

In 1976 Tamiya released the 1:12 Porsche 934 Turbo, signifying the beginning of an era for R/C cars. Fifteen years later, the 100th car released is celebrated in the form of the Top-Force. It takes the form of a 1:10 4WD competition off roader, falling into the category between the Manta Ray and the Egress. Anyone familiar with the

Manta Ray will be at home with this new car, as it is basically an upgraded form of the 'Ray. The inclusion of a double

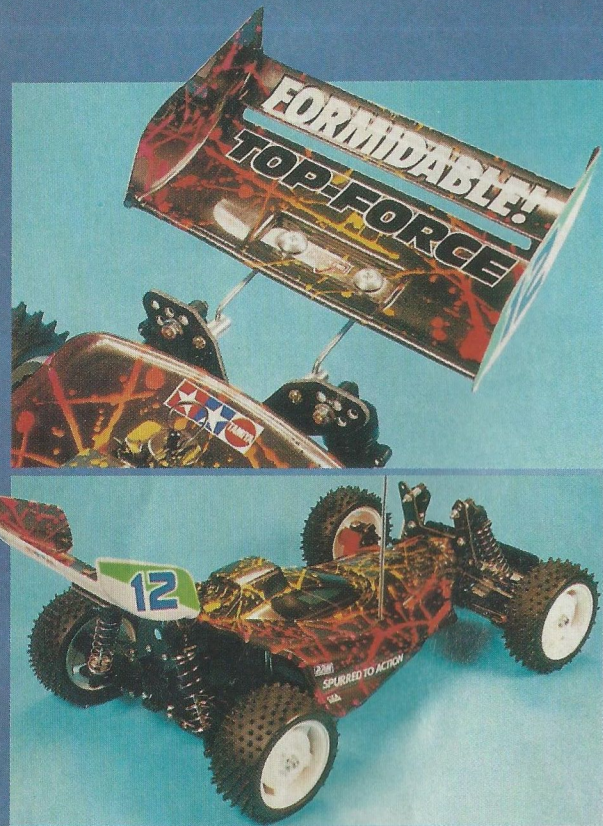
deck FRP (fibre reinforced plastic) chassis and front and rear ball diffs are the main differences, although at first glance



Marcus Nicholls builds and tests Top-Force - the 100th R/C car from Tamiya

TOP-FORCE

Formidable!



