



KYOSHO RAIDER

JIM CRABB reviews this new concept in r/c cars from Kyosho.

Gearbox cover off to reveal internals. Le Mans Stock 05 is a new motor to these shores. Speed resistor and heatsink are attached to cover.

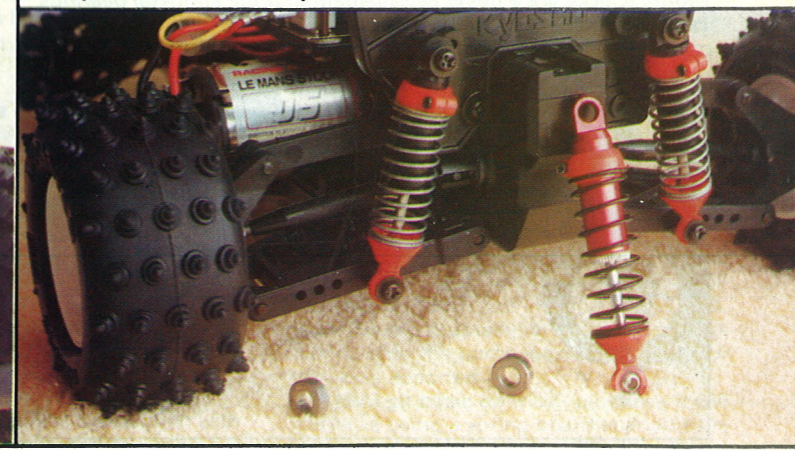
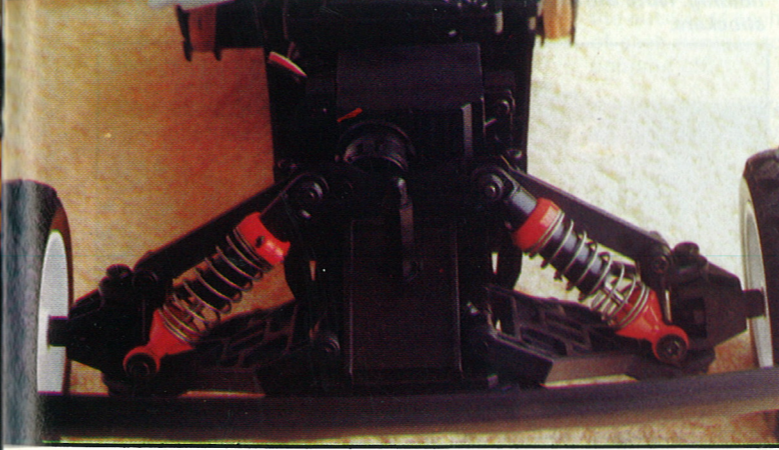
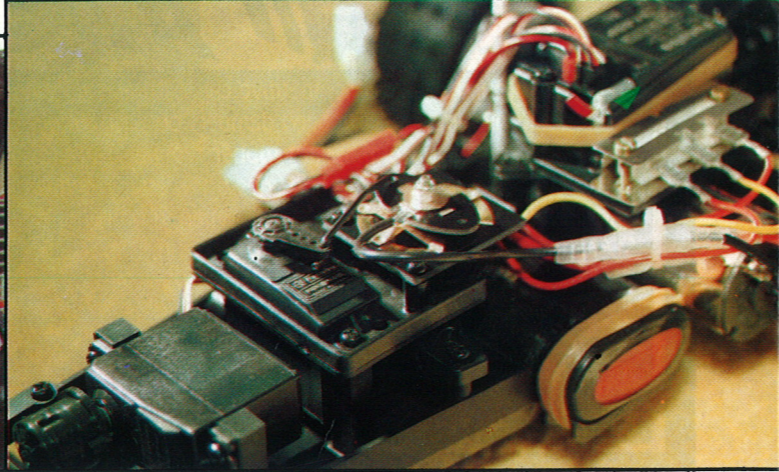
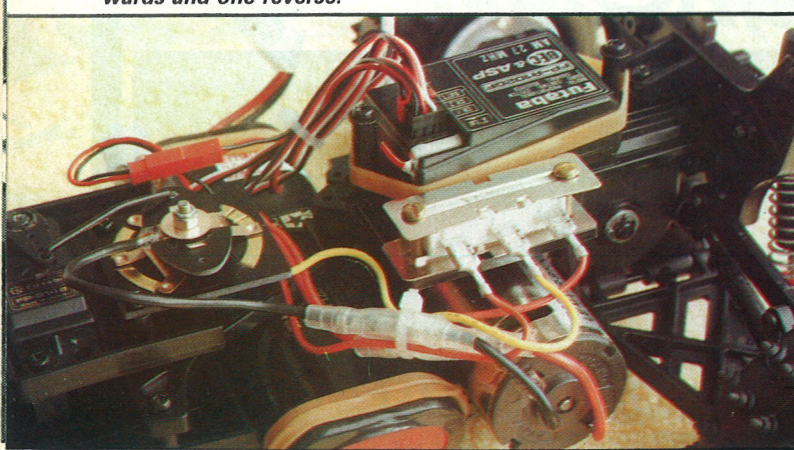
The body enhances a fine value for money car. One of the finest looking cars available.

