



## Staging Limiter with Apps Booster

<i>Staging limiter with Apps Booster</i>	<b>Vehicle / Year</b>
1057720 (Booster for manual trans only)	1998.5-2002 Dodge Cummins 2003-2004 Dodge Cummins with APPS on engine
1057721	2005-2006 Dodge Cummins
1057722	2007-2014 Dodge Cummins 2011-2015 Ford Powerstroke
1057725	2001-2005 GMC Duramax
1057726	2006-2007 GMC Duramax
1057727	2008-2014 GMC Duramax

**PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION**

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US Shipping Address: 88-446 Harrison St, Sumas, WA 98295 US Mailing Address: PO Box 231, Sumas, WA 98295  
Phone: 604-853-6096 Fax: 604-853-8749 Internet: [www.bd-power.com](http://www.bd-power.com)

# **K I T C O N T E N T S :**

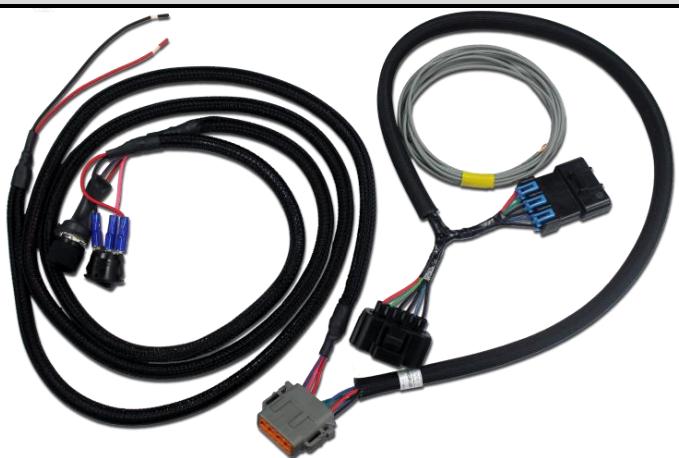
Please check to make sure that you have all the parts listed in this kit **before** you start the disassembly of your truck.

<b>105772X Staging Limiter Kits</b>		
<b>1301190</b>		<b>1301189</b>
		
<i>Staging Limiter Module</i>		<i>Staging Limiter Bracket</i>
<b>Qty: 1</b>		<b>Qty: 1</b>
<b>1330053</b>	<b>1003321</b>	<b>1300131</b>
		
<i>Alcohol Wipe</i>	<i>Staging Controls Decal</i>	<i>Medium Tie Wrap</i>
<b>Qty: 1</b>	<b>Qty: 1</b>	<b>Qty: 6</b>
<b>1300348</b>	<b>1330051</b>	<b>1330052</b>
		
<i>Posi-Tap Connector (18-22ga – Red in color)</i>	<i>Dual Lock Velcro</i>	<i>Screw</i>
<b>Qty: 2</b>	<b>Qty: 2 x 2.5"</b>	<b>Qty: 1</b>

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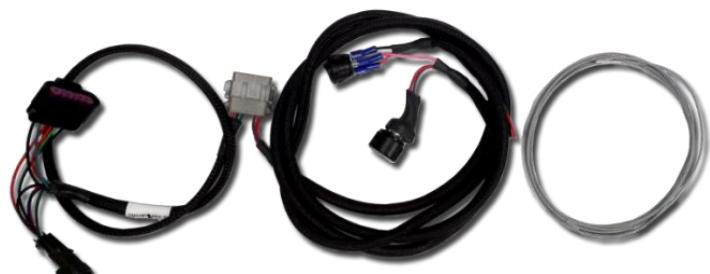
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**1057720 Kit Contents****1331190-2***Dodge 98.5-04 Harness***Qty: 1****1057721 Kit Contents****1331191-2***Dodge 05-06 Harness***Qty: 1****1057722 Kit Contents****1331192-2***Dodge 07-2015 Harness***Qty: 1****1057725 Kit Contents****1331195-2***GM 2001-05 Harness***Qty: 1**

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<b>1057726 Kit Contents</b>	<b>1057727 Kit Contents</b>
<b>1331196-2</b>	<b>1331197-2</b>
	
<i>GM 2006-07 Harness</i>	<i>GM 08-2014 Harness</i>
<b>Qty: 1</b>	<b>Qty: 1</b>

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## Introduction

The staging limiter allows the driver to limit throttle output when the brake pedal is depressed to get more consistent launches and keep from spinning tires or driving through the brakes during staging. An enable switch and a control knob are mounted on the dash which enable the module and control the maximum throttle during staging. The driver can then dial in the desired engine output with ease. This product is great for drag racers.

