

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

2019 Ranger  
Procedure revision date: 01/8/2019

## Engine

Base Part Number: 6L084

### Special Tool(s) / General Equipment

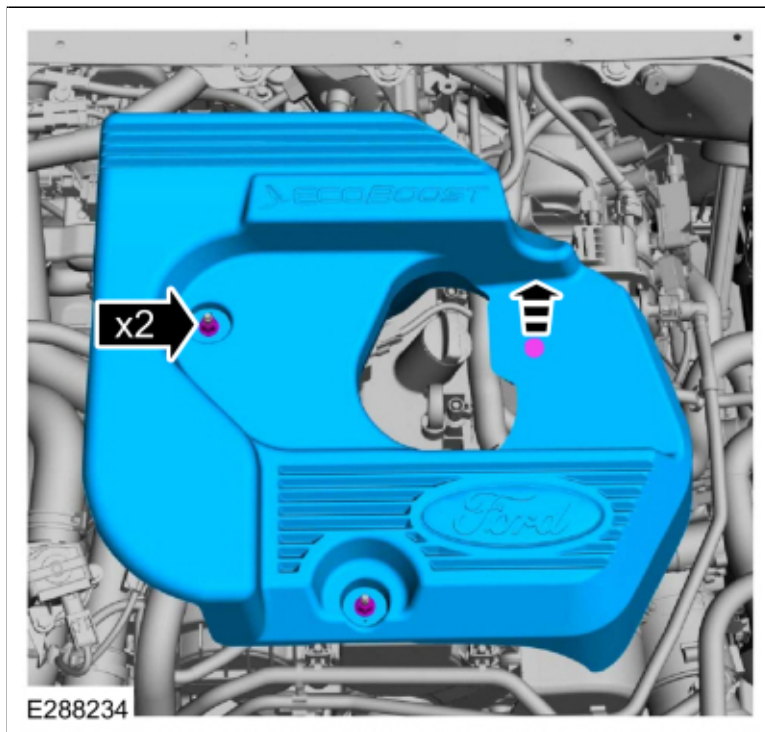
Floor Crane
Oil Drain Equipment
Hose Clamp Remover/Installer

### Materials

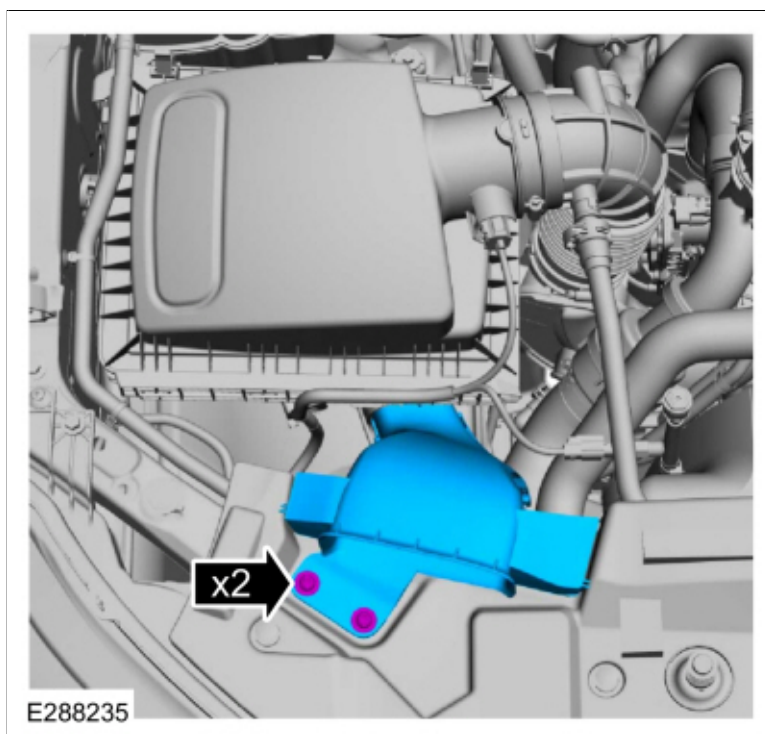
Name	Specification
Motorcraft® Metal Brake Parts Cleaner PM-4-A, PM-4-B	-

**NOTICE:** The turbocharger compressor vanes can be damaged by even the smallest particles. When removing any turbocharger or engine air intake system component, ensure that no debris enters the system. Failure to do so may result in damage to the turbocharger.

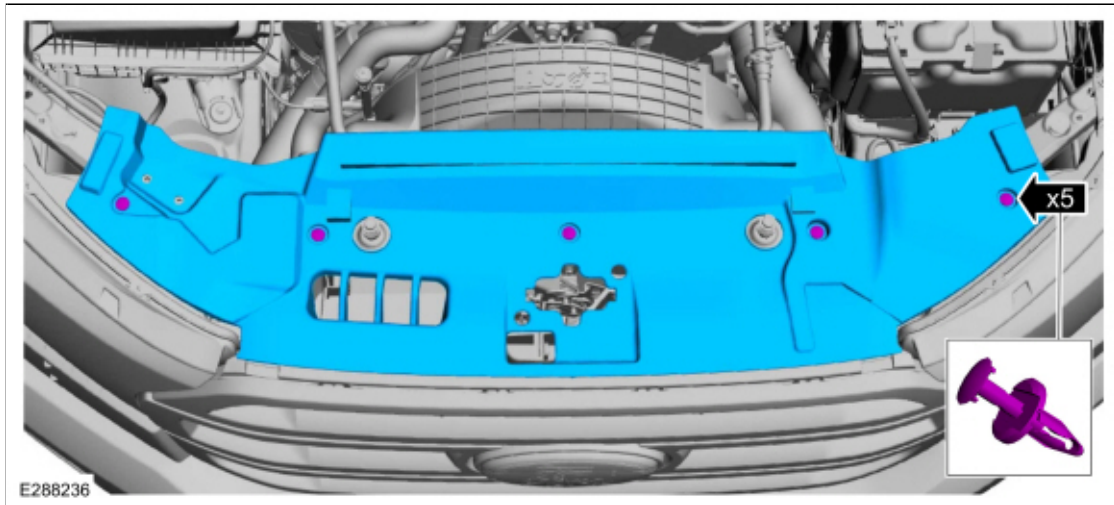
1. With the vehicle in NEUTRAL, position it on a hoist.  
Refer to: [Jacking and Lifting](#) (100-02 Jacking and Lifting, Description and Operation).
2. Release the fuel system pressure.  
Refer to: [Fuel System Pressure Release](#) (310-00 Fuel System - General Information - 2.3L EcoBoost (201kW/273PS), General Procedures).
3. **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.



4. Remove the bolts and the air cleaner inlet pipe.



5. Remove the retainers and the upper air deflector.

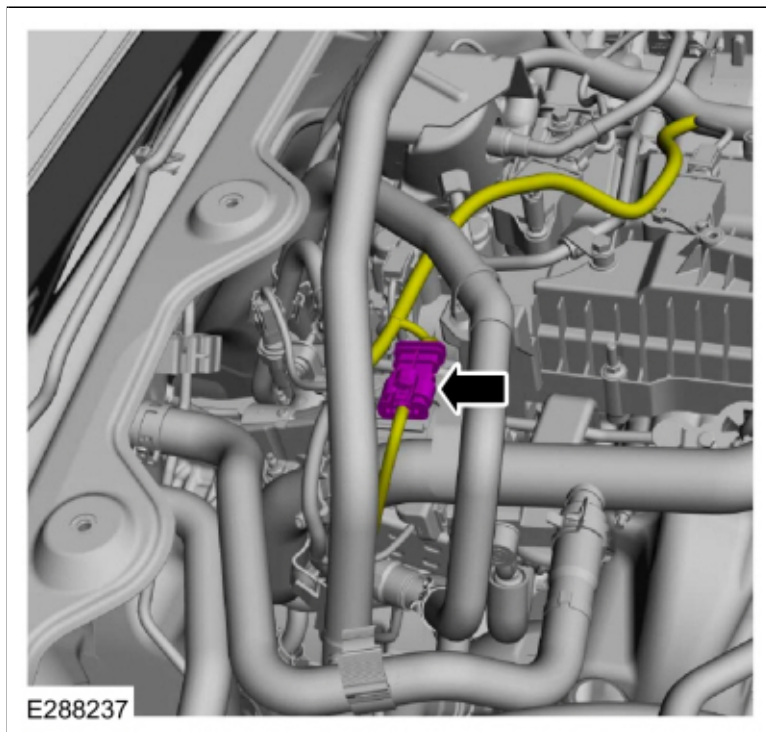


6. Remove the following items:

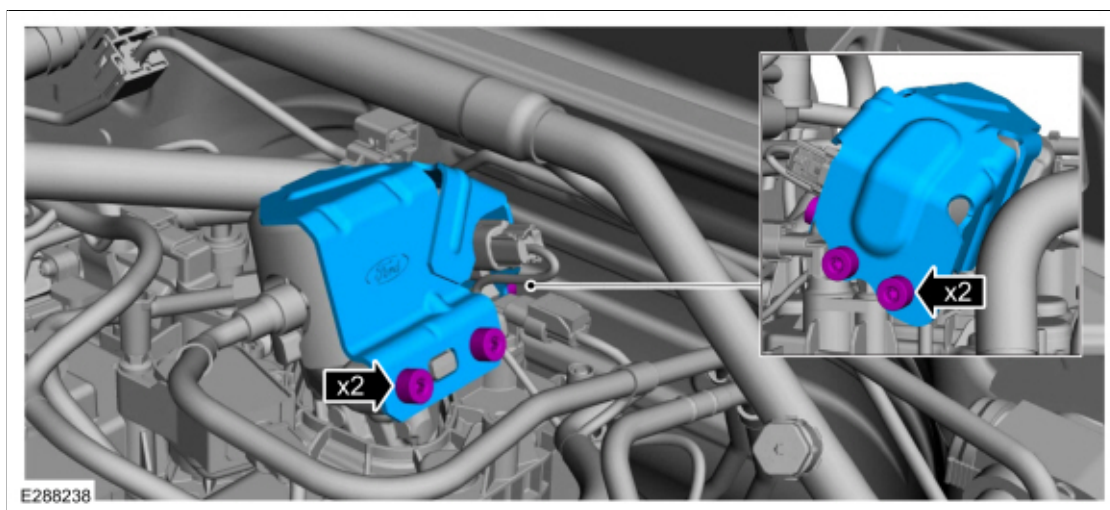
1. Remove the hood.  
Refer to: [Hood](#) (501-02 Front End Body Panels, Removal and Installation).
2. Remove the cowl panel grille.  
Refer to: [Cowl Panel Grille](#) (501-02 Front End Body Panels, Removal and Installation).
3. Remove the air cleaner outlet pipe.  
Refer to: [Air Cleaner Outlet Pipe](#) (303-12 Intake Air Distribution and Filtering - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
4. Remove the upper and lower cooling fan shrouds.  
Refer to: [Cooling Fan Upper Shroud](#) (303-03 Engine Cooling - 2.3L EcoBoost (201kW/273PS), Removal and Installation).  
Refer to: [Cooling Fan Lower Shroud](#) (303-03 Engine Cooling - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
5. Remove the cooling fan.  
Refer to: [Cooling Fan](#) (303-03 Engine Cooling - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
6. Remove the accessory drive belt.  
Refer to: [Accessory Drive Belt](#) (303-05 Accessory Drive - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
7. 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).

