French Cuisine

Model Cars investigates the all-wheel-drive MRX

Dish: *MRX*, 4WD Competition.

Ingredients: Mid-engined; belt driven 4WD system; fully ballraced; alloy constant volume shocks; universal joint drive shafts; carbon fibre reinforced chassis; geared differentials; front one-way roller bearings; anti-roll bars (adjustable).

Method: Blend ingredients together to form smooth and consistent mixture. Adjust seasoning to suit individual taste. Serve with items of your choice.

Designing a 1/10th scale competition off-road car is a bit like Cordon Bleu cookery. It's one thing having all the necessary ingredients but blending them together perfectly is the really clever part. Also not everyone is a great chef and not everyone has the same taste, so considerations have to be made to account for the individual's ability and personal choice to ensure success every time.

A look down the list of features for the *MRX* by *Model Racing Car* of France should convince anyone that all the ingredients for a successful car, are present in the right measures. The question is, have *MRC* blended those ingredients into an agreeable whole?

At this point it is necessary to point out that the car being reviewed here is the top-of-the-line 4WD competition model. A basic version of this car also exists as does competition and basic versions of the 2WD car.

In all four kits the design of the *MRX* remains unchanged which *MRC* claim does not adversely affect the handling whatever the class being raced. Furthermore *MRC* have engineered the facility to convert cars to 4WD from 2WD of the other way around if that is what you wish. Conversion kits to upgrade specifications are also available. Economically speaking this is all good news as the need to have two cars (2WD and 4WD) is not so necessary plus the fact that spares will be identical.

Most purpose-designed 4WD cars have great difficulty makin the change to 2WD whilst still remaining competitive. The *PB* 'Mini-Mustang' and *Schumacher* 'Cat' are just such a case in point as neither cars are well suited to 2WD racing. Because the BRCA has wisely decided to introduce a 2WD National Championship this year the results in this class will be particularly interesting.

The difference between the basic and competition versions of each car are quite easy to spot. Firstly the basic cars are cheaper because of what they do not include. Plastic oil-filled shocks replace the alloy competition types as do standard drive shafts for UJs and PTFE bearings for ball races. The basic kits do have a motor and speed controller whilst the comp type does not.

