Chapter 9
Braking system

Contents

Degrees of difficulty

Easy, suitable for novice with little experience 

Fairly easy, suitable for beginner with some experience 

Fairly difficult, suitable for competent DIY mechanic 

Difficult, suitable for experienced DIY mechanic 

Very difficult, suitable for expert DIY or professional 

Specifications

System type:

Footbrake	Dual-circuit hydraulic with servo assistance on all non-basic models. Anti-lock braking (ABS) optional on certain later models.
Handbrake	Mechanical by cables to rear brakes

Front brakes

Type	Solid or ventilated disc, with single piston sliding calipers
Brake pad minimum lining thickness	2.0 mm
Disc diameter	247 mm
Disc thickness:	
New:	
Non-ventilated disc	10.0 mm
Ventilated disc	20.4 mm
Minimum after resurfacing:	
Non-ventilated disc	8.5 mm
Ventilated disc	18.9 mm
Maximum disc run out	0.07 mm

Rear drum brakes

Type	Self-adjusting drum with leading and trailing shoes
Brake shoe minimum lining thickness	1.0 mm
Drum internal diameter:	
New	180.0 mm
Maximum after resurfacing	181.0 mm
Drum out-of-round (maximum)	0.10 mm

Rear disc brakes

Type	Disc, with single piston sliding calipers
Brake pad minimum lining thickness	2.0 mm
Disc diameter	247 mm
Disc thickness:	
New	8.0 mm
Minimum after resurfacing	7.0 mm
Maximum disc run out	0.07 mm

Torque wrench settings	Nm	lbf ft
Girling front caliper mounting bolts:		
All models except 1.9 GTI	97	72
1.9 GTI models	100	74
Girling front caliper guide bolts (1.9 GTI models)	35	26
DBA Bendix front caliper mounting bolts	120	89
Rear caliper mounting bolts	120	89
Rear backplate	37	27
Rear hub nut	215	159

1 General information

The braking system is of hydraulic type with the front disc brakes and rear drum brakes on all except 1.9 GTI models. On these vehicles disc brakes are also fitted at the rear. On all models, the handbrake is cable-operated on the rear wheels.

The hydraulic system is split into two circuits, so that in the event of failure of one circuit, the other will still provide adequate braking power (although pedal travel and effort may increase). The hydraulic circuits are split either diagonally or front-to-rear according to model. In the diagonally split system, each hydraulic circuit supplies one front, and one diagonally opposite rear brake. In the front-to-rear arrangement, one circuit serves the front brakes and the other circuit the rear brakes.

A compensating valve (or valves) reduces the hydraulic pressure to the rear brakes under heavy applications of the brake pedal in order to prevent rear wheel lock-up.

A vacuum servo unit is fitted to all non-basic models.

From 1991, the Bendix anti-lock braking system (ABS) is available as an option on certain models and is described in further detail in Section 19.

Note: *When servicing any part of the system, work carefully and methodically; also observe scrupulous cleanliness when overhauling any part of the hydraulic system. Always renew components (in axle sets, where applicable) if in doubt about their condition, and use only genuine Peugeot replacement parts, or at least those of known good quality. Note the warnings given in "Safety first" and at relevant points in this Chapter concerning the dangers of asbestos dust and hydraulic fluid.*

2 Hydraulic system - bleeding

Warning: Hydraulic fluid is poisonous; wash off immediately and thoroughly in the case of skin contact, and seek immediate medical advice if any fluid is swallowed or gets into the eyes. Certain types of hydraulic fluid are inflammable, and may ignite when allowed into contact with hot components; when servicing any hydraulic system, it is safest to assume that the fluid IS inflammable, and to take precautions against the risk of fire as though it is petrol that is being handled. Hydraulic fluid is also an effective paint stripper, and will attack plastics; if any is spilt, it should be washed off immediately, using copious quantities of clean water. Finally, it is hygroscopic (it absorbs moisture from the air). The more moisture is absorbed by the fluid, the lower its boiling point becomes, leading to a dangerous loss of braking under hard use. Old fluid may be contaminated and unfit for further use. When topping-up or renewing the fluid, always use the recommended type, and ensure that it comes from a freshly-opened sealed container.

General

1 The correct functioning of the brake hydraulic system is only possible after removing all air from the components and circuit; this is achieved by bleeding the system.

2 During the bleeding procedure, add only clean, fresh hydraulic fluid of the specified type; never re-use fluid that has already been bled from the system. Ensure that sufficient fluid is available before starting work.

3 If there is any possibility of incorrect fluid being used in the system, the brake lines and components must be completely flushed with uncontaminated fluid and new seals fitted to the components.

4 If brake fluid has been lost from the master cylinder due to a leak in the system, ensure that the cause is traced and rectified before proceeding further.

5 Park the car on level ground, switch off the ignition and select first gear (manual transmission) or Park (automatic transmission) then chock the wheels and release the handbrake.

6 Check that all pipes and hoses are secure, unions tight, and bleed screws closed. Remove the dust caps and clean any dirt from around the bleed screws.

7 Unscrew the master cylinder reservoir cap, and top-up the reservoir to the "MAX" level line. Refit the cap loosely, and remember to maintain the fluid level at least above the "MIN" level line throughout the procedure, otherwise there is a risk of further air entering the system.

8 There are a number of one-man, do-it-yourself, brake bleeding kits currently available from motor accessory shops. It is recommended that one of these kits is used wherever possible, as they greatly simplify the bleeding operation, and also reduce the risk of expelled air and fluid being drawn back into the system. If such a kit is not available, the basic (two-man) method must be used, which is described in detail below.

9 If a kit is to be used, prepare the car as described previously, and follow the kit manufacturer's instructions, as the procedure may vary slightly according to the type being used; generally, they are as outlined below in the relevant sub-section.

10 Whichever method is used, the same sequence must be followed (paragraphs 11 and 12) to ensure the removal of all air from the system.

Bleeding sequence

11 If the hydraulic system has only been partially disconnected and suitable precautions were taken to minimise fluid loss, it should only be necessary to bleed that part of the system (ie the primary or secondary circuit).

12 If the complete system is to be bled, then it should be done in the following sequence:

Non-ABS models:

Diagonally split system - all models except 1.6 GTI:

RH rear wheel
LH front wheel
LH rear wheel
RH front wheel

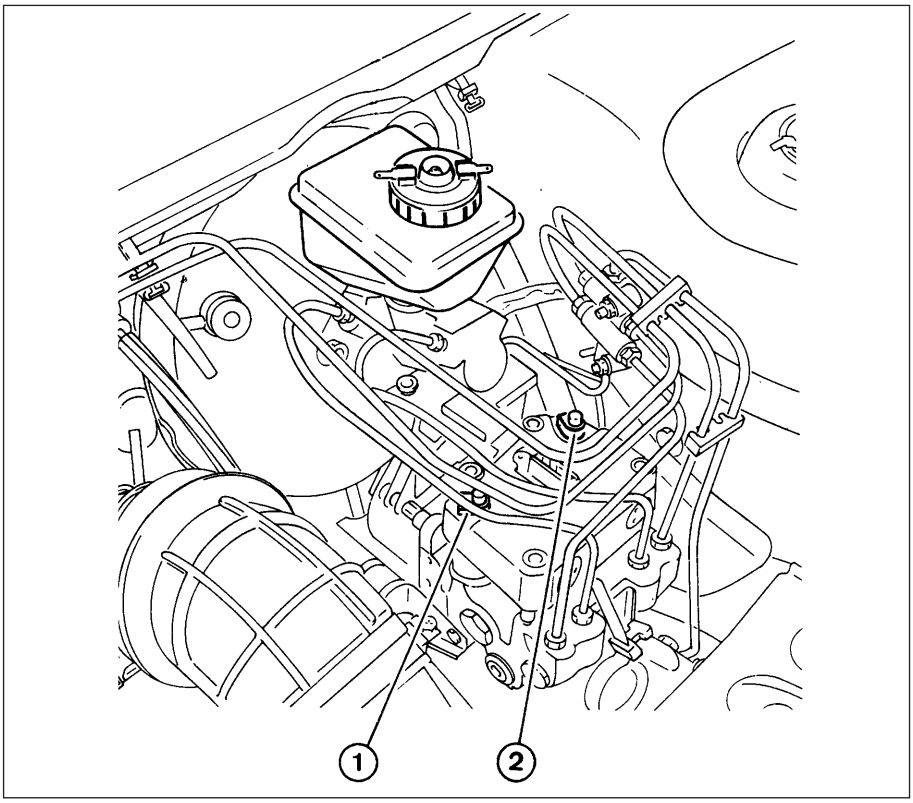
Front-to-rear split system - 1.6 GTI models:

LH rear wheel and inertia compensator
RH rear wheel
LH front wheel
RH front wheel

ABS models:

Note*: Before carrying out any bleeding, the battery negative lead must be disconnected, and the brown three-way, brown five-way and green five-way wiring connectors must be disconnected from the regulator unit to prevent the possibility of air entering the system. The connectors must not be reconnected until the hydraulic system has been bled.*

LH rear wheel
RH rear wheel
LH front wheel
RH front wheel
ABS regulator unit ***(see illustration)***



2.12 Bleed screws (1 and 2) on ABS regulator unit

Bleeding - basic (two-man) method

13 Collect a clean glass jar of reasonable size and a suitable length of plastic or rubber tubing, which is a tight fit over the bleed screw, and a ring spanner to fit the screws. The help of an assistant will also be required.

14 If not already done, remove the dust cap from the bleed screw of the first wheel to be bled and fit the spanner and bleed tube to the screw **(see illustration)**. Place the other end of the tube in the jar, and pour in sufficient fluid to cover the end of the tube.

15 Ensure that the master cylinder reservoir fluid level is maintained at least above the "MIN" level line throughout the procedure.

16 Have the assistant fully depress the brake pedal several times to build up pressure, then maintain it on the final downstroke.

17 While pedal pressure is maintained, unscrew the bleed screw (approximately one turn) and allow the compressed fluid and air to flow into the jar. The assistant should maintain pedal pressure, following it down to the floor if necessary, and should not release it until instructed to do so. When the flow stops, tighten the bleed screw again have the assistant release the pedal slowly, and recheck the reservoir fluid level.

18 Repeat the steps given in paragraphs 16 and 17 until the fluid emerging from the bleed screw is free from air bubbles. If the master cylinder has been drained and refilled, and air is being bled from the first screw in the sequence, allow approximately five seconds between cycles for the master cylinder passages to refill.

