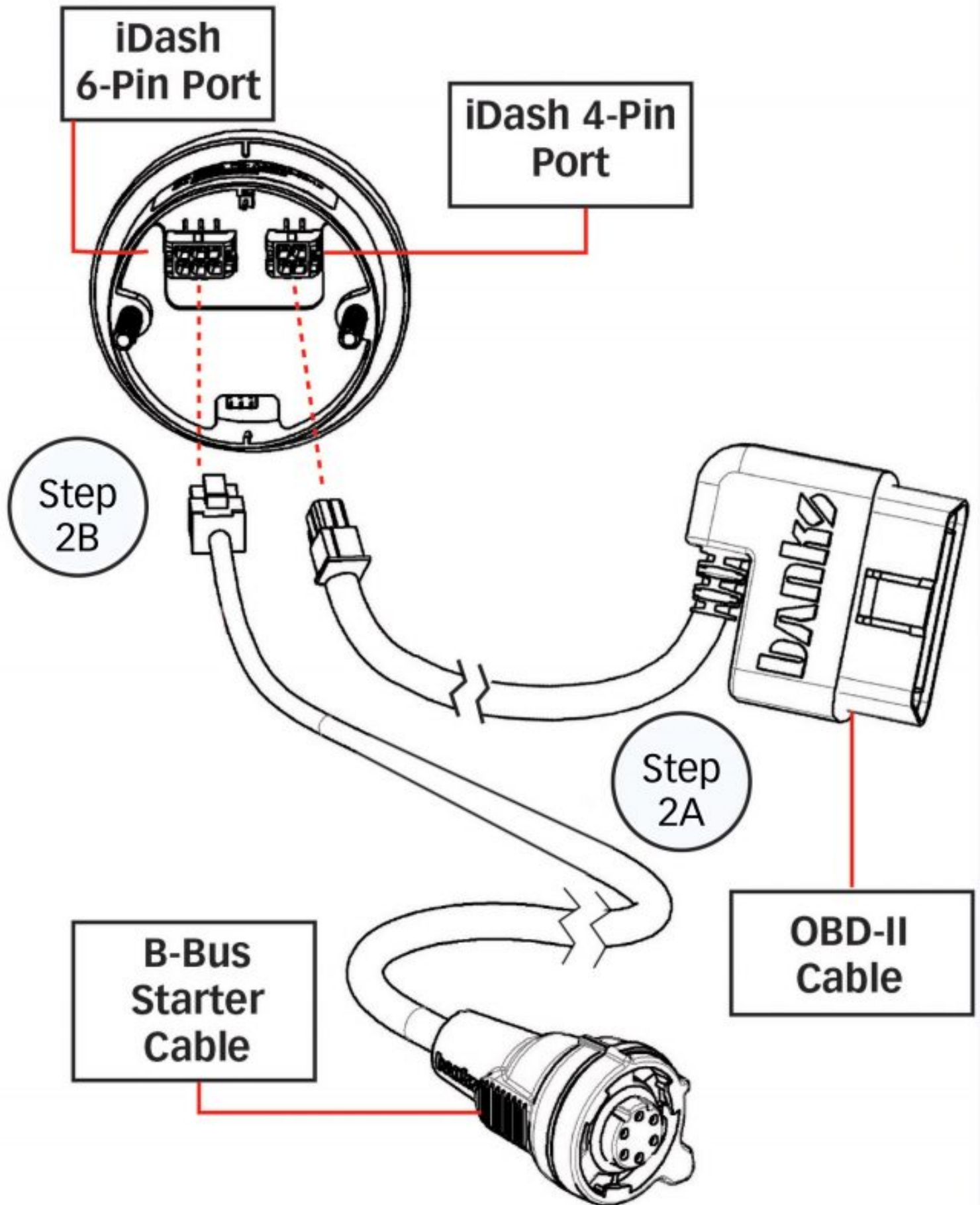


3. Use this area to store any excess wire.

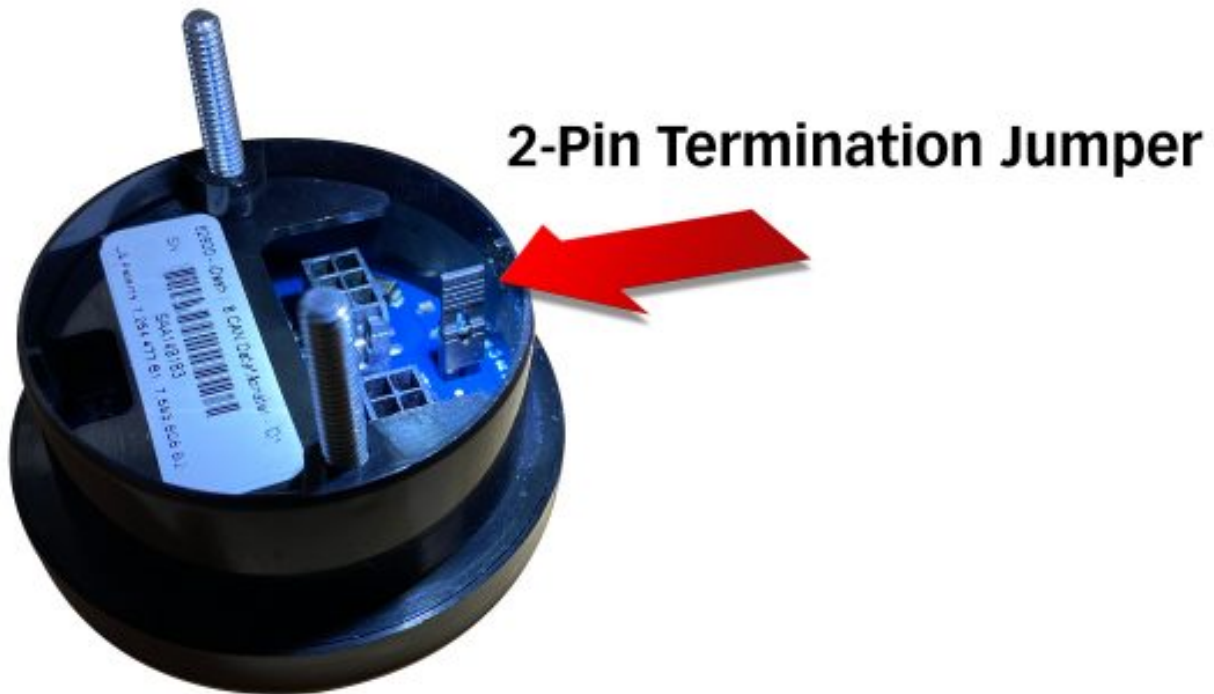


iDash Configuration

1. Connect the Starter Cable to the iDash 6-Pin Port.

