



BD SUPER "B" SINGLE TURBO KIT

Dodge 5.9L Cummins 2003-2004 24v ISBe

(Non 600 motors)

Part # 1045230

PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION

*Note: This turbo system is not compatible with an AFE intake system
WITHOUT MODIFICATIONS.*

**UNLESS AN EO# IS LISTED, THIS PRODUCT IS LEGAL IN CALIFORNIA FOR
RACING VEHICLES ONLY, WHICH MAY NEVER BE USED UPON A HIGHWAY.**

BD ENGINE BRAKE, INC.

Plant Address: A10-33733 King Rd, Abbotsford, BC, Canada V2S 7M9

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

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 your truck.

DODGE 2003-2004 "SUPER B" SINGLE TURBO KIT (BD# 1045230)				
1405228	1452225	1453251	1040142	
				
<i>Super "B" Single Turbo</i>	<i>V-Band Clamp</i>	<i>Elbow O-Ring (Viton)</i>	<i>Exhaust Pipe Heat Wrap</i>	
Qty: 1	Qty: 1	Qty: 1	Qty: 1	
1040145	1405926	1452520	1452226	
				
<i>Heat Wrap Wire (/ft)</i>	<i>V-Band Clamp</i>	<i>Flange Adapter</i>	<i>Cast Outlet Elbow</i>	
Qty: 4'	Qty: 1	Qty: 1	Qty: 1	
1452811	1452812	1452813	1452814	1452815
				
<i>Bolt - 10mm x 1 1/2 x 20mm</i>	<i>Bolt - 10mm x 1 1/2 x 30mm</i>	<i>Bolt - 3/8 NF x 1 3/4</i>	<i>3/8 NF Nut</i>	<i>3/8 Washer</i>
Qty: 1	Qty: 1	Qty: 2	Qty: 2	Qty: 6

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Installation Notes

A turbocharger is driven solely on exhaust energy. Therefore, if the vehicles current exhaust manifold is cracked or is leaking, it is recommend that new exhaust gaskets and a heavy-duty exhaust manifold be used.

Installation should occur on a cold vehicle, as turbo and exhaust components become very hot with use.

The BD turbo system is recommended for trucks with 300-400 RWHP with a maximum efficient boost pressure of 45psi.

It is highly recommended that when installing this turbo, that our high performance two-piece manifold be installed at the same time. This new manifold utilizes pulse technology/duel volute to spool the turbo faster than the stock single volute manifold. As well this manifold can handle much higher temperatures than the stock one.

Manifold part # 1045987

Upgrade Options

Description	Part#
BD "X" Torque Convertor	1070217X
BD HD Transmission	CALL
BD High Flow Injectors	CALL
BD FlowMAX Auxiliary Lift Pump Kit	1050310
BD HD Exhaust Manifold	1045977
BD X-Monitor	1085220
BD Twin Turbo Upgrade Kit	1045335
BD Cool Down Timer ²	1081160

If you are installing a BD Engine Brake with this turbo you will require:

(1) Turbo Plate PN# 1453238

(5) M8-1.25 x 20mm bolts

Reuse the existing (5) hardened M8 washers.

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Battery Disconnect

Disconnect the negative terminals on both of the vehicle's batteries, and then disconnect the positive terminals.

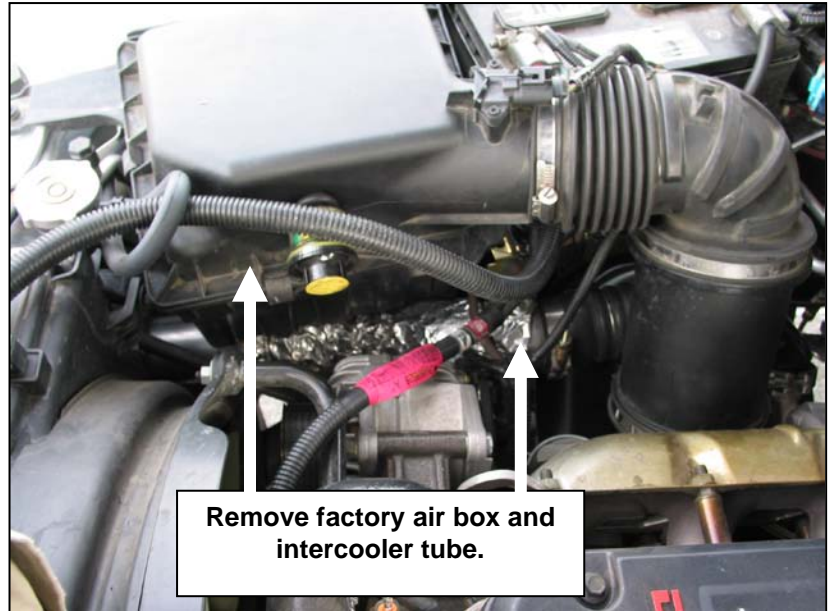
Installation

Record preset radio settings (if desired).

