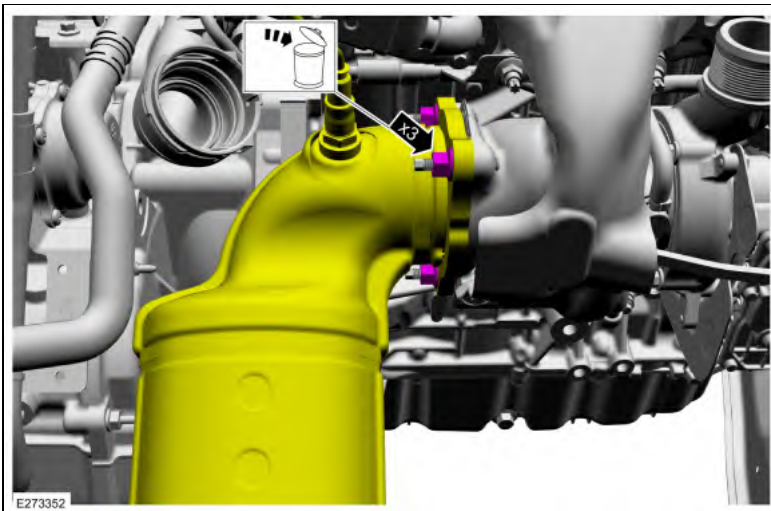
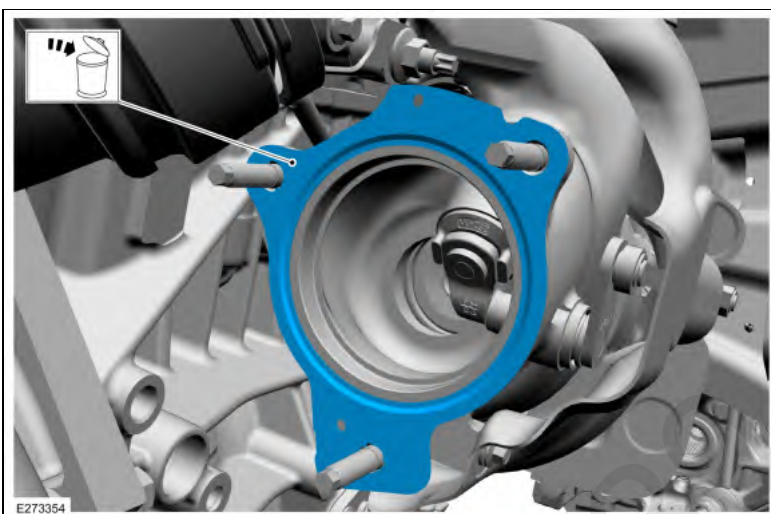


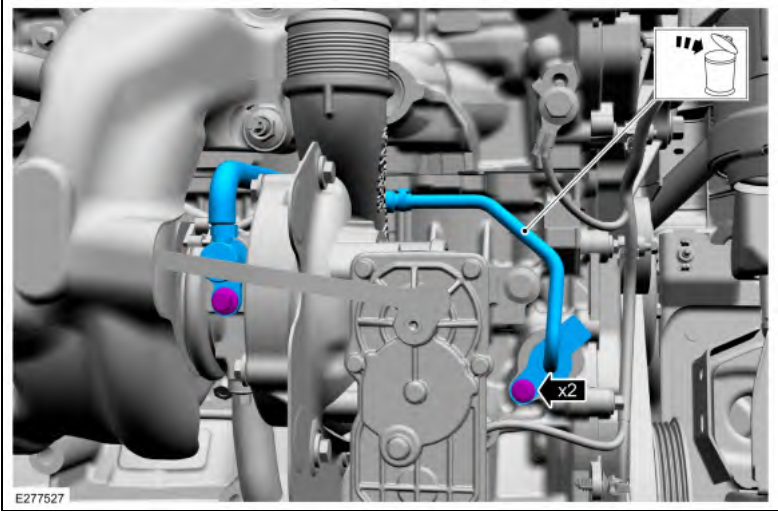


10. Remove and discard the gasket.

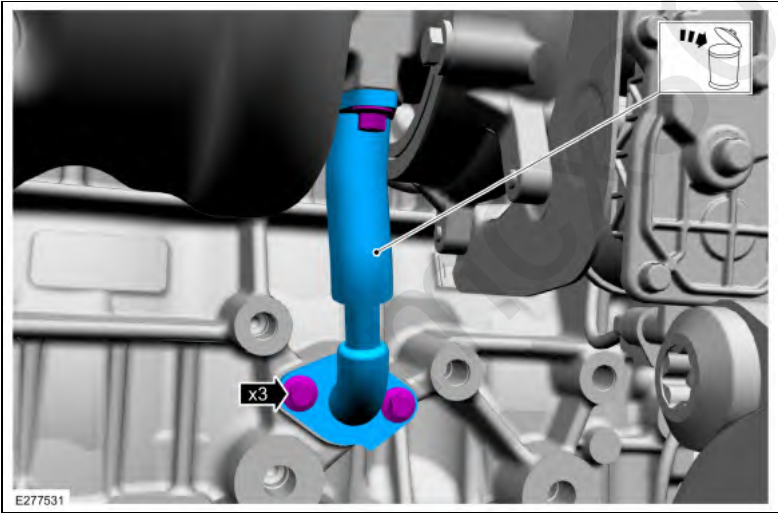


All vehicles

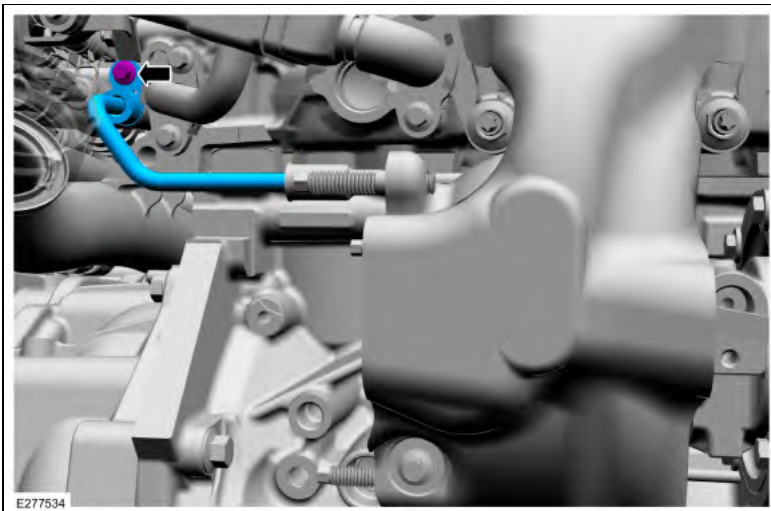
11. Remove the bolts, then remove and discard the turbocharger oil supply tube.



12. Remove the bolts, then remove and discard the turbocharger oil return tube.



13. Remove the bolt, then remove the outer half of the turbocharger coolant return tube.



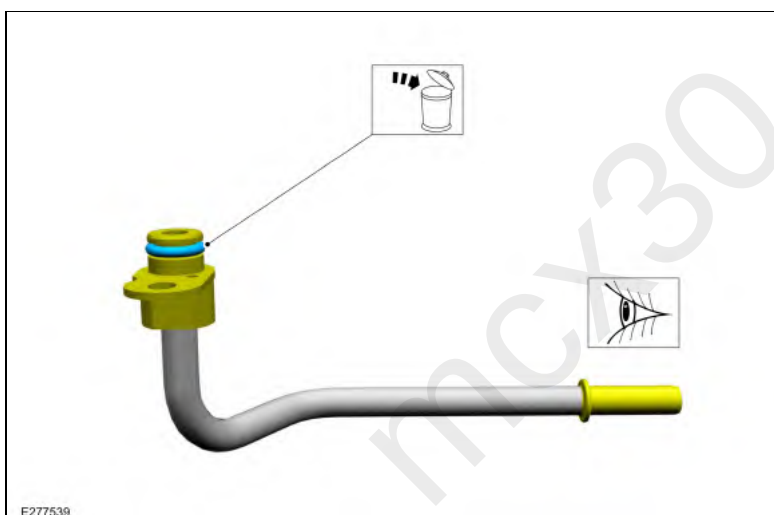
14.

