

MUGEN
SUPER
SPORT



Radio
Race
Car
International

Kevin Griffin reviews the Mugen Super Sport

Because *Radio Race Car* has been away from the 1/8 rallycross scene there hasn't been a kit review for some time. Well, we're back with a full construction review on what else than the current World Championship model, the Mugen Super Sport!

A little bit of history about the Mugen name may enlighten a few of you as to the origin of the car. Mugen is Japanese and who in Japan is the best known car manufacturer? That's right — Honda; and Mugen is the son of Honda. So I'm pretty sure that there has been no shortage of research and design in the production of this car.

Mugen is already known in the motorcycle race field as well as Formula Three for their engines, so they have a great deal of technology at their fingertips to enable them to manufacture a model racing car.

Who knows, they may be using information already gained from their success at the worlds in Bangkok to further the advancement of some of their full size racing equipment.

Well, that's enough of who and from where Mugen are. Let's get on with the job in hand. Now I'm sure that you are desperate to know the colour of the box that the kit arrives in. Well, I won't disappoint you — it's lilac! Definitely a very butch colour. You've got to be brave to walk down the high street with a Mugen box under your arm!

On opening the box what differs immediately from the earlier kit that became available in the UK, namely the Mugen Sport, is that whereas that kit came partly assembled this kit is totally unassembled except for the differential units of which there are three.

Where does one start one asks oneself? Well, personally, I always start with fitting the tyres onto their rims. The tyres provided with the kit are extremely good, being of the soft compound which definitely seems to give the best all-round grip. By the way, don't forget to glue the tyres on, using a suitable cyanoacrylate adhesive, otherwise you will only travel a few feet before the tyres and rims part company!!

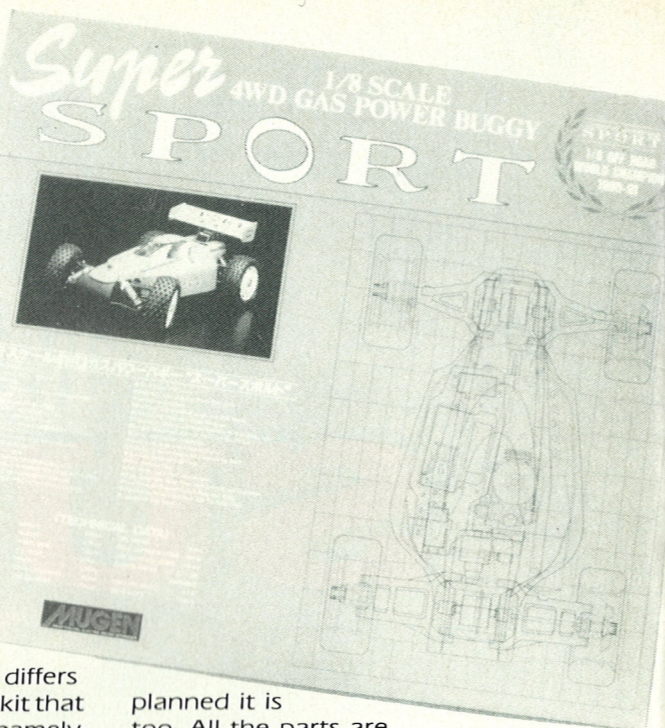
The next step is to look at the instruction manual, and very well

planned it is too. All the parts are in plastic bags with either a number or a letter on them referring to a construction step in the manual.

