

# ***BD Killer "B" Single Turbo*** **2003-2007 Dodge 5.9L Cummins 24v ISBe**











**Part #1045161**

**PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION.**

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

## Kit Contents

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

DODGE 2003-2007 "KILLER B" SINGLE TURBO KIT (1045161)					
1405160B			1453240		
					
Killer "B" Single Turbo			Wastegate Footer		
Qty: 1			Qty:1		
2485002			1045986		
					
Oil Drain Gasket			Exhaust Manifold Gasket Set		
Qty: 1			Qty: 1		
1452811	1452812	1452813	1452814	1452815	1452822
					
Bolt - 10mm x 1.5 x 20mm	Bolt - 10mm x 1.5 x 30mm	Bolt - 3/8"NF x 1 3/4"	3/8"NF Nut	3/8" Washer	Bolt - 3/8" NF x 1 1/2"
Qty: 1	Qty: 1	Qty: 2	Qty: 2	Qty: 6	Qty: 2

## Required Tools

- Wrenches : 9/16' , 13mm, 15mm, 17mm, 19mm, 21mm
- Sockets : 5/16", 7/16', 9/16", 7mm, 10mm, 11mm

BD Engine Brake Inc.

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U.S. Shipping Address: 88-446 Harrison St, Sumas, WA 98295 U.S. Mailing Address: P.O. Box 231, Sumas, WA 98295

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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 400-500 RWHP with a maximum efficient boost pressure of 45psi. For optimum performance the turbo should be operate between 37-45psi.

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***

<b><u>Description</u></b>	<b><u>Part#</u></b>
BD "X" Torque Convertor	<b>1070217X</b>
BD HD Transmission	<b>CALL</b>
BD High Flow Injectors	<b>CALL</b>
BD Auxiliary Lift Pump Kit	<b>1050310B</b>
BD HD Exhaust Manifold	<b>1045987</b>
BD X-Monitor	<b>1085220</b>
BD Cool Down Timer	<b>1081160</b>
BD Intercooler Hose/Clamp Kit	<b>1045215</b>
BD Intercooler Replacement Pipe (06-07)	<b>1042590</b>

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## ***Battery Disconnect***

Record preset radio settings (if desired). Disconnect the negative terminals on both of the vehicle's batteries.

## ***Installation***

2. Disconnect the airflow sensor.

And remove the intake hose using a 7 mm socket.



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3. Remove the passenger side inner fender well with a 5/16" socket.



4. Remove the exhaust cast elbow vband clamp with a 7/16" socket.



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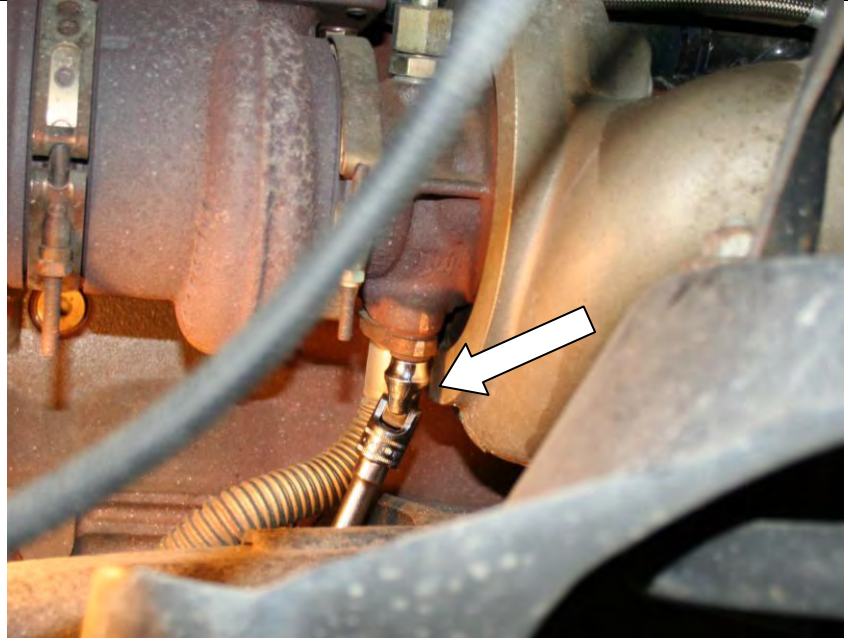
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5. Remove the turbo oil drain line with a 10 mm socket.

