



THE GREAT BRITISH OFF-ROAD MAGAZINE

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MODS, REPAIRS AND FULL BUILDS IN-DEPTH

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SCOTIA EXTREME CHALLENGE
BCCC 2011 PREVIEW
LRS CHALLENGE



NEW X-TRAIL
REVISED, UPDATED... AND STILL GREAT?

SIMPLY PHENOMENAL

CHRIS ABEL'S NEW CHALLENGE TRUCK: THE VERY BEST OF THE BEST COMES TOGETHER IN ONE SENSATIONAL LANDY



MUD-RUN HERO
A MODDED HI-LUX LIKE NO OTHER



PROFILED THIS MONTH
LIKE FATHER, LIKE SON
THE GRASS-ROOTS VITARA THAT RUNS IN THE FAMILY

+ UK ROADBOOKS THIS MONTH: WEST MIDS

When one of Britain's best known and most successful challenge competitors unveils his new vehicle, it's got to be worth paying attention. When he tells you it's been built in collaboration with some of the most respected global names in off-road vehicle design, you listen. You listen good.

There's a type of person, and we've all met them, who likes to talk and talk about how the vehicle they're building is going to be the most amazing thing anyone's ever seen. Chris, on the other hand, didn't even contact us until his new truck had passed its SVA test and he was about to shake it down at a local quarry ahead of its debut at the Phoenix Challenge.

Even then, he didn't blare down the phone at us with a stream of superlatives about how he's going to take on the world. He just mentioned a few names like Spidertrax, Atlas, Gigglepin, D&G Tuning and Performance and Protection, sent us a list of the vehicle's spec and invited us along to see for ourselves.

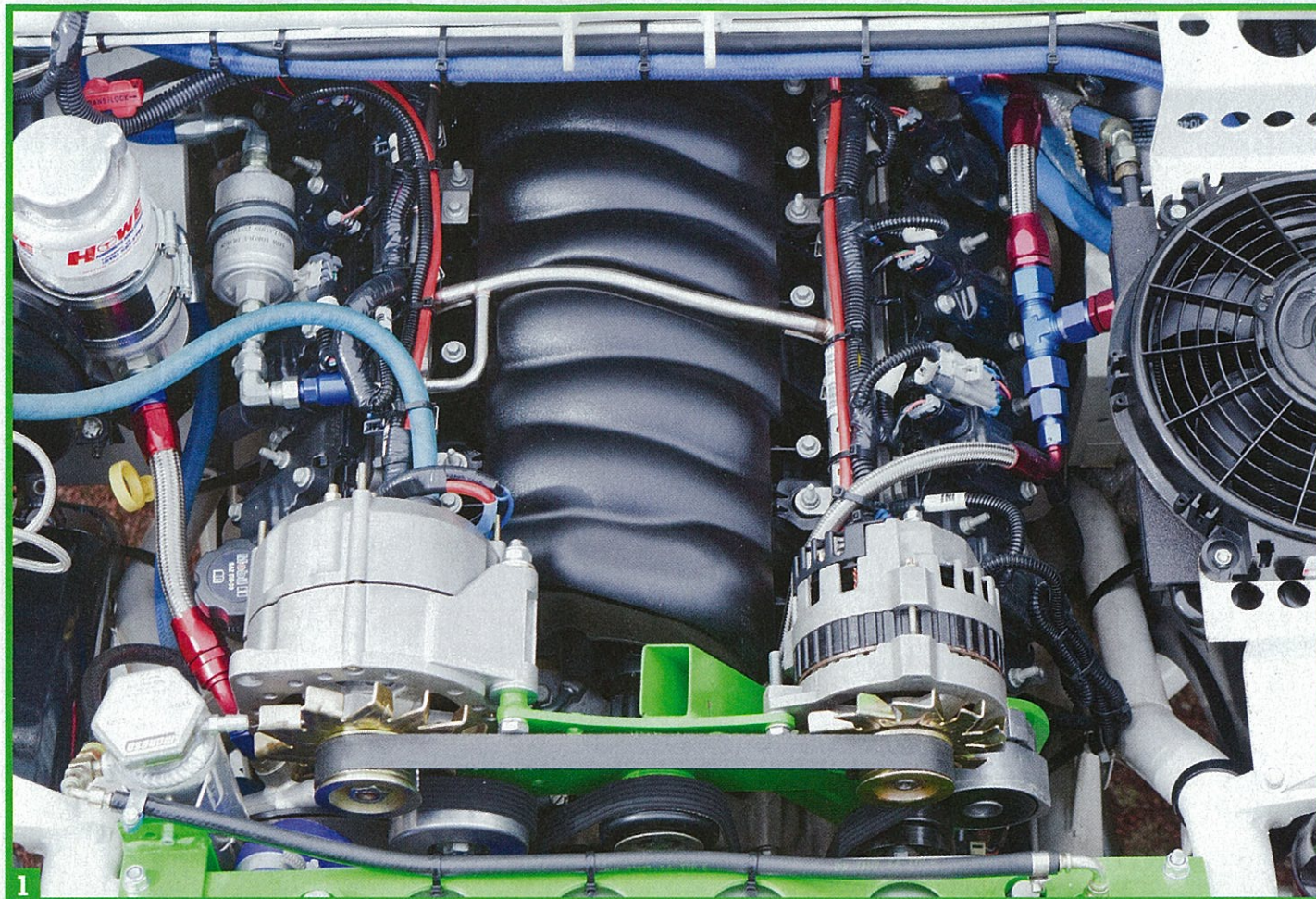
He didn't even give the vehicle a macho, action-packed title to go with its fearsome character. What you're looking at, ladies and gentlemen, goes by the name of Chris Abel's Truck. CAT, for short.