1. Remove and discard the turbocharger coolant tube O-ring seal.

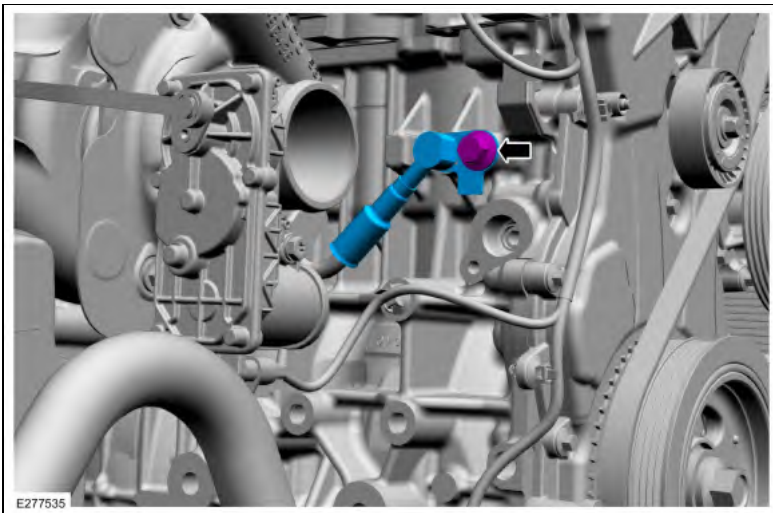
Material: Motorcraft® Metal Brake Parts Cleaner / PM-4-A, PM-4-B

2. **NOTICE: Do not use a metal brush, damage to sealing area will result in leaks.**

Use brake cleaner and a nylon brush to clean. Clean the turbocharger coolant tube sealing surfaces. Inspect the sealing surfaces for debris or damage, make sure the retaining bracket is not bent, check for squareness of the O-ring area. Install new components if needed.



15. Remove the bolt, then remove the outer half of the turbocharger coolant supply tube.



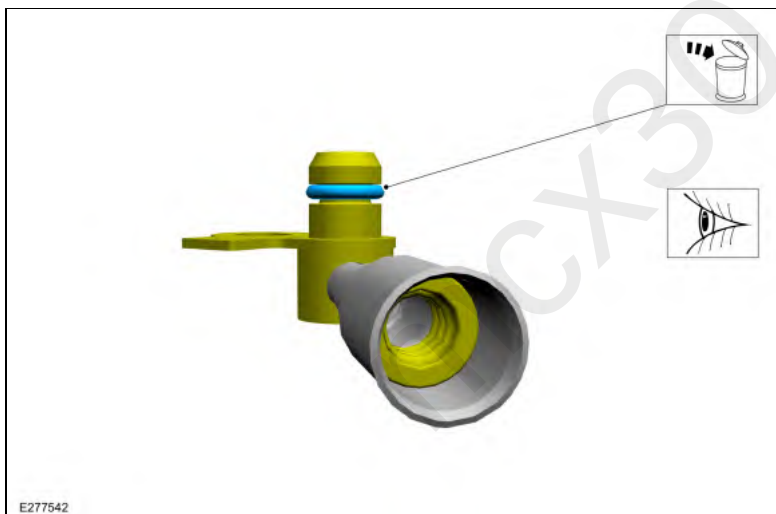


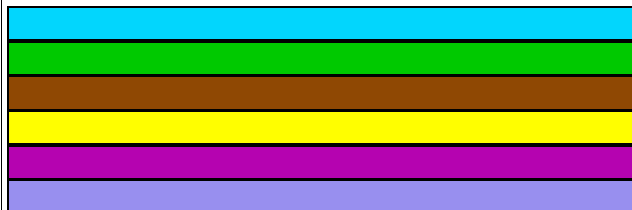
16.

1. Remove and discard the turbocharger coolant tube O-ring seal.
2. **NOTICE: Do not use a metal brush, damage to sealing area will result in leaks.**

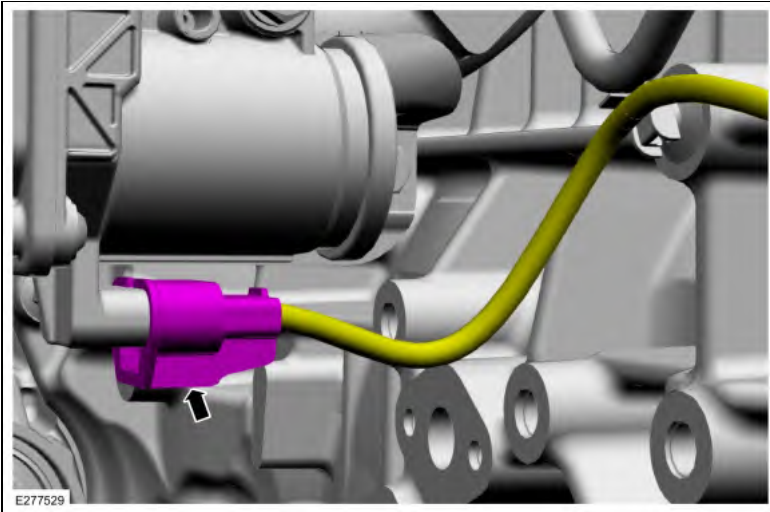
Use brake cleaner and a nylon brush to clean. Clean the turbocharger coolant tube sealing surfaces. Inspect the sealing surfaces for debris or damage, make sure the retaining bracket is not bent, check for squareness of the O-ring area. Inspect the rubber gasket. Install new components if needed.

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



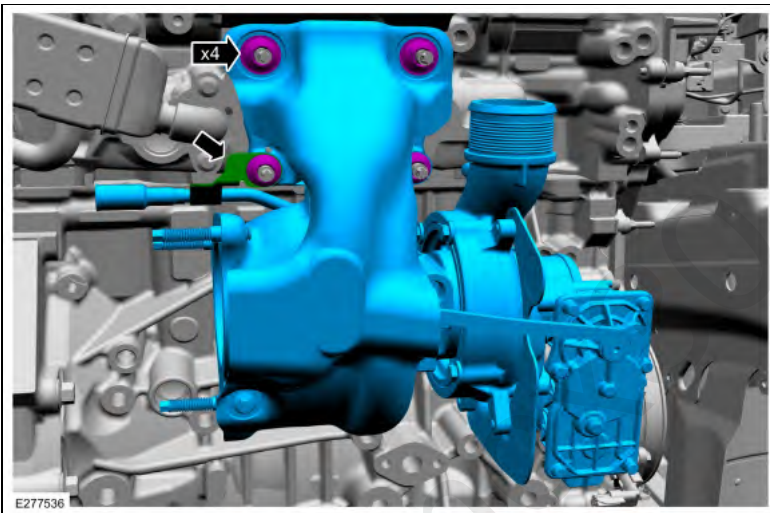


17. Disconnect the turbocharger electrical connector.

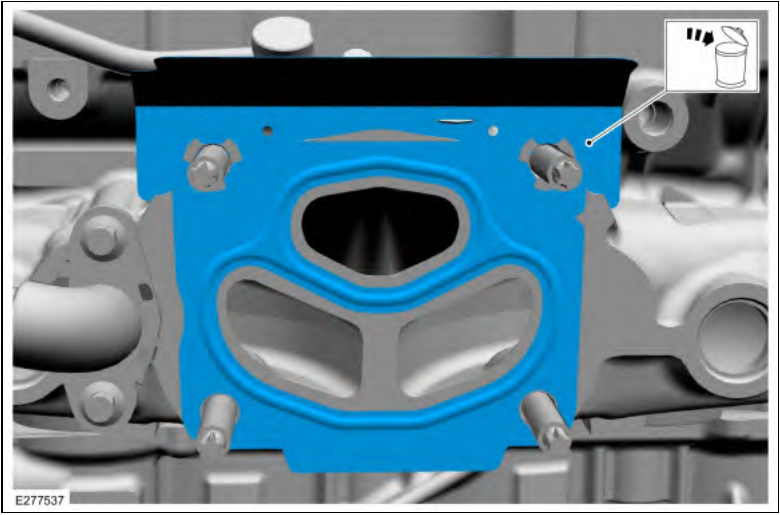


18. **NOTE:** The coolant tube bracket is retained by the left lower turbocharger stud and nut.

