

303-01 Engine - 2.3L EcoBoost (201kW/273PS)

2019 Ranger

Removal and Installation

Procedure revision date: 01/4/2019

**Intake Manifold**

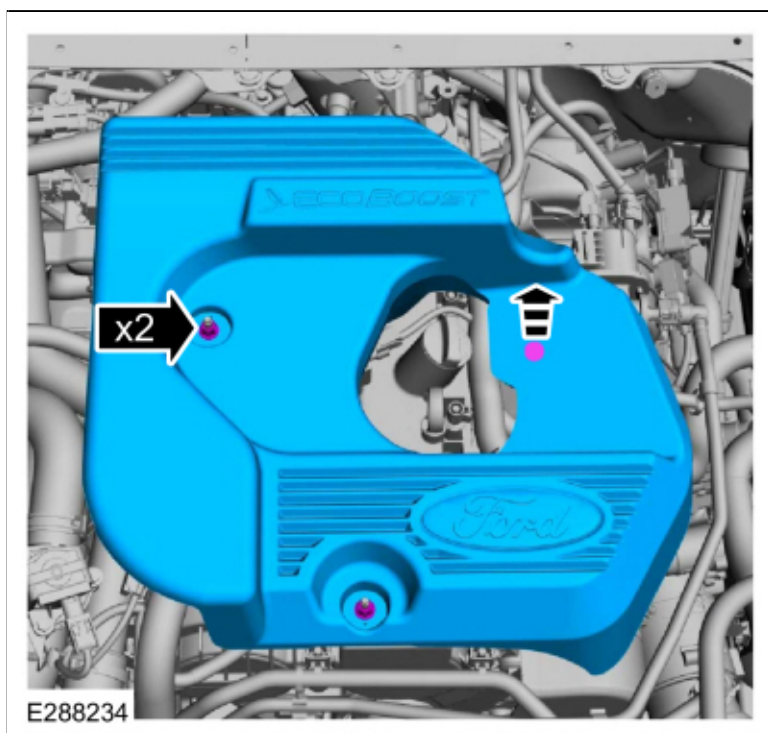
Base Part Number: 9424

**Materials**

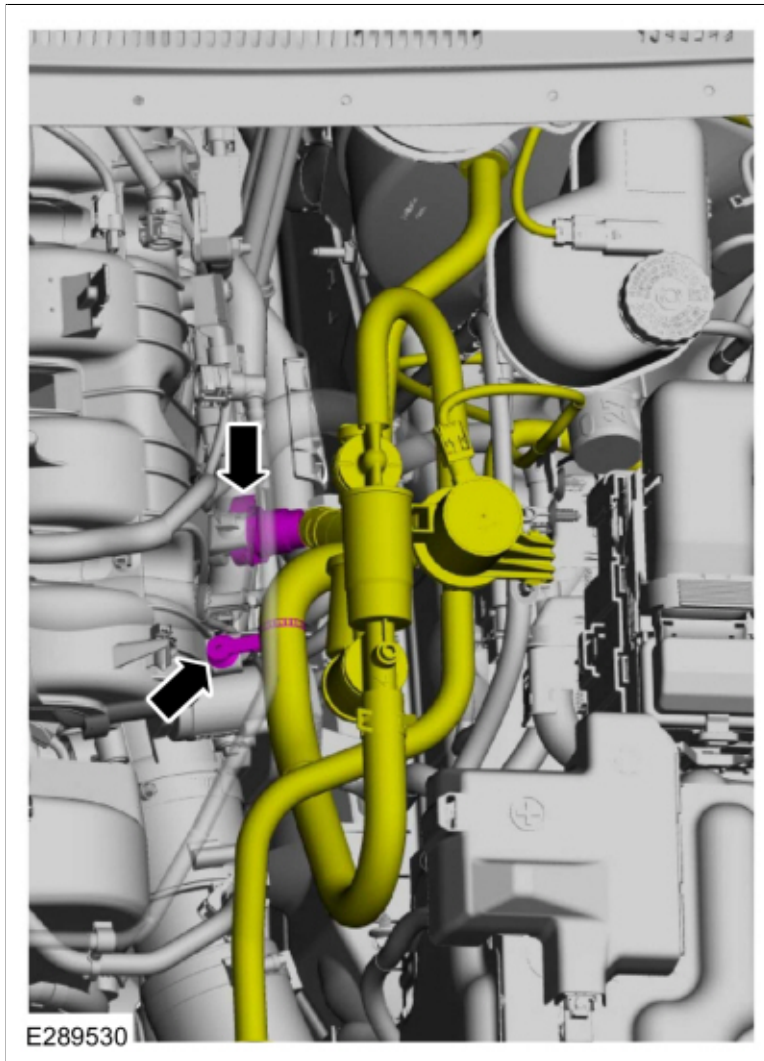
Name	Specification
Motorcraft® Silicone Brake Caliper Grease and Dielectric Compound XG-3-A	ESE-M1C171-A

**Removal**

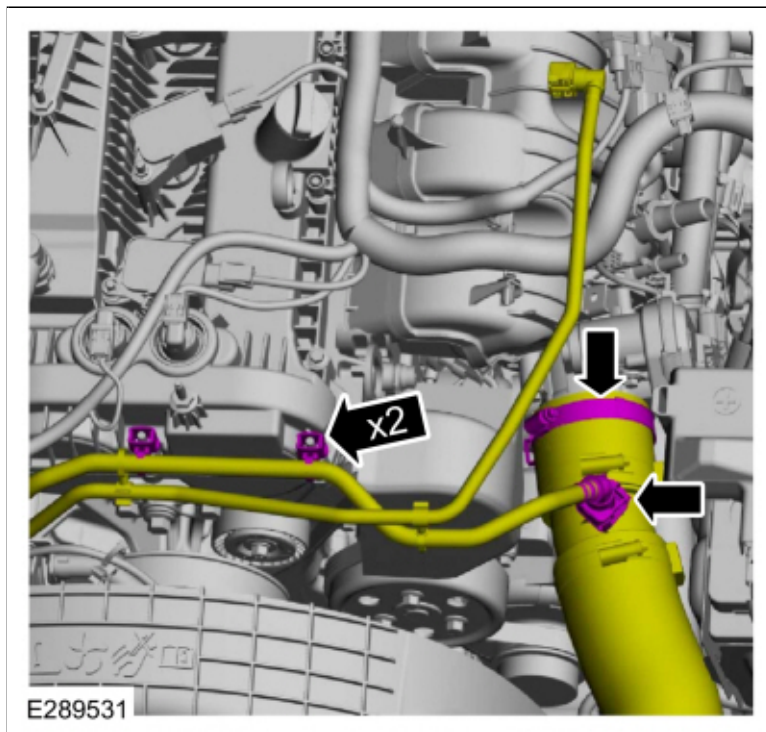
1. With the vehicle in NEUTRAL, position it on a hoist.  
Refer to: [Jacking and Lifting](#) (100-02 Jacking and Lifting, Description and Operation).
2. **NOTICE: Do not pull the engine appearance cover forward or sideways to remove. Failure to press straight upward on the underside of the cover at the attachment points may result in damage to the cover or engine components.**
  1. Remove the engine appearance cover nuts.
  2. Place your hand under the engine appearance cover at each grommet location and push straight up to release each grommet from the studs.
  3. After all of the grommets have been released from the studs, remove the appearance cover from the engine.



