

Repco Spectacle Plates – Article by Bernie Hadaway

In the early 1950s a newly formed

competitive motor racing, which was in those days possible, with a modest outlay of funds.

At this time many potential competitors saw the opportunity to use the Citroën Light 15 gear box, Paul England was one of these. It made it possible to construct light, competitive racing cars with the engine and transmission behind the drive, driving the rear wheels.

I was at that time part of the scene but not directly involved due to a preoccupation with ready-made MG's. My first Citroën came later. However, I was aware of the activities of Paul and others and of their tribulations with their many primitive constructions involving a variety of motors, including the favourite J.A.P. engine from which the original Cooper racing configurations grew.

Photo No. 1 shows one of these at the Balcombe Army Camp circuit, which was situated at Mt. Eliza and is long since disappeared. I took this picture in 1950.

It was not long before the introduction of more powerful engines lead to big troubles with gearbox disintegration due mainly to crown wheel and pinion failures.

The second gear problem, which still plagues us on occasions, did not exist as imported four-speed gear components filled the box. As I

recall this resulted in a strong, noisy crash-change box with no reverse gear.

Paul identified the problem as being due to the crown wheel Timken bearing spreading apart under the influence of the increased transmission loads, disturbing the mesh setting – with dire results! The bearing caps needed to be restrained from spreading under these loads and Paul's solution resulted in the two spectacle plates [I do not know how they acquired the name, but one can guess that they resembled spectacles]. The plates effectively bridged the two opposite bearing caps limiting the tendency for spreading and this helped to maintain proper gear teeth meshing.

As I recall the gearbox modification

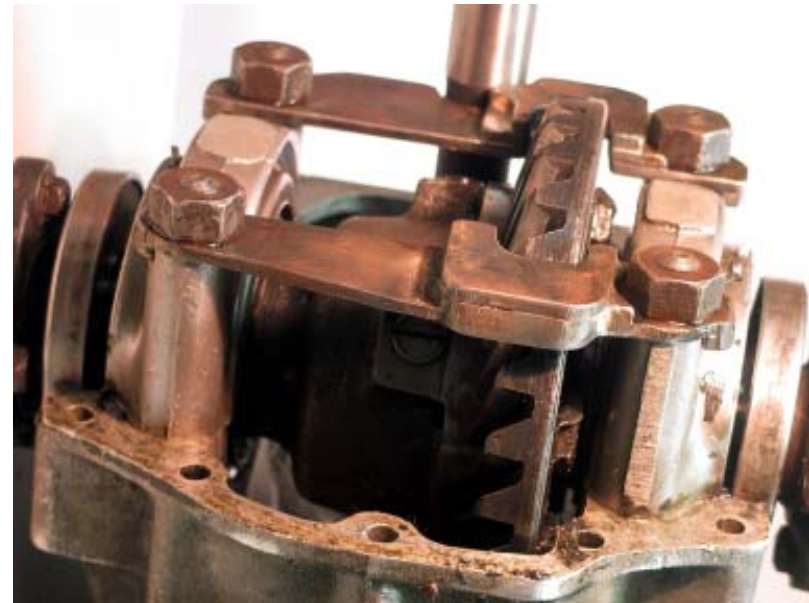
effectively reduced the pain and improved gearbox reliability. The Citroën Light 15 gearbox survived many years until the superior boxes, including the Climax, became available.

After 1956, being now a Citroën Light 15 owner, I became interested in the spectacle plates, but the moment had passed, and I never got round to fitting them. However, it now transpires that I have decided to give my spare engine and gearbox the 'once over' before putting in to stock. I decided to use the occasion to construct and fit reproduction plates as near to those fitted by Paul over 50 years ago.

Photo No. 2 shows the fitted assembly of plates. The construction method uses a lamination of 3/16

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Repco Research establishment under the legendary Charlie Dean of Maybach fame became involved in the early post-war Australian motor sports scene. It was not long before he gathered around him a group of young enthusiastic engineers, including a young Paul England, who saw the opportunity of becoming involved in the amateur



inches mild steel plates bonded by silver brazing.

Photo No. 3 shows how the spreading tendency of the bearing caps is resisted by abutment lugs,

but I may have got a bit carried away with my laminations around the crown wheel bridge! Perhaps I have got one too many, but 'better to be sure than sorry'.

TECHNICAL TALK

which interact directly and firmly against the bearing caps. This tends to negate any possible movement under clamping where direct friction is responsible for this function.

Photo No 4 shows the caps are pre-machined to provide accurate fitting abutment locations.

I am fairly sure the plates represent reasonably accurate reproductions –

I have never been really convinced that for the normal driving that we Citroën enthusiasts enjoy, how necessary these plates are, and I have a theory that there are other precautions that we could apply to avoid that dreaded crown wheel and pinion calamity. This is another story...

Bernie Hadaway 