

Prop-shaft UJ Lubrication

Recess on one part of a sliding joint yoke



Moss GUJ115 with a short nipple



Olphartz GUJ115 with a very long nipple. There are also some suppliers with a 'medium' length nipple.



Looking closely at the bulge in the casting that the nipple screws into in the two above, it's apparent that the Moss is 'shorter', so the nipple will be at a greater angle relative to the line of the arms of the spider, compared to the Olphartz item. It may be that with the greater angle only the short one will fit inside the yokes.

Yet another variation - ANG GUJ115 with a short nipple in one of the cups



Bee's new shaft, unlike the old shaft grease nipples on the UJs as well as the sliding-joint, but if changing them you would need to fit the same type and nipple or balance could be compromised. Hopefully not required in my lifetime:



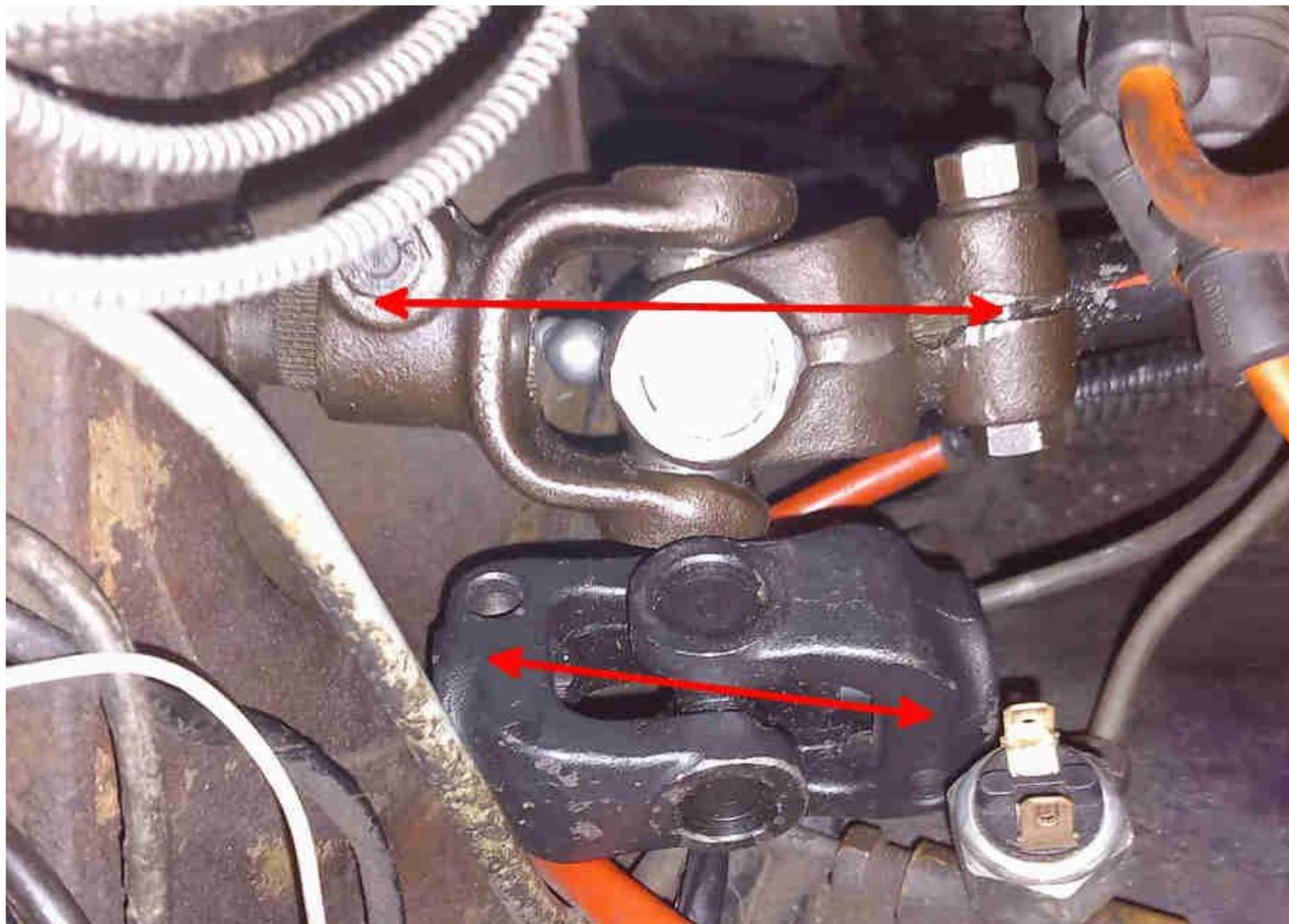
Bee's old shaft has a hole in the end-cap of the sliding joint which means that grease pumped in the nipple comes straight out there:



