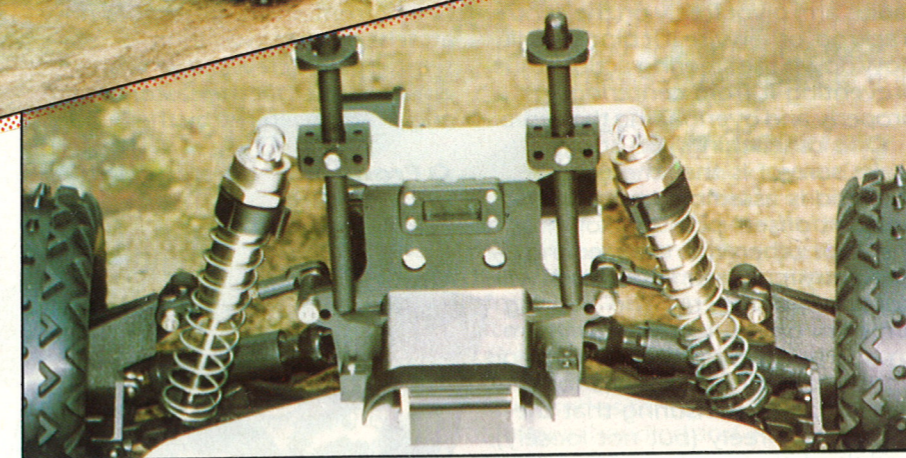


Lower rear arm, universal jointed telescopic driveshaft can be seen here.

Front bumper is secured by three nuts and bolts.



The Shotgun is based on Schumacher's Cougar, which was released in early 1990 and uses the race-proven parts from Schumacher's line of championship winning cars. As to be expected, Schumacher will be bringing out a full kit to allow you to convert your Cougar into a monster racing truck.

Construction

Schumacher has taken a leaf out of the Japanese manufacturers book and have produced an excellent instruction manual (a huge improvement on the one that came with the original CAT), with detailed exploded diagrams. Well done Schumacher! The actual construction of the Shotgun starts at the rear end with the bulkhead being attached to the aluminium chassis via a couple of self-tapping screws (as is most of the truck). The rear wishbones are then attached

to the chassis by a pair of pivot blocks, through which a pivot pin passes, and this allows the arms to swing up and down to provide the suspension movement.

The top links of the rear suspension use turnbuckles which allow the camber to be adjusted, this should be set to give about 1° of negative camber (ie, the top of the wheel leans inwards). Next to be assembled are Schumacher's tried and trusted shock absorbers which first appeared on the CAT. No problems experienced here,



Rear end detail.

Schumacher

SHOTGUN

Mike Haswell reviews this British racing monster truck from Schumacher.

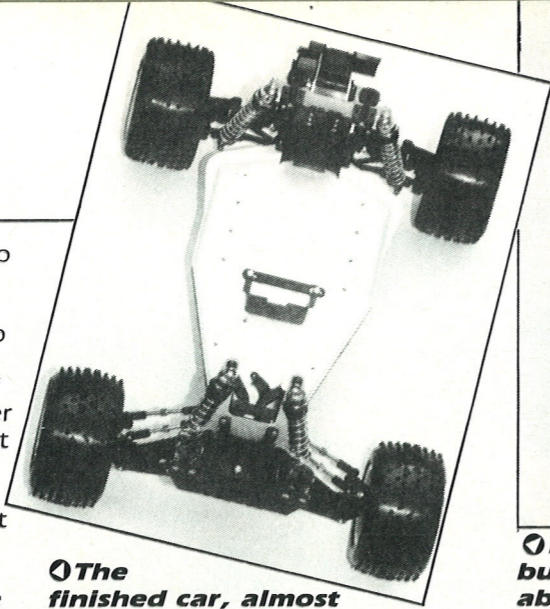
Following the trend of more competition based monster trucks, Schumacher have just released their Shotgun in time for Christmas. It is aimed primarily at the US market where organised championships are already being held. In fact, on its international debut in the US in October 1990 it finished first, second and third in stock and second, third and fourth in the modified class, not bad for its first time out.



although you should remember to fit the spacer tubes on the front units and use the same piston in front and rear shocks. Guess who forgot the spacers and had to take the spring and rose joint back off again! (Typical — Ed.) Schumacher recommend that you use 20 weight shock oil in both front and rear shock absorbers to start with, preferably a silicone type for most consistent results.