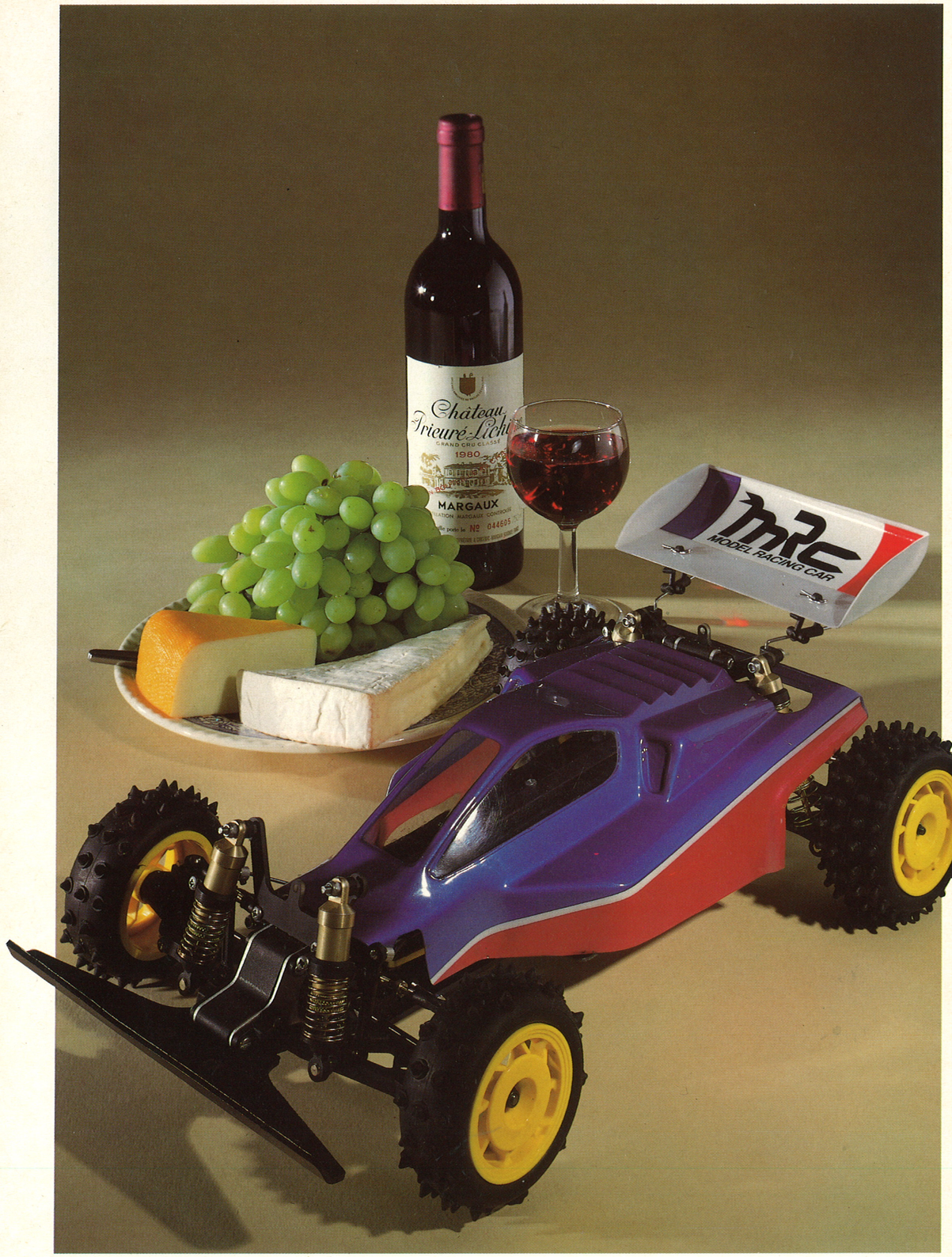
By offering the option between competition and basic kits *MRC* are covering both ends of the racing spectrum. This allows us, the racers, the choice of going the whole hog straight away or converting up to the full-blown spec a bit at a time.

Design features

Prototypes of the *MRX* were seen in action by observant RCMC reporters as long ago as last year's European Championships. That car was already featuring a mid-engine motor placement allied to a 4WD belt drive system. Since then the transmission has been tested thoroughly by the factory in an attempt to foresee any problems.

MRC's aim was to produce a car that would be strong, reliable, easy to build and easy to maintain and set up. Having an efficient transmission system capable of transmitting the power to the gound. Likewise a car that is difficult to maintain and set up would be of no benefit to any racer with a hectic race schedule to consider. Last and not least reliability is a difficult feature to build into a car but this again is the aim of the *MRX*.

MRC have also made their package attractive with a full colour box and blister-packed parts inside. The exploded view, step-by-step instructions look comprehensive and have been translated into good 'racing' English. So aware of the UK market's importance are *MRC* that they have produced English versions of the kit box as well as the standard French issue.



Transmission

In the race for transmission efficiency *MRC* have employed the services of a single reinforced belt running directly front to rear. The only deviation from the straight and narrow is over a belt guide to direct the belt out of the top of the rear gearbox. The belt itself features a round tooth form.

Primary drive to the rear gearbox is through gears, leaving the belt the simple job of transmitting drive to the front wheels. The differential units front and rear, are enclosed in a casing for added protection from the elements. As well as a front diff, one-way roller hubs are an added option should you so desire.

Getting to the gearbox and differential is a simple matter of releasing the screws holding the gearbox side plate and pulling the complete side away to allow access. In theory the whole operation should only be a matter of minutes just to check that everything is running smoothly. Adjustment of the belt tension is achieved at the front by using differential output mounts incorporating on exenctric cam. By rotating the mounts backwards and forwards the belt tension can be increased and decreased acordingly.

