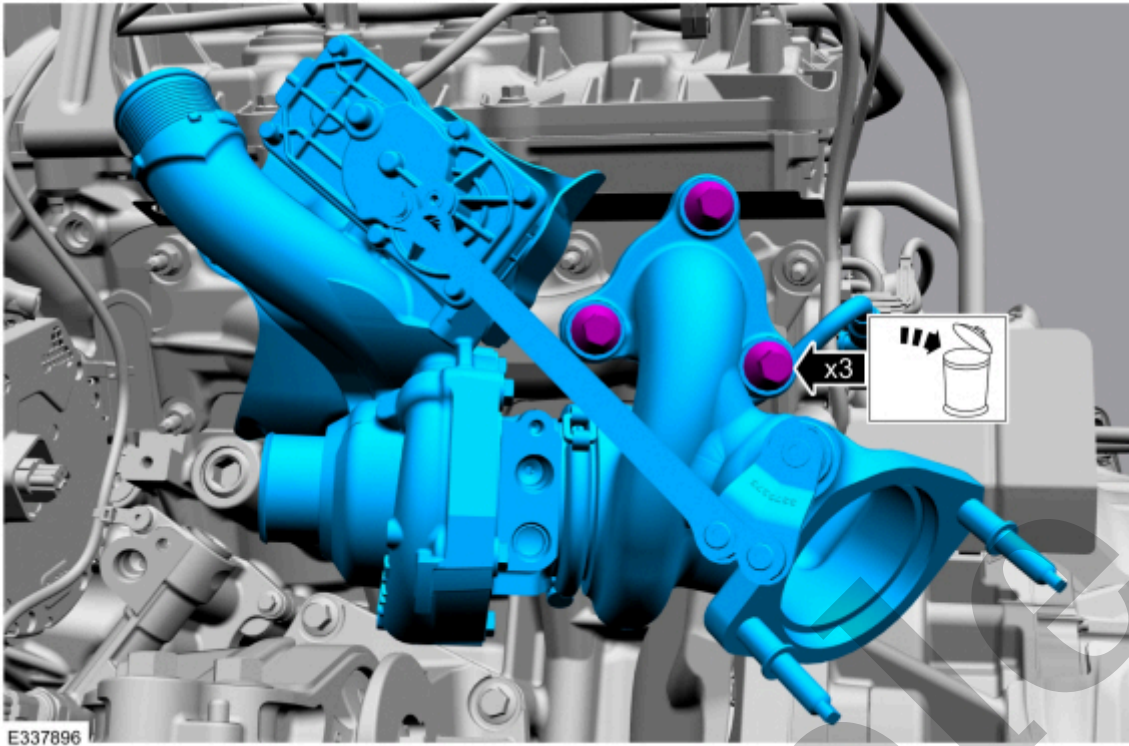


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2002 FORD Windstar OEM Service and Repair Workshop Manual

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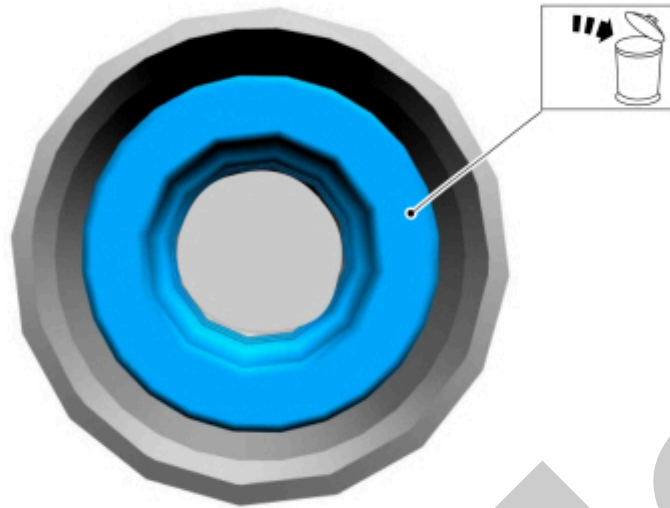
[Click here to learn about symbols, color coding, and icons used in this manual.](#)

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

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 and make sure the retaining bracket is not bent, check for squareness of the O-ring area. Install new components if necessary.