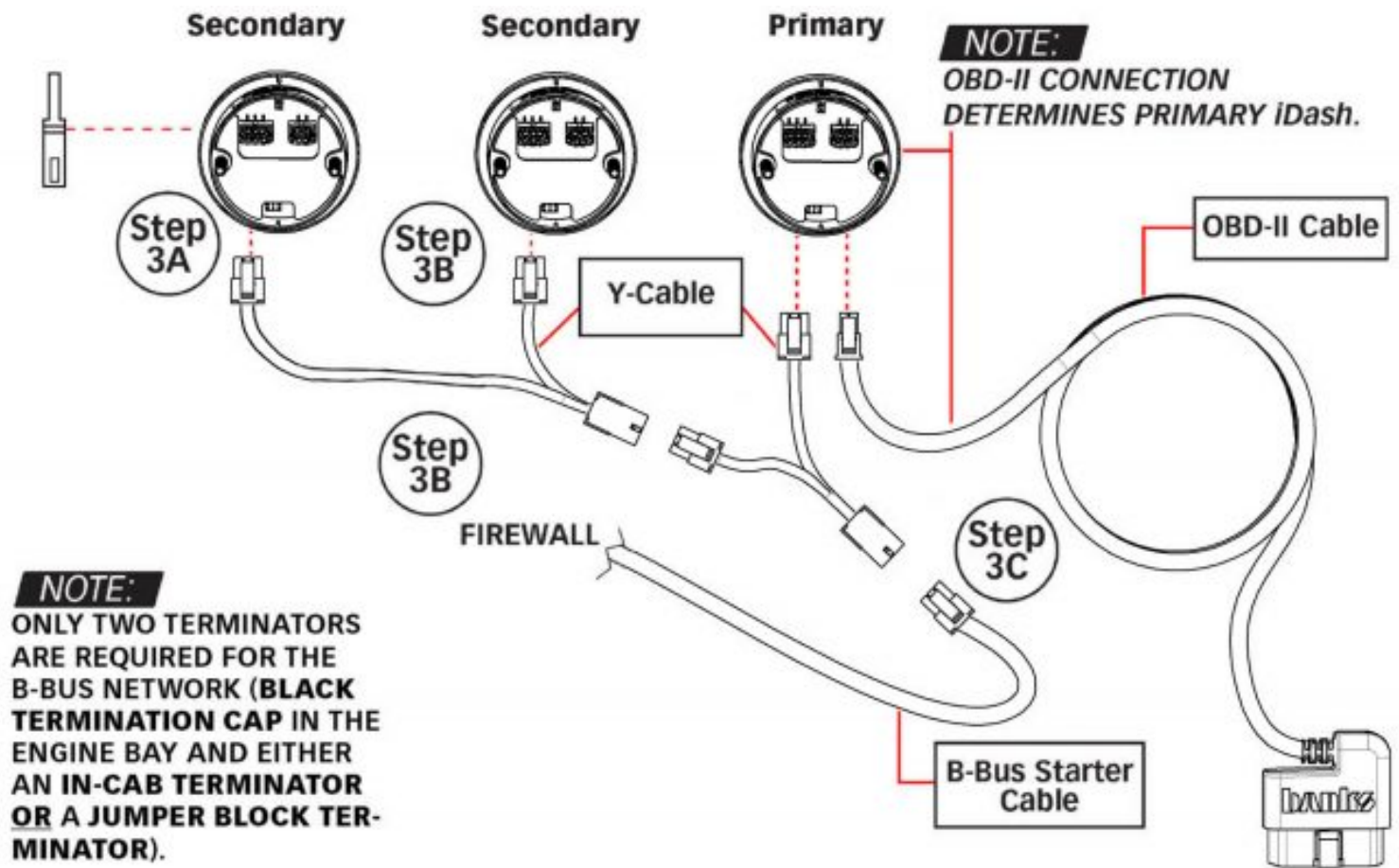


2. Check for the pre-installed Jumper Block to the iDash 2-Pin termination jumper. If this is your only iDash, leave the jumper in place. However, if you're adding multiple iDashes, only the last iDash in the chain should have a jumper. This jumper tells the Banks Bus network where to find the end of the circuit.