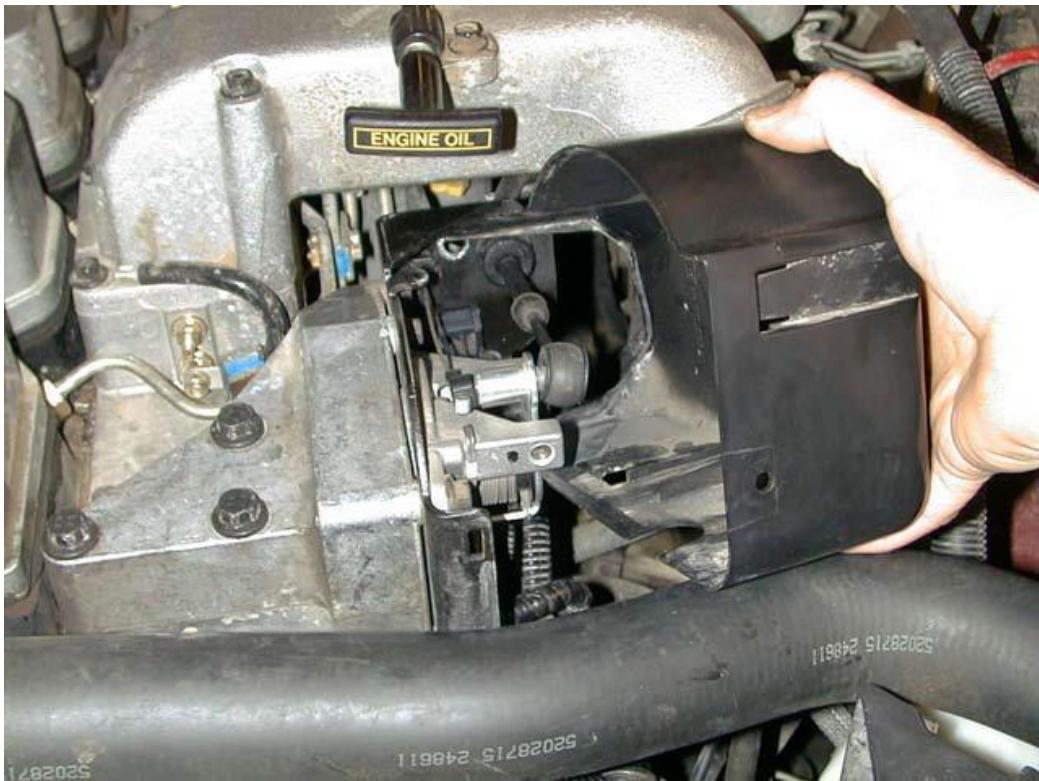
This kit includes a built in throttle sensitivity booster which can be set to medium, high or off. This helps correct much of the perception of the throttle lag associated with drive-by-wire systems during normal daily driving.

