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

## 6 Manual transmission - removal and installation

### Removal

**Note:**

This is an involved operation. Read through the procedure thoroughly before starting work, and ensure that adequate lifting tackle and/or jacking/support equipment is available.

1 Open the hood, then raise the hood to its fully open position (see [Chapter 11](#) ).

2 Disconnect the battery negative lead. **Caution:** *If the radio in your vehicle is equipped with an anti-theft system, make sure you have the correct activation code before disconnecting the battery.*

3 Jack up the vehicle and support securely on axle stands. Note that the vehicle must be raised sufficiently to allow clearance for the transmission to be removed from under the vehicle.

4 Remove the starter motor (see [Chapter 5](#) Part A).

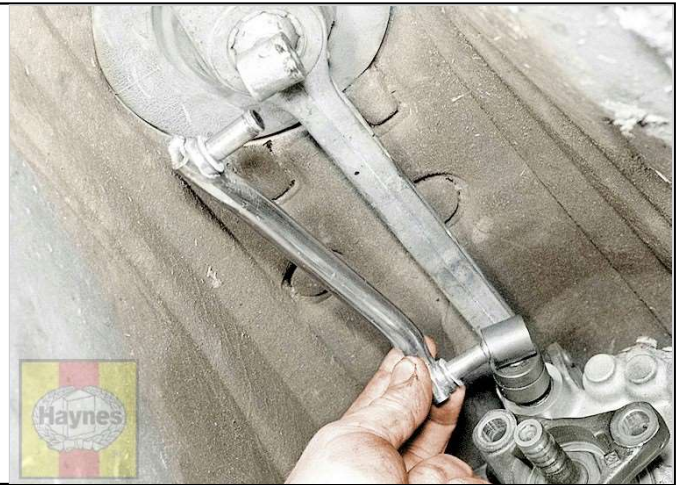
5 Remove the driveshaft (see [Chapter 8](#) ).

6 Working under the vehicle, pry the retaining clip from the end of the gear selector rod pin. Withdraw the selector rod pin from the eye on the end of the transmission selector shaft, and recover the washers. Similarly, disconnect the selector rod pin from the end of the shift lever, and withdraw the selector rod (see illustrations)

**6.6a Remove the retaining clips from the gear selector rod pins . . .**



**6.6b . . . then withdraw the selector rod**



7 Working at the transmission bellhousing, unscrew the securing nuts, and withdraw the clutch release cylinder from the studs on the bellhousing. Support the release cylinder clear of the working area, taking care not to strain the hose.

8 Disconnect the wiring from the back-up light switch, located in the left-hand side of the transmission casing, and release the switch wiring from the clips on the transmission.

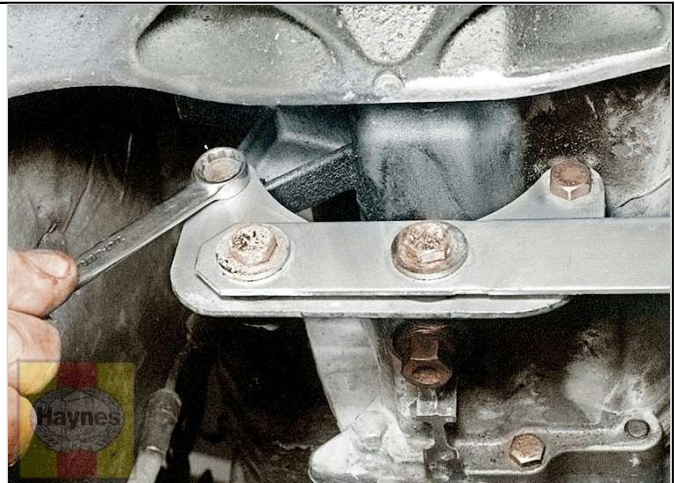
9 Separate the two halves of the oxygen sensor wiring connector, then withdraw the clamping ring to release the connector from the bracket, and unbolt the connector bracket from the transmission (see illustration) .

### 6.9 Releasing the oxygen sensor wiring connector from the bracket on the transmission



10 Where applicable, unbolt the exhaust mounting bracket from the rear of the transmission and move the bracket clear (see illustration) . If necessary, loosen the clamp on the exhaust to allow the bracket to be pivoted clear of the working area.

### 6.10 Unbolt the exhaust mounting bracket from the rear of the transmission



11 If necessary, to provide additional clearance, unbolt the bracing tube from the floor of the vehicle.

12 On six-cylinder models, if not already done, remove the heater/ventilation inlet 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 securing screws and lift off the complete cowl 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.
- E. Move the previously removed cable ducting clear of the valve cover.

13 On four-cylinder models, unbolt the wiring ducting from the rear of the engine, then connect an engine hoist and lifting tackle to the engine lifting eye (incorporated in the rear flange of the cylinder block casting) at the rear

left-hand corner of the cylinder block. Raise the lifting tackle to just take the weight of the engine.

14 As an alternative, support the engine using a floor jack under the oil pan, with a block of wood between the jack and oil pan to spread the load. Raise the jack to just touch the oil pan.