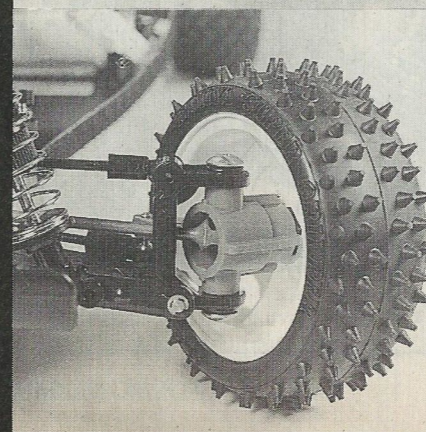
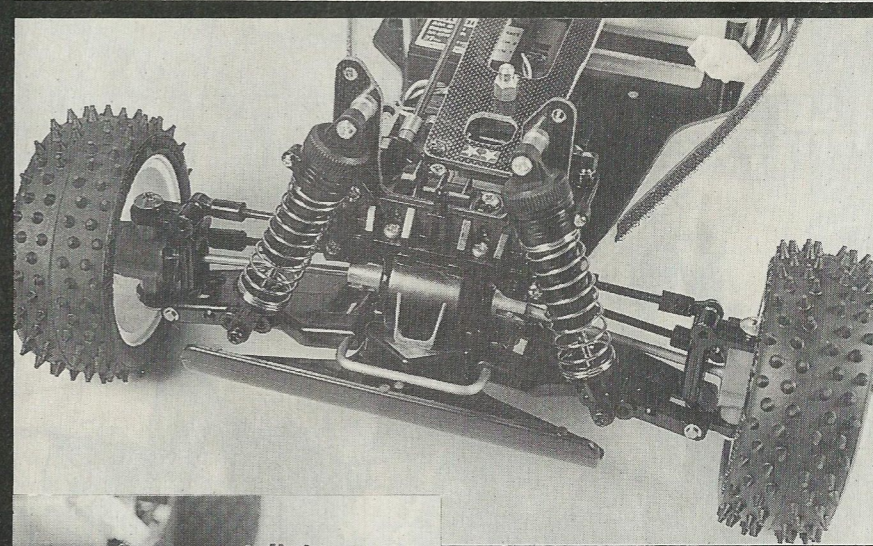
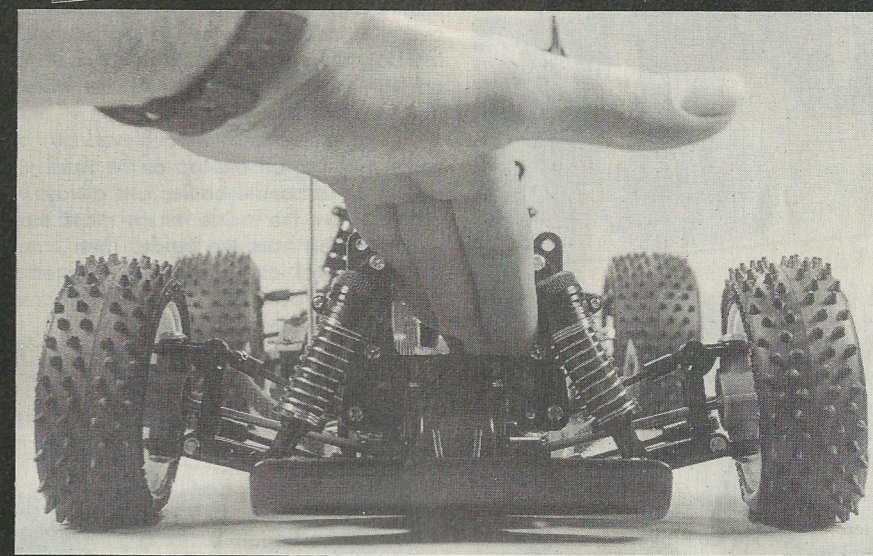
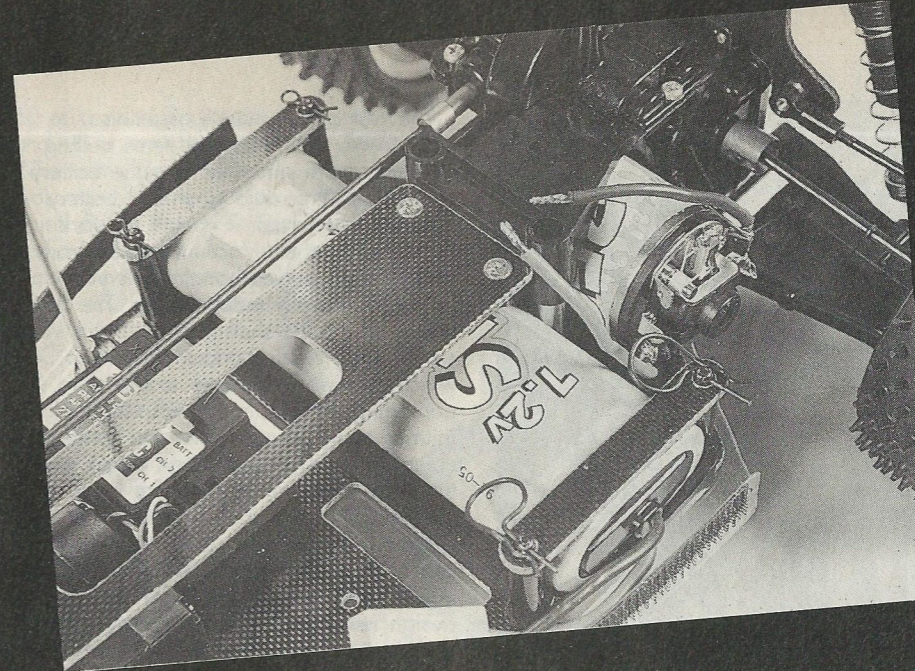
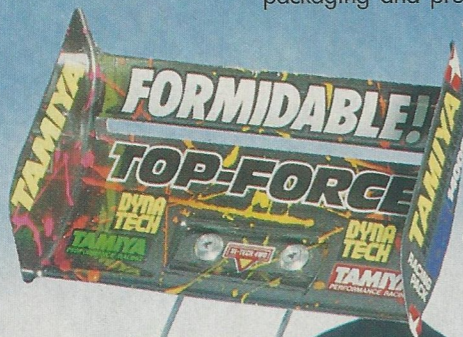
it is the striking low profile body shell of the Top-Force which one notices.