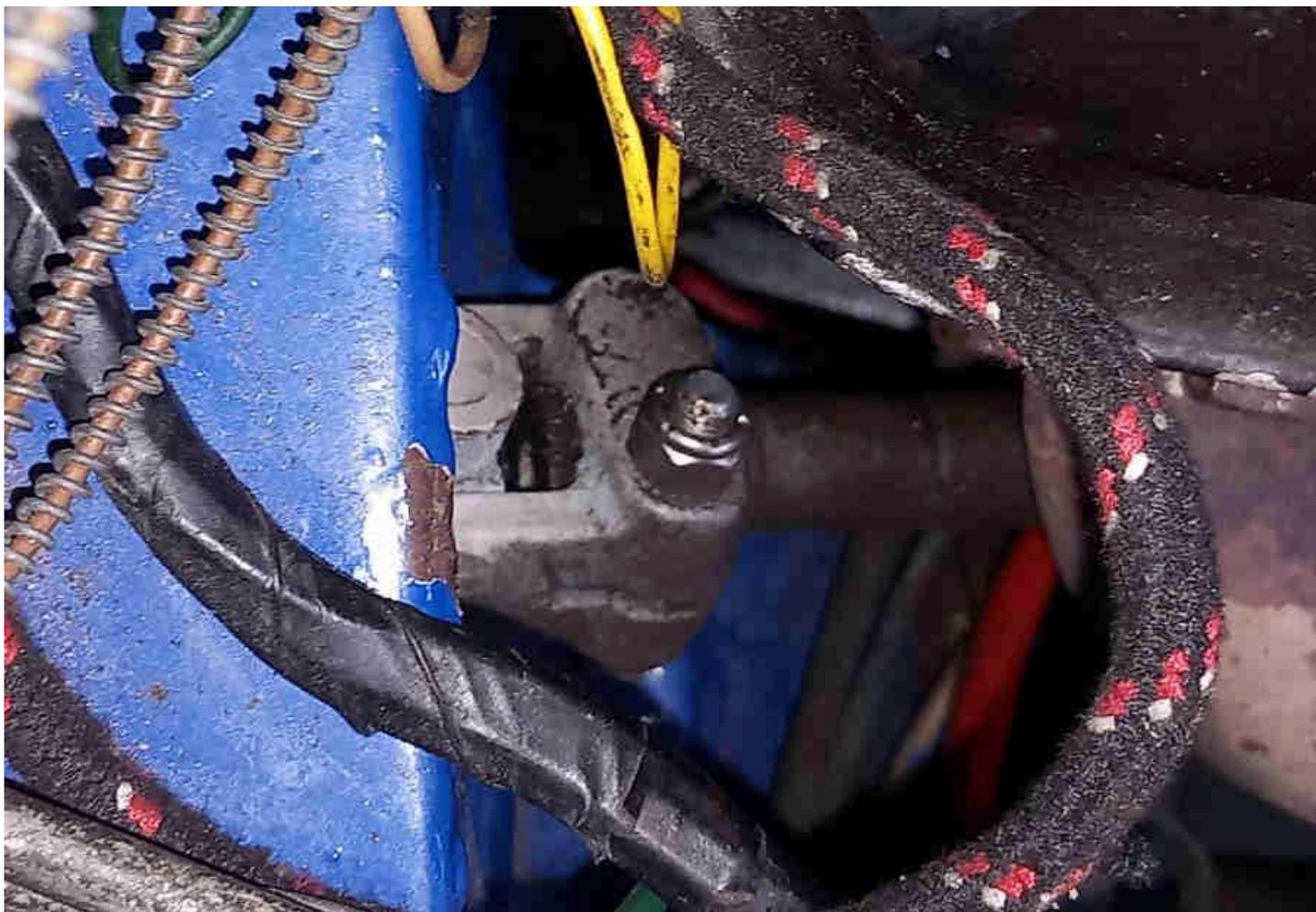
Said to be necessary to prevent the cap getting blown off if the joint is filled with grease while fully extended. Firstly I can imagine that it would need a lot of force to do that, and one would have to compress it before it could be fitted to a car, and secondly sealed joints (as per my old V8 propshaft) do not have that vent so they obviously 'breathe' some other way.

