

**Haynes**
shows you how

BMW 3-Series and Z4 (99-05) Includes 2006 325ci/330ci Coupe and Convertible models Haynes Online Manual.

13 Manifolds - removal and installation

Intake manifold

Note:

On vehicles with the M56 engine, fuel rail removal requires special tools and expertise that may only be available at a BMW dealership. Removal of the intake manifold requires fuel rail removal; see [Section 1](#) for more details.

1 To allow sufficient clearance, remove the heater/ventilation inlet air ducting from the rear of the engine compartment as follows.

- A. Rotate the three fasteners 90° counterclockwise and remove the cabin filter cover from the rear of the engine compartment. Pull the filter forward and remove it.
- B. Undo the four retaining clips and thread the cable out of the ducting (see illustration 12.3).
- C. Unscrew the four screws and pull the filter housing forwards and remove it (see illustration 12.4).
- D. Pull up the rubber strip, rotate the two fasteners counterclockwise, and move the dividing panel in the left-hand corner of the engine compartment forward a little (see illustration 12.5).
- E. Undo the two screws and remove the inlet ducting upwards and out of the engine compartment (see illustration 12.6).

2 Depressurize the fuel system (see [Section 8](#)), then disconnect the cable from the negative terminal of the battery (see [Chapter 5, Section 1](#)). Remove the fuel rail and injectors (see [Section 12](#)). **Note:** *For M56 engine models, refer to the note at the beginning of this section.*

3 Open the jump-starting connection point on the right-hand side of the engine compartment, then disconnect the starter motor supply lead (see illustration) .

13.3 Disconnect the starter motor supply lead from the engine compartment terminal



4 Disconnect the VANOS solenoid wiring connector at the left-front side of the cylinder head (if not already done so).

5 Squeeze together the sides of the locking collar and disconnect the breather hose from the valve cover.

6 Push in the retaining clip and disconnect the hose on the base of the tank venting valve (see illustration) .

13.6 Push in the clip, and disconnect the hose

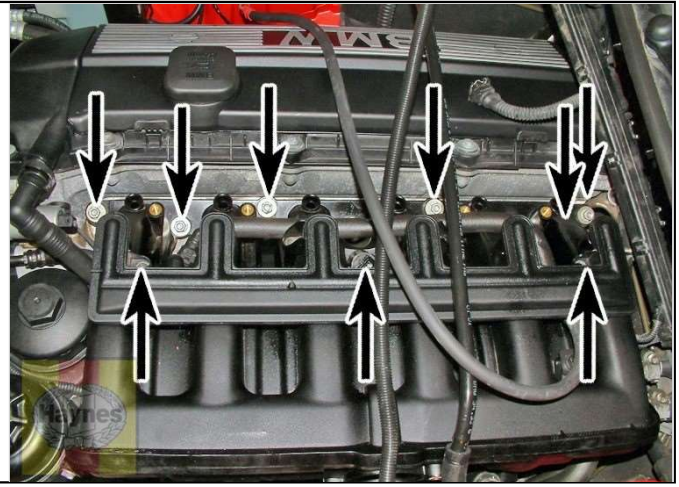


7 Note their installed positions, then release any wiring harness(s) from the retaining clips on the manifold and support bracket (under the manifold).

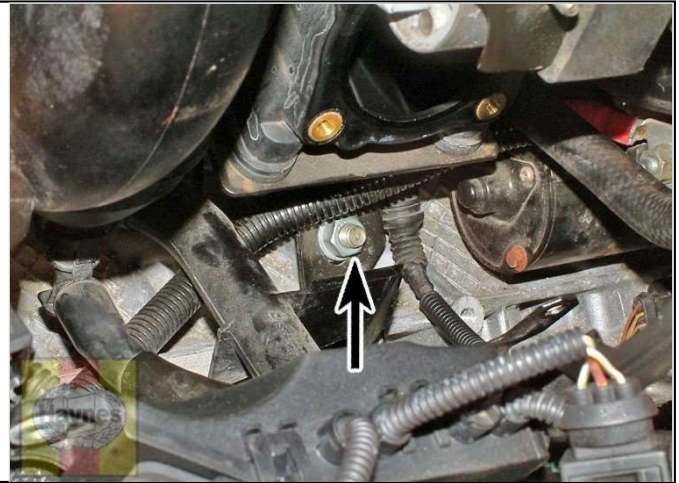
8 To disconnect the power brake booster vacuum hose above the manifold, cut off the hose clamp with a pair of side-cutters, and pull the plastic tube from the rubber hose.

9 Remove the nuts securing the manifold to the cylinder head, and the nut securing the manifold support bracket to the cylinder block (under the manifold), and remove the manifold from the cylinder head. As the manifold is withdrawn, feed the starter motor cable through the manifold, and on M54 engines disconnect the fuel pressure regulator vacuum hose (see illustrations) . Recover the seals.

13.9a Intake manifold nuts



13.9b Remove the manifold support bracket nut



10 Check the condition of the seals and replace if necessary.

11 Installation is a reversal of removal.

Exhaust manifold

12 To allow sufficient clearance, remove the heater/ventilation inlet air ducting from the rear of the engine compartment as follows.

- A. Rotate the three fasteners 90° counterclockwise and remove the cabin filter cover from the rear of the engine compartment. Pull the filter forward and remove it.
- B. Undo the four retaining clips and thread the cable out of the ducting (see illustration 12.3).
- C. Unscrew the four screws and pull the filter housing forwards and remove it (see illustration 12.4).
- D. Undo the two screws and remove the inlet ducting upwards and out of the engine compartment (see illustration 12.6).

13 Raise the front of the vehicle and support it securely on jackstands. Remove the screws and remove the engine splash shield.

- 14 Remove the front axle reinforcement plate/bar bolts (see [Chapter 2, Section 12](#)). Discard the bolts, new ones must be installed.
- 15 Attach an engine hoist or engine support fixture to the lifting eye at the front of the cylinder head and take the weight off the engine.
- 16 Working underneath the vehicle, remove the right-hand engine mounting complete with support arm.
- 17 Pry out the plastic caps, remove the two screws, and remove the plastic cover from the over the injectors.
- 18 Trace back the wiring from the oxygen sensor(s), and disconnect the wiring connectors. Label the connectors to ensure correct installation. Unclip the cable harness from any retainers on the manifolds.
- 19 Remove the nuts/bolts and separate the exhaust pipe from the manifold.
- 20 Using the engine hoist, raise the engine approximately 1/4-inch (6 mm).
- 21 Starting with the front exhaust manifold, remove the nuts and maneuver the manifold from the engine compartment (see illustration) . Take great care not to damage the oxygen sensor installed to the manifold. Discard the gasket.

13.21 Withdraw the front exhaust manifold from the cylinder head



- 22 Remove the nuts and remove the rear exhaust manifold. Again take great care not to damage the oxygen sensor. Discard the gasket.
- 23 Installation is a reversal of removal, noting the following points:
- A. Apply some anti-seize high-temperature grease to the manifold studs.
 - B. Always replace the manifold gaskets.
 - C. Tighten the manifold nuts to the torque listed in [this Chapter's Specifications](#) .
 - D. Tighten the front axle reinforcement plate bolts to the torque listed in the [Chapter 2A Specifications](#) .