3. Disconnect the battery ground.  
Refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).
4. Remove the EVAP canister purge valve.  
Refer to: [Evaporative Emission Canister Purge Valve](#) (303-13 Evaporative Emissions - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
5. Disconnect the brake vacuum tube quick release coupling and retainer from the intake manifold and position aside.  
Refer to: [Quick Release Coupling](#) (310-00 Fuel System - General Information - 2.3L EcoBoost (201kW/273PS), General Procedures).

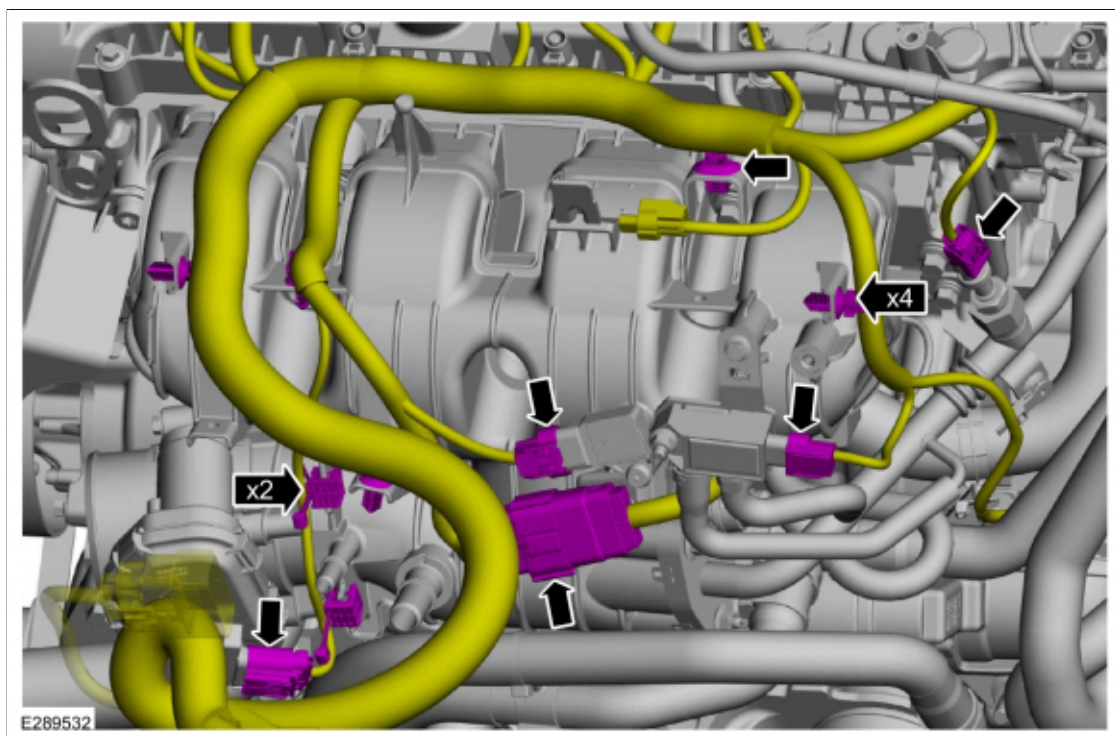


6.
  - Disconnect the EVAP canister tube quick release coupling and the retainers and position aside.  
Refer to: [Quick Release Coupling](#) (310-00 Fuel System - General Information - 2.3L EcoBoost (201kW/273PS), General Procedures).
  - Loosen the clamp and position the CAC pipe aside.

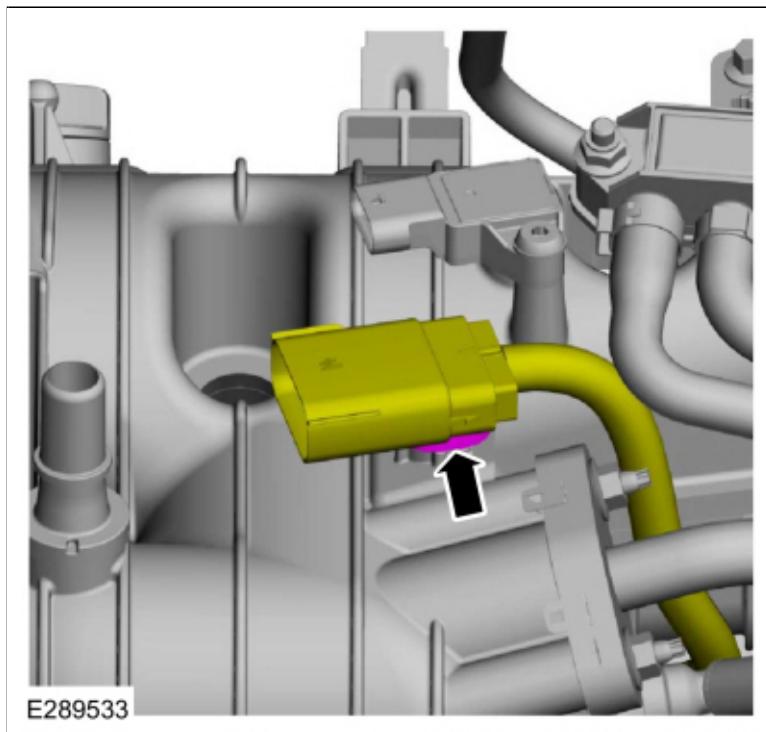


7.

- Disconnect the wiring harness electrical connectors.
- Detach the wiring harness retainers.