Steering Column Universal Joint

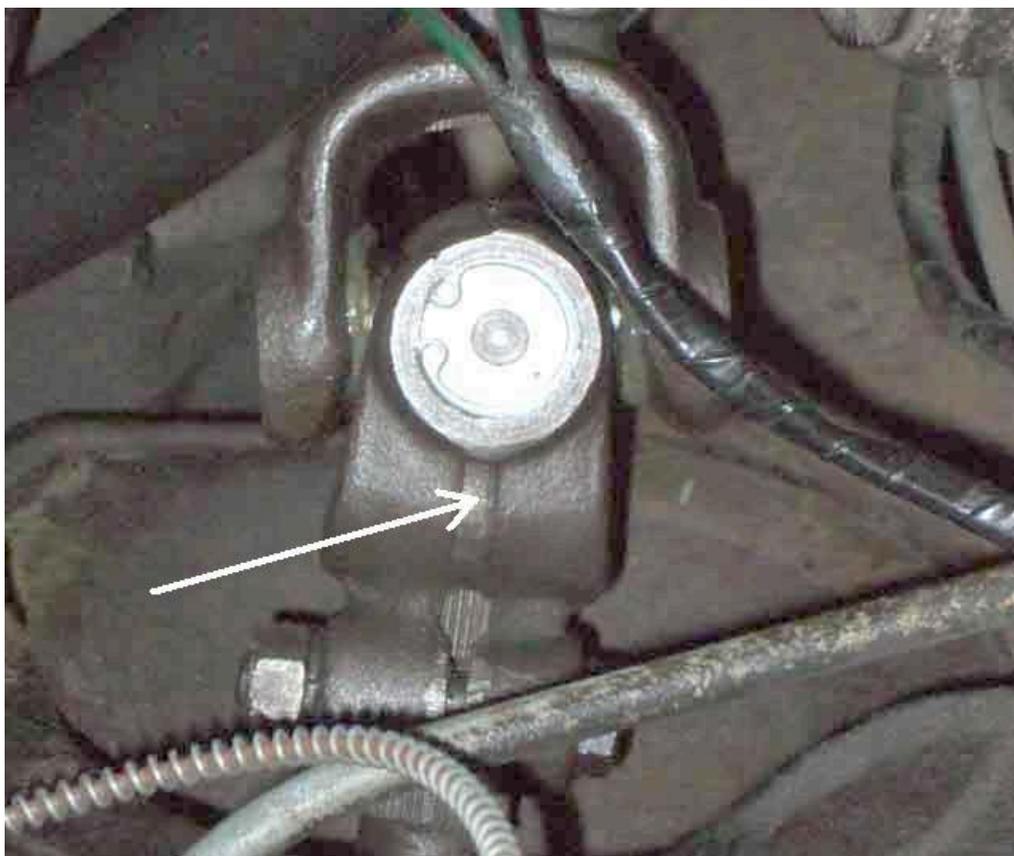
CB UJs (four-cylinder and V8) are about 3" between the clamp-bolt centres, RB (again both) are about 2.5". CB originally had replaceable spiders and cups, with RB a one-piece unit, but most suppliers now show the CB item as a one piece with the same part number as previously - [AHH6000 albeit with a suffix letter as it is not a direct replacement](#):



CB above is almost entirely external to the bulkhead, RB below recessed by half its length:



Shown installed here, but to replace the CB spider and bearings remove the circlip and strike it at the indicated point, holding the UJ in the other hand, to knock the cup closest to you out a bit at a time. Using grips to twist it out the rest of the way, and maybe having to use double sockets to push it out that far, can be difficult. Don't strike it near the edges of the hole the cup sits in as you could distort it making them even tighter:



