5 Front brake caliper - removal, overhaul and installation

Note:
Before starting work, refer to the note at the beginning of Section 2 concerning the dangers of brake fluid, and to the warning at the beginning of Section 4 concerning the dangers of asbestos dust.

Removal

1 Apply the parking brake, then jack up the front of the vehicle and support it on axle stands. Remove the appropriate wheel.

2 Minimize fluid loss by first removing the master cylinder reservoir cap, and then tightening it down onto a piece of cellophane, to obtain an airtight seal.

3 Clean the area around the union, then loosen the brake hose fitting nut.

4 Remove the brake pads (see Section 4).

5 Unscrew the caliper from the end of the brake hose and remove it from the vehicle. Plug the hose to prevent fluid leakage.

Overhaul

6 With the caliper on the bench, wipe away all traces of dust and dirt, but *avoid inhaling the dust, as it is a health hazard.*

7 Withdraw the partially ejected piston from the caliper body, and remove the dust seal. **Note:** *If the piston cannot be withdrawn by hand, it can be pushed out by applying compressed air to the brake hose union hole* **(see illustration)** *. Place a block of wood between the piston and the caliper frame to act as a cushion. Only low pressure should be required. As the piston is expelled, take great care not to trap your fingers between the piston and caliper.*

5.7 With the caliper padded to catch the piston, use compressed air to ease the piston out of its bore - make sure your fingers are not between the piston and caliper frame

8 Using a wood or plastic tool, extract the piston hydraulic seal (metal tools may cause bore damage) **(see illustration)** .

5.8 To remove the seal from the caliper bore, use a plastic or wooden tool, such as a pencil

9 Thoroughly clean all components, using brake system cleaner. Never use petroleum-based solvents.

10 Check all components, and replace any that are worn or damaged. Check particularly the cylinder bore and piston; these should be replaced (note that this means the replacement of the complete body assembly) if they are scratched, worn or corroded in any way. Similarly check the condition of the guide pins and their bushings; both pins should be undamaged and (when cleaned) a reasonably tight sliding fit in the bushings. If there is any doubt about the condition of any component, replace it.

11 If the assembly is fit for further use, obtain the appropriate repair kit. All rubber seals should be replaced as a matter of course; these should never be re-used.

12 On reassembly, ensure that all components are clean and dry.

13 Soak the piston and the new piston (fluid) seal in clean brake fluid. Smear clean fluid on the cylinder bore surface.

14 Install the new piston (fluid) seal, using only your fingers (no tools) to manipulate it into the cylinder bore groove.

15 Install the new dust seal to the piston. Locate the rear of the seal in the recess in the caliper body, and install the piston to the cylinder bore using a twisting motion. Ensure that the piston enters squarely into the bore, and press it fully into the bore.

Installation

16 Screw the caliper fully onto the flexible hose union.

17 Install the brake pads (see Section 4).

18 Securely tighten the brake line fitting nut.

19 Remove the brake hose clamp or cellophane, as applicable, and bleed the hydraulic system (see Section 2). Note that, providing the precautions described were taken to minimize brake fluid loss, it should only be necessary to bleed the relevant front brake.

20 Install the wheel, then lower the vehicle to the ground and tighten the wheel bolts to the specified torque. On completion, check the brake fluid level (see Chapter 1).