Throttlestop

Automatic Overspeed Detection Shutdown System

Installation and Testing Instructions

- **FORD 6.7L, 2013-2018**
- **DODGE 6.7L, 2013-2018**
- **DODGE ECO-DIESEL 3.0L, 2014-2017**
- **GM 6.6L, 2013-2018**

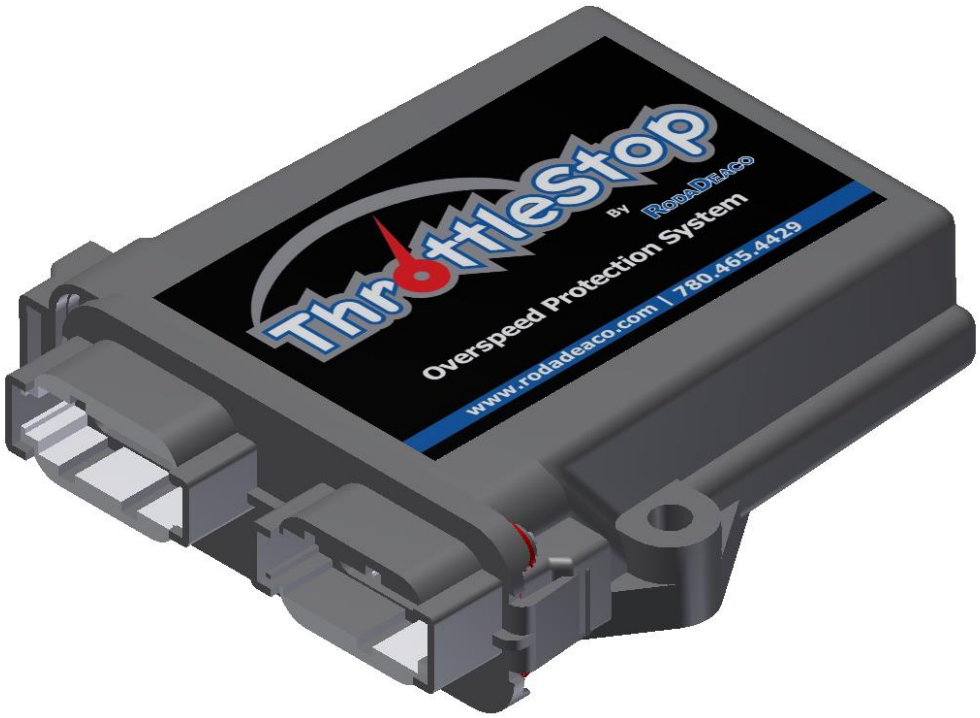
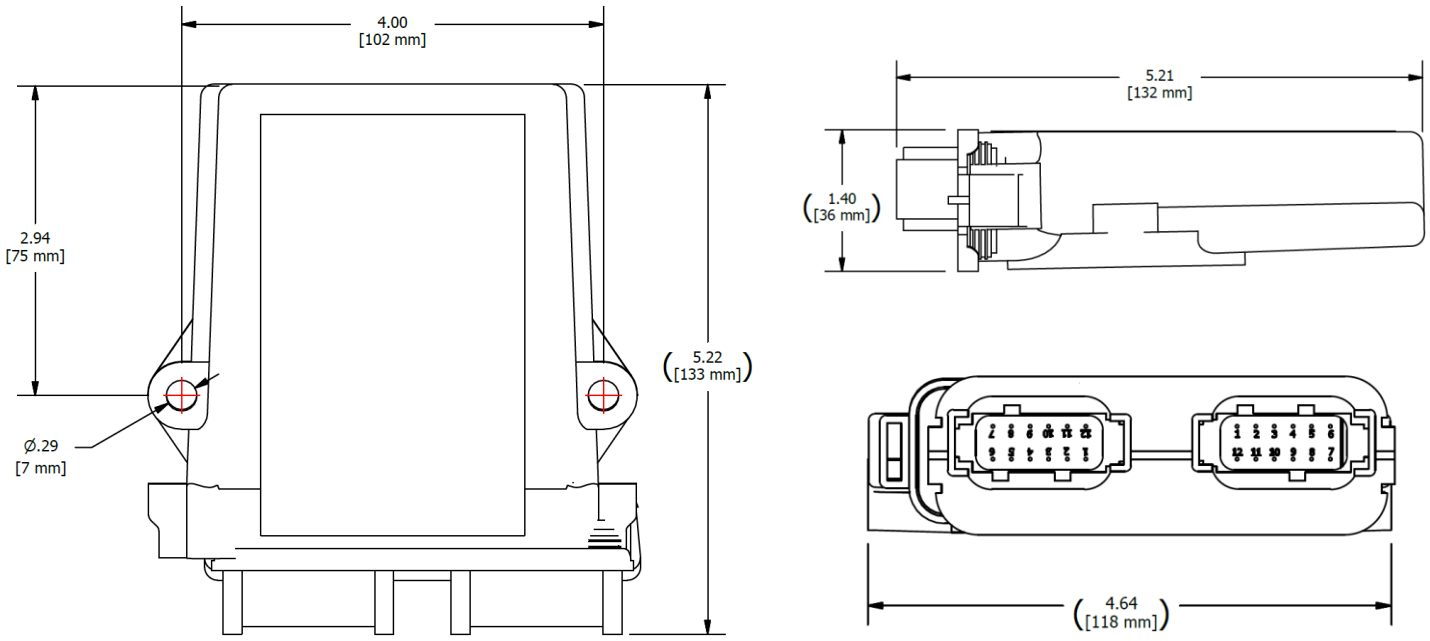


TABLE OF CONTENTS

AVAILABLE THROTTLESTOP KITS	
Part Number	**Description**
1540-001	DODGE 6.7L, 2013-2018
1540-002	FORD 6.7L, 2013-2018
1540-003	GM 2013-2016
1540-004	GM 2017-2018
1540-005	DODGE ECO-DIESEL 3.0L, 2014-2017

A. PRODUCT DESCRIPTION

Throttlestop is a speed control module and custom wire harness. Overall dimensions are given below.



Input Power: Standard 12 or 24 VDC with reverse polarity protection (10.8 – 26.2 VDC)

Input Signal: Frequency based speed signal (from crankshaft sensor)

Output Signal: To Throttle Valve

Operating Temperature Range: -40° C to 85° C (-40° F to 185° F)

Certification: Ingress Protection IP54

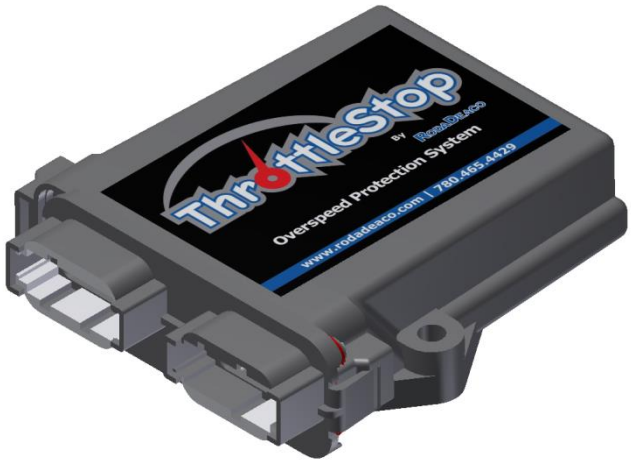
The Throttlestop speed control module is designed to monitor engine RPM and immediately shutdown the engine in the event of an overspeed condition. The module monitors engine RPM from the crankshaft position sensor signal which is already integrated with the vehicle's powertrain. When the engine speed exceeds the pre-programmed threshold, the Throttlestop module will trigger the OEM intake throttle to close, thereby shutting down the engine.

The wire harness is customized for each application. It is designed with the appropriate connectors for plug-n-play connections to the vehicle. No cutting or splicing is necessary.

All Throttlestop products include a momentary toggle switch with an integrated LED indicator light used to activate and test the Throttlestop system.

Kit Contents

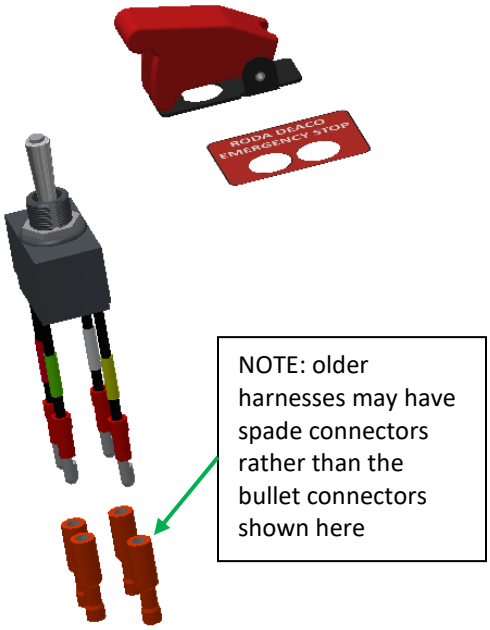
Pre-Programmed Module



Typical Harness (varies depending upon vehicle/engine type)

Components Kit

Includes 1x lighted toggle switch assembly, 1x toggle guard, 1x toggle sticker, cable ties and 4x loose bullet connectors[1].