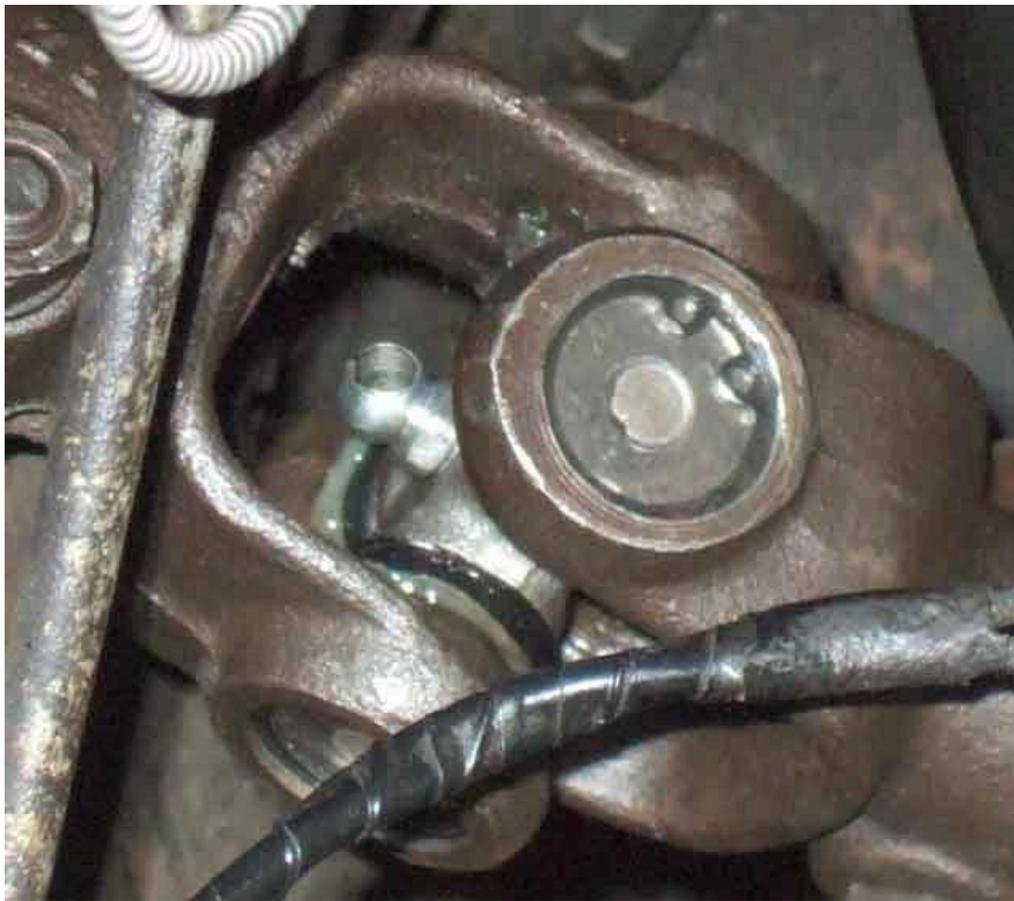
Undersized nipple in the UJ (screw this into the spider before fitting the yokes):



It's in 2-parts ...



... so the nipple proper can be unscrewed leaving the base thread pointing straight up



