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Perkins®

Disassembly and Assembly

1104D (Mech) Industrial Engine

NK (Engine)
NL (Engine)
NM (Engine)

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Note: Do not use the actuator rod to lift the turbocharger.

6. Position a new joint (12) and tube assembly (14) onto turbocharger (5). Install bolts (13) finger tight.

7. The turbocharger has different sized bolts (13). Tighten M6 bolts to a torque of 9 N·m (80 lb in).

   Tighten M8 bolts to a torque of 22 N·m (16 lb ft).

8. Position a new joint (16) onto the cylinder block. Install bolts (15) finger tight.

9. Tighten bolts (15) to a torque of 22 N·m (16 lb ft).

   If tube assembly (14) is secured with tube clips, tighten the fasteners for the tube clips to a torque of 22 N·m (16 lb ft).

10. Lubricate the bearings of turbocharger (5) with clean engine oil through the oil inlet port. Rotate the shaft of the turbocharger in order to distribute the lubricant.

11. Position tube assembly (3) onto turbocharger (5). Install new washers (2) and banjo bolt (1) to tube assembly (3). Tighten the banjo bolt finger tight.

12. Install new washers (2) and banjo bolt (4) onto tube assembly (3). Connect the tube assembly to the cylinder block. Tighten the banjo bolt finger tight.

13. Tighten banjo bolts (1) and (4) to a torque of 20 N·m (15 lb ft).

Note: Ensure that the tube assembly does not come into contact with any other engine components.

14. The turbocharger is equipped with a adapter (9). Install a new gasket (11) (not shown) and position the adapter (9) onto the turbocharger. Install nuts (10). Tighten the nuts to a torque of 44 N·m (33 lb ft).

15. If the turbocharger is equipped with an exhaust elbow, install the exhaust elbow. Refer to Disassembly and Assembly, "Exhaust Elbow - Remove and Install".

16. Connect the air outlet hose to turbocharger (5).

    If the engine is equipped with an air pipe, install the air pipe and install the gasket to the cylinder head. Apply Tooling (A) to the fasteners for the air pipe. Tighten the fasteners to a torque of 22 N·m (16 lb ft).

    Tighten the hose clamps to a torque of 5 N·m (44 lb in).

Note: If the air outlet hose has a reflective heat shield, ensure that the reflective heat shield is installed toward the engine.

17. Connect the air inlet hose to turbocharger (5).

18. If the valve mechanism cover is equipped with a heat shield, install the heat shield. Tighten the fasteners for the heat shield to a torque of 9 N·m (80 lb in).

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Exhaust Manifold - Remove and Install

Removal Procedure

Start By:

a. Remove the turbocharger. Refer to Disassembly and Assembly, "Turbocharger - Remove".

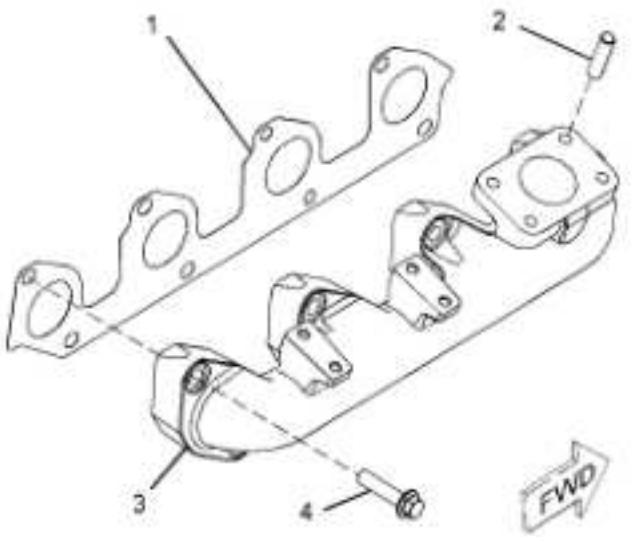


Illustration 25 g01343539
Typical example

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1. Remove plastic cover (8) from valve mechanism cover (5).
2. Remove screws (9). Remove plate (10).
3. Remove assembly of diaphragm (11) and the cap (12). Remove spring (13).

