

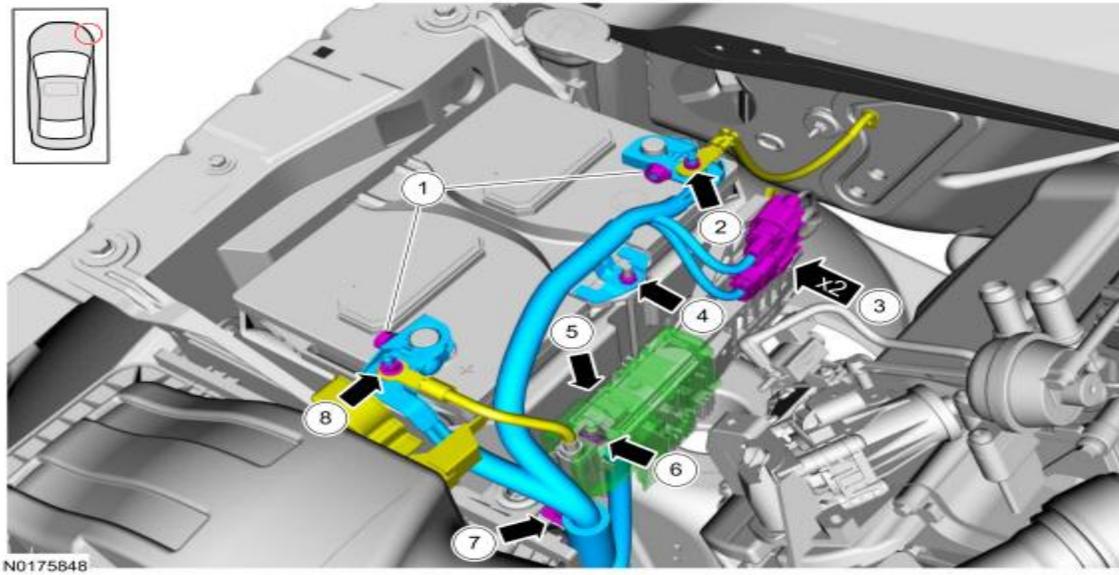
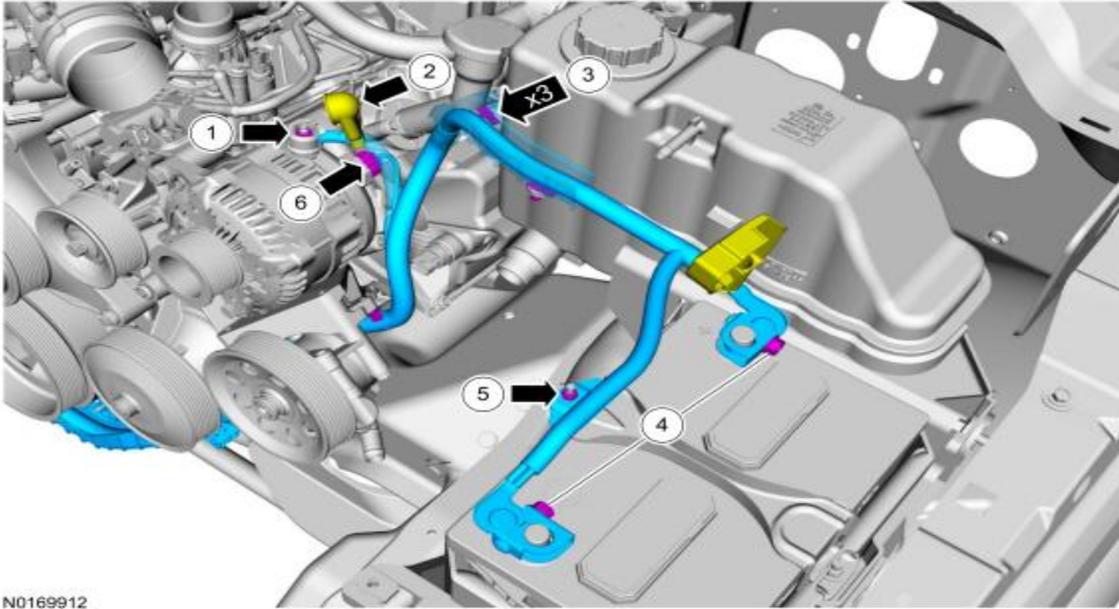


MPD 6.7L POWERSTROKE BUDGET KIT INSTALL

NOTE: For EXPORT ONLY vehicles (outside US/Canada) an Export Supplement is provided and should be referenced to identify differences that can impact service procedures. Vehicles can be identified by referring to the underhood Vehicle Emission Control Information (VECI) label which states, "Not certified for US EPA or CARB Regulations".

NOTICE: The engine oil must be changed any time the turbocharger is removed from the engine. The passages in the block underneath the turbocharger are direct passages to the lubrication system. Debris and or coolant may enter the lubrication system and engine damage may occur.

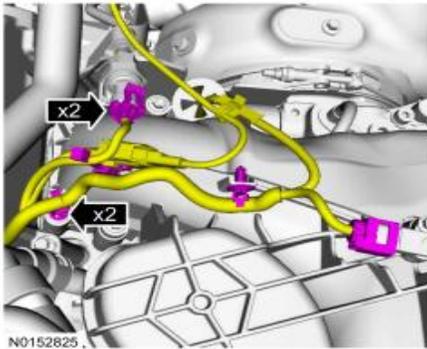
1. Disconnect the battery ground cable,



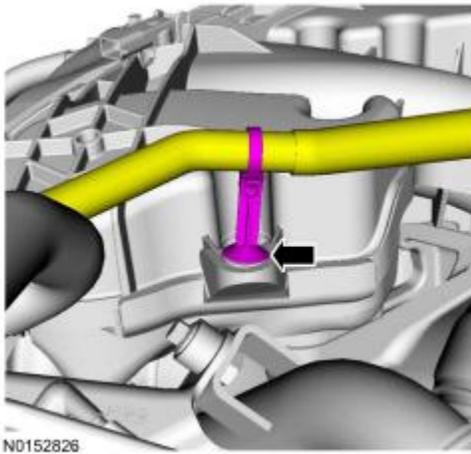
2. Drain the engine cooling system

Removal Of Upper Intake

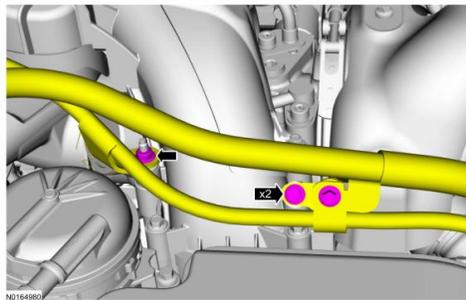
1. *Disconnect the Manifold Absolute Pressure (MAP) sensor and Exhaust Pressure (EP) sensor electrical connectors and wire harness retainers.*



