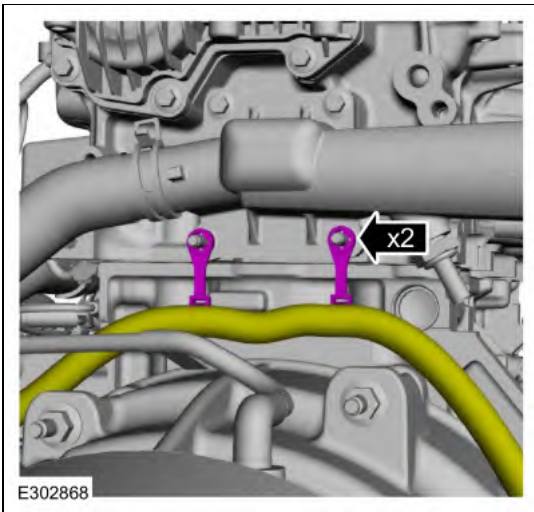
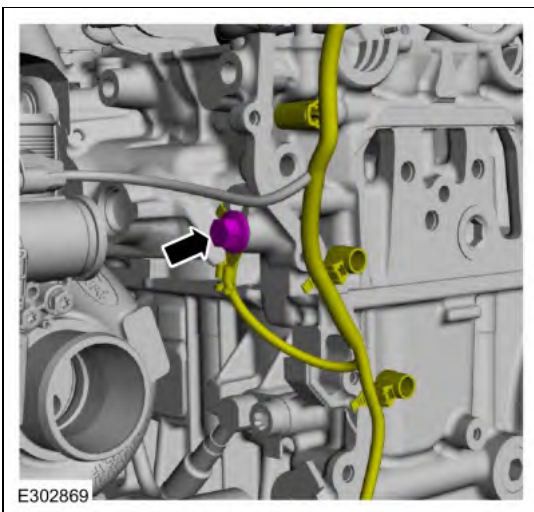
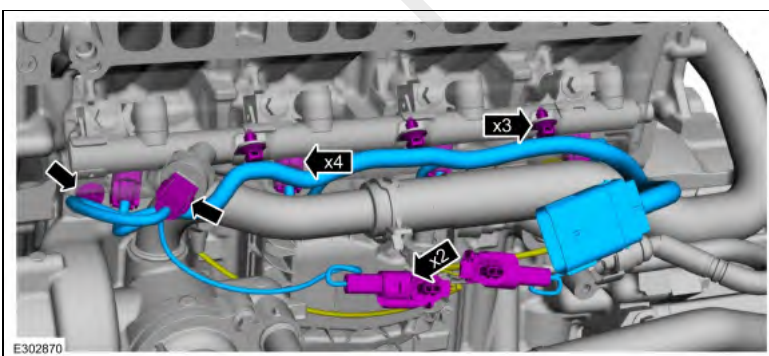




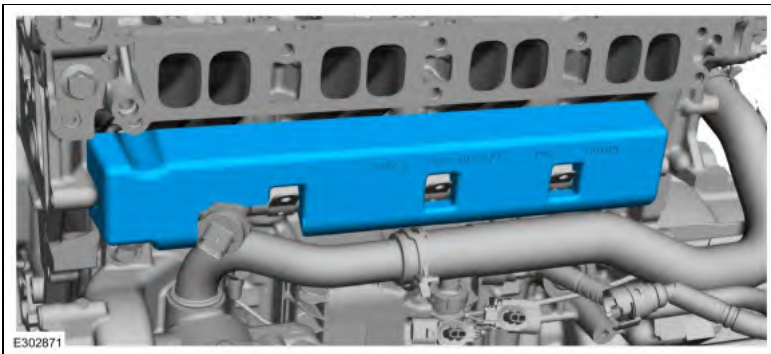
10. Remove the bolt and ground wire.



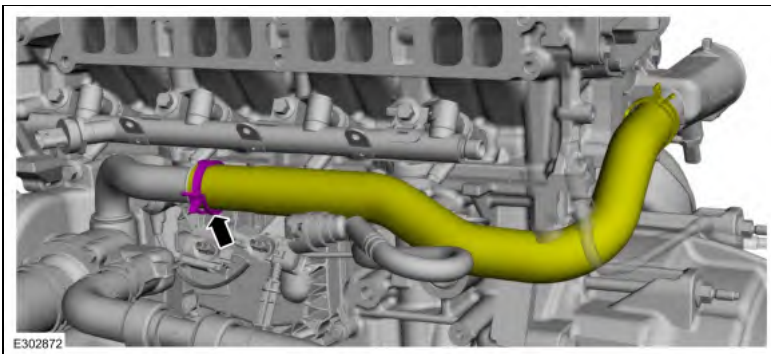
- 11.
- Disconnect the KS wiring harness electrical connectors.
 - Disconnect the fuel rail wiring harness electrical connectors.
 - Detach the wiring harness retainers and remove the wiring harness.



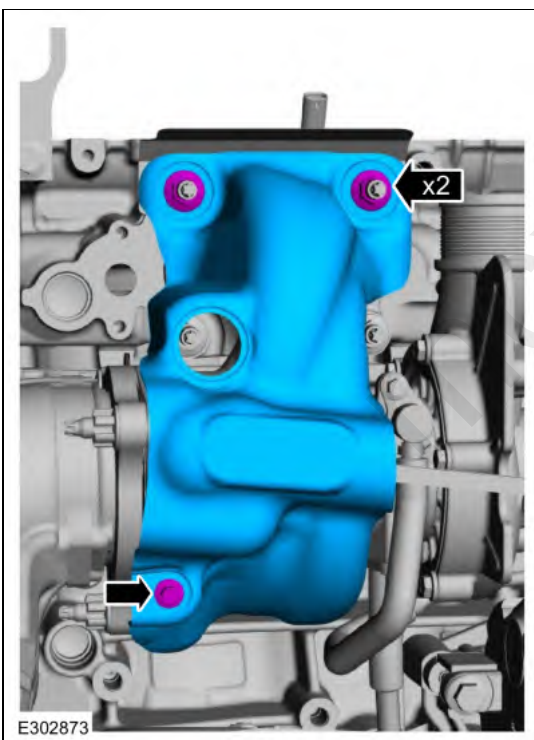
12. Remove the fuel rail insulator shield.