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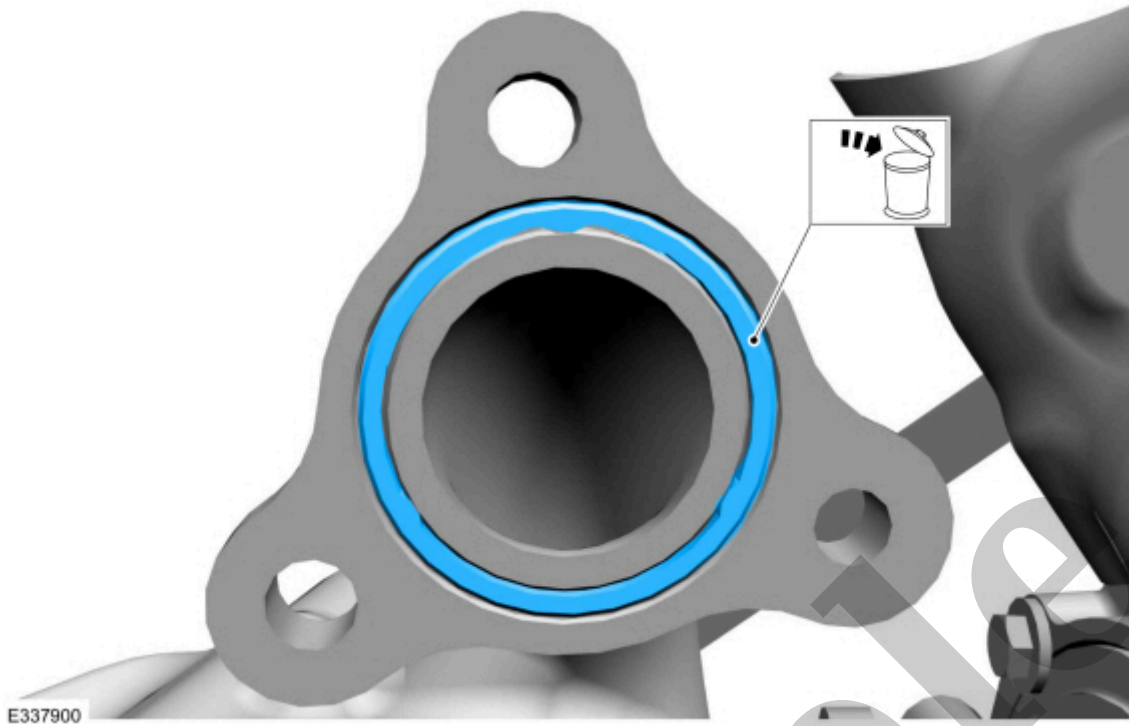
[Click here to learn about symbols, color coding, and icons used in this manual.](#)

15. **NOTICE**

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

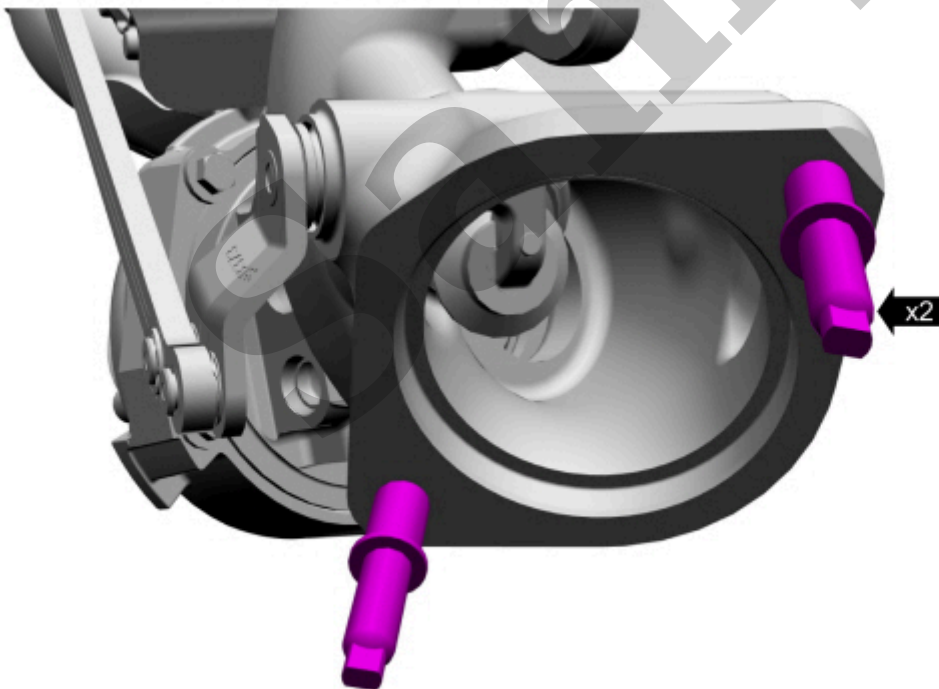
If needed, inspect and clean the turbocharger cooling tube sealing surfaces, using brake cleaner and a nylon brush to clean. Install new components if necessary.

