Report: Stuart Johnston

Riding piggy-back on a

Gallardo

The Bugatti Veyron has met its match in this SA-tuned Lamborghini

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Pieter de Weerdt…
his passion is engine tuning.

EVER wondered what 1 000 kW feels like in a two-seater road car? I would imagine it's absolutely frightening. A Bugatti Veyron, the world's fastest production car, makes do with 750 kW, so what would another 250 kW bring to the party?

The opportunity to find out came from Pieter de Weerdt, the man who invented the so-called piggy-back chip that enables speed freaks and econo-misers alike to exploit modern engine management systems any which way they like. His Dastek Unichip is now sold in 57 countries throughout the world, through 600 agents, and having set up the business so thoroughly since the first chip was devised in his eastern Pretoria workshop 15 years ago, Pieter decided it was time to combine some fun with the daily slog.

After four years of scheming and fine-tuning the project, the 1 000 kW Lamborghini Gallardo twin-turbo was ready to be exposed to the media. Pieter is quoted in his latest Unichip brochure as saying that the car was built "with the express purpose of showcasing the possibilities" of the new Unichip Q device that should also realise that Pieter was a race driver of some note a decade or two ago, and his wife Gretha was overall champion in the highly competitive Golf GTI Challenge. So serious horsepower is in the De Weerdt genes, and his theory with the Gallardo twin-turbo was to "Go Large".

That hollow-toned turbo sound

I'll get to the nitty-gritty in a moment, but presumably you'll all want to know what it feels like to travel in what is definitely one of the world's fastest road cars. So here I am, strapped into the passenger seat next to De Weerdt, the engine has lit up and it sounds wild, but not *too* wild. It has that hollow-toned unsilenced turbo sound when it starts up, but there's a crackle to it that reminds me very much of an F40, the last "uncivilised" road-going Ferrari, built in the late-1980s.

That had eight cylinders though, and developed around 352 kW in standard twin-turbo, 3,0-litre form. The V10 Lambo develops 382 kW from 4 961 cm³ in stock, naturally-aspirated form, showing how far supercars have come in the last 20 years.

But for me, sitting alongside the power wizard, the big question is, how far and how fast are *we* about to go? The Dastek team has chosen the Mad Dog Raceway near Garankuwa to launch the Unichip Q-ship. It was once the airfield used by Lucas Mangope in the old days of Bophuthatswana, and there are some two kilometres-plus of wide runway, with plenty of run-off. A yellow drum has been positioned one kilometre from the start-line, allowing for plenty of braking room.

Pieter eases the car off the line, because he has already twisted some front driveshafts (illustrating CAR's oft-repeated warnings about the kind of problems that can be created by extracting more power without redesigning the whole package – Ed). The Gallardo is fitted with the e.gear paddle shift set-up, so there is no clutch pedal to manipulate. We roll along at around 3 000 r/min and then he gives it a boot-full, the V10 goes "WoooOOOP!" and the whole world starts reeling in beneath us. Second gear is much the same, this time simply "WOOOP". Third gear offers up a repeat of the soundtrack. Because the airstrip is so wide there is little visual reference to get an idea of speed, but the thrust in the small of my back is enormous, and if anything it increases with each succeeding up-shift.

Time between gearchanges at 8 000-plus r/min amazingly seems to be getting shorter and – if this is possible – way into the 250 zone the accelerative thrust is getting harder. I glance out the side window and realise I've never seen scenery scroll by so fast, it's as if my eyes are panning like a camera set on 1/60th of a second.

I look forwards and the strip seems narrower, and now Pieter paddle shifts to fifth, "WOOOP", and then sixