

A PLACE TO START

1:8th Rallycross can be a difficult place to start, the new Mugen offers easier starting with a top range chassis - Bill Burkinshaw takes a look...

Although the presence of the Mugen R/C cars have been no secret for more years than many of their better known counterparts have existed, it took the wholesale trouncing of the might of the rest of the World at the 1990 IFMAR World Champs in Bangkok to clear more than a

few peoples vision. When Mugen Rallycross cars were first seen in the UK in 1989 it was remarked that they were little more than copies of the all vanquishing 'Burns', but to be fair what were they copies of, and those that they were copies of, copies of what? Evolution, development,

progress all words that cover the thought processes that go on as each new design reaches the track via the factory drawing board each

designer drawing on the better features of its rivals and striving to incorporate a little of the magic that gives competition success.

The ancestry of most of the currently available racing machinery in fact owes more to the Yankee products than any other whilst the original

Carbo passed on more than its fair share of genes. The Mugen 'Sport' introductory two wheel drive model reviewed here is a

The Mugen's sleek lines make the car very attractive. The bodyshell is not lexan but a replacement is available. White wheels and pin-spike tyres set the car off.



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classic of the current style of car. A fine combination of quality injection mouldings, well produced pressed parts and finely machined engineering components and comprehensive instructions. With all parts either in black or bright finished aluminium alloy, the appearance of the finished car is best stated to be 'handsome'.

Technical

A heavy gauge aluminium alloy chassis forms the spine of the car, no turn ups, but injection moulded glass reinforced plastic side rails act as such and with a further stiffening brace mounted between gear carrier and rear differential case, the result is a solid platform for the suspension.

To front and rear are mounted substantial 'plastic

boxes' in true state of the art fashion which act as casings for differentials and as solid mountings for the double wishbone suspension fitted to each corner of the car. Strictly speaking 'plastic boxes' may do a dis-service to the gear cases, they are solidly moulded and assembled with beefy self tapping screws and would probably be the most durable part of this or any other Rallycross car.

The wishbones are elegant in appearance belying their strength particularly the lower members which are well ribbed to aid durability. The top rear wishbones are adjustable for length enabling the tinkerers to strive for optimum handling by adjusting the rear camber

settings. All are pivoted on long single screws making changes a simple task in the event of a breakage.

Single Diff

In review format the Mugen was fitted with a single differential in the rear case; both cases are identical, the variations front to rear of the car are taken care of by attaching pressed aluminium alloy top damper mounts, moulded wing mounts etc. Suspension is by oil filled machined alloy damper units with coil springing. No provision is made for adjustment of either ride height or damper mounting on the front suspension but there again if it is right, it will be argued, it's right! The rear lower mounting is onto

a metal plate screwed to the lower wishbone which has a range of alternative positions for the die-hard experimenter to try. Changing springs is however a simple matter after releasing the lower fixing of the damper the springs can be readily slipped off and alternatives fitted. Both front and rear uprights are bronze bushed in the 'Sport' but ball-races are easily fitted as an upgrade.

Steering is catered for. Two servo savers are linked to a single servo in a particularly robust fashion, the bushed servo savers are carried on spindles that are supported both top and bottom and substantial ball jointed rods link the whole assembly from servo to track rod ends. The front uprights pivot on plated ball joints and no bump steer is evident through the full

travel of the front suspension.

Transmission

The potential ease of conversion from two to four wheel drive and to two or even three differential operation is very evident. The classic system of centrally mounted engine driving a central fore and aft propeller shaft lends itself admirably to the upratable concept. The two wheel drive (or four wheel drive, two differential model come to that) uses the same drive gears, support bearings and brake. An alternative layshaft with coupling for the centre drive shaft is all that is needed to carry power to the front end. Install the front differential plus a few other bits and bobs and a full four wheel drive car results. This is not to be thought of as downgraded transmission in anyway, it is the full competition specification drive train with some parts omitted, and ideal

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The car uses parts from the world champs winning chassis and gives an appearance of being far more than a beginners car. Rear wing mount is tough and neatly moulded.

basis for easing into a full competition car. In fact, the centre gear carrier is an empty differential case.

Rear driveshafts are of the 'dogbone' style. One of the few criticisms of the car as supplied was the lack of any form of end float control on the drive shafts. At full suspension travel the shafts were able to slip into a position whereby a heavy blow to the rear end could cause the shafts to pop out. I would advise fitting of soft rubber pads, small lengths of silicone fuel tubing would do, to

hold the drive shafts evenly in the drive cups. A large fibre glass disk brake acting on the centre gear carrier completes the transmission.

