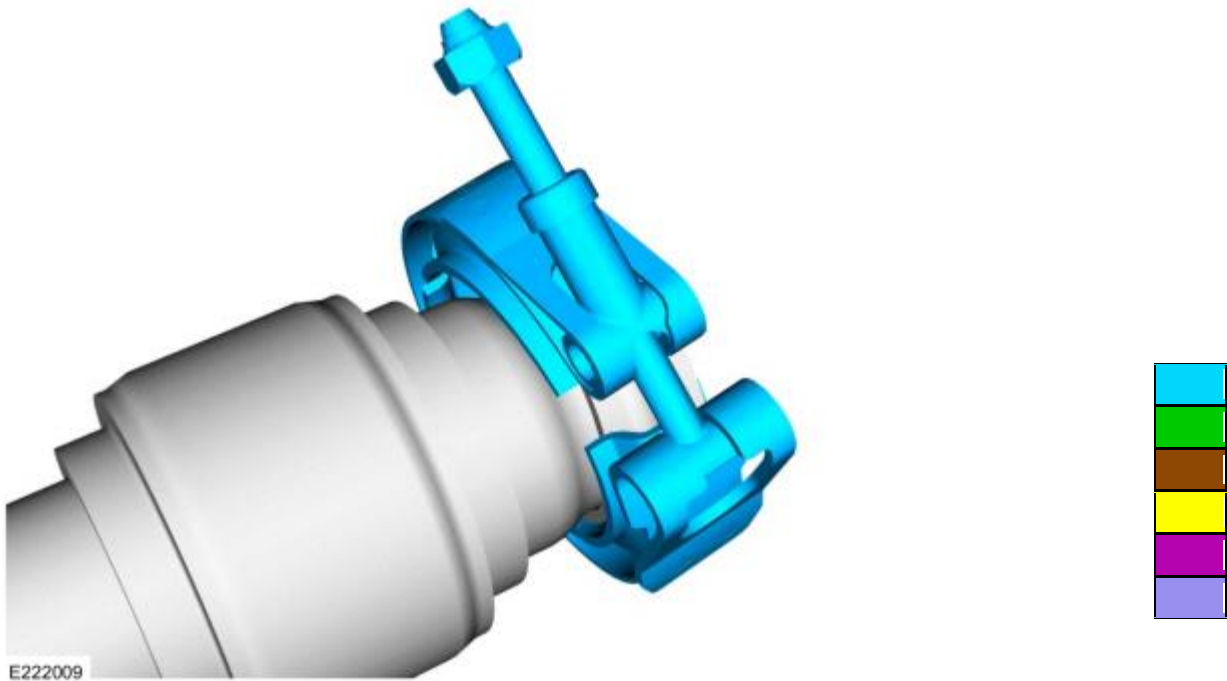


NOTICE: Make sure that the mating faces are clean and free of foreign material.

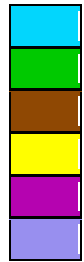
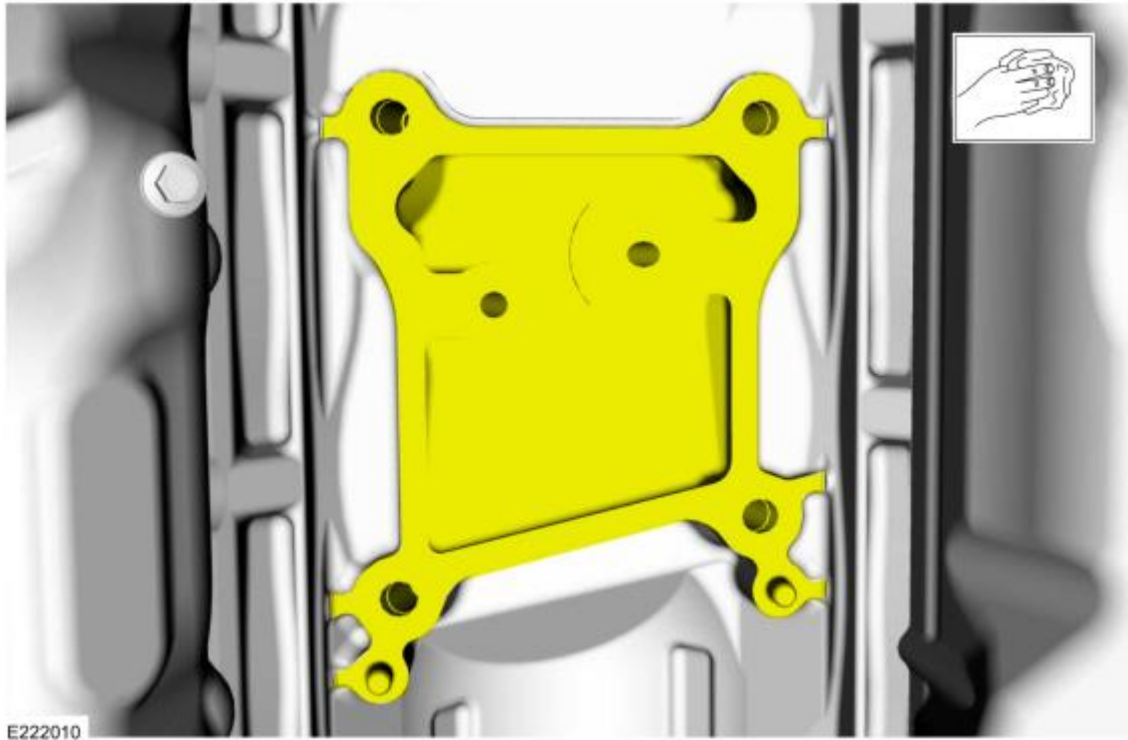
1. **NOTICE:** Do not bend or twist the turbocharger inlet pipes or damage to the bellows on the turbocharger inlet pipes may occur.

NOTE: Do not tighten the LH turbocharger inlet pipe clamp at this time.

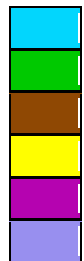
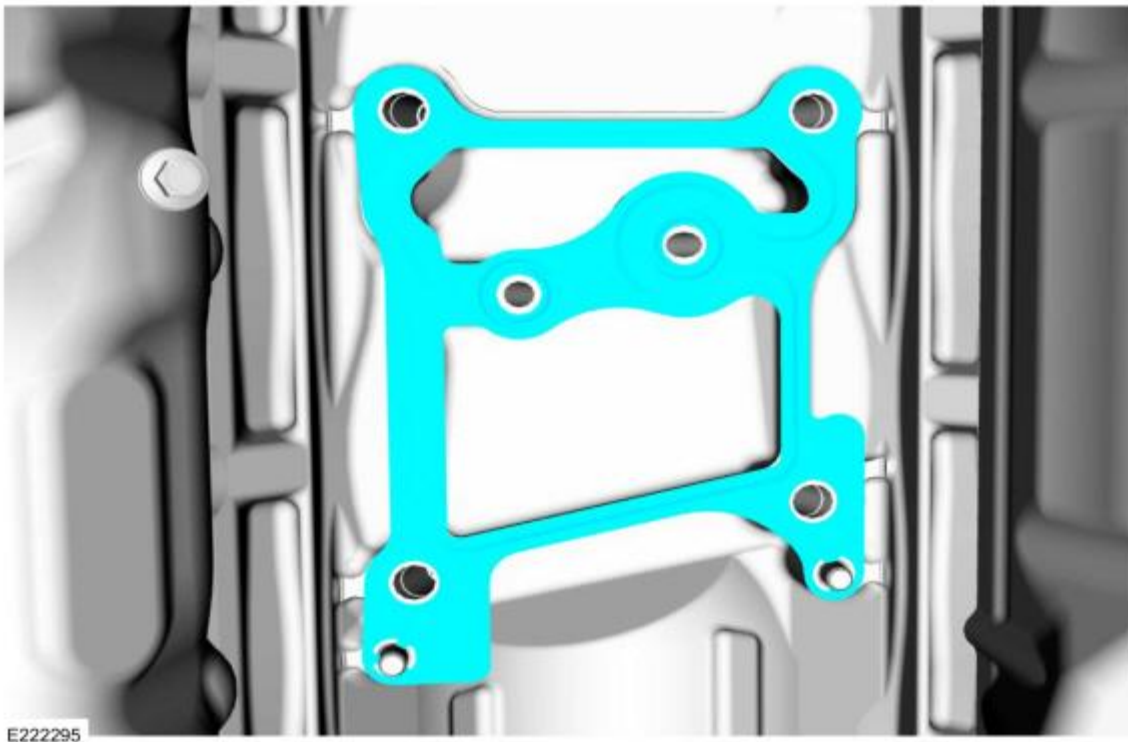
Disengage the new LH turbocharger inlet pipe clamp T-bolt and loosely install the new LH turbocharger inlet pipe clamp on the LH turbocharger inlet pipe.



2. Clean the turbocharger sealing surfaces and wipe the turbocharger valley clean of all oil and debris.



3. Install a new turbocharger mounting gasket.



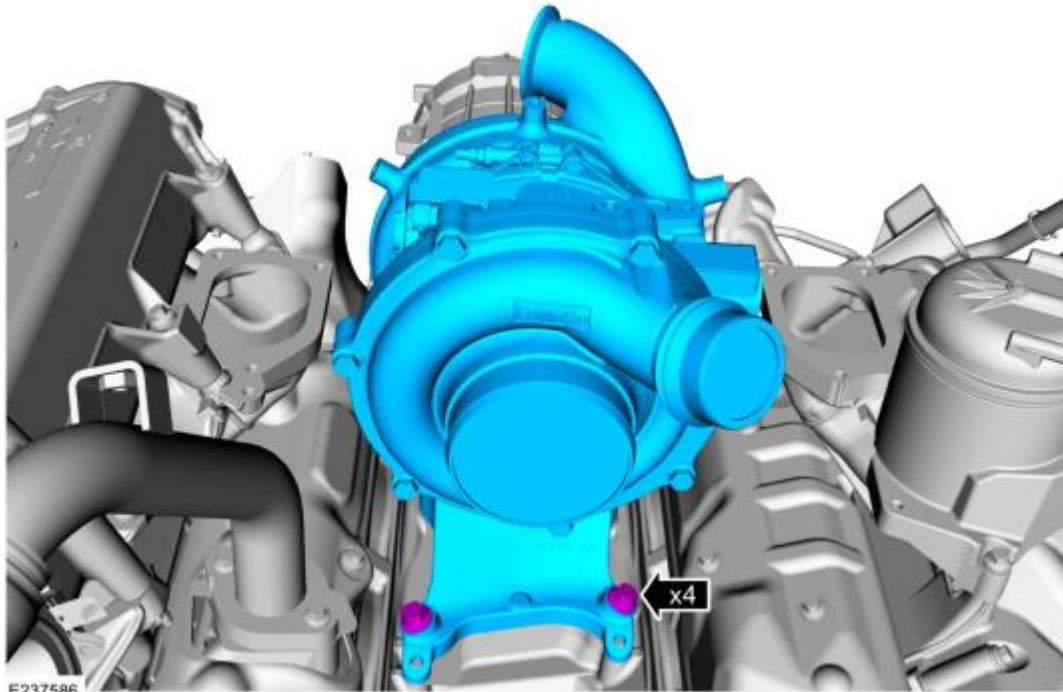
4. Install a new turbocharger oil supply filter.



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5. **NOTE:** Position the turbocharger on the locating dowels while being careful not to allow the dowels to damage the sealing surfaces when installing the turbocharger.

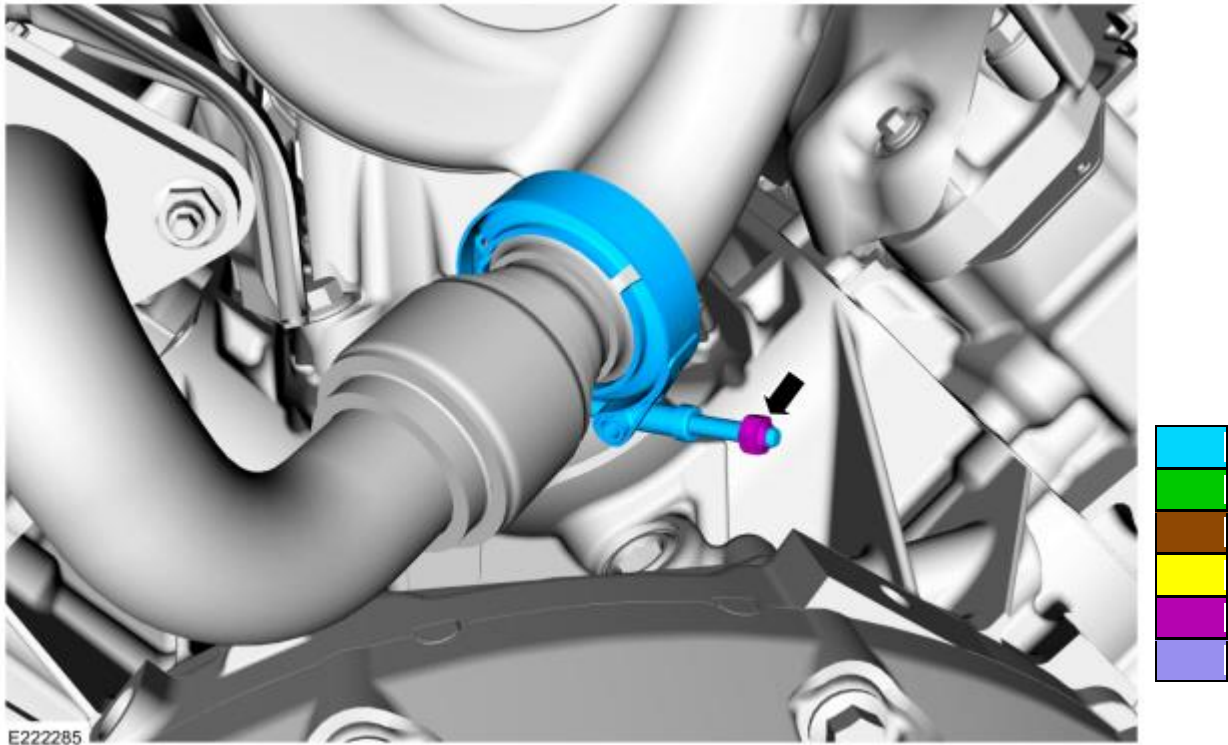
Install the turbocharger and then install the new turbocharger mounting bolts finger tight at this stage.