⚠WARNING

Before using this product, the installer must verify that proper power is supplied to the system. To verify, use a volt meter to read the voltage between the two intended battery connection points. Failure to supply the correct power can damage the Throttlestop module and compromise its functionality in the event of an overspeed condition.

Equipment Required

- Drill
- 1/8” Drill Bit (if mounting module to firewall using sheet metal screws)
- 1/2" Unibit
- Wire Crimper
- Assorted Socket Wrenches
- Assorted Screw Drivers
- Battery Terminal Wrench
- 5/16” Bolt (For Ford 2017 6.7L Only)

[1] Older harnesses may have spade connectors

B. INSTALLATION INSTRUCTIONS

⚠CAUTION

Ensure your vehicle is parked in a safe location with the engine turned off. Self-protection is the fundamental responsibility of the operator. Appropriate safety gear includes, but is not limited to safety glasses and safety gloves. Contact factory for assistance if any difficulties arise during installation, operation, testing, maintenance, or troubleshooting. Failure to follow all the instructions described in the manual or any unauthorized modification of Throttlestop products may result in serious personal injury or product damage and will void any applicable warranty on the Throttlestop product.

Installation Procedure

1. Open the engine bay and note the location of the integral connection on the throttle valve and the location of the crankshaft speed sensor. The locations will differ depending on the vehicle's make and model. For Ford 6.7L, see Figure 1. For Dodge 6.7L, see Figure 2. For GM 6.6L Year 2012-2016 and Year 2017, see Figure 3. For Dodge Eco-Diesel 3.0L see Figure 4.

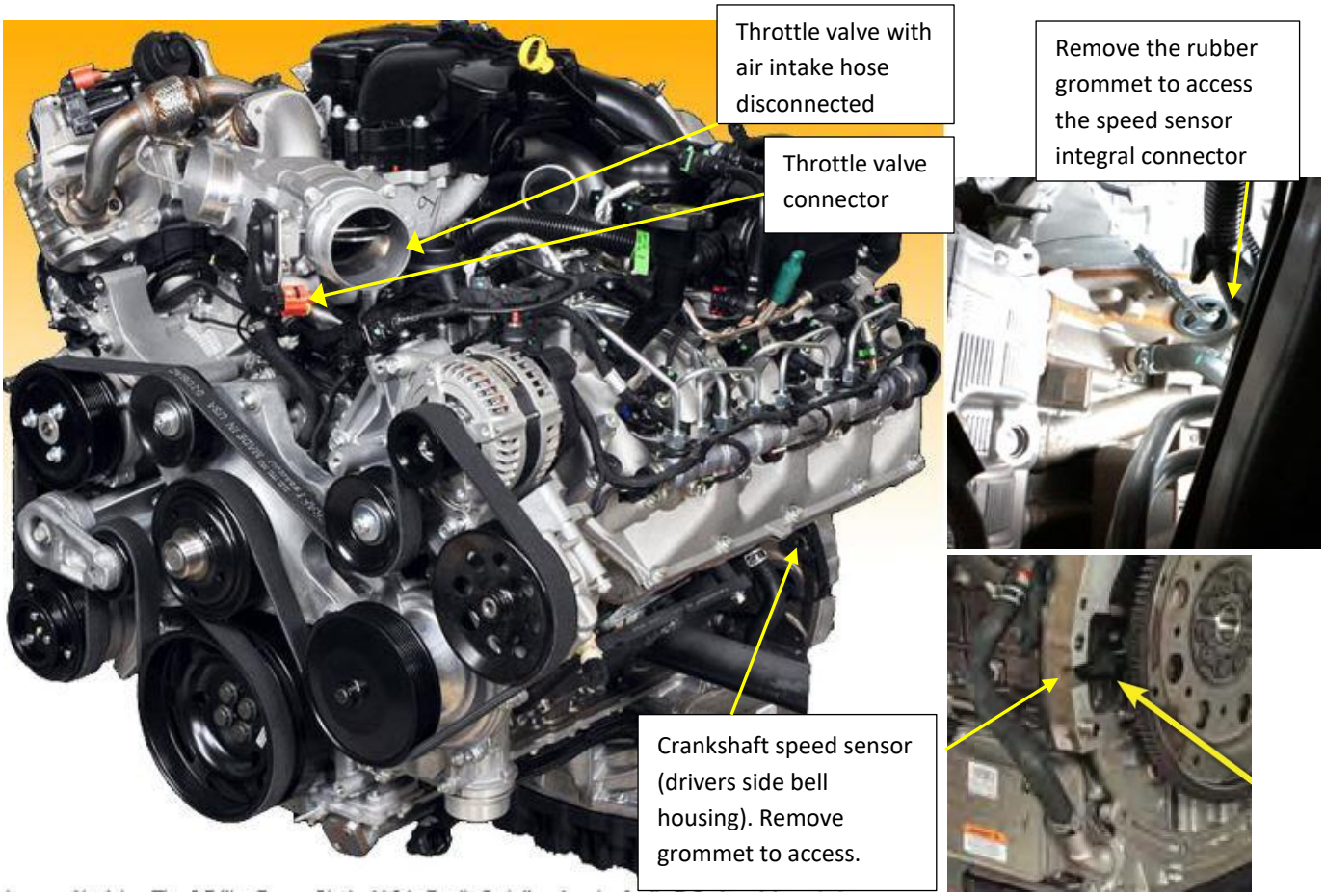


FIGURE 1: Location of valve port and crankshaft speed sensor on the Ford 6.7L engine

