

Engine Front Cover

Special Tool(s) / General Equipment

	303-F070 Support Bar, Engine TKIT-1999A-F/LT TKIT-1999A-FM/FLM
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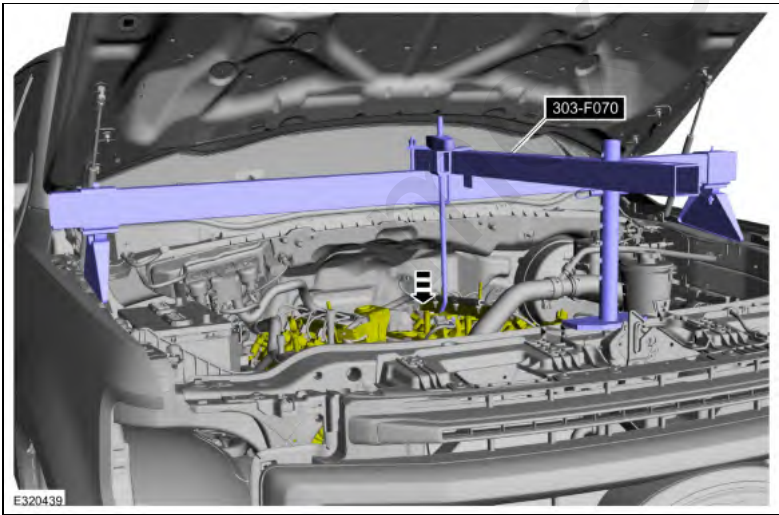
Materials

Name	Specification
Motorcraft® High Performance Engine RTV Silicone TA-357	WSE-M4G323-A6

Removal

NOTICE: During engine repair procedures, cleanliness is extremely important. 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. Release the fuel system pressure.
Refer to: Fuel System Pressure Release (310-00C Fuel System - General Information - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), General Procedures).
3. Disconnect the battery ground cable.
Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).
4. Drain the engine cooling system.
Refer to: Engine Cooling System Draining, Vacuum Filling and Bleeding (303-03D Engine Cooling - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), General Procedures).
5. Remove the oil pan.
Refer to: Oil Pan (303-01C Engine - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), Removal and Installation).
6. Lower the engine onto the engine mounts.
Remove Special Service Tool: 303-F070 Support Bar, Engine.



7.
- Disconnect the engine wiring harness electrical connectors.

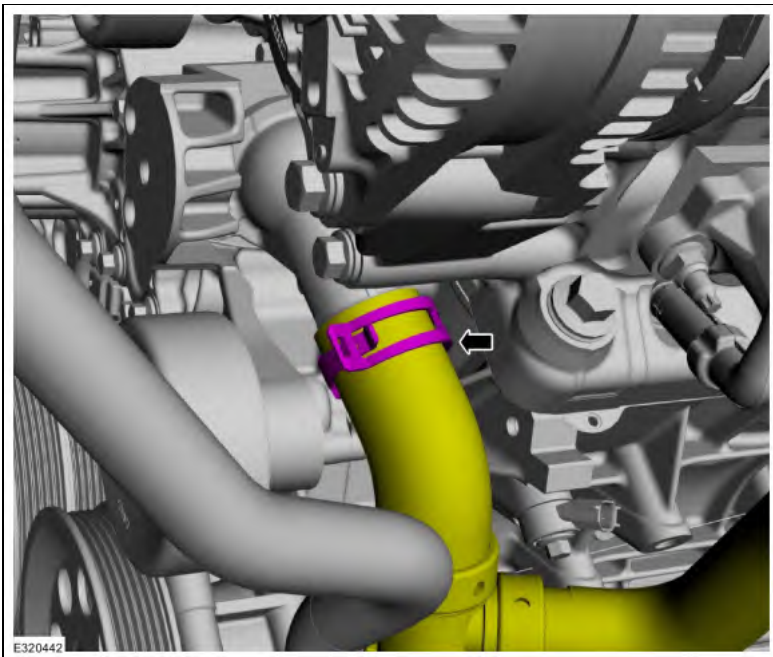
• Detach the engine wiring harness retainers and position the harness aside.



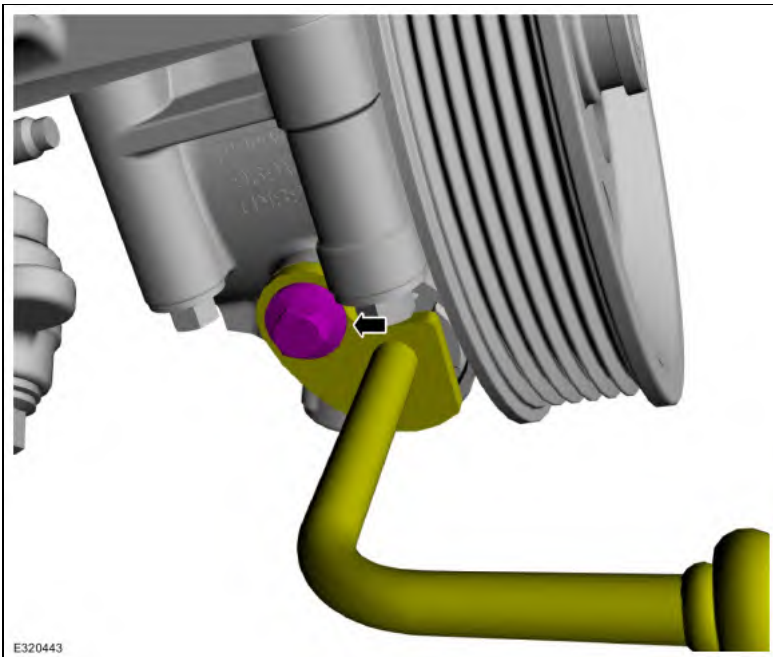
A horizontal bar chart with six bars of equal length, each a different color. The colors from top to bottom are: blue, green, brown, yellow, purple, and light blue. The bars are separated by thin white gaps.