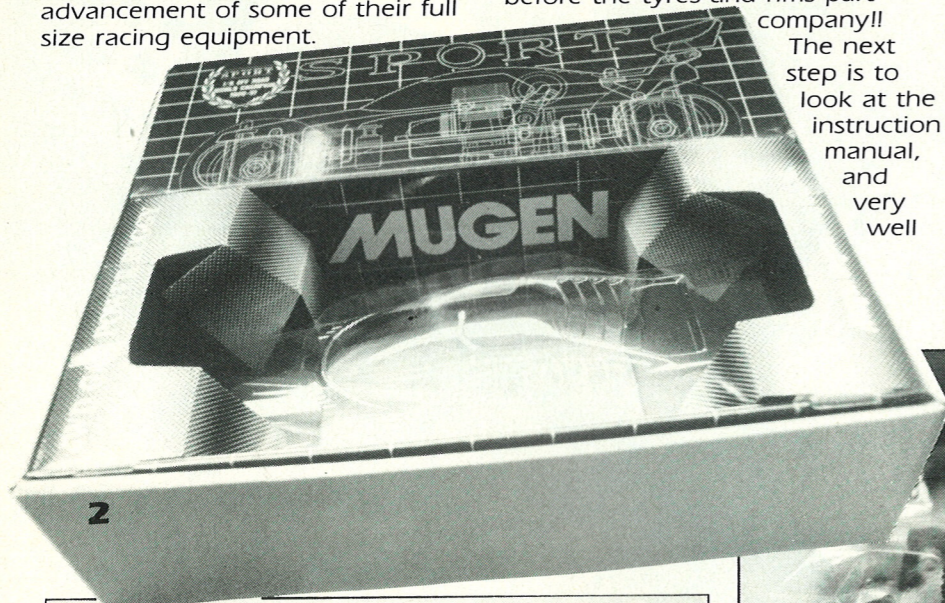
Front Suspension

The first step of construction is to build the front suspension. Firstly, the front hubs. On the Super Sport the driveshafts are of the universal joint type but are constructed in two parts, so please remember the threadlock on the grub screw when locking the shaft into the universal joint.

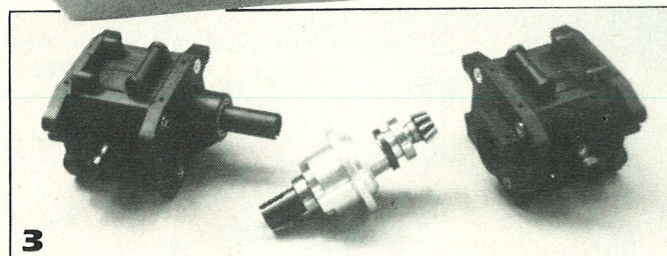
The wheel hub is pushed onto the driveshaft and located by a rowel pin. This has to be driven in by the use of a hammer and small punch while the hub is held on something solid, like a vice. I must admit that this method of construction doesn't aid work on the car at trackside if there is some kind of a problem necessitating the disassembly of the driveshafts. Once the shafts and hubs have been put together the kingpin must be attached.