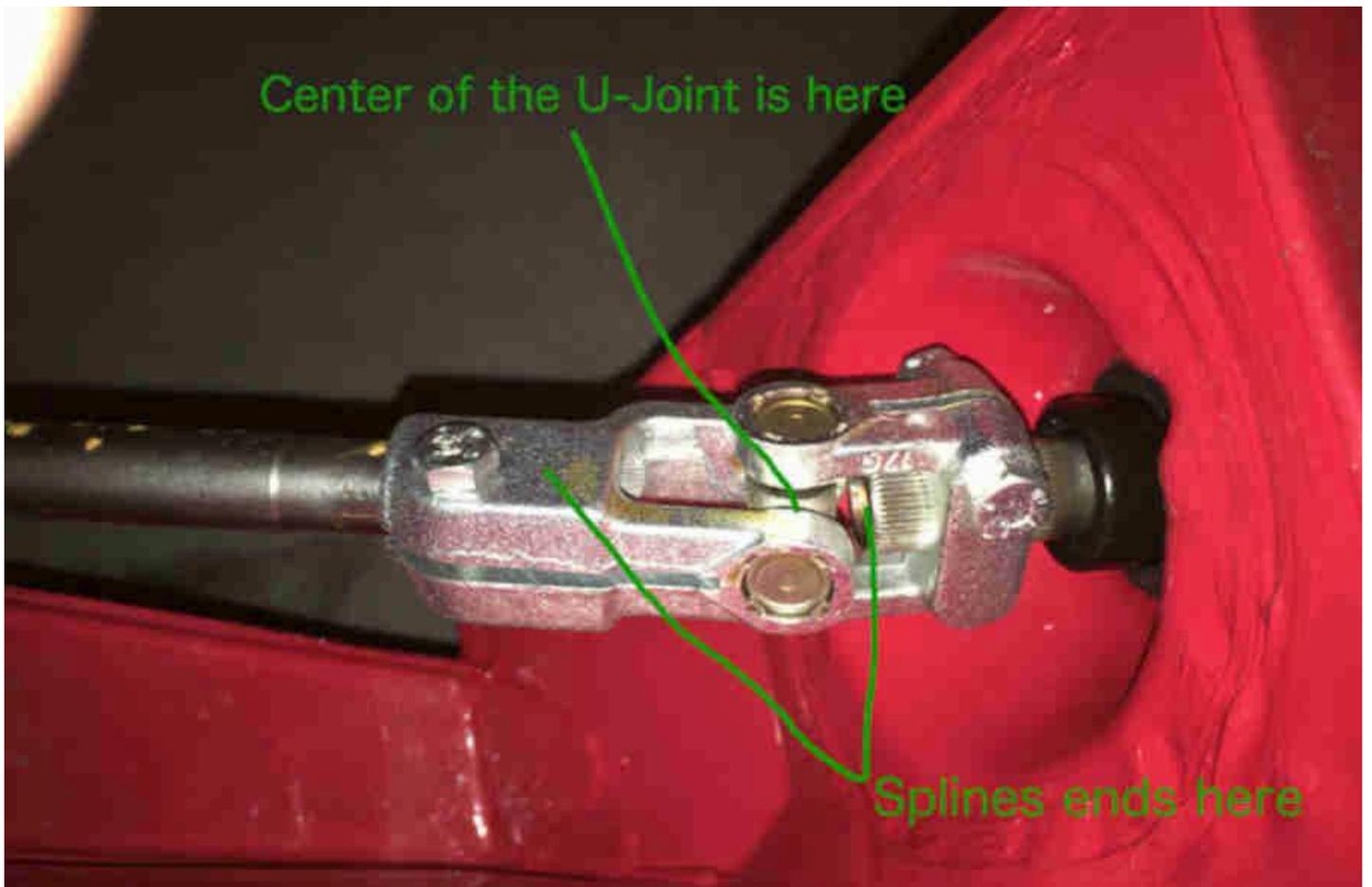
Undersized (top) and standard (bottom) nipples, with a drilled adapter stud screwed in to the latter:



Adapter screwed into the nipple body on the UJ. No ball and spring seal on this as it is only fitted for greasing, the undersized nipple is refitted for normal use



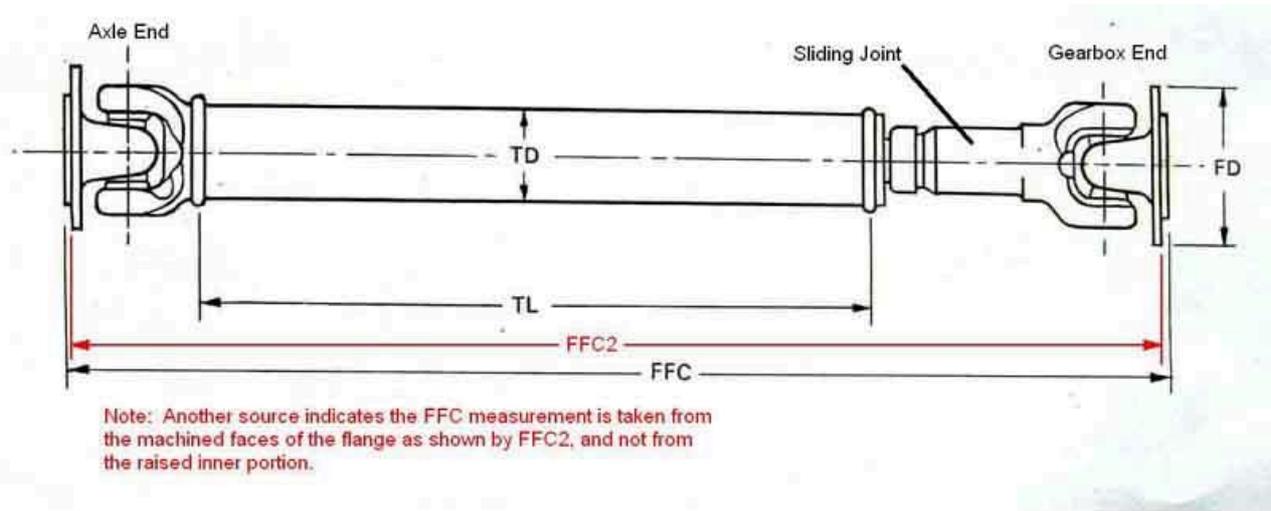
This is a real odd-ball [from the owner of a 65 in Poland](#) in 2017. All the UJs I have seen have had the centre of the spider mid-way between the two clamp bolts so it can be fitted either way round, but this one has it offset, so much so that it looks like it has been assembled from one CB yoke and one RB, or is for a completely different vehicle. This will put the steering column in a different position relative to the driver, and depending on which way round it is fitted will have a massive effect on UJ alignment:



