

item. Another additional item is the metal motor mount to replace the original kit plastic version. Bevel gear differentials at the front and rear are carried on ball races. The differential units themselves are supported between the two main chassis plates made from stamped, anodised aluminium sheet.

The quality of the engineering is first class. Plastic mouldings are excellently finished and fit well together. The metal parts are also well produced and finished. The independent front and rear suspension uses common parts, saving on tooling costs and of course spares holding. The location of the wishbones is by substantial ball joints, this novel

PRO 10 4WD

You might be forgiven for thinking that the new TAG 'PRO 10' has more than just a passing similarity with the now extinct SG 'Coyote'. I am assured by the importer, Phil Greeno that this new car from Italy is not just a superficial revamp but a re-engineered car with significant differences. Having never handled the SG car (which was in fact manufactured by TAG), I am unable to comment on similarities. This report is on the

Geoff Driver reviews the latest specification TAG 'PRO10'

TAG car as it is now, not what it might have been previously.

The design

On initial inspection the drive train appears quite straight forward. A front to rear shaft connects the two

differential units together. What makes the TAG car a little different from other similar configurations is the drive motor position. The motor drives onto the front to rear shaft from its position mounted above the shaft. No centre differential with this kit although Phil Greeno had supplied a one way roller bearing (sprag clutch) fitted to the front differential input shaft. This is available as an additional

arrangement although certainly not unique, works well and provides a good degree of adjustment and a minimum of slop at the joints. Adjustable coil over dampers are provided with a choice of plastic pistons to cover a range of damping characteristics. The dampers are provided with a single fixing hole on the bottom wishbones, but has a range of alternative top mounting positions on the front and rear metal damper mounting brackets.

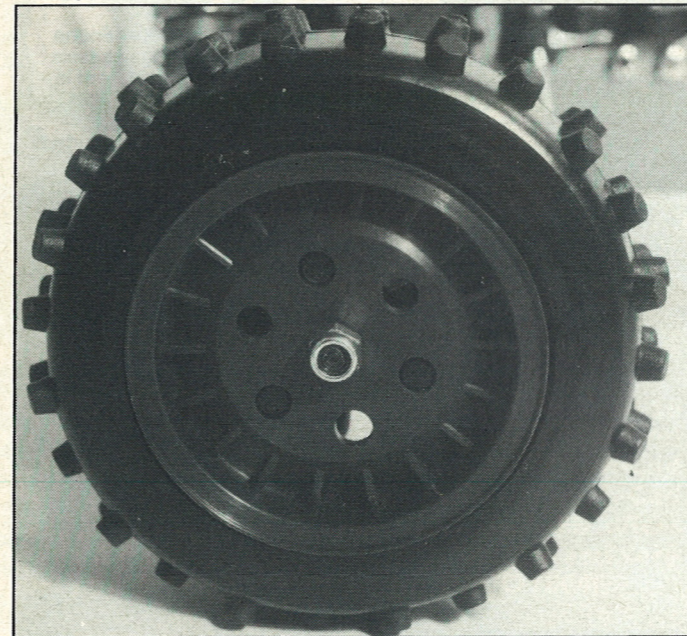
Mounted on the chassis side plates at the front of the car is the servo saver and slave. The carefully chosen position reduces bump steer to insignificant amounts. The location of the rear suspension

tie rods is equally as carefully done as rear wheel steering effect is also pretty minimal. Axle movement is controlled by metal, coil over damper units at each wheel. At maximum extension the suspension provides around 42mm of wheel movement. More than sufficient I suspect, as the chassis could easily ground if limit stops are not introduced. Due to their length the drive shafts cope easily with this amount of axle articulation, the inboard joint being ball and pin and the outer being a hook joint. Battery position is also something of a novelty as brackets on either side of the chassis beams locate 3 cells on each side. A number of different cut outs provide alternative battery positions along the chassis. In a nutshell that is the design. The most notable item is probably the motor position and drive train.

I have in the past been fairly critical of longitudinally mounted motors, the truth is they my fears of bad handling have been unfounded as their seems to be little or no detrimental effect on car stability. A case of theory not being the whole story. I still do feel that mounting a motor high in a chassis is not a good idea. A large mass mounted a long way above the roll centre is bound to add to handling problems.

