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2013-2024 6.7L Cummins
BD Electronic Exhaust Brake

(Uses factory exhaust brake switch & ECU control)

1027348	**2013-2024 RAM 6.7**	**4” Exhaust**
1027349	**2013-2024 RAM 6.7**	**5” Exhaust**

***** Please read this manual before starting installation. *****
OWNER’S MANUAL - LEAVE IN GLOVE BOX

Kit Contents

1127039	1304577	1304576
		
Valve Assembly	Brake Control Module	Wiring Harness
Qty: 1	**Qty: 1**	**Qty: 1**

1100404	1300131
	
4” S/S Exhaust Clamp	6” Tie Wraps
Qty: 2	**Qty: 12**

Kit 1027348 Only (4” Pipe)		Kit 1027349 Only (5” Pipe)	
1100400	**1100740**	**1100500**	**90368B**
			
4” Pipe Adapter	4” Exhaust Clamp	5” Pipe Adapter	5” Exhaust Clamp
Qty: 2	**Qty: 1**	**Qty:2**	**Qty:1**

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Introduction

Thank you for purchasing a BD Electronic Exhaust Brake.

The BD Electronic Exhaust Brake is designed for vehicles with upgraded aftermarket turbochargers that have removed the VGT and wish to regain exhaust braking functionality. The brake is controlled by the ECM just like the stock VGT turbocharger, meaning it is accessed by the switch already in your dash. Your new BD Electronic Exhaust Brake keeps all of the features of the original brake including the cold weather warmup feature and cruise control compatibility. The control module comes with a wiring harness that plugs in where the stock turbocharger is connected and the StarCAN junction block, this means there is no splicing into stock wiring.

It is assumed that the vehicle has engine tuning to account for the turbocharger replacement. This brake cannot be used in conjunction with the stock VGT turbocharger. The brake control module uses various inputs from the vehicle's CAN network to determine when the brake should shut. This module does not use the VGT position to command the brake.

To use this kit, your vehicle must have been equipped with the factory exhaust brake button on the dash or upgraded to have this feature. If your vehicle was not equipped with a factory exhaust brake this product will not be compatible with your vehicle.

NOTE: the OEM downpipe on 19+ vehicles has a bellow and must be replaced with a solid downpipe.

Accessories

Brake Pressure Testing Gauge Kit		**1030050**
Cool Down Timer (Turbo Timer)	2013-2024	**1081160-D3**

Tools Required for Installation

- Measuring tape or ruler
- Reciprocating saw or hacksaw
- Wire Cutters
- Socket Set
- Welder
- Heat gun or lighter

Installation

To prevent damage to electronic components, it is recommended that both battery negative terminals be disconnected while working on the vehicle.

Please read this manual thoroughly before installing this exhaust brake.

Brake Valve Installation

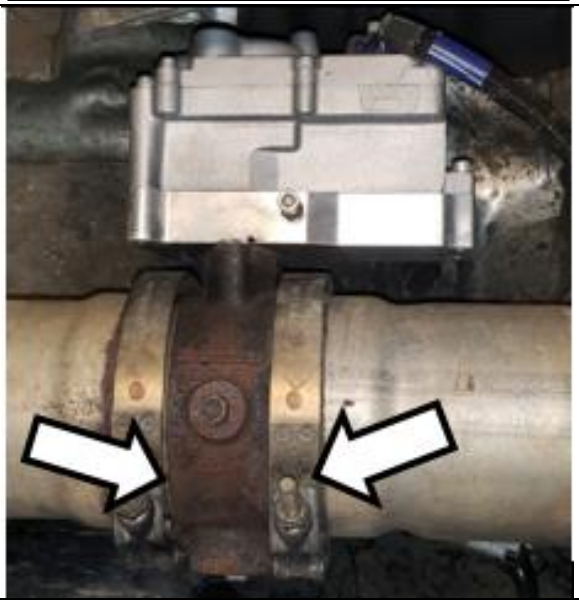
Raise and support the vehicle with a vehicle hoist or with appropriate jack stands. Ensure the vehicle is safely supported before proceeding to reduce the possibility of damage or injury.

Beneath the vehicle, locate the exhaust downpipe and front exhaust pipe beside the transmission.

Choose a section of pipe that is as straight as possible. Mock up the brake valve in this area to ensure it will fit before cutting the pipe. Mark a 7-1/4” section for removal.

