

Section M - Brakes

N.B. Brake part numbers begin with (J)

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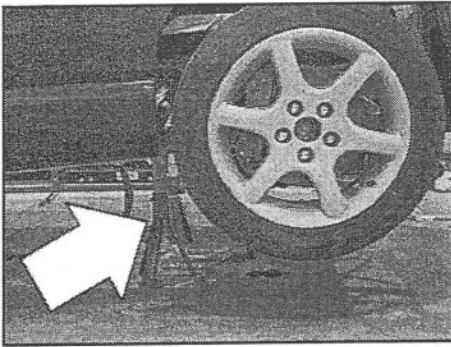
Brake Pads

H

Mastercylinder

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Brake Callipers - Removal/Replacement Procedure



1

Service/Workshop Manual - Front Brake Calliper

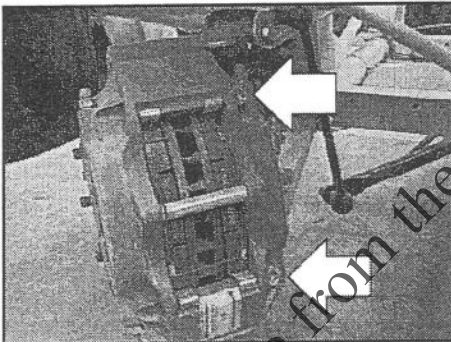
N.B. This procedure is basically the same for the front and the rear and for this the front calliper has been used to demonstrate the produce.
Jack up the front of the car and lower onto axle stands.



2

Service/Workshop Manual - Front Brake Calliper

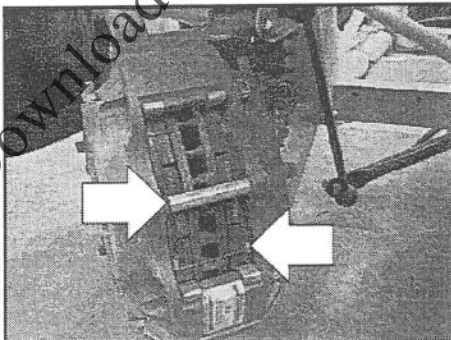
Remove the wheel.



3

Service/Workshop Manual - Front Brake Calliper

Unbolt the 2 x M10 allen bolts and spring washers that secure the caliper to the upright assembly.