Suspension

In keeping with their philosophy of strength and reliability *MRC* are also stressing the use of a special 'filled' nylon for all the injection moulded parts developed by the aerospace division of *Dupont*.

It seems unlikely that *Dupont* have produced this material specifically for the *MRX* but as long as they are strong and not affected by fluctuations in temperature then this should not matter. In any case the quality of all the moulded parts is superb and certainly comparable with anything else currently available.

The wishbones have a sensible, chunky section, particularly around the pivot pin locations. Camber adjustment can be made through the top links to suit individual requirements. The top links are machined with a left and right hand thread on the rods which allows the link to be adjusted without unclipping the ball joints. This is important because the ball joints are just as difficult to remove as they are to install.

At the rear the top links mount onto moulded 'wings' either side of the gearbox. These also have three alternative mounting holes to adjust roll centre.

Dampers

In keeping with current damper design technology *MRC's* units feature constant volume with a compensating diaphragm fitted at the top to prevent the oil 'foaming'. As mentioned previously the competition kits have alloy shocks, the basic versions are in black nylon. You can if you wish mix and match the plasic and alloy parts togeher which makes for an attractive black and gold combination. Both sets are of the same design and feature a double O-ring seal around the piston. Different pistons are included in the kit as is a bottle of damper oil.

The shocks go together nicely and operate very smoothly. Getting the damping rate right is a matter for individual taste again but at least they don't seem to leak!

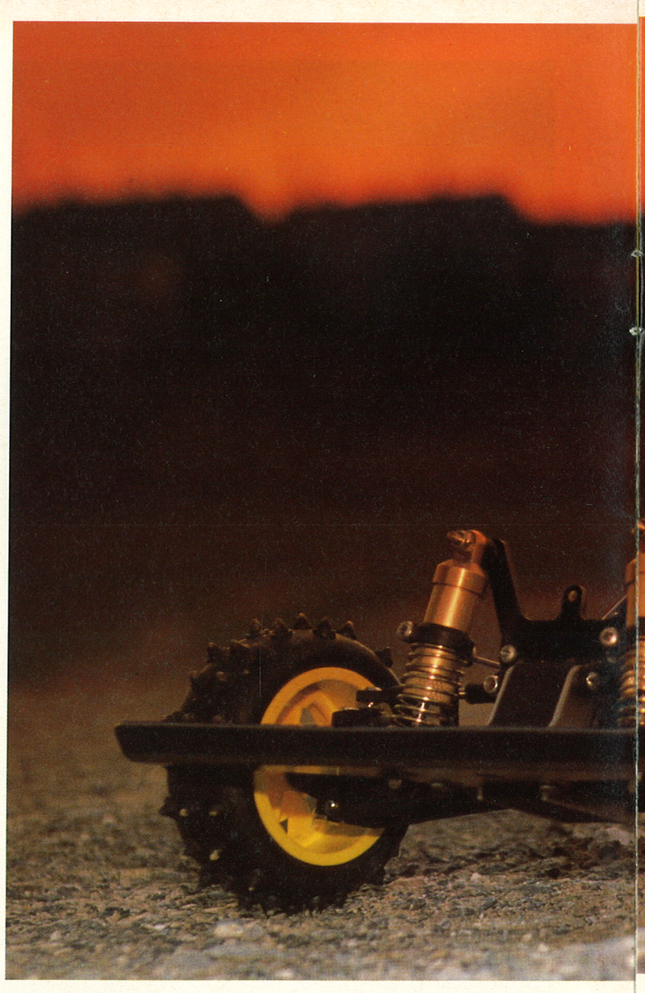
The rear wishbones have three mounting positions whilst the front have just the one. The need to change damper angles at the front is not really necessary as the upright position has the majority vote.