## INSTALLATION



**VEHICLE SHOULD BE SAFELY SECURED BEFORE INSTALLATION.**

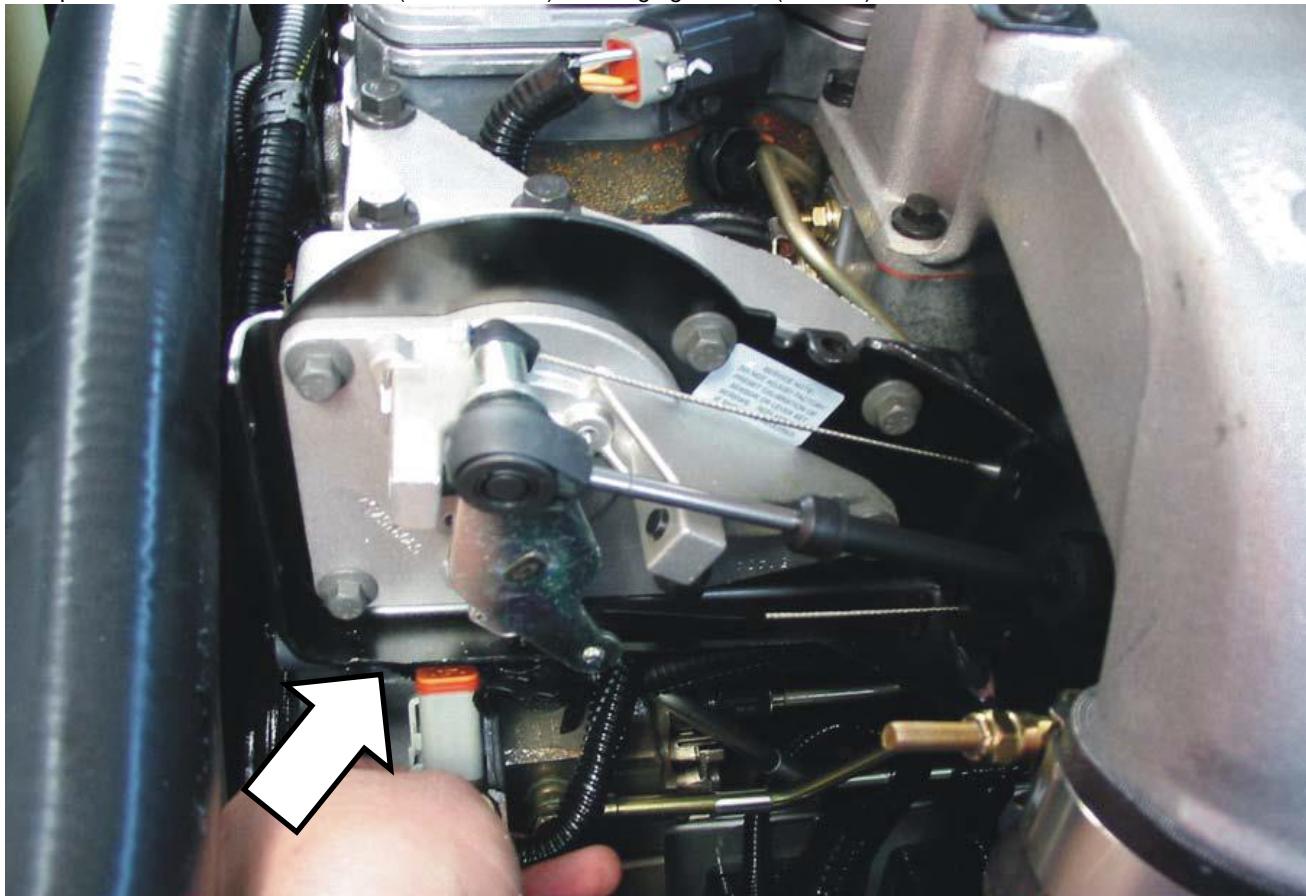
1. To avoid setting possible fault codes, disconnect vehicle batteries before proceeding.
2. Locate vehicle accelerator pedal position sensor and disconnect wiring harness.
  - a. On 1998-2004 Dodge vehicles, this sensor is located under a plastic cover below the intake elbow on the driver's side of the engine. The sensors connector faces downward.



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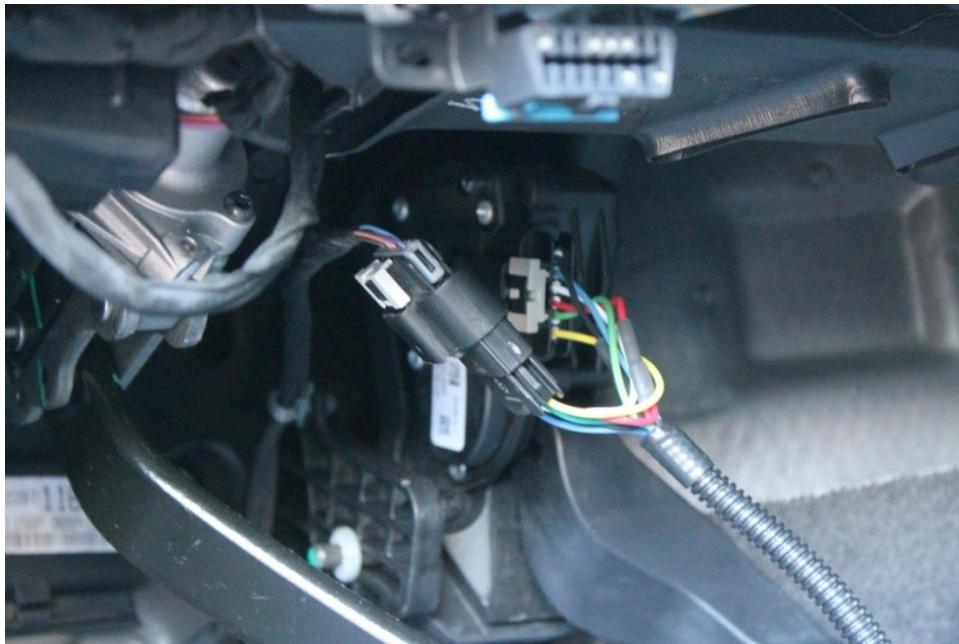
- b. On all other models, the sensor is built into the top of the accelerator pedal below the dashboard.