Chris has appeared in TOR before, first as the owner of a tidily modified Mitsubishi L200, but his reputation on the challenge scene was gained behind the wheel of a Range Rover trayback fitted with Volvo portal axles. Having sold this at the end of 2008 to fellow challenge A-lister Kevin Pocock, he set about the business of designing something more versatile and collecting the parts that would one day go together to become what he intended to be 'the ultimate challenge truck.'

BIG CAT

Strong like a lion, agile like a leopard, fast like a cheetah: none of these are reasons why Chris Abel called his new truck the CAT. But paws to look at the way it's been built and you might end up feline like you're looking at off-road purrfection...

WORDS OLLY SACK PICTURES STEVE TAYLOR



1 The swoopy engine cover and shaped fuel rail may be pure out-of-the-box GM, but they're pure out-of-the-box visual theatre, too. No wonder the LS3 is so popular in show cars. You can't see it here, but the big V8 runs an ECU and wiring loom from GM Performance Parts and breathes through a custom 4" alloy raised air intake with an integral K&N filter. In front of it, twin alternators are at the heart of a system delivering both 12v and 24v electrics. One is a 120-amp unit, juiced by an Optima 4.2 DCM, which looks after the vehicle itself, while the second is an 80-amp 24-volt Gigglepin affair running two Optima DC5.5 Blue-Tops and powering a pair of twin-motor winches

2 Working hard at low speeds, the big V8 needs a lot of cooling. And this is a lot of radiator: a lot of Allisport radiator, to be exact, custom-made for this vehicle. Hauling stacks of air through it when there's no ram available, which is of course going to be most of the time, is a 16-inch Pacet fan which, as well as being enormous, is also waterproof. This view also illustrates how far back in the chassis the engine is mounted

3 Heat build-up in the auto box is kept in check by a Derale cooler with an integral fan drawing through 650cfm

4 Plumbing for the rear brakes and ARB Air-Locker is neatly routed along one of the upper trailing links. In the distance, note the disc parking brake; this is part of the Atlas II transfer box, a true legend of off-road hardware, which here features 3.1:1 gearing

'The new truck would need to have more power,' he explains, 'and be able to cover ground at a much faster pace. It would almost be a crossover between a comp safari racer and your typical hardcore challenge truck.'

'We were designing the truck to compete in events such as Dresden-Breslau, Croatia and the new UK British Dirt Racing Championship. However it should still be a very competitive truck in hardcore winch challenge events like the Phoenix.'

With these parameters in mind, Chris cast his eyes upon a tube-framed Defender-style buggy which had just been completed by D&G Tuning, the Belgian outfit whose work in the extreme off-road field has gained a huge

amount of international attention over the last few years. The company is a European agent for Spidertrax, and as well as selling some of the best off-road kit known to man it's well known for getting hands-on in the workshop.

First, however, Chris needed something for the guys there to get their hands on to in the first place. Step forward another famous name in off-roading, this one a little closer to home. 'The chassis is the most critical bit of any racer. It was designed using CAD by Protection and Performance, then manufactured out of T45 tube using a CNC tube bender.'

