

WORDS AND PICTURES: TONY PARROTT

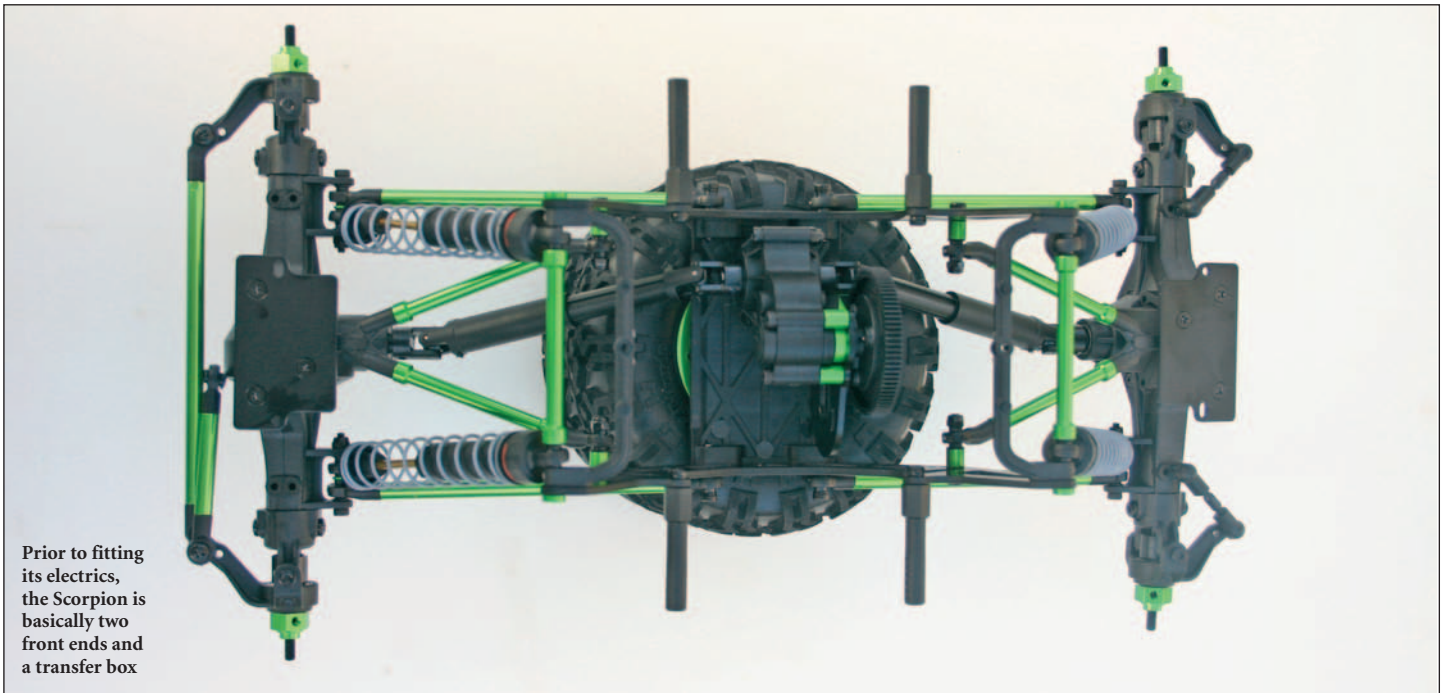
THINK BIG:

Rock crawling is often seen as the next big thing in the UK off-road scene. But it's already here in the unlikely format of radio-controlled competition cars – and as well as being a brilliant idea in their own right, they have a great deal to teach builders of the real thing