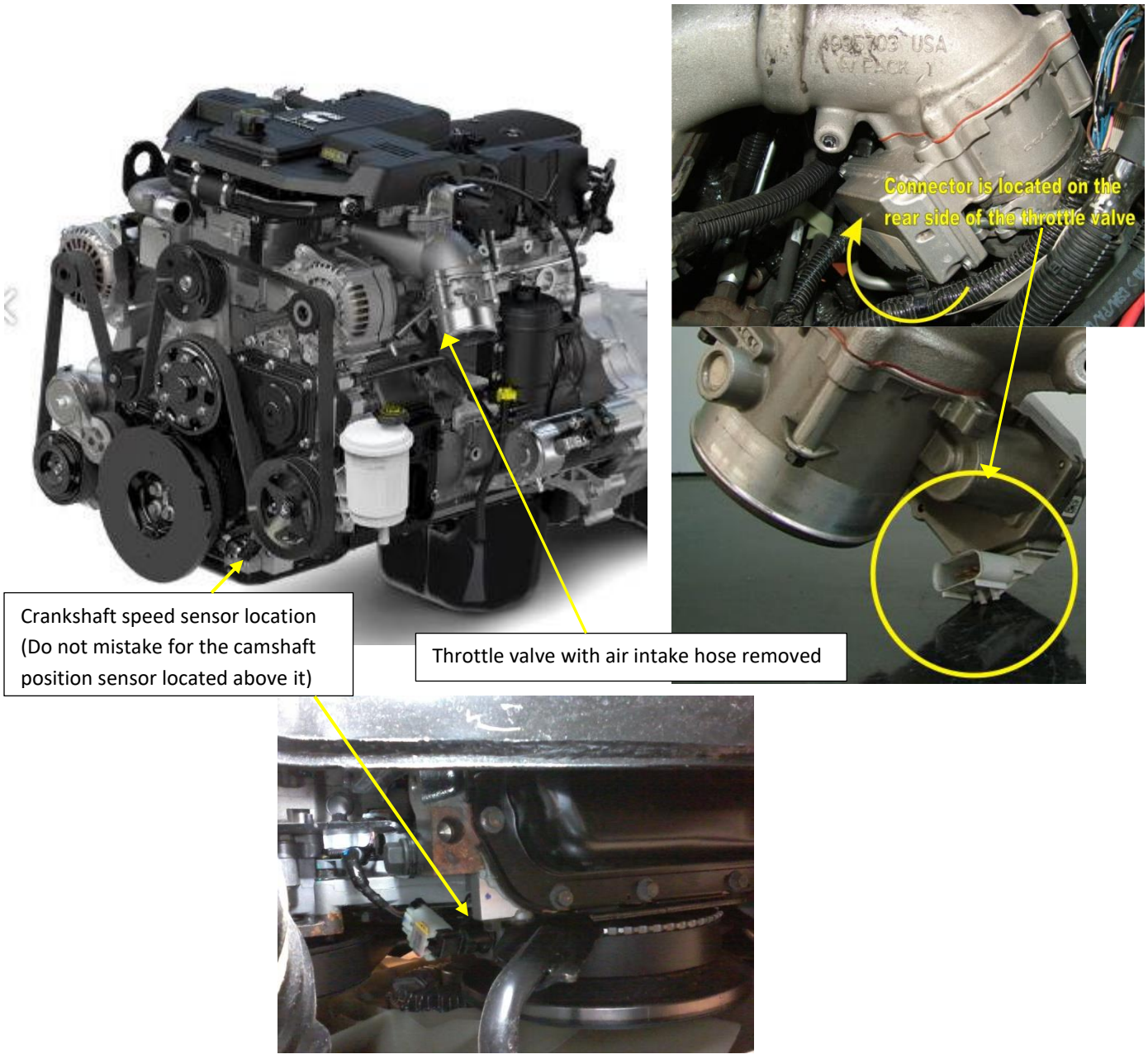
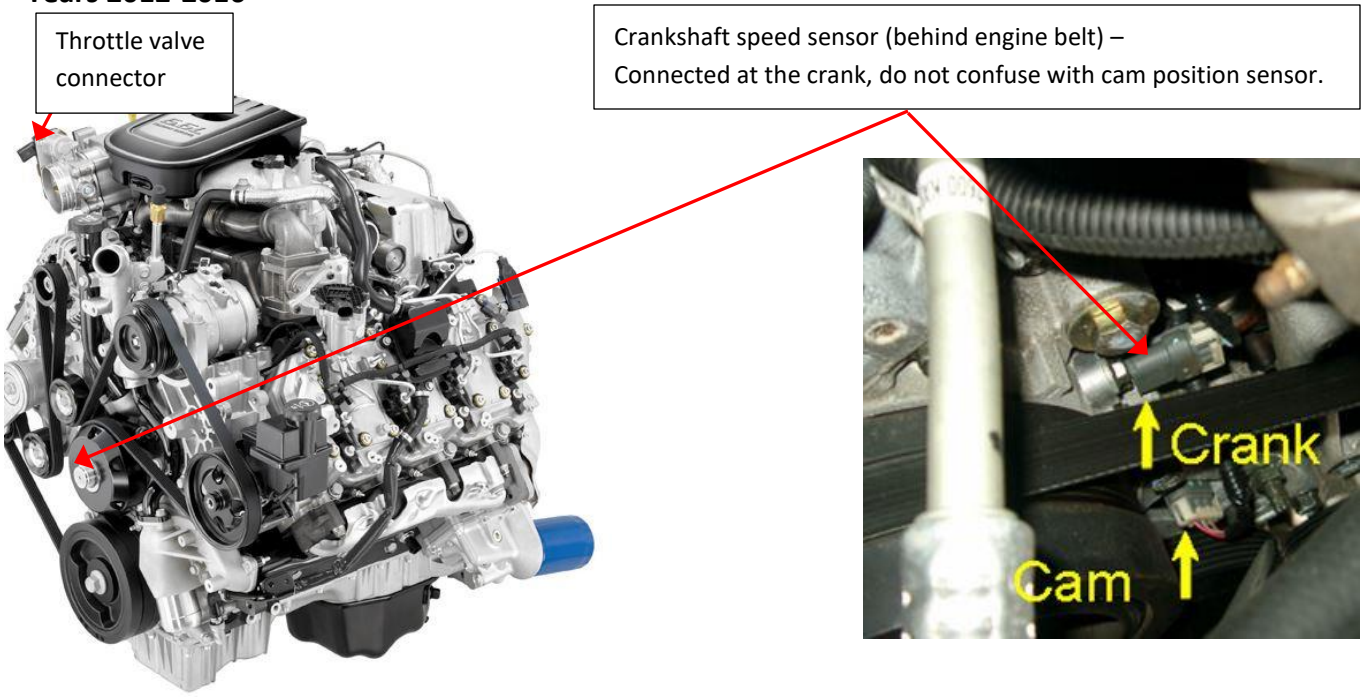


FIGURE 2: Location of valve port and crankshaft speed sensor on the Dodge 6.7L engine