3. If adding multiple iDash units, connect the Y-Cable to the 6-pin port of the first and second iDash.

A. Connect the Starter Cable to the Y-Cable as shown.



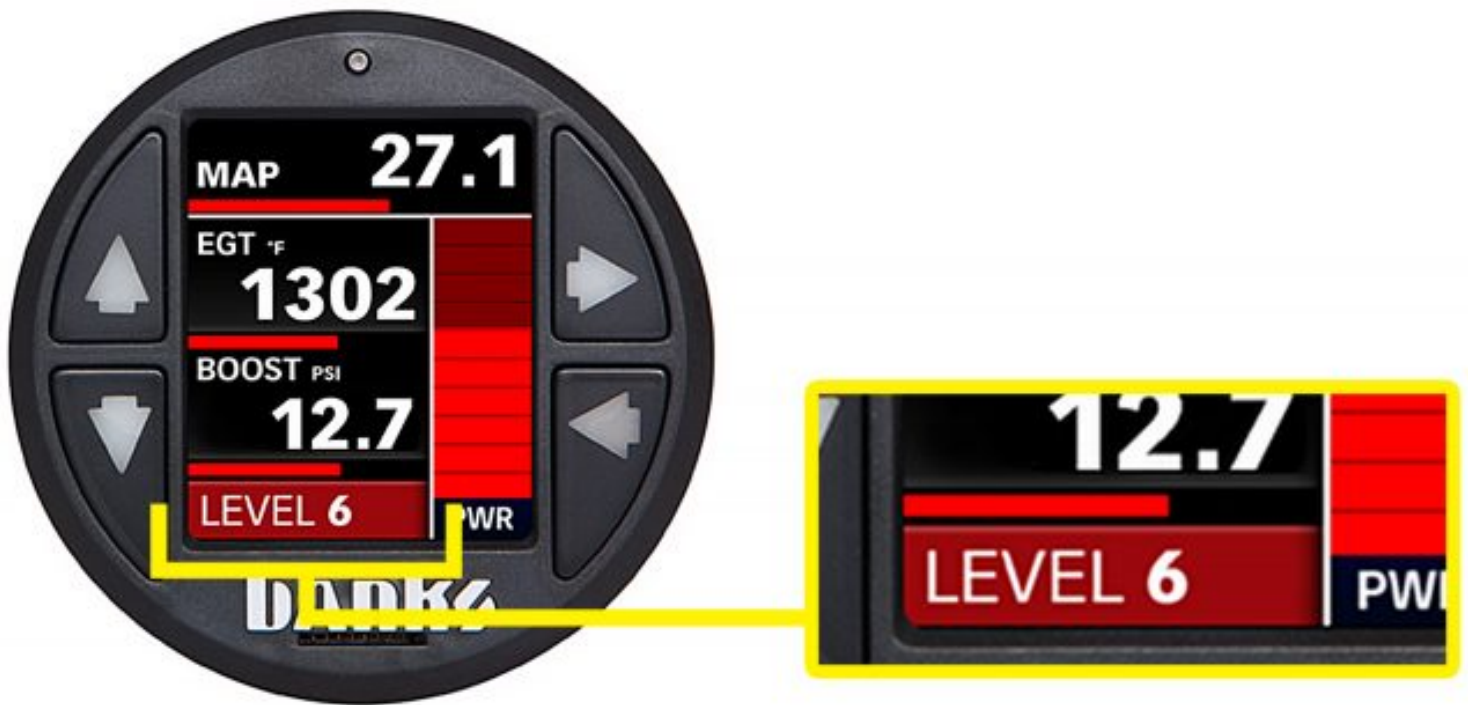
4. Install the iDash 1.8 in an A-pillar mount or a suction cup windshield-mount gauge-pod.

1.6 Checking your connection

On the iDash, navigate to the Gauge Layout, scroll down, then select the **"Derringer"** layout. Using the **UP** and **DOWN** arrow buttons to adjust the power level settings.



