

SECTION 303-01D: Engine — 6.2L (2V)
IN-VEHICLE REPAIR

2014 F-150 Workshop Manual
Procedure revision date: 10/25/2013

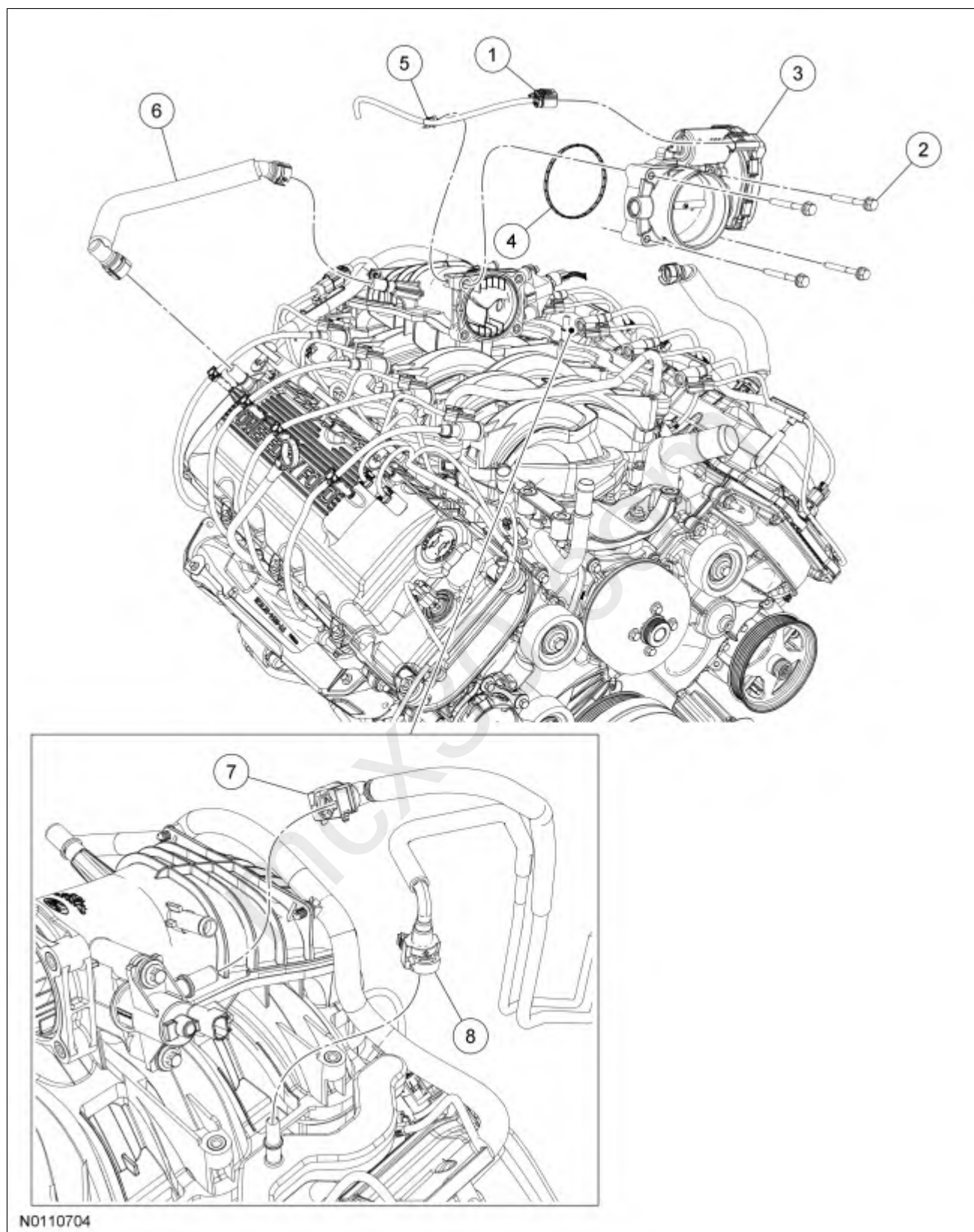
Intake Manifold

Material

Item	Specification
Motorcraft® Metal Surface Prep ZC-31-A	—

Evaporative Emission (EVAP) Tube Quick Connect Fitting, Fuel Supply Tube Quick Connect Fitting, Throttle Body (TB), PCV Tube and Electrical Connectors

