

**Haynes**
shows you how

BMW 3-Series (92-98) & Z3 (96-98) Haynes Online Manual

13 Manifolds - removal and installation

Intake manifold upper section

Warning:

Wait until the engine is completely cool before beginning this procedure.

Note:

New gaskets will be required on installation.

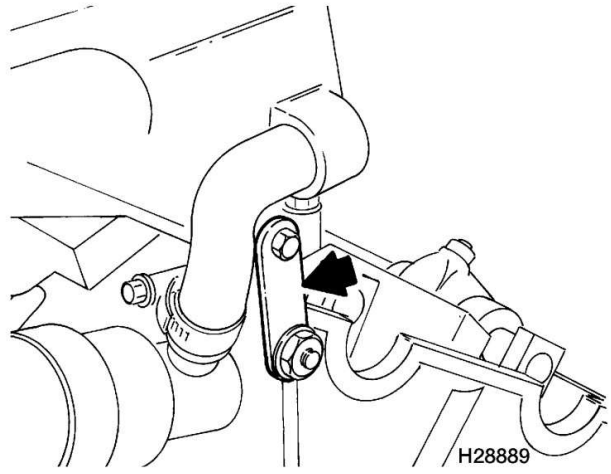
Removal

- 1 Disconnect the battery negative cable. **Caution:** *If the stereo in your vehicle is equipped with an anti-theft system, make sure you have the correct activation code before disconnecting the battery.*
- 2 Where necessary, to allow sufficient clearance for the manifold to be removed, remove the heater/ventilation intake air ducting from the rear of the engine compartment as follows.
 - A. Lift the grille from the top of the ducting (on certain Coupe models, it will be necessary to remove the windshield wiper arms, then remove the plastic securing screws and lift off the complete scuttle grille assembly).
 - B. Working through the top of the ducting, remove the screws securing the cable ducting to the air ducting and move the cable ducting clear.
 - C. Unscrew the nuts and/or screw(s) securing the air ducting to the firewall (where applicable, bend back the heat shielding for access).
 - D. Remove the air ducting by pulling upwards.
- 3 Move the previously removed cable ducting clear of the valve cover.
- 4 Where applicable, unscrew the bolt securing the charcoal canister hose to the airflow meter assembly.
- 5 Loosen the clamp screw securing the air intake ducting to the throttle body.

6 Remove the upper section of the air cleaner, complete with the airflow meter and the air intake ducting (see [Section 12](#)).

7 Unbolt the rear manifold support bracket (see illustration) .

13.7 Intake manifold upper section rear support bracket (arrow)



8 Disconnect the idle speed control valve hose from the rear of the manifold.

9 Loosen the nut securing the manifold to the front support bracket (see illustration) .

13.9 Loosen the nut (arrow) securing the manifold to the front support bracket



10 Disconnect the throttle cable from the throttle linkage at the throttle body. (see [Section 4](#)).

11 Disconnect the throttle position sensor wiring plug.

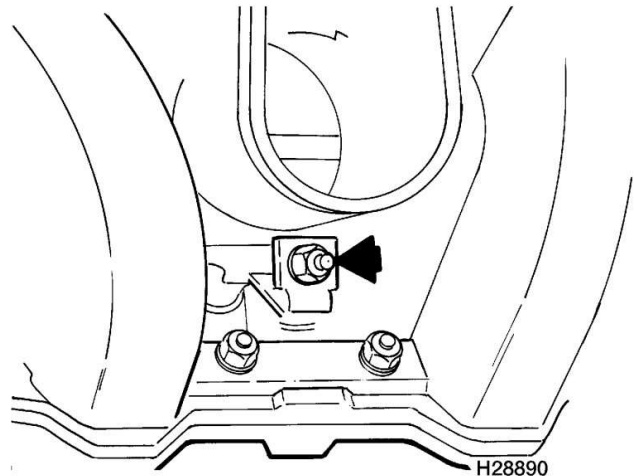
12 Disconnect the vacuum hoses from the throttle body.

13 Disconnect the vacuum hose from the fuel pressure regulator.

14 Disconnect the coolant hoses from the throttle body. Be prepared for coolant spillage, and clamp the open ends of the hoses to prevent further coolant loss.

