



TECHNICAL BULLETIN

CLUB LOTUS

ELAN DISTRIBUTOR - ADVANCE

Next time you have the distributor out of the engine, it could well be worth checking the advance springs, particularly if the motor pinks between two and four thousand rpm when loaded, i.e. accelerating.

This Technical Bulletin refers to distributors with Despatch No. 40953, which if you have Webers then this is the distributor that will be fitted. The diagram overleaf shows a graph of crankshaft rpm vs ignition advance related to crankshaft position. This graph is plotted directly from the figures given in the manual, except that I understand that the advance for 5000 rpm should be 21.3 degrees, and for 5500 rpm it should be 22.2 degrees.

There are three portions to be considered. The first (steep) slope is taken care of by the light advance spring. The two springs are simply called light and heavy, and at the time of writing are no longer available. The graph shows that in only 2000 rpm the ignition advances by 16 degrees, that is two-thirds of the total advance available before the distributor plate (which should be stamped 12 degrees) hits its stop pin. At 2000 rpm the heavy spring, which has an elongated eye, starts to stretch, which slows down the rate of advance. Note that if the heavy spring were not there maximum advance would be reached at about 3000 rpm. Both springs are now being stretched by the centripetal force acting on the bob weights. The flat bit of the graph won't be used when the distributor is fitted in the car unless the motor is run past 6500 rpm. The other point to be made is that the distributor only advances 12 degrees, but because of the gearing (2:1) the ignition advances by twice that amount. Don't let anyone tell you any different.

The linear movement of the distributor plate, in a circular manner if you see what I mean, is quite small, about 0.199 inches. The amount by which the plate moves against the heavy spring is 8 degrees out of 24 i.e. $\frac{1}{3}$ of 0.199 = 0.0663 inch. Further, the spring acts diagonally, reducing its stretch to about 30 or 40 thou, difficult to measure so I can't be more precise.

Now we have an explanation of the pinking problem. The springs are quite fiddly to remove, and the hooks are soft. It is very easy to accidentally open the heavy spring hook when removing or replacing it, and it only needs to be opened by 30 or 40 thou or stretched slightly and it will do nothing to stop the ignition advancing to 24 degrees at 3000 rpm. Hence the pinking.

You can send the distributor to Lucas to be calibrated, at a cost of £10 upwards, depending on what else they find wrong with it, but it is relatively easy to adjust in the workshop as follows: Remove both springs, check that the total travel of the plate is

in the order of 0.2 inch. There is no reason why this should not be correct. Replace the heavy spring only. Grip the main shaft carefully in a vice and rotate the plate until the spring is tight but not stretched. Measure the gap between the plate and the stop pin. This should be 66 thou. If not, the hooks can be crimped carefully until the dimension is correct. Replace the light spring, refit the distributor to the engine and check the advance against the graph.

I believe all my numbers are correct, but do be careful. I accept no responsibility, and am just now leaving the country to join Ron in Brazil.

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S4 Elan SRX 129G
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