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## **BD Ford Turbo Retrofit**

**Fit a factory-based 2017+ turbo into 2011-2014 models**

Part #	Turbo	Compressor Size	Max Airflow
<b>1045824</b>	Ford OEM 17+	61 mm	66 lb/min
<b>1045825</b>	BD Screamer	64 mm	81 lb/min

An emissions compliant engine calibration must be used.

\*Edge CTS Evolution is recommended.




## Introduction


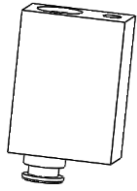


The BD Ford Turbo Retrofit allows you to install a larger GT37 based turbocharger from the 2017+ 6.7L trucks onto a vehicle that originally came equipped with the smaller GT32 SST "DualBoost" or standard GT32 without the need for additional parts.

This will fit 2011-2014 pickups and 2011-2016 Cab & Chassis trucks. 2015 and 2016 models may have some engine overlap, check your specific vehicle prior to ordering.

This pre-assembled turbo utilizes BD exclusive compressor housing, turbine housing, and pedestal specifically designed to fit the OEM based GT37 in the factory location. The original factory intake, hot-pipes, downpipe, exhaust manifold, heat shield, and turbo outlet pipe are re-used and do not need to be replaced.

## Kit Contents

1045824	1045825	FC3Z-9U469-B
		
Turbo; BD Retro Qty: 1	Turbo; BD Retro Screamer Qty: 1	Tube; Water outlet Qty: 1

1515950	BC3Z-6587-A	1405827	1407079	FT-0135928
				
Harness; Wastegate Solenoid Qty: 1	Gasket; Pedestal Qty: 1	Spacer; Coolant Qty: 1	O-ring; #110 Qty: 1	Bolt; M6-1 x 65mm Qty: 1


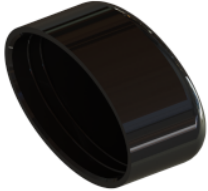



BD Engine Brake Inc.

Plant Address: 33541 MacLure Rd. Abbotsford, BC, Canada V2S 7W2

U.S. Shipping Address: 1124 Fir Avenue, Blaine, WA 98230

U.S. Mailing Address: P.O. Box 231, Sumas, WA 98295

Phone: 604-853-6096 | Fax: 604-853-8749 | Internet: [www.bddiesel.com](http://www.bddiesel.com)

1405858	1405829	1900068	FT-0427640	FT-0427642
				
Boot; 3.35"x4"	Boot; Intake Pickup Cap	Cap; 3/16"	Clamp; 2.75"-3.75"	Clamp; 3.5"-4.5"
Qty: 1	Qty: 1	Qty: 1	Qty: 2	Qty: 1

## Turbo Options

### The OEM Problem:

The 2011-2014 Powerstroke 6.7L offered two different turbo's; one for the pickup truck and one for the cab & chassis. The cab & chassis offered a traditional-style 53mm compressor wheel with a 59mm turbine wheel. A Single Sequential Turbocharger (SST) allowed a single turbine wheel to be paired with two 44mm compressor wheels manufactured together as one. Both of these turbos offer unrivaled turbo response due to their petite GT32 turbo size, however the moment you increase the engine output, restrict the turbo intake, or tow heavy loads, the factory GT32 turbocharger becomes consumable.

### The Solution:

For the majority of owners, Ford included the solution on the 2015+ Powerstroke, a larger traditional-style GT37 VGT. To retrofit this Ford solution onto the 2011-2014 trucks, it requires both the turbo and a list of mating parts to be replaced. BD now offers a solution that lets you fit a large GT37 turbo on your 2011-2014 truck without the need to replace excess components. BD also offers a Ford 6.7L Screamer Turbo Retrofit for those wanting to further increase their trucks airflow potential.

