

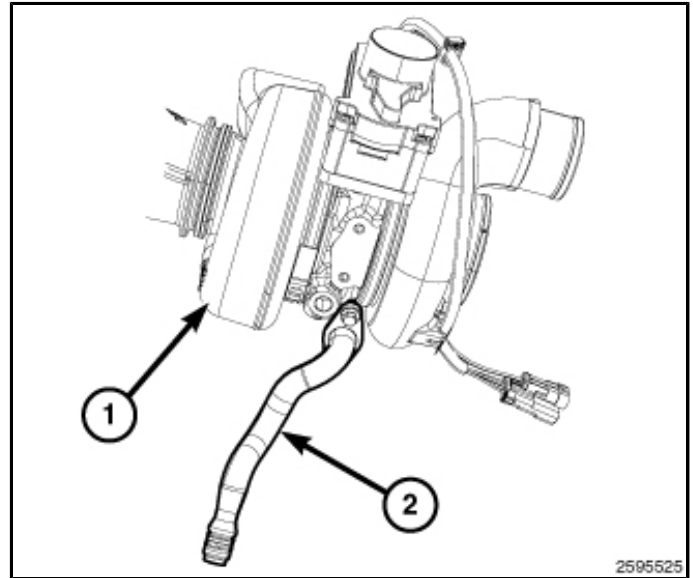
## INSTALLATION

**CAUTION:** Insure that turbocharger and charge air cooler are free of excess oil and debris. Do not allow any water or solvents to enter the turbocharger inlet or outlet. If necessary, clean turbocharger and the charge air cooler.(Refer to 09 - Engine/Turbocharger System - Cleaning) and (Refer to 09 - Engine/Turbocharger System/COOLER and HOSES, Charge Air - Cleaning)

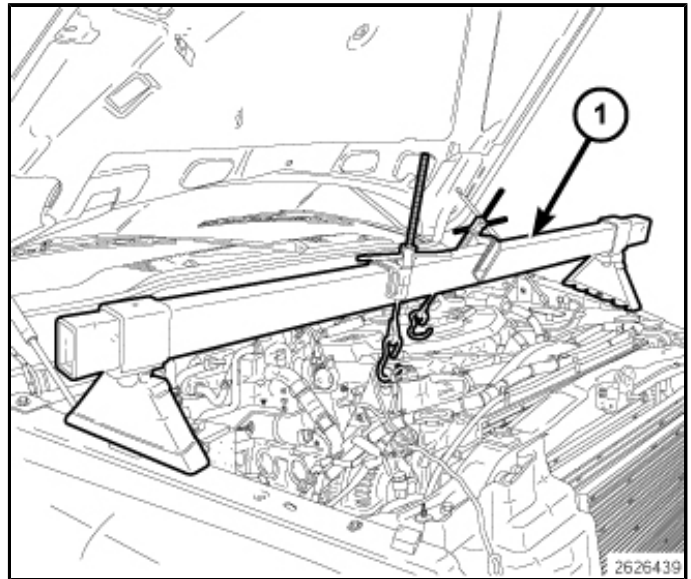
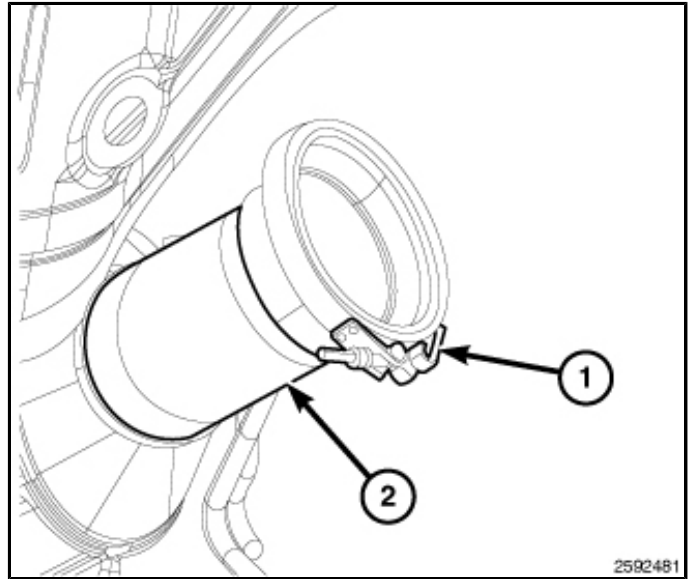
1. Prior to installation, inspect the turbocharger for any damage, (Refer to 09 - Engine/Turbocharger System/TURBOCHARGER - Inspection).
2. Clean the turbocharger mating surfaces.
3. Replace the banjo fitting seals on the turbocharger coolant lines.
4. Using a new gasket, position the turbocharger onto the exhaust manifold studs by lowering the turbocharger through the engine compartment.