Next we turn to the front suspension, where a single ballrace is fitted into the steering blocks, to which the wheels will be attached later. We now attach the steering yoke to the front wishbone via a pivot pin which is then attached to the lower front suspension plate. The steering system is next to be built, making sure that the steering lever and radius arm pivot freely on the centre trackrod, otherwise if it binds it will slow down the steering action, thus preventing it from centering properly and overloading the servo.

One other thing you should make sure of is that the centre trackrod is assembled with the balljoint offsets pointing towards the rear, otherwise the steering geometry is upset and the truck will not handle properly. The steering arms are bolted to the aluminium chassis using two steel screws and the threaded pivot bushes for the steering, again ensuring that the arms move freely (but not loosely), and check that you have fitted the steel washers that go under the steering arms. You now take the lower suspension plate to which you have already attached the front wishbones and bolt it to the chassis with the two screws passing

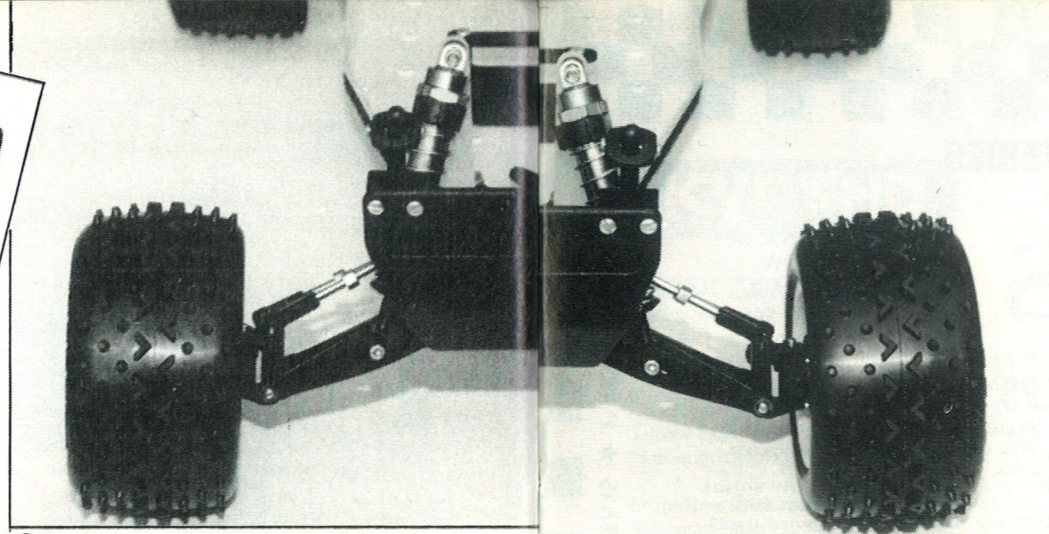


◻ **The finished car, almost ready to run!**

through the upper plate assembly, remembering to threadlock the nuts. Otherwise it could be embarrassing having half the front end of your truck falling off when you are showing friends your latest prized possession.

The front shock bracket is now attached using two long self-tapping screws. It is worth pointing out that the castor or rake angle can be altered by the number

◻ **Front end construction is very strong.**



◻ **Front end showing large bumper and front shock absorbers.**

of spacers you insert between the shock bracket and the upper plate assembly. The recommended one washer each side will give you a rake angle of 20°, however you can experiment by fitting two or no washers to suit the prevailing track conditions.