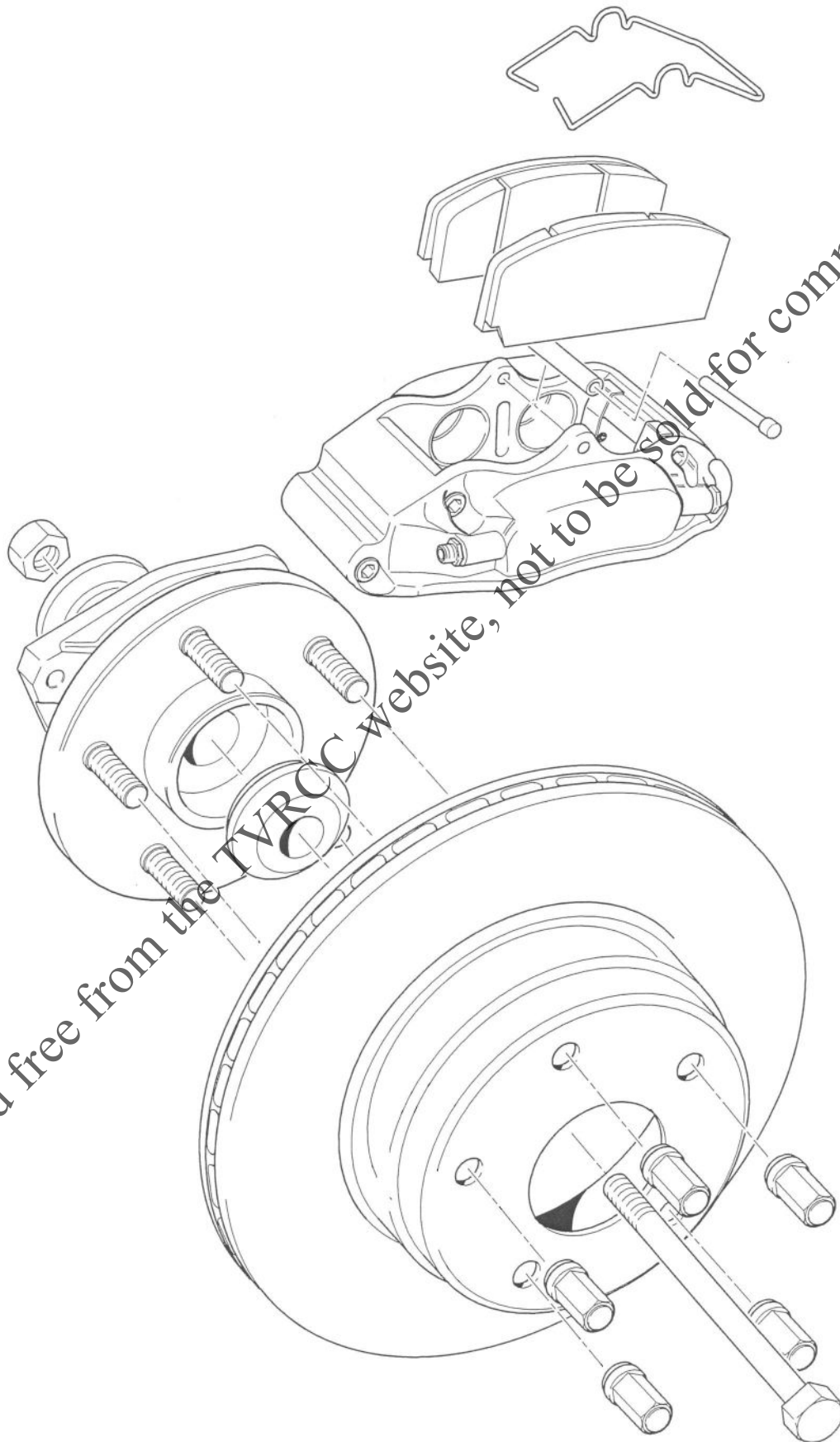


4

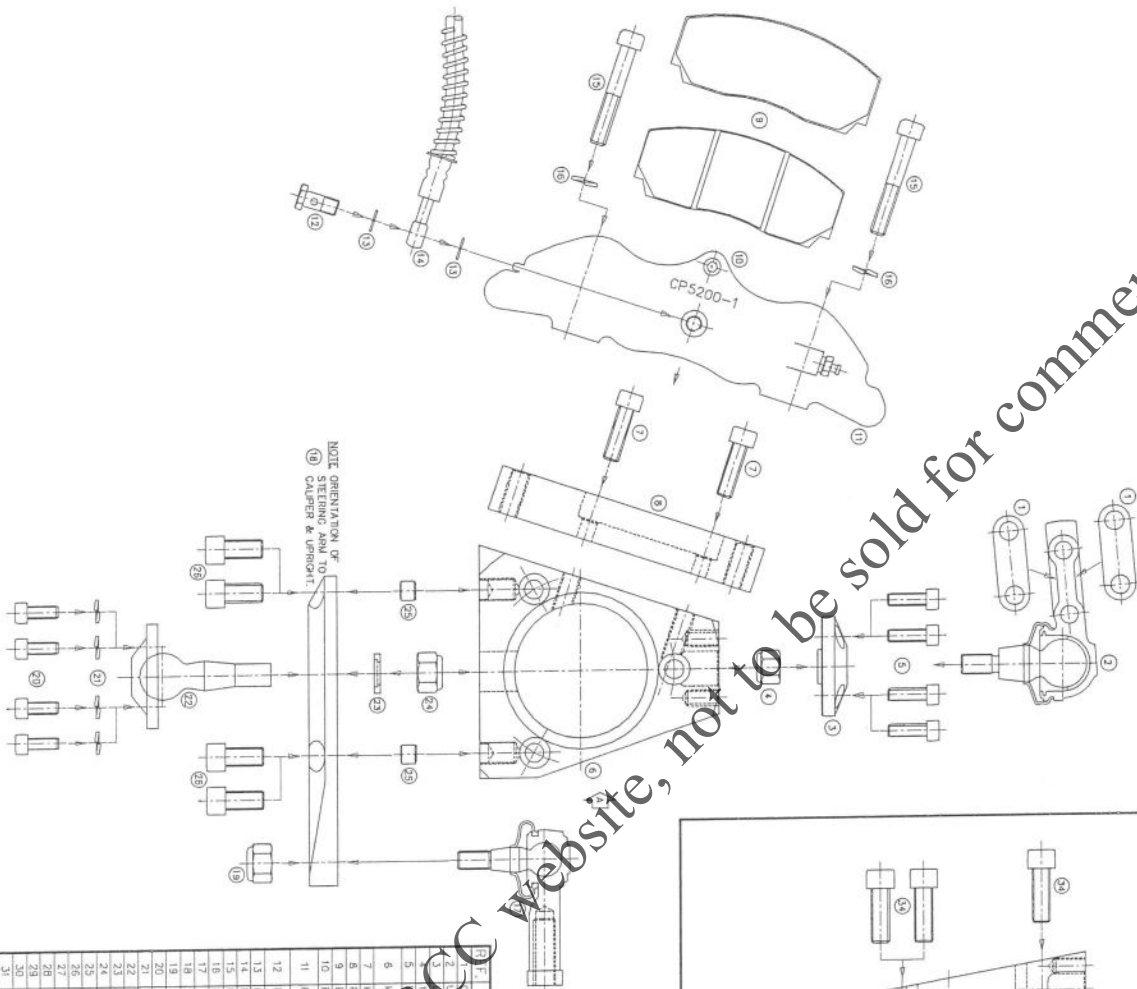
Service/Workshop Manual - Front Brake Calliper

Remove the calliper clip and then remove the pad securing bolt. Note the orientation of the anti-rattle clip and remove it.

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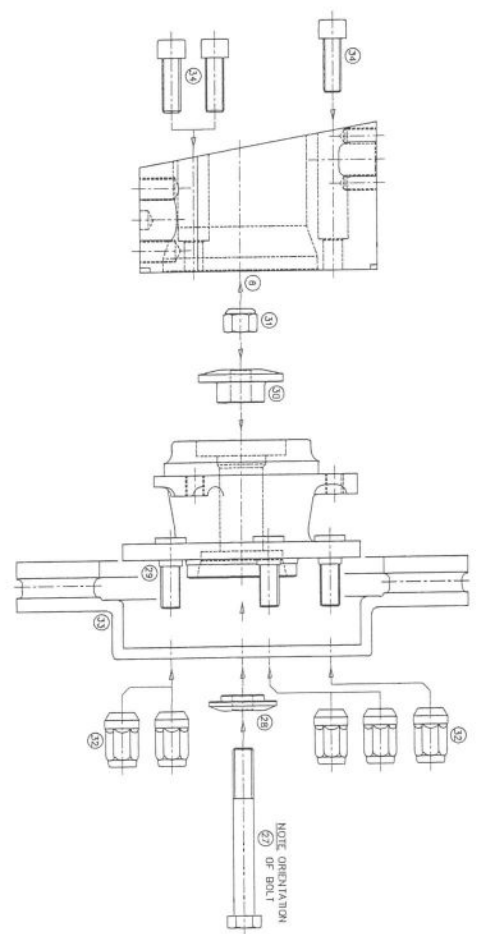


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NOTE ORIENTATION OF CALIPER & UPBRIGHT

VIEW ON ARROW 'A' (BEARING PACK COMPONENTS)



NOTE ORIENTATION OF BOLT (27)

