Chris Deakin

mad march mega mix

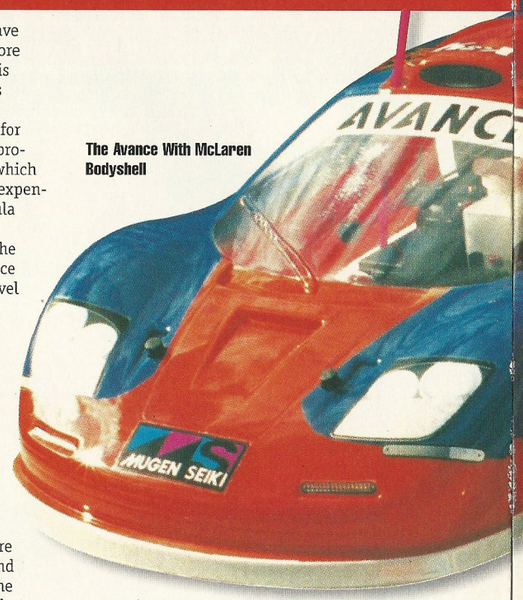
Wow, have we got a line up here or what? Whilst you were enjoying your Christmas pud' the dedicated Race Car Review team were grafting away to bring you yet another Megamix of new models. We have two from ex Ed' Chris Deakin, a Losi Truck which will be raced by yours truly later this year (!) and a Mugen 1:10th Nitro which won't! I did get to have a play with the Mugen and I was mightily impressed by my first taste of 'proper' 1:10th IC Cars. Malcolm Mitchell returns with the first of two Schumachers, the Storm Turbo. He liked it, a lot. Dale Burr casts a close eye at the Schumacher SST2000 '99, it's fast, so is he. Terry 'the paint' Atkinson takes a bow as a reviewer with a TGX Nitro CLK, must be nice to actually build the whole model rather than just paint the body shell, what do you think Terry? Alan Leighton builds the other, electric, CLK to make a pair of Silver Stars. Last but not least is Spencer Pollard, Editor of sister magazine Military In Scale. Spencer builds his first Tamiya Car, the new FWD chassis and is instantly smitten. It's a lot faster than a tank Spence? Agreed.

the car in front is an Avance

Mugen 4WD 1:10th IC car

Over the last few years it has become plain that the On-road side of our hobby has now developed into the major sector of RC activity, leaving our Off-road brothers as something of a poor relation. A lot of this is simply due to the greater level of choice that on-road racers have for cars and classes to race them in. One other element has also come to the fore, any form of 'scale' racing car appears to seriously grab old and thankfully new racers. None more so than the electric powered Touring/GT Cars, but for me they lack two major features to be really scale racers:- one, noise and two, mega amounts of power. So it would seem to me that the next real area of growth of our hobby will come from the smaller scale i.c. or fuel powered cars. They have the noise factor and most generate far more power than their tyres can cope with, this equals to a monstrous level of fun. So it's Tenth i.c. for me.

In fact Tenth i.c. has been around now for quite some time, it grew from a need to produce a cheaper alternative to 1/8th i.c. which was powering itself to an early and very expensive grave. From its conception the formula offered great value for money racing. By restricting the specification and cost of the engines, racers were guaranteed the chance to race against the 'works' drivers on a level playing field. No matter how large your cheque book was you had to be able to drive to win. Most of the cars that came to the market place were just scaled down versions of 1/8th cars, so they were very strong and durable. The engines are very easy to set-up and run forever, well almost, the E.F.R.A. spec 16% Nitro level fuel giving mega performance for a reasonable cost (a gallon of fuel will give at around 5 hours running time - average cost £16.00). One manufacturer did however come to the fore front, taking nearly all the major titles and races. This has appeared to almost stall the growth of the formula, here in Europe at least. Fortunately this was not the case in the Far East. In Japan a whole string of home built cars appeared on the shelf, mostly due to the high cost of the European models. So now in Japan despite their limited space for tracks Tenth i.c. is now thriving. At present four i.c. cars are now sold for every one electric racer.