7. Disconnect the HO2S sensor electrical connector.



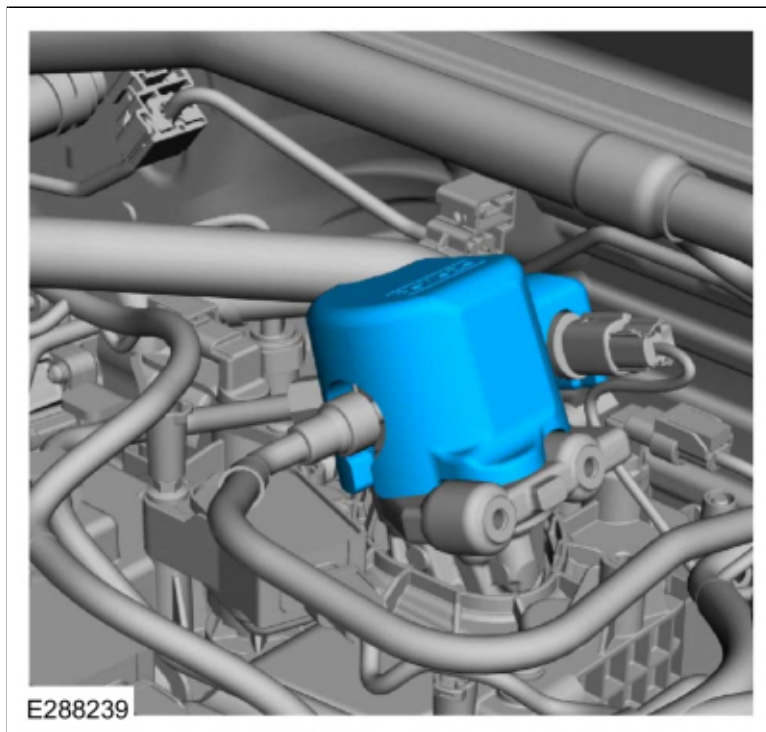


8. Remove the bolts and the high-pressure fuel pump crash bracket.

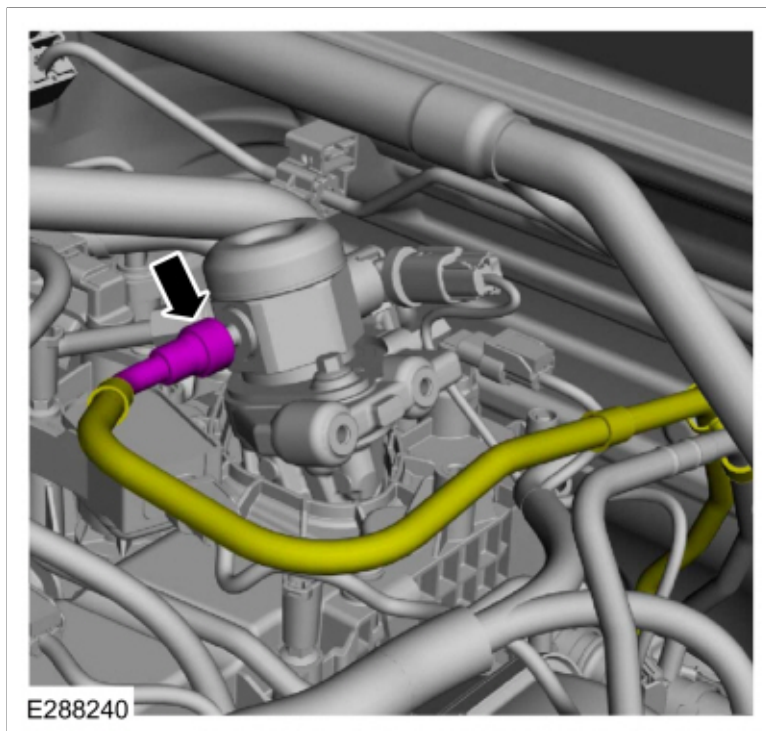


9. **NOTE:** When removing the high-pressure fuel pump noise insulator, spreading the openings will reduce the risk of damage.

Remove the high-pressure fuel pump noise insulator.

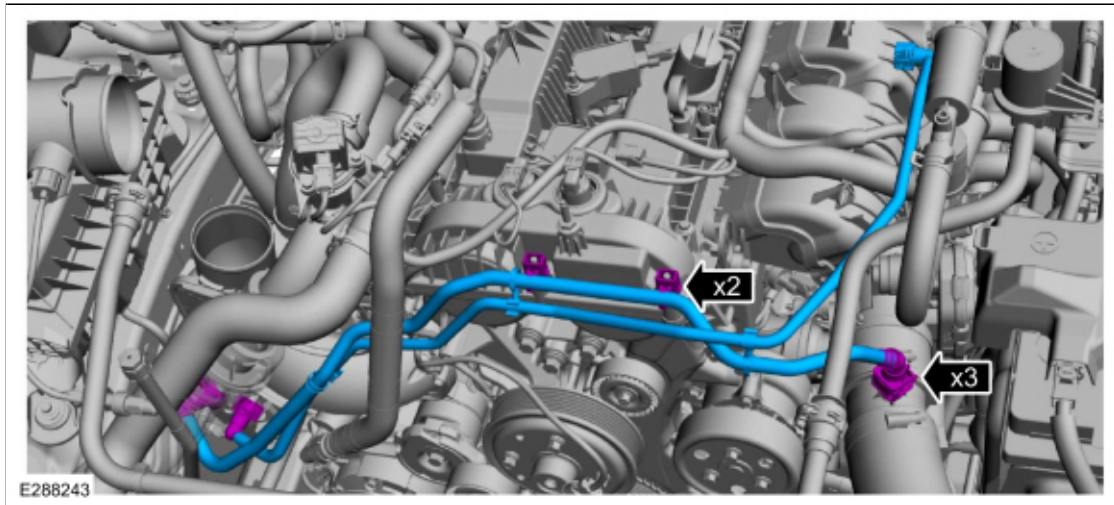


10. Disconnect the fuel tube spring lock coupling and position aside.  
 Refer to: [Spring Lock Couplings](#) (310-00 Fuel System - General Information - 2.3L EcoBoost (201kW/273PS), General Procedures).

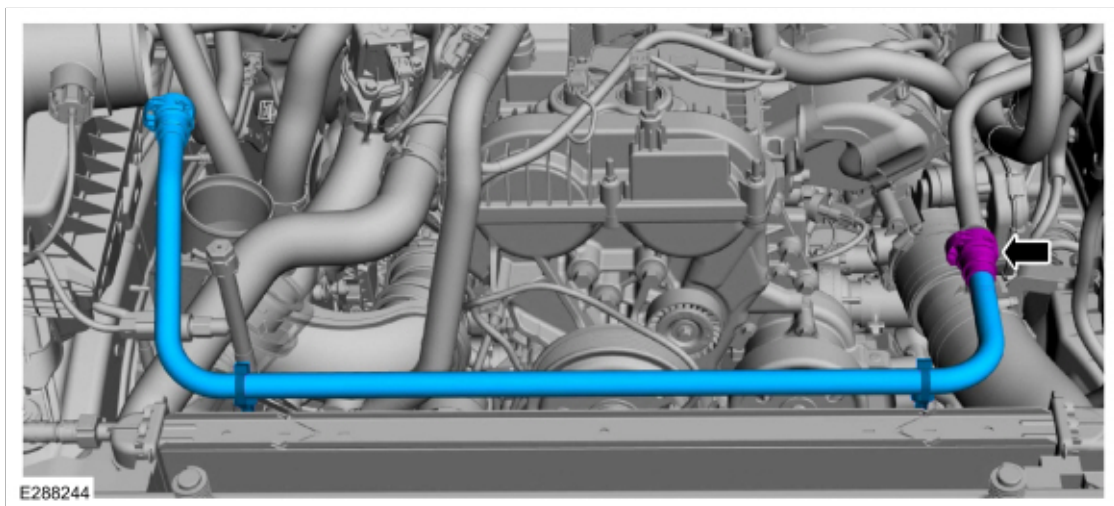


11. Disconnect the EVAP tubes, retainers and remove.  
 Refer to: [Quick Release Coupling](#) (310-00 Fuel System - General Information - 2.3L EcoBoost (201kW/273PS), General Procedures).

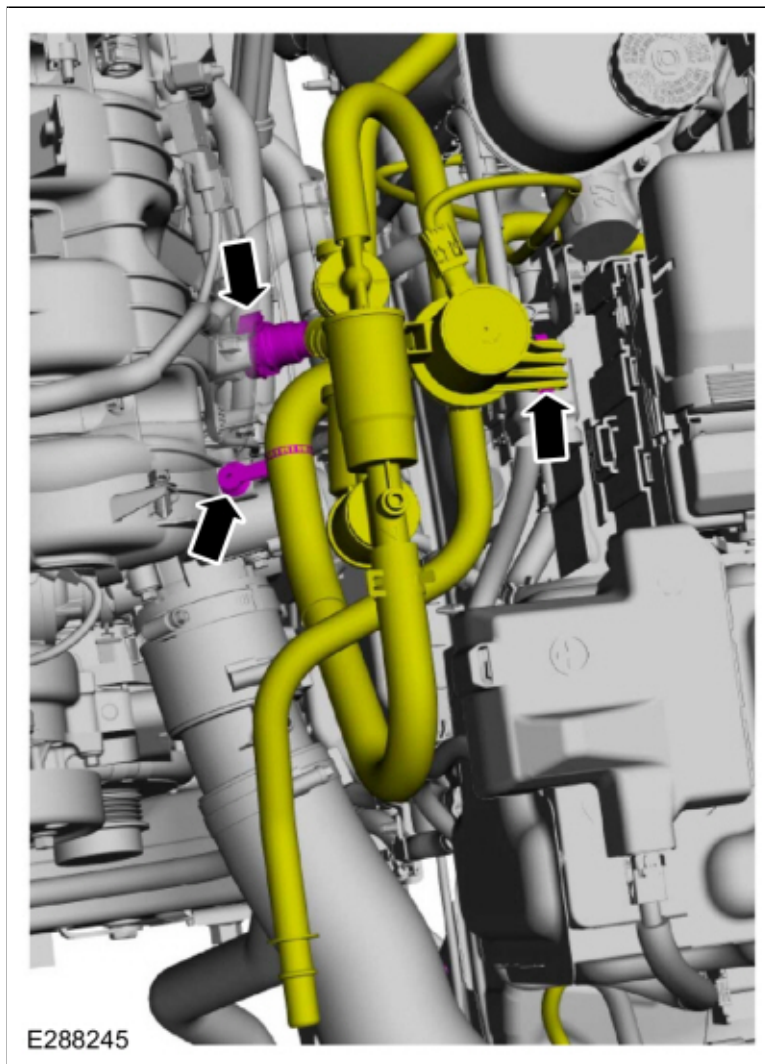




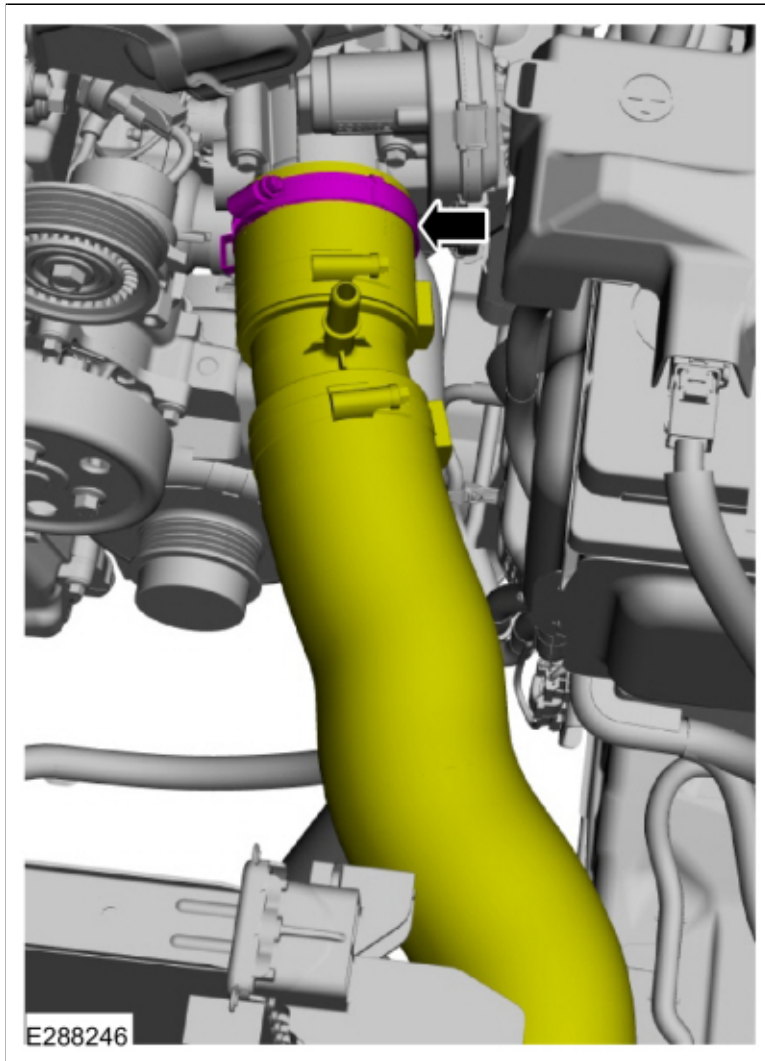
12. Disconnect the brake vacuum tube and remove.  
Refer to: [Quick Release Coupling](#) (310-00 Fuel System - General Information - 2.3L EcoBoost (201kW/273PS), General Procedures).



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



14. Loosen the CAC outlet pipe clamp and position aside.

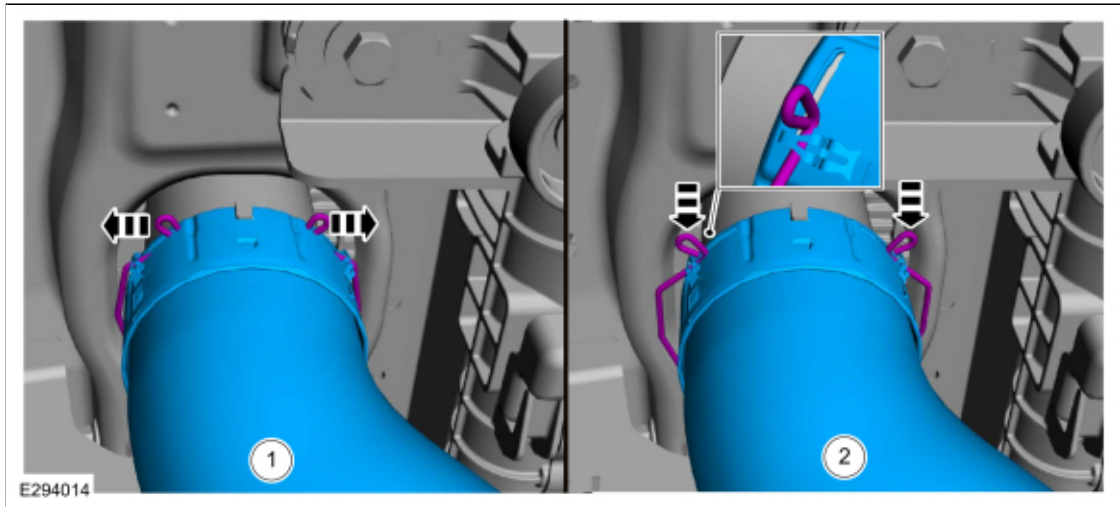


15.

