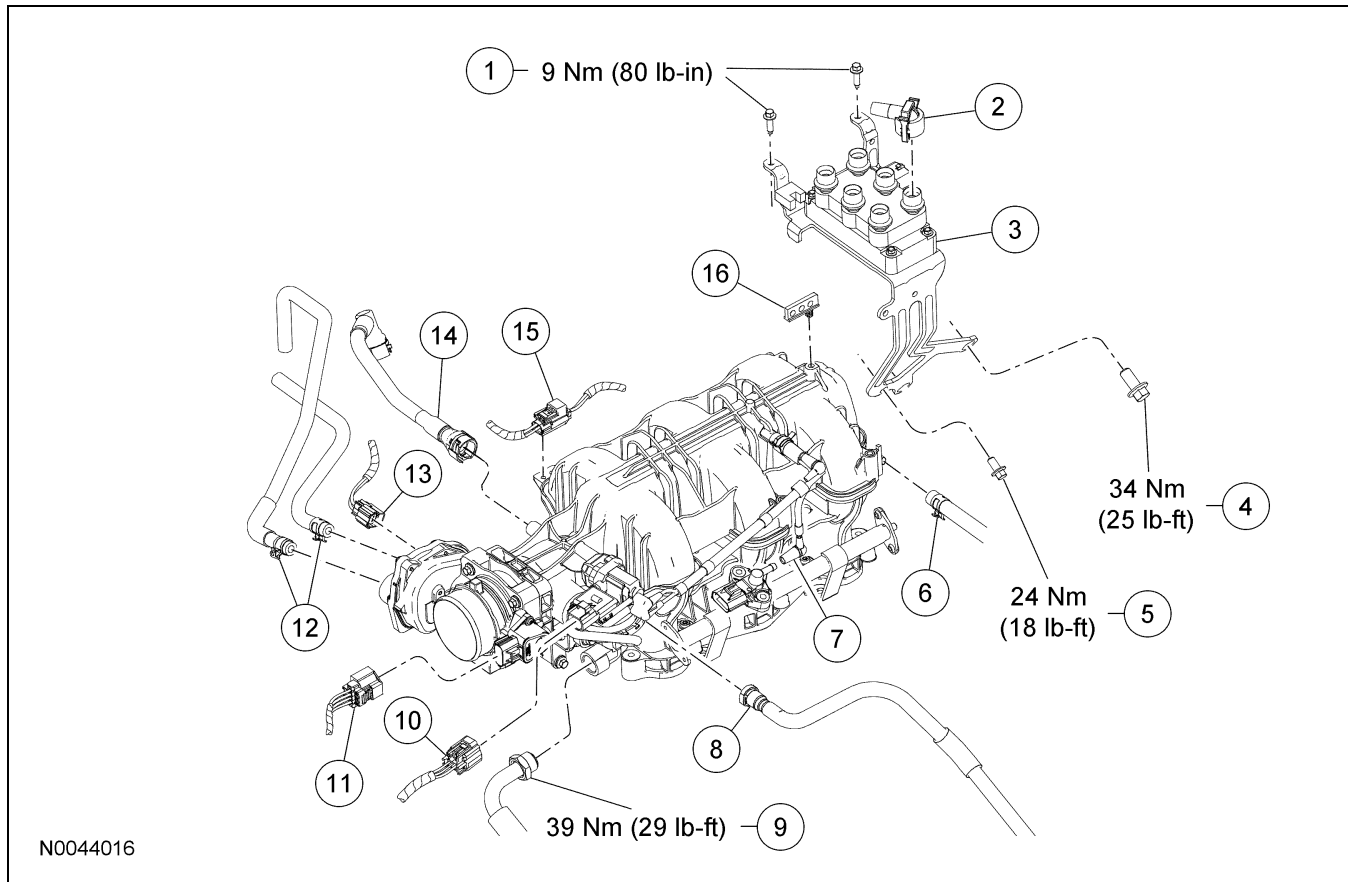


## IN-VEHICLE REPAIR

### Intake Manifold

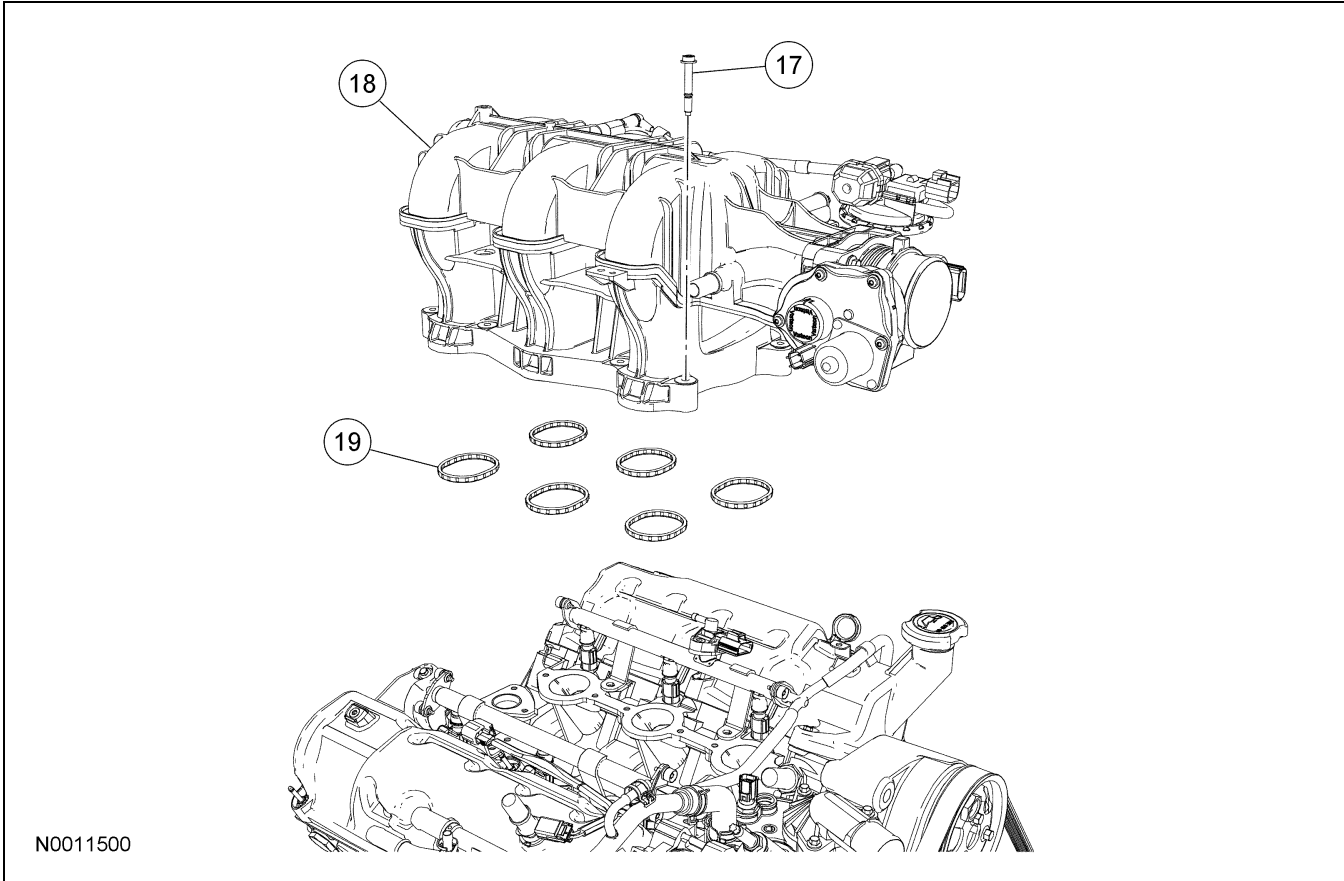


Item	Part Number	Description
1	W500214	Ignition coil bracket upper bolts (2 required)
2	12280	RH spark plug wire-to-ignition coil connector (3 required)
3	12A310	Ignition coil and bracket assembly
4	W500041	Ignition coil bracket lower bolt (M12)
5	W500023	Ignition coil bracket lower bolt (M8)
6	2C053	Brake booster vacuum hose
7	—	Vacuum harness fitting (part of 9E498)
8	9G271	Vapor tube
9	—	Exhaust gas recirculation (EGR) system module tube fitting (part of 9E469)

(Continued)