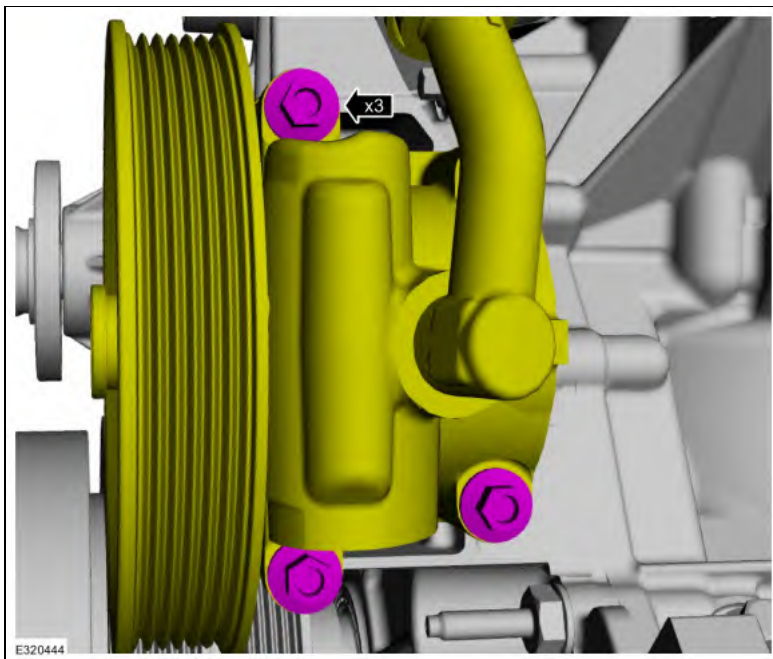
9. Release the clamp and disconnect the hose.



10. Remove the bolt and position the power steering tube aside.

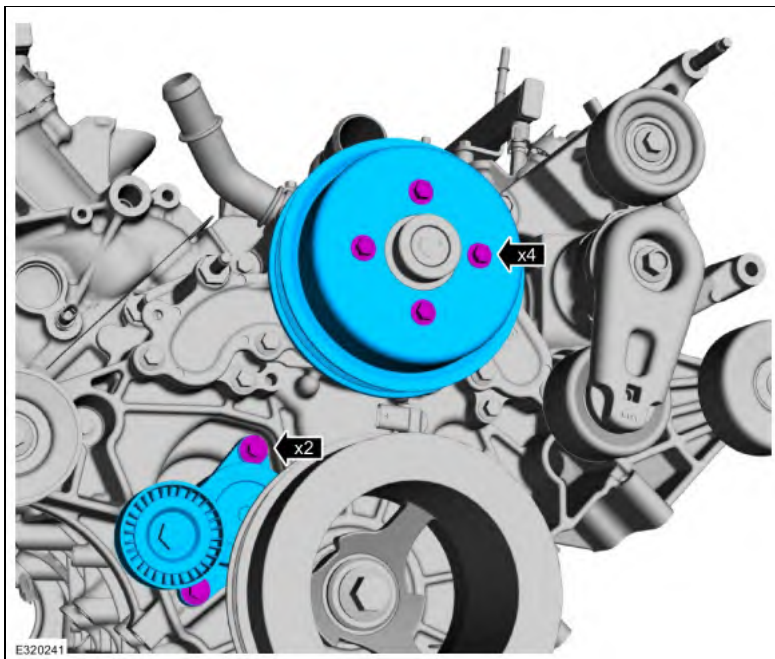


11. Remove the bolts and position the power steering pump aside.

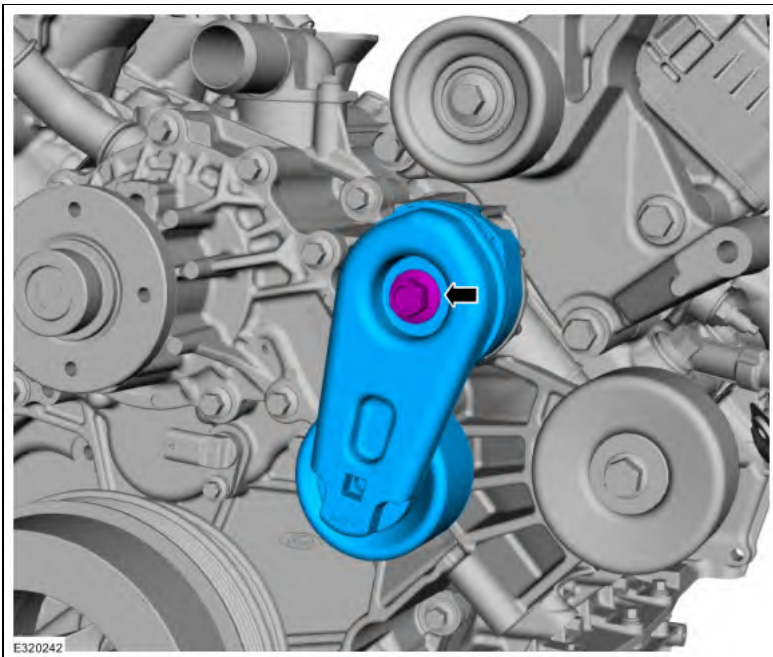


12.