Years 2012-2016



Year 2017

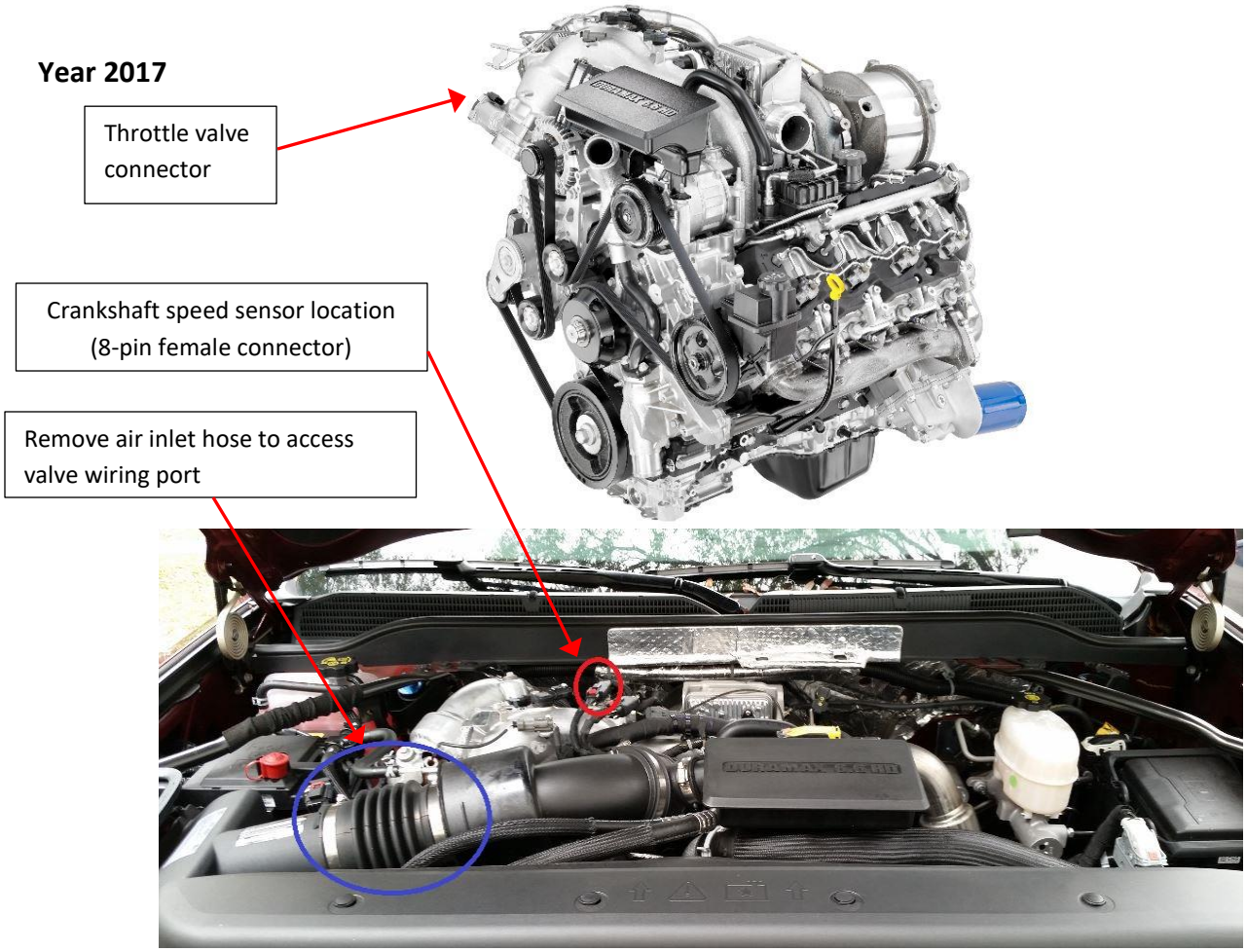


FIGURE 3: Location of valve port and crankshaft speed sensor on GM Engine

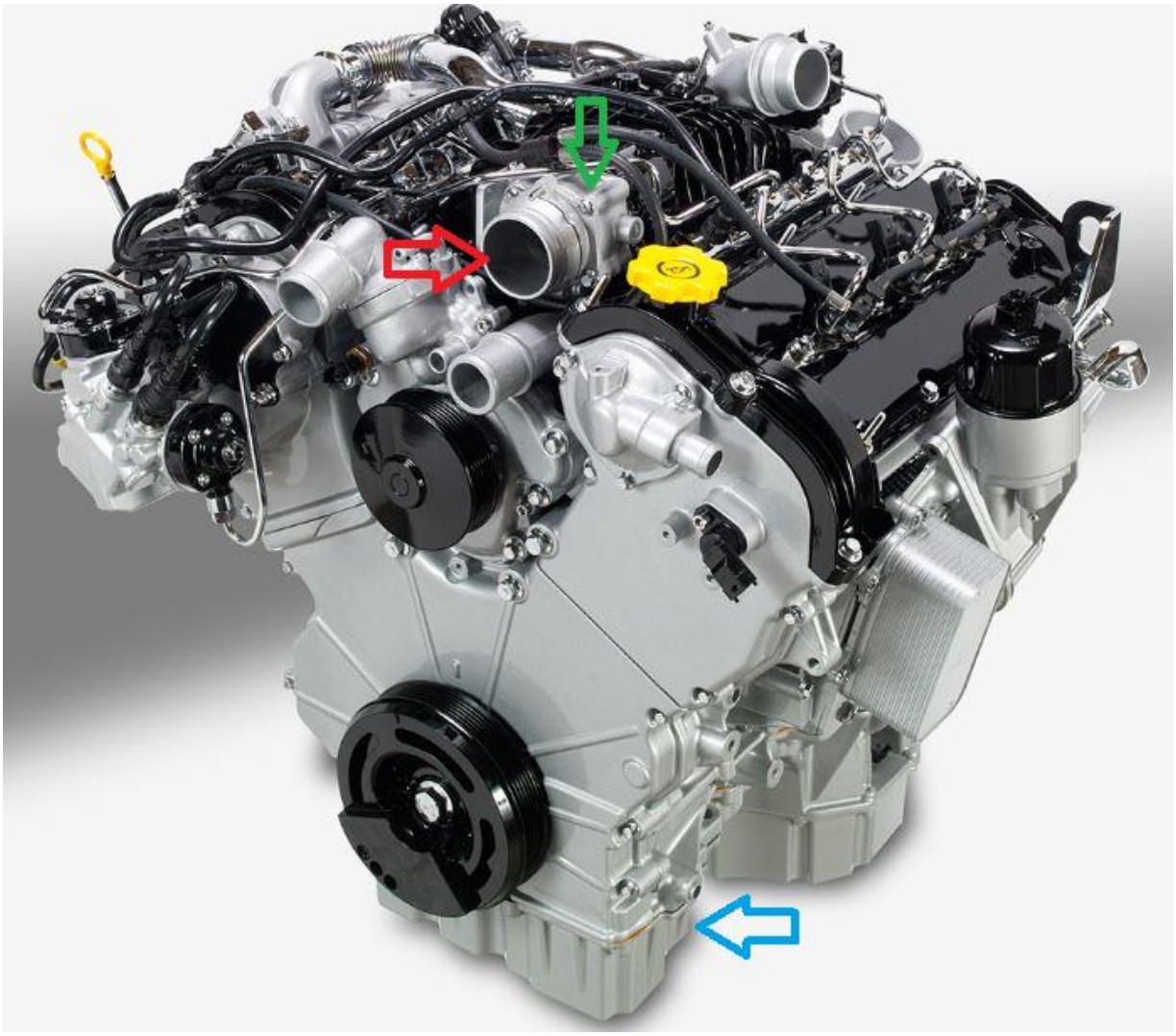


Figure 4: Dodge Eco-Diesel 3.0L engine. (TOP PICTURE) Green arrow is the throttle valve location and blue arrow (BOTTOM PICTURE) is the crankshaft position sensor location.

⚠CAUTION

For vehicles older than the current year, the throttle valve needs to be checked for carbon deposits prior to installing Throttlestop. If the carbon deposit is found to be seated on the bore walls, like what is shown in Figure B, the throttle valve **must** be cleaned out before operating the vehicle. If the valve is not cleaned out before operating the vehicle, the Throttlestop system can become compromised as follows:

(i) The system may not work in stopping the engine
(ii) The throttle valve may not reopen once it is closed
(iii) The ECU may throw error codes when Throttlestop is engaged

Figure A illustrates what the valve should look like after it has been cleaned. Periodic checking/cleaning of the throttle valve is recommended if the vehicle throttle valve has been found to have carbon deposits.

Figure A:
"clean" throttle valve

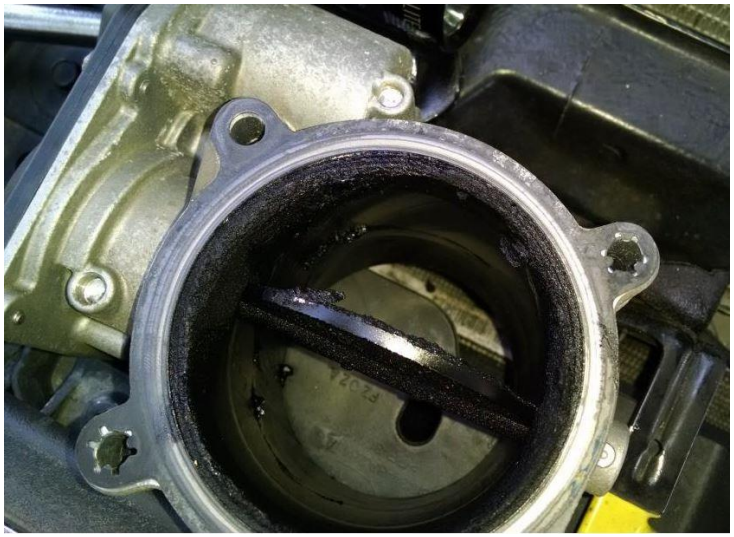


Figure B:
Throttle valve with carbon build-up.

2. If operating a Dodge Eco-diesel 3.0L, a Ford (any year) or a GMC (year 2017), remove the air inlet hose from the throttle valve to allow access to valve wiring port. The Dodge Eco-Diesel also requires the removal of the air inlet flange (red arrow on Figure 4) and may also require loosening the throttle valve to access the throttle valve harness connections. If operating a Dodge 6.7L, skip this step and continue to Step 3.

3. Disconnect the existing OEM harness wiring from the integral connector by pressing down connector locking tab.
Note: The CPA (connector lock) must be slid open first to allow disconnection (see Figs 5 thru 8).

4. Obtain the harness assembly from kit and find the 5-pin male and female connections (see Figures 5 thru 8). Connect the harness female connector to the valve and the male to the truck harness (connector previously installed to valve). Remember to slide the CPA (connector lock) into place once connected.

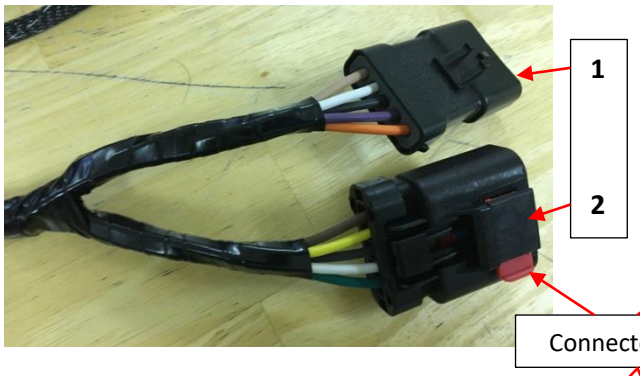


FIGURE 5: Dodge 6.7L Valve Connections
(**2 to Valve, 1 to existing Harness**)

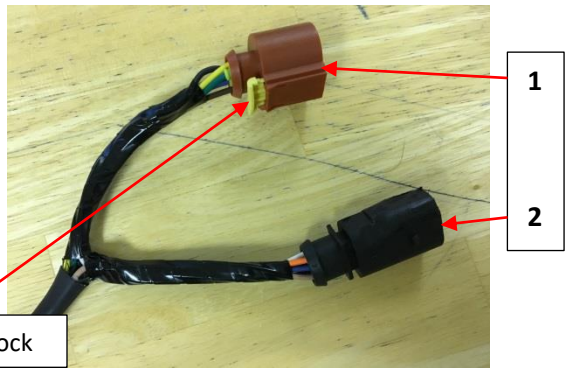


FIGURE 6: Ford 6.7L Valve Connections
(**1 to Valve, 2 to existing Harness**)

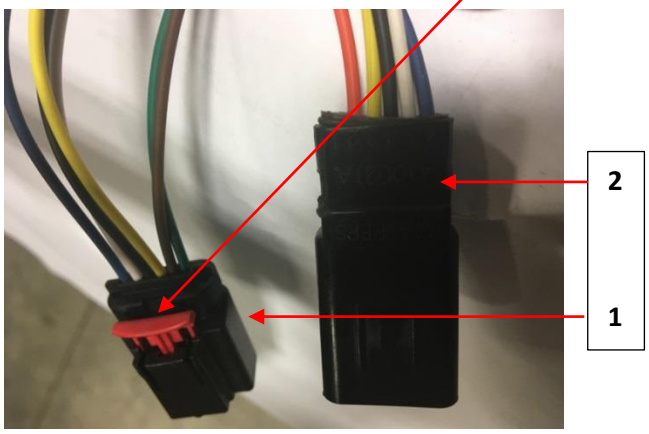


FIGURE 7: GM 6.6L Valve Connections
(**1 to Valve, 2 to existing Harness**)

