

Available from Jack Williams, this triple-differential circuit racer is evaluated by JOHN VARLEY.

MANTUA T-U-R-B-O 4-W-D

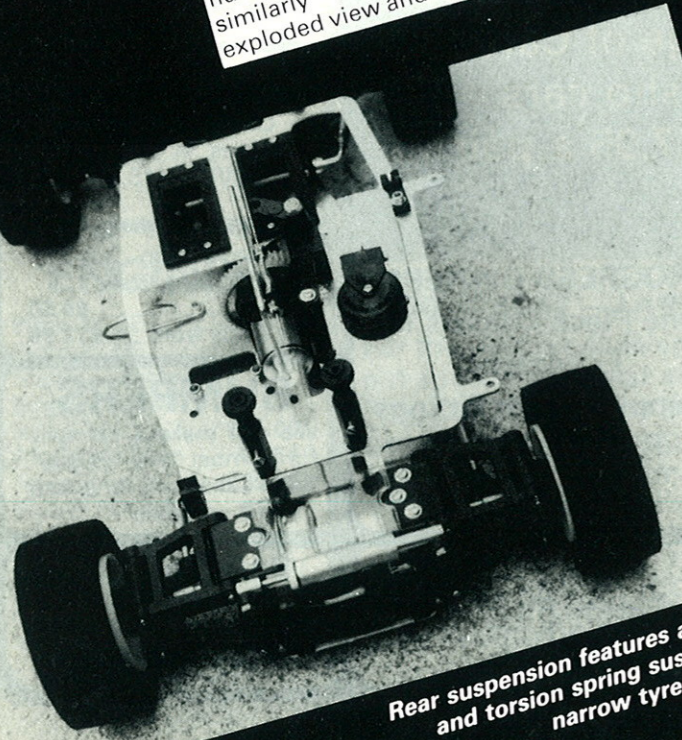


Mantua, as kit manufacturers, are not so well known in the U.K. as S.G., Serpent and of course PB, but in their own country of Italy they are a force to be reckoned with. Italy at present, must be a hornets nest of competition, because of the so far proven SG kits, with their latest 4WD car and Garbo with their latest very rakish 4WD circuit car recently added to the range. Mantua have opted for a traditional four wheel drive layout of balanced drive through front and rear bevel gear differentials, and a similar geared differential sited between them. This allows for equal torque to all four wheels, and no means of adjusting this hereafter. All parts come well packaged, labelled and with a comprehensive building booklet. Each package of parts is numbered and corresponds with a similarly numbered list of parts, in exploded view and assembled view, in



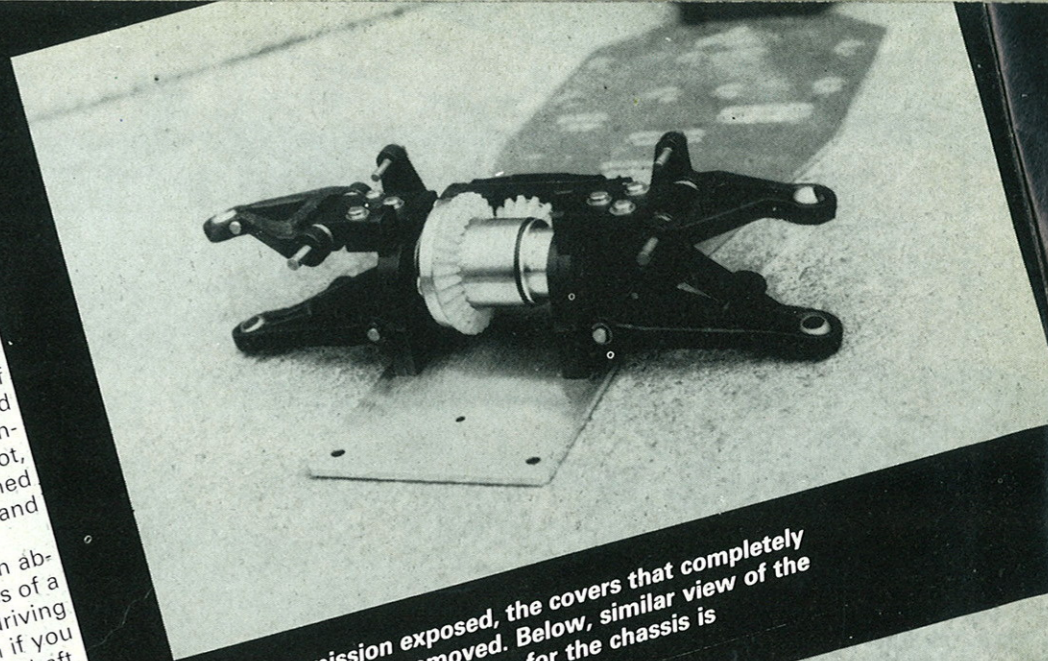
Overall view of the car shows centre differential and the nylon servo mount plates.

