

Section M - Brakes

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

contents

A *Callipers*

B *Brakes discs*

C *Bleeding Brake Fliud*

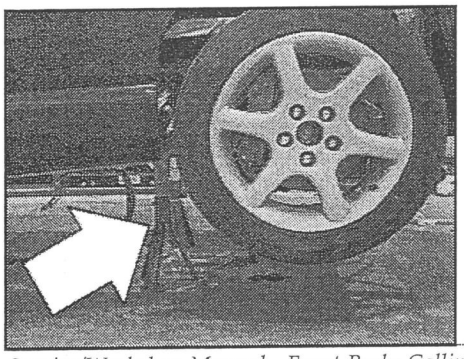
D *Pedal Box*

E *Handbrake cable*

F *Handbrake Shoes*

G *Brake Pads*

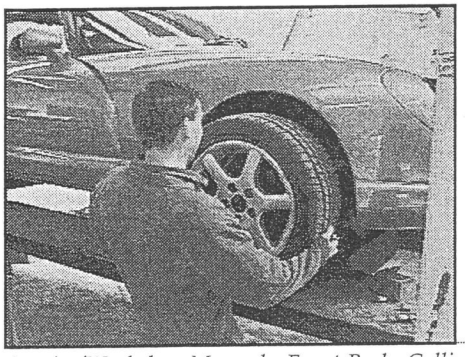
H *Mastercylinder*



Service/Workshop Manual - Front Brake Calliper

1

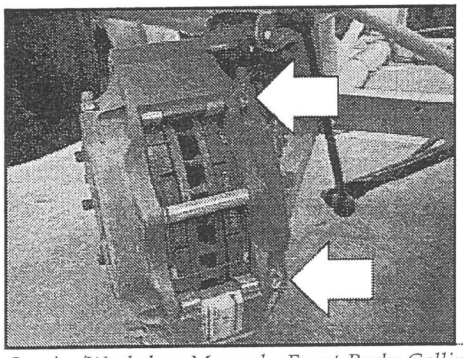
N.B. This procedure is basically the same for the front and the rear and for this the front calliper has been used to demonstrate the produce.
Jack up the front of the car and lower onto axle stands.



Service/Workshop Manual - Front Brake Calliper

2

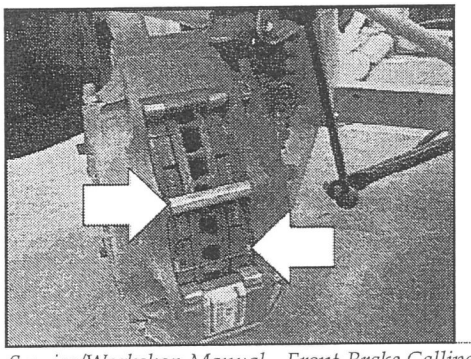
Remove the wheel.



Service/Workshop Manual - Front Brake Calliper

3

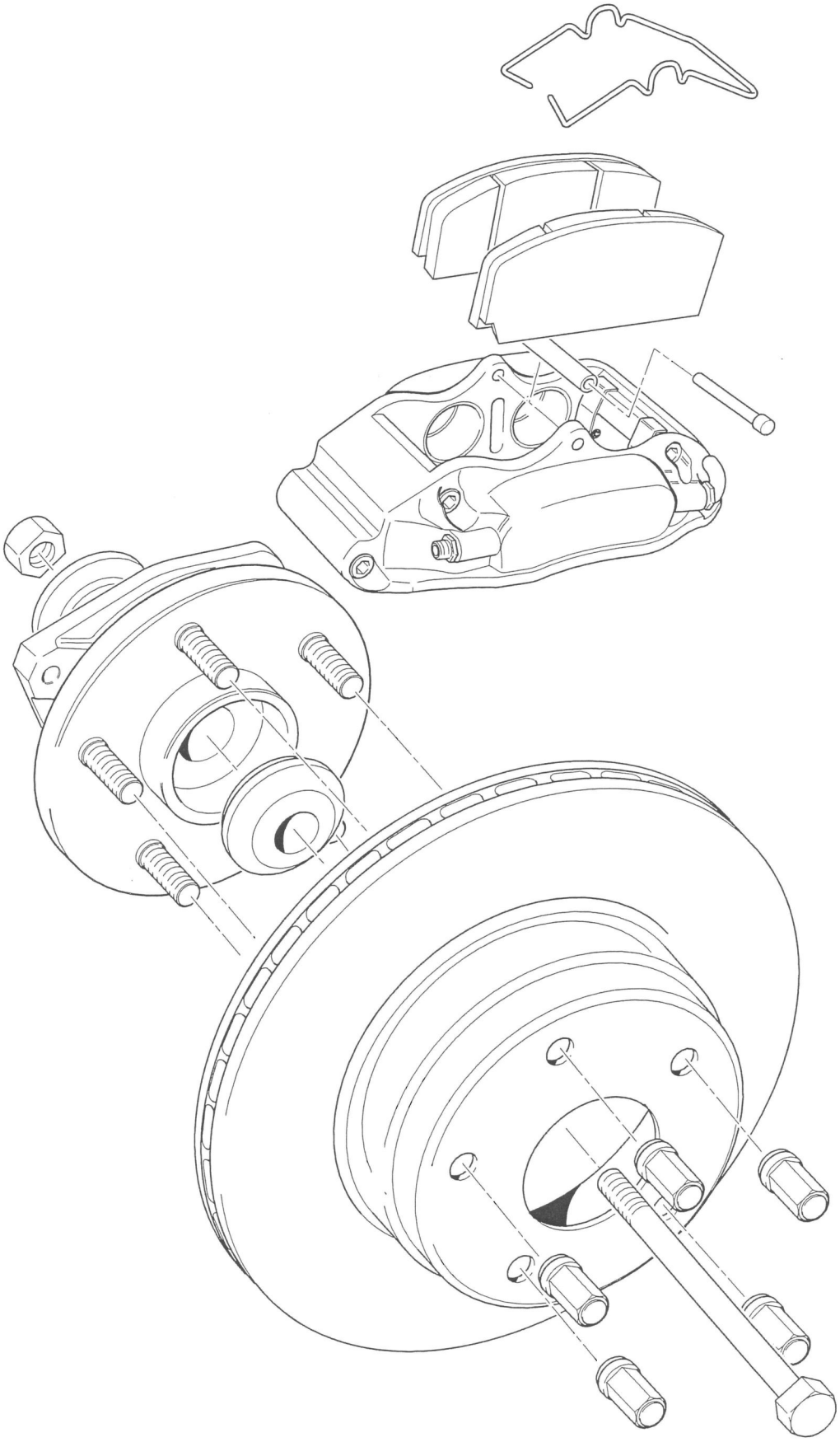
Unbolt the 2 x M10 allen bolts and spring washers that secure the caliper to the upright assembly.