Then remove the oil drain tube out of the engine block.

**Note:** Some models require you to loosen gear clamps to remove the oil drain hose.



6. Cut the *heater pipe bracket* to assist in releasing the manifold.

**Note:** this bracket will need to be welded back on later in this installation.



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7. Remove turbo oil feed from the turbo.



8. On **05-07** trucks you will need to disconnect the solenoid connector



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9. Remove the passenger side intercooler hose band clamp with a 7/16" deep socket.



10. Pry off metal lock from rear manifold bolts, remove the heater pipe bracket from the manifold and remove the manifold heat shield with a 15 mm socket.



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11. Then remove the rest of the manifold bolts using a 13 mm deep socket.



12. Remove the turbo/manifold assembly from the engine compartment.

**Caution**

The Turbo/Manifold assembly is very heavy; you may require help to lift it out safely.



13. Remove the four nuts holding the turbo to the exhaust manifold with a 15 mm wrench. Then remove the two studs (double nuts each stud and turn out) from the factory manifold.

**Note:** Once the turbo is removed from the manifold clean the flange surfaces to ensure a clean connection upon reinstallation.



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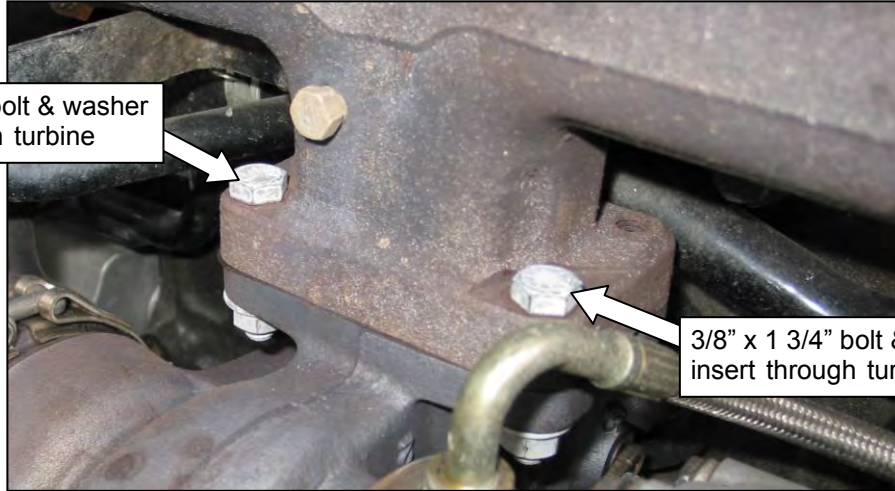
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## Installing turbo with Stock Manifold

Mount the **Killer 'B'** turbo and new gasket in place using the metric 10mm bolts into the threaded holes in the manifold (shorter bolt to the rear of the engine). If you are mounting the turbo to a stock manifold you will require the supplied **3/8" x 1 3/4"** bolts for the unthreaded holes. These bolts should be inserted from the manifold side and fastened to the turbine housing using the supplied washers and nuts. Use an offset 17mm wrench to accommodate tightening of the inner bolts and two 9/16" for the outer bolts and torque turbo to manifold bolts to 32 ft/lbs.

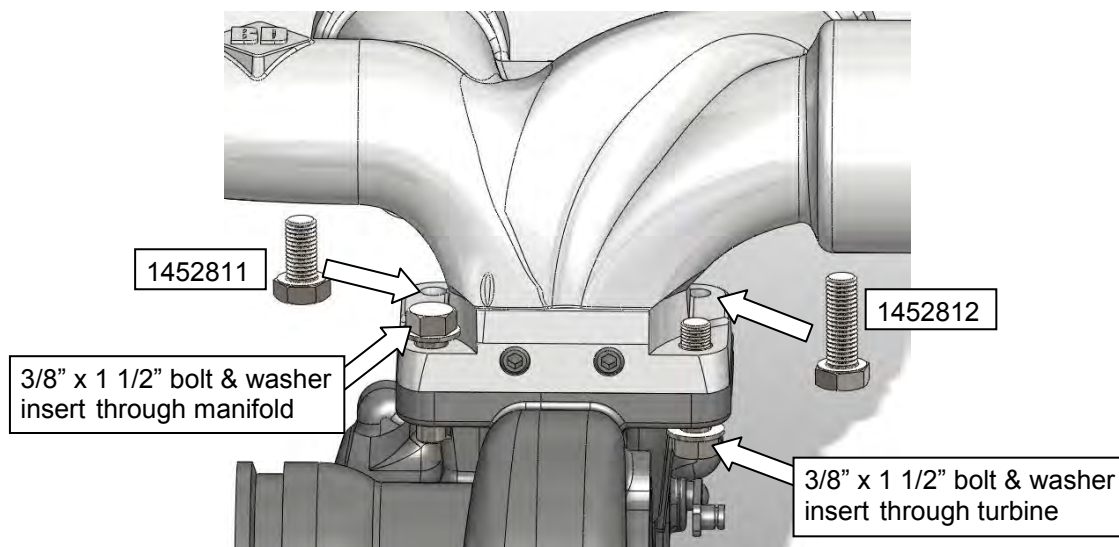
3/8" x 1 3/4" bolt & washer  
insert through turbine