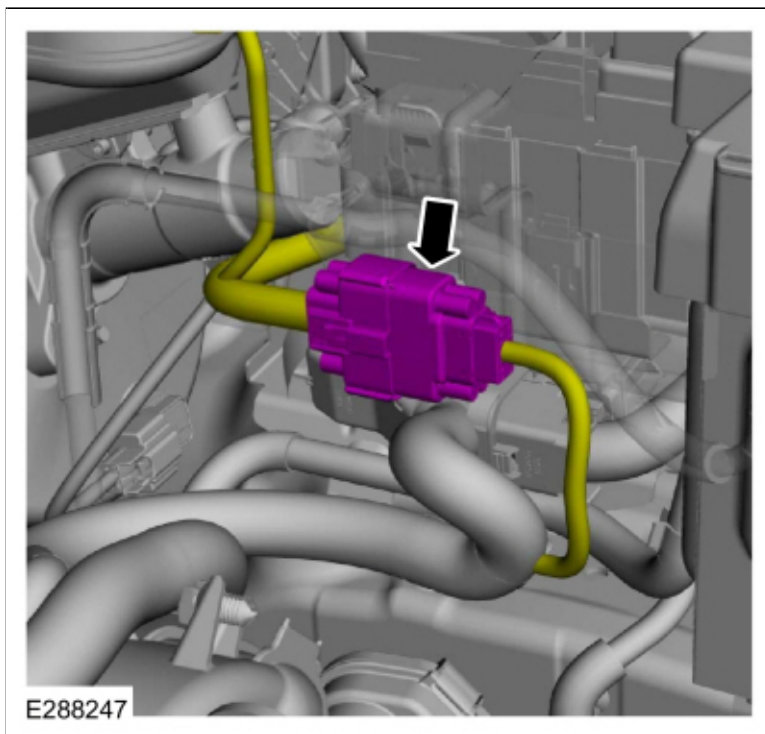
1. Release the CAC outlet pipe by spreading the retainer ends outward.
2. Position them in the retaining notches locking the retainer in the open position and remove the CAC outlet pipe.



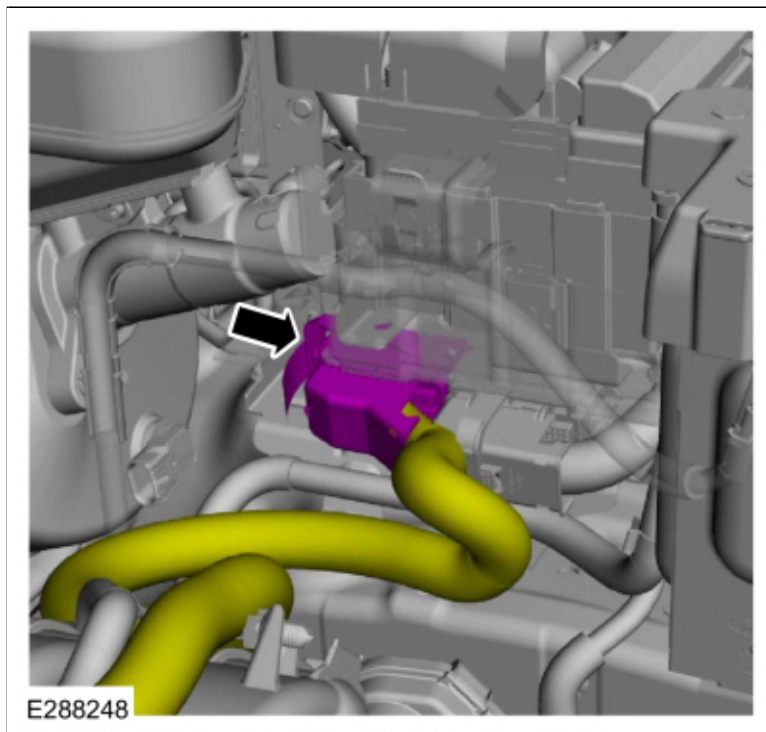




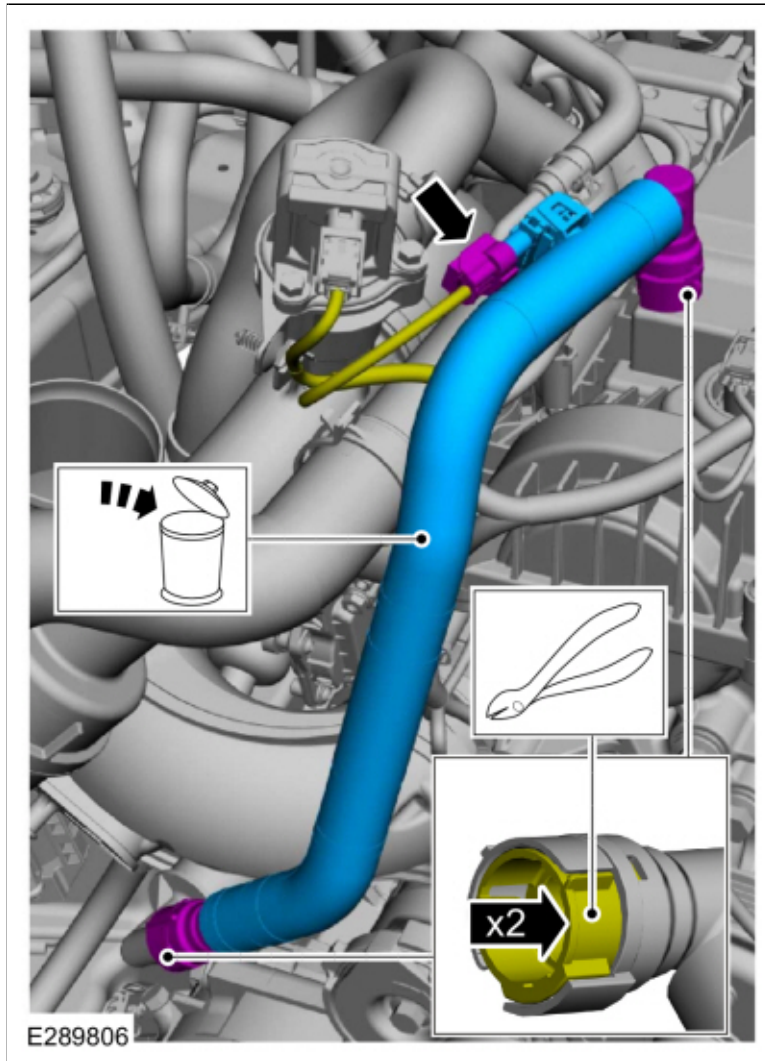
16. Disconnect the engine harness electrical connector.



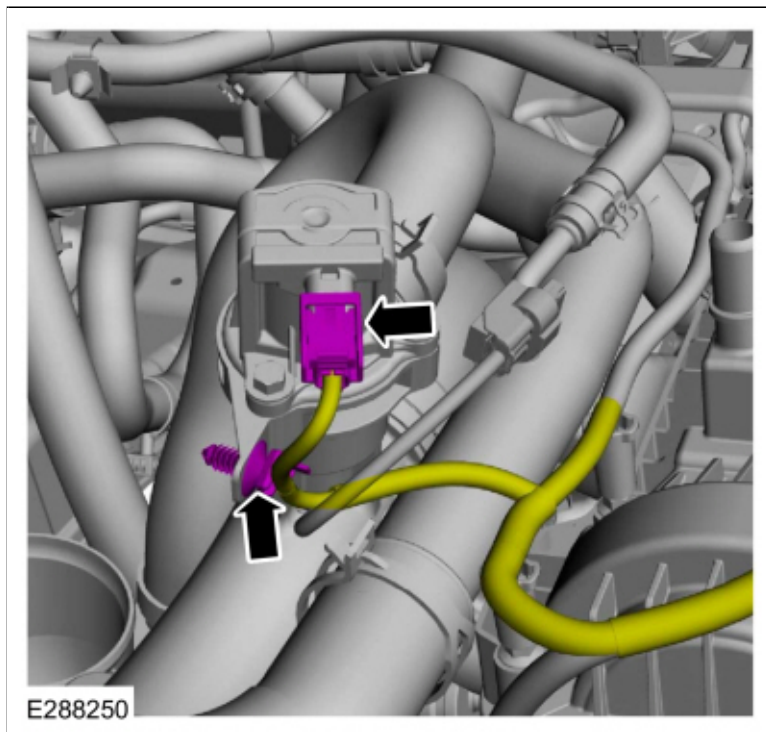
17. Disconnect the PCM electrical connector.



18. **NOTE:** *The crankcase vent tube has permanent connectors. If it needs to be removed for any reason, the connectors must be cut to get the tube off. This tube will need to be replaced.*
- Disconnect the wiring harness electrical connector.
  - Cut housing above the lock tab, on both ends.
  - Remove and discard the crankcase vent tube.

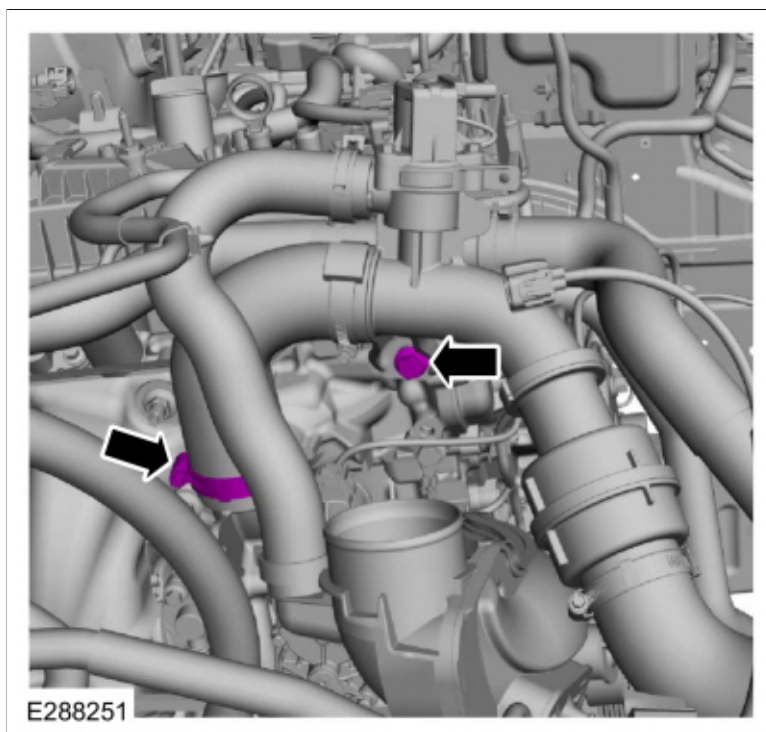


19. Disconnect the electrical connector and retainer for CAC diverter valve.



20.

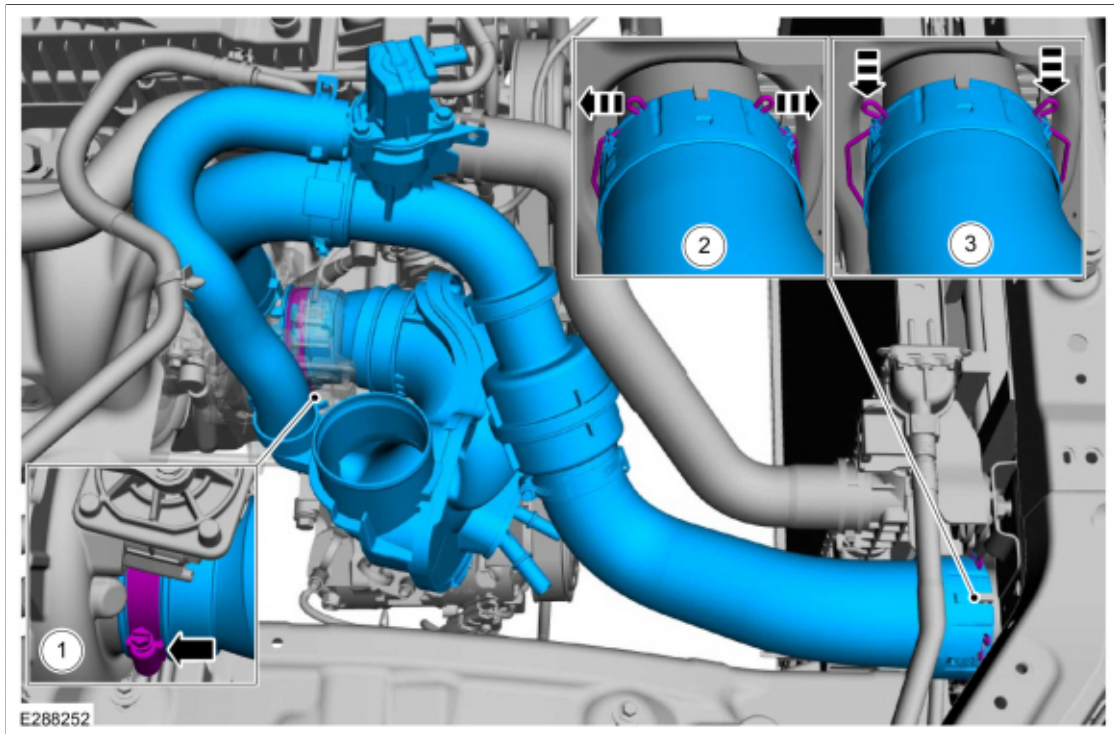
- Loosen the turbocharger clamp.
- Remove the CAC pipe assembly bolt.