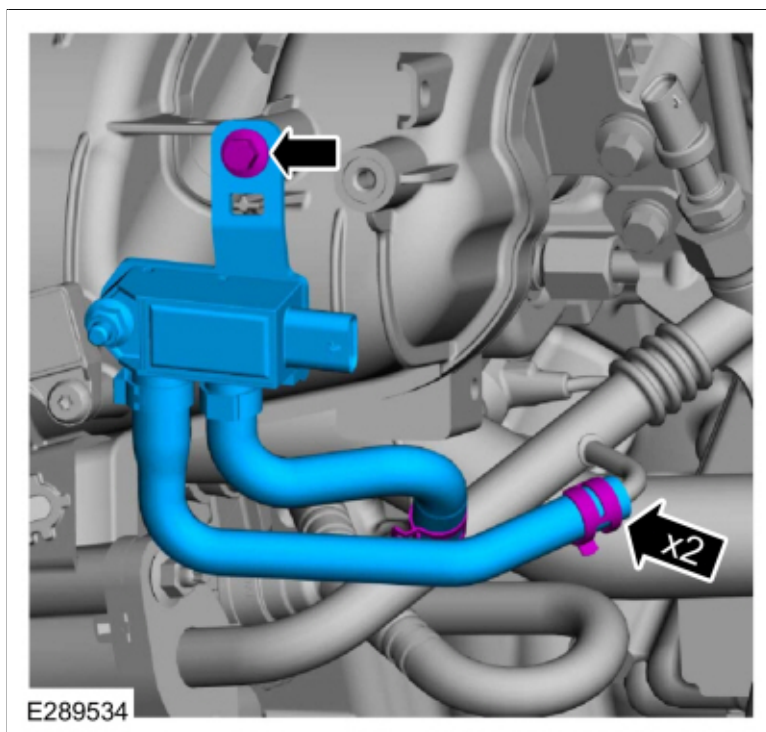


8. Detach the fuel rail wiring harness retainer from the intake manifold.



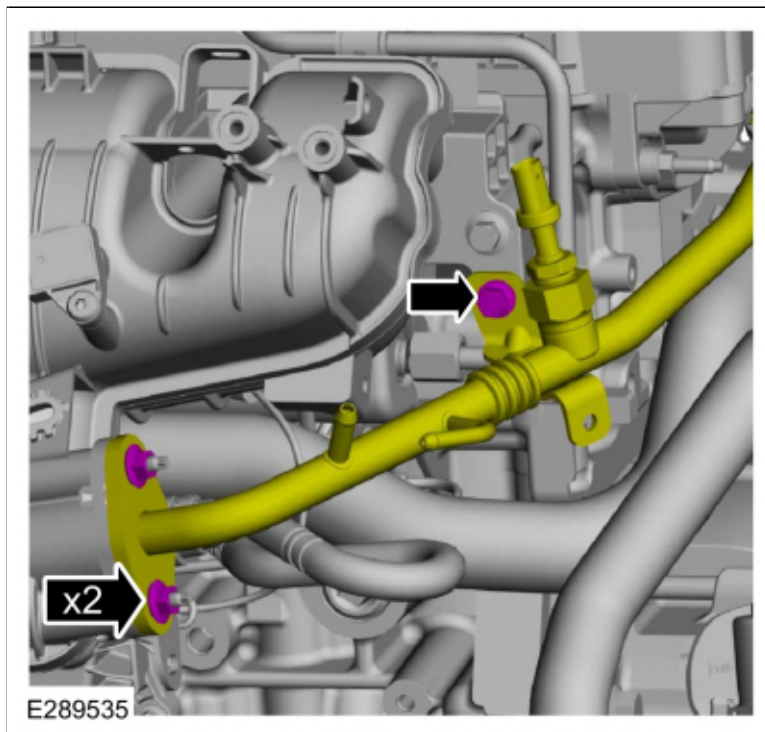
9.

- Loosen the clamps and remove the EGR transducer hoses.
- Remove the bolt and the EGR transducer assembly.

