

with Installation Instructions
Owner's Manual

**Banks
Derringer®
Tuner**

All Derringer Applications

THIS MANUAL IS FOR USE WITH SYSTEM P/N:

66575, 66545, 66577, 66547, 66571, 66541, 66572, 66582, 66552

banks

General Installation Practice

Dear Customer,

If you have any questions concerning the installation of your Banks Techni-Cooler, please call our Technical Service Hotline. If you have any questions relating to shipping or billing, please contact our Customer Service Department.

Thank you.

1. Before starting work, familiarize yourself with the installation procedure by reading all of the instructions.

2. The exploded views (**Pages 8-11**) provides only general guidance. Refer to each step and section diagram in this manual for proper instruction.

3. Throughout this manual, the left side of the vehicle refers to the driver's side, and the right side to the passenger's side.

4. Disconnect the negative (ground) cable from the battery (or batteries, if there are more than one) before beginning work. The OEM battery clamp can be removed using a 10mm socket or wrench.

5. Route and tie wires and hoses a minimum of 6" away from exhaust heat, moving parts and sharp edges. Clearance of 8" or more is recommended where possible.

6. During installation, keep the work area clean. Do not allow anything to be dropped into intake, exhaust, or lubrication system components while performing the installation, as foreign objects will cause immediate engine damage upon start-up.

CAUTION! Do not use floor jacks to support the vehicle while working under it. Do not raise the vehicle onto concrete blocks, masonry or any other item not intended specifically for this use.

7. During installation, keep the work area clean. Do not allow anything to be dropped into intake, exhaust, or lubrication system components while performing the installation, as foreign objects will cause immediate engine damage upon start-up.

TOOLS REQUIRED:

- Metric sockets and wrenches
 - Diagonal (side cutter) Pliers
 - Exacto knife or other small bladed knife
 - Drill motor*
 - #31 (.1200 dia.) Drill bit*
 - #1 or 7/32 (.228 dia.) Drill bit*
- *Required only if mounting switch in dash

Highly recommended tools and supplies:

- Standard and Phillips screwdrivers
- Silicon sealer (black or clear recommended)
- Metal coat hanger
- Clip/Fastener Removal Tool

Disclaimers

THIS IS A HIGH PERFORMANCE PRODUCT. USE AT YOUR OWN RISK. Do not use this product until you have carefully read the following agreement.

This sets forth the terms and conditions for the use of this product. The installation of this product indicates that the BUYER has read and understands this agreement and accepts its terms and conditions.

Disclaimer of Liability

Gale Banks Engineering Inc., and its distributors, employees, and dealers (hereafter "**SELLER**") shall in no way be responsible for the product's proper use and service. The **BUYER** hereby waives all liability claims.

The **BUYER** acknowledges that he/ she is not relying on the **SELLER's** skill or judgment to select or furnish goods suitable for any particular purpose and that there are no liabilities which extended beyond the description on the face hereof and the **BUYER** hereby waives all remedies or liabilities, expressed or implied, arising by law or otherwise, (including without any obligations of the **SELLER** with respect to fitness, merchantability, and consequential damages) whether or not occasioned by the **SELLER's** negligence.

The **BUYER** is responsible to fully understand the capability and limitations of his/her vehicle according to manufacturer specifications and agrees to hold the **SELLER** harmless from any damage resulting from the failure to adhere to such specifications. The **SELLER** disclaims any warranty

and expressly disclaims any liability for personal injury or damages. The **BUYER** acknowledges and agrees that the disclaimer of any liability for personal injury is a material term for this agreement and the **BUYER** agrees to indemnify the **SELLER** and to hold the **SELLER** harmless from any claim related to the item of the equipment purchased. Under no circumstances will the **SELLER** be liable for any damages or expenses by reason of the use or sale of any such equipment.

The **BUYER** is responsible to obey all applicable federal, state, and local laws, statutes, and ordinances when operating his/her vehicle, and the **BUYER** agrees to hold **SELLER** harmless from any violation thereof.

The **SELLER** assumes no liability regarding the improper installation or misapplication of its products. It is the installer's responsibility to check for proper installation and if in doubt, contact the manufacturer.

The **BUYER** is solely responsible for all warranty issues from the automotive manufacturer.

Disclaimers, cont'd...

Limitation of Warranty

Gale Banks Engineering Inc. (hereafter "**SELLER**"), gives Limited Warranty as to description, quality, merchantability, fitness for any particular purpose, productiveness, or any other matter of **SELLER**'s product sold herewith. The **SELLER** shall be in no way responsible for the product's open use and service and the **BUYER** hereby waives all rights except those expressly written herein. This Warranty shall not be extended or varied except by written instrument signed by **SELLER** and **BUYER**. All products that are in question of Warranty must be returned shipping prepaid to the **SELLER** and must be accompanied by a dated proof of purchase receipt. All Warranty claims are subject to approval by Gale Banks Engineering Inc.

Under no circumstance shall the **SELLER** be liable for any labor charged or travel time incurred in diagnosis for defects, removal, or reinstallation of this product, or any other contingent expense. Under no circumstances will the **SELLER** be liable for any damage or expenses incurred by reason of the use or sale of any such equipment.

IN THE EVENT THAT THE BUYER DOES NOT AGREE WITH THIS AGREEMENT:

The **BUYER** may promptly return this product, in a new and unused condition, with a dated proof-of-purchase, to the place of purchase within thirty (30) days from date-of-purchase for a full refund, less shipping and/or restocking fee.

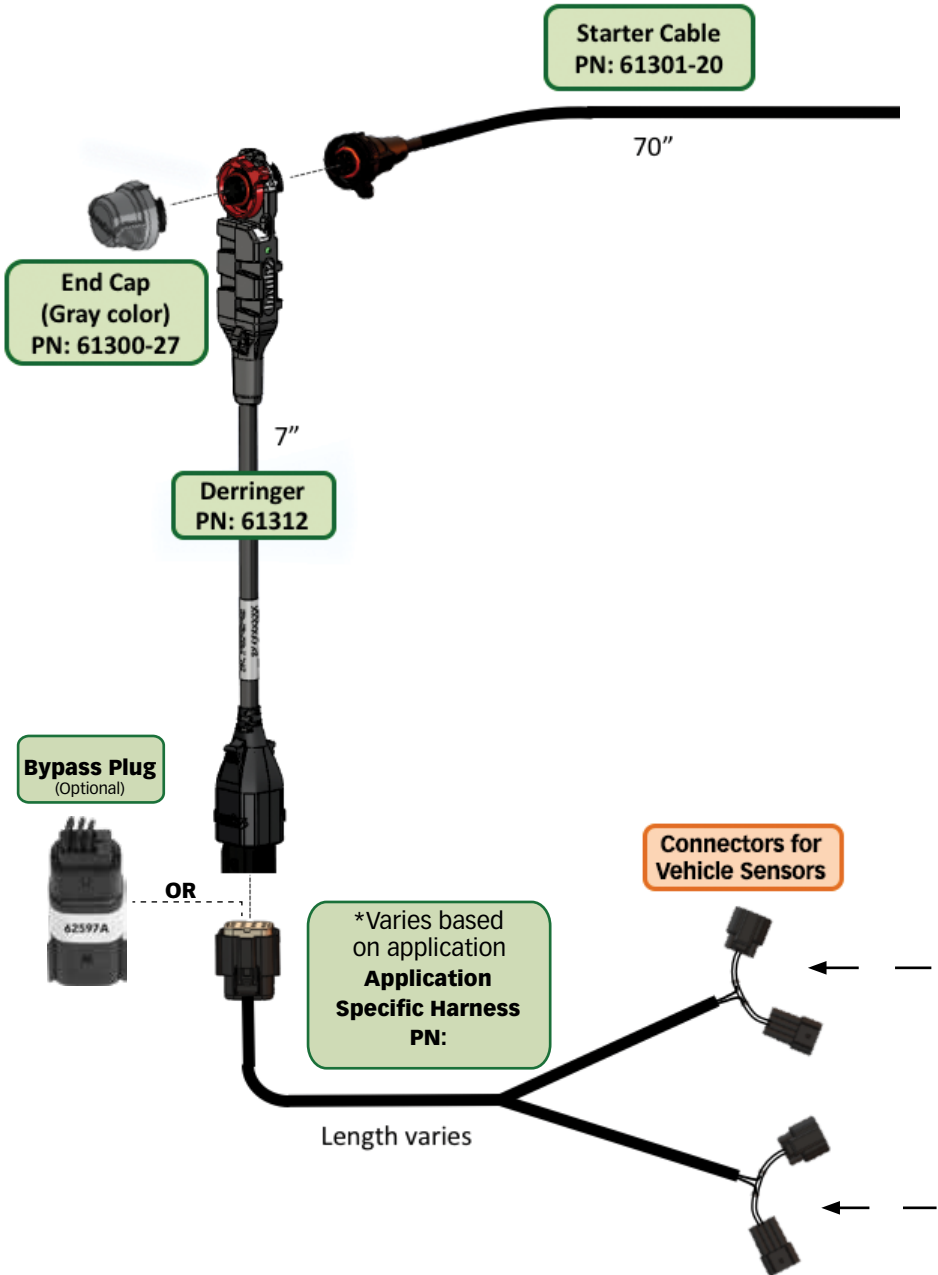
The installation of this product indicates that the **BUYER** has read and understands this agreement and accepts its terms and conditions.