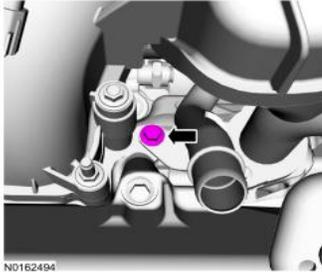
2. *Disconnect the coolant hose retainer from the upper intake manifold.*



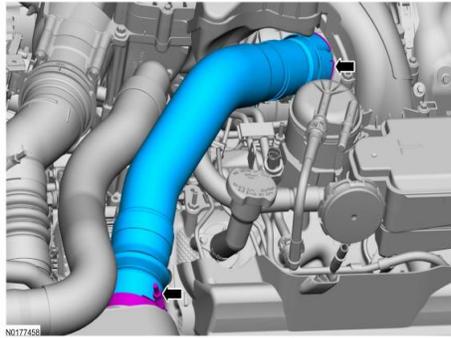
3. *Remove the transmission fluid level indicator tube bolt and the engine oil level indicator tube bolt.*
 - *Remove the nut and position aside the tubes.*



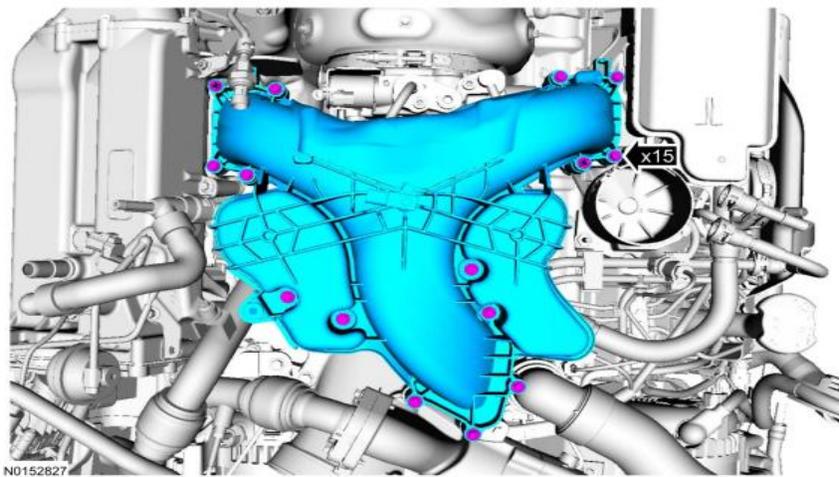
4. *Remove the heater outlet tube top retainer.*



5. Loosen the clamp at the Charge Air Cooler (CAC) .
 - Release the clip and remove the CAC tube.

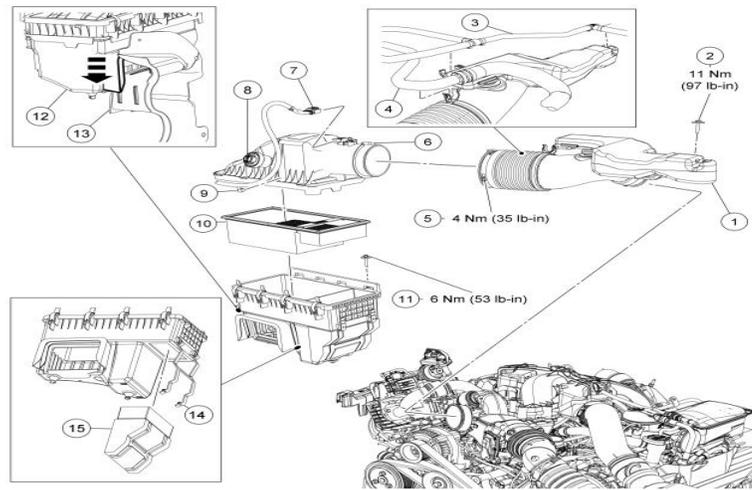


6. **NOTE:** It will be necessary to rotate the front of the Intake manifold to the left side of the vehicle to clear the fuel filter bracket.
Remove the 15 bolts and apply outward pressure on the metal pipe to remove the upper intake manifold.
 - Cover or tape the opening on the valve covers and lower intake manifold.
 - Remove and discard the gaskets.

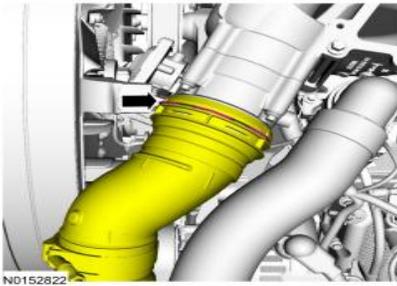


Removal Of Lower Intake Manifold

1. Remove the air cleaner Air Cleaner (ACL) outlet tube. For additional information, refer to 303-12.



2. Release the clip and disconnect the Charge Air Cooler (CAC) outlet tube from the Throttle Body (TB) .



3. disconnect the TB electrical connector.



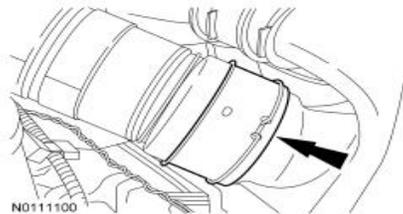
4. Disconnect the Exhaust Gas Recirculation Temperature (EGRT) sensor electrical connector and the wire harness retainer.



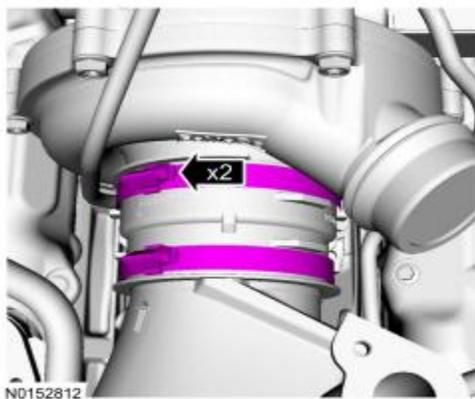
5. Remove the 4 bolts and the EGR bypass outlet pipe.
 - Discard the gaskets.



