

## Technical Assistance: 301

### Brakes bind – Only after driving for a while.

**Symptoms:** Brakes are free at the start of a journey, but gradually bind or lock on as you drive.

**Cause:** When braking, heat is generated. This heat is transferred to the brake fluid. As the temperature increases, the fluid expands. Under normal circumstances, this expanded fluid returns to the master cylinder reservoir. If the expanded fluid cannot return to the reservoir, pressure builds up and applies the brakes; and more heat and more pressure are generated. When the fluid cools down, pressure reduces and the brakes release.

**Solutions:** Take your tools with you and drive the vehicle until the brakes bind on. (The more they bind on, the more time you will have to diagnose the problem). Follow these steps.

#### Step 1

With the brakes stuck on, slacken, by two to three threads, the nuts that hold the master cylinder to the servo. Then press and release the brake pedal. If the problem persists proceed to Step 2. If the brakes are free after you've done this, the problem lies with the servo or the mechanical links to the pedal. Check that an incorrectly adjusted brake light switch is not holding the pedal on slightly. If the pedal has a link rod to the servo, check that this is well lubricated and moves freely. If the problem is not caused by the brake light switch or by the link rod sticking, it's possible that the link rod or servo push rod has been adjusted incorrectly. Otherwise, the servo is probably faulty.



#### Note

Just in front of the master cylinder valve seals are small holes; these are compensating ports. With the brake pedal released, the master cylinder pistons should be fully home; otherwise the compensating ports will be blocked by the valve seals.

#### Step 2

Slacken one pipe at the master cylinder for each circuit in sequence. (Use a rag to stop fluid squirting everywhere because brake fluid works like paint stripper). This will release any pressure in that circuit. If the problem persists proceed to Step 3. If the brakes release now, then it's highly probable that the master cylinder seals have swollen through contamination and are blocking the compensating/relief ports.

### Step 3

Feel each wheel and start with the hottest wheel/brake first. Careful, things will be very hot! Slacken the bleed nipple/s on the caliper or wheel cylinder. If the brakes do not release, proceed to the next hottest wheel and repeat. When the brakes release, the problem is a faulty flexible hose attached to that wheel.



#### Note

It is not uncommon for the inner wall of a flexible hose to collapse. When this happens, the collapsed wall can act like a one-way valve and can restrict the return of fluid.

### Step 4

If the brakes are still stuck on, release the handbrake and start again!



#### Caution!

Remember to re-tighten all pipes/unions, nuts/bolts and bleed nipples.