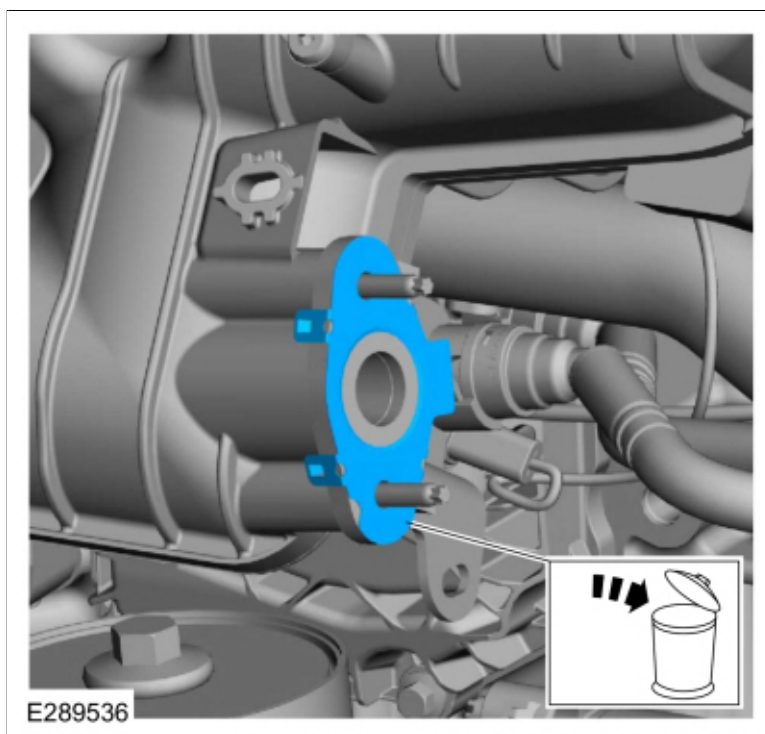


10. Remove the nuts, bolt and position the EGR inlet tube assembly from intake manifold.



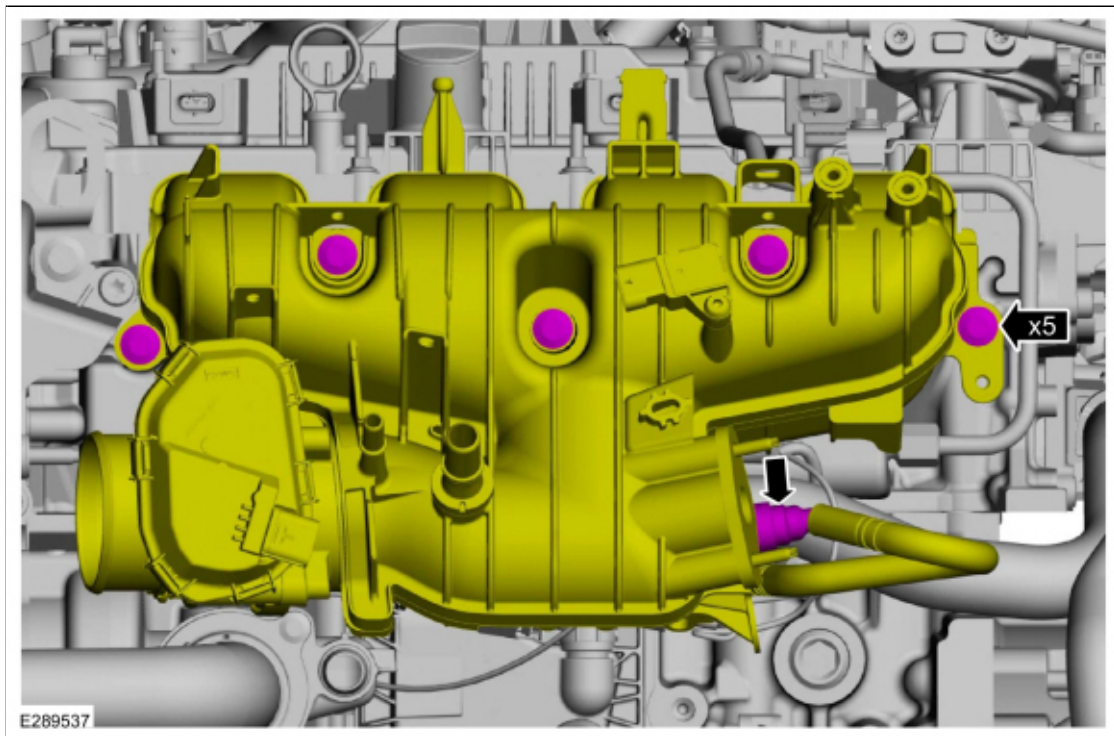


11. Remove and discard the EGR inlet tube assembly gasket.

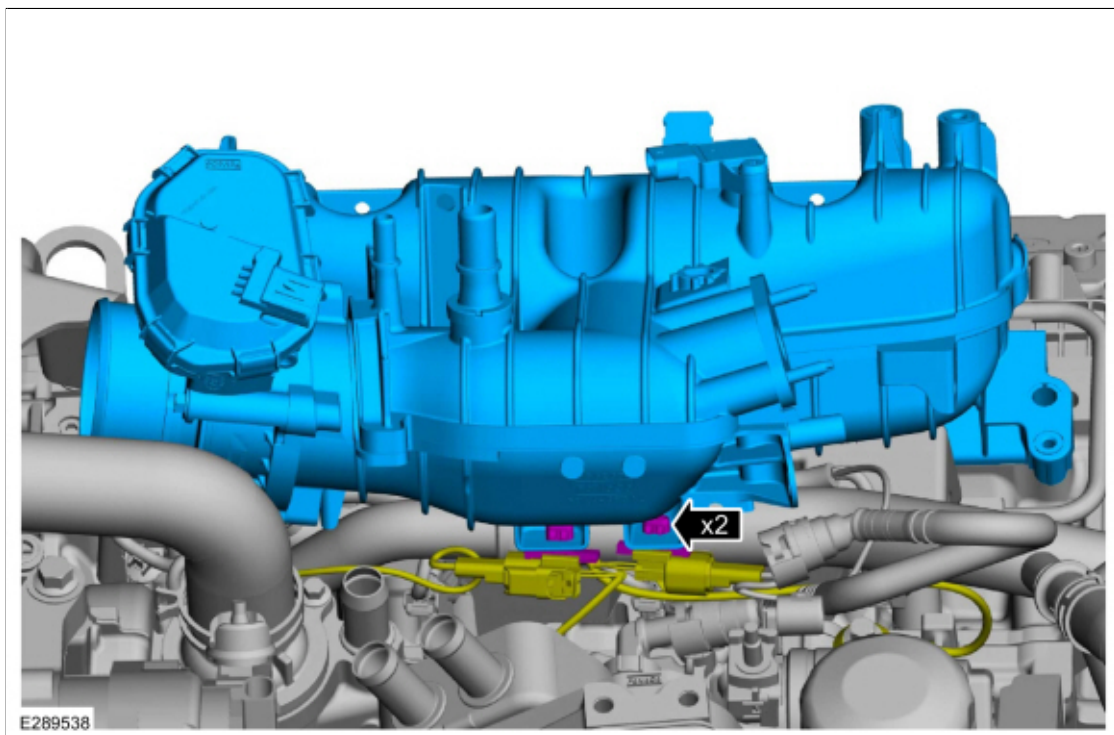


- 12.
- Disconnect the crankcase vent oil separator tube quick release coupling from the intake manifold. Refer to: [Quick Release Coupling](#) (310-00 Fuel System - General Information - 2.3L EcoBoost (201kW/273PS), General Procedures).

- Remove the bolts and position the intake manifold forward.



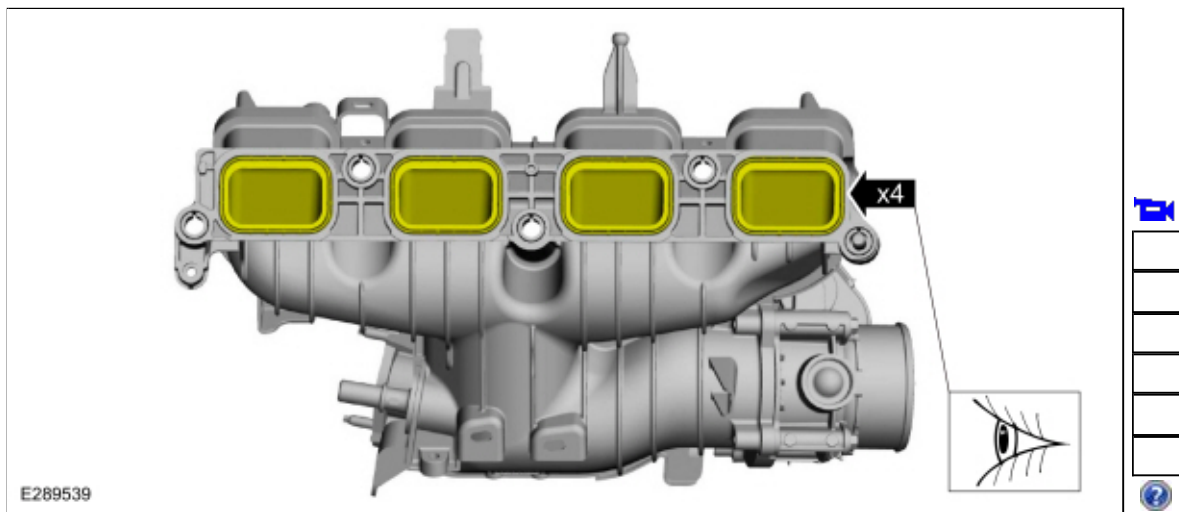
13. Detach the KS electrical connector retainers and remove the intake manifold.