Motor mounted midships is another factor which contributes to the excellent road holding. Rubber bands locate the transversely mounted battery and the receiver. Speed controller gives three forwards and one reverse.

Easy access to all major components at trackside. Both servos and receiver are 'in line', motor is midships and battery transverse.

Very effective suspension from simple dampers. The high grip front tyres help to give the car predictable handling. The wide bumper gives full protection to the front end.

High grip rear tyres with Ultima rear shock absorber which could be used to replace kit ones. A washer has been placed on lower mounting point to prevent 'popping' off. Kit bearings are metal, not plastic, and can be replaced with ballraces.



Not a week goes by without a phone call from a parent or person interested in "radio control", the opening words are similar "I am/my son is interested in radio control, what car should I/he get?" It is a very leading question and without a few facts like how much money has the person budgeted to spend, the age of the prospective purchase and whether they realise that a car also reequips radio control equipment, a charger, cells and a power source to charge the cells, it cannot be answered. My advice is to visit their local club and see what is required and look out for some of the excellent basic cars designed with the beginner in mind. The next question is always the same and that is what car do I race. I always tell them to start with, quoting of course that not many learner drivers at 17 start off in a Porche or Ferrari but usually start in a Mini or Metro and only when they have learnt to drive and gained some experienced progress to the more exotic models.

I warn them that once the art of driving a radio controlled car has been mastered that for them to progress it will mean they will have to trade in or change the basic car they learnt to drive in:- the Raider has been designed to make this a thing of the past.

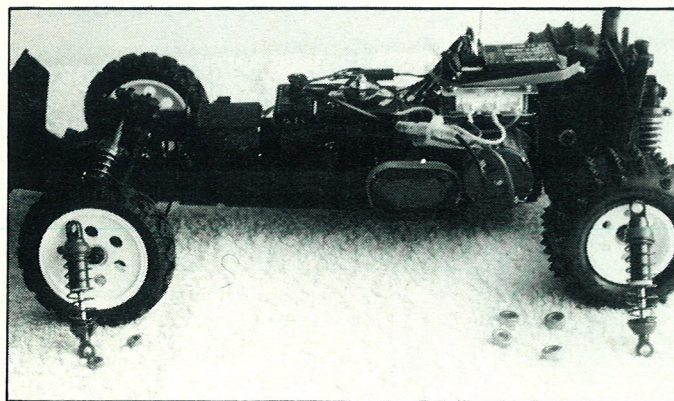
In a real world of saloon cars there has been a great deal of co-operation between Britain and Japan the most notable being Austin-Rover and Honda. The same co-operation has taken place between Ripmax of the UK and Kyosho of Japan to produce the Raider.

Car Concept

Kyosho have been told for several years by Ripmax, that what was wanted in the UK was a basic car that could be progressively improved upon. Kyosho have up until now done what all other manufacturers do and have a progressive range, it starts with a basic two wheel drive car the Cosmo, next in line is the World Championship winning two wheeled drive Ultima then the Rocky, Optima, Turbo Rocky, Salute and finally the Turbo Optima.