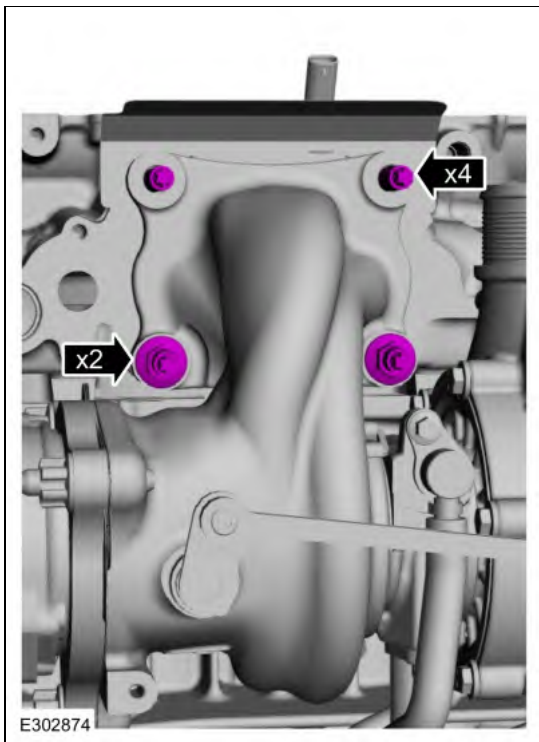
13. Release the clamp and position the coolant hose aside.
Use the General Equipment: Hose Clamp Remover/Installer



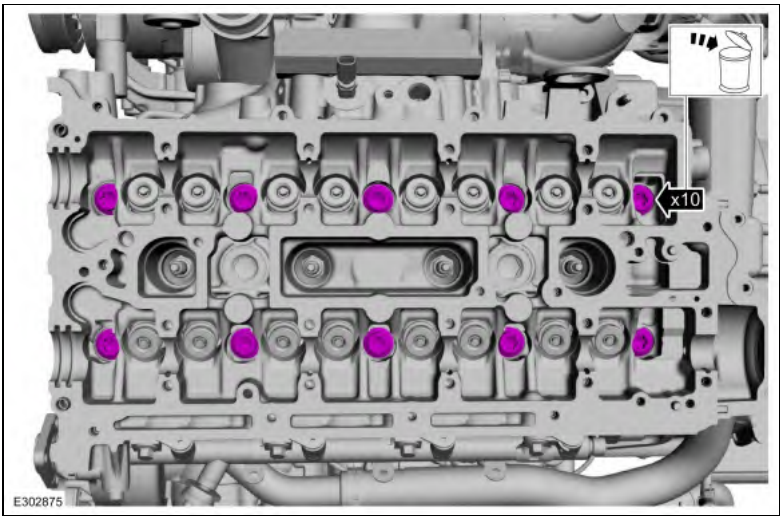
14. Remove the nuts, bolt and the turbocharger heat shield.



15. Remove the turbocharger nuts and the studs.

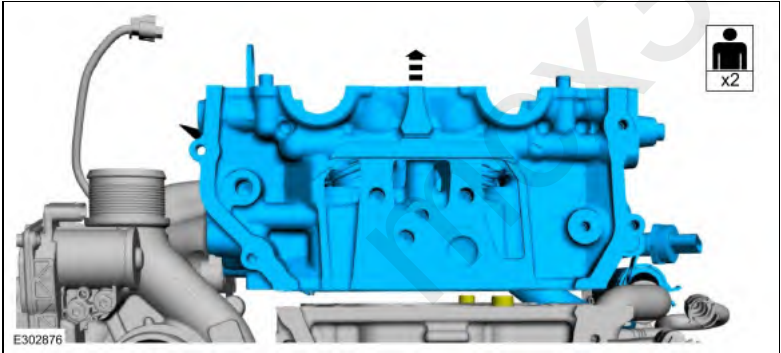


- 16.
- Remove the cylinder head bolts.
 - Discard the bolts.

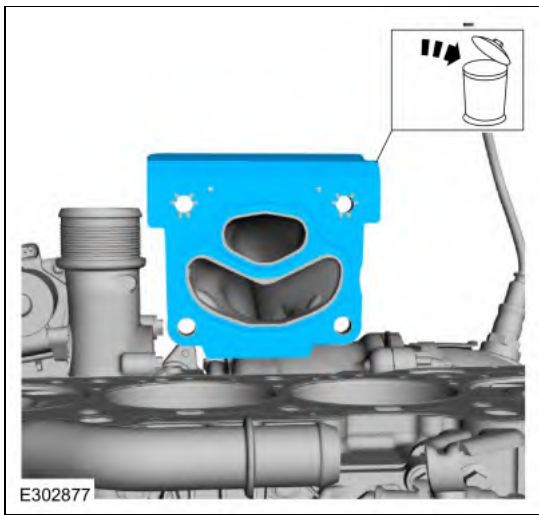


17. **NOTICE:** When removing or installing the cylinder head, use care to prevent excessive movement of the turbocharger. Excessive movement may cause damage to the turbocharger oil return tube resulting in an engine oil leak.

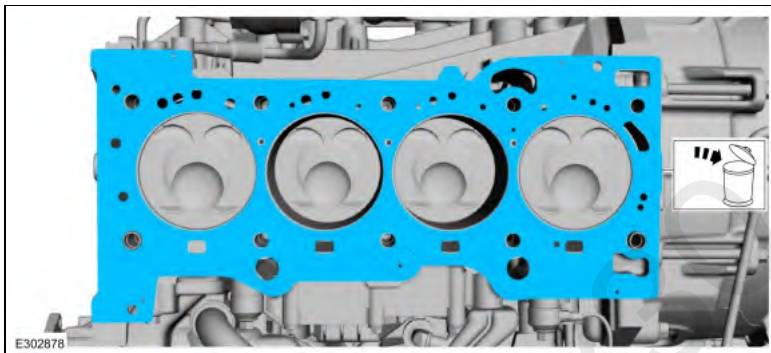
With the aid of an assistant, lift the cylinder head to clear the locating dowels in the cylinder block and remove the cylinder head.