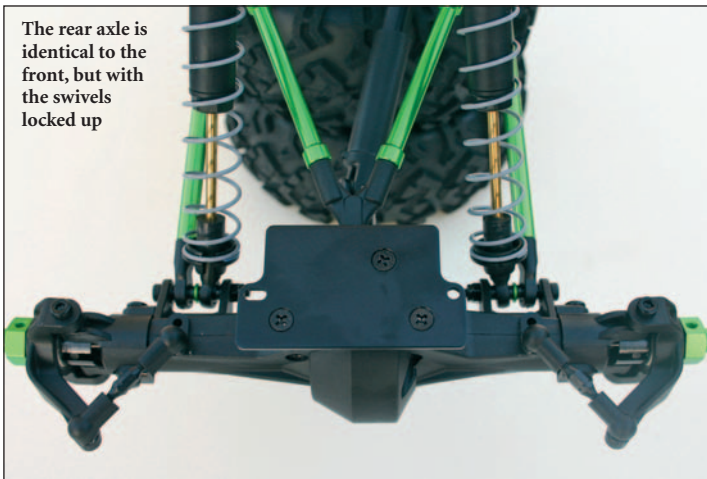
THINK SMALL!



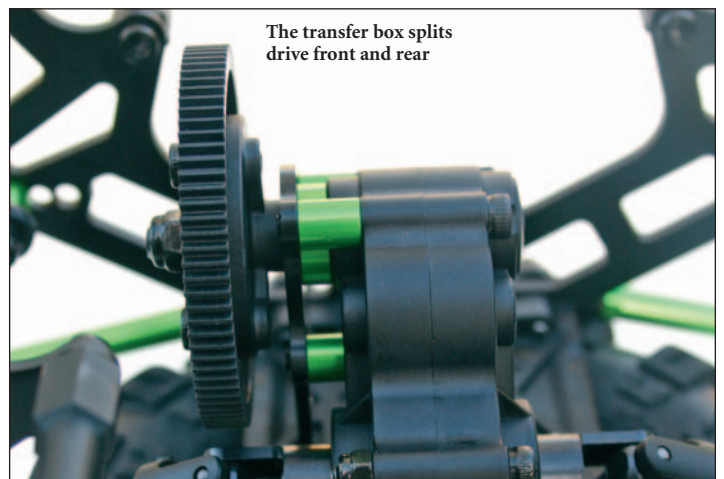
Rock and roll. The Scorpion looks just as good when it's parked up. Even with wheelarches the size of dustbin lids, under extreme articulation the tyres still rub



Prior to fitting its electrics, the Scorpion is basically two front ends and a transfer box



The rear axle is identical to the front, but with the swivels locked up



The transfer box splits drive front and rear

FROM MINI-BIKES TO main battle tanks, I have never believed that the amount of fun you can have off-road is proportional to the size of your vehicle. To emphasise as much, check out the latest off-road addition to the Parrott toy cupboard. Called the Axial Scorpion, this tenth-scale rock crawler turns every rockery, pile of builder's rubble or log stack into a potential trials course.

Yes, you read it right. It's a radio controlled car, here in *Total Off Road*. But mock it at your peril. For one thing, I'm definitely not the only person who's bought one of these things recently: RC rock-crawling is pretty new to the UK, but it's big news and the scene here is growing fast.

For another, you don't need to be interested in radio-controlled cars to find this article interesting. Why not? Because these little beauties are basically technical replicas in miniature of the real thing. And since you can take their bodies off and examine what's going on underneath, that makes them a very good place to start learning about how an off-road competition car is designed.

Based around two aluminium chassis plates, the Scorpion takes minimalism to the extreme. The three-link front and rear suspensions are

identical, as are both axles, though the swivels on the rear are locked.

The drive train is equally straightforward. An electric motor drives a spur gear which in turn spins up a three-gear, diff-less transfer case. A shaft passing through the lower gear is splined to take the props. At the axles, the power is split 50/50 to each wheel via an aluminium spool bolted directly to the crown wheel. The steering servo bolts to the front axle, while the body is held in place with just four R-clips. Simple or what?