E237586

6. **NOTE:** Do not tighten the LH turbocharger inlet pipe clamp at this time.

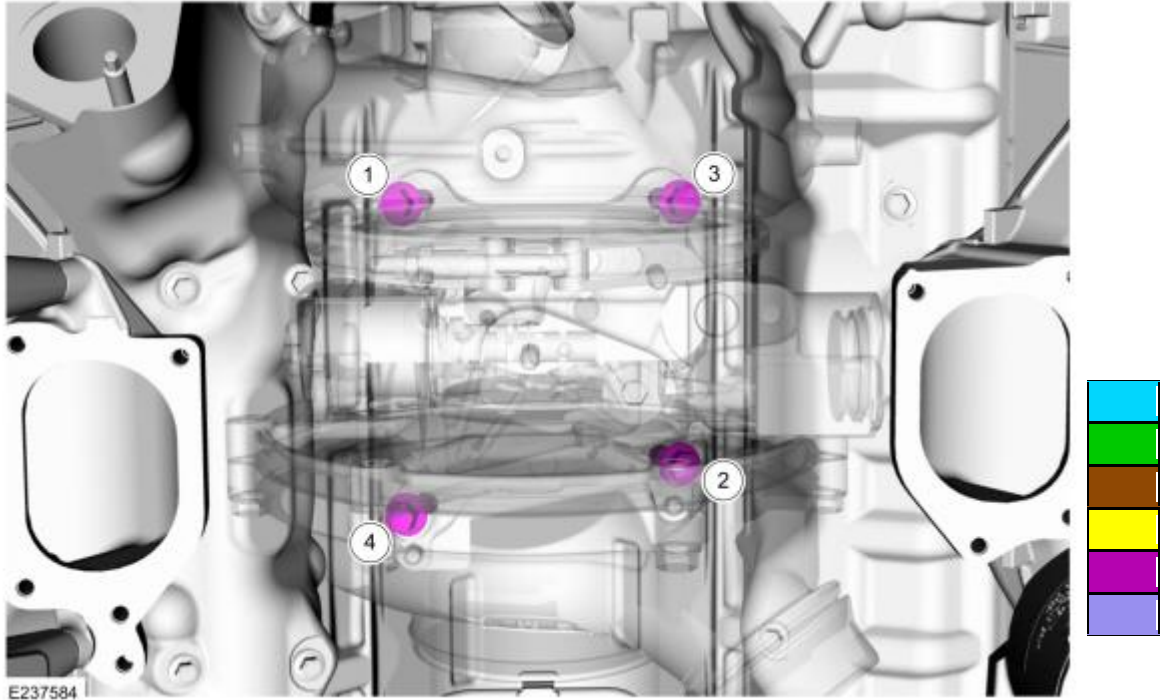
Loosely position the LH turbocharger inlet pipe clamp over both sealing flanges.



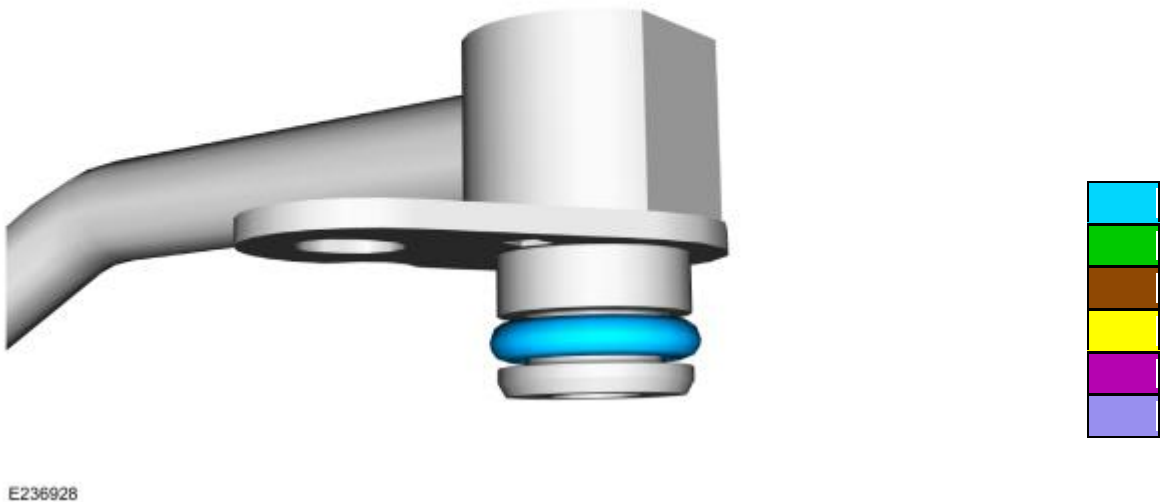
7. Tighten the new turbocharger mounting bolts in the following 2 stages and in the sequence shown.

Torque:

- Stage 1: 133 lb.in (15 Nm)
- Stage 2: 41 lb.ft (55 Nm)



8. Install a new turbocharger coolant return tube O-ring seal and lubricate the new O-ring seal with clean engine coolant.
Refer to: [Specifications](#) (303-03C Engine Cooling - 6.7L Power Stroke Diesel, Specifications).



9. **NOTICE:** Carefully use a nylon brush to remove the old O-ring residue and use brake cleaner to rinse the O-ring residue out of the turbocharger O-ring bore. Inspect the area

for deep scratches and gouges. **DO-NOT USE A METAL BRUSH; DAMAGE TO SEALING AREA WILL RESULT IN LEAKS.**

NOTE: When installing the turbocharger coolant return tube, the turbocharger coolant return tube must be fully engaged and seated into the turbocharger before the fastener is tightened.

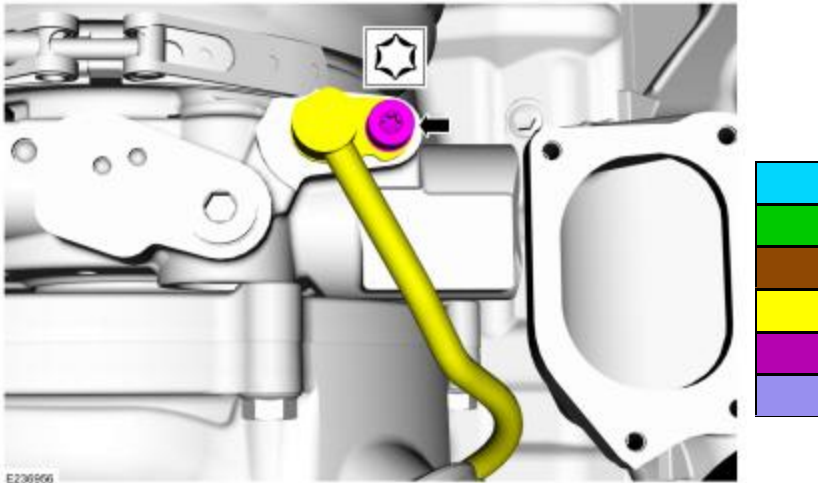
Connect the turbocharger coolant return tube to the turbocharger, then install and tighten the turbocharger coolant return tube bolt.

Material: Motorcraft® Metal Brake Parts Cleaner / PM-4-A, PM-4-B

Torque:

Stage 1: 106 lb.in (12 Nm)

Stage 2: 30°



10. **NOTICE:** Do not bend or twist the turbocharger inlet pipes or damage to the bellows on the turbocharger inlet pipes may occur.

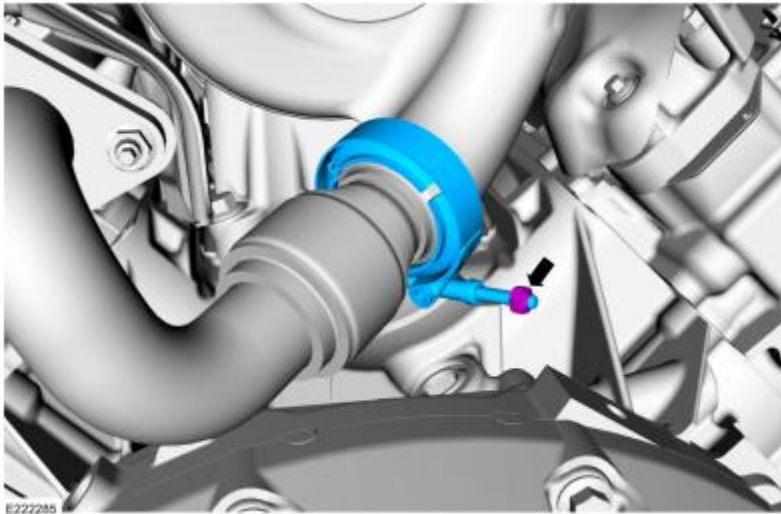
Tighten the LH turbocharger inlet pipe clamp in the following 3 stages.

Torque:

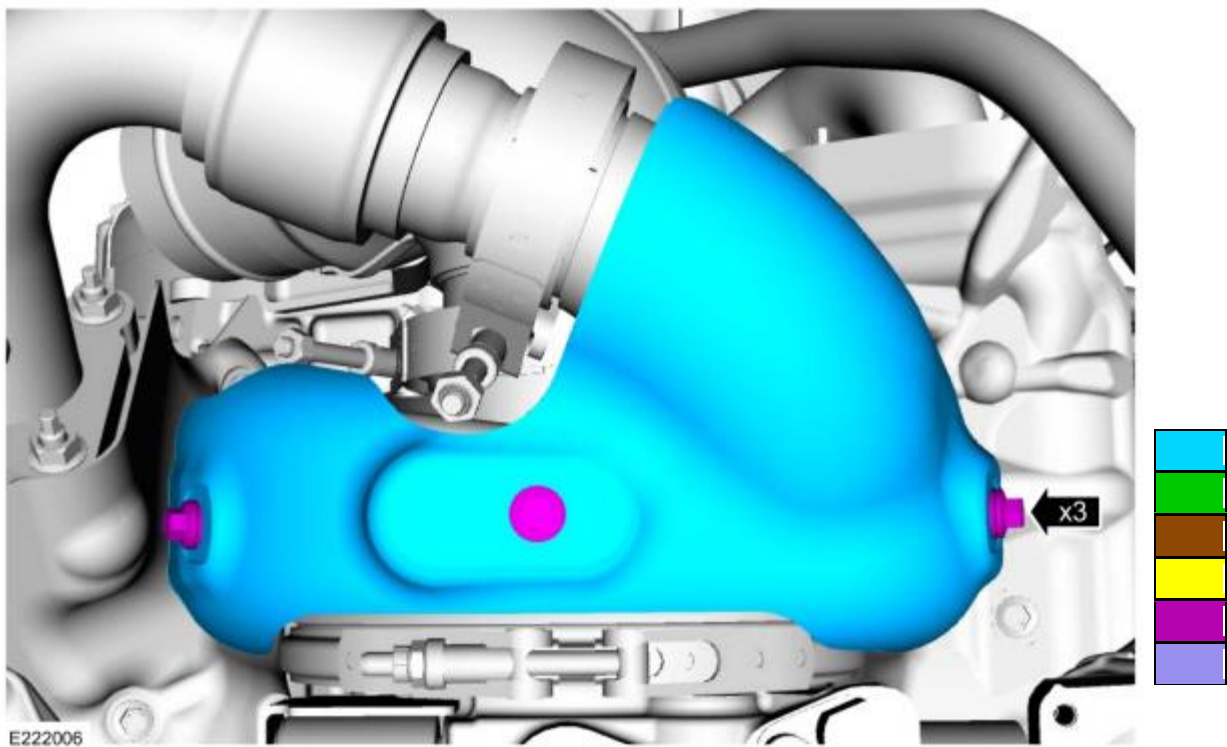
Stage 1: 150 lb.in (17 Nm)