the building booklet. All of Mantua's kits are presented this way and assembly never proves a problem. The chassis and radio plate are made from aircraft alloy, for strength and lightness. All nylon moulded parts have a 'grained' surface finish, which does improve their appearance. Bevel gear differentials come ready assembled with nylon crown wheels and pinions, for smooth silent drive. The diffs being housed in alloy casings, with anodised ball races, and run in shielded ball covers. Front suspension is by conventional twin wishbone of unequal length, allowing for minimal camber change on full suspension travel. The support for the top wishbone is adjustable by means of a nylon plate held down on the front bulkhead by three self tapping screws. Loosen these screws and slide the plate in or out to find the camber change you desire. An adjustable tie bar fits across the extended top wishbone pivot pins, this prevents the adjustable arms from being moved, when the car takes a knock during competition. Snap fit hardened ball fittings for king pin mounts, nylon steering arms

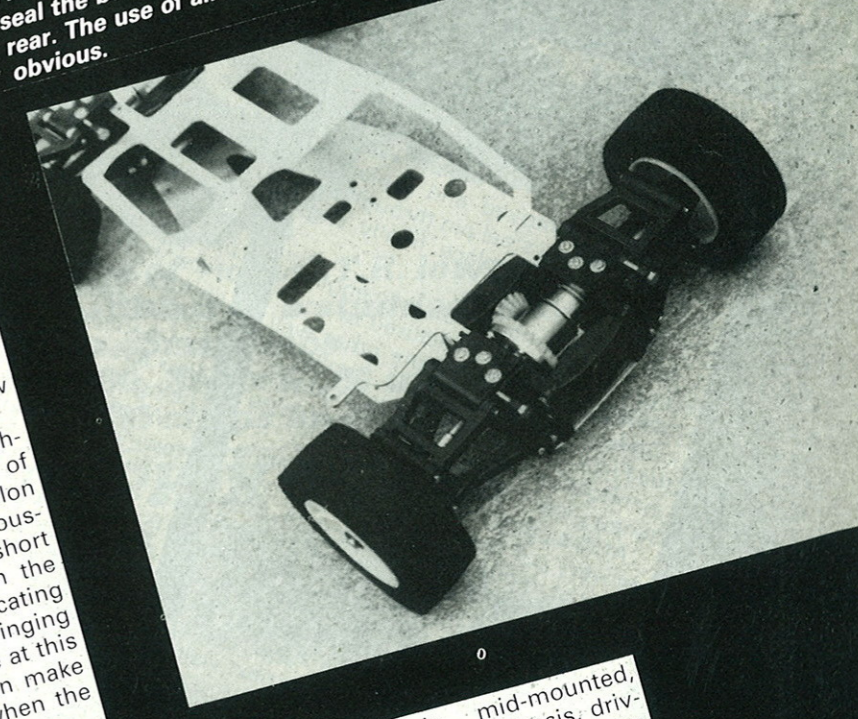


Rear suspension features a mono-shock and torsion spring suspension. Note narrow tyres used on rear.