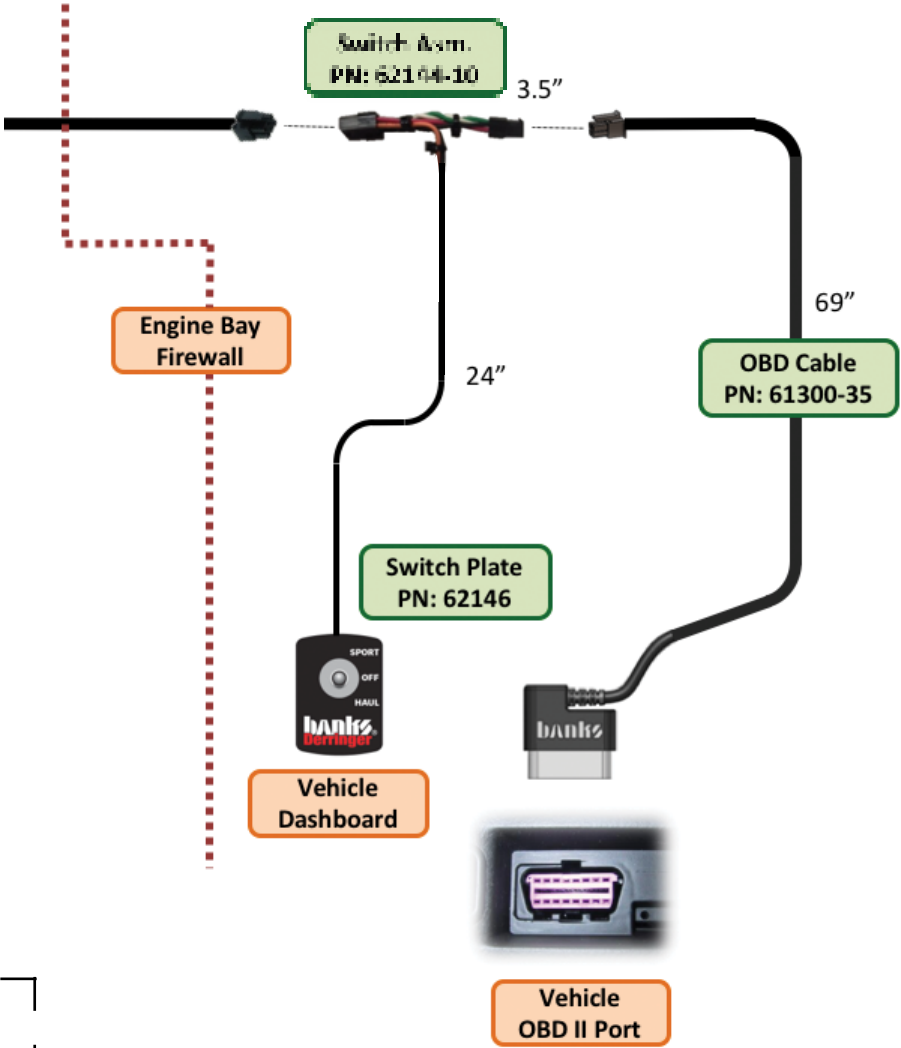
Table of Contents

1. Installation of Wire Harness and Derringer Tuner	7
1.1 Derringer Tuner System Configuration	8
1.1.1 Stand Alone/Switch Configuration	8
1.1.2 iDash 1.8 Configuration	10
1.2 Derringer Sensor Harness Installation.....	12
1.3 Derringer Tuner Installation	14
1.4 Vehicle Specific Instructions.....	21
1.4.1 2011-2016 F150 EcoBoost.....	22
1.4.2 2017-2018 GM 6.6 L5P.....	24
1.4.3 2014-2017 EcoDiesel Ram/Jeep.....	27
2. Derringer Tuner Operations	34
3. Troubleshooting.....	37
3.1 General troubleshooting info.....	38
3.2 2011-2016 F150 EcoBoost.....	39
3.3 2017-2018 GM 6.6 L5P	40
3.4 2014-2017 EcoDiesel Ram/Jeep	42
4. Banks Power Decal	44
4.1 2011-2016 F150 EcoBoost.....	45
4.2 2017-2018 GM 6.6 L5P.....	46
4.3 2014-2017 EcoDiesel Ram/Jeep	47

SECTION 1.1 DERRINGER TUNER SYSTEM CONFIGURATION

1.1.1: Stand Alone/Switch Config.

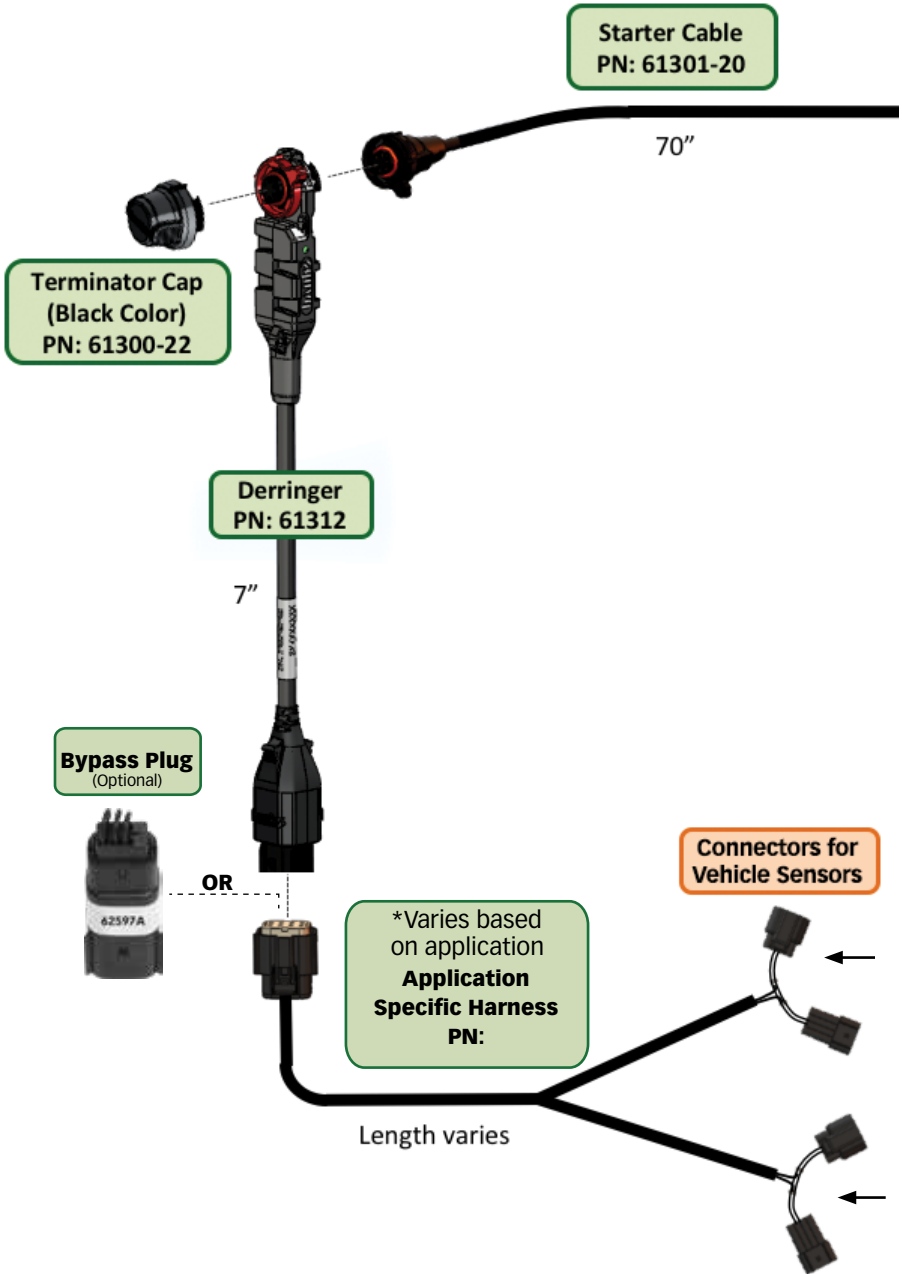




(Ex: MAP, FRP, TIP, MAF,EGT..etc)