Actually it's not. It may well be more than the sum of its parts, but this is a kit – and those parts number into the hundreds. To make matters even more complicated for the RC newbie, the basic Scorpion kit doesn't include any electrics. That means you'll need to source a motor, speed controller, battery, charger, steering servo, transmitter and receiver. Fortunately, then, UK importer CML is offering two additional kit options complete with either a Novak crawler-specific controller or high-tech brushless motor version. Any good RC model shop should be able to advise and supply all the other trinkets needed to finish the kit.

While this may still appear more than a little daunting, provided you stick to the instructions the build is straightforward if a little time consuming. Personally, I spent a lazy weekend

building and setting up my crawler, but I should point out I do have some previous experience.

What I don't have is any self control, and as a result I specified all the state-of-the-art accessories I could. Not only are these more expensive, they also take more time setting up, so you could save yourself both time and money by sourcing bits from the cheaper end of the catalogue.

My own till receipt from Darren at DMS Racing in Watford started with an Axial kit and Novak 'Goat' brush-less system at £324. The reasons for opting to do around £160 on the brush-less combo are basically two fold. Firstly, with no brushes to wear out the motor's just about maintenance free and, secondly, the controller boasts a whole bunch of drive and brake settings.

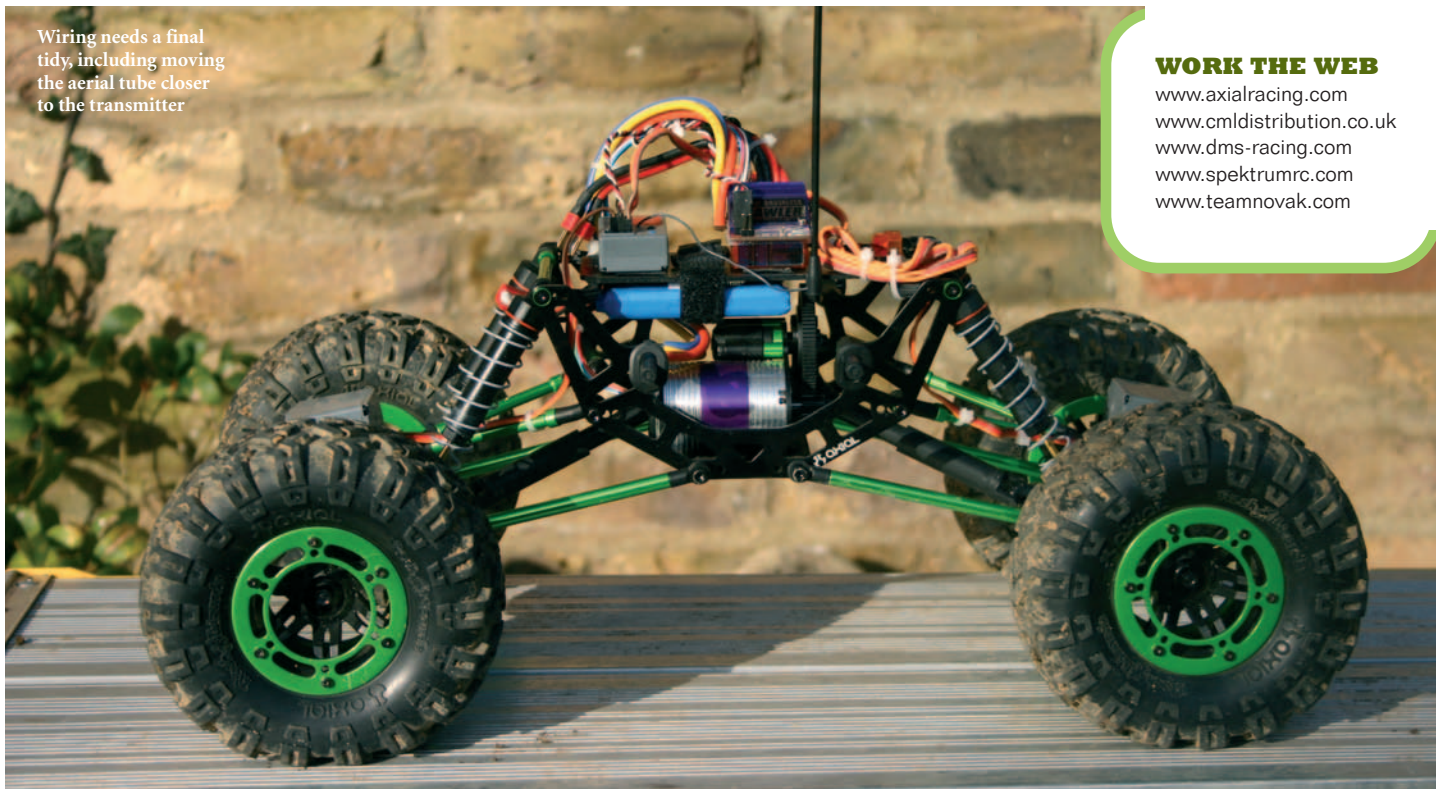
Next up was the equally feature packed three-channel Spektrum DX-3 radio and receiver. Working on the new 2.4Ghz frequency, advantages include no channel-changing crystals, yet more adjustability and an all-important third channel (the latter was a must-have as I'd always intended making my crawler four-wheel steer). Not cheap at £169, but it does include two servos and a spare receiver.