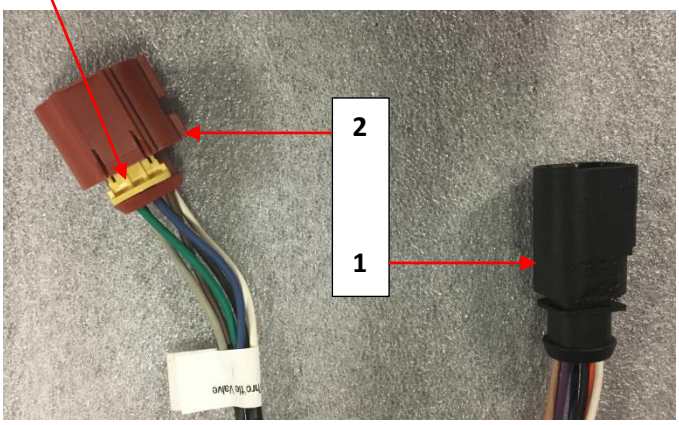


FIGURE 8: Dodge Eco-Diesel 3.0L Valve Connections
(**2 to Valve, 1 to existing Harness**)

5. Disconnect the existing vehicle female connector from the crankshaft speed sensor integral connector located in Step 1 (see Figure 1 for Ford, Figure 2 for Dodge, Figure 3 for GM, Figure 4 for Dodge Eco-Diesel) by pressing down on the connector tab. Note: the connector locks must be slid open first to allow disconnection (similar in appearance to the ones in Figure 5 thru 8).

6. On the kit harness assembly, find the 3-pin male and female connector. The connector will look different depending on the vehicle – see Figures 9 thru 12. Connect to the crankshaft speed sensor integral connector located in Step 1, and as shown in Figures 9 thru 12 (If operating a GM 6.6L Year 2017, connect the 8-pin male connector on the harness to the 8-pin female connector circled in Figure 3). The kit harness female connector should connect to the crankshaft position sensor and the male connector should connect to the vehicle female connector that was previously installed to the crankshaft position sensor. Remember to slide the CPA (connector lock) into place once connected.

⚠WARNING
Use zip ties to securely fasten the harness away from all hot and moving parts. Failure to secure the harness in an adequate position can damage the Throttlestop system and compromise its functionality in the event of an overspeed condition.

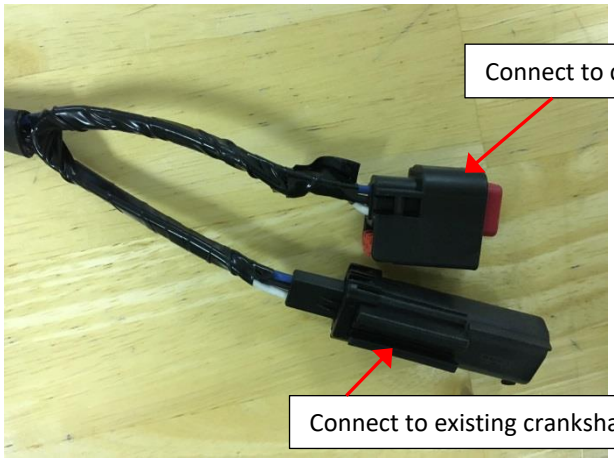


FIGURE 9: Ford Speed Sensor Connections

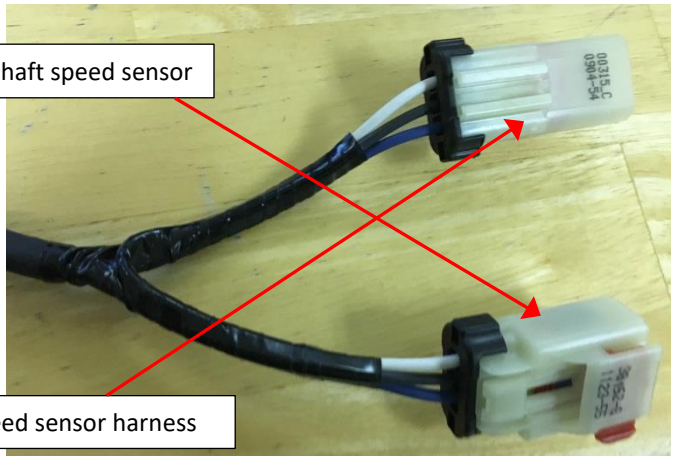


FIGURE 10: Dodge Speed Sensor Connections

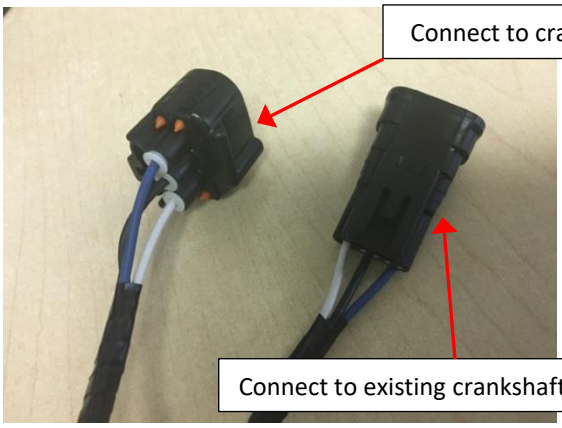


FIGURE 11: GM Years 2012-2016 Speed Sensor Connections

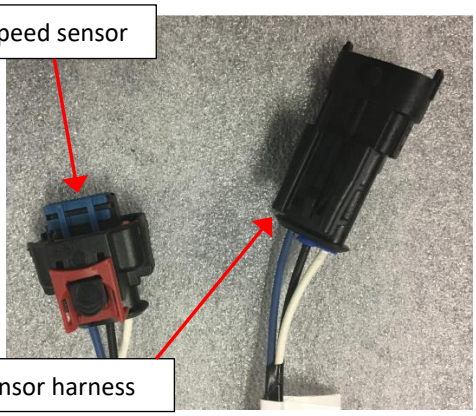


FIGURE 12: Dodge Eco-Diesel 3.0L Speed Sensor Connections

7a. Note: If operating a Ford 2017 6.7L vehicle, skip this step (7a) and continue to Step 7b.

Locate the engine fuse box inside the engine bay. Install the Throttlestop module on the top surface of the engine fuse box. See Figure 13 for an illustration.

The Throttlestop module comes with two velcro strips mounted to the bottom to allow it to be fastened to these surfaces without drilling any holes. Ensure the surface to be mounted to is thoroughly clean and dry when applying the velco strips.

Once finished, ensure the module is completely fixed onto the mounting surface using either the screws or velcro strips. **When finished, skip Step 7b and continue to Step 8.**

⚠WARNING
Never operate the vehicle with a loose module. Failure to correctly secure the module onto an suitable surface can damage the Throttlestop module and compromise its functionality in the event of an overspeed condition.