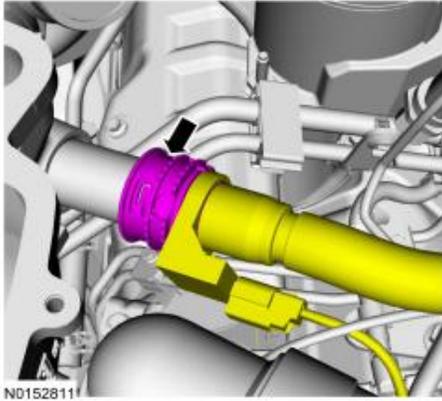
6. Release the clip and disconnect the CAC inlet tube from the turbocharger.



7. Loosen the 2 turbocharger inlet hose clamps.



8. Disconnect the crankcase ventilation hose from the lower intake manifold.

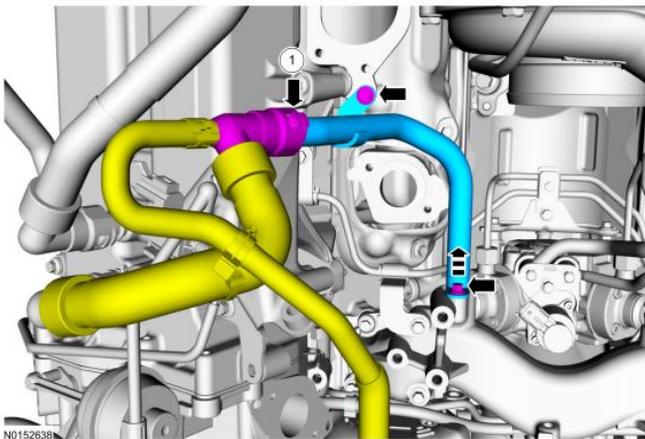


9. Remove the 3 bolts and the lower intake manifold.
 - Remove the turbocharger inlet hose as needed.

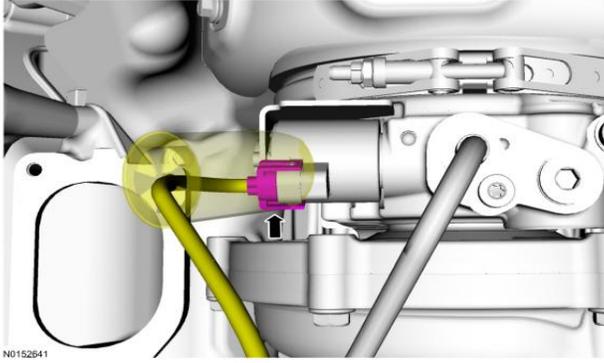


Removal Of Turbocharger

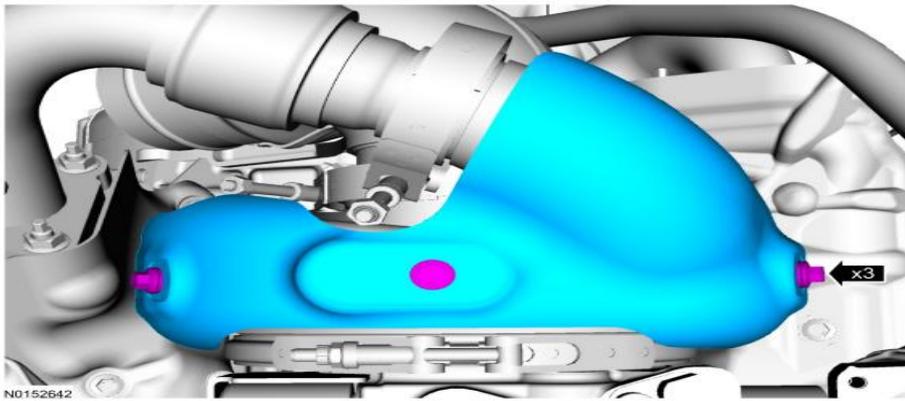
1. Remove the heater core inlet tube lower bolt, the heater core inlet tube upper bracket bolt and the heater core inlet tube.



2. Disconnect the turbocharger actuator electrical connector.



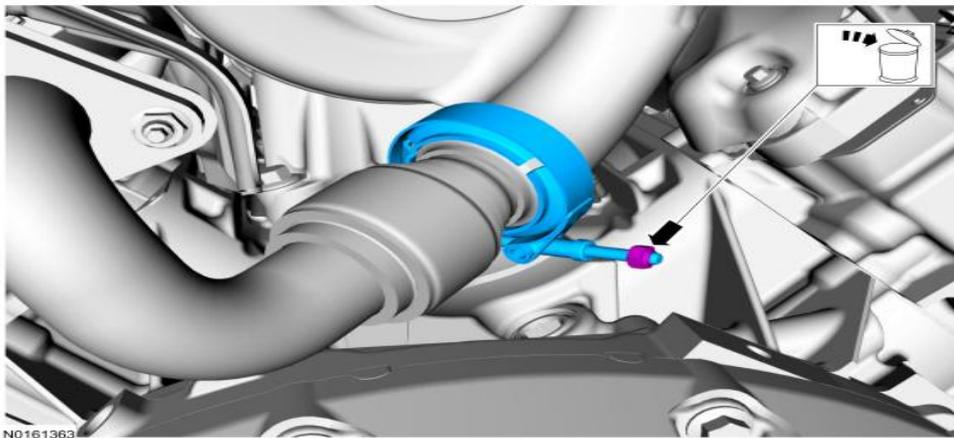
3. Remove the 3 turbocharger heat shield bolts and the turbocharger heat shield.



4. Remove the Turbocharger Inlet Pipe - RH, 6.7L Diesel, refer to Section 309-00.

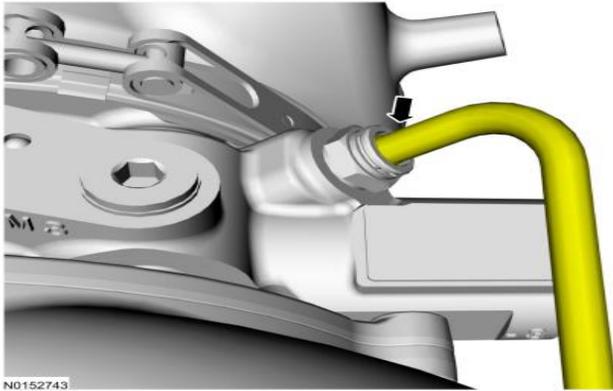
5. Remove the Exhaust Downpipe - 6.7L Diesel, refer to Section 309-00.

6. NOTE: Note the LH turbocharger inlet pipe clamp orientation for installation. Remove the LH turbocharger inlet pipe clamp and discard.

