



AUDI QUATTRO RALLY

Reviewed by Lewis Eckett

HOT ON THE heels of the 'Subaru Brat' comes this latest introduction to the *Tamiya* Off-Road stable, the 'Audi Quattro.' In true marketing fashion *Tamiya* have timed its appearance to perfection, just before Christmas and in time for display at the Earls Court and Nuremberg Toy Fairs.

Whereas the 'Brat' broke entirely new ground with its 'space frame' chassis, the 'Quattro' is very much a close cousin to the 'Wild Willy' fun machine already in existence. To be frank the only real difference between the two is the central chassis, box member which has been 'stretched' to give the 'Quattro' a longer wheelbase and thus better handling on the track. Aside from the 'Wild Willy' the 'Quattro' is the only 'proper' off-roader that *Tamiya* have as yet incorporated a differential into, as well as a polycarbonate bodyshell. These facts alone suggest that *Tamiya* may have attempted to produce something worthwhile from the compromise as far as the competition orientated enthusiast is concerned. Whatever the aim, the 'Quattro' will certainly appeal to anyone interested in off-road R/C buggies. Its looks plus the impressive *Tamiya* packaging will see to that.

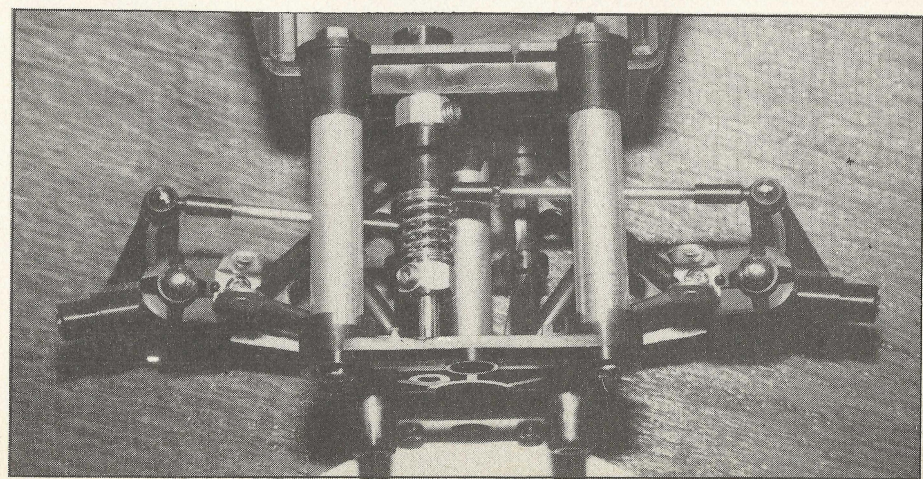
Construction

The ease in which all *Tamiya* kits go together is due, in total to the superbly illustrated, easy to follow instructions. Even in Japanese (as mine were) no problems would be encountered.

The injection-moulded R/C equipment box forms the central part of the chassis to which

the front and rear suspension systems are secured. The front suspension is of the single wishbone variety and pivots between the front of the R/C box and the forward bulkhead, with three aluminium spacer tubes bolted between the two faces to produce a very rigid base from which the suspension can work. The wishbones also feature suspension 'down' stops which limit downward movement of the wishbones this helps to keep as much of the tyres 'contact patch' on the ground as possible.

The Servo-Saver is one of the most interestingly designed items yet come across and can only be described best by a look at Fig. 1.



Damping for the front suspension (and for the rear) is via coil spring shock-absorbers which also set the suspension ride height. Although these shockers provide some springing to the suspension, the actual movement of the wishbones is small, whether it is enough can only be assessed out on the track.

The rear suspension features two, long, trailing arms plus the coil spring shock-absorbers. Before actually assembling the suspension system, the differential/gearbox must be first prepared, an absorbing task as this particular drive system is possibly one of the most complicated to be incorporated into an electric buggy yet!

The motor, which is supplied with the pinion already pressed on, is sandwiched between two aluminium mounting brackets, a third plate is bolted to the motor pinion end and provides the mounting base for the intermediate and spring-loaded, main drive gear. A plastic cover supports the gear spindles and protects the gears from the dust and grime encountered in R/C off-road racing.

Below: close up view of the 'Quattro' front suspension system showing adjustable tension servo saver, heavy duty steering track rods and suspension wishbone set up.