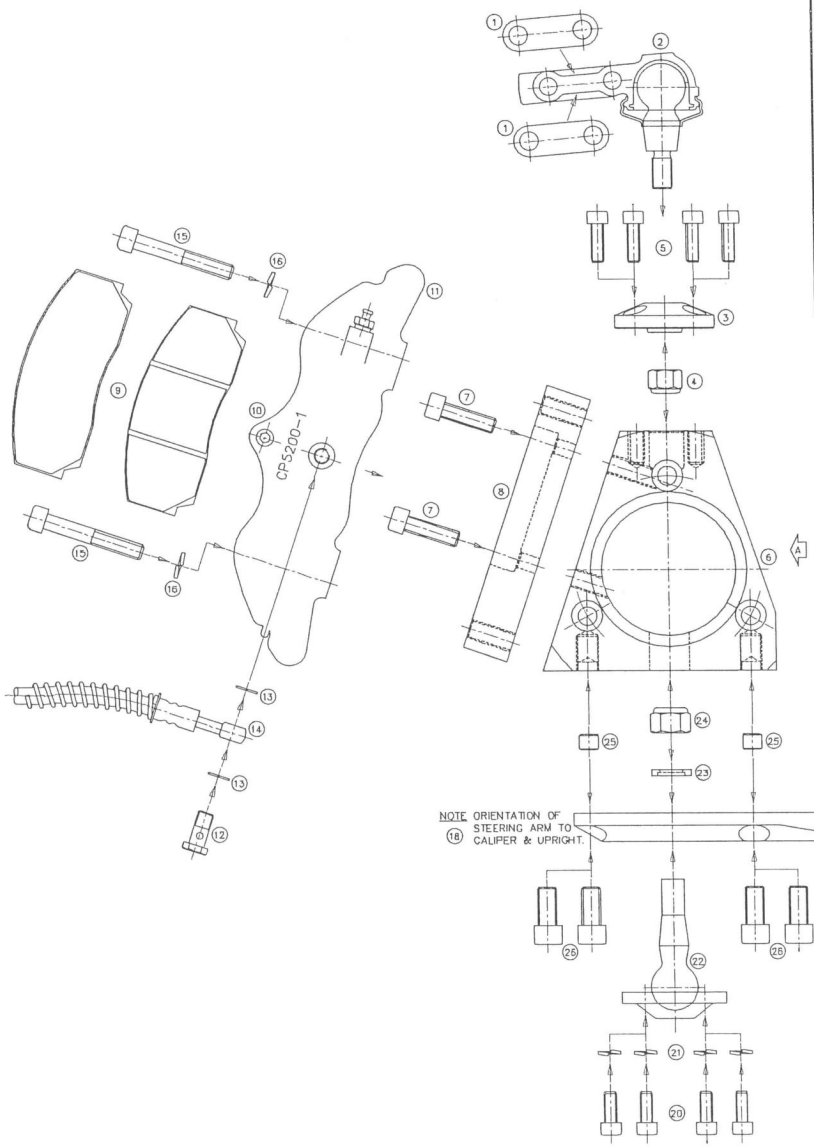


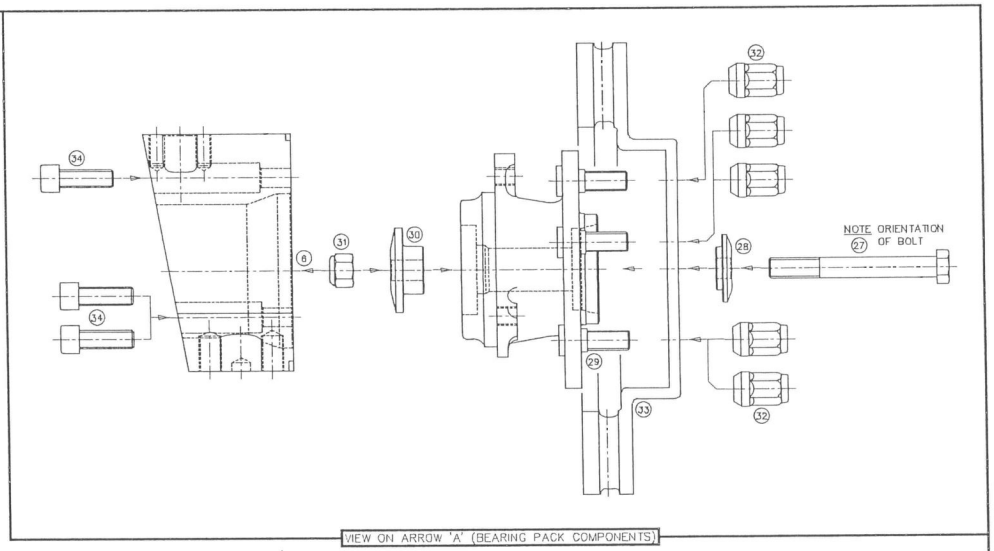
Service/Workshop Manual - Front Brake Calliper

4

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







VIEW ON ARROW 'A' (BEARING PACK COMPONENTS)

REF.	DESCRIPTION	DWG. No	PART No	QTY.	TORQUE FT. LBs
1	CASTOR SHIMM	C1020A	C0178	2	–
2	UPPER BALL JOINT	–	C0035	1	–
3	UPPER BALL JOINT MOUNTING	C1003	C0159	1	–
4	1/2" UNF NYLOC NUT (UPPER BALL JOINT)	–	W0108	1	50 TO 55
5	M8 x 25 LONG CAP HEAD BOLT	–	W0291	4	20 TO 25
6	MACHINED FROM SOLID UPRIGHT	C1006A	RH– C0169 LH– C0170	1	–
7	M10 x 35 LONG CAP HEAD BOLT	–	W0248	2	40 TO 45
8	FRONT CALLIPER MOUNT	J1005	J0162	1	–
9	BRAKE PAD	–	J0176	1 PAIR	–
10	BRAKE PAD RETAINING BOLT	–	–	1	9 TO 10
11	FRONT CALLIPER	–	RH– J0168 LH– J0169	1	–
12	M10 BANJO BOLT	–	J0113	1	9 TO 10 PLUS 90°
13	M10 x 1 THICK COPPER WASHER	–	J0114	2	–
14	FRONT BRAKE HOSE	–	J0183	1	–
15	M10 x 65 LONG CAP HEAD BOLT	–	W0292	2	40 TO 45
16	M10 SPRING WASHER	–	W0030	2	–
17	TRACK ROD END	–	H0314	1	–
18	STEERING ARM	C1004A	H0280	1	–
19	NUT (AS SUPPLIED WITH TRACK ROD END)	–	–	1	35 TO 40
20	M8 x 20 LONG CAP HEAD BOLT	–	W0298	4	20 TO 25
21	M8 SPRING WASHER	–	W0028	4	–
22	LOWER BALL JOINT	–	C0164	1	–
23	BOTTOM BALL JOINT LOCK NUT SPACER	C1028	C0184	1	–
24	9/16" UNF NYLOC NUT	–	S28W10016	1	60 TO 70
25	Ø12 x 8.6 x 10 LONG DOWEL	–	E1073	2	–
26	M12 x 25 LONG CAP HEAD BOLT	–	W0293	4	45 TO 50
27	1/2" UNF x 4" LONG HEX HEAD BOLT	–	?	1	70 TO 75 SEE 30
28	FRONT WHEEL BEARING DRAW BOLT SPACER – OUTER	C1030	C0183	1	–
29	BEARING PACK	–	C0155	1	–
30	FRONT WHEEL BEARING DRAW BOLT SPACER – INNER	C1029	C0182	1	–
31	1/2" UNF ALL METAL LOCKING NUT	–	?	1	70 TO 75 SEE 26
32	WHEEL NUT	–	G0048	5	55 TO 60
33	FRONT BRAKE DISC	–	J0170	1	–
34	M12 x 35 LONG CAP HEAD BOLT	–	W0294	3	45 TO 50 & LOCTITE