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



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18. If needed, remove the studbolts.



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Installation



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4. If removed, install the turbocharger coolant supply tubes.

Refer to: [Turbocharger Coolant Return Tube LH](#)(303-04H Fuel Charging and Controls - Turbocharger - 3.5L V6 PowerBoost (CN), Removal and Installation).

Refer to: [Turbocharger Coolant Supply Tube LH](#)(303-04H Fuel Charging and Controls - Turbocharger - 3.5L V6 PowerBoost (CN), Removal and Installation).

5. 1. If needed, then install the turbocharger cooling tube rubber gasket. After installing the new rubber gasket, lubricate with clean engine coolant.

Refer to: [Specifications](#)(303-03D Engine Cooling - 3.5L V6 PowerBoost (CN), Specifications).

[Click here to learn about symbols, color coding, and icons used in this manual.](#)

7. NOTE

Install the coolant tubes to the engine with the turbocharger.

1. 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 bores. Inspect the area for deep scratches and gouges. Install new components if necessary.

2. Install the turbocharger, then install and tighten the new turbocharger retainers as indicated in the following 3 stages.

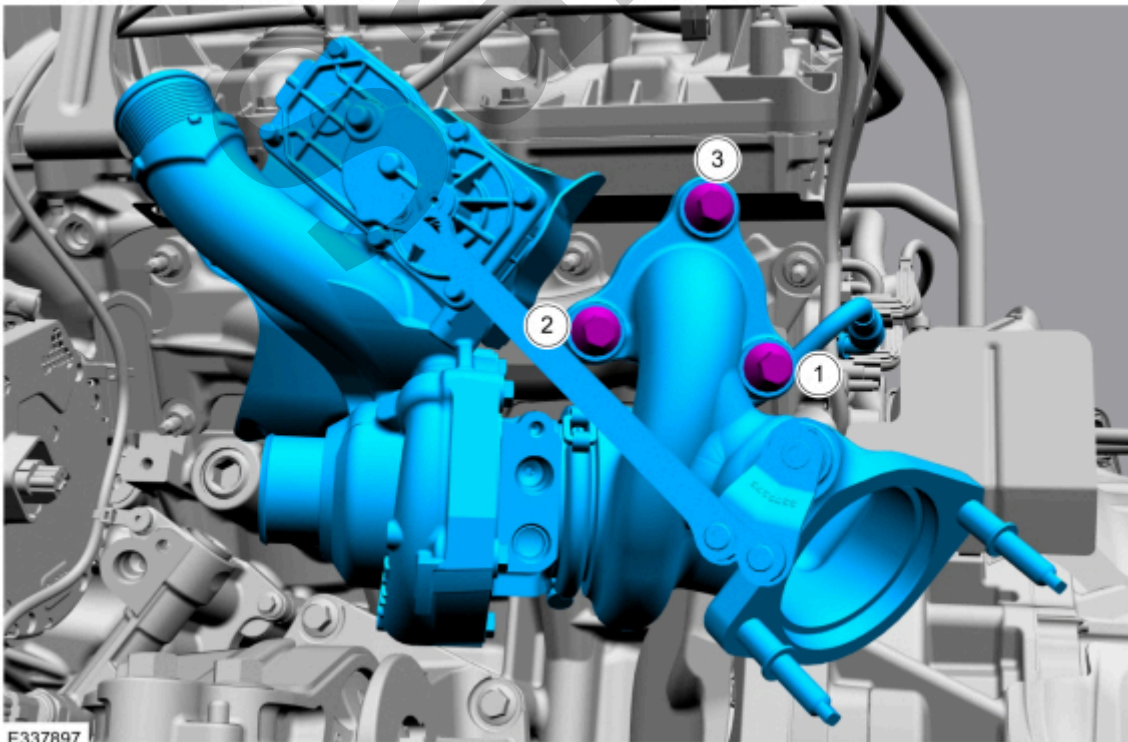
Material : Motorcraft® Metal Brake Parts Cleaner / PM-4-A, PM-4-B

