



# ALL SYSTEMS GO

We've been following the build of Off Road Armoury's Sgt Rock buggy all the way from when its chassis first took shape. Now it's into the final straight – and Rob Butler and his team have been making a massive last push to get it ready for action

**WHEN WE** started following Off Road Armoury's XTC buggy build, the vehicle's first competitive outing seemed a long way off. That was in our December issue, which by the nature of magazine publishing schedules was sent to the printer in early November – meaning the stuff we were writing about was happening in October. Almost half a year, then, before the first event in the All Wheel Drive Club's 2010 Extreme Time Challenge championship.

How time flies. It doesn't seem like very long ago at all that we were showing you the bare frame going together on its jig, but here we are at the sharp end of the project – with just a few weeks left and the ORA workshop going flat-out to get the vehicle finished in time.

With less than four weeks to go, Armoury guys Rob and Adam dedicated a whole day to getting the chassis finished off. 'It was becoming very apparent that we're running out of time fast!' says Rob. 'No time to dilly dally – all the little panels and brackets were buttoned up and the chassis was stripped bare for final welding, it's much easier and nicer to finish up all those niggly bits of welding when

you're not rolling on your back...' Working flat-out, the guys had the welding finished by about 11am. That left the rest of the day for blending and finishing – not that this meant they could put their feet up. 'Considering one of our bumpers alone takes a good couple of hours to grind and finish,' says Rob, 'this was a pretty mammoth task in itself!'

They're used to putting in the hours at ORA, though, and by seven that night the chassis was all ready for paint. Which it got, more or less straightaway. Three coats later, it was done... and 24 hours after that, with components like the engine and gearbox, steering, suspension, axles and body panels flying at it from all angles, it was beginning to look like a car again. Not your everyday car, obviously, but a very serious competition machine nonetheless.

All this, it should be said, is more than just a flight of folly on the part of Rob, who owns Off Road Armoury and will be driving the vehicle. As well as promoting the company, the XTC buggy is a test bed for a number of new components, most notably the T-8 axles it's been developing based on the unit from the Hi-Lux and 70-Series Land Cruiser. We can see these becoming

a very big deal among Suzuki and Toyota owners who want to build their trucks to the nth degree – if they stand up to the rigours of XTC competition, after all, they're going to be capable of just about anything.

At the time of writing, Rob was waiting for steering and brake hoses to arrive for the vehicle – which until that point won't go around corners, as its steering is fully hydraulic. Rear halfshafts were being machined and heat-treated, too, ready to be shipped out from supplier Milner Off Road – and then the buggy, christened Sgt Rock after the title of our first article on it way back when, will be ready to roll. It's taken a lot of work to get it to this stage... even if the first steps in the ORA workshop seem like hardly any time ago.

**1] The start of a very full-on day in the ORA workshop, as Rob and Adam rip into the chassis. The purpose here was to attach all the fiddly little tabs and brackets prior to final welding – which had all been done within a couple of hours**

**2] With the welding all done, it was time to start dressing the chassis. Cue lots of grinding, blending and finishing. Given that, as Rob says, one bumper requires two hours' grinding and polishing, it's doubly impressive that the whole chassis was ready for painting that same day**



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3] And here it is. With the welds fully cooled down and their noses wiped, Sgt Rock chassis number one stands proud in the ORA workshop. Note the rags wrapped around the axle stands in anticipation of the next step

4] It's now 14 hours since the welding began, and the chassis has just received its third coat of Satin Jet Black. 'I chose to paint the chassis,' says Rob, 'as, if I had forgotten to weld a tab on or needed to change something, powder coating would have been a waste of time and money. It's also easier to touch up when it gets scratched and bashed.' Which it will...



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5] The great thing about getting the preparation right is that when you come to assemble the finished parts, they fly together. This is the day after the chassis was finished and painted; here, the engine, gearbox and reverse-rotation transfer case are in and the steering and suspension are on their way

6] The suspension units and links have been reattached here – note the third link for the front axle hanging down between the two radius arms. In addition, the top half of the bulkhead is in place

7] Welding on all those tabs may have been a soul-destroying process, but they mean that within a matter of minutes, the body panels are in place. Suddenly, it's starting to look like a car...