Ford 6.7L Turbo Selection								
Model Year	Pickup (Wide Frame)				Cab & Chassis (Narrow Frame)			
	Stock Replacement	Performance Upgrade			Stock Replacement	Performance Upgrade		
		Retro GT37	Retro GT37 Screamer	GT37 Screamer		Retro GT37	Retro GT37 Screamer	GT37 Screamer
2011	851824-5001	1045824	1045825		854572-5001s	1045824	1045825	
2012	851824-5001	1045824	1045825		854572-5001s	1045824	1045825	
2013	851824-5001	1045824	1045825		854572-5001s	1045824	1045825	
2014	851824-5001	1045824	1045825		854572-5001s	1045824	1045825	
2015	1045810			1045826	854572-5001s	1045824	1045825	
2016	1045810			1045826	854572-5001s	1045824	1045825	
2017	1045811			1045826	1045812			1045826
2018	1045811			1045826	1045812			1045826
2019	1045811			1045826	1045812			1045826

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## PRE-INSTALLATION

A new turbocharger will not solve the following failures:

- Oil contamination
- Restrictive oil drain
- Over speed due to a boost leak
- Exhaust leaks due to faulty bellows, clamps, or seals

Turbo over speed will lead to premature turbo failure. Boost pressure can be used to estimate turbo speed. The table below shows maximum allowable turbo speed for a stock motor at 3500rpm. A turbo intake restriction, clogged filter, high altitude or boost leak will cause increased wheel speed.

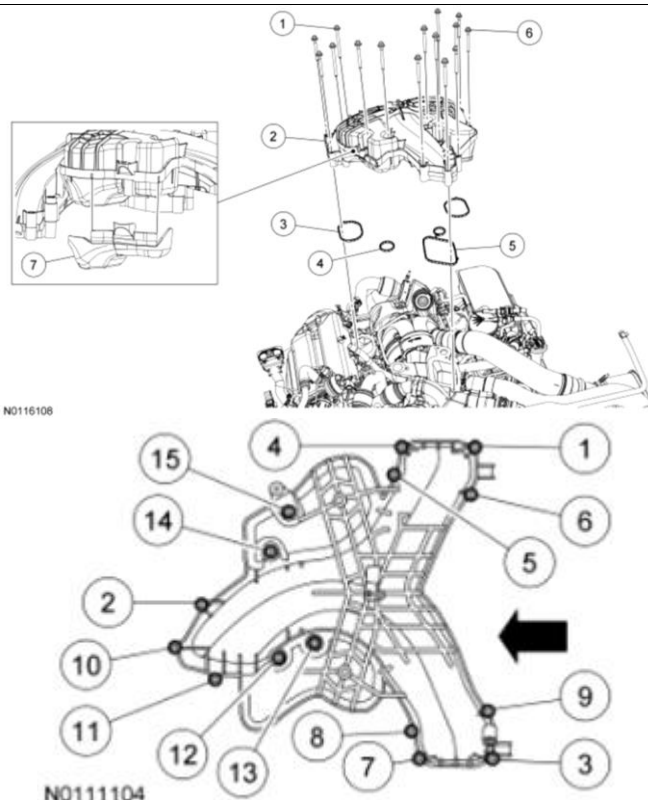
Turbo	Estimated Airflow (lb/min)	Max Wheel speed (rpm)	Max boost (psi)	Max Boost with clogged filter (psi)
OE GT37	66	121,000	33	30
BD Screamer	81	121,000	39	36

## Removal

1. Safely secure the vehicle, remove the front right wheel, and disconnect the battery ground cable.

Drain the coolant system.