Items to finish off the kit are red wheels, which bear a strong resemblance to the PB style wheels, a bumper which must be shaped in hot water and a fairly uncontroversial body. The bumper is the only real let down on quality. It is unsymmetrical and appears to have been shaped with a meat cleaver, a blunt one at that.

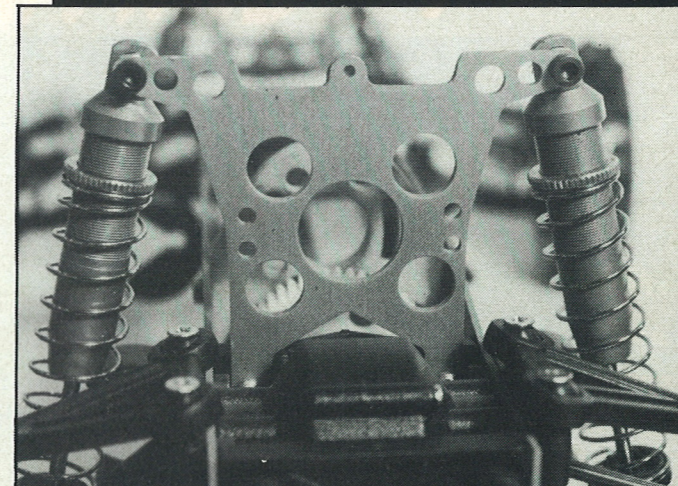
Left: The new TAG 'PRO10' follows conventional lines with inboard motor and upright shock positions. Below: Tough plastic wheels are fitted with hard wearing plastic tyres.



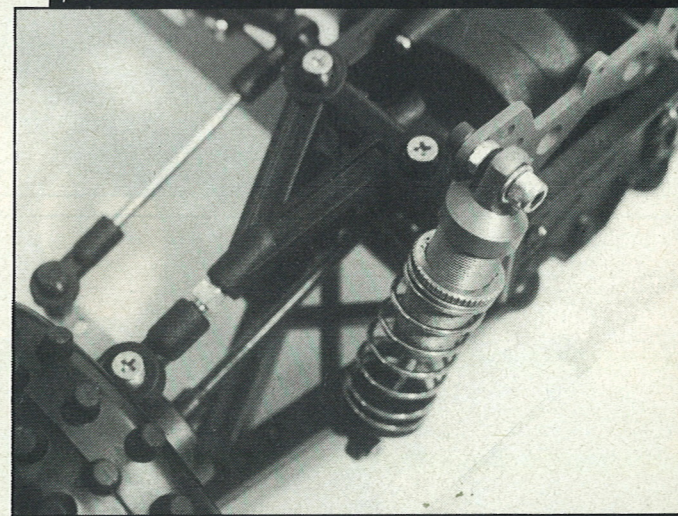
Suspension geometry is flat, ie. no tilting of the wishbones to achieve castor. The front axle uprights do swivel on displaced pivot pins which provides a similar castor effect. The upper and lower wishbones are of unequal length and the length of the upper arm is adjustable with a simple screw out adjustment. The design does not include much camber change during suspension movement. This would be desirable if only to keep maximum tyre contact with the ground during body roll. The geometry means a track change of up to ten millimetres as the wheels move through their full travel. This track change has been kept to a minimum by utilising long suspension arms. Despite the advantages of long suspension arms the position of the mounting points near the centre of the car does promote chassis roll. Add to this no anti roll bars, soft rate springs and high motor position and you have a recipe for excessive roll. Of course the only way to check out the theory will be a track test, and that will have to wait.

Major dimensions are wheelbase 280mm, track 235mm. The choice of shaft drive is unusual these days with all out racers. Tamiya and Marui are among the major devotees and that gives it a strong following. There is no denying that belt drive is the current flavour, but I have no doubt that fads and fashions will change and if a shaft drive system can be seen to operate as well as belt then it will be all change.