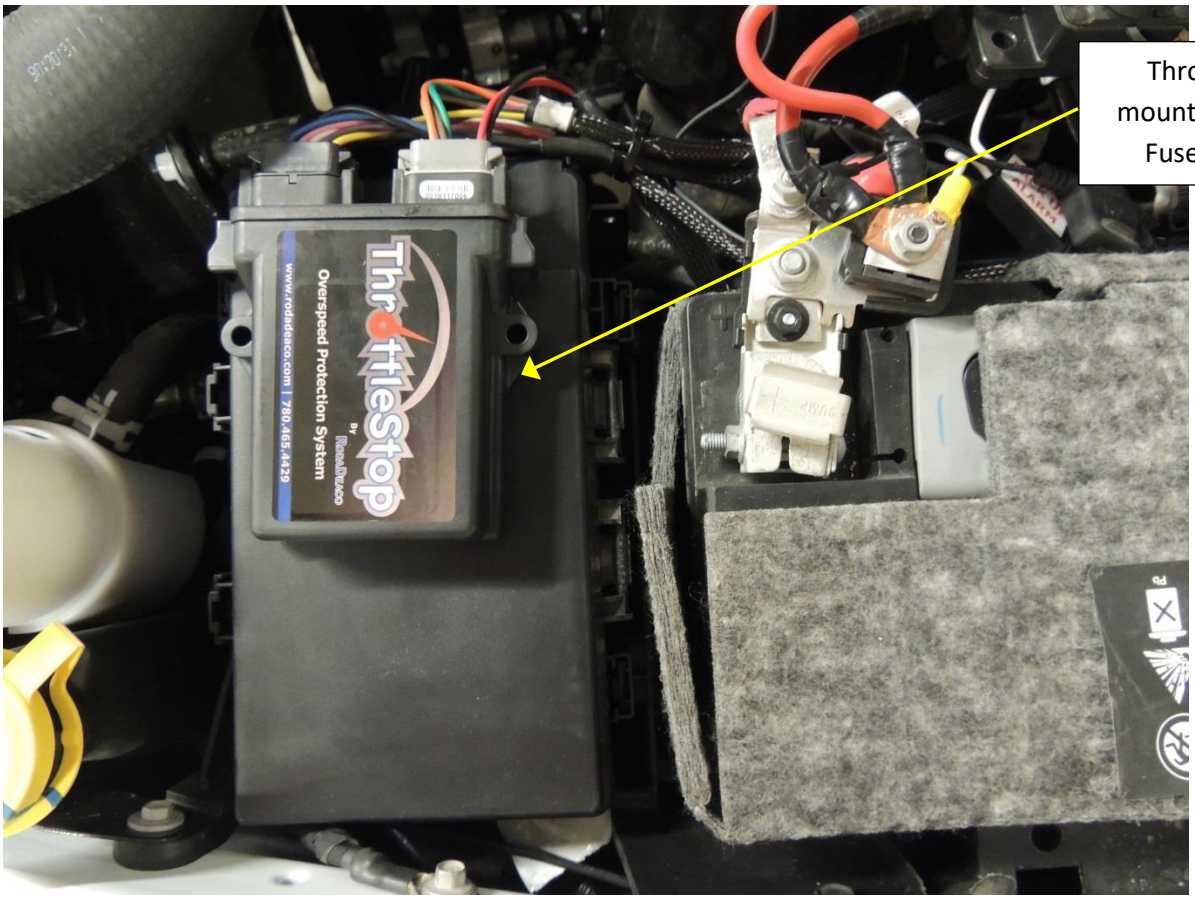


FIGURE 13: Throttlestop module is mounted on top of the engine fuse box using provided velcro strips

7b. Note: Accomplish this step only if operating a Ford 2017 6.7L vehicle.

In the engine bay, locate the firewall area between the engine's coolant reservoir and the driver-side dash. Then, find a stud on the firewall that marks a suitable location for mounting of the Throttlestop module. Remove the stud to clear the hole.

Two holes have been pre-drilled on the Throttlestop casing to provide support for capscrews. Ensure that mounting will not pierce or pinch existing wires:
Install the Throttlestop module to the firewall by using one 5/16" bolt at the hole that was cleared earlier in this step. Ensure that the Throttlestop sticker is visible and that the ports on the module are facing down towards the floor.

Once finished, make certain that the module is completely fixed onto the mounting surface. Complete module installation should look similar to the illustration below (the wires will be connected later).

⚠WARNING
Never operate the vehicle with a loose module. Failure to correctly secure the module onto a suitable surface can damage the Throttlestop module and compromise its functionality in the event of an overspeed condition.

FIGURE 14: Installation of Throttlestop module on Ford 2017 6.7L

8a. On the kit harness assembly, find the attached black and grey 12-Pin female connectors. Connect these connectors to their respective ports on the module (see the figure below). Note that each connector can only fit into its correct port on the Throttlestop module.

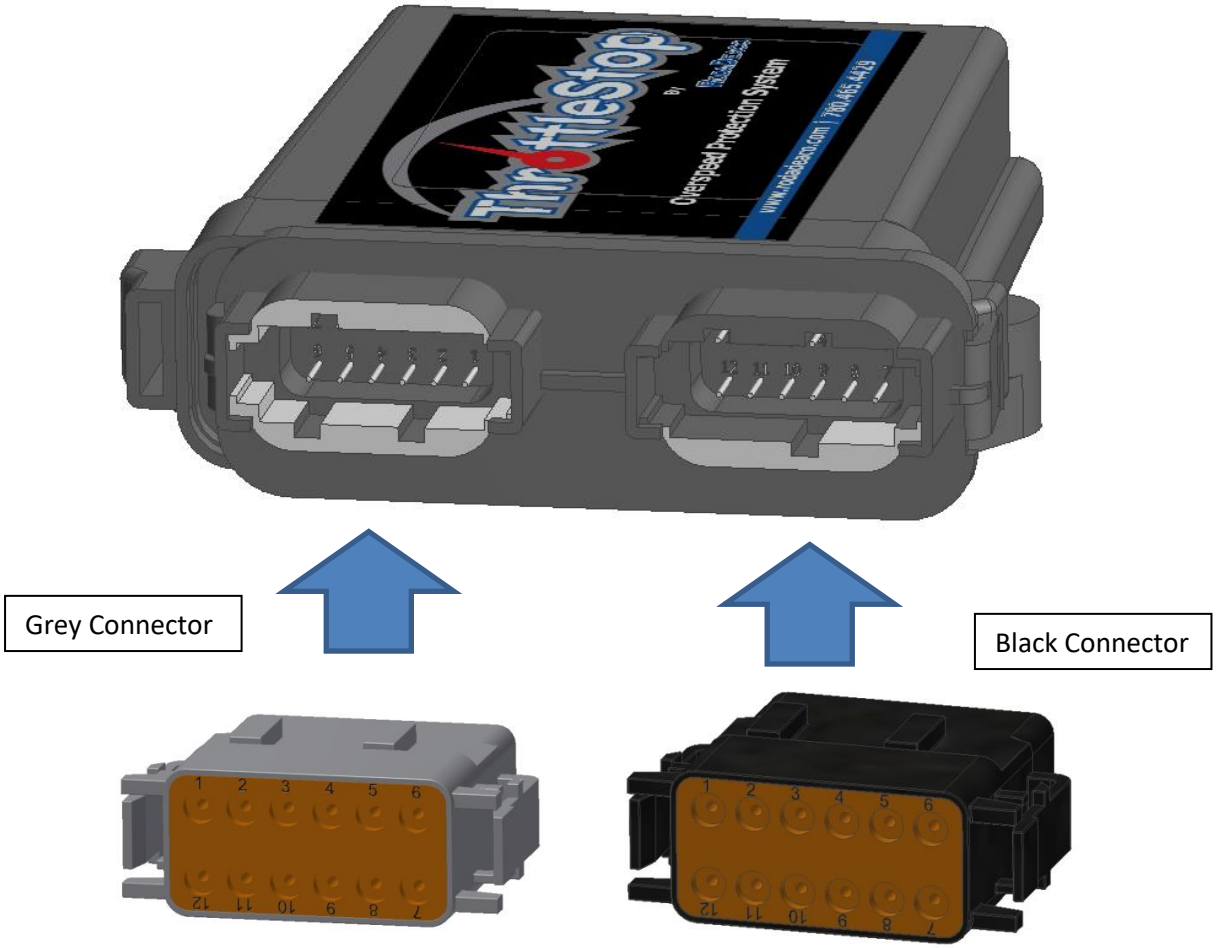


FIGURE 15: Connect the 12-pin female connectors to the Throttlestop Module

8b. Locate the 4 bare-ended wires on the Throttlestop harness. These wires will be installed inside the cabin. Try to locate an open grommet on the driver side firewall that would allow the routing of the 4 bare-ended wires to below the driver's dashboard inside of the passenger cabin. In the event that such a grommet cannot be found, you may use a ½" Unibit to drill a new hole and install a new grommet if needed. Finally, when an appropriate grommet is found/drilled, route all 4 bare-ended wires through the grommet into the passenger cabin.

8c. Retrieve 4 bullet connectors[2] from Throttlestop kit and crimp securely onto the 4 bare-ended wires**.**

8d. Retrieve the toggle switch assembly from the Throttlestop kit. Connect each wire prepared in Step 8c to the same color wire on the toggle switch assembly: Red to Red, Blue to Blue, Yellow to Yellow and White to White.

[2] NOTE: older harnesses may have spade connectors

9. Locate a suitable location on the door-side of the dashboard to mount the toggle switch. The toggle switch should be located in a visible location and within easy reach from the driver's seat.

Drill a 1/2" diameter hole in the dash panel switch mounting location. Put decal in place over hole (may be mounted in two different directions using one of the two holes on the decal – see the figure below - or if no space is available cut the hole section off and mount decal above or below the switch. Remove nut from switch. Install switch from behind panel through hole. Place thumbguard over switch. Secure switch and thumbguard to dash with nut. See the figure below for an example of where the switch may be installed on the dashboard.