2. Remove the upper intake manifold.



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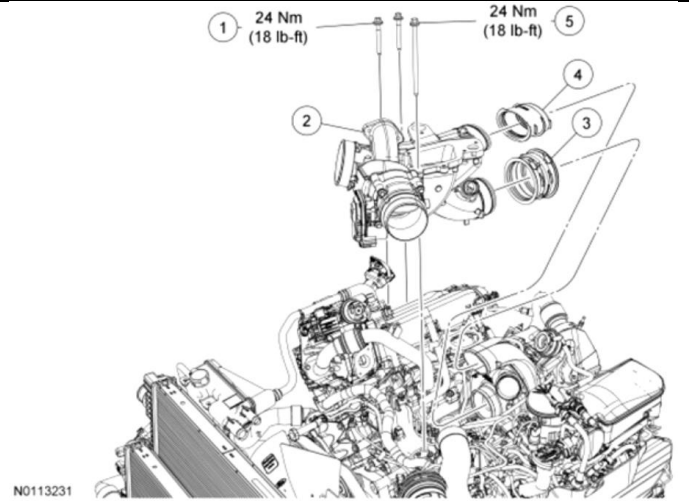
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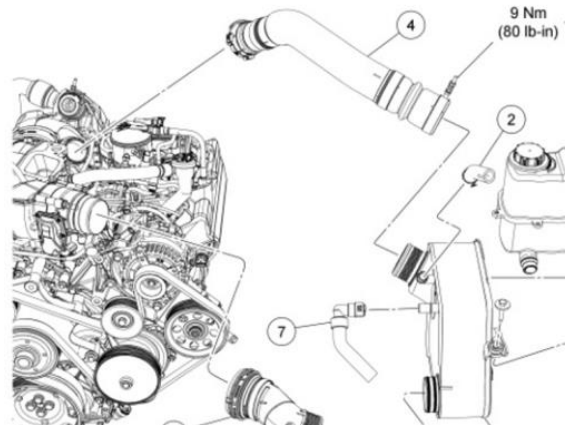
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3. Remove the lower intake manifold.



4. Remove the Charge Air Cooler tube.



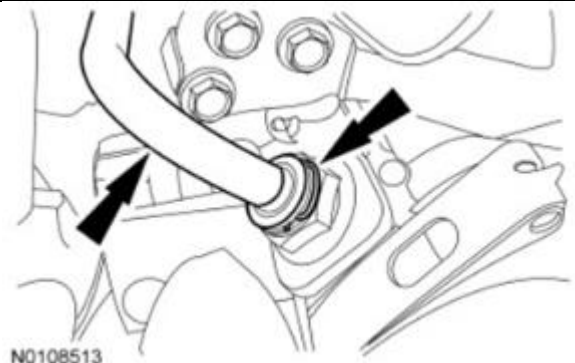
5. Disconnect the turbocharger actuator electrical connector and disconnect the wastegate actuator vacuum hose on pickup models.

Cap the shown location where the wastegate actuator solenoid was fed using the supplied Rubber bullet cap (1900068).

Note: Cab and Chassis models will not need to disconnect the wastegate actuator hose.



6. Remove the turbocharger coolant outlet tube.



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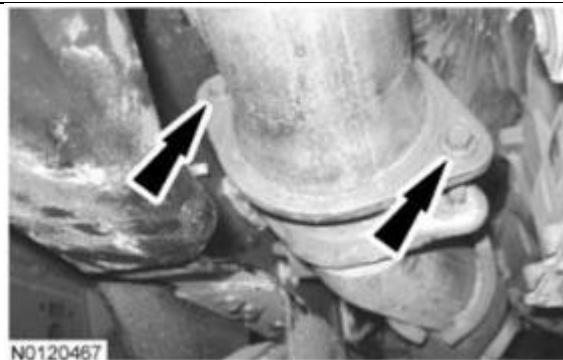
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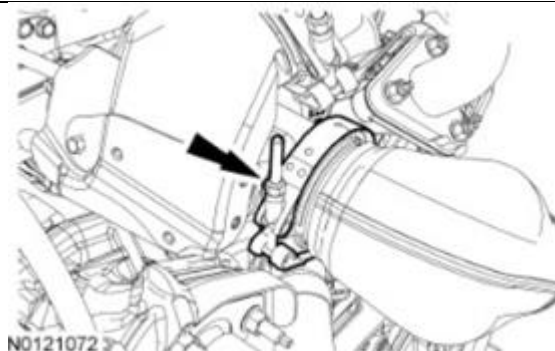
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7. Loosen the exhaust lower downpipe bolts.



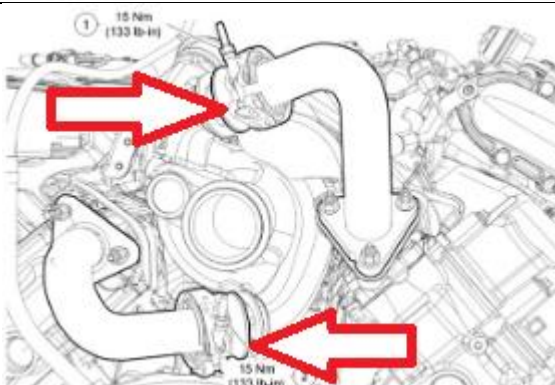
8. Loosen the exhaust upper downpipe v-band clamp.