3/8" x 1 3/4" bolt & washer  
insert through turbine

## Installing turbo with BD Manifold

Mount the **Killer 'B'** turbo and new gasket in place using the metric 10mm bolts into the threaded holes in the manifold (shorter bolt to the rear of the engine). If you are mounting the turbo to a BD manifold you will require the supplied **3/8" x 1 1/2"** bolts for the unthreaded holes. One bolt will need to be inserted from the manifold side and the other will need to be inserted from the turbine side (see diagram for details) and fastened using the supplied washers and nuts. Use 17mm wrench to accommodate tightening of the inner bolts and two 9/16" for the outer bolts and torque turbo to manifold bolts to 32 ft/lbs.



1452811

3/8" x 1 1/2" bolt & washer  
insert through manifold

1452812

3/8" x 1 1/2" bolt & washer  
insert through turbine

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14. Remove the cast adapter and oil feed fitting from the stock turbo and install on the BD turbo. Torque the oil feed fitting to 27 ft/lbs.

**NOTE:** Before you install the cast adapter to the BD turbo, remove the locating pins in the adapter with pliers.

When connecting the cast adapter to the BD turbo leave the vband clamp loose to allow adjustment once it is installed in the truck.

Remove locating pins from cast adapter.



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15. Before installing the Killer “B” turbo/manifold assembly clean the surface of the head that the manifold bolts to, and clean out any debris.



16. Carefully maneuver the BD turbo/manifold assembly back into the engine compartment and start two manifold bolts with the supplied gaskets.

***NOTE:*** You may require help to safely mount the BD Turbo/Manifold assembly into position.

Then feed in all the gaskets and torque all bolts to 35 ft/lbs.

Important – Once everything is tight double check the waste gate actuator has clearance.



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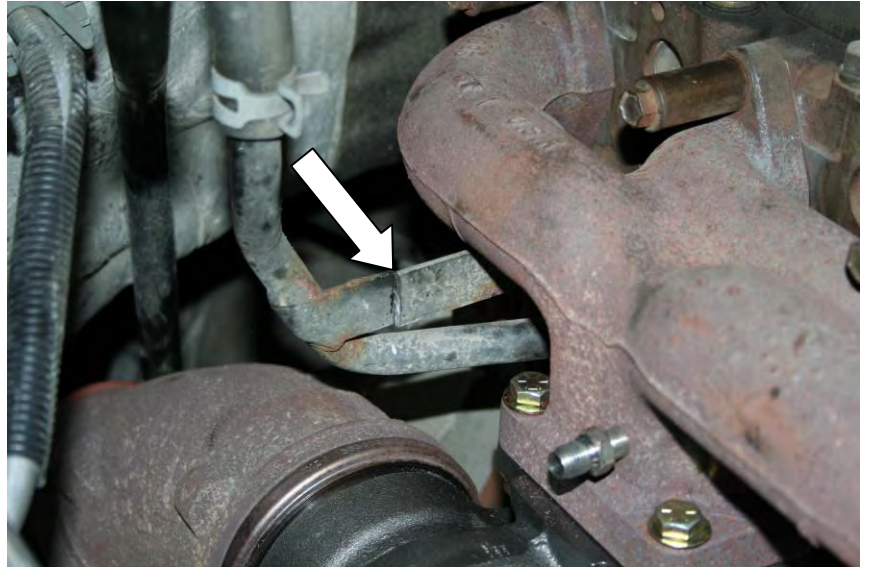
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17. Reinstall the manifold heat shield.