18. Remove and discard the turbocharger gasket.

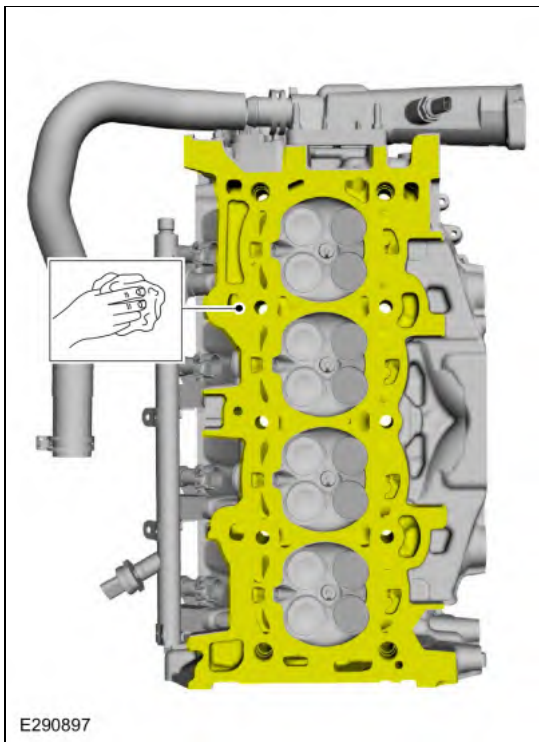


19. Remove and discard the cylinder head gasket.



20. **NOTICE:** Do not use metal scrapers, wire brushes, power abrasive discs or other abrasive means to clean the sealing surfaces. These tools cause scratches and gouges that make leak paths. Use a plastic scraping tool to remove all traces of the head gasket.

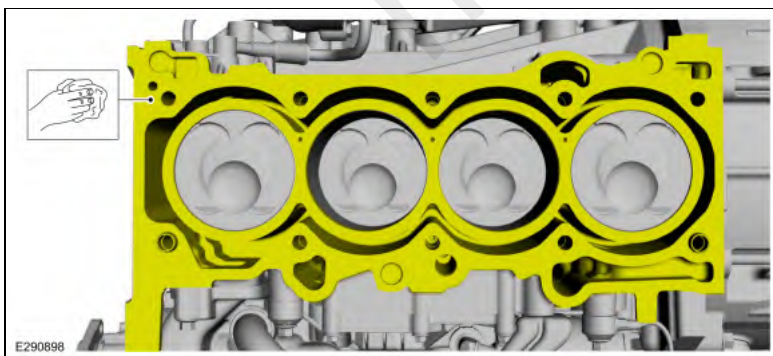
Clean the cylinder head sealing surfaces.



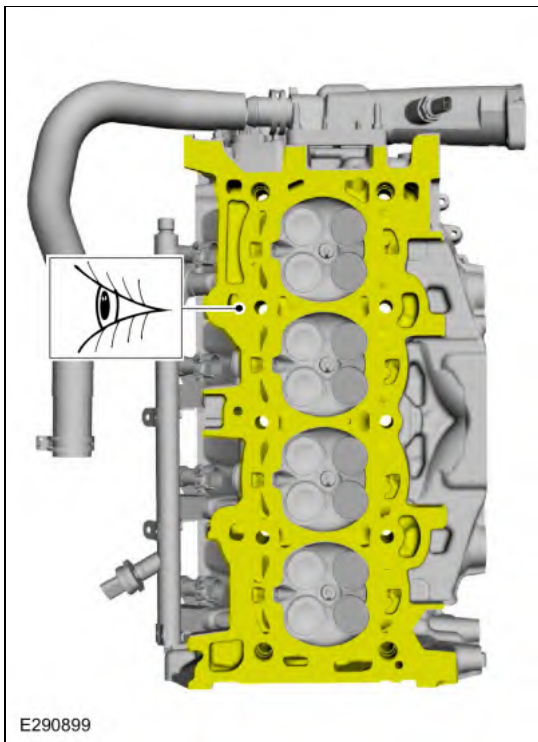
21. **NOTICE:** Do not use metal scrapers, wire brushes, power abrasive discs or other abrasive means to clean the sealing surfaces. These tools cause scratches and gouges that make leak paths. Use a plastic scraping tool to remove all traces of the head gasket.

NOTE: Clean the cylinder head bolt holes in the cylinder block. Make sure all coolant, oil or other foreign material is removed.

Clean the cylinder block sealing surfaces.



22. Inspect the cylinder head sealing surfaces.

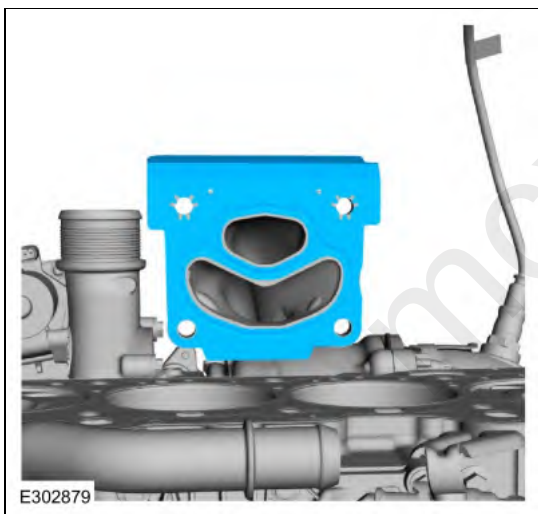


23.

- Check the cylinder head distortion.
Refer to: Cylinder Head Distortion (303-00 Engine System - General Information, General Procedures).
- Check the cylinder block distortion.
Refer to: Cylinder Block Distortion (303-00 Engine System - General Information, General Procedures).

