The setting up and maintenance of swing axle U2s.

Although the MK6B was still competitive in 1967 (The works twin cam Formula 2 car finished 9th at Mallory and 12th at Zandvoort with 150bhp against FVA's at 220bhp) nonetheless we could no longer claim (as we had in 1960) that we could easily out corner anything on the track.

The mantle had fallen to the Brabham B.T21. Somehow we had lost our way.

The problem was simply aerodynamic nose lift causing bovine understeer.

This was, at the time, put down to jacking due to the front swing axle. By 1968 the supply of Ford 93A axle warns had run out, so we changed to wishbone I.F.S and were depressed to note that the nose lift and understeer was even worse.

It was about this time that the effect of lift or downforce was first recognised. The penny dropped and lap times tumbled.

In those days, wet sump engines were still common, so the chassis was sat high at the front for sump clearance and low at the back, as this was easy to achieve.

For aesthetic reasons, the nose cone was set to blend into the bonnet top line but in 1967, David Darby had sharply inclined his down, with the underside near horizontal. He showed remarkable form. Not only did he win 19 races in the season, but he was able to give the works Lotus MK40 a good race. A MK6A Formula Ford driver confirmed the idea and reported a dramatic improvement worth 1½ seconds per lap.

Wet sump having finally been abandoned, we were able to run the front much lower, so that the nose droop combined with a chassis rake one inch lower at the front brought the understeer to manageable proportions.

1" rake and nose droop then are the first essentials for making your swing axles car competitive.

To achieve this 1" rake, fairly drastic back end changes may be called for.

What you must NOT do is simply screw up the abutments to pre-load – the springs. Never use more than ¼" of spring pre-load. More than this can be almost literally lethal. Snap oversteer so quick it can not be controlled.

In their day, swing axle cars were run with 80 or sometimes even 60lb rear springs.

Rear springs and the question of pre-load was extremely critical. It had to be set to give exactly 2⅛" of rebound trail, which equates to 12" from spring top to bottom eye.

Today, we would suggest a minimum rate of 115 lb which makes this problem much easier. We have gone as high as 160.

The simplest way to raise the unit ride is to cut off the top stem and weld on 7/16th" bolt or, sometimes you can make a screw-on extension. Then use spacers to adjust ride height on the top stem, or you can gain up to ¾" just by thinning down the rubbers and spacing with washers.

Any drastic change will upset the trailing arm and Panhard Rod angles which would normally be horizontal.

The Panhard Rod can be corrected by welding a long bush underneath the chassis.

If you don't fancy mounting new bushes in the chassis for the front T.A mounts, you can use bolt on "Fiddle Plates". This is quite authentic, as we often used to experiment with T.A angles in the swing axle period.

It is also possible to run a measure of torque cancelling. To do this, keep the nearside arms horizontal but taper the off-side by 1½" i.e. bottom front pick up moves up ¾" and top down by ¾".

Front springs should be a minimum of 275lbs. Up to 350 can be used, if the front still shows signs of lifting. It is crucial to keep the unsprung weight down on the front to prevent gyroscopic 'Flick'.

Written by Arthur Mallock
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Transcribed by Jean Mallock 21st September 2006