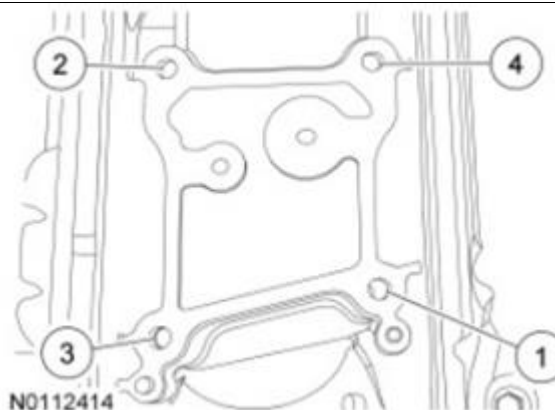
9. Loosen the exhaust upper downpipe bracket bolt.



10. Unbolt both turbocharger exhaust hot-pipe v-band clamps.



11. Unbolt and remove the four turbocharger mounting bolts.



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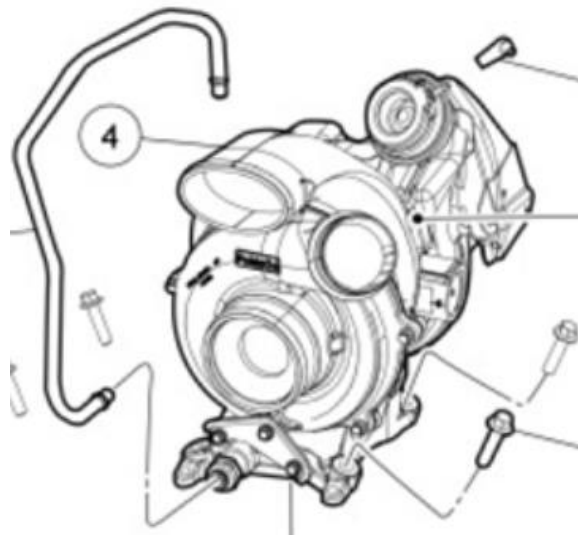
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12. Remove turbocharger.

Keep OEM heat shield.



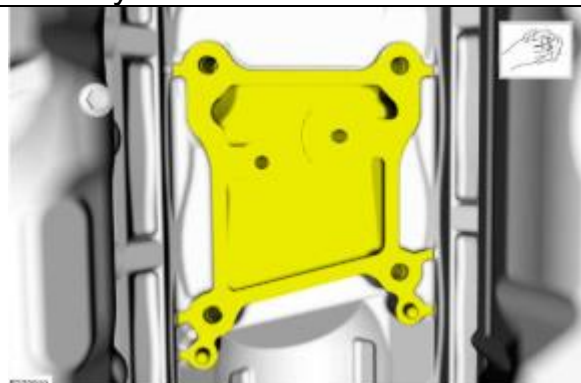
## Installation

When an engine or turbocharger is replaced due to a failure, inspect components for debris.

CAC and CAC tubes  
Exhaust manifolds  
EGR cooler and pipes  
Diesel Oxidation Catalyst

1. Clean all surfaces before proceeding.

Install the supplied new turbocharger mounting gasket.  
BC3Z-6587-A



2. Install OEM 2011-2014 heat shield on BD supplied turbocharger. Use supplied M6 bolts FT-11115714.



3. Ensure turbocharger pedestal bolts are tight and torqued to 26ftlbs (35 Nm)



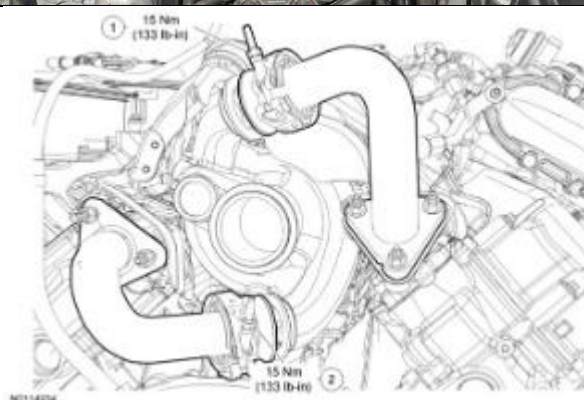
4. Use gasket BC3Z-6587-A and insert turbocharger.

