

# Your Ultimate Source for OEM Repair Manuals

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## 2004 FORD Windstar OEM Service and Repair Workshop Manual

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## Turbocharger Coolant Return Tube LH

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

### Turbocharger Coolant 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.

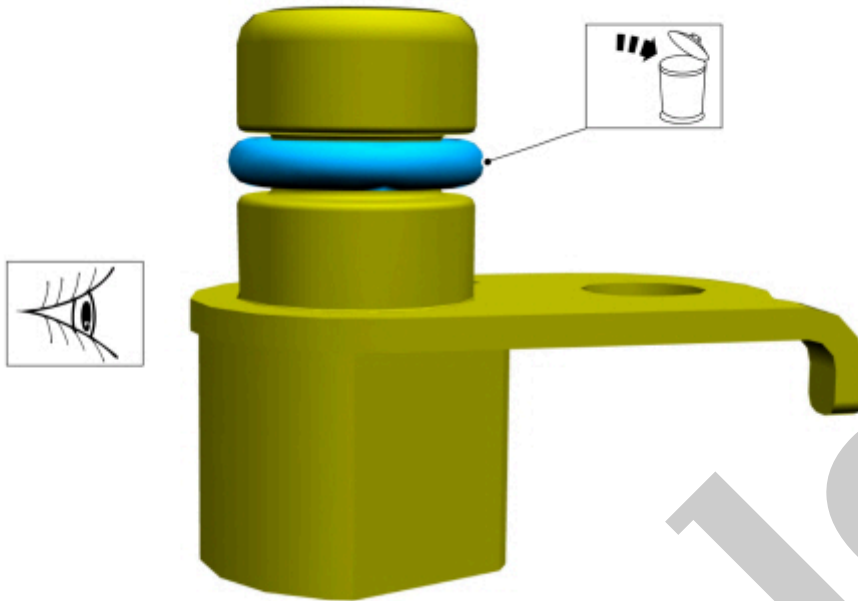
##### NOTICE

Special attention needs to be given to the sealing ports for the oil feed, the oil drain, and the coolant 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. Remove the turbocharger LH.

Refer to: [Turbocharger LH\(303-04G Fuel Charging and Controls - Turbocharger - 3.5L EcoBoost \(BM\), Removal and Installation\)](#).

2. **NOTICE**



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

#### 4. NOTICE

If the 2 piece turbocharger cooling tubes were separated or the rubber gasket is leaking, then the rubber gasket must be replaced.

If needed, then remove and discard the rubber gasket.



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

### Installation

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.](#)

3. 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 O-ring bores. Inspect the area for deep scratches and gouges. Install new components if necessary.

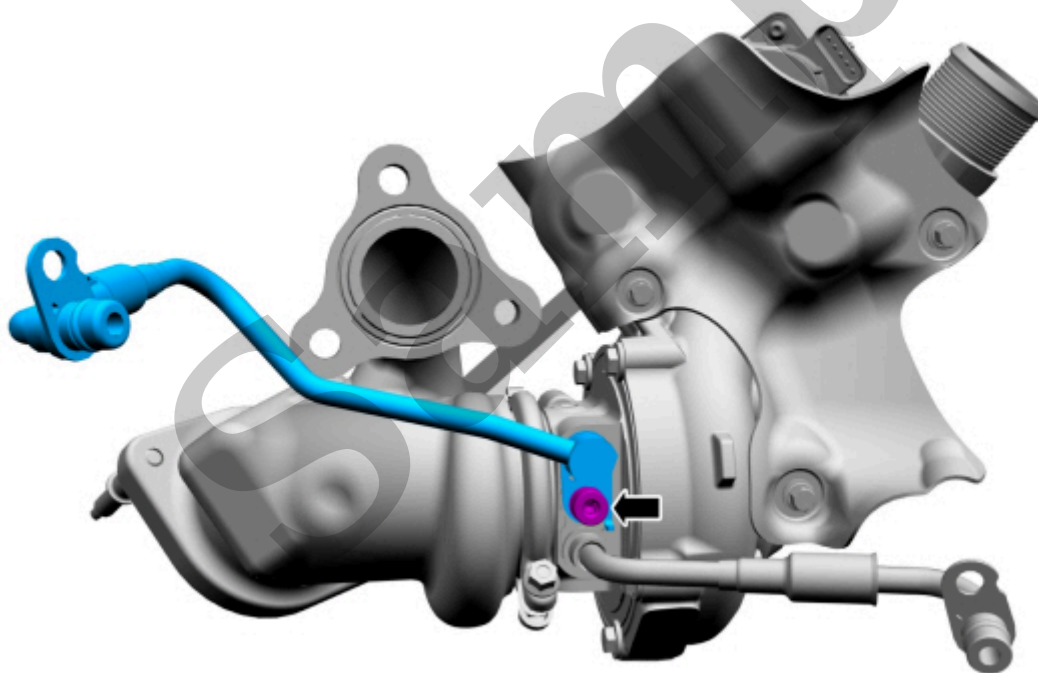
2. Install the turbocharger coolant tube, then install and tighten the turbocharger coolant tube bolt.