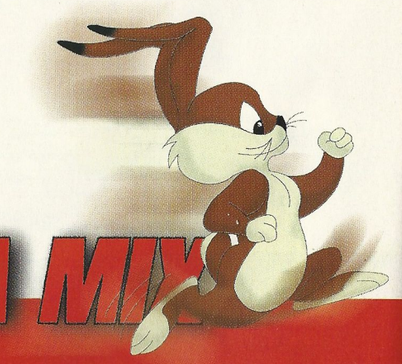


The Avance With McLaren Bodyshell

With the arrival of these products here in Europe let's hope they can do the same here. Enter the Mugen Avance.

As most of you avid readers of RRCi will no doubt know, Mugen have a dazzling reputation for building some of the best 1/8th scale off-road cars in the World, and of course some of the best Formula One engines, just ask 'our Damon'. It must be the same company surely? With the increased demand for on-road i.c. powered models from their home market it didn't take Mugen, being the home market leader, long to come up with both 1/10th & 1/8th i.c. track cars. In fact ex -Ed Jonty W. took a quick look at the first of the 2wd Mugen's some three years ago in RRCi. Jonty appeared to like the car a great deal, but the review of the car was never completed, shame. So now with the growing demand world wide for these types of car, Mugen have really pulled up their boot straps and have made some major revisions to that car, and they are confident they can run with the best. So let's have a look.

The current K2X comes in two versions 2 or 4wd, both can be raced in the UK's National series and of course any European or World championship. In this review we have the 4wd variant to look at. However, it should be noted that the car can be converted to 2wd if required for a very small cost. In fact all the British 'National team' cars started life as 4wd and were converted back. Why? Mainly because the premier class is for 2wd, but now a separate class for 4wd has been started. This class is probably more suited to new drivers as on the whole 4wd can be simpler to drive. Secondly, the 4wd car has one or two more chassis adjustments available over the standard 2wd car.



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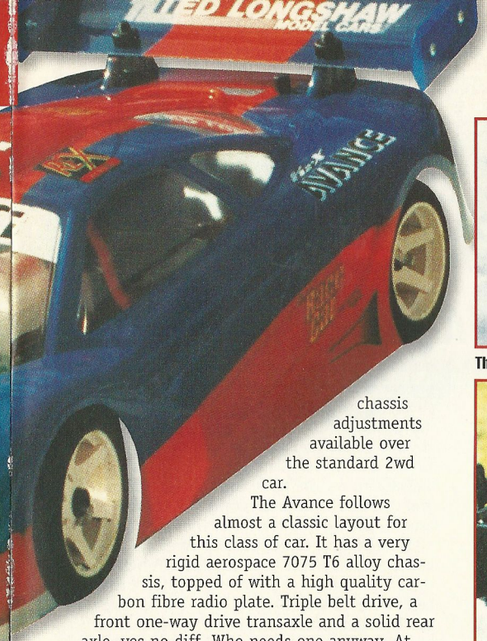
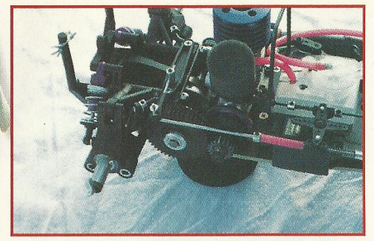
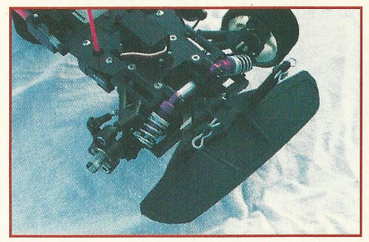
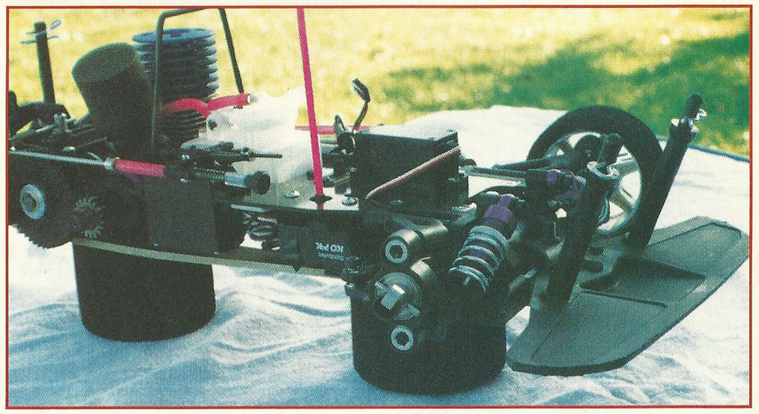



