

KIT REVIEW

Imagine then an RC car that, (in theory at least) has an unlimited run time, and does not need to be near a 12 volt power supply or masses of back up equipment. The answer is internal combustion (IC) power. Miniature IC engines have been around for years, starting life in model aircraft. When installed in models cars, these little engines have a massive power/weight ratio, enabling huge speeds to be achieved from small capacities.

Enter Schumacher...

This latest car is the "Nitro 10 Truck", from Schumacher. This car comes from Schumacher's large



Red hot!

Marcus Nicholls ventures into the world of IC power with Schumacher's highly addictive Nitro Ten...



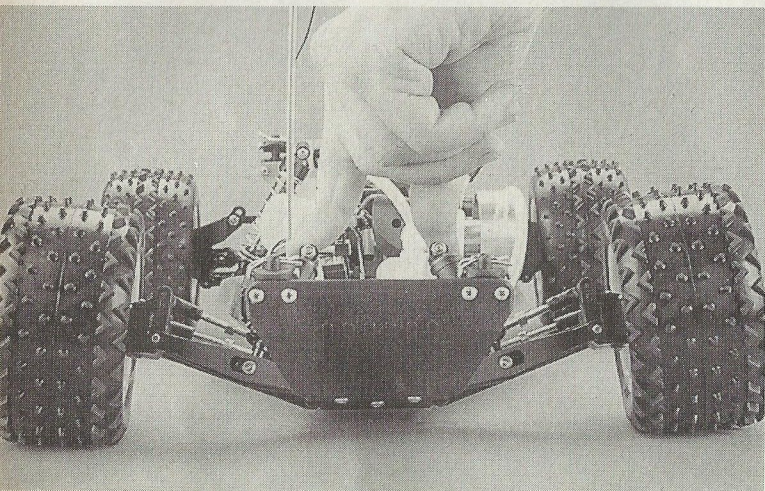
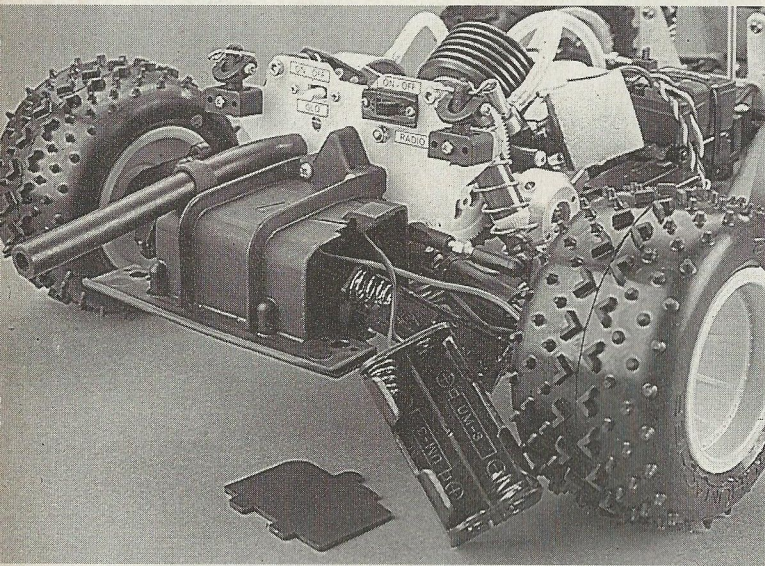
range of electric and IC cars, designed and manufactured at their facility at Northampton, England.

The Nitro 10 is a two wheel drive machine powered by an Irvine 15 cu. glow plug engine with a handy pull start. The engine drives a flywheel which is connected to centrifugal clutch. When power is applied, the flywheel speeds up, the clutch shoes are thrown outwards and rub up against the inside of a drum, forward motion begins. When power is lowered, the shoes return to their resting position, and the truck comes to a halt, with the aid of a brake.

The car comes in partial kit form, with the engine, silencer, clutch and gearbox already assembled and mounted to the chassis plate. This may seem like removing some of the fun, but having the power pack ready built, installed and adjusted saves a lot of aggravation.

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N I T R O



Construction begins

When you open the box, you are presented with a neat spread of the major components, with a second box carrying the rest of the bits, poly-bagged and labelled.

The instructions take the form of a printed booklet, outlining the assembly of the entire car. A lot of the drawings will not be

immediately needed, as they concern the construction of the diff and gearbox, which come pre-assembled. At this point, we would recommend reading through the instruction book, cover to cover. This is always a good practice with any kit, but in this case there are a few areas that will be much easier to work on if they are assembled in

a different order to that indicated in the instructions. As an example of this, the rear suspension arms use ball joints to fix the bottom ends of the shockers – it's much easier to screw these in to the arms before they are attached to the chassis.