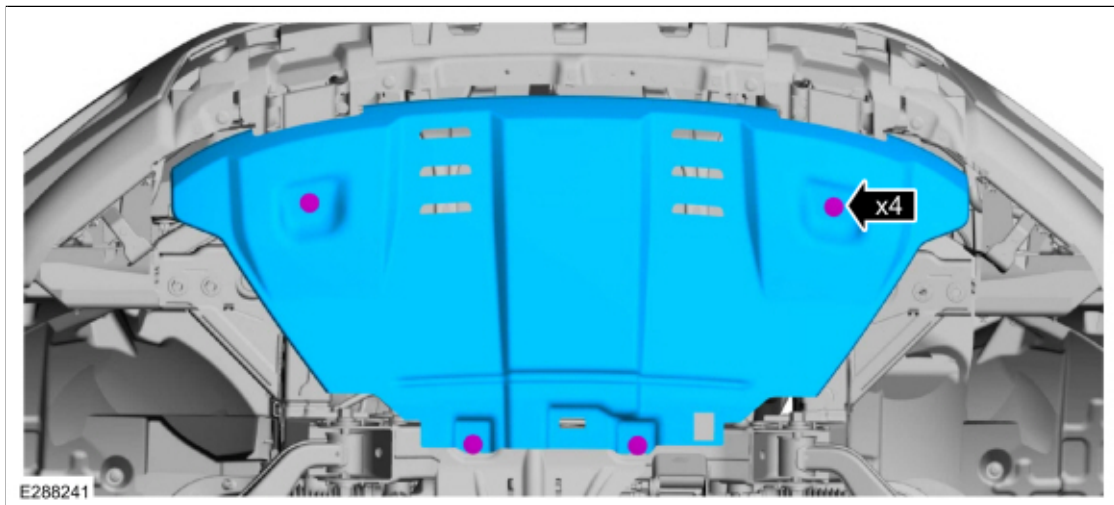
21.

1. Loosen the CAC inlet pipe clamp.

2. Release the CAC inlet pipe by spreading the retainer ends outward.
3. Position them in the retaining notches locking the retainer in the open position and remove the CAC inlet pipe.

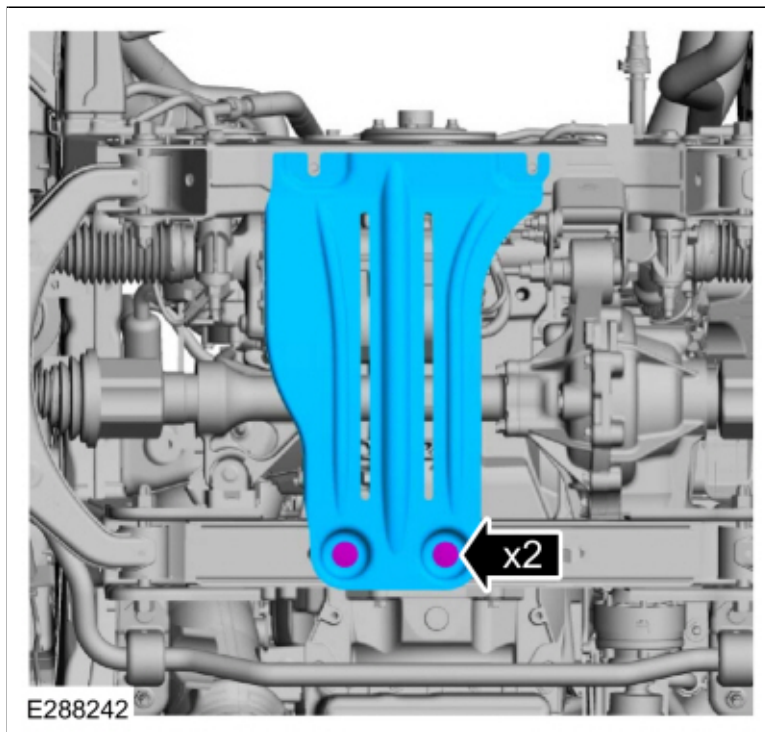


22. Remove the RH and LH front wheels and tires.  
Refer to: [Wheel and Tire](#) (204-04A Wheels and Tires, Removal and Installation).
23. Remove the bolts and the front skid plate.

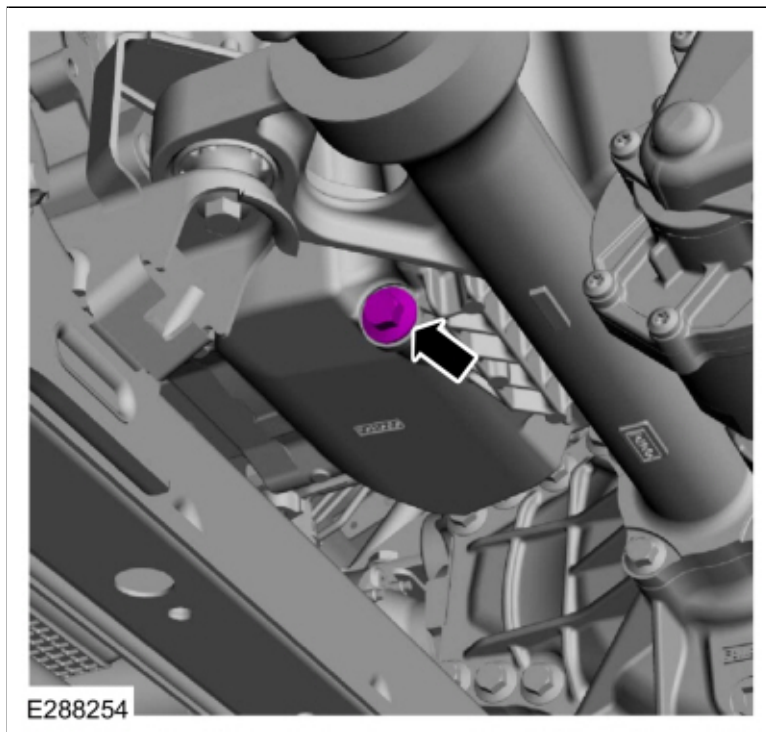


24. Remove the bolts and the rear skid plate.

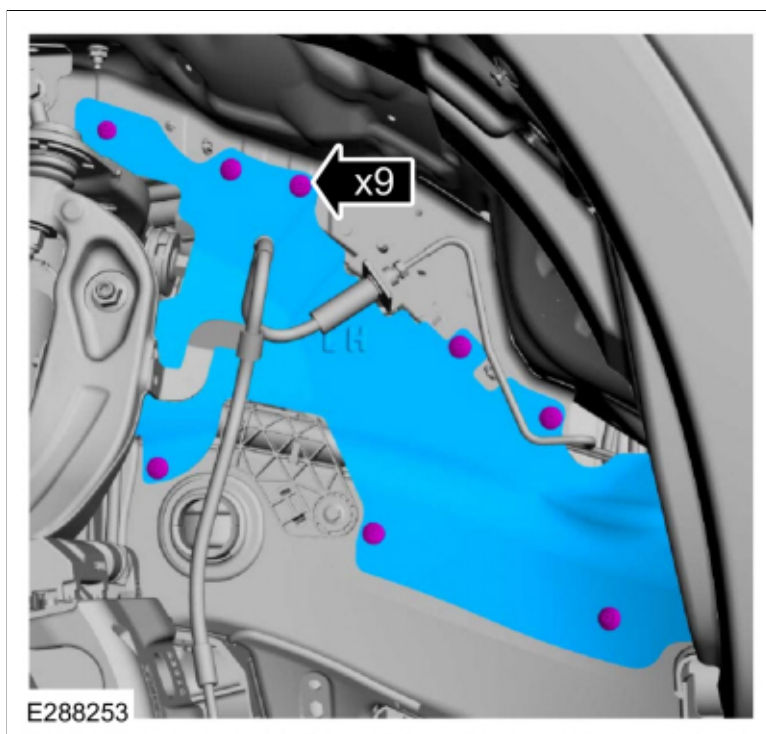




25. Drain the cooling system.  
Refer to: [Cooling System Draining, Vacuum Filling and Bleeding](#) (303-03 Engine Cooling - 2.3L EcoBoost (201kW/273PS), General Procedures).
- 26.
- Remove the oil pan drain bolt and drain the engine oil.  
Use the General Equipment: Oil Drain Equipment
  - Install the oil pan drain bolt.  
*Torque: 20 lb.ft (27 Nm)*

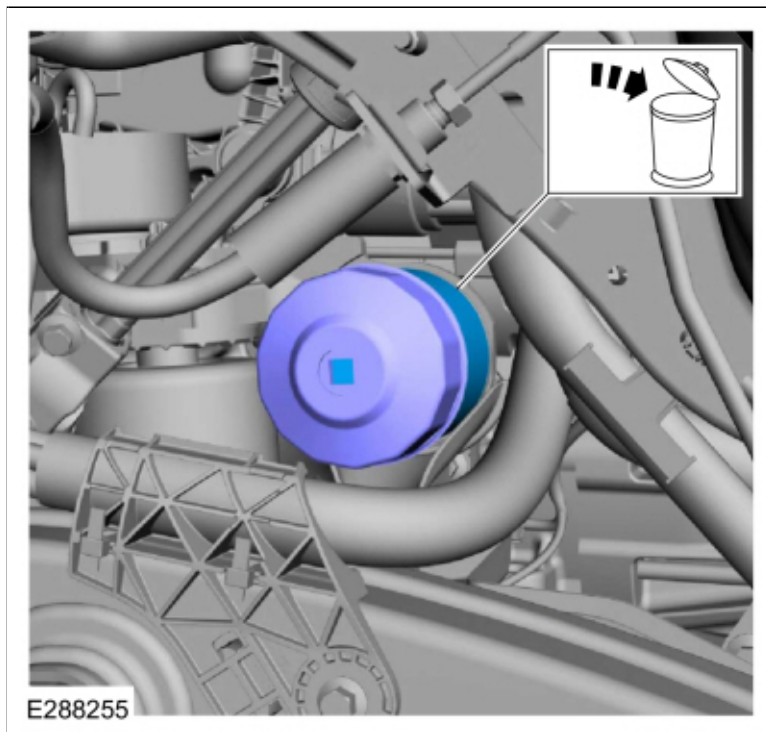


27. Remove the retainers and the LH side splash shield for access to the oil filter.



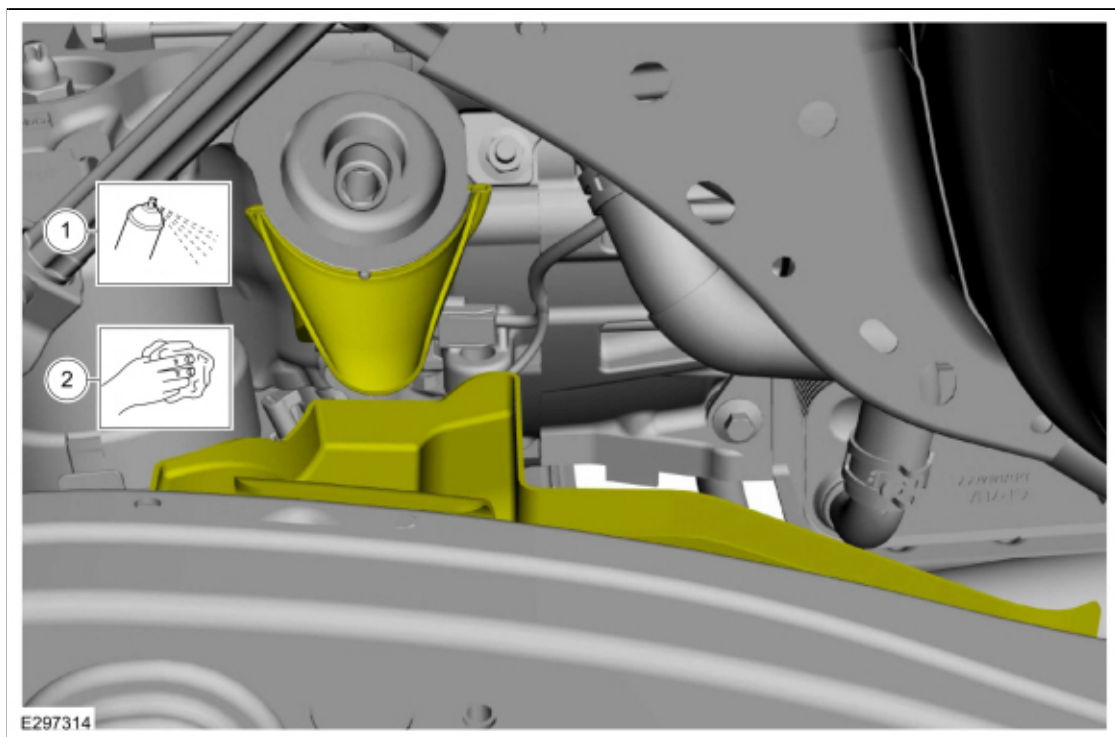
28. **NOTE:** Use a commercially available end cap oil filter wrench.