1



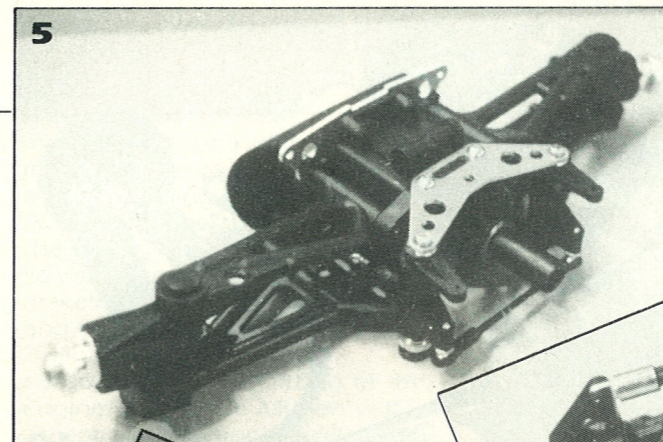
2



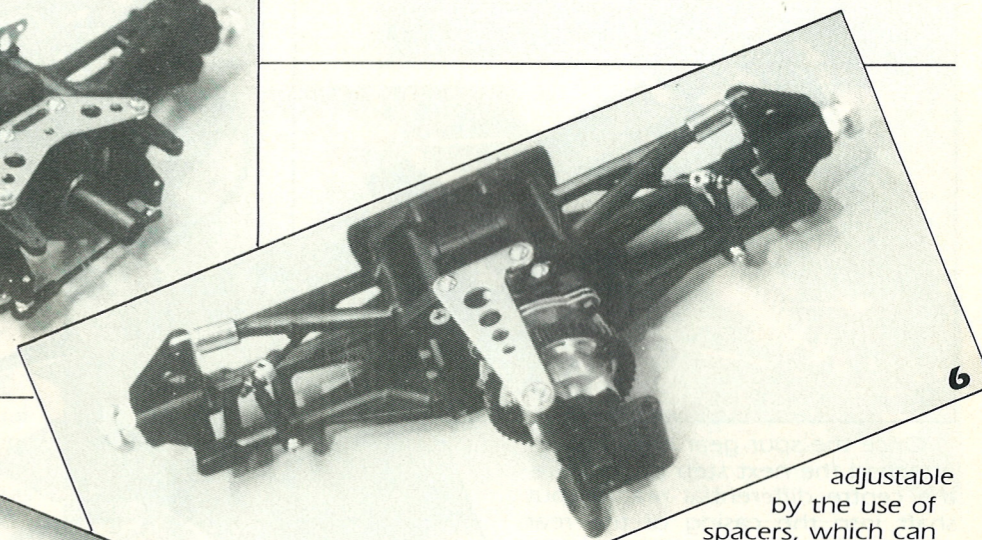
3



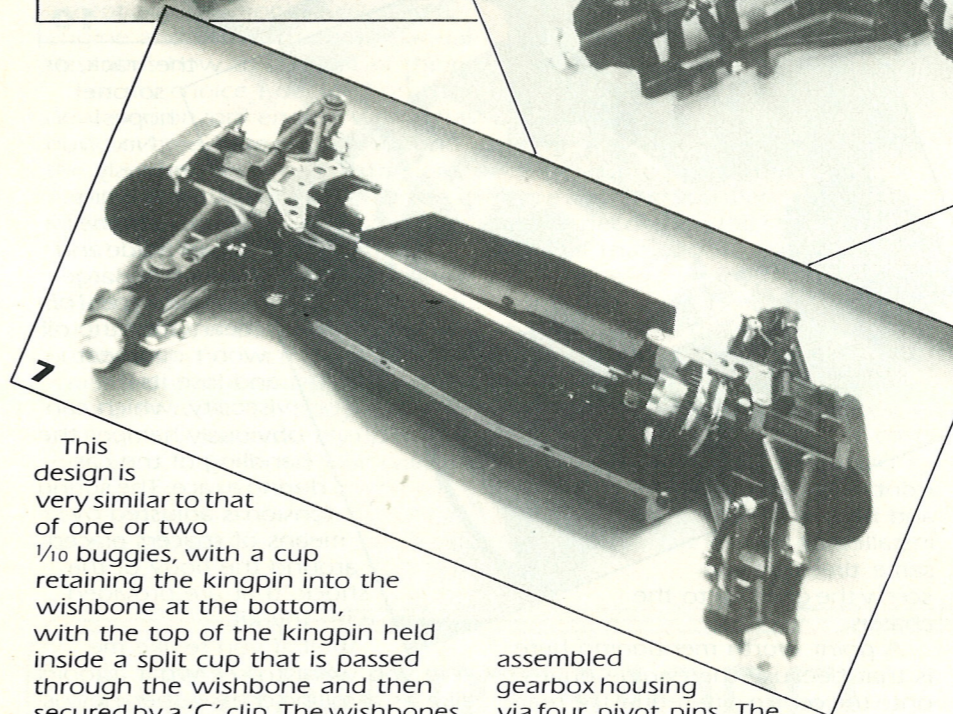
4



5



6



7

This design is very similar to that of one or two 1/10 buggies, with a cup retaining the kingpin into the wishbone at the bottom, with the top of the kingpin held inside a split cup that is passed through the wishbone and then secured by a 'C' clip. The wishbones are all hung off the factory

assembled gearbox housing via four pivot pins. The two bottom ones have a left- and right-hand thread, so please take care when choosing which one goes where. As I have said, these pins are held in place by a threaded section, just the same as the electric Tamiya car shafts. It does away with a lot of fiddly 'E' clips that usually come off when you don't want them to!

