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BD Diesel Exhaust Manifold

Installation Instructions

1045987

2003-2007 5.9L Cummins

1046087

2003-2007 5.9L Cummins Complete Kit

Please read all instructions before installation

1045987 can be used as a replacement for Cummins part numbers 3967995, 3943871 & 3943875.






KIT CONTENTS

Common Kit Contents - 1045987 & 1046087

1405990R-M / 1405990F-M	1405981*	1405982*	1200208*	1000400
				
Front & Back Manifold Assembly	M10x35mm S/S Bolt	10mm S/S Washer	1/8" NPT Plug	Sticker; CARB D-553-33
Qty: 1	Qty: 1	Qty: 1	Qty: 2	
1405998	1100110*	1100111*	1100112*	1100113*
				
Coolant Bracket	1/4" Bolt	1/4" Flat Washer	1/4" Lock Washer	1/4" Nut
Qty: 1	Qty: 1	Qty: 1	Qty: 1	Qty: 1
1462430*	1462431*		1462441	
				
M10 x 1.5 x 030 Stud	M10 x 1.5 x 025 Stud		Nut M10 -1.5	
Qty: 2	Qty: 2		Qty: 4	

*Starred items are sent in a pre-packed fastener kit part number FK-1045987

Additional Kit Contents - 1046087 Only

1405900	1405912	2485000
		
Manifold Gasket 6-Pack	Turbo Gasket Dual Volute	Turbo Gasket Single Volute
Qty: 1	Qty: 1	Qty: 1
1405937	FK-1045982**	
		
Spacers	M10X60 Bolt	M10x35 Bolt
Qty: 12	Qty: 12	Qty: 2
		M10 Washer
		Qty: 2

**FK-1045982 fastener kit contains 12x FT-11116075, 2x 1405981, 2x FT-11509452

Manifold Joints

BD manifolds use precision, tight tolerance, slip fit expansion joints. These joints reduce stress from thermal expansion and contraction in use. This relieves stress in both the manifold and engine cylinder head. Please note this type of joint will slide by hand allowing a simple installation.

How does this joint seal? The internal section is closer to the high temperature exhaust gasses, this heat expands the internal section of the joint more than the larger external section which is cooled by its surroundings. The slip fit inherently seals with the engine running but allows for expansion/contraction to relieve stress.

Separate Gasket Sets

<u>Description</u>	<u>Part #</u>
24V Exhaust Manifold Gasket Set	1045986

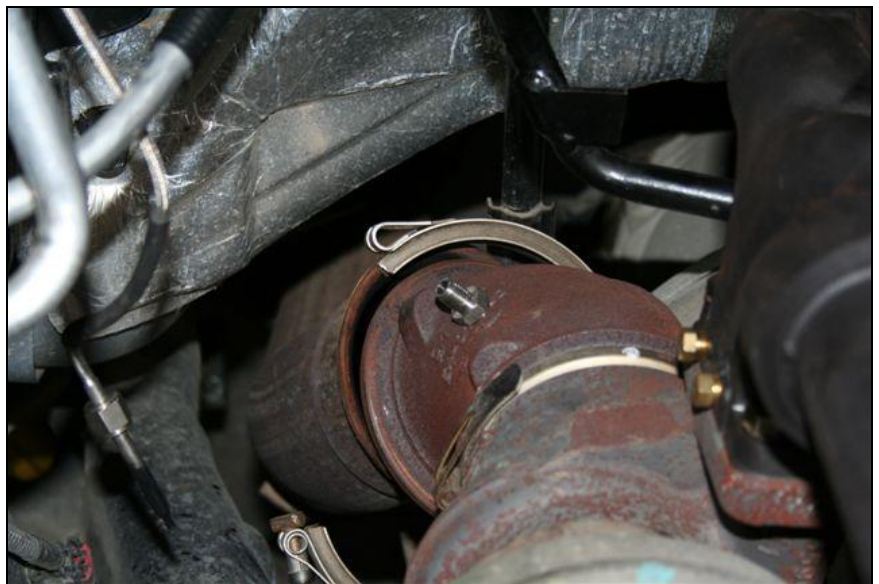
SCRAPE OFF ANY EXCESS PAINT ON THE GASKET MATING SURFACES. A THIN COAT WILL NOT AFFECT THE SEALING PROPERTIES.

Installation

Disconnect both battery ground cables.

Remove the intake air hose from the front of the turbo and set to the side. You can also remove the air box to get additional working room.