**NOTE:** If old gasket appeared to be leaking, check the turbocharger/exhaust manifold mounting flanges for warping. Using a straight edge and feeler gauge measure along the two longest sides of the flanges for warpage. Spec is 0.1 mm (0.0039 inch) for the turbocharger flange and 0.05 mm(0.002 inch) maximum.

5. Install the turbocharger mounting nuts. Using Turbocharger Tool [9866](#) , using a cross pattern, tighten the nuts to 43 N·m (32 ft. lbs.)
6. Install the grid heater relay to the battery tray.
7. Inspect the oil drain tube O-rings for nicks or cuts. Replace if necessary. Oil the O-rings with new oil.
8. Raise and support the vehicle.
9. Position the turbocharger drain tube (2) into engine block.



10. Using a new gasket, install the turbocharger drain tube (2) mounting bolts. Tighten the mounting bolts to 24 N·m (18 ft. lbs.).
11. Using a new clamp (1), connect the exhaust pipe to the turbocharger exhaust outlet with the clamp facing down as shown. Tighten the clamp (1) to 17 N·m (13 ft. lbs). Using a rubber mallet, hit the exhaust pipe to turbocharger clamp three times around the perimeter of the clamp (1) and tighten the clamp (1) to 17 N·m (13 ft. lbs).
12. Install the exhaust steady rest bracket to the transmission. Tighten bolts to 43 N·m (32 ft. lbs.).
13. Install the right hand side engine mount, (Refer to 09 - Engine/Engine Mounting/INSULATOR, Engine Mount - Installation).
14. Install the right side wheelhouse splash shield, (Refer to 23 - Body/Exterior/SHIELD, Splash - Installation).
15. Lower the vehicle.
16. Remove the engine support fixture tool [8534B](#) (1).
17. Install the viscous fan and fan shroud,(Refer to 07 - Cooling/Engine/FAN, Cooling - Installation).



**NOTE:** Exhaust pipe removed for clarity.

18. Install the coolant lines at the engine block and turbocharger. Tighten the banjo fittings 24 N·m (18 ft. lbs.).
19. Install the turbocharger oil return line. Tighten the fitting to 36 N·m (27 ft. lbs.).
20. Install the turbocharger oil pressure line (3). Tighten the fitting to 36 N·m (27 ft. lbs.).
21. Connect the turbocharger actuator electrical connector.
22. Connect the turbocharger speed sensor electrical connector.
23. Install the charge air tube to turbocharger inlet (4). Tighten the clamp to 11 N·m (8 ft. lbs.).
24. Pre-lube the turbocharger with 29.9 - 59.14 ml (1 - 2 oz) clean engine oil.
25. Install the intake air tube at the turbocharger (5). Tighten the clamp to 11 N·m (8 ft. lbs.).
26. Connect the crankcase vent hose at the turbocharger air intake.
27. Install the air filter housing (Refer to 09 - Engine/Air Intake System/BODY, Air Cleaner - Installation).
28. Fill the cooling system (Refer to 07 - Cooling - Standard Procedure)
29. Position and connect the right hand side positive battery cable
30. Connect the negative battery cable on both batteries.
31. Check for any cooling or exhaust leaks and confirm the turbocharger is operating properly,(Refer to 07 - Cooling - Diagnosis and Testing),(Refer to 11 - Exhaust System - Diagnosis and Testing),(Refer to 09 - Engine/Turbocharger System/TURBOCHARGER - Diagnosis and Testing).