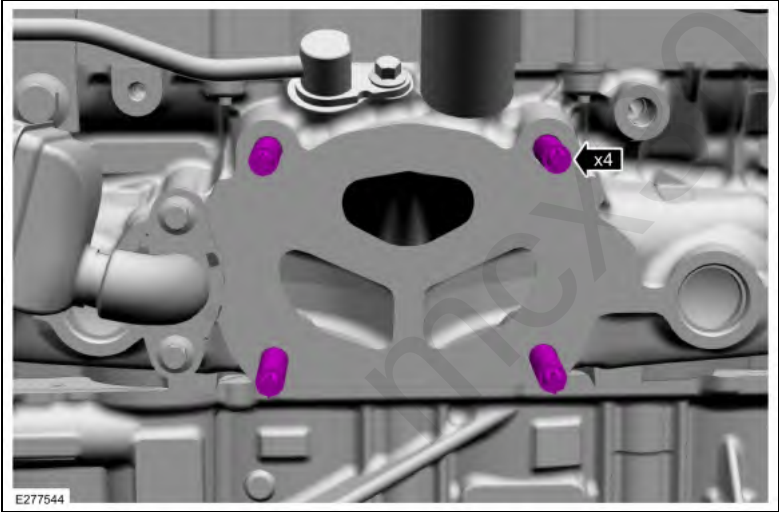
Remove the turbocharger mounting nuts, detach the coolant tube bracket, then remove the turbocharger.



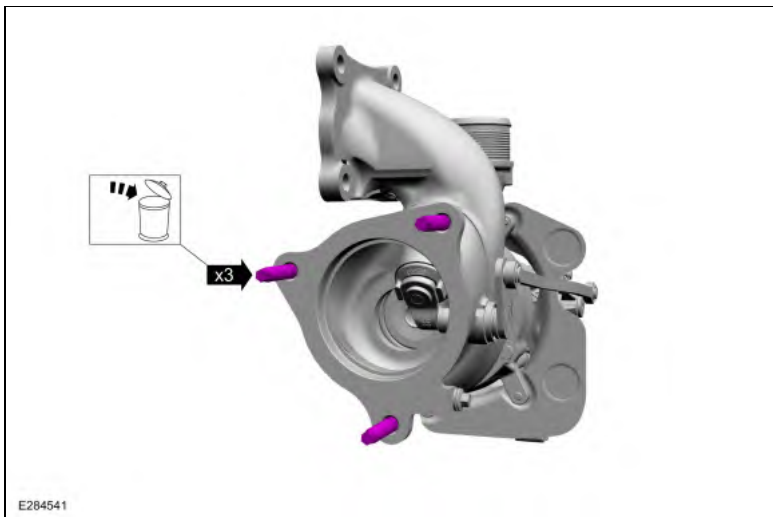
19. Remove and discard the turbocharger gasket.



20. Remove the turbocharger mounting studs, if they need to be removed.

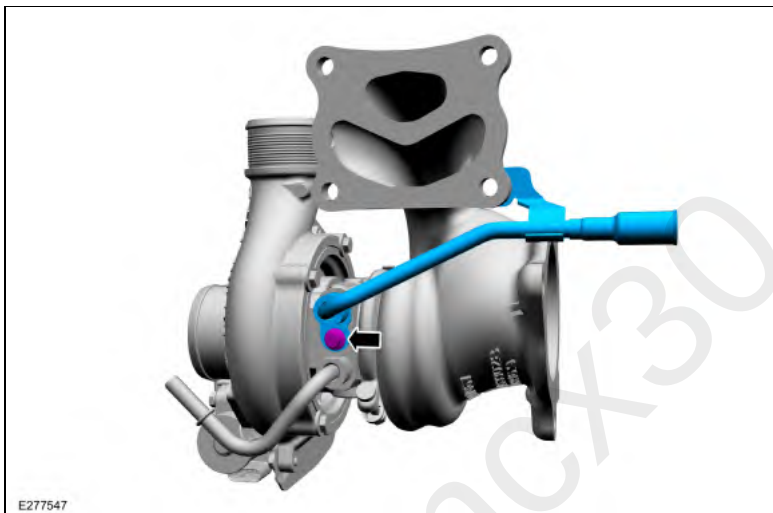


21. Remove and discard the turbocharger exhaust flange studs.



A horizontal bar chart consisting of six stacked rectangular segments of equal width. From top to bottom, the segments are colored cyan, green, brown, yellow, magenta, and light blue. The segments are separated by thin black lines. The entire chart is enclosed in a black rectangular border.

22. If needed, remove the turbocharger coolant tube bolt, then remove the turbocharger coolant return tube.



23.

1. **NOTE:** *This sub-step is only needed if the component was removed.*

Remove and discard the turbocharger coolant tube O-ring seal.

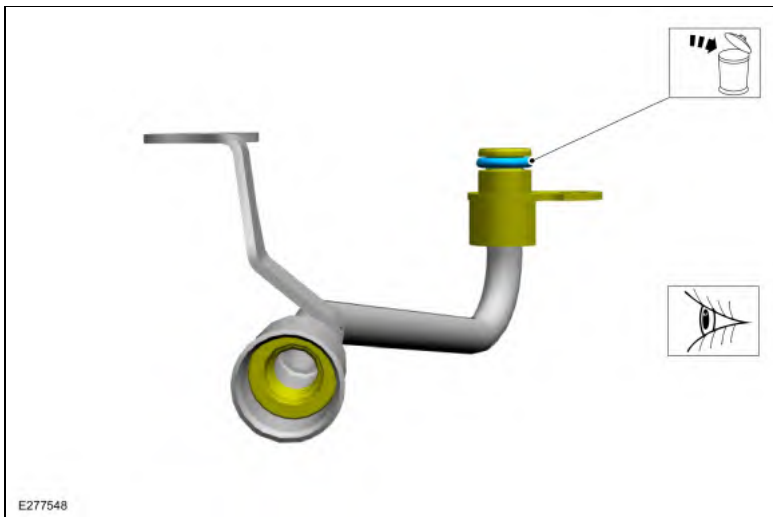
- 2. NOTICE: Do not use a metal brush, damage to sealing area will result in leaks.**

NOTE: *This sub-step is only needed if the component was removed.*

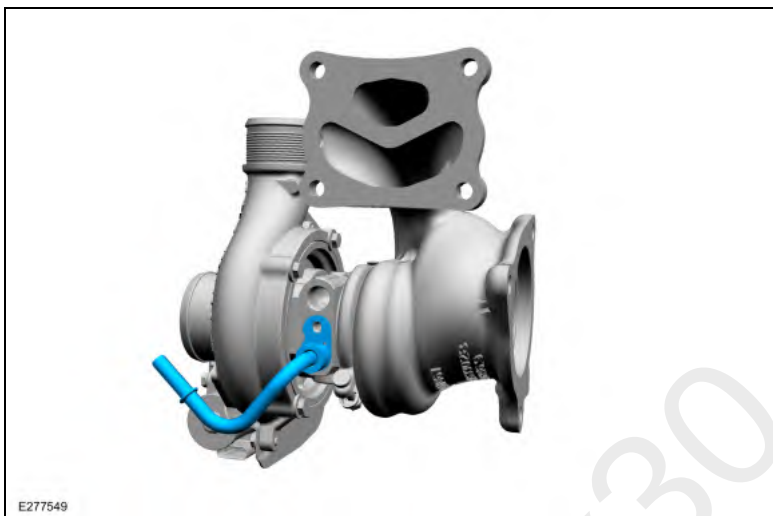
Use brake cleaner and a nylon brush to clean. Clean the turbocharger coolant tube sealing surfaces. Inspect the sealing surfaces for debris or damage and make sure the retaining bracket is not bent, check for squareness of the O-ring area. Inspect the rubber gasket. Install new components if needed.

