you are using external oil resistant rubber tubing to a filter or oil cooler, replace it occasionally as the extreme heat seems to soften it unduly after a while.

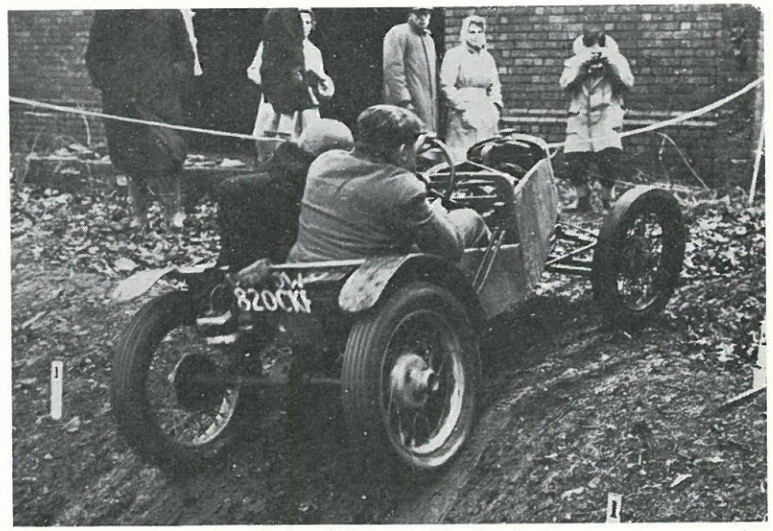
If you have time, clean the car thoroughly inside and out; it not only makes a good impression on the track but makes a good chance of spotting anything which might crack or come loose.

It only remains for me to wish all beginners in formulae racing the very best of luck, and I hope you have as much fun as I had.

9—TRIALS

Trials Special Building

by A. Mallock



Arthur Mallock's Simplastil.

Let's face it, to make a serious attempt at 750 or 1172 Formula racing calls for a considerable outlay on the car for the simple reason that for racing purposes virtually all moving parts have to be new or in perfect condition.

It is also essential to keep the car for racing only. I have long since proved the fallacy of the argument that "I can only afford one car." Far better to buy a £10 "heap" for your road car and save your special for the track, or better still, if you can run to £20, you can then tow a trailer (e.g. a 1936 Ford 8). This will easily pay for itself in the first season. I would say rather that "I can only afford two cars," only the "well to do" can indulge in the luxury of using their racing car on the road. It might be argued that you don't really feel the cost, as it is spread over a period of years, but for the 30s. a week enthusiast this takes at least two years, even if he does no other motoring whatsoever, and my experience suggests that many would-be racers lose interest in this time and the country side becomes littered with partly completed specials.

My own solution to this problem was to start with trials, and I believe that to-day the same solution has attractive possibilities, especially that we now have a 750 trials formula. The Austin 7 is fundamentally a very good trials car and a start can be made with the most primitive equipment. Extensive reconditioning is not required, and as

peak-power is only needed for very short periods, tuning for reliability is not necessary.

In 1956 I helped a friend build a 750 Formula trials car at minimum cost. Total outlay, including tax, insurance and entry fee for the trial came to under £20, which included 35s. spent on engine tuning. It won the Walsingham Cup on its first appearance, and later lapped Brands Hatch in 83 secs., using borrowed 15in. wheels.

I was also involved in a new and somewhat more ambitious project and it has been suggested to me that the progress of this might be of general interest. As there are trials every week-end during the season, which is more than most of us can cope with, it would seem logical to share a car. This straight away halves the cost of construction. Derek Godfrey and myself therefore went into partnership with the object of producing a trials car on a strictly limited budget. Spare time was very limited so that simplicity of construction was a must, and in order to avoid loss of interest and have the maximum amount of fun, the car should not be off the road for too long a period of time. Choice of basic equipment is not difficult—any Austin 7 will do, provided it has a 1 5/16in. crank and a 1931 or later rear axle. This is a "must" as the strain on axles is much greater than in racing, and the early version will hardly last a single event. If you have an earlier car, it is of course quite possible to fit a large crank and a 1931 axle. On the whole a 1931 model seems to be the best choice. In particular it saves the trouble of having to move the engine back and the choice of gear ratios is easier.

The "Mercury Stable" therefore started with a 1931 Saloon purchased as a "runner" for £10. With only four weeks to the first trial, there was little scope for anything but checking over the engine and throwing away as much as possible. The big ends were found to be in good condition, so a second-hand rear main was fitted together with a second-hand "little used" block, new pistons, oversize inlet valves, modified cam followers and camshaft. The latter three are of Jack French manufacture and not wishing to be accused of advertising, I won't give my opinion as to how they compare with their competitors, but there can be no disputing the fact that they are the cheapest on the market. Other "tuning" consisted of a 1937 head and 1934 manifold with the restriction bored out. The choice of gear ratio requires careful thought. In 1948 I ran a 750, blown at 12 pounds, weighing 7¾ cwts., with 400 x 17 rear tyres and 5.625 axle, and found that a three-speed gearbox did not give me a low engine gear, but if you can get the weight down to 5¾ cwts. and fit a really hot unblown engine you might just get away with it and of course there are no steep hills in the Walsingham. On the other hand a standard 4-speed box is much too low on a light special. However, on a saloon, with 4.50 x 19 tyres and a 4.9 axle, it is the only possible choice. Most of the successful Austin 7 trials cars have used Nippy boxes, but these are ruled out on a cost basis and in any case, the three-speed is 8lbs. lighter. If anyone can make a three-speed, without a Nippy bottom gear, then that would be the answer.

To find a cheap pair of rear wheels is not quite as difficult as it sounds. The important thing is diameter, a 4.50 x 19 is very much superior to a 500 x 16. Don't worry too much about the tread. We are using 4.50 x 19's held on with motor-cycle security bolts and bought for under £3 the pair, complete. Most of the current specials use 500 x 18, but the weight is considerably more. If you try something more ambitious, I suggest 500 x 20 or 21 (or even 23 if you can find a "permitted" tyre this size). Eventually, of course, we intended to fit twin carbs and a decent exhaust system. Four separate pipes gives the only true "Broad Band" system and would seem the obvious answer for a trials car. As you will want your peak much lower than in racing, the length does not become impractically short.

A low roll stiffness is essential, which fortunately is built into the Austin provided you don't box in the chassis. You can aid this by not fitting the front engine bolts. This is not good for bodies, but the only alternative is to use a stiff frame and a pivoted axle. Don't use swing axle I.F.S. unless it is pivoted and don't worry too much about shock absorbers. We are going to try without any. A reduced **Ackerman** angle will help to give a good lock.

Lest it should be thought that using an Austin 7 engine is only playing at the trials game, I would like to say that I have proved to my own satisfaction that a well-tuned Austin 7 engine in a really light car (under 6 cwts.) offers considerable advantages compared to a Ford.

A trials car does not require to be tuned up to the nth degree of perfection as a "racer" does, so the possibility of using the car for road use is also worth considering. You only need to fit smaller wheels, a good windscreen, a **Panhard** rod and bolt down the front of the engine, and you have an 80 m.p.h. 55 m.p.g. road car. When you have got it reconditioned up to racing standard, you can also use it for the occasional sprint, or even race meeting. I certainly intend to. As with racing, so in trials, remember to "Simplicate and add lightness." "Weight is the enemy" . . . "Weight begets weight" . . . and that "There is nothing quite so light as nothing."