

My Hawk Build Part 4 by Stuart Clarke

Refurbishing the donor parts – Rear Axle.

As with everything with the Hawk kit there are a couple of options when it comes to putting the power down. The most common choices are the MGB rear axle, which is also known as a live axle, and the Jaguar IRS set up.

The decision as to what axle/ suspension option you take depends on the engine output. I was going to use a stock 289 engine which is probably on the limit of the MGB axle but I had it confirmed from more than one source that it was OK. Also by using the unit from the donor car there was more chance to get the Hawk registered on an age related plate and it would let me keep the costs down a bit.

The MGB axle is a good solid unit and it comes in a couple of different varieties. The earlier axles were called Banjo axles and later this was replaced by the Tube type or Salisbury axle. The main difference is that on the earlier Banjo axles it was a relatively simple job to remove and refit the differential. On the later Tube type axles this is a job that can't be undertaken without specialist tools so is best left to the experts.

The axles also come in two different lengths. The wire wheel axle is 1 ¾" shorter (in width) than the disk wheel or Rostyle axle. This can cause a problem when building a Hawk 289 roadster as you need a wire wheel axle if you are going to fit wire wheels. I was lucky as my donor MGB had been fitted with a wire wheel axle that had steel wheel hubs fitted to it.



My rear axle was well weathered and had a nice patina of surface rust and grime.

As I'd read some horror stories of shot blasting rear axles and blasting grit getting inside the bearings and differential so I decided against it. The other alternative is a wire brush and lashings of elbow grease. As I knew that this was going to be a horrible thankless task I decided to break it down and do it a bit at a time starting with the brakes and back plates.

The first job is to strip the axle down beginning with the brake drums. Both my brake adjusters were seized solid on the first side I undid the cross head recessed screws and tried to lever the drums off..... No chance. The brake shoes were locked solid against the drums - great.

Over a couple of days I sprayed the adjusters with WD40 and tried to wind them back with no luck. In the end I decided there was nothing else left but to split the drums with an angle grinder. I got myself set up goggles at the ready, a couple of spare slitting disks and I thought... I'll just grind a couple of new flats on the well mangled square peg of the brake adjuster. Got my big adjustable spanner on the adjuster and it turned! I was back in business! 5 minutes later the drum was off.



Yuk! I didn't think I'd be able to salvage much of this.

The next thing to come off was the hub. The large nut requires an 1 5/16" socket. This was outside the range of my socket set so I went off to get one. In the end I was the proud owner of a 3/4 drive socket set that went well above the required 1 5/16 (and the socket set was half price!). I levered out the split pin and tried undoing the nut and it wouldn't budge.

So I thought that's it time for a break so I went for a game of golf.

Next weekend I was well armed. A long tube to extend my $\frac{3}{4}$ drive breaker bar and a 6 foot length of sturdy angle iron to fix to the hub nuts. A couple of grunts and the nut was loose and couple of turns later and the nut was off.

The hub next. The bolts on the hub were a bit bent but that didn't matter as I would be fitting a wire wheel splined hub and this steel wheel hub would be discarded.

The Haynes manual states that "the hub can be simply levered off" I've stopped believing the Haynes manual by this time and I had a good set of pullers ... good job I did. (Lever off indeed!)



I wound up the pulleys and nothing happened. The jacking bolt got tighter and tighter and then BANG! and the hub was off.

Four bolts to remove the back plate from the axle (the back plate also holds the oil seal, make sure you put some rags under the back plate and axle end to catch the dollop of oil that comes out... I didn't)

I had one back plate off, I labeled it up so I knew which side of the axle it came off and turned my attention to the other one. This one was easy the hub nut flew off and although I couldn't lever it off, the hub came off quite easily and this time I didn't forget the rags to catch the oil.

I took both back plates to the lockup and made a list of all the components I needed to replace and ordered them from the supplier. As with the front suspension I decided to

overhaul the back plates one at a time. This always allows you to have a mirror image as a reference. You can rely on the drawings and photos in the maintenance manuals, but they aren't very clear and there are a couple of incorrect options where brake shoe springs could attach to.

I stripped the first back plate of all the rusty springs, adjuster and brake cylinder and spent a couple of hours scraping and wire brushing.



When it was cleaned up I gave it a couple of coats of enamel. I assembled all of the new and cleaned up brake components. I found it easiest to assemble the adjuster and brake cylinder.

Then I mounted the handbrake lever in place, fixed the springs that mount to the back of the brake shoes and pull the shoes apart and lower into the correct position on the back plate and then fit the retaining springs on either shoe and finally the handbrake lever spring.



Before and after.

The other back plate was a repeat of the first. When I had finished I had no bits left over and all the levers and springs seemed to work fine.

Next I turned my attention to the rest of the rear axle. It was pretty filthy and I spent the best part of a day with a scraper and a wire brush attachment in my cordless drill.