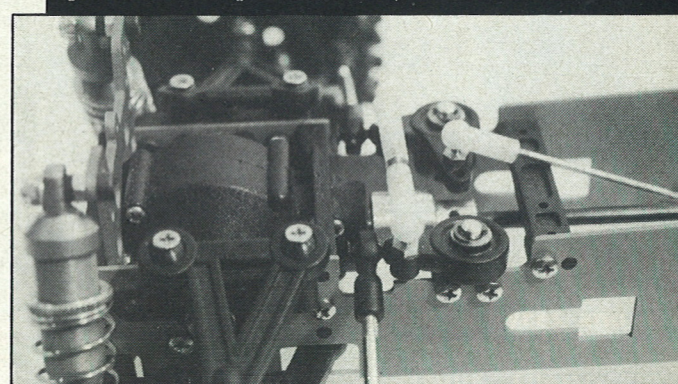
Kit assembly is quite straightforward. The majority of fittings are held in place with



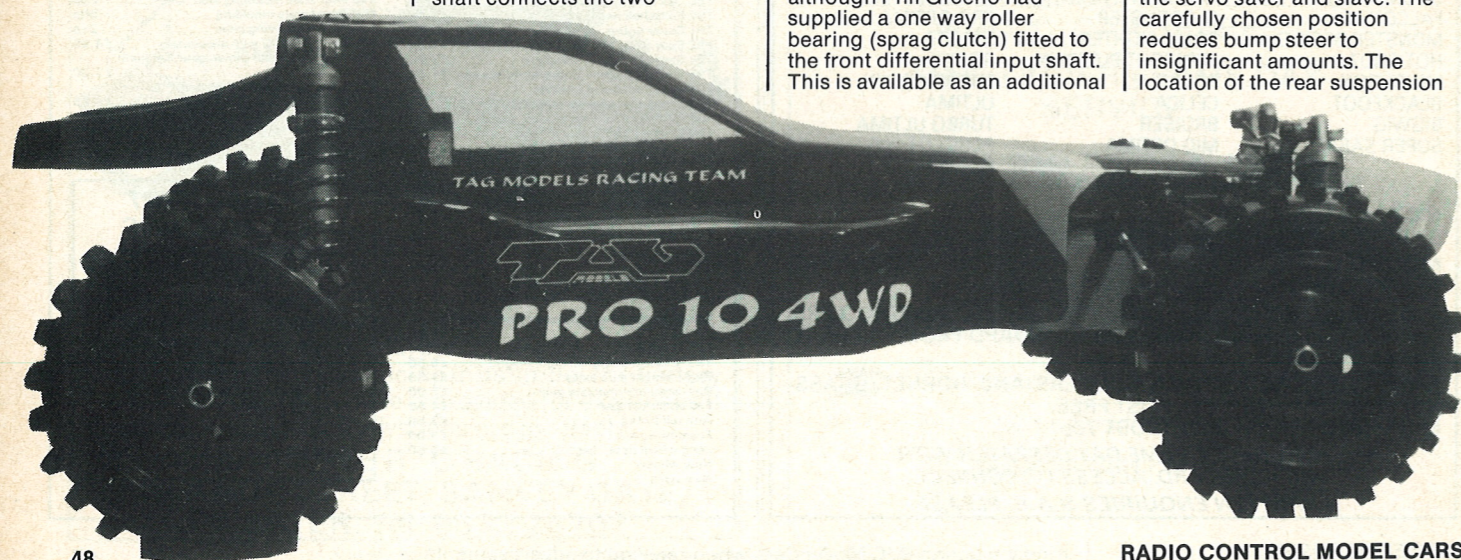
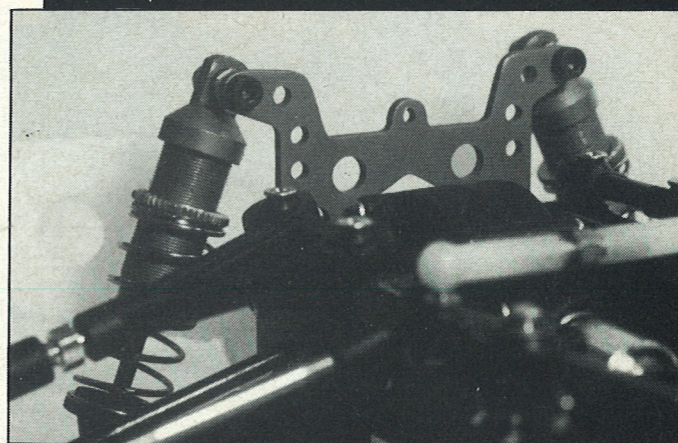
Aluminium shock brackets are light and strong and give good protection to the chassis if rolled over.

