

PULLING POWER

Mark Jones spends his spare time in the high power world of tractor pulling. So it comes as no surprise that his IRB tuned Td5 90 is more than a little pokey
Words by Kev Mills. Photography by John Saunders





LAND ROVERS don't go fast. Well, that's what everyone will tell you, anyway. And in the grand automotive scheme of things they are right – it takes some serious muscle to get one to go much over 110mph, for instance – and with the amount of speed traps around these days there's a good argument for being happy and content with a good 70mph cruise.

So most people focus on improving the acceleration and pulling power. It doesn't matter if you drive a 1950 Series One or a brand new Range Rover, there will be a way of getting a bit more grunt and a company willing and able to carry out the work, or sell you a product that will do the trick.

Mark Jones is no stranger to tuned diesel engines. An HGV driver by trade, he can regale tales of tweaked 15-year-old ERFs outrunning brand new trucks, and his hobby is tractor pulling.

Tractor pulling, for the unaware, takes place on a 100-metre track,

and involves the machines pulling a weight transfer sledge. This sledge basically gets heavier to pull as it is hauled down the track. This is achieved by increasing the weight on the front of the sledge by moving a weight box from the rear to the front as it is pulled along. The winner of the competition is the machine that can pull the sledge the furthest before traction is lost. Dubbed 'the world's most powerful motorsport', some tractors have as much as 9,000bhp. Mark's own tractor isn't quite that extreme – a modified Fordson Major with a Ford truck engine, a highly tweaked injector pump and a giant turbo. It sounds awesome and when pulling hard produces a solid column of black smoke. "My 90 can do the same", laughs Mark. "Ian doesn't like it though!"

tuning time

The Ian in question is Ian Baughan of IRB Developments, and the man behind much of the modifications on



Above:
Mark Jones and girlfriend
Emma Millington.

Mark's Defender. "When I bought it, it was pretty much standard", Mark remembers. "I'd looked at one which had been tuned and modded already but I thought it was well overpriced. This one was owned by someone we knew and had been well looked after, so seemed like a safe bet."

This wasn't Mark's first Land Rover. "My first car was a VW Golf but my first Landy was a Series III. Then I built myself a 90, and then





➤ along came the Td5. I wanted to tune one up and it sort of snowballed, the modifying and search for power”, he laughs.

Mark started with an off-the-shelf tune from another performance company. “The trouble was it filled the ECU with lots of error codes. I messed around with it a bit before going to IRB. And I never looked back.”

The first visit to IRB was to sort the suspension out with some of Ian’s road-spec lowering springs. “I figured it would be something a bit different

Above:
Tubular manifold and big turbo stand out in the engine bay. Power estimated at 230bhp

Below:
Lowered springs and modified anti-roll bar keep the 90 in check and allow incredible road holding.

as everybody usually lifts Defenders, and lowering would also suit my driving style. While we were there Ian drove mine, said it wasn’t very quick and then took me out in one of the IRB Td5 90s and I was completely blown away – I said I wanted mine to go like that, and so away we went.”

turbo special

It’s taken a while to get to the 90’s current state of tune as “Mark keeps wanting more power”, laughs Ian.

Mark’s first tune had promised a massive 210bhp, but when tested on the dynamometer it just touched the 153bhp mark. “Ian asked if he could have a play”, remembers Mark. “Of course I happily said yes. There was a lot of trial and error but after four turbos, a lot of fuelling changes, a big intercooler and a brake upgrade it was going like a train – 65mph in third, 100 in forth, off the clock in top. Not bad for a Defender!”

Not bad at all, but there was more to come.

Ian’s remaps have been developed to cover most requirements. His Stage 2 conversion is known to transform the way the Td5 drives

and performs, taking the standard 122bhp/221lb/ft up to around 180bhp and 290lb/ft of torque. For those who want more, the turbo can be replaced with a variable geometry turbo. In simple terms, as the engine accelerates the geometry of the turbine housing changes, allowing an optimum aspect ratio within the turbo. This means there is no turbo lag and instant response, making the engine much more lively at lower revs. On a Td5 this makes a big difference.

one step beyond

Mark is currently running IRB’s Stage 3v remap. IRB don’t usually quote, or concentrate on all-out power, preferring to focus on making the Land Rover more driveable. With the Stage 3v, however, it is all about power and it seems to suit Mark and his driving style to the ground.

From the front, there is a full-size uprated intercooler which feeds the engine via a set of silicon hoses and a custom built VGT turbo. This is bolted to a recent IRB development – a tubular, stainless steel exhaust manifold.