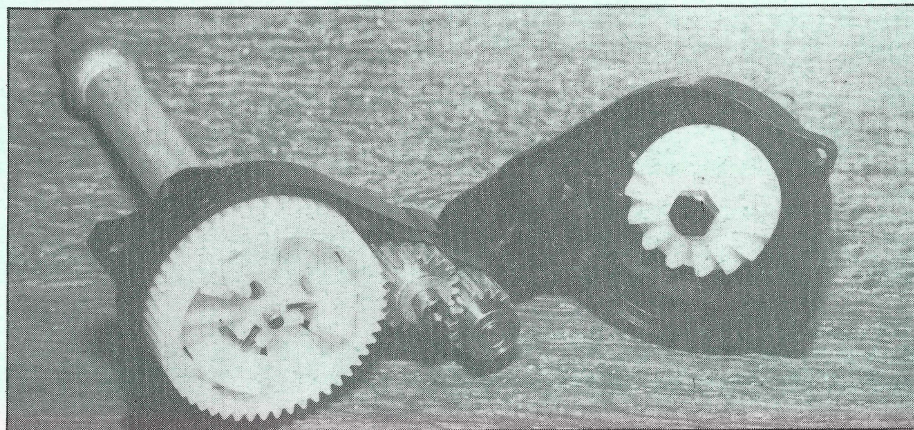
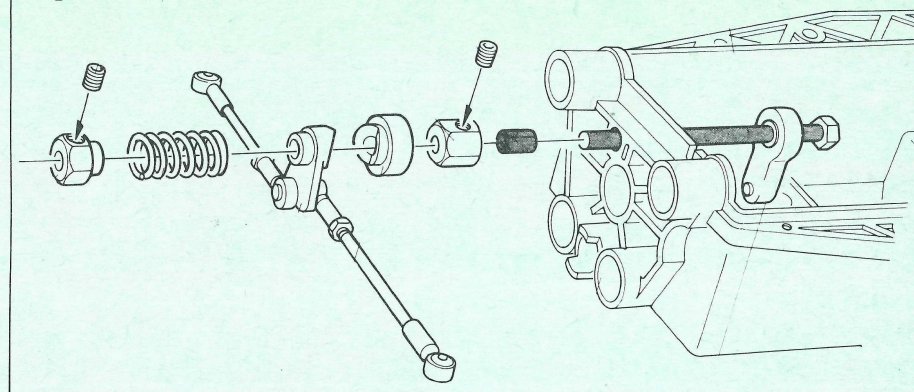
The differential is housed in a separate casing and linked to the motor drive system via a universal joint. The differential casing is in two halves, each half carrying the drive to the rear wheels, the drive shafts are supported through aluminium axle tubes and these provide the pivot points for the suspension trailing arms. The differential itself is of the geared variety featuring two bevelled gears on each drive shaft end driving contra gears mounted inside the larger toothed gear. Sounds complicated and to be honest it is, even with the use of ball-races the complex transmission will surely sap the power to the rear wheels greatly. Once again we shall see.

The completed suspension and gearbox system bolts onto the R/C equipment crate. One unfortunate aspect noticed when playing around with the suspension, was that the differential casing was fouling the motor mounting plate, thus inhibiting the suspension movement on one side. A particularly annoying factor as the motor/gearbox arrangement is such that any modification is virtually impossible.

