

Geoff Driver reviews the
revolutionary Rocky
from Kyosho

The original 'Rocky' was introduced as an economic, four wheel drive racing buggy. The car has proved to be very popular, although I have only seen a few at club meetings. I suspect that most of the 'Rocky's' sold, become back yard racers. This is a pity, as the vehicle has great potential and in the hands of the right driver could do extremely well. Now, the potential has been further enhanced with the introduction of the 'Rocky Turbo.'

Following in the tradition set by the more expensive 'Optima' and derivatives the 'Rocky' now comes in 'high performance' trim. If you think that this means a few 'go faster' stickers and a new body shape then you are in for a surprise. True the 'Rocky Turbo' has been supplied with a new body and some of the transmission parts remain the same as the standard 'Rocky,' but there has been some significant re-engineering. Some of the new parts are in fact unique to the 'Rocky Turbo' and are definitely worthy of some more detailed examination.

The differences

A major change is the chassis. Gone is the two part plastic assembly to be replaced by an aluminium structure. Stamped from aluminium the main chassis plate supports the front differential and main rear gearbox. These are held in place by a combination of self tapping screws, and nuts and screws. The aluminium radio plate fits between the two gearboxes and locates them. This provides the necessary stiffness to the chassis. The whole assembly is extremely rigid, which of course is important as the main front to rear drive chain passes between the two plates. Any flexing in the chassis, apart from giving odd handling characteristics would also have the chain snatching around unmercifully.

Another important change from the original 'Rocky' is a new type of damper unit. These will be sold under the 'Option House' banner and will no doubt be available in the

fullness of time. The dampers are some of the most innovative I have seen for some time. The main feature of the dampers is the adjustable damping rate which can be changed without dismantling the units. The way this is done is quite clever. The main piston shaft of the damper is a tube. Through this tube passes a rod, fixed at the bottom end to the mounting ball joint socket. At the other end, inside the damper barrel the rod is fixed to a plate. By turning the bottom ball joint socket, the plate can be moved up or down, this opens and closes holes in the plastic piston. This will vary the rate at which oil can pass the piston on the bump or compression stroke, but will not affect the rebound stroke. This means the damping effect can be varied in one direction. This is the first time I have seen this type of mechanism used on a model car although the principle is very similar to one of the adjustments used on full size Koni dampers. Full marks must go to Kyosho designers and engineers for such a neat and unique idea. The only problem is that oil can leak down the centre hollow tube. I have yet to experiment but I suspect that it may be possible to reduce this leak to insignificant levels by some silicone sealant around the tube. Twin dampers with adjustable collets are fitted at both the front and rear of the vehicle.

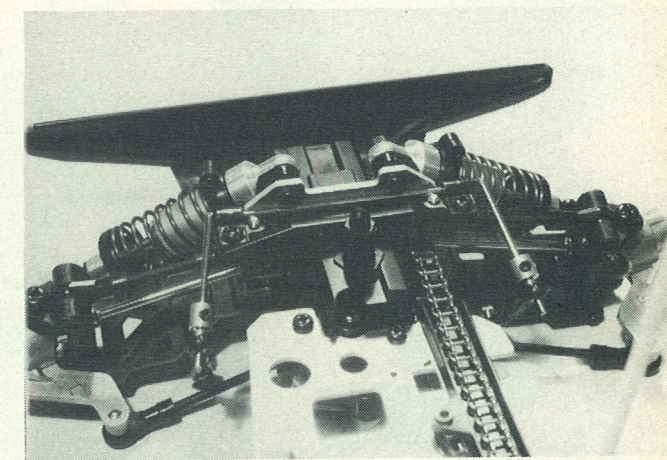
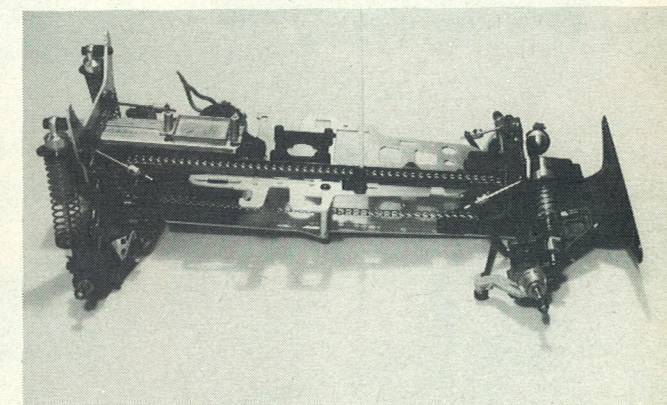
The drive shafts provided as standard are ball and pin joints at the inboard end and Hooke type at the wheel end. Coloured gold they look pretty distinctive, and will be available under the 'Option House' spares label. I suspect that the colour will identify them as being different from the 'Optima' drive shafts, only important if you are lucky enough to own both types of car.