The two speed has a single adjustment for simplicity


Velvety shocks are super quality items


Another look at those Velvety shocks

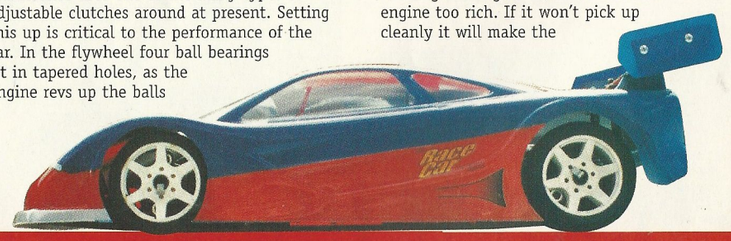
The Avance follows almost a classic layout for this class of car. It has a very rigid aerospace 7075 T6 alloy chassis, topped of with a high quality carbon fibre radio plate. Triple belt drive, a front one-way drive transaxle and a solid rear axle, yes no diff. Who needs one anyway. At each corner there are double wishbones, adjustable ball jointed uprights, live axles with quick release wheel mounts. All connected together with anti-roll bars, alloy shocks and some really stiff bulkheads. Add a single steel disc brake, a full set of ball races, a flip top fuel tank and you have a scale racing car as close as you can get to owning a Formula One. All the components are made from the highest quality material, be it steel, carbon fibre, carbon mouldings, alloy etc. Every part is strong but carrying no excess weight. The transmission has an adjustable clutch with a carbon drive shoe, a two speed automatic gearbox with quick change ratio's and kevlar drive belts, with a ballraced belt tensioner on the long middle belt. All this will make sure the engines pulling power should go down to the track. In fact the kits complete spec leaves you almost nothing to buy, you even get an air-filter and a big bore exhaust manifold.

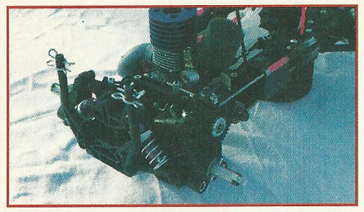
So other than engine, tyres and a bodyshell that's about it, and really you don't need boxes of tyres any more. I will be racing the Avance and I will only carry around 6 sets of tyres, including damps. No spare engine either, you really don't need one.

At this point I should mention the engines, the Avance does not come with an engine as standard. But this is no problem, with the restrictive specification and pricing for this type of engine (a maximum price of £160 has been fixed on spec units) nearly all of the available powerplants will indeed do the job, and there's no 'works' engines. Having said that though the Italian firm Nova Rossi do seem to build the best units, under either the Mega (Serpent), Tops, Nova or Rex brands. As Ted Longshaw, the UK's Mugen importer is also the Nova Rossi's importer my car was purchased with a Blue Head Maurio Rossi Rex. This is a little special as it is a hand built 'blue printed' engine. This means it has all the best of the standard parts fitted at the factory, to optimise all the various tolerances within the regulations, also some very special modifications to the crankcase are made. All this and still within the regulation price. Longshaws also have a standard production engine available for the bargain price of £120, the Blue Head Maurio Rossi being £160.00. I have no doubt though that a well set-up standard engine will be nearly as quick as my blue head, but if you drive like me every little helps. The only other missing part being a suitable tuned pipe exhaust.