FIGURE 16: Top – Decal can be installed in two different orientations
Bottom - Switch is installed on the dashboard

10a. Find the Throttlestop harness yellow and black wires with the ring terminals. Attach the black wire to the negative terminal on the battery. **Leave the yellow wire disconnected (for now).**

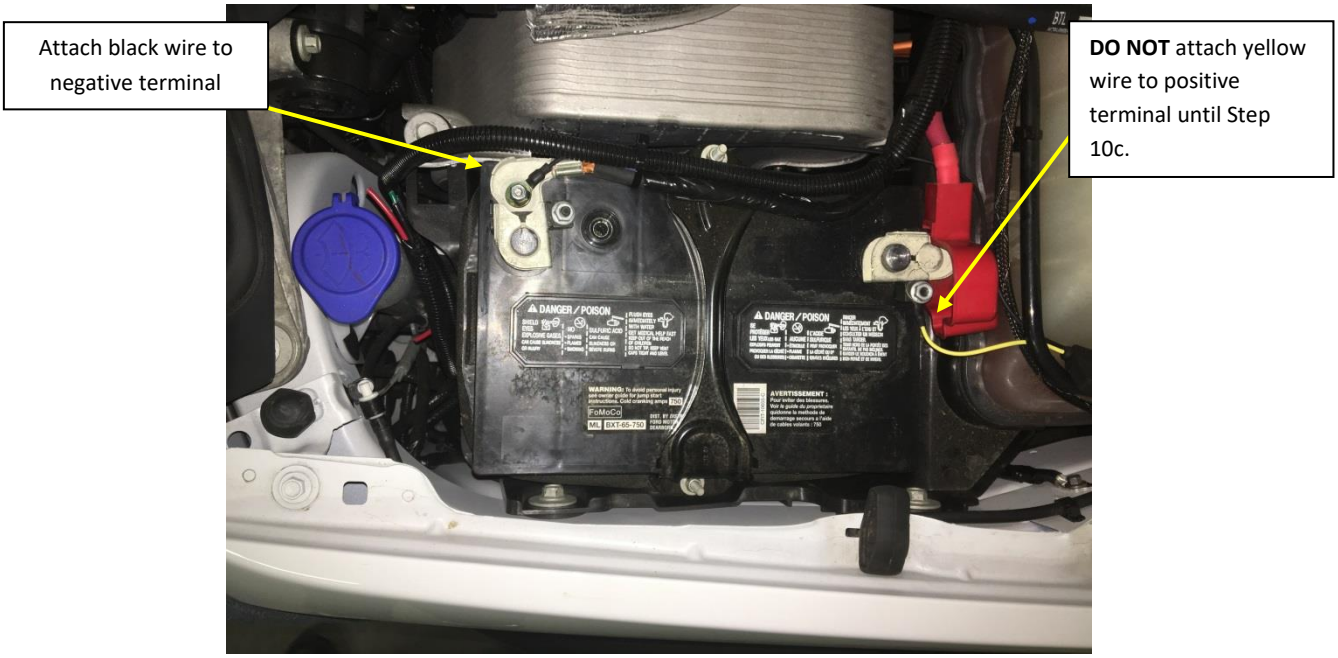


FIGURE 17: Switch is installed on the dashboard

10b. Use the cable ties provided with the Throttlestop kit to secure all loose wiring. Wiring should be bundled tight and neatly, away from moving parts and hot surfaces. Pay careful attention to avoid areas with rotating systems, such as belts and fans.

10c. Find the yellow wire that was left disconnected earlier in this step and attach its ring terminal to the battery's positive terminal as shown in Figure 17. Physical installation is complete. Finally, confirm that the Throttlestop harness is arranged in the engine bay in a similar fashion to the figure below. Note that if operating a Ford 2017 6.7L vehicle the Throttlestop module is mounted to a different location.

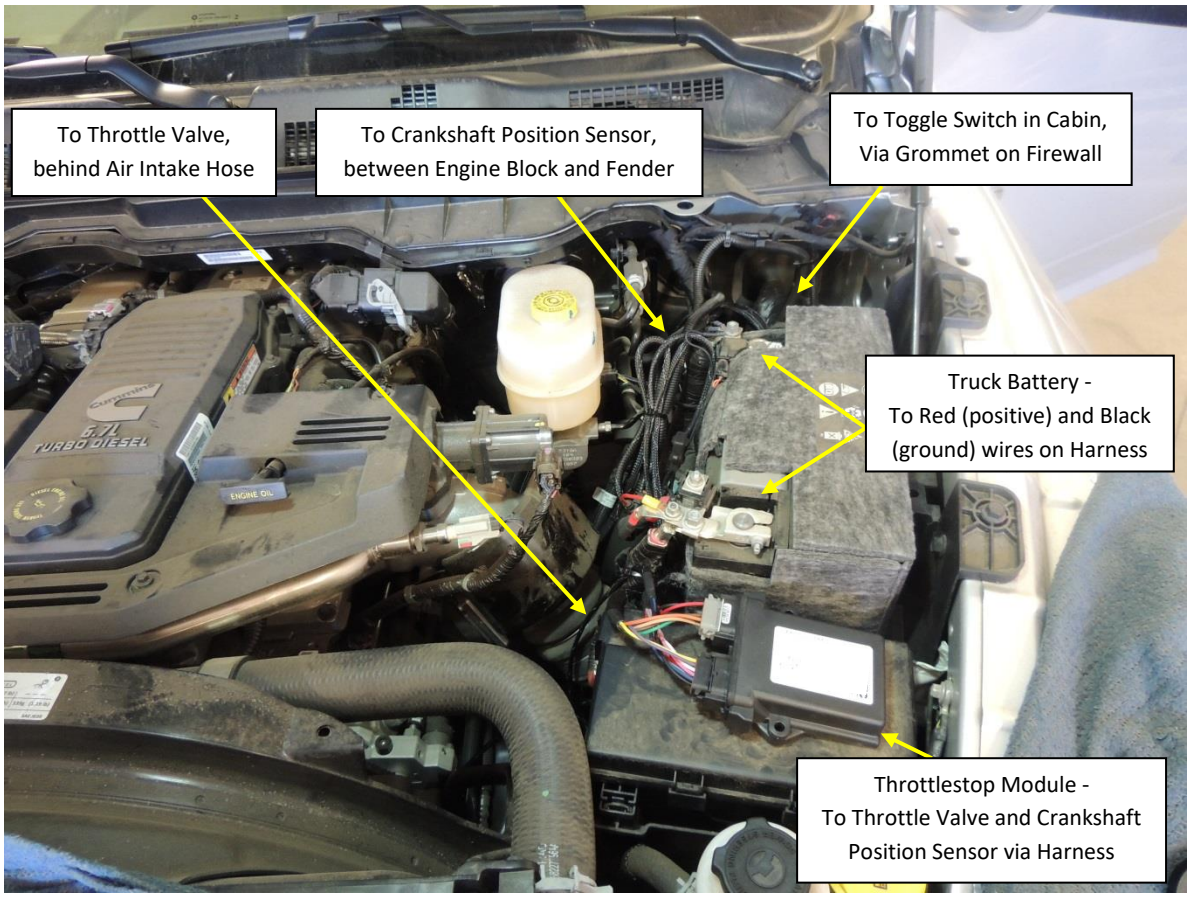


FIGURE 18: Arrangement of the Throttlestop system inside of the engine bay

⚠CAUTION

Correct installation of the Throttlestop system should be verified prior to placing the Throttlestop in service. Accomplish steps 11 to 18 to verify functionality of your installation.

11. With the engine off and engine compartment open, press and immediately release the toggle switch. The LED light on the switch should slowly flash (1 second flashes). Listen for the throttle valve closure after pressing the switch. The valve should close for 10 seconds and then re-open.

12. Start the engine. Verify that no engine codes are present.

13. With engine at idle, press and immediately release the toggle switch. Engine should shutdown and LED light on switch should slowly flash for 10 seconds as before.

14. After LED light has stopped flashing, restart truck and verify that no vehicle warning lights (check engine light) are illuminated. If improper behaviour is detected in any of the verification steps, see troubleshooting section or contact factory. Continue to Step 15 to verify functionality of Throttlestop at speed.

15. While the engine is running, hold the momentary toggle switch at the ON position. The light on the switch will turn solid yellow after about 5 seconds. Keep holding the toggle switch at the ON position.

16. While the toggle switch is held at the ON position, rev the engine to approximately 2200 RPM until shutdown occurs. (2200 RPM is half of the trip RPM, a threshold programmed for testing purposes only).

17. Release the toggle switch. Wait until the light stops flashing before attempting to start the engine. (The valve should re-open once the light stops flashing).

18. After LED light has stopped flashing, restart truck and verify that no vehicle warning lights (check engine light) are illuminated. If improper behaviour is detected in any of the verification steps, see troubleshooting section or contact factory.

C. OPERATION AND TESTING

The Throttle Stop Module will respond to either manual or automatic shutdown. A toggle switch has been installed on your dash for testing and manual control of the Throttle Stop Module. To activate a manual shutdown simply press and immediately release the toggle switch. The automatic shutdown is activated when the engine speed exceeds the pre-programmed speed limit threshold of 4400 RPM.