Installation

1. Install a new turbocharger gasket.

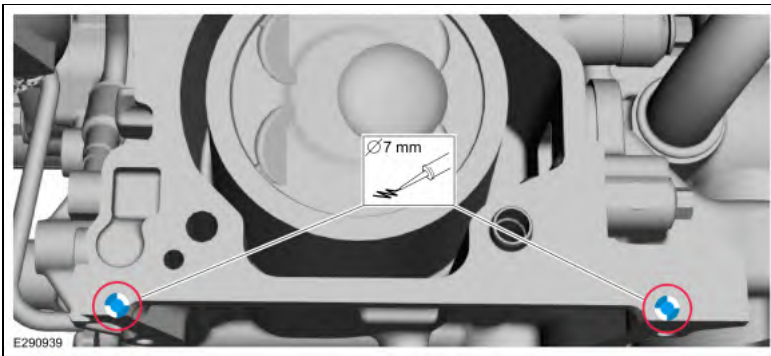


2. **NOTICE: Do not allow silicone sealant in or near the high-pressure oil feed hole. Any restriction in the high-pressure oil feed may result in engine damage.**

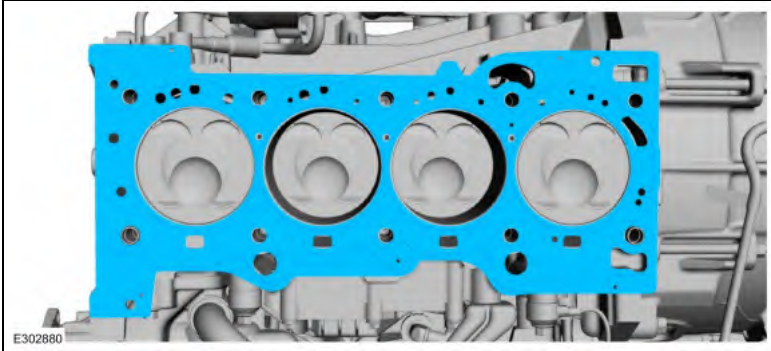
NOTE: The cylinder head must be installed within 10 minutes of applying the sealant.

Apply a 7 mm (0.28 in) drop of silicone sealant at positions shown on the cylinder block.

Material: Motorcraft® High Performance Engine RTV Silicone / TA-357 (WSE-M4G323-A6)



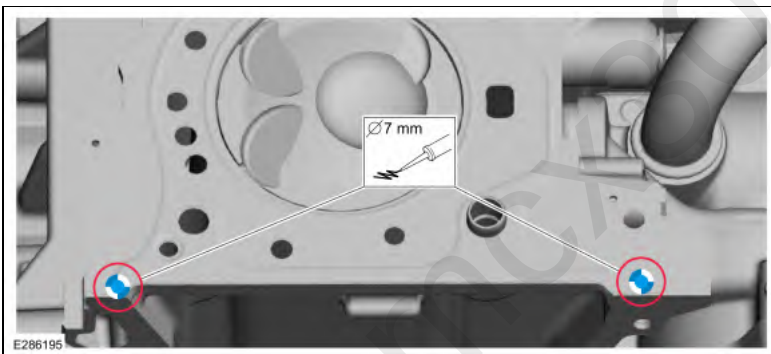
3. Install the new cylinder head gasket.



4. **NOTICE:** Do not allow silicone sealant in or near the high-pressure oil feed hole. Any restriction in the high-pressure oil feed may result in engine damage.

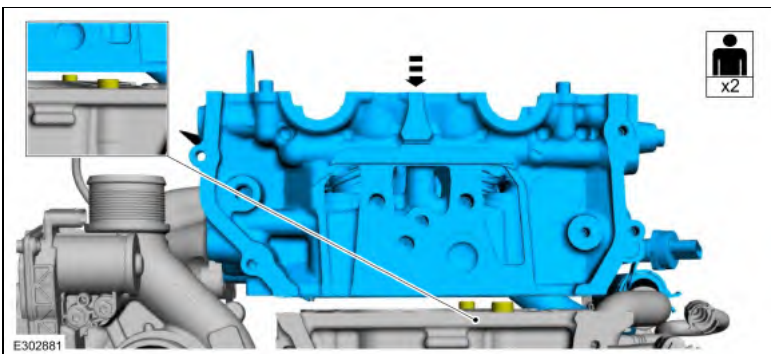
NOTE: The cylinder head must be installed within 10 minutes of applying the sealant.

Apply a 7 mm (0.28 in) drop of silicone sealant at positions shown on the cylinder head gasket.
Material: Motorcraft® High Performance Engine RTV Silicone / TA-357 (WSE-M4G323-A6)



5. **NOTICE:** When removing or installing the cylinder head, use care to prevent excessive movement of the turbocharger. Excessive movement may cause damage to the turbocharger oil return tube resulting in an engine oil leak.

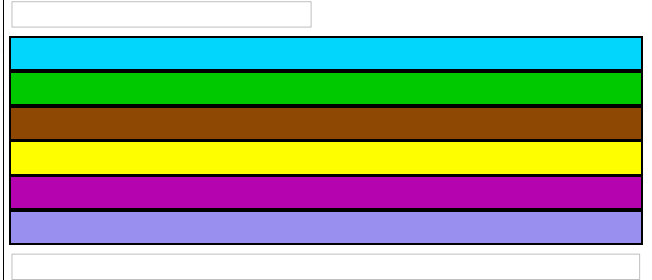
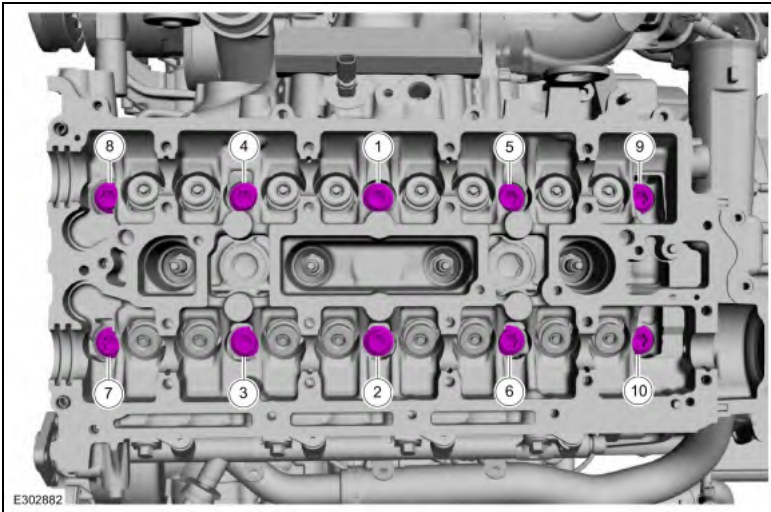
With the aid of an assistant, align the cylinder head to the locating dowels in the cylinder block and install.



