

Turbocharger Coolant Return Tube

Materials

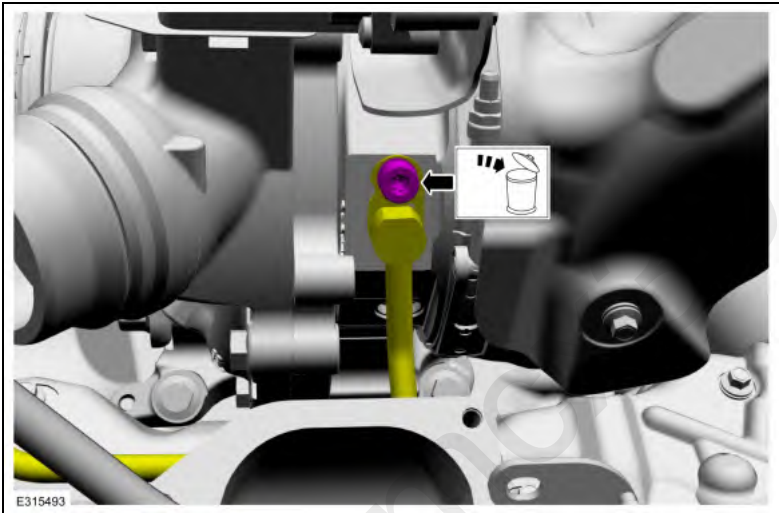
Name	Specification
Motorcraft® Metal Brake Parts Cleaner PM-4-A, PM-4-B	-

Removal

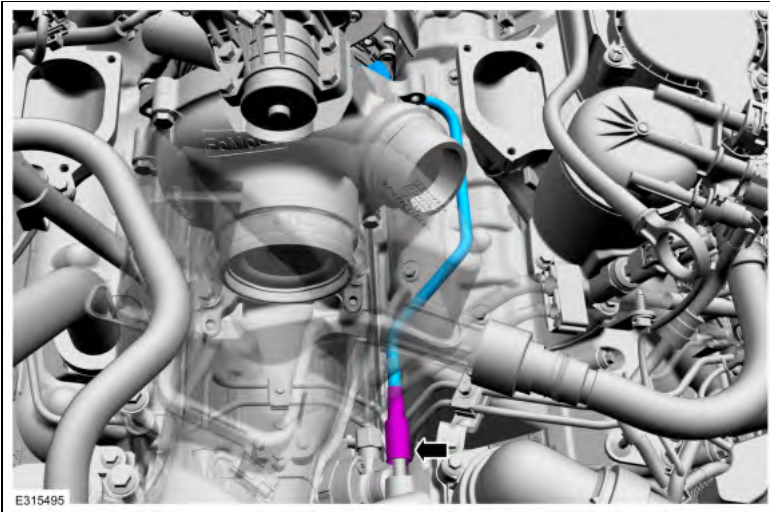
NOTICE: The turbocharger can be damaged by even the smallest particles. When removing any turbocharger or engine air intake system component, ensure that no debris enters the system. Failure to do so may result in damage to the turbocharger.

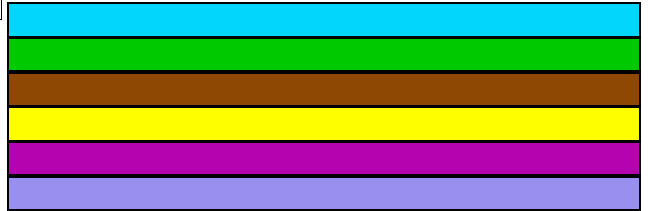
NOTICE: Special attention needs to be given to the sealing ports for the coolant lines, on turbocharged engines. The sealing ports must be totally clean and free from O-ring residue, have no damage to the sealing surface and the lines to ensure that there are no leaks or repeat repairs.