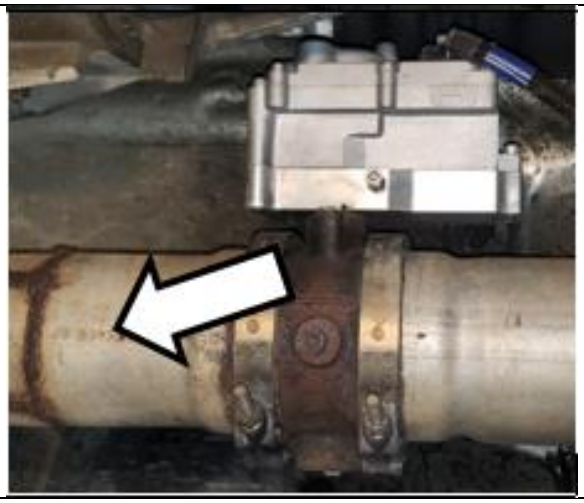
Cut out the marked pipe section using a reciprocating saw or cutting disk. Remove any burrs left on the edge of the pipe using a file or similar tool, then slide the pipe adapters onto the two cut ends of the pipe.

Install the brake valve between the two exhaust pipe adapters using the two supplied V-band clamps. Ensure the exhaust pipe adapters are in line with the brake valve to prevent possible leakage.



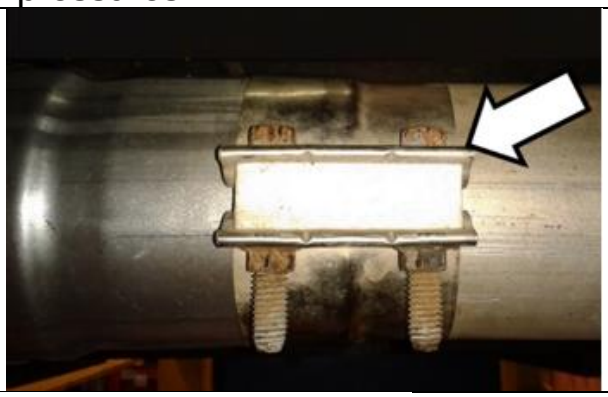
Weld the front adapter to the exhaust pipe. This weld must completely seal the exhaust system as it must retain pressure.

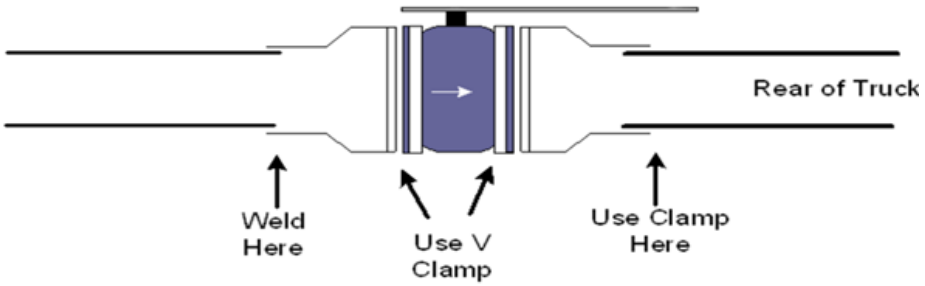
Note: It is recommended that the weld be spray painted with high-temp paint to slow down corrosion along the weld bead.



IMPORTANT The front exhaust connection MUST be welded. Using a band clamp or conventional exhaust clamp on this joint will cause leaks and will not retain full exhaust brake pressures.

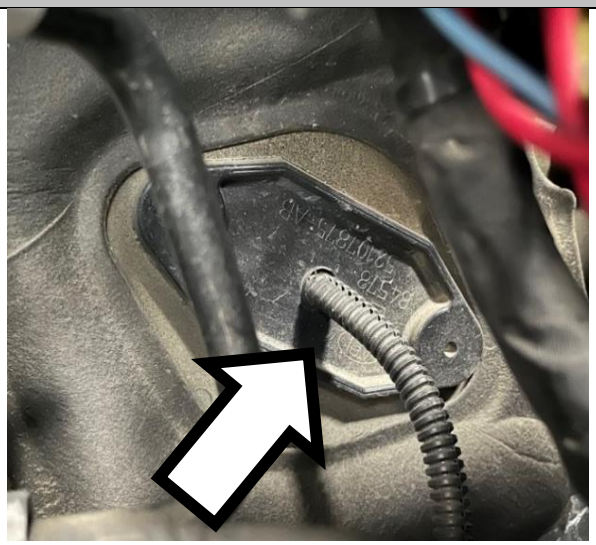
Install the supplied stainless-steel band clamp on the rear exhaust pipe adapter. Tighten bolts until the band fully conforms to both pipes creating a seal.