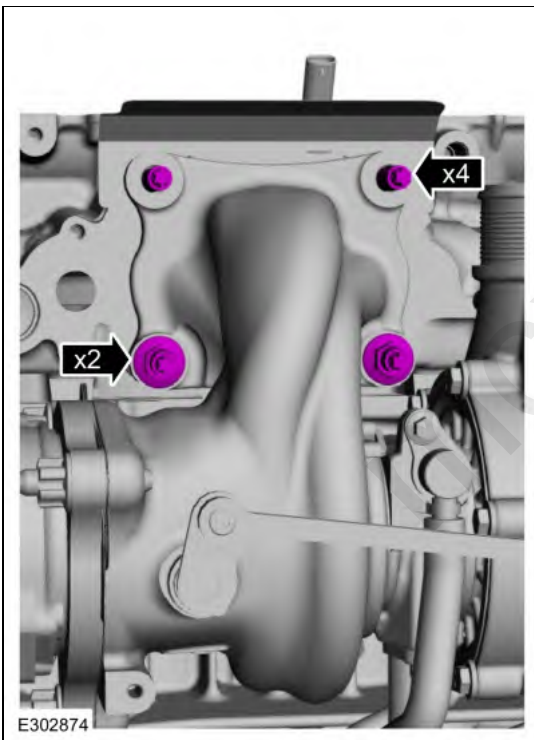
6. Install the new cylinder head bolts and tighten in sequence shown.

Torque:

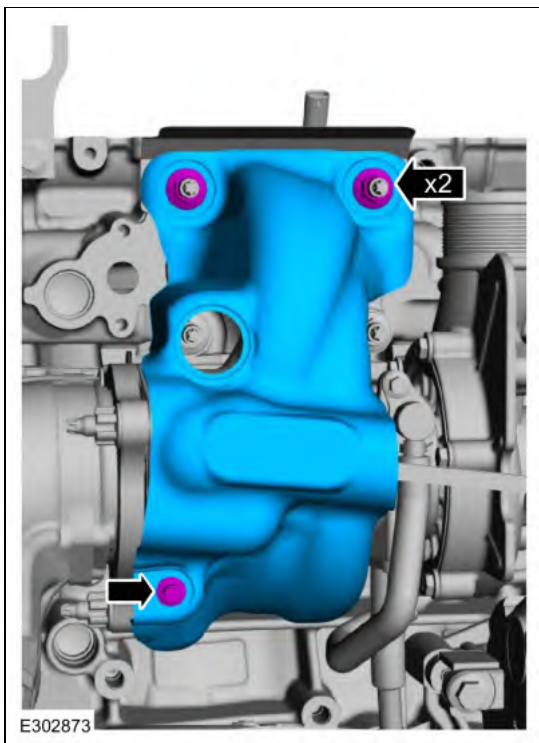
- Stage 1: 62 lb.in (7 Nm)
- Stage 2: 133 lb.in (15 Nm)
- Stage 3: 41 lb.ft (55 Nm)
- Stage 4: 90°
- Stage 5: 90°



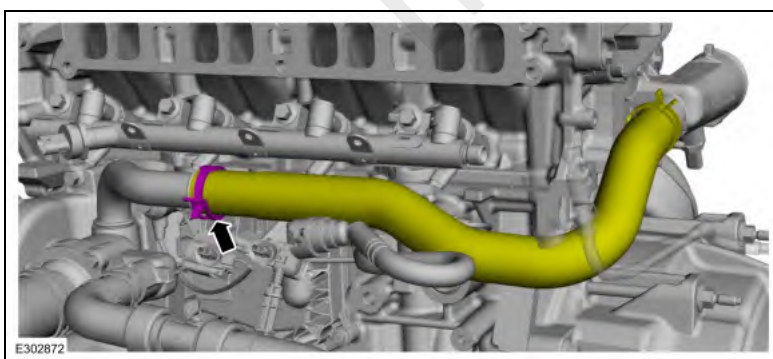
- 7.
- Install the studs.
Torque: 159 lb.in (18 Nm)
 - Install the turbocharger nuts.
Torque: 39 lb.ft (53 Nm)



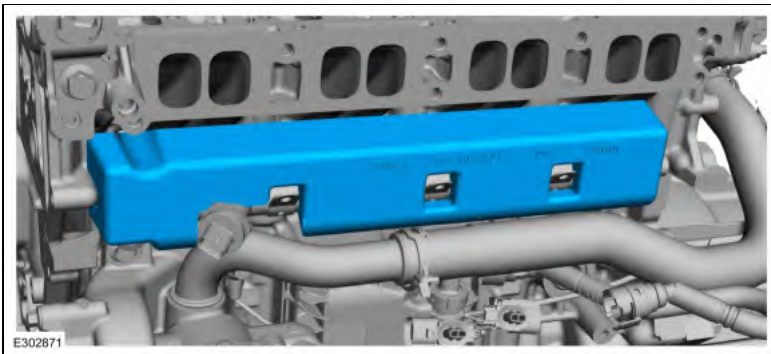
- 8.
- Install the turbocharger heat shield and the nuts.
Torque: 39 lb.ft (53 Nm)
 - Install the turbocharger heat shield bolt.
Torque: 97 lb.in (11 Nm)