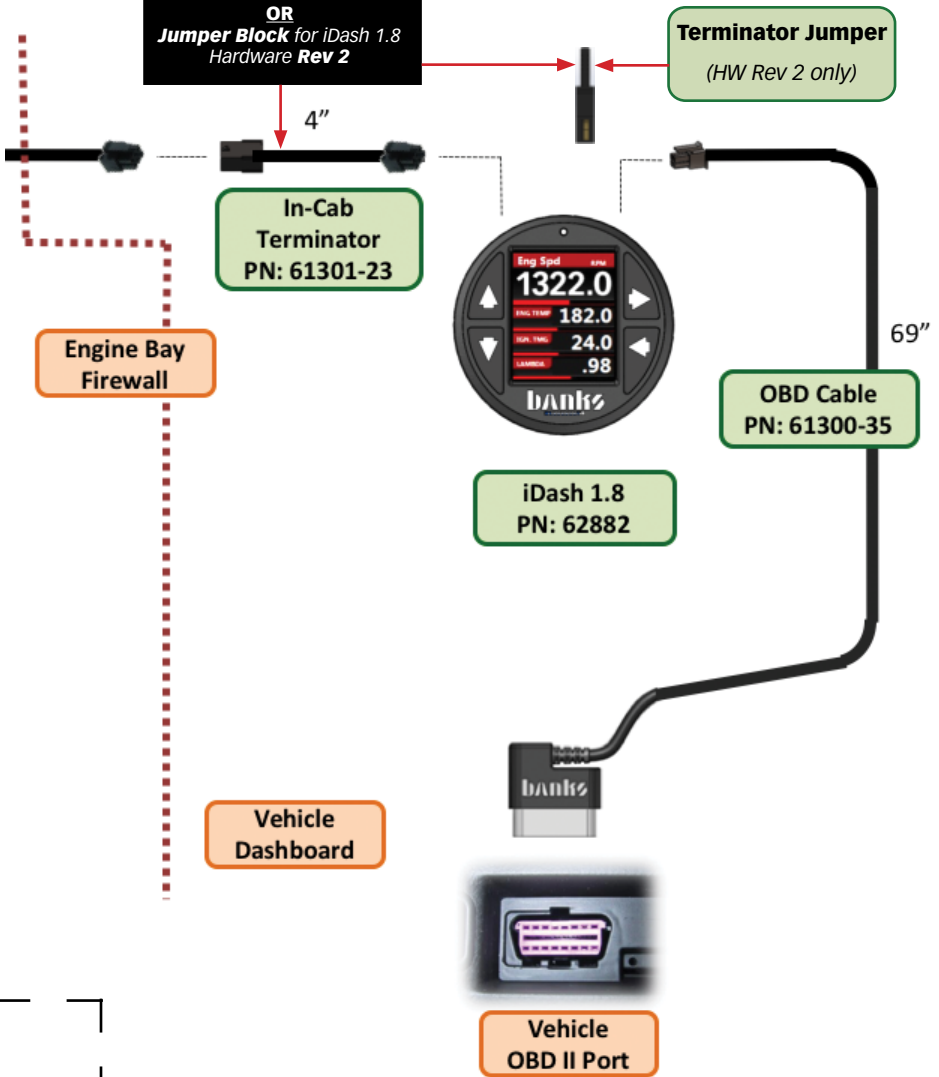
SECTION 1.1 DERRINGER TUNER SYSTEM CONFIGURATION

1.1.2: iDash 1.8 Config.



NOTICE:

Only use one **In-Cab Term.** for
iDash 1.8 Hardware **Rev 1**
OR
Jumper Block for iDash 1.8
Hardware **Rev 2**



(Ex: MAP, FRP, TIP, MAF, EGT..etc)

Section 1.2

DERRINGER SENSOR HARNESS INSTALLATION

NOTE: The following procedure and images are for demonstration purposes only. Please refer to section "1.4 Vehicle Specific Instructions" of the manual for further guidance on locating sensor, routing and mounting Derringer application specific harness. However, installation process should be similar.

1. Disconnect the battery ground cable from the battery (If equipped with more than one battery, disconnect all negative cables). Secure the cable(s) so that they do not come in contact with the battery posts during the installation. See **Figure 1.2-1**.

Figure 1.2-1



2. If required, remove the engine cover. In some vehicles it is necessary to remove oil cap and loosen one or more fasteners before removing the engine cover. See **Figure 1.2-2 & 1.2-3**.

Figure 1.2-2



Figure 1.2-3



3. Locate the desired sensors (MAP,FRP, TIP, MAF, EGR...Etc.) that your specific harness will connect to. Please refer to section "1.4 Vehicle Specific Instructions" of this manual for pictures/ assistance locating sensor and firewall for your specific vehicle.

NOTE: Depending on the vehicle year/ make/ model, you may need to remove sub assembly components (throttle body, air intake ducts, air box...etc.) to access desired sensor.


Section 1.2

DERRINGER SENSOR HARNESS INSTALLATION, *cont'd...*

4. Disconnect the OEM harness from the sensor.

NOTE: Depending on the vehicle year/ make/ model as well as sensor type, each sensor has different connecting variations. (Push/Pull tabs, lock tabs, wedge tabs...etc) Please refer to section **"1.4 Vehicle Specific Instructions"** of this manual for pictures/assistance disconnecting OEM harness from sensor.

5. Now connect the end of the Derringer harness to the disconnected OEM connector and the other end to the sensor.

	CAUTION
Damage can result with improper connection. Ensure you are using the designated connectors for each sensor by checking the Derringer harness label location. See Figure 1.2-4 to see example of label location.	

6. Route the Derringer harness along suitable path. It is recommended to route the Derringer harness along an existing OEM harness path. **See Section 1.4** for further assistance in routing harness for specific vehicle.

7. Repeat steps 3-6 for all necessary or desired sensors that will connect to the Derringer harness.

Figure 1.2-4



Section 1.3

DERRINGER TUNER INSTALLATION

NOTE: The following procedure and images are for demonstration purposes only. Please refer to section "1.4 Vehicle Specific Instructions" of the manual for further guidance on locating sensor, routing and mounting Derringer application specific harness. However, installation process should be similar.

1. Connect the Derringer module to the Derringer harness and mount it in a secure location with provided zip tie. **See Figures 1.3-1**

Figure 1.3-1



Tip: Mount the Derringer module closest to the side your vehicles' firewall wiring harness gasket is located. This will be helpful when connecting the starter cable and running it to the OBDII connector inside the vehicle.

2. To route the Derringer starter cable through the firewall wiring harness grommet, and into the driver compartment start by feeding the 6-pin end of the Derringer starter cable through firewall gasket. **See Figures 1.3-2 & 1.3-3.** A wire coat hanger is helpful for pulling the harness through the two sides of the firewall wire harness grommet. Take care not to damage the factory wire harness nor the starter cable.

Figure 1.3-2



Figure 1.3-3



3. Plug the round connector end of the Banks starter cable into the Derringer and secure it by rotating the locking ring clockwise towards its locking position. **See Figures 1.3-4 & 1.3-5 & 1.3-6.**