Assembly Procedure

Table 38

Required Tools			
Tool	Part Number	Part Name	Qty
A	27610296	Torque Wrench	1

⚠ WARNING

Personal injury can result from parts and/or covers under spring pressure.

Spring force will be released when covers are removed.

Be prepared to hold spring loaded covers as the bolts are loosened.

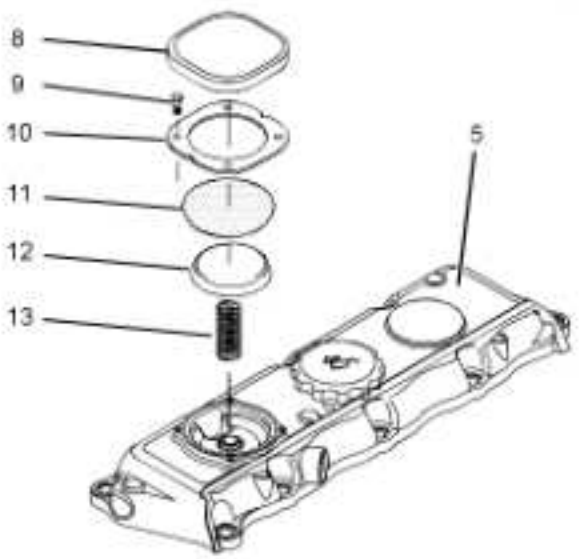


Illustration 124 g01347094

1. Ensure that all components of the crankcase breather are clean and free from damage. Replace any components that are damaged.
2. Install spring (13). Install assembly of diaphragm (11) and cap (12).
3. Position plate (10) on valve mechanism cover (5) and install screws (9).
4. Use Tooling (A) to tighten screws (9) to a torque of 1.3 N·m (12 lb in).
5. Install plastic cover (8) to valve mechanism cover (5).

Installation Procedure

NOTICE
Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

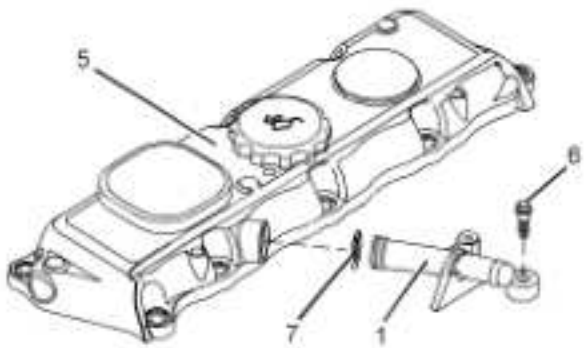


Illustration 125 g01346677

1. Install a new O-ring seal (7) to breather tube(1).
2. Install breather tube (1) to valve mechanism cover (5). Install bolt (6) and tighten the bolt to a torque of 9 N·m (80 lb in).