Remove and discard the engine oil filter.  
Use the General Equipment: Oil Drain Equipment



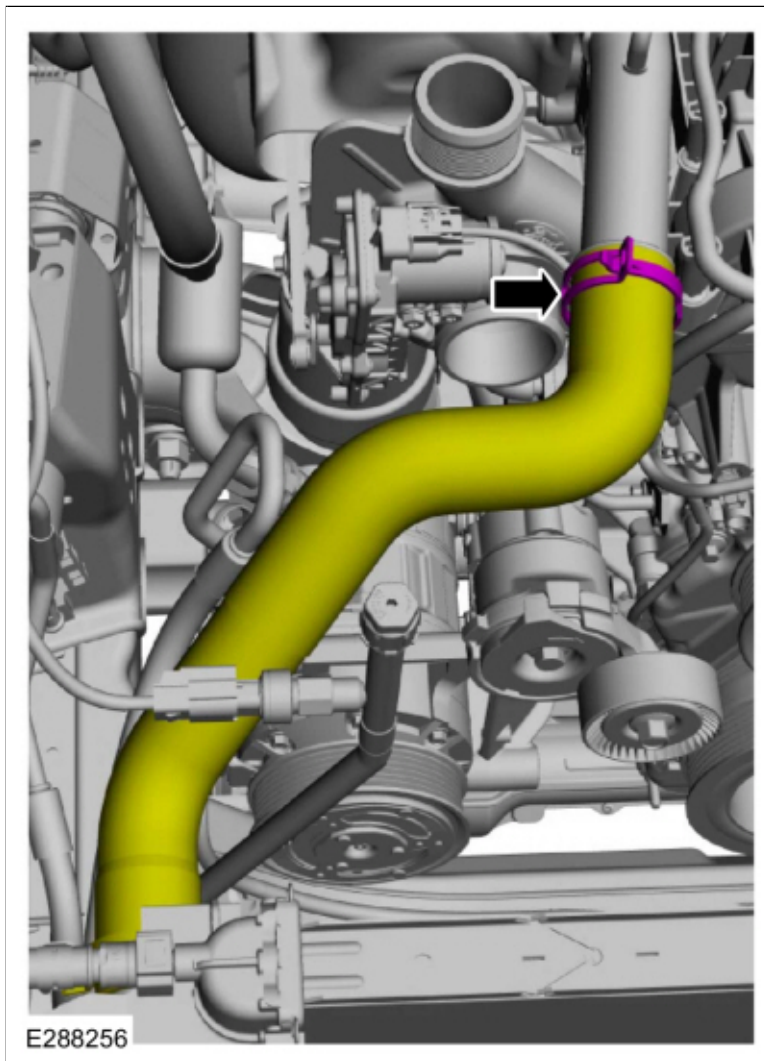
29.

1. Using brake cleaner, clean the drain troughs.  
Use the General Equipment: Oil Drain Equipment  
*Material:* Motorcraft® Metal Brake Parts Cleaner / PM-4-A, PM-4-B
2. Wipe the drain troughs clean.



30. Disconnect the upper radiator hose from coolant tube.

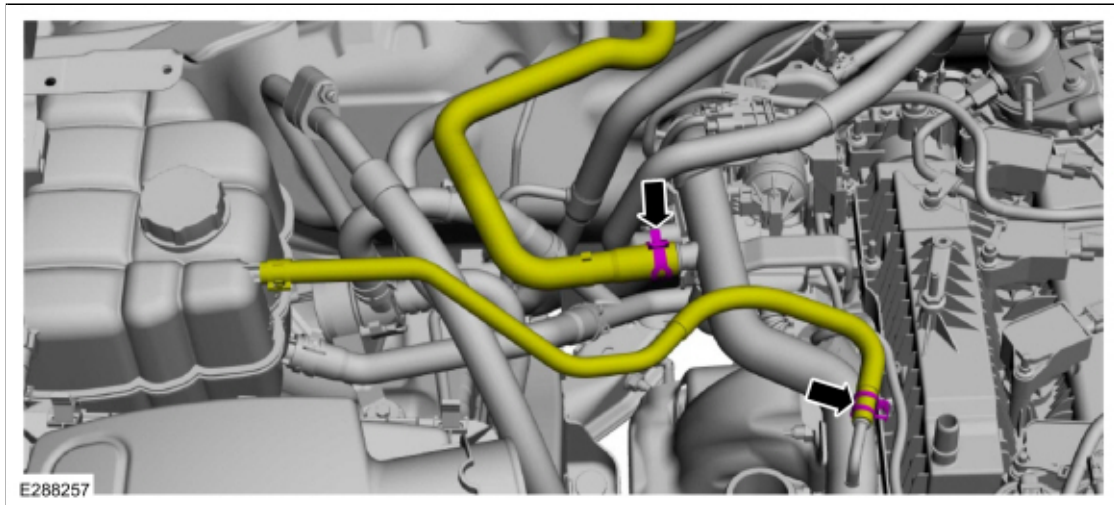
Use the General Equipment: Hose Clamp Remover/Installer



31.

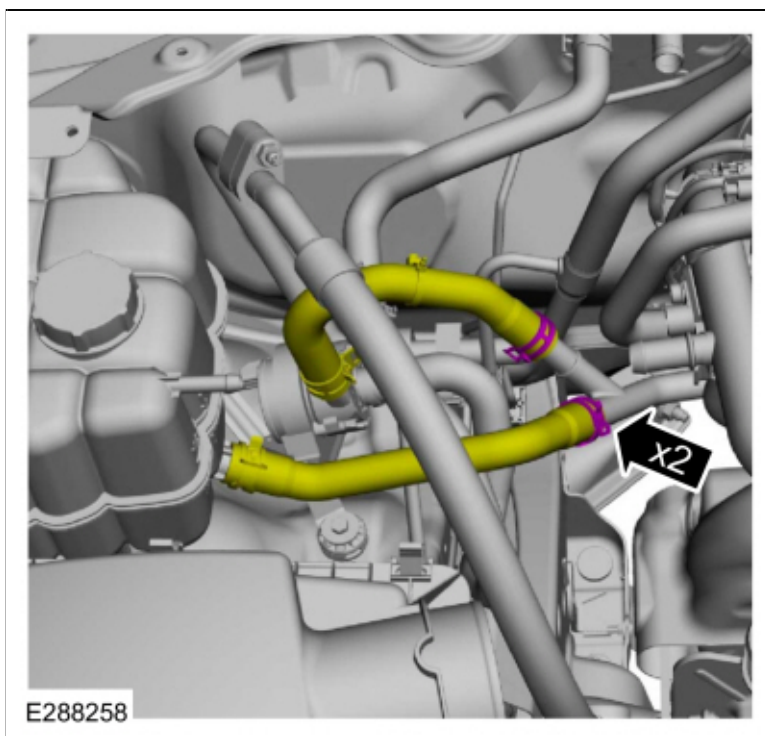
- Disconnect the degas bottle hose from coolant tube.  
Use the General Equipment: Hose Clamp Remover/Installer
- Disconnect the heater hose from the coolant tube.  
Use the General Equipment: Hose Clamp Remover/Installer





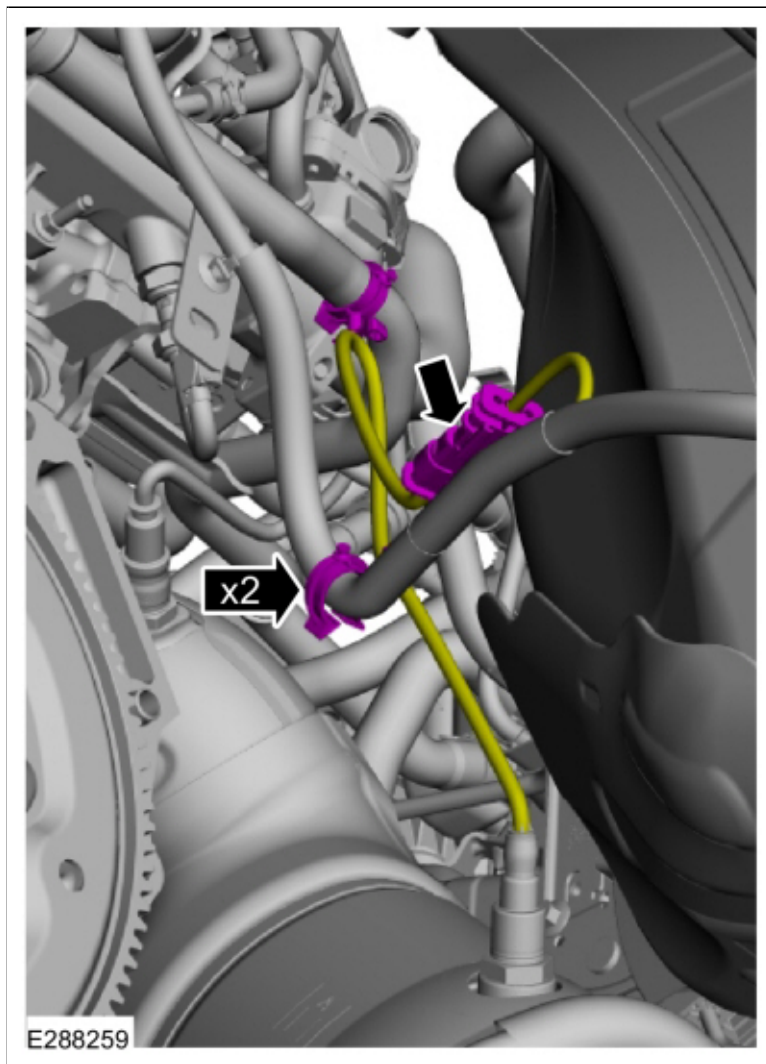
32.

- Disconnect the degas bottle hose from coolant tube.  
Use the General Equipment: Hose Clamp Remover/Installer
- Disconnect the start/stop pump hose from the coolant tube.  
Use the General Equipment: Hose Clamp Remover/Installer



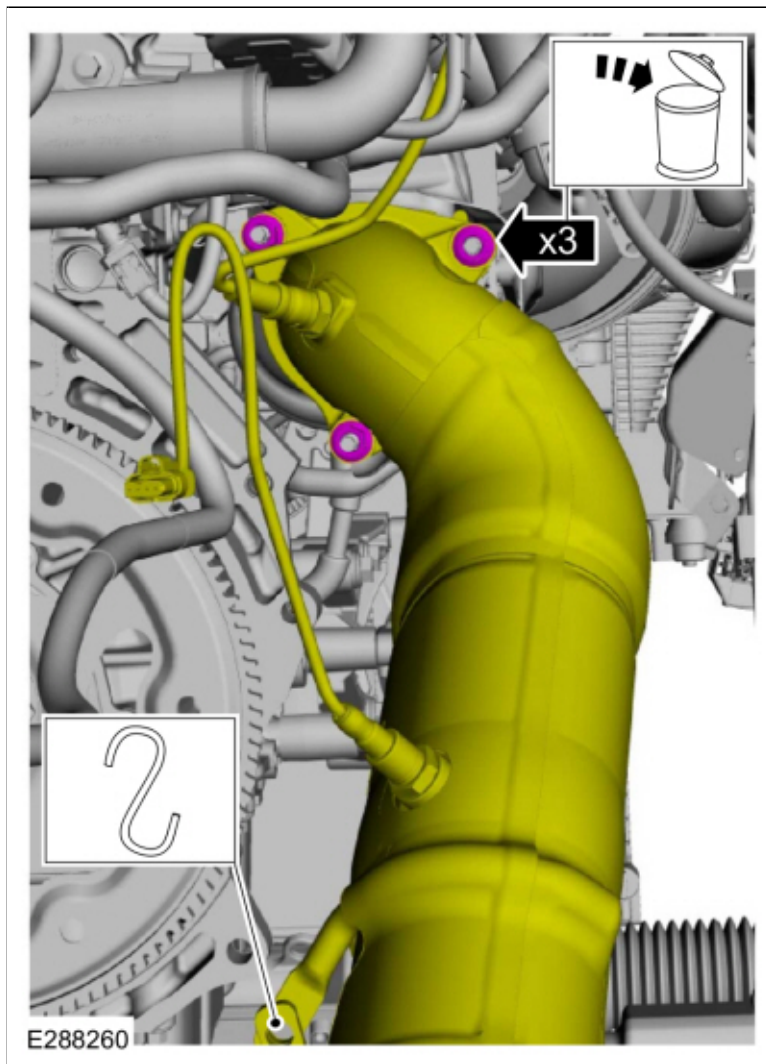
33. Remove the transmission.  
Refer to: [Transmission](#) (307-01 Automatic Transmission - 10-Speed Automatic Transmission - 10R80, Removal and Installation).
34. Disconnect the catalyst monitor sensors electrical connector and the wiring harness retainers.





