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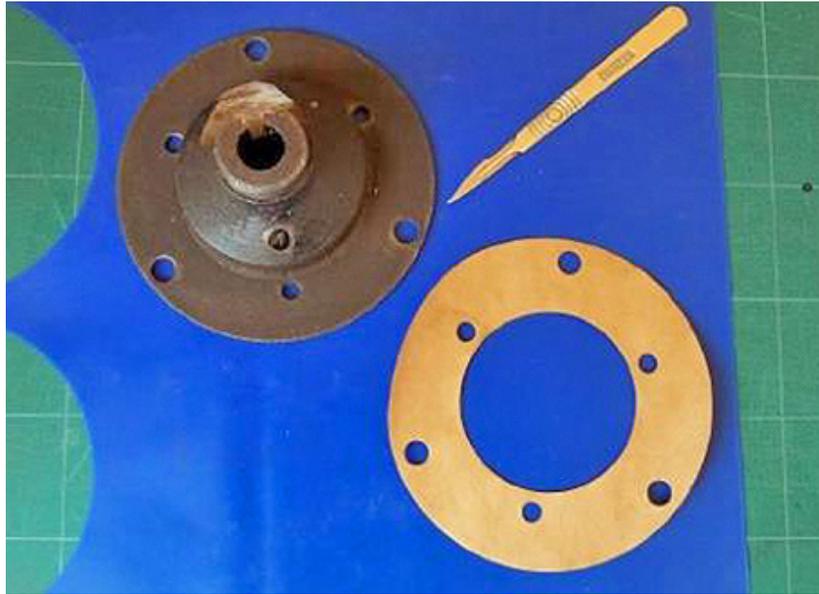
### Gaskets - making silicone rubber gaskets - Bob Kneale

(Focus, July 2017) (by kind permission of the Cornwall Austin Seven Club)

My heart sank as I removed the nearside rear brake drum; the inside surface was coated with a thin layer of grease, and so were the surfaces of the brake linings. The greasy coating didn't smell sulphurous however - a comforting sign that the half shaft seals were retaining their precious oil, which is not an uncommon fault to discover at this stage.

As I dismantled the hub, the inner hub retainer appeared loose on the bearing and show signs of not having mated tightly up against the outer, which in consequence had allowed grease to find its way between the two components before being flung by centrifugal force against the brake drum. The gasket was intact but very thin - only 6 thou. Measuring some new spare gaskets revealed that they had compressed a little, but not a significant amount. The felt seal behind the bearing was greasy, but not excessively so, indicating it was doing its intended job. An element of redesign was clearly necessary.

Bearing in mind that the flat surfaces of the inner and outer hubs are unlikely to be perfectly true, a gasket made from thicker material would hopefully be enough to take up the clearances. The sump gasket is 26 thou thick, and as we all know leakage from that area is common. Grease being thicker would benefit from a gasket of similar dimensions, but 'posh cardboard' wasn't necessarily the best material, so I considered alternatives. Gasket sealants such as Hermetite or Hylomar work well because the thick film of material takes up any clearance that could be a leakage path. What is preferable is some form of sheet material that is compliant i.e. it possesses a degree of 'squish' that provides a good seal, that can be cleanly separated. A rubbery and chemically inert substance is therefore needed that is cheap enough to fabricate relatively easily. That substance is - silicone rubber.



Silicone rubber in sheet form is expensive to source on the small scale that we are interested in, but fortunately it is readily available as ovenware baking mats. I obtained a 400mm x 280 mm sheet that was nearly 30 thou thick for £1.75 - comfortable enough for six items. Using an outer hub as a pattern, I first cut out the wheel stud holes and the retaining screw holes before cutting out the outer circle of the hub. By substituting the hub for a card gasket, I was able to cut the inner circle. A very sharp and narrow scalpel blade is essential, as is the need to work free from interruptions, for this job takes quite a long time.

The gasket was fitted, the hub reassembled, and the linings and brake drum thoroughly degreased. Over 1100 miles have been covered without a trace of leakage from the rear hubs (I replaced the other side at the same time) and I consider this to be a very satisfactory modification.

(Since writing this article, I've cut silicone block to crankcase, petrol pump, gearbox cover, and I'm about to tackle the sump gasket. It will be interesting to see how these will perform.)

**Bob later wrote:** The sump gasket has proved to be most effective, although it would be difficult to reuse a second time as I found out, for an element of 'creep' seems to occur. It's far superior to its 'cardboard' equivalent though. The petrol pump gasket behaves as advertised.

The block to crankcase gasket is a vast improvement. Just after the Tyntesfield Rally, I called at Ian Dunford's to collect the Boomerang Trophy, and as I drove away all hell broke loose from the engine department.

I'd used a sump-full of oil on the way up from Cornwall, and with a considerable power drop, and faced with the prospect of being towed off the Avon Bridge, I

opted for the coward's way, going home to Cornwall the following morning, courtesy of RH Insurance, on a recovery truck! Every aspect of this was brilliant.

On stripping the engine, I found only half the gasket remaining (the nearside), and the new silicone component was fitted, as were replacement studs (4 were sheared at the nut end, 1 of which was a step stud made in the wrong material. The rest of the nuts were finger tight!)

The result is a much more oil tight engine with xxx miles under its belt over the last 4 weeks. Oil consumption is now minimal with no trace of incontinence that had become a considerable embarrassment previously. Running costs are much cheaper as well.