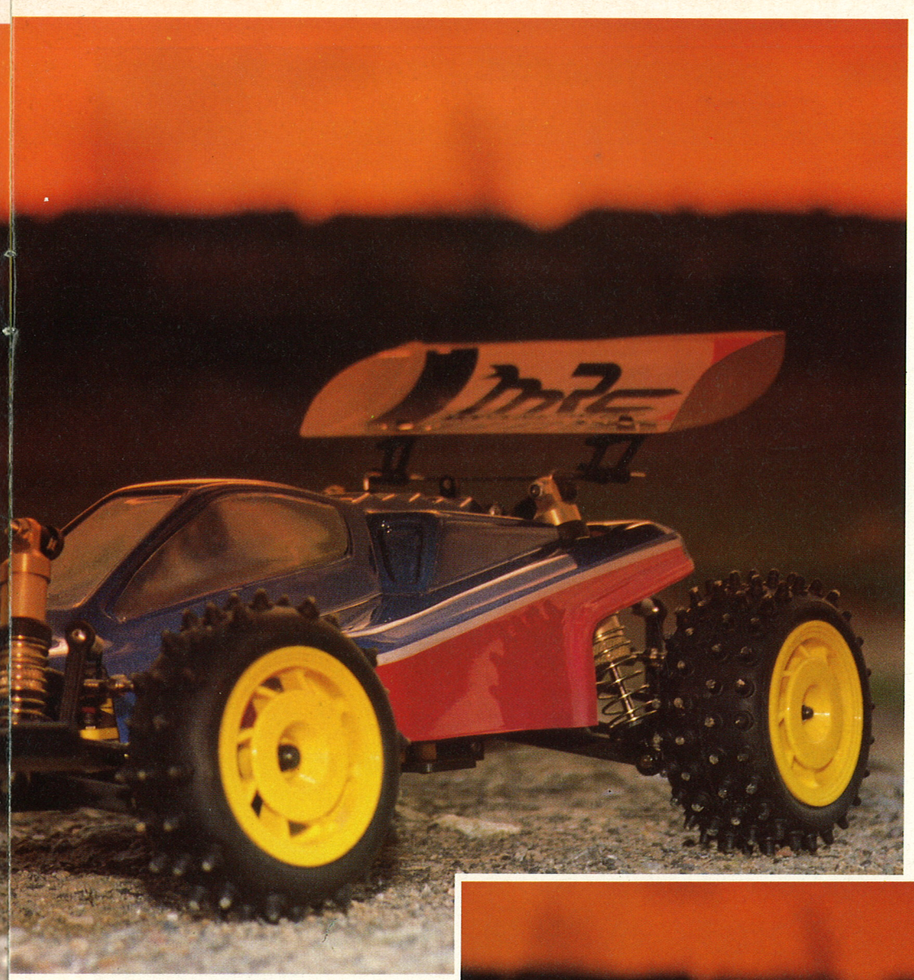
Different rate springs will be available in the near future but for the time being the kit items will have to suffice. It looks possible to fit any one of *Kyosho, Associated,* or *Tamiya* springs in place. Spring tension is adjusted by inserting spring clip spacers around the damper barrel in a similar fashion to *Tamiya* and *Schumacher* on the plastic shoks and screw clamps on the aluminium.