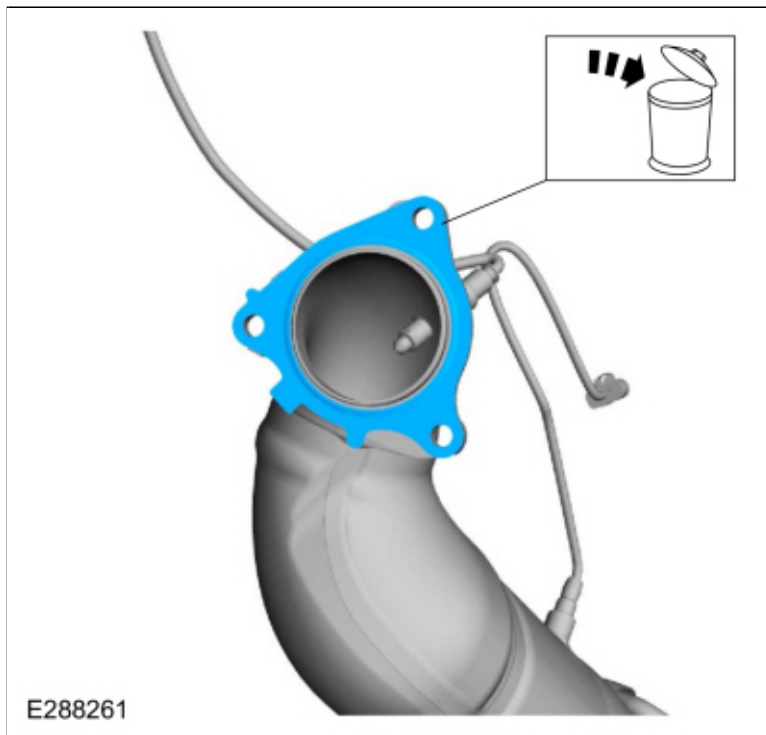
35.

- Remove the and discard the catalytic converter nuts.
- Position the catalytic converter aside and secure.
- Make sure that the mating faces are clean and free of foreign material.



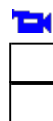
36.

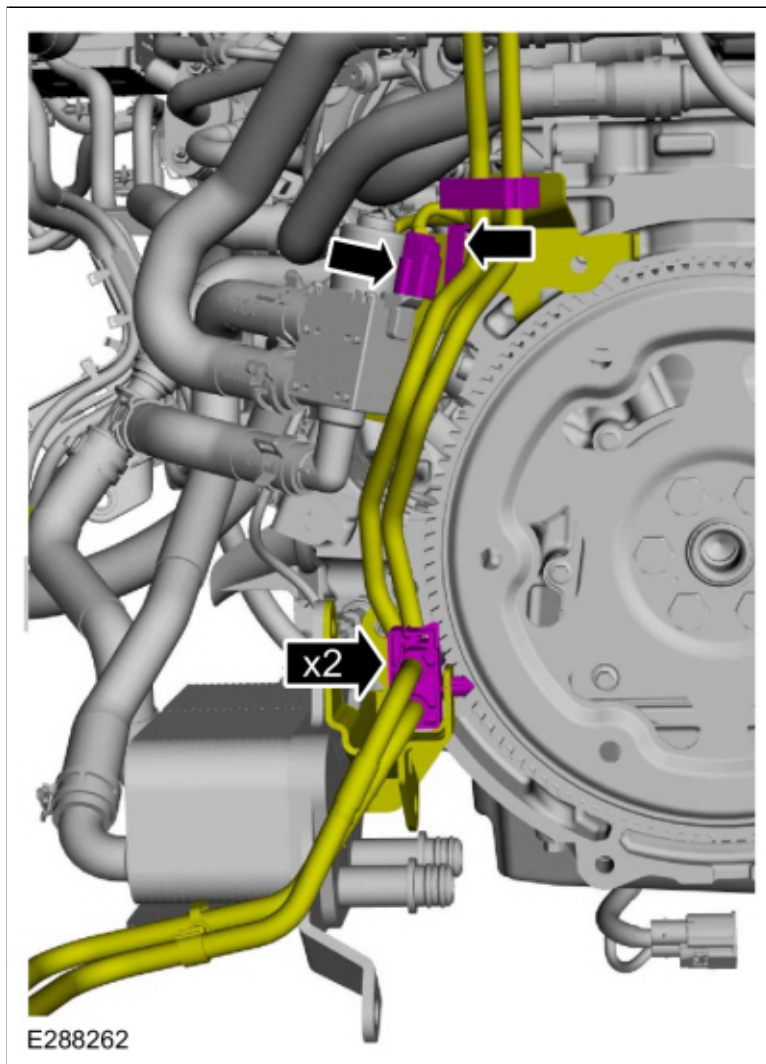
- Remove and discard the catalytic converter gasket.
- Make sure that the mating faces are clean and free of foreign material.



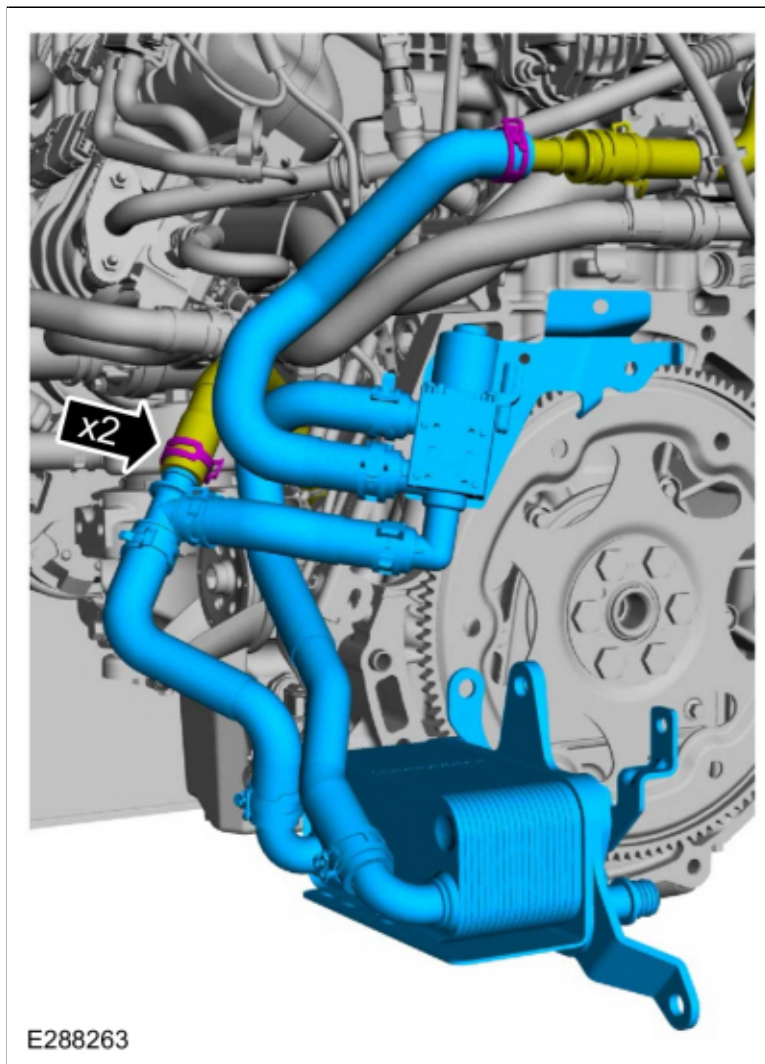
37.

- Disconnect the wiring harness electrical connector and retainer.
- Detach the fuel tubes clips from the bracket and position aside.



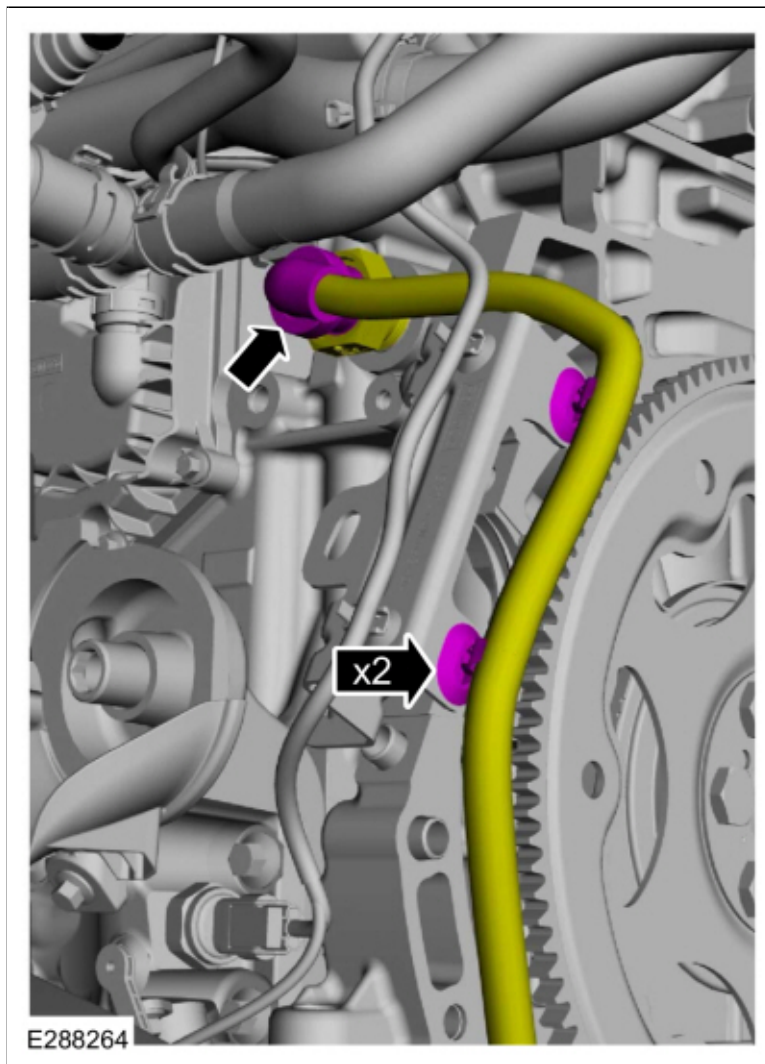


38. Disconnect the coolant hoses and remove transmission cooler and hose assembly. Use the General Equipment: Hose Clamp Remover/Installer