Now if you enjoy car building you will love the Avance, there really is a lot to assemble. None of it is very hard or complex, the very clear pictorial instructions leave you with no doubt what goes where. All the sub assemblies are bagged with all that sections screws clips etc. No hunting for that clip or nut. The small bag of Allen keys supplied helps a lot too. The fits and finishes were 100% spot on, no filing or fettling being required. Don't rush things though. Once assembled all the suspension movements were smooth and slop free. The neat bleed holes on the shocks made it a breeze to get that velvet action first time. With their threaded collars ride height adjustments really are quick, a neat idea is the 'O' ring trapped in the collar itself, this stops the collars self adjusting due to the engines vibration. The carbon radio plate gave plenty of room for the radio equipment, all the current ranges of radio gear will fit. Do buy the best servo's you can afford, they should be ballraced and at least waterproof. A 6v 600 Mah nicad will give enough voltage for any long final, and will fit the moulded carrier perfectly.

One area though does need more care than any other and that is the fitting of the clutch. The Avance uses one of the many types of adjustable clutches around at present. Setting this up is critical to the performance of the car. In the flywheel four ball bearings sit in tapered holes, as the engine revs up the balls are forced up the tapers, they in turn push against a carbon pad. This is the clutch shoe. As the shoe is pressed forward it makes contact with the steel face of the bell housing. The friction created between them transfers the drive to the wheels via the gearbox. Within this assembly is a tension spring and a travel 'stopper'. It is imperative that the set-up measurements given in the instructions for them are used. The only way is to use a vernier to set them. The tension spring nut has to be 0.5 mm from the end of the crankshaft, no less, you can just go to 0.6 mm if the track you are running on has a lot of grip (this will give more punch out of corners). Less than 0.5 mm and the clutch will slip. This does give a very small window of adjustment so take care. The next adjustment sets the maximum travel of the clutch, the more travel the more punch or acceleration. This again will relate to the level of grip you have. Again the adjustment window is quite small 0.4-0.6 mm, less will cause drag and poor pick up, too much and the clutch will slip or jam and not disengage. I set mine at 0.6 mm, this will have to be checked and re-set regularly, as the clutch wears, every couple of runs in fact. Remember to keep the external thrust bearing greased and clean For 100% reliability I would recommend you change the drive ball bearings regularly, they only cost a few pence. The other thing to watch is when running the engine in, don't run the engine too rich. If it won't pick up cleanly it will make the





Neat alloy wheel locks

clutch slip. If your happy that all your measurements are correct on your first runs and the clutch is slipping, then lean the bottom end mixture a little. A very neat package of bits gives you the brake and throttle linkages, and the instructions couldn't have been more detailed on how to adjust them. That's about it for the build, the next thing is the set-up.

Setting the Avance up is probably the single most important part of the build. All the four corners of the Avance have long threaded ball joints which allow adjustments of the track width, also the camber, and at the rear the amount of toe-in. Dimensions for the overhaul widths, cambers etc. are given in a detailed set-up sheet in the instructions. I found the best way was to use just the bare rims, no tyres mounted for measuring the track widths, and a mounted set of tyres for the cambers etc. As the track width and cambers interact with one another, be aware if you adjust one you have to check the other, i.e. more camber increases track width. Less camber narrows the track. The other point to take note of is that each side has to measure equally from the centreline of the car. It's not as hard as it sounds, just take your time, use a good ruler and a vernier for measuring and a camber gauge. These are available from most good model shops now.