19 On 1.6 GTI models only it is now important to dislodge air trapped in the inertia compensator. To do this, open the bleed screw again and have your assistant fully depress and release the brake pedal rapidly 4 or 5 times, finally keeping the pedal depressed before tightening the bleed screw.

20 When no more air bubbles appear, tighten the bleed screw securely, remove the tube and spanner and refit the dust cap. Do not overtighten the bleed screw.

21 Repeat these procedures on the remaining brakes in sequence until all air is removed from the system and the brake pedal feels firm again.

2.14 Bleed screw and dust cap on front brake caliper

Bleeding - using a one-way valve kit

22 As their name implies, these kits consist of a length of tubing with a one-way valve fitted, to prevent expelled air and fluid being drawn back into the system; some kits include a translucent container, which can be positioned so that the air bubbles can be more easily seen flowing from the end of the tube.

23 The kit is connected to the bleed screw, which is then opened. The user returns to the driver's seat, depresses the brake pedal with a smooth steady stroke, and slowly releases it; this is repeated until the expelled fluid is clear of air bubbles. When using one of these kits on 1.6 GTI models, remember to carry out the procedure described in paragraph 19 after bleeding the first brake in the sequence.

24 Note that these kits simplify work so much that it is easy to forget the master cylinder fluid level; ensure that this is maintained at least above the "MIN" level line at all times.

Bleeding - using a pressure-bleeding kit

25 These kits are usually operated by the reserve of pressurised air contained in the spare tyre. However, note that it will probably be necessary to reduce the pressure to a lower level than normal; refer to the instructions supplied with the kit.

26 By connecting a pressurised, fluid-filled container to the master cylinder reservoir, bleeding is then carried out by simply opening each bleed screw in turn (in the specified sequence) and allowing the fluid to run out, until no more air bubbles can be seen in the expelled fluid. When using one of these kits on 1.6 GTI models, remember to carry out the procedure described in paragraph 19 after bleeding the first brake in the sequence.

27 This method has the advantage that the large reservoir of fluid provides an additional safeguard against air being drawn into the system during bleeding.

28 Pressure bleeding is particularly effective when bleeding "difficult" systems, or when bleeding the complete system at the time of routine fluid renewal.

All methods

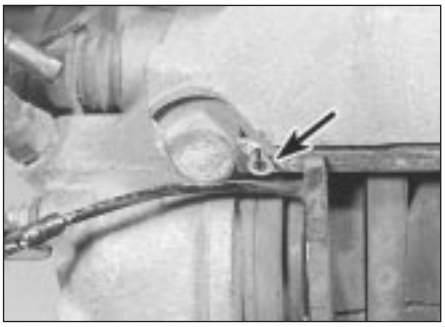
29 When bleeding is complete, and firm pedal feel is restored, wash off any spilt fluid, tighten the bleed screws securely, and refit their dust caps.

30 Check the hydraulic fluid level in the master cylinder reservoir and top-up if necessary.

31 Discard any hydraulic fluid that has been bled from the system; it will not be fit for re-use.

32 Check the feel of the brake pedal. If it feels at all spongy, air must still be present in the system, and further bleeding is required. Failure to bleed satisfactorily after a reasonable repetition of the bleeding operations may be due to worn master cylinder seals.

33 On models with ABS, reconnect the wiring connectors to the regulator unit and reconnect the battery.



4.3a Pad sliding key clip - arrowed (DBA Bendix caliper)

4.3b Disconnecting the pad wear wiring connector (DBA Bendix caliper)

4.4 Removing the pad sliding key (DBA Bendix caliper)

3 Hydraulic pipes and hoses - renewal

Note*: Before starting work, refer to the warning at the beginning of Section 2 concerning the dangers of hydraulic fluid*.

1 If any pipe or hose is to be renewed, minimise hydraulic fluid loss by removing the master cylinder reservoir cap, placing a piece of plastic film over the reservoir and sealing it with an elastic band. Alternatively, flexible hoses can be sealed, if required, using a proprietary brake hose clamp; metal brake pipe unions can be plugged (if care is taken not to allow dirt into the system) or capped immediately they are disconnected. Place a wad of rag under any union that is to be disconnected, to catch any spilt fluid.

2 If a flexible hose is to be disconnected, unscrew the brake pipe union nut before removing the spring clip which secures the hose to its mounting. Depending upon the make of the particular caliper, the other end of the hose may be connected simply by screwing it into its tapped hole or by using a hollow bolt with banjo end fitting. Use a new copper sealing washer on each side of the banjo union.

3 To unscrew the union nuts, it is preferable to obtain a brake pipe spanner of the correct size; these are available from most large motor accessory shops. Failing this, a close-fitting open-ended spanner will be required, though if the nuts are tight or corroded, their flats may be rounded-off if the spanner slips. In such a case, a self-locking wrench is often the only way to unscrew a stubborn union, but it follows that the pipe and the damaged nuts must be renewed 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 pipe is to be renewed, it can be obtained, cut to length and with the union nuts and end flares in place, from Peugeot dealers. 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 motor accessory shops can make up brake pipes 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 Before refitting, blow through the new pipe or hose with dry compressed air. Do not overtighten the union nuts. It is not necessary to exercise brute force to obtain a sound joint.

6 If flexible rubber hoses are renewed, ensure that the pipes and hoses are correctly routed, with no kinks or twists, and that they are secured in the clips or brackets provided.

7 After fitting, bleed the hydraulic system as described in Section 2, wash off any spilt fluid, and check carefully for fluid leaks.

4 Front brake pads - renewal

Warning: Disc brake pads must be renewed on both front wheels at the same time - never renew the pads on only one wheel as uneven braking may result. Dust created by wear of the pads may contain asbestos, which is a health hazard. Never blow it out with compressed air and do not inhale any of it. DO NOT use petroleum-based solvents to clean brake parts. Use brake cleaner or methylated spirit only. DO NOT allow any brake fluid, oil or grease to contact the brake pads or disc. Also refer to the warning at the start of Section 2 concerning the dangers of hydraulic fluid.

All models except 1.9 GTI

1 Chock the rear wheels then jack up the front of the car and support it on axle stands (see *"Jacking and vehicle support"*). Remove the front roadwheels.

2 Note that two different types of brake caliper may be fitted according to model and year. Identify the type fitted, with reference to the accompanying illustrations or the caliper itself, then proceed as described under the relevant sub-heading.

DBA Bendix caliper

3 Remove the clip from the end of the upper sliding key. Disconnect the pad wear wiring connector as necessary **(see illustrations)**.

4 Pull out the upper sliding key **(see illustration)**.

5 Using a lever against the front suspension strut, push the cylinder towards the brake disc so that the outer pad can be withdrawn from the caliper **(see illustration)**.

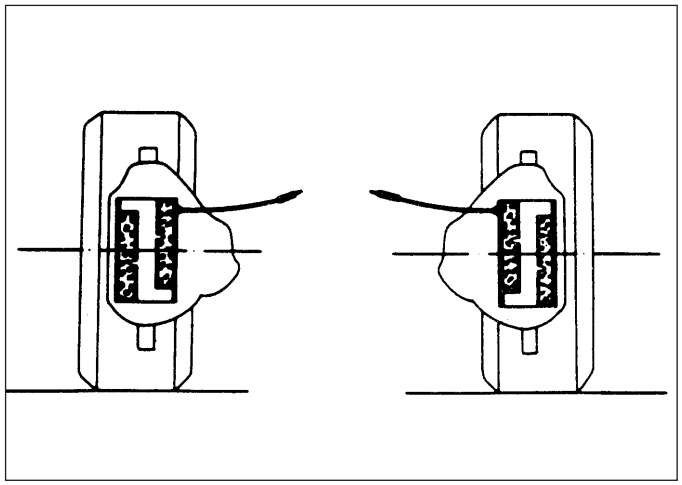
6 Push back the caliper and withdraw the inner pad **(see illustration)**. Make a note of the correct fitted position of the anti-rattle springs and remove the spring from each pad.

7 Clean away all dust and dirt from the caliper. Check for brake fluid leakage around the piston dust seal and, if evident, overhaul the caliper, as described later in this Chapter. Check the brake disc for wear and also check that the rubber bellows on the cylinder sliding rods are in good condition.

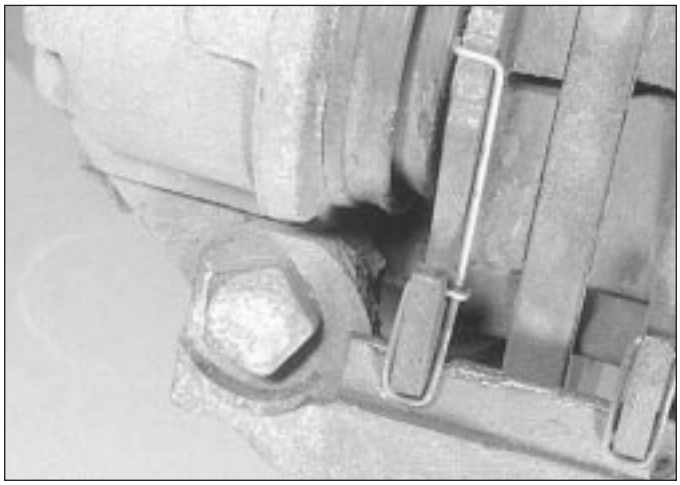
8 Clean the backs of the brake pads and apply a little anti-squeal brake grease. Also apply the grease to the lower pad locating lip of the caliper.

4.5 Removing the outer pad (DBA Bendix caliper)

4.6 Removing the inner pad (DBA Bendix caliper)



4.9 Correct orientation of offset brake pads viewed from front of vehicle (DBA Bendix caliper)



4.10 Fitted position of the anti-rattle springs on the brake pads (DBA Bendix caliper)

9 With the caliper pushed inwards, insert the inner pad then push the caliper outwards and insert the outer pad. If offset pads are fitted, it is important to fit these pads in the correct positions as shown **(see illustration)**. The inner pads with pad wear wires must be located at the top of the caliper.

10 Check that the pads are correctly positioned on the caliper lip and with the anti-rattle springs in place **(see illustration)** then tap in the upper sliding key to lock them. Fit the sliding key clip.

Girling caliper

11 Extract the spring clips and tap out the pad retaining pins. Disconnect the pad wear wiring as necessary **(see illustration)**.

12 Lever the cylinder outwards and withdraw the outer pad then push in the caliper and withdraw the inner pad. Recover the anti-squeal shims (if fitted) noting their positioning with regards to the pad retaining pins - refer to paragraph 14.