The camber angle of the wishbone is set and no adjustment is available but the castor angle is

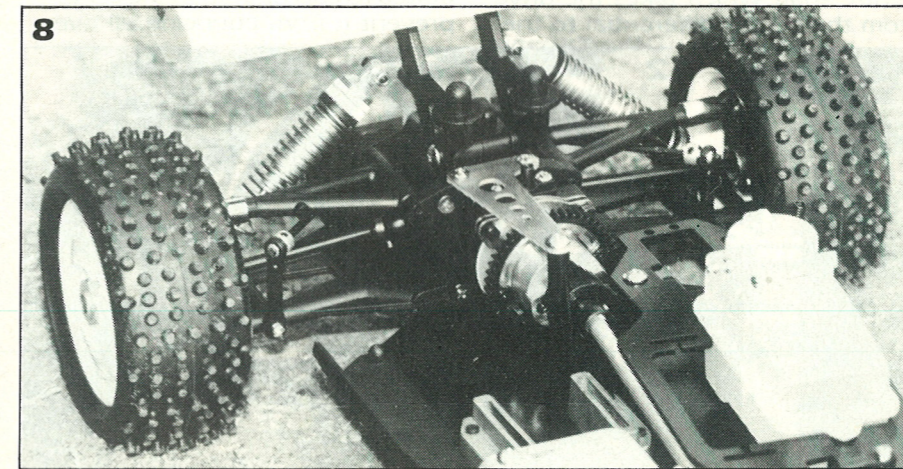
adjustable by the use of spacers, which can be placed either at the front or rear of the top wishbone mounting between the gearbox moulding and the wishbone. These are of a split ring type so adjustment is quite easy as they simply locate over the pivot pin. All that's left to do on the front suspension is the steering.

The servo saver is of the cam type which is common to most cars. There are two servo savers, one acting on each wheel. This assembly is held onto the front gearbox by two screws through an aluminium plate. When the front bumper has been screwed on the whole unit is ready to be fixed to the chassis.

Rear Suspension

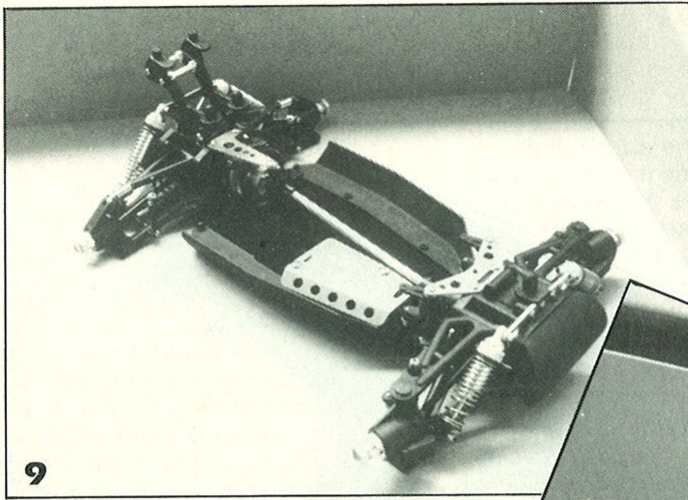
This section also incorporates the centre differential. The Mugen Super Sport has the centre differential attached directly to the front.

A rather nice feature on the Super Sport is the inclusion in the kit of a steel spur gear, a must for the serious racer! This is held onto the centre differential by four 3mm cap head bolts.



8

1. The infamous lilac box!
2. Neat and tidy layout inside the box.
3. The three pre-assembled differential units.
4. All the bags are identified for easy construction.
5. Front gearbox and wishbone assembly.
6. Close-up of the rear drive unit.
7. Side view of the Mugen less shock absorbers.
8. Close-up of the centre diff. Note fibreglass disc brake as standard.
9. Basic car finished, just radio and engine to fit.
10. Mugen Super Sport rolling chassis.
11. The completed car less lilac paint job!
12. Close-up detail of the rear end.
13. Close-up detail of the front end.