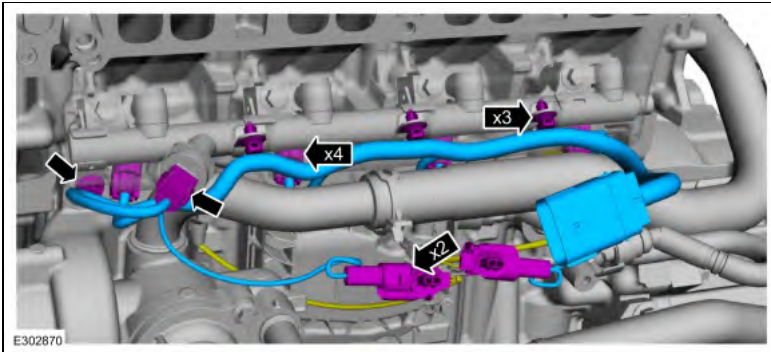
9. Position the coolant hose and install the clamp.
Use the General Equipment: Hose Clamp Remover/Installer



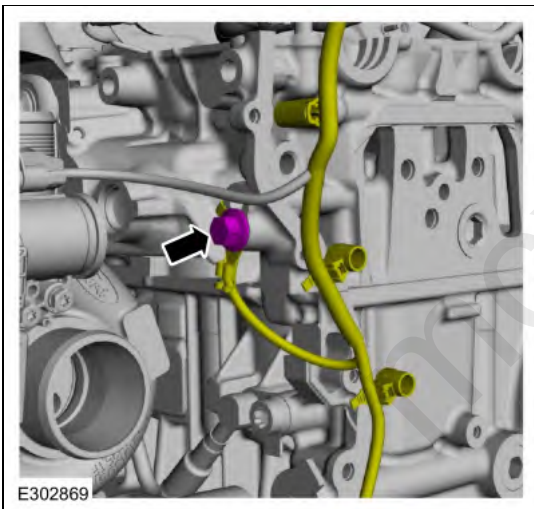
10. Install the fuel rail insulator shield.



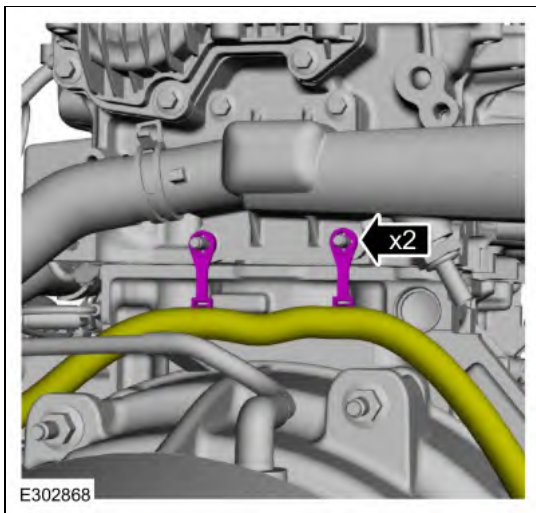
- 11.
- Install the harness and attach the wiring harness retainers.
 - Connect the fuel rail wiring harness electrical connectors.
 - Connect the KS wiring harness electrical connectors.



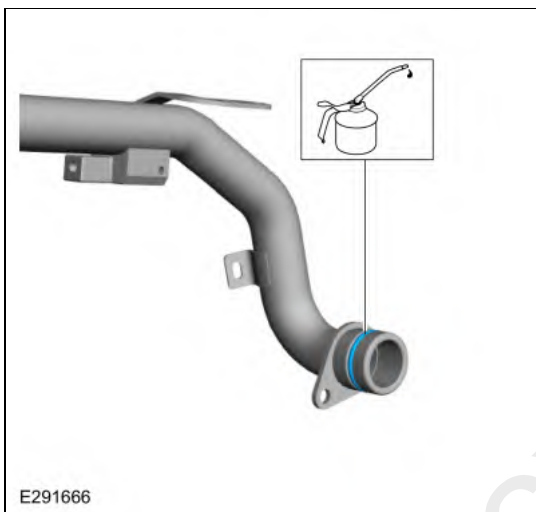
12. Position the ground wire and install the bolt.
Torque: 106 lb.in (12 Nm)



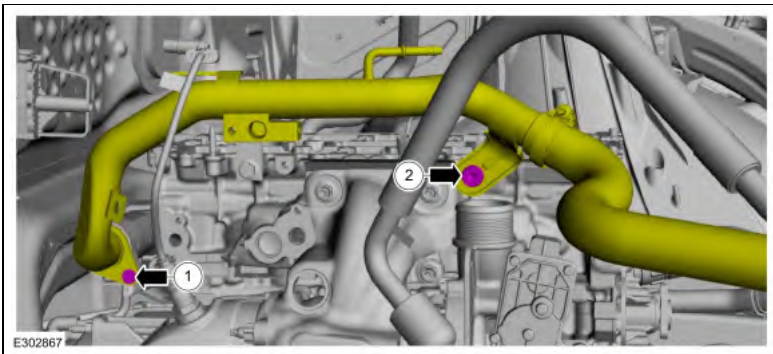
13. Attach the wiring harness retainers to the coolant outlet stud bolts.



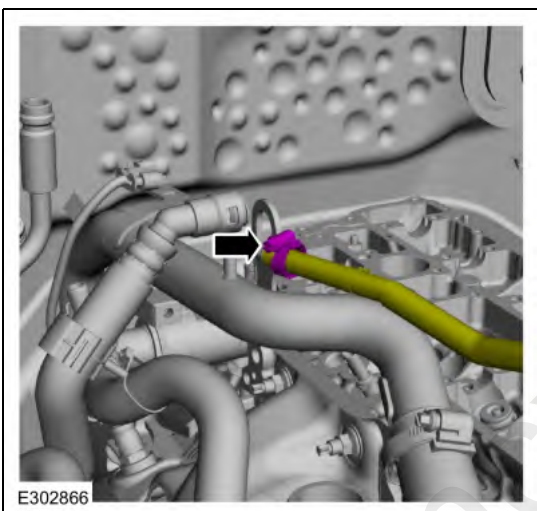
14. Install a new coolant tube O-ring seal and lubricate with clean engine coolant.