Stage 2: Loosen: 3 turn(s)

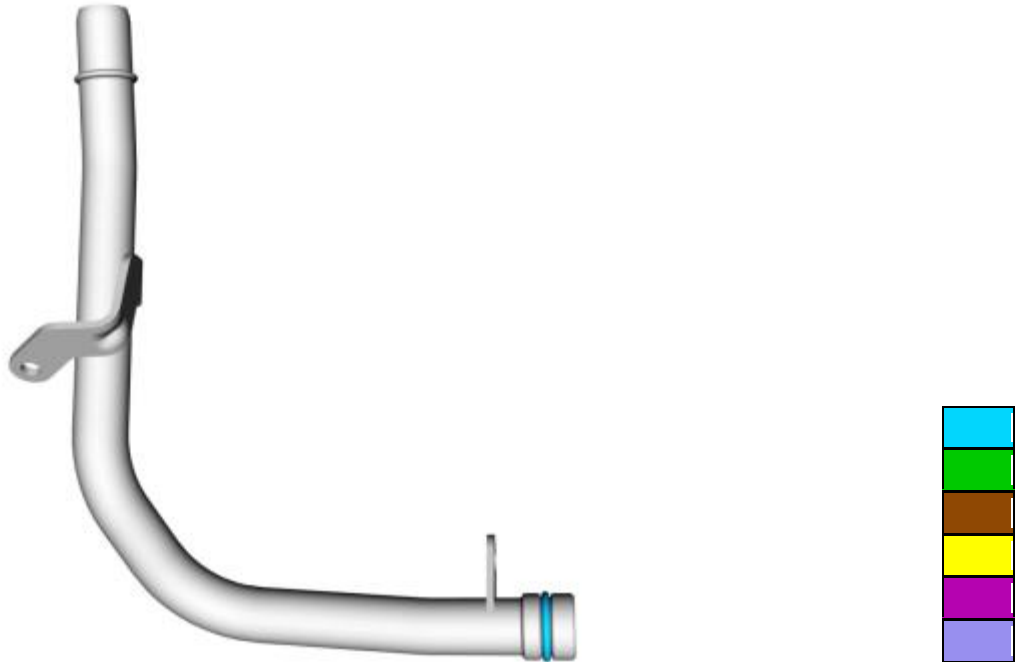
Stage 3: 159 lb.in (18 Nm)



11. Install the exhaust downpipe.
Refer to: [Exhaust Downpipe](#) (309-00C Exhaust System - 6.7L Power Stroke Diesel, Removal and Installation).
12. Install the turbocharger inlet pipe RH.
Refer to: [Turbocharger Inlet Pipe RH](#) (309-00C Exhaust System - 6.7L Power Stroke Diesel, Removal and Installation).
13. Install the turbocharger heat shield, then install and tighten the turbocharger heat shield bolts.
Torque: 89 lb.in (10 Nm)

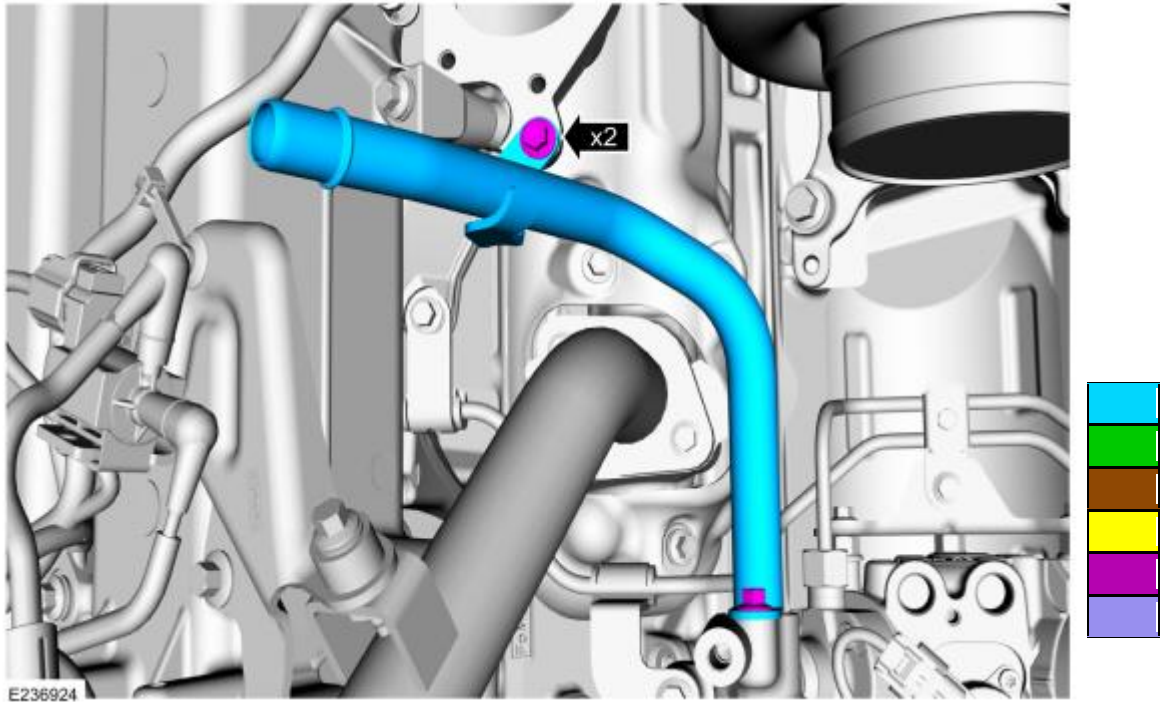


14. Install a new the O-ring seal on the coolant crossover-to-EGR (exhaust gas recirculation) cooler pipe and lubricate with clean engine coolant.
Refer to: [Specifications](#) (303-03C Engine Cooling - 6.7L Power Stroke Diesel, Specifications).

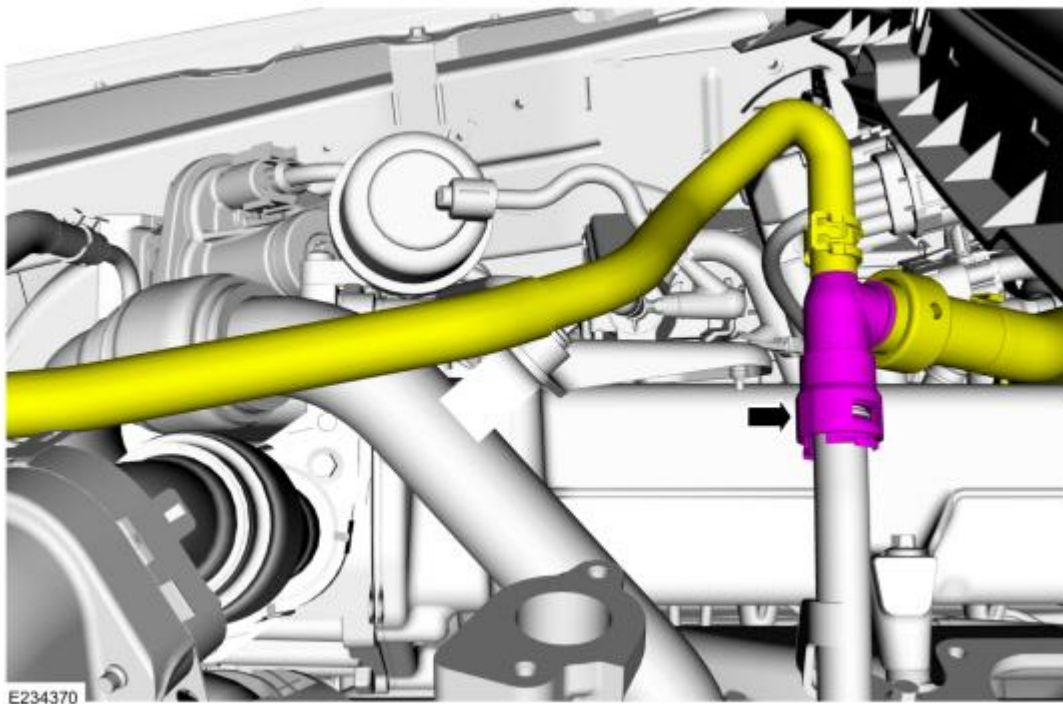


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15. Install the coolant crossover-to-EGR (exhaust gas recirculation) cooler pipe, then install and tighten the coolant crossover-to-EGR (exhaust gas recirculation) cooler pipe bolts.
Torque: 89 lb.in (10 Nm)



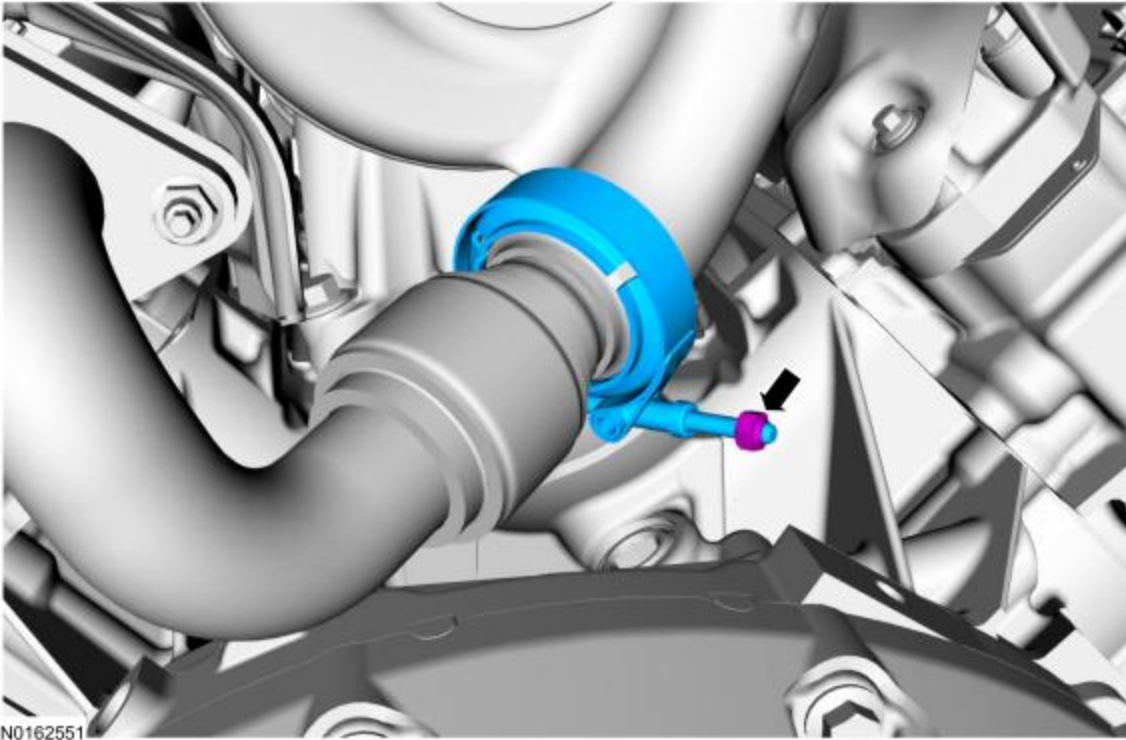
16. Connect the coolant crossover-to-EGR (exhaust gas recirculation) cooler pipe quick release coupling.
Refer to: [Quick Release Coupling](#) (310-00C Fuel System - General Information - 6.7L Power Stroke Diesel, General Procedures).



14. **NOTE:** The LH turbocharger inlet pipe clamp should be orientated as noted during removal.

Engage the LH turbocharger inlet pipe clamp T-bolt.