No speed controller is included, not even the standard mechanical one found in many other kits, so this factor should be taken into account when purchasing the other necessary peripheral items. We installed an Apex Dominator electronic speedo in our Top Force, and it clear that it is this type of device that is needed in the car.

The first thing one notices upon opening the box is the usual high standard of packaging and presentation. The

chassis and some suspension

parts are encapsulated in clear plastic, with a very neat labelling system printed on the card beneath.



From the top; Main difference between Manta Ray and Top-Force is the FRP chassis of the new car. Standard shock absorbers are more than adequate - Hop-Up options are available though. Front and rear gearboxes are the same as the Manta Ray, Shock brackets are in FRP though - an improvement over the earlier car. Universal joints are employed in the front hubs. Do not apply grease here - it's a dust magnet!

Other parts are presented in a seemingly bottomless pile of small polythene bags. Screws, bolts, nuts, E clips, ball bearings and other items are divided into alphabetically labelled bags, and great care must be taken not to spill the contents!

Construction starts with the two ball diff units. They are the same, front and rear, but I would recommend assembling them one at a time rather than simultaneously, as the tiny ball bearings used seem to have a mind of their own! A small tube of ball-differential grease is included, maybe a larger tube would be preferable in case of any mistakes, in which re-greasing would be necessary. In the illustration on page one of the instructions, a cross-section of the diff is shown. Study this drawing and take note of the orientation of the gear itself - it is not symmetrical in section and if inserted the wrong way round, the finished assembly will not fit into the gearbox.

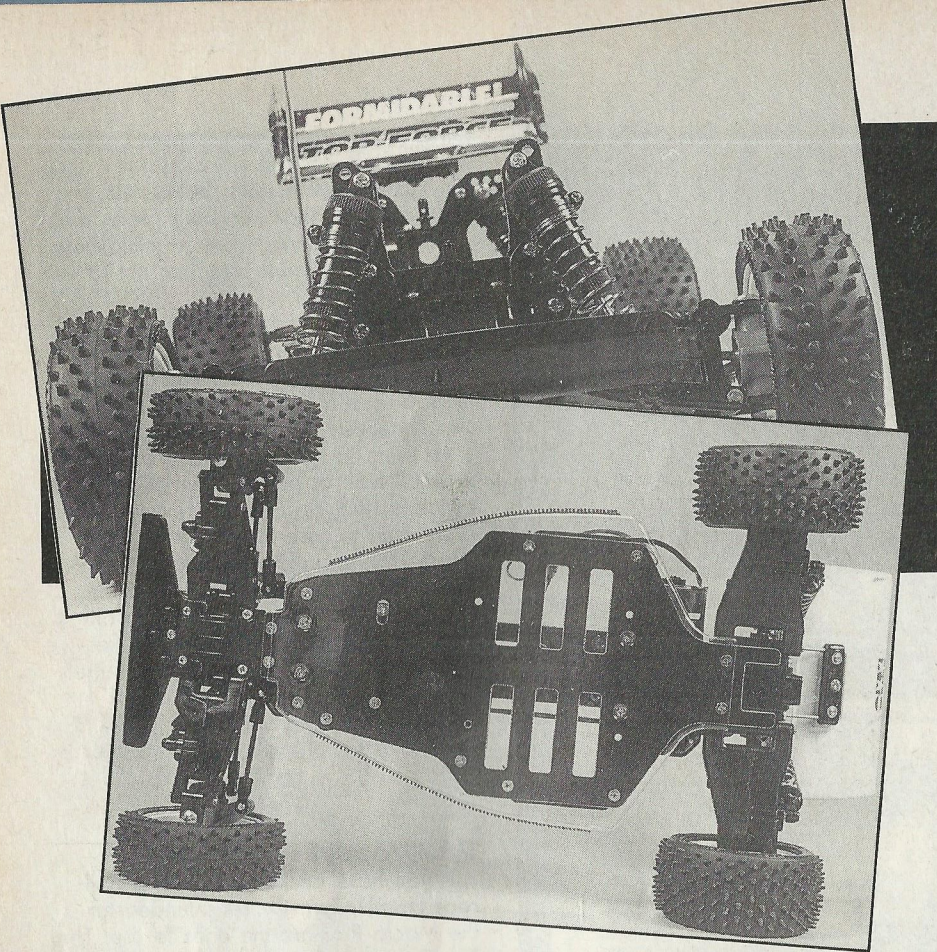
Go Greasy!