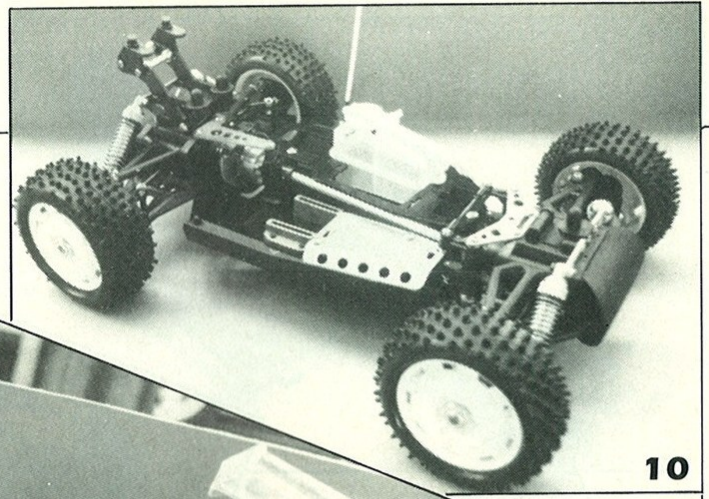
9

Once the spur gear has been attached the next step is to locate the centre differential rear output shaft into the casing of the rear gearbox. When doing this please be careful to make sure that the bevel gear is fully located into the centre differential as the spline is a little tight.

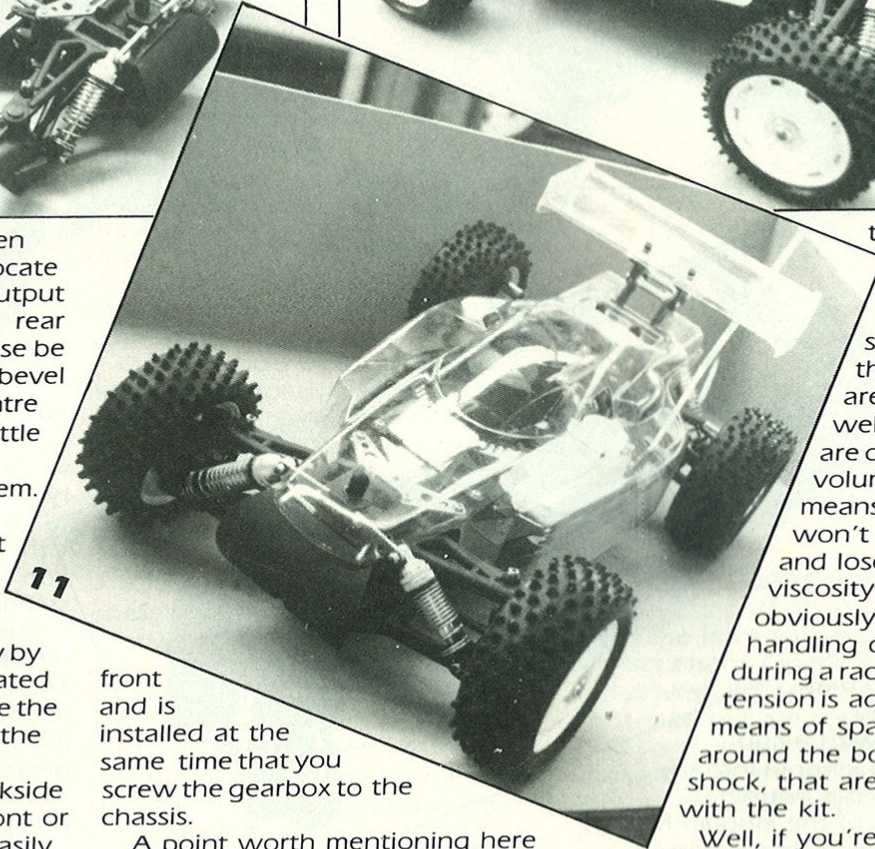
Now onto the braking system. Another nice feature, again invaluable to the racer, is that the brake disc comes as standard in a fibreglass form. The brake operation is carried out in the normal way by the use of a cam that is operated by the throttle servo. Again, like the rear suspension, it all hangs off the rear differential housing.

