

**banks**

with Installation Instructions  
**Owner's Manual**

**Banks  
Derringer®  
Tuner**

**2014-2017 3.0L EcoDiesel Ram 1500**

THIS MANUAL IS FOR USE WITH SYSTEM 66571

Gale Banks Engineering  
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**bankspower.com**

# General Installation Practices

Dear Customer,

If you have any questions concerning the installation of your Banks Techni-Cooler, please call our Technical Service Hotline at (888) 839-2700 between 7:00 am and 5:00 pm (PT). If you have any questions relating to shipping or billing, please contact our Customer Service Department at (888) 839-5600.

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
  - Hooked Pick
  - 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

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# Products available from Banks Power for the **2014-17 Ram 1500 3.0L EcoDiesel**



## **Banks Monster® Single Side Exit Exhaust**

**(P/N 48601, P/N 48601-B)**

## **Banks Monster® Dual Rear Exit Exhaust**

**(P/N 48602, P/N 48602-B)**

- Increases exhaust flow, cuts backpressure, lowers exhaust gas temperatures (EGTs) & increases power.

## **Banks Straight-Shot® Water-Methanol Injection (P/N 45000)**

- Maximizes Engine Performance
- Cools Intake Temperatures
- Digital Controller (included)
- Plug-and-Play wiring
- Greater flow than the competition
- Higher Pump Volume than the competition
- Multiple configurations available

## **Banks Double-Shot® Water-Methanol Injection (P/N 45002)**

- The Double-Shot system offers the same benefits of the Straight-Shot and adds a second stage for increased output and control.
- EGT sensor is included to serve as a trigger or auxiliary sensor.
- Multiple Tanks Sizes Available.

**Banks iDash® (P/N 66581, 61214, 61204)**

- Displays EGT & DPF status, Engine Oil temp and other vital engine parameters
- 1.8, 4.3 or 5" touchscreen interface
- Interchangeable gauge display, read and clear codes, monitor engine diagnostics, log data, time your vehicles runs and much more.
- Control Banks Derringer
- Built-in GPS antenna (4.3 and 5" only)
- Backup camera ready (4.3 and 5" only)
- Navigation ready (4.3 and 5" only)

**COMING SOON:**

**Banks Ram-Air® Intake System**

- Extensively tested & validated
- Increases air density, power & fuel economy
- Reduces exhaust gas temps (EGTs)
- Outflows stock up to 50%

**Banks Techni-Cooler® Intercooler System**

- It's all bigger: boost tubes, aluminum end tanks, inlet/outlet and core area. Much greater flow volume. Increases air density for higher continuous power.

**For More Information please call (888) 635-4565  
or Visit us online @ [www.bankspower.com](http://www.bankspower.com)**

# 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.

## **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**. Please see enclosed warranty information card, or go to [www.bankspower.com/warranty](http://www.bankspower.com/warranty), for warranty information regarding your product. 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.

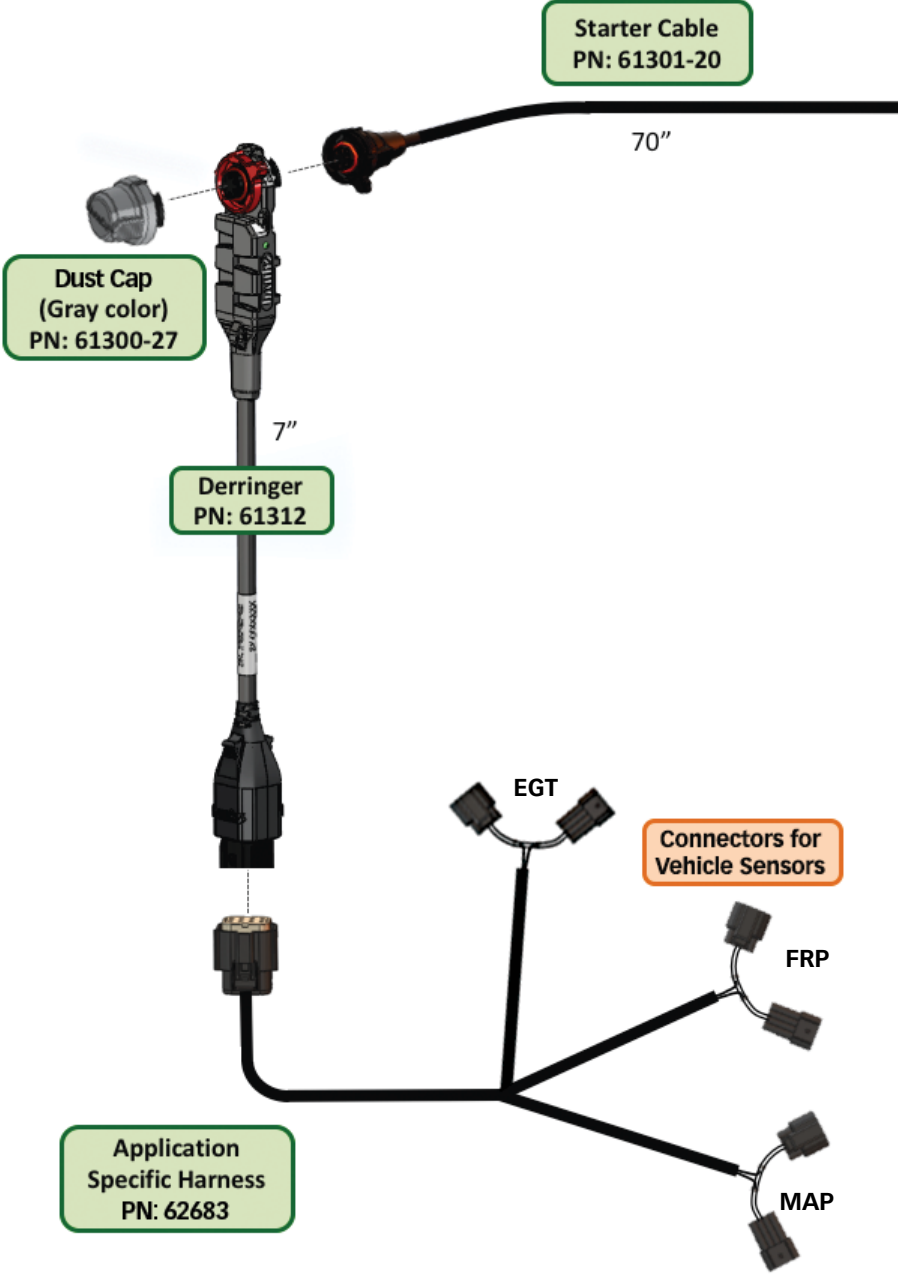
Under no circumstances will the **SELLER** be liable for any damage or expenses incurred by reason of the use or sale of any such equipment.