Ensure no debris is knocked into the engine through the pedestal mount.

Loosely install the mounting bolts.

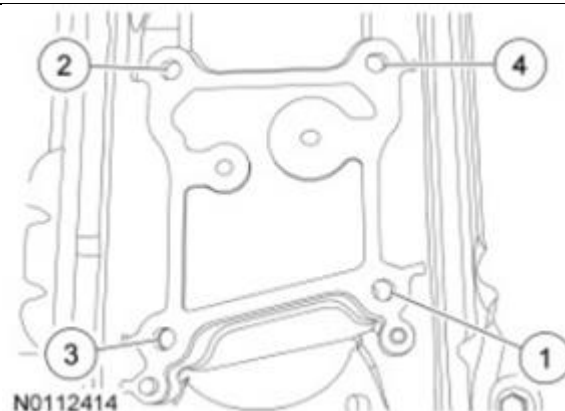


5. Connect hot-pipe feed tubes and lightly tighten v-band clamps.



6. Tighten the 4 turbocharger mounting bolts.

Torque to 42 ftlbs (55 Nm)



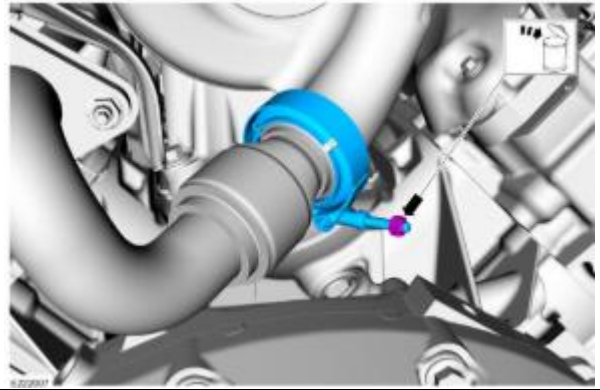


7. Tighten the hot-pipe feed tube v-band clamps.

Stage 1: 150 lb in (17 Nm)

Stage 2: Loosen 3 turns

Stage 3: 159 lb in (18 Nm)

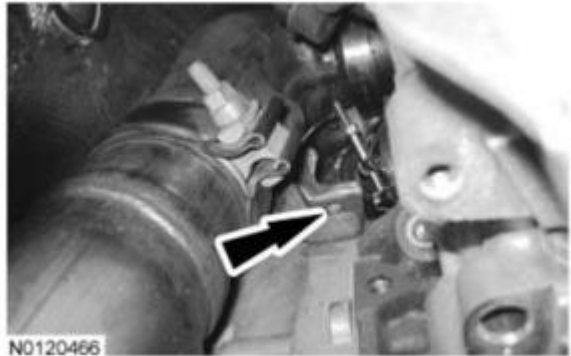
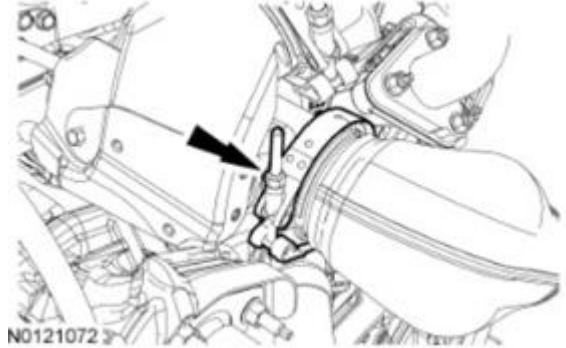


8. Connect turbocharger downpipe v-band clamp, and downpipe bracket bolt.

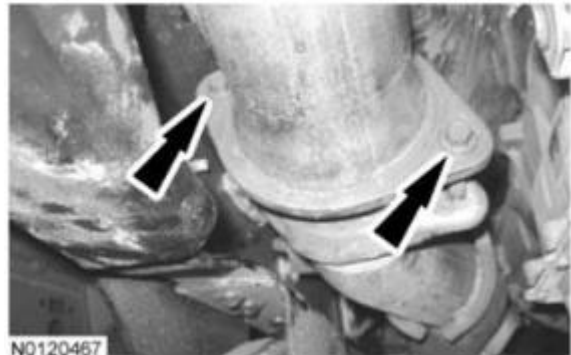
Tighten downpipe bracket bolt to 18 ft lbs (25 Nm).