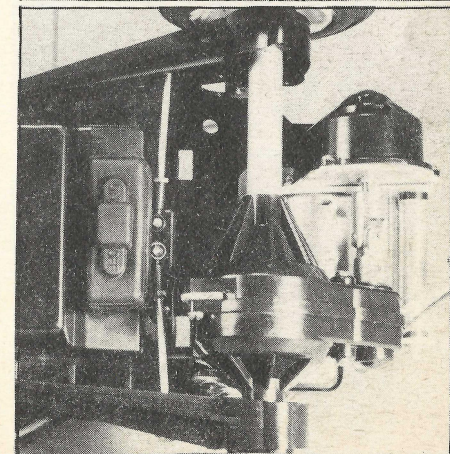
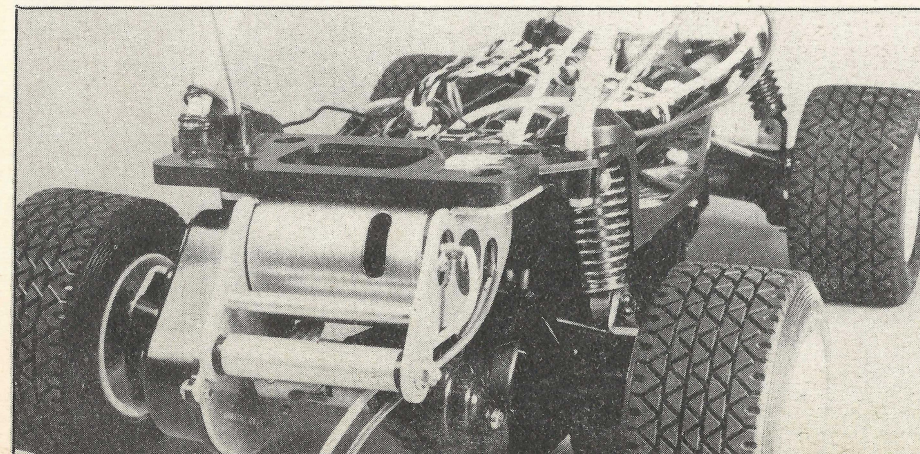
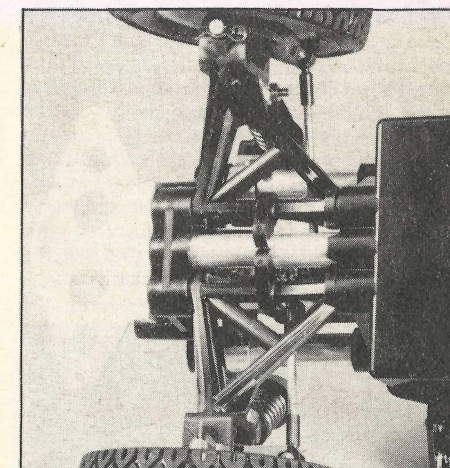
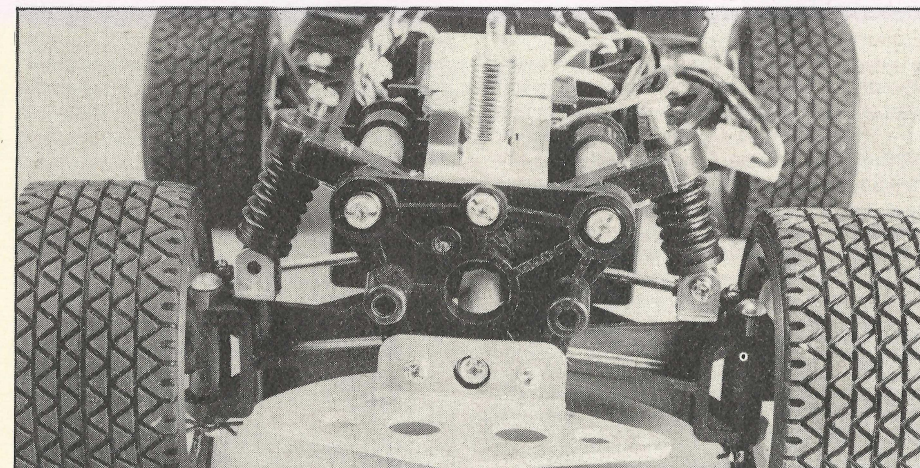
Radio Installation

Although most modern 2-channel radio control systems can be incorporated into the radio compartment, the 'Quattro' is designed primarily for use with *Acoms* R/C equipment. Radio installation is very straightforward, the speed controller and servo are both mounted onto a metal bracket which bolts onto the box floor, with a bent wire rod linking the speed controller and servo arms together. The steering servo is fixed to the throttle servo with double-sided tape so that the output arm lines up with the servo-saver shaft. That, is basically it, apart from the radio switch which bolts through the chassis bottom and receiver and battery pack which fits easily into the radio box.

Fig. 1



Above: the two halves of the differential casing open to show the main and intermediate drive gears. Below left: the complete front suspension system viewed head on. Bottom left: the rear motor and gearbox drive system, due to its low slung position helps keep the car stable at high speeds. Below right: the front suspension system viewed from the underside. Note, the suspension 'down' stops as mentioned in the text. Bottom right: the drive system also viewed from underneath to show the universal joint, differential and main drive gear casings.



The lid of the radio compartment also provides the mounting for the six-cell Ni-Cad battery pack (not supplied) which is retained by releasable cable ties. This positioning of the battery pack greatly lowers the car's centre of gravity, so as to reduce the tendency to 'roll over' in the turn.

Wheels & Tyres

The tyres supplied in the 'Quattro' kit have a grid type tread pattern incorporated instead of the usual off-road 'knobbles'. The wheel hubs are one-piece mouldings and feature small 'ducts' set around the wheel rims, with the tyres in position, these ducts allow cyanoacrylate or super glue to be poured between the tyre and wheel hub to seal the two surfaces together. Once stuck the ducts allow air to be pushed out of the tyre to provide extra damping.

