

Austin Seven – Torque Tube drive flange Oil Seal

The drive flange at the front of the torque tube normally relies on a close-fit, reverse scroll groove to prevent oil escaping and this arrangement often works perfectly well. However, if the groove is badly worn, the chassis is lowered with flat rear springs (perhaps in a Special) or the car is habitually parked on a steep forward down-slope, then back-axle oil is likely to escape.



Original bearing retainer

This article describes how a modern spring-lip oil seal can be fitted, to prevent oil escaping past the drive flange of a 1933 to 39 axle.

The original bearing retainer shown on the left has just sufficient material at its threaded end to accommodate a 45 mm OD single lip metric shaft seal with garter spring. The internal

diameter of the seal needs to match the 33.3 mm outside diameter of the drive flange boss and the seal depth chosen was the smallest available. The dimensions finally selected were 45 mm OD, 33 mm ID by 7mm and Nitrile seals of this size are readily available at less than £2 each. However, my preference was for a longer lasting Viton seal, which unfortunately, was nearly six times more expensive. Incidentally, Viton seals are usually distinguishable by being dark red rather than the more common black of the Nitrile variety.



Viton Oil Seal



Machined Retainer & New Back Ring

An alloy mandrel was mounted centrally in the four-jaw chuck and carefully machined to a very shallow taper that allowed the bearing retainer to be 'wrung' firmly into position by hand. This method is fine so long as only light cuts are applied. The photo on the left shows the bearing retainer after machining a 45 mm diameter recess to give a firm push fit for the seal. The recess was cut to a depth of 10.5 mm, just about as much as the

material of the threaded boss would allow.

The face was then machined back 2.5 mm and finally, a 3.4 mm brass backing ring 49 mm OD x 42.3 mm ID with a 2 mm x 45 mm lip. This ring holds the seal in position and transmits the retaining load through to the bearing. The above dimensions cause the new lip seal to sit comfortably, a short but satisfactory distance from the back of the drive flange boss, as seen in final photo.

For the seal to be effective, the land of the drive flange boss needs to have a smooth polished outer surface and this can happily be achieved by hand with fine wet & dry paper. However, some years ago, I cut-off the front of a scrap camshaft to use the taper to clean-up cam shaft pulleys in the lathe and this taper is the same as the torque tube drive flange. Set accurately in a four jaw chuck, this mandrel enables the drive flange to be polished with ease. The flange can also be trued-up if required.

The torque tube on the A7 Special I am building lies particularly flat and the bronze retainer scroll was badly worn. So, I am hopeful this drive flange seal modification will prevent any oil escaping.

Bob Garrett



Drive Flange, trued-up & polished



Old Camshaft Mandrel



Seal and backing-ring assembled



Showing seal position on flange boss