

De clunking your MGB rear axle

By Stuart Clarke

Do you have that annoying clunking noise when accelerating or decelerating, or even when you lift off to change gear, well it's possible to resolve the issue and the parts are cheap.

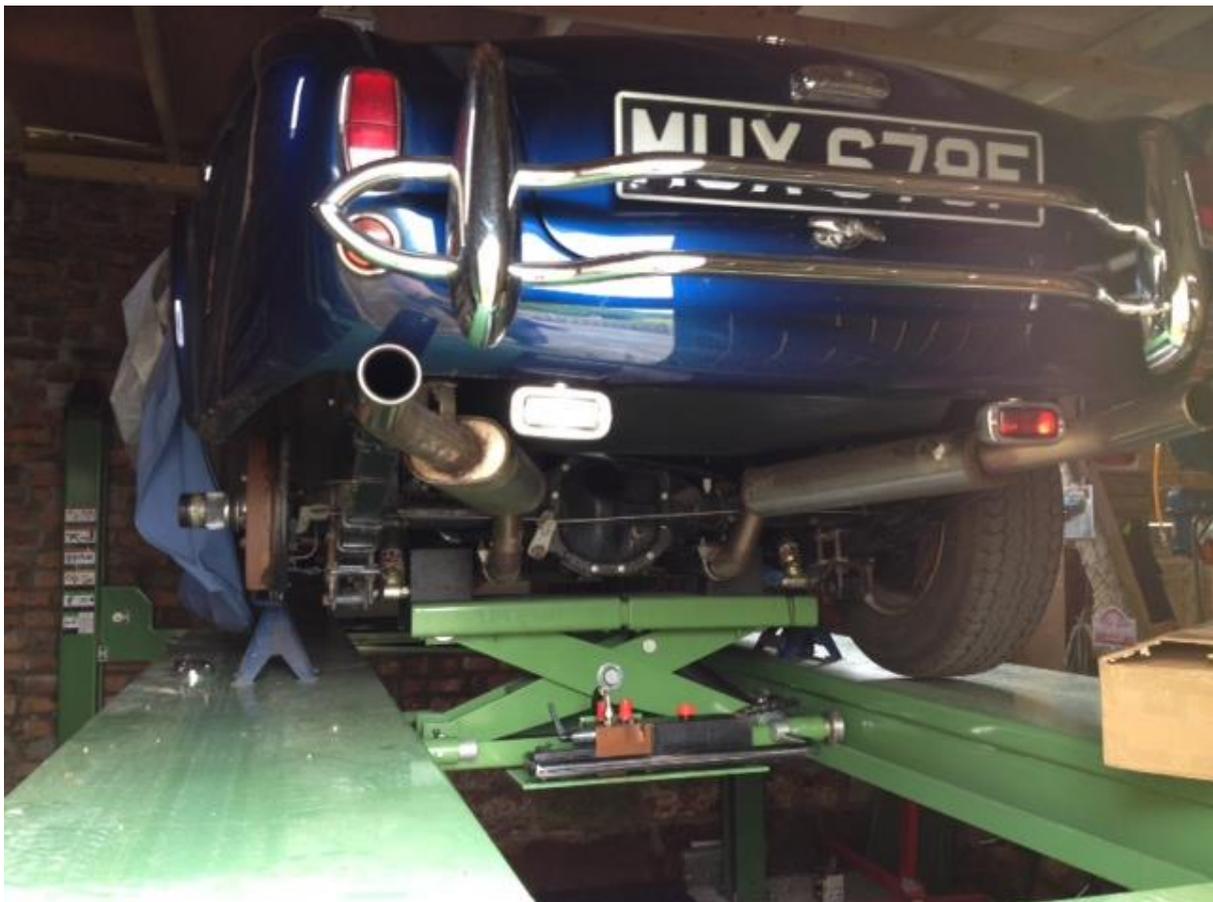
The clunking noise is caused by play in the planetary gears in the diff cage caused by the wearing of the phenolic spacer washers and cupped copper washers that these gears seat on, they only cost a couple of pounds from MGB parts dealers and it's a relatively straight forward job as long as you are methodical.

The plan is roughly as follows:-

Drain Diff oil, remove the cover plate, remove one of the wheels, remove the brake drum, hub and brake back plate, pull out one of the half shafts a couple of inches remove the diff cage pin, remove planetary gears and replace spacer washers and reverse the previous. Sounds easy? Yeah course It is.....

When I did this job I also replaced the brake pads and axle seals as I'd had a slight weep on the one side and for good measure, I replaced the outer axle bearings.

The first job is to jack the back of the car up, again I am fortunate as I have a 4 post lift which makes jobs such as this much easier. Ensure the front wheels are chocked to stop the vehicle moving. Ensure both rear wheels are off the ground and the vehicle is in neutral.



Ensure that the back end of the vehicle is well supported, a pair of sturdy axle stands is ideal. Don't support the vehicle on a jack as these can fail and considering the consequences is a good incentive not to do it!

The next step is to drain the diff case from the lower plug. I use EP 90 gear oil and as I've got a couple of older cars I usually buy it in 25 litre drums as it is so much cheaper that way. You only need a little over 1 litre when filling back up. Ensure that good gloves are used and that the oil is disposed of responsibly. This is a messy job so also consider some decent overalls and eye protection.