An integrated LED light is featured on the momentary toggle switch to indicate the Throttle Stop Module condition. The light reveals one of the four conditions below.

Condition No. 1 – No illumination = Normal operation. Throttlestop is monitoring engine speed. Overspeed not detected and valve is not activated.

Condition No. 2 – Slow Flash (1 second) = Throttle valve in process of being activated. The valve will block the engine air intake and shut down the engine.

Condition No. 3 – Solid Light = The Throttlestop is in Reduced RPM test mode. See section below for more information.

Condition No. 4 – Rapid Flash = Error detected in shutdown system. See the Error Recovery section for more information.

Modes of Operation

Two modes of operation are available to trigger the Throttlestop module and shutdown the intake valve.

Mode No. 1 – Manual Operation

1. Flip the momentary toggle switch ON and immediately release. The intake valve will immediately close.

2. The light on the toggle switch will flash for 10 seconds indicating that a shutdown sequence is in progress.

3. Wait until the light on the toggle switch stops flashing. If you attempt to start the vehicle before it stops blinking your vehicle will not start, as the intake valve may still be closed.

Mode No. 2 – Automatic Operation

1. If the engine exceeds the overspeed RPM of approximately 4400 RPM (factory-set), the Throttlestop module will automatically engage and shutdown the engine.

2. The light on the toggle switch will continue to flash for 10 seconds indicating that a shutdown sequence is in progress. If you attempt to start the vehicle while the light is blinking your vehicle will not start, as the intake valve may still be closed.

Testing For System Shutdown

It is recommended that the Throttlestop is tested periodically to validate proper operation of components and correct response of throttle valve. Testing can be done by using two methods. Method 1 should be accomplished at least weekly. Method 2 can be completed as required (site specific). Method 2 tests for proper automatic response and simulates an engine shutdown should the RPMs exceed a certain threshold.

Method No. 1 - **Engine is Idling**

1. Flip the momentary toggle switch ON and release.

2. Verify that engine stops and the light on the toggle switch is flashing.

3. Wait until the light on the toggle switch stops flashing. If you attempt to start the vehicle before it stops blinking, your vehicle will not start, as the intake valve may still be closed.

OR

Method No. 2 – Engine is ON

1. Hold the momentary toggle switch at the ON position. The light on the switch will turn solid yellow after about 5 seconds. Keep holding the toggle switch at the ON position.

2. While the toggle switch is held at the ON position, Rev the engine to approximately 2200 RPM until shutdown occurs. (2200 RPM is half of the trip RPM, a threshold programmed for testing purposes only).

3. Release the toggle switch. Wait until the light stops blinking before attempting to start the engine, as the intake valve may still be closed.

Error Recovery

If at any point Throttlestop detects a problem in the shutdown system, an error is generated. In this case the toggle switch light will rapidly flash and the shutdown system is disabled. To reset the Throttlestop module when an error has occurred:

1. Hold the momentary toggle switch at the ON position (for about 5 seconds) until the flashing light disappears. If the light continues to flash contact the factory for customer support.

2. Once the light goes out, verify that manual and automatic functionalities have been fully restored. Verify by accomplishing the instructions for **Method No. 1** and **Method No. 2** on Page 20.

NOTICE
If for any reason your Throttle Stop module is not working properly (error code will not clear) and you need to use your vehicle, locate the hot wire to the battery and the fuse cover. Open the fuse cover and remove the fuse. **DO NOT CUT THE WIRE.**

⚠CAUTION
Removing the fuse means there is no shutdown for your engine. This meant the engine will operate normally, without overspeed protection.

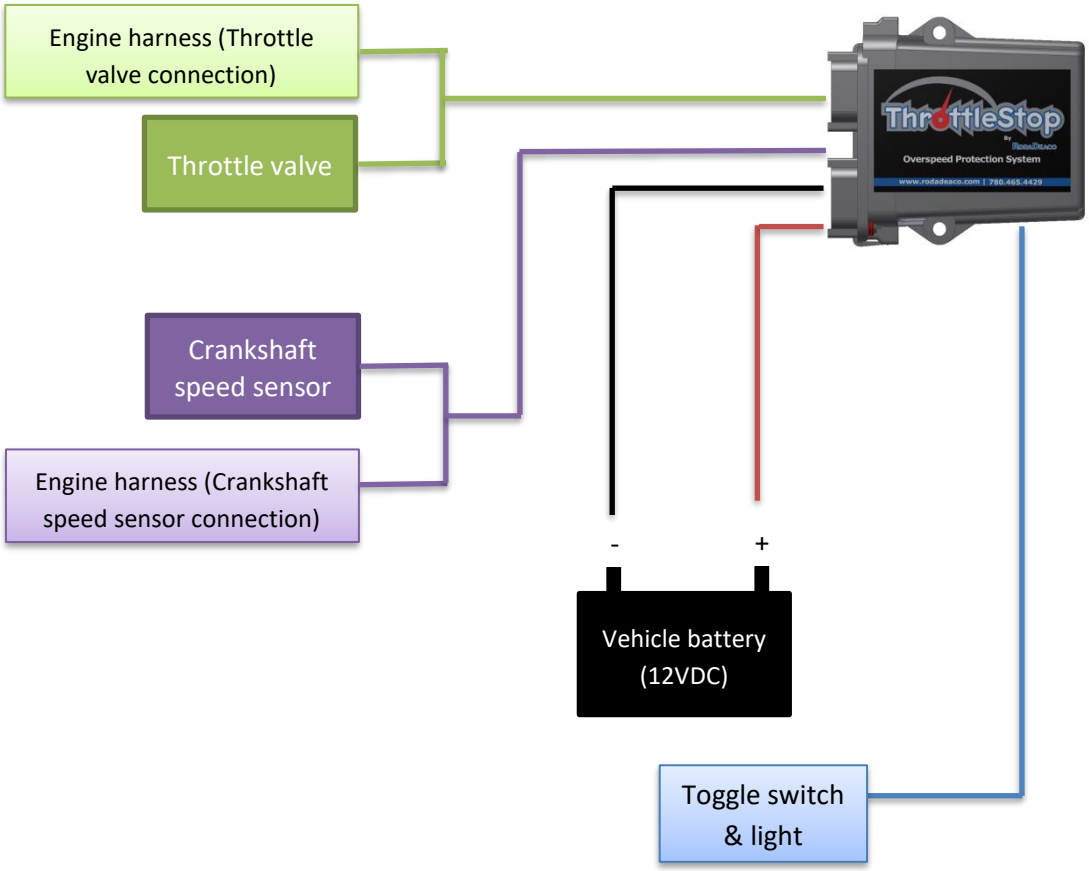
D. TROUBLESHOOTING

(1) If the vehicle generates a diagnostic code and the Throttlestop system is suspected as a culprit the easiest way to confirm is to disconnect the Throttlestop system from the throttle valve and reconnect the throttle valve to the engine harness. When complete, use a diagnostic computer to clear the codes. If the code does not reappear after running the engine this means that there may be a loose connection in the Throttlestop harness. Reconnect the Throttlestop harness to the valve and verify connections. Retry running the vehicle. If code persists contact Roda Deaco for further assistance.

(2) If the vehicle does not start once the Throttlestop system is installed, the culprit may be the crankshaft speed sensor connections to the harness. To verify, disconnect the crankshaft speed sensor and reconnect the original harness to the sensor and attempt to start the vehicle. If the vehicle starts, the issue is likely a fault/loose connection in the speed sensor connections to the Throttlestop harness. Reconnect the Throttlestop harness, verify connections and try again. If code persists, contact Roda Deaco for further assistance.

Contact Roda Deaco Valve (+1 780 465 4429) if you require assistance with your Throttlestop product.

E. GENERAL WIRING DIAGRAM



F. WARRANTY

The warranty on new Throttlestop products is one year from date of shipment. All warranty claims must be approved by customer service prior to returning the product.

This warranty does not cover components supplied by others. Warranty claims on such components will be allowed only as per limits extended by those suppliers.

The Throttlestop warranty does not cover any product that has been abused, repaired or altered, or put in service for which it was not intended. AMOT Controls Corporation reserves the right to change material and design without prior notice and is not responsible for any inconvenience this may cause.

Because of the many variables and requirements associated with any particular installation AMOT Controls Corporation, Roper Industries, Inc. or any of their affiliated entities assume no responsibility or liability for actual use beyond that covered by this warranty.

Individuals using the Throttlestop product must analyze all aspects of their application design and exercise their own independent judgment in evaluating product selection and determining product appropriateness for their specific application and system requirements. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end user.

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REVISION SUMMARY		
Date	Revision #	Change Description
7/06/2017	1.0	Initial Release
9/28/2017	2.0	Add caution re. carbon deposits on throttle valve. Added in Dodge Eco-Diesel. Various other fixes/updates.
4/04/2018	2.1	Updated engine model years