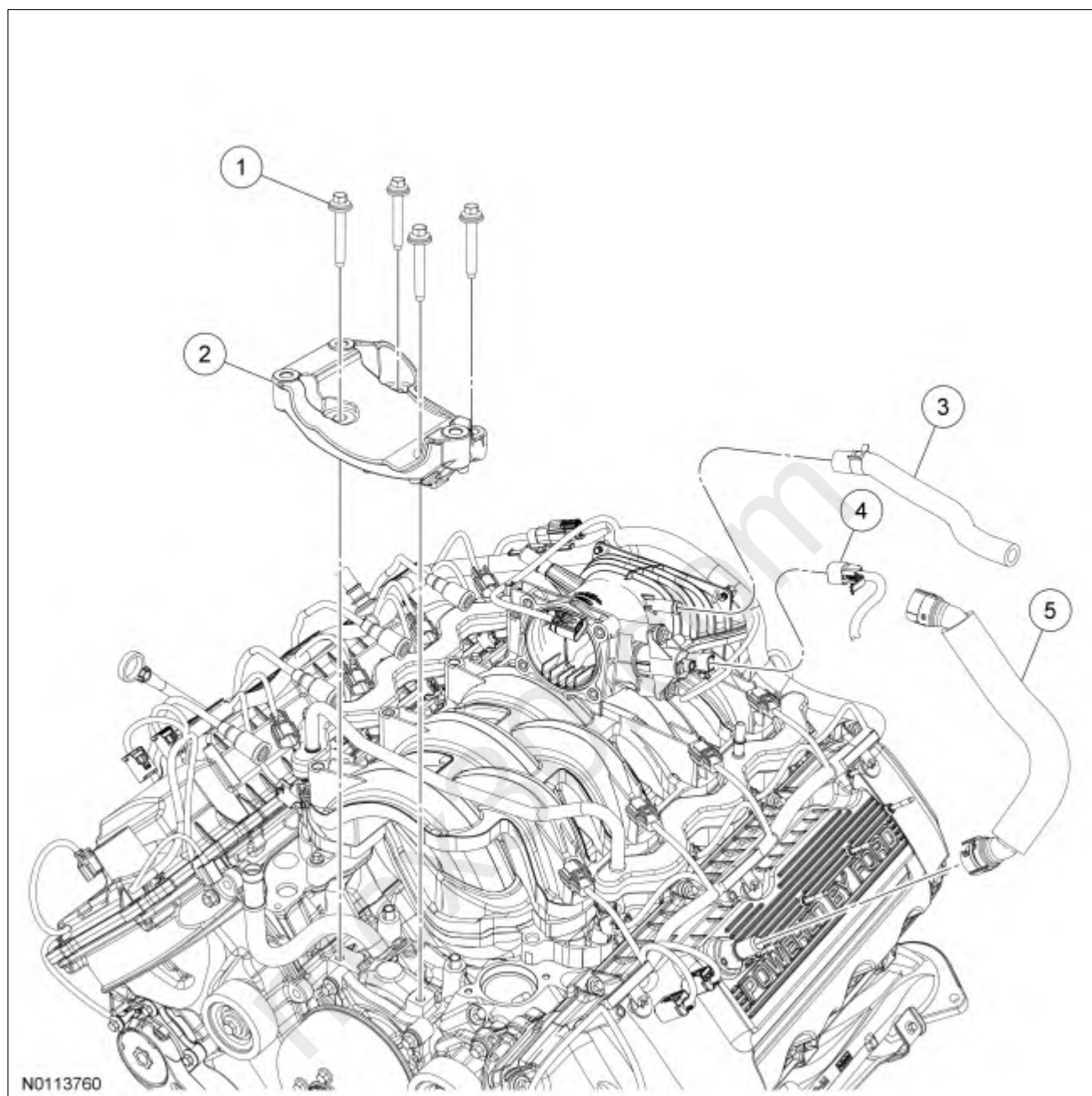
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Item	Part Number	Description
1	—	Electronic Throttle Control (ETC) electrical connector