The next step is to remove one of the wheels, remove the brake drum, and remove the hub which requires you to pull out the retaining pin and undo the hellishly tight hub nut. The easiest way I have found to undo this is using a crowbar to steady and stop the hub turning and use a $\frac{3}{4}$ breaker bar with a long piece of thick walled tube used as an extender. Before you undo it it's a good idea to mark on the nut and half shaft end where the retaining pin goes through to make it easier to line everything up on reassembly.



Once the hub is off, disconnect the brake pipe from the slave cylinder and plug the pipe (I used a spare slave cylinder) to stop you losing all of the brake fluid, disconnect the handbrake cable and remove the brake back plate and the last item, the bearing cover plate.

The next step is to pull the half shaft out of the diff cage. There are plenty of slide hammers on the market to enable you to pull these out but I use a piece of steel angle with a hole drilled and a couple of 8mm coach bolts as spacers.



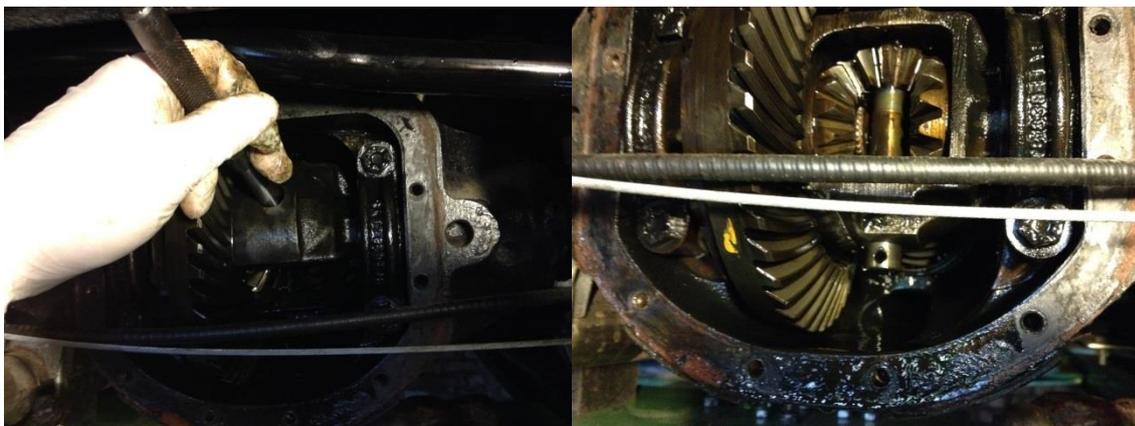
The half shaft pokes through the hole and the coach bolts sit in the holes in the end of the axle case where the back plate bolts to with the heads up against the angle and the using the hub nut on the end of the half shaft wind this in and it pulls the half shaft out. You will have to wind the nuts down the coach bolts to space the angle further out when the hub nut bottoms out on the half shaft.

It's tight at first but the half shaft will just pop out.

Remove the diff cover and inspect the to do list..

It looks complicated, but it's fairly straight forward, fiddley but straight forward.

Rotating the diff cage so it's open in front of you, the top and bottom planetary gears are secured in place by a tapered pin which is secured in place by a roll pin. Remove the roll pin with a hammer and correct sized pin punch. Twist the cage to find the thinner end of taper pin and tap it out by about $\frac{3}{4}$ of an inch no more or you'll jam up the diff cage.



On the right hand picture you can see that the tapered pin is knocked out to expose the roll pin hole. If this protruding end is rotated towards you the pin punch can be inserted in this hole and the tapered pin pulled out. The top and bottom gears can now be “rolled” out by rotating the side spur gear without the half shaft in it. The side spur gears can now be removed.



These are the components that are to be changed.



The larger phenolic washers are under the side spur gears and the cupped washers are under the top and bottom planetary gears. Smear the new spacer washers in new diff oil, refit the side spur gears with the phenolic spacers fitted and roll the top and bottom planetary gears, with new cupped washers, back into place. This is a little fiddley as the new washers

have taken out all of the play, but they do go back into place. The next step is to carefully rotate the cage to enable the tapered pin to be tapped back into place (Make sure the holes in the planetary gears line up with the holes in the diff cage as forcing the tapered pin back in will burr the edges of the holes in the gears which will result in further work and cost!) . Ensure that the roll pin hole lines up with the hole in the cage or else you'll be knocking the tapered pin back out.

Once the tapered pin is in place the roll pin can be tapped back in. Ensure that this roll pin is tight and if loose, replace with a new roll pin.

Now it's time to refit the half shaft. Replace and / or repack the bearing with grease, slide it back in, twist and mesh the splines and tap back into place with a suitable drift. When you get a metallic dinging sound you know that it is home.



I replaced the oil seal and collar that it runs on as they were also worn. Ensure that the inner lip of the oil seal is also greased. The back plate can now be refitted, brake pipe can be connected to the slave cylinder and handbrake cable can be reconnected.



As previously mentioned, I also replaced the brake shoes as I'd had an oil leak.

The hub can now be refitted along with the hub nut, retaining pin and brake drum.

The last task is to refit the wheel, refit the diff cover with a new gasket and sealant and refill with EP90 oil. The advised level is up to the upper filling plug which is slightly over one litre.

The rear brakes need to be re-bled which, if you had plugged the pipe quickly, a very quick process. I made sure that the brakes were adjusted and set correctly by ensuring that the wheel would turn when no brakes were applied and solid when applied. I checked over to make sure everything was tight and the only thing I had left was the old spacer washers, the wheel was put back on, tools tidied away, wash and brush up and out for a spin.

The clunk was completely gone result.