15 On six-cylinder models, connect the lifting tackle to the engine lifting eye at the rear left-hand corner of the cylinder block (incorporated in the rear flange of the cylinder block casting).

16 Place a floor jack under the transmission casing, just forward of the bellhousing. Use a block of wood to spread the load, then raise the jack to just take the weight of the transmission.

17 Check to ensure that the engine and transmission are adequately supported then, working under the vehicle, unscrew the nuts securing the transmission rubber mountings to the lugs on the transmission casing.

18 Remove the bolts securing the transmission crossmember to the body, then withdraw the crossmember from under the vehicle (see illustration) . If necessary, bend back or unbolt the exhaust heat shield for access to the crossmember bolts.

#### 6.18 Unscrewing a transmission crossmember securing bolt

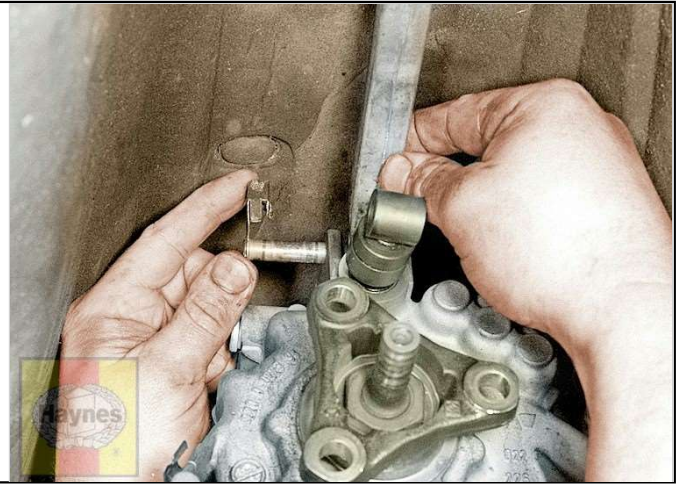


19 Using the jack(s) and engine hoist (where applicable), lower the engine and transmission until the rear of the engine cylinder head/manifold assembly is almost touching the engine compartment firewall. Check that the assembly is not resting against the heater hose connections on the firewall.

20 Working at the top of the transmission, pry up the clip securing the gear selector arm pivot pin to the transmission casing, then pull out the pivot pin to release the selector arm from the transmission (see illustration) .

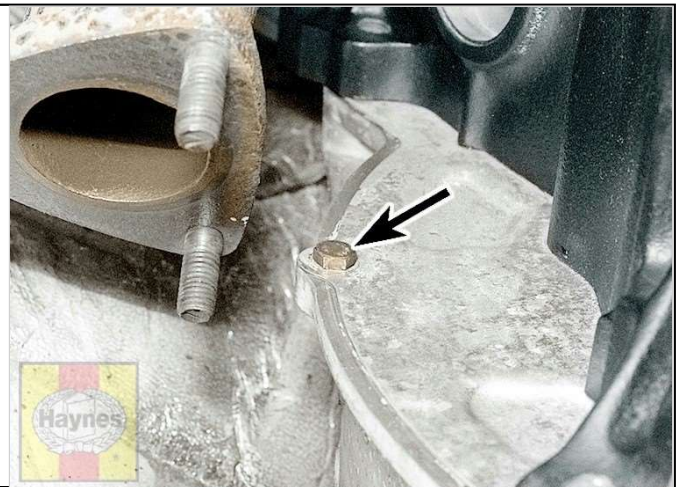


### 6.20 Releasing the gear selector arm from the transmission



21 Where applicable, unscrew the bolt securing the engine/transmission adapter plate to the right-hand side of the transmission bellhousing (see illustration) .

### 6.21 Engine/transmission adapter plate (arrow)



22 Unscrew the engine-to-transmission bolts, and recover the washers, then slide the transmission rearwards to disengage the input shaft from the clutch (see illustration) . Take care during this operation to ensure that the weight of the transmission is not allowed to hang on the input shaft. As the transmission is released from the engine, check to make sure that the engine is not forced against the heater hose connections or the firewall.

### 6.22 Lower engine-to-transmission bolts (arrows)



23 Lower the transmission and carefully withdraw it from under the vehicle. If the transmission is to be removed for some time, ensure that the engine is adequately supported in the engine compartment.

## Installation

24 Commence installation by checking that the clutch friction disc is centralized (see [Chapter 8, Section 2](#)).

25 Before installing the transmission, it is advisable to inspect and grease the clutch release bearing and lever (see [Chapter 8](#)).

26 The remainder of the installation procedure is a reversal of removal, bearing in mind the following points.

A. Check that the transmission positioning dowels are securely in place at the rear of the engine.

B. Make sure that the washers are in place on the engine-to-transmission bolts.

C. Tighten all fasteners to the specified torque.

D. Lightly grease the gear selector arm pivot pin and the gear selector rod pin before installation.

E. Reconnect the driveshaft to the transmission flange (see [Chapter 8](#)).

F. Install the starter motor (see [Chapter 5](#) Part A).

G. Check the lubricant level (see [Chapter 1](#)).

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