- 15.
1. Position the coolant tube and install the bolt.
Torque: 97 lb.in (11 Nm)
 2. Install and tighten the torx bolt.
Torque: 35 lb.ft (48 Nm)



16. Position the degas bottle coolant hose and tighten the clamp.
Torque: 35 lb.in (4 Nm)

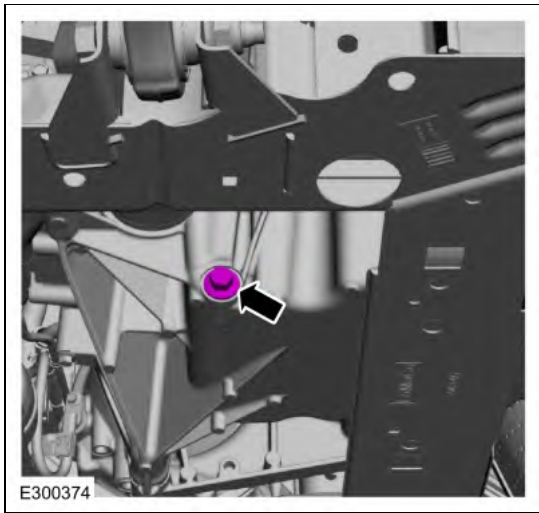


17. Install the following items:

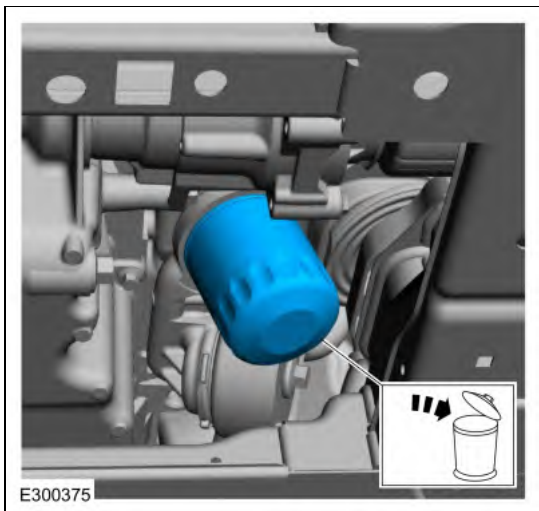
1. Install EGR inlet tube.
Refer to: Exhaust Gas Recirculation (EGR) Inlet Tube (303-08A Engine Emission Control - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
2. Install EGR cooler.
Refer to: Exhaust Gas Recirculation (EGR) Cooler (303-08A Engine Emission Control - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
3. Install the valve tappets.
Refer to: Valve Tappets (303-01A Engine - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
4. Install the CAC intake pipe.
Refer to: Charge Air Cooler (CAC) Intake Pipe (303-12A Intake Air Distribution and Filtering - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
5. Install the intake manifold.
Refer to: Intake Manifold (303-01A Engine - 2.3L EcoBoost (201kW/273PS), Removal and Installation).

- 18.

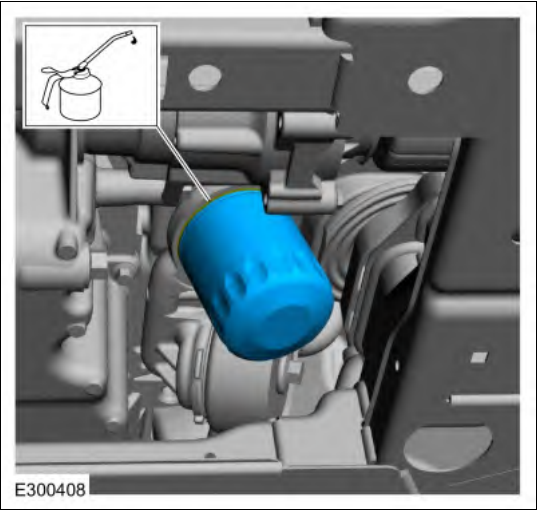
- Remove the oil pan drain plug and drain the engine oil.
Use the General Equipment: Oil Drain Equipment
- Install the oil drain plug.
Torque: 20 lb.ft (27 Nm)



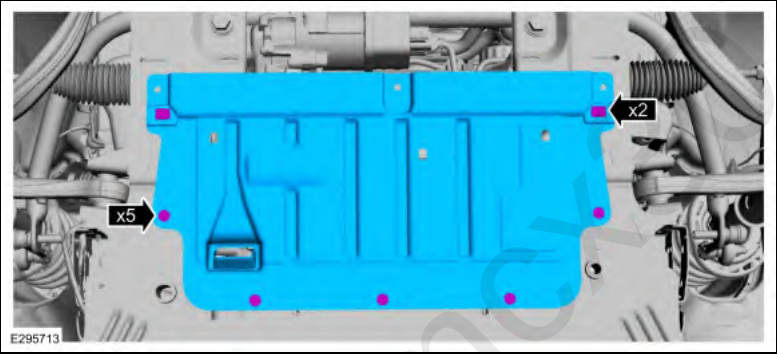
19. Remove and discard the engine oil filter.
Use the General Equipment: Oil Drain Equipment



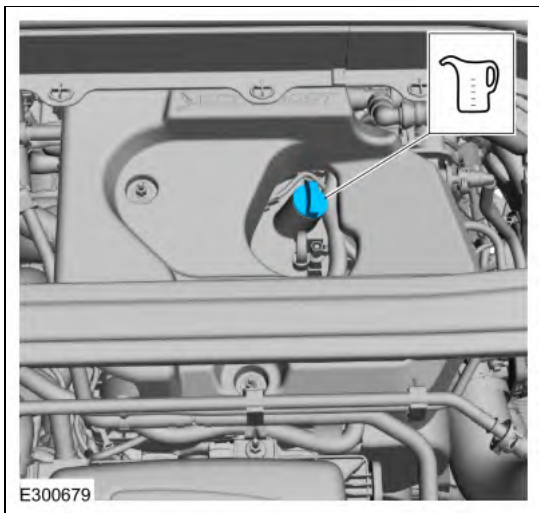
20. Lubricate the new engine oil filter sealing surface with clean engine oil and install.
Torque:
Stage 1: 71 lb.in (8 Nm)
Stage 2: 180°



21. Install the rear underbody shield, bolts and the pin-type retainers.
Torque: 22 lb.in (2.5 Nm)



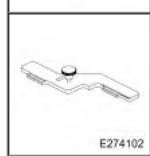
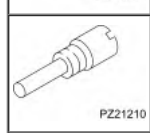
22. Fill the engine with clean engine oil.
Refer to: Specifications (303-01A Engine - 2.3L EcoBoost (201kW/273PS), Specifications).



