Additions, Revisions, or Updates

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Installation of the DD13 Turbocharger

Install as follows:

**WARNING: PERSONAL INJURY**
To avoid injury when removing or installing a heavy engine component, ensure the component is properly supported and securely attached to an adequate lifting device to prevent the component from falling.

1. Attach a chain hoist and a suitable lifting sling to the turbocharger assembly.
2. Remove any covers that were placed over the openings of the air inlet and exhaust outlet openings on the engine and turbocharger when the turbocharger was removed.
3. Remove any covers on the oil and coolant inlet and drain lines as well as the oil and coolant inlet and drain openings on the turbocharger.
4. Place a new gasket (1), face up, with the tab towards the outside, on the exhaust manifold turbocharger flange (2).

**NOTICE:** The turbocharger must be supported after it has been installed to the exhaust manifold flange to avoid damage to the turbocharger.

5. Position the turbocharger to the exhaust flange. Hand tighten fasteners.
6. Torque the turbocharger-to-exhaust manifold fasteners to 50 N·m (37 lb·ft).

**NOTE:** Bottom bolts that mount bracket to cylinder block require washers between the bolt head and bracket only. Do not place washers between the bracket and the turbocharger.

7. Install turbocharger support bracket to turbocharger and cylinder block and install mounting bolts. Hand tighten bolts.
8. Torque the bolts (3) for the turbocharger support bracket (1) to cylinder block to 25 N·m (18 lb·ft). Then torque turbocharger bracket-to-turbine housing bolts (2) to 25 N·m (18 lb·ft).
9. Install the turbocharger oil drain line, using a new gasket and O-ring between the opening in the bottom side of the turbocharger center housing and the drain line that runs to the cylinder block. Torque the bolts to 30-38 N·m (22-28 lb·ft).

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10. Install the turbocharger oil supply line. Hold the fitting on the turbocharger from rotating and torque line to 30 N·m (22 lb·ft).

11. For EPA10 DD13 engines, connect the wastegate air supply line (1) to the Electronic Proportioning Valve (EPV) (2).

12. Connect the turbocharger speed sensor connector to the engine wiring harness.

13. Reconnect the flanged manifold (turbine outlet pipe) to the turbocharger. Torque fasteners to 25 N·m (18 lb·ft).

14. Install the coolant inlet and outlet lines to the doser injector housing. Torque to 15 N·m (11 lb·ft).

15. Install the fuel line to the doser injection valve. Torque to 23-25 N·m (17-18 lb·ft).
**NOTE:** Do not use any type of lubricant on the inside of any air inlet hose or on the hose contact surfaces of the turbocharger compressor housing, CAC ducting or the intake manifold.

16. Install the turbocharger heat shields.
17. Install the compressor elbow and the Charge Air Cooler (CAC) plumbing. Torque the bolts to 6 N·m (4 lb·ft).
18. Connect DDDL/DDRS and perform the purge hydrocarbon doser service routine to remove all the air from the doser system.
19. If the turbocharger is being replaced due to a turbocharger shaft bearing failure, replace the engine oil and filter.
3 Installation of the DD15 and the DD16 Turbocharger

Install as follows:

1. If removed, install the DD15 and DD16 axial power turbine (APT) gear box. Refer to section "Installation of the DD15 and DD16 Axial Power Turbine Gear Box"
2. If removed, install the APT. Refer to section "Installation of the DD15 and DD16 Axial Power Turbine"
3. If removed, loosely install the turbocharger support bracket to the cylinder block.

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4. Install the interstage duct onto the APT.
5. Attach a chain hoist and a suitable lifting sling to the turbocharger assembly.
6. Remove any covers that were placed over the openings of the air inlet and exhaust outlet openings on the engine and turbocharger when the turbocharger was removed.
7. Remove any covers on the oil and coolant inlet and drain lines, and the oil and coolant inlet and drain openings on the turbocharger.

NOTE: When installing the turbocharger, use care when moving the turbocharger into position on the interstage duct.

8. Place a new gasket, face up, with the tab towards the rear, on the exhaust manifold turbocharger flange.

NOTICE: The turbocharger must be supported after it has been installed to the exhaust manifold flange to avoid damage to the turbocharger.

10. Torque the turbocharger-to-exhaust manifold bolts to 50 N·m (37 lb·ft).
11. Install turbocharger support bracket to turbocharger. Hand-tighten the mounting bolts from the support bracket to the cylinder block.
12. Torque the turbocharger support bracket bolts to cylinder block to 25 N·m (18 lb·ft). Then torque turbocharger bracket to turbine housing bolts to 25 N·m (18 lb·ft).
13. Tighten the interstage duct clamp to 12 N·m (9 lb·ft).
14. Install the turbocharger oil drain line, using a new gasket and O-ring between the opening in the bottom side of the turbocharger center housing and the oil drain line that runs to the cylinder block. Torque the bolts to 30-38 N·m (22-28 lb·ft).
15. Install the turbocharger oil supply line. Torque the oil supply line to 30 N·m (22 lb·ft).
16. Connect the APT air supply line. Torque to 20 N·m (15 lb·ft).

NOTE: Do not use any type of lubricant on the inside of any air inlet hose or on the hose contact surfaces of the turbocharger compressor housing, Charge Air Cooler (CAC) ducting or the intake manifold.

17. Install the turbocharger heat shields.
18. Install the compressor elbow and the CAC plumbing. Torque the clamps to 6 N·m (4 lb·ft).
19. Connect DDDL/DDRS and perform purge hydrocarbon doser service routine to remove all the air from the doser system.
20. If the turbocharger is being replaced due to a turbocharger shaft bearing failure, replace the engine oil and filter.