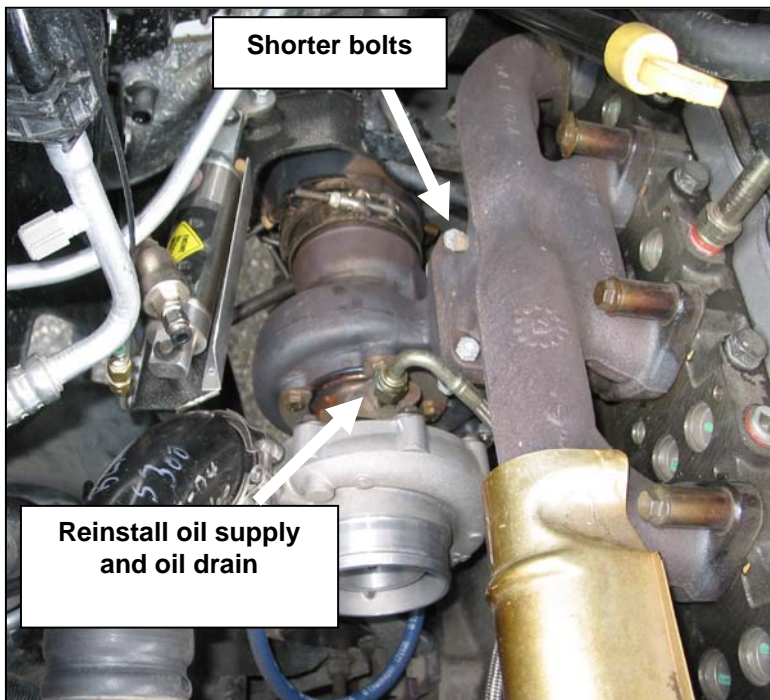
Disconnect airflow sensor and remove air box with 10 mm socket.

Remove the passenger side inner fender well with a 5/16 socket (for easier access).

Remove the turbo oil feed line with a 13/16" wrench and the oil drain line with 10 mm socket. Pull the oil drain tube out of the engine block.



Remove the passenger side intercooler hose band clamps with a 7/16" deep socket. Remove the intercooler tube from the engine compartment.



Remove the factory cast exhaust elbow or turbo mount brake using a 7/16" deep socket for the upper V-band clamp and a 10mm deep socket for the lower/rear V-band clamp.

Remove the four nuts holding the turbo to the exhaust manifold with a 15mm wrench. With the turbo now unbolted from the manifold, carefully lift it out of the engine and set it aside. Now remove the two studs from the factory manifold.

Carefully lower the Super 'B' in to place, making sure there is a 1/4" gap between the waste gate actuator and

the cast engine mount. Most trucks will have sufficient room, but due to casting tolerances, you may have to lightly grind the engine mount.

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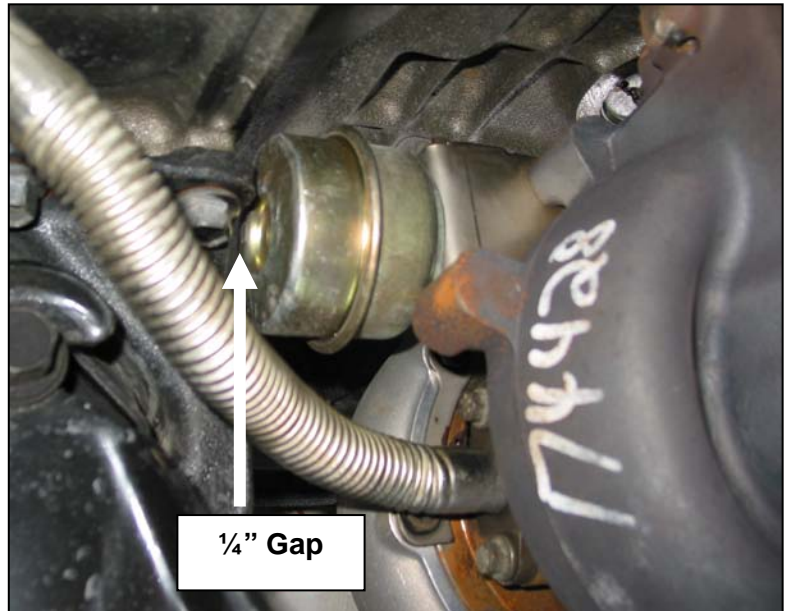
Mount the Super 'B' turbo and new gaskets in place using the metric 10mm bolts into the threaded holes in the manifold (shorter bolt to the rear of the engine). The 3/8" bolts, washers, and nuts should be inserted in the unthreaded holes. Use an offset 5/8" wrench to accommodate tightening of the inner bolts and two 9/16" for the outer bolts.