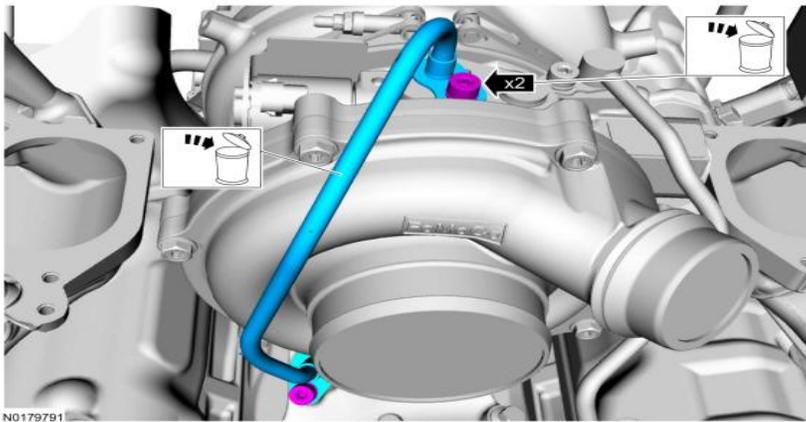


416 engine

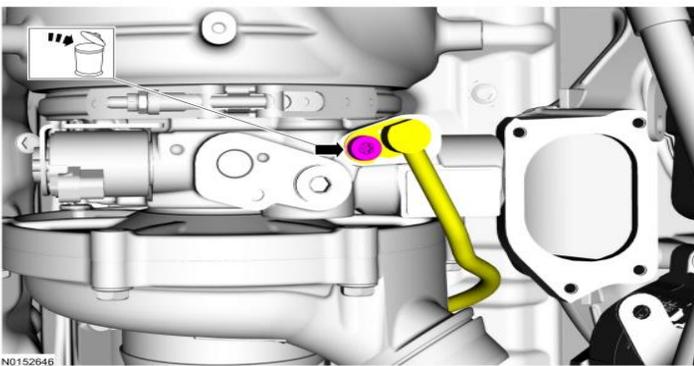
7. Disconnect the turbocharger coolant tube using a commercially available quick disconnect tool at the turbocharger and position the turbocharger coolant tube aside.



8. NOTE: *With early design external turbocharger oil supply.*
Remove and discard the bolts and the turbocharger oil supply tube.



9. Disconnect the turbocharger coolant outlet tube from the turbocharger, position the turbocharger coolant outlet tube aside and discard the turbocharger coolant outlet tube bolt.

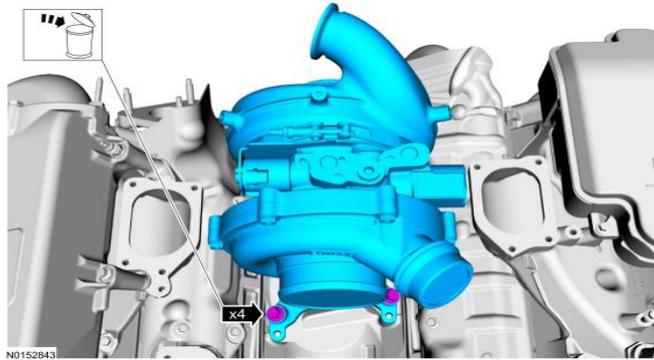


13. NOTE: Lift the turbocharger off the locating dowels before positioning the turbocharger forward for removal.

NOTE: The turbocharger is a tight fit between the cowl and the fuel injection pump fuel lines but the turbocharger comes out without removing the fuel lines.

Remove the 4 bolts and the turbocharger.

- Discard the 4 turbocharger bolts.



Install Of MPD 6.7L Budget Turbo Kit

1. Prep Surface With Some Steel Wool Or 3m Scotch Bright Pad To Clean Surface



2. Install New Supplied OEM Gasket And Align Gasket Over Dowel Pins



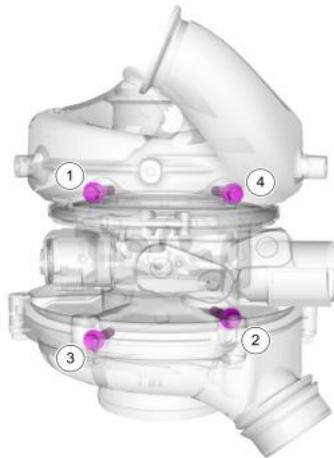
NOTE: ENGINE MUST HAVE DOWEL PINS TO LOCATE TURBO PROPERLY WITH OIL FEED HOLE FAILURE TO DO SO MAY VOID WARRANTY OF TURBO

3. Install Turbocharger Carefully On Motor To Eliminate Scratching Baseplate,



4. Torque Turbocharger To Factory Recommendation

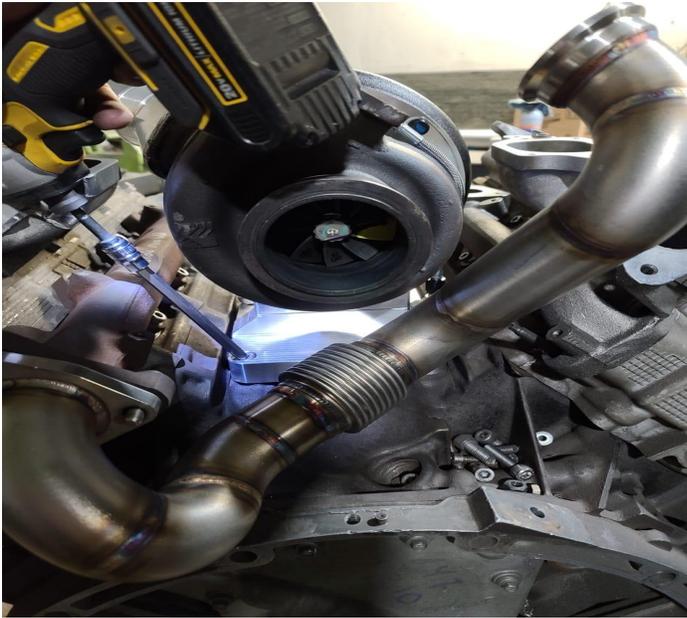
2. Tighten the turbocharger bolts to 15 Nm (133 lb-in) in the sequence shown.
3. Tighten the turbocharger bolts to 55 Nm (41 lb-ft) in the sequence shown.