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

3. Inspect the rubber gasket. Install new components if needed.



24. If needed, remove the turbocharger coolant supply tube.



25.

1. **NOTE:** This sub-step is only needed if the component was removed.

Remove and discard the turbocharger coolant tube O-ring seal.

2. **NOTICE:** Do not use a metal brush, damage to sealing area will result in leaks.

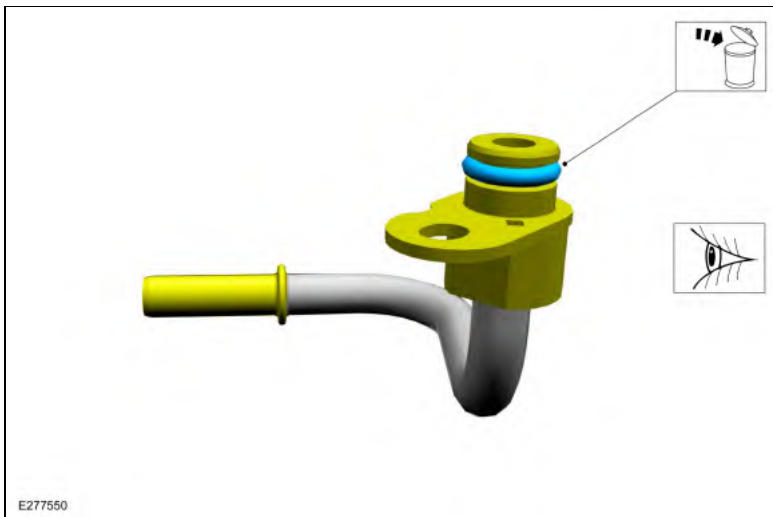
NOTE: This sub-step is only needed if the component was removed.

Use brake cleaner and a nylon brush to clean. Clean the turbocharger coolant tube sealing surfaces. Inspect the sealing surfaces for debris or damage, make sure the retaining bracket is not bent, check for squareness of the O-ring area. Install new components if needed.

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

3. Use brake cleaner and a nylon brush to clean. Clean the turbocharger coolant tube gasket sealing surface. Install new components if needed.

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



Installation

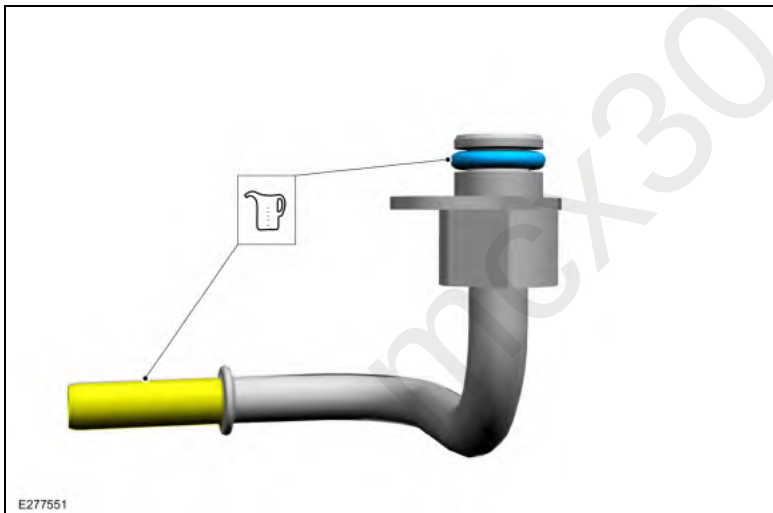
All vehicles

1.

- **NOTE:** This sub-step is only needed if the component was removed.

Install a new turbocharger coolant tube O-ring seal.

- Lubricate the new O-ring seal and the tube sealing surface with clean engine coolant. Refer to: Specifications (303-03A Engine Cooling - 2.0L EcoBoost (184kW/250PS) â€“ MI4, Specifications).



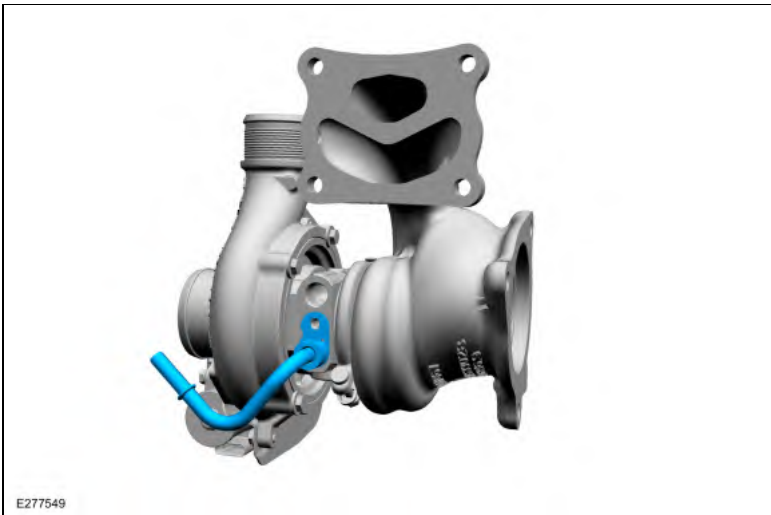
2. **NOTICE:** Do not use a metal brush, damage to sealing area will result in leaks.

NOTE: This step is only needed if the component was removed.

- Carefully use a nylon brush to remove the old O-ring residue, use brake cleaner to rinse the O-ring residue out of the turbocharger tube O-ring bore. Inspect the area for deep scratches and gouges. Install new components if needed.

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

1. If removed, fit the turbocharger coolant supply tube to the turbocharger. The lower coolant supply tube goes into the turbocharger first.

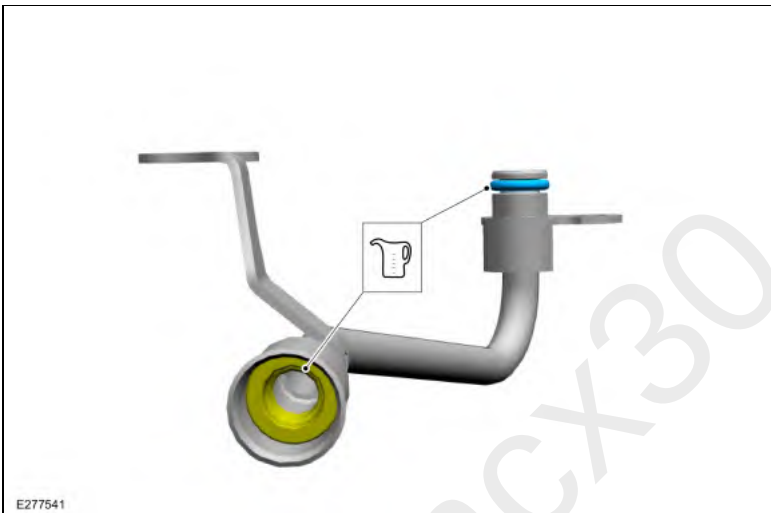


3.

1. **NOTE:** This sub-step is only needed if the component was removed.

If removed, install a new turbocharger coolant tube O-ring seal. Lubricate the turbocharger coolant tube O-ring seal with clean engine coolant. Refer to: Specifications (303-03A Engine Cooling - 2.0L EcoBoost (184kW/250PS) â€“ MI4, Specifications).

