

Refurbishment of Austin Seven – Semi-Girling brakes

Most of my Austin Sevens in recent years have enjoyed hydraulic brakes with the benefit of twin leading shoes at the front. However, a knowledgeable source, recently suggested that Semi-Girling A7 brakes might be just as effective as hydraulics in a lightweight special - so long as everything was in excellent working order. My spares box contained numerous Semi-Girling components, so, I decided to put this suggestion to the test for the A7 Special I'm currently building. This article addresses the brake components attached to the axles but does not cover the brake cross shaft, cables or handbrake mechanism.

In the interest of maximising braking efficiency, I decided to replace all damaged or worn components, and the first stage was to dismantle, clean and



Original backplates



Backplates cleaned and etch primed

inspect everything.

Interestingly, hydraulic backplates are 'handed' and they differ front to back axles but all four Semi-Girling are the same which is rather convenient.

The actuator mechanisms were examined and the alloy housings were found to be in good shape but both the 'paddle' levers and bushes were badly worn. So, new levers were obtained and the



New 'Oilite' bush and bespoke drift

'oilite' bushes replaced, by drifting out the old ones and replacing them with new, using a simply turned-up mild steel drift. Before fitting, the 'Oilite' bushes were soaked overnight in oil. The lead end of the drift was made an easy fit in the new bushes and the following shoulder just a few thou' smaller than their OD. The bushes

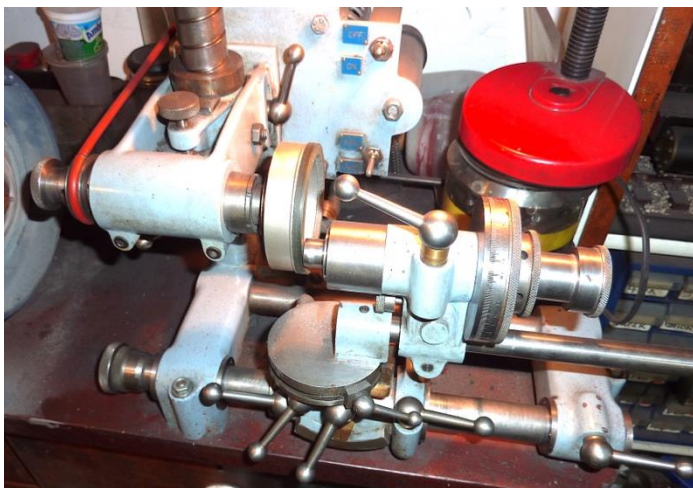


Ground actuator on right

seemed to be a fairly light press fit in the housings (presumably to preserve an accurate ID after fitting) so, a thin smear of Loctite 242 was employed on the outer surface to hold the bushes securely in position, whilst taking care to keep any Loctite clear of the bore.

New, rather nice quality paddle shafts were obtained from one of our usual suppliers which were usefully marked to denote their location (front/rear & near/off-side) because all four are different. They were also an excellent free working fit without any play in the bushes. This was important because it is inadvisable to ream sintered 'Oilite' bushes.

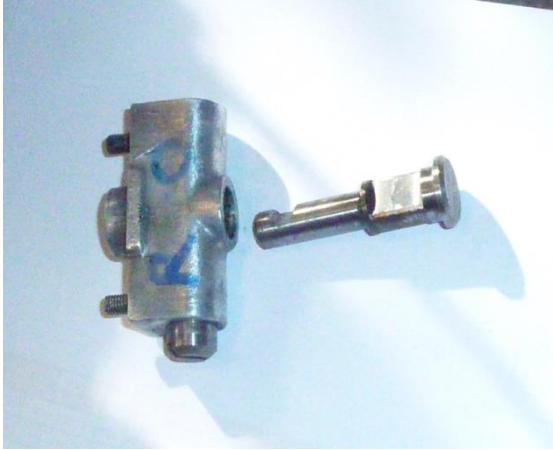
The actuator plungers were found to be an excellent sliding fit in the alloy housings but their inner hardened end faces were marked where the operating paddles had worn significant grooves over the past 80+ years of use. These marks were quickly removed using a 5/8" collet to hold them in a Model Engineer's universal grinder.



Refacing actuator plungers

The actuators were assembled on the backplates with new coil return springs, greased felt seals, and correct castle nuts etc. The Adjusters were also dismantled and cleaned and found to be in good working condition then lubricated and attached to the backplates using the original setscrews with new locking washers.

Next, the new operating levers (ball fronts and simple clevis pin rears) were attached to the actuator paddle shafts with new cotters and each backplate marked with its location on the car.



Actuator ready for assembly



Adjuster ready for assembly

The old linings were removed from the steel brake shoes which were then cleaned-up and given a coat of paint. Some shoes had grooved bosses for attachment of return springs and some a simple drilling. I had ordered new return springs that suited the latter arrangement, so, drilled-out and removed any grooved bosses.

I obtained a complete set of new linings and was pleased to discover that they seemed quite soft – and therefore likely to give good braking without too much pedal pressure.

The linings were attached to the shoes with the provided 3/16" dia' semi-hollow copper rivets working from the centre of each shoe. With a 0.365" dia simple flat-faced mild steel mandrel held vertically in the vice, the rivets were first opened slightly with a narrow lathe dead-centre, then rounded-over with a special drift that I turned-up many years ago. The rivets were then finished-off, using the ball-pein end of a small hammer taking care to ensure firm attachment without damaging the linings.



Actuator & adjuster in position



0.365" Dia Mandrel



Hollow rivet drift

Final assembly followed, ensuring all moving parts were sparingly lubricated with high melting point grease. The nice new shoe return springs are deceptively strong but have a very useful loop at each end that enables them to be coaxed into position by the use of a thin screwdriver, or even better with a hook tool as recently described in another club's newsletter. After a final coat or two of 'Hammerite' spray paint, the completed backplates were ready for attachment to the car.

Bob G



Rivet in position



Rivet closed with drift



All rivets in position