13 Clean and check the caliper, as described in paragraph 7, then clean the backs of the pads and apply a little anti-squeal brake grease. Note that, as from early 1985, a special spring is fitted to the inner pads to prevent pad knock within the caliper. The spring (obtainable from Peugeot dealers) may be fitted to earlier models by tapping the inner pad control rivet through the backing plate so that the clip may be located on both sides **(see illustration)**.

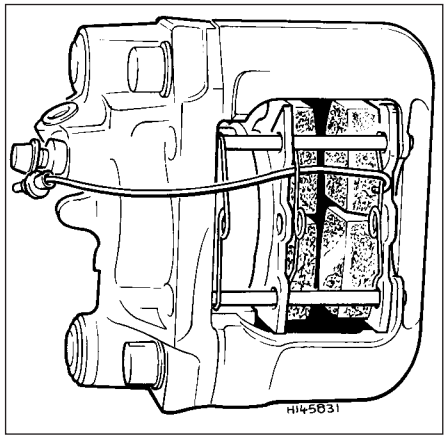
14 With the caliper pushed inwards, insert the inner pad then push the caliper outwards and insert the outer pad. Note that from chassis no 5 600 000, an anti-squeal shim was fitted between the inner pads and the caliper pistons, being located on both upper and lower pad retaining pins. However, as from chassis no 5 957 000, the shim was modified, being located only on the lower pad retaining pin **(see illustrations)**. When fitting the anti-squeal shims, the arrow cut-out must face downwards (ie in the forward rotational direction of the disc).

15 Tap in the pad retaining pins and fit the spring clips.

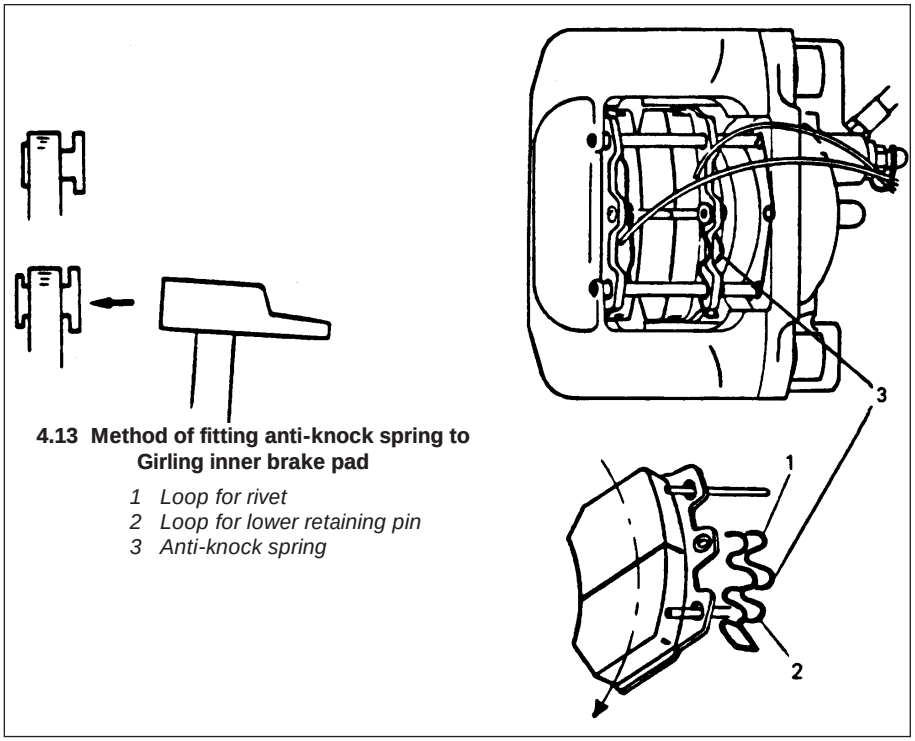
16 Where fitted, hook the anti-knock spring on the lower pad retaining pin.

1.9 GTI models

17 Chock the rear wheels then jack up the front of the car and support it on axle stands (see *"Jacking and vehicle support"*). Remove the front roadwheels.

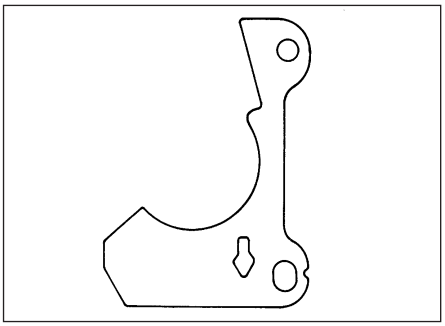


4.11 Girling brake caliper and pad arrangement

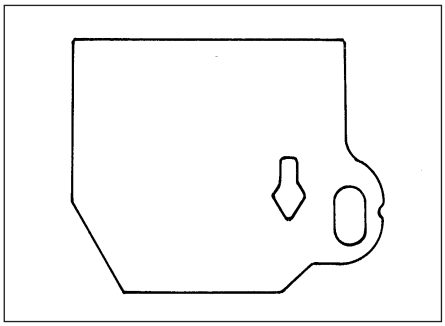


4.13 Method of fitting anti-knock spring to Girling inner brake pad

1 Loop for rivet
2 Loop for lower retaining pin
3 Anti-knock spring



4.14a Early type anti-squeal shim (Girling caliper)



4.14b Later type anti-squeal shim (Girling caliper)

4.19 Unscrewing the lower caliper guide pin bolt (1.9 GTI)

18 Disconnect the wire for the pad wear warning light.
19 Hold the lower guide stationary with one spanner, then unscrew the bolt **(see illustration)**.
20 Swivel the caliper upwards, then withdraw the two brake pads from the caliper bracket **(see illustrations)**.
21 Clean and check the caliper, as described in paragraph 7.
22 Push the piston fully into the cylinder.
23 Clean the backs of the pads, and apply a little anti-squeal brake grease. Refit the inner pad (with the pad wear warning wire), then the outer pad.
24 Lower the caliper. Apply locking fluid to the lower guide bolt, insert it, and tighten to the specified torque while holding the guide stationary with another spanner.
25 Reconnect the pad wear warning light wire.

All calipers

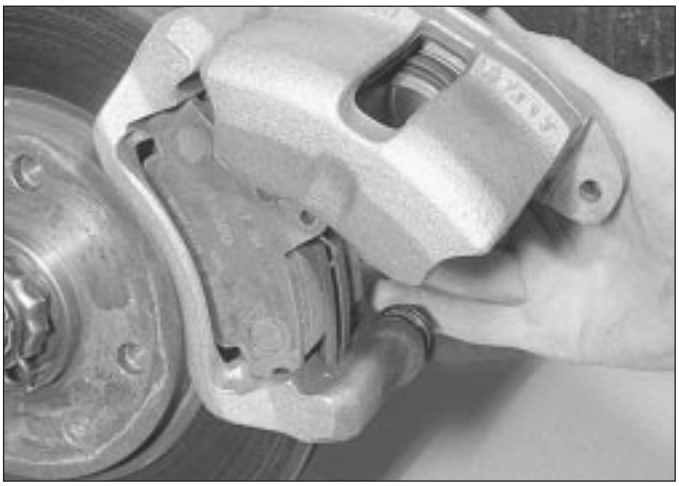
26 Repeat the operations on the opposite disc caliper.
27 Apply the footbrake several times to position the pads against the discs.
28 Top-up the master cylinder reservoir to its correct level.
29 Refit the roadwheels and lower the car to the ground.
30 Note that if genuine Peugeot replacements have been fitted, these pads have a thin coating of abrasive material, which cleans the disc during the initial applications of the brakes. This coating also removes any disc imperfections which would cause steering vibration. After fitting these pads, the brakes must be applied lightly and intermittently for the first 3 miles (5 km), then "bedded-in" for 120 miles (200 km), avoiding heavy or prolonged braking wherever possible.

5 Rear brake shoes - renewal

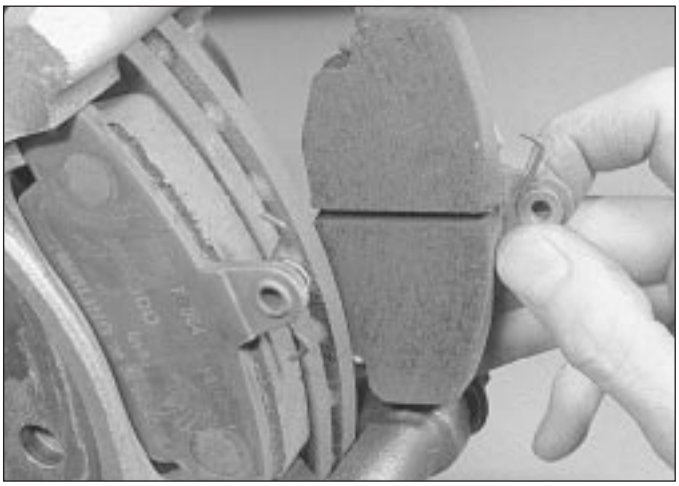
Warning: Brake shoes must be renewed on both rear wheels at the same time - never renew the shoes on only one wheel, as uneven braking may result. Also, the dust created by wear of the shoes may contain asbestos, which is a health hazard. Never blow it out with compressed air, and don't inhale any of it. An approved filtering mask should be worn when working on the brakes. DO NOT use petrol or petroleum-based solvents to clean brake parts; use brake cleaner or methylated spirit only.