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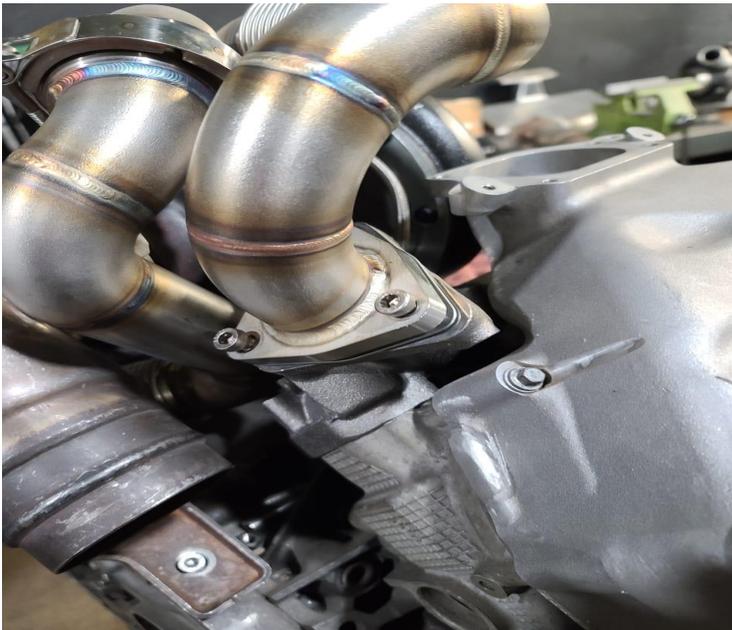
5. Install Driver Side MPD Turbocharger Inlet Pipe With New Oem Supplied Gasket

(LEAVE BOLTS FINGER TIGHT UNTIL END)



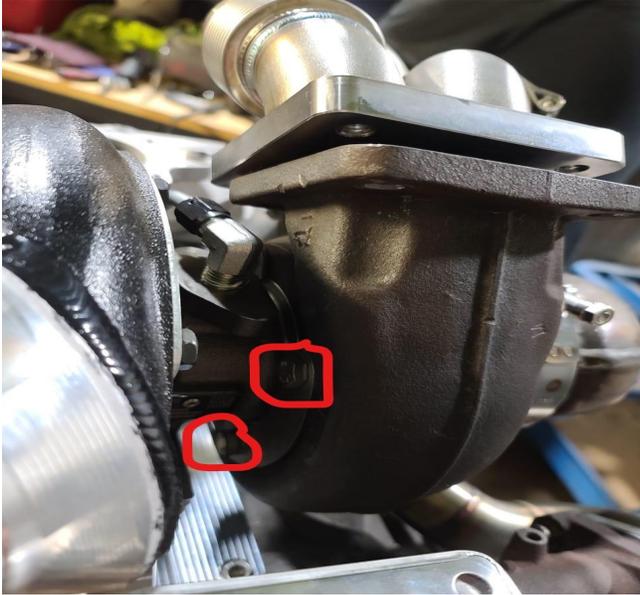
6. Install Passenger Side Mpd Turbo Inlet Pipe /T4 Assembly With New Oem Supplied Gasket

(LEAVE BOLTS FINGER TIGHT UNTIL END)



7. Loosen The 4 13mm Nuts On The Exhaust Housing Of The MPD Turbo Assembly And Clock Housing To Line Up With The T4 Flange

(LEAVE 4 BOLTS LOOSE UNTIL END)

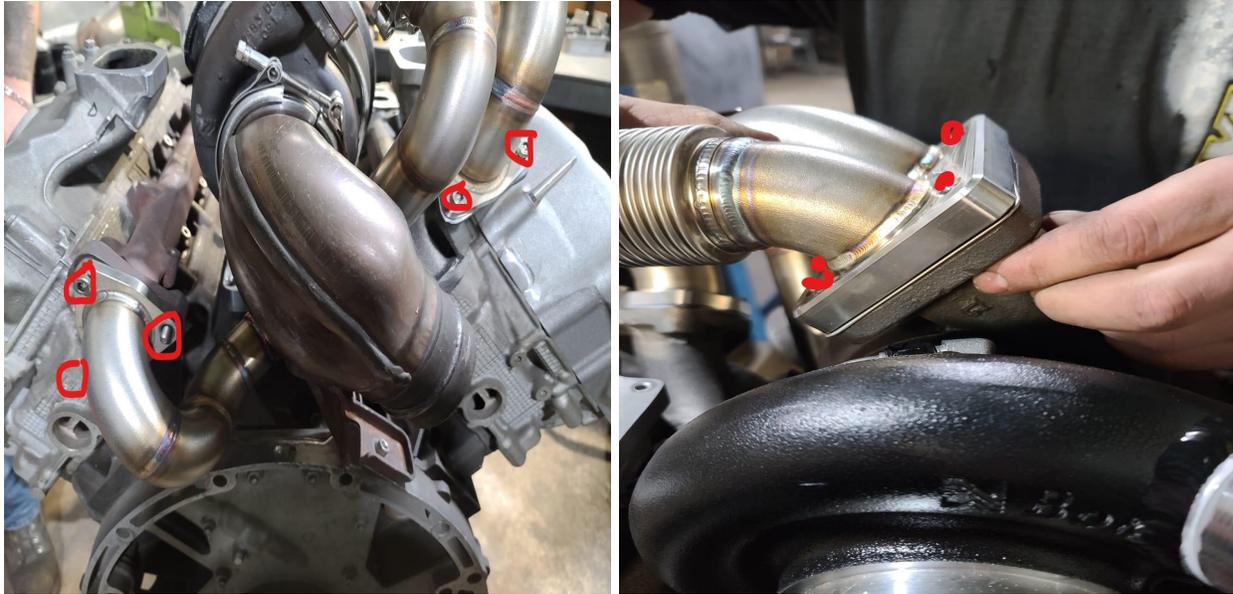


8. Tightening Provided V band Clamp To Join The 2 Up-pipes Together

- Tighten to 17 Nm (150 lb-in).
- Loosen clamp.
- Tighten to 18 Nm (159 lb-in).