Downpipe V-band Clamp to turbo: 159 lb in (18 Nm)

Upper to lower downpipe clamp: 41 lb ft (55 Nm)



9. Re-install the lower exhaust downpipe bolts and torque to 26 lb ft (35 Nm).



10. Ensure O-Ring 1407079 is installed on coolant spacer block 1405827.

Install the supplied coolant tube FC3Z-9U469-B using BD spacer block.

Use the supplied M6 x 65mm bolt FT-0135928.



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11. Disconnect the turbocharger actuator electrical connector and disconnect the wastegate actuator vacuum hose on pickup models.

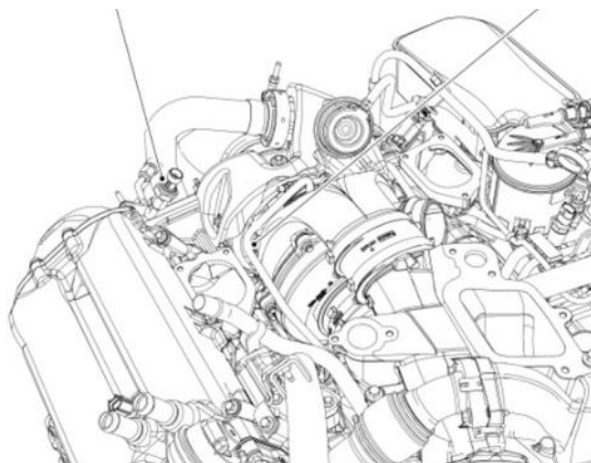
Cap the shown location where the wastegate actuator solenoid was fed using the supplied Rubber bullet cap (1900068).

Note: Cab and Chassis models will not need to disconnect the wastegate actuator hose.



12. Pickup Trucks: plug in harness 1515950 into the wastegate solenoid harness and in-line with the exhaust back pressure sensor.

Cab & Chassis: move on to step 13.



13. Pickup Trucks:  
Install BD boot cap 1405829 on the intake manifold. Install boot 1405858 onto the lower portion of the intake manifold. Use clamps FT-0427640 to secure both boots in place.

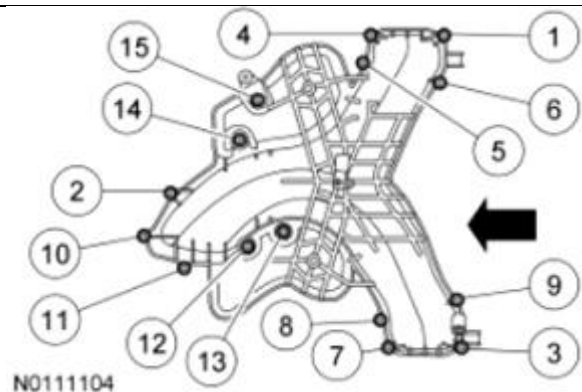
Cab & Chassis:  
Re-use the factory inlet boot and clamps.

Ensure clamp FT-0427642 is on the turbo inlet boot. Install lower intake manifold assembly.  
Torque to 18 lb ft (24 Nm).

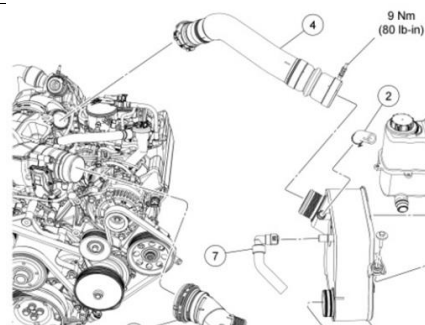


14. Install the upper and lower intake manifold assembly.

Torque to 89 in lbs (10 Nm).



15. Reinstall the charge air cooler tube.



16. Change the oil, oil filter, and refill the engine coolant.  
Perform an engine coolant pressure test to ensure there are no leaks.



17. Reinstall the front right fender and tire.