14. **NOTICE:** If the engine is repaired or replaced because of upper engine failure, typically including valve or piston damage, check the intake manifold for metal debris. If metal debris is found, install

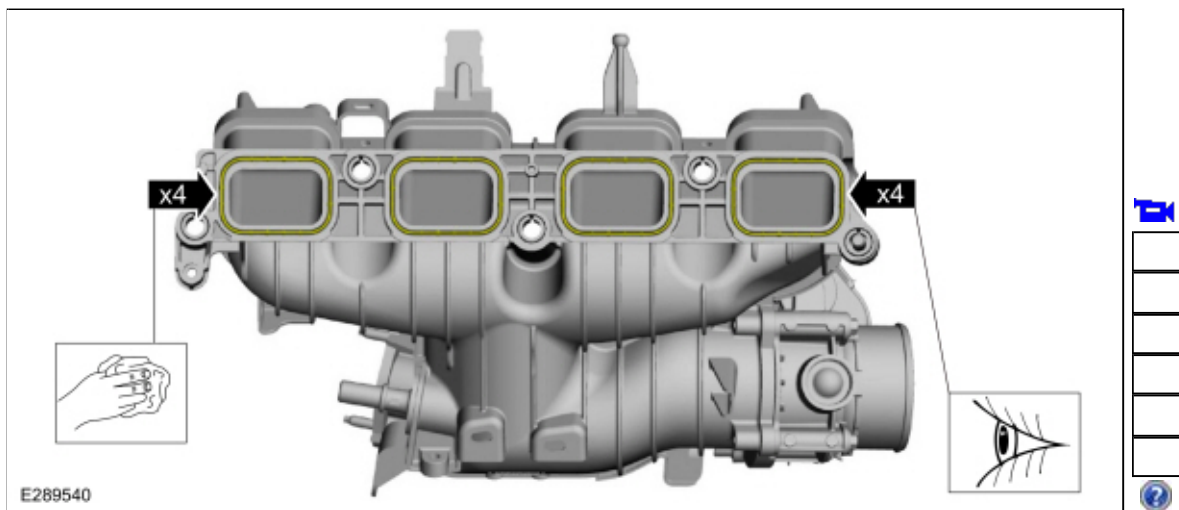
a new intake manifold. Failure to follow these instructions can result in engine damage.

- Visually inspect the intake manifold for metal debris.



15.

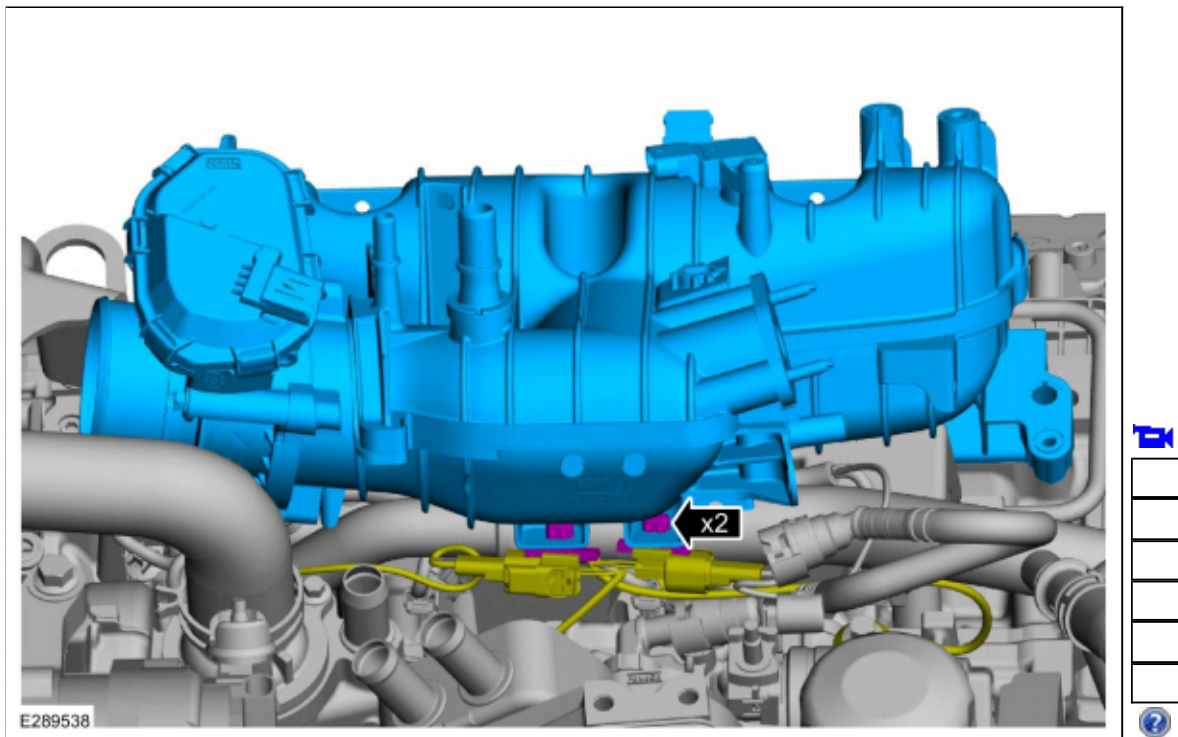
- Visually inspect the intake manifold gaskets for nicks, cuts and abrasions. If these conditions are not present, the gaskets may be reused.
- Clean and inspect all of the sealing surfaces of the intake manifold.



## Installation

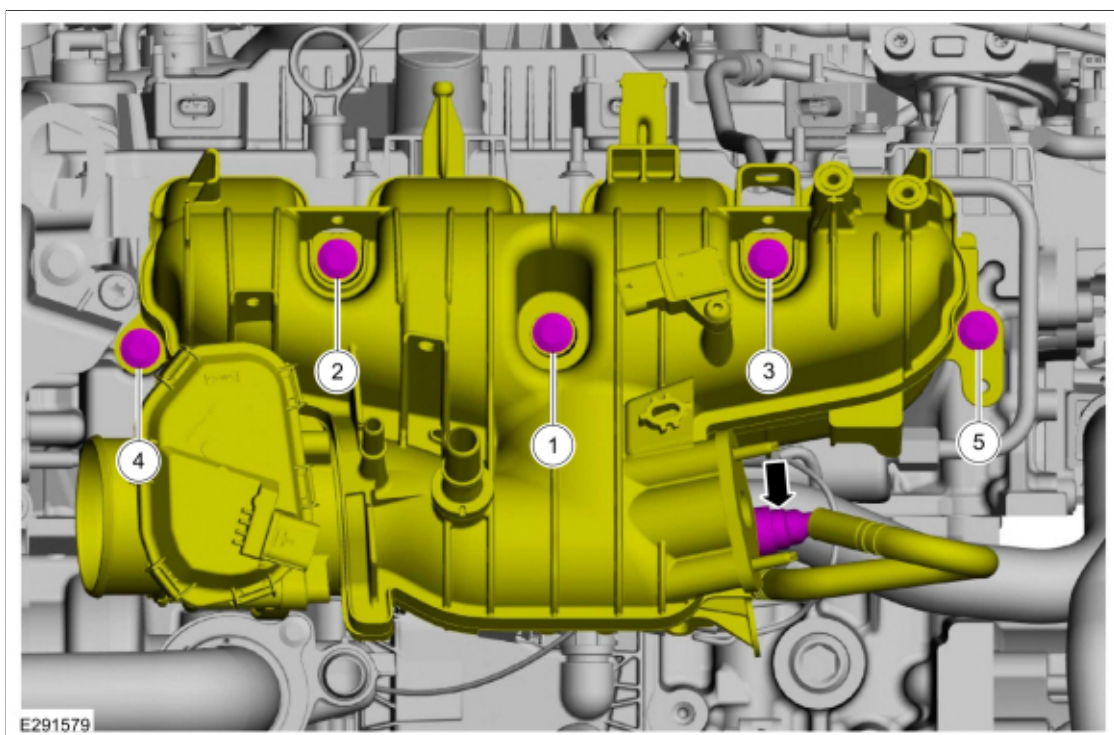
1. Install the intake manifold and attach the KS electrical connector retainers.