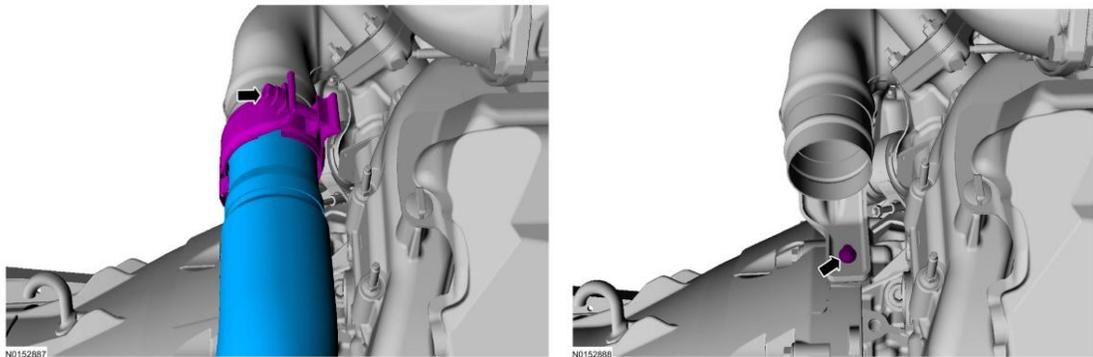


9. Now Finish Tightening ALL Bolts

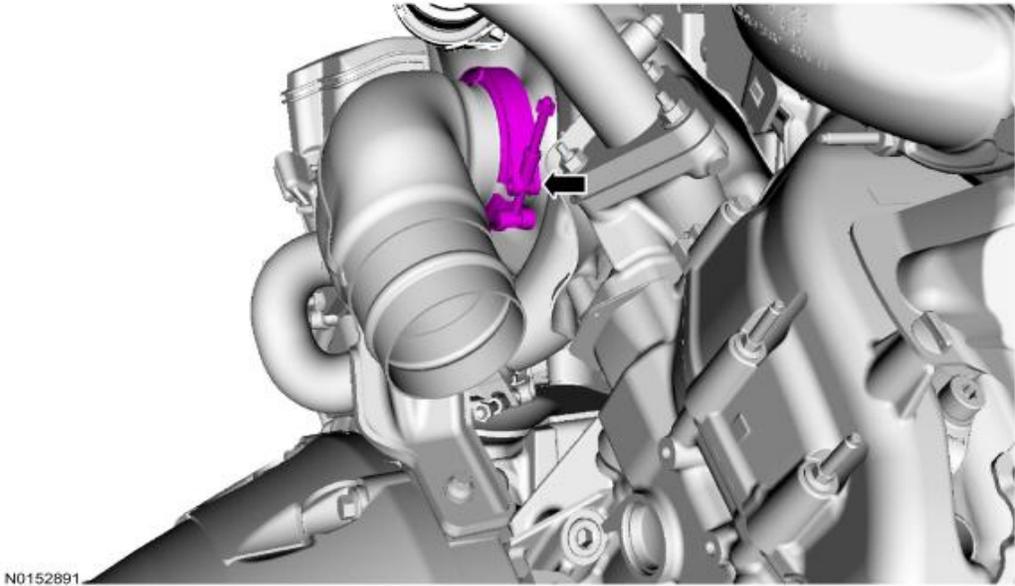


- Tighten to 25 Nm (18 lb-ft). Tighten Bolts To Eliminate Gasket Failure

10. Align Factory Downpipe To Back Of Turbocharger May Need To Loosen Downpipe Support To Align Correctly

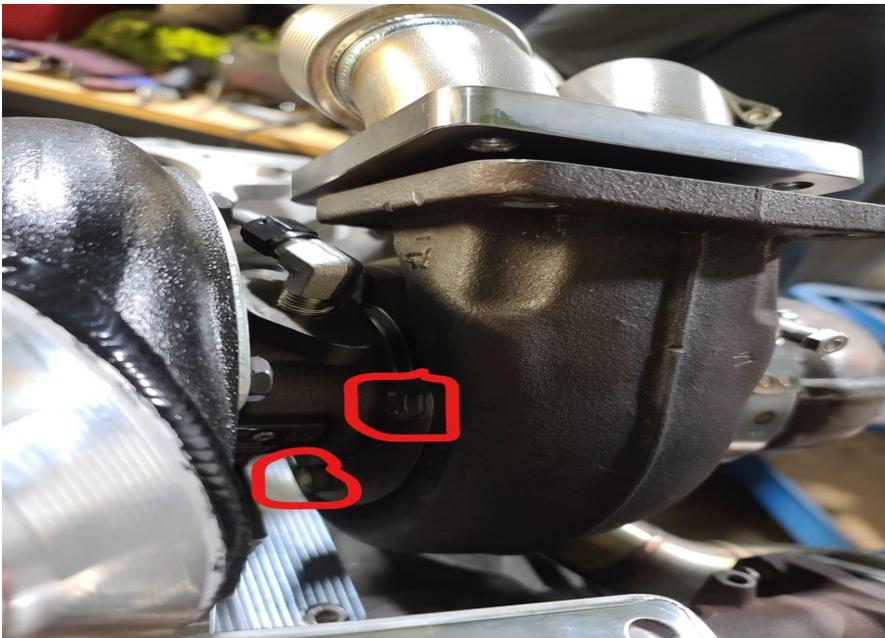


Tighten the exhaust upper downpipe bracket bolt
Nm (18 lb-ft).