Note*: The rear brake shoe assemblies may be of either DBA Bendix or Girling manufacture, according to model and year. The components may vary in detail, but the principles described in the following paragraphs are equally applicable to both types. Make a careful note of the fitted positions of all components before dismantling.*

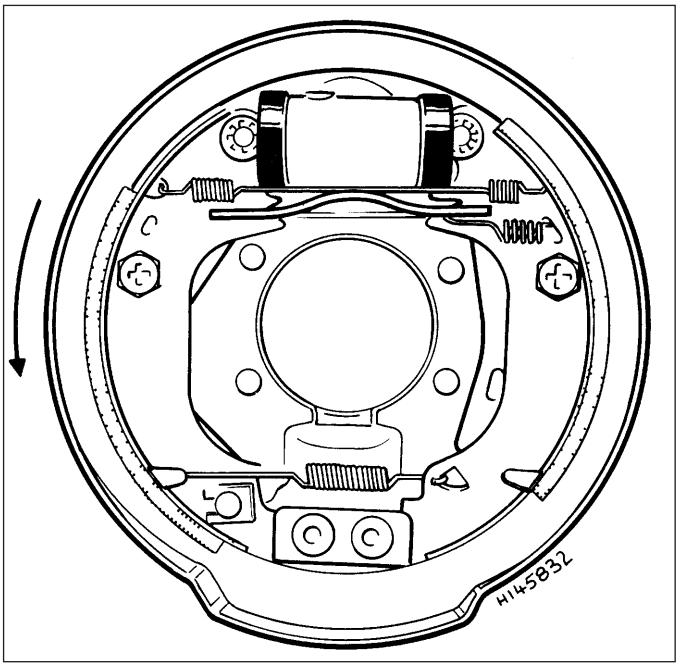
1 Remove the relevant hub/drum as described in Section 11.
2 Brush the dust and dirt from the shoes, backplate and drum.
3 Note the position of each shoe and the location of the return and steady springs **(see illustrations)**.
4 Unhook and remove the upper return spring **(see illustration)**.
5 Remove the steady springs using pliers to depress the outer cups and turn them through 90° **(see illustration)**. Remove the pins from the backplate.
6 Move the serrated automatic adjuster lever quadrant against spring tension **(see illustration)**, move the lever forwards and release the strut from the top of the shoes (DBA Bendix type only).



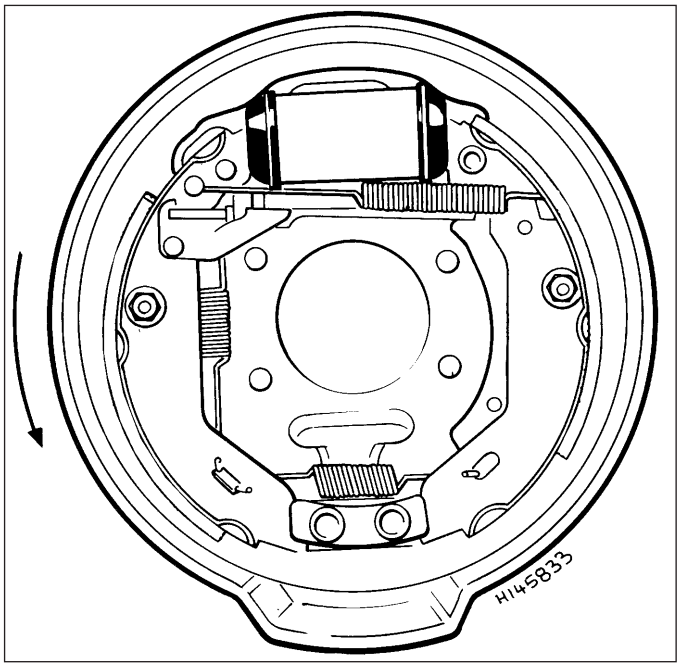
4.20a Swivel the caliper upwards . . .



4.20b . . . then withdraw the two brake pads (1.9 GTI)



5.3a DBA Bendix type rear brake component layout



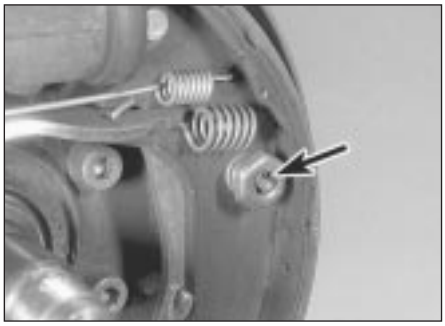
5.3b Girling type rear brake component layout

7 Expand the shoes over the wheel cylinder then release them from the bottom anchor.
8 Unhook the lever return spring and the handbrake cable.
9 If necessary, position a rubber band over the wheel cylinder to prevent the pistons coming out. Should there be evidence of brake fluid leakage from the wheel cylinder, renew it or overhaul it, as described in Section 10.
10 Transfer the handbrake and automatic adjuster levers to the new shoes as required. Note that the levers and strut on each rear wheel are different, and that the leading and trailing shoes are fitted with different grade linings.
11 Place the shoes on the bench in their correct location and fit the lower return spring.
12 Apply brake grease sparingly to the metal contact points of the shoes, then position them on the backplate and reconnect the handbrake cable. Locate the shoe ends on the bottom anchor.
13 Engage the strut with the slots at the top of the shoes, making sure it is located correctly on the automatic adjuster lever. Engage the upper shoe ends on the wheel cylinder pistons.
14 Insert the steady spring pins in the backplate and through the shoe webs, then fit the springs and outer cups.
15 Fit the upper return spring.
16 Move the serrated automatic adjuster lever quadrant against the spring tension to set the shoes at their minimum diameter.
17 Check that the handbrake lever on the rear brake shoe is positioned with the lug on the edge of the shoe web and not behind the shoe.
18 Refit the hub/drum as described in Section 11, but do not lower the car to the ground at this stage.
19 Apply the footbrake several times to set the shoes in their adjusted position.
20 Adjust the handbrake, as described in Section 15.
21 Repeat all the operations on the opposite rear brake then refit the roadwheels and lower the car to the ground.

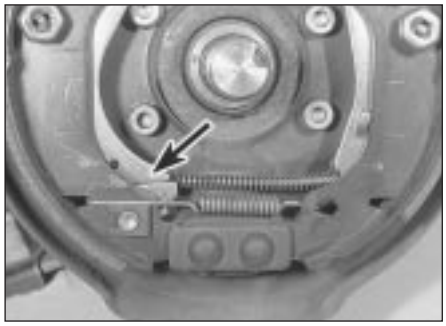
6 Rear brake pads (1.9 GTI models) - renewal

Warning: Disc brake pads must be renewed on both rear wheels at the same time - never renew the pads on only one wheel as uneven braking may result. Dust created by wear of the pads may contain asbestos, which is a health hazard. Never blow it out with compressed air and do not inhale any of it. DO NOT use petroleum-based solvents to clean brake parts. Use brake cleaner or methylated spirit only. DO NOT allow any brake fluid, oil or grease to

5.4 Upper return spring location (DBA Bendix type)

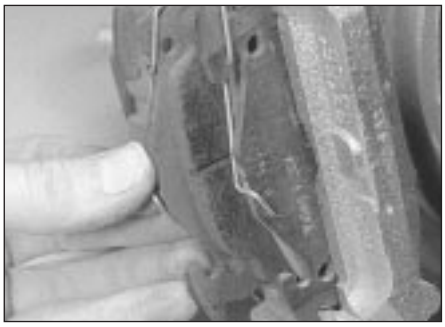


5.5 Shoe steady springs - arrowed (DBA Bendix type)



5.6 Automatic adjuster lever - arrowed (DBA Bendix type)

6.2 Brake pad locking key spring clip (arrowed)



6.3 Removing the rear brake pads

contact the brake pads or disc. Also refer to the warning at the start of Section 2 concerning the dangers of hydraulic fluid.

1 Chock the front wheels then jack up the rear of the car and support it on axle stands (see *"Jacking and vehicle support"*). Remove the rear roadwheels and ensure that the handbrake is released.

2 Extract the spring clip **(see illustration)** and slide out the locking key retaining the bottom of the pads.

3 Withdraw the brake pads using pliers, while pressing down on the upper locating ears **(see illustration)**.

4 Clean away all dust and dirt. Check for brake fluid leakage around the piston dust seal, and if evident, overhaul the caliper using the basic procedure described in Section 7. Check the brake disc for wear, and also check that the rubber bellows on the guides are in good condition.

5 The automatic handbrake adjustment must now be retracted, in order to accommodate the new disc pads. To do this, turn the piston using a screwdriver in the grooves **(see illustration)**, at the same time using a second screwdriver to apply an outward force to the caliper. Do not damage the brake disc while carrying out this procedure.

6 Set the piston so that the mark is horizontal, and either above or below the piston groove **(see illustration)**.

7 Apply a little anti-squeal brake grease to the pad contact areas on the caliper.

8 Locate the two brake pads in the caliper, pressing the upper ears fully into position.

9 Slide the locking key into the caliper, and secure with the spring clip.

10 Fully depress the brake pedal several times to set the automatic adjuster and position the brake pads in their normal position.

11 Repeat the operations on the opposite disc caliper.

12 Check the fluid level in the master cylinder reservoir, and top-up if necessary.

13 Refit the roadwheels and lower the car to the ground.

7 Front brake caliper - removal, overhaul and refitting

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

Removal

1 Remove the brake pads as described in Section 4.

2 To minimise fluid loss, unscrew the master cylinder reservoir filler cap and place a piece of polythene over the filler neck. Secure the polythene with an elastic band ensuring that an airtight seal is obtained. Alternatively, use a brake hose clamp, a G-clamp, or a similar tool with protected jaws, to clamp the front flexible hydraulic hose.

3 Clean the area around the hydraulic hose-to-caliper union, then slacken the hose union half a turn. Be prepared for fluid spillage.

4 Unscrew the two mounting bolts or upper guide bolt, as applicable, withdraw the caliper from the disc then unscrew the caliper from the flexible hose **(see illustration)**. Plug the hose to prevent loss of fluid.

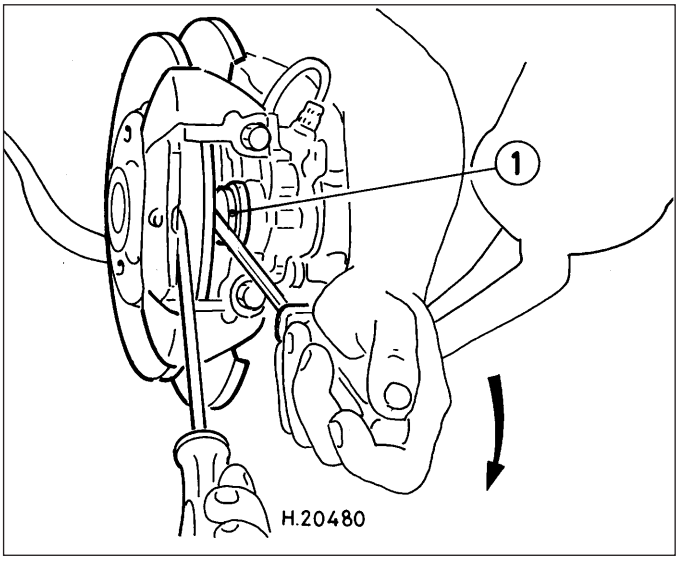
5 Clean the exterior of the caliper.