Torque :

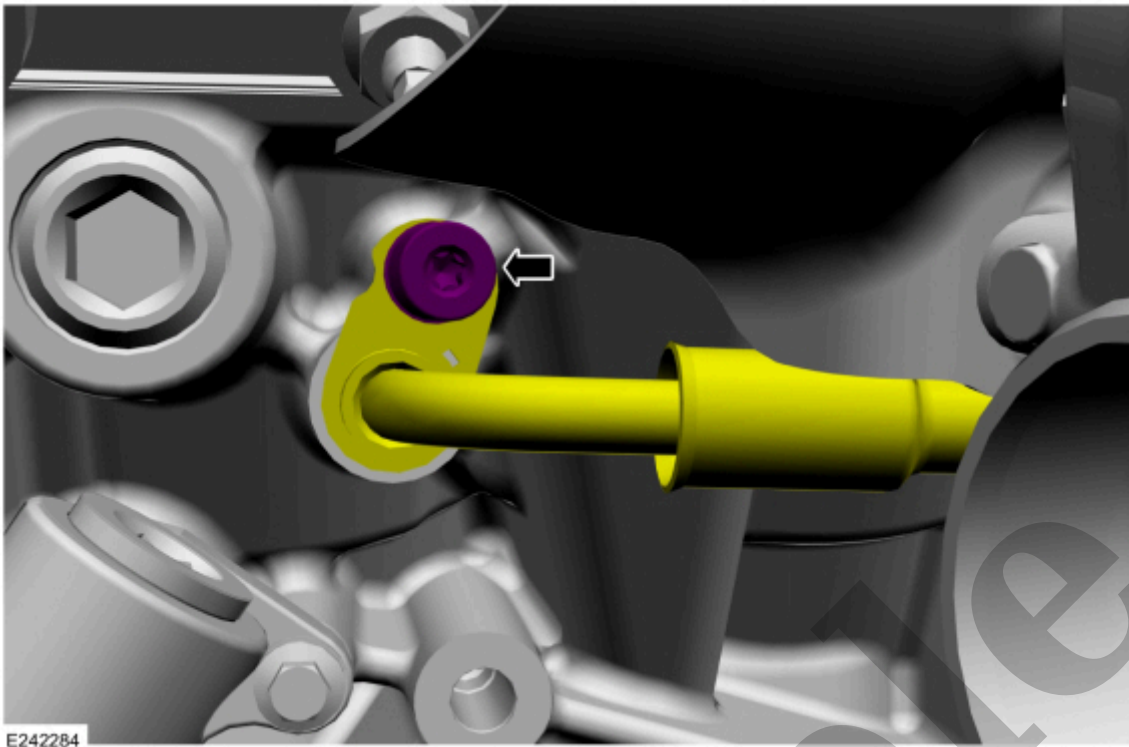
Stage 1: Tighten 1-3 in the sequence shown to : 18 lb.in (2 Nm)

Stage 2: Tighten 1-3 in the sequence shown to : 38 lb.ft (51 Nm)

Stage 3: Re-tighten 1 to : 38 lb.ft (51 Nm)



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10. Install the catalytic converter LH.

Refer to: [Catalytic Converter LH\(309-00D Exhaust System - 3.5L V6 PowerBoost \(CN\), Removal and Installation\)](#).

11. Connect the wastegate control actuator electrical connector.

13. 1. **NOTICE**

Do not use a metal brush, damage to the 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 necessary.