“Warped exhaust manifolds are a





common problem on tuned Td5s", explains Ian. High exhaust gas temperatures are the enemy, and the new manifold will put an end to any problems in this department and, of course, there are performance bonuses as well due to the manifold's free flowing design. They are also prone to snapping studs, so Mark's has an IRB uprated stud kit.

So the mechanical parts look good and promise to do the business, but there is one more thing to consider; the small matter of boost.

engine to cough or misfire.

"On some Td5s this will put it into limp-home mode and log an air flow circuit fault on the ECU, leaving you with flat performance. So I developed the IRB Anti Limiter box, which addresses both issues."

Ian's box of tricks comes in two options – pre-set, for a safe and useable plug-and-play solution, or a fully adjustable unit, allowing you to tweak the settings on the move and achieve maximum performance. Guess which one Mark has gone for...

BAUGHAN IDENTITY



NO STRANGER to these pages, factory trained engineer Ian Baughan and his IRB Developments company have carved a reputation for quality engineering, workmanship and

products that do what they promise to. The performance brake kit (below) is his latest offering, as fitted to Mark's 90. Check out www.irbdevelopments.com

This turbo gives no lag and instant response

"A lot of tuned Td5s suffer from misfiring and air flow circuit faults", says Ian. "If a Td5's boost pressure is running at, say, 18-19psi, the MAP (manifold absolute pressure) sensor on the engine manifold tells the ECU that there is an over-boost fault and in turn cuts the fuelling. A lot of people buy 'boost boxes', which are pre-set and avoid this problem – and which are fine for mildly-tuned engines. But highly tuned engines will still misbehave – as you add more fuel, you need more air. The demand for air can trip the MAF (mass air flow) sensor which in turn causes the

It's a typical looking tuned Defender, this 90 of Mark's. Finished in Alveston Red – my favourite Td5 colour – it is set off with a set of Discovery 4 alloys shod with road tyres. And it's low. You don't realise how low until you park a standard Defender next to it. There's a few colour-keyed parts and extra stickers, but otherwise nothing too in-your-face.

Start the engine up and it sounds good. These five cylinder motors respond well to a sports exhaust, and Mark's came from Griffin Performance. "Top folks", says Mark. "I asked for a system to my own spec and they did a



SPEC LIST

BASE VEHICLE – 2002 Defender 90 TD5 County hardtop in Alveston Red. Bog standard.

THE NEW SPEC –

- IRB Developments hybrid, variable geometry turbo
- IRB tubular, stainless steel exhaust manifold
- IRB uprated silicone hoses
- IRB uprated intercooler
- IRB dual-channel limiter box
- IRB custom ECU remap
- Griffin 3" stainless exhaust system
- IRB-Alcon uprated brakes
- IRB road specification lowered springs
- IRB uprated anti roll bar mounts
- SVX spec headlights



Prod the throttle and it just goes – barking through the gears and flying through corners

great job.”

Out on the road the first impression is one of normality – at low revs and speeds, it drives as sweet as you like and behaves like, well, a very nice Defender behaves. Prod the throttle, however, and it just goes. Ian estimates it has about 230-240bhp and it sure feels it – mind you, Mark being behind the wheel helps. He keeps his foot planted on the throttle as the 90 barks through the gears and it flies around corners with real gusto. I feel myself holding onto the door handle a little tighter. In no time at all we are in top gear and the speedo needle is still going up. This thing is quick and the owner isn't scared of using it.

Fortunately it has the stopping power to match. Recently fitted to Mark's machine and representing several months' of hard work, the brakes are made to IRB's specification by Alcon – one of the world's leading manufacturers of specialist and performance brake systems.

The front calipers are massive six-pot affairs with 342mm discs. On the back axle are 110 brake calipers with new vented discs, all joined with updated brake lines. These are soon

to be changed to another IRB/Alcon design; a four-pot vented set up.

Even before this mod, they are powerful with a capital P; hugely impressive and I won't be surprised if Ian finds a market with all sorts of owners, from performance fans to those who work their Defenders hard towing and hauling.

Mark clearly loves his 90 but the story isn't over for him. "I reckon there is more to give and Ian has the knowledge and ability to get there. It'll mean re-engineering the mechanical parts but it should be well worth it. All I've got to do is save up!"

And Ian? "I keep telling him he'll break it but it seems to hold together. This is about as far as we can go on a Td5 without doing major reworking, but watch this space." **LRM**

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