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3. Connect supplied wiring harness to the sensor and connect the other end to the factory wiring harness. Secure harness with zip ties so that it does not interfere with pedal operation. Removal of the knee bolster may ease installation.



4. Determine location to mount the supplied switch bracket. It may be mounted on top or below the dashboard as depicted below. When mounted under dash it will be reversed.

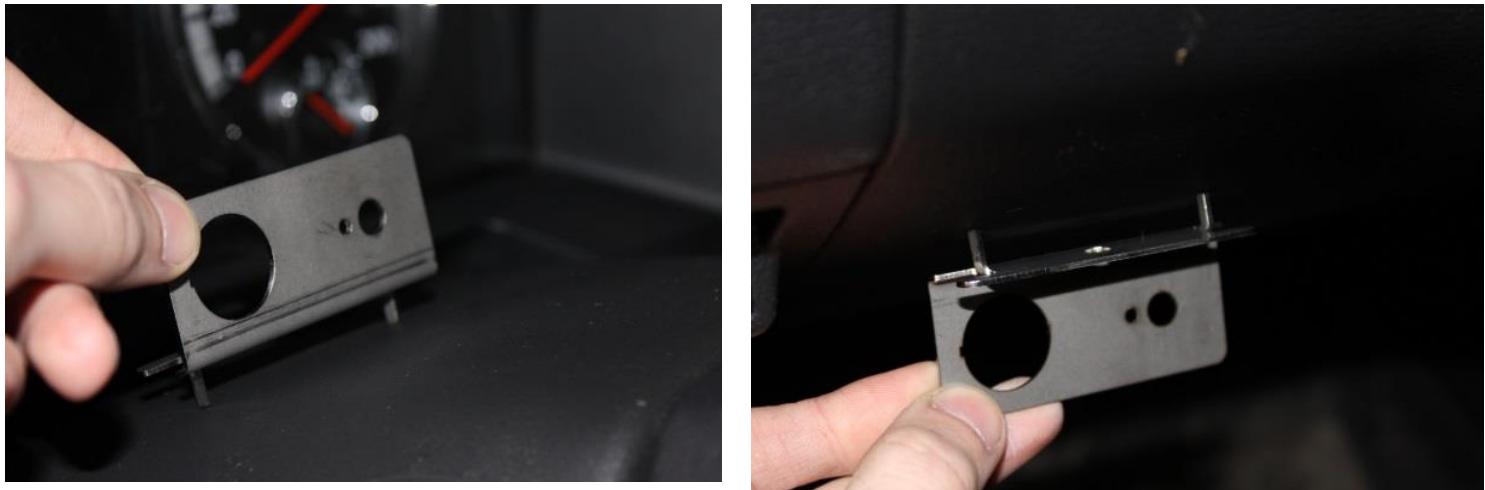


If mounting with double sided tape or Velcro, clean both surfaces with alcohol wipe. Alternatively to mount with a screw, bend the small locator tabs on the ends of the bracket downwards with needle nose pliers. Then drill a hole in the dashboard to accept the locator tabs. Install center screw to attach the assembly.

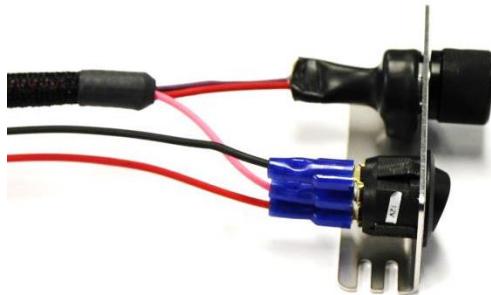
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5. Adhere the control panel decal to bracket. Disconnect terminals from the rocker switch and snap into the bracket. Re-attach wires in the same order. Install the potentiometer and control knob into the bracket. The knob may be removed and installed with a 1/16" Allen wrench.