If you have decided to use the ball-race Hop-Up set, the set intended for the Manta Ray are the ones to use. The Top-Force gearbox housings are the same, neatly moulded nylon items found on the earlier car, with the shocker brackets changed to the FRP material used in the chassis. Lubrication is unnecessary for the ballraces. If you are using the supplied plain bearings, grease as generously as possible with the limited supply. The gearboxes build up quickly into neat sub-assemblies, which go on to take subsequent suspension components. The installation of some of the wheel bearings takes place at this stage, and it is here that the inclusion of ballraces really makes a difference. As anyone who has built an R/C car will know, the plain bearings included in the kit are fine for just running the car around the garden, but to get the best from your Top Force use the optional high performance items.

A total of eight ball-race bearings will be needed for the suspension - two mounted on each wheel. Again, as with the gearbox bearing installation, no lubrication is necessary for these high performance items. Do not grease the universal joints either, as the instructions say. These parts can run dry quite safely. Any grease in the area will attract dust to form an efficient grinding paste, and this can do more damage than the lack of lubrication.

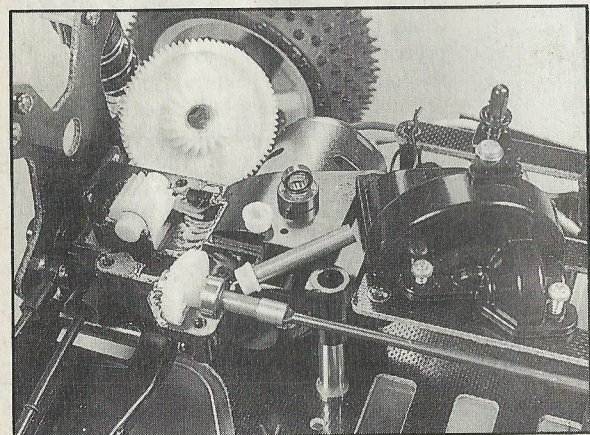
Otherwise the suspension can be assembled quickly, with no major problems being encountered.

Moving on to the lightweight FRP chassis, and it was here I had my only real problem - albeit a minor one. The four countersunk screws which secure the two battery restraint posts are very stiff to screw in, and seemed to stop



totally about one millimetre from the chassis plate. Take care not to shear the slot on the screwhead under the strain, as this will make the already tough task even harder. The screws

were either too long, or the holes in the plastic components too short. Do persevere however, as they will eventually tighten up nicely!



Above; Polycarbonate underpan is attached with screws that also hold the gearbox on. Exploded view of the rear gearbox. The grease is for the gears themselves, not the ballraces. **Right;** Front and rear shock brackets carry extra holes for alternative positioning of the dampers.

Work that body!

The double decker chassis design is a definite advance from the Manta Ray which employed a strong but heavy moulded tub.