1. Drain the cooling system.
Refer to: Engine Cooling System Draining, Vacuum Filling and Bleeding (303-03B Engine Cooling - 6.7L Power Stroke Diesel, General Procedures).
2. Remove the upper intake manifold.
Refer to: Upper Intake Manifold (303-01B Engine - 6.7L Power Stroke Diesel, Removal and Installation).
3. Remove the charge air cooler intake pipe.
Refer to: Charge Air Cooler (CAC) Intake Pipe (303-12B Intake Air Distribution and Filtering - 6.7L Power Stroke Diesel, Removal and Installation).
4. Remove and discard the turbocharger coolant return tube bolt, then disconnect the turbocharger coolant return tube.



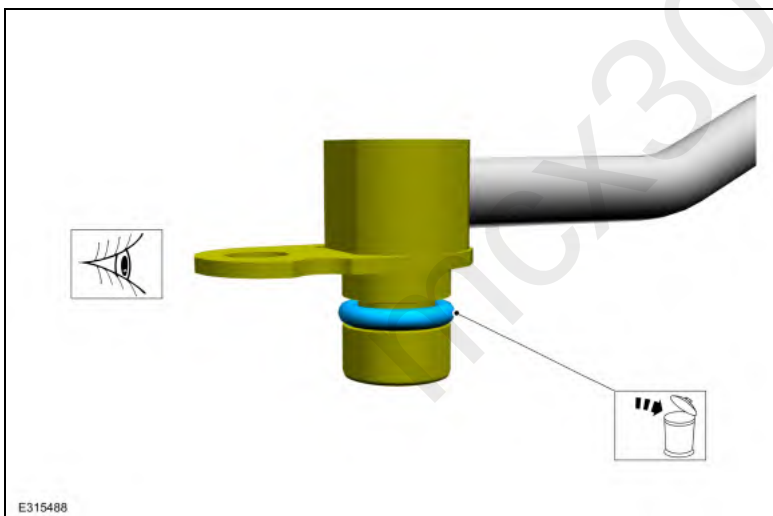
5. Disconnect and remove the turbocharger coolant return tube.

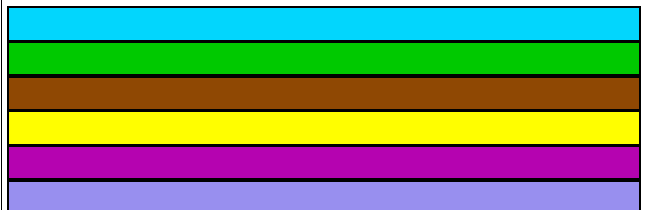




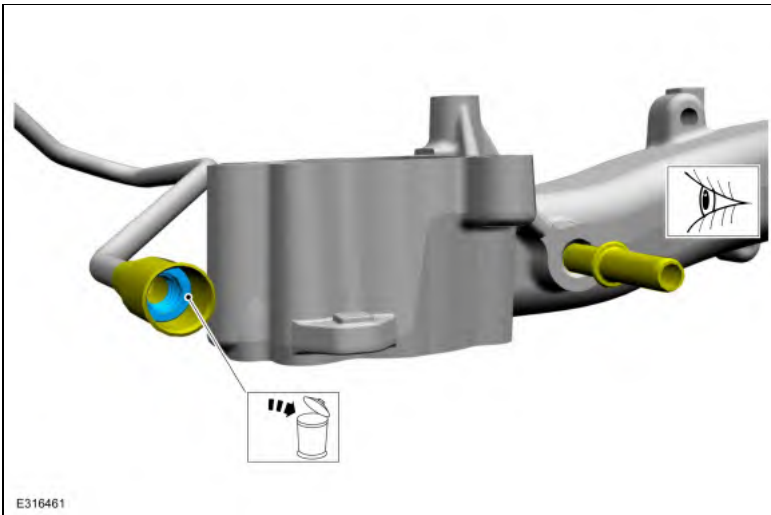
6.
 1. Remove and discard the turbocharger coolant return tube O-ring seal.
Material: Motorcraft® Metal Brake Parts Cleaner / PM-4-A, PM-4-B
 2. **NOTICE: Use brake cleaner and a nylon brush to clean. Do not use a metal brush, damage to sealing area will result in leaks.**

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. Install new components if necessary.