GENERAL NOTES:
LH – AS DRAWN.
RH – SYMMETRICALLY OPPOSITE.
(PART No's OCCASIONALLY DIFFER. SEE TABLE).

DO NOT SCALE | IF IN DOUBT ASK

This is a CAD produced drawing. All alterations must be carried out on the system NOT MANUALLY

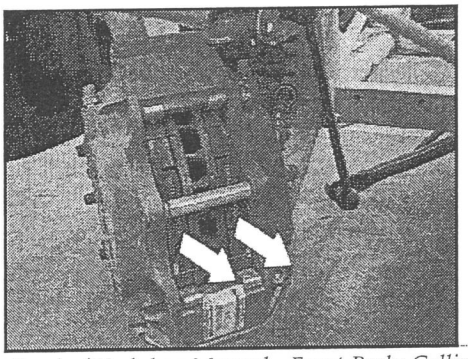
3rd ANGLE PROJECTION

ALL DIMENSIONS IN MM

DRAWN: C.T.BLOUNT	DATE: 22/11/95
MATERIAL: N/A (SEE TABLE)	
TREATMENT: N/A (SEE TABLE)	
FINISH:	
TOLERANCE: LINEAR ± N/A mm UNLESS ANGULAR ± N/A degrees STATED	
SCALE: 1:1 (FULL SIZE)	SHEET SIZE: A1 (841x594)
DESCRIPTION: FRONT UPRIGHT GENERAL ARRANGEMENT – CERBERA	

TVR Engineering Limited
Bristol Avenue, Blackpool,
Lancashire, FY2 0JF
TEL. 01253 509000
FAX. 01253 357105

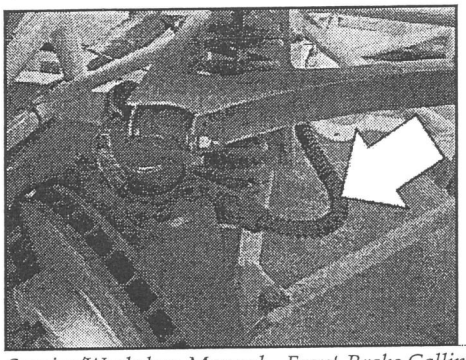
QUANTITY PER CAR: 1 PAIR (SEE NOTES)	PART NO: (SUPPLIERS REF)
SHEET NO: 1 of 1	DRAWING NO: (INTERNAL USE) C1035A



5

Service/Workshop Manual - Front Brake Calliper

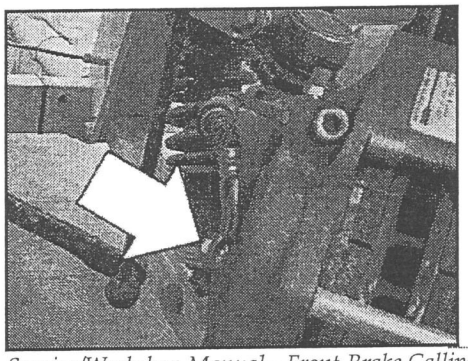
The pads can then be slid out of the calliper.



6

Service/Workshop Manual - Front Brake Calliper

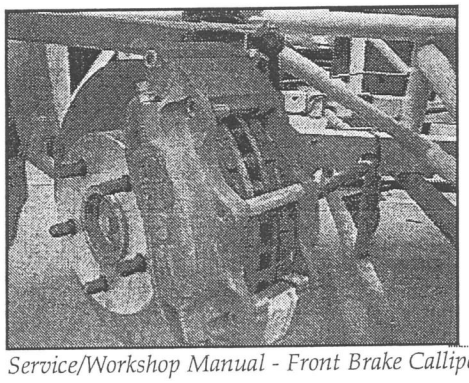
Next a pipe clamp must be fixed to the flexible section of the brake piping. This is to stop the brake fluid from spilling out. N.B. It is inevitable that some fluild will be lost and that the brakes will have to be bled.



7

Service/Workshop Manual - Front Brake Calliper

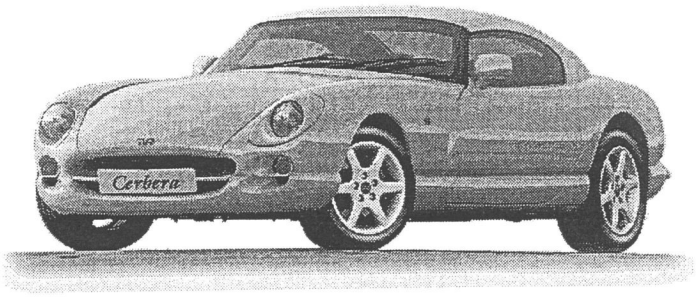
Remove the banjo bolt and copper washer which secures the brake hose to the calliper.



8

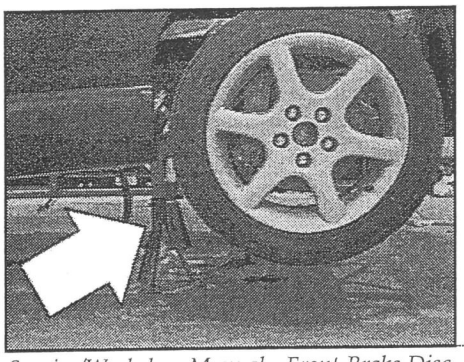
Service/Workshop Manual - Front Brake Calliper

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 ane tighten to correct torque. Road test the vehicle.