6 On the Bendix type, unbolt the caliper frame from the cylinder.

Overhaul

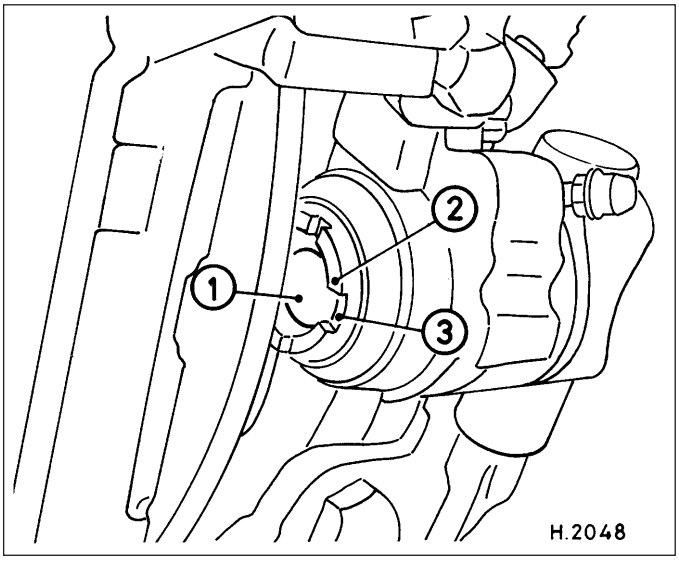
7 Prise the dust cover and ring from the end of the piston **(see illustrations)**.

8 Withdraw the piston from the cylinder. If necessary use air pressure from a foot pump in the fluid inlet to force the piston out.



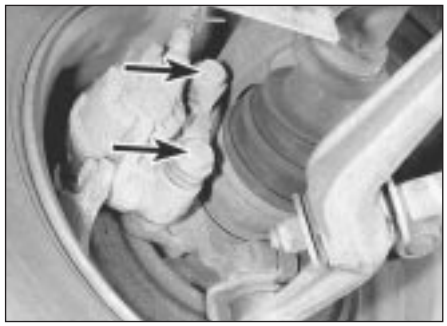
6.5 Turning the caliper piston to retract the automatic handbrake adjuster

1 Piston



6.6 Correct final position of caliper piston

1 Piston 2 Mark 3 Groove



7.4 Brake caliper mounting bolts - arrowed (DBA Bendix type)

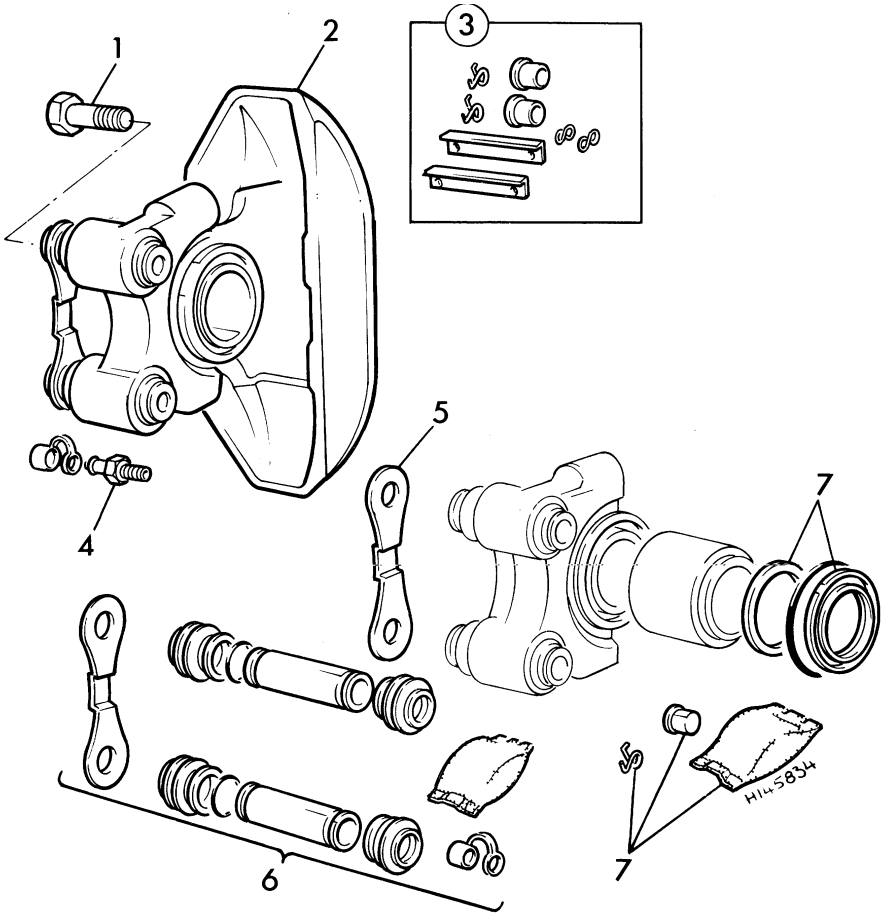
9 Prise the seal from inside the cylinder, taking care not to damage the cylinder wall.
10 If required, dismantle the sliding guides. On the Bendix type unbolt the endplate from the guides and remove the rubber dust covers. Keep the guides identified for location.
11 Clean all the components using methylated spirit or clean brake fluid then examine them for wear and damage. Check the piston and cylinder surfaces for scoring, excessive wear and corrosion, and if evident renew the complete caliper assembly. Similarly check the sliding guides. If the components are in good condition obtain a repair kit which will contain all the necessary rubber seals and other renewable items.
12 Dip the new seal in fresh brake fluid then locate it in the cylinder groove using the fingers only to manipulate it.
13 Dip the piston in brake fluid and insert it in the cylinder, twisting it as necessary to locate it in the seal.
14 Fit the dust cover and ring over the end of the piston and cylinder.
15 Lubricate the sliding guides with the grease supplied and refit them, together with the new seals. On the Bendix type refit the endplate and tighten the bolts.
16 On the Bendix type, refit the caliper frame and tighten the bolts.

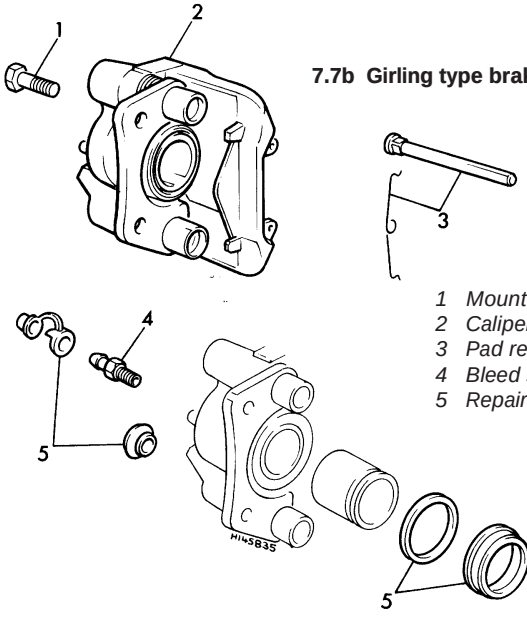
Refitting

17 To refit the caliper, first screw it onto the flexible hose and locate it over the brake disc so that the hose is not twisted.
18 Clean the mounting bolt threads and apply locking fluid. Insert the mounting bolts or upper guide bolt and tighten to the specified torque.
19 Tighten the flexible hose union on the caliper. Check that the hose is clear of the strut and surrounding components and, if necessary, loosen the rigid pipe union on the body bracket, reposition the hose and retighten the union.
20 Refit the brake pads, as described in Section 4.
21 Remove the brake hose clamp or polythene sheeting and bleed the hydraulic system, as described in Section 2.

7.7a DBA Bendix type brake caliper components

1 Mounting bolt
2 Caliper assembly
3 Sliding key kit
4 Bleed screw
5 Retaining plate
6 Sliding guide kit with grease
7 Repair kit with grease





7.7b Girling type brake caliper components

1 Mounting bolt
2 Caliper assembly
3 Pad retaining pin and spring
4 Bleed screw
5 Repair kit

8 Rear brake caliper (1.9 GTI models) - removal, overhaul and refitting

Note: *Before starting work, refer to the warning at the beginning of Section 2 concerning the dangers of hydraulic fluid, and to the warning at the beginning of Section 6 concerning the dangers of asbestos dust*.

Removal

1 Remove the brake pads as described in Section 6.
2 To minimise fluid loss, unscrew the master cylinder reservoir filler cap and place a piece of polythene over the filler neck. Secure the polythene with an elastic band ensuring that an airtight seal is obtained. Alternatively, use a brake hose clamp, a G-clamp, or a similar tool with protected jaws, to clamp the rear flexible hydraulic hose.
3 Clean the area around the hydraulic hose-to-caliper union, then slacken the hose union half a turn. Be prepared for fluid spillage.
4 Unhook the handbrake cable from the lever on the caliper, and withdraw the outer cable **(see illustration)**.
5 Unscrew the two mounting bolts, withdraw the caliper from the disc, then unscrew the caliper from the brake hose. Plug the hose to prevent loss of fluid.

Overhaul

6 This is essentially the same procedure as that described in Section 7 for the front caliper.

Refitting

7 To refit the caliper, first screw it onto the brake hose and locate it over the brake disc, so that the hose is not twisted.
8 Clean the mounting bolt threads, and apply a little locking fluid. Insert the bolts together with the anti-rotation plate, and tighten them to the specified torque.
9 Tighten the brake hose union.
10 Insert the handbrake outer cable, and re-connect the inner cable to the lever.
11 Refit the brake pads as described in Section 6.

8.4 Handbrake cable attachment at rear brake caliper

12 Remove the brake hose clamp or polythene sheeting, and bleed the hydraulic system as described in Section 2.
13 Check and if necessary adjust the handbrake, as described in Section 15.

9 Brake disc - inspection, removal and refitting

Note: *Before starting work, refer to the warning at the beginning of Section 4 concerning the dangers of asbestos dust*.

Inspection

Note: *If a disc requires renewal, BOTH discs on the same axle should be renewed at the same time (ie both front or both rear) to ensure even and consistent braking. New brake pads should also be fitted.*
1 Remove the brake pads as described in Section 4 or 6 as applicable.
2 Inspect the disc friction surfaces for cracks or deep scoring (light grooving is normal and may be ignored). A cracked disc must be renewed; a scored disc can be reclaimed by machining provided that the thickness is not reduced below the specified minimum.
3 Check the disc run-out using a dial test indicator with its probe positioned near the outer edge of the disc. If the run-out exceeds the figures given in the *Specifications*, machining may be possible, otherwise disc renewal will be necessary.