FIG.	DESCRIPTION	DWG. NO.	PART NO. QTY.	REMARKS
1	STEERING SHOCK	C1020A	2	
2	UPPER BALL JOINT	C0078	2	
3	LOWER BALL JOINT MOUNTING	C1003	1	
4	1/2" UNF. NUTLOC NUT (UPPER BALL JOINT)	W0159	1	50 TO 55
5	1/2" UNF. LONG CAP HEAD BOLT	W0291	4	20 TO 25
6	UPBRIGHT SOLID UPRIGHT	C1006A	1	
7	W/ID X 25 LONG CAP HEAD BOLT	W0168	2	40 TO 45
8	W/ID X 25 LONG CAP HEAD BOLT	W0168	1	
9	BRAKE PAD (UPBRIGHT)	J0076	1	9 TO 10
10	BRAKE PAD (UPBRIGHT)	J0076	1	9 TO 10
11	FRONT CALIPER	J0168	1	
12	W/ID X 1 TRACK COOPER WASHER	J0113	1	9 TO 10
13	FRONT BRAKE HOSE	J0183	1	
14	W/ID X 65 LONG CAP HEAD BOLT	W0292	2	40 TO 45
15	W/ID SPRING WASHER	W0314	2	
16	TRACK ROD END	H0280	1	
17	STEERING ARM	H0280	1	
18	NUT (AS SUPPLIED WITH TRACK ROD END)	W0238	1	35 TO 40
19	W/ID X 20 LONG CAP HEAD BOLT	W0238	4	20 TO 25
20	W/ID X 20 LONG CAP HEAD BOLT	W0238	1	
21	UPPER BALL JOINT	J0168	1	
22	UPPER BALL JOINT LOCK NUT SPACER	C1020	1	
23	UPPER BALL JOINT LOCK NUT SPACER	C1020	1	
24	UPPER BALL JOINT LOCK NUT SPACER	C1020	1	
25	UPPER BALL JOINT LOCK NUT SPACER	C1020	1	
26	UPPER BALL JOINT LOCK NUT SPACER	C1020	1	
27	UPPER BALL JOINT LOCK NUT SPACER	C1020	1	
28	UPPER BALL JOINT LOCK NUT SPACER	C1020	1	
29	UPPER BALL JOINT LOCK NUT SPACER	C1020	1	
30	UPPER BALL JOINT LOCK NUT SPACER	C1020	1	
31	UPPER BALL JOINT LOCK NUT SPACER	C1020	1	
32	UPPER BALL JOINT LOCK NUT SPACER	C1020	1	
33	UPPER BALL JOINT LOCK NUT SPACER	C1020	1	
34	UPPER BALL JOINT LOCK NUT SPACER	C1020	1	

GENERAL NOTES:

1. THIS DRAWING IS A PRELIMINARY DRAWING. IT IS NOT TO BE USED FOR MANUFACTURE.

2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

3. DO NOT SCALE. IF IN DOUBT, ASK.

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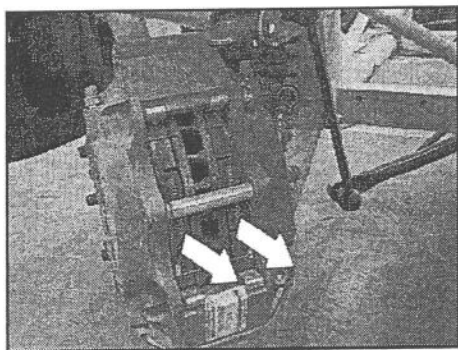
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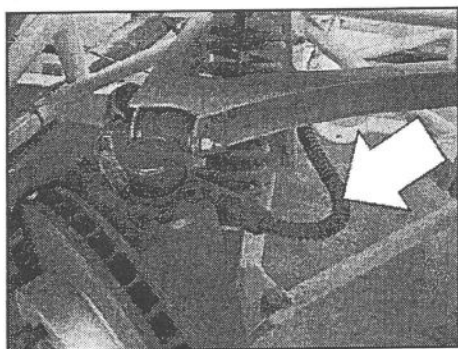
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5

Service/Workshop Manual - Front Brake Calliper

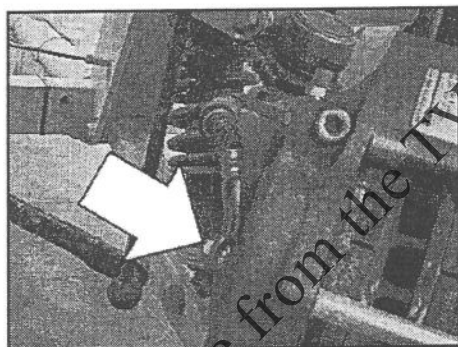
The pads can then be slid out of the calliper.



6

Service/Workshop Manual - Front Brake Calliper

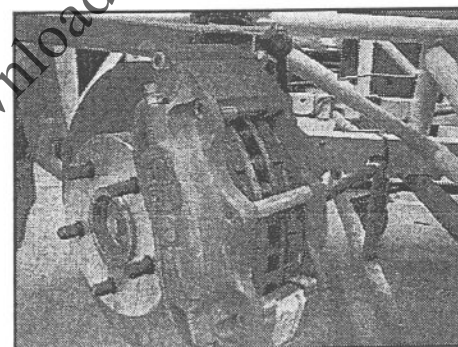
Next a pipe clamp must be fixed to the flexible section of the brake piping. This is to stop the brake fluid from spilling out. N.B. It is inevitable that some fluid will be lost and that the brakes will have to be bled.



7

Service/Workshop Manual - Front Brake Calliper

Remove the banjo bolt and copper washer which secures the brake hose to the calliper.



8

Service/Workshop Manual - Front Brake Calliper

To replace the calliper, which must always be done in pairs, reverse the outlined procedure. See section C and bleed the braking system. Then refit road wheels and tighten to correct torque. Road test the vehicle.

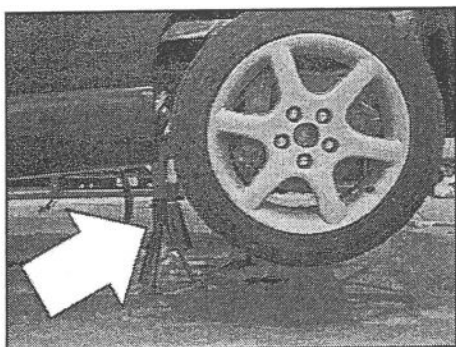


Service / Workshop Manual

Brake Disc

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Brake Disc - Removal/Replacement Procedure

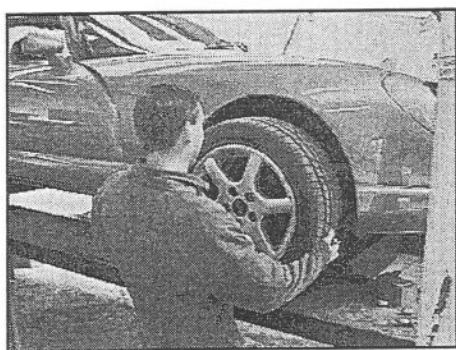


1

Service/Workshop Manual - Front Brake Disc

Jack up the front of the car and lower onto axle stands.