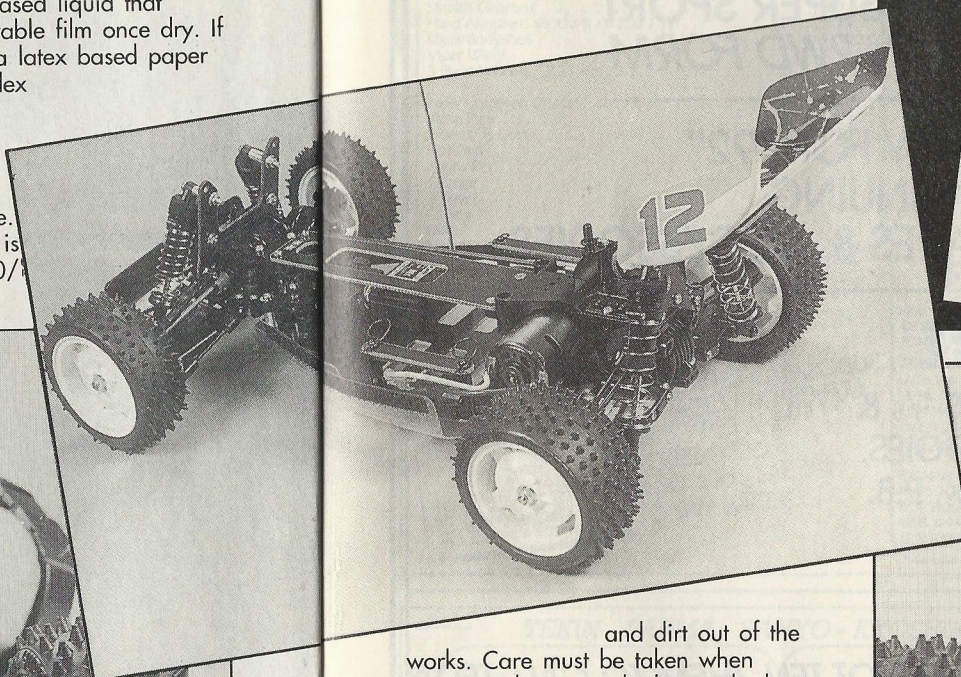
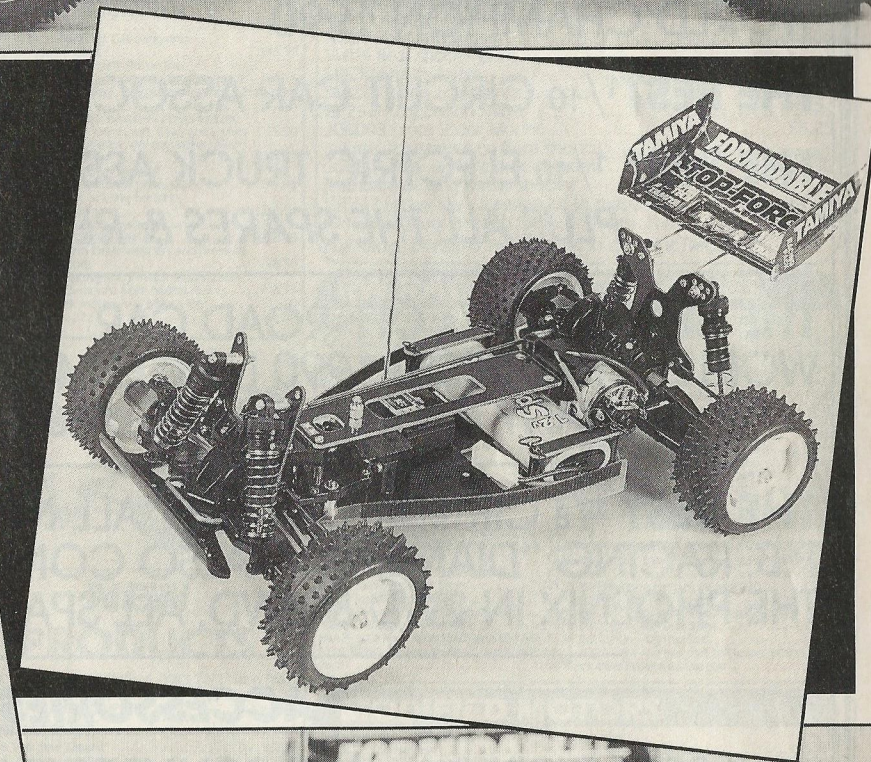
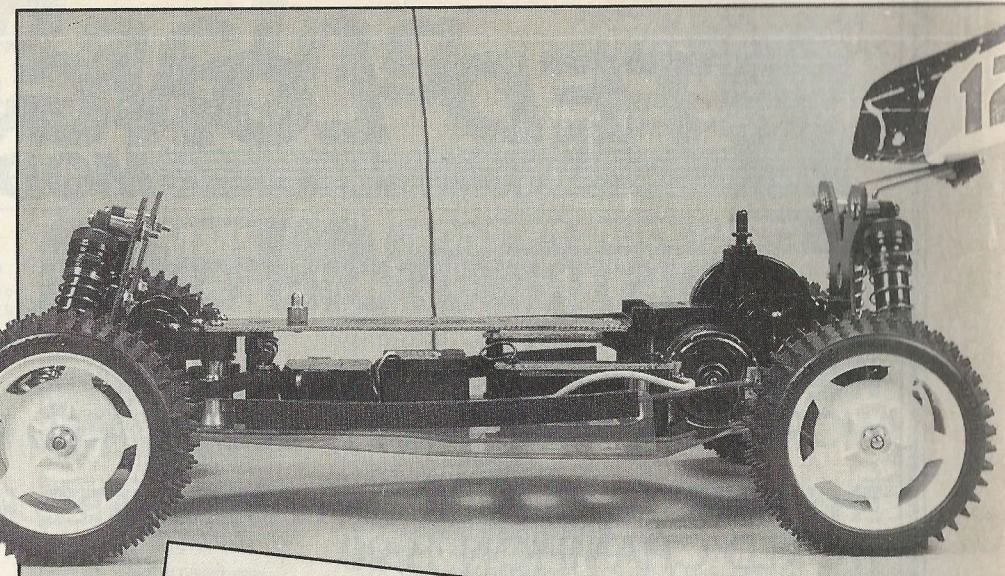
The rest of the chassis assembles easily, with the peripheral items bolting on much more smoothly than the battery posts! With the radio gear and battery installed and tested, it is time to work on the body shell. Vacuum-formed from strong, clear polycarbonate, it is very light and virtually indestructible. The first task is to cut the shell from its surrounding excess, and this is a job which requires great care to prevent damaging the plastic and also to avoid injuries to the hands. Once the cutting is complete, trim off any rough edges and test fit over the chassis. A nice touch is the tight fit of the shell over the front gearbox, enabling the body to sweep up gracefully to the rear shock absorber post. In my opinion, the Top-Force body design is infinitely more attractive than the Manta Ray, with a much lower profile and more aggressive appearance overall. I debated whether to reproduce the box top colour scheme or to come up with an original design. Guess what my decision was!