If the power level cannot be adjusted, refer to **"Section 3: Troubleshooting"**



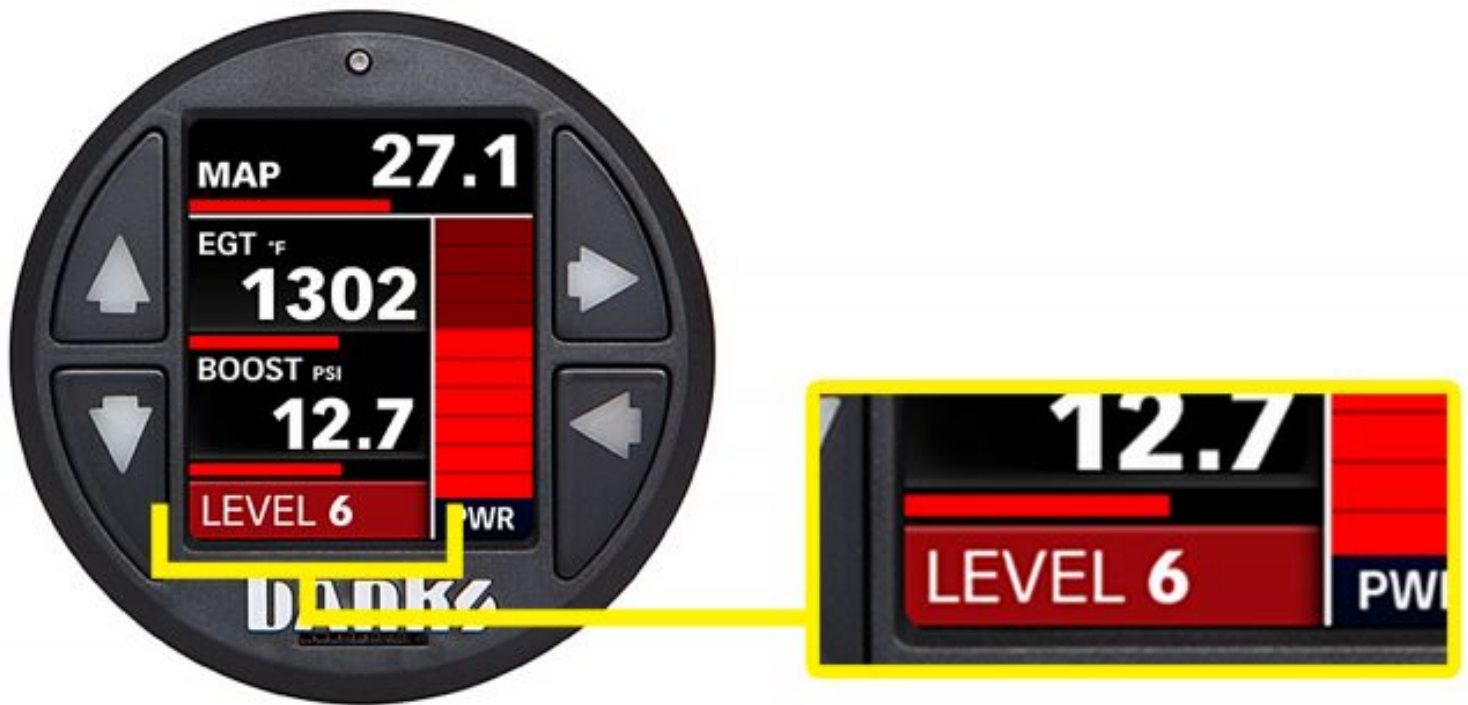
2.0 Derringer Tuner Operation

Setting Desired Power Level:

The Derringer is equipped with multiple power levels. You can set the desired power level while driving, however, it is recommended that you do not switch the power level under high load applications.

iDash 1.8 configuration:

When the Derringer is connected to an iDash, there are a total of 6 power levels (level 6, 5, 4, 3, 2, and stock). The power level can be changed by pressing the **UP** and **DOWN** buttons at any time. If you have the Derringer layout loaded, you will see the power level change at the bottom left corner. If you have any other layout loaded, a message box will pop up to notify you of the power level change.



SPORT MODE/LEVEL 6

This mode is to be used when peak engine performance is desired. This mode has been optimized for maximum power output along with improved turbo response by tuning fuel delivery and boost.

PLUS MODE/LEVEL 3

The plus calibration is designed for use in everyday driving. This power level adds a noticeable punch under high load acceleration by improving turbo response and power. Power in this mode can be sustained for a prolonged duration.

STOCK MODE

Stock mode turns OFF your Derringer tuner. Throttle response and power return to stock levels.