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

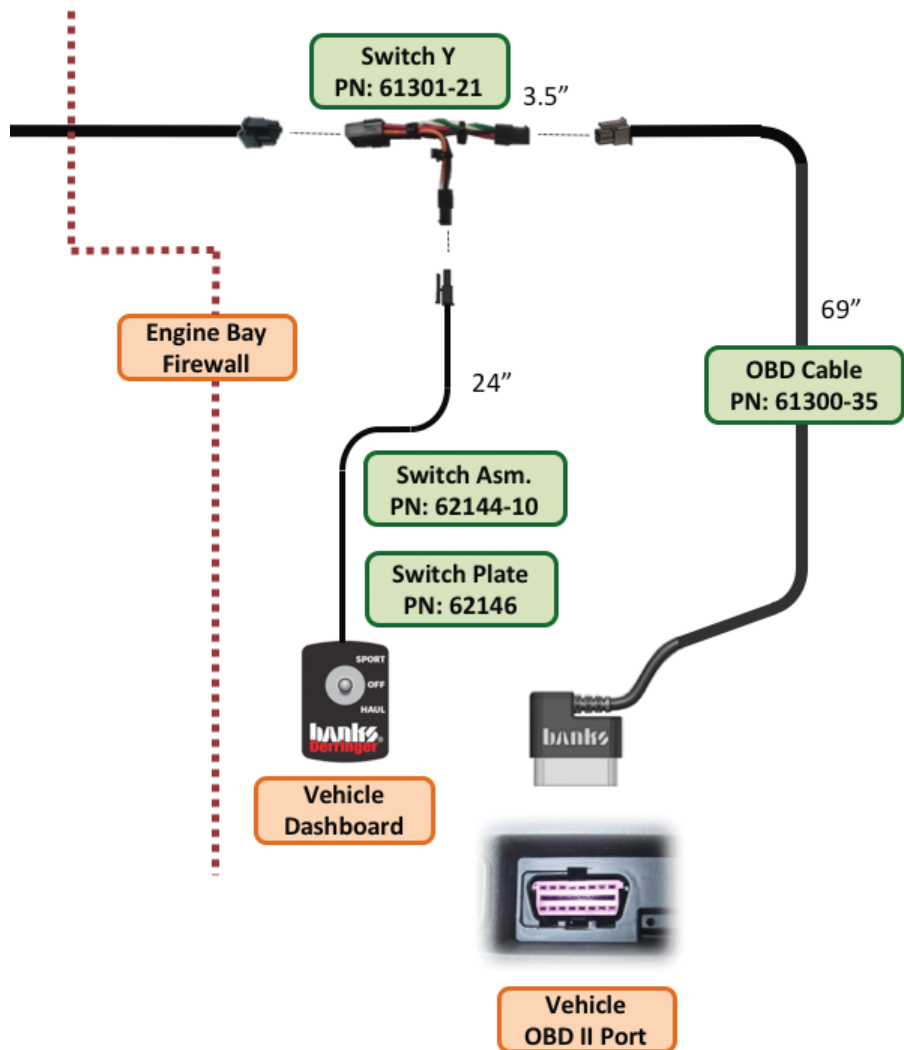
The **BUYER** may promptly return this product, in a new and unused condition, with a dated proof-of-purchase, to the place-of-purchase within thirty (30) days from date-of-purchase for a full refund, less shipping and/or restocking fee.