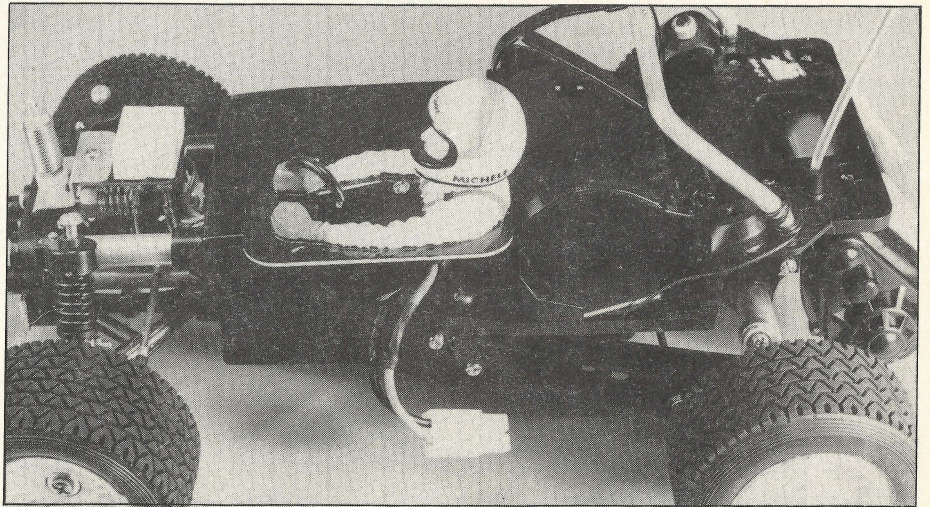
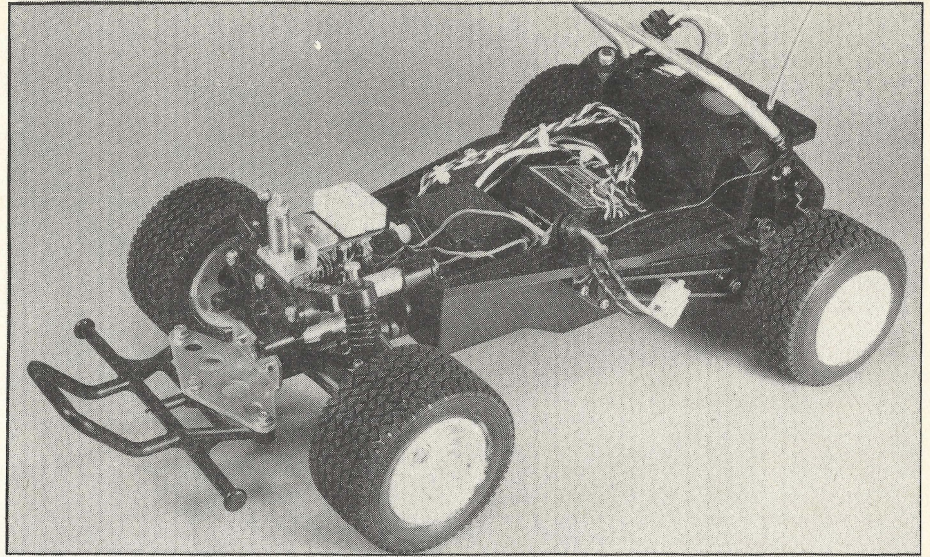
The rear wheels are coupled to by hexagon drivers on the drive shafts, which locate into moulded sockets in the wheel itself. Both front and rear wheels are ball-raced.

Body Beautiful

As mentioned earlier a clear polycarbonate bodyshell is provided in this kit which needs to be given an overall coating of white paint before the decals are applied. The front and rear parts of the body are plastic mouldings and have to be bolted onto the shell. A full set of 'Team Audi Quattro' decals are supplied and when applied to the bodyshell, instantly transform this off-road buggie into a scale model of the 'Quattro'. A driver figure mounted on top of the radio compartment lid completes the effect.

On the Track

The first test run of the 'Quattro' was conducted in the dark, at 10.30pm in the pouring rain. I was that keen to see it working. Despite the wet road conditions, the 'Quattro' proved to be great fun to drive, particularly as I could hardly see it and because of its tendency to spin. Of course this cannot be considered to be an accurate assessment so further trials were carried out at almost first light next morning. My earlier suspicions concerning the overall speed proved to be correct as the complicated drive train really does sap the power from the Ni-Cads to the rear wheels. Having said that, the drive train did loosen up tremendously after a few charges. On the handling side the



'Quattro' is either terrible or great. Terrible on very bumpy terrain and great on relatively smooth surfaces. The suspension just isn't man enough to handle the humps and bumps of a true Off Road Course. Instead the car performs a non-stop, hop, skip and jump. For maximum enjoyment the 'Quattro' performs best on smooth slightly slippery ground where it can be thrown into power-on four wheel drive and perform handbrake turns on a sixpence rather like the real thing. Also the car surprisingly enough, does not tend to fall

over when turned sharply and this coupled with the excellent differential assisted steering make it a delight to drive. Finally, the 'Quattro' is above all strong and would seem to be able to absorb punishment better than most.

The 'Quattro' should be widely available, approximate price £70.00.

Above and top right: two views of the completed chassis prior to the initial test runs. Below left: close-up of the radio box showing plenty of space for most modern sets of two channel radio.