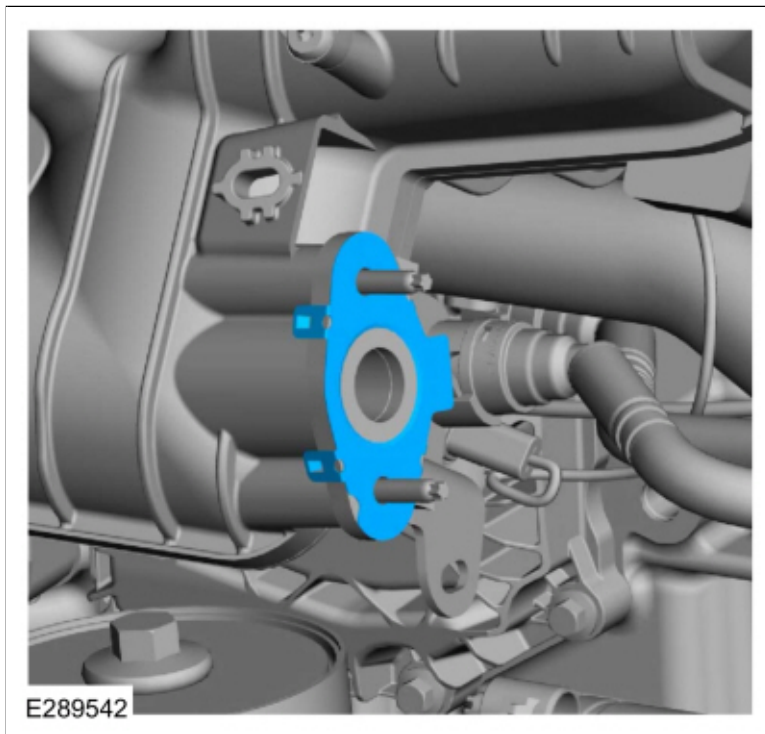
2.

- Position the intake manifold and install the bolts and tighten in sequence shown.  
*Torque: 18 lb.ft (25 Nm)*
- Connect the crankcase vent oil separator tube quick release coupling to the intake manifold.  
Refer to: [Quick Release Coupling](#) (310-00 Fuel System - General Information - 2.3L EcoBoost (201kW/273PS), General Procedures).

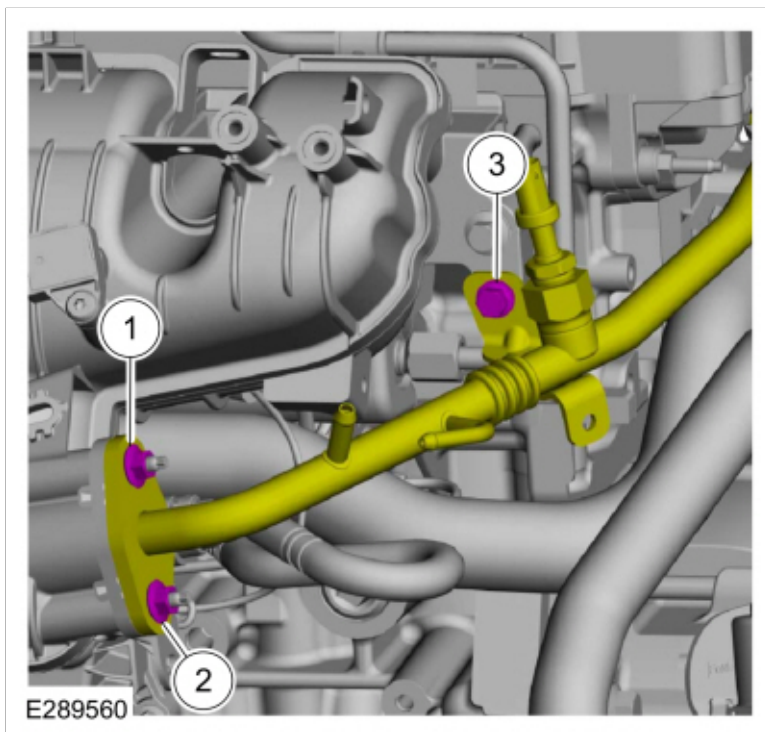




3. Install a new EGR inlet tube assembly gasket.

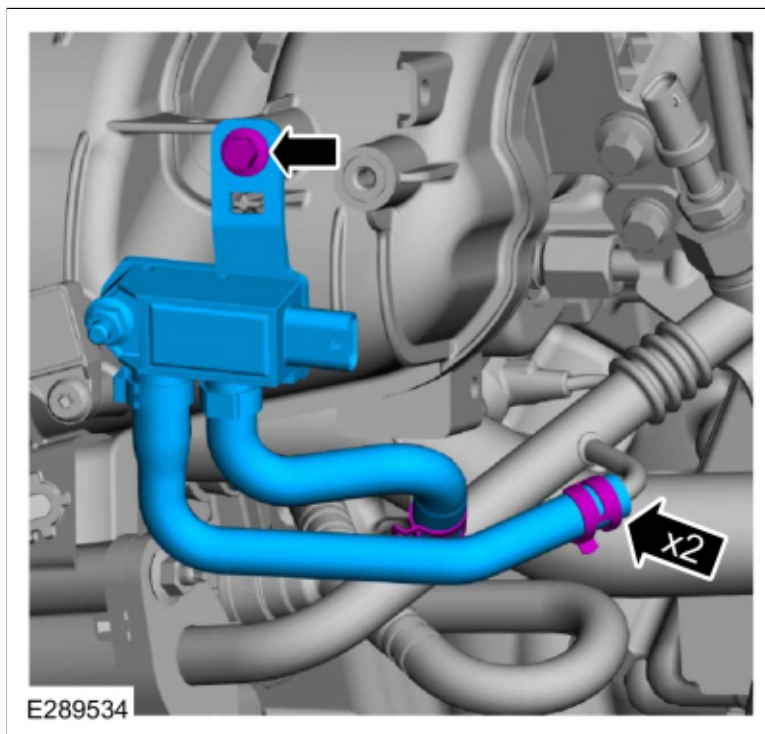


4. Position the EGR inlet tube assembly to intake manifold and install the nuts and bolt and tighten in sequence shown.  
*Torque: 97 lb.in (11 Nm)*