Increasing the castor or rake will give you more steering coming out of a corner but decrease the turn-in going into a corner and vice-versa for decreasing the castor. Having done all this, you will now have to fit the top links, which are adjustable, and these should be set to give 2° of negative camber. At the same time you should fit the front track rods and set the front wheels parallel to each other when pointing dead ahead.

For beginners it would be advisable to set the front wheels with a degree or two of toe-in (distance between the front of the wheels is slightly less than that at the rear of the front wheels), as this will make the car steer less and make it a bit easier to drive.

Next we move onto the gearbox or transmission assembly as the instruction manual calls it. Having read the instructions before assembly (most don't bother and just get stuck straight in and start building) I discovered that the gearbox and rear hub assemblies were fitted with oilite bushes, I decided to ballrace them. One phone call to Stuart McAllister at Holcomac Marketing and the eight bearings that were required landed on my doormat the following morning (first class post was working for a change).

When building the differential it is advisable to be extremely careful with the thrust race as the small balls in it are very difficult to find if you manage to drop one of them. Also, make certain that you fit the

◻ **Overall view of the Shotgun with Lexan chassis protector fitted.**

two disc springs the right way round. The differential action should be free and smooth with final adjustment taking place when the car is fully assembled.

Now the real fun of fitting the universal joint pivots to the driveshafts begins and a bit of patience is recommended here, otherwise it is quite likely that you will get frustrated and end up doing something silly and damaging the driveshaft or snapping one of the lugs off. After you have assembled a couple it does become easier as you master the technique required. The only advice I can give on this subject is that you have to get the lower pin fully into the hole in the driveshaft, as locating the top pin is then relatively easy with the tool supplied.

Next the motor plate is screwed to the transmission housing, and don't forget to remove the moulded spruce on the housing. The diff assembly is now fitted into the housing along with the top layshaft and pulley around which the drive belt fits, remembering to fit the smaller of the two pins into the middle of the layshaft onto which the top locks. Failure to do so will

result in no drive to the wheels.

The cover plate is then screwed to the other side of the transmission housing enclosing the gearbox. The 2mm pin is now inserted into the end of the layshaft and the drive/spur gear is fitted onto that and held on by an 'O' ring. This set-up makes it very quick and easy to change the gear, which in kit form is a 92 tooth 48DP gear. Having fitted the driveshaft and wheel hub into the rear hub carrier the transmission housing is then attached to the chassis by four screws, with a further two self-tapping screws fixed to the rear bulkhead.

Now you fit the rear body posts

◻ **The Lexan chassis cover.**



to the shock mount bracket and the front posts to the bumper, which is then attached to the lower front plate assembly. Having done all this you can finally fit the shock absorbers you assembled earlier, with the ones that include the spacers in them going at the front. The wheels can now be fitted to the truck, unfortunately

Schumacher seem to have omitted showing which tyres go at the front and which go at the rear. According to the drawing on the cover of the instruction manual the tyres with the V pattern down the middle go on the rear (2-Vee), whilst the photo of the show truck I was given has them on the front.

However, having talked to Schumacher there was apparently a mix-up and this detail got omitted from the final printed instructions, although it was on the draft. The tyres should be fitted as per the drawing on the cover, ie 4-Vee on the front and 2-Vee on the rear.

You will now be able to attach the Lexan dust cover over the chassis with velcro tape. This item will prove popular with rallycross drivers as it fully protects the radio gear. Finally, after having painted the Parma Stadium truck body and fitting it to the chassis you are ready to go!

Track Testing

After having checked that the truck was running straight and that the diff was correctly adjusted, I took it down to the local park for a quick run (as the copy date for getting the review in had already passed) before it got too dark. I have to admit to being quite surprised as to how well the Shotgun handled and how easy it was to drive.

A few of the local kids were really impressed by it and were a bit put out when I wouldn't let them have a go, so there are no prizes for guessing what has gone to the top of their Christmas list this year, and no it is not those pesky turtles.



SHOTGUN

There is no doubt about it, these trucks are great fun and a not so little birdie tells me that there will be some organised races for them in 1991.

The Shotgun will be available from your nearest Schumacher stockists. ●