Ripmax have persuaded Kyosho that if you design a car with a basic low cost and design it so specific Kyosho bolt on goodies can be added without the driver having to adapt other manufacturers shock absorbers, wheels, suspension mounts, anti-roll bars and speed controller then the owner can improve his car as and when, funds (pocket money, birthday presents etc.) become available. The owner will also know that the improvements have been designed with his car in mind and that they

Ultima shocks are a direct replacement and the kit metal bearings can be replaced with ballraces.



will not only fit without resorting to drilling and bodging but they will work and improve his cars capability. For the owner who does not want to adapt then he still has the choice to start with a Cosmo or any other manufacturers basic car. Bolt on goodies will be available from introduction of the Raider with the expectation that it can be improved to compete with the Ultima on the track: a very tall order.

Technical Specification

A two wheel drive transmission system is married to independent suspension on all four wheels via coil over friction shock absorbers attached to single wishbones.

A new motor to the U.K. the Le Mans 05 stock is mounted mid ships (for good handling) onto a Rocky gearbox which is attached to a black injection moulded bath tub type chassis. The bath tub chassis not only gives good weather protection and strength but also provides an ideal mounting point for the transverse mounted battery.

Included in the kit is an Optima/Rocky gear differential, a wiper arm speed controller with three forward speeds and full power reverse and large rear spiked rubber tyres with narrower heavily treaded front ones. The kit is not ballraced, but has metal bush type bearings, which are superior to the plastic ones offered by some other manufacturers in their basic cars. Camber angle is fixed on both front and rear wheels by a non adjustable link (similar to Ultima) but, as with several items on this car the parts can be uprated by the driver as he feels necessary. Although not really part of the technical specification the car is enclosed and protected by a beautiful lexan body with large rear aerofoil wing to give a down force on the rear wheels. Frontal protection is provided by a full width Rocky bumper.

Why Buy?

The sceptic may well say why buy something that you know prior to purchase needs improving to compete with the best. The practical answer may be that the first time buyer does not know if he would ever want to compete with the best, or even if he will stay interested in his new hobby. I can think of several reasons for buying the car other than it has proved on the track that it is capable, in its very basic form, of competing in its own right against other basic cars, they are:-

A) Initial cost is low which makes the hobby available to a wider number of potential drivers.

B) It uses well proven parts from other models in the Kyosho range therefore spares will be readily available.

C) For the person who does not wish to continue with the hobby less money will be lost as initial cost of the car is low.

D) For the person who finds he likes the hobby he has a potentially good competitive car.

E) The newcomer to the hobby be they young or old will be given an insight of how a model car works and an introduction into the art of improving it.

F) By adding parts of a known improvement capability the driver will appreciate where he gains most from bolt on goodies in terms of performance and value for money.

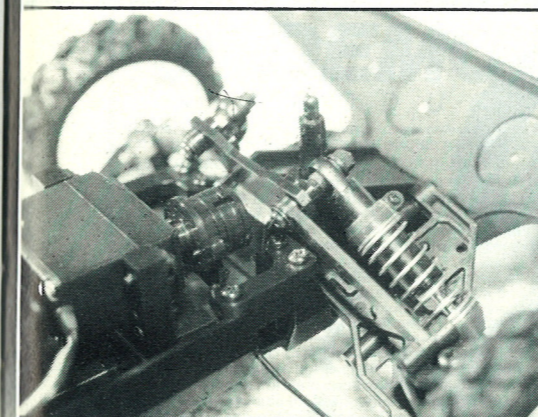
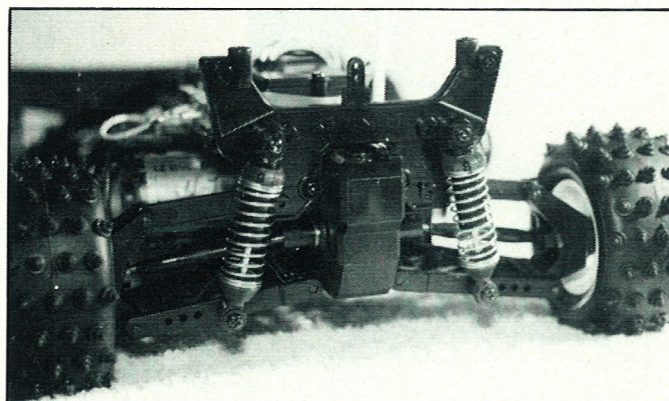
The prospective buyer I think, will be a person who has never owned a radio controlled car, will be young, most probably at school and not have much money at his disposal and he will have done his homework on what he wants and what he can afford. Looking through his eyes he will buy it because of its low cost, simplicity and future potential.