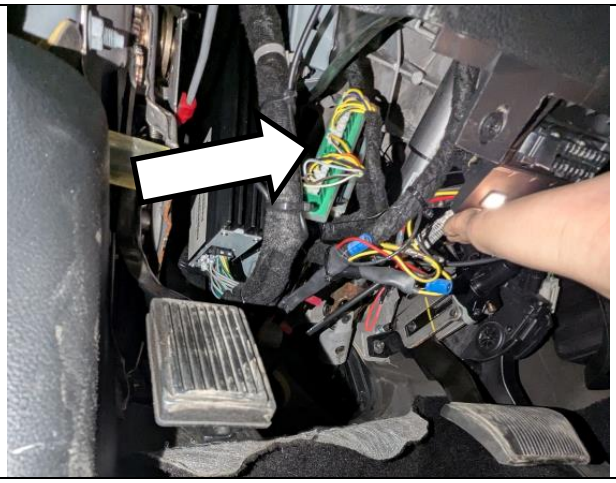
Electrical Connections

Drill a hole in the plastic firewall block-off. Route the end of the harness with the 2-pin white connector through the hole.



Locate the StarCAN junction block.

13-18: This can be located by looking up from the pedals towards the instrument cluster. It is located in a bundle of harnesses behind the OBD-2 connector. The junction block may be obscured by a layer of foam.

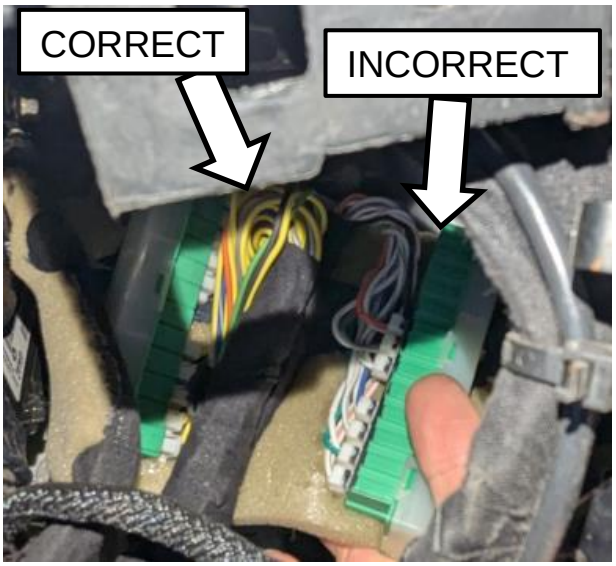


Locate the StarCAN junction block.

19-24: This can be located by looking up from the pedals towards the fender. Alternatively, use a pry tool to release the headlight control cluster to reveal the StarCAN connector as shown.

Plug the 2-pin connector from the BD harness into any open ports on the junction block connected to a bundle of yellow wires with a green housing.

IMPORTANT: Do not connect to the junction block with a white housing or a green housing connected to a bundle of white wires. Doing so will result in DTCs and loss of BCM functions (power windows, etc.).



Locate the factory turbocharger actuator electrical connector. This is the 4-pin black connector that used to be connected to the VGT. Connect the black connector of the harness for power and ground.

Route the electrical harness grey 12-pin connector up to the top rear of the passenger side battery.

Connect the wiring harness to the module and secure it with wire ties to keep it clear of the turbocharger(s).

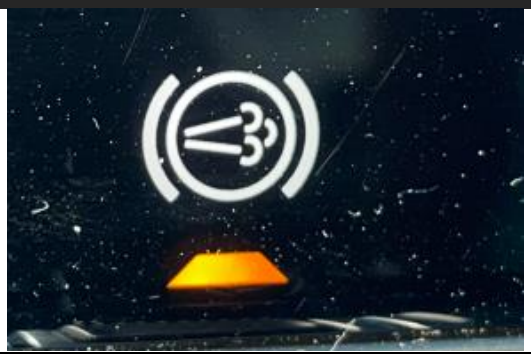
Finally, route the harness with the black 4-pin connector down the firewall, along the frame rail to the exhaust brake actuator. Connect to the actuator and secure the harness along the frame.

This is a perfect opportunity to test the exhaust brake function.

To turn the brake on for testing, remove the cover from the control module and press the “TEST” button inside. Pressing this button will activate the brake actuator.