This makes for very easy trackside maintenance, as either the front or rear completed assembly can easily be removed from the chassis by simply taking out four self-tapping screws.

Now both the front and rear sections are completed they can be screwed onto the chassis, which comes as a black aluminium plate, 4mm in thickness and with all of the holes countersunk. When screwing the units to the chassis a handy tip to stop any ingress of dirt is to smear the base of the gearboxes with some silicone sealant then screw them down onto the chassis. The two units are connected by a long centre shaft which takes the drive from the centre differential to the



10



11

front and is installed at the same time that you screw the gearbox to the chassis.

A point worth mentioning here is that because the engine drives onto the centre differential the rear gearbox and centre differential units are, unlike the front, offset. Therefore, the centre shaft runs at an angle, but Mugen have made available a universal joint for the centre shaft that does help to keep things running a little more smoothly.

Shock Absorbers

What can one say except that these are four silver dangly bits, one bolted to each corner of the car to prevent it from bouncing all over

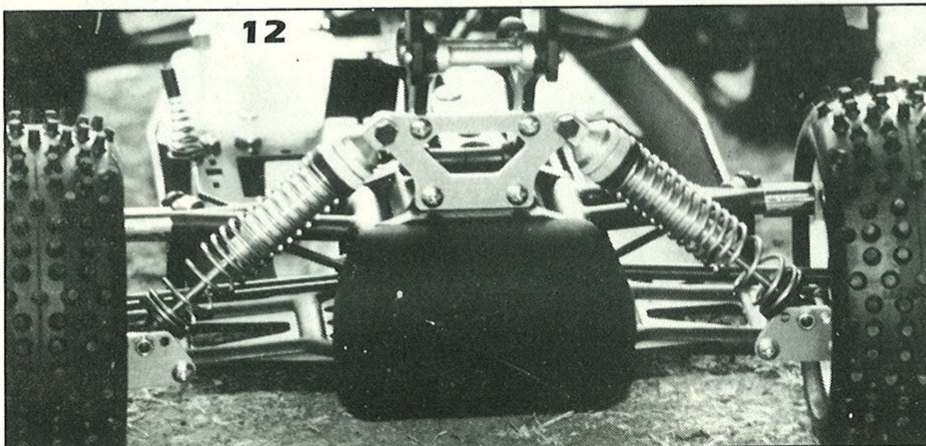
the track, or so one hopes! No, seriously, these units are extremely well made and are of the large volume type. This means that the oil won't overheat and lose its viscosity, which can obviously hamper the handling of the car during a race. The spring tension is adjusted by means of spacers placed around the body of the shock, that are provided with the kit.

Well, if you're like me and you want to see what it looks like as a rolling chassis, then now is the time to bolt the wheels on, and hey presto! It looks like a car.

Now that the basic car construction is finished, all (I use this little word loosely!) that remains is to install the radio equipment, add a suitable engine and the car's ready to run.

For radio equipment I chose a standard servo for throttle operation, and for steering, a ballraced high torque servo, a Futaba 131S. To power the radio one needs a battery pack. The Mugen allows the choice of three methods for mounting it. If the builder utilises the basic battery holder then it is attached to the receiver and held in place by a wide rubber band on the radio plate. If the builder decides to go for the flat five cell pack variety then it is tie-wrapped under an aluminium plate which in turn is screwed down to the chassis. This plate allows you the choice of either AA size cells or the more commonly used N sized cell.

A rather neat idea to mount the receiver is used. It is placed in a rubber pouch which in turn is