Item	Part Number	Description
10	14A464	EGR system module electrical connector (part of 12B637)
11	14A464	Throttle position (TP) sensor electrical connector (part of 12B637)
12	18465	Throttle body (TB) coolant hoses (2 required)
13	14A464	TB electrical connector (part of 12B637)
14	6K817	Positive crankcase ventilation (PCV) tube
15	14A624	Knock sensor (KS) electrical connector (part of 12B637)
16	12280	RH spark plug wire retainer

## IN-VEHICLE REPAIR (Continued)



Item	Part Number	Description
17	9Y450	Intake manifold bolt (8 required)
18	9424	Intake manifold
19	9439	Intake manifold gasket (6 required)

## Removal

**⚠ CAUTION: During engine repair procedures, cleanliness is extremely important. Any foreign material, including any material created while cleaning gasket surfaces that enters the oil passages, coolant passages or the oil pan, can cause engine failure.**

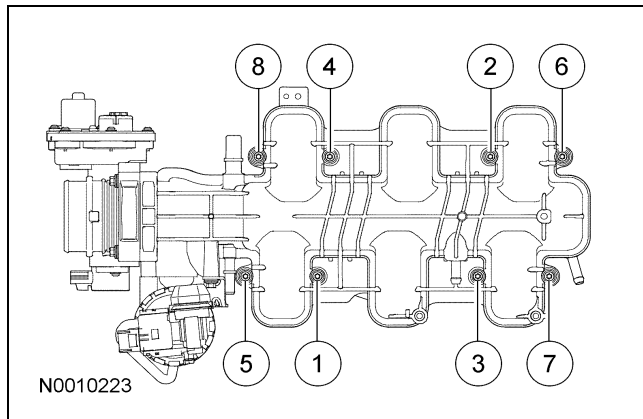
1. Disconnect the battery ground cable. For additional information, refer to Section 414-01.
2. Remove the air cleaner outlet pipe. For additional information, refer to Section 303-12.
3. Drain the cooling system. For additional information, refer to Section 303-03.
4. Disconnect the RH spark plug wires from the ignition coil.
5. Detach the RH spark plug wire retainer from the intake manifold.
6. Remove the 2 ignition coil bracket upper bolts.
7. Remove the 2 ignition coil lower bolts.
  - Position the ignition coil and bracket assembly aside.
8. Disconnect the exhaust gas recirculation (EGR) system module electrical connector.
9. Disconnect the EGR system module tube from the EGR system module.
10. Disconnect the brake booster vacuum hose from the intake manifold.
11. Disconnect the vacuum tube from the fuel rail pressure and temperature sensor.
12. Disconnect the vapor tube from the intake manifold.

**IN-VEHICLE REPAIR (Continued)**

13. Remove the positive crankcase ventilation (PCV) tube.
14. Detach the knock sensor (KS) electrical connector retainer from the intake manifold.
15. Disconnect the throttle position (TP) sensor and throttle body (TB) electrical connectors.
16. Disconnect the 2 TB coolant hoses.
17. Remove the 8 bolts and the intake manifold.

**Installation**

1. **NOTE:** Clean and inspect all sealing surfaces. Inspect and install new gaskets as necessary. Position the intake manifold and install the 8 bolts.
  - Tighten in the sequence shown to 10 Nm (89 lb-in).



2. Connect the 2 TB coolant hoses.
3. Connect the TP sensor and TB electrical connectors.
4. Attach the KS electrical connector retainer to the intake manifold.

5. Install the PCV tube.
6. Connect the vapor tube to the intake manifold.
7. Connect the vacuum tube to the fuel rail pressure and temperature sensor.
8. Connect the brake booster vacuum hose to the intake manifold.
9. Connect the EGR system module tube to the EGR system module.
  - Tighten to 39 Nm (29 lb-ft).
10. Connect the EGR system module electrical connector.
11. Position the ignition coil and bracket assembly. Install the 2 lower bolts.
  - Tighten the M8 bolt to 24 Nm (18 lb-ft).
  - Tighten the M12 bolt to 34 Nm (25 lb-ft).
12. Install the 2 ignition coil bracket upper bolts.
  - Tighten to 9 Nm (80 lb-in).
13. Attach the RH spark plug wire retainer to the intake manifold.
14. Connect the RH spark plug wires to the ignition coil.
15. Install the air cleaner outlet pipe. For additional information, refer to Section 303-12.
16. Connect the battery ground cable. For additional information, refer to Section 414-01.
17. Fill and bleed the cooling system. For additional information, refer to Section 303-03.