Building

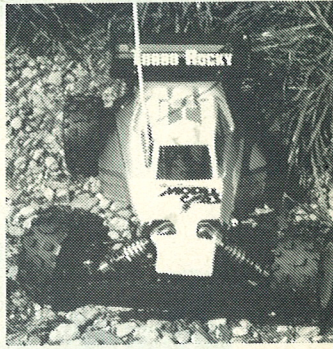
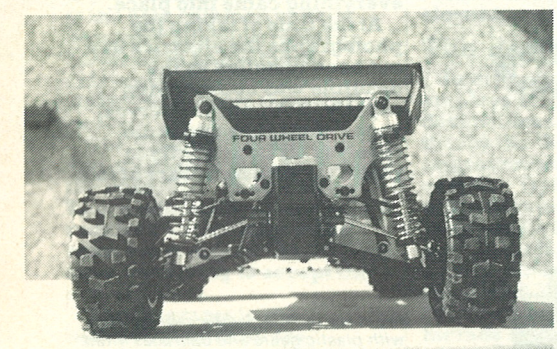
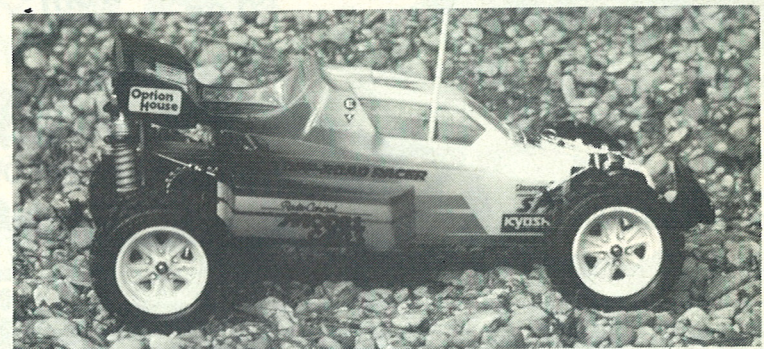
No real problems here. The pictures were easy to follow, the complications being to find the correct screw, be it self-tapper or machine screw, countersunk head, pan head or round head. I did encounter some difficulty locating some

of the small parts. In particular I hunted around in the bags for ages looking for some odd shaped nuts only to find them on a plastic sprue, not serious unless you have deadlines to meet. The kit is provided with four ball races. These are intended for the shafts that

carry the chain sprockets as they are subject to additional strain. Of course any owner intending to race the car seriously would be well advised to convert the whole car to ballraces to improve performance and reliability. All the parts went together