Service / Workshop Manual

Brake Disc



Service/Workshop Manual - Front Brake Disc

1

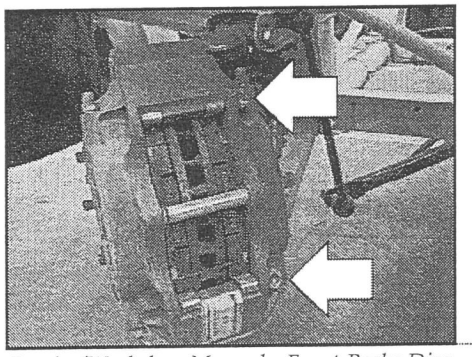
Jack up the front of the car and lower onto axle stands.
N.B. This procedure is the same for the front and the rear brake discs.



Service/Workshop Manual - Front Brake Disc

2

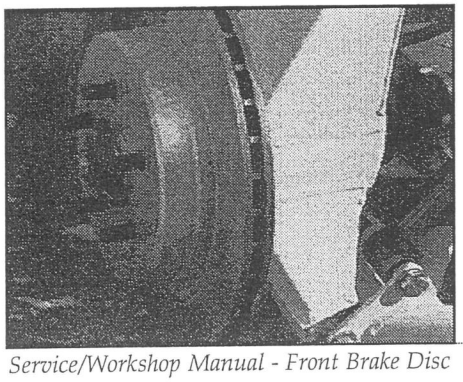
Remove the wheel.



Service/Workshop Manual - Front Brake Disc

3

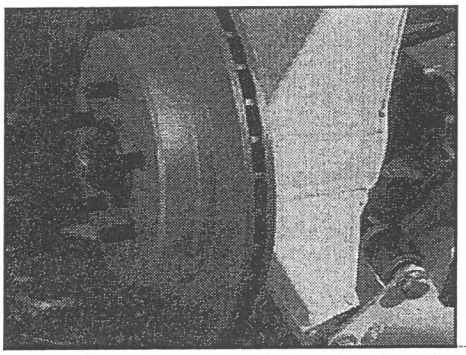
Remove the 2 x M10 allen bolts and spring washers that secure the caliper to the upright and move the caliper to one side.



Service/Workshop Manual - Front Brake Disc

4

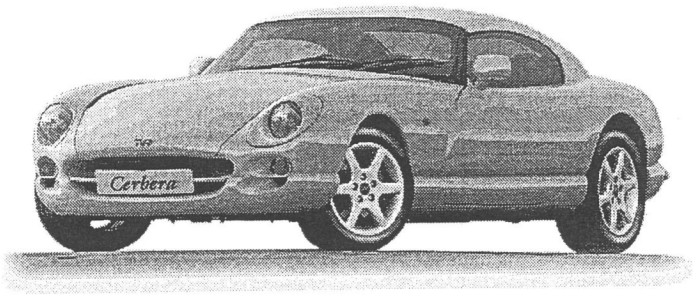
Once this has been done the brake disc can be slid of the brake hub.



Service/Workshop Manual - Front Brake Disc

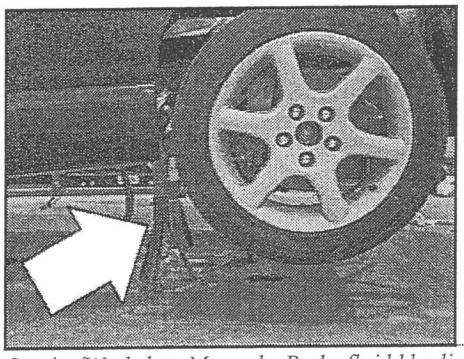
5

To replace a brake disc reverse the outlined procedure.



Service / Workshop Manual

Brake Fluid Bleeding



Service/Workshop Manual - Brake fluid bleeding

1

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



Service/Workshop Manual - Brake fluid bleeding

2

Next remove all the wheels.

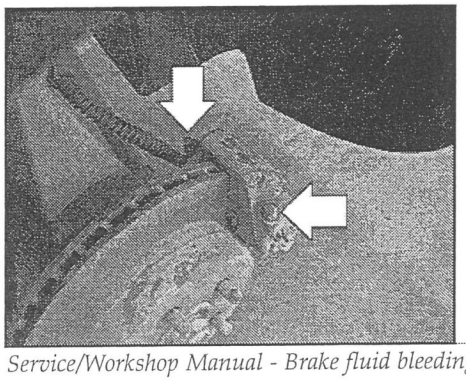


Service/Workshop Manual - Brake fluid bleeding

3

Remove reservior 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.

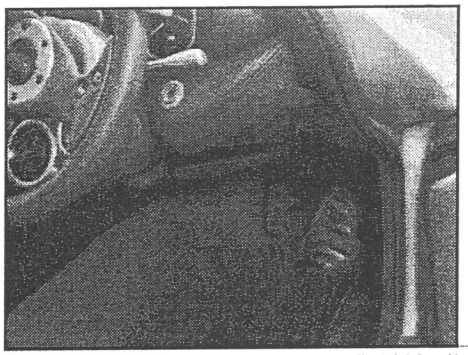


Service/Workshop Manual - Brake fluid bleeding

4

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.

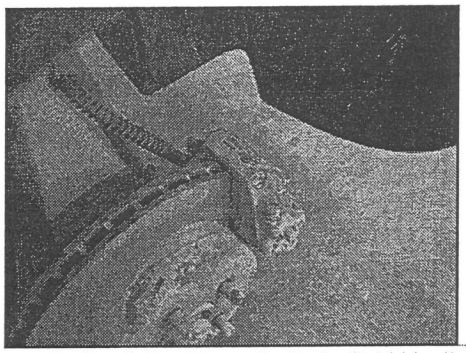
N.B. If the system is completely empty, it maybe necessary to start at the caliper nearest to the master cylinder. i.e. O/S front.



Service/Workshop Manual - Brake fluid bleeding

5

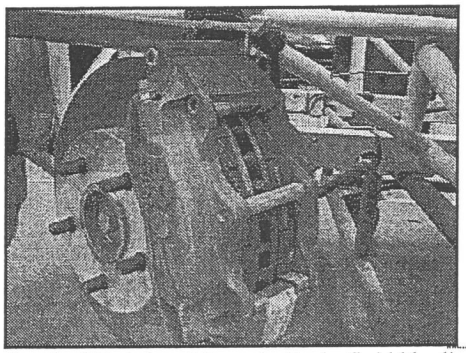
Using a tube on the bleed nipple and a container in which to collect the used fluid, pump the brake pedal until no more air appears from the caliper.