N.B. This procedure is the same for the front and the rear brake discs.



2

Service/Workshop Manual - Front Brake Disc

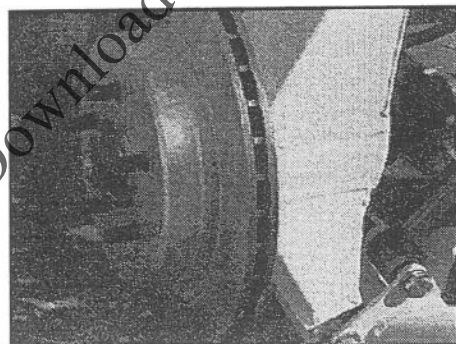
Remove the wheel.



3

Service/Workshop Manual - Front Brake Disc

Remove the 2 x M10 allen bolts and spring washers that secure the caliper to the upright and move the caliper to one side.

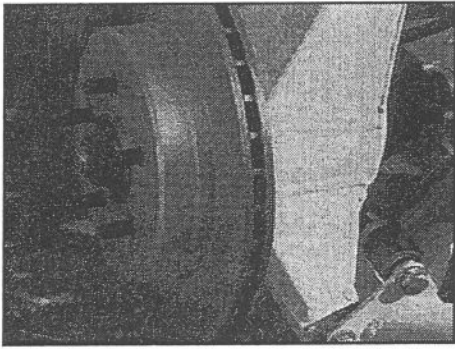


4

Service/Workshop Manual - Front Brake Disc

Once this has been done the brake disc can be slid off the brake hub.

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5

Service/Workshop Manual - Front Brake Disc

To replace a brake disc reverse the outlined procedure.

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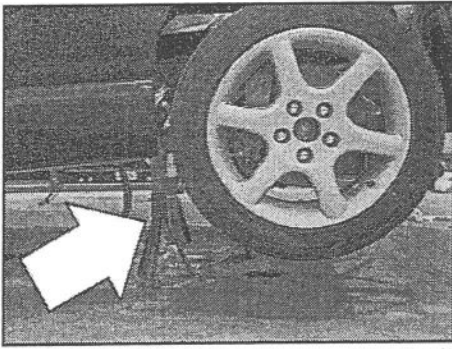


Service / Workshop Manual

Brake Fluid Bleeding

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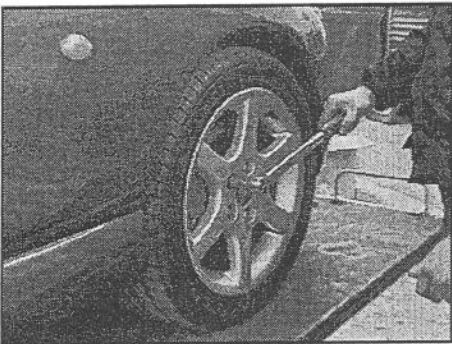
Brake Fluid Bleeding - Removal/Replacement Procedure



1

Service/Workshop Manual - Brake fluid bleeding

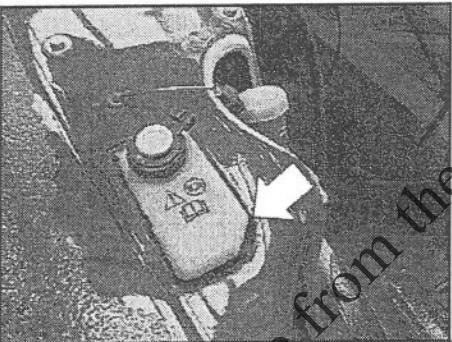
Firstly raise the car and lower onto axle stands. Making sure to position them under the chassis to leave the suspension free.



2

Service/Workshop Manual - Brake fluid bleeding

Next remove all the wheels.

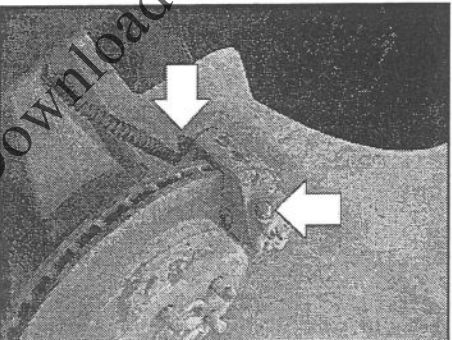


3

Service/Workshop Manual - Brake fluid bleeding

Remove reservoir cap and top-up. Be careful not to spill fluid onto paintwork. Spilt fluid needs to be washed away with water other wise paintwork damage will occur.

N.B. - An assistant will be required to keep the fluid reservoir topped up and pump the brake pedal.



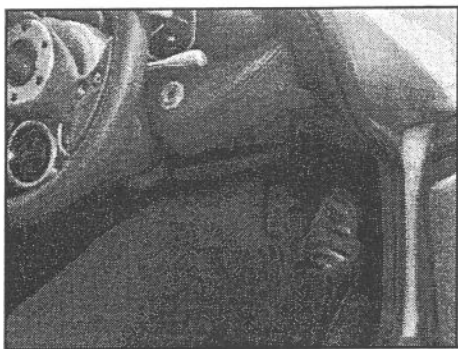
4

Service/Workshop Manual - Brake fluid bleeding

Starting with the furthest caliper away from the fluid reservoir i.e. N/S rear, loosen the brake bleeding nipple located on the outside of the caliper.

N.B. If the system is completely empty, it may be necessary to start at the caliper nearest to the master cylinder. i.e. O/S front.