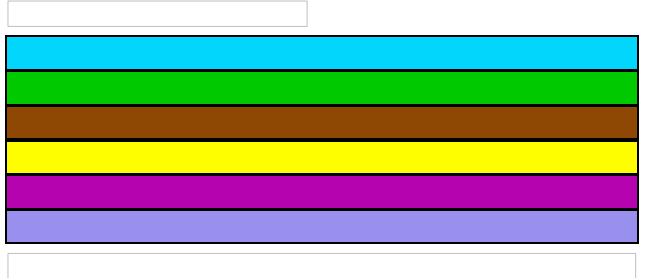
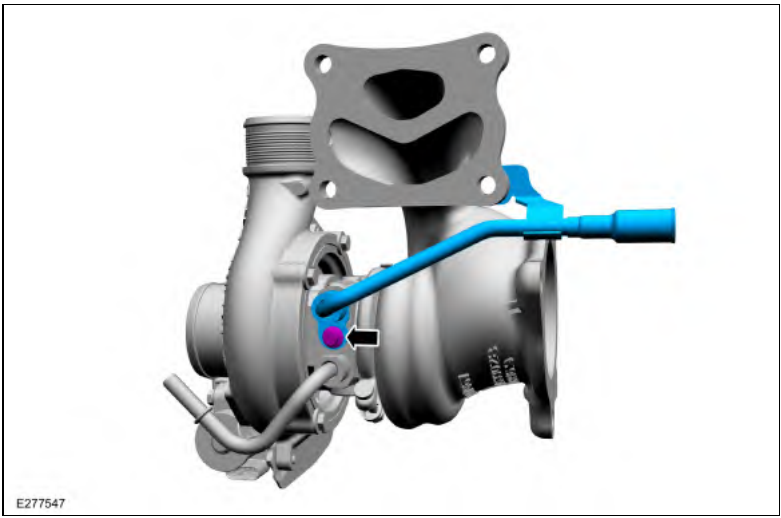
2. Lubricate the turbocharger coolant tube rubber gasket with clean engine coolant. Refer to: Specifications (303-03A Engine Cooling - 2.0L EcoBoost (184kW/250PS) â€“ MI4, Specifications).



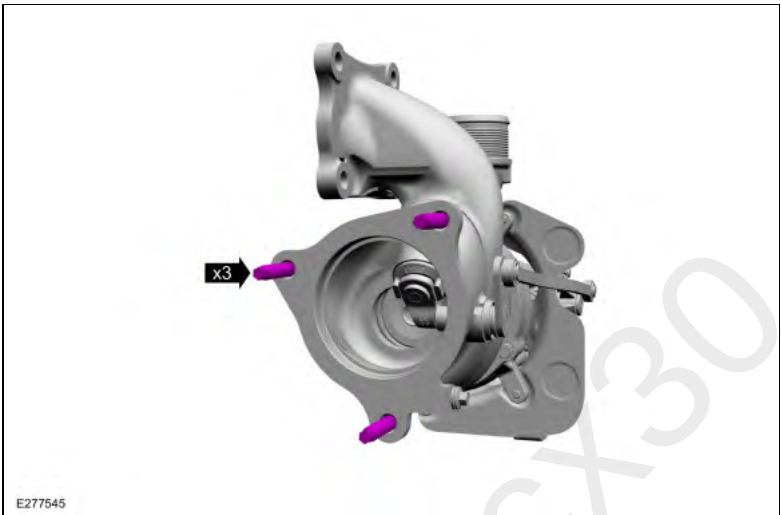
4. **NOTICE:** Do not use a metal brush, damage to sealing area will result in leaks.

NOTE: This step is only needed if the component was removed.

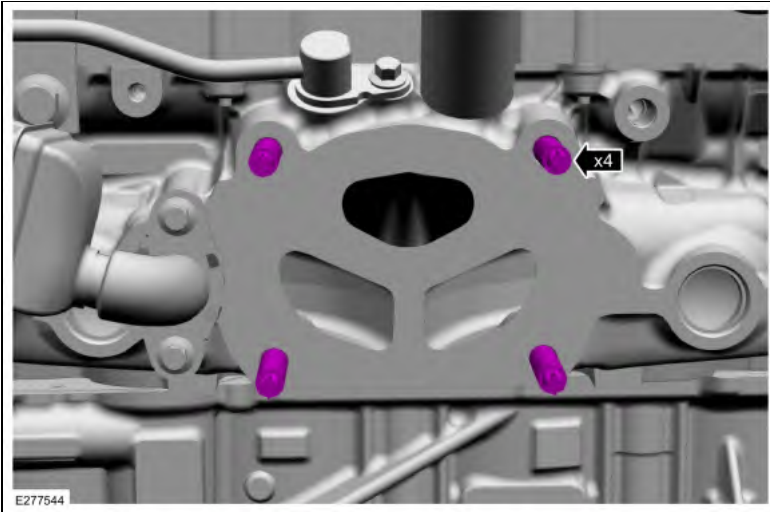
- Carefully use a nylon brush to remove the old O-ring residue, use brake cleaner to rinse the O-ring residue out of the turbocharger tube O-ring bore. Inspect the area for deep scratches and gouges. Install new components if needed.
Material: Motorcraft® Metal Brake Parts Cleaner / PM-4-A, PM-4-B
1. If removed, fit the turbocharger coolant return tube to the turbocharger. The lower coolant supply tube goes into the turbocharger first.
 2. If removed, install and tighten the turbocharger coolant tube bolt.
Torque: 97 lb.in (11 Nm)



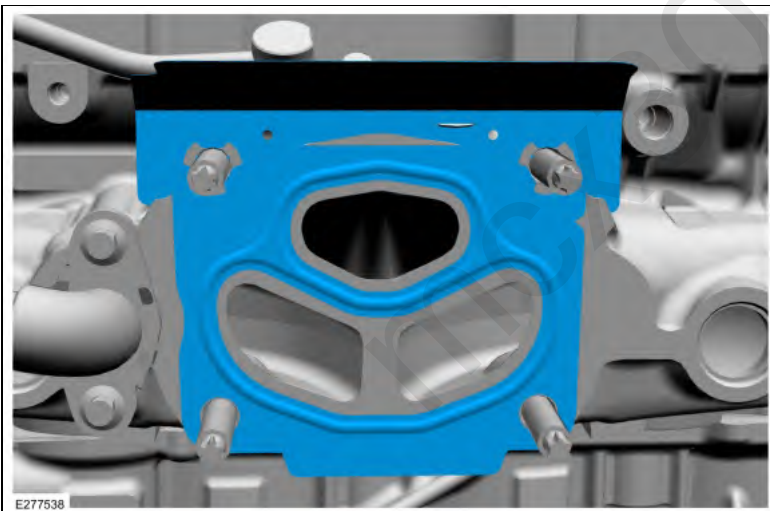
5. Install and tighten the turbocharger exhaust flange studs.
Torque: 30 lb.ft (40 Nm)



6. If removed install and tighten the turbocharger mounting studs.
Torque: 159 lb.in (18 Nm)



7. Install the new turbocharger gasket.



8. **NOTE:** The coolant tube bracket is retained by the left lower turbocharger stud and nut.

Install the turbocharger, attach the coolant tube bracket, then install and tighten the turbocharger mounting nuts.
Torque: 39 lb.ft (53 Nm)



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.



10. Install a new turbocharger coolant tube O-ring seal. Lubricate the turbocharger coolant tube O-ring seal and rubber gasket with clean engine coolant. Refer to: Specifications (303-03A Engine Cooling - 2.0L EcoBoost (184kW/250PS) â€” MI4, Specifications).