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

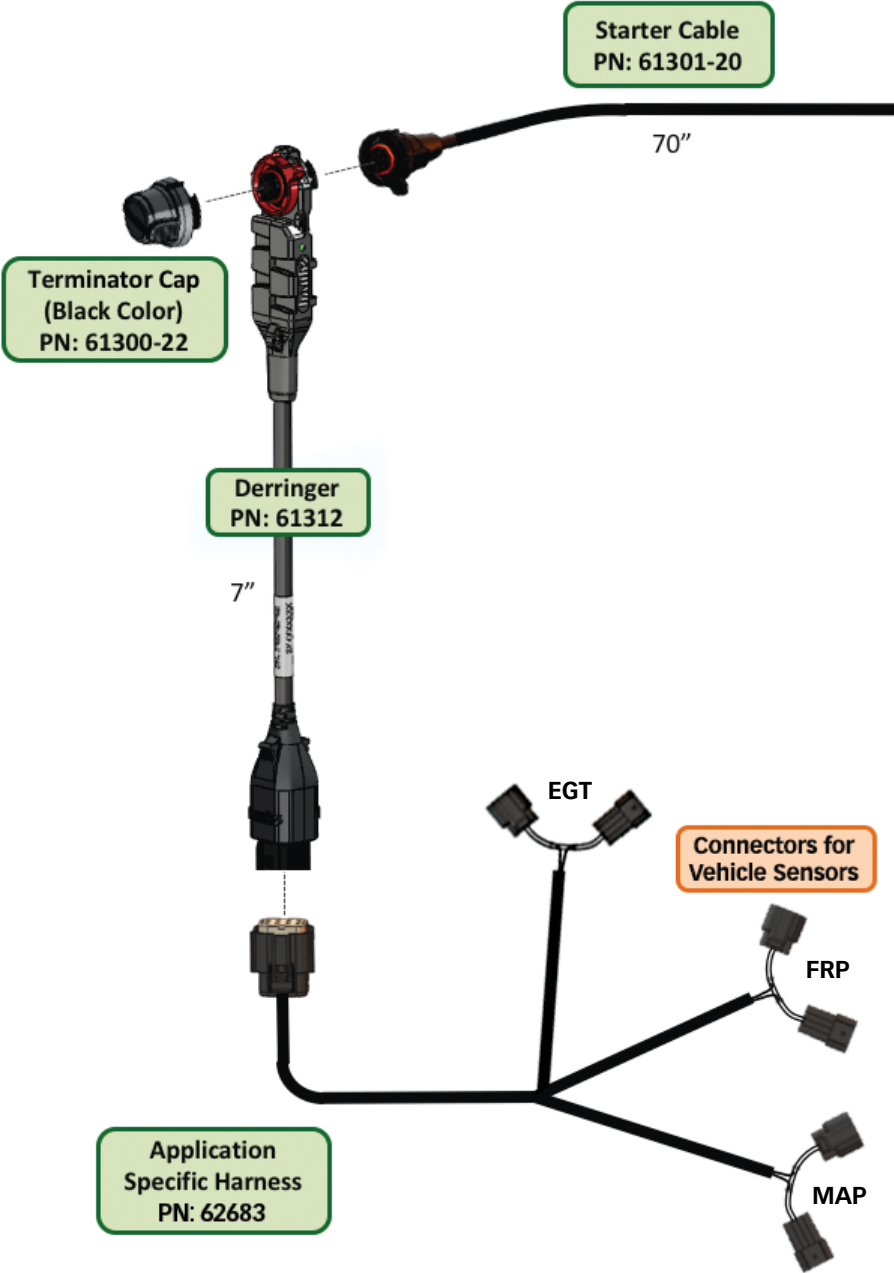
# Wiring Diagram: Stand Alone Tuner Configuration