Service/Workshop Manual - Brake fluid bleeding

6

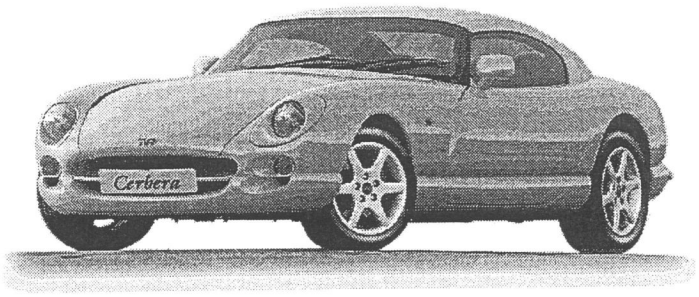
At this point, re-tighten the outer bleed nipple. Move on to the adjacent nipple on the inside of the caliper and repeat the operation.



Service/Workshop Manual - Brake fluid bleeding

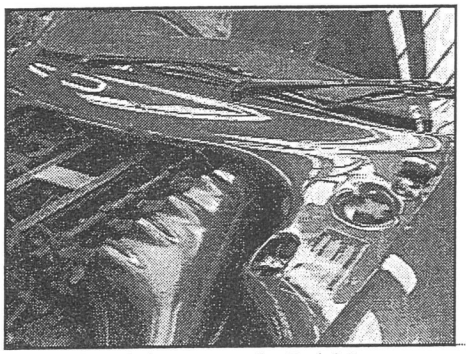
7

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

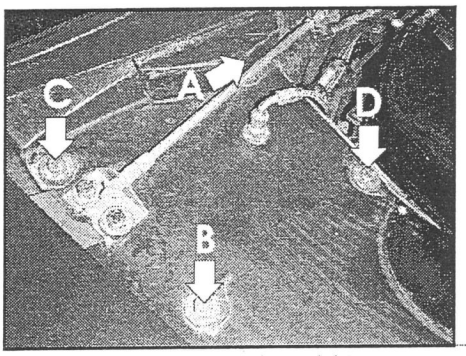
Pedal Box - Removal & Replacement



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.

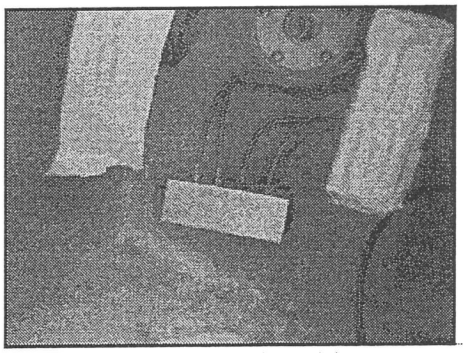
Service/Workshop Manual - Pedal Box



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 assembily. 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.

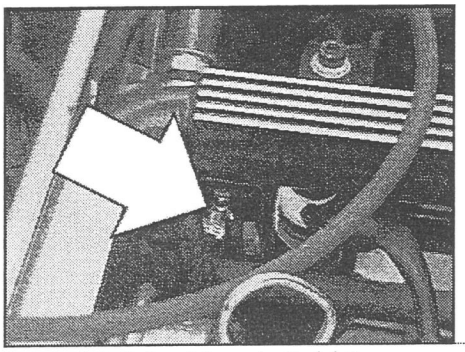
Service/Workshop Manual - Pedal Box



3

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

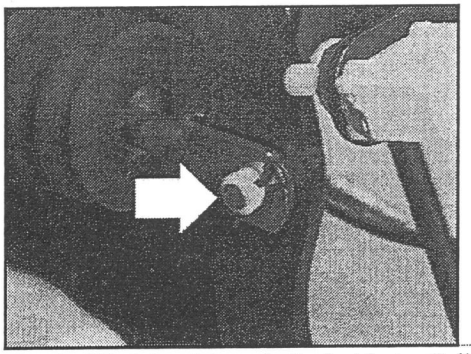
Service/Workshop Manual - Pedal Box



4

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

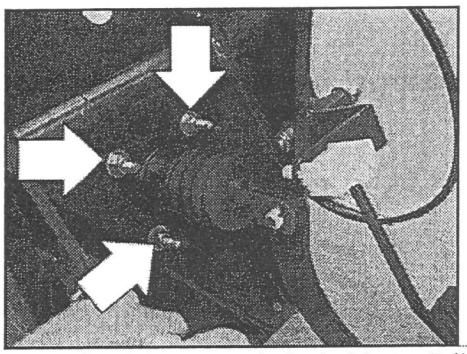
Service/Workshop Manual - Pedal Box



3

Service/Workshop Manual - Brake Master Cylinder

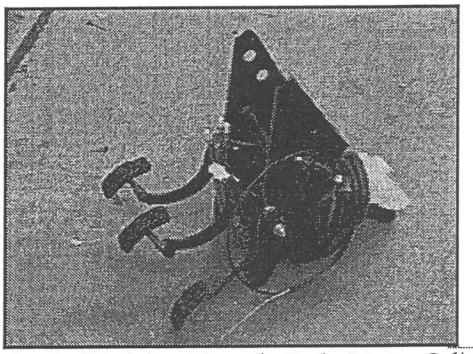
Then undo the split pin and clevis pin which connects the servo to the brake pedal.



4

Service/Workshop Manual - Brake Master Cylinder

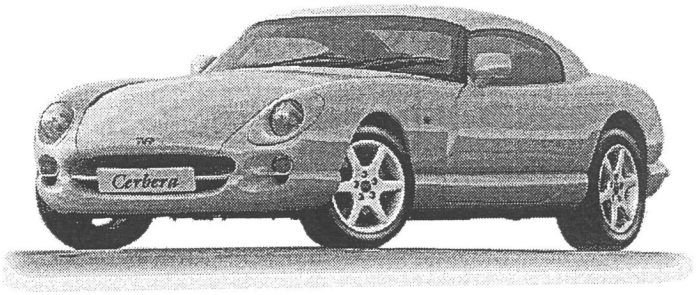
If the servo needs to be replaced remove the 4 x M 8 nuts with washers that secure it to the pedal box.