Figure 1.3-4

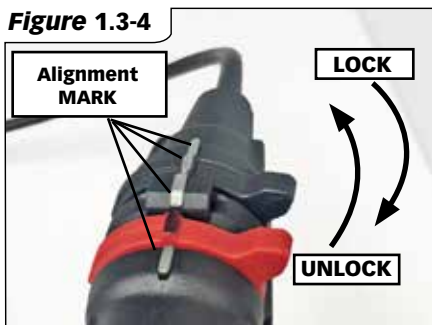


Figure 1.3-5



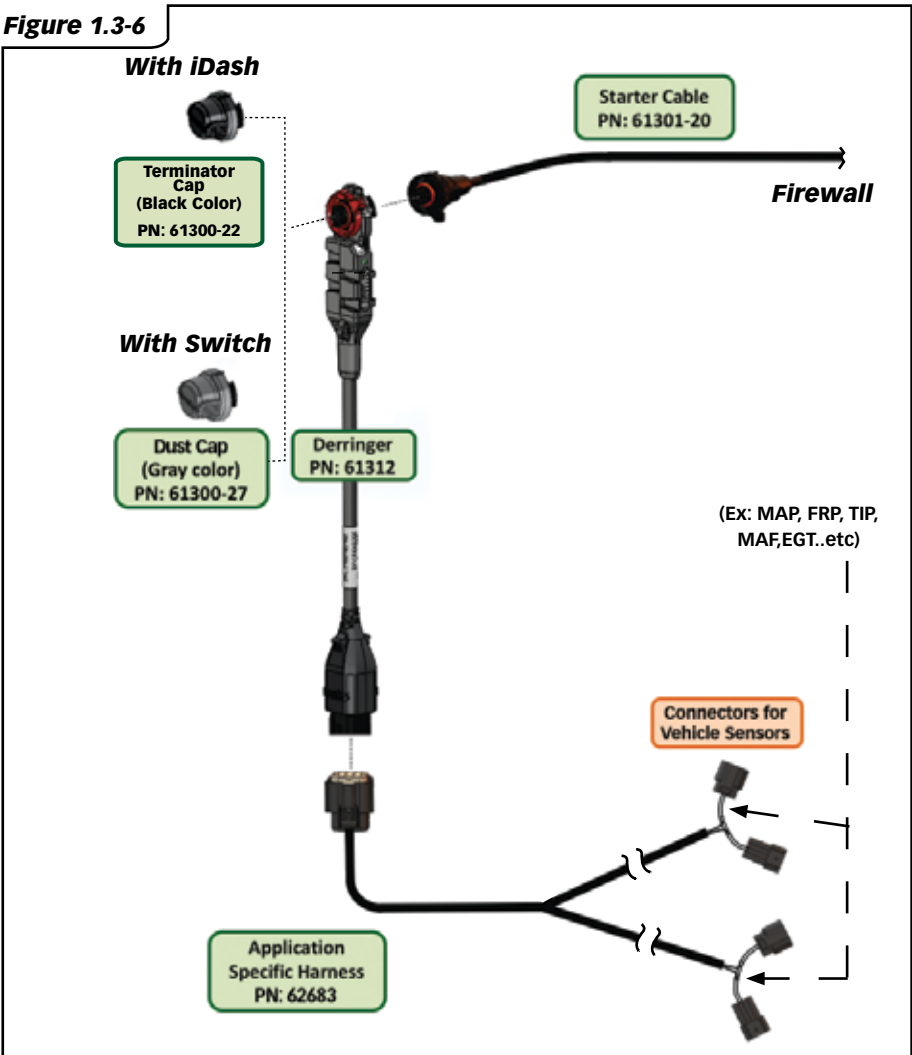
Section 1.3

DERRINGER TUNER INSTALLATION, cont'd...

4. If using Switch Configuration install gray dust cap and if using iDash Configuration install black terminator cap and if using iDash Configuration install black terminator cap to the other side of the Derringer module. See Figures 1.3-6. Secure it by rotating locking ring clockwise. See Figures 1.3-4 1.3-5.

NOTE: Jeep Grand Cherokee requires the use of black Terminator Cap at all times.

Figure 1.3-6



Section 1.3

DERRINGER TUNER INSTALLATION, cont'd...

5. Plug the OBDII cable into the OBDII port under the dash. **See Figures 1.3-7**

For Switch Configuration:

NOTE: If using the Switch configuration, perform steps 6-8. If using iDash 1.8" Gauge configuration, skip to step 9.

6. Plug the 4-pin connector from the OBDII cable, the 6-pin connector from the starter cable, and the 2-pin connector from the switch cable into the Y-harness. **See Figures 1.3-8**

7. Install the power level plate to the switch. Make sure to align the slot of the switch with the red line on the plate towards Sport. **See Figures 1.3-9**

8. OPTIONAL: Mount switch in dashboard by drilling two holes using the supplied template **See page 44**. Be careful to not damage factory wiring behind the dashboard. To keep the switch from rotating, it is necessary to install the locking tab washer behind the dash, with the locking tab facing the backside of the dash face. Alternatively, Zip tie the switch in any easy to access location for power level adjustment.

Figure 1.3-7



Figure 1.3-8

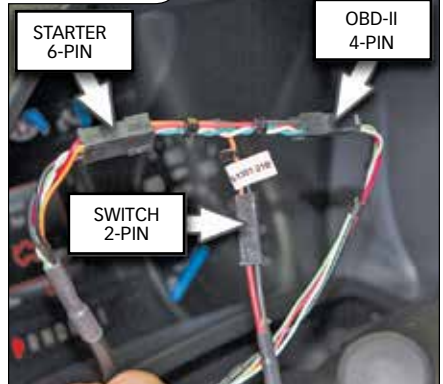


Figure 1.3-9



Section 1.3

DERRINGER TUNER INSTALLATION, cont'd...

For iDash Configuration:

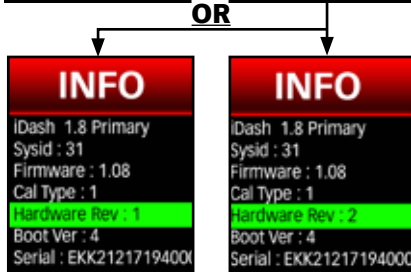
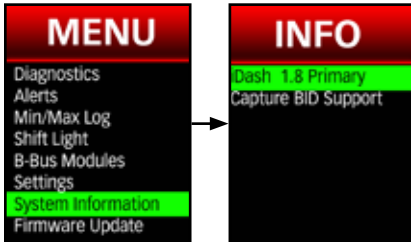
NOTE: Only perform steps 9-11 if using iDash gauge configuration. If using the switch configuration skip to step 12.

9. Check which iDash 1.8 Hardware Revision you have.

Look behind the iDash 1.8 as shown in **Figure 1.3-10** to check for pins. Alternatively you can check the "Hardware Rev:" in the "System Information" menu, as shown in **Figure 1.3-11**.



Figure 1.3-10



10. If using a single iDash Gauge: (If using multiple, skip to step 11)

If you have a HW Rev 1 iDash 1.8:

A. Connect the Starter Cable to the

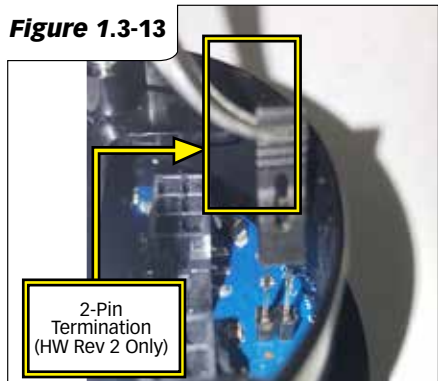
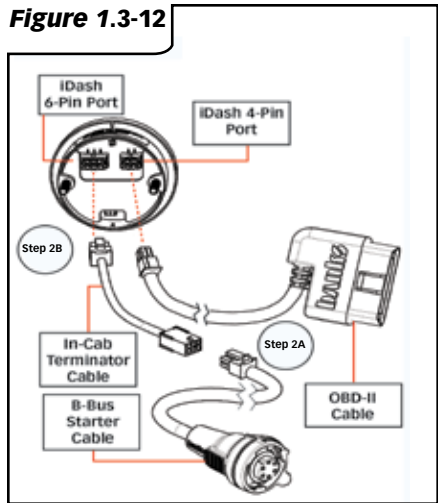
In-Cab Terminator. **See Figures 1.3-12, Step 2A.**

B. Connect the In-Cab Terminator to the iDash 6-Pin Port. **See Figures 1.3-12., Step 2B.**

If you have a HW Rev 2 iDash 1.8:

A. Connect the Starter Cable to the iDash 6-Pin Port (**Without** the In-Cab Terminator). **See Figures 1.3-12**

B. Check for the pre-installed Jumper Block to the iDash 2-Pin termination. **See Figures 1.3-13.**



Section 1.3

DERRINGER TUNER INSTALLATION, *cont'd...*

11. If using multiple iDash Gauges:

If you **ONLY** have HW Rev 1 iDash 1.8's:

A. Connect the In-Cab Terminator to the iDash 6-pin port. **See Figures 1.3-14, Step 3A.**

B. Connect the Y-Cable to the In-Cab Terminator and the second iDash. **See Figures 1.3-14, Step 3B.**

C. Connect the Starter Cable to the Y-Cable. **See Figures 1.3-14, Step 3C.**

If you **ONLY** have HW Rev 2 iDash 1.8's:

A. Connect the Y-Cable to the 6-pin port of the first and second iDash 1.8 (**without** the In-Cab Terminator). **See Figures 1.3-14.**

B. Connect the Starter Cable to the Y-Cable. **See Figures 1.3-14, Step 3C.**

C. Remove extra Jumper Blocks from the secondary iDash 2-Pin terminations. **See Figures 1.3-13.**

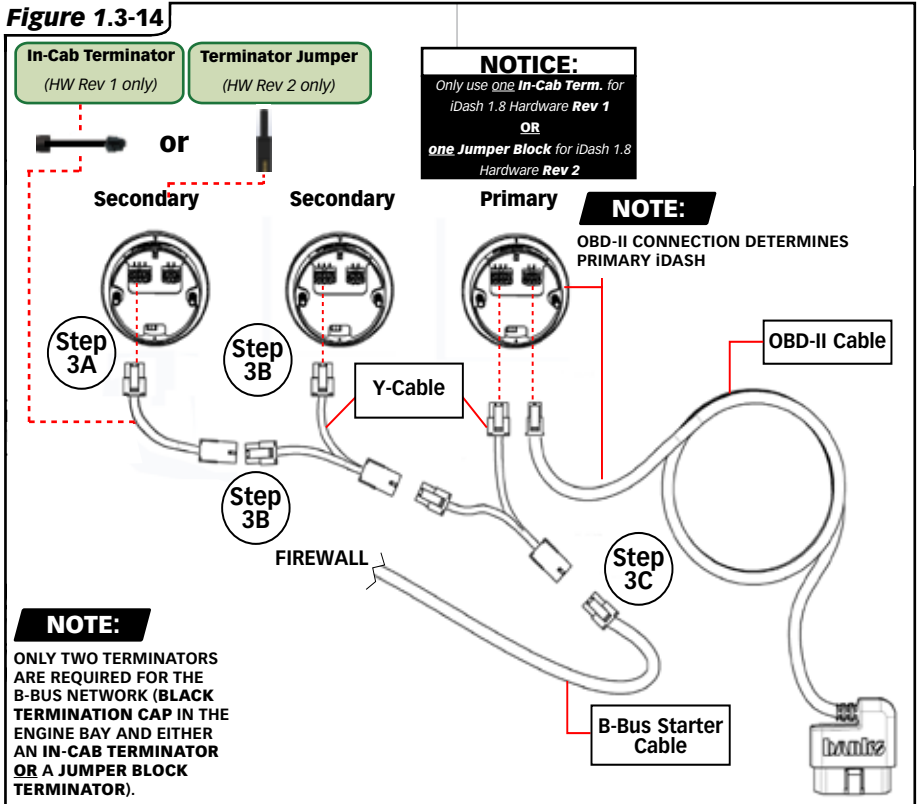
NOTE:

Only one In-Cab or Jumper Block Terminator is required.

