Fixing seal tracks

Seals on rotating shafts serve to keep oil or grease in and protect and lubricate bearings while keeping destructive agents such as water out. Such seals occur on the crankshaft, water pump shaft, drive shafts etc. Vehicles which have independent suspension at the "driven end" are likely to have additional seals at the inner side of the wheel bearings and between the drive shafts and differential housing. Voila! Les Citroens Traction Avant.

Contact between the rotating shaft and the spring-loaded seal lip will eventually cause wear of both the shaft and the seal. The wear rate will be accelerated by heat, high rotation speeds, poor seal lubrication, dust and corrosion. This will eventually lead to grooves or tracks on the shaft and leaks past the seal. Lubricant may be lost or water and abrasive dirt may reach and destroy the bearings.

Simply replacing the seal only does not work, since the shaft diameter has been locally reduced and usually roughened. The roughness will soon damage the new seal lip and leaks will recur. The old answer is to remove the shaft, have it remetalled, ground back to size, and re-assembled. The heat of the operation may also cause concern regarding loss of temper, strength or alignment of the shaft.

A compromise that I used once for a tracked seal area near the inner wheel bearing seal on one drive shaft of my Mini was to remove the shaft, clean up the seal area, and, with careful application of a flame, "tin" and fill in the track with silver solder. The silver solder was then polished back to the original surface level with fine wet and dry abrasive paper (400 grade or finer). The CV joint was not un-packed because of the low melting point of the silver solder. However, the rubber boot and CV joint area were protected with wetted cloths during the heating. Possibly brazing could have been used, but I was concerned about the additional heat required.

Imagine then my pleasure at learning of SPEEDI-SLEEVE which promises to solve the seal track problem quickly, effectively and almost cheaply.

Speedi-Sleeve is an ultra-thin-wall wear-sleeve of stainless steel, in a closely graded set of diameters. It is slid over the worn section of shaft with a tool provided so that distortion of the sleeve is avoided. Installation can often be achieved with little or no disassembly, and of course no risk of heat distortion.

The surface of the Speedi-Sleeve has a controlled finish which retains an oil film so that wear of the seal lip is minimized, while its stainless steel composition minimizes corrosion at the sealing surface and is more resistant to wear than most shafts themselves.

After selecting the appropriate Speedi-Sleeve, the shaft is cleaned up and if necessary, filled with epoxy, and the sleeve driven on before the epoxy has set. If necessary, the driving flange of the sleeve is cleanly removed along a pre-cut line. Thin-wall means that the original seal size can still be used.

Speedi-Sleeves are in 126 standard sizes between half and eight inch diameter, in metric sizes, and also to special order. Indicative stock prices are: one inch diameter $16, two inch $19, four inch $26.

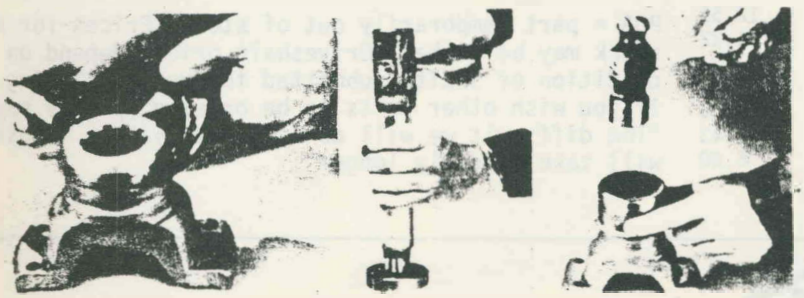
They are available from:
Bearing Service Pty. Ltd.
155 Wellington Road
CLAYTON. (560 3222).

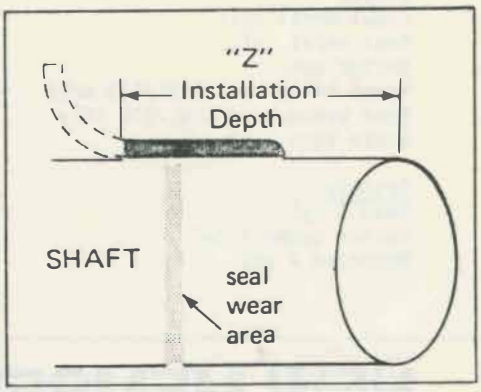
Card-carrying club members should be able to get a discount - ask for Phil Scott on the number above.

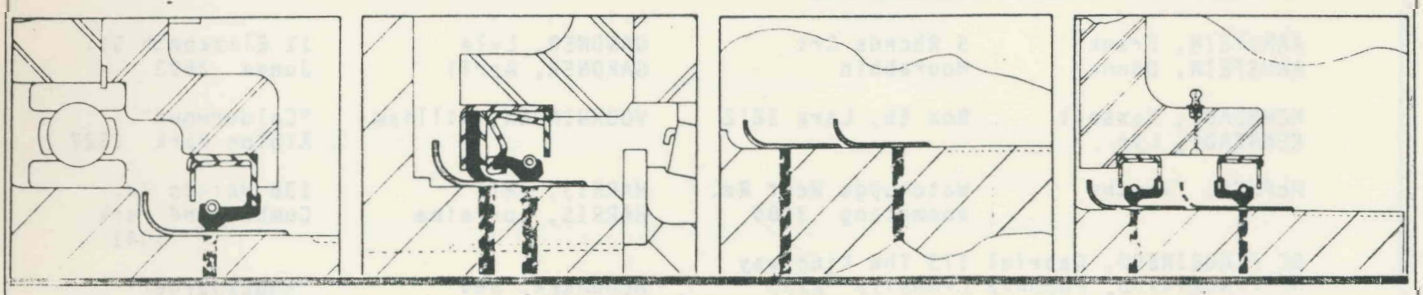
For more details, see Speedi-Sleeve brochure 457040, available from Bearing Service.

Happy sealing!

Bill Graham.







Speedi-Sleeve with standard single lip seal.

Speedi-Sleeve with combination lip seal.

Two sleeves for double seal installation.

Flange removed for double seal installation.