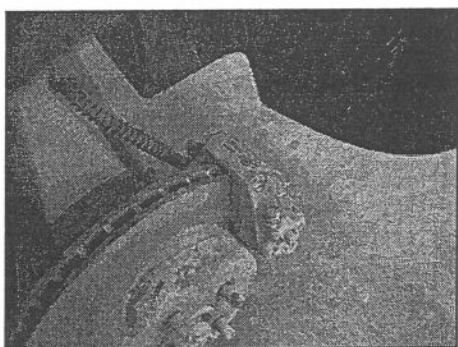
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5

Service/Workshop Manual - Brake fluid bleeding

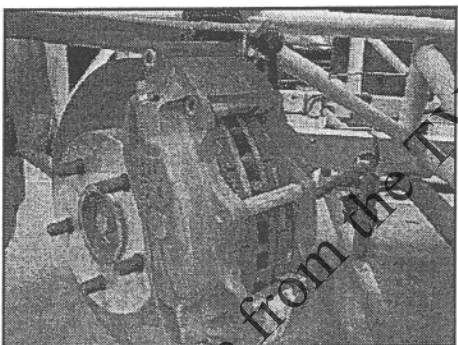
Using a tube on the bleed nipple and a container in which to collect the used fluid, pump the brake pedal until no more air appears from the caliper.



6

Service/Workshop Manual - Brake fluid bleeding

At this point, re-tighten the outer bleed nipple. Move on to the adjacent nipple on the inside of the caliper and repeat the operation.



7

Service/Workshop Manual - Brake fluid bleeding

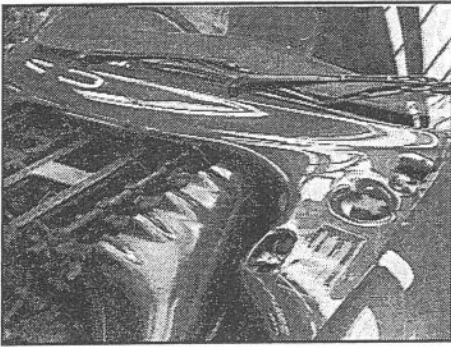
When one caliper is bleed, move onto the next. If having bled all the calipers the brake pedal still feels unsatisfactory, repeat the process again.



Service / Workshop Manual

Pedal Box - Removal & Replacement

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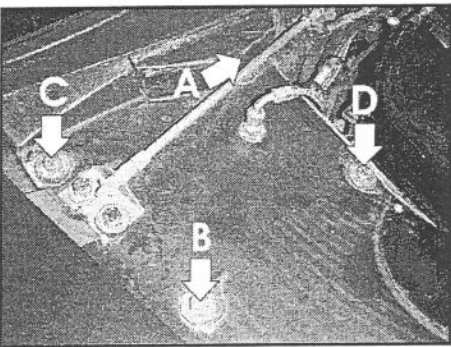


Service/Workshop Manual - Pedal Box

1

The pedal box is secured to the body in two areas. One in the engine bay and the other in the inner wheel arch.

To gain access to the bolts which secure the pedal box to the engine bay remove the scoop panel by removing the 2 x M6 allen bolts.



Service/Workshop Manual - Pedal Box

2

The pedal box is secured to the top of the engine bay by four bolts. However the fourth bolt is hidden by the wiper motor assembly. This bolt is accessible by removing the grommet -(A)

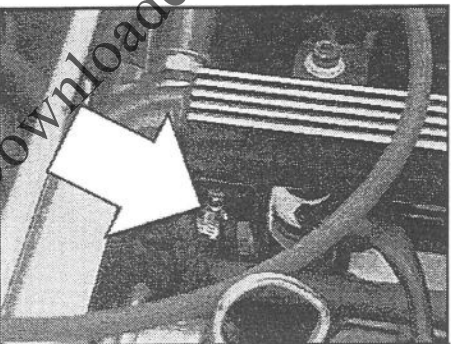
N.B. At this stage only bolts A,B, should be removed and bolts C,D, should be left to hold the box in position until the next stage has been completed.



Service/Workshop Manual - Pedal Box

3

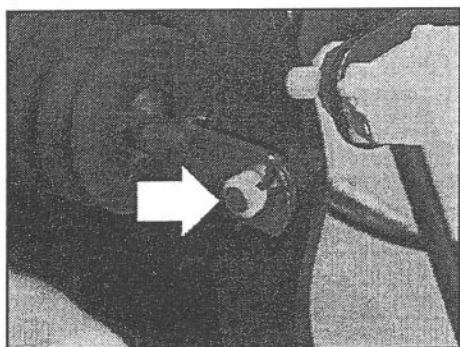
Then disconnect the brake piping from the aluminium union inside the drivers footwell.



Service/Workshop Manual - Pedal Box

4

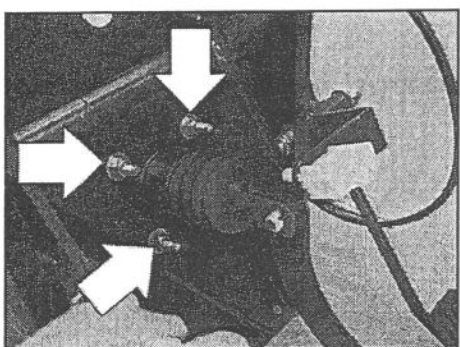
Undo the Jubilee clip which secures the vacuum pipe to the N/S inlet manifold.



3

Service/Workshop Manual - Brake Master Cylinder

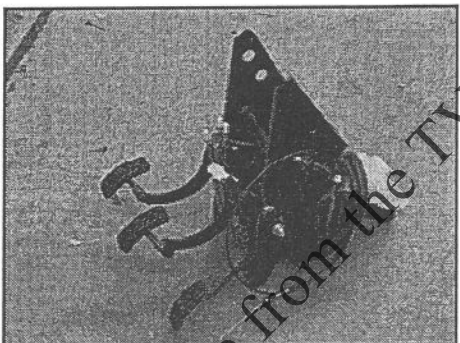
Then undo the split pin and clevis pin which connects the servo to the brake pedal.



4

Service/Workshop Manual - Brake Master Cylinder

If the servo needs to be replaced remove the 4 x M 8 nuts with washers that secure it to the pedal box.