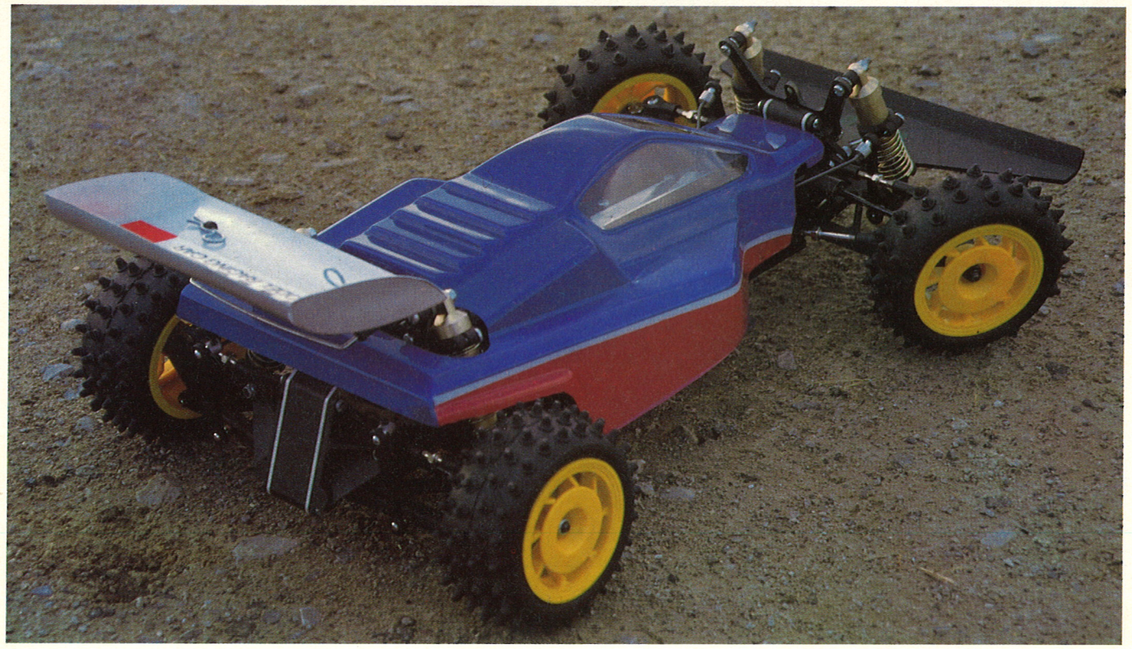
Wheels and tyres

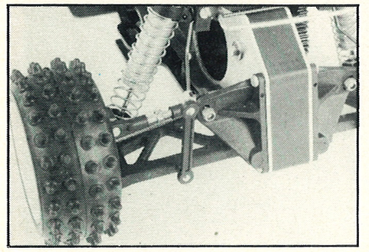
Read this section carefully, otherwise you may become confused.

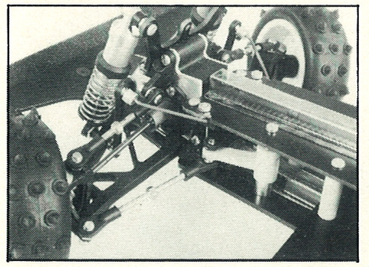
Basically the hubs are a one-piece moulding for light weight with a choice of eight different colours available as follows: orange, yellow, green, blue, red, pink, white and black. Also the wheels are supplied in any of three widths – wide, medium and narrow. The hubs have a hexagonal drive which matches up with the *Kyosho*