It looks identical to [this one](#) which is NRC7387 for a LR Defender/Discovery!

Propshaft Length

FD = Flange Diameter
 TD = Tube Diameter
 TL = Tube Length
 FFC = Flange to Flange Closed (i.e. compressed) Length



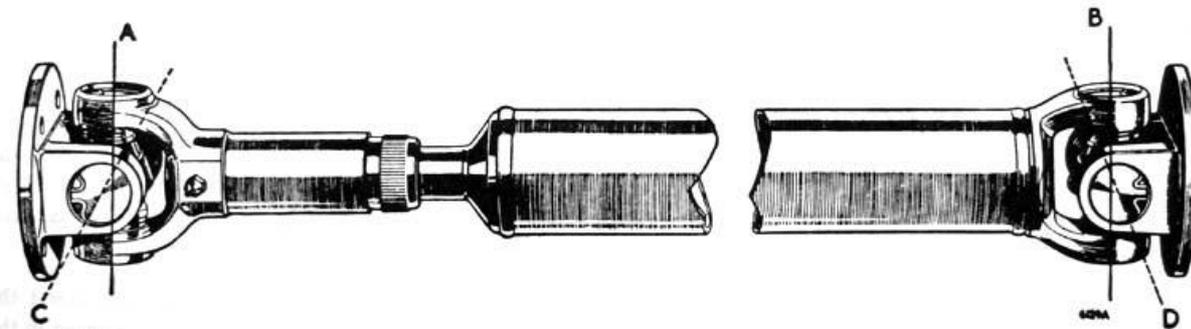
Plotting the relative lengths of the prop-shafts using the banjo axle flange as a datum point allows us to see the relative positions of the 3-synch non-OD and OD gearbox flanges. Then using those points as datums allows us to plot the relative positions of the Salisbury axle flange. That shows that the prop-shaft for the Salisbury and 3-synch OD option should actually be fractionally longer (circled in red), but the sliding joint is more than adequate to take account of this. It also allows us to measure the length of the prop-shaft required when a 4-synch gearbox is retro-fitted to an early car with a Banjo axle.

Banjo	30" (76.2cm)	3-synch no OD
Banjo	31.125" (78.9cm)	3-synch OD
Salisbury	31.125" (78.9cm)	3-synch no OD
Salisbury	32" (81.3cm)	3-synch OD
Salisbury	31.125" (78.9cm)	4-synch
Banjo	30" (76.2cm)	4-synch

Propshaft Alignment

Vibration

Yoke orientation, or 'phasing'. It's vital that both yokes on the propshaft are in the same orientation as each other, as shown below. This is set by how the sliding joint is assembled, and affects overall balance as well as noise and wear.