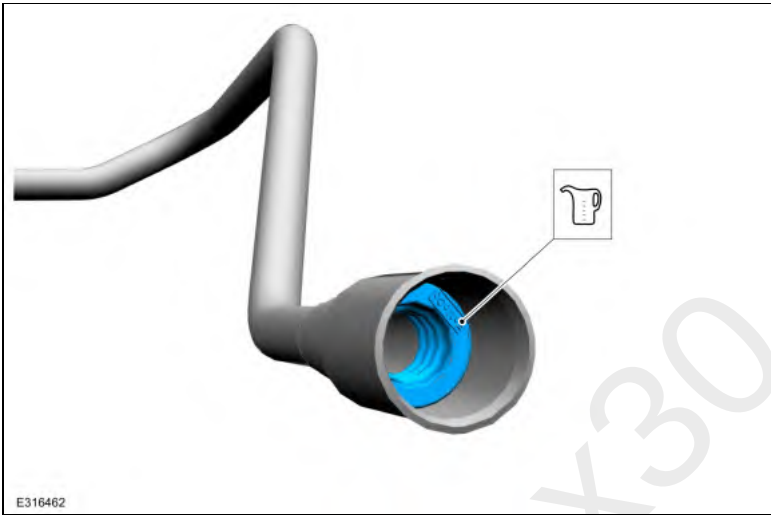


7. **NOTICE: Use brake cleaner and a nylon brush to clean. Do not use a metal brush, damage to sealing area will result in leaks.**
 Remove and discard the rubber gasket. Inspect and clean the turbocharger cooling tube sealing surfaces, install new components if necessary.
Material: Motorcraft® Metal Brake Parts Cleaner / PM-4-A, PM-4-B