Banks ActiveSafety®

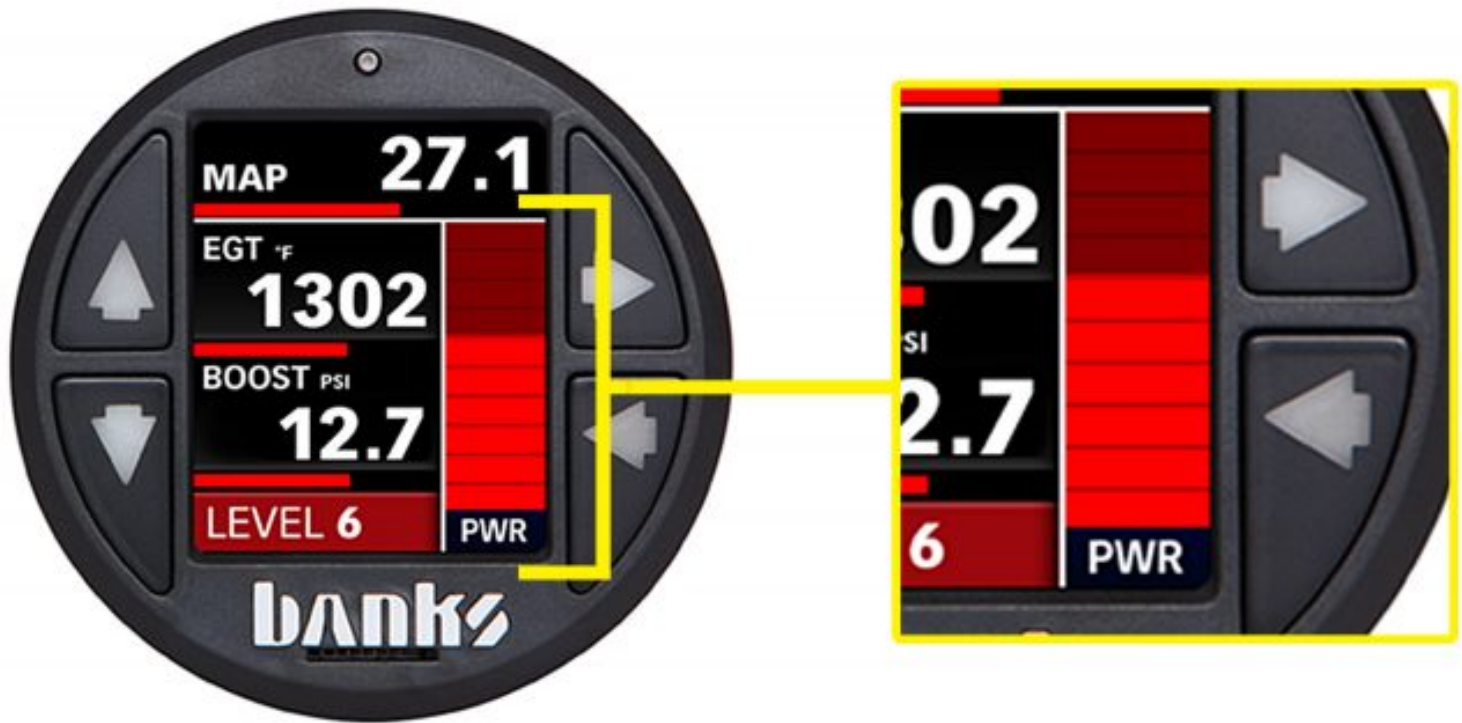
Anytime aftermarket electronics are introduced to your vehicle, it is important to know that they are not going to cause damage. Banks builds in a suite of ActiveSafety features to safeguard your vehicle:

- » Software that monitors and diagnoses itself to ensure proper function.
- » Self-monitoring hardware that provides automatic bypass should something malfunction.

The Derringer Tuner module monitors multiple parameters and adjusts its output controls to protect the driveline. The Derringer Tuner monitors engine coolant temperature (ECT) and will limit the additional power that it provides anytime the ECT is outside of optimal operating range to protect the engine.

Power Added (%):

When connected to an iDash while displaying the “Derringer” layout, the vertical bar graph on the right-hand side represents, in real-time, how much power the Derringer is adding. In Stock Mode there will be no change to the bar graph and in Sport Mode/Level 6 the bar graph will reach 100% under proper operating conditions. Percent power added is affected by safety features such as Engine Coolant Temperature, Exhaust Gas Temperature, Regen., and various transmission parameters, so it might not always fully reach 100%. The “**Power Added**” data can also be displayed on ANY layout as a numeric value by selecting it from the “**Derringer**” category of parameters.