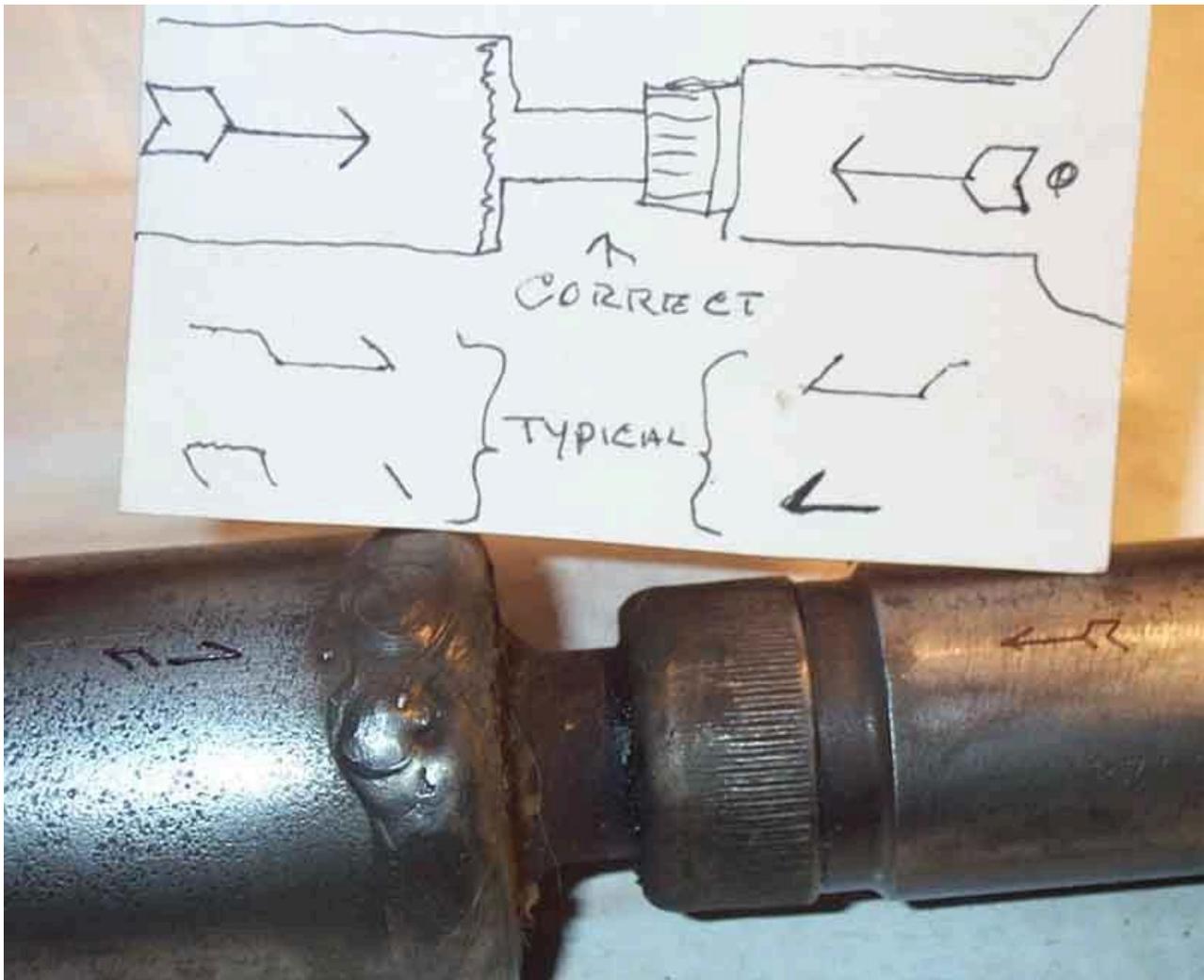


When the splined shaft is assembled to the drive shaft it is essential to see that the forked yokes on both shafts have their axes parallel to each other. In other words, the yoke (A) must be in alignment with the yoke (B), and the flange yoke (C) must be in alignment with the flange yoke (D)

Fletcher's first photo enhanced as best I can. I can just make out an arrow 'shaft' and one half of the 'flight' but no head - a typical mis-stamping.



Fletcher's 'best' markings, together with some examples of the poorly stamped markings you are likely to find in practice.



My old V8 shaft, two lines on the yoke, which **could** be the shaft and half of a detached head, but nothing on the tube. These are also sort of but not exactly in-line with one of the arms of the yoke which doesn't have a grease nipple, and not between them and in-line with a grease nipple as on Fletcher's drawing so could be nothing at all, but are similar to one of his drawn examples:



Another of Fletcher's photos this time showing what appears to be a part number stamped into the end of the tube of a banjo axle non-OD shaft. However AHH 7458 is the part number of the little plastic clip that holds the straight end of the sun-visor rod, the correct number for the banjo non-OD shaft from the Parts catalogue is AHH 7488.