NOTE:

For each additional iDash 1.8, a Y-Cable is used. **See Figures 1.3-14.**

Figure 1.3-14



Section 1.3

DERRINGER TUNER INSTALLATION, cont'd...

If you have HW Rev 1 AND Rev 2 iDash 1.8's:

Follow either of the instructions for Rev 1 or Rev 2, but only use a single terminator.

All installs follow steps 12-15

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

13. Double-check all wire harness routing under the hood and the dash for proper clearance around moving parts and sharp objects as well as heat sources, then use the supplied nylon tie straps to secure the wire harnesses safely away from any control linkages and the operator's feet underneath the dashboard. Be sure to step on the brake and E-brake pedals and move the tilt column and adjustable peddles, if equipped, when checking for proper harness clearance. Also turn the steering wheel lock to lock to ensure that the harness does not hit, pull or otherwise interfere with any moving or hot parts of the truck.

14. Re-attach any previously removed interior trim panels, reinstall the acoustic foam engine intake cover and oil fill cap and lower the vehicle. Re-connect the negative battery cable.

15. Start the vehicle, checking for normal engine operation.

NOTICE: Go over the entire installation as a precautionary check to ensure that all clamps are tight, wiring and hoses are properly routed, and connections are correct and tight. Make sure that the Derringer wire harness is not lying in the way of the brake and gas pedals, or any moving parts.

If vehicle is equipped with adjustable pedals and/or column, ensure that the harness is clear through the full range of adjustments.

1.4.1: 2011-2016 F-150 ECOBOOST

NOTE: The following procedure and images are **ONLY** for the vehicle mentioned and are supplementary to the main install instructions in section 1.2 & 1.3.

Sensor Location/Connection Instructions

1. Before locating and disconnecting anything ensure you are using the designated F-150 EcoBoost Derringer harness by identifying the sensor label.

NOTE: F-150 EcoBoost Derringer harness connects to TIP and MAP sensors. Pull only on the connector, do not pull on the wires. (No tools required)

2. After removing the engine cover, locate the MAP and TIP sensors on the F-150 EcoBoost engine. **See Figure 1.4-1.**

3. On the top of the EcoBoost 3.5L engine you will find a Manifold Absolute Pressure (MAP) sensor at the back of the intake. Disconnect the MAP sensor plug, pushing down on the release lever until it releases, then pulling the connector away from the sensor. **See Figure 1.4-2.**

4. On the intake tube that connects to the throttle body, you will find a Throttle Inlet Pressure (TIP) sensor. This connector is under the airbox intake tube, behind the radiator and under the coolant bottle. It can be reached without disconnecting the intake components. To disconnect the TIP sensor plug, pushing down on the release lever until it releases, then pull the connector away from the sensor. **See Figure 1.4-3.**

5. Plug the Derringer harness connectors labeled TIP between the TIP sensor and engine OEM harness.

Route the harness towards the rear of the engine. Plug the harness connectors labeled MAP between the MAP sensor and engine OEM harness. Route the Derringer harness across the driver's side valve cover. Then over to the side of the engine bay on the driver's side fender. Take care to route the harness over the top of the brake booster vacuum canister. Ensure that it doesn't get tangled in the steering shaft or the brake rod that actuates the booster. **See Figure 1.4-1.**

6. Connect the Derringer module to the sensor harness, mounting it up and out of the way of any moving parts. It is suggested that it be mounted to the fender lip on the driver's side, using a provided Zip tie. **See Figure 1.4-1.**

Firewall Cable Instruction

7. Route the Derringer starter cable through the firewall wiring harness grommet, and into the driver compartment. Simply cut a small X about, 1/4-inch at the inside edge of the wire harness grommet. Then feed the 6-pin end of the Derringer starter cable through the hole. Apply a little black silicone sealer around the factory wire harness gasket where the new hole was added. **See Figure 1.4-4 & 1.4-5.** A wire coat hanger is helpful for pulling the Derringer starter cable through the two sides of the OEM wire harness gasket. Take care not to damage the factory wire harness nor the starter cable when pushing/pulling through the firewall grommet.

1.4.1: 2011-2016 F-150 ECOBOOST

Figure 1.4-1

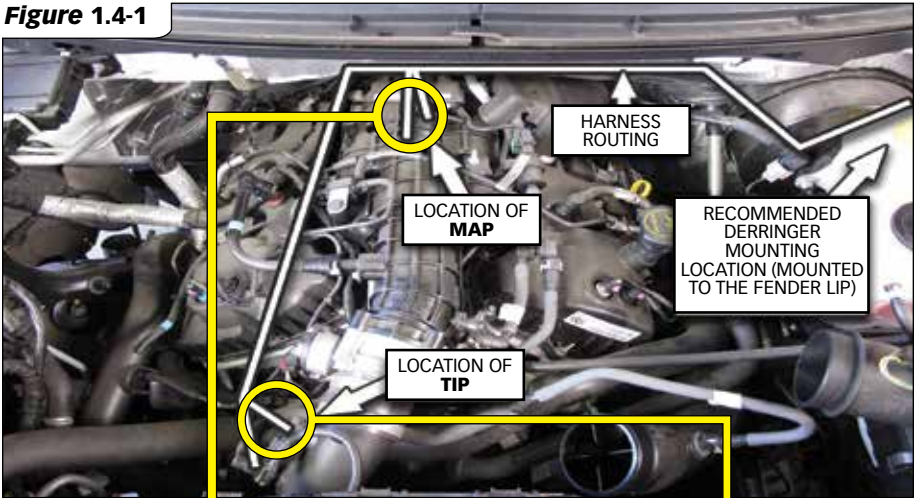


Figure 1.4-2

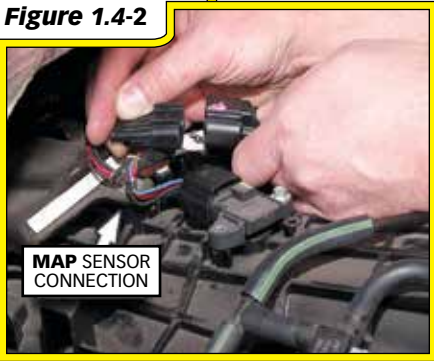


Figure 1.4-3

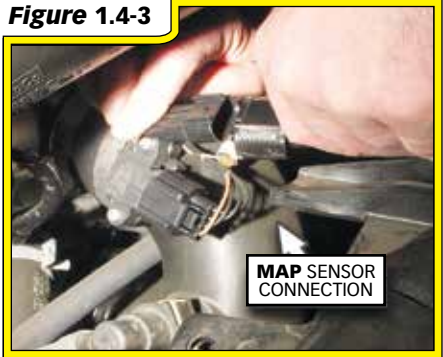


Figure 1.4-4



Figure 1.4-5



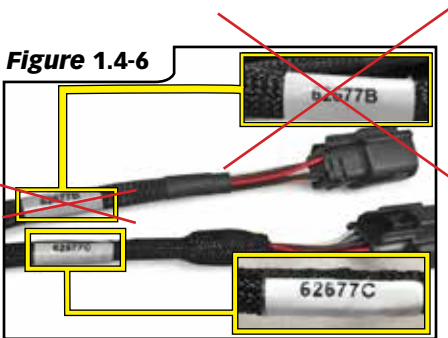
SECTION 1.4 VEHICLE SPECIFIC INSTRUCTION

1.4.2: 2017-2018 GM 6.6L L5P

NOTE: The following procedure and images are **ONLY** for the vehicle mentioned and are supplementary to the main install instructions in section 1.2 & 1.3.

NOTE: The following instructions correspond to the L5P sensor harness PN 62677C **ONLY**. If you have L5P sensor harness PN 62677B refer to Owners manual PN 97661.

Please **See Figure 1.4-6** to verifying PN before starting installation.



Sensor Location/Connection Instructions

1. Before locating and disconnecting anything ensure you are using the designated GM L5P Derringer harness by identifying the sensor label.