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

4. Install the turbocharger LH.

Refer to: [Turbocharger LH\(303-04G Fuel Charging and Controls - Turbocharger - 3.5L EcoBoost \(BM\), Removal and Installation\).](#)

## Turbocharger Coolant Return Tube RH

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

### Turbocharger Coolant Return Tube RH

#### 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.

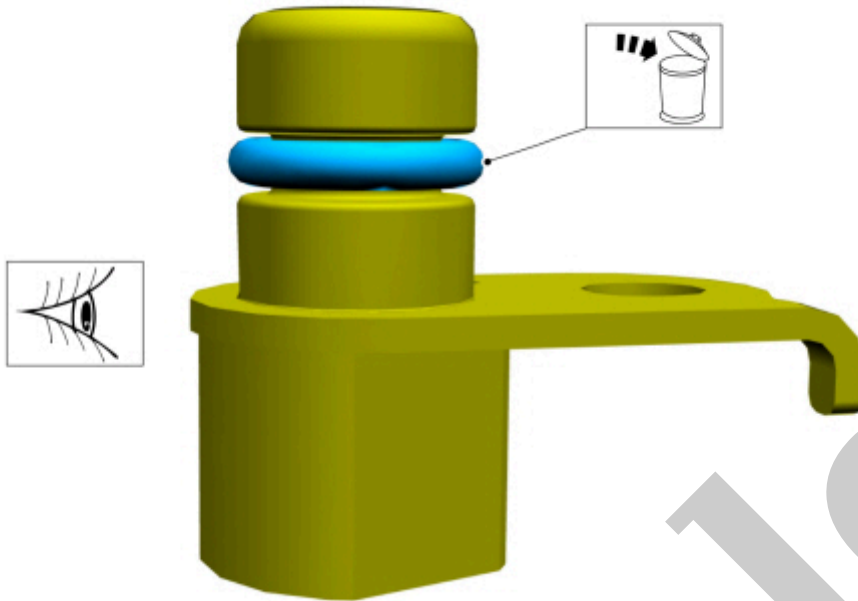
##### NOTICE

Special attention needs to be given to the sealing ports for the oil feed, the oil drain, and the coolant 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. Remove the turbocharger RH.