ROCKY TURBO

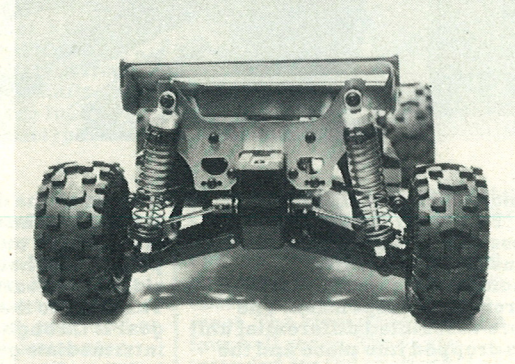
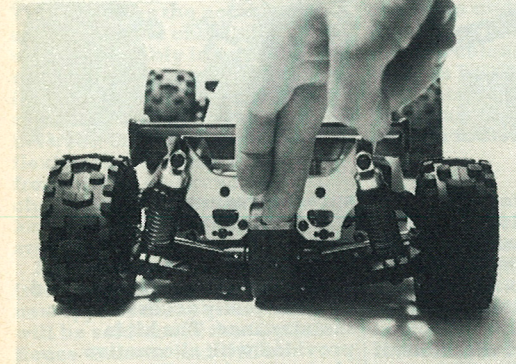
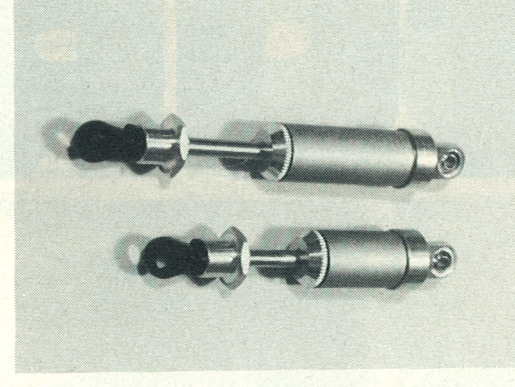
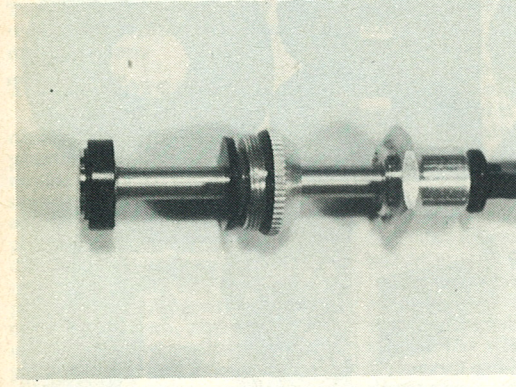
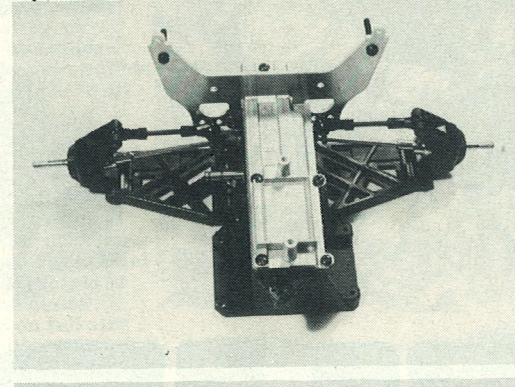
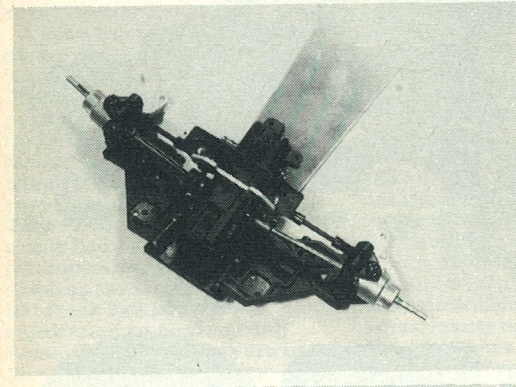
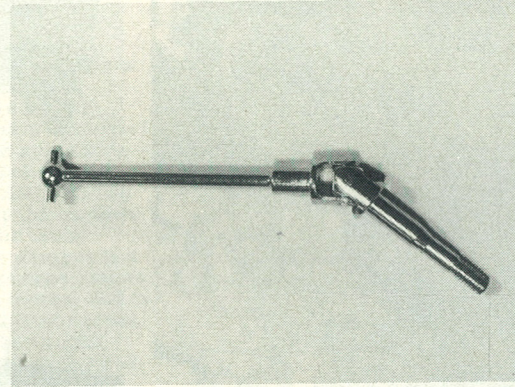
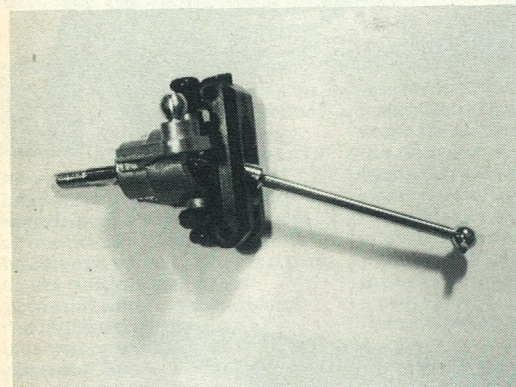
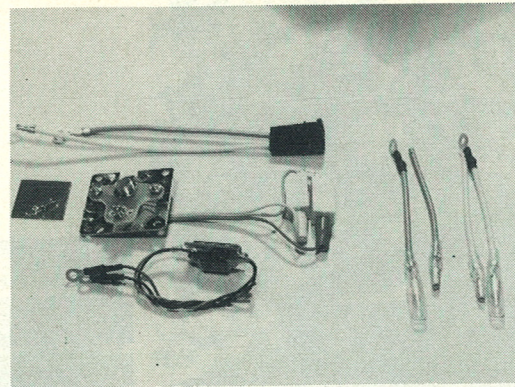
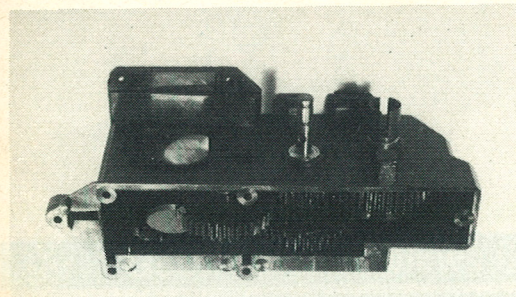


