



## 3 Brake lines and hoses - replacement

### Warning:

On models with ABS and AST, under no circumstances should the hydraulic lines/hoses linking the master cylinder, hydraulic unit and (where attached) the accumulator be disturbed. If these unions are disturbed and air enters the high-pressure hydraulic system, bleeding of the system can only be safely carried out by a BMW dealer or other qualified repair shop using the special service tester.

### Note:

Before starting work, refer to the warnings at the beginning of Section 2 .

1 If any line or hose is to be replaced, minimize fluid loss by first removing the master cylinder reservoir cap, then tightening it down onto a piece of cellophane to obtain an airtight seal. Brake line unions should be plugged (if care is taken not to allow dirt into the system) or capped immediately after they are disconnected. Place a bundle of rags under any union that is to be disconnected, to catch any spilled fluid.

2 If a flexible hose is to be disconnected, unscrew the brake line fitting nut before removing the spring clip which secures the hose to its mounting bracket.

3 To unscrew the fitting nuts, it is preferable to obtain a flare-nut wrench of the correct size; these are available from most large auto parts stores. Failing this, a close-fitting open-ended wrench will be required, though if the nuts are tight or corroded, their flats may be rounded-off if the wrench slips. In such a case, using self-locking pliers is often the only way to unscrew a stubborn union, but it follows that the line and the damaged nuts must be replaced on reassembly. Always clean a union and surrounding area before disconnecting it. If disconnecting a component with more than one union, make a careful note of the connections before disturbing any of them.

4 If a brake line is to be replaced, it can be obtained from BMW dealers and some auto parts stores. All that is then necessary is to bend it to shape, following the line of the original, before fitting it to the car. Alternatively, most auto parts stores can make up brake lines from kits, but this requires very careful measurement of the original, to ensure that the replacement is of the correct length. The safest answer is usually to take the original to the shop as a pattern.

5 On installation, do not overtighten the fitting nuts. It is not necessary to exercise brute force to obtain a sound joint.

**6** Ensure that the lines and hoses are correctly routed, with no kinks, and that they are secured in the clips or brackets provided. After fitting, remove the cellophane from the reservoir, and bleed the hydraulic system (see [Section 2](#)). Wash off any spilled fluid, and check carefully for fluid leaks.