

Guides - Bleeding the Brakes

DISCLAIMER: The information in these documents are a collection from experience (friends or myself), magazine articles, mailing lists and Internet web sites etc. So don't take these as 100% correct gospel, hence I don't take any responsibility for any of these guides.



Difficulty Rating: 1/5 - Very easy with a bleeding kit.



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Revision 1

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Simple "one man" bleeding kit.

This is a step-by-step guide on bleeding the brake system of a car. It must be pointed out that this procedure must be followed correctly or your brakes and the system may fail, which is extremely dangerous. But with the help of this guide, bleeding the brake system is very easy. The guide is based on Vauxhall Nova GTE which is a four-wheel hydraulic brake, diagonally separated dual-circuit system. This covers most Vauxhall cars. Consult your user manual for instructions.



Caution: Brake fluid is poisonous. If any brake fluid is spilt on the paintwork, wash the affected area with cold water immediately. Brake fluid is an effective paint stripper.



Warning: When working on the brake components, take care not to inhale brake dust, since it may contain asbestos which can damage your health.



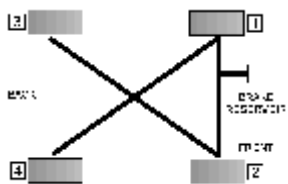
OIL BANK LINE
0800 66 33 66

It is illegal to dump oil down the drain. To find your nearest oil bank call the above number.

Why bleed the brakes?

Two reasons, either you've changed the calipers or brake hoses and disturbed the brake fluid. The second reason is that it is recommended to bleed the system annually (i.e. car service), regardless of the mileage. Brake fluid is hygroscopic, it absorbs water. Vapour bubbles enter the system over time naturally, which impairs the braking effect during braking (i.e. pedal feels "spongy").

If one brake hose has been removed from a caliper, not all the system has to be bled, sometimes just the part of it can be bled (i.e. just bleed the diagonal system). But for safety reasons and making sure air has been expelled from the system, it is ideal to bleed the entire system.



Typical four-wheel hydraulic brake system with diagonally separated dual-circuits.

What type of fluid should I use?

The Vauxhall manuals state Dot 4 Brake fluid to be used, this is the minimum standard. Higher Dot standards can be used, i.e. Dot 5.1 fluid. Basically the higher the better, as these don't fail under high temperature. When braking, the discs heat up the brake fluid in the brake hoses pipes. So the fluid expands and the 'feeling' of the braking is reduced to extent that it doesn't seem to be braking any more (also at this point 'brake fade' may be evident, which is when the pads glaze over and the friction between the pad and disc is lost).

Can I bleed the system myself or do I have to get it done at a dealer/garage?

Yes you can bleed the system yourself, which this guide shows you how. However the use of a "one man" bleeding kit from your local car accessory shop or Halfords etc makes the job much easier.

Also you don't have to remove the wheels (i.e. use a trolley jack and axle stands as shown in this guide) to get at the bleed nipples, but it helps access. It is possible to turn the steering to full lock each time and gain access to the bleed nipple on the caliper. The rears however are more difficult to get at the bleed nipple as these are located right behind the wheel (applies for both drum brakes and rear calipers).

PARTS

"1 Man" Bleeding Kit	9mm spanner	4 or 5 Dot Brake Fluid	Trolley jack
Axle stands	Empty bottle	WD40	

COST

One Man bleeding kit	£10	• One Man bleeding kit can be purchased from your local car accessory shop or Halfords etc.
1 litre of 4 Dot brake fluid	£6+	

◀ Bleeding the Front: ▶

General Notes:

Just before you start, make sure you note the following:

- If you don't have one, buy a Haynes manual for your car and have this in front of you. You'll may need this on how locate the bleed nipples etc.
- The use of a trolley jack and axle stands are optional, but this simplifies the job if bleeding the entire system.
- The bleed nipples may be hard to undo (due to dirt etc), squirt a bit of WD40 should solve it. Note that NO foreign objects should enter the system, i.e. grit, dirt, water etc, try and keep the bleed nipples clean at all times.
- When you undo the bleed to nipple, it only needs to be open a fraction (i.e. a quarter turn of a spanner is more than enough).
- Don't switch on the electric's when pumping the brake pedal, as you don't need the brake servo on yet. After the system has been bled, then switch on the electrics and use the brake servo, the pedal should feel firmer.
- Once the fronts have been completed, pump the brake pedal a few times to insure the bleed nipples are not letting any brake fluid out (i.e. bad news if they do - but they shouldn't).

OK, got all the above? Then follow the steps below (remember to click on the pics for a bigger view):

Step 1



Jack up the front of the car and remove both front road wheels to gain access (optional).

Step 2



Open the bonnet and locate the brake reservoir for your car.

Step 3

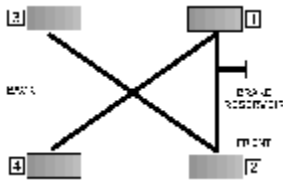


Top up the brake reservoir as necessary to the MAX mark. Then close lid (to keep pressure in).

Step 4

Step 5

Step 6



The dual-circuit system shows the order to bleed the system, starting at the fronts first.



With the engine off, press the brake pedal firmly several times to destroy any residual vacuum in the servo.



Remove the bleed nipple cover (if fitted) place a 9mm ring spanner over the bleed nipple and fit the bleed tube on top.

Step 7



Undo the bleed nipple and pump the brake pedal until no air bubbles are seen in the tube. Nip up the bleed nipple when done.

Step 8



Top up the brake fluid to the MAX mark again. Repeat the procedure for the other side.

Bleeding the Rear:

General Notes:

Just before you start, make sure you note the following:

- If you don't have one, buy a Haynes manual for your car and have this in front of you. You'll may need this on how locate the bleed nipples etc.
- The use of a trolley jack and axle stands are optional, but this simplifies the job if bleeding the entire system.
- The bleed nipples may be hard to undo (due to dirt etc), squirt a bit of WD40 should solve it. Note that NO foreign objects should enter the system, i.e. grit, dirt, water etc, try and keep the bleed nipples clean at all times.
- When you undo the bleed to nipple, it only needs to be open a fraction (i.e. a quarter turn of a spanner is more than enough).
- Don't switch on the electric's when pumping the brake pedal, as you don't need the brake servo on yet. After the system has been bled, then switch on the electric's and use the brake servo, the pedal should feel firmer.
- Once the rears have been completed, pump the brake pedal a few times to insure the bleed nipples are not letting any brake fluid out (i.e. bad news if they do - but they shouldn't).

Step 1



Step 2



Step 3



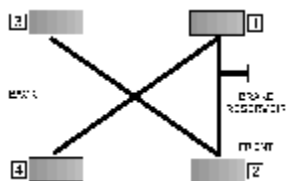
Top up the brake reservoir as

Jack up the rear of the car and remove both road wheels to gain access (optional).

Open the bonnet and locate the brake reservoir for your car.

necessary to the MAX mark. Then close lid (to keep pressure in).

Step 4



The dual-circuit system shows the order to bleed the system, do the rear brakes last.

Step 5



With the engine off, press the brake pedal firmly several times to destroy any residual vacuum in the servo.

Step 6



Remove the bleed nipple cover (if fitted) place a 9mm ring spanner over the bleed nipple and fit the bleed tube on top.

Step 7



Undo the bleed nipple and pump the brake pedal until no air bubbles are seen in the tube. Nip up the bleed nipple when done.

Step 8



Top up the brake fluid to the MAX mark again. Repeat the procedure for the other side.