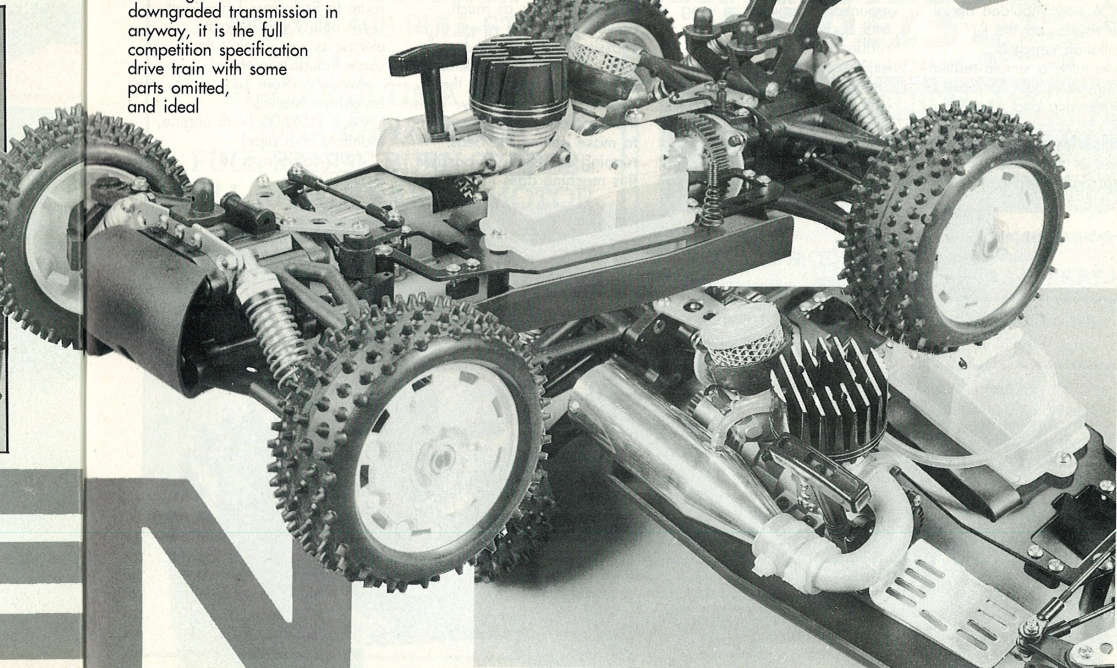
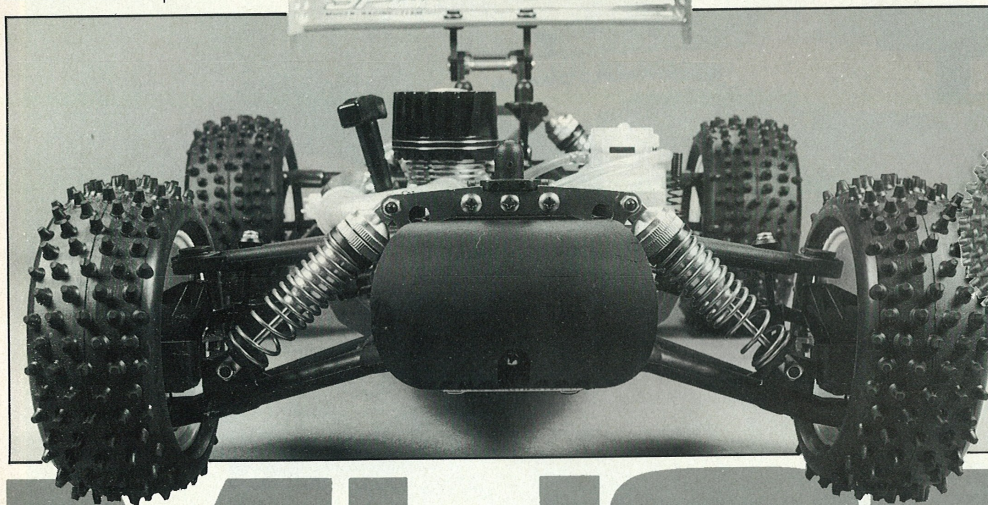
Means of Motivation

To my mind, one of the most significant areas of the whole Mugen 'Sport' is the fitting of a specially

developed rear exhaust engine. This bears the name 'Brat' and although it has all the appearance of emerging from a very well known Italian factory, 'Pic' your own name, it is of Taiwanese origin.

A gem of a miniature pull starter is mounted on the rear of the engine in place of the usual backplate. This is a full recoil job, just like those fitted to the family lawnmower, not one of your feed in plastic strap or wind a string round it messys. It operates smoothly and turns the engine over a full four revolutions and is even comfortable to use.