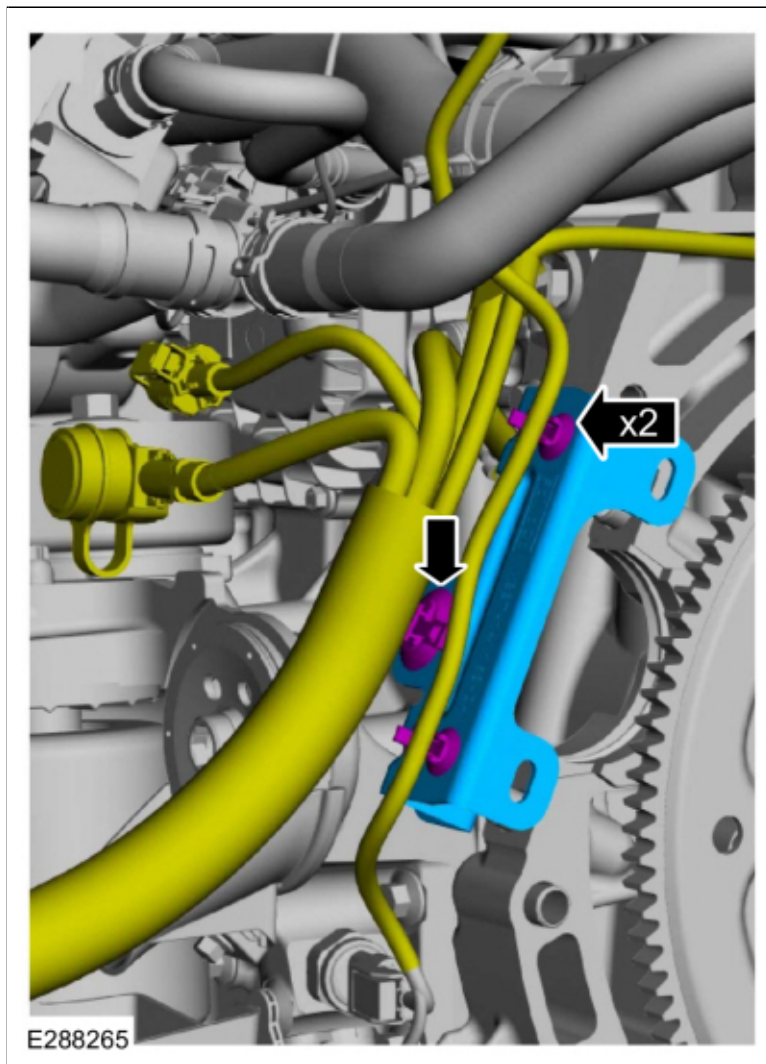


39. If equipped, disconnect the block heater wiring harness electrical connector and retainers.

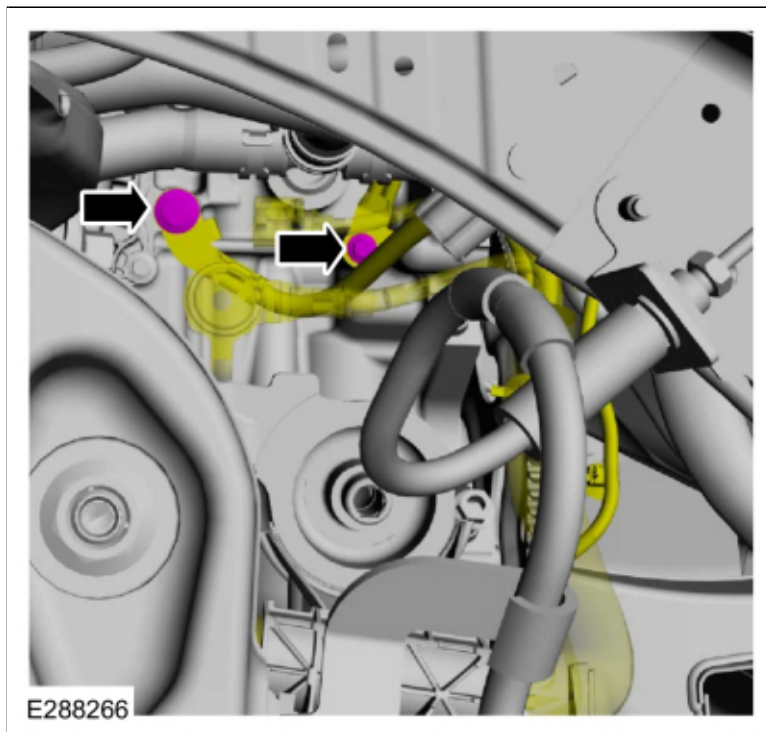




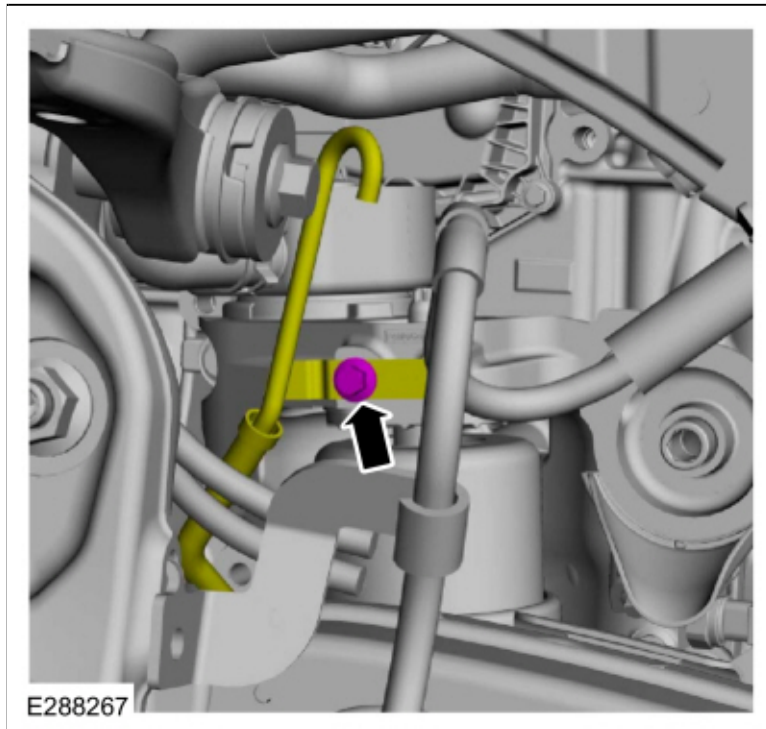
40. Disconnect the battery harness retainers and remove the starter motor bracket.



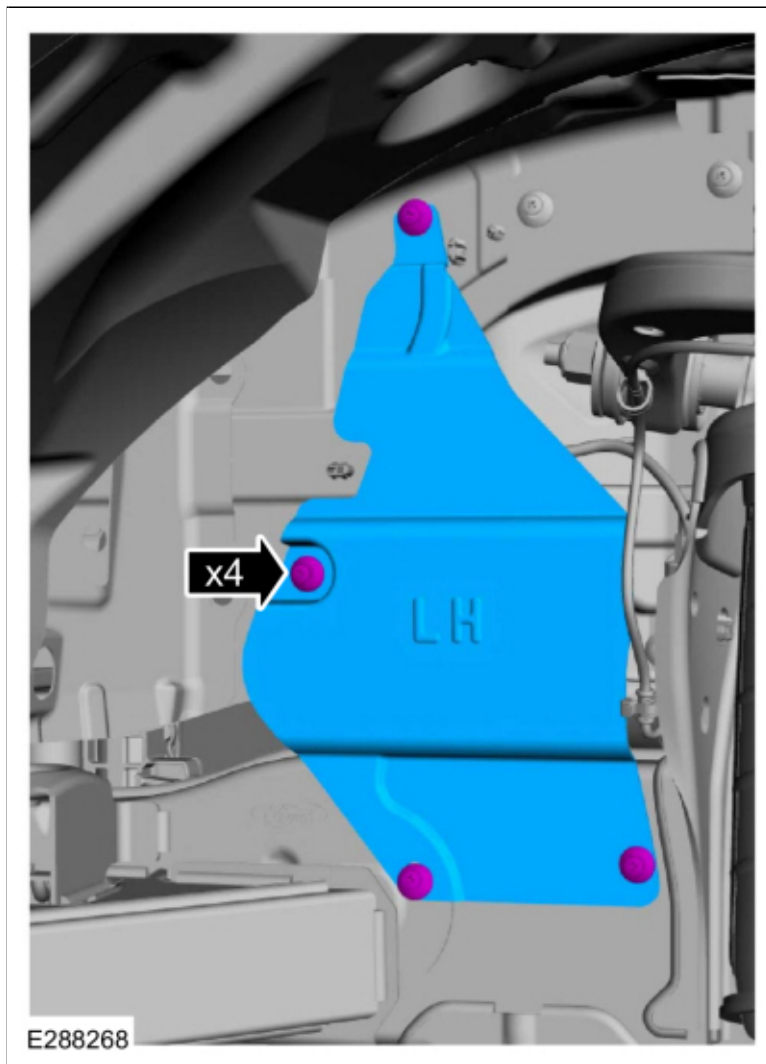
41. Remove the ground bolts from the LH side of block and position aside.



42. If equipped with 4X4, remove the bolt from the LH engine mount bracket and position the axle vent tube aside.



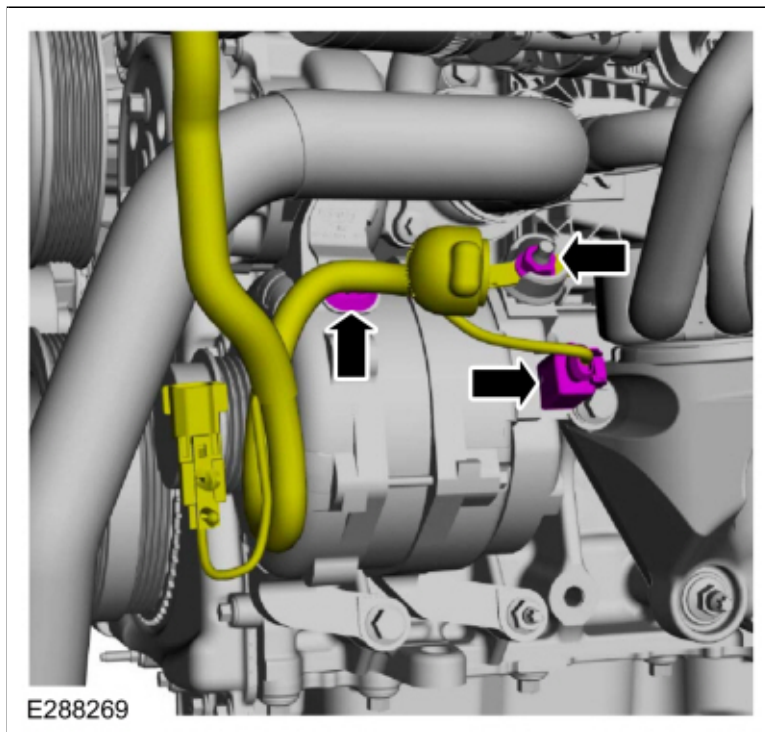
43. Remove the retainers and the LH front side splash shield for access to generator.



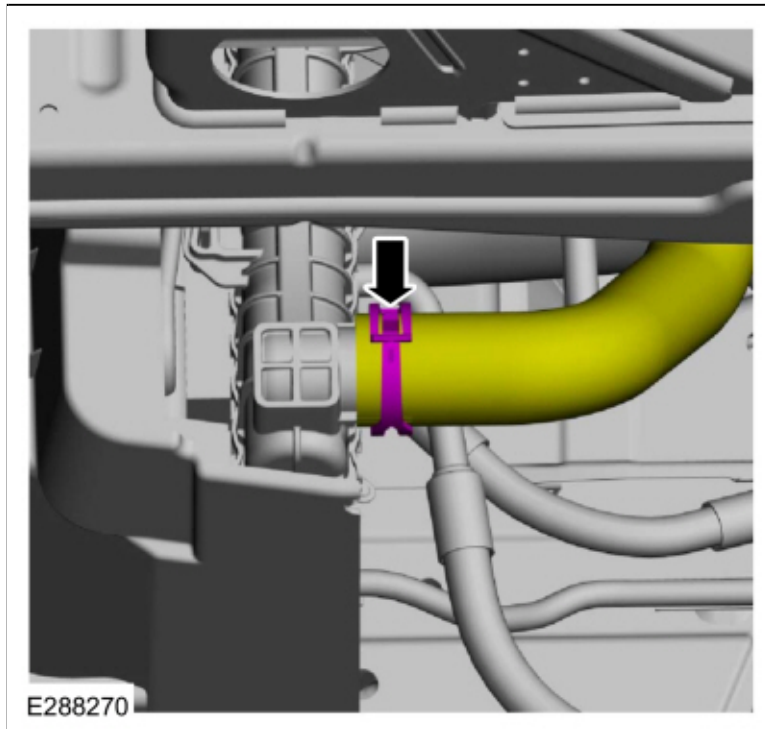
44.

- Position the cover aside and remove the nut and the B+ cable.
- Disconnect the generator electrical connector.
- Detach the B+ cable retainer and position aside.





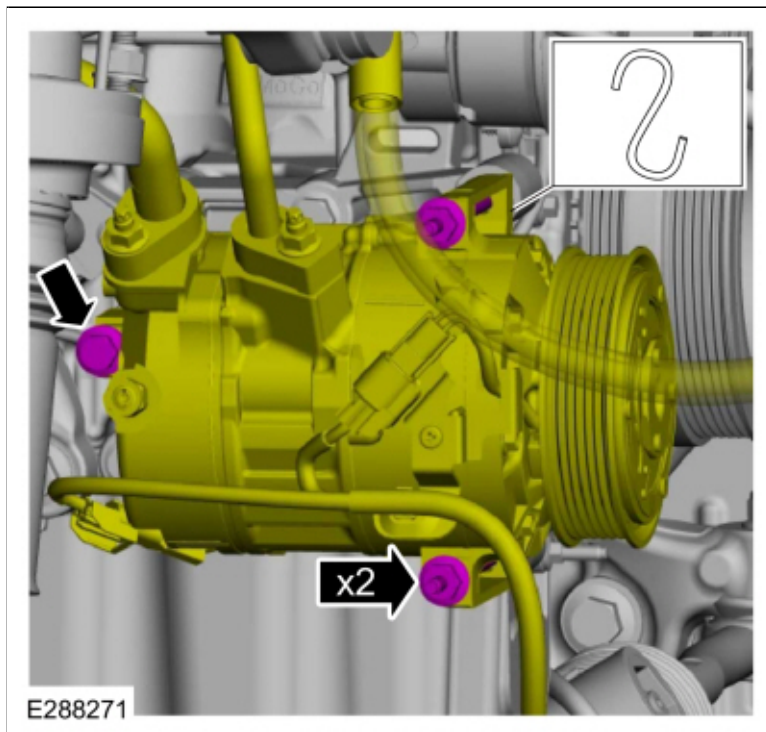
45. Disconnect the lower radiator hose from the radiator.  
Use the General Equipment: Hose Clamp Remover/Installer



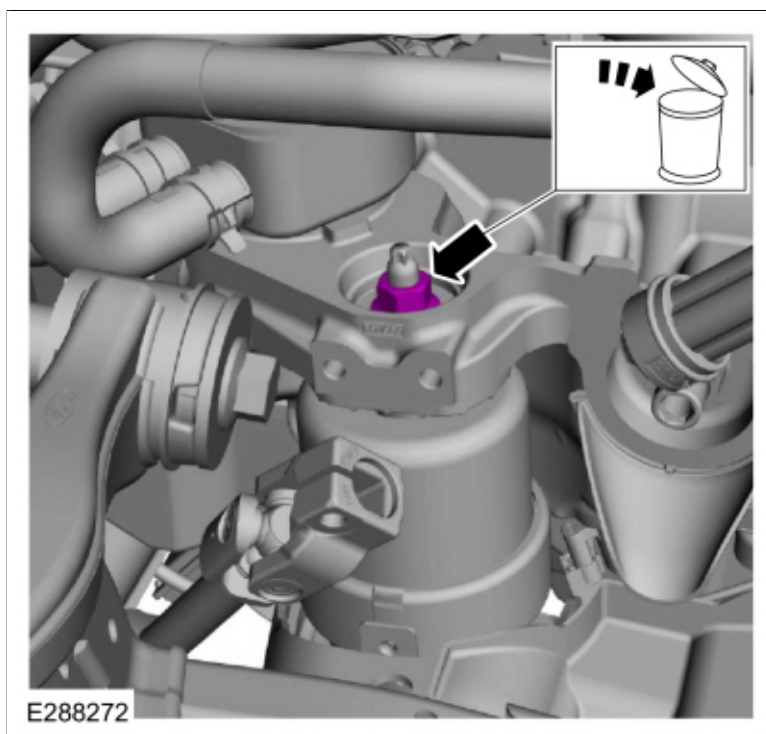
46. **NOTE:** The bolts will stay with the A/C compressor.