- Remove the bolts and the coolant pump pulley.
- Remove the bolts and the belt tensioner.



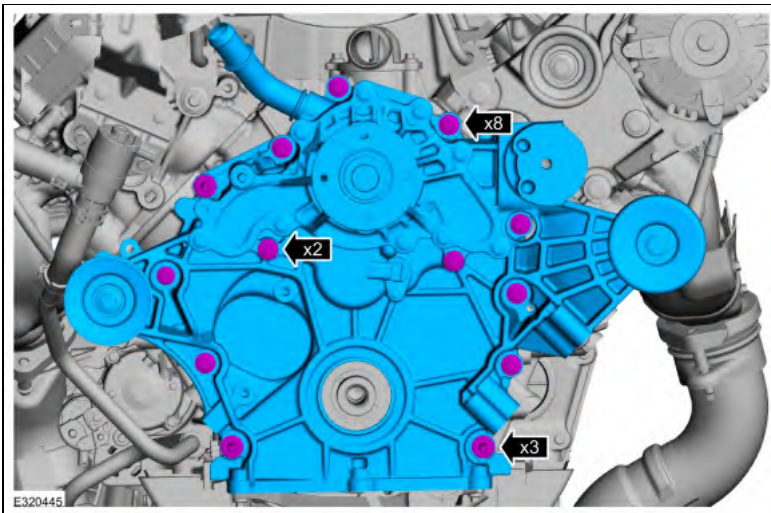
13. Remove the bolt and the belt tensioner.



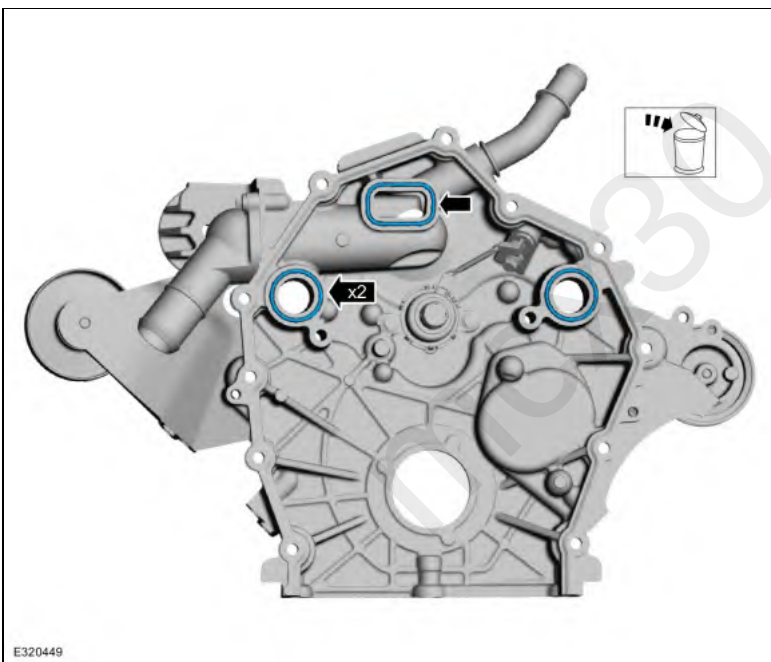
14. Remove the crankshaft front seal.
Refer to: Crankshaft Front Seal (303-01C Engine - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), Removal and Installation).
15. **NOTE:** *The fasteners differ in size, note the location of each fastener during removal.*

Remove the engine front cover bolts and stud bolts.

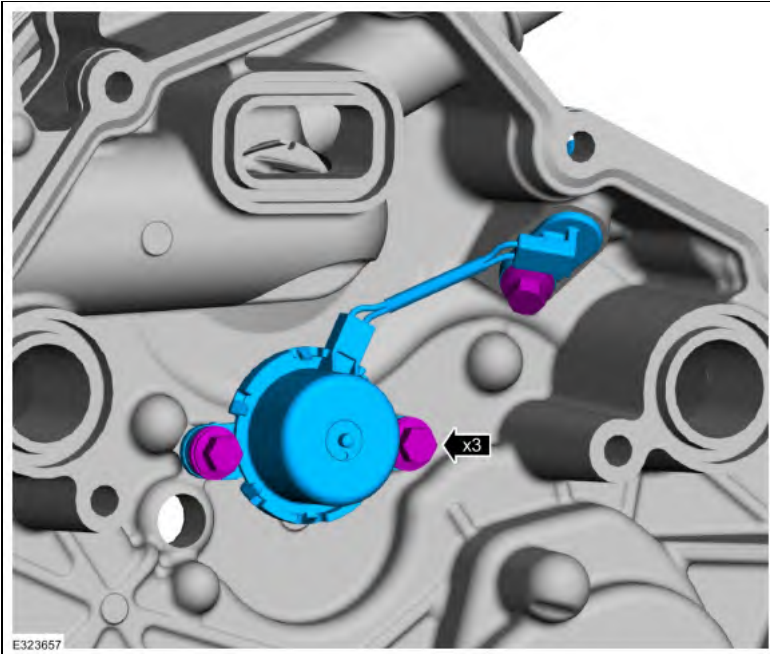
- Carefully pry the engine front cover from the cylinder block to release the sealant.