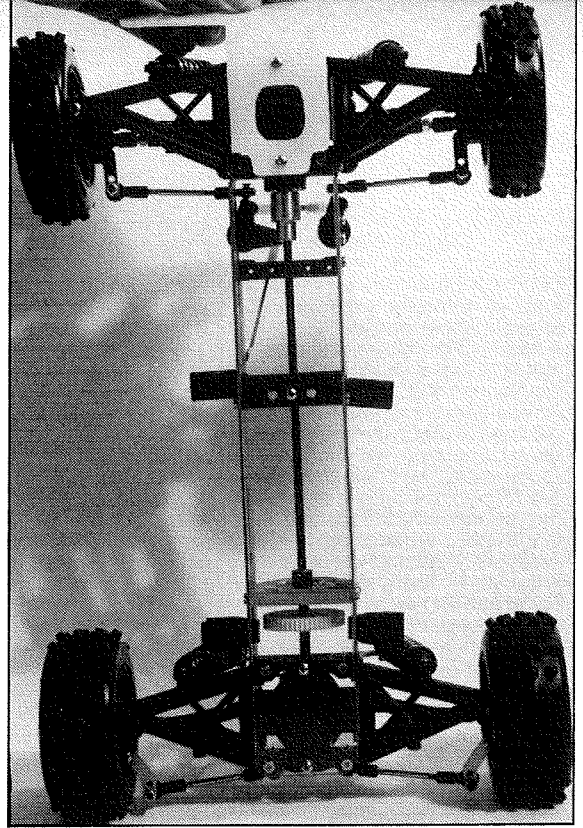
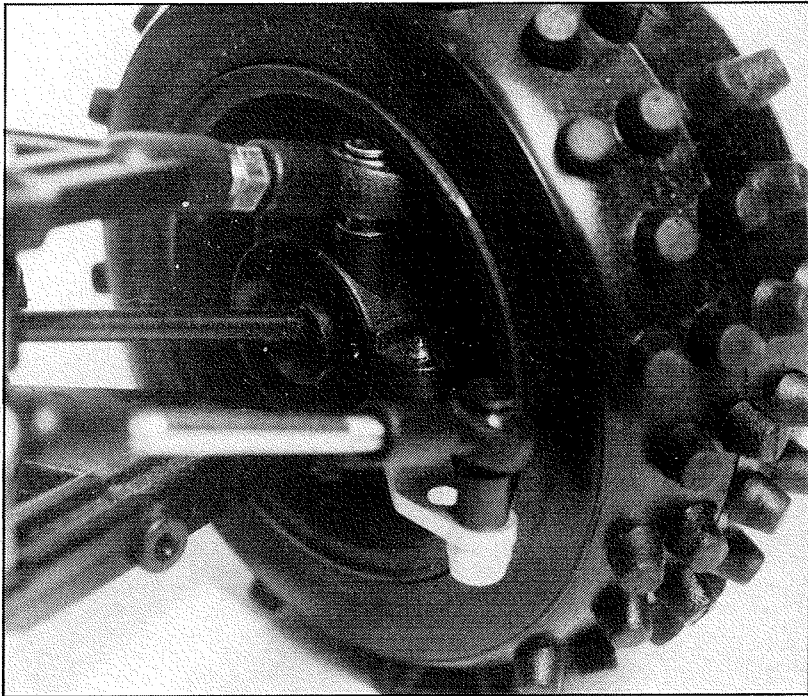


Front shocks are mounted in the centre of the suspension arm and gives a smooth long travel to the suspension.