1. Tighten to 17.0 Nm (150 lb-in).
2. Loosen the nut.
3. Tighten to 18.0 Nm (159 lb-in).



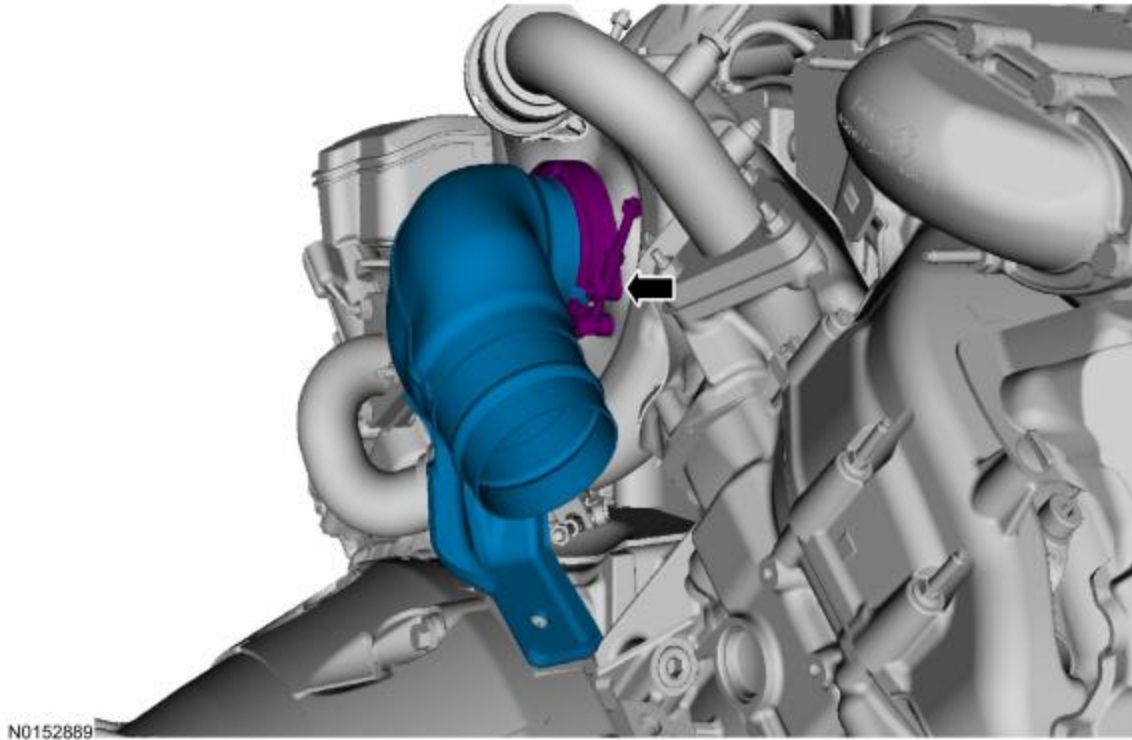
INSTALL DOWNPIPE

1. **NOTE:** Note the position of the exhaust upper downpipe clamp from disassembly.

NOTE: Do not tighten the upper downpipe clamp at this time.

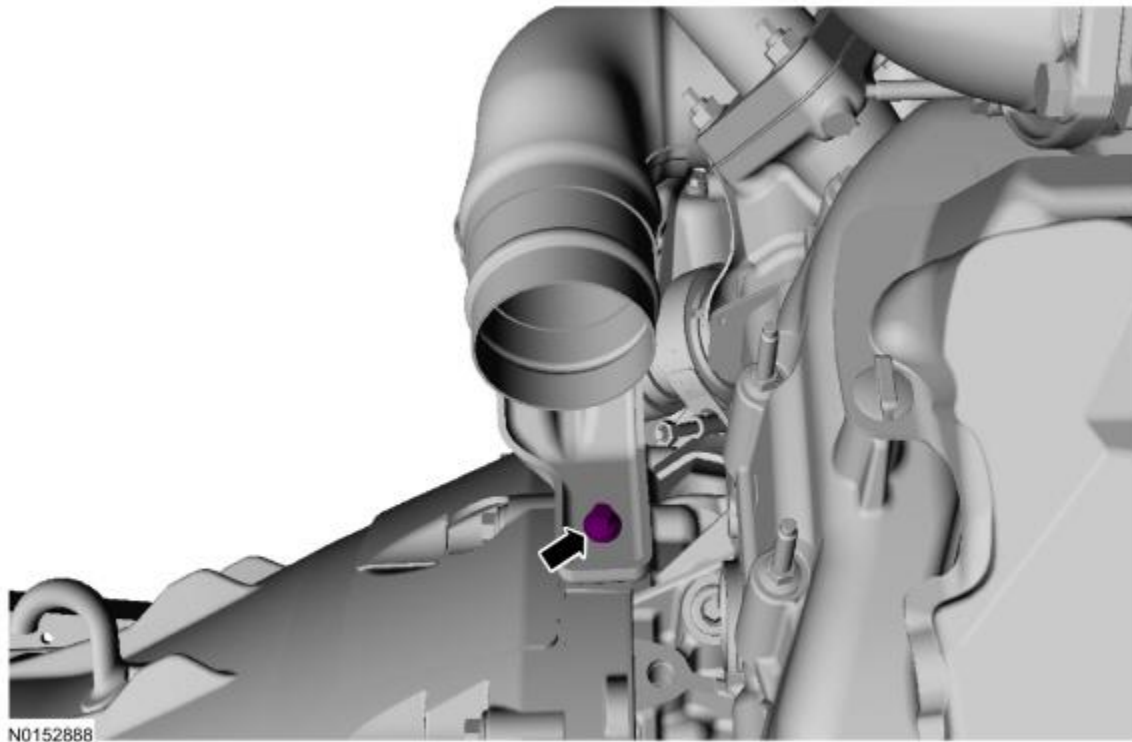
Position a new exhaust upper downpipe clamp on the exhaust upper downpipe and position it on the turbocharger.

- Disengage the clamp T-bolt and loosely install it on the exhaust upper downpipe.

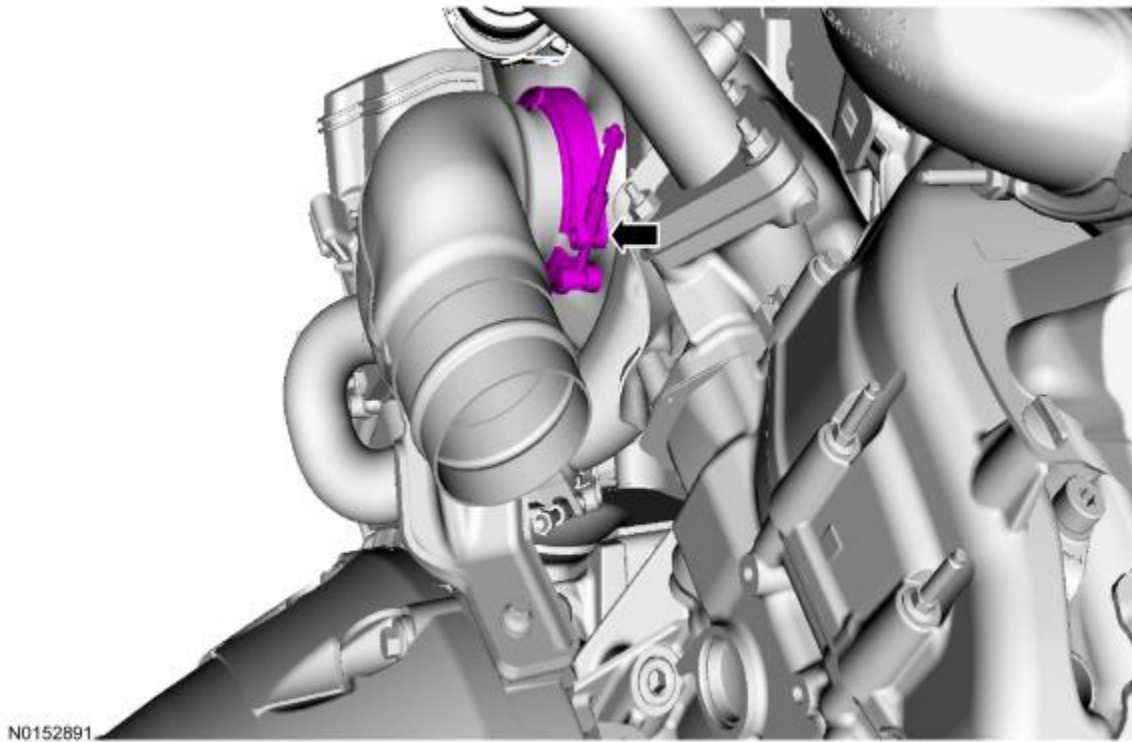


2. **NOTE:** Only hand tighten the exhaust upper downpipe bracket bolt at this time.

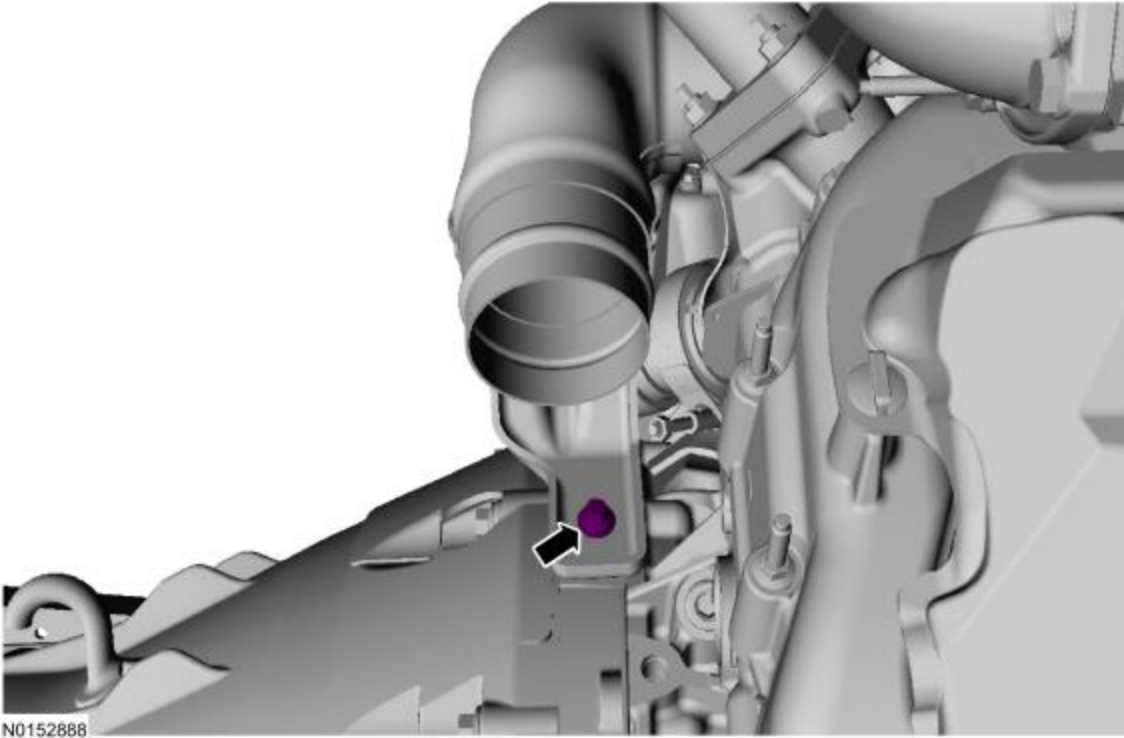
Install and hand tighten the exhaust upper downpipe bracket bolt.



3. Engage the new exhaust upper downpipe clamp T-bolt and position the clamp as noted during disassembly.
 - Tighten to 17 Nm (150 lb-in).
 - Loosen clamp.
 - Tighten to 18 Nm (159 lb-in).



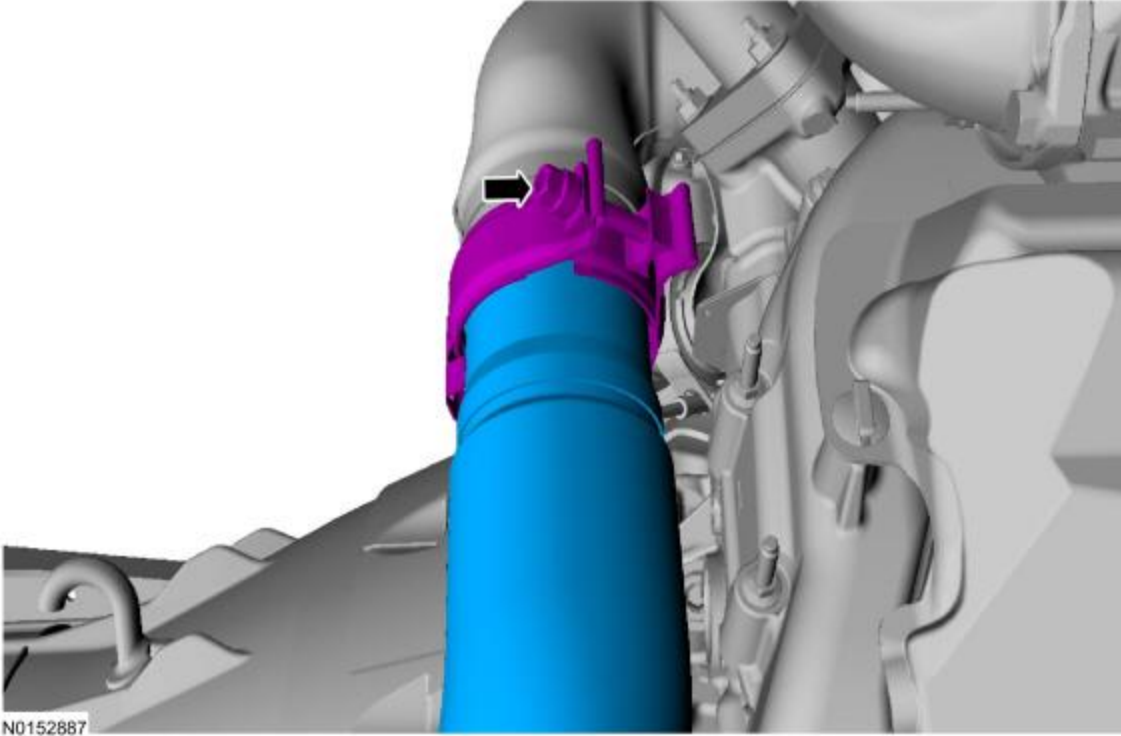
4. Tighten the exhaust upper downpipe bracket bolt.
 - 25 Nm (18 lb-ft).