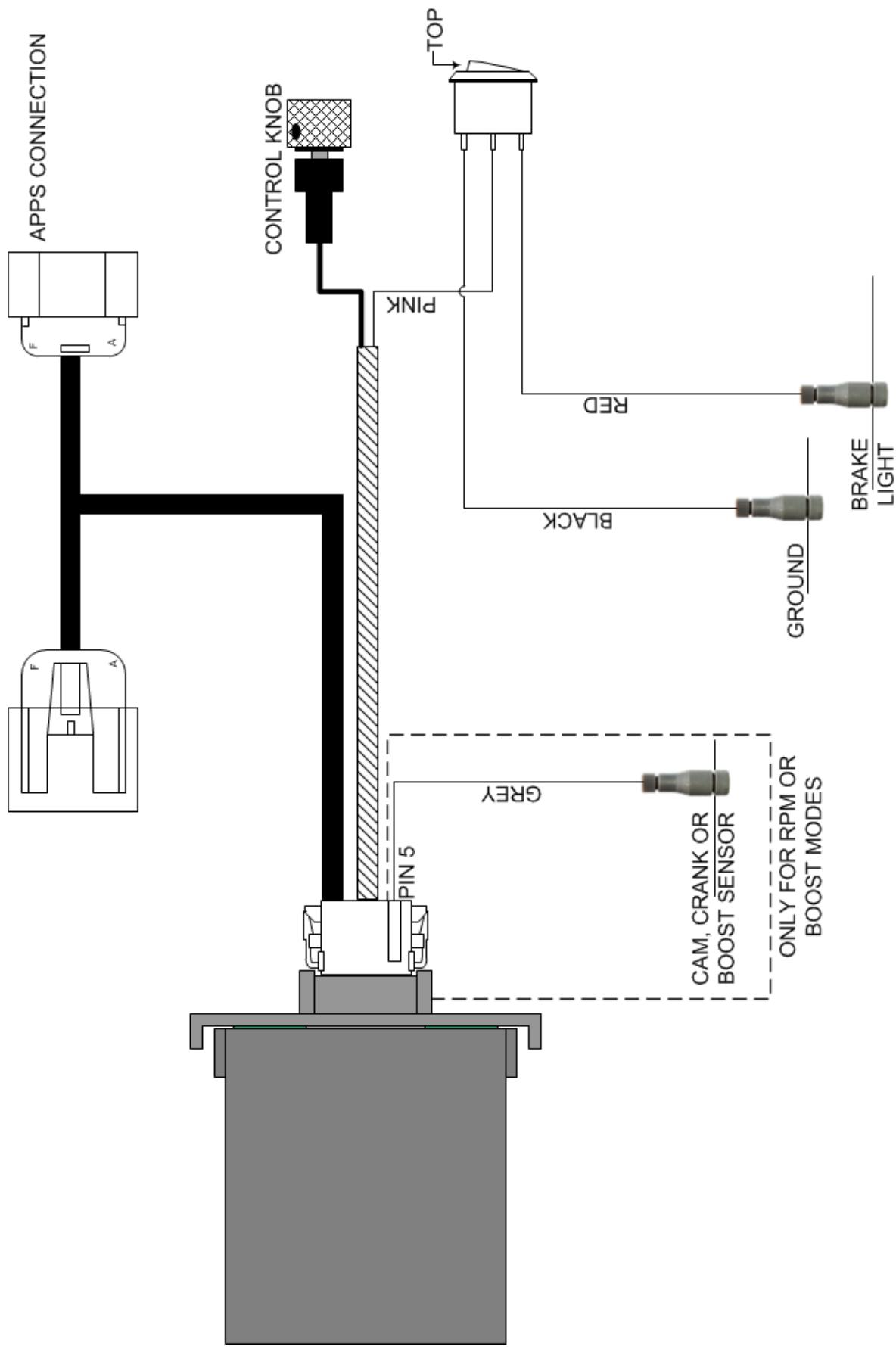


Alternatively, the controls may be installed in the dashboard without using the bracket – in this case use the supplied sticker or bracket as a drilling template.