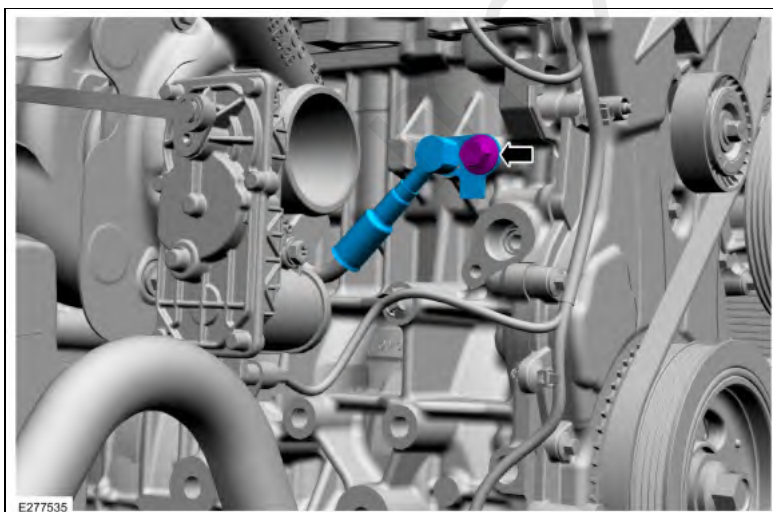
11.

- **NOTICE: Do not use a metal brush damage to sealing area will result in leaks.**

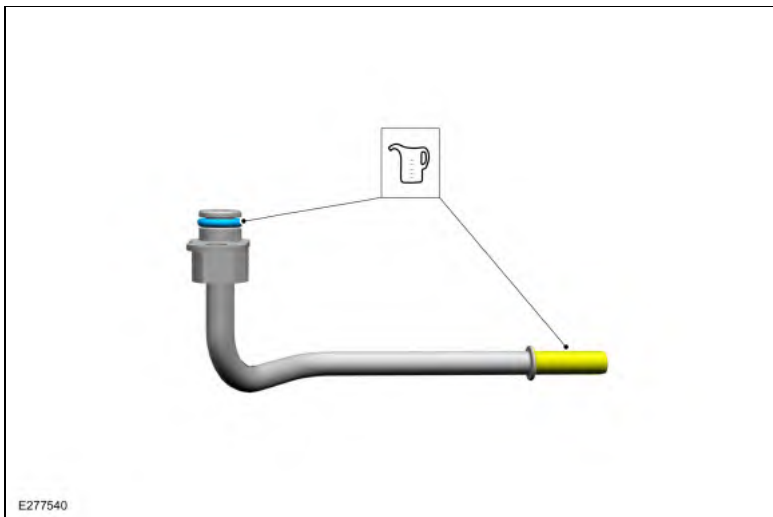
Carefully use a nylon brush to remove the old O-ring residue, use brake cleaner to rinse the O-ring residue out of the turbocharger tube to engine O-ring bore. Inspect the area for deep scratches and gouges. Install new components if needed.

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

1. Install the outer half of the turbocharger coolant supply tube, then install and tighten the turbocharger coolant supply tube bolt.
Torque: 35 lb.ft (48 Nm)



12. Install a new turbocharger coolant tube O-ring seal. Lubricate the new O-ring seal and the tube sealing surface with clean engine coolant. Refer to: Specifications (303-03A Engine Cooling - 2.0L EcoBoost (184kW/250PS) â€” MI4, Specifications).



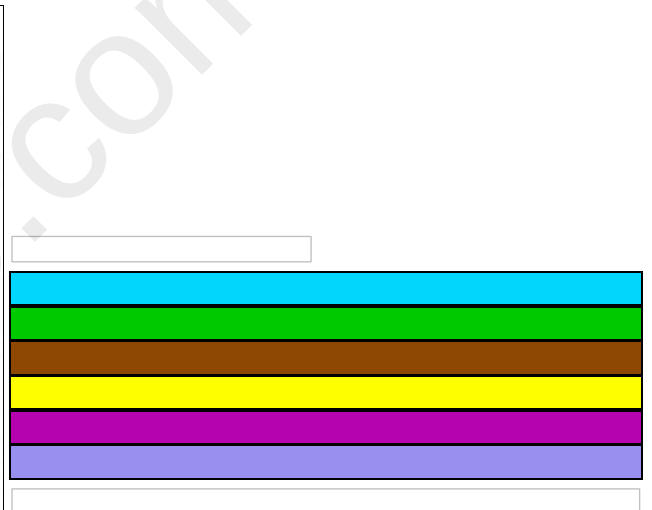
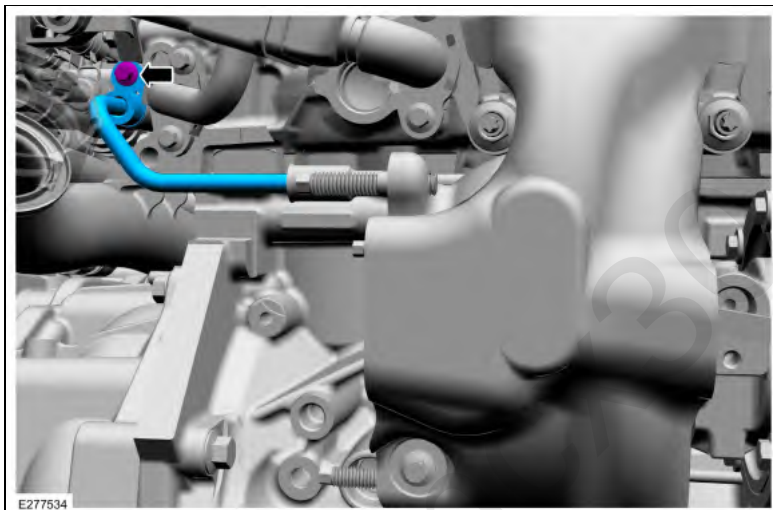
13.

- **NOTICE: Do not use a metal brush damage to sealing area will result in leaks.**

Carefully use a nylon brush to remove the old O-ring residue, use brake cleaner to rinse the O-ring residue out of the turbocharger tube to engine O-ring bore. Inspect the area for deep scratches and gouges. Install new components if needed.

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

1. Install the outer half of the turbocharger coolant return tube, then install and tighten the turbocharger coolant return tube bolt.
Torque: 35 lb.ft (48 Nm)



14. **NOTICE: Ensure that a new turbocharger oil return tube O-ring and gasket are used.**

Install a new turbocharger oil return tube O-ring seal and a new turbocharger oil return tube gasket if not already installed. Lubricate the new turbocharger oil return tube O-ring seal with clean engine oil.

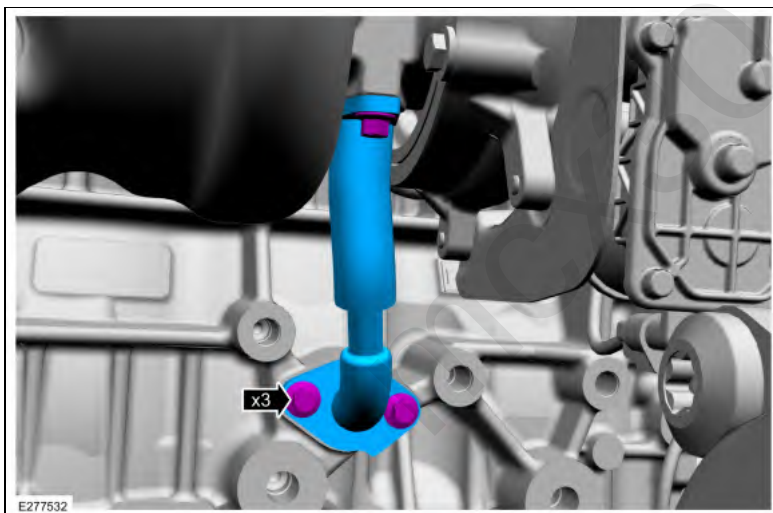
Refer to: Specifications (303-01A Engine - 2.0L EcoBoost (184kW/250PS) â€™ MI4, Specifications).



15. **NOTICE: Do not use a metal brush, damage to sealing area will result in leaks.**

NOTE: The oil return tube must be fully seated prior to fastener rundown.