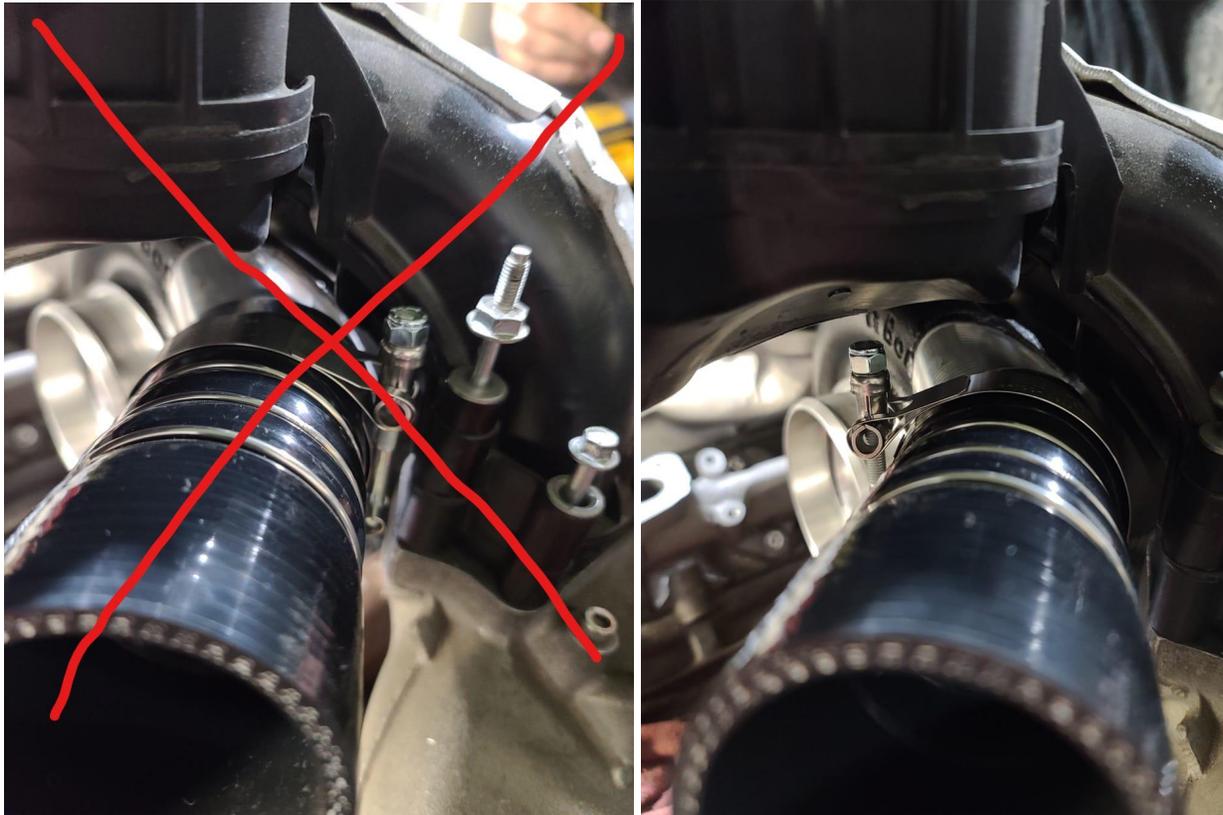


- Tighten to 17 Nm (150 lb-in).
- Loosen clamp.
- Tighten to 18 Nm (159 lb-in).

11. Retighten 4 Exhaust Housing Bolts



12. Install MPD Supplied Silicone Hose AND Clamp Before Installing Intake Manifold



13. Charge Air Cooler (CAC) Inspection

Vehicles With Turbocharger Failure

1. If there has been metal contact within the turbocharger compressor:
 4. Remove the Charge Air Cooler (CAC) tubes and inspect for metal particles.
 5. Remove the CAC from the vehicle. For additional information, refer to Charge Air Cooler — 6.7L Diesel in this section.
 6. Blow shop air into the hot air port (angled port) to dislodge metal particles from the heat exchanger core, being careful to observe any metal particles coming out.
 7. If metal particles are found, install a new CAC .
2. Drain the fluids by tilting the ports downward and rocking the cooler to fully drain each port.
3. Inspect for any burnt-on oil or dust collected on the CAC . These may be signs of misuse and could void the warranty. If these are found, flush the cooler, refer to Flushing in this procedure.

Vehicles Without Turbocharger Failure

1. If there is no turbocharger problem, but oil is found dripping from the CAC tubes or joints, remove the lower end of the cold CAC tube, and collect and properly dispose of any oil that spills out.
 - If oil drains out, find the source of the oil by investigation of the turbocharger or crankcase ventilation system. With the vehicle on level ground, drain the oil that spills out and reinstall the CAC tube.
 - If no oil drains out, reinstall the CAC tube. In this case, no further action is needed for the CAC .

Flushing

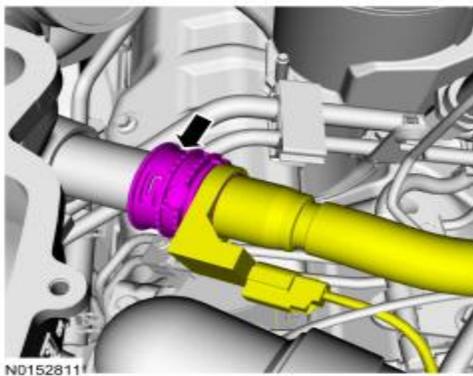
1. **NOTICE:** Do not use a high-pressure power washer to clean the CAC or damage to the CAC may occur.
 - NOTE:** *Drain all contaminants such as coolant, fuel and oil prior to cleaning the CAC .*
 - NOTE:** *Thoroughly clean the joint clamp areas as well as the turbocharger connection, engine connection and the CAC connections, using metal brake parts cleaner.*
 - Lay the CAC flat with the inlet and outlet ports pointing up.
2. **NOTE:** *Plug or cap the CAC openings prior to agitating.*
 - Add an appropriate amount of a commercially available detergent cleaner such as Simple Green® Pro HD, or equivalent, to the CAC . Follow the manufacturer's directions for heavy cleaning. Fill the CAC to 40% of its volume with water.
3. Raise one end of the CAC and agitate it by hand for at least 5 minutes.
4. Raise the other end of the CAC and agitate it in the other direction by hand for at least 5 minutes.
5. Drain the CAC .
6. Flush the CAC thoroughly with clean water.
7. Repeat Steps 1 through 6 until no contaminants are found in the flushing water.
8. Allow the CAC to air dry.
9. Install the CAC . For additional information, refer to Charge Air Cooler — 6.7L Diesel in this section.

14. Install Lower Intake Manifold

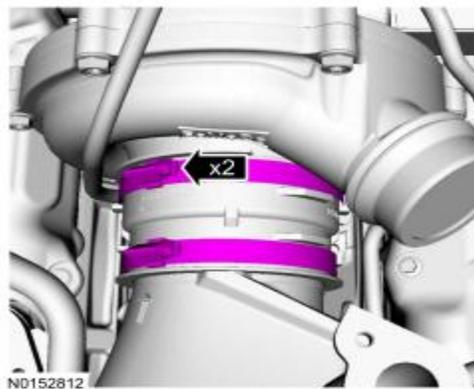
1. **NOTE: Position the turbocharger inlet hose as needed.**
Install the lower intake manifold and the 3 bolts.
 - Tighten to 24 Nm (18 lb-ft).



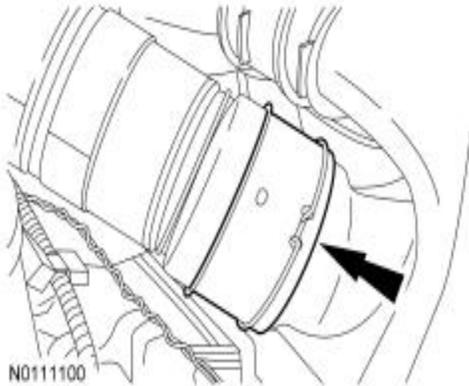
2. Connect the crankcase ventilation hose to the lower intake manifold.



3. Tighten the 2 turbocharger inlet hose clamps.
 - Tighten to 4 Nm (35 lb-in).



4. Connect the CAC inlet tube to the turbocharger and install the clip.



5. Using new gaskets, install the EGR bypass outlet pipe and 4 bolts.
○ Tighten to 10 Nm (89 lb-in).



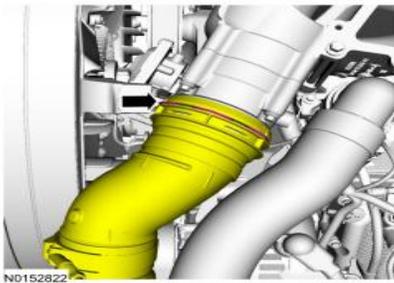
6. Connect the EGRT sensor electrical connector and the wire harness retainer.