perfectly, no filing, cutting or scraping was necessary, screws fitted in holes as they should, in fact the whole thing went together so easily I would have no hesitation recommending the car for first time buyers, especially as English instruction will be

included in production kits. Following the order of assembly as detailed in the instructions the first component to build was the front axle/suspension. The pre-assembled differential unit is dropped into place and the splined drive cups fitted into

sockets on the differential assembly. The whole axle unit is supported on plain bearings pushed into housings in the side of the gearbox moulding. The drive to the differential gear is through an intermediate gear, which itself is driven by a chain and

sprocket mounted on a shaft which extends outside the gearbox. As mentioned this shaft is supported on ball races. The externally mounted chain is easily accessible for maintenance. The kit is provided with alternative chain sprockets. The



- alternatives give either:
1. Same speed of front and rear wheels.
 2. Faster front wheel speed than rear wheels.
 3. Slower front wheel speed than rear wheels.

These options provide a range of performance characteristics to suit many tracks.

The lower front suspension arms are pivoted on the front differential mounting plate, the adjustable top arms are fitted to a bracket mounted on the differential gearbox.

The front suspension is completed by mounting the front damper units after they have been filled with the oil supplied in the kit.

The rear gearbox comes in for similar treatment, the main difference being more gears and the motor must be fitted. I did experience some difficulty installing the motor, which incidentally is not supplied with the kit. I can well imagine some frustration trying to change motors in a hurry at a race meeting. The problem is the fitting of metal plates, one on either side of the motor access hole.

The chassis is now completed with the two gearbox units being screwed to the chassis baseplate, the plastic chain guide stuck on the upper radio plate and with the drive chain in place the whole lot is screwed together. This just leaves the odds and ends. Wheels, tyres and servo saver which fits directly on the servo output. In fact of all things the servo saver was the most tricky to assemble, but with a bit of brute force everything came into place.

At the time of taking the photographs the electrics had not been installed as the deadline was approaching rapidly. However the servos, speed controller and radio receiver all fit perfectly in place. As with most cars of this

From top left clockwise: rear gearbox with plastic gears and balltraces fitted. Speed controller and all the necessary wiring. The UJ-ball and pin driveshafts - a standard Turbo item. Completed rear gearbox showing adjustable top links on suspension. The two lengths of damper, front and rear. Suspension up and down showing ground clearance and movement. Clever damper piston design allow alteration externally. Front gearbox also with adjustable camber via top links. Front hub is cast in aluminium.



type a resistor speed controller is provided. Included with this is the now common voltage regulator allowing receiver batteries to be excluded, relying on the main drive battery to provide the receiver energy.

The final parts to fit were the anti-roll bars which include all the necessary ironmongery. This additional ironmongery is required as the suspension arms are standard 'Rocky' and need modifying to accept the anti-roll bars.

The diagrams in the instruction booklet are excellent as not only do they include details of the pre-assembled differential they also show details of the optional torque limiter that can be fitted in place of a standard rear sprocket. Hints on setting up, together with basic adjustment details are also included. Even if these are not included in the English instruction manual the

pictures in the Japanese version are simple and elegant.

The design

In my opinion the 'Rocky' employs some good modern design ideas. I suggest that in theory the 'Rocky' is an improvement in some respects over the 'Optima.' The motor position to just in front of the rear wheels I believe should give better weight distribution, an argument no doubt supported by Schumacher and PB. The rear suspension arms include a few degrees of anti-squat geometry, although the position of the rear gearbox output in relation to the rear drive shafts are at an angle to the gearbox. This will introduce a small amount of additional drag.

The use of the ladder chain as a reliable and reasonably efficient system is well proven. No doubt belt drive will come

from the after market producers if there is sufficient demand.

Adjustable anti-roll bars front and rear with the adjustable top suspension arms should provide sufficient suspension adjustment.

Conclusion

A good design, incorporating some worthwhile modification over the standard 'Rocky.' Easy to build, and easy to maintain with only a few question marks over gearbox access. In any review I feel that although somewhat subjective it is only fair to point out the things that I did not like. It comes to something when the only point I choose to criticise are the black wheels, so I painted them white!

Remember that this car is not as expensive as some of its stablemates. Do not fall into the trap of assuming that it is any the less a good off roader because of the price. I hope to

drive the car in the near future and give some driver reaction. Priced at around £140.00.