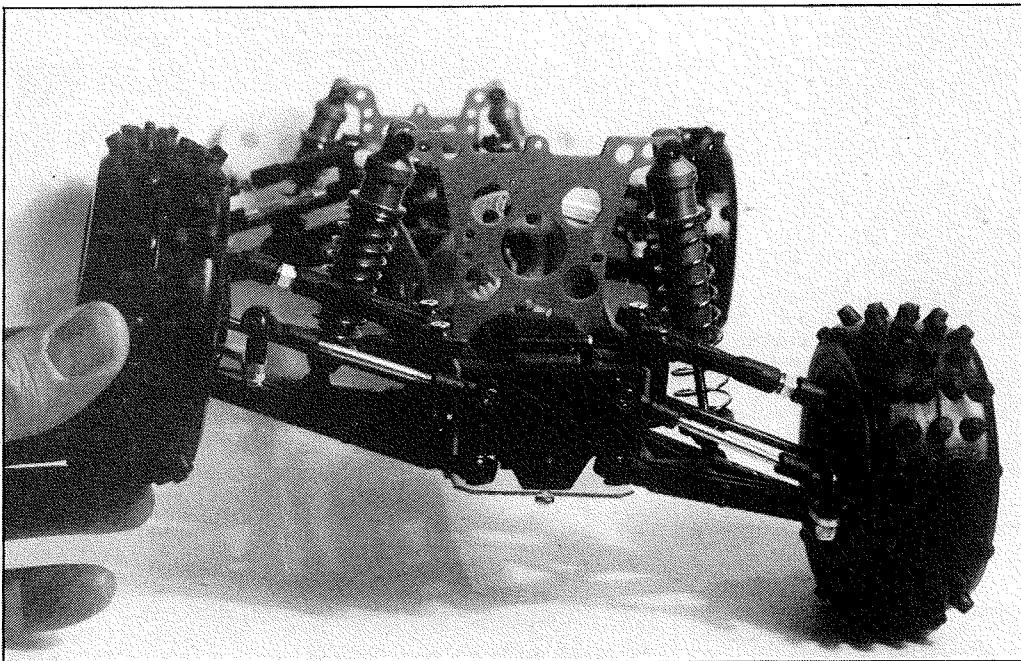


Above: Steering servo posts remove any bumpsteer and give an excellent positive movement.

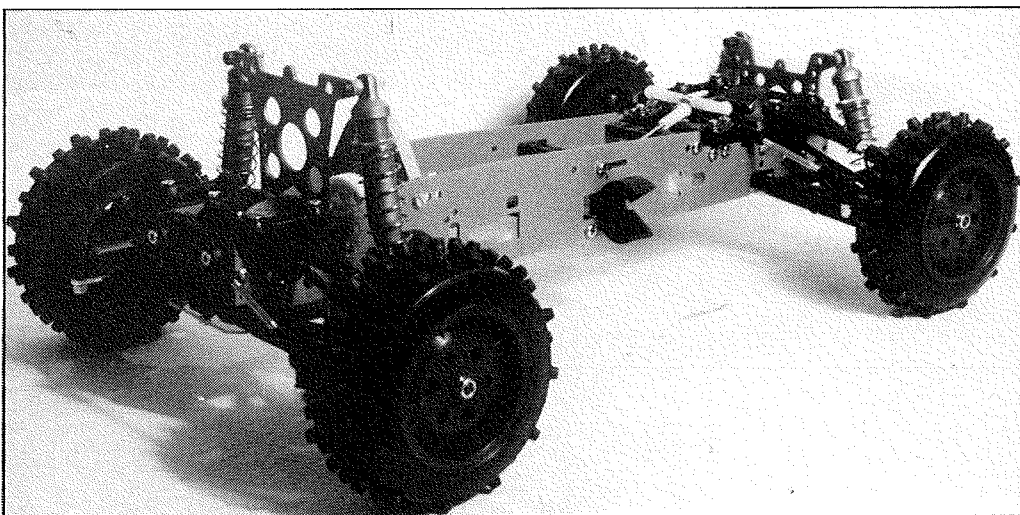




Left: The front hubs are moulded in plastic - note adjustable suspension link for camber alteration. Above: Plenty of room for radio equipment.



Above: Rear suspension is soft with lots of movement, giving high ground clearance. Below: The completed chassis ready for electrics - note battery clamps on side of chassis.



self-tapping screws running into plastic. The instructions are quite adequate although the quality of picture reproduction does leave something to be desired. However, this does seem to be the price paid for the more specialised RC cars currently available. I was pleased to see that the Italian translation does include the occasional slip. I particularly liked the instruction "assembly the inferior arms on the downer side of the chassis".

The most traumatic maintenance problem would probably be with the differentials should they need attention. Access to the differentials could be a lengthy process as the chassis side plates must be removed before the differential gearboxes can be reached.

Radio gear fits between the two side plates on the chassis spacer bars, an adjustment is included for different size servos. A plastic plate is provided along the underside of the chassis to keep out the unwanted elements, although it is by no means watertight.

Conclusion. A nicely engineered car, some good design points and some questionable ones such as the high mounted motor. I liked the extensive use of ample sized ball joints on the suspension arms. The differential units were esthetically pleasing, if not entirely practical for maintenance purposes. Kit was provided without a motor.

Available from Phil Greeno Models at around £170 for the standard kit, optional items are extra.

Phil Greeno Models Ltd.
9 Village Way East
Rayner's Lane, Harrow
Middx. HA2 7LX.