Step two outlines the installation of the servo mounts, followed by the servos. Do not overtighten the mounts at this point as you will need to make adjustments later on. Next up are the front hubs, which carry the front wheel bearings. Make sure that the bearings are installed with the black seals facing outwards as this is the sealed side. Much of the suspension is held together with "E" clips, and the ones in the kit are quite soft, so take care not to bend them!

No problems were experienced when building the front suspension, but do take time to read the instructions and check that you have picked the right part from the bag – some parts do look similar...

To make adjustments to the suspension – castor, camber, toe in etc, turnbuckles are supplied. The turnbuckles in this kit have left and right handed screws, meaning that by simply turning the moulded-in nut with a spanner, the distance between the ball joints can be reduced or increased.

Like the front, the rear suspension goes together with no real hitches. Each pivot block is separated from the chassis by a nylon washer, and it is the thickness of the rear most washer that determines the angle of rear toe in or out. When the washer supplied in the kit was in place, the rear wheels seemed to have far too much toe in, so a thinner washer was substituted.

The rear toe in affects the handling quite a lot, so this will need adjusting to get the car to drive correctly.

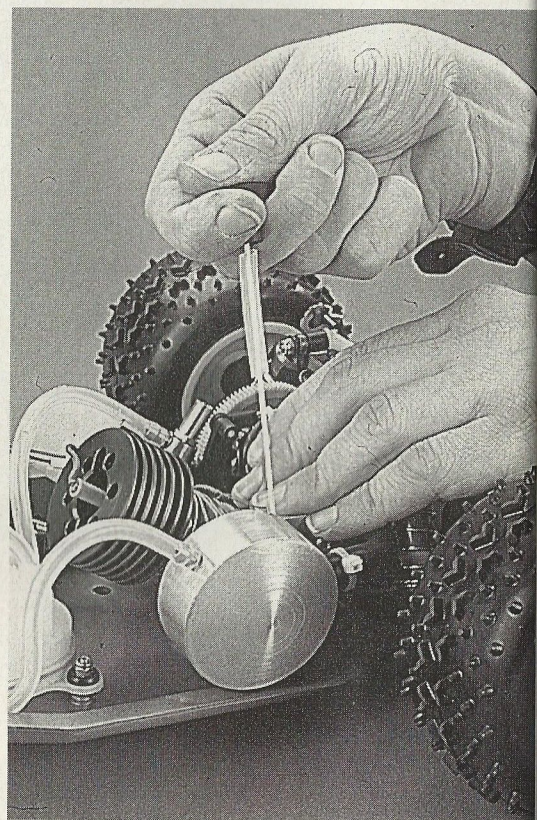
A shocking time!

The shock absorbers supplied with the Nitro 10 are Schumachers' mid-range items, with professional style red anodized aluminium bodies, and nylon piston and seal housings. It is very important that

they are built up in the correct manner, if you wish to avoid oil leaks. We didn't read the instructions properly, and so they promptly dropped their oil all over the desk in under an hour!

With all of the O rings in position, make sure that the upper part of the bush (T1222) is clicked down positively into the recess at the top of the nylon seal housing. If you don't do this, leaks like ours will occur.

The shocks are now mounted on the four corners of the car, and the Nitro 10 is starting to look like more business like. The tyres pop onto the rims easily – we secured ours with cyano but they are tight enough to not really need it. At this stage,



Top left; Hiding in the rear compartment is the battery box for the radio equipment. Above; Built-in pull start system worked reliably and efficiently during our RCMC test. left; Engine flywheel hides the connection between clutch drum and main gear, this needs to be set as per instructions.

the various turnbuckles can be tweaked to achieve the correct degrees of toe in, camber etc.

Tanks for the memory

The fuel tank of the Nitro 10 is a particularly nice item. A large O ring is sandwiched between upper and lower halves, which are held together by a single screw. This enables the modeller to quickly open the tank up for convenient cleaning (and to adjust the steering servo, as we found out later!). The tank is held onto the chassis with three grommeted screws bolts.

One feature of the car is its on board glow plug power supply, in the form of a single AA size cell, which is tucked away in the battery box with the power supply for the radio. The two switches are mounted on the rear bulkhead, enabling easy access even with the body shell on. The final stages of the instructions outline the addition of items such as throttle linkages, fuel lines, aerial, body mount posts etc.