15 Where applicable, unscrew the nut securing the throttle body heater (see illustration) .

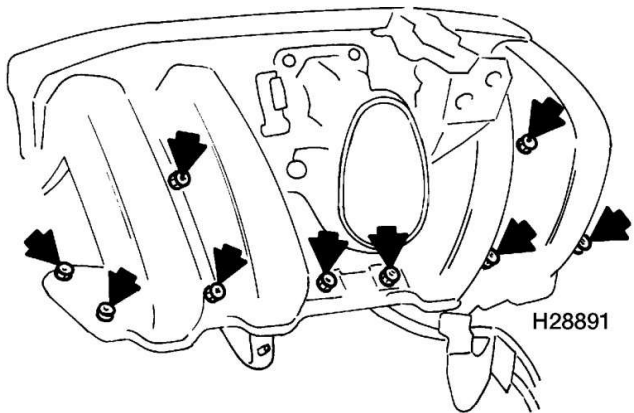
13.15 Throttle body heater securing nut (arrow)



16 Disconnect and release any remaining hoses and wiring looms from the manifold, noting their locations and routing to ensure correct installation.

17 Unscrew the securing nuts/bolts and lift off the upper section of the intake manifold (see illustration) . Recover the gasket.

13.17 Intake manifold upper section securing nuts and bolts (arrows)



Installation

18 Installation is a reversal of removal, bearing in mind the following points.

- A. Use new gaskets.
- B. Ensure that the upper section of the manifold engages securely on the dowels.
- C. Ensure that all hoses are connected to their correct locations as noted before removal.

D. Reconnect and if necessary adjust the throttle cable (see [Section 4](#)).

E. Where applicable, on completion check the coolant level (see [Chapter 1](#)).

Intake manifold lower section

Warning:

Wait until the engine is completely cool before beginning this procedure.

Note:

A new gasket will be required on installation.

Removal

19 Depressurize the fuel system (see [Section 7](#)), then disconnect the battery negative cable. **Caution:** *If the stereo in your vehicle is equipped with an anti-theft system, make sure you have the correct activation code before disconnecting the battery.*

20 Remove the upper section of the manifold as described previously in this Section.

21 Pull up the wiring ducting to release the wiring plugs from the fuel injectors. Move the wiring ducting to one side, clear of the working area.

22 Loosen the hose clips, and disconnect the fuel feed and return hoses from the fuel rail. Be prepared for fuel spillage, and take adequate fire precautions. Plug the open ends of the pipes and hoses to prevent dirt entry and further fuel spillage.

23 Where applicable, unscrew the clamp bolt securing the fuel pipes to the manifold bracket.

24 Where applicable, unbolt the manifold support bracket.

25 Disconnect and release any remaining hoses and wiring looms from the manifold, noting their locations and routing to ensure correct installation.

26 Unscrew the securing nuts and withdraw the manifold from the cylinder head. Recover the gasket.

Installation

27 Installation is a reversal of removal, bearing in mind the following points.

A. Fit the manifold using a new gasket, and tighten the securing nuts to the specified torque. Ensure that the manifold engages correctly with the locating dowels.

B. On M44 engines, remove the old seals above and below the crankcase vent valve and discard them. Install new upper and lower crankcase vent valve seals in the lower intake manifold.

- C. Ensure that all wiring and hoses are correctly routed and reconnected as noted before removal.
- D. Install the upper section of the manifold as described previously in this Section.
- E. On completion, pressurize the fuel system (install the fuel pump fuse and switch on the ignition) and check for leaks before starting the engine.

Exhaust manifold

Note:

New gaskets and new manifold securing nuts will be required on installation.

Removal

- 28 To improve access, jack up the front of the vehicle and support securely on axle stands.
- 29 Working underneath the vehicle, unscrew the nuts securing the exhaust front section to the manifold.
- 30 Working at the transmission exhaust bracket, unscrew the bolt(s) securing the two exhaust mounting clamp halves together.
- 31 Loosen the bolt securing the clamp halves to the bracket on the transmission, then lower the exhaust downpipes down from the manifold studs. Recover the gasket(s).
- 32 Working in the engine compartment, unscrew the manifold securing nuts.
- 33 Withdraw the manifold from the studs and recover the gasket(s).
- 34 It is possible that some of the manifold studs may be unscrewed from the cylinder head when the manifold securing nuts are unscrewed. In this event, the studs should be screwed back into the cylinder head once the manifolds have been removed, using two manifold nuts locked together.

Installation

- 35 Installation is a reversal of removal, but use new gaskets and new manifold securing nuts.