

A DETAIL LOOK AT DRIVE SHAFTS.

During my first week of Elan ownership I was driving home one night and stopped at traffic lights with an MGB alongside me. Red rag to a bull! Well the MG disappeared into the distance and I was left with a broken Rotoflex coupling which had also cunningly wrapped itself round the handbrake cable so we could not move the car..... I was a Lotus virgin and this was my welcome to Lotus motoring; however 50 years on I am still here!!

The original drive shafts have 2 Rotoflex couplings each side inboard and outboard. The car was designed with these couplings to allow for the change of drive shaft length as the suspension worked all as stated in a previous article. Universal hook joints do not allow for this so could not be used. I used to like Rotoflexes as they gave a beautiful smooth ride but as described above they can break, sometimes with disastrous results. I was lucky I had no bodywork damage and I learnt the lesson well, I have not had one break on me since as I check them REGULARLY, please note. The Elan has a large rear suspension travel and this large angular change of the drive shaft is not helpful to any joint.

The revolution in car design to front wheel drive and the necessary design and manufacture of constant velocity joints for the drive shafts provided another answer to the Elan's problem and today there are several companies that make "solid" drive shafts for the Elan. These shafts are described below with their good and bad points.

It is worth saying that no CV joint likes being taken to its limit of design and certainly if you jack the rear of an Elan with its high suspension movement and turn the wheels you are asking for trouble. Always support the suspension to reduce that 'angle of dangle'.

Kelvedon Lotus, Spalding, Lincolnshire

These shafts were originally designed and supplied by Mick Miller. The CV joint was sourced from Ford but when these became non obtainable problems began with the after market version. It is interesting that these joint problems did not transfer to the Plus 2; the longer drive shaft, compared to the Elan, giving a lower angular movement, which was easier on the joint. Kelvedon Lotus has taken over the supply of these shafts but with some additional design development and new Volkswagen GKN CV joints. Kelvedon do recommend that the suspension movement is restricted by a special damper. These shafts are now very reliable and are most competitively priced at £495 plus any carriage plus VAT.

Spyder Cars, Whittlesey, Peterborough

Spyder's answer to the problems is to have a mixture of old and new, an inboard Rotoflex together with an outboard CV joint. The advantage of this is two fold, one it does retain some cushioning and secondly because the CV joint deals with a good bit of plunge the Rotoflex is not pulled about as much as on the standard layout. There is no restriction on suspension movement. The Rotoflex has an additional

breakage protection tube insert, which is bolted to the differential output spider. This tube is a close fit to the coupling and is a much better system than the Lotus 'weld a bit' to the spider. In fact it works so well that while testing I had an OLD Rotoflex break in 3 places - however the coupling was retained in position and I still had drive. This happened on a 200 mile journey and I was not aware that I had a problem or for how long. Very interesting and food for thought. These shafts are also competitively priced at £488 plus Rotoflexes (if your old ones aren't serviceable) plus carriage plus VAT.

Elantrikbits, Australia

Very similar to the Kelvedon Motors shafts, **these goodies from down under are beautifully made**. The CV joints are the now universally used Volkswagen GKN unit and as far as my research goes there has been **no problem in use**. The company owner, Col Croucher, who has been **making these joints for some 25 years, which must say something**, informed me that a machining modification is made to the joints and due to this there is no suspension travel restriction. A grease nipple is fitted to both joints via the adaptor plate. Cost including carriage to the UK is £908.  The problem for UK Elan owners is the cost of getting the shafts here. They are naturally heavy and the normal airfreight charge is in the region of £200. Additionally before the freight company will hand them over, you have to pay UK VAT not only on the shafts but also on the carriage cost. Elantrikbits are currently trying to overcome some of these problems by appointing a UK stockist. If they can achieve this, the bulk transport of goods should make the final cost more acceptable and with higher sales the basic price might become more competitive as well. There is a video on Elan.net of these shafts in action, which is most interesting! 

R.D Enterprises, Quakertown, PA18951, USA

These shafts are most interesting in that they come with a specially made differential output shaft, which makes the normal CV joint to spider adaptor plate redundant. With the basic shaft that much longer, the angular movement is less reducing the stress on the CV joint which can only be good news. The shafts use the now universal Volkswagen GKN CV joint. A damper to restrict suspension movement is recommended but not insisted upon. This is a well-manufactured part and from enquiries made in the USA has no problems. They are a bit expensive at £1009 but of course that does include the two differential output shafts. Whilst super for our American friends, the shipping cost to the UK is in the region of £100 and of course there is the dreaded VAT on top when you pick them up from the carriage company.

Whatever drive shafts you have on your Elan enjoy the driving in the summer sun. You know, as always, where I am for help, elanman26@gmail.com Brian Buckland.