The £80 I lavished on a lithium-polymer battery and charger could also have been reduced by around 70% had I opted for Ni-Mh.

Wiring needs a final tidy, including moving the aerial tube closer to the transmitter

WORK THE WEB

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 www.cmldistribution.co.uk
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 www.spektrumrc.com
 www.teamnovak.com



Other than leaving the body clear, I had little choice but to blow the last of my change, all £3.50 of it, on a single can of paint. Totalled up, that lot came to a not insignificant £580. Or about the same money as a taxed and tested SJ.

Now don't be disheartened, my skint off-roading chums. My retail experience was an exercise in excess, and by opting for the brushed motor combo, cheaper two-channel radio and Ni-MH power you could find yourself on the rocks for around £300. Just how close it would be in terms of performance to its more expensive cousin remains to be seen. But thanks to the guys at CML, who donated a 'truck only' kit so I could get component pics without pulling my rig apart, it won't be long before I find out, as I'm about to build up a budget version.

No matter how much fun you derive from building something like this, that enjoyment is going to be very short lived if the truck doesn't perform. On the subject of which, if you're looking for full-on tyre-shredding action, monster wheelies and an insane top end, the Scorpion isn't for you. Likewise, its partially exposed geartrain and electrics mean it's not a boat, nor will it appreciate being lobbed into the mud run. It's badged as a 'rock crawler' and there's a clue to its application in the title. Operated within its design envelope, the Scorpion will amaze with its

epic axle articulation and ability to climb seemingly impossible scale obstacles. Should you need to pause the ascent, the electrically operated hill brake, which works in a manner akin to witchcraft, takes all the effort out of the operation. For sure, its diff-less theme makes for a wider than expected turning circle, but the benefits in traction more than make up for the need for an occasional shunt.

To date, and despite my uncompromising driving style, the Scorpion's suffered just one failure. Without any form of clutch or differential to act as a fuse, it popped a prop UJ when a stick jammed one of the wheels. Fortunately, it clipped back in.

Axial is currently launching a whole range of hop-ups, including aluminium rings designed to stop the UJs spreading. However, while waiting for that range to hit the shops I've not been idle. Mine's already four-wheel steer, the wheels ballasted and the tyre foams trimmed to increase the size of the tyre footprint.

Ultimately, the amount you could do is limited largely by your imagination. Factor in all the aftermarket goodies from Axial and other manufacturers and you need never again run out of things to spend your money on. In that regard alone, this is more like a full scale rig than you could ever begin to imagine...