This is how I set mine up:

1. Remove the shock absorbers. Disconnect rear anti-roll bar. Fit rims, no tyres to car. sit car on a block (I used a 10 mm thick block of perspex no wider than the chassis and just about a inch shorter) Sit block/car on flat surface. I use the glass top of my cooker.
2. Set front drop stop (11 mm to bottom of upright, 10 mm block = 1 mm droop). Side to side adjustment is done with the front roll bar adjuster on the l/h lower wishbone. (both sides have to be equal)
3. Set rear droop stop with screw in each bottom wishbone. (16 mm to bottom of upright, 10 mm block = 6 mm droop)
4. Reconnect rear anti rollbar. Check that the droop measurement is still the same under the uprights. If one is more than the other adjust the rollbar links. Keeping the same 16 mm under the uprights. This will ensure that there is no tension on the rear rollbar. Refit the front and rear shock absorbers (All four shocks should be set to the same overall length end to end, mine were 66 mm)
5. Check caster shims are to spec. Adjust outer front top and bottom ball joints to give zero camber and correct track width. Also at the same time adjust track rods to give zero toe-in. The servo saver should also be running on the centre line of the car. This can be checked simply by sight. Use the camber gauge and the ruler for the other settings. Check left & right adjustments from chassis centreline.
6. Using the top outer wish bone joint and the two outer joints in the lower wishbones adjust to give the rear the correct track width, and also zero camber. Now stand the rear of the car on the flat surface. Taking the camber gauge adjust the front joint in the lower wish bone to give 1.5 degs of toe-in (with the car standing upright the top of the wheel will face in) adjust both sides. Recheck the track width. If an adjustment is needed adjust all three joints the same amount. Check left & right adjustments from chassis centreline.
7. Adjust front and rear spring collars to spec. Fit mounted tyres to car, tyres should be trued to the diameters on the set up sheet. Sit car on flat surface. Adjust front and rear ride heights using adjusting collars. Adjust front and rear cambers using top outer joints only. Re-check track widths. If adjustments are needed adjust all joints the same, i.e. two at the front, three at the rear. Check left & right side adjustments from chassis centreline.
8. Check front toe-in. Check rear toe-in by standing the car on it's end. If the rear needs adjusting use only the front outer joint, then re-check track width and camber etc.

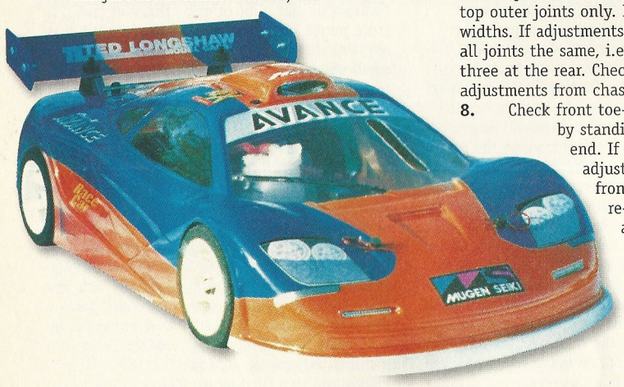
Finished....phew! It may sound like a long winded procedure but once you done it a couple of times it takes very little time and it does pay off when you come to drive the car. Mine ran dead straight with no trimming adjustments, and handled the same in both left and right hand corners.

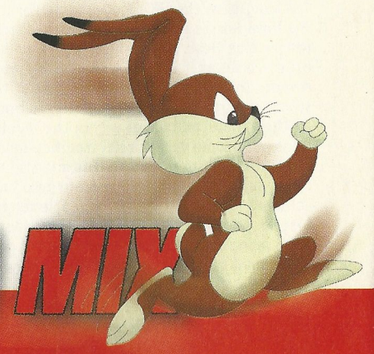
Throughout the build of the Avance there was so many little things which made me realise that Mugen had really thought about the racers who would be running the cars, details like the Teflon liners in the outer ball joints. These can be adjusted to take out ally wear in the joints, thus keeping the suspension smooth but slop free and are unlikely to ever need changing. The alloy levers for the quick release wheels, extras on other cars. The easy change alloy gears for the 2 speed clutch housing/gearbox. Neat little bleed holes on the shocks, smooth dampers every time. Only a single adjustment for the 2 speed. A simple adjustment for the front anti-roll bar. The integral fuel filter in the fuel tank. All these aspects add up to a total user friendly package