7. Connect the TB electrical connector.



8. Connect the CAC outlet tube to the TB and install the clip.



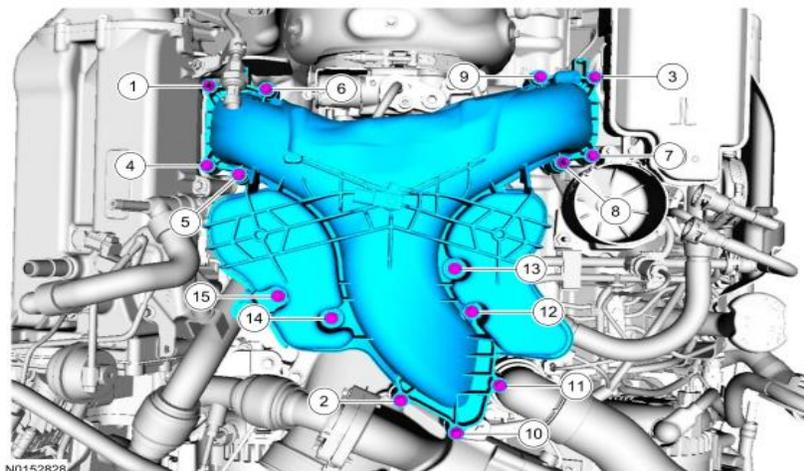
15. Install Upper Intake Manifold

1. **NOTICE:** Do not slide the upper intake manifold across the lower intake manifold during installation. Failure to follow this may result in damage to the upper intake manifold gaskets.

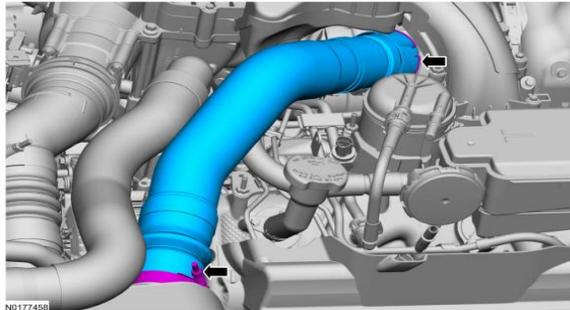
NOTE: Remove the cover or tape from the valve covers and lower intake manifold prior to installing the upper intake manifold.

Apply outward pressure on the metal pipe and install the upper intake manifold using new gaskets. Tighten the 15 bolts in the sequence shown.

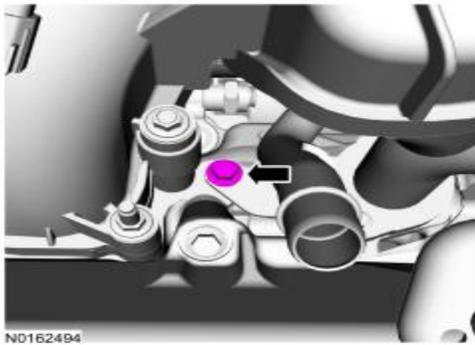
- Tighten to 11 Nm (97 lb-in).



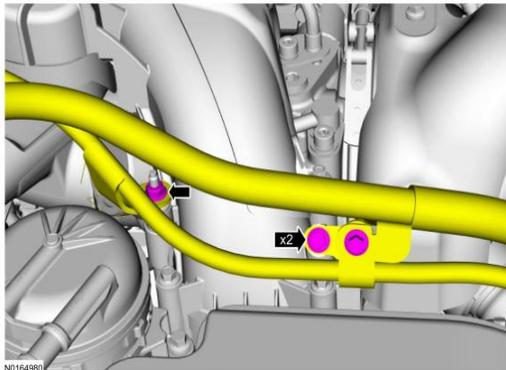
2. **NOTE: If there is any oil residue, clean the connecting port on the CAC and the inside surface of the CAC outlet tube to prevent the tube from blowing off.**
Install the CAC tube and release the clip.
- Tighten the clamp at the CAC .
 - Tighten to 9 Nm (80 lb-in).



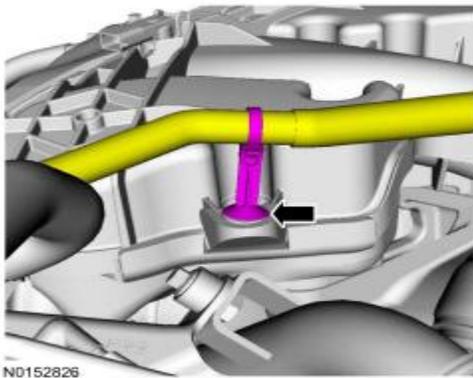
3. **Install the heater outlet tube top retainer.**
- Tighten to 10 Nm (89 lb-in).



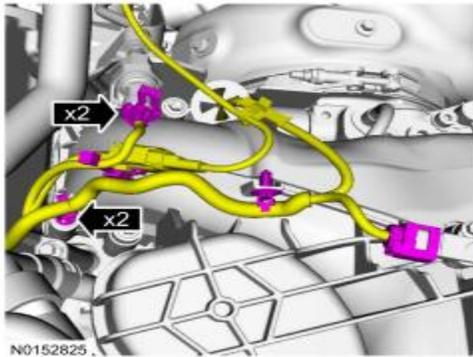
4. **Install the engine oil level indicator tube bolt and the transmission fluid level indicator tube bolt.**
- Tighten the engine oil level indicator tube nut to 10 Nm (89 lb-in).
 - Tighten the engine oil level indicator tube bolt to 10 Nm (89 lb-in).
 - Tighten the transmission fluid level indicator tube bolt to 11 Nm (97 lb-in).



5. Connect the coolant hose retainer to the upper intake manifold.



6. Connect the MAP sensor and EP sensor electrical connectors and wire harness retainers.



15. Remove and discard the engine oil filter.

15.1 Remove the engine oil pan drain plug and drain the engine oil.*Install the engine oil pan drain plug and tighten to 26 Nm (19 lb-ft).

15.2 NOTE: *Lubricate the engine oil filter seal with clean engine oil. Install a new engine oil filter.*

2. *Tighten to 5 Nm (44 lb-in).*
3. *Tighten an additional 230 degrees*

15.3 Fill the engine with the correct motor oil (10w-30)

15.4 Connect the battery ground cable

15.5 Refill Engine Coolant Ensure No Leaks

15.6 Perform the cooling system pressure test