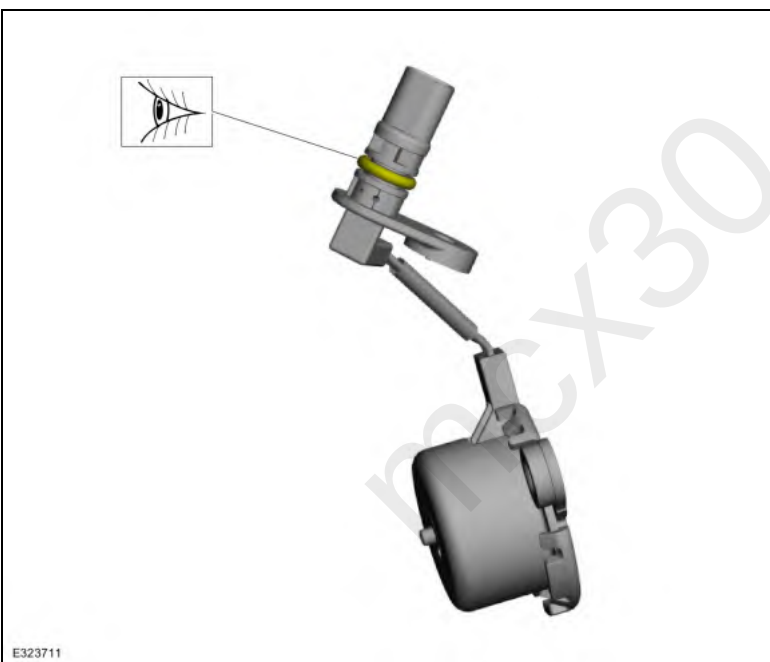
16. Remove and discard the gaskets.



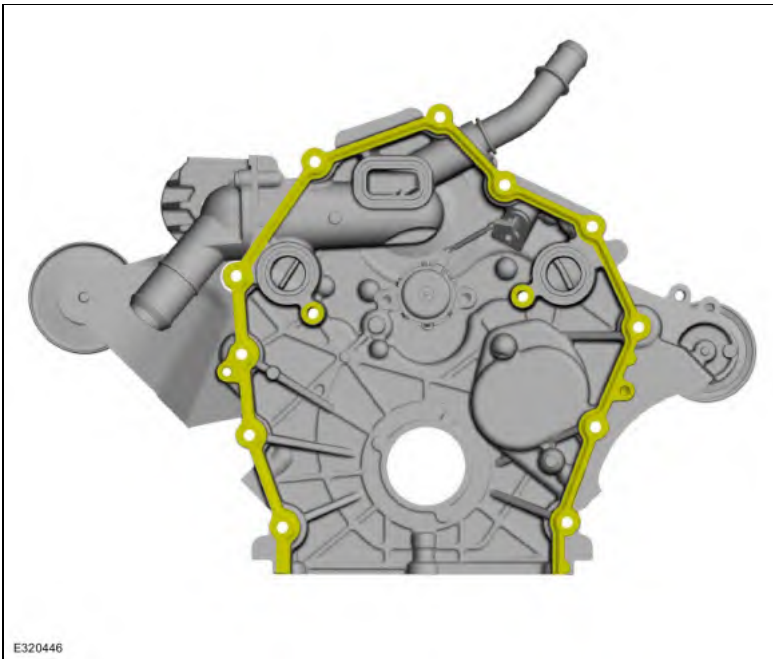
17. If necessary, remove the bolts and the VCT solenoid assembly.



18. If removed, inspect the VCT solenoid O-ring seal. If damaged, discard the VCT solenoid assembly and install a new one.



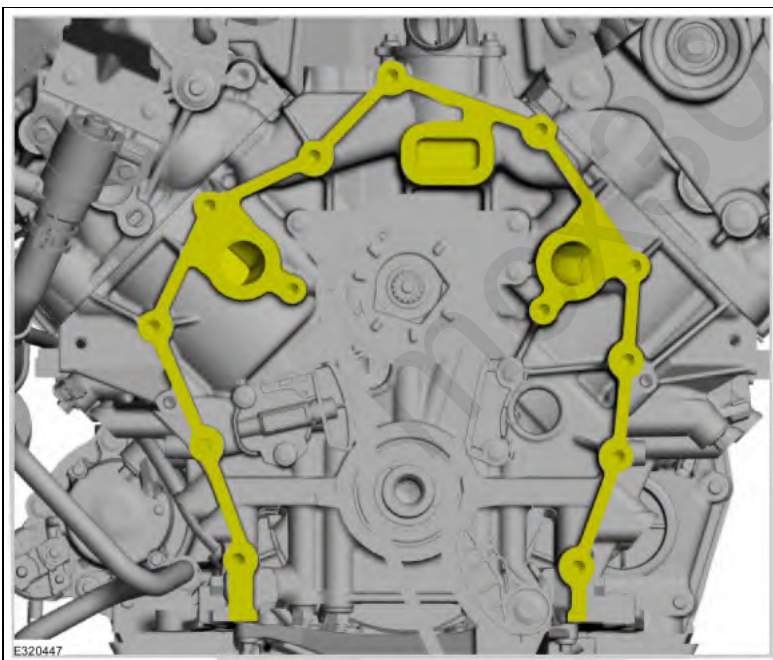
19. Clean and prepare the RTV sealing surfaces
 Refer to: RTV Sealing Surface Cleaning and Preparation (303-00 Engine System - General Information, General Procedures).



20. **NOTICE:** Place clean, lint-free shop towels over exposed engine cavities. Carefully remove the towels so foreign material is not dropped into the engine. Any foreign material (including any material created while cleaning gasket surfaces) that enters the oil passages may cause engine failure.