Finally, the frame was built up, using a specially designed jig to ensure perfect

tolerances. 'This is strong enough,' says Chris, 'that if the chassis did ever bend in an accident, it can be twisted back into shape on the jig!'

That brings the story up to just over a year ago, when the completed chassis was dollied on to a trailer and shuttled to D&G's workshop in Belgium. This was where the big stuff went on, like an engine, drivetrain, axles and bodywork.

Such innocent words, but they disguise a multitude of sins. You'll have worked out by now that those axles were of the Spidertrax variety, which immediately puts them up there at the top of the tree. And we mentioned Atlas, which those of you who know your rock-crawlers will identify as the source of some of the world's best transfer cases.





Seen from underneath, the complexity of the vehicle's T45 spaceframe chassis becomes apparent. The integral skid-plate helps it slide over rocks and extreme crests. What this view shows particularly well, though, is the geometry of the linkages used on both axes; three-link up front, with an offset third link between the two main radius arms, and four at the rear. Inside both axes is a True High 9 diff containing an ARB RD99 Air-Locker, as well as a set of 300M CV joints and halfshafts



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1 Looking up at the front axle, you can see the asymmetric nature of the three-link set-up. Both propshafts are 1350-yoke units

2 Providing a whole lot of suspension at each corner is this combination of 14" Radflo triple bypass shocks and remote reservoir dual-stage coil-overs. You can also see the panhard rod here, which keeps the three-link front axle in check laterally

3 Pro 50 degree steering knuckles on the Spidertrax front axle hold the rose-jointed drag link and track rod in double-shear mounting



3



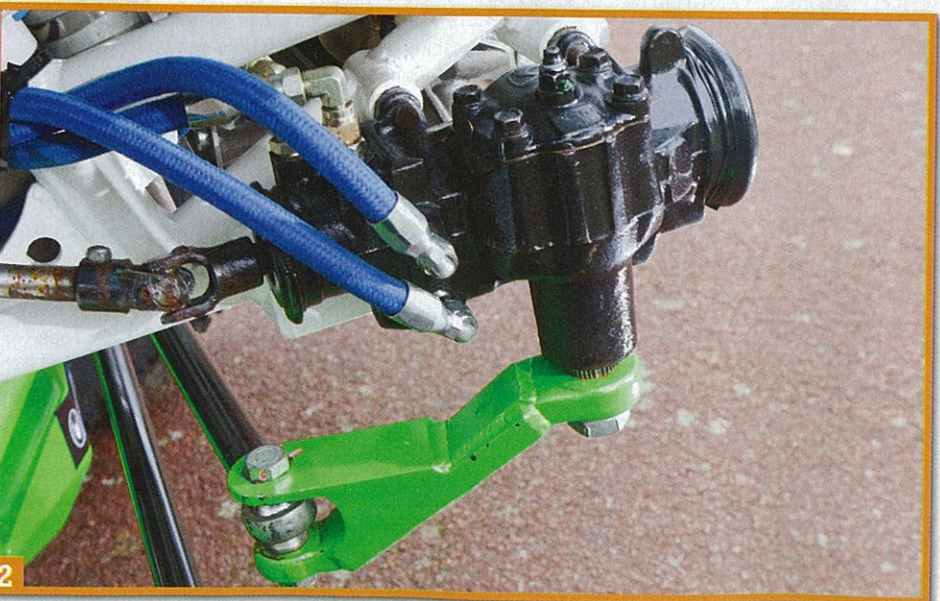
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Turning it is a 6.2-litre LS3 crate engine from GM Performance Parts, mated to an uprated 4L80-E auto box from the same manufacturer. Keeping with the American theme are the True High 9 diffs in the Spidertrax axles, though these contain lockers from Australia in the shape of two ARB RD99s. The axles themselves are tied to the frame using three-link front and four-link rear suspension set-ups, allowing the 37-inch Super Swamper Boggers on their ends to follow terrain about as uneven as it gets. When the tyre's limits are reached, each end features a Giggiepin GP84 twin-motor winch running 24-volt electrics provided by twin Optima Blue-Tops.

This kind of finishing touch, if you can call it that, went on back home in Chris' own workshop as the build progressed. All the same, 2010 saw the vehicle make several Channel crossings en route to and from D&G's premises until finally, with 2011 just a few days old, the last nut was torqued up, the last sticker applied and, about as momentous a moment as they get, the 60-plate licence number delivered by the DVLA.