23. Fill the cooling system.
Refer to: Engine Cooling System Draining, Vacuum Filling and Bleeding (303-03A Engine Cooling - 2.3L EcoBoost (201kW/273PS), General Procedures).
24. Pressurize the fuel system pressure.
Refer to: Fuel System Pressure Release (310-00A Fuel System - General Information - 2.3L EcoBoost (201kW/273PS), General Procedures).

Engine Front Cover

Special Tool(s) / General Equipment

	303-096 (T74P-6150-A) Installer, Camshaft Front Oil Seal TKIT-2009TC-F
	303-1521 Alignment Tool, Crankshaft Position Sensor TKIT-2010C-FLM
	303-1685 Alignment Tool, Camshaft
	303-1689 Holding Tool, Crank Damper
	303-409 (T92C-6700-CH) Remover, Crankshaft Seal TKIT-1992-FH/FMH/FLMH TKIT-1993-LMH/MH
	303-507 Timing Peg, Crankshaft TDC TKIT-2001N-FLM TKIT-2001N-ROW
Plastic Scraper	
Oil Drain Equipment	

Materials

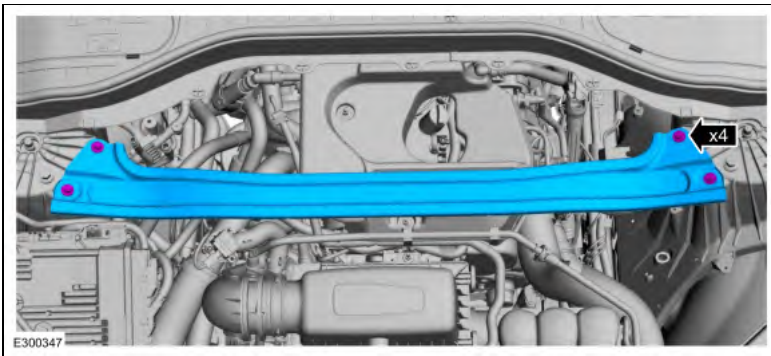
Name	Specification
Motorcraft® High Performance Engine RTV Silicone TA-357	WSE-M4G323-A6
Motorcraft® Silicone Gasket Remover ZC-30-A	-
Motorcraft® Metal Surface Prep Wipes ZC-31-B	-
Motorcraft® Silicone Brake Caliper Grease and Dielectric Compound XG-3-A	ESE-M1C171-A
Motorcraft® Metal Brake Parts Cleaner PM-4-A, PM-4-B	-

Removal

NOTICE: Do not loosen or remove the crankshaft pulley bolt without first installing the special tools as instructed in this procedure. The crankshaft pulley and the crankshaft timing sprocket are not keyed to the crankshaft. The crankshaft, the crankshaft sprocket and the pulley are fitted together by friction. For that reason, the crankshaft sprocket is also unfastened if the pulley bolt is loosened. Before any repair requiring loosening or removal of the crankshaft pulley bolt, the crankshaft and camshafts must be locked in place by the special service tools, otherwise severe engine damage can occur.

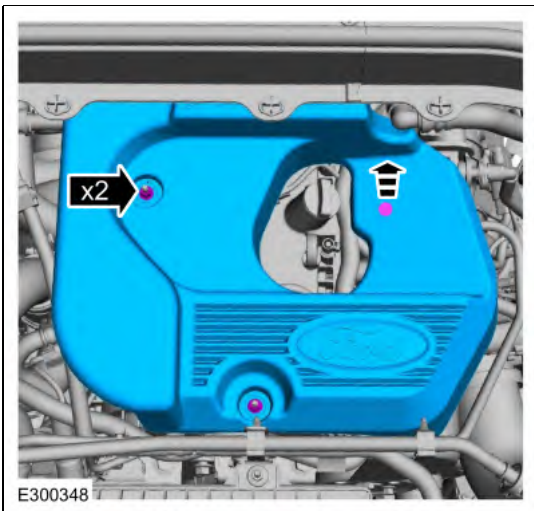
NOTICE: During engine repair procedures, cleanliness is extremely important. All parts must be thoroughly cleaned and any foreign material, including any material created while cleaning gasket surfaces, that enters the oil passages, coolant passages or the oil pan, can cause engine failure.

1. With the vehicle in NEUTRAL, position it on a hoist.
Refer to: Jacking and Lifting - Overview (100-02 Jacking and Lifting, Description and Operation).
2. Remove the bolts and the suspension support bar.



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 the grommet location and push straight up to release the grommet from the stud.
3. After the grommet has been released from the stud, remove the appearance cover from the engine.



4. Release the fuel system pressure.
Refer to: Fuel System Pressure Release (310-00A Fuel System - General Information - 2.3L EcoBoost (201kW/273PS), General Procedures).
5. Disconnect the battery ground cable.
Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).
6. Remove the following items:
 1. Remove the air cleaner.
Refer to: Air Cleaner (303-12A Intake Air Distribution and Filtering - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
 2. Remove the air cleaner outlet.
Refer to: Air Cleaner Outlet Pipe (303-12A Intake Air Distribution and Filtering - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
 3. Remove the EVAP canister purge valve.
Refer to: Evaporative Emission Canister Purge Valve (303-13A Evaporative Emissions - 2.3L EcoBoost (201kW/273PS), Removal and Installation).
7. Disconnect the EVAP canister tube quick release coupling and the retainer and remove.
Refer to: Quick Release Coupling (310-00 Fuel System - General Information - 2.3L EcoBoost (201kW/273PS)) .