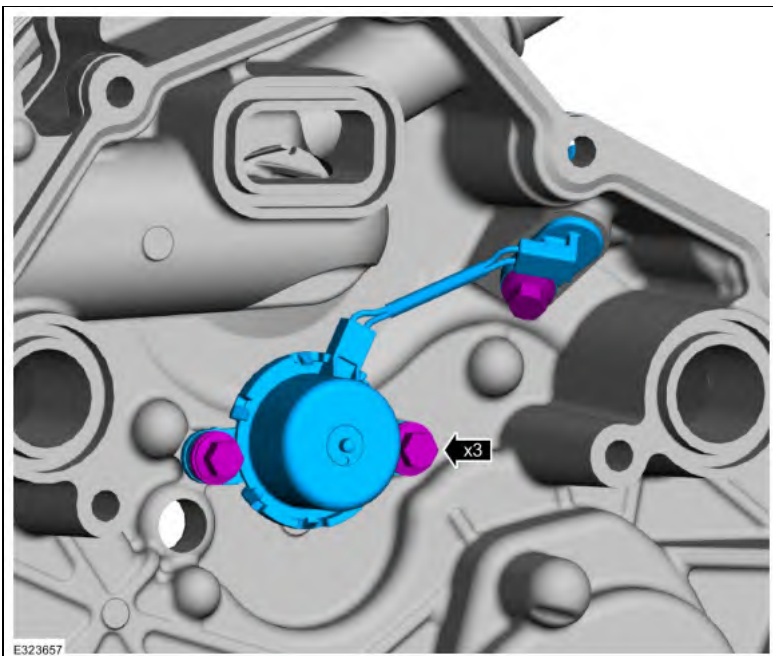
Clean and prepare the RTV sealing surfaces

Refer to: RTV Sealing Surface Cleaning and Preparation (303-00 Engine System - General Information, General Procedures).

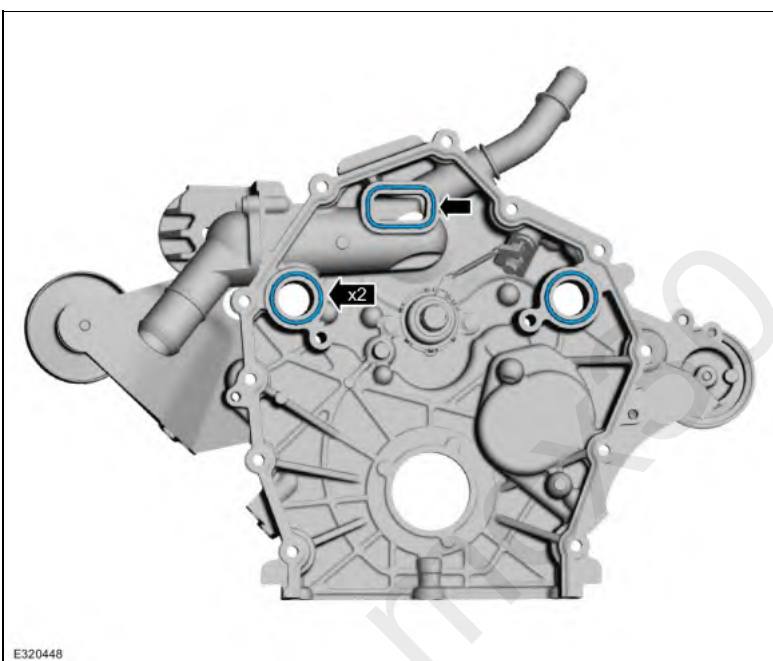


Installation

1. If removed, install the VCT solenoid assembly and the bolts.
Torque: 89 lb.in (10 Nm)



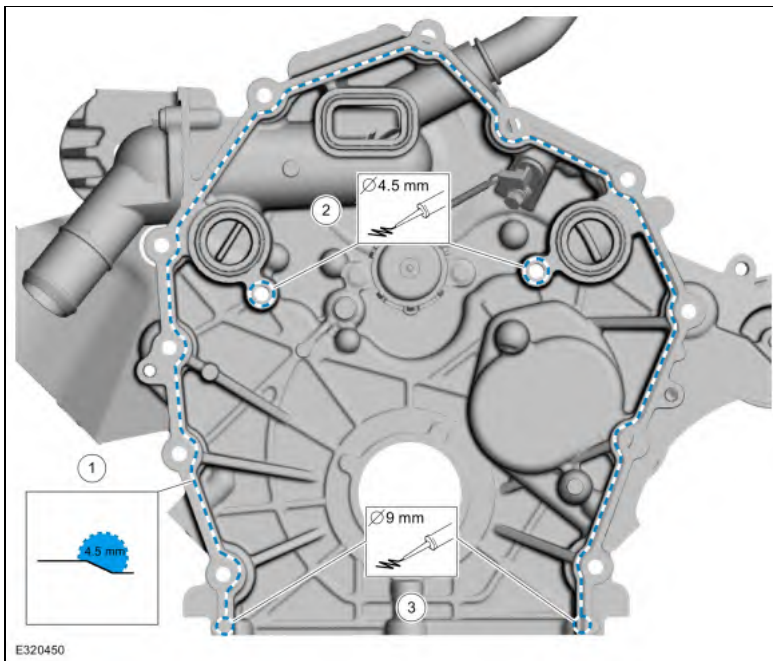
2. Install new gaskets.



3. **NOTICE:** Failure to use Motorcraft® High Performance Engine RTV Silicone may cause the engine oil to foam excessively and result in serious engine damage.

NOTE: The engine front cover and bolts must be installed within 10 minutes of applying the sealer. The bolts must be tightened within 15 minutes of installing the engine front cover. Failure to follow this procedure can cause future oil leakage.

