

**Haynes**  
*shows you how*

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

## 10 Master cylinder - removal and installation

**Note:**

Before starting work, refer to the precautions in [Section 1](#) and the warnings at the beginning of [Section 2](#).

**Note:**

New master cylinder retaining nuts will be required on installation.

**Note:**

If the master cylinder is faulty, it must be replaced. Repair kits are not available from BMW dealers so the cylinder must be treated as a sealed unit. Replace the master cylinder O-ring seal and reservoir seals regardless of their apparent condition.

### Models with ABS

1 On models fitted with ABS, although it is possible for the home mechanic to remove the master cylinder, if the hydraulic fittings are disconnected from the master cylinder, air will enter the high-pressure hydraulic system linking the master cylinder and hydraulic unit. Bleeding of the high-pressure system can only be safely carried out by a BMW dealer or specialist who has access to the service tester (see [Section 2](#)). Consequently, once the master cylinder has been installed, the vehicle must be taken on a trailer or transporter to a suitably-equipped BMW dealer or specialist.

### All models

#### Removal

2 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.
- C. Unscrew the four screws and pull the filter housing forwards and remove it.
- D. Remove the two screws and remove the inlet ducting upwards and out of the engine compartment.

3 Remove the master cylinder reservoir cap, and siphon the brake fluid from the reservoir. **Note:** *Do not siphon the fluid by mouth, as it is poisonous; use a syringe or a hand-held vacuum pump. Alternatively, open any convenient bleed screw in the system, and gently pump the brake pedal to expel the fluid through a plastic tube connected to the screw until the level of fluid drops below that of the reservoir (see [Section 2](#)). Disconnect the wiring connector(s) from the brake fluid reservoir (see illustration) .*

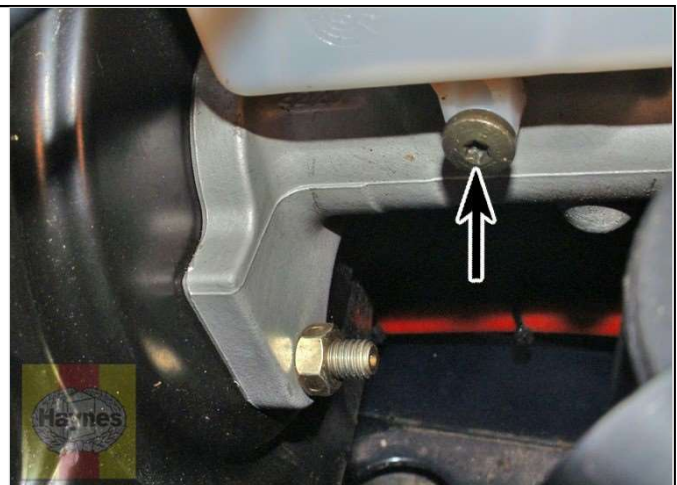
### 10.3 Disconnect the fluid level sensor electrical connector



4 Disconnect the fluid hose(s) from the side of the reservoir, and plug the hose end(s) to minimize fluid loss.

5 Remove the master cylinder reservoir retaining screw (see illustration) .

### 10.5 Remove the brake fluid reservoir retaining screw



6 Carefully ease the fluid reservoir out from the top of the master cylinder. Recover the reservoir seals, and plug the cylinder ports to prevent dirt entry.

7 Wipe clean the area around the brake line fittings on the side of the master cylinder, and place absorbent rags beneath the line fittings to catch any surplus fluid. Make a note of the correct installed positions of the fittings, then unscrew the fitting nuts and carefully withdraw the lines. Plug or tape over the line ends and master cylinder orifices, to minimize the loss of brake fluid, and to prevent the entry of dirt into the system. Wash off any spilled fluid immediately with cold water.

8 Loosen and remove the two nuts and washers securing the master cylinder to the power brake booster, then withdraw the unit from the engine compartment. Remove the O-ring from the rear of the master cylinder. Discard the retaining nuts, new ones should be used on installation.

## Installation

9 Remove all traces of dirt from the master cylinder and power brake booster mating surfaces, and fit a new O-ring to the groove on the master cylinder body.

10 Install the master cylinder ensuring that the booster pushrod enters the master cylinder bore correctly. Use new master cylinder retaining nuts and washers, and tighten them to the specified torque.

11 Wipe clean the brake line fittings, then install them to the master cylinder ports and tighten them securely.

12 Press the new reservoir seals firmly into the master cylinder ports, then ease the reservoir into position. Tighten the reservoir retaining bolt securely. Reconnect the fluid hose(s) to the reservoir, and reconnect the electrical connector(s).

13 Refill the master cylinder reservoir with new fluid, and bleed the complete hydraulic system as described in [Section 2](#).