

Flying Spares

DRIVESHAFT INFORMATION SHEET

HISTORY, BACKGROUND AND THE PROBLEMS ARISING

The wheel bearings of the Silver Cloud & S Type models differed from the earlier post-war cars because they were fitted with grease seals and seal carriers on each side of the bearings. These seal carriers not only support the oil seal O ring in an external groove, but they also have an Acme scroll grease return thread on the inner diameter.

The original wheel bearings had a special inbuilt end float and the service manual warned against renewing the bearings just because the end float was present. Unfortunately, this bearing end float allows the half shaft splines to end float in the splined bevel wheels. Splined shafts resist end float when under driving conditions, but when the shafts do slide, they wear the half shaft splines. When the shafts do not slide, they transfer the end load directly onto the axle bevel gear thrust washers.

The rear wheel bearings are about the last components that need renewal on these cars, long after the engines have worn out, however after some 50 years bearing grease can be almost non-existent and what remains is not a good lubricant. Even attempting to re-grease, the bearing provides no guarantees as the tracks, balls and cages are worn and they fail with little or no warning. Re-greasing a bearing after a considerable period of time will appear to make the bearing revolve smoother. It does not, however, replace metal that has worn off the bearings and which is captured in its granulated state within the sealed bearing. Metal which, given time, will guarantee a collapsed bearing.

Persistent running with slack and partially failed rear wheel bearings will eventually cause the bearing to turn on the half shaft and within the bearing housing. A faulty rear wheel bearing is one cause of failure of the main axle bearings and conversely the failure of the axle side bearings will, and does, fail the rear wheel bearings. Each set of bearings support the half shaft at either end, indirectly through a bevel gear at the inner end, so a complete bearing failure at one end affects the other end.

The initial failure of the wheel bearing is often followed by a clicking noise, which sometimes disappears temporarily when the car is reversed. Unless the bearings are badly worn it can be difficult to detect actual wear when the car is jacked up with the load relieved from the bearing and the wheels are spun. It is much easier to detect the wear when the wheel is removed as any imperfect movement of the bearing is hidden by the heavy flywheel effect of the road wheel. Once the wheel is removed it becomes necessary to have a good ear and light touch, rotating the hub back and forth feeling and listening for noise and roughness. Along with this back and forth movement the half shaft needs continually indexing around to cover the full 360 degrees of the bearing.

As the tooling and spares are not easily obtainable when out on the road, it is advisable to renew the rear wheel bearings unless the owner knows for sure that the bearings have been changed. Failing that, at least check the rear wheel bearings most thoroughly for any signs of wear.

Our driveshafts have been converted to allow use of a modified, modern sealed wheel bearing that can still allow side loads to be applied. They come fully reconditioned and assembled ready to fit.

CONVERSION TO MODIFIED BEARING RG8104P

The conversion mentioned below is suitable for use with all S1, S2, S3 & Silver Cloud I, II, III (and their Continental derivatives) half shafts.

The original rear wheel bearings are still available but very expensive. This original bearing is capable of taking side thrust loads and any replacement type must be a thrust bearing, as a normal roller bearing will quickly fail. Erring on the side of good engineering principles it makes sense, and has advantages, to fit a dual row bearing.

In the case of the original, the bearing was a single row thrust bearing which was wider in the centre section than the outer.

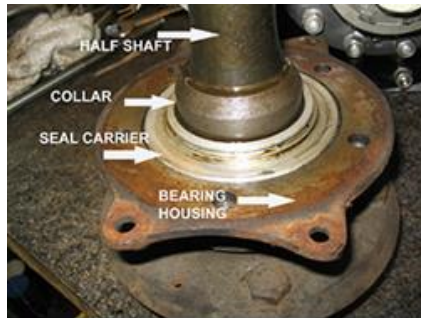


Fig1- old half shaft and bearing assembly after withdrawal from the axle tube



Fig 2 - A new modified bearing and an original S type bearing including oil seals



Fig 3 - A new modified bearing and an original S type bearing without oil seals.



Fig 4 - Side view of a modified bearing and an original S type bearing including oil seals

The various workshop manuals describe the removal of the half shaft assemblies, which are removed complete with bearings and bearing housings. Fig 1 shows a very old unit to illustrate what the assembly looks like after its removal from the axle.

Fig 2, Fig 3 and Fig 4 show comparisons of the original and new bearings in various states of dress. Note in Fig 2 how the two original side oil seals and carriers make up the width of the old assembly to fit in the wheel bearing housing.

This conversion uses a new neoprene sealed type bearing. This particular heavy bearing was chosen because it has far greater load-carrying capacity than the original bearing and the wider outer track enables the wheel loading to be evenly spread along the wheel bearing housing. In addition the width of the bearing is the same as the housing depth and enables a straightforward replacement when the original grease seal carriers are discarded.

The services of a machine shop will usually be needed to mount the half shafts in a lathe and machine away the old bearing retaining collar. Access to a press bed of at least 25 ton capacity is required to remove the old bearing and then press into place the new bearing and retaining collar. The highest load will normally be experienced when pressing off the old bearing which tend to come loose with a bang around 16 tons rather than a steady push. Expect that after fitting all the parts a final load of 20 tons should be applied.

Due to the high loads that the component parts will experience it is vital that the bearing housing is supported well to avoid damage. It is of no use changing the bearings or even an axle assembly if the bearing housing has been warped during the procedure. We recommend the use of specialist tools to hold the housing.