Loosen the bolts, position and support the A/C compressor aside.

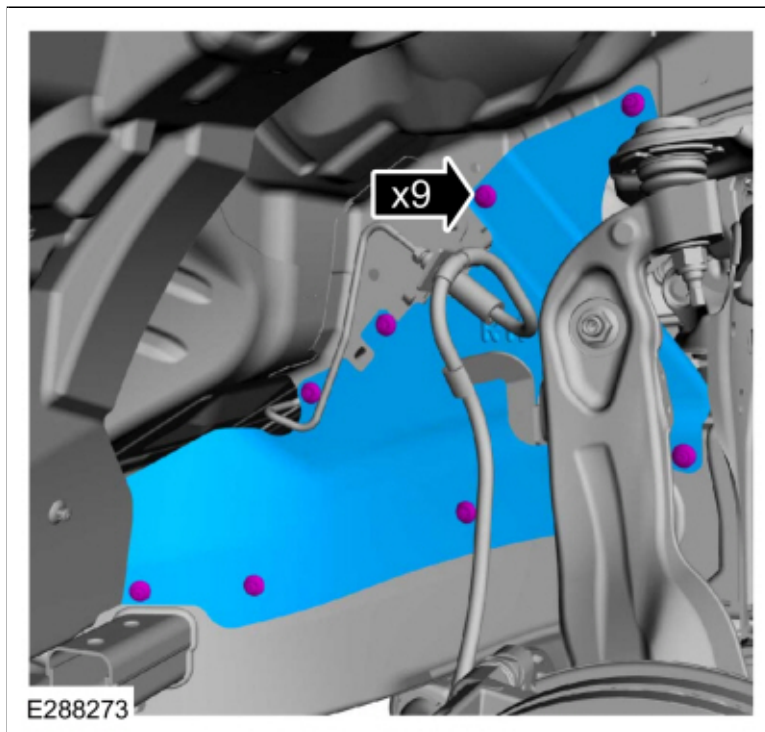




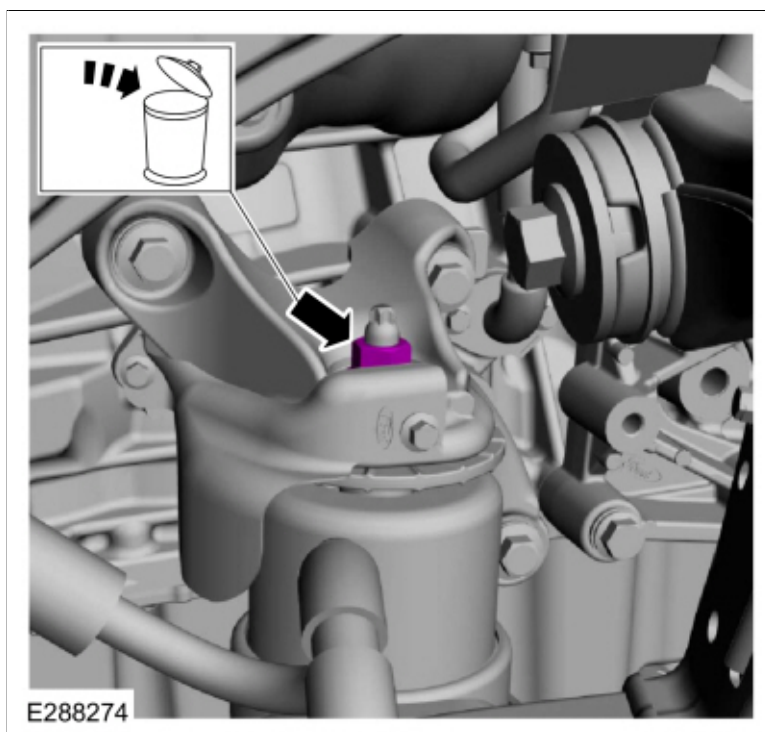
47. Remove and discard the LH engine mount nut.



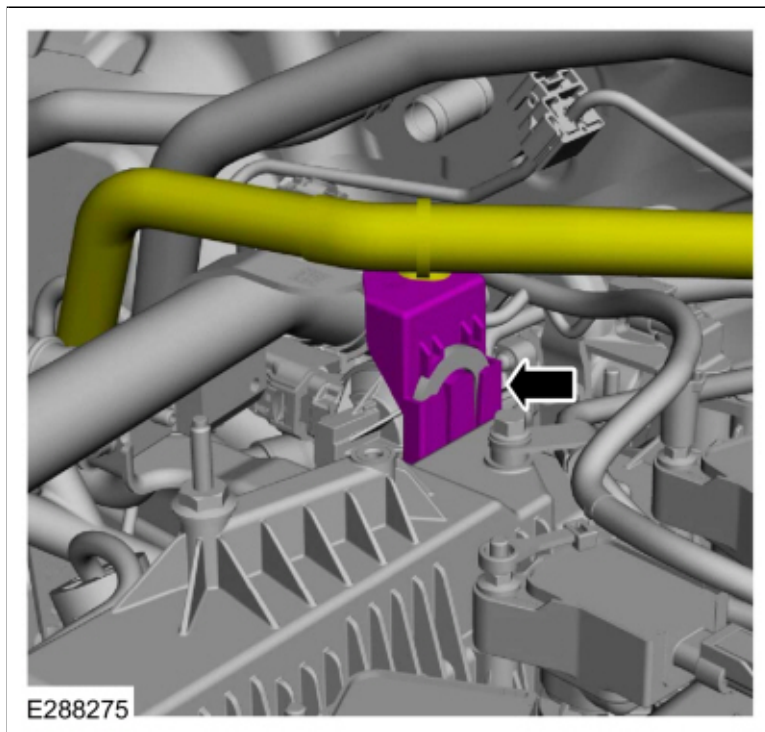
48. Remove the retainers and the RH side splash shield for access to engine mount nut.



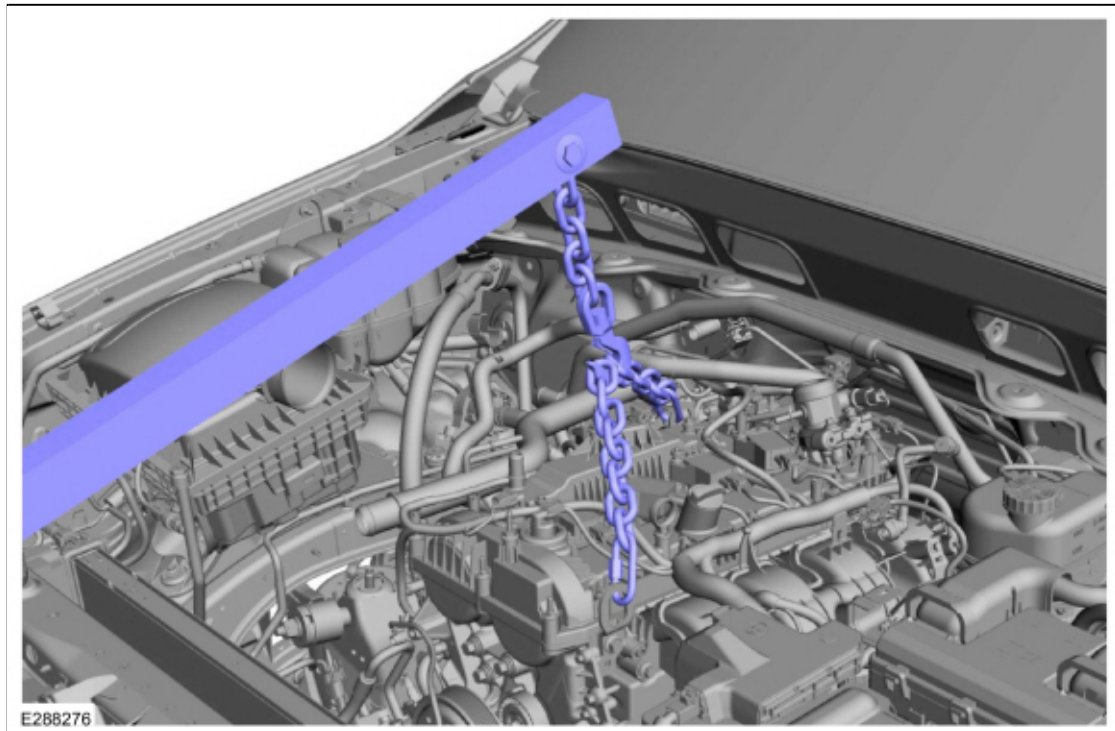
49. Remove and discard the RH engine mount nut.



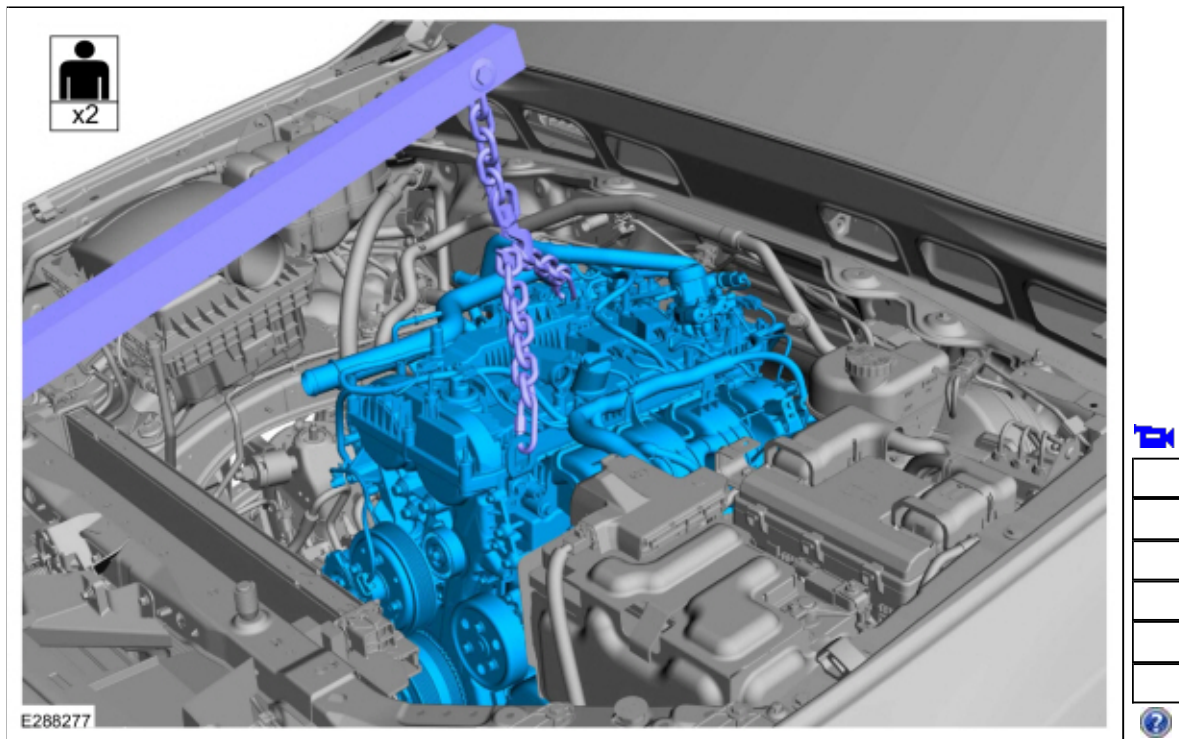
50. Position the wiring harness retainer from the rear engine lift eye.



51. Install the engine lift equipment.  
Use the General Equipment: Floor Crane



52. With the aid of an assistant and using the floor crane, remove the engine.  
Use the General Equipment: Floor Crane



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