Given a good source of energy for the glowplug, good fuel and an intelligent approach success is more likely for the average beginner than with the more usual methods of starting an IC engine. For a start, the engine has got to be rotating in the right direction, far from certain when holding a rubber ring



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against a flywheel which you can't even see.

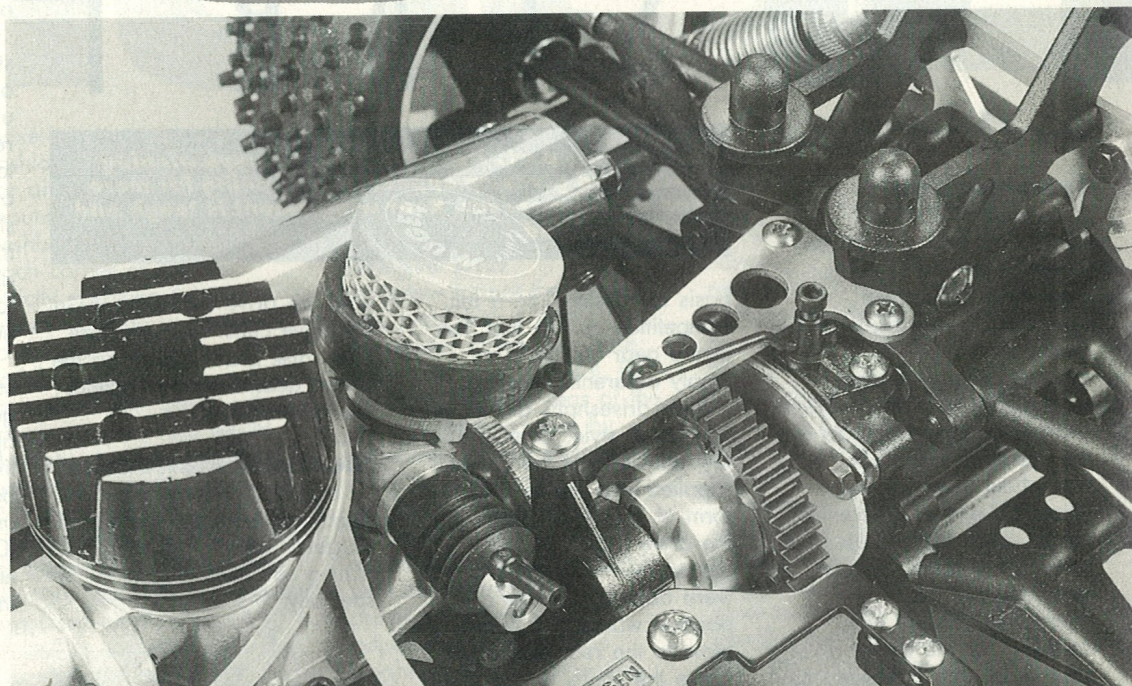
A slide carburettor and Mugen's own tuned pipe exhaust are also fitted ready to use, even a good quality filter is fitted, there remain very few reasons for failure. A full 125cc spring top fuel tank is coupled to the carburettor, sadly no filter is fitted and I do strongly recommend that one is added before running the car. An exhaust pressure line is fitted however.

Guidance

Nothing left to chance here, even a rubber band of substantial proportions for suspending the receiver from the anodised radio plate. All servo mounting holes are fretted out and mountings for the servos are included. Indeed, fitting servos takes no more than five minutes and making the connections to the steering, throttle and brake not much more than twice that. A neat moulded aerial base rounds off the R/C installation which is incidentally, a simple matter to remove in toto for ease of maintenance and cleaning.

Finishing Touches

Round off the package with wrap around front and rear



Rear end is beefed up by means of an alloy bracket between the gearbox and radio plate. Below; Rear wrap round bumper finishes off the back of the car.

bumpers, substantial wing mounting hardware, a wing and bodyshell, low profile rubber tyres and overall an impressive package results. The 'Sport' in two wheel drive form will not take on the world at the next National Open race, but it has a pedigree second to none and the potential for upgrading to

full World Beater status. The engine provides as much power as the two wheel drive chassis could possibly handle and with the full four wheel drive conversion fitted, the "Sport" would really fly. With the excellent pull start system to make getting the beast running as simple as possible, this machine does indeed

represent the most painless route to Rallycross I have yet seen, unless you look at electric power. It ain't the same though somehow!

Available from Ted Longshaw Models

Price £270.00 (with engine, manifold and pipe)

4WD conversion kit £105.00