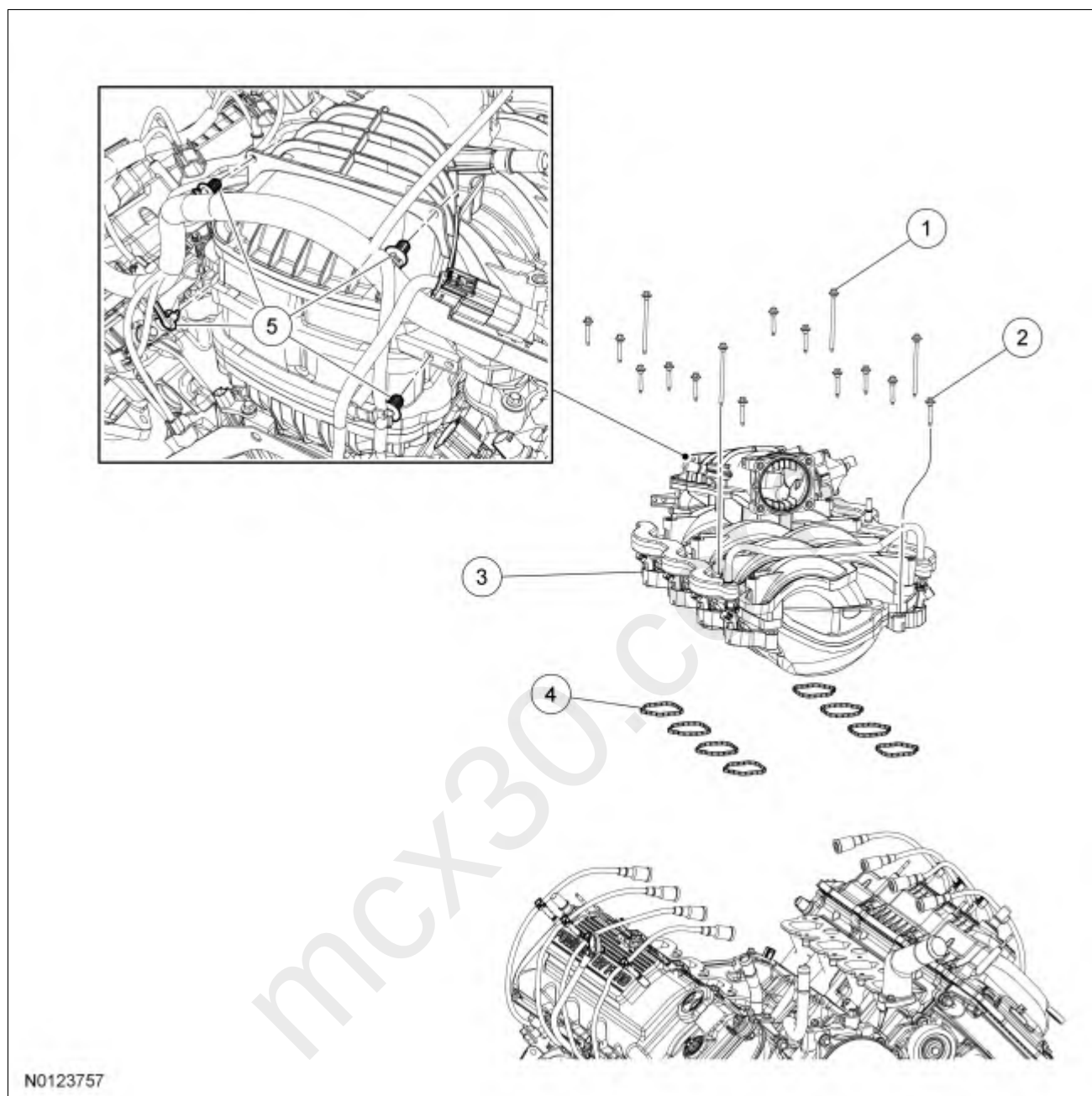
		(part of 12C508)
2	W709168	<u>T</u> B bolt (4 required)
3	9F991	<u>T</u> B
4	9E936	<u>T</u> B O-ring seal
5	—	<u>E</u> T C wiring harness retainer (part of 12C508)
6	6A664	PCV tube
7	—	Evaporative Emission (EVAP) tube quick connect coupling
8	—	Fuel supply tube quick connect coupling

Crankcase Ventilation Tube and Generator Support Bracket



Item	Part Number	Description
1	W503300	Generator support bracket bolt (4 required)
2	10239	Generator support bracket
3	—	Brake booster vacuum hose
4	—	Evaporative Emission (EVAP) purge valve electrical connector (part of 12C508)
5	6758	Crankcase ventilation tube

Wiring Harness Retainers, Intake Manifold and Gaskets



Item	Part Number	Description
1	W714633	Fuel rail bolt (4 required)
2	9Y450	Intake manifold bolt (12 required)
3	9424	Intake manifold
4	9439	Intake manifold gasket (8 required)
5	—	Engine wiring harness retainers (part of 12C508) (4 required)

Removal

 **WARNING:** Do not smoke, carry lighted tobacco or have an open flame of any type when working on or near any fuel-related component. Highly flammable mixtures are always present and may be ignited. Failure to follow these instructions may result in serious personal injury.

 **WARNING:** Before working on or disconnecting any of the fuel tubes or fuel system components, relieve the fuel system pressure to prevent accidental spraying of fuel. Fuel in the fuel system remains under high pressure, even when the engine is not running. Failure to follow this instruction may result in serious personal injury.