> **HAYNES HiNT** ***If a dial test indicator is not available, check the run-out by positioning a fixed pointer near the outer edge, in contact with the disc face. Rotate the disc and measure the maximum displacement of the pointer with feeler blades.***

4 Excessive disc thickness variation can also cause judder. Check this using a micrometer. No actual thickness variation figures are provided by the manufacturer, but as a general guide, 0.010 mm should be considered a maximum.

Removal

5 On certain models, it may be necessary to remove the brake caliper with reference to Section 7 or 8 in order to allow sufficient clearance to remove the disc. Note that there is no need to disconnect the flexible hose from the caliper. Support the caliper with wire or string, taking care not to strain the hose.
6 To remove the disc, unscrew the two cross-head screws (where fitted) and withdraw the disc, tilting it as necessary to clear the hub and caliper if the caliper is still fitted.

Refitting

7 Refitting is a reversal of removal, but make sure that the disc-to-hub mating surfaces are clean and that the securing screws are tightened fully. If the caliper has been removed, coat the caliper mounting bolt threads with locking fluid on refitting. Refer to Section 4 or 6 when refitting the disc pads.

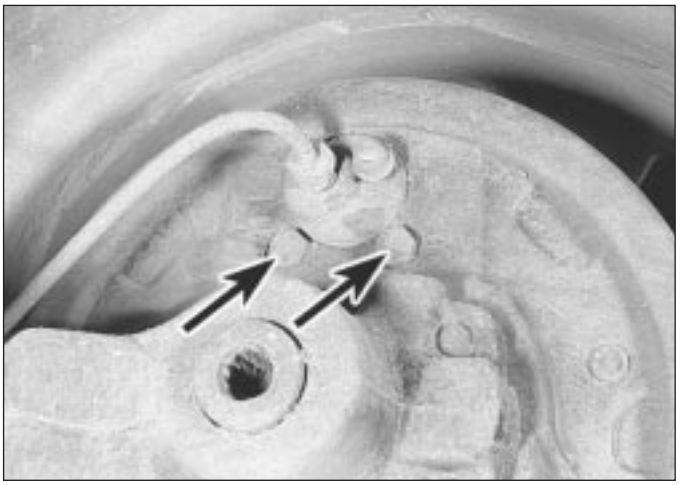
10 Rear wheel cylinder - removal, overhaul and refitting

Note: *Before starting work, refer to the warning at the beginning of Section 2 concerning the dangers of hydraulic fluid, and to the warning at the beginning of Section 5 concerning the dangers of asbestos dust.*

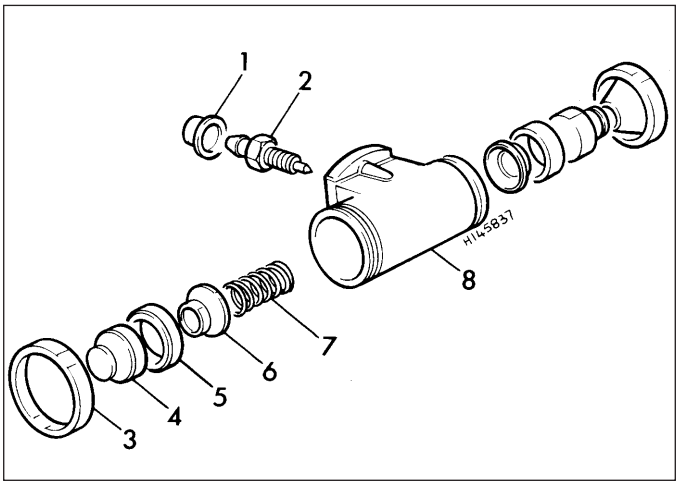
Removal

1 Chock the front wheels then jack up the rear of the car and support it on axle stands (see *"Jacking and vehicle support"*). Remove the rear roadwheels and ensure that the handbrake is released.
2 Remove the hub/drum, as described in Section 11.
3 Note the location of the brake shoe upper return spring then unhook and remove it.
4 Pull the handbrake lever on the rear shoe fully forwards so that the upper ends of the shoes are clear of the wheel cylinder. Wedge the lever in this position using a block of wood.
5 To minimise fluid loss, unscrew the master cylinder reservoir filler cap and place a piece of polythene over the filler neck. Secure the polythene with an elastic band ensuring that an airtight seal is obtained. Alternatively, use a brake hose clamp, a G-clamp, or a similar tool with protected jaws, to clamp the flexible hydraulic hose supplying the rear brakes **(see illustration)**.
6 Unscrew the hydraulic pipe union nut from the rear of the wheel cylinder.
7 Unscrew the two mounting bolts and withdraw the wheel cylinder from the backplate **(see illustration)**. Take care not to spill any brake fluid on the brake shoe linings.
8 Clean the exterior of the wheel cylinder. Note that on all models with a diagonally split hydraulic circuit the rear wheel cylinders incorporate compensators which **must not** be dismantled.

10.5 To minimise fluid loss, fit a brake hose clamp to the flexible hose



10.7 Rear wheel cylinder mounting bolts (arrowed)



10.9 Exploded view of a rear wheel cylinder

1 Cap
2 Bleed screw
3 Dust excluder
4 Piston
5 Seal
6 Spring seat
7 Spring
8 Body

Overhaul

9 Pull off the dust excluders **(see illustration)**.

10 Extract the pistons, seals and return spring; keeping each component identified for location.

11 Check the surfaces of the cylinder bore and pistons for scoring and corrosion and, if evident, renew the complete wheel cylinder. If the components are in good condition discard the seals and obtain a repair kit which will contain all the necessary renewable components.

12 Clean the pistons and cylinder with methylated spirit or clean brake fluid then dip each component in fresh brake fluid and reassemble in reverse order; making sure that the lips of the seals face into the cylinder. When completed, wipe clean the outer surfaces of the dust excluders.

Refitting

13 Clean the backplate and refit the wheel cylinder using a reversal of the removal procedure. Refer to Section 11 when refitting the hub/drum.

14 Make sure that the brake hose clamp or polythene sheeting is removed then bleed the hydraulic system, as described in Section 2.

11 Rear brake hub/drum - removal, inspection and refitting

Note*: Before starting work, refer to the warning at the beginning of Section 5 concerning the dangers of asbestos dust.*

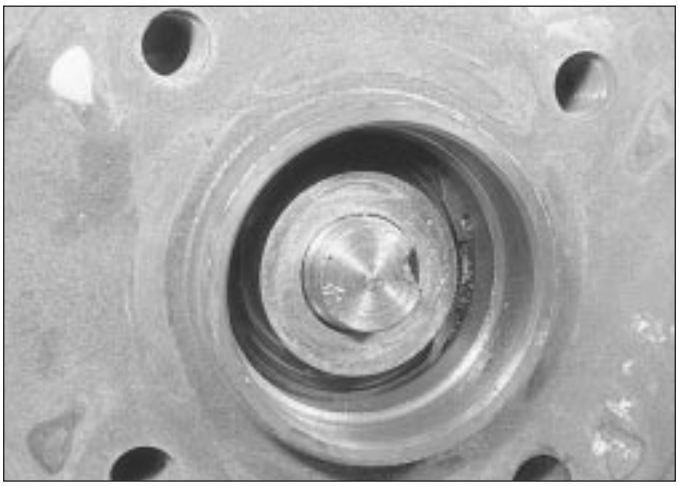
Removal

1 Chock the front wheels then jack up the rear of the car and support it on axle stands (see *"Jacking and vehicle support"*). Remove the rear roadwheels and ensure that the handbrake is released.

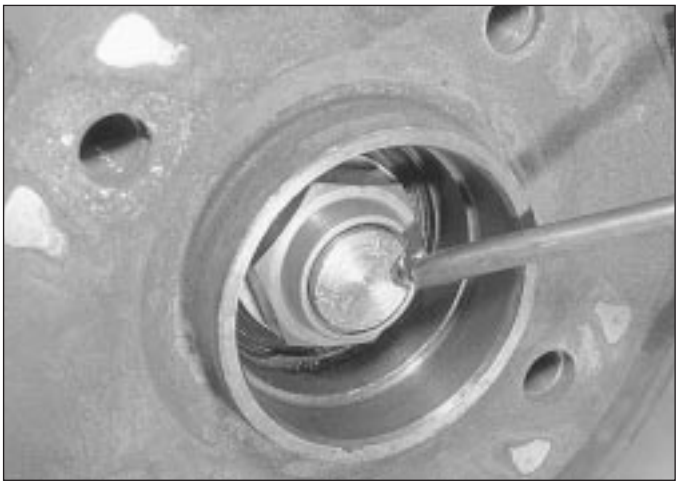
2 Tap off the grease cap, taking care not to damage its outer lip, then relieve the staking on the rear hub nut, using a suitable drift or chisel. Unscrew the nut and recover the washer **(see illustrations)**. Should the stub axle rotate within the trailing arm, hold it stationary with a suitable Allen key on the inner. Note that a new rear hub nut will be required for refitting.

3 Withdraw the hub/drum from the stub axle. If difficulty is experienced, due to the shoes wearing grooves in the drum, insert a screwdriver through one of the wheel bolt holes and depress the handbrake lever on the rear brake shoe so that it slides back behind the shoe. This will retract the shoes and allow the hub/drum to be removed.

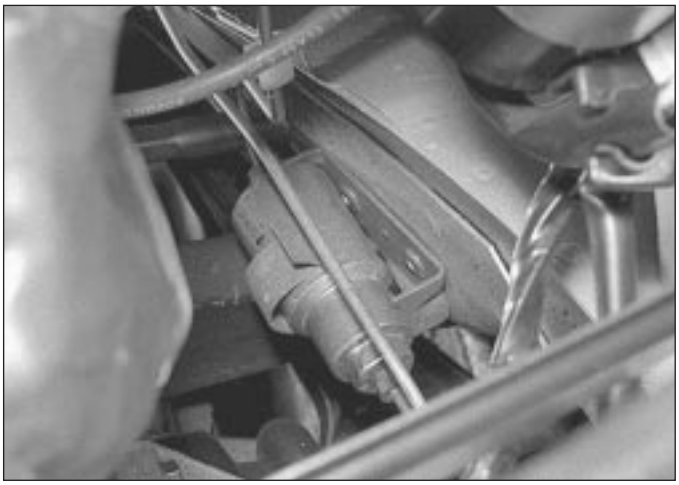
11.2a Unscrew the rear hub nut . . .