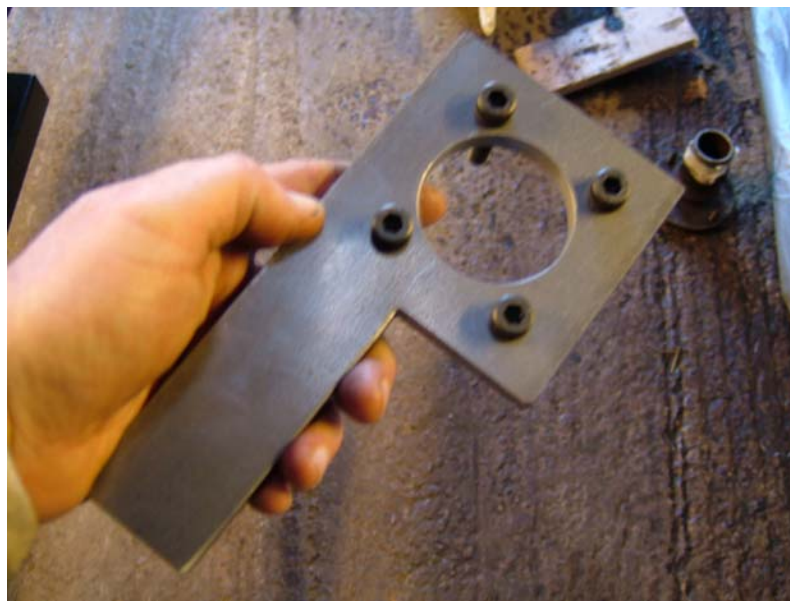


I primed using phosphoric acid solution which is the recommended primer for the paint I was using and applied some paint.



Whilst moving the axle backwards and forwards I noticed oil leaking from the front of the diff casing. I phoned my MGB parts supplier and he told me that it wasn't a straight forward job to replace the pinion seal as the bearing set up on the pinion shaft is under a set preload. I did quite a bit of research and found out that there is an accepted "bodge" job for changing this seal that has been tried and tested 100's of times by many MGB owners and believe it or not, it's how some of the garages and MGB specialists do it too.

To fix this I first needed to make a "special application tool"



This is a spanner believe it or not.

This bolts to the front of the pinion collar (where the prop shaft would normally connect). I then secured this in place with a long piece of box section steel to stop the pinion shaft from turning. (The box section slides over the "handle")
Once that is locked in place I turned my attention to the securing nut.

This part is really important as this nut locks the pinion collar, spacer and bearing together on the pinion shaft with a set preload. The way to get round this (without having expensive torque measuring equipment) is to mark the position of the nut and when you undo it count **exactly** the number of rotations to remove the nut so that you can refit it to **exactly** the same position afterwards not a millimeter more or less. This is extremely important. As failure to put it back to the same place will influence the preload which can wreck the diff or worse!!

I undid my nut which required 11 1/2 rotations. I removed the nut and spacer and pulled the pinion collar out.



It was then a simple job to lever out the seal, clean out the gunge and tap in a replacement seal with the lip lubricated with gear oil. I then slid the pinion collar back over the shaft and tapped it home with a hammer and block of wood.

I just needed to replace the spacer and wind the nut back home. The last $\frac{1}{2}$ turn it gets quite tight, this is the preload being applied and thus it is very important to tighten the nut to the same place as before.

After this was finished I checked the play on the diff. This is to check if the thrust washers are sound as some of the washers are made from phenolic and they disintegrate over time. The accepted amount of play is $\frac{1}{4}$ " rotation. You can test this by locking off the pinion collar and one of the drive shafts and rotating the other drive shaft backwards and forwards. There is always a slight amount of play and mine seemed OK. If yours isn't and you feel up to sorting it out yourself, there are instructions on how to do this on the internet. Just search "MGB rear axle clunk" and a number of solutions will appear.

I had another minor problem to resolve next. When I removed the axle rebound strap off the one side the nut was seized and when I undid it the rebound strap mounting snapped off.



I bought a small welder from Aldi a few years ago for about £50. It's a cracking little thing and I soon had it welded back on.

When all this was done I was back to some more painting. The next thing to do was fit a new diff cover plate gasket.



I used the permatex gasket sealant on one side of the gasket. I fitted the cover with new zinc plated bolts and it really looked good.

I then decided to replace the drain and filler plugs as they were all rusty. I needed to make another special application tool to get the old ones out. (It was a bolt with the ends ground down)



The new plugs were fitted with a smear of ARP thread sealer. I used this on the engine assembly too.

All that was left to do was a final assembly of all of the parts. Back plates complete with new shoes, adjusters and cylinders first.



Plenty of copper slip on the bolts and nuts.

The next was the hubs and brake drums. The bolts that bolt the drums to the hubs are special and have splines on them that cut into the hubs when they are first assembled. I put them in place and gave the backs of the bolts a tap with a hammer to start them and hold them in place when the brake drums are mounted.



The hubs are bolted on with the castellated nuts and the locking taper.

Nice new brake drums next. These are bolted on to the hubs with Nyloc nuts. There are two countersunk holes that aren't used on the drums these are used to fix to the hubs when disc wheels are used rather than wires. If you find that the brake drums don't go over the shoes just wind the adjuster square pin out, they will fit!

A quick final paint of the bits that had been missed and job done.



Ready to fit.

The rear shocks were in as good a condition as the front shocks and they just needed a clean up with a wire brush and lick of paint.



All done.

Torque Settings

Pinion nut oil seal change -
Hub nuts (1 5/16 nut) -
Diff cover bolts -
Back plates to axle -

Fit to same position as before.
150 ft/lb (Lined up to the nearest split pin hole)
6 ft/lb
25 ft/lb