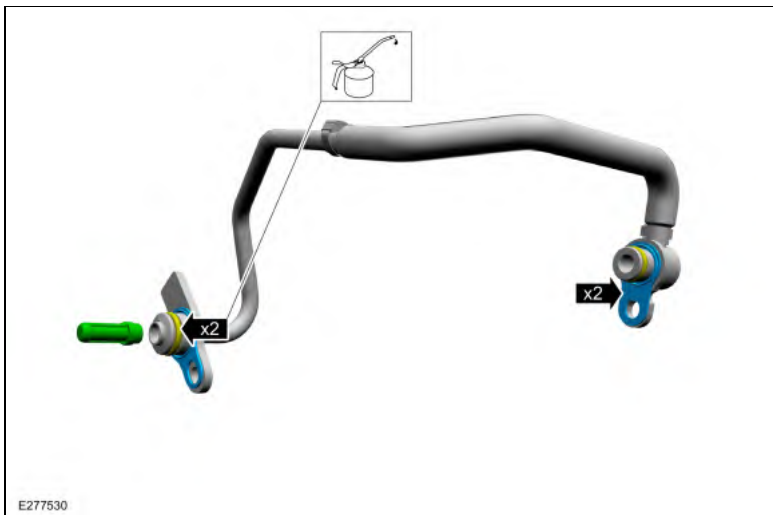
- Carefully use a nylon brush to remove the old O-ring residue, use brake cleaner to rinse the O-ring residue out of the turbocharger tube O-ring bore. Inspect the area for deep scratches and gouges. Install new components if needed.
- 1. Install the turbocharger oil return tube, then install and tighten the turbocharger oil return tube bolts.
Material: Motorcraft® Metal Brake Parts Cleaner / PM-4-A, PM-4-B
Torque: 97 lb.in (11 Nm)



16. **NOTICE: Do not reuse the turbocharger oil filter, a new turbocharger oil filter must be used.**

NOTICE: Ensure that new turbocharger oil supply tube O-rings and gaskets are used.

Install the new turbocharger oil supply tube O-rings, gaskets and oil filter if not already installed. Lubricate the O-ring seals with clean engine oil. Refer to: Specifications (303-01A Engine - 2.0L EcoBoost (184kW/250PS) â€” M14, Specifications).



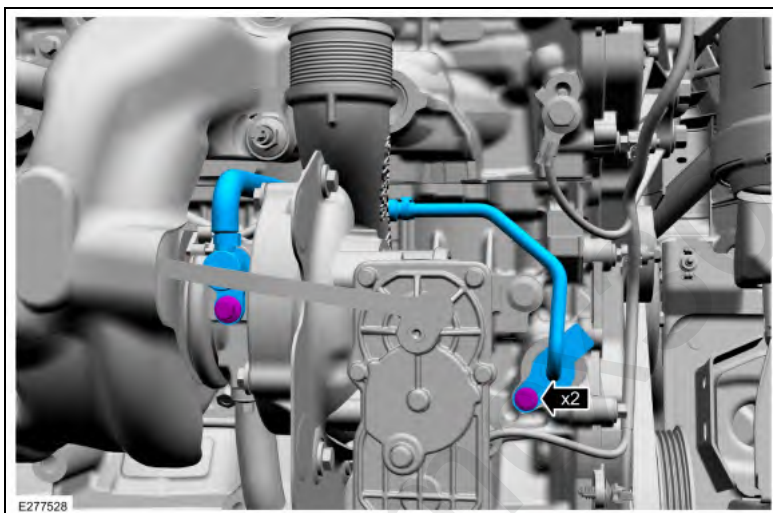
17. **NOTE:** The oil supply tube must be fully seated prior to fastener tightening.

- **NOTICE:** Do not use a metal brush, damage to sealing area will result in leaks.

Carefully use a nylon brush to remove the old O-ring residue, use brake cleaner to rinse the O-ring residue out of the turbocharger and engine O-ring bores. Inspect the area for deep scratches and gouges. Install new components if needed.

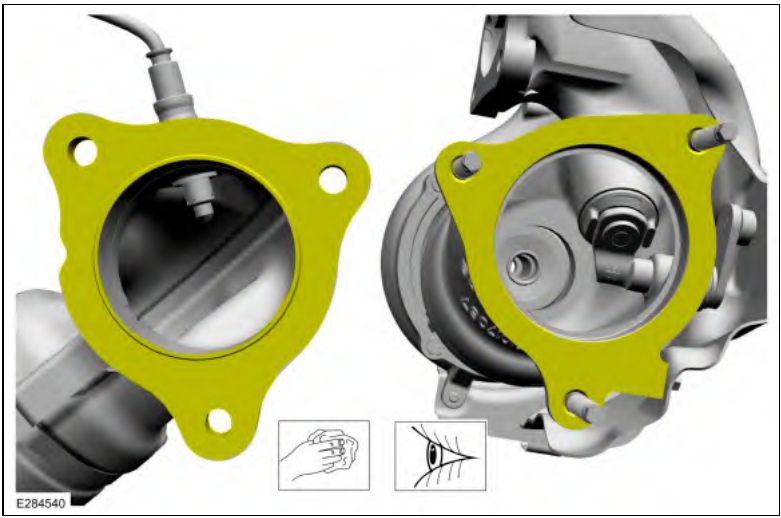
Material: Motorcraft® Metal Brake Parts Cleaner / PM-4-A, PM-4-B

1. Install and fully seat the turbocharger oil supply tube, then install and tighten the bolts.
Torque: 97 lb.in (11 Nm)

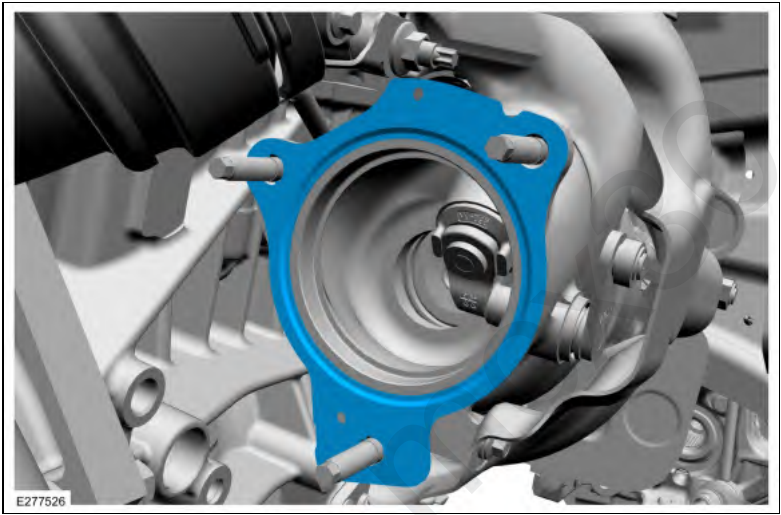


AWD (all-wheel drive) vehicles

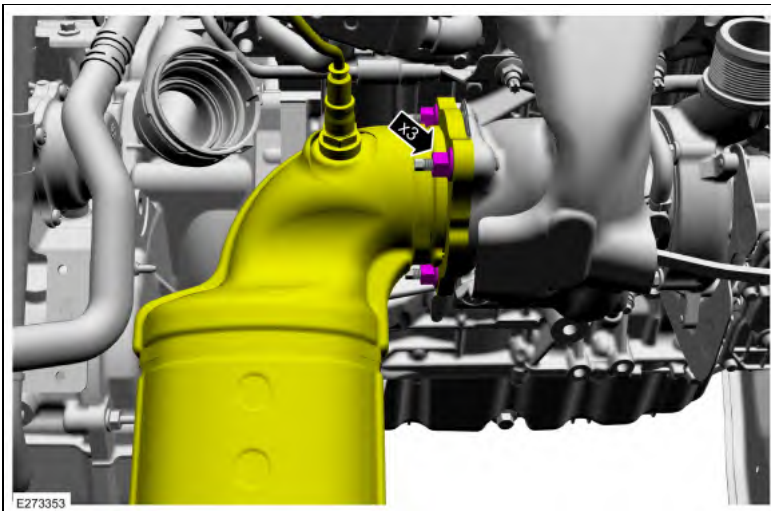
18. Clean and Inspect the gasket surfaces.