11.2b . . . and remove the washer



11.9 Lock the hub nut by staking the nut flange into the groove on the stub axle



13.1 Rear brake compensator fitted to 1.6 GTI models

Inspection

4 Brush the dust and dirt from the brake drum and carefully inspect the drum interior.
5 If the drum is grooved, owing to failure to renew worn brake shoes or after a very high mileage has been covered, then it may be possible to regrind it, provided the maximum internal diameter is not exceeded.
6 Even if only one drum is in need of grinding both drums must be reground to the same size in order to maintain even braking characteristics.
7 Judder or a springy pedal felt when the brakes are applied can be caused by a distorted (out-of-round) drum. Here again it may be possible to regrind the drums, otherwise a new drum will be required.

Refitting

8 Fit the hub/drum on the stub axle and retain with the washer and new hub nut.
9 Tighten the nut to the specified torque then lock it by staking the nut flange into the groove on the stub axle **(see illustration)**.
10 Tap the grease cap into the hub/drum.
11 Refit the roadwheels and lower the car to the ground.

12 Master cylinder - removal, overhaul and refitting

Note*: Before starting work, refer to the warning at the beginning of Section 2 concerning the dangers of hydraulic fluid*.

Removal

1 Unscrew the filler cap from the master cylinder fluid reservoir and drain off the fluid.

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An ideal way to remove fluid from the master cylinder reservoir is to use a clean syringe or an old poultry baster.

2 Prise the reservoir from the master cylinder and remove the seals.
3 Unscrew the union nuts securing the rigid brake lines to the master cylinder and pull out the lines. Cap the pipe ends to prevent loss of fluid.
4 Unscrew the mounting nuts and withdraw the master cylinder from the bulkhead or servo unit, as applicable. Remove the gasket on non-servo models.

Overhaul

5 Clean the exterior of the master cylinder. It is not possible to overhaul the master cylinder fitted to non-servo models, therefore if it is known to be leaking or damaged the complete master cylinder must be renewed. On servo models proceed as follows.
6 Using circlip pliers, extract the circlip from the mouth of the cylinder.
7 Remove the primary and secondary piston components noting their locations. If necessary tap the cylinder on a block of wood.
8 Clean all the components in methylated spirit. Check the surfaces of the cylinder bore and pistons for scoring and corrosion, and if evident renew the complete master cylinder. If the components are in good condition remove and discard the seals and obtain a repair kit which will contain all the necessary renewable components.
9 Dip the new seals in fresh brake fluid and fit them to the pistons using the fingers only to manipulate them.
10 Reassemble the master cylinder in reverse order to dismantling and make sure that the circlip is fully engaged with the groove in the mouth of the cylinder.
11 On non-servo models check that the brake pedal pushrod protrudes from the bulkhead by between 9.0 and 9.6 mm. If not, loosen the locknuts and adjust the position of the stop light switch inside the car on the pedal bracket.

Refitting

12 Refitting is a reversal of removal, but fit a new gasket on non-servo models. Finally bleed the complete hydraulic system, as described in Section 2.

13 Rear brake compensator (GTI models) - information, removal and refitting

Note*: Before starting work, refer to the warning at the beginning of Section 2 concerning the dangers of hydraulic fluid*.

1.6 GTI models

General information

1 On 1.6 GTI models the brake hydraulic circuit is split front-to-rear, and an inertia type compensator is incorporated in the rear brake circuit to prevent rear wheel lock-up during hard braking. The compensator is located in the engine compartment on the lower left-hand side panel **(see illustration)**, and incorporates a steel ball which stops fluid entry to the rear circuit at a preset deceleration.

Removal

2 To minimise fluid loss, unscrew the master cylinder reservoir filler cap and place a piece of polythene over the filler neck. Secure the polythene with an elastic band ensuring that an airtight seal is obtained.
3 Chock the rear wheels then jack up the front of the car and support it on axle stands (see *"Jacking and vehicle support"*). Remove the relevant front roadwheel.
4 Unscrew the union nuts and disconnect the rigid hydraulic lines from each end of the unit while holding the unit on the flats provided.
5 Unbolt the clamp and withdraw the compensator.

Refitting

6 Refitting is a reversal of removal, but note that the nose of the unit must face forwards and be inclined upwards at an angle of 22° to the horizontal. Provided that the mounting bracket is undamaged, this angle will automatically be achieved. Finally bleed the rear hydraulic circuit, as described in Section 2.

1.9 GTI models

General information

7 On 1.9 GTI models, the hydraulic circuit is split diagonally and two compensators are fitted. Each compensator is located in the rear circuit near the rear wheel **(see illustration)**. They are of fixed calibration, and not load-sensitive.

Removal

8 To minimise fluid loss, unscrew the master cylinder reservoir filler cap and place a piece of polythene over the filler neck. Secure the polythene with an elastic band ensuring that an airtight seal is obtained.

9 Chock the front wheels then jack up the rear of the car and support it on axle stands (see *"Jacking and vehicle support"*).

10 Unscrew the union nuts and disconnect the rigid hydraulic lines from each end of the unit while holding the unit on the flats provided. Ease out the pipes and remove the compensator from under the car.

11 Note that from December 1988, modified compensators have been fitted. The modified components can be identified by the letter on the compensator body. Early components have the identifying letter "F", while later components have the identifying letter "E". The later components can be used to replace the early components, but both compensators must be of the same type.

Refitting

12 Refitting is a reversal of removal. Bleed the relevant hydraulic circuit, as described in Section 2 on completion.

14 Vacuum servo unit - testing, removal and refitting

Testing

1 With the engine switched off, depress the brake pedal several times. The distance by which the pedal moves should now alter over all applications.

2 Depress the brake pedal fully and hold it down then start the engine. The pedal should be felt to move downward slightly.

3 Hold the pedal depressed with the engine running, switch off the ignition and continue to hold the pedal depressed for 30 seconds during which period the pedal should neither rise nor drop.

13.7 Rear brake compensator fitted to 1.9 GTI models

4 Start the engine whilst the brake pedal is released, run it for a minute and switch off. Give several applications of the brake pedal. The pedal travel should decrease with each application.

5 Failure of the brake pedal to act in the way described will indicate a fault in the servo unit.

6 The servo unit should not be serviced or overhauled beyond the operations described in this Section and in the event of a fault developing, renew the servo complete.

7 Periodically check the condition of the vacuum hose and security of the clips.

8 Renew the hose if necessary.

9 If the servo hose right-angled non-return valve is loose in its sealing grommet, or if the grommet shows evidence of cracking or perishing, renew it. Apply some hydraulic fluid to the rubber to facilitate fitting.

Air filter renewal

10 Although not a specified operation, the air filter through which the pushrod passes at the rear of the servo can become clogged after a high mileage. Disconnect the rod from the pedal, cut the filter diagonally having slipped the dust excluder off the rod. Fit the new filter.

Servo unit removal

11 Remove the master cylinder, as described in Section 12. Disconnect the servo vacuum hose.

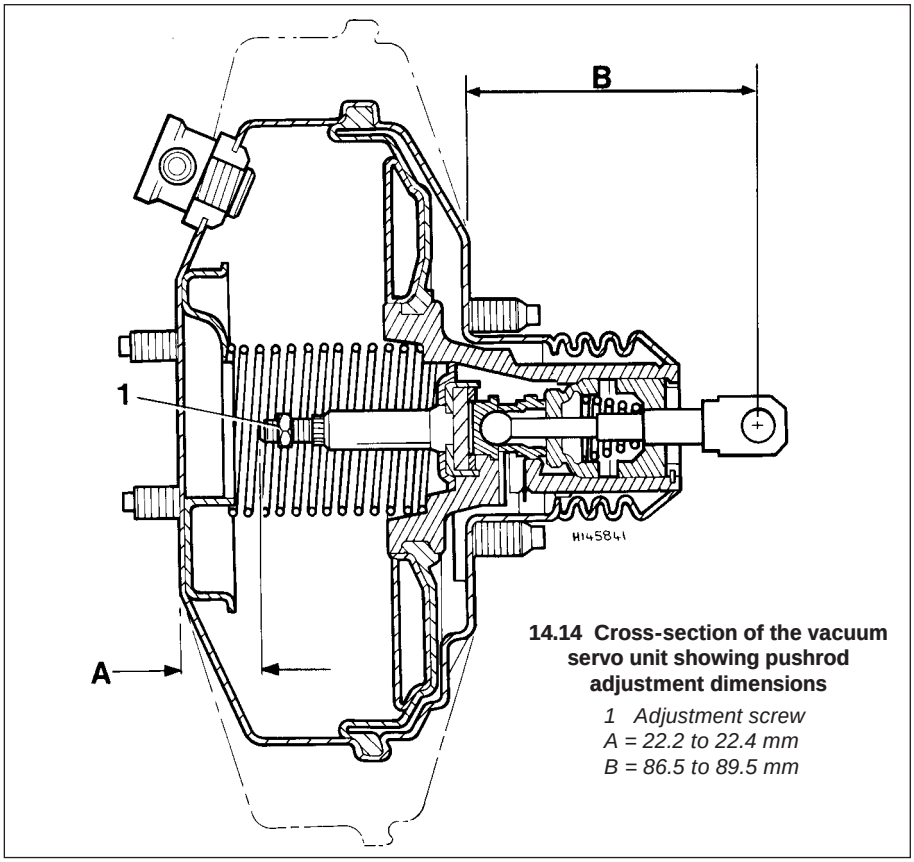
12 Working inside the car, disconnect the pushrod from the brake pedal; noting that it is on the lower hole.

13 Unscrew the mounting nuts behind the pedal bracket then withdraw the servo unit into the engine compartment. Remove the gasket.

Servo unit refitting

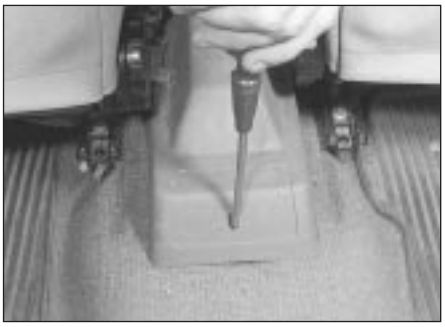
14 Before fitting a servo unit, check the pushrod dimensions and adjust where possible **(see illustration)**.

15 Refitting is a reversal of removal, but fit a new gasket and fully tighten the mounting nuts. Note that the pushrod is fitted to the lower hole of the two on the brake pedal. Refer to Section 12 when refitting the master cylinder. Finally, with the brake pedal released, check that the clearance between the stop light switch threaded shank and pedal is 3.5 mm. If necessary loosen the locknuts, adjust the switch and tighten the locknuts.