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

2. **NOTICE**



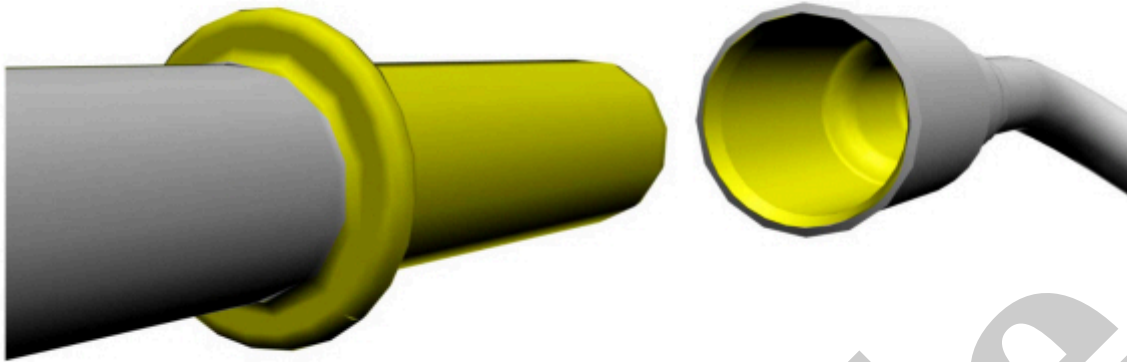
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[Click here to learn about symbols, color coding, and icons used in this manual.](#)

#### 4. NOTICE

If the 2 piece turbocharger cooling tubes were separated or the rubber gasket is leaking, then the rubber gasket must be replaced.

If needed, then remove and discard the rubber gasket.



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

### Installation

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.](#)

3. 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 O-ring bores. Inspect the area for deep scratches and gouges. Install new components if necessary.

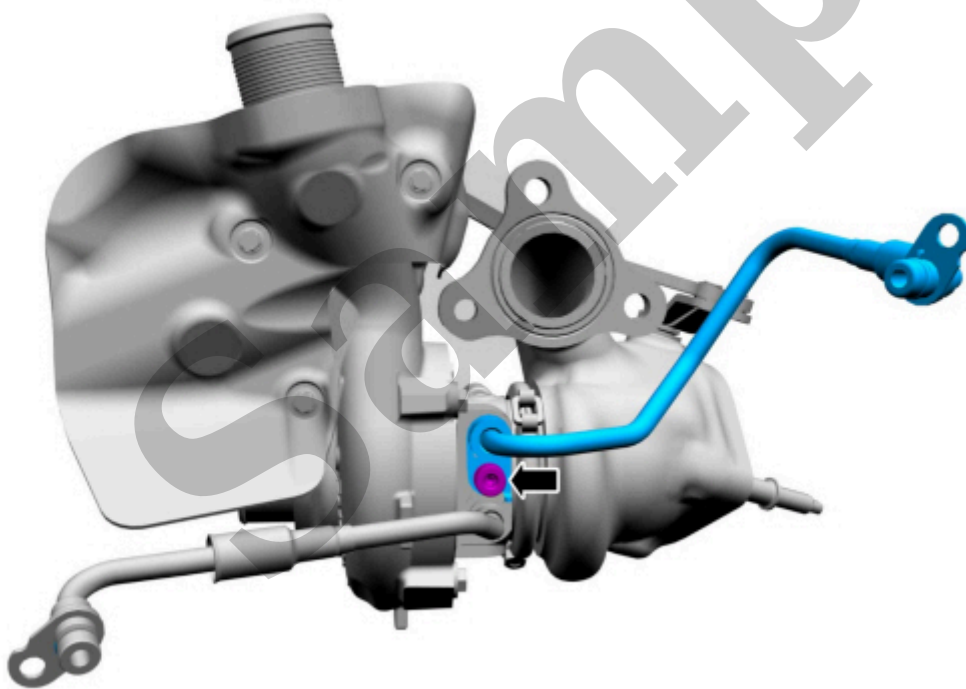
2. Install the turbocharger coolant tube, then install and tighten the turbocharger coolant tube bolt.

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

4. Install the turbocharger RH.

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



## Turbocharger Coolant Supply Tube LH

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

### Turbocharger Coolant Supply 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 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. Remove the turbocharger coolant return tube LH.

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

2. **NOTICE**