NOTE: GM L5P Derringer harness connects to FRP and TMAP sensors. Pull only on the connector, do not pull on the wires. (No tools required)

2. After removing the engine cover, locate the TMAP and FRP connectors on the GM L5P engine bay. **See Figure 1.4-7.**

3. On the top of the L5P engine you will find a Temp/Manifold Absolute Pressure (TMAP) sensor mounted on the manifold. Disconnect the TMAP sensor plug by pulling the gray OEM harness connectors' locking tab and sliding the OEM harness away from the TMAP sensor. **See Figure 1.4-8**

NOTE: There are two similar 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 previous TMAP sensor mentioned. **See Figure 1.4-9.**

4. Right next to the TMAP sensor is the OEM FRP connection that will be used to connect the FRP sensor. It can be reached without disconnecting or removing other components. To disconnect the OEM harness from the FRP connection, pull the OEM harness connector red locking tab and slide the OEM harness away from the FRP connection. **See Figure 1.4-9.**

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. **See Figure 1.4-7.**

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. **See Figure 1.4-7.**

1.4.2: 2017-2018 GM 6.6L L5P

Figure 1.4-7

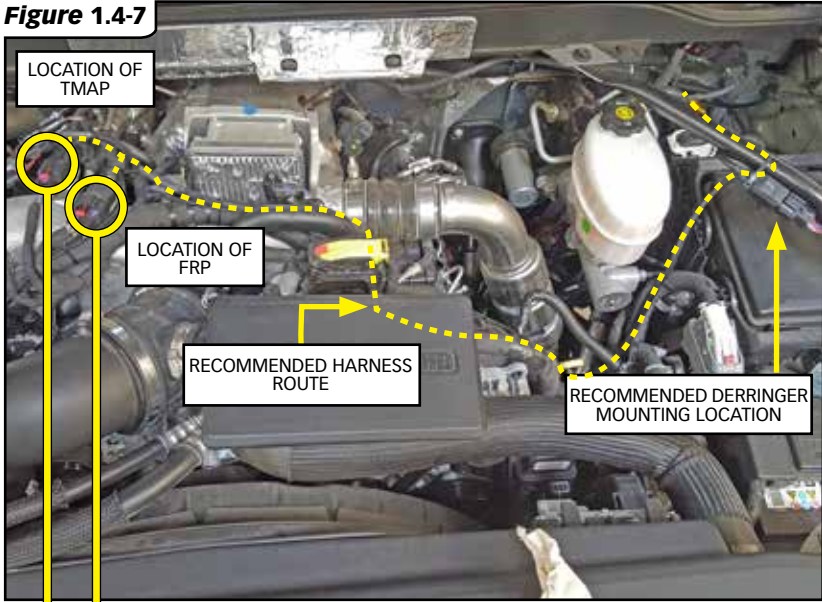


Figure 1.4-8

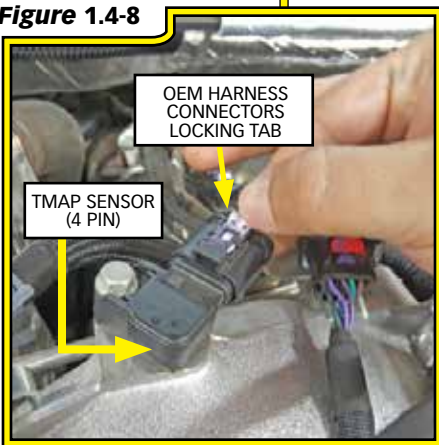
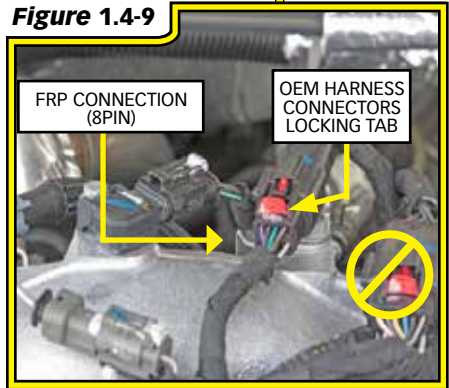


Figure 1.4-9



1.4.2: 2017-2018 GM 6.6L L5P

Firewall Cable Instruction

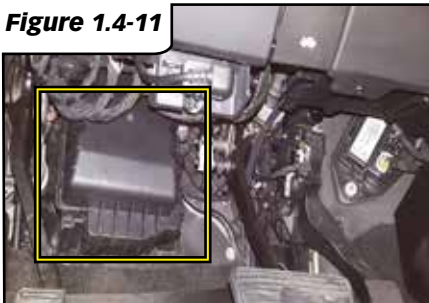
7. Locate the wire harness grommet and route the Derringer Starter Cable through the firewall. To do this insert a large phillips screw driver to move the grommet edge aside. Confirm the screwdriver has penetrated into the cab by checking under the dash. **See Figure 1.4-10.**

Figure 1.4-10



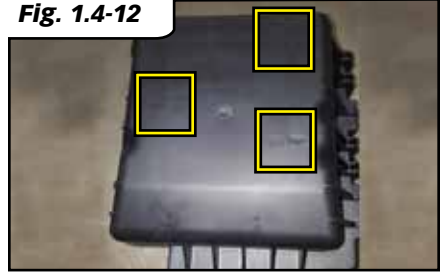
8. Remove the plastic cover under the dash to ease access to the grommet inside. **See Figure 1.4-11.**

Figure 1.4-11



NOTE: Unclip the left side first. **See Figure 1.4-11 & 1.4-12.**

Fig. 1.4-12



9. Take a wire coat hanger (or any other wire) and create a hook to pull the 6-pin end of the Starter cable. On the engine bay side begin to push the coat hanger with the Starter cable terminal through the grommet by hand until it reaches the inside cab. **See Figure 1.4-13.** Pull the wire coat hanger from the inside cab until the Starter Cable can be reached. **See Figure 1.4-14.** Take care not to damage the factory wire harness nor the Starter cable when pushing/pulling through the firewall grommet.

Fig. 1.4-13

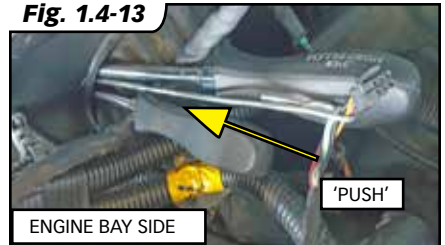
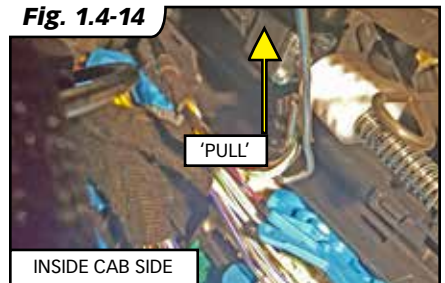


Fig. 1.4-14



SECTION 1.4 VEHICLE SPECIFIC INSTRUCTION

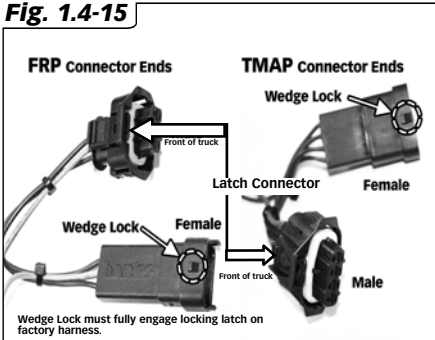
1.4.3: 2014-2017 ECODIESEL RAM/JEEP

NOTE: The following procedure and images are **ONLY** for the vehicle mentioned and are supplementary to the main install instructions in section 1.2 & 1.3.

Sensor Location/Connection Instructions

1. Before locating and disconnecting anything ensure you are using the designated EcoDiesel Ram/ Jeep Derringer harness by identifying the sensor. **See Figure 1.4-15.**

Fig. 1.4-15



NOTE: EcoDiesel Ram and Jeep Derringer harness connects to FRP and MAP sensors (EGT Sensor Optional). Pull only on the connector, do not pull on the wires.

NOTICE: If installing in a Jeep Grand Cherokee, skip steps 2 and 3 and proceed to step 4.

2. Disconnect the Mass Air Flow (MAF) sensor connector by first lifting up on the red lock slider until it releases, then depress the connector latch and lift the connector away from the sensor.

3. Remove the airbox and intake duct by first loosening the compressor inlet duct hose clamp at the compressor (**See Figure 1.4-16.**) - 5/16 socket, extensions, ratchet. Unhook each of the latches securing the airbox lid to the airbox, lift up on the outer edge of the airbox cover to release the finger catches, then lift up on the intermediate plastic tube / silencer to disengage it from the rubber mount and remove the assembly from the vehicle. **See Figure 1.4-17.**

4. Remove the black acoustic foam covering the passenger side camshaftcover and EGR cooler outlet pipe. **See Figure 1.4-17.**

NOTE: Cover the compressor inlet & air filter with clean rags to prevent foreign objects from accidentally entering the induction system while installing the Derringer tuner.