1. Release the fuel pressure. For additional information, refer to [Section 310-00](#).
2. Drain the cooling system. For additional information, refer to [Section 303-03](#).
3. Remove the generator. For additional information, refer to [Section 414-00](#).
4. Remove the 2 bolts, position aside the thermostat housing.
 - Discard the O-ring seal.
5. Remove the 8 ignition coils. For additional information, refer to [Section 303-07D](#).
6. Remove the 4 bolts and the generator support bracket.
7. Disconnect the fuel supply tube quick connect coupling. For additional information, refer to [Section 310-00](#).
8. Disconnect the Electronic Throttle Control (ETC) electrical connector and wiring harness retainer.
9. Remove the 4 bolts and the Throttle Body (TB).
 - Inspect the TB O-ring seal and install a new O-ring seal if necessary.
10. Disengage the clamp and disconnect the brake booster vacuum hose from the intake manifold.
11. Disconnect the Evaporative Emission (EVAP) tube quick connect coupling from the EVAP canister purge valve. For additional information, refer to [Section 310-00](#).
12. Disconnect the EVAP canister purge valve electrical connector and detach wiring harness retainer.
13. Disconnect the quick connect couplings and remove the PCV tube. For additional information, refer to [Section 310-00](#).
14. Disconnect the 8 fuel injector electrical connectors.
15. **NOTE:** The fuel rail is removed with the intake manifold as an assembly.

Remove the 4 fuel rail bolts.
16. Disconnect the 4 wiring harness retainers from the rear of the intake manifold.
17. Loosen the 12 intake manifold bolts.
18. **NOTICE:** Do not use metal scrapers, wire brushes, power abrasive discs or other abrasive means to clean the sealing surfaces. These tools cause scratches and gouges which make

leak paths. Use a plastic scraping tool to remove all traces of old sealant.

Remove the intake manifold.

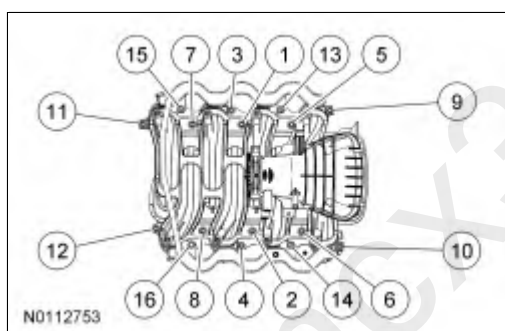
- Clean and inspect the cylinder head sealing surfaces with metal surface prep. Follow the directions on the packaging.
- Inspect the 8 intake manifold gaskets for damage and install new gaskets if necessary.

Installation

1. **NOTICE:** If the engine is repaired or replaced because of upper engine failure, typically including valve or piston damage, check the intake manifold for metal debris. If metal debris is found, install a new intake manifold. Failure to follow these instructions can result in engine damage.

Position the intake manifold onto the engine.

2. Loosely install the 4 fuel rail bolts.
3. Tighten the 12 intake manifold bolts and install the 4 fuel rail bolts in 4 stages in the sequence shown.
 - Stage 1: Tighten the 12 intake manifold bolts to 10 Nm (89 lb-in).
 - Stage 2: Tighten the 12 intake manifold bolts an additional 45 degrees.
 - Stage 3: Tighten the 4 fuel rail bolts to 10 Nm (89 lb-in).
 - Stage 4: Tighten the 4 fuel rail bolts an additional 90 degrees.



4. Connect the 4 wiring harness retainers to the rear of the intake manifold.
5. Connect the 8 fuel injector electrical connectors.
6. Position the PCV tube and connect the quick connect couplings. For additional information, refer to [Section 310-00](#).
7. Attach wiring harness retainer, connect the electrical connector and the EVAP tube quick connect coupling to the EVAP canister purge valve. For additional information, refer to [Section 310-00](#).
8. Position the TB and tighten the 4 bolts in 2 stages.
 - Stage 1: Tighten to 12 Nm (106 lb-in).
 - Stage 2: Tighten an additional 60 degrees.
9. Connect the ETC electrical connector and wiring harness retainer.
10. Connect the brake booster vacuum hose to the intake manifold and install the clamp.

11. Connect the fuel supply tube quick connect coupling. For additional information, refer to [Section 310-00](#).
 12. Position the generator support bracket and install the 4 bolts.
 - Stage 1: Tighten to 20 Nm.
 - Stage 2: Tighten an addition 45 degrees.
 13. Install the 8 ignition coils. For additional information, refer to [Section 303-07D](#).
 14. Position back thermostat housing.
 - Install a new O-ring seal.
 - To install, tighten to 10 Nm (89 lb-in).
 15. Install the generator. For additional information, refer to [Section 414-00](#).
 16. Fill and bleed the cooling system. For additional information, refer to [Section 303-03](#).
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