



Well I've really gone to town on the old car recently. After a couple of hints from the MoT man: those ferrules on the front hoses are a bit rusty, the hand brake has a bit of travel, I finally decided to overhaul the whole braking system.

Now the work described here is fully documented in the workshop manuals and I have the luxury of an inspection pit plus a well stocked tool chest which makes for a simple time of things. There is no way I'd tackle the back brakes without a pit or ramps (if I could use somebody else's back) so I have every sympathy for those of us who can't do the work themselves. I hope to just add a bit to what's said in the books in the hope that folks won't encounter the same problems as me. As an aside having an inspection pit sounds truly impressive.

However, in my case, it's a hole dug in the ground inside my garage lined with corrugated



iron with 2x2 slabs in the bottom – does the job, cost next to nowt and pays for itself every time I do an oil change. The garage itself is a DIY affair made from old roof trusses and clad in tongue and groove timber, far enough from the house to allow any amount of noise and smell to be made without upsetting anybody. It's also tidy enough to not look an eyesore and the old P6 is absolutely no embarrassment when in the back garden



overlooking the VW dealership that I share my fence with.

First on my list of to do items was the brake servo. This is a beautifully simple mechanism that hasn't been bettered and the same basic bit of kit is present on modern cars. All it does is amplify the effort you apply to the brake pedal. It is also the cause of much worry on our cars. When it is off tune it can consume brake fluid by sucking it into its vacuum chamber at an alarming rate, it can cause the brakes to stick on after application, it can in extreme cases lock the entire braking system on and most harmful of all it can ensure you need a change of underwear if it ever fails to provide servo action in an emergency! In my case I decided to do a full rebuild by following the book. Both Haynes and Rover books give a good write up on this so not really much to comment on except that my rebuild failed, I'm fairly sure because of wear in the bores not being taken up by the rubber seals. Because the servo is quite a big item under the bonnet and is very visible I opted for a rebuilt item from Wynnes, which comes with a smart anodised (?) finish. I assume they sleeve the bores when necessary as the beautifully finished item also works as it should. I'm not one for under bonnet cosmetics but that servo looks great!

Next the front brakes were looked at. I knew the calipers were in top condition, I had recently fitted stainless pistons together with a new rubber seal kit to them, courtesy of Ian Wilson RIP – what a splendid chap

who deserved a long and healthy retirement.

I next looked at the flexible hoses and I have to admit to being really and truthfully ashamed of myself.

# Things I've learned whilst doing my brakes

The MoT tester had commented on them a couple of times but of course he is not allowed to touch them. I wish they were allowed to swing on the buggers, when I took mine off they were weeping on the inside edge and you could with next to no effort stretch them by about half an inch.

Now think about it, the pads only move a fraction of an inch before they contact the disk (on later cars they move a fraction of a mm), if the brake hoses stretch a little there will be no force at all behind the pads. Because of the way the hydraulic system works any stretchy hose will affect the whole system, not just the caliper it feeds (now think about it again).

New hoses were purchased from the internet, they are a multi fitment item so many choices are available but if in doubt the regular suppliers keep them in stock and you know they will fit. Now new hoses will also stretch a small amount when pulled, they have to in order to flex around bends. As far as I know there is no specific test for 'stretchiness' so if you're not happy then change them.

I bled the brakes (more of this faff later) and road tested the thing. Still not entirely happy with it but 'it's better' was the result. It was still losing a tiny amount of fluid and the whole set up did not have the 'I can stop a tank' feel like some of the other P6's I've driven.

I really really really did not want to do the back brakes but knew I had to. Now working on a classic car, in my opinion, should be pleasurable and be totally free of any time constraints. One technique I have mastered over a lifetime of being mostly some form of maintenance or design engineer (electronics)



is to break unpleasant tasks up into stupidly easy steps that are pleasant. So it was one evening after work – clear area to prepare for caliper removal, basically remove the handbrake linkage out of the way. Next evening undo one caliper etc.

I stripped them down to find brake fluid inside the mechanism, where it shouldn't be, and inspected the piston bores. Even after a good clean with a toothbrush they did not inspire any confidence. You can get a cost effective resleeving service which will provide a perfect wear resistant stainless steel insert to the bore or obtain completely rebuilt calipers.



I had in stock a seal kit but used brand new hydraulic seals. Now these seals are a standard hydraulic seal, they are also used in the rear DRUM brakes of at least one Ford (can't remember which) but it's really not worth the effort of trying to source them when they are cheap enough from our suppliers. One tip I have to offer is regarding the pins that stick out of the caliper body that the brake pad retainers rest on. If you ever have to remove them (don't unless you need to) you must put something like a small nail or tiny screwdriver down the centre that is a good fit. This will support the walls to stop them collapsing as you pull them out. If the walls collapse the roll pin (that's what they are called) will snap and you will be left with a machine shop bill to remove the remains. Wonder how I know this!

Now another thing I learned is that sometimes the piston will stick in the bore and refuse to budge. I had the following idea which I'd like to claim as my own but I'm sure other people have been down the same route.

Remove both hydraulic fittings (bleed nipple, hoses etc). Cram as much grease in one hole as you can until it comes out of the other hole. Screw a bolt with the correct thread in one hole, then do the same in the other hole to compress the grease. The piston will move a fraction. Carry on with this until it pops out.

On putting the brakes back needing 3 arms and 4 hands, I guiltily refitted the original 5 or 6 year old hoses. Then realised the error of my ways and fitted some new ones. I did find out that the holes for these hoses in the calipers will seal against either a tapered end on the hose or a flat end with a copper washer which I believe is the Rover original way. Check with your supplier as his stock will change depending on who makes them.

When you refit the handbrake mechanism it is important that the cable has enough slack to allow the handbrake pivot on the caliper to have its full range of movement, this will allow the mechanism to work correctly and adjust the pad clearance. It sort of tells you this in the manual but somehow makes it difficult to understand. Now these pivots are fitted with return springs, they are not powerful enough to take up the slack in the cable. This is the job of the spring in the bellcrank mechanism, if it ain't powerful enough then it's been dismantled at some time and reassembled without enough tension on the spring. How do I know this?

Next stage was bleeding the system. I have a vacuum pump which is as useful as an ashtray on a motorbike! The vacuum just pulls air in to its bleed tube through the threads on the bleed nipple, giving the impression of air in the system. Bleed nipple open push pedal bleed



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nipples closed. . . blah blah. . . is tedious and not practical with the back brakes.

My preferred method is to put a drip tray under the car to catch the brake fluid, place a rubber gloved finger over the end of the opened nipple and get my wonderful long suffering wife Sally to pump the pedal and keep the master cylinder topped up. The finger acts as a non return valve and with no practice at all you can sense when the air bubbles have stopped and pure fluid is coming out.

She then robs my overalls and chucks them in the washer and tells me to get a shower because I smell.

Women, what do they expect a real man to smell of?

Anyway my brakes are top notch now, car stops like it should and I'm not afraid to let it rip when I attempt to keep up with the I.6 diesel repmobiles at the lights.

Steve Wyles



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