The Mallock U.2

by Arthur Mallock

A description of the 1962 Chapman Cup winning 1172 Formula Car

The U2 started life in 1960 as a 105E-engined Formula Junior, but after a physically and financially exhausting season in 1961 during which it only ran properly twice, when the engine was re-built on an average once every ten days, it was decided to convert to the 1172 Formula, to recoup some finances and to get some fun out of racing again.

Chassis

Basically similar to U2 Mk. II production space frames, but rather untidily converted to coil spring rear suspension.

Front Axle

Ford 93a modified to single pivot swing axle. Roll centre height 4½in. Fabricated steering arm and 100E half track rods.

Steering

Cantilevered rack and pinion, using Herald parts. Home-made 13in. wheel. Two turns lock to lock.

Front Suspension

Enclosed Armstrong units with 200 lb./in. springs on a 2 : 1 lever arm, i.e., 50 lb./in. at the wheel. Static deflection 3.2in.

Rear Axle

Morris Minor 1000. Near side shortened to 6in. to give 3in. offset. Ratio 4.875 for most circuits, but 5.125 for Brands and Debden.

Rear Suspension

Armstrong units 75 lb./in. Static deflection 2.5in. Trailing arms and Panhard rod. Roll centre adjustable, but used mostly at 6½in. (highest setting).

Brakes

8in. x 1½in. Lockheed 2LS all round. Front from Cooper 500 with ⅞in. cylinders and Emery aluminium drums. Rear A40 (fronts) with Wolseley 1500 drums and .8in. cylinders. Master cylinders ¾in. twin. Ratio approximately 60/40.

Front Wheels

13in. with 4.50 x 13 D12 tyres and 4½in. rims. Condor cast magnesium (cost £16 10s. each but you can get Merlyn wheels for £15 10s. retail).

Rear Wheels

Sprite centres with 4½in. Zephyr rims, ex. Gilby Engineering, cost 35s. each. 5.50 x 13 D12 tyres.

Body

24 gauge Duralumin panels rivetted direct to chassis. Nose cowl in fibreglass.

Seat

Lotus 18.

Propshaft

Similar to Austin 7 Ruby.

Gearbox

1935 Austin 7 with Super Accessories gears and home-made adaption.

Clutch Withdrawal

Mixture of A7 mechanism with 100E race.

Engine

Bought second-hand for £12. Modified by Jim Whitehouse. Vertically mounted, iron head, Wershat camshaft and release valve, 40CDOE carburettor, 135 main jet, 170 air corrector, F2 emulsion tube, 100E flywheel with four dowels. Terry single valve springs. 1.5/16in. offset inlet valves, breathing to Whitehouse principles, i.e., maximum possible relief giving a very low compression ratio (estimated at 7 : 1). 45 lb. oil pressure, 90 degrees oil temperature. Power output 58 b.h.p. at 5,500 r.p.m. (may have been more at higher revs, but this was the highest reading taken). Hepolite racing pistons plus 60 thou. Crankshaft pulley 2¼in. O.D. turned from solid. Water pump pulley 3in. O.D. ditto. 100E dynamo (much too heavy). 105E fan belt. Scintilla distributor driven from the end of the camshaft. Ignition timing about 4 degrees static advancing to 28 degrees at 3,000 r.p.m. Cam timing standard 100E.

Radiator

Lotus XV (much too heavy).

Oil Cooler

Alloy by Coventy (very light).

Filter

Purolator full flow. In spite of weight a "must" for reliability. Not too expensive if, like Bill Cooper carbs., you know a friend who knows a friend who gets a bit off.

Wheelbase 6ft. 10in. Track 44½in. Ground Clearance 2⅞in. Scuttle Height 22in. Starting line weight is 7 cwt. 9 lb., which for various reasons is about ½ cwt. heavier than it could be.

Well, there it is, "a sort of side valve Formula Junior, with mudguards", which has given a "too old and too fat" pilot his most enjoyable season ever.

The Terrapin-Min and The Rudeani

The following two Specials, whilst not complying with either of the Club's racing formulae, were designed and built by 750 M.C. members and both demonstrate highly individual and ingenious approaches to the problem of constructing rear-engined racing cars, parts of which can be applied to the Club's 1172 Formula.

The Terrapin-Min

by Allan Staniforth

From first seeing and owning a Mini, I had the temerity to feel that the engine ought to be in the back—at least from the point of view of a small GT or racing car.

I thought along this GT or sports-racer line for five inactive years, while racing Mr. Issigonis' original version with a lot of pleasure and some success.

Along the way I acquired a fair amount of knowledge and a store of Mini bits which were to come in extremely handy. Just a year ago a combination of circumstances—saloon racer getting steadily more intractable for business use, two children getting steadily larger, wife needing a bit more space, etc., etc.—forced a decision about trying at long last to build a real racer.

The original plan of a one litre poor-man's 23B was foiled by the BRSCC decision to start the Clubman's Championship, demanding front engines and open wheels, neither of which fitted in with my ideas.

So overnight it became a single-seater—not too well suited to circuit classes, but fitting the sprint and hill climb world admirably where a small racing car class of 1100 or 1150 c.c. is always available. Also it is somewhat cheaper to build a single-seater, but not much.