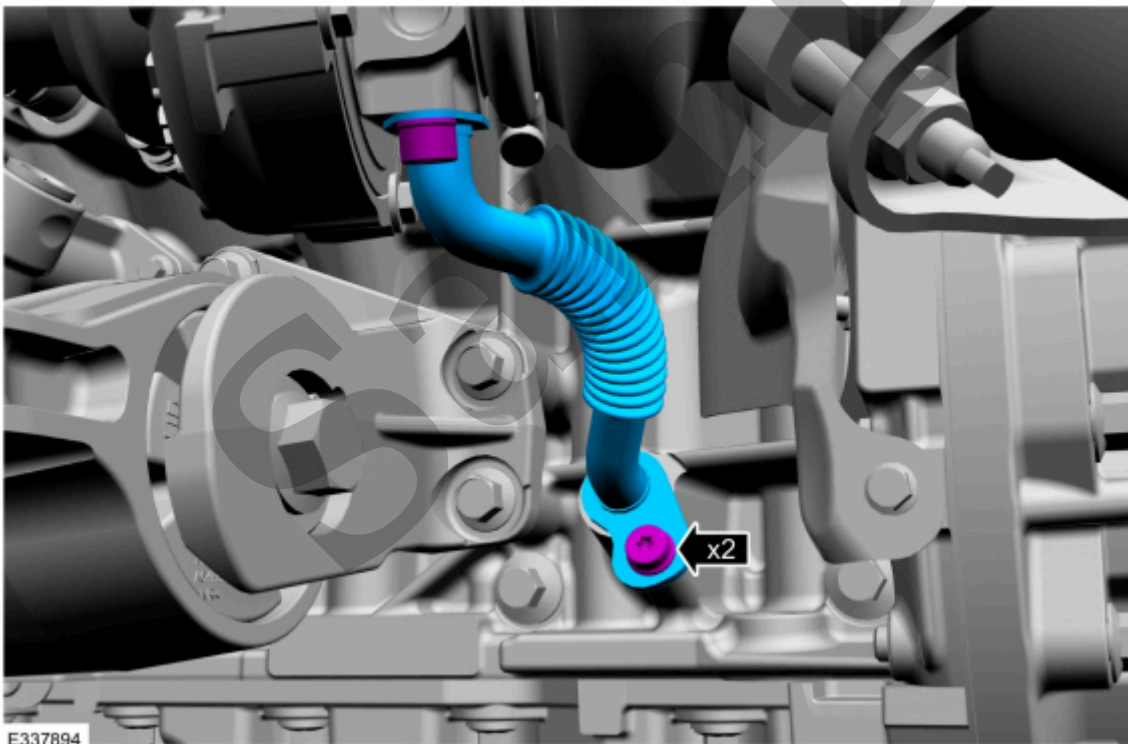
2. Fully seat the turbocharger oil return tube into the turbocharger and engine bore holes flush to 2.5 mm off of the mounting surface prior to tightening the bolts. Install the new turbocharger oil return tube, then install and tighten the turbocharger oil return tube bolts.

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

Torque :

Stage 1: Tighten to : 89 lb.in (10 Nm)