5. **NOTE:** *Do not tighten the exhaust lower downpipe Torca® clamp at this time.*

Insert the exhaust lower downpipe into the exhaust upper downpipe.

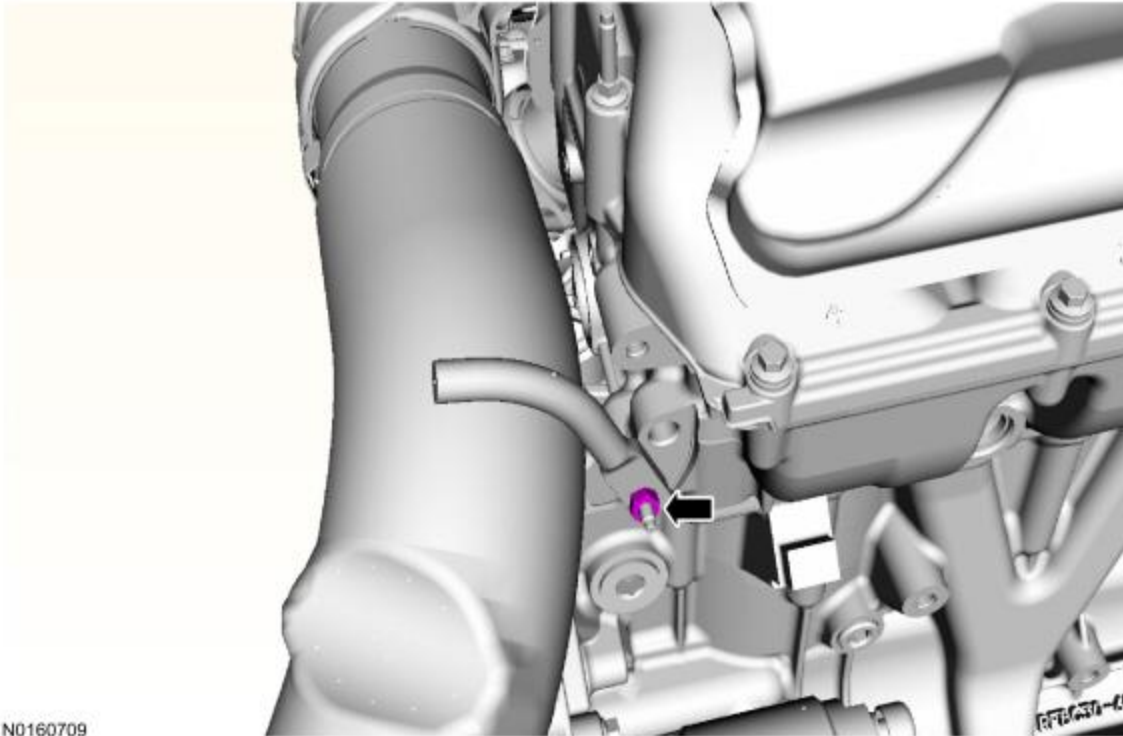
- Do not tighten the Torca® clamp at this time.



6. **NOTE:** *Do not tighten the exhaust lower downpipe bracket nut at this time.*

If equipped, install the exhaust lower downpipe bracket nut.

- Do not tighten the exhaust lower downpipe bracket nut at this time.

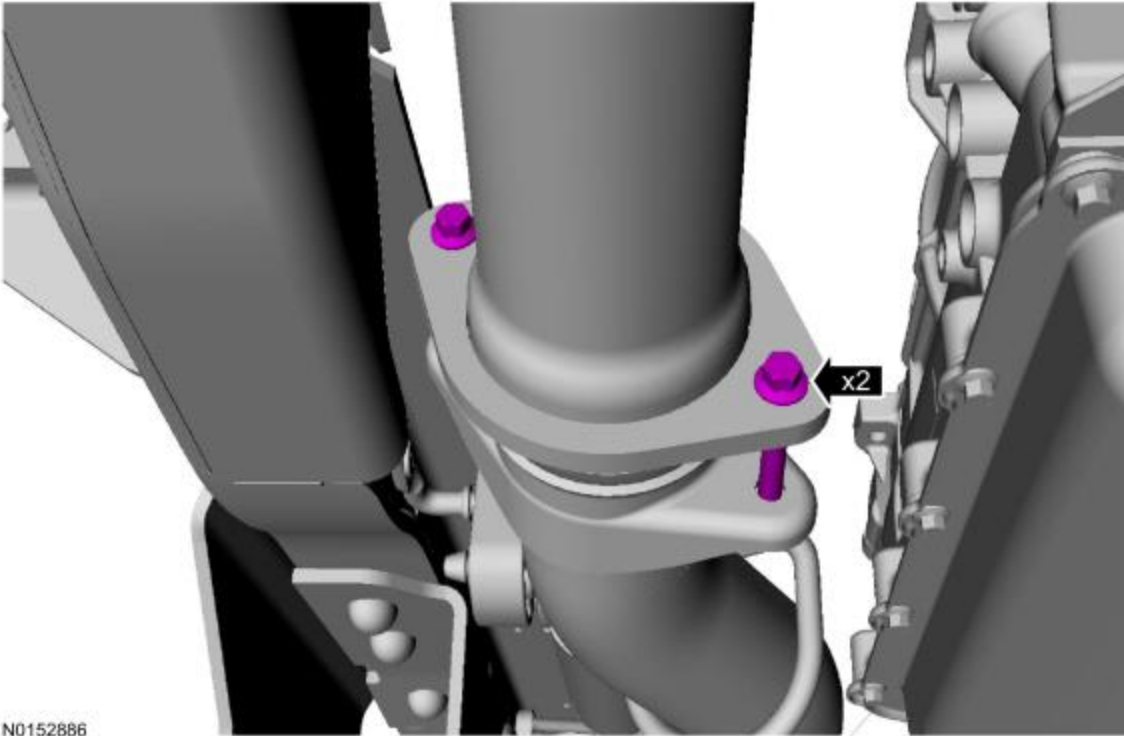


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7. **NOTE:** *Only hand tighten the exhaust lower downpipe-to-catalyst and particulate filter assembly bolts at this time.*

Install the new exhaust lower downpipe-to-catalyst and particulate filter assembly bolts and hand tighten.

- Do not tighten the exhaust lower downpipe-to-catalyst and particulate filter assembly bolts at this time.

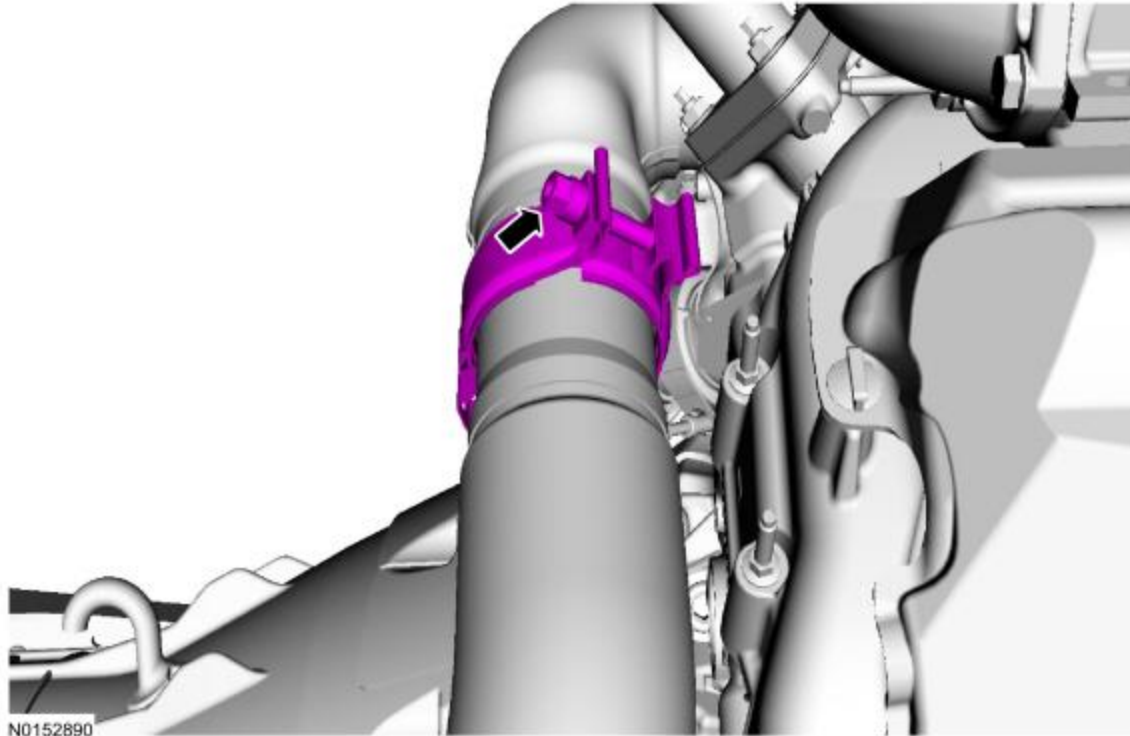


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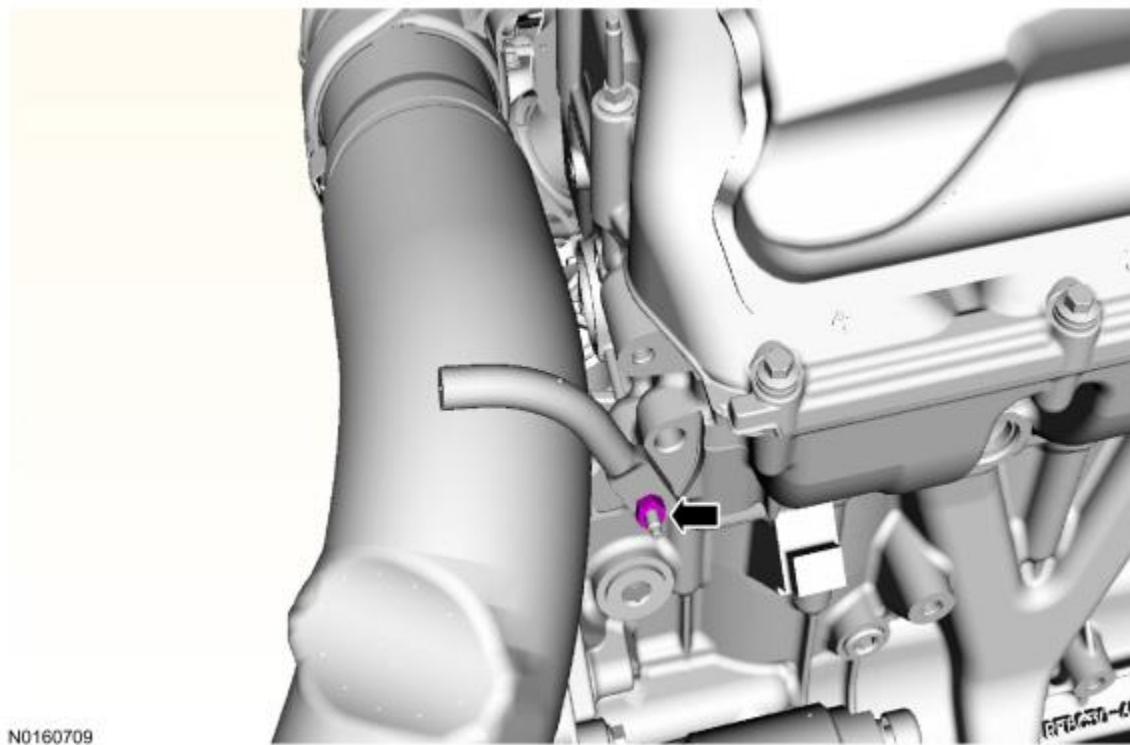
8. **NOTE:** *Make sure the exhaust upper and lower downpipes are aligned and fully seated together before tightening the Torca® clamp.*

Tighten the Torca® clamp.

- 55 Nm (41 lb-ft).