Turbo Clocking/Aligning (if necessary)

Loosen the four bolts clamping the exhaust housing to the turbo body and rotate it until the oil feed drains are straight up and down. Re-tighten the four bolts. Loosen the eight bolts clamping the turbo compressor housing to the body and rotate the housing to align it with the intercooler tube. Tighten the eight bolts holding the compressor housing to the body to secure its position.

Once everything is tight, double check the waste gate actuator clearance to make sure you have 1/4" to the cast engine mount.

Install the powder coated compressor outlet elbow, o-ring, and v-band clamp. At this time, you may insert the intercooler tube that you removed earlier. Don't forget to clean and secure all intercooler boots and tighten the hose clamps. When re-installing the intercooler tube, rotate the tube so that it is clear and free from the air box and the plastic inlet tube. Be careful that the compressor outlet elbow does not contact the shock tower.



Now install the supplied adapter/spacer and V-band clamp to the back of the Super 'B' turbo. Notice that this adapter will push the exhaust system back about an inch.

Re-install your turbo mount brake or remove the locating pins from the factory cast exhaust elbow and clamp it on the back of the turbo adapter assembly with the factory clamps you removed earlier.



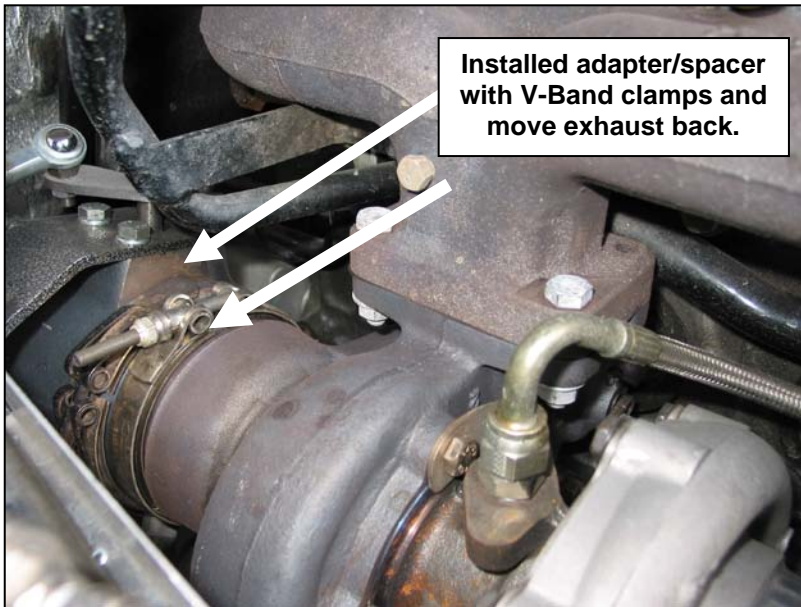
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Reinstall the turbo oil drain into the block and to the bottom of the turbo with new gasket before pre oiling the turbo. Squirt liberal amounts of fresh 15w40 diesel oil into the new turbo while spinning the compressor wheel. Re-install the oil supply line to the top of the turbo.



Re-install the plastic fender well liner, followed by the air box and tube. Note: unless you have a high flow Stainless BD X-Intake system, the heat wrap should be used to insulate the factory plastic air box from the intercooler tube. You can use the provided stainless wire to

secure the wrap.

Reconnect the negative battery terminals and start the vehicle. Check for any exhaust or oil leaks.

Take it easy on the turbo for the first 100 miles to allow a proper break-in period. Be very cautious of any unusual sounds or leaks during this time. Make sure that all clamps are tight.

Note: The exhaust housing of the turbo may smoke when new as manufacturing residue on housing must burn off.

Also take care that when shutting the vehicle down that you do not shut the vehicle down when it's still hot (>400°). This will cause oil coking and damage the turbo. The BD Cool Down Timer can automate this process for you.



IMPORTANT When idled for any length of time some oil may leak from the turbo. If the performance/boost is satisfactory and the wheel is not touching the housing (There will be some small movement), the excess oil is not a concern. Simply wipe with a clean cotton cloth and continue use.

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