18. Reinstall the *heater pipe bracket* and tack weld back into position.



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## ***Turbo Clocking / Aligning (If Necessary)***

Loosen the four bolts clamping the exhaust housing to the turbo body and rotate it until the oil feed and 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. Be careful that the compressor outlet elbow does not contact the shock tower.



## ***INSTALLATION CONTINUED***

19. Reinstall the intercooler tube using a 7/16" deep socket.



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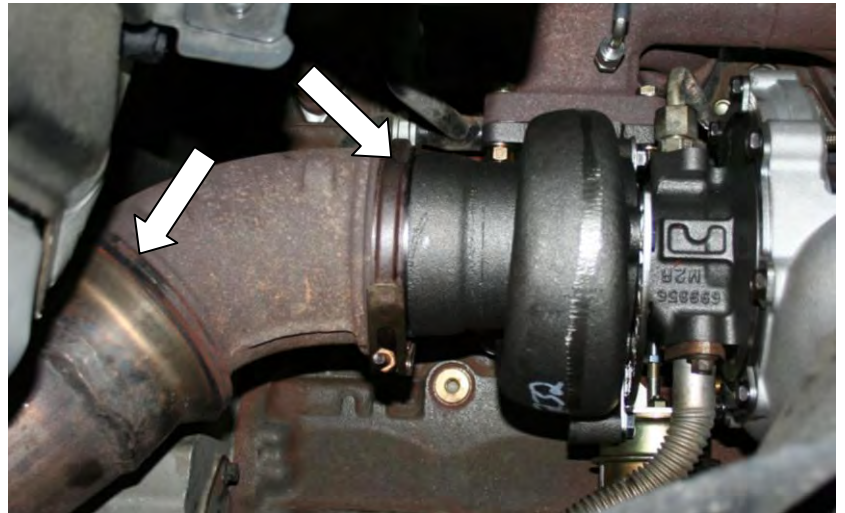
20. Secure the oil drain to the bottom of the turbo using the supplied gasket and the factory bolts torque to 18 ft/lbs, with 10mm socket.



21. Secure the exhaust downpipe to cast adapter with the factory vband clamp.

And tighten the cast adapter to turbo using the factory vband clamp.

Then inject liberal amounts of fresh 15W40 diesel oil into the BD Killer “B” turbo while spinning the compressor wheel. Once the turbo is pre lubed, secure the oil inlet hose to the turbo.



22. Reinstall the plastic fender well liner.



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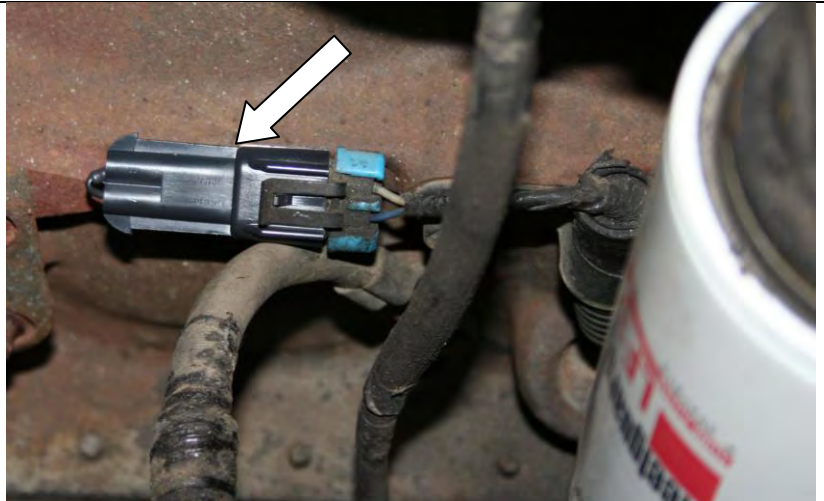
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**05-07 Trucks Only**

23. Connect the wastegate solenoid fooler to the solenoid plug.



24. Install the intake hose then reconnect the air flow sensor.

Reconnect the negative battery terminals and start the vehicle and let idle for 5-10 minutes. **Checking for any exhaust or oil leaks before and after the test drive.**



25. 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 the manufacturing residue on the housing must burn off.

Also take care when shutting the vehicle down that you do not shut the vehicle down when it is 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.

## Questions

Please call our Technical Hotline at (800) 887-5030 if you experience problems or have questions about this kit, Monday to Friday, 8:30am – 5:00pm Pacific Standard Time (PST).

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