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

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## 5 Automatic transmission - removal and installation

### Note:

This is an involved operation. Read through the procedure thoroughly before starting work, and ensure that adequate lifting and/or jacking/support equipment is available. A suitable tool will be required to align the torque converter when installing the transmission, and new fluid line O-rings may be required.

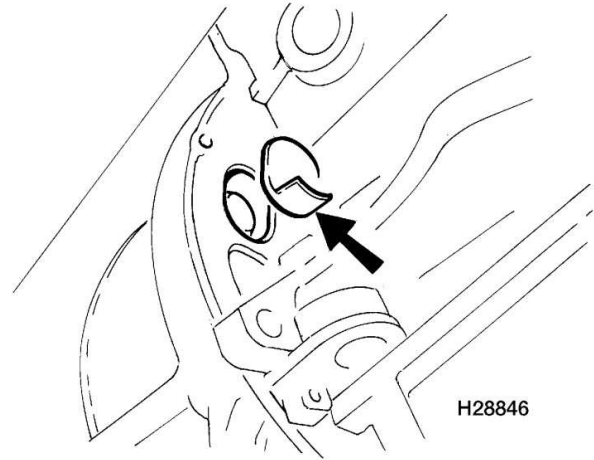
### Removal

- 1 Disconnect the cable(s) from the negative battery terminal(s) (see [Chapter 5, Section 1](#)).
- 2 Raise the vehicle and support it securely on jackstands. Note that the car must be raised sufficiently to allow clearance for the transmission to be removed from under the car. Remove the screws and remove the engine/transmission under-shield from the vehicle.
- 3 Unscrew the bolts and remove the front reinforcement brace/plate from under the transmission.
- 4 Remove the starter motor as described in [Chapter 5](#).
- 5 Remove the exhaust system and heat shield, then unbolt the exhaust mounting crossmember from under the car.
- 6 Remove the drive shaft as described in [Chapter 8](#).
- 7 Drain the automatic transmission fluid as described in [Chapter 1](#).
- 8 Disconnect the selector cable from the transmission with reference to [Section 3](#).
- 9 Disconnect the transmission wiring harness connectors after carefully noting their installed locations. Release the wiring harness from the brackets and clips on the transmission.
- 10 Release the oxygen sensor from the bracket on the transmission.

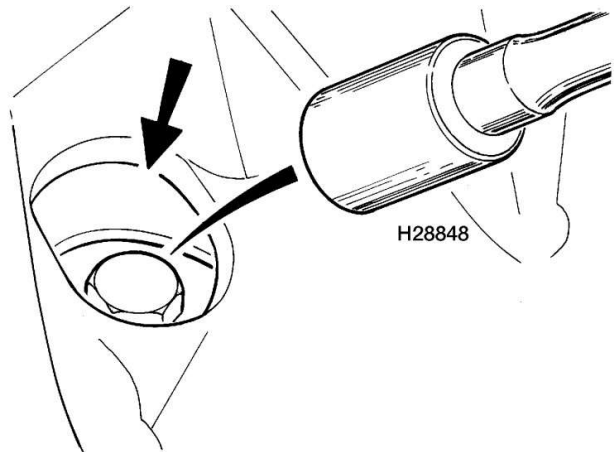
11 Unbolt the fluid cooler line brackets and clamps. Unscrew the fittings and disconnect the fluid lines - be prepared for fluid spillage.

12 Pry the plug from the opening in the engine/transmission adapter plate, above the pan, or from the opening in the crankcase, depending on model, for access to the torque converter securing bolts (see illustrations) .

**5.12a Pry the plug from the engine/transmission adapter plate . . .**



**5.12b . . . or from the opening in the crankcase**



13 Unscrew the three torque converter bolts, turning the crankshaft using a wrench or socket on the pulley hub bolt for access to each bolt in turn.

14 Support the transmission using a jack and a wood plank to distribute the weight evenly. If available, use a transmission jack and secure the transmission to the jack with safety chains. **Caution:** *The transmission is heavy, so make sure that it is adequately supported.*

15 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. Detach the four retaining clips and thread the cable out of the ducting (see illustration).

- C. Unscrew the four screws and pull the filter housing forwards and remove it.
- 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.
- E. Remove the two screws and remove the inlet ducting upwards and out of the engine compartment (see illustration).