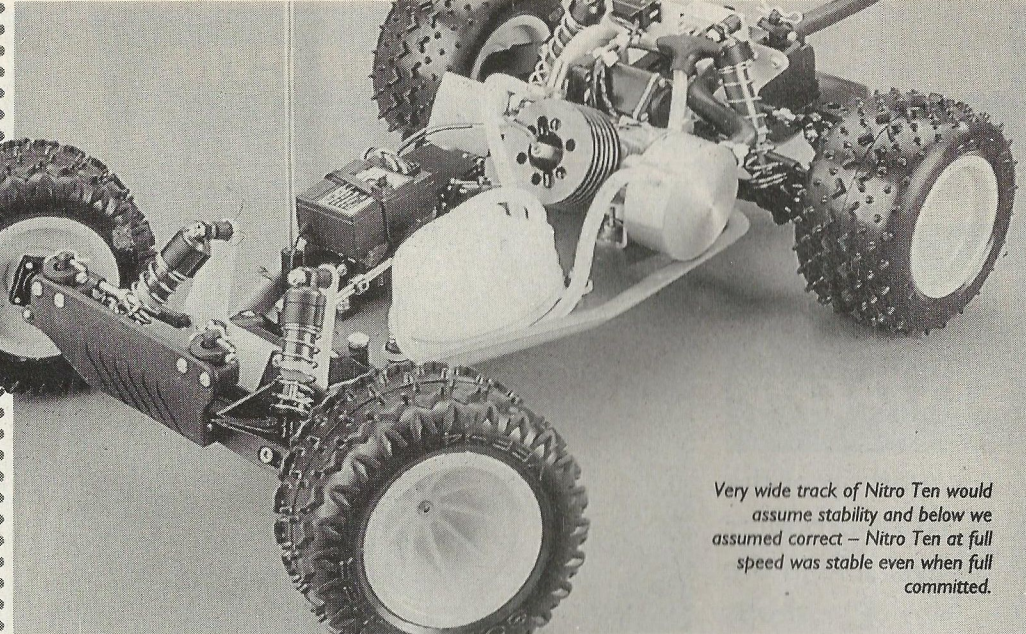
Preparation for starting

The chassis is now fully built up with fresh batteries installed, and adjustments made as per the instructions. We filled the tank up with 5% nitro fuel with synthetic oil, and after priming the engine, switched the radio and glow supply on.

The instructions show the correct sequence for starting, and we followed this to the word. After quite a few pulls on the pull starter, it became apparent that we had not set the carburetor correctly, and so it was back to the manual.

In the illustration, the low speed idle screw of the carb should be screwed out one and three quarter turns from closed. Our setting was considerably more open than this, but it seemed to do the trick, and the engine burst into (noisy) life. To prolong the life of the engine, it will need running in.

Four or five tanks of fuel later, and the Nitro was ready for some hard driving! Because this car is rear wheel drive only, it is light and therefore has a very favorable power/weight ratio. We tested our truck on closely cut grass, tarmac and loose gravel,



Very wide track of Nitro Ten would assume stability and below we assumed correct – Nitro Ten at full speed was stable even when full committed.

as can be seen in the photographs.

On the grass, the truck behaved well, cornering quite wide under power – the front tyres biting in when the power was eased back. The long suspension arms and soft shocker set up (we used Tamiya's soft silicone damper oil) enabled the truck to float over the undulating surface of the grass with ease, and it proved impossible to roll the car on any of the test surfaces thanks to this set up.

The truck reached its best speed when pushed hard on the tarmac, but the handling is less forgiving and mistakes could result in spectacular crashes. If the truck does flip over, don't rev the engine – it will just overheat. Flip it back, and if the engine is still running, you can simply drive off.

On the gravel, dramatic four wheel drifts were possible, and the tail flicked out as the front tyres grabbed the ground under deceleration. With gravel flying in all directions, the Schumacher Nitro 10 (in the capable hands of the editor) looked superb. The sound of the engine and the trail of distinctive smelling oily smoke make driving one of these cars an unforgettable experience, and you don't have to worry about

long waits between battery charge ups.

Drawbacks to IC do exist – they are harder to get going than electric cars, and due to the noise, you might need to find a larger than normal area to run them. On the plus side, as mentioned, they run for much longer, are generally faster, and require less support equipment.

It is up to the individual to choose between electric and IC – both have found their niches, and they make up for each others' shortcomings. We had great fun blasting our car around a local football pitch (no, not Wembley!). It attracted a lot of interest from passers by – everyone seemed to want one! If you run the engine in properly and treat the car according to the instructions, it will last a long time, and you should have trouble free starts. If you have dabbled with electric powered cars and enjoyed it, you might just fall in love with IC power, and the

Schumacher Nitro 10 Truck is the perfect way to get started.

Specification

1:10 scale, glow plug engine powered radio control truck. Two wheel drive from rear wheels via ball differential. Kit comes with Irvine .15 engine with pull chord starter, pre-mounted to the chassis along with centrifugal clutch, gearbox and telescopic drive shafts. Lexan body shell mounts onto tough, lightweight chassis. Requires two channel, proportional radio control system, X13 AA size batteries, 5% nitro glow fuel, Lexan paints, thread lock, grease and a selection of tools including a glow plug spanner (not included).

Materials;

Pressed anodized aluminium chassis, GRP shock towers, engineering nylon suspension arms, drive shafts, servo mounts. Anodized aluminium damper bodies. Ball races on all wheels.