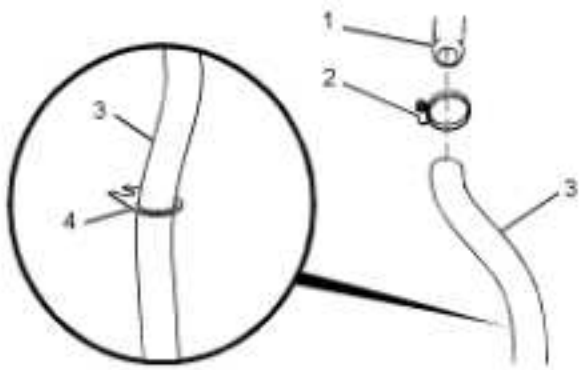


Illustration 126 g01343996
Typical example

3. Connect hose (3) to breather tube (1). Tighten clamp (2). Install hose (3) into clip (4).

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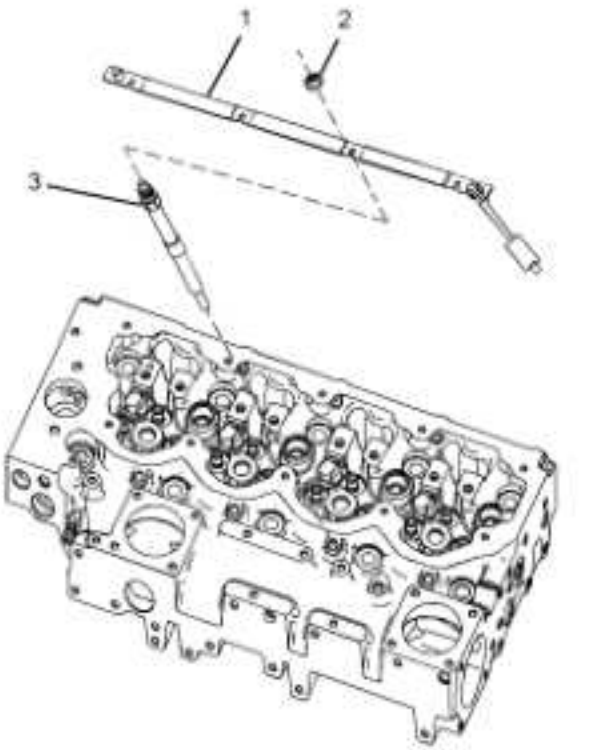


Illustration 252 g01346250
Typical example

4. Disconnect harness assembly from bus bar (1).
5. Remove nuts (2) that secure bus bar (1) to glow plugs (3).
6. Remove bus bar (1) from glow plugs (3).
7. Remove glow plugs (3) from the cylinder head.

Installation Procedure

Table 71

Required Tools			
Tool	Part Number	Part Name	Qty
A	27610296	Torque Wrench	1

NOTICE
Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

1. Ensure that the threads of the glow plugs are clean and free from damage. Replace any damaged glow plugs.

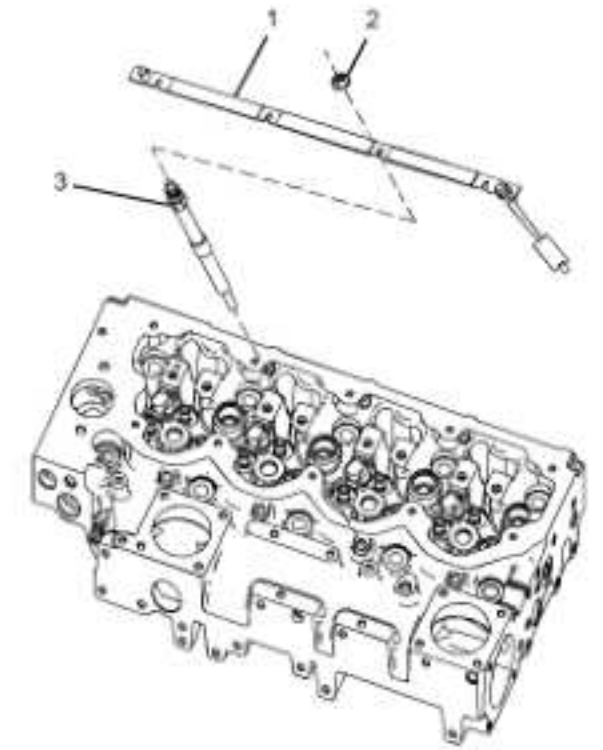


Illustration 253 g01346250
Typical example

2. Install glow plugs (3) into the cylinder head. Tighten the glow plugs to a torque of 15 N·m (132 lb in).
3. Position bus bar (1) onto glow plugs (3). Install nuts (2) onto the glow plugs. Use Tooling (A) in order to tighten the nuts to a torque of 2 N·m (17 lb in).
4. Connect harness assembly to bus bar (1).
5. Install the breather tube to the valve mechanism cover. Refer toDisassembly and Assembly, "Crankcase Breather- Remove and Install".
6. If the engine is equipped with a cover over the fuel injectors install the cover. Refer toDisassembly and Assembly, "Fuel Injector Cover - Remove and Install".
7. Restore the electrical supply to the engine.

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