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2



1 It's not famous for its strength in its original application, but a heavily modified Jeep Cherokee XJ steering box turned out to be the best way of turning those big Boggers. To agree with the way it's mounted, it needed to be an LHD unit; as you can see here, it's plumbed for hydro-assist, which is as good as you can get on a road-legal motor. Pressure comes from a Howe TC 1450psi steering pump, with the same company's reservoir containing a built-in filter

2 XJ PAS boxes are prone to failing on Cherokees as the way they're mounted isn't strong enough to cope with the stress fed back to them by outside tyres – anything bigger than a 31", and it's only a matter of time. The answer is to brace them to the chassis – and with the way this one's mounted, we don't see it going pop any time soon. So long as you can give it the strength it needs, the XJ box certainly does provide enough power to let you spin your tyres from lock to lock without needing arms like the Incredible Hulk, and that's before you add hydro-assist. Note also the fabricated drop pitman arm here, and the rose-jointed drag link

3 In keeping with the assistance to the Jeep PAS box, the steering damper is also hydraulic



3



1

The CAT's first event, at the very end of January, was the fearsome Scotia Extreme, a winch challenge designed to test the mettle of even the latest generation of super-trucks. You can read about the event itself elsewhere in this issue of TOR, but a final position of fifth overall constitutes a pretty successful shakedown by anybody's standards. And when you consider that the vehicle was built first and foremost for faster off-road disciplines like British Dirt, Breslau and Croatia, it sounds even better.



2

1 The Spidertrax axle at the rear is kept in place by a four-link system using two upper and two lower trailing arms with rose joints all-round. Providing the suspension is a mouth-watering set-up featuring 14" Radflo 2.5 triple bypass shocks and similarly sized 2.0 remote-reservoir dual-stage coil-overs from the same company. Radflo also provides the 3" 2.0 hydraulic bump-stops. Note also the hard-wall piping for the braided brake hoses, which run to four-pot AP calipers acting on over-sized solid discs, and see if you can spot a tailpipe which might qualify as the best-protected exhaust of all time

2 And here are those discs and calipers. Conventional wisdom has it that drilled and vented units are what you want, but burying a vehicle in mud isn't conventional – and once the vents are full of baked crud, they ain't going to be doing much venting. Much better to use solid discs that are big enough to let your calipers bite good and hard

3 Further control on the four-link rear is provided by this adjustable anti-roll bar from D&G Tuning. Note also the rose-jointed rod ends for the trailing arms, as well as the hydraulic bump stop and its striker plate on the axle

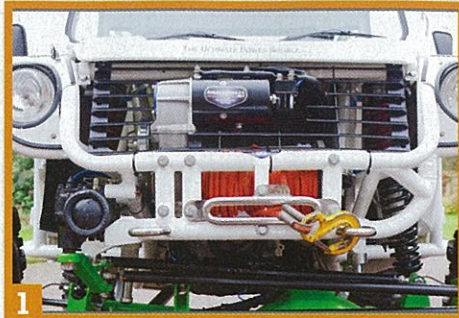
4 Another view of the rose-jointed D&G Tuning anti-roll bar and Radflo hydraulic bump stops on the rear axle. The stop's angle and the position of the rubber mark on the striker plate illustrates the arc through which the axle travels as it articulates