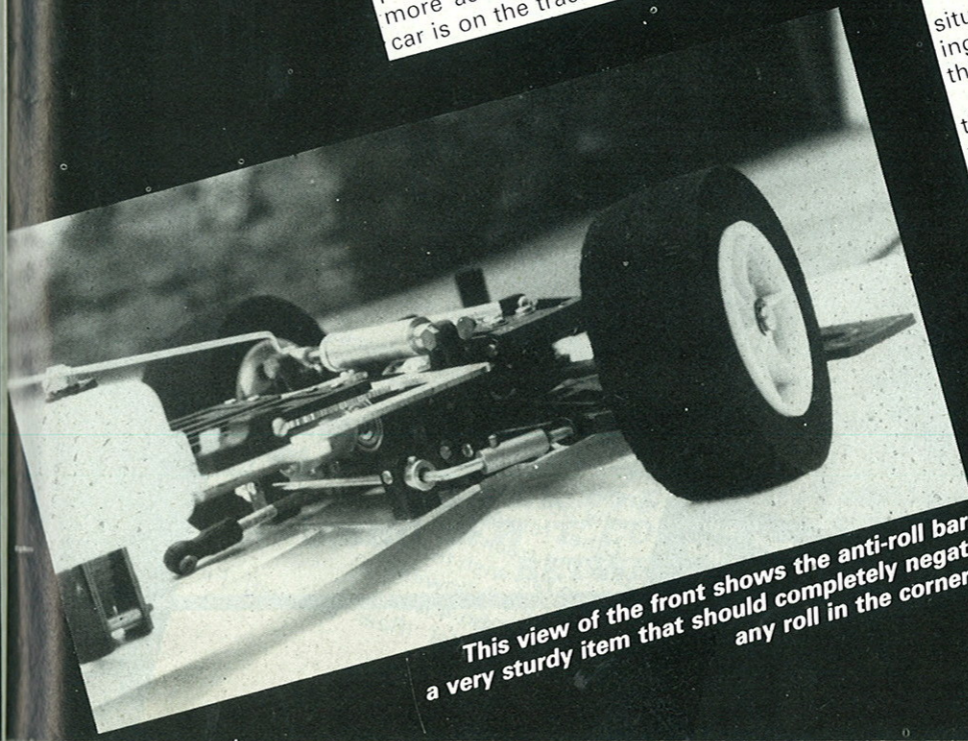
retaining ball races for hardened steel stub axles, with a hardened and ground dowel fitted through the stub axles to locate the hub and subsequently retain the axle in the steering arm. Adjustable track rods with rose joint ends are used and also as part of the overall steering mechanism. Mantua have installed short end of stroke connecting rods. In order to prevent the loss of a drive shaft, the amount of steering throw can be finely adjusted by these rods. By utilising the extension of the upper wishbone pivot, these rods slide on this pivot, retained by the adjustable camber tie-bar and circlips. These end of stroke rods are an absolute necessity, because the loss of a drive shaft, will mean that the driving pins each end will be lost, even if you are lucky enough to locate the shaft, because they are a loose fit in the shaft. The kit is supplied with very substantial anti-roll bar assemblies for both front and rear suspension, both mounted in-board on the chassis. Looking at the section of these roll bars, I would be surprised if this car shows any tendency to roll even under the most severe cornering. Mono-shock absorbers, coming ready assembled, are utilised at front and rear. Extension arms clamped to the bottom wishbones, act as location for the shock absorber at their uppermost point, and as ride height adjustment, by means of a socket set screw at the bottom. Torsion springs are used throughout, easily adjusted by the means of two screws, which hold a small nylon block, against both differential housings. This block retaining the short arm of the torsion spring, with the long arm extending out and locating on the lower wishbone. This springing to me, seemed on the stiff side at this point of the build, but we can make more accurate judgements when the car is on the track.