5

Service/Workshop Manual - Brake Master Cylinder

The master cylinder can then be removed from the pedal box assembly and replaced. To replace a new brake master cylinder reverse the outlined procedure.



Service / Workshop Manual

Handbrake Cable

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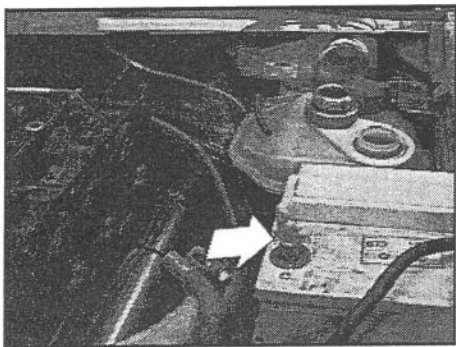
Handbrake Cable - Removal/Replacement Procedure



Service/Workshop Manual - Handbrake Cable

1

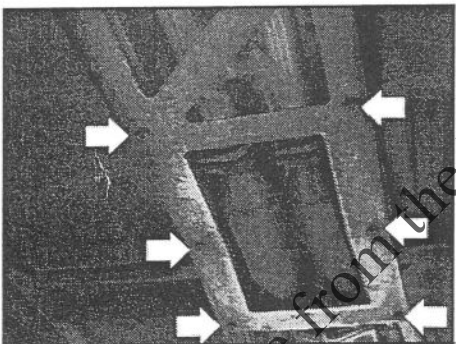
To gain access to remove the handbrake cable the car must be raised on a ramp.



Service/Workshop Manual - Handbrake Cable

2

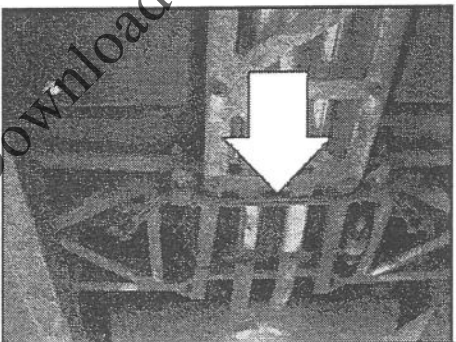
Disconnect the battery.



Service/Workshop Manual - Handbrake Cable

3

Remove the 10 x M10 allen bolts that secure the strengthening plate in place.

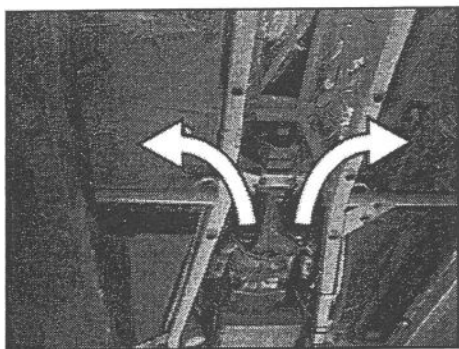


Service/Workshop Manual - Handbrake Cable

4

Remove the rear anti roll bar - described in the rear suspension section.

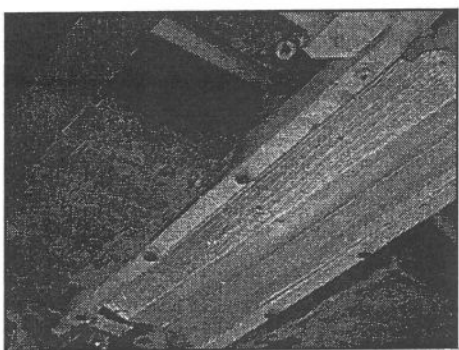
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5

Service/Workshop Manual - Handbrake Cable

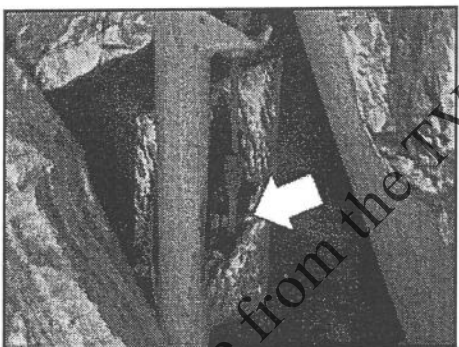
Split the exhaust system at the manifold to cats. and remove the whole exhaust system.



6

Service/Workshop Manual - Handbrake Cable

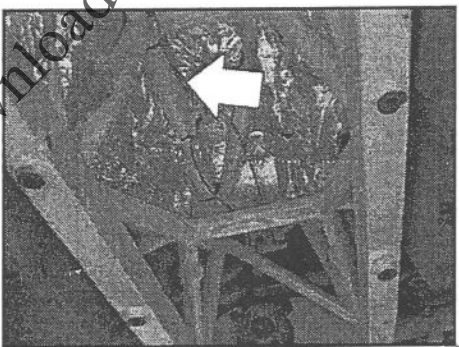
Drill out the rivets which secure the heat shield to the inside of the tunnel and remove.



7

Service/Workshop Manual - Handbrake Cable

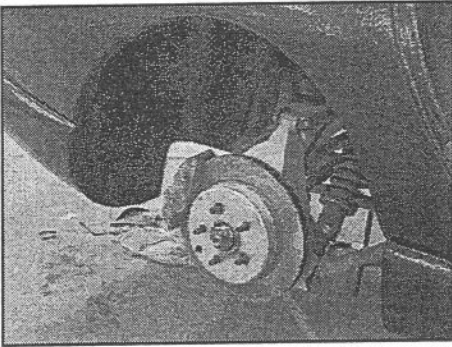
Then from under the car the clevis pin with its spilt pin, which secures the cable to the handbrake lever needs to be removed. To release the front part of the cable from the gear lever.



8

Service/Workshop Manual - Handbrake Cable

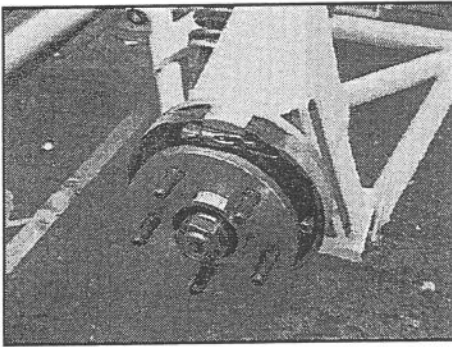
To remove the short front section of the cable slacken off the M8 locking nuts and unhook the cable from the chassis clip.