19. Install a new gasket.

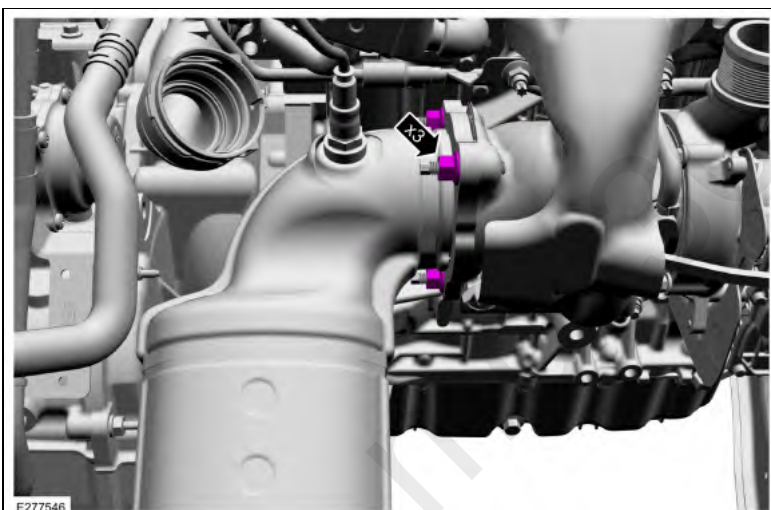


20. Install the catalytic converter, then install the new nuts finger tight at this stage.





21. Tighten the catalytic converter nuts.
Torque: 30 lb.ft (40 Nm)





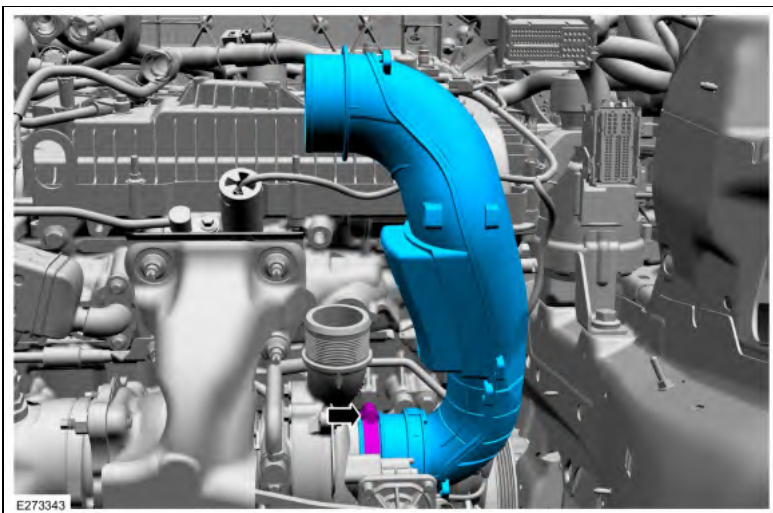
22. Install the battery tray.
 Refer to: Battery Tray (414-01 Battery, Mounting and Cables, Removal and Installation).

FWD (front wheel drive) vehicles

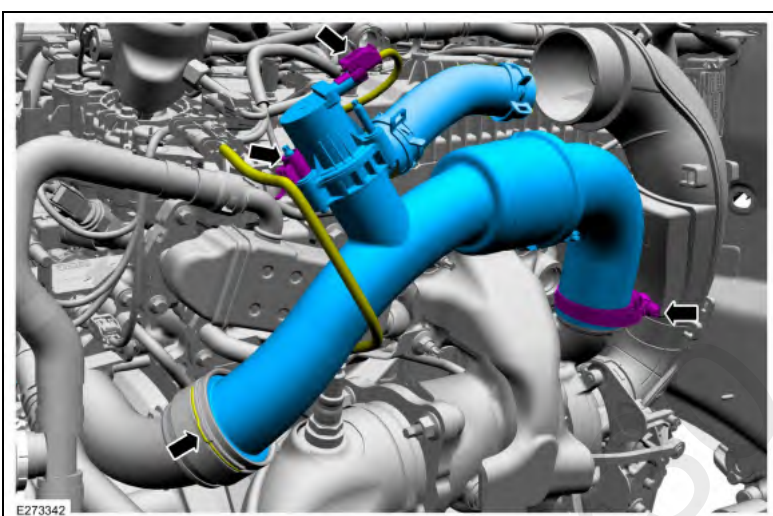
23. Install the catalytic converter.
 Refer to: Catalytic Converter (309-00A Exhaust System - 2.0L EcoBoost (184kW/250PS) â€“ MI4, Removal and Installation).

All vehicles

24. Install the lower air cleaner outlet pipe, then tighten the lower air cleaner outlet pipe clamp.
Torque: 44 lb.in (5 Nm)



25. Install the charge air cooler upper inlet pipe, then tighten the clamp. Engage the charge air cooler upper intake pipe retaining clip. Attach the harness retainer to the stud bolt, then connect the turbocharger bypass valve electrical connector.
Torque: 44 lb.in (5 Nm)



26. Install the upper air cleaner outlet pipe.
 Refer to: Air Cleaner Outlet Pipe (303-12A Intake Air Distribution and Filtering - 2.0L EcoBoost (184kW/250PS) â€” MI4, Removal and Installation).

FWD (front wheel drive) vehicles

27. Install the right front wheel and tire.
 Refer to: Wheel and Tire (204-04A Wheels and Tires, Removal and Installation).

AWD (all-wheel drive) vehicles

28. Install the power transfer unit.
 Refer to: Power Transfer Unit - Vehicles With: Power Transfer Unit Oil-to-Coolant Cooler (308-07B Power Transfer Unit - 2.0L EcoBoost (184kW/250PS) â€” MI4, Installation).
 Refer to: Power Transfer Unit - Vehicles Without: Power Transfer Unit Oil-to-Coolant Cooler (308-07B Power Transfer Unit - 2.0L EcoBoost (184kW/250PS) â€” MI4, Installation).

All vehicles

29. Check the engine oil level and fill as needed.
 Refer to: Specifications (303-01A Engine - 2.0L EcoBoost (184kW/250PS) â€” MI4, Specifications).
30. Fill the cooling system.
 Refer to: Engine Cooling System Draining, Vacuum Filling and Bleeding (303-03A Engine Cooling - 2.0L EcoBoost (184kW/250PS) â€” MI4, General Procedures).

Turbocharger Coolant Return Tube

Removal and Installation

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.

NOTICE: Special attention needs to be given to the sealing ports for the oil supply, the oil return, and the coolant tubes, on turbocharged engines. The sealing ports must be totally clean and free from O-ring residue, have no damage to the sealing surface and the tubes to ensure that there are no leaks or repeat repairs.

1. The turbocharger coolant return tube is removed in the turbocharger procedure.
Refer to: Turbocharger (303-04C Fuel Charging and Controls - Turbocharger - 2.0L EcoBoost (184kW/250PS) â€“ MI4, Removal and Installation).

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Turbocharger Coolant Supply Tube

Removal and Installation

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.

NOTICE: Special attention needs to be given to the sealing ports for the oil supply, the oil return, and the coolant tubes, on turbocharged engines. The sealing ports must be totally clean and free from O-ring residue, have no damage to the sealing surface and the tubes to ensure that there are no leaks or repeat repairs.

1. The turbocharger coolant supply tube is removed in the turbocharger procedure.
Refer to: Turbocharger (303-04C Fuel Charging and Controls - Turbocharger - 2.0L EcoBoost (184kW/250PS) â€“ MI4, Removal and Installation).

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