5

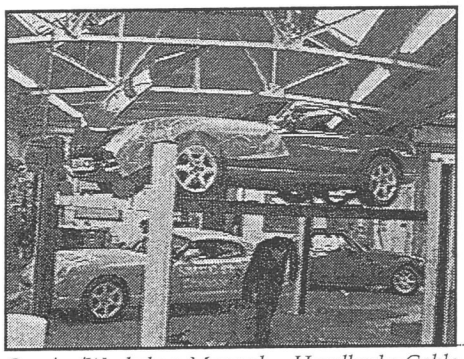
Service/Workshop Manual - Brake Master Cylinder

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

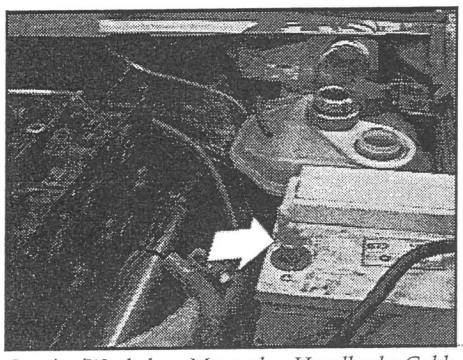
Handbrake Cable



Service/Workshop Manual - Handbrake Cable

1

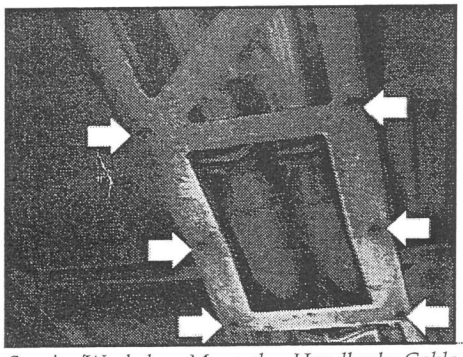
To gain access to remove the handbrake cable the car must be raised on a ramp.



Service/Workshop Manual - Handbrake Cable

2

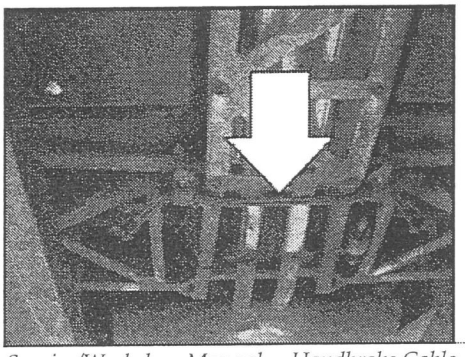
Disconnect the battery.



Service/Workshop Manual - Handbrake Cable

3

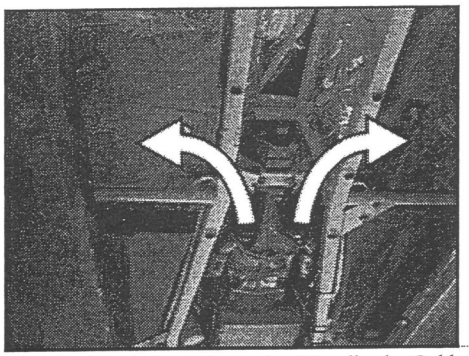
Remove the 10 x M10 allen bolts that secure the strengthing plate in place.



Service/Workshop Manual - Handbrake Cable

4

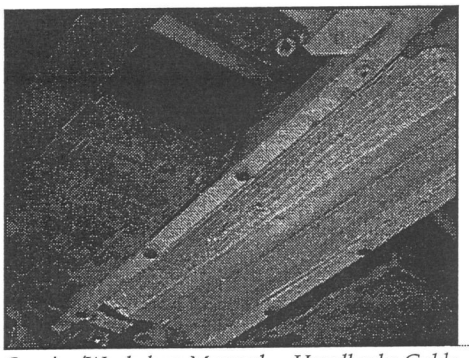
Remove the rear anti roll bar - desribed in the rear suspension section.



5

Service/Workshop Manual - Handbrake Cable

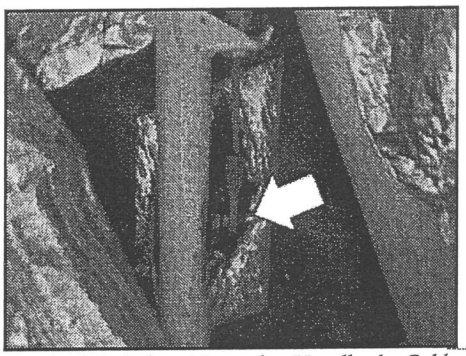
Split the exhaust system at the manifold to cats. and remove the whole exhaust system.



6

Service/Workshop Manual - Handbrake Cable

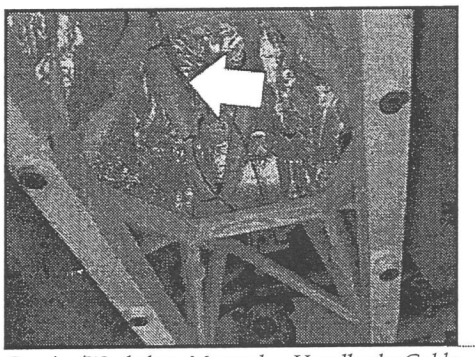
Drill out the rivets which secure the heat shield to the inside of the tunnel and remove.



7

Service/Workshop Manual - Handbrake Cable

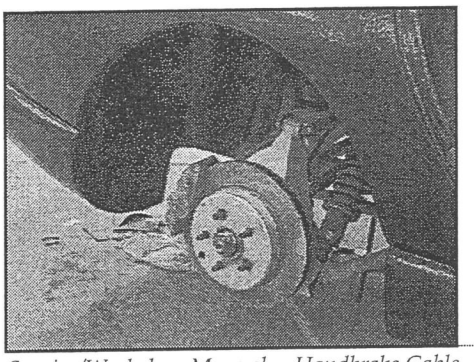
Then from under the car the clevis pin with its spilt pin, which secures the cable to the handbrake lever needs to be removed. To release the front part of the cable from the gear lever.



8

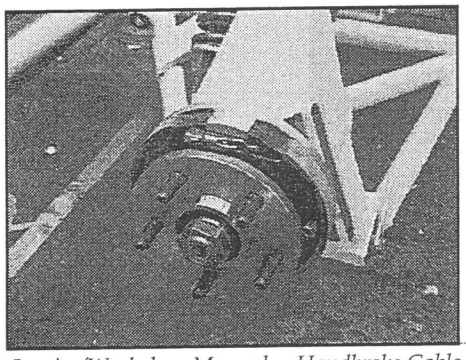
Service/Workshop Manual - Handbrake Cable

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



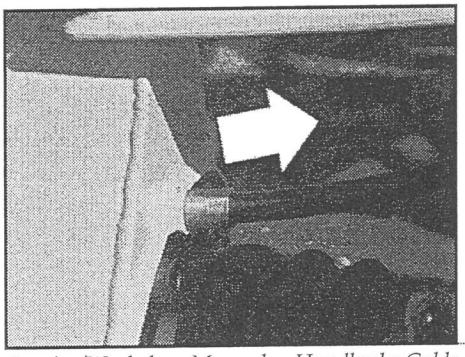
9

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

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



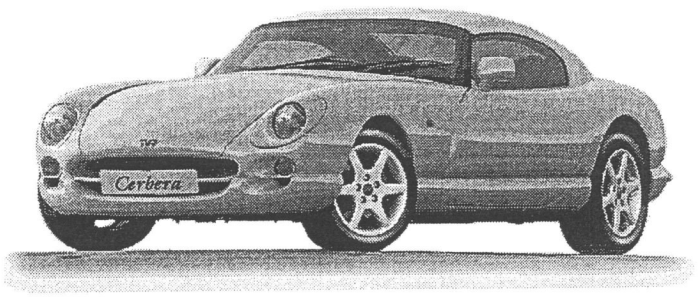
11

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



12

The refitting procedure is the reversal of the outlined procedure.