Fig. 1.4-16



Fig. 1.4-17



SECTION 1.4 VEHICLE SPECIFIC INSTRUCTION, *cont'd*...

1.4.3: 2014-2017 ECODIESEL RAM/JEEP

5. After removing the engine cover, locate the TMAP and FRP Sensors. Both TMAP and FRP sensors are located towards the back of the engine, near the firewall. The TMAP sensor is located on the back of the intake manifold (near turbo). The FRP sensor is located at the end of the fuel rail, close to the mentioned TMAP sensor. **See Figure 1.4-18.**

6. To disconnect each sensor from the OEM harness, slide the yellow connector lock away from the sensor body, then depress the connector latch and slide the connector off the sensor. **See Figure 1.4-19 & Figure 1.4-20.**

NOTE: The FRP sensor connector lock may not be visible from above due to variations in installation of the FRP sensor, it may be necessary to slide the connector lock toward the rear of the vehicle using a hooked pick to reach underneath the connector.

See Figure 1.4-21.

NOTE: On some factory connectors depressing the latch may not fully disengage the connector from the sensor body. Gently inserting a pick or small flat blade screwdriver underneath the leading edge of the latch while depressing will aid release.

Figure 1.4-18

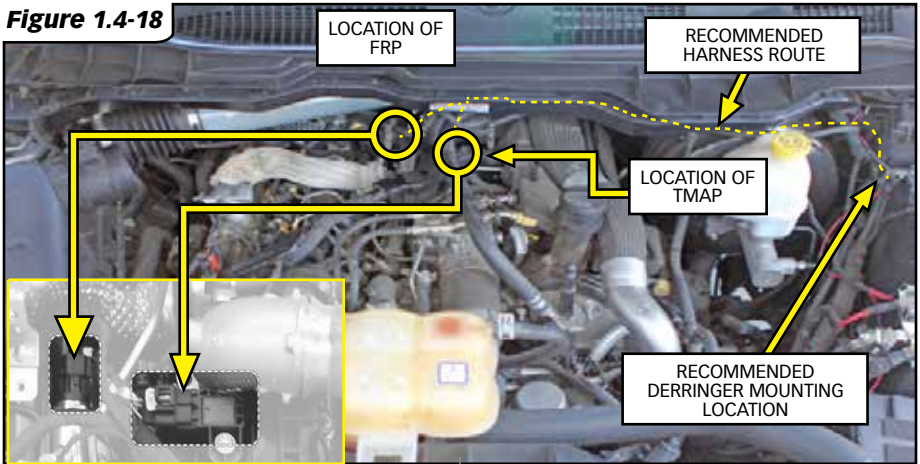


Figure 1.4-19

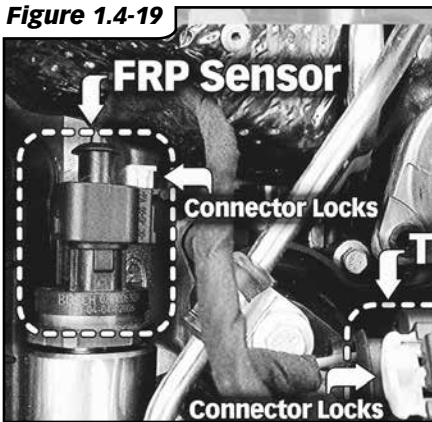
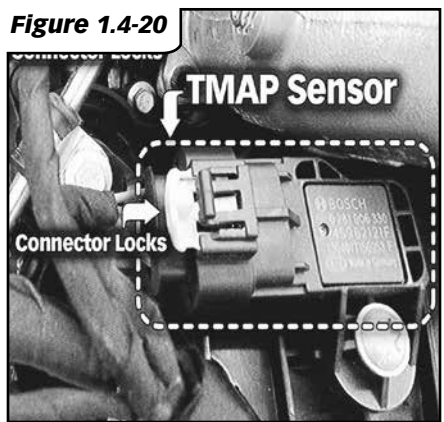


Figure 1.4-20



SECTION 1.4 VEHICLE SPECIFIC INSTRUCTION, cont'd...

1.4.3: 2014-2017 ECODIESEL RAM/JEEP

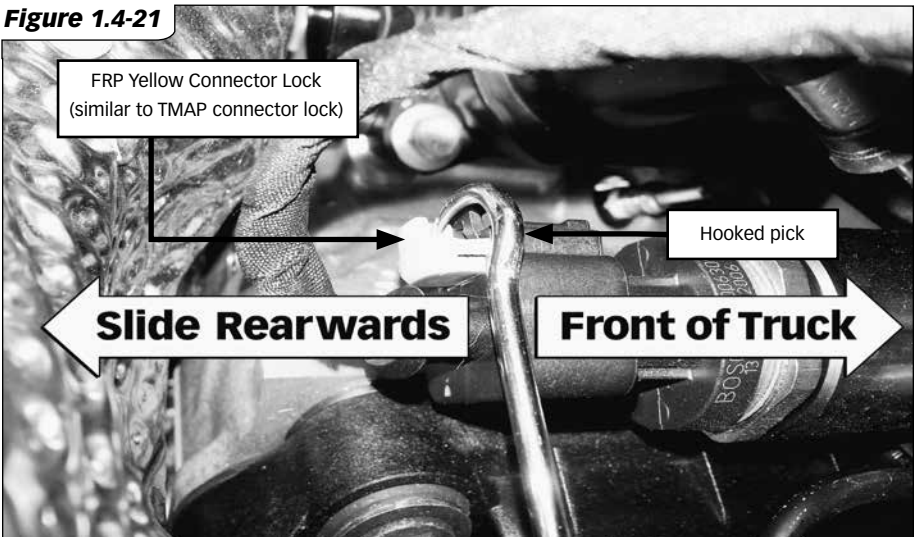
7. Connect the **MALE** ends of both the FRP and TMAP Derringer harness to the sensors on-engine. Pay specific attention to the connector latch orientation and engagement, making sure that the connector fully engages the sensor and latches in place. Check each connection by pulling firmly on the connector body after latching.

NOTE: The male Derringer harness connectors do not use a sliding connector lock, only a latch. See **Figure 1.4-15**.

CAUTION: Pay specific attention to the orientation of Female TMAP connector in the following step. Damage can result with improper connection. Wedge lock on female TMAP connector (Derringer Harness) must be oriented on same side as connector locking latch and yellow lock (OEM Engine Harness).

8. Connect the **FEMALE** ends of both the FRP and TMAP Derringer harness to the factory harness, again making sure that the connector bodies are oriented properly and latch securely when connected. Slide the factory harness connector locks into place, and confirm that the connections are secure by tugging firmly on either side of the junction. Secure the harness connectors to the engine with supplied zipties.

Figure 1.4-21



1.4.3: 2014-2017 ECODIESEL RAM/JEEP

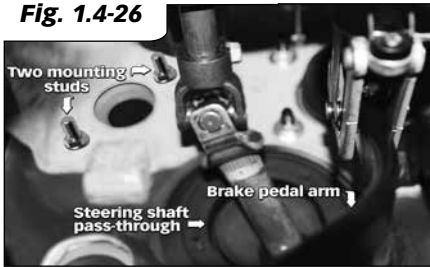
11. Secure the Derringer harness to the factory drip tray at the top of the firewall. Run the harness towards the driver's side fender and connect the Derringer module to the harness securing it using the supplied zip ties. **See Figure 1.4-18.**

Firewall Cable Instruction

NOTICE: *If installing Derringer Tuner in a Ram 1500 perform steps 12-14. If installing in a Jeep Grand Cherokee, skip to step 15.*

12. To route the Derringer starter cable through the firewall, we recommend taking advantage of the removable factory clutch master cylinder block-off plate. From inside the cab of the vehicle, locate the two studs protruding into the cab, above and to the right of the steering shaft firewall pass-through. **See Figure 1.4-26.** Remove the nuts, then push the blockoff plate free of the firewall (pressing on the backside of the plate through the center opening in the firewall) to release the factory adhesive backing.

Fig. 1.4-26



13. From the engine bay side of the firewall, locate and remove the block-off plate. Secure it in a vice, and drill a 3/16" pilot hole in the center of the plate. **See Figure 1.4-27.** Enlarge the hole to 9/16", to allow the smaller connector of the Derringer Starter Cable to pass through the block-off plate from the engine compartment side, so it comes out in the same direction the mounting bolts face. **See Figure 1.4-28.** Then reinstall the blockoff plate, taking care to not pinch or trap any wires.

Fig. 1.4-27



Fig. 1.4-28



SECTION 1.4 VEHICLE SPECIFIC INSTRUCTION, cont'd...