As the Avance comes without tyres or bodyshell, both had to be acquired. For the tyres I went for a small selection of Ufra rubber, Fronts 35 and 40 shore, rear 30, 35, and 40 shore (the shore rating determines how hard or soft the rubber is, higher the number the harder the rubber). The bodyshells being a Frewer Mclaren Fl GTR, and a Elfini GT2 Mazda RX7 (thanks to Eddy and Ian At S.P. E.C.'s for the Mazda, Japanese model needs Japanese bodyshell) also I will be testing several Touring car shells as well in the next episode when I have converted the car to 2 wd spec. This brings to the only real moan I have with the kit. Although Mugen supply a really neat rear body mount and two lengths of front body post, nether was suitable for mounting any of the bodies we race here in Europe. As I understand it in Japan they mainly race the older pattern Group C style sports cars which these mount perfectly. I had to go out and buy a mixture of H.P.I. and P.B. parts to mount the shell, -10 points Mugen.

Ashby was my chosen track, one that has been used by Tenth i.c.'s for quite some time. Also it was one of the circuits I had raced at with my previous 1/10th i.c. car. So I knew what to look for from the Avance. As I stated earlier the Rex engine had already been run in on the bench, so all that would be needed was on the day settings. The first few laps were taken up checking the clutch adjustment. This seemed fine at first. But one problem did appear, the two speed gearbox would not change up, no form of adjustment worked. Back to the work shop. Stripping the gearbox down suggested that the adjustment spring was far to strong. Changing this I hoped would cure the problem.

Indeed the spring change did the job, but now it showed that the car was way under geared. The car had great acceleration, but a



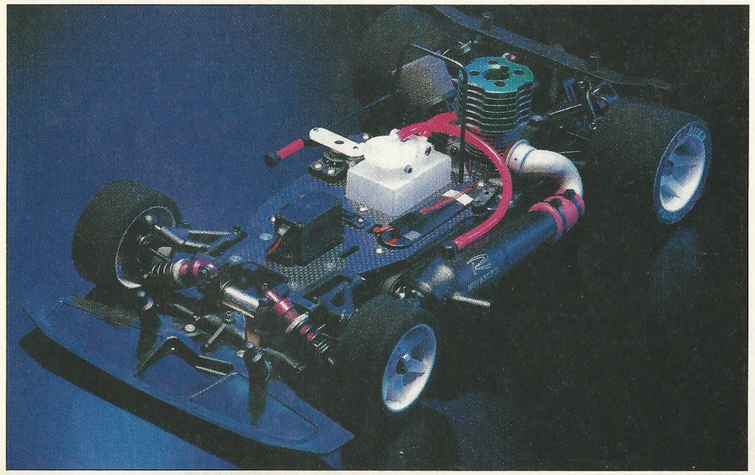


MAD MARCH MEGA MIX

very poor top speed. Down the main straight the Rex was screaming, so much so that in the end the clutch failed. This I think was due to an abnormal level of clutch shoe wear due to the gearbox problem, which I didn't shim out. Home again.