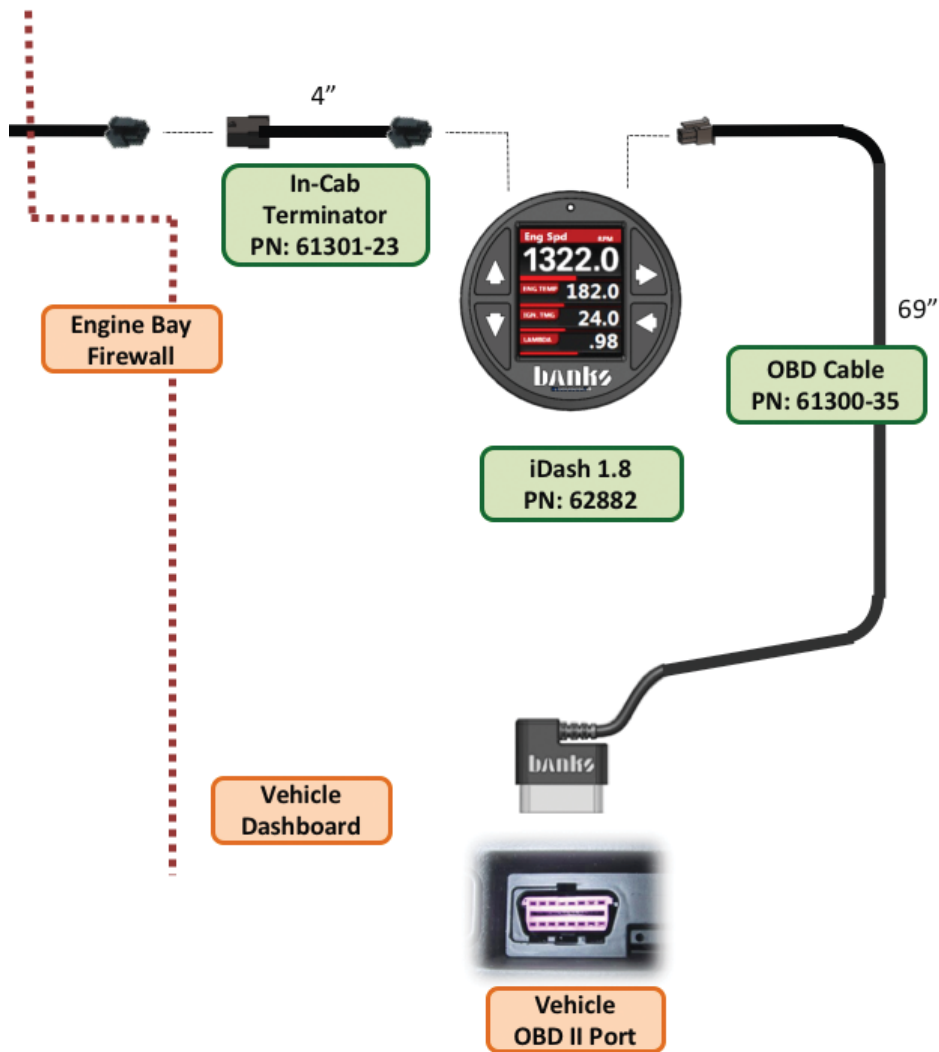






# Wiring Diagram: iDash 1.8" Configuration





# Section 1

## INSTALLATION OF WIRING HARNESS, CONNECTIONS & DERRINGER TUNER

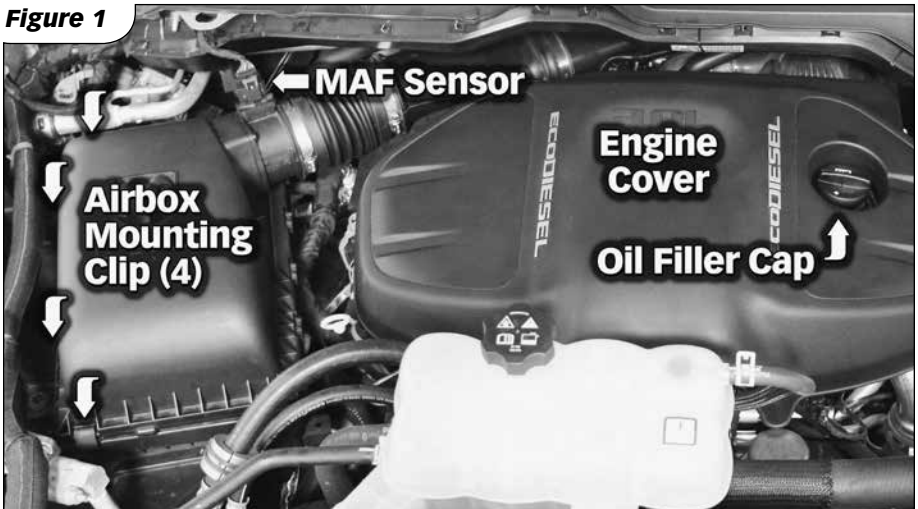
**1.** Disconnect the battery ground cables from each battery (if so equipped). Secure the cables so that they do not come in contact with the battery posts during the installation.

**2.** Remove the engine cover for:

- a.** The Ram 1500, by first removing the oil filler cap. Then, lift up at the front to release the rubber socket mounts and pull forward to release from rear mounts. Reinstall oil filler cap. See **Figure 1**.

**3.** 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.

**Figure 1**

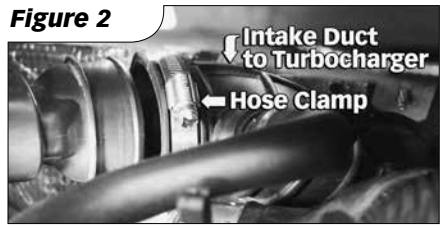


**4.** Remove the airbox and intake duct by first loosening the compressor inlet duct hose clamp at the compressor (see **Figure 2**) - 5/16 socket, extensions, ratchet. Unhook each of the latches securing the airbox lid to the airbox, lift up on the outer edge of the airbox cover to release the finger 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 3**.

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

**5.** Remove the black acoustic foam covering the passenger side camshaft cover and EGR cooler outlet pipe. See **Figure 3**.