Service / Workshop Manual

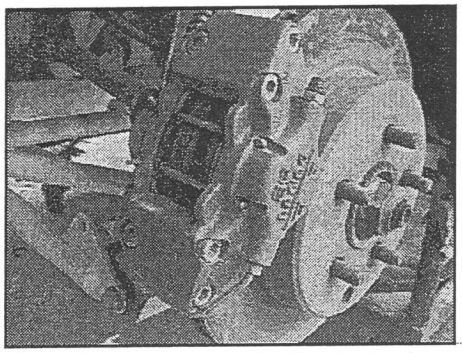
Handbrake shoes



Service/Workshop Manual - Handbrake shoes

1

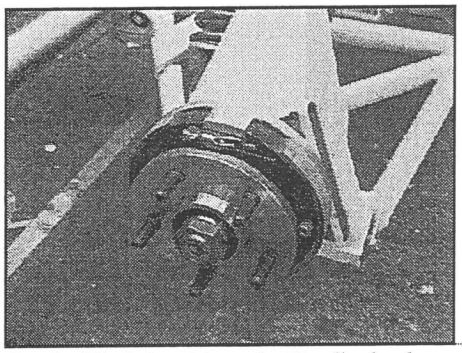
To gain access to the rear suspension assembly, remove the rear wheels.



Service/Workshop Manual - Handbrake shoes

2

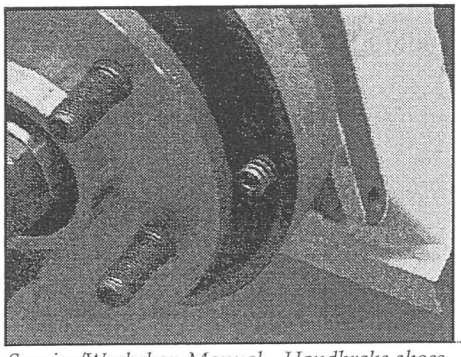
Unbolt the 2 x M8 allen bolts and spring washers that secure the caliper to the upright assembly and move to the side.



Service/Workshop Manual - Handbrake shoes

3

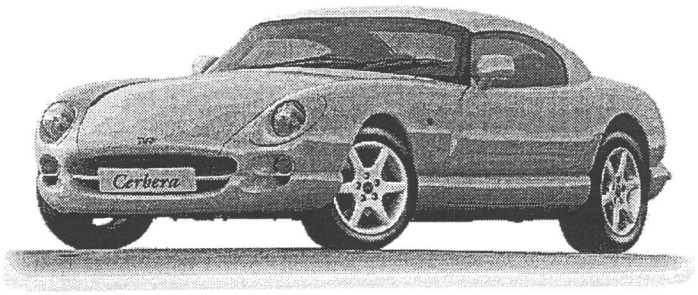
Slide the brake disc from the hub.



Service/Workshop Manual - Handbrake shoes

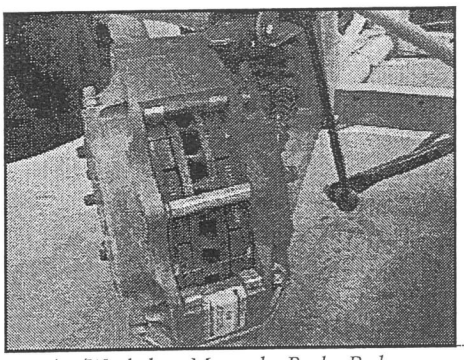
4

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.



Service / Workshop Manual

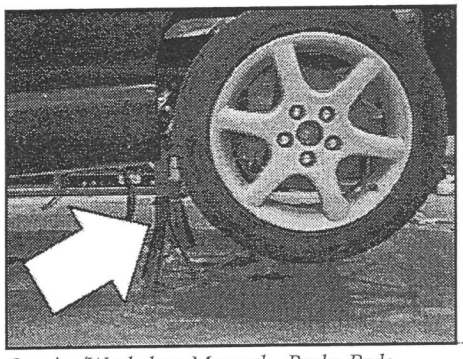
Brake Pads



Service/Workshop Manual - Brake Pads

1

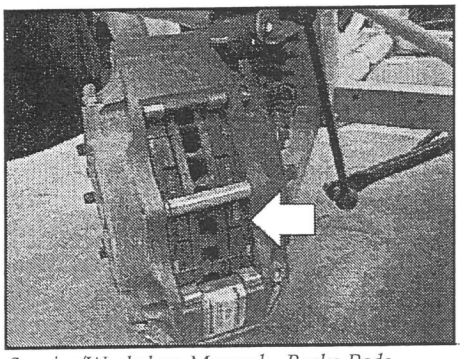
N.B. - When renewing brake pads it is essential that both left and right hand brake pads are replaced as uneven braking may occur if only one side it renewed.
This operation is similar for both front and rear brake pads, the only difference being the pad securing pins and clips.



Service/Workshop Manual - Brake Pads

2

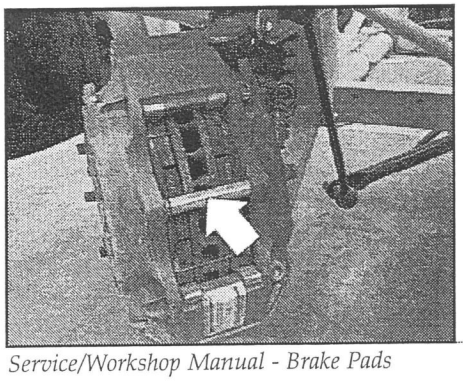
Jack up the front of the car and lower onto axle stands and remove the road wheel.



Service/Workshop Manual - Brake Pads

3

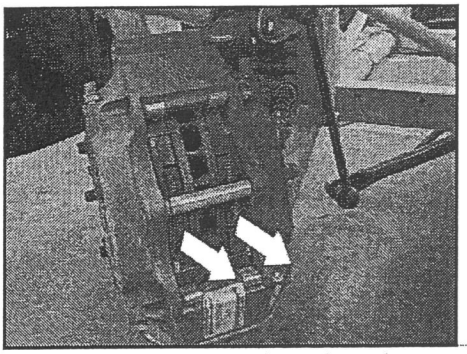
Remove the spring clip which secures the pad in position.