Construction and Main Components

Being an experienced builder and racer I felt it would prove nothing if I built the car, what was needed was a prospective purchaser of the car to build it for me whilst I observed his actions. My idea was to prove that the instructions were suitable and the car simple enough for a youngster either on his own or with the help of an adult (if he got into trouble) to build with neither having any previous experience. James the son of a neighbour proved to be a willing volunteer and I acted the part of the parent or adviser. It was an interesting exercise and the only time my advice was necessary was after completion of building as the car would not turn to the right, it was simply that James had connected up the two servos without centralising them, its a problem I have come across before and it is just a case of enthusiasm on the builders part and not a fault of the instructions which tell you exactly what to do.

James followed the instructions to the letter (well most of them) and had no problems, not even with the shocks which I had anticipated would cause him some. As the shocks were the first things to be put together I felt he would find the rest of the car easy:- which he did. The shocks are mounted onto Rocky front wishbones which are fixed to the front of the bath tub chassis, there is only the choice of one set of posi-

Extremely wide track helps to contribute towards the good road holding. Note the multi-position mounting points available for the shockers.



Servo saver comes complete with kit, fixed upper link can be replaced with an adjustable one to alter camber angle.

tioning holes unlike the rear shocks which has four. The front of the car is completed by fitting a full width bumper.

Rear Gearbox

It's pure Rocky and comes with a 36 tooth counter gear and pre-assembled differential. As the car is two wheel drive I asked James to take the differential to pieces to have 'a look' and also pack it with grease to give it some limited slip characteristics. This step is not necessary and is not in the instructions so as a beginner why not do it at a later date and see if it makes any difference. Inside the diff. are two large splined drive gears for the drive output and three bevelled pinion gears, being the same as the Rocky I would assume it will have a long life.

Rear Suspension

This is hung from the gearbox and once again is pure Rocky in design and components except for the friction shocks and a plastic as opposed to alloy rear shock stay.

The Motor

This is a new one to me and it is a Le Mans Stock 05, it is a Mabuchi-540 type with enclosed brush gear.

The motor has its pinion fitted prior to its attachment to the gearbox and supplied is a plastic gauge which sets the pinion position relative to the motor case to ensure full meshing with the idle gear. Tweezers are useful for putting the motor retaining screws in their correct holes, access to these screws is via a cover on the side of the gear box, inscribed on the cover is a diagram showing which two holes to use, as there is a choice of six. Those used are dependent on size of motor pinion used. The Rocky is also supplied with a 32T counter gear so it's not inconceivable that one of these could be used in 'Raider' to give even better choice of bearing.

The Electrics

The speed controller is a wiper arm type which has proved very reliable in other Kyosho cars, if you have a BEC (Battery Eliminator Circuit) receiver then installation is simple as it comes wired up with a BEC connector. Should you not have a BEC radio don't worry as you can make use of the dropping diode on the controller by simply cutting off the BEC connector and the battery box from your radio, connect the two sets of wires and you will have a regulated supply for your receiver. The resistor which reduces the voltage of the drive battery to change the speed of the car

is connected to the controller with spade connectors, the motor is connected to the controller with snap connectors so therefor no soldering is required during construction, this makes life easy for the younger novice. It will accept any make of radio gear.

The Body Beautiful

It's big, beautiful and yet macho. To my eyes it's one of the nicest shells around. It's made of lexan which is stronger than most other beginners buggies which use a plastic shell. One novel feature I have not seen before is that the rear aerofoil is incorporated in the same moulding as the main shell, this makes for ease of painting but does mean more trimming. I have found small toe nail scissors invaluable when cutting shells:- but don't tell Mum!! Pete Darwell painted it for me, I wonder what his nails are like.