1. Apply a 4.5 mm (0.18 in) bead of Motorcraft® High Performance Engine RTV Silicone to the chamfer of the engine front cover sealing surfaces.
Material: Motorcraft® High Performance Engine RTV Silicone / TA-357 (WSE-M4G323-A6)
2. Apply a 4.5 mm (0.18 in) bead of Motorcraft® High Performance Engine RTV Silicone to the engine front cover sealing surfaces of the inner bolt bosses.
Material: Motorcraft® High Performance Engine RTV Silicone / TA-357 (WSE-M4G323-A6)
3. Apply 9 mm (0.35 in) drops of Motorcraft® High Performance Engine RTV Silicone to the joints as indicated.
Material: Motorcraft® High Performance Engine RTV Silicone / TA-357 (WSE-M4G323-A6)



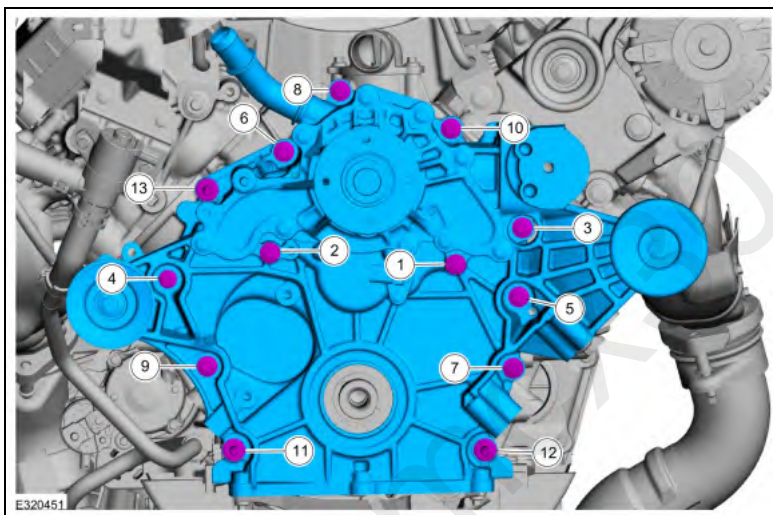
4. Install the engine front cover and the fasteners. Tighten in sequence.

Torque:

Stage 1: 89 lb.in (10 Nm)

Stage 2: 177 lb.in (20 Nm)

Stage 3: Tighten an additional : 45°

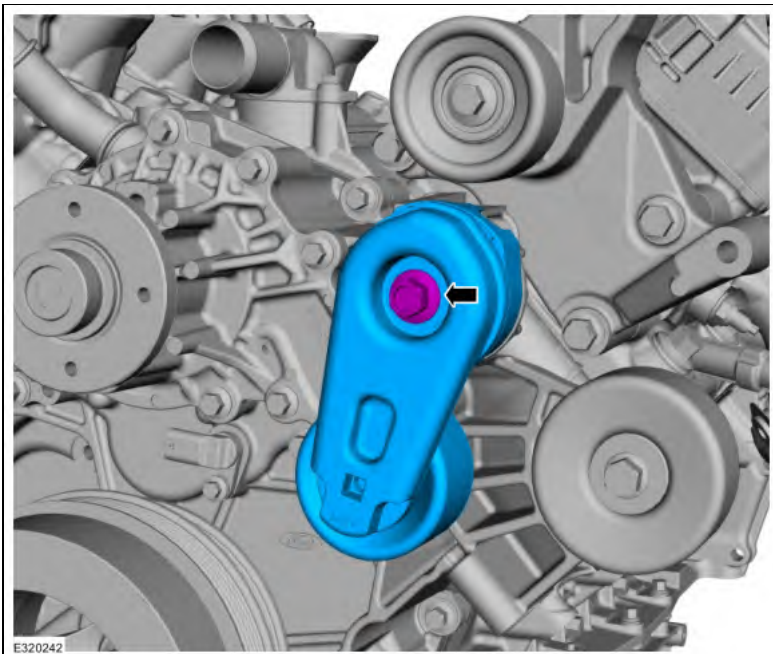


5. Install the crankshaft front seal.

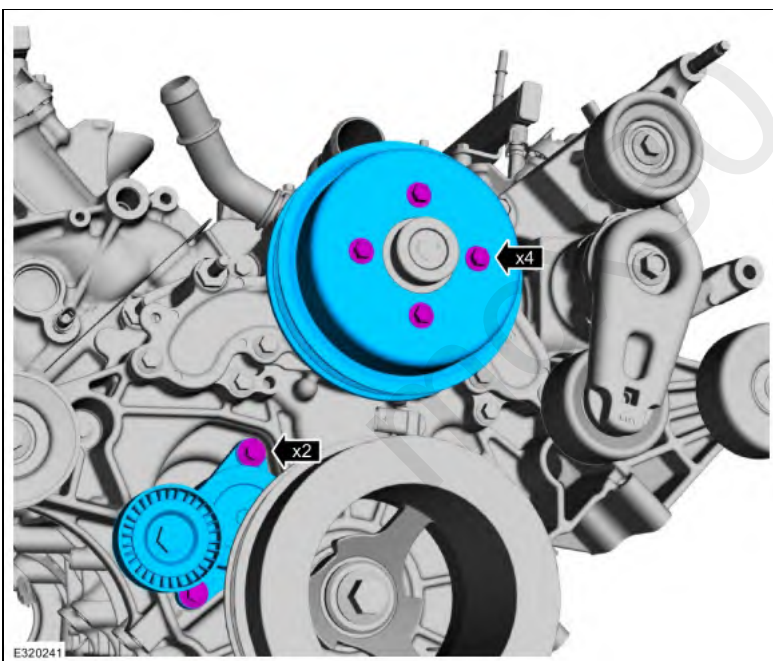
Refer to: Crankshaft Front Seal (303-01C Engine - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), Removal and Installation).