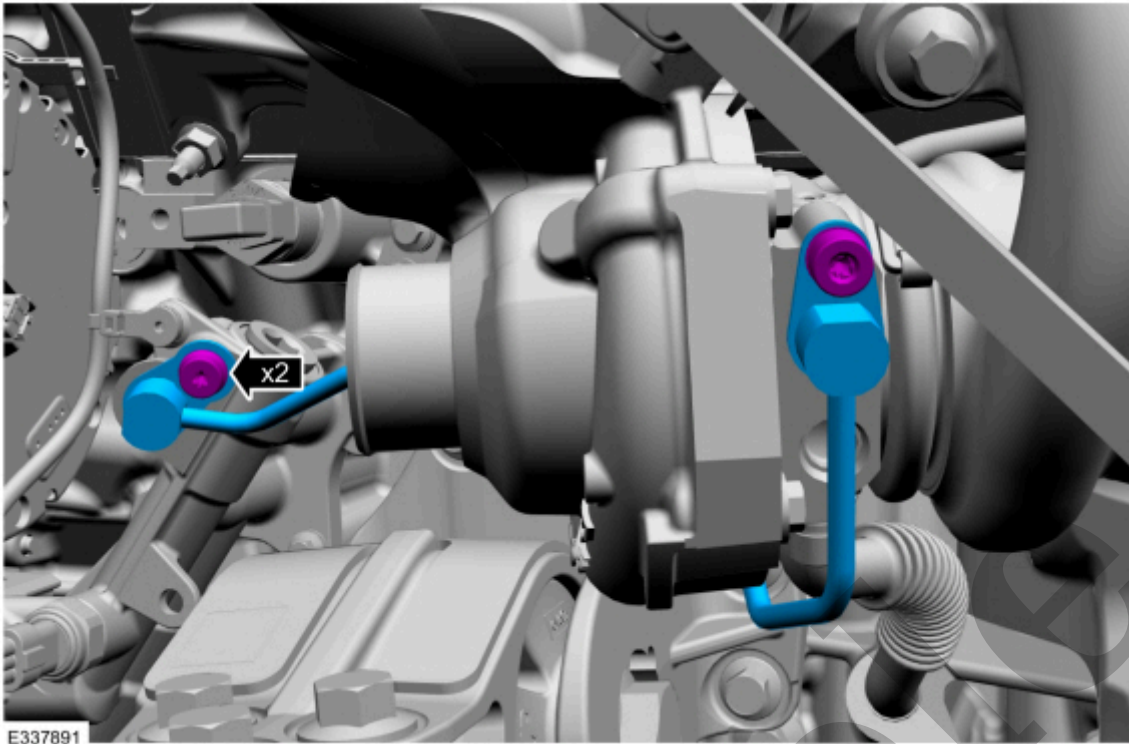
Stage 2: Tighten an additional : 30°



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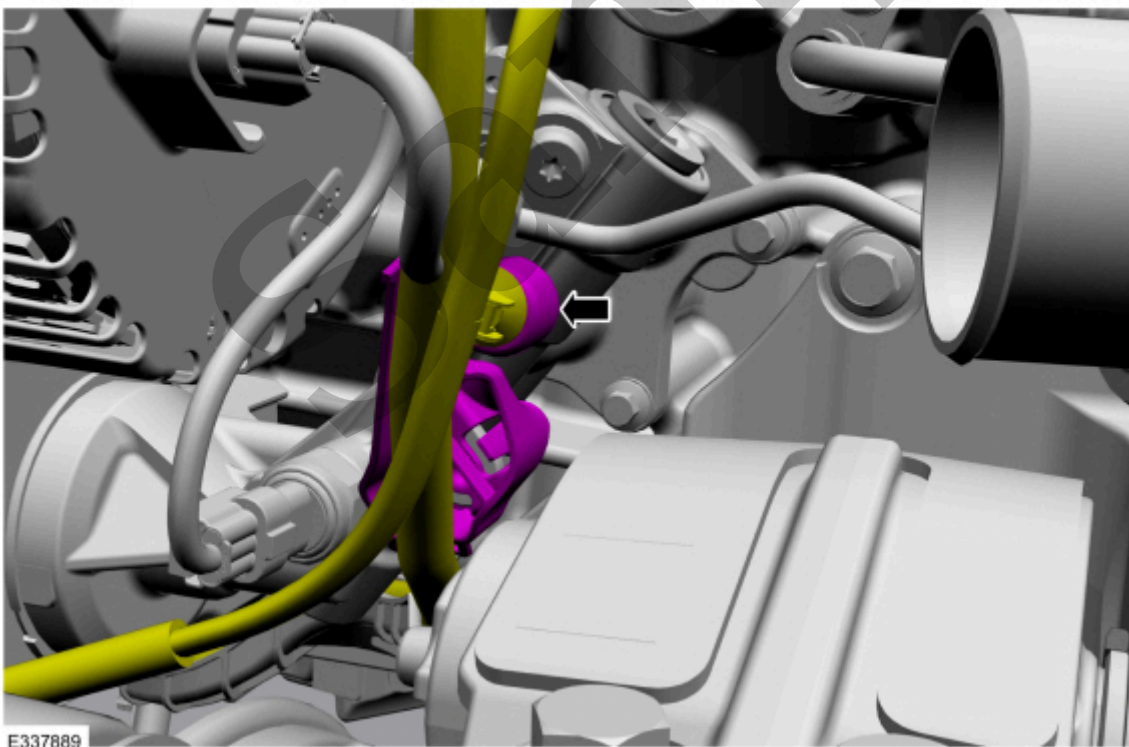
14. Lubricate the new O-ring seals with clean engine oil.

Refer to: [Specifications\(303-01D Engine - 3.5L V6 PowerBoost \(CN\), Specifications\).](#)



[Click here to learn about symbols, color coding, and icons used in this manual.](#)

16. Attach the harness retainer.



[Click here to learn about symbols, color coding, and icons used in this manual.](#)

17. Install the charge air cooler intake pipe - left side.

Turbocharger Oil Return Tube LH

303-04H Fuel Charging and Controls - Turbocharger - 3.5L V6 PowerBoost (CN)	2022 F-150
Removal and Installation	Procedure revision date: 10/1/2020

Turbocharger Oil Return Tube LH

Removal

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 feed, the oil drain, and 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. Remove the turbocharger oil supply tube LH.

Refer to: [Turbocharger Oil Supply Tube LH](#)(303-04H Fuel Charging and Controls - Turbocharger - 3.5L V6 PowerBoost (CN), Removal and Installation).

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