The Wheels

New to Kyosho they are of the Hotshot/PB type where the tyres are pulled over the hub and just grip themselves in place. Kyosho take no chances and suggest a couple of drops of superglue are added to each rim to secure the tyre to the hub.

Pulling It All Together

Like a puzzle the pieces suddenly come together and it's simply a case of fitting the gearbox, with rear suspension already in situ, to the bath tub chassis, install the steering servo (with kit supplied servo saver), fit the electrics, put on the wheels, place the battery in the holder and hold in place with rubber bands, position the body and you are ready to go.

Construction Tips

Self tappers and 3mm screws of different lengths are used during construction so measure each one initially until you get to recognise them. The only tools you will need are a small Phillips screwdriver, pair of pliers, sharp knife and if you have 'banana' fingers a pair of tweezers. There are eight very little 4mm long screws so don't lose any as there are no spares. Take care not to overtighten the self tappers & make sure you centralise the servos before fitting the servo horns. The only problem that youngsters may have is in bending the track rod arms for the front suspension and the short operating link for the speed controller. The receiver is held in place with a rubber band, I did not like the method of attachment as it would cause the receiver to strike the radio plate, I would suggest it is held in place with two sided servo tape. I also fitted a washer on the outside of each ball joint on the bottom of each damper to prevent the joint from popping off.

It's Built, Let's Go!

Jason Cook and Wayne Darwell were chosen to test the car because they were not only experienced drivers but in the age group, (9-16), both of the expected purchasers of the Raider. Initial impressions of both was that the car had good looks, was very light (3lb.3oz.) and the friction dampers more effective than would have been expected from such simple devices. Both of them when asked to guess the price were over £20 on the high side. Wayne though £84 and Jason £80.

The test track was grass and asphalt with a six inch drop from a concrete ramp onto

grass. The car was quite quick on the standard gearing and had plenty of duration. The novice should stay with the kit 14T pinion but the more experienced driver might take advantage of a 15r pinion. Jason who drove the car first was impressed with the road holding and the handling which was neutral with notendency to understeer or roll. Bumpsteer is non existant, try as he might, he could not loose the back end, which annoyed him as he has just built a more expensive 2wd car for next season which he felt was not as good. Wayne was next to go and was enthusiastic about the way the car handled the jump with its simple suspension, the front kit units are more effective than the rear ones. Their advice would be if considering any suspension mods, start at the rear end. Wayne who is in the market for a 2wd for next season said the test drive had convinced him that it was a Raider for him. His reasons were manifold, in his opinion it's the best looking car he has seen, the wide track, good turning and lack of roll plus the fact he has a set of oil filled coil over shocks in his kit box, would give him a car better than those costing appreciably more.

Having seen the car perform, I think it has a far wider market than I have suggested in "Why Buy?"

Pocket Money To Spend, What Next?

Don't spend a penny of your money until you can drive, I know it will be burning a hole in your pocket but be patient and learn to drive your Raider before you upgrade it. Most newcomers to our hobby once they can driver (and a lot before they are proficient) become obsesses with speed and will opt for a treble decker zapped cobalt go faster 8.4v meggablast motor: Don't!

First job is to ballrace the gearbox and then the wheel bearings. There are a total of 14 bearings in the car, you can ballrace one or two bearings at a time or fully equip. the car by purchasing eight off 5mm bore, 10mm OD and six off 4mm bore x 8mm OD ballraces.

Next on the list is the suspension, you can fit the top of the range Option House oil filled shock absorbers but if you wish to keep costs down why not fit the less expensive (but still very good) Ultima units, they are exactly the same colour as the kit friction units. The parts numbers are DKAB030 (front), DKAB031 (rear) and cost £9.50 per pair.

Once the car is ballraced and fitted with coil over oil filled shock absorbers you can then think of hotter motors, electronic speed controllers, adjustable upper links to vary the camber angle, universal jointed drive shafts, low profile wheels and tyres and perhaps a torque limiting clutch.

Summary And Conclusions

Raider will sell on looks alone, it is a good beginners car at an economical price which will introduce a whole new generation of drivers to our hobby and sport. It is a well thought out concept and it is especially nice to know that the flow of ideas initially came from the U.K. Raider will be the first Kyosho car that will have been simultaneously introduced into the U.K., U.S.A. and Japan, normally a new car is introduced onto the home market (Japan) prior to being exported.