9

Service/Workshop Manual - Handbrake Cable

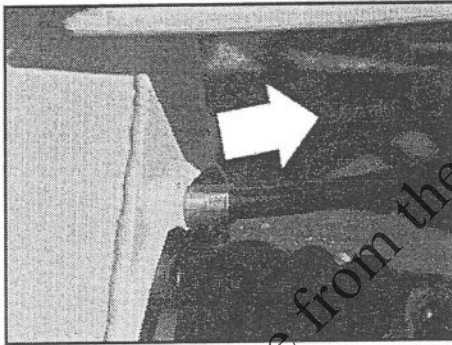
To remove the larger rear section of the cable the rear wheels need to be removed as well as the brake discs and calipers (described in their sub-sections).



10

Service/Workshop Manual - Handbrake Cable

Next remove the brake shoes (as described in sub-section) this will allow access to unhook the brake cable clip from its hinge.



11

Service/Workshop Manual - Handbrake Cable

Once it has been unhooked the cable can be pulled through the upright.



12

Service/Workshop Manual - Handbrake Cable

The refitting procedure is the reversal of the outlined procedure.

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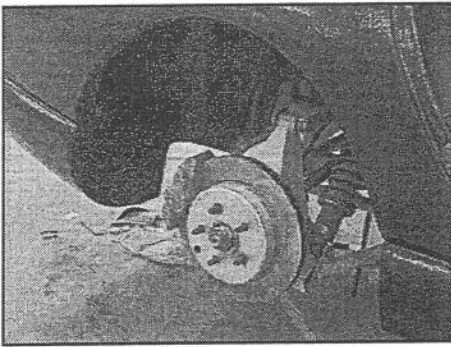


Service / Workshop Manual

Handbrake shoes

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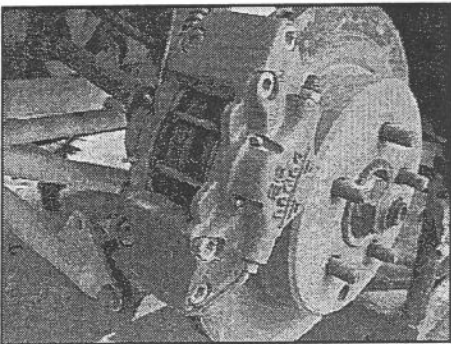
Handbrake Shoes - Removal/Replacement Procedure



1

Service/Workshop Manual - Handbrake shoes

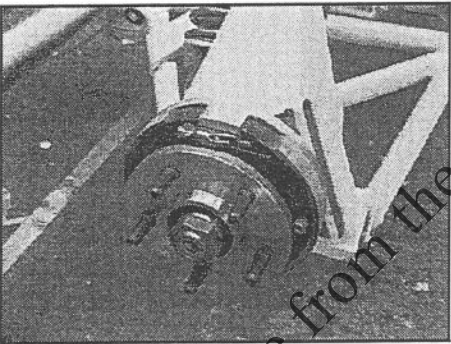
To gain access to the rear suspension assembly, remove the rear wheels.



2

Service/Workshop Manual - Handbrake shoes

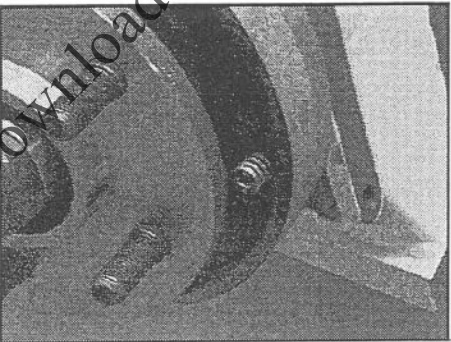
Unbolt the 2 x M8 allen bolts and spring washers that secure the caliper to the upright assembly and move to the side.



3

Service/Workshop Manual - Handbrake shoes

Slide the brake disc from the hub.



4

Service/Workshop Manual - Handbrake shoes

The brake shoes are now visible and can be removed by inserting an allen key into the spring and turning.

N.B. The orientation of the shoes should be noted.

To replace the brake shoes reverse outlined procedure.

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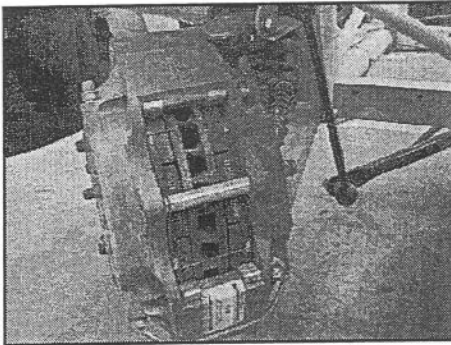


Service / Workshop Manual

Brake Pads

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Brake Pads - Removal/Replacement Procedure

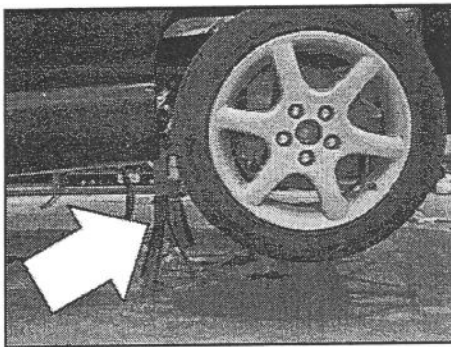


Service/Workshop Manual - Brake Pads

1

N.B. - When renewing brake pads it is essential that both left and right hand brake pads are replaced as uneven braking may occur if only one side is renewed.

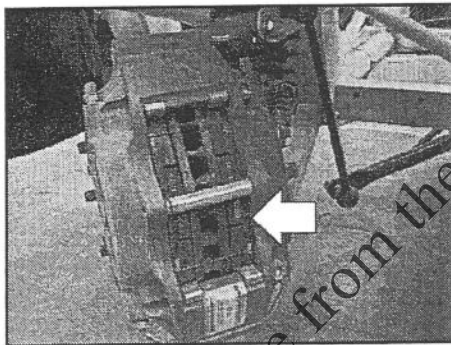
This operation is similar for both front and rear brake pads, the only difference being the pad securing pins and clips.