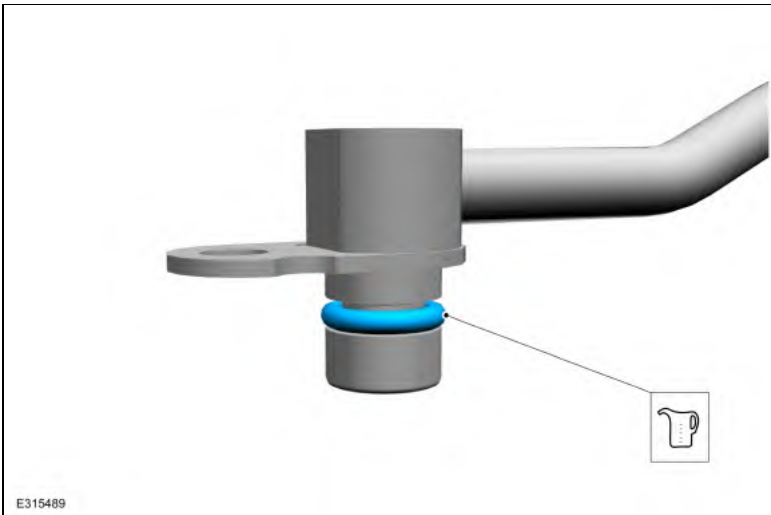


Installation

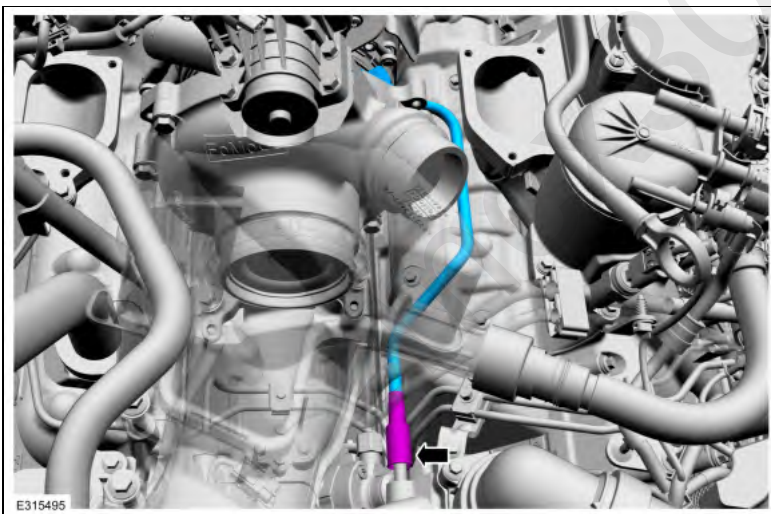
- 1. Install the new turbocharger cooling tube rubber gasket, then lubricate with clean engine coolant.
Refer to: Specifications (303-03B Engine Cooling - 6.7L Power Stroke Diesel, Specifications).



- 2. Install a new turbocharger coolant return tube O-ring seal, lubricate with clean engine coolant.
Refer to: Specifications (303-03B Engine Cooling - 6.7L Power Stroke Diesel, Specifications).



3. Install and connect the turbocharger coolant return tube.



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

NOTE: When installing the turbocharger coolant return tube, the turbocharger coolant return tube must be fully engaged and seated into the turbocharger before the fastener is tightened.

- 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 necessary.

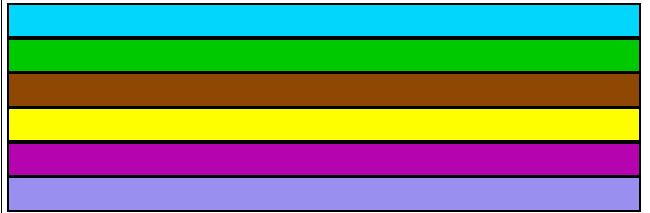
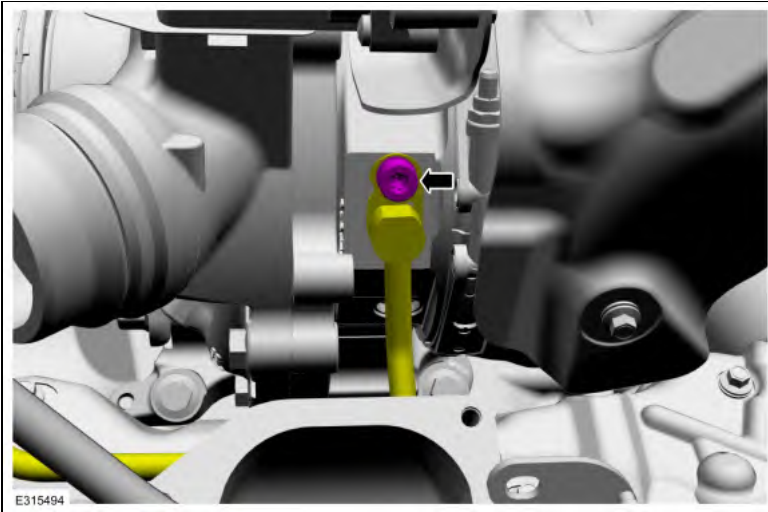
1. Connect the turbocharger coolant return tube to the turbocharger, then install and tighten the bolt.

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

Torque:

Stage 1: 106 lb.in (12 Nm)

Stage 2: 30°



5. Install the charge air cooler intake pipe.
Refer to: Charge Air Cooler (CAC) Intake Pipe (303-12B Intake Air Distribution and Filtering - 6.7L Power Stroke Diesel, Removal and Installation).
6. Install the upper intake manifold.
Refer to: Upper Intake Manifold (303-01B Engine - 6.7L Power Stroke Diesel, Removal and Installation).
7. Evaluate the cooling system.
Refer to: Engine Cooling System Condition Evaluation (303-03B Engine Cooling - 6.7L Power Stroke Diesel, General Procedures).

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