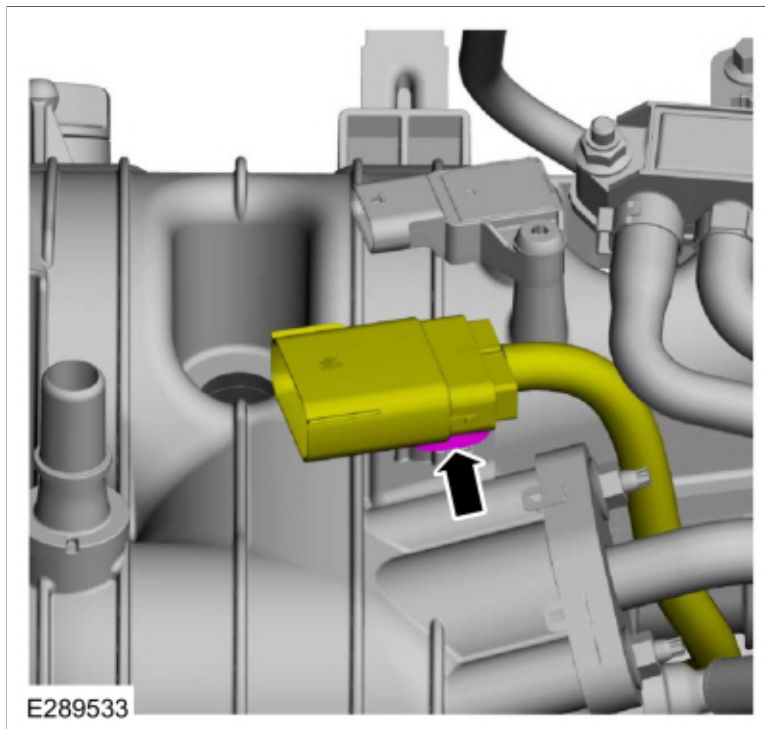


- 5.

- Install the EGR transducer assembly and the bolt.  
*Torque: 97 lb.in (11 Nm)*
- Install the EGR transducer hoses.

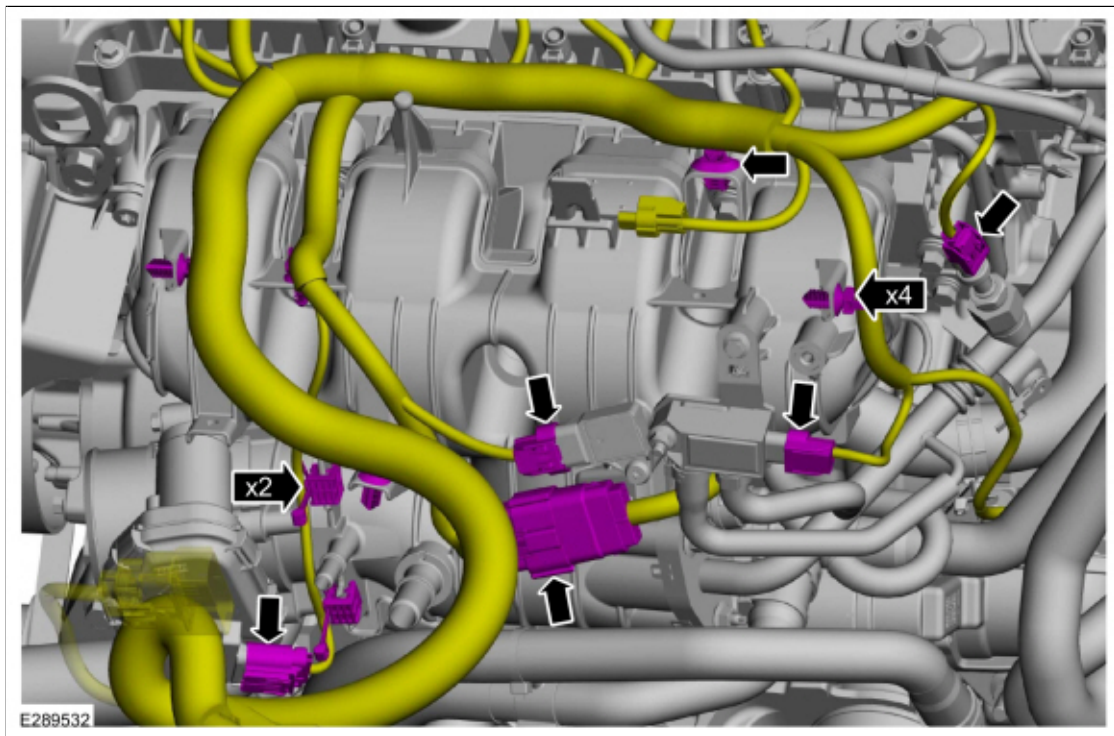


6. Attach the fuel rail wiring harness retainer to the intake manifold.



7.

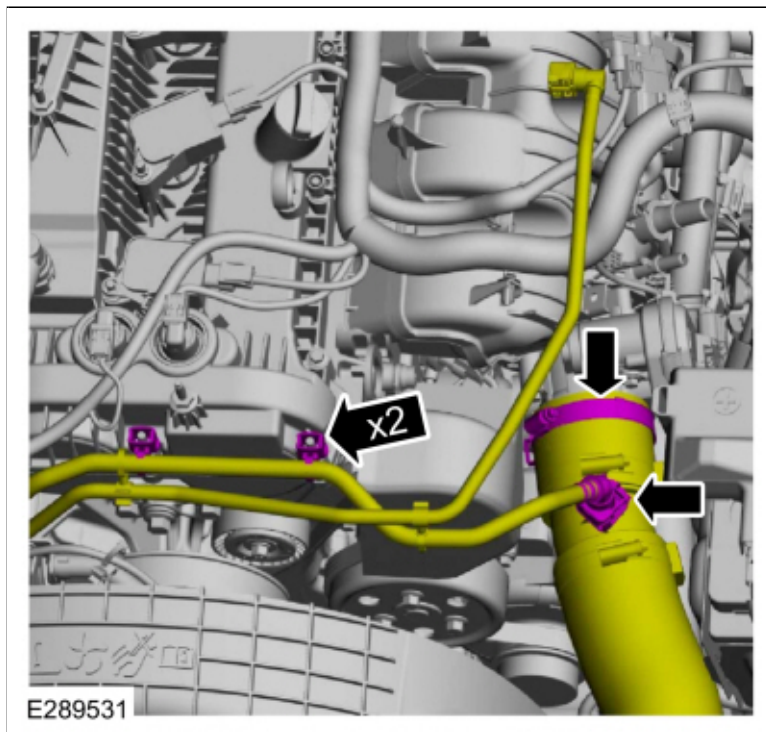
- Connect the wiring harness electrical connectors.
- Attach the wiring harness retainers.