6. Install the belt tensioner and the bolt.

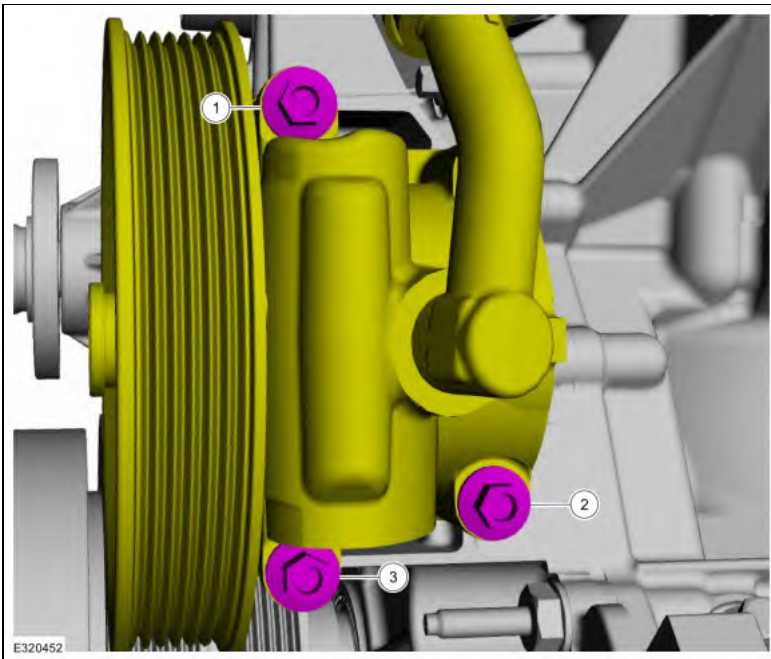
Torque: 35 lb.ft (48 Nm)



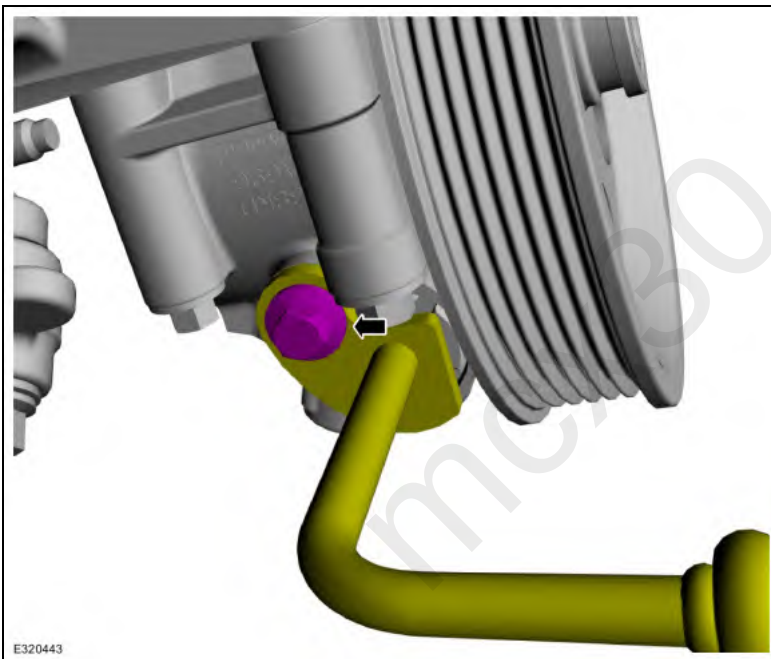
- 7.
- Install the coolant pump pulley and the bolts.
Torque: 18 lb.ft (25 Nm)
 - Install the belt tensioner and the bolts.
Torque: 18 lb.ft (25 Nm)



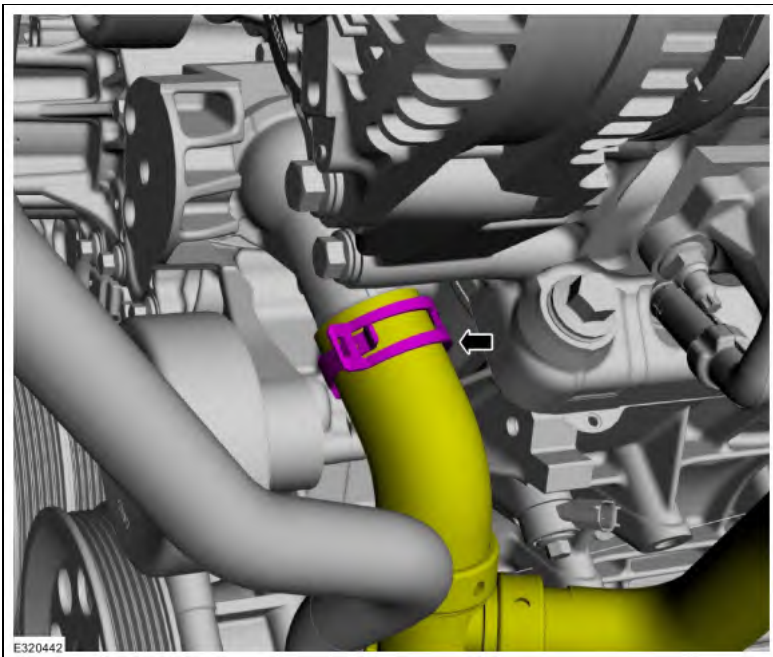
8. Install the power steering pump and the bolts.
Torque: 18 lb.ft (25 Nm)