Operation

Once the wiring is all complete use the factory switch in the cab to turn on the exhaust brake.

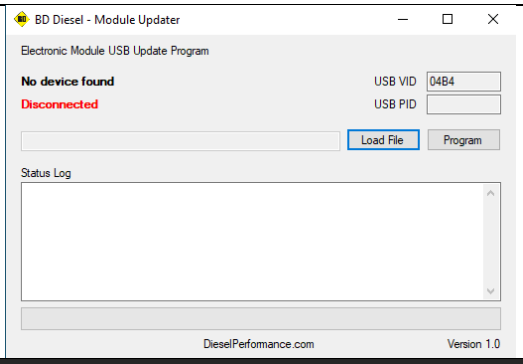


The exhaust brake functions just like the factory exhaust brake. Pressing the exhaust brake button cycles between full and automatic modes.

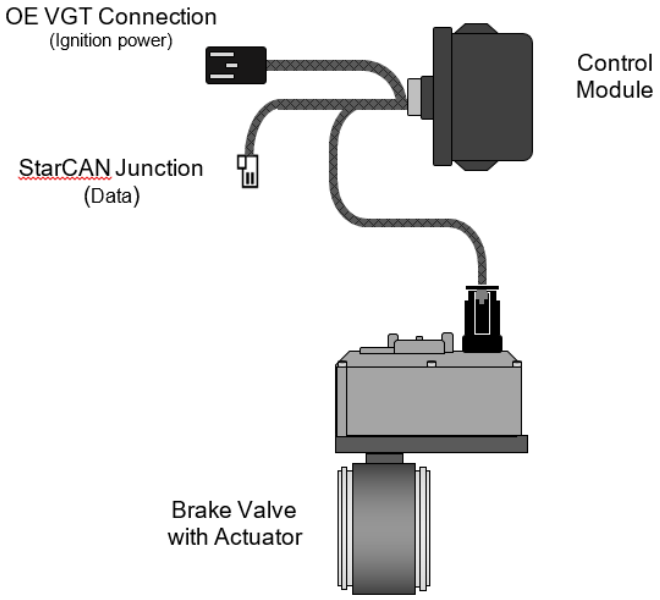
Automatic: applies brake if the driver taps on the brake pedal or the vehicle is descending a hill and increasing speed.

Full: applies brake anytime the driver lifts off the acclerator pedal.

The default software follows the OEM exhaust brake activation. If more aggressive braking is desired, a “version B” software is available. Contact BD support to download the “version B” software to your module.



Wiring Diagram



Troubleshooting

This guide assumes that your exhaust brake system is using a “Dodge 6.7L Brake Control Module” rather than a DFIV or micro-switch on the throttle. For other systems see the appropriate instruction manual.

Brake does not engage	**No**	**Yes**
Is the control module powered?	Check fuse box for blown fuse: • 13-18: Fuse 78 – 10A • 19-24: Fuse F22 – 25A Check the wiring harness for connection or for damage.	Test brake function using the test button on the module.
Does the brake activate when the test button is pushed?	Indicates a mechanical or electronic issue with the brake. Open the module and observe the “BRAKE” LED, this will light when the module activates the output.	Indicates the brake is mechanically sound, and the issue is related to the command signal between the vehicle and the module.
Are the CAN lights on the module PCB flashing consistently?	Check the wiring harness for shorts or exposed wires. If CAN1 is not flashing, also check that the 2-pin connector is plugged into the correct StarCAN junction box.	Indicates module is communicating with the vehicle and the brake actuator.
The brake comes on but there’s little or no holdback	**No**	**Yes**
Check off idle brake pressure. (See back pressure chart) Are you getting maximum allowable back pressure at full RPM?	Check for exhaust leaks. A small leak can result in a significant decrease in back pressure. If no leaks are found try adjusting the air regulator. Check for air leaks in the brake system.	Try down-shifting more aggressively. More RPM will give more holdback.
Is the Error LED flashing	**No**	**Yes**
Is the Error LED on and flashing?	If the error LED is on but not flashing, there is a connection error between the module and the ECM/actuator. Use the test button to see if the actuator opens and closes.	If the error LED is on and flashing, there was a temporary loss in communication between the ECM/actuator and the module. Power cycle and check if the problem persists.