**Figure 2**

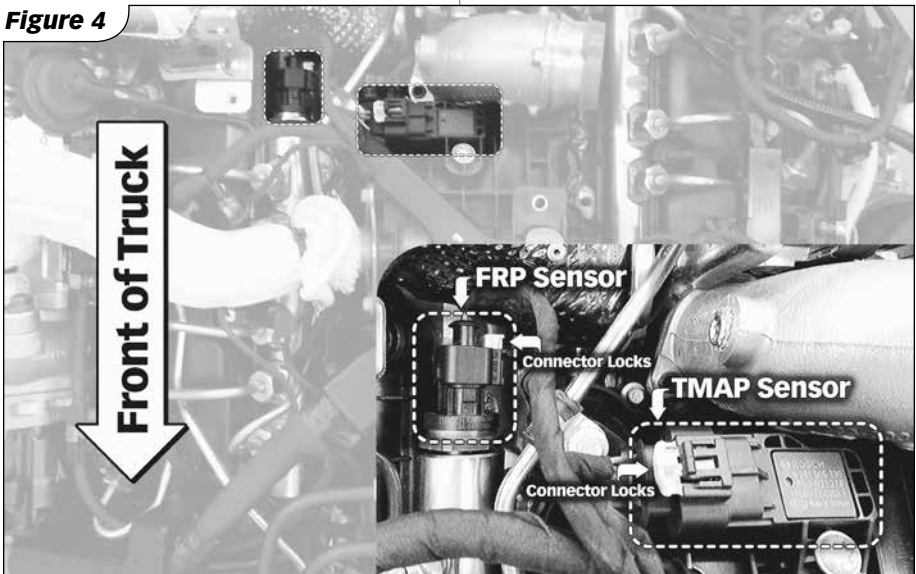


**Figure 3**



**6.** Locate the Fuel Rail Pressure (FRP) sensor and Temperature / Manifold Absolute Pressure (TMAP) Sensor. See **Figure 4**.

**Figure 4**

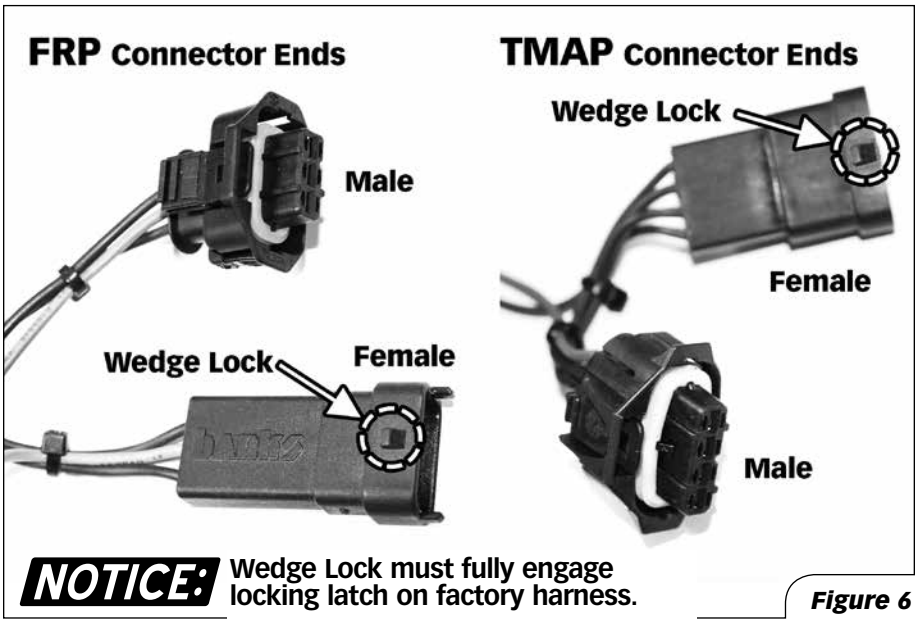


7. For each connector, slide the yellow connector lock away from the sensor body, then depress the connector latch and slide the connector off the sensor. Note: the FRP sensor connector latch may not be visible from above - due to variations in installation of the FRP sensor, it may be necessary to slide the connector latch toward the rear of the vehicle using a hooked pick to reach underneath the connector. See **Figure 5**.

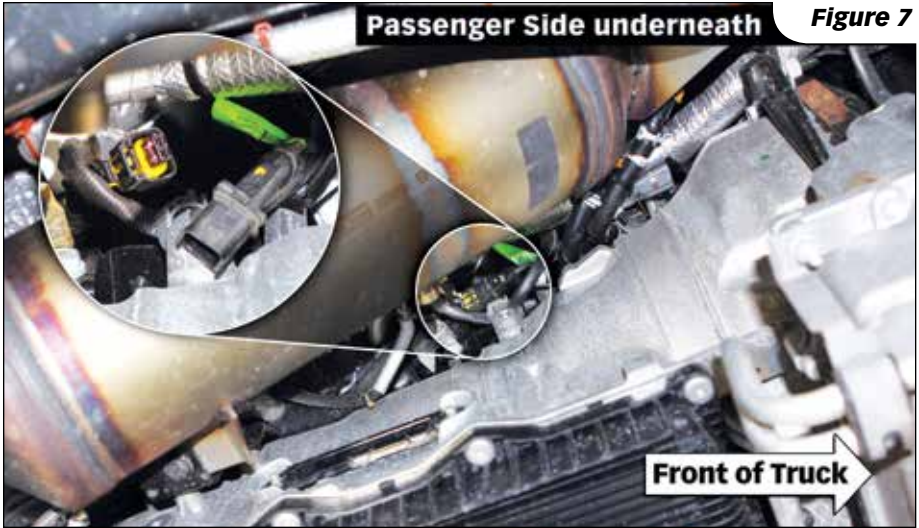
**NOTICE:** On some factory connectors depressing the latch may not fully disengage the connector from the sensor body. Gently inserting a pick or small flat blade screwdriver underneath the leading edge of the latch while depressing will aid release.