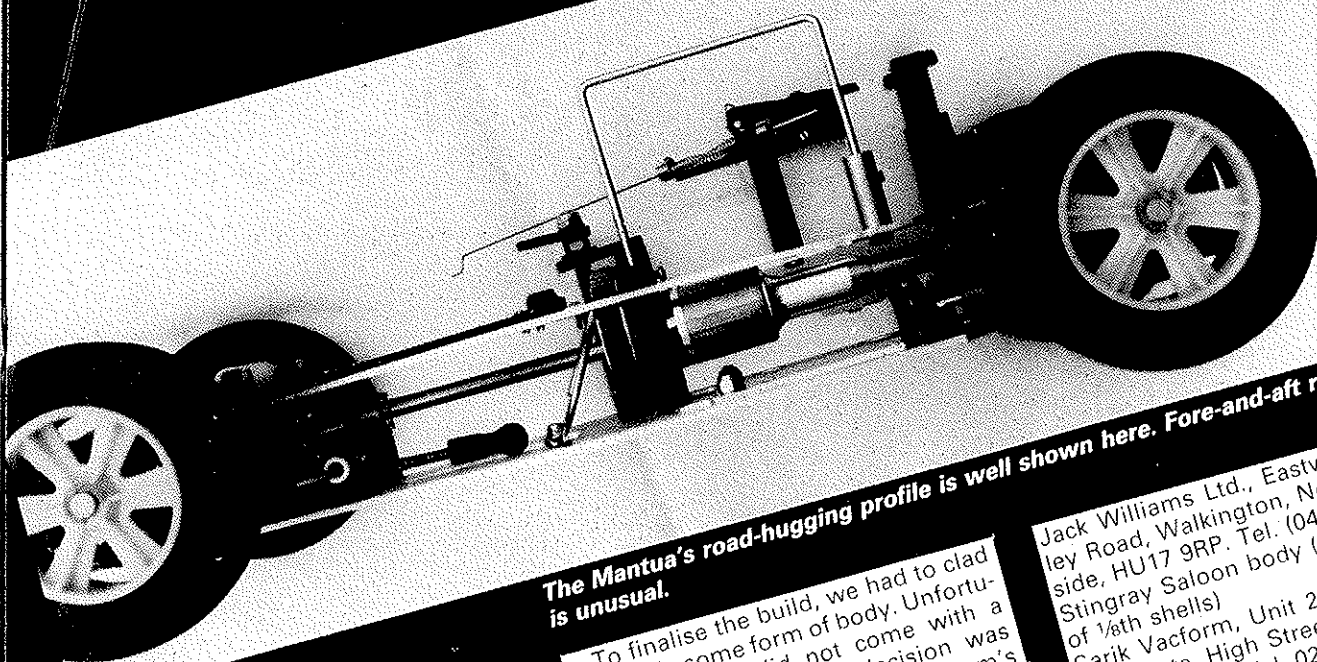
Front transmission exposed, the covers that completely seal the box being removed. Below, similar view of the rear. The use of aircraft alloy for the chassis is obvious.



The engine is mid-mounted, situated on a longitudinal basis, driving through a spur gear attached to a third central differential. The final drive being effected through separate drive shafts fitted to the bevel gears of front and rear differential. Braking is undertaken by utilising metal discs moulded onto either side of the central spur gear drive. Aluminium disc, clamped by steel pads, via the traditional steel cam, actuated via nylon bell crank. All pivots, collars, override springs and pre-formed arms are provided with the kit to form the servo to brake linkage. At this stage we are ready for the fitting of the alloy radio plate, clamped between front and rear differential housing. Attached to the plate are fuel tank, rear adjustable body mounts, bell crank for throttle linkage, aerial support block and separate nylon moulded inserts for final trimming to suit your own servos. The radio plate provides position for fitting roll bar, receiver next to the servos, and lugs for radio battery mounting, alongside the fuel tank.



This view of the front shows the anti-roll bar, a very sturdy item that should completely negate any roll in the corners.



The Mantua's road-hugging profile is well shown here. Fore-and-aft roll bar is unusual.

Mantua have adopted identical wheels and tyres for all corners of the car. This greatly aids interchangeability of wheels, and until we try the kit in anger, probably means the same compound all round at all times. Wheels being easily removed and replaced, and located via a steel pin through the stub axle, held in place finally with circlips.

Mantua now have their own engines on the market, manufactured to equivalent standards of all the other well known ones. Rear exhaust, similar to the Picco 3.5cc is made, with matching manifold to line up with a side slung tuned pipe.

At this point in time, we are awaiting delivery of one of Mantua's rear exhaust motors, complete with their own slide carburettor, and in the next edition of this magazine we can make reference to the motor, as well as the cars overall handling and setting up for race trim, when we have completed a track test during our next visit to Mendip.

To finalise the build, we had to clad our car in some form of body. Unfortunately this kit did not come with a bodyshell, therefore a decision was made to fit one of Sarik Vacform's Stingray saloon bodies, done out in Marlboro Livery. We also aim to try out Sarik's Lancia Stratos shell, because we are told that the front wheel arches have been enlarged to compensate for front-wheel drive cars. Here I should mention, that you should choose your bodyshell carefully, because of the larger than normal diameter front tyres. A result of all four tyres on the four wheel drive car being identical in diameter and width. What opinions can we arrive at, following the building of the kit?