Although basic on initial purchase it will serve as being a spring board to enable the novice to race in competitions and also

provide him with a car (with bolt on goodies) capable of competing against the best in its own right. If we have two classes of racing next year I expect to see Raider in its various guises doing very well.

Congratulations

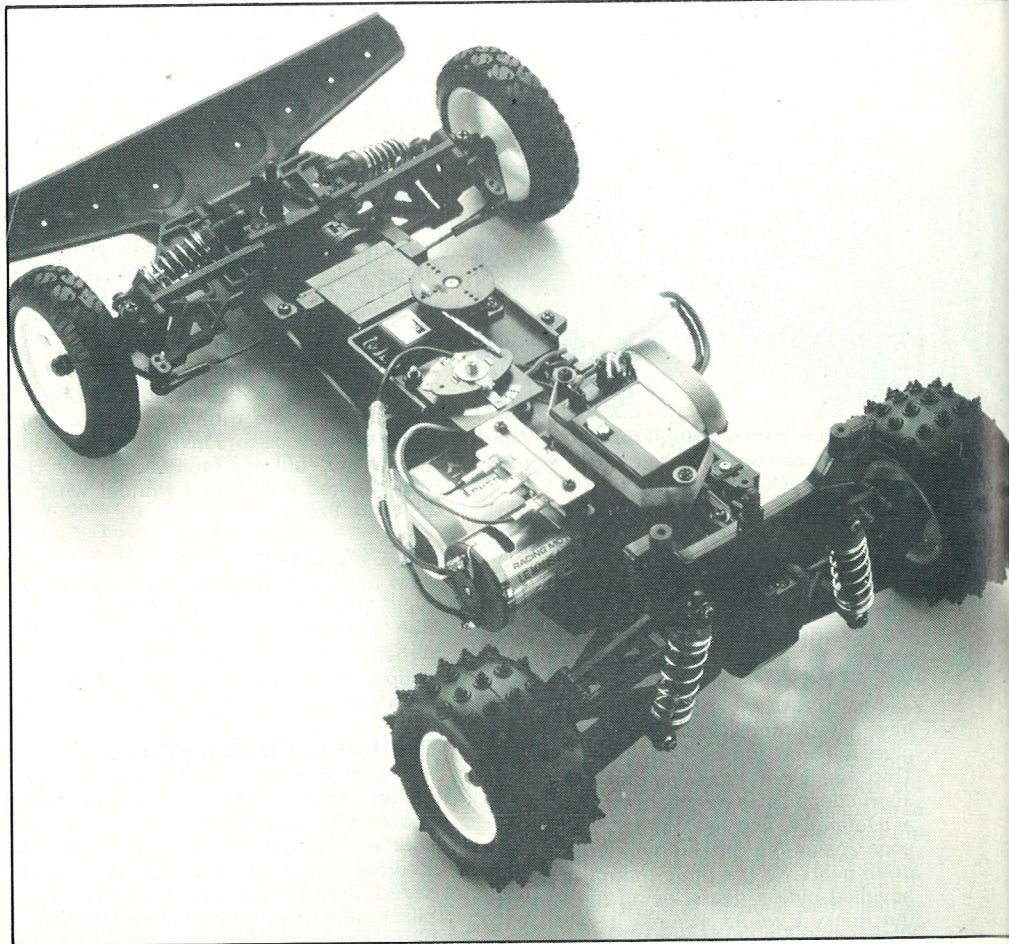
Yes, you have done it again Mr. Kyosho. Excellent value for money car which the novice will not have to change as soon as he has learnt to drive. Priced at under £60 its launch prior to Christmas is brilliant marketing strategy as there will be as many sales as presents for the 25 as there will be after the festivities when little 'Jimmy' has collected all his gift money together to purchase his one major present.

Final Thought

Will the Raider become "The Beginners Champion" of 1988.

My thanks to Allan Bond, Pete Darwell and Amanda Smith in the preparation of this report.

Raider, available from all Ripmax stockists.



The rolling chassis complete with all gear installed, a neat, easy to build, complete beginners package.

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