8] With the seats and body panels bolted into place on the finished chassis, an essential part of the build process is to check that your crash hat looks cool enough

9] Since you last saw it, the front axle has had all the fabrication completed for its steering. The custom double-ended ram was mounted to ORA's T-8 casing using the same material that's used for all the buggy's suspension links – 1.75" CDS with a 0.25" wall thickness. The bottom of the mounting tube was covered with a single piece of 4mm steel sheet, all fully seam welded, for yet more strength



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10] The steering knuckles were gusseted to the axle tubes, using ORA's new Toyota knuckle gussets. These are also suitable for all live-axled Hi-Luxes as well as the 70-Series Land Cruiser, and are designed to address a weak point at which regular axles are prone to failing when driven really hard



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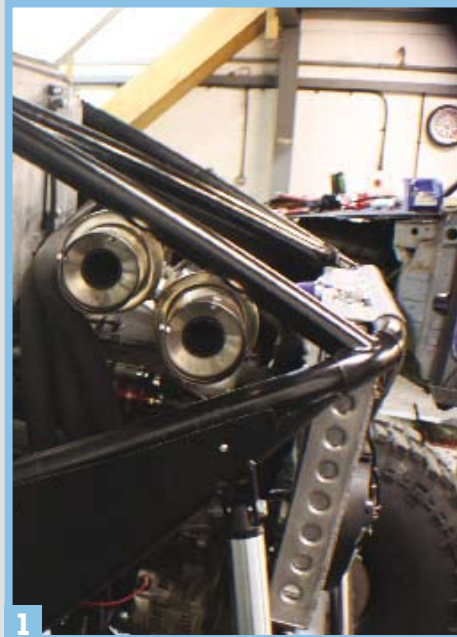
1] Both axles use Hi-Lux front stub axles, bearings, hubs and brake discs. In addition, Trail Gear Creeper Flanges have been installed on all four corners. Made from 4130 chromoly and promising far greater strength than factory units, these have a larger centre section offering more support for the splines, allowing them to match the level of ruggedness achieved by the heaviest-duty halfshafts

2] Front winch is a modified Warn 8274, built with a Giggiepin top housing, uprated main shaft kit, uprated Giggiepin clutch and two 6.5hp Warn motors. The Giggiepin conversion also provides a 40% gearing increase over the standard 8274, allowing for far faster pulls on a vehicle as light as this. Needless to say, it's spooled with synthetic rope, in this case 11mm Plasma

3] Inside, the centre console is a pretty busy place with levers for the gearbox and transfer case, a 500A marine-grade battery switch, controls for the Air-Lockers and a pair of CNC fiddle brake levers. The latter are fitted with ORA's custom dual handbrake, which Rob intends to offer for sale once it's been tested; this uses a Suzuki Jimny handbrake lever, mounted so as to turn the fiddles into a handbrake when it's pulled without preventing their individual operation

4] High up on the inside of the bulkhead, the ARB compressor is mounted as well out of harm's way as possible. The bow just below it houses the ECU for the 2.5-litre Suzuki V6, which is still running its factory engine management system

5] We'll leave this one to Rob: 'The window nets are being made by a friend of mine who works for Monsoon Soft Tops. She's doing a great job and just has the two front triangle nets left to make, which she'll be doing this coming Saturday. Cheers Vik, you're a star!'



1] Exhausts have all been fabricated in-house by ORA, using 8mm laser-profiled manifold plates which run into 1.75" tube throughout. That's three into one on each side, and out via a pair of what Rob refers to as 'so-called silencers.' Quiet, it ain't: 'You have to hear this thing run,' he says. 'It sounds like no challenge truck I've ever heard before – it's definitely a racer at heart!'

2] The hydraulic steering reservoir, which is mounted to the back of the bulkhead, is in fact a modified dry sump tank. This has a very large capacity, meaning there's no need for an extra oil cooler



3] Rob says that these are the 1.75" seamless, 0.25' wall suspension links when they came back from being powder coated, and that they all have ORA's stock M20 rose joints fitted to each end (left-hand at one end and right-hand at the other, for quick and easy suspension tuning), but we just think he's a bit too keen on black pudding

4] The radiator is a Universal Racing part custom-mounted to the rear chassis. When it's in place, the rear cowl also mounts a pair of 9" cooling fans

5] A tantalising glimpse – this is the closest we've yet come to seeing Sgt Rock in its finished form. There's a way to go yet – but it's very nearly a runner. By the time you read this, it'll have had its first competitive outing at the first round of the AWDC's XTC championship. You wouldn't bet much against it...