Service/Workshop Manual - Brake Pads

4

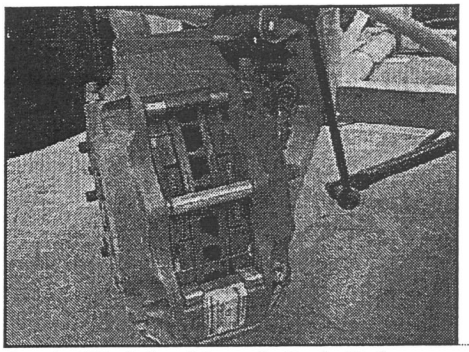
Unbolt the brake pad securing bolt.



Service/Workshop Manual - Brake Pads

5

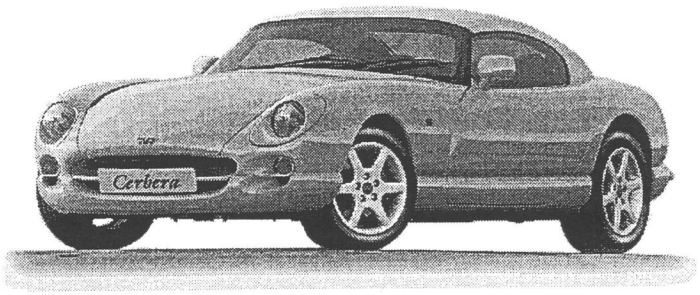
Finally slide brake pads out of caliper



Service/Workshop Manual - Brake Pads

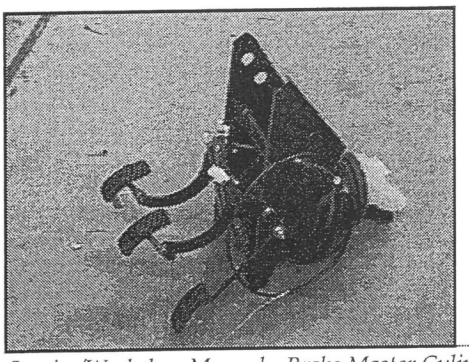
6

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.



Service / Workshop Manual

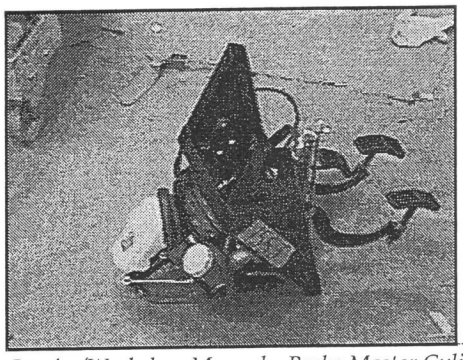
Brake Master Cylinder



1

Service/Workshop Manual - Brake Master Cylinder

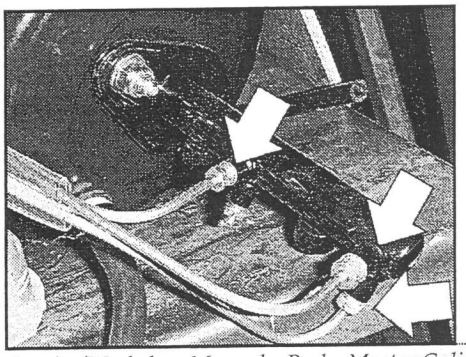
To replace the master cylinder the pedal box assembly has to be removed.- as described in its relevant sub-section.



2

Service/Workshop Manual - Brake Master Cylinder

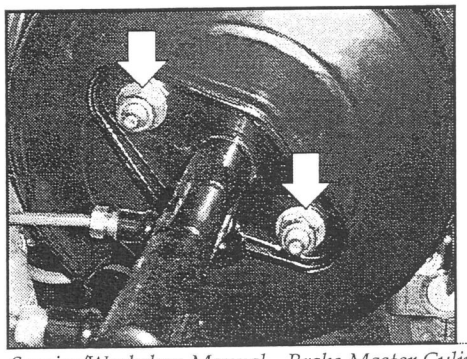
Once the assembly has been removed any work that is need can be completed on a work bench.



3

Service/Workshop Manual - Brake Master Cylinder

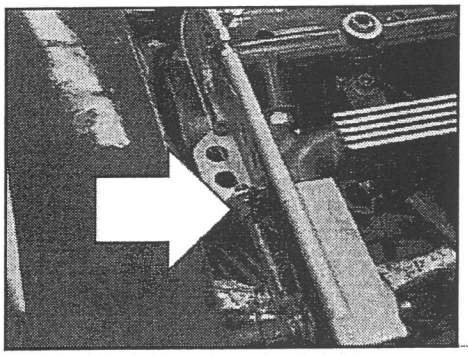
To remove the brake master cylinder, first disconnect and remove the brake pipes. Noting their positions.



4

Service/Workshop Manual - Brake Master Cylinder

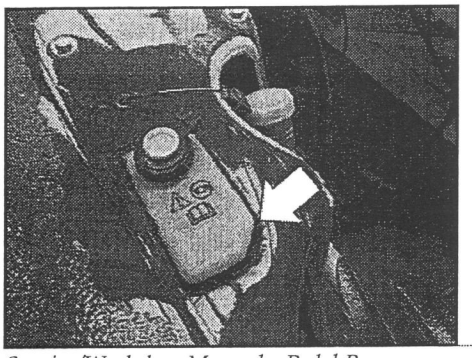
Undo and remove the 2 x M10 nyloc nuts securing the master cylinder to the servo. The master cylinder can then be removed.



Service/Workshop Manual - Pedal Box

5

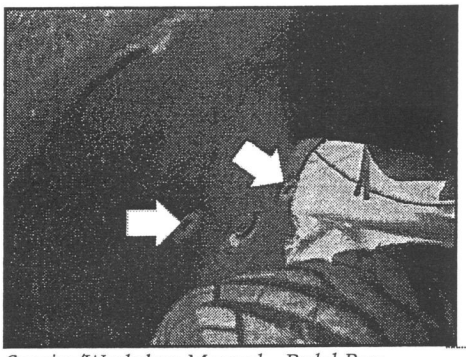
Undo the throttle cable at the throttle cable bracket which is located on the N/S inlet manifold.



Service/Workshop Manual - Pedal Box

6

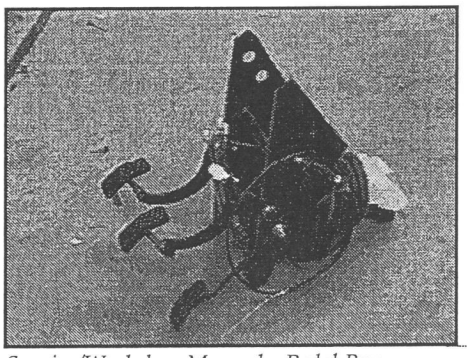
Remove seal from around brake fluid reservoir.



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 where left in position from the stage 2) can be removed.



Service/Workshop Manual - Pedal Box

8

Once this has be 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 assembily reverse the out lined procedure.