8. Locate the Derringer Sensor harness (PN 62683) and identify the connectors. See **Figure 6**.

**Figure 5**



**Figure 6**



**9.** 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 that the male Derringer harness connectors do not use a sliding connector lock, only a latch.

**⚠ 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).

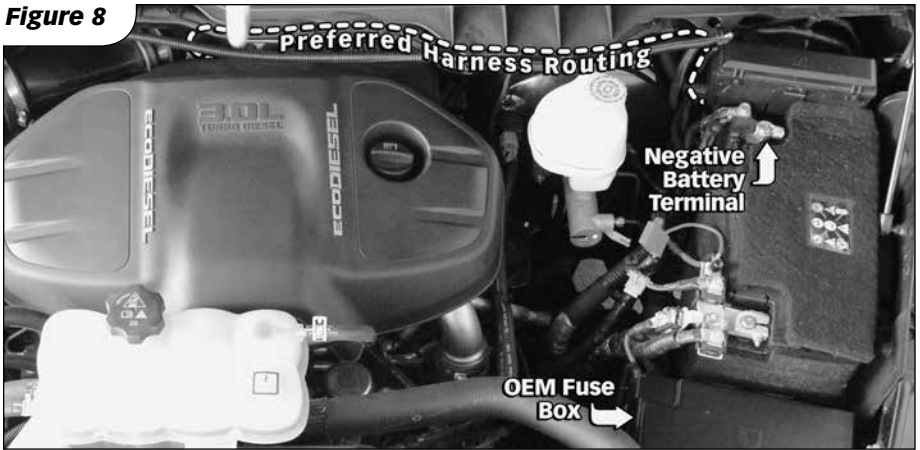
**10.** Connect the female ends of both the FRP and TMAP Derringer harness to the factory harness, again making sure that the connector bodies are oriented properly and latch securely when connected. Slide the factory harness connector locks into place, and confirm that the connections are secure by tugging firmly on either

side of the junction. Secure the harness connectors to the engine with supplied zipties.

**11.** From underneath the vehicle, locate the Exhaust Gas Temperature (EGT) connector located on the passenger's side of the transmission. See **Figure 7**. Route the EGT branch of the Derringer harness down behind the engine on the passenger's side to this connector location. Disconnect the factory EGT connection. Note: It may be easier to disconnect this connection if the connector is removed from its mounting tab.

**12.** Connect the female factory connector to the male connector on the Derringer harness and the male factory connector to the female connector on the Derringer harness. Ensure that the connector locks are fully engaged. Confirm the connections are secure by tugging firmly on both sides of the connection. Do not pull on the wires but only the plastic connectors. If the connector was removed from its mounting tab, reinstall the connector on the mounting tab.

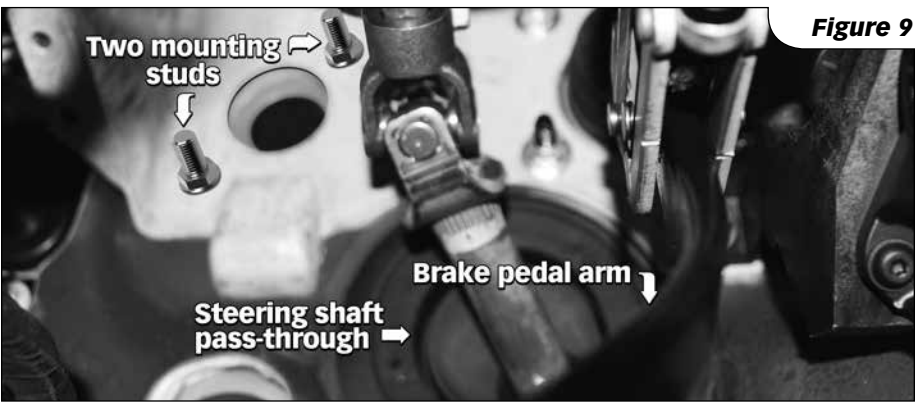
**Figure 8**



**13.** 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 secure using the supplied zip ties. See **Figure 8**. Secure the EGT branch of the harness away from hot exhaust components.

**14.** Connect the Derringer module to the sensor harness and then connect it to the Derringer Starter Cable. If using the 3-position switch, install the gray Dust Cap on the Derringer. If connecting to an iDash, install the black Terminator Cap. Once the correct cap is in place rotate the locking ring clockwise to secure the cap. Then locate a place to secure the Derringer module, along the driver's side fender, and tie-wrap it in place.