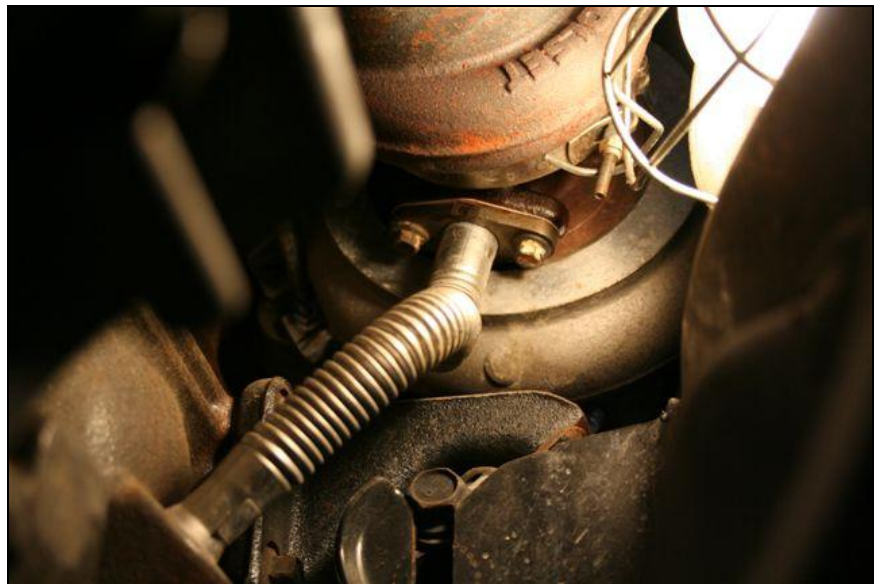
Remove the V-band clamp that connects the turbo elbow casting to the exhaust down pipe.



Disconnect the compressor outlet boot.

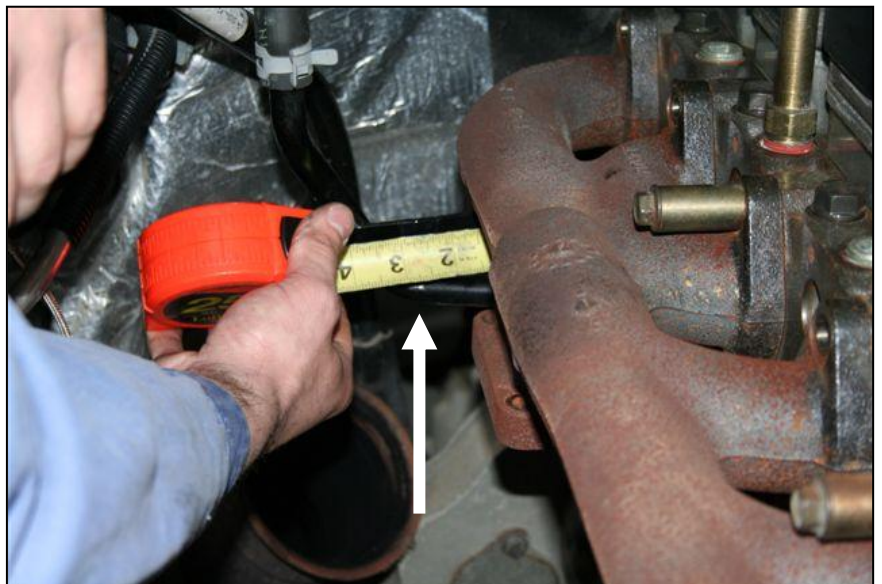


Disconnect the turbo oil supply and the turbo oil drain.



Using a cutoff wheel, cut the coolant line support bracket about 1-1.5" from the coolant tube. Leave enough material to re-connect the new supplied bracket to this tab.

This technique should save you approximately 1 hour of installation time and eliminate the need to drain the coolant.



Remove the factory heat shield that covers the front of the manifold.

Remove the factory manifold and turbo assembly. Be sure to save the OE bolts and spacers as you will be reusing them.

Once the factory manifold is removed, clean the head surface of any carbon or soot build up.



With the manifold and turbo assembly on the bench, remove the turbo.

Remove the factory studs from the OEM manifold and discard them. Place the provided **M10 x 1.5 x 30mm (1462430)** studs into the manifold.

If using sensor ports, install sensors into the 1/8" NPT ports now. The sensors may only be used to measure air temperature, pressure, or flow and must not connect to the vehicle's ECUs. Factory sensors (if equipped) may not be relocated to these ports.

If not using sensor ports, the supplied **1/8" NPT** plugs (**1200208**) must be installed into the manifold.

Remove factory studs from the turbo and discard. Install the provided **M10 x 1.5 x 25mm (1462431)** studs into the turbo.



Re-install the turbo with a new gasket onto the manifold (gasket is directionless), using the supplied M10-1.5 nuts. (1462441)

Turbo Torque spec: **32 lbs-ft**

Important! Incorrect turbo torque can lead to flange leak and gasket failure.



With the whole assembly tight, re-install it to the engine.

Be sure to install a new gasket for each cylinder. It does not matter which way the ridge on the gasket faces.

Torque the bolts to **35 lbs-ft**.

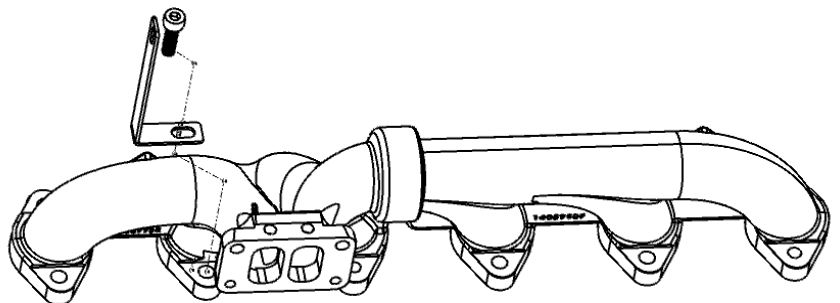
Note that you may need to align the front or rear manifold to match the threaded holes on the cylinder head. You can use a rubber mallet to do this.