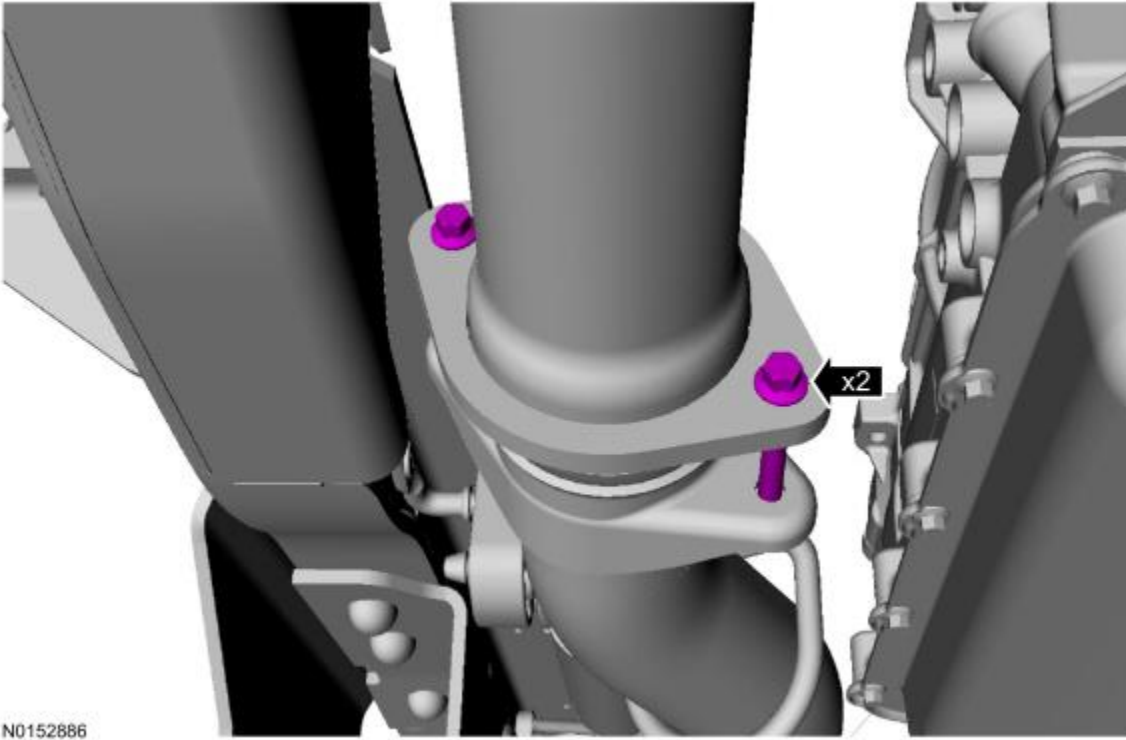


9. If equipped, tighten the exhaust lower downpipe bracket nut.
 - 25 Nm (18 lb-ft).



2. Tighten the exhaust lower downpipe-to-catalyst and particulate filter assembly bolts.

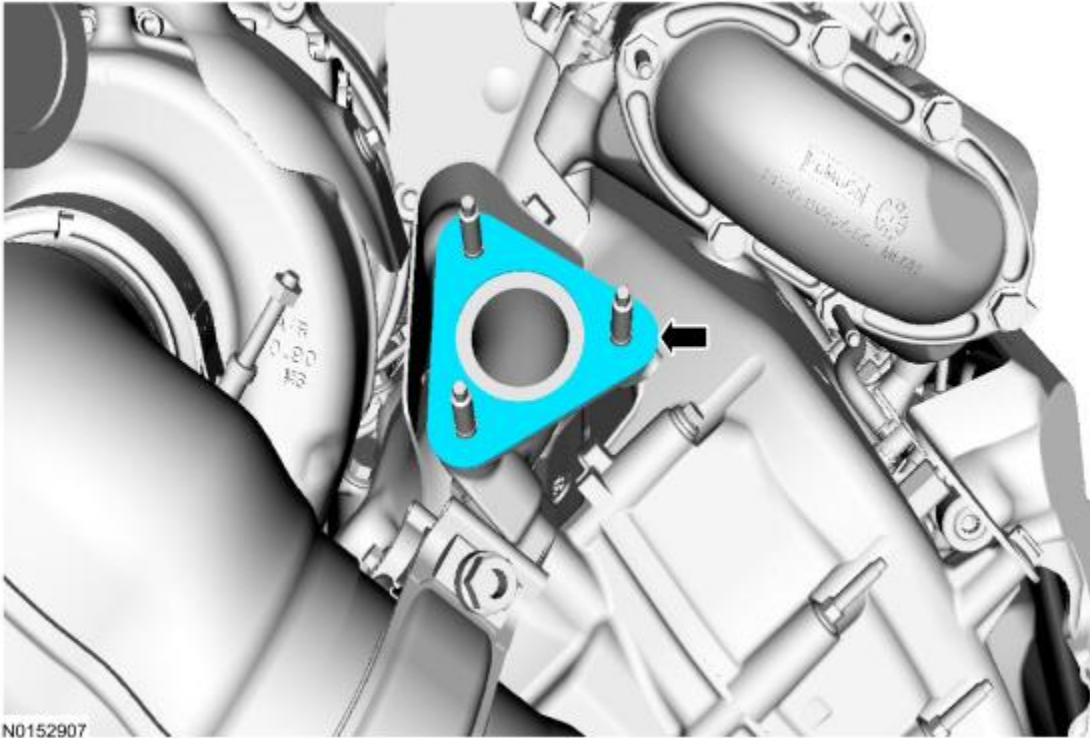
- Tighten LH bolt to 20 Nm (177 lb-in).
- Tighten RH bolt to 40 Nm (30 lb-ft).
- Tighten LH bolt to 40 Nm (30 lb-ft).



N0152886

1. Install a new gasket on the RH exhaust manifold flange.

INSTALL THE TURBOCHARGER INLET PIPE



1. **NOTE:** *Note the position of the RH turbocharger inlet pipe clamp from disassembly.*

Install a new RH turbocharger inlet pipe clamp on the RH turbocharger inlet pipe.

- Disengage the clamp T-bolt and loosely install the clamp on the RH turbocharger inlet pipe.

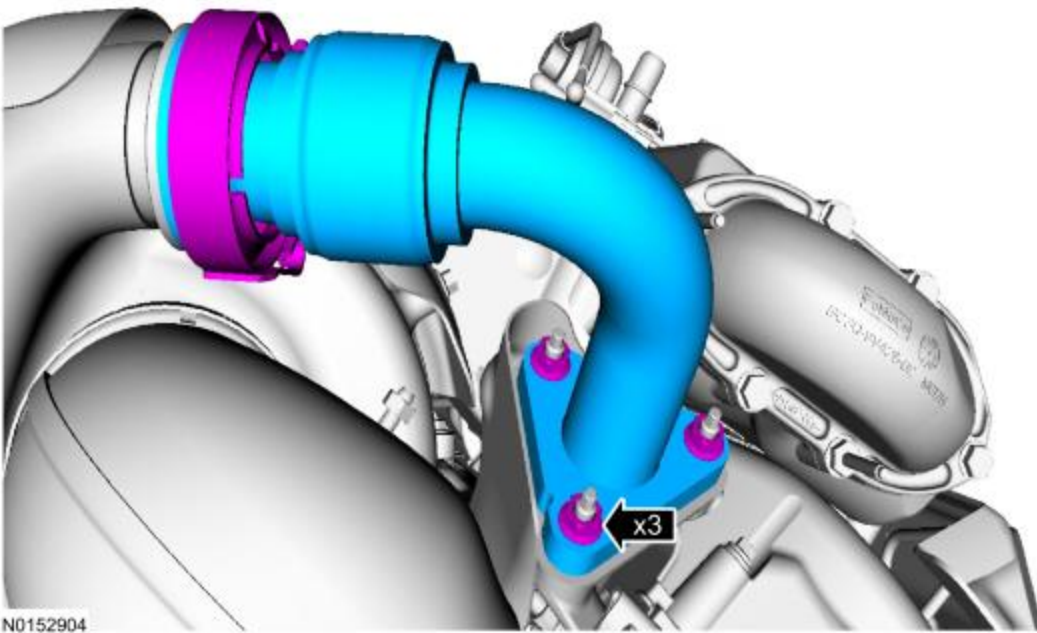
2. **NOTICE:** **Do not bend or twist the turbocharger inlet pipes or damage to the bellows on the turbocharger inlet pipes may occur.**

NOTE: *Do not tighten the RH turbocharger inlet pipe clamp at this time.*

NOTE: *Do not tighten the RH turbocharger inlet pipe nuts at this time.*

Install the RH turbocharger inlet pipe and loosely position the RH turbocharger inlet pipe over both sealing flanges. Install 3 new RH turbocharger inlet pipe nuts.

- Hand tighten the 3 new nuts.

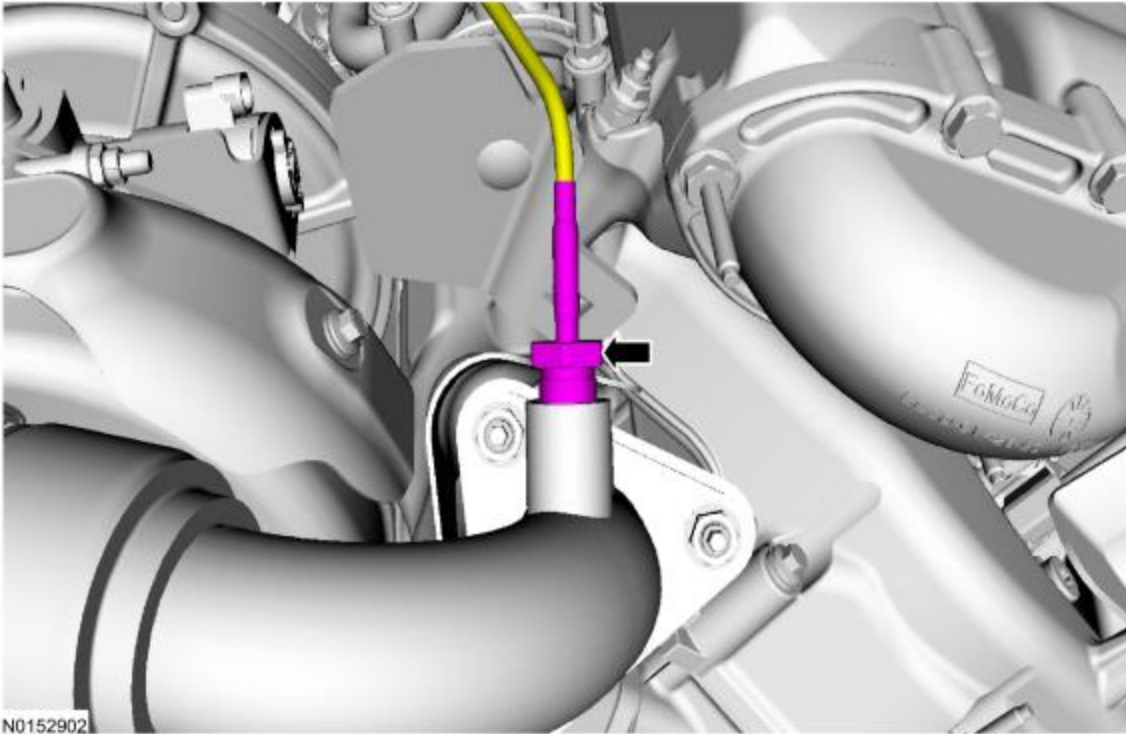


3. **NOTE:** The EGT is shown, the EP sensor is similar.

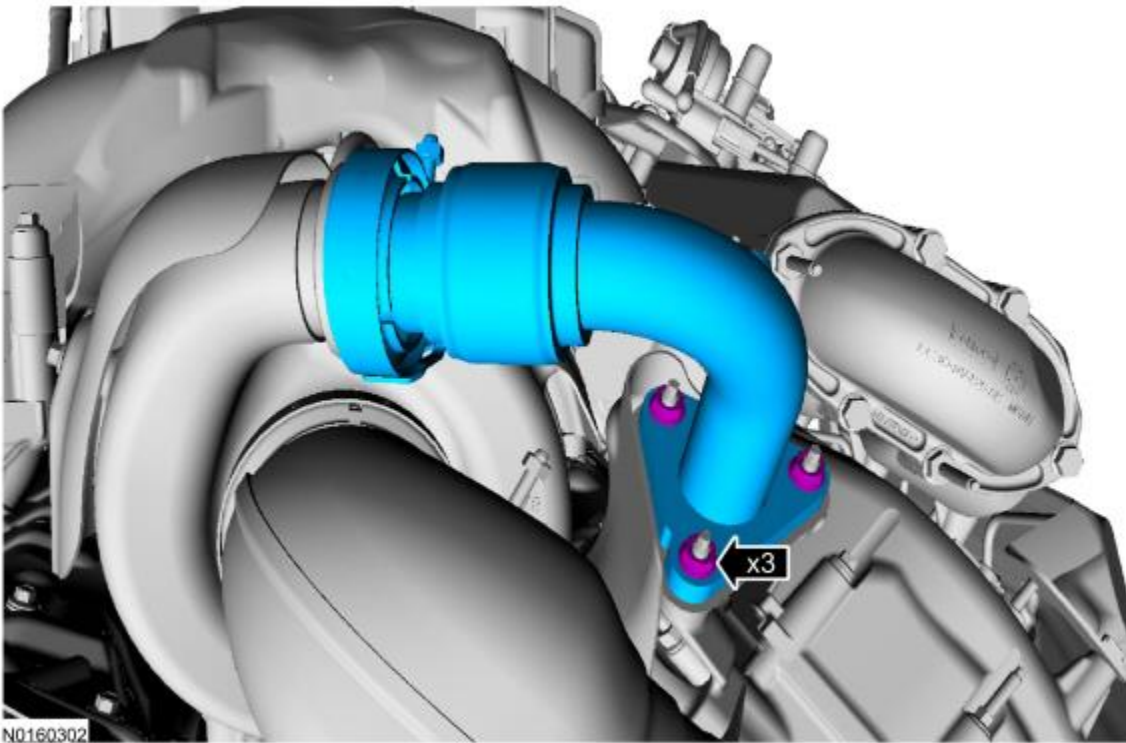
NOTE: Do not tighten the EGT or the EP sensor flare nuts at this time.