Service/Workshop Manual - Brake Pads

2

Jack up the front of the car and lower onto axle stands and remove the road wheel.



Service/Workshop Manual - Brake Pads

3

Remove the spring clip which secures the pad in position.

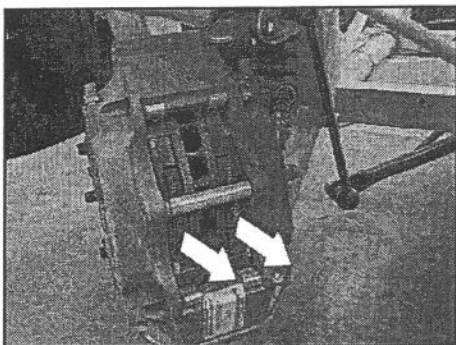


Service/Workshop Manual - Brake Pads

4

Unbolt the brake pad securing bolt.

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5

Service/Workshop Manual - Brake Pads

Finally slide brake pads out of caliper



6

Service/Workshop Manual - Brake Pads

To refit pads reverse outlined procedure.
N.B. New pads will come with anti-squeal backing. Ensure to clean the piston surface of the calliper , and peel off the adhesive backing before insert back into the cleaned caliper.

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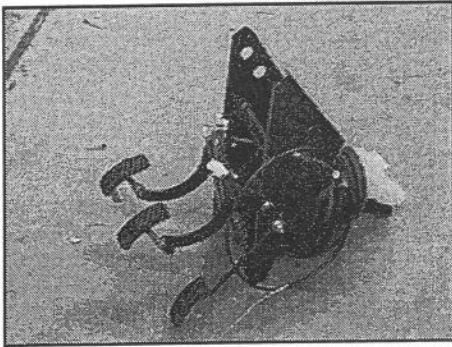


Service / Workshop Manual

Brake Master Cylinder

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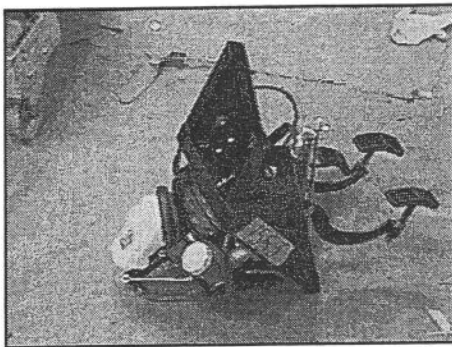
Master Cylinder - Removal/Replacement Procedure



1

Service/Workshop Manual - Brake Master Cylinder

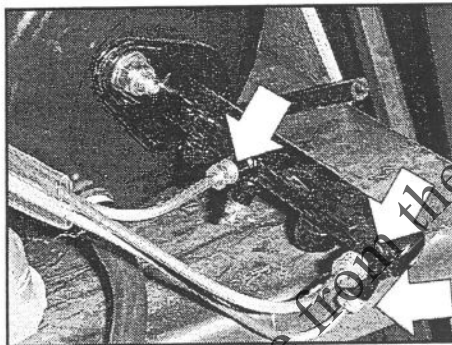
To replace the master cylinder the pedal box assembly has to be removed.- as described in its relevant sub-section.



2

Service/Workshop Manual - Brake Master Cylinder

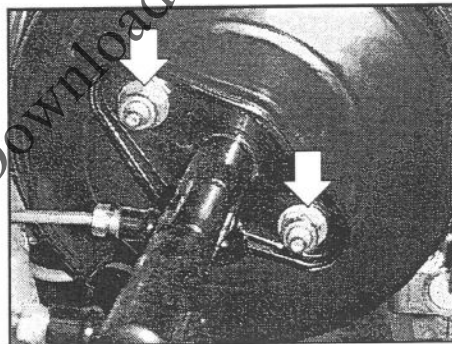
Once the assembly has been removed any work that is need can be completed on a work bench.



3

Service/Workshop Manual - Brake Master Cylinder

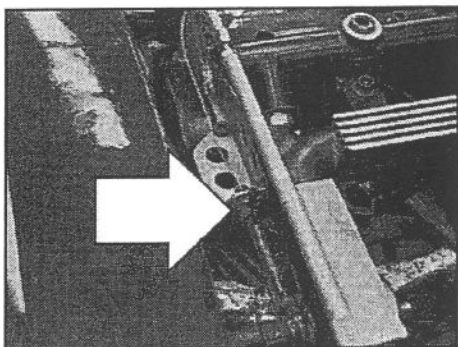
To remove the brake master cylinder, first disconnect and remove the brake pipes. Noting their positions.



4

Service/Workshop Manual - Brake Master Cylinder

Undo and remove the 2 x M10 nyloc nuts securing the master cylinder to the servo. The master cylinder can then be removed.



Service/Workshop Manual - Pedal Box

5

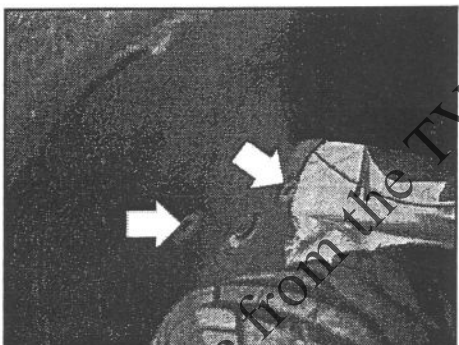
Undo the throttle cable at the throttle cable bracket which is located on the N/S inlet manifold.



Service/Workshop Manual - Pedal Box

6

Remove seal from around brake fluid reservoir.



Service/Workshop Manual - Pedal Box

7

Next remove the 2 x M8 bolts and washers located in the wheel arch which secure the pedal box at the bottom. Once these two bolts have been removed then the two upper securing bolts (which were left in position from the stage 2) can be removed.



Service/Workshop Manual - Pedal Box

8

Once this has been done then the pedal box assembly can be removed remembering to push the throttle cable and vacuum pipe through the access hole for the clutch reservoir. To replace a pedal box assembly reverse the outlined procedure.