The general assembly work is easy to overcome. The instructions are well laid out and greatly aid the builder. Suspension adjustments, when necessary, are simple and easy to alter for changes in castor and camber.

The pre-assembly of all differentials and shock absorbers, greatly speeds up the assembly and is obviously helpful to those more interested in racing than building.

Materials used, and the design of all chassis, suspension and drive train parts, keeps the weight down to a minimum. Thus a great aid on the track, by keeping the power to weight ratio as low as possible.

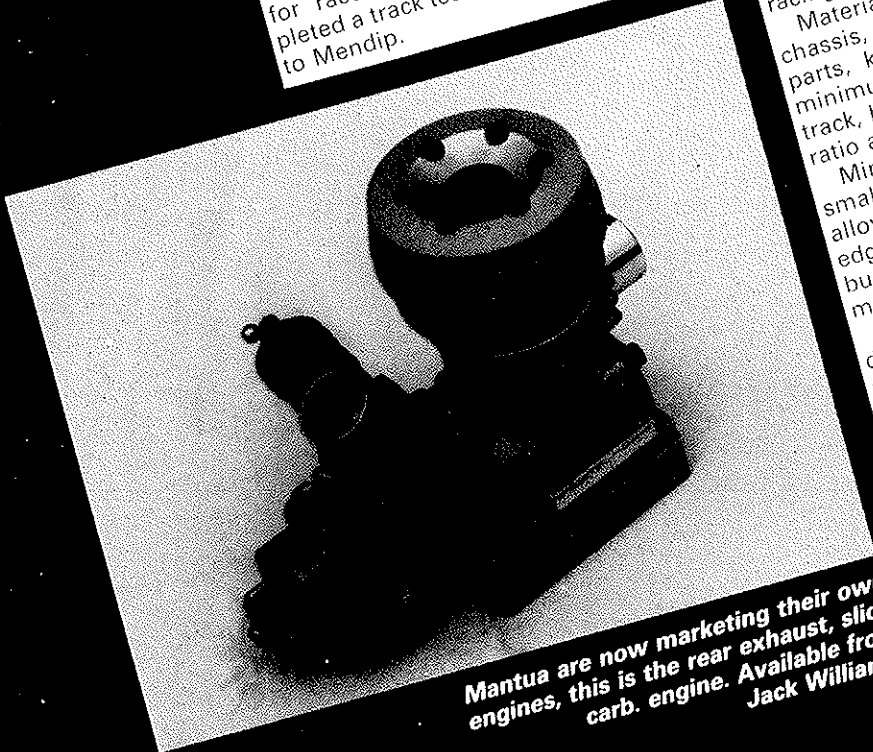
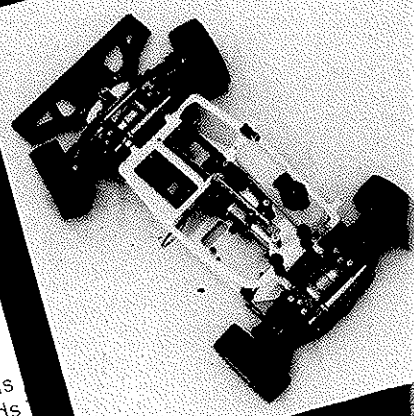
Minus points I found, amount to small things. The ground faces of the alloy chassis and radio plate, leave all edges very sharp, and should be deburred with a small file before commencing building.

The track rod arms fouled the front differential housing, effecting the steering throw. This resulted in these arms having to be bent to shape in order to arrive at full left and right movement.

I personally found the shock absorbers too stiff and reluctant to return after full compression. A little adjustment to the piston and slightly less oil finally got what I wanted.

Other relevant points can be raised after our track test, but interested parties so far, wish to know more, should contact the following:
 Mantua Turbo 4 Kit
 Mantua Special (Rear Exhaust) Engines.

Jack Williams Ltd., Eastwood, Beverley Road, Walkington, North Humberside, HU17 9RP. Tel. (0482) 882311
 Stingray Saloon body (plus full range of 1/8th shells)
 Sarik Vacform, Unit 2, Simplex Trading Estate, High Street, Oldland, Bristol BS15 6TA. Tel. 0275-886537
 Say you read about it in Radio Race Car.



Mantua are now marketing their own engines, this is the rear exhaust, slide carb. engine. Available from Jack Williams.