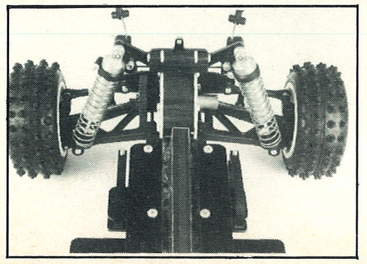


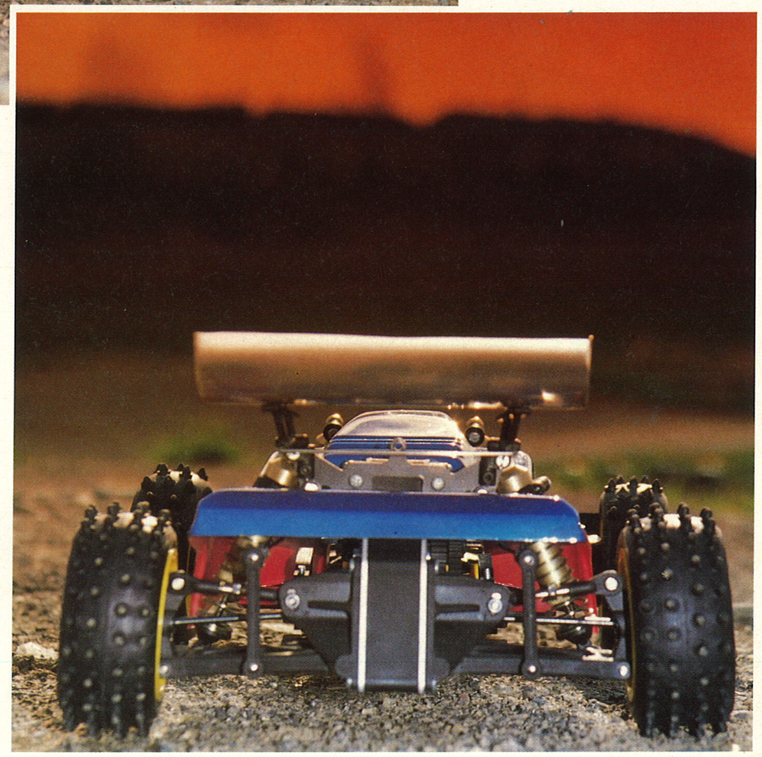












system allowing *MRX* wheels to be used on either car. Furthermore an adaptor to convert to *Tamiya* is also available. Conceivably you could run a different colour wheel at each corner of the car (if your taste runs to that extreme). Worse still you could also use *Tamiya* coloured tyres for added effect! On the subject of tyres, *MRC* have various different tread patterns available in the three width sizes. More importantly because the hub is 50mm in diameter virtually all other types of tyre will fit – *Kyosho, Tamiya, PB* and 'Cat' styles can be used.

With different grades of rubber to consider the use of colour-coded wheels to signify hard, medium and soft compounds will make things easier and certainly brighter.

Building

Seasonal racers will no doubt be happy to rip apart the blister packaging and get right down to the nitty gritty with maybe a casual glance at the instructions.

This is fine as the car has no real hidden problems in terms of assembly. However for those of us less confident of our own ability then some thoughtful points have been incorporated.

All the injection-moulded parts have a small tag carrying a number. The part number then matches up with the instructions to make identification doubly secure.

Areas where extra care must be taken are few but it is worthwhile double checking that the bearings or ball-races are seated squarely in the gearbox side plates. Also remember that they are fitted from the inside out i.e. with the flanged side on the inside so that they cannot possibly fall out.

When assembling the differentials use a little grease to ensure a smooth action – the diffs will be a little tight at first but will free up greatly as soon as the car is run.

The other important point to remember is to install the belt between the gearboxes before they are finally assembled!

All the carbon fibre/GRP chassis parts are computer machined and fit perfectly. When screwed together the basic chassis section is extremely rigid. Also of all the screws are screwed securely home then the box section should come out square. Between the upper and lower plates a mounting plate for the steering servo, receiver and speed controller to be installed. This keeps the weight low down and allows easy access. The basic versions of the kit feature a different design of top chassis plate to allow the kit-supplied speed controller and operating servo to be installed. The NiCad pack sits across the chassis, raised up slightly to clear the belt and retained firmly with *MRC's* version of the *Schumacher* battery clamp.

Besides these areas of caution there were also some other nice touches encountered during assembly. Firstly all the ball-joints have chromed heads to ensure that they are free when fitted. Also the wishbone pivot pins are made from hardened steel and as such not able to bend except under extreme provocation. Virtually all the screws supplied in the kit are lightweight aluminium with Phillips screw head.

Built up the *MRX* looks strong enough to withstand the pressure of competition and if the performance matches up then the car will do well. Comparisons with other makes of car are inevitable and justified in some areas. The point that *MRC* have made however is that they are not afraid to use race-proven design points to make the *MRX* competitive. In any case, once you have settled on a mid-engine/belt drive configuration with a shock at each corner then the car will have an instantly recognisable appearance.

Does it work?

With the sort of cars being produced at present you have to say – of course it does!