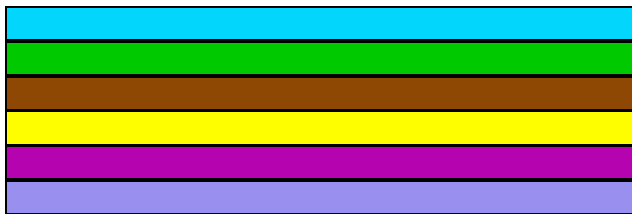
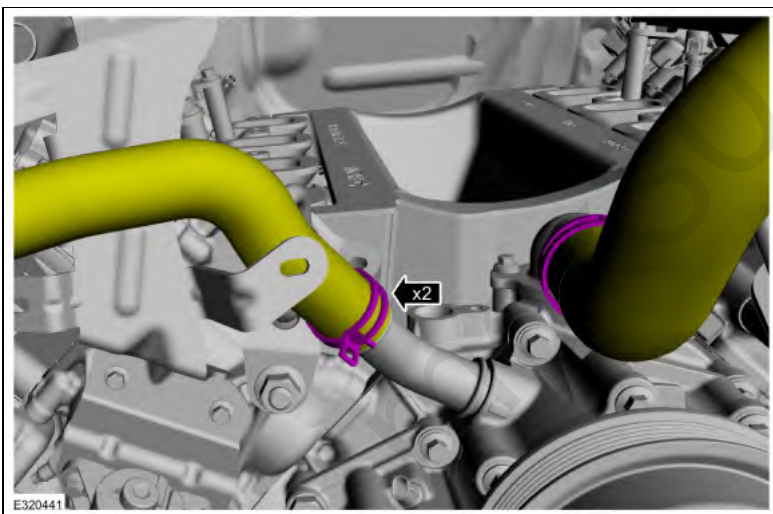
9. Install the power steering tube and the bolt.
Torque: 18 lb.ft (25 Nm)



10. Connect the hose and the clamp.

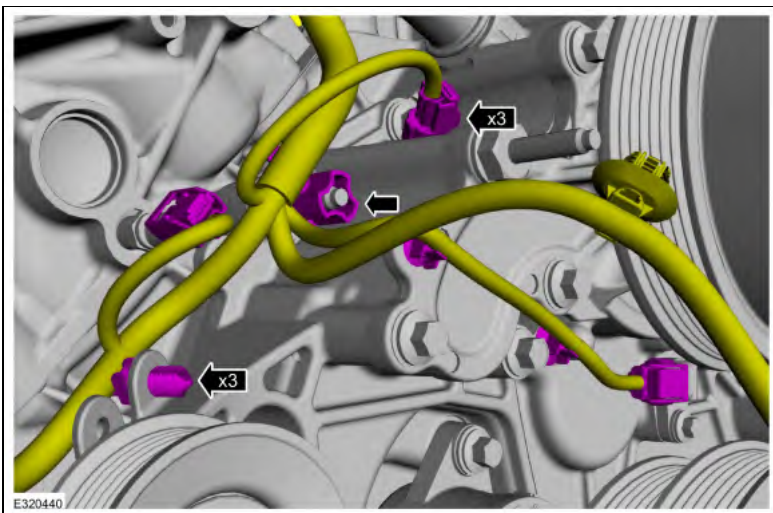


11. Connect the hoses and the clamps.

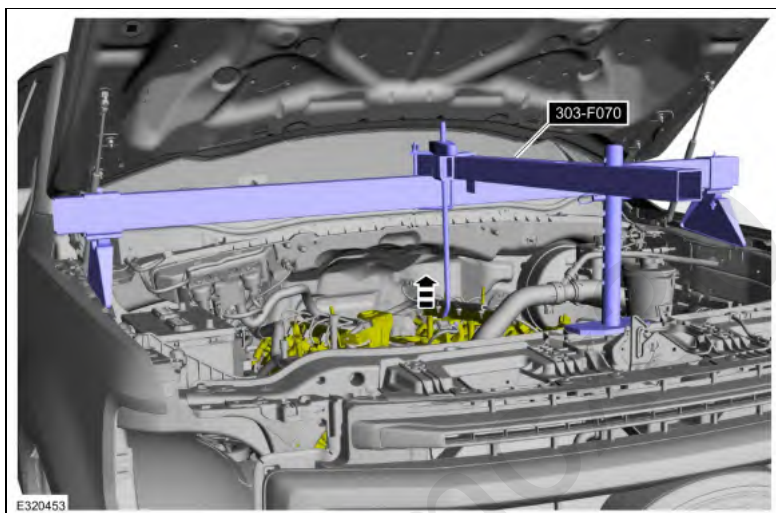


12.

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



13. Raise the engine 100 mm (4 in.).
Install Special Service Tool: 303-F070 Support Bar, Engine.



14. Install the oil pan.
Refer to: Oil Pan (303-01C Engine - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), Removal and Installation).
15. Fill and bleed the engine cooling system.
Refer to: Engine Cooling System Draining, Vacuum Filling and Bleeding (303-03D Engine Cooling - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), General Procedures).
16. Connect the battery ground cable.
Refer to: Battery Disconnect and Connect (414-01 Battery, Mounting and Cables, General Procedures).
17. Pressurize the fuel system.
Refer to: Fuel System Pressure Release (310-00C Fuel System - General Information - 7.3L 2V DEVCT V8 (239kW/320PS) (J0), General Procedures).
18. Use the Powertrain Control Module (PCM) Misfire Monitor Profile Correction routine in the diagnostic scan tool.
19. Start and check the exhaust system for leaks.