When installing the lower bolt to cylinder #5, discard the factory bolt and spacer. Place the coolant pipe bracket against the manifold and install the **M10 SS socket head bolt (1405981)** and the **M10 Washer (1405982)** to secure the bracket and the manifold to the head.

Before tightening the bolt, line up the bracket to the OEM coolant pipe tab that you cut earlier.

Torque the bolt to **35 lbs-ft**.

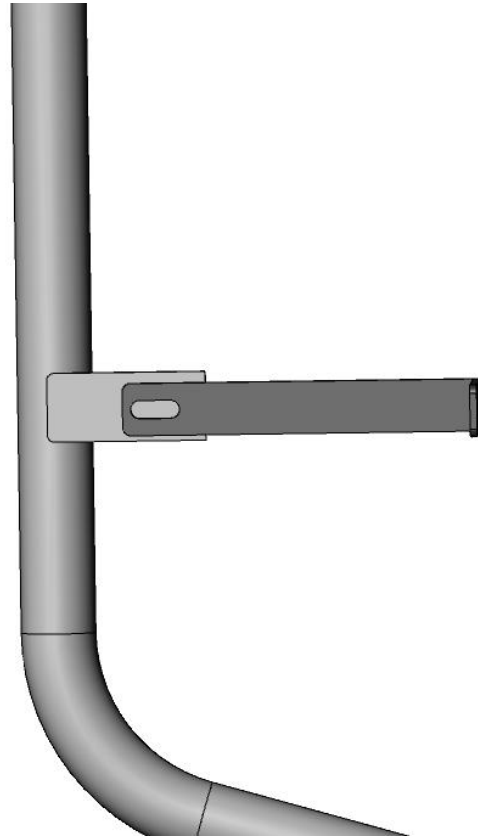


Note: On 2006 model year vehicles, you will need to secure the bracket to cylinder # 6.

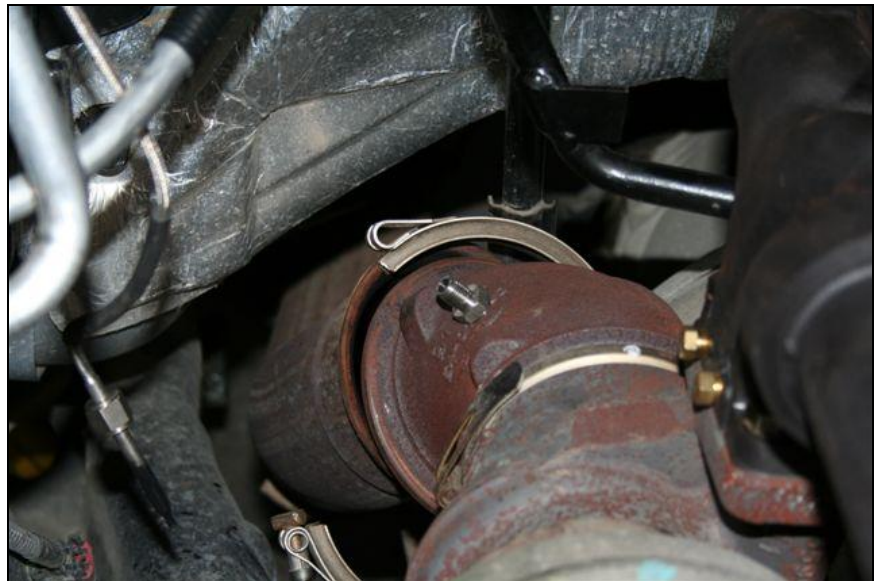
You now have the option to drill a hole through the OEM coolant pipe tab and secure the brackets together using the $\frac{1}{4}$ bolt (1100110), $\frac{1}{4}$ " flat washer (1100111), $\frac{1}{4}$ " lock washer (1100112), and the $\frac{1}{4}$ " nut (1100113) supplied. Use a $\frac{5}{16}$ " drill bit to accomplish this.

Or, you can spot weld the bracket and the OEM coolant pipe tab together.

If you choose to weld, be sure to paint the weld after.



Once that is secure, you can now reconnect the V-band clamps from the exhaust pipe to the turbo exhaust elbow and the compressor outlet.



Reconnect the turbo oil drain and oil supply.

Reconnect the air inlet pipe to the front of the turbo and re-install the air box if you had removed it.

RE-TORQUE ALL BOLTS AFTER AT LEAST ONE HEAT CYCLE

CARB Decal Installation (California Only)

The supplied product information label is required to aid in inspection of the vehicle under the California Smog Check program.

Install the supplied CARB EO decal under the hood in a conspicuous location near the vehicle emissions sticker.