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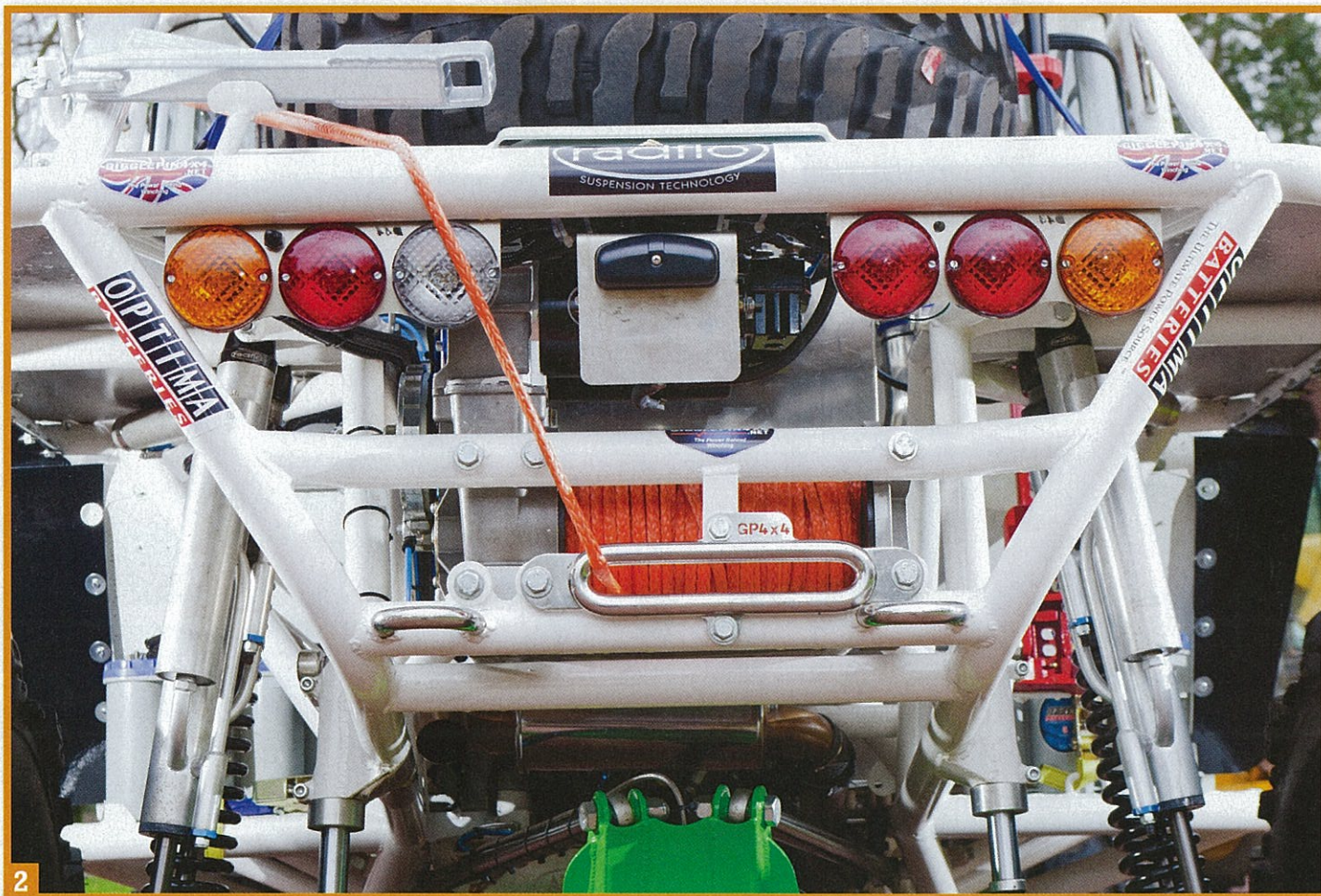


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1 Once you've finished drooling at what's under the bonnet, you might remark to yourself that Giggiepin's GP84 twin-motor is kind of the winch equivalent of the LS3. Strong, fast, dependable and looking at it makes you go weak at the knees. Powered by the 24-volt alternator through 12-volt motors, the front winch you see here has +60% gear ratios, making it faster than ever

2 This view of the back of the frame gives you an idea of how much strength has been built into it. With that twin-motor Giggiepin GP84, running a +40% gear ratio, doing its level best to haul the whole thing apart when the vehicle's stuck up to its belly in a clawing swamp, that's just as well



3 As the latest super-truck to hit the UK scene, you might be expecting the CAT to wear 40-plus inches of rubber. Like all good competition cars, however, it was designed with a specific size in mind, and that was a relatively sensible 37 inches. Perfectly ample, and certainly in proportion with the vehicle – and when you look at the 37x13.50x17 Super Swamper Boggers Chris went with, you're unlikely to see any untoward losses of traction looming on the horizon. The tyres are mounted on Staun TX1 rims using internal beadlocks

4 With the advantage of custom design, not to mention a huge set of tyres, approach angle is as good as 90 degrees. Note here the amount of bracing around the winch mount in the frame structure, an area where it's sure to be put under enormous stress. The tubular top mounts for the coil-overs can be seen here, too

5 Departure angle is none too shabby either. The very back of the frame does protrude a little beyond the tyres' trailing edge, but as overhangs go it's not what you'd call a hindrance – not least because the bodywork is so very high up above the ground