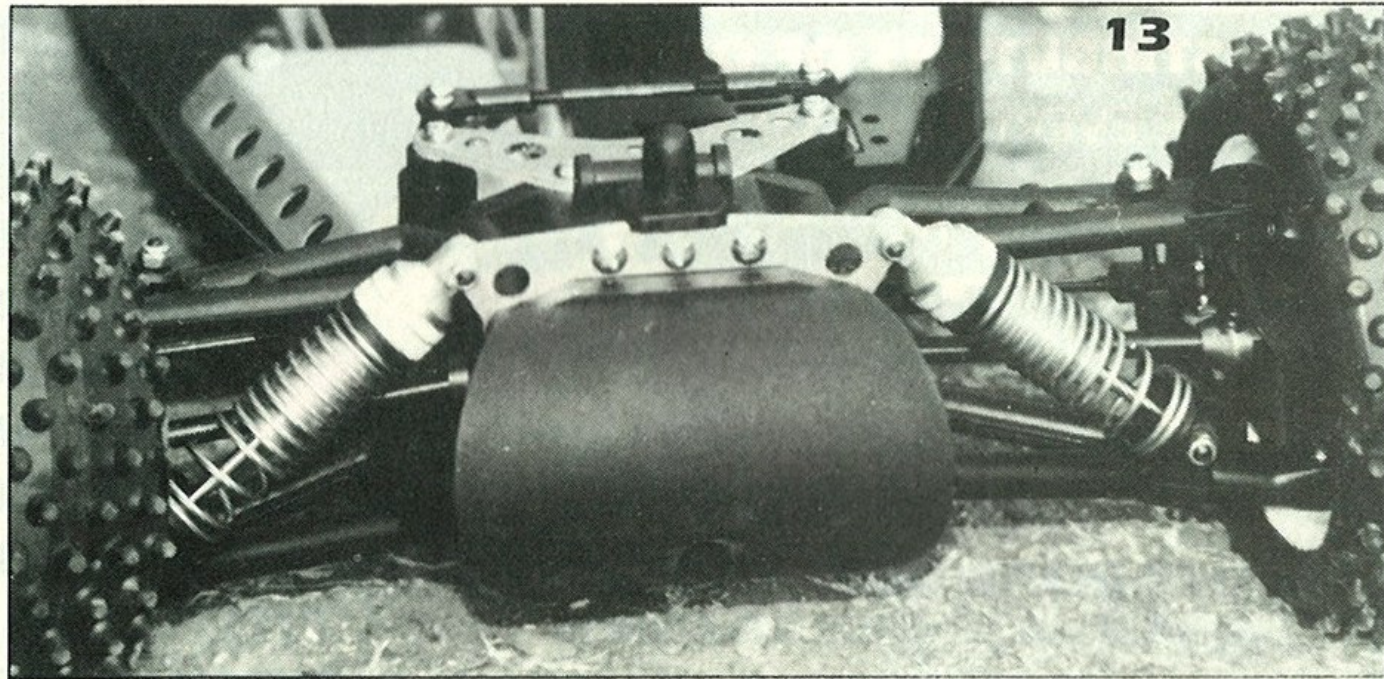
12

mounted on the radio plate. This means that there is very little risk of a crystal coming out during a race. Also mounted on the radio plate is the fuel tank which has a flip-top lid with a good strong spring which makes sure that there is a good seal and no fuel can leak out.

Finally, the last step of construction — the fitting of the engine. Again, the Mugen will accept any commonly available car engine and the instruction manual describes how to fit most of them.

For my choice I decided on the new Bergonzoni engine which has now become quite popular around the tracks. One or two extras are needed here with respect to the installation, such as a manifold which can easily be acquired.

Mugen have designed their own tuned exhaust pipe which fits the car perfectly, so do remember when purchasing your kit that an exhaust is needed as an extra! All that's left now is to paint the bodyshell. The choice of colour is entirely up to the individual. I chose the lilac colour that is used on the box, which I am told is going to be the racing colour for the Mugen in 1991. The decals



come as the normal self-adhesive type and give you plenty of choice when decorating the finished shell.

Well, that's about it! It was hoped to include in the kit build-up, a full track test, but I'm afraid that time hasn't allowed this, but I can assure you that there will be a full track test appearing in the magazine shortly. Also, with the track test I shall include a comparison of costs between starting out to go racing with either $\frac{1}{8}$ rallycross cars or $\frac{1}{10}$ off-road cars, and I think it might surprise quite a few of you!

As a final note, a big thank you must go to Ted Longshaw for supplying this kit for review, who is now the sole importer for the Mugen car in the UK. ●