If equipped, install the EGT and the EP sensor flare nuts on the RH turbocharger inlet pipe.

- a. Hand tighten the EGT and the EP sensor flare nuts.



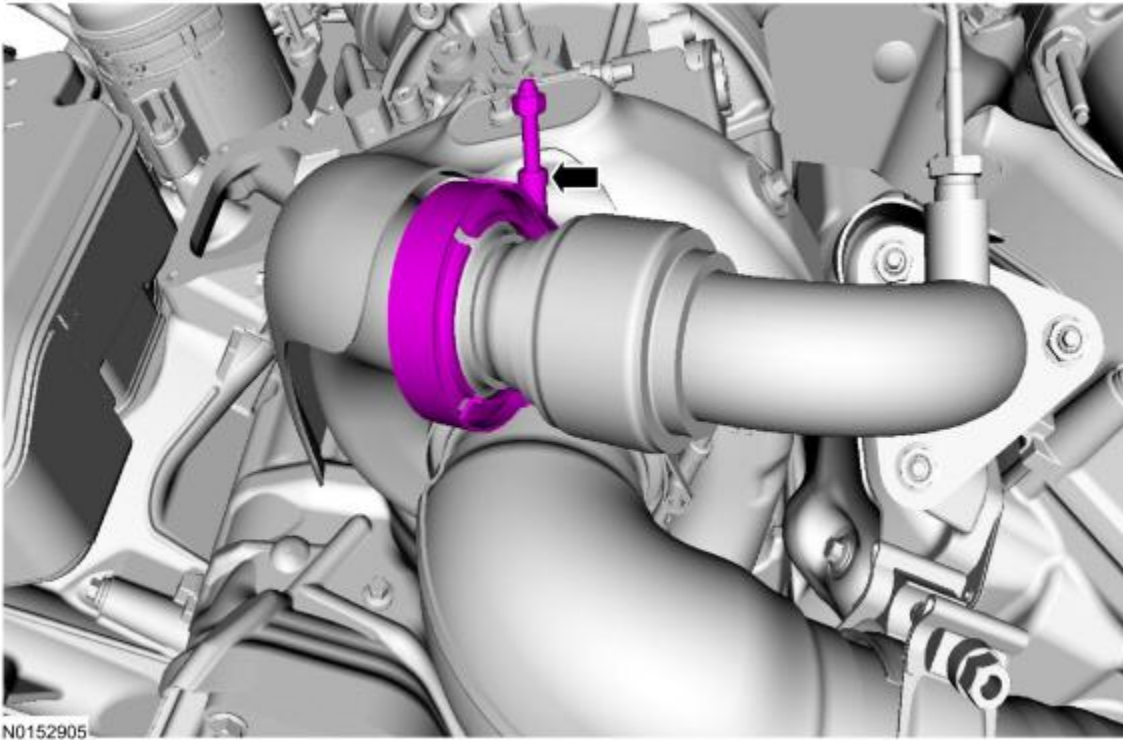
4. Tighten the 3 RH turbocharger inlet pipe nuts.
 - Tighten to 25 Nm (18 lb-ft).



5. **NOTE:** Note the position of the RH turbocharger inlet pipe clamp from disassembly.

Position the RH turbocharger inlet pipe clamp over the RH turbocharger inlet pipe and the turbocharger sealing flanges. Engage the RH turbocharger inlet pipe clamp T-bolt.

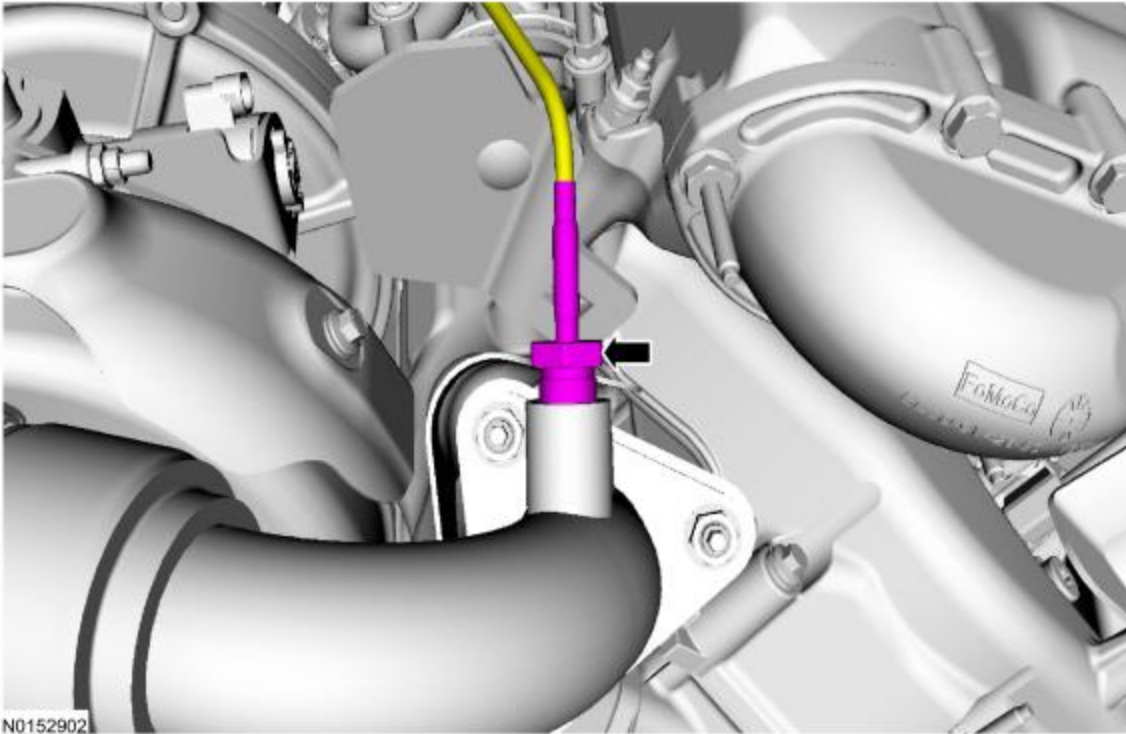
- Tighten to 17 Nm (150 lb-in).
- Loosen clamp.
- Tighten to 18 Nm (159 lb-in).



6. **NOTE:** The EGT is shown, the EP sensor is similar.

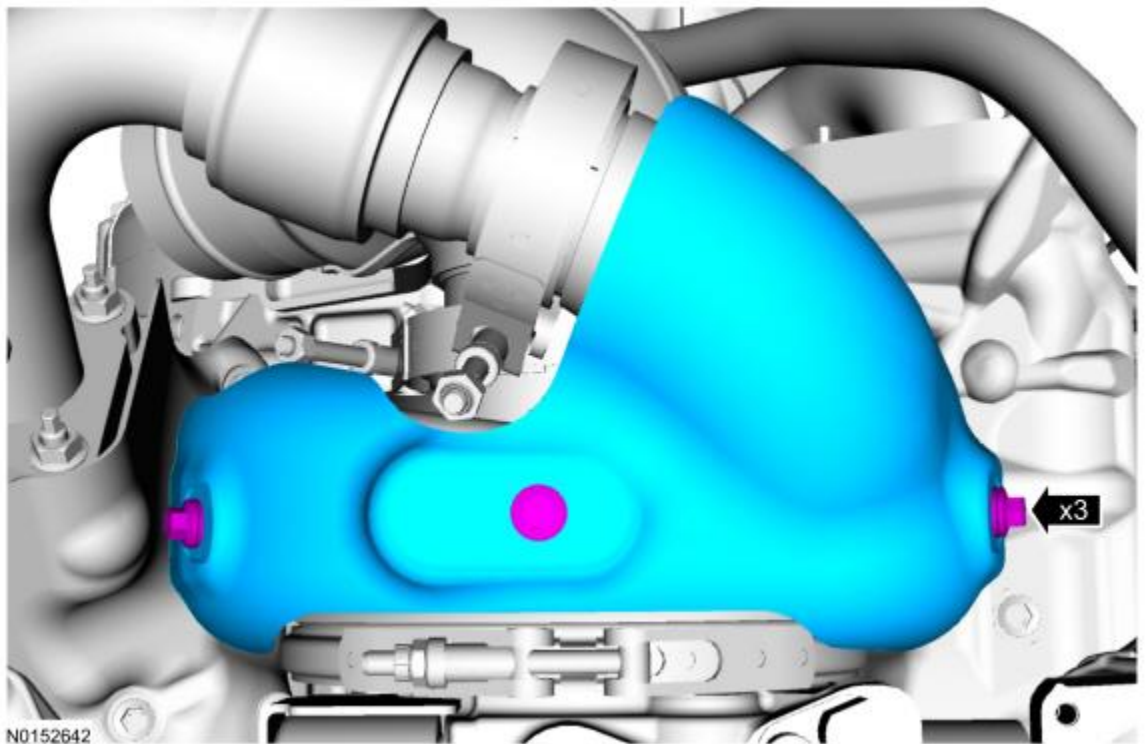
If equipped, tighten the EP and the EGT sensor flare nut on the RH turbocharger inlet pipe.

- Tighten the EP sensor flare nut on the RH turbocharger inlet pipe.
Tighten to 20 Nm (177 lb-in).
- Tighten the EGT sensor flare nut on the RH turbocharger inlet pipe.
Tighten to 30 Nm (22 lb-ft).

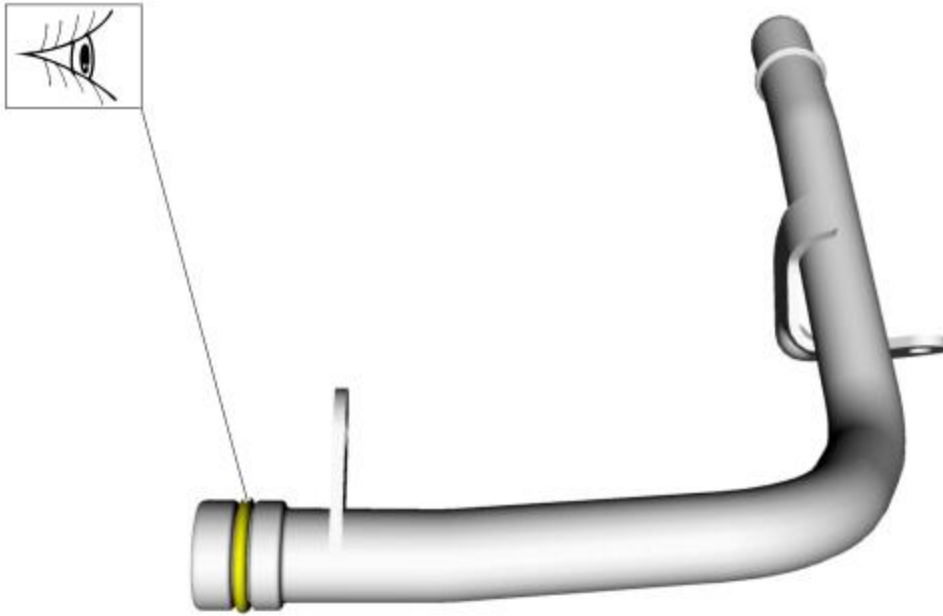


7. Install the RH fender splash shield.

- Install the turbocharger heat shield and the 3 turbocharger heat shield bolts.
- Tighten to 10 Nm (89 lb-in).