6. Run the remaining red and black wires from the switch to the brake switch or body control module (see application list below). Attach the red wire to the brake light output and attach the black wire to ground using supplied posi-taps. Verify wire connection using test light.
- Black wire may be connected to any ground location, the below are merely the suggested locations. If no switch illumination is desired, the black ground wire may be left disconnected.
  - If installing with a manual transmission, it may be desirable to connect the red input wire directly to switched ignition power instead of to the brake switch. If installing in this way, the driver will manually control the limiter. Do not forget to turn the switch off during regular driving or engine power will be significantly limited.

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**Wiring Diagram**

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	<b>Red wire (brake light 12V)</b>	<b>Black wire (ground)</b>
<b>1998-2001 Dodge</b>	Pin 5 - White/Tan Brake Switch	Pin 2 – Black/Light Green Brake Switch OR body ground
<b>2002-2003 Dodge</b>	Pin 2 – White/Tan Brake Switch	Pin 5 – Black/Tan Brake Switch OR body ground
<b>2004-2009 Dodge</b>	Pin 2 – White/Tan Brake Switch	Pin 5 – Black/Orange Brake Switch OR body ground
<b>2010-2012 Dodge</b>	Pin 2 – White Brake Switch	Pin 5 – Black/Tan Brake Switch OR body ground
<b>2013-2014 Dodge</b>	Connector C5/E Pin 31 – White/Violet Body Control Module	Connector C4/D Pin 19 – Black Body Control Module OR body ground
<b>2001-2002 GMC</b>	Pin A – White Brake Switch	Connector 1, Pin A1 – Black Body Control Module OR body ground
<b>2003-2006 GMC</b>	Pin A – White Brake Switch	Connector 3, Pin B6 – Black/White Body Control Module OR body ground
<b>2007 GMC</b>	Pin A – White Brake Switch	Connector 3, Pin 5 – Black/White Body Control Module OR body ground
<b>2007.5-2011 GMC</b>	Pin A – Lt Blue/White Brake Switch	Connector 3, Pin 5 – Black/White Body Control Module OR body ground
<b>2012-2014 GMC</b>	Connector 5, Pin 5 – Lt Blue Body Control Module	Connector 3, Pin 5 – Black/White Body Control Module OR body ground
<b>2011-2015 Ford</b>	Pin 4 – Violet/White Brake Switch	Pin 3 – Black Brake Switch OR body ground

7. Before mounting the module, open the module by releasing the two tabs using a screwdriver.



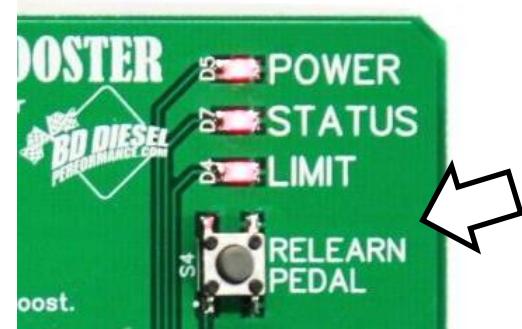
8. Connect circuit board to the wiring harness and keep away from metal objects that might cause a short circuit. Ensure setting switches are all set to their default position of 1. Turn the control panel switch off.



9. Reconnect vehicle batteries.

10. Turn ignition switch on. Press and release the “RELEARN PEDAL” button on the module. All three indicator lights will illuminate during the relearn. Slowly depress and release the throttle pedal within 15 seconds. This will allow the module to learn your specific accelerator pedal sensor output. Make sure the pedal is not impeded by a floor mat or otherwise. Once complete, the LIMIT light will turn back off and the STATUS light should go back to flashing. Turn the ignition switch back off. The module is now learned to your APP sensor and will retain this in its memory.

Note: If throttle pedal is replaced the module should be relearned to the new pedal.



11. Set the throttle pedal sensitivity boost as desired. (Not to be used on 1998-2003 Dodge trucks with automatic transmission due to throttle valve cable).