#### 5.15a Unclip the cable ducting



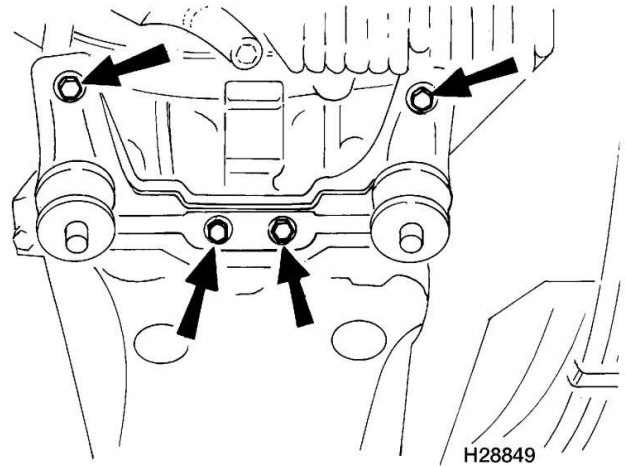
#### 5.15b Remove the two Torx screws and remove the inlet housing



16 Support the engine with a hoist or engine support fixture using the engine lifting eye at the rear left-hand corner of the cylinder block (incorporated in the rear flange of the cylinder block casting).

17 Where applicable, unbolt the transmission front mounting assembly (see illustration) .

**5.17 Where applicable, unscrew the bolts and remove the transmission front mounting assembly**



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

19 Remove the bolts securing the transmission crossmember to the body, then withdraw the crossmember from under the car. If necessary, bend back or unbolt the exhaust heat shield for access to the crossmember bolts.

20 Using the jack and engine hoist, 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.

21 Unscrew the engine-to-transmission bolts, and recover the washers, then slide the transmission rearwards.

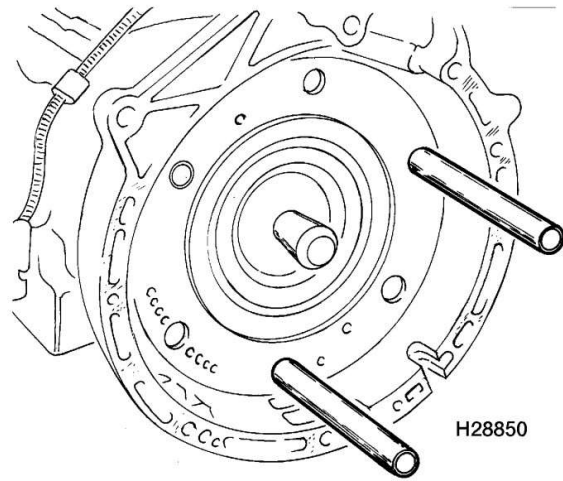
22 Insert a suitable metal or wooden lever through the slot in the bottom of the bellhousing to retain the torque converter. **Note:** *The lever is used in place of the special (manufacturer) tool to retain the torque converter to the transmission during removal. An aftermarket tool from a specialty automotive tool supply store may be available as well. 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.*

23 Lower the transmission and carefully withdraw it from under the car, making sure that the torque converter is held in position. If the transmission is to be removed for some time, ensure that the engine is adequately supported in the engine compartment.

24 To remove the torque converter, first remove any retaining levers or tools installed in step 22.

25 Fit two long bolts to two of the torque converter securing bolt holes, and use the bolts to pull the torque converter from the transmission (see illustration) . Pull evenly on both bolts. Be prepared for fluid spillage.

### 5.25 Install two long bolts to lift out the torque converter



## Installation

26 If it was removed, install the torque converter, using the two bolts to manipulate the converter into position. While applying slight pressure, turn the torque converter to ensure that the hub teeth engage with the input shaft teeth. The correct installed depth of the torque converter is greater than 1-3/16 inches (30 mm) (approx.) from the bellhousing face to the forward edge of the torque converter securing bolt holes.

27 Ensure that the transmission locating dowels are in position on the engine.

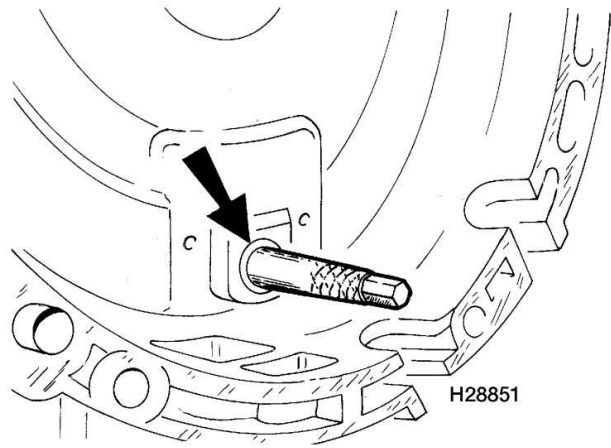
28 Before mating the transmission with the engine, it is essential that the torque converter is perfectly aligned with the driveplate. Once the engine and transmission have been mated, it is no longer possible to turn the torque converter to allow re-alignment.