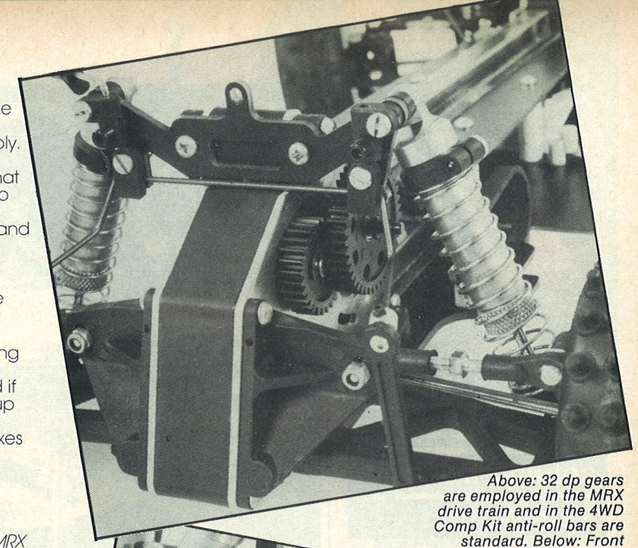
How well it works is the real question, particularly against the competition about at present. *Helger Racing* are the sole UK importers for the *MRX* and they are convinced of the car's ability.

Helger's UK-based R and D team have already been working closely with their French counterparts during the prototype stages and will continue this liaison once the car has been released. Already planned are some different chassis layouts, including a saddle pack variation, plus a lexan undertray and different bodyshell. The bodyshell in the kit is not exactly the prettiest-looking in the world but, as with most cars around these days, performs a mainly functional role. Change it if you like. The main key to the *MRX* success will be if the transmnission remains efficient and reliable and if the after sales service from the factory holds up. The sory goes that *MRC* produces the spares before they built the kits!

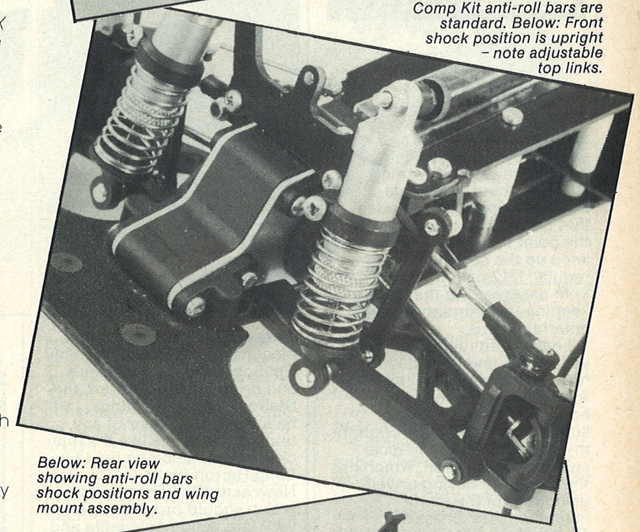
If this is true, and remember France isn't on the other side of the world, then spares backup should be good.

In time-honoured fashion, further reports of the *MRX's* on-track performance will follow in a fuure issue. For now keep an eye on the National Championship rounds to see how the car performs in the hands of *Team Helger/Parma* drivers.

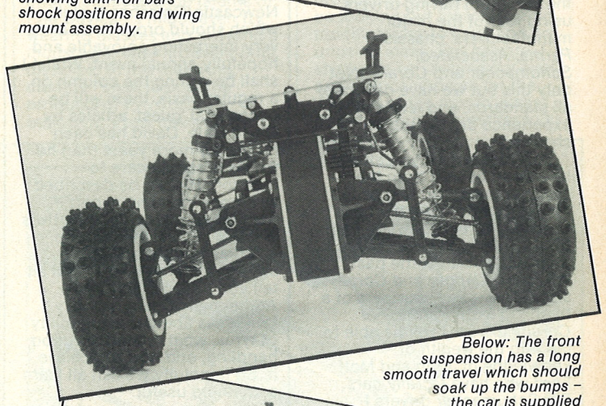
Manufactured by: MRC
Importer: Helger Racing
Prices: 4WD Comp £199.99
4WD Basic £119.99
2WD Comp £154.99
2WD Basic £89.99



Above: 32 dp gears are employed in the MRX drive train and in the 4WD Comp Kit anti-roll bars are standard. Below: Front shock position is upright – note adjustable top links.



Below: Rear view showing anti-roll bars shock positions and wing mount assembly.



Below: The front suspension has a long smooth travel which should soak up the bumps – the car is supplied with the tyres shown.