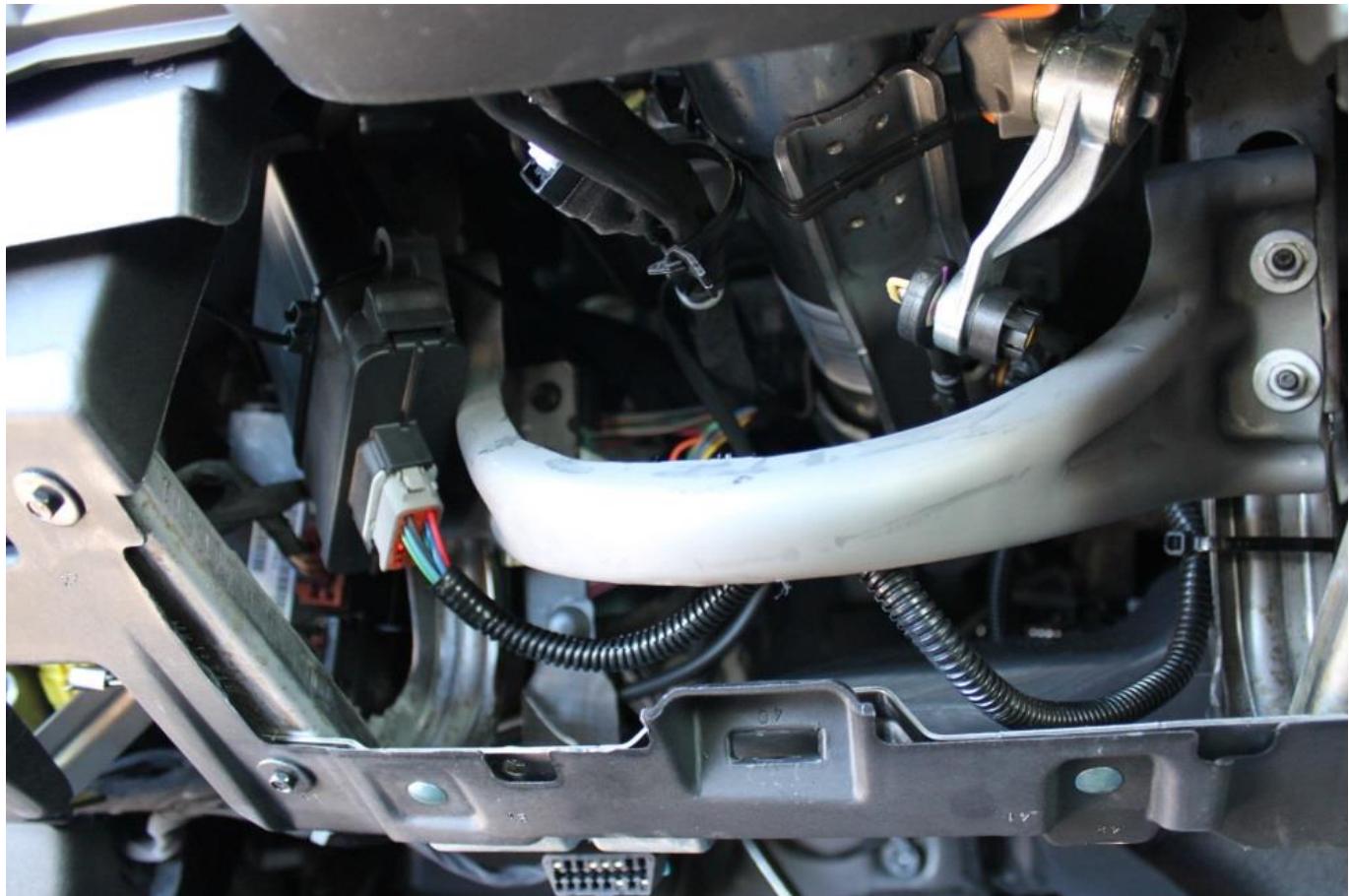
1-Stock	No change to throttle pedal outputs. Same as stock.
2-Medium	Medium increase in sensitivity. 50% Boost.
3-High	High increase in sensitivity. 100% Boost.

12. Setup the staging limiter settings. For normal usage, leave the INPUT set to “1-Throttle”. Alternatively, the user may set the module to Boost or RPM. If using Boost or RPM input, insert the supplied gray wire into pin 5 of the module connector and connect the other end of the wire to either the intake manifold boost sensor signal, or to a camshaft or crankshaft sensor. For 01-02 Dodge 24 valve, tap the cam sensor. For all other applications, tap the crankshaft position sensor wire. Set RPM range to “2-2000hz” for 01-02 Dodge 24 valve, or to “3-6000hz” for all others for the widest range of adjustment.

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13. Insert module back into enclosure and secure in the engine bay (2004 and earlier Dodge) or under the dashboard (all others).