8.

- Position the CAC pipe and tighten the clamp.  
*Torque: 44 lb.in (5 Nm)*
- Position and connect the EVAP canister tube quick release coupling and the retainers.  
Refer to: [Quick Release Coupling](#) (310-00 Fuel System - General Information - 2.3L EcoBoost (201kW/273PS), General Procedures).

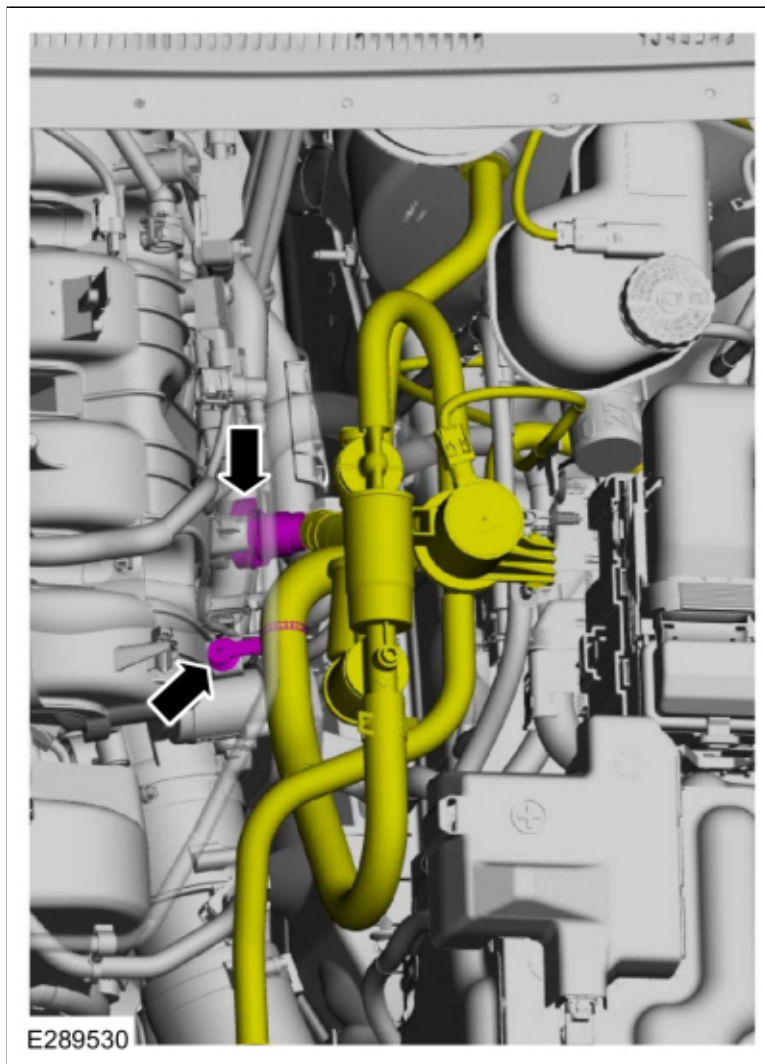




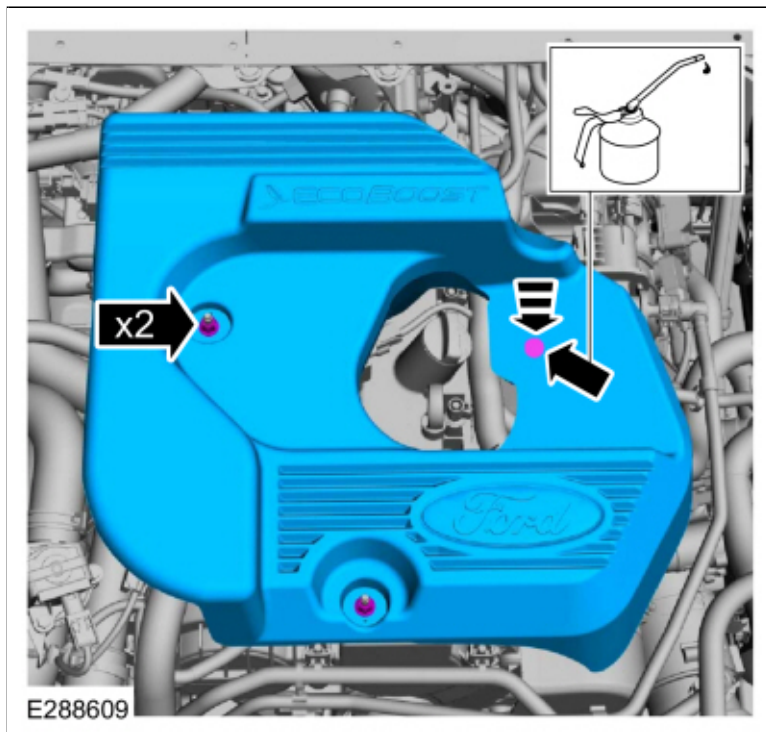
9. Position and connect the brake vacuum tube quick release coupling and retainer to the intake manifold. Refer to: [Quick Release Coupling](#) (310-00 Fuel System - General Information - 2.3L EcoBoost (201kW/273PS), General Procedures).







10. Install the EVAP canister purge valve.  
Refer to: [Evaporative Emission Canister Purge Valve](#) (303-13 Evaporative Emissions - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
11. Connect the battery ground.  
Refer to: [Battery Disconnect and Connect](#) (414-01 Battery, Mounting and Cables, General Procedures).
12.
  1. **NOTE:** *Lubricating the grommets with silicone grease will aid in the installation of the engine appearance cover, and any future removal and installation of the cover.*  
  
Lubricate each grommet with silicone grease.  
*Material:* Motorcraft® Silicone Brake Caliper Grease and Dielectric Compound / XG-3-A (ESE-M1C171-A)
  2. Position the engine appearance cover onto engine with the grommet aligned with the studs.
  3. Press down on the engine appearance cover at each grommet location to attach the grommets onto the studs and install the nuts.



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