**15.** 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 / nuts protruding into the cab, above and to the right of the steering shaft firewall pass-through. See **Figure 9**. 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.



**Figure 9**



**Figure 10**



**16.** 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 10**. 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 11**. Then reinstall the blockoff plate, taking care to not pinch or trap any wires.

**17.** 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.

**Figure 11**



**Figure 13**

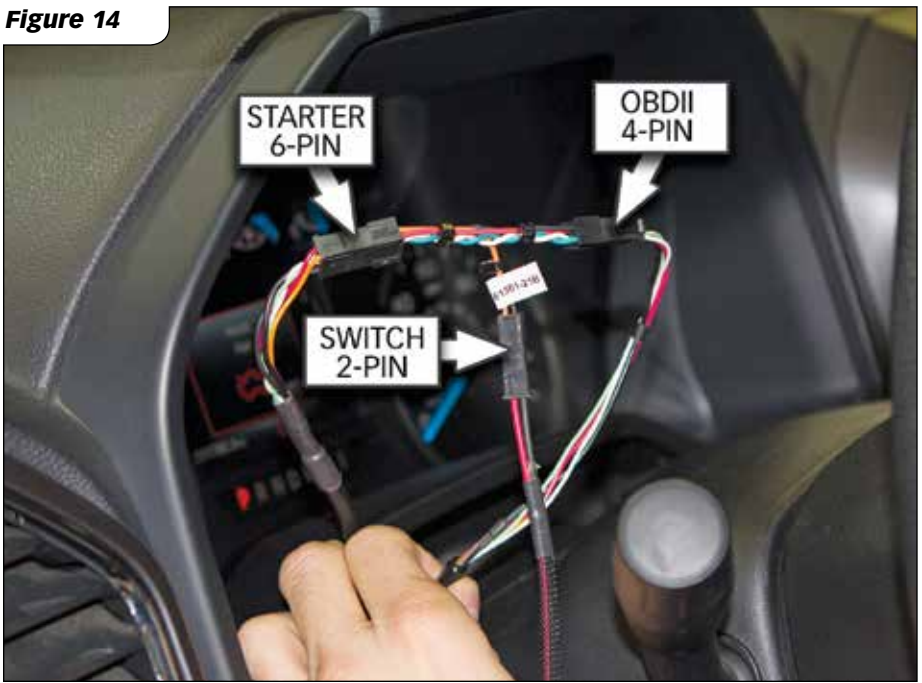


**18.** Plug the OBDII cable into the OBDII port under the dash (**Figure 13**).

**NOTE:** If using the Switch configuration, perform steps 19-21. If using iDash 1.8" Gauge configuration, skip to step 22.

**19.** 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 (**Figure 14**).

**Figure 14**



**Figure 15**



**20.** 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 (**Figure 15**).

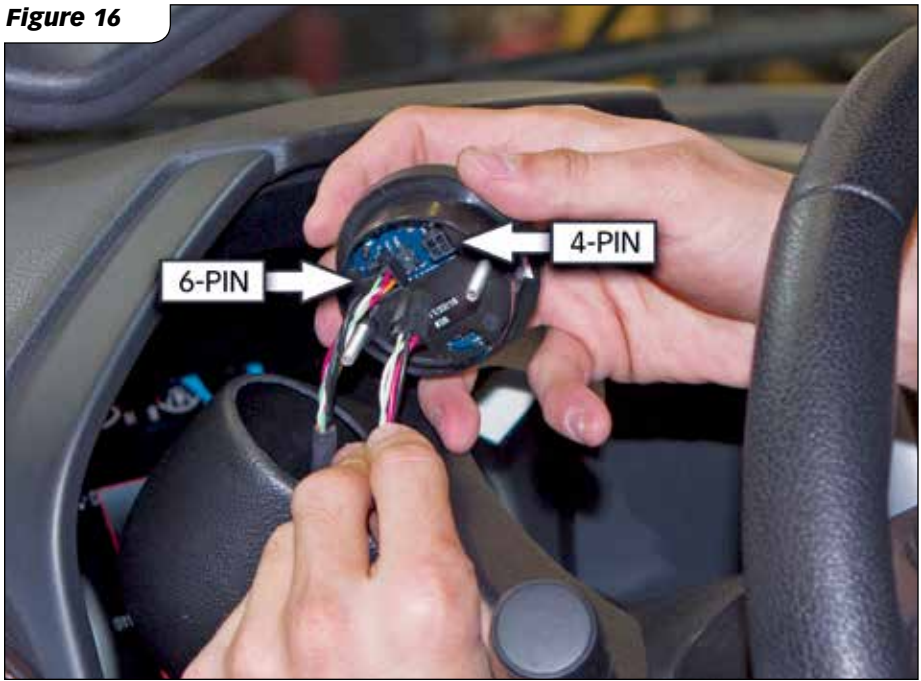
**21.** OPTIONAL: Mount switch in dashboard by drilling two holes using the supplied template (see **page 20**). Be careful to not damage factory wiring behind the dashboard. To keep the switch from rotating, it is necessary to install the locking tab washer behind the dash, with the locking tab facing the backside of the dash face. Alternatively, Zip tie the switch in any easy to access location for power level adjustment.