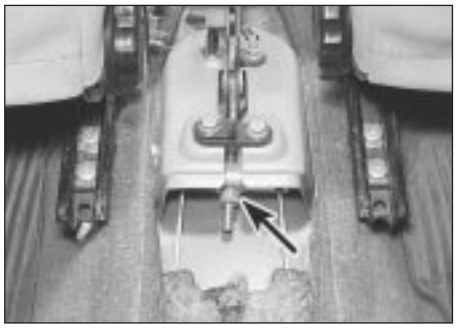


14.14 Cross-section of the vacuum servo unit showing pushrod adjustment dimensions

1 Adjustment screw
A = 22.2 to 22.4 mm
B = 86.5 to 89.5 mm



15.4 Remove the screw and lift the cover from the handbrake lever



15.5 Handbrake adjustment nut and locknut (arrowed)

15 Handbrake - adjustment

All models except 1.9 GTI

1 The handbrake is normally kept adjusted by the action of the automatic adjusters on the rear brake shoes. However, in due course, the cables will stretch and will have to be adjusted in order to fully apply the handbrake.
2 To adjust, first place the handbrake lever onto the seventh notch.
3 Chock the front wheels then jack up the rear of the car and support it on axle stands (see *"Jacking and vehicle support"*).
4 Working inside the car, remove the screw and lift the cover from the handbrake lever **(see illustration)**.
5 Slacken the locknut and turn the adjustment nut on the rear of the cable compensator so that both rear wheels are just binding on the brake shoes **(see illustration)**.
6 Fully apply the handbrake lever and check that both rear wheels are locked.
7 Tighten the adjuster locknut, fit the cover over the handbrake lever and lower the car to the ground.
8 Over-adjustment will prevent the automatic adjusters operating correctly so make sure that the handbrake is fully applied after being pulled up between 7 and 9 notches, no fewer.

1.9 GTI models

9 Chock the wheels and fully release the handbrake.
10 Apply the brake pedal hard several times.
11 Working inside the car, remove the screw and lift the cover from the handbrake lever.
12 Working beneath the rear of the car, measure the distance between the operating levers on the calipers and the end stops on the inner cables **(see illustration)**.
13 Inside the car, loosen the nut on the handbrake lever until the distance measured in the previous paragraph is 5.0 mm on both sides.
14 Check that the operating levers on both calipers move freely and return positively to their stops.
15 Now tighten the nut on the handbrake lever so that the handbrake is fully applied between 7 and 9 notches. Do not over-adjust so that the handbrake is fully applied over fewer notches, otherwise the automatic adjusters will not operate correctly.
16 Refit the cover over the handbrake lever.

16 Handbrake cables - renewal

All models except 1.9 GTI

1 Remove the rear brake shoes, as described in Section 5.
2 Working inside the car, remove the screw and lift the cover from the handbrake lever.
3 Unhook the cable(s) from the compensator.
4 Release the cable(s) from the retaining clips, the floor, the fuel tank, and the rear brake backplate(s) and withdraw from under the car **(see illustration)**.
5 Fit the new cable(s) using a reversal of the removal procedure with reference also to Section 5. Finally adjust the handbrake as described in Section 15.

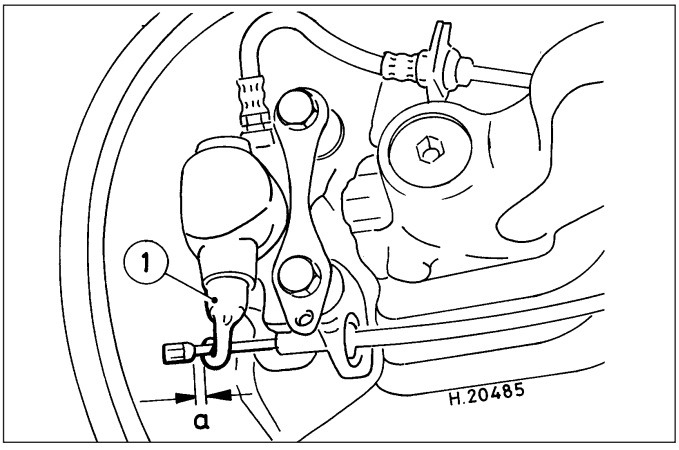
1.9 GTI models

6 Working inside the car, remove the screw and lift the cover from the handbrake lever.
7 Unhook the cable from the compensator.
8 Chock the front wheels then jack up the rear of the car and support it on axle stands (see *"Jacking and vehicle support"*).
9 Release the cable(s) from the retaining clips, the floor, the fuel tank, the bracket(s), and the caliper lever(s), and withdraw from under the car.
10 Fit the new cable(s) using a reversal of the removal procedure. Finally adjust the handbrake as described in Section 15.

17 Brake pedal - removal and refitting

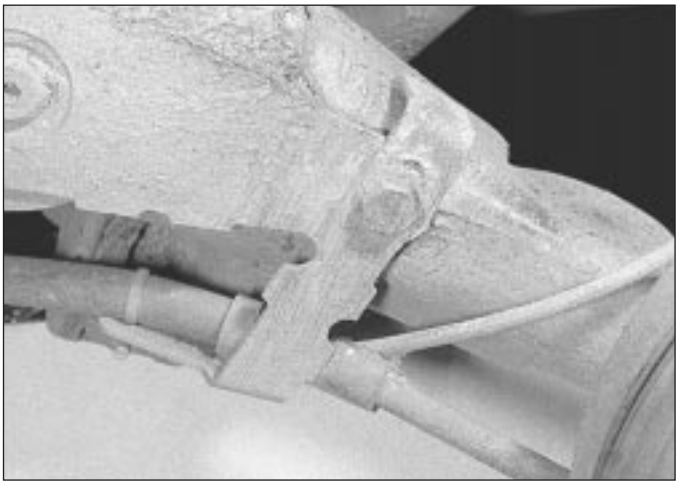
Removal

1 Remove the lower facia panel from the steering column in order to gain access to the pedal bracket.

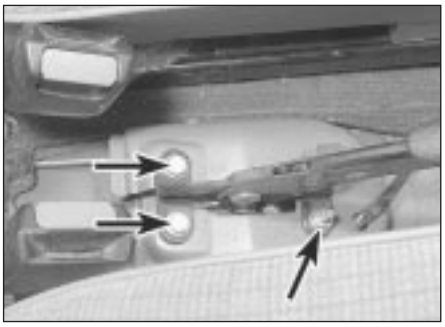


15.12 Handbrake adjustment on 1.9 GTI models

1 Handbrake operating lever on caliper
a = 5.0 mm



16.4 Handbrake cable clip and bracket located on rear suspension arm



18.3 Handbrake lever mounting bolts (arrowed)

2 Remove the clevis pin and disconnect the pushrod from the brake pedal. Note that on models with a vacuum servo unit the pushrod is on the lower hole, whereas the upper hole is used for models without a servo unit.
3 Unscrew the self-locking nut from the pivot bolt, pull out the bolt and lower the brake pedal. Note that on non-servo models a return spring is also fitted to the pedal.
4 Examine the pedal bushes for wear and renew them if necessary.

Refitting

5 Refitting is a reversal of removal, but lightly grease the bushes and clevis pin and renew the self-locking nut.

18 Handbrake lever - removal and refitting

Removal

1 Move the front seats fully forward then remove the screw and lift the cover from the handbrake lever.
2 Fully release the handbrake then unscrew the adjustment nut on the rear of the cable compensator until both cables can be unhooked.
3 Unbolt and remove the handbrake lever assembly from the floor **(see illustration)**.

Refitting

4 Refitting is a reversal of removal, but adjust the handbrake, as described in Section 15 on completion.

19 Anti-lock braking system (ABS) - general information

From 1991, the Bendix anti-lock braking system is available as an option on certain models.

The system is fail-safe, and is fitted in conjunction with the conventional braking system, which allows the vehicle to retain conventional braking In the event of a failure in the ABS system.

To prevent wheel locking, the system provides pressure modulation in the brake circuits. To achieve this, sensors mounted at each front wheel monitor the rotational speeds of the wheels, and are thus able to detect when there is a risk of wheel locking (low rotational speed). Solenoid valves are positioned in the brake circuits to all four wheels and the solenoid valves are incorporated in the regulator unit, which is controlled by an electronic control unit. The electronic control unit controls modulation of the braking effort applied to each wheel, according to the information supplied by the wheel sensors.

Should a fault develop in the system, a self-diagnostic facility is incorporated in the electronic control unit, which can be used in conjunction with specialist diagnostic equipment available to a Peugeot dealer to determine the nature of the fault.

The brake components used on models fitted with ABS are similar to those used on models with a conventional braking system. Rear disc brakes are fitted to all ABS-equipped models, and all procedures for the rear brake and handbrake components are as described for 1.9 GTI models in the relevant Sections of this Chapter.

20 Anti-lock braking system (ABS) components - removal and refitting

Warning: It is strongly recommended that any work involving components of the braking system on a vehicle equipped with ABS is entrusted to a Peugeot dealer, who will have the necessary specialist knowledge and equipment to carry out the work safely and effectively.

Regulator unit

1 At the time of writing, no information was available regarding removal and refitting of the regulator unit.

Wheel sensor

Removal

2 The wheel sensors are mounted in the rear of the hub carriers. To remove a wheel sensor, proceed as follows.
3 Disconnect the battery negative lead.
4 Chock the rear wheels then jack up the front of the car and support it on axle stands (see *"Jacking and vehicle support"*). Remove the roadwheel.
5 Carefully pull the sensor wiring from its retaining clips, and working under the wing, disconnect the sensor wiring connector.
6 Unscrew the securing bolt, and withdraw the sensor from the hub carrier.

Refitting

7 Refitting is a reversal of removal, but ensure that the front face of the sensor is perfectly clean, and ensure that the wiring is correctly routed. Clean the sensor securing bolt threads, then apply suitable thread-locking fluid and tighten the bolt securely.

Electronic control unit

Removal

8 The electronic control unit is located on the left-hand side of the luggage compartment. To remove the control unit, proceed as follows.
9 Disconnect the battery negative lead.
10 Open the tailgate, and carefully pull the trim from the left-hand side of the luggage compartment to reveal the control unit.
11 Unscrew the securing nuts, and withdraw the cover from the control unit.
12 Disconnect the control unit wiring plug.
13 Unscrew the securing nuts, and withdraw the control unit from its mounting bracket.

Refitting

14 Refitting is reversal of removal.