Automatic Transmission Learning:

6.6L GM Duramax pickup trucks equipped with the Allison 1000 6-speed automatic transmission use an adaptive shift control logic. After the initial installation of the Derringer Tuner, wide-open throttle shifts may feel soft when switching to higher power levels. Also, when switching to lower power levels, shifting may feel harsher. Continued use at a single power level will provide more consistent shifting performance.

To accelerate the learning process perform the following sequence at a location where it is safe to accelerate without exceeding the posted speed limit.

1. Set the Derringer Tuner to **Stock Mode** power setting, start the truck and allow the engine to reach normal operating temperature.
2. Adjust the Derringer Tuner to **Plus Mode/Level 3** power setting.
3. Drive your vehicle for 5-10 miles, ensuring a complete shift cycle through each gear (The transmission shift learning process requires 15-30 complete shift cycles to learn a new shift program).
4. Increase power level to **Sport Mode/Level 6** and repeat **Step 3**.

3.0 Troubleshooting

No Communication with iDash

Check that your wiring matches the figure in **Section 1.1 Wiring Diagram: iDash 1.8" Configuration** or for multiple iDash 1.8 Gauges.

Common sources of Derringer communication errors (D-ERR) are wrong caps attached to the Derringer and/or the In-Cab Termination Cable is not installed. A Black Termination Cap must be connected to the Derringer and only one In-Cab Termination Cable should be attached to one of the iDash units.

iDash Display Error Code

If error code "D-ERR!" appears on the iDash, refer to the following to display the code and description:

Settings > Diagnostics > Select the module that is giving the error

Derringer Tuner (GM L5P application)

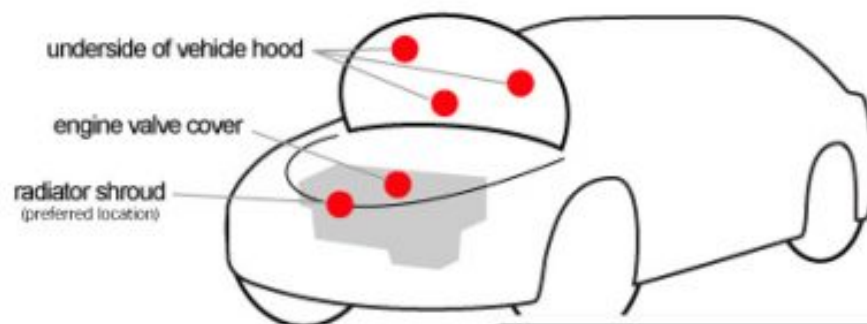
Code	Event	Course of Action
1,1	Fuel Rail Pressure (FRP) Input Voltage Out of Range.	Turn ignition OFF & check the male and female FRP sensor connectors. Turn ignition back ON & re-check for presence of code. If code does not re-appear at key ON, start engine & check for presence of code both at engine idle & under varying driving conditions.
1,2	Manifold Absolute Pressure (MAP) Input Voltage Out of Range.	Turn ignition OFF & check the male & female MAP sensor connectors. Turn ignition back ON & re-check for presence of code. If code does not re-appear at key ON, start engine & check for presence of code both at engine idle & under varying driving conditions.
1,4	Fuel Rail Pressure 2 (FRP2) Input Voltage Out of Range.	Turn ignition OFF & check the male and female FRP sensor connectors. Turn ignition back ON & re-check for presence of code. If code does not re-appear at key ON, start engine & check for presence of code both at engine idle & under varying driving conditions.
2,1	Fuel Rail Pressure (FRP) Output Voltage	Turn ignition OFF & check the male & female FRP sensor connectors. Turn ignition back ON & re-check for presence of code. If code does not re-appear at key ON, start engine & check for presence of code both at engine idle & under varying driving conditions.