LED Flashing Patterns

CAN1 and CAN2 LEDs are flashing	The module is communicating with the vehicle and the brake actuator
BRK LED is on	The brake shut signal is sent to the brake actuator
ERR LED is flashing (1 time per second)	The module detected an error and tried to power cycle the actuator. Possible errors include: • Communication with the actuator has been lost • The actuator is not able to open or close fully
ERR LED is solid	The module has tried to power cycle the actuator 3 times and the error still persists. The module will command the brake open until the vehicle is power cycled.
Only CAN1 is flashing (truck to brake module) ERR LED should be on as well	The module has lost communication with the brake actuator
Only CAN2 is flashing (module to brake valve)	The module has no communication with the vehicle

Exhaust Back Pressure Testing

To test exhaust brake system pressure, a minimum 0-100psi pressure gauge is required.

We recommend purchase of a BD brake pressure gauge kit #1030050.

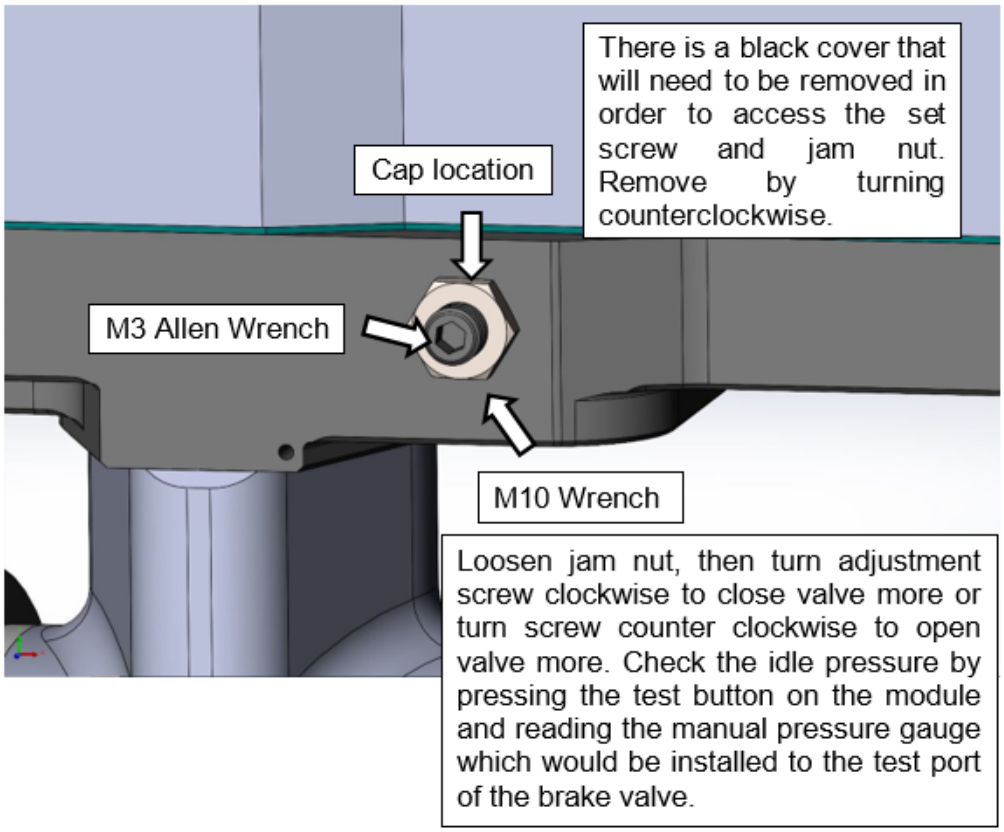
Off-Idle Pressure Test & Adjustment

Get the truck up to speed (a downhill grade or a load in the truck is helpful) and activate the exhaust brake. Note the maximum backpressure achieved. You should get peak backpressure at higher RPM (try 3000 RPM in Drive). If you cannot reach the desired backpressure you can begin troubleshooting, the first step is to look for exhaust leaks either from the clamps, exhaust manifolds, or feed pipes. Also, look for leaks at the clamps located at the back of the turbo and also at the downpipe.

NOTE: Over the next two weeks, the backpressure at idle may rise due to initial carbon buildup on the inside of the brake housing and on the butterfly. The stop bolt may need to be adjusted again to compensate.

Application	Maximum Back Pressure
Dodge Cummins 2013-2024	65 psi

The brake assembly is calibrated to the factory specifications for a 6.7 Ram. We generally do not recommend adjusting the stop bolt, please consult BD before doing this as it may void your warranty.



Serial # _____

Date Purchased _____

Purchased from _____

Installed by _____