**NOTE:** Only perform steps 22-24 if using iDash gauge configuration. If using the switch configuration skip to step 25.

**22.** Plug the 4-pin from the OBDII cable and the 6-pin from the starter cable into the back of the iDash 1.8" gauge (**Figure 16**).

**23.** Install iDash gauge in an A-pillar, steering column, or suction cup windshield mount gauge pod.

**Figure 16**



**24.** Insure the black terminator cap is installed onto the Derringer when using the Derringer in iDash 1.8" gauge configuration (**Figure 17**).

**25.** Secure the harness connectors under the dash, avoiding any moving parts, with supplied Zip ties.

**26.** 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.

**27.** 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.

**28.** 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.

**Figure 17**



# Section 2

## OPERATION OF THE DERRINGER MODULE

### Setting Desired Power Level:

Your Derringer tuner module has three settings. These are Sport, Plus, and Stock (off). You can set the desired power level while the engine is running, under power or off. It is recommended that you do not switch modes under high throttle applications. The level can be changed by either the switch or the Banks iDash MMI 1.8" gauge by pressing the up or down keys on the left side.

### **SPORT MODE (switch up)**

This mode is to be used when peak engine performance is required. This mode has been optimized for maximum power output and is tuned to increase fuel deliver and boost to provide maximum power output of the engine along with improved turbo response. This mode includes the Banks Push-to-Pass feature that increases the allowable exhaust gas temperature (EGT) for a limited duration. This allows the engine to continue to operate at peak performance for an extended period of time. This has a significant impact on the extended performance of the engine and has a significant impact on the ¼ mile times.

### **PLUS MODE (switch down)**

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 that outside electronics are introduced to the engine control electronics environment, it is important to know that the new parts are not going to have a negative effect on the existing parts. That means that the aftermarket electronics need to be designed in such a way as to never cause damage to the existing electronics, while also preventing interference with the existing signals regardless of the current operating conditions. Banks builds-in a suite of ActiveSafety features to safeguard all electronics involved:

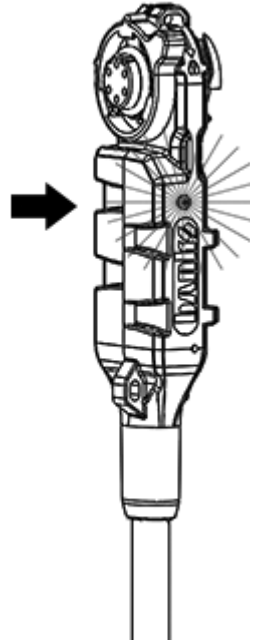
- » Software that monitors and diagnoses itself to ensure proper function
- » Self-monitoring hardware that provides automatic bypass should something malfunction

The Derringer tuner module also monitors multiple parameters and adjusts its output controls to protect the driveline. The Derringer module 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 3

## TROUBLESHOOTING

Your Derringer Tuner has a built-in, self-diagnostic system. The status of the diagnostic system is communicated via the LED on the module. When the Derringer module is functioning properly the LED will flash green. When the LED is not illuminated, the Derringer module is not powered on. If the ignition is on and the LED is not illuminated, check the connections at the vehicle sensors and ensure they are fully engaged. When faults are detected, the Derringer module 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. This is the first digit. The number of red flashes after the LED flashes green is the second digit. After the diagnostic code is displayed, additional codes will be displayed in sequence. Once all codes are displayed the system we begin sending the codes again. The display of the codes is separated by a longer period of the LED not being illuminated. Once you have written down all diagnostic codes being displayed, consult the following action tables for a description of the code along with the action to be taken.



### 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.

## 61312-30 Derringer Tuner (Chrysler EcoDiesel applications) cont'd

Code	Event	Course of Action
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	Exhaust Gas Temperature (EGT) Output 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 & under varying driving conditions.
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 / BanksBus CAN Communication error	<p>Turn ignition OFF &amp; check the following connections (as applicable):</p> <ol style="list-style-type: none"> <li>1) 61300-35 OBD-II Interface Cable - at 16-pin vehicle OBD-II &amp; 4-pin inter-cable connectors.</li> <li>2) 61301-21 Y-Adapter Cable - at 4-pin inter-cable &amp; 6-pin inter-cable connectors.</li> <li>3) 61301-20 B-Bus Starter Cable - at 6-pin inter-cable &amp; 6-pin B-Bus Circular connectors.</li> <li>4) 61300-22 B-Bus Terminator Plug - at 6-pin B-Bus Circular connector.</li> </ol> <p>Turn ignition back ON &amp; re-check for presence of code. If code does not re-appear at key ON, start engine &amp; check for presence of code both at engine idle &amp; under varying driving conditions.</p>

# Section 4

## PLACEMENT OF THE BANKS POWER DECALS



### Mount switch template

(step 11 on page 16)