	Out of Range.	for presence of code both at engine idle & under varying driving conditions.
2,2	Manifold Absolute Pressure (MAP) Output Voltage Out of Range	Turn ignition OFF & check the male & female MAP sensor connectors. Turn Ignition back ON & re-check for presence of code. If code does not re-appear at key ON, start engine & check for presence of code both at engine idle & under varying driving conditions.
2,4	Fuel Rail Pressure 2 (FRP2) Output Voltage Out of Range.	Turn ignition OFF & check the male & female FRP sensor connectors. Turn ignition back ON & re-check for presence of code. If code does not re-appear at key ON, start engine & check for presence of code both at engine idle & under varying driving conditions.
3,2	Internal Module Malfunction or Intermittent Power.	Turn ignition OFF & check the male and female FRP sensor connectors. Turn ignition back ON & re-check for presence of code. If code does not re-appear at key ON, start engine & check for presence of code both at engine idle & under varying driving conditions.
3,3	CPU Over Temp Limit	CPU over temperature limit exceeds 125°C (257°F). Turn ignition OFF & allow several minutes to let the CPU cool. Turn ignition back ON & re-check for presence of code. If code does not re-appear at key ON, start engine & check for presence of code both at engine idle & under varying driving conditions.
3,4	OBD-II CAN Communication error	Turn ignition OFF & check the following connections (as applicable): 1) 61300-35 OBD-II Interface Cable - at 16-pin vehicle OBD-II & 4-pin inter-cable connectors. 2) 61301-21 Y-Adapter Cable - at 4-pin inter-cable & 6-pin inter-cable connectors.
3,5	Banks Bus CAN Communication error	3) 61301-20 B-Bus Starter Cable - at 6-pin inter-cable & 6-pin B-Bus Circular connectors. 4) 61300-22 B-Bus Terminator Plug - at 6-pin B-Bus Circular connector. Turn ignition back ON & re-check for presence of code. If code does not re-appear at key ON, start engine & check for presence of code both at engine idle & under varying driving conditions.

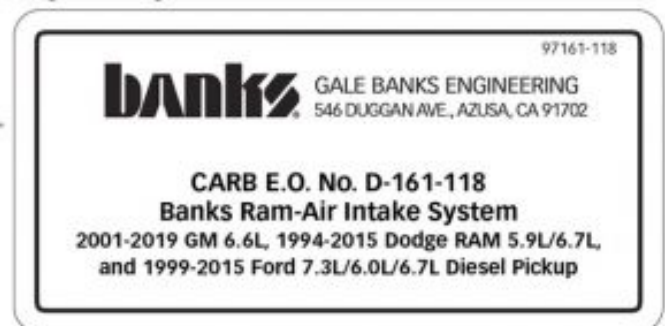
4,2	Excessive Transmission Slip Detected	If speed sensor readings are incorrect, see speed sensor DTC. If the transmission fluid level is incorrect, correct the fluid level. If the TCC clutch is not applied, inspect the torque converter clutch system wiring, pressure, and controls. If the clutch is slipping, rotating clutch seals are leaking, and the clutch plates are worn, inspect clutch plates, piston seals, and rotating seals. Take your vehicle to your mechanic for inspection/repair.
4,5	Excessive Torque Converter Clutch Slip Detected	Shift solenoid valve performance DTC's, in conjunction with P0894, may indicate incorrect fluid level. Incorrect gear ratio DTC's may indicate clutch damage. Take your vehicle to your mechanic for inspection/repair.

Vehicle CARB EO Label Placement

locations



sample label



CARB EO Label

For smog check purposes, affix the CARB E.O. Label on a visible location under the hood. Banks recommends using the radiator shroud location.

NOTE: CARB E.O. is in process for 2023.

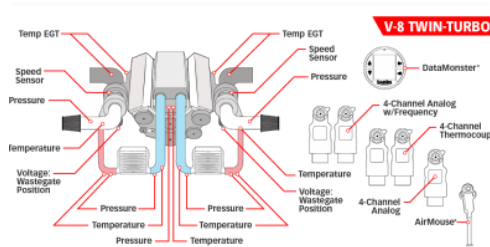
Technical Support

If you require support, call or text (800) 601-8072 during normal business hours, Monday-Friday. We can also be reached via Facebook messenger.

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