1.4.3: 2014-2017 ECODIESEL RAM/JEEP

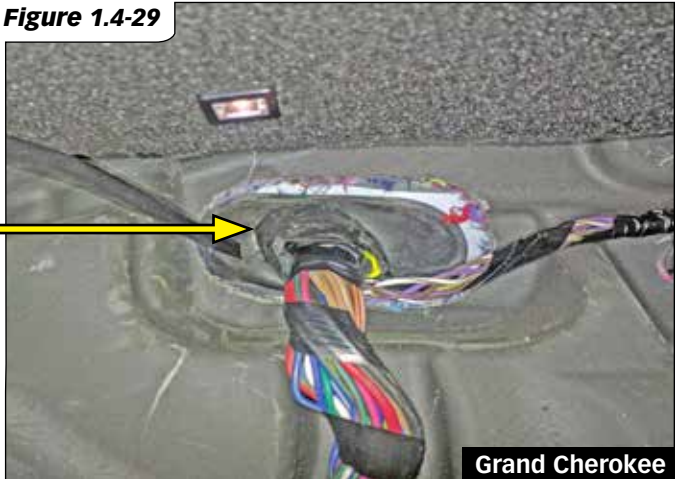
14. Re-install the block off plate mounting nuts onto the studs from the inside of the cab. Then carefully pull the remaining free length of the Derringer Starter Cable through the firewall. Be sure to leave a little slack on the engine bay side of the firewall.

NOTE: If installing Derringer Tuner in a Jeep Grand Cherokee perform step 15.

15. For the Jeep Grand Cherokee, route the smaller connector of the Derringer Starter Cable through the EOM grommet (behind the brake pedal) from the engine-side of the firewall. **See Figure 1.4-29.** Feed a straightened metal coat hanger through the firewall from the inside of the vehicle and then attach the wire to it. Then gently pull them back through the firewall. The EOM grommet may need to be cut to create extra room for the additional wires. Take care to not pinch or trap any wires.



Figure 1.4-29



Section 2

DERRINGER TUNER OPERATION

Setting Desired Power Level:

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

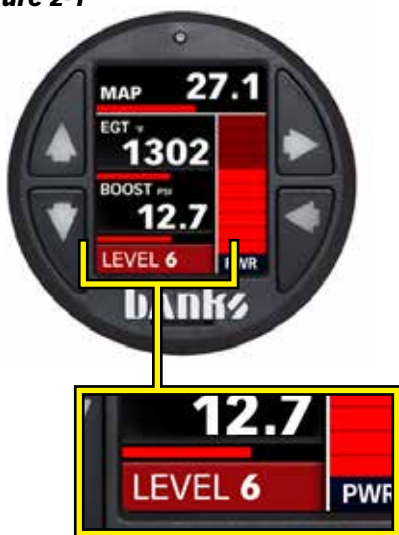
Switch configuration:

There are 3 power levels (Sport, Plus and Stock) when configured with a switch.

iDash 1.8 configuration:

When the Derringer is connected to an iDash 1.8, 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 (See **Figure 2-1**). If you have any other layout loaded, a message box will pop up to notify you of the power level change.

Figure 2-1



SPORT MODE/LEVEL 6 (switch up/ towards slot)

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

SPORT MODE (switch up)

Full power will be available for 10-15 seconds at a time depending on the application. **PLUS MODE/LEVEL 3 (switch down/away from slot)**

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 (switch middle)

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.

Section 2

DERRINGER TUNER OPERATION, cont'd...

Power Added (%):

If connected to an iDash 1.8 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 (See **Figure 2-2**). 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 effected by safety features such as Engine Coolant Temperature, 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.

Figure 2-2



Section 3.1

GENERAL TROUBLESHOOTING

Normal Operation

Your Derringer Tuner has a built-in, self-diagnostic system. The status of the Derringer system is communicated via the LED on the module. When the Derringer Tuner is functioning properly the LED will flash green.

Derringer Not Powered

When the LED is not illuminated, the Derringer Tuner is not powered on. If the ignition is on and the LED is not illuminated, check the TMAP connections on the vehicle and ensure they are fully engaged.

No Communication with iDash 1.8

Check that your wiring matches the figure in **Section 1.1 Derringer Tuner System Configuration: 1.2.2 iDash 1.8" Config.** (See **page 10-11**) or for multiple iDash 1.8 Gauges see **Figure 1.3-14** on **page 18**.

Common sources of communication errors 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 1.8's.

LED Error Code

When faults are detected, the Derringer Tuner will flash a diagnostic code. These diagnostic codes are comprised of 2 digits. Each digit is expressed by the flashing red LED.

A code can be determined by counting the number of red flashes displayed before the LED flashes green for the first digit and the number of red flashes after the LED flashes green for the second digit. After the diagnostic code is displayed, additional codes will be displayed in sequence, separated by 4 seconds with the LED off. Once all codes are displayed the Derringer will begin sending the codes again. Once you have written down all diagnostic codes being displayed, consult the following tables for a description of the code along with the action to be taken.

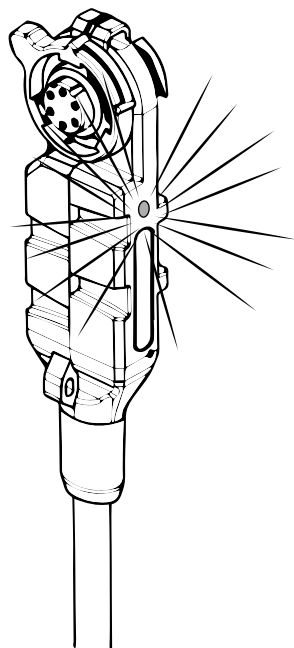
Bypass Plug

If the Derringer should ever need to be removed from the vehicle, the system includes a bypass plug that must be connected to the sensor harness in place of the module. Failure to utilize the bypass plug when the Derringer has been unplugged from the harness will generate a Check Engine light when attempting to start the vehicle.

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



Section 3.2

2011-2016 F-150 ECOBOOST DIAG CODES

Code	Event	Course of Action
1,1	Throttle Inlet Pressure (TIP) Input Voltage Out of Range.	Turn ignition OFF and check the male and female TIP sensor connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.
1,2	Manifold Absolute Pressure (MAP) Input Voltage Out of Range.	Turn ignition OFF and check the male and female MAP sensor connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.
2,1	Throttle Inlet Pressure (TIP) Output Voltage Out of Range.	Turn ignition OFF and check the male and female TIP sensor connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.
2,2	Manifold Absolute Pressure (MAP) Output Voltage Out of Range.	Turn ignition OFF and check the male and female MAP sensor connectors. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.
3,4	OBDII CAN communication error	Turn ignition OFF and check the following connections (as applicable): 1) 61300-35 OBD-II Interface Cable - at 16-pin vehicle OBD-II and 4-pin inter-cable connectors. 2) 61301-21 Y-Adapter Cable - at 4-pin inter-cable and 6-pin inter-cable connectors. 3) 61301-20 B-Bus Starter Cable - at 6-pin inter-cable and 6-pin B-Bus Circular connectors.
3,5	BanksBus CAN communication error	4) 61300-22 B-Bus Terminator Plug - at 6-pin B-Bus Circular connector. Turn ignition back ON and re-check for presence of code. If code does not re-appear at key ON, start engine and check for presence of code both at engine idle and under varying driving conditions.

Section 3.3

2017-2018 GM 6.6L L5P DIAG CODES

61312-51 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 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.
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.

Section 3.3

2017-2018 GM 6.6L L5P DIAG CODES, *cont'd...*

Code	Event	Course of Action
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.

Section 3.4

2014-2017 ECODIESEL RAM/JEEP DIAG CODES

61312-30 Derringer Tuner (Chrysler EcoDiesel applications)

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	Exhaust Gas Temperature (EGT) Input Voltage Out of Range.	Turn ignition OFF & check the male & female RTD 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 and & varying driving conditions.
2,1	Fuel Rail Pressure (FRP) 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.
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.

Section 3.4

2014-2017 ECODIESEL RAM/JEEP DIAG CODES, *cont'd...*

Code	Event	Course of Action
3,2	Internal Module Malfunction or Intermittent Power.	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.
3,4	OBDII 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	BanksBus 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.

Section 4.1: Banks Decal

2011-2016 F150 ECOBOOST

TYPICAL LEFT FENDER

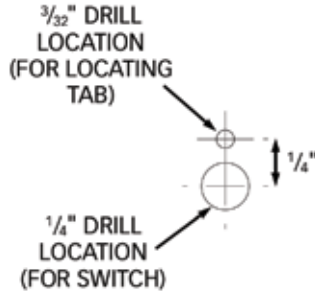


TYPICAL RIGHT FENDER



Mount switch template

(step 8 on page 16)



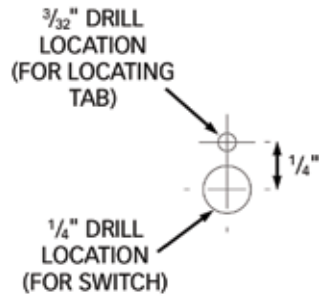
Section 4.2

2017-2018 GM 6.6L L5P



Mount switch template

(step 8 on page 16)



Section 4.3

2014-2017 ECODIESEL RAM/ JEEP



**Mount switch
template**
(step 8 on page 16)