14. Check for correct operation and check for fault codes. Installation is now complete.

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## Staging Limiter Operation

To use the staging limiter, depress the brake and turn the enable switch ON. The switch will light up when both the brake is depressed and the switch is in the ON position – indicating the staging limiter is active. When turned on, the staging limiter will limit the throttle input to the ECM. This limit point is determined by the setting on the control knob; turning the knob fully clockwise will yield no limit to the throttle, whereas fully counter-clockwise will limit the throttle to idle only.



The optimal setting will be determined through trial and error during race events. To setup the staging limiter, turn the switch on and depress the brake. Turn the control knob fully counter-clockwise and press the throttle pedal to the floor. Then, slowly rotate the control knob clockwise to increase power until the desired engine output is achieved and test the launch by releasing the brake pedal. You may need to repeat this process a few times until the desired setting is dialed in. For automatic transmissions, generally this setting should be increased until the tires just break free on launches, and then dialed back slightly. For manual transmissions, this setting will essentially control the engine RPM that the clutch will be dropped at – set accordingly.

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**Note.** It may be advisable to disable torque management or torque limiting in the ECM calibration using a tuner to improve the response off the line. Some vehicles with torque management still enabled will have a soft or slow feeling start off the line.

The recommended control mode is throttle limiting as it is the easiest to set up. This is set by choosing “1-Throttle” on the PCB. This essentially just caps the throttle pedal percentage. If desired, the module may be set to “2-Boost” or “3-RPM”. To use boost control mode, wire pin 5 of the module to the vehicles boost pressure sensor signal wire.

To use RPM control mode, wire pin 5 of the module to the engine crankshaft or camshaft signal outputs. For 01-02 Dodge 24 valve engines, tap into the camshaft position sensor wire and set the RPM frequency switch to “2-2000hz. For all other applications, tap into the crankshaft position sensor wire, set the RPM frequency input to “3-5000hz”. This setting allows for the greatest range of adjustment.

The RPM and Boost control methods use closed loop control. The throttle is increased and decreased to maintain the set point. As all vehicles respond differently, these settings may not work ideally on all applications depending on turbocharger, fuel system and tuner combinations.

## Troubleshooting

<b>Vehicle Sets Codes for Multiple APPS circuits</b>	<p>Check that the module is powered by removing the cover and checking for the POWER lamp. This should be lit whenever the ignition is on (and may remain powered after the ignition has been turned off for a short time on late model trucks).</p>
	<p>If the Throttle Sensitivity Booster or Staging Limiter is being used before the module is correctly learned to a pedal it may set codes. If in doubt, relearn the module to the pedal. Refer to installation step 8 for details.</p>
	<p>Ensure the connectors are fully seated. Some connectors are harder to mate together than others, ensure they do not come apart if tugged on.</p>
<b>Pedal Sensitivity Setting has no Effect</b>	<p>If the module detects a failure in the APPS pedal it will not boost the sensitivity for safety. Check for an APPS fault code.</p>
	<p>Verify that the PEDAL SENSITIVITY switch is in position 2 or 3 for sensitivity boosting.</p>
	<p>If the module has not been properly learned for the pedal it will not boost sensitivity. Refer to installation instruction's on learning the module to your APPS pedal.</p>
<b>Control Knob Stiff to Turn</b>	<p>Loosen set screw and move knob slightly outwards and retighten.</p>

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## **The Staging Limiter Does Not Function**

Check that the enable switch is illuminated. The switch light will come on only when the red switch wire is fed 12V, the black wire is connected to ground and the switch is in the ON position. For most installations, this will require the brake pedal to be depressed to supply 12V. The module will only enable the staging limiter when power is fed to it from the switch.

If the module has not been properly learned to the pedal, it will not perform its staging limiting functions correctly. Refer to installation step 8 for details on this procedure.

Open module and check that when the brake is depressed and switch turned on that the STATUS light turns on solid rather than flashing, indicating the staging limiter is armed. If light does not come on, check for power from the enable switch.

If using RPM or boost inputs - check that the status light is flashing when the engine is running with the staging limiter switch turned off. This indicates it is being fed a good RPM or boost signal. If the light is not flashing, check the connection of the gray wire to the cam/crank sensor or the MAP sensor.

Possible incorrect setting on the control knob, dial it down and retest. The LIMIT light within the module will illuminate when the throttle pedal exceeds the set point and the module is limiting the throttle output to the ECM correctly.

**If you have any technical difficulties, concerns, comments, or complaints, please phone our Technical Support hotline at (800) 887-5030 between 8:30am-5:00pm PST (Pacific Standard Time) Monday to Friday.**

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