After a quick chat with Alan Bryant, Mugen works driver and RRCi columnist, it was confirmed that the kit gearing was indeed far too short for the UK's tracks. In Japan and the States the tracks tend to be short and of low grip, so hence the gearing. After a quick call to Michael at Ted Longshaws, some longer clutch gears appeared from the 1/8th car and also some new clutch parts. After a quick rebuild and check of set-up I was off again Time for some fun. Now the Avance was in the groove. Speed, punch it had the whole nine yards. Straight away it was apparent that the Avance's 4wd was generating a huge amount of grip. Loads more than the electric powered Scale Saloon drivers who I was sharing the track with. They all thought it was a low grip day. Turn in was good in all the corners, including the chicane, the combination of solid rear axle/stiff rear anti-roll bar allowing a great deal of throttle steer. Mid corner there was a little less rear end grip, and coming out of the corners it really was a handful.
Changing to a harder front tyre of a smaller diameter and 3 mm less caster were the first changes. With the 4wd system the diameter of the front/rear tyres governs the torque split, and at what point the car goes from 2wd to 4wd. smaller fronts give more 4wd, stability, slightly less top speed and less power on steering. Larger fronts the opposite. It was really too easy, the car was dialled. Although I was running very little caster and no front toe in/out the Avance was still very stable, some of this was no doubt due to the Mclaren bodyshell. I did find that the brakes were a little too strong, a softer spring on the linkage doing the job. The rest of the test was spent just try to get that perfect lap. The Avance was up for it even if I wasn't. Just before I packed up for the day, and with the help of a lone stranger with a stop watch, I tried a qualifying run, 18 laps 312 put me a lap off TQ for the last BRCA National held at Ashby, enough for an 'A' final spot. Since that test I have been back to Ashby twice, each time all that has been needed was a tyre change and some simple suspension adjustment (caster or front roll-bar). Each time I have taken a little chunk of time of my best run. My last run being a slow 19 laps. So far I have come up against another car only twice, each time the Avance did the job. Since the first problem days not a thing has gone wrong. By the time this ode goes into print I should have had my first race and I know I'm going to win, something Mugen have done a really great job with the Avance, it's all there. All the ingredients are present, quality, strength and speed. Build time was a bit long but very enjoyable. It drive's really well and responds to every set-up changes. The 4wd system generates a huge amount of grip, ideal for most British tracks. With just a change of gearing the Avance will be competitive straight from the box. Here in the UK I have no doubt that Tenth i.c. will grow, the racing is fast furious, and the best bit it doesn't cost a fortune. In 1999 even more racing will be available at circuits all round the UK, both Nationally and club level. Can you afford to miss it. At the Worlds held in Holland the Avance really made its mark, and here in the UK already several wins have been forth coming on the National trail. With the value for money price and the backing of Ted Longshaw Models, the Avance simply can't fail. At this point I would like to thank Michael at Longshaws, Alan Bryant, Eddy Diboll at SPEC's and Bob Harley for all their help with this review.

The Mugen Avance and all the Mugen range, Nova Rossi engines, Ufra tyres are available from Ted Longshaw Models :- Tel no 01689 855313. That's it for this time, during the next few weeks I will be converting the Avance to 2wd and fitting a Touring car shell. How will it go? Keep buying RRCi. **RRCi**



With Mazda RX7 Bodyshell

Quick Spec

4WD. I.C. Alloy Chassis. Carbon Radio Plate. Two Speed Gearbox Fully Ballraced. Triple Drive Belts. Front One Way Trans-axle. Solid Rear Axle. Adjustable Carbon Clutch. Double Wishbone Independent Suspension. Alloy Oil Filled Coil Over Shock Absorbers. Adjustable Front Anti-roll Bar. Solid Rear Anti Roll Bar. Quick Release Wheels Front & Rear. 6 Spoke Wheels.

Tester Kit

Radio- KO Esprit Vantage 2
Receiver- KO 40 meg Mini
Servos- Throttle/ Brake: Futaba 3001
Steering: KO 712 Fet
Receiver Battery- Orion 6v 600 Mah nicad
Engine- Blue Head Rex Mario Rossi Special
Manifold- Kit
Tuned Pipe- E.F.R.A. spec Rex (length 98mm, back of manifold- to- pipe seam)
Plug- Rossi C-5s, squish clearance 0.016 inch
Fuel- Penn Model Red Glow 16% Nitro
Gearing- First Gear 18 tooth Clutch /47 *
Second Gear 21 tooth Clutch /43 *
* Kit Gearbox Gears 43/47* Clutch Housing Gears From Mugen Sting 1/8th car.
Tyres- Front Ufra 40 Shore
Rear Ufra 35 Shore
Bodyshell- Frewer Mclaren Fl GTR

Likes

Where do I start, fit, finish. Brilliant shock absorbers Handling. Quality. Value for money. Alloy Quick Release Levers. Looks great.

Dislikes

Body mounts. No Tyres Gearing.