Bee's old shaft, alignment marks in line with the sliding joint grease nipple, better than some:



Replacement propshaft from Brown & Gammons. £132 + P&P, but I wasn't going to buy from BHive at £70, nor from anyone else at the same price. Leacy and Rimmer's were showing them at around £100 which I'd have gone for, but no stocks. Very clear alignment markings also in line with the sliding joint grease nipple:



Prop-shaft Vibration

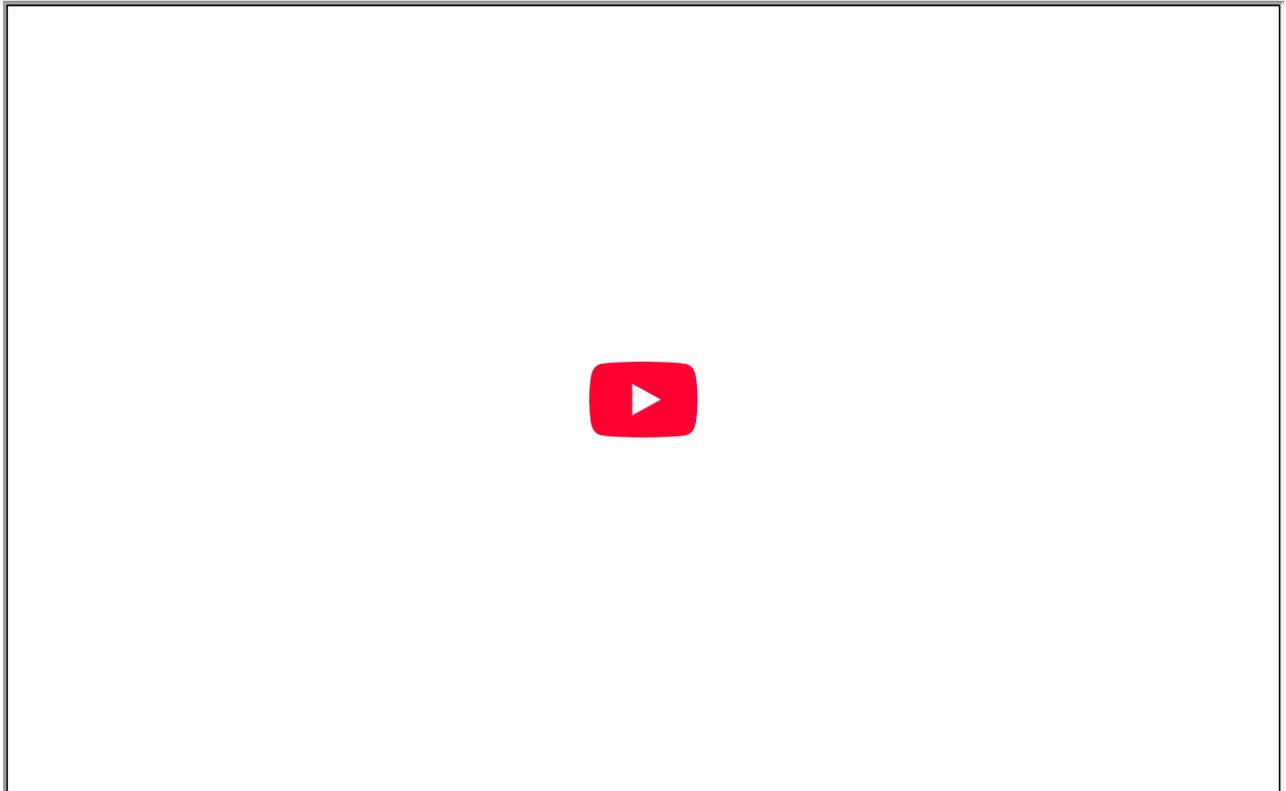
Bee's axle end needle roller housing broken up:



Its opposite number is cracked:



No wonder it caused a vibration:



If the circlip pliers won't lift the circlip out in one go pull the ends into the groove, the back should lift up, and a thin screwdriver or probe will lift it out:



A bit of a fight to remove the UJs from the yokes but I got there in the end. The two damaged bearings are opposite each other, there is no trace of grease, and one side of the spider has been ground away. All four in good condition at the gearbox end and with plenty of grease, one wonders if nipples are really needed - as long as they are adequately greased on assembly! It must have been heading that way for years if not decades, but with no UJ nipples I'd not been messing with that end of the shaft. Obviously one needs to twist and shake each UJ at each service:



Shaft and flanges cleaned up and painted, new UJs fitted:



Alignment marks correct:



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