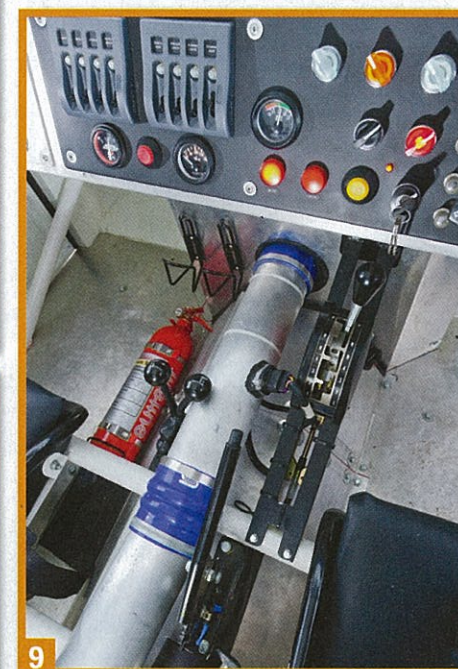
6 A fully fledged racecar cabin features Qt challenge buckets and OMP 4-point harnesses. The seats are on dedicated tubular frames, while the harnesses are attached to dimple-died plates as seen behind the co-driver in this picture

7 Twin Terratrips mean the navigator always has back-up in what is a critical area. The Sparco steering wheel is a quick-release item, while the windscreen is heated to combat the inevitable steaming-up

8 A Digidash screen display keeps the driver informed of whatever happens to be important at the time, be it road speed to keep the MOT man satisfied or oil pressure to ensure the engine's happy

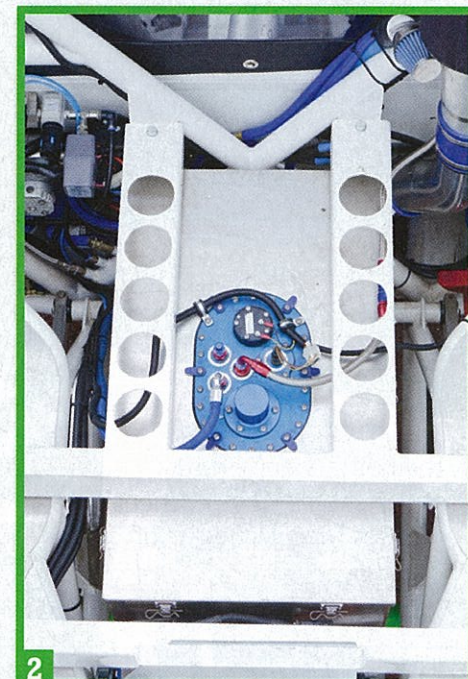
9 This is no ordinary dashboard. It's a custom unit from D&G, which as well as maintaining tidiness in an area which can all too easily descend into chaos has the enormous advantage of being waterproof

10 The auto box bolted to the back of the LS3 is a General Motors 4L80-E, as used on vehicles as diverse as the Chevy Silverado, Hummer H1 and Bentley Turbo R. Here, it's controlled by a Transgo Stage 3 manual shift kit operated from the cabin by an Art Carr shifter



Chris' Landy lookalike isn't the first super-truck to have featured in Total Off Road, and we very much hope that it won't be the last. As the pinnacle of the sport develops, the vehicles are getting more and more sophisticated – and the events are getting more and more extreme.

Where will it end? There's a question. For now, Chris Abel, ably assisted by some of the world's best off-road equipment suppliers, has delivered a very convincing answer.



1 The vehicle runs two separate air compressors, with a high-output 200psi Viair unit for quick tyre inflation. The same compressor operates the ARB Air-Lockers, though for this purpose it's regulated down to 160psi. The ARBs' own compressor, itself a high-output unit, operates the winches' air freespool, and provides a back-up for the Viair unit

2 Mounted just behind the cabin is a 100-litre ATL fuel cell with two internal pumps, the second providing back-up should the primary unit fail. For the sort of use this vehicle's going to get, the tank has been fitted with scavenging venturi in all four corners to help prevent fuel starvation at extreme angles

3 Those Blue-Top Optimas aren't mounted as an afterthought; their trays, and hoops for lashing them down, are neatly welded on to the floor of the voids under the rear arches that were left specifically with them in mind