The splatter effect was achieved by firstly masking off the top of the shell – clear polycarbonate bodies are always painted from the inside. Firstly mask the window area from the inside. Then splash Maskol latex masking fluid over the inner surface. The fluid is a non aggressive, water based liquid that forms a thin, removable film once dry. If it is not available, a latex based paper glue such as Copydex could be substituted, but do test anything first on some scrap polycarbonate. Once the Maskol is dry, spray a 50/

50 mixture of Pactra Racing Finish black and silver over the entire inner surface. When dry, peel the Maskol off (which took ages!) leaving blank spaces in the paint. Spray Pactra Racing Finish Neon Red and Neon Yellow in a suitably creative pattern, and back up with solid white, add some stickers and the Velcro body attachment strips, common now on R/C cars, and the body is complete. The finished car was escorted gingerly into the photographic studio here at ASP where it was photographed, and once this was finished, it was time to run it!

Burn some rubber!

The car took off with a screech of tyres and a cloud of dust, and continued to accelerate up to an alarming speed. The first corner was entered at high speed and the 100th R/C car from Tamiya handled it as if it were on rails. For anyone used to two wheel drive, the four wheel drive really is noticeable, particularly on the corners where it just won't let go! The basic shock absorbers included in the kit do their job well, keeping the car from bouncing around when performing jumps, with the polycarbonate underpan both protecting the chassis and keeping some of the dust



and dirt out of the works. Care must be taken when reversing the car at high speeds due to the lack of a rear bumper – expensive repairs to the rear suspension could result from over zealous parking manoeuvres! The low profile of the car not only looks great, but helps to add stability and aerodynamic efficiency, however the high mounted rear wing will be the first casualty in the result of a roll. In summing up, Top-Force, the 100th R/C car from Tamiya assembles smoothly and easily straight from the box, with very few hitches. The body looks great, and it performs as good as it looks – an excellent way to celebrate a century!