8. Replace the heater core inlet tube O-ring seal as necessary.

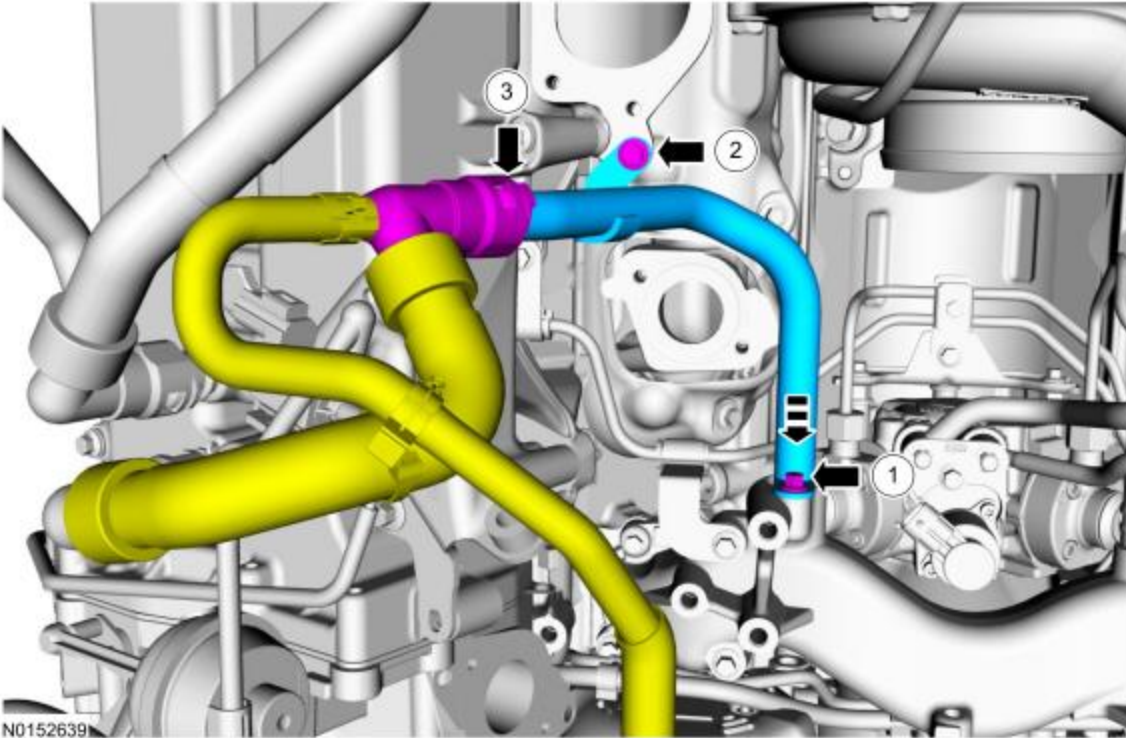


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9. **NOTE:** *Lubricate the O-ring seal with coolant prior to installing the heater supply tube.*

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

- Tighten to 10 Nm (89 lb-in).
- 2. Tighten to 10 Nm (89 lb-in).



10. Inspect the Charge Air Cooler (CAC) and CAC tubes for metal particles.

Install Lower Intake Manifold

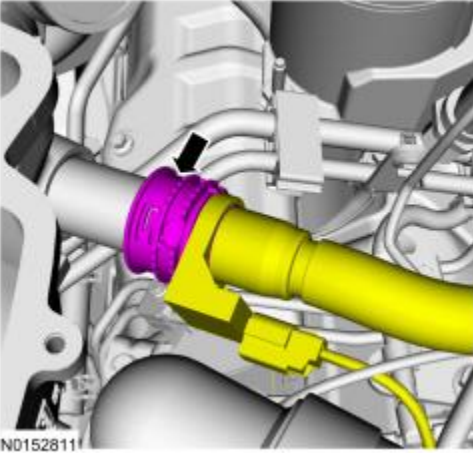
1. **NOTE:** *Position the turbocharger inlet hose as needed.*

Install the lower intake manifold and the 3 bolts.

- Tighten to 24 Nm (18 lb-ft).

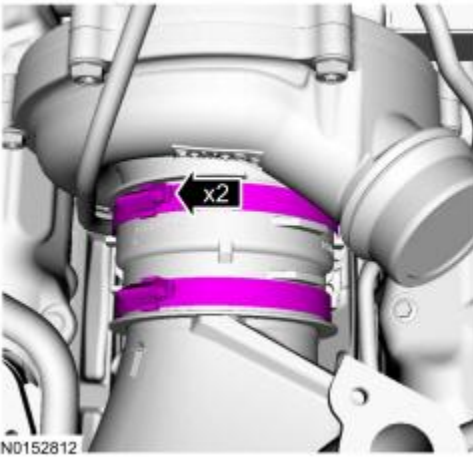


2. Install the crankcase vent oil separator
3. Connect the crankcase ventilation hose to the lower intake manifold.

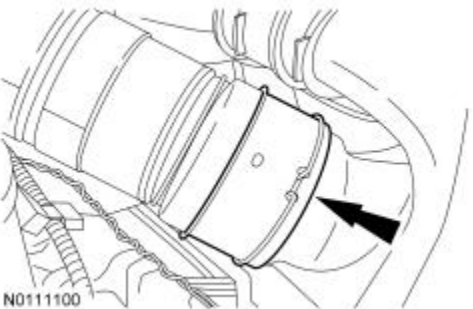


All vehicles

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



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



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



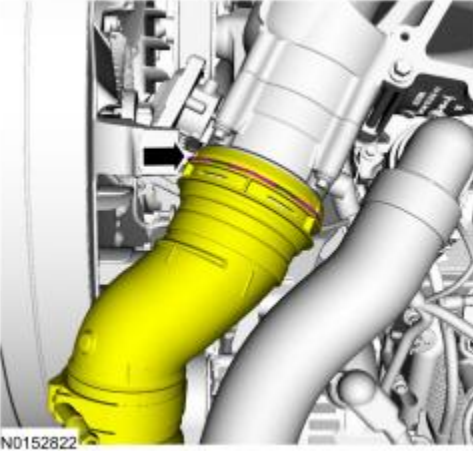
7. Connect the EGRT sensor electrical connector and the wire harness retainer.



8. Connect the TB electrical connector.



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



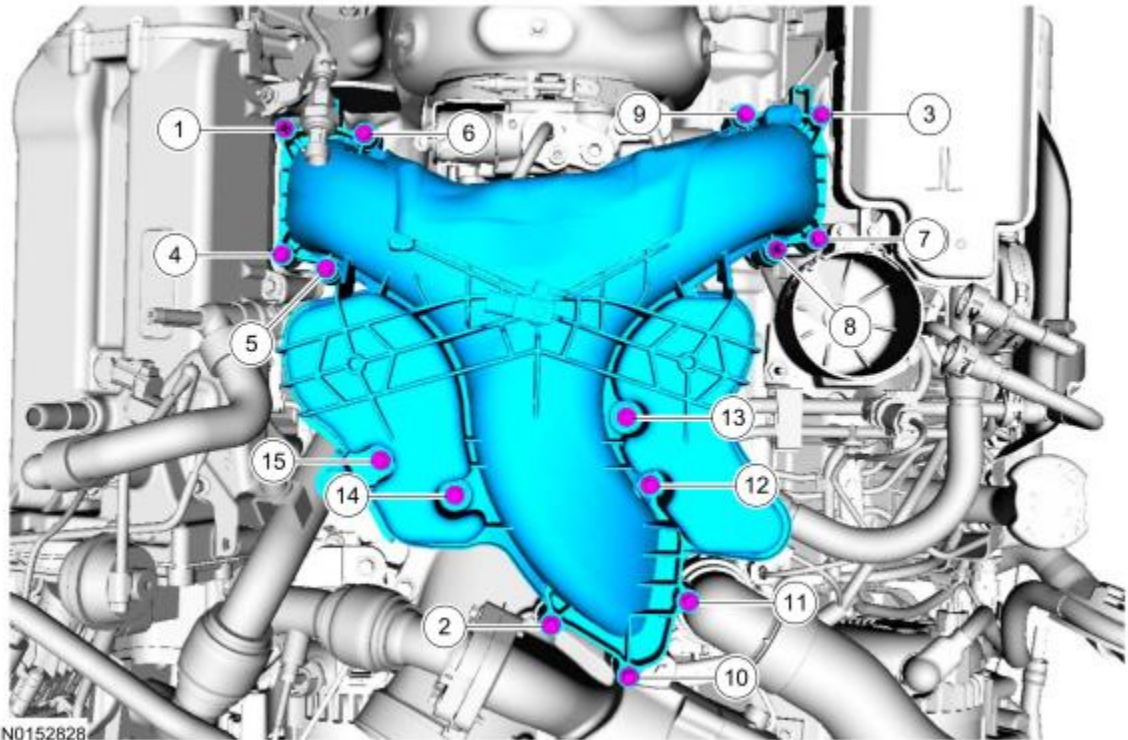
N0152822

10. Install the air cleaner ACL outlet tube. Refer to 303-12.

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.
2. **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 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).**

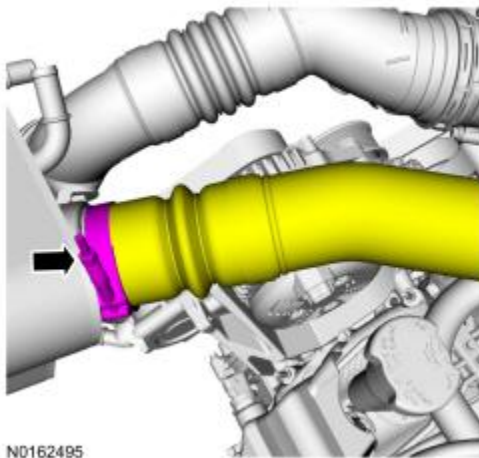


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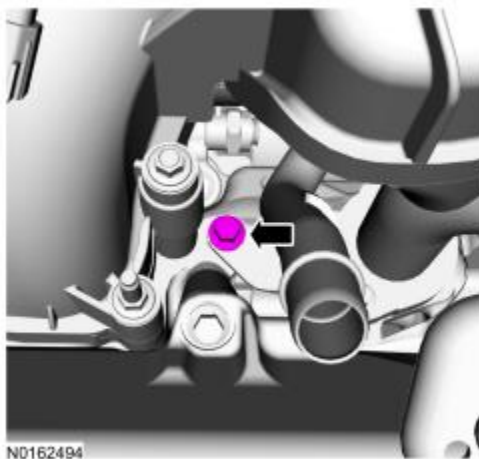
2. **NOTE:** *If there is any oil residue, clean the connecting port on the CAC and the inside surface of the CAC outlet tube to prevent the tube from blowing off.*

Position back the CAC outlet tube to the CAC .

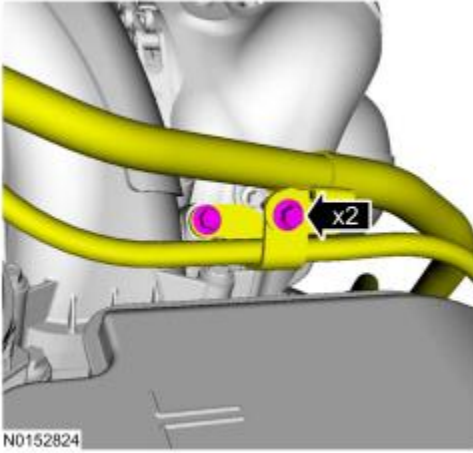
- Tighten to 9 Nm (80 lb-in).



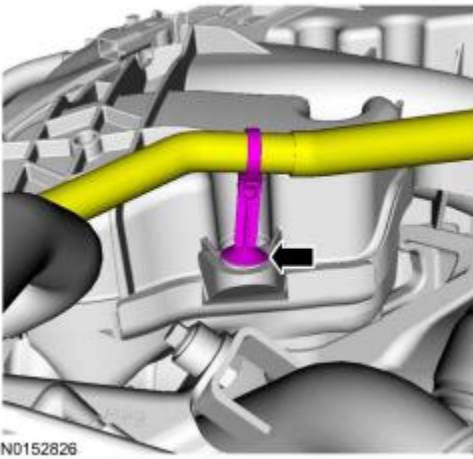
3. Install the heater outlet tube top retainer.
 - Tighten to 10 Nm (89 lb-in).



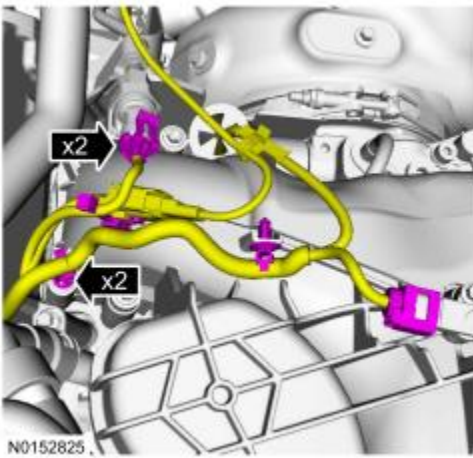
4. Install the engine oil level indicator tube bolt and the transmission fluid level indicator tube bolt.
 - Tighten the engine oil level indicator tube bolt to 10 Nm (89 lb-in).
 - Tighten the transmission fluid level indicator tube bolt to 11 Nm (97 lb-in).



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.



22. Remove and discard the engine oil filter.
24. 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).
25. **NOTE:** *Lubricate the engine oil filter seal with clean engine oil.*

Install a new engine oil filter.

1. Tighten to 5 Nm (44 lb-in).
 2. Tighten an additional 230 degrees.
26. Fill the engine with the correct motor oil for the climate
 27. Connect the battery ground cable