29 To align the driveplate with the torque converter, BMW uses a special tapered tool which screws into the driveplate. It may be possible to improvise a suitable tool using an old torque converter-to-driveplate bolt with the head cut off, or a length of threaded bar - note that the end of the bolt or bar must either have a slot cut in the end, or flats machined on it to allow it to be unscrewed once the engine and transmission have been mated.

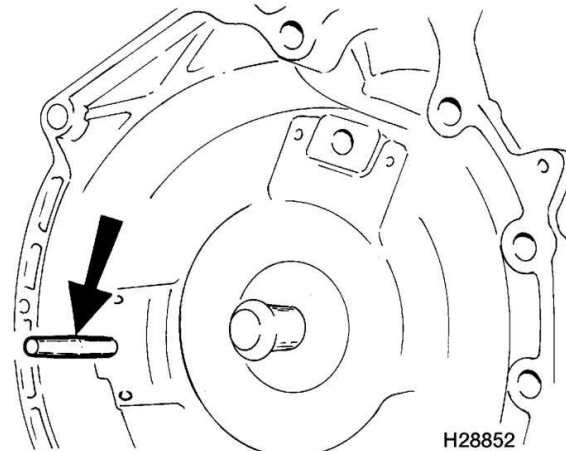
30 Turn the flywheel to align one of the torque converter-to-driveplate bolt holes with the opening in the bottom of the pan/bellhousing (for access to the pan securing bolt), or with the opening in the engine/transmission adapter plate (as applicable). This is essential to enable the alignment stud to be removed after the engine and transmission have been mated.

31 Screw the alignment tool into the relevant hole in the driveplate (see illustrations) .

**5.31a Alignment tool screws into the driveplate, aligned with the opening in the bottom of the pan/bellhousing**



**5.31b Alignment tool screws into the driveplate aligned with the opening in the engine/transmission adapter plate (5-speed transmission)**



32 Where applicable, remove the retaining lever from the torque converter.

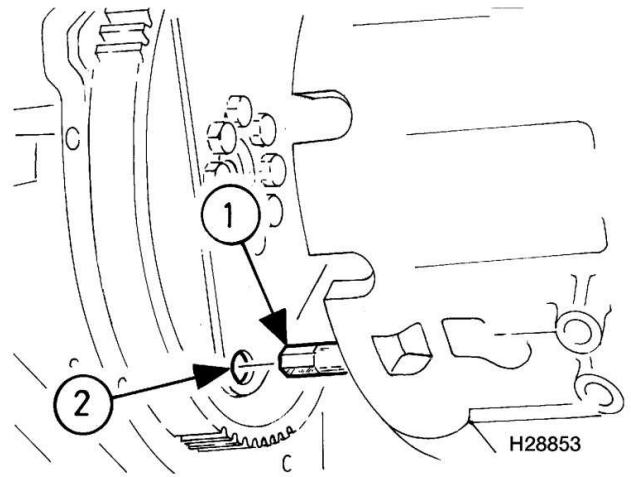
33 Ensure that the transmission is adequately supported, and maneuver it into position under the car.

34 Turn the torque converter to align one of the torque converter-to-driveplate bolt holes with the alignment tool installed to the driveplate, then place the transmission into position.

35 Ensure that the alignment tool passes through the hole in the torque converter, then install and tighten the engine-to-transmission bolts, ensuring that the washers are in place (see illustration) .



**5.35 Ensure that the alignment tool (1) passes through the hole (2) in the torque converter**



36 Unscrew the alignment tool from the driveplate, then install the torque converter-to-driveplate bolt. Tighten the bolt to the specified torque.

37 Turn the crankshaft as during removal for access to the remaining two torque converter-to-driveplate bolt locations. Install and tighten the bolts.

38 Further installation is a reversal of removal, bearing in mind the following points.

- A. Tighten all fasteners to their specified torque, where applicable.
- B. Check the condition of the transmission fluid line O-rings and replace if necessary.
- C. Install the drive shaft (see [Chapter 8](#)).
- D. Install the starter motor (see [Chapter 5](#)).
- E. Reconnect and adjust the selector cable as described in [Section 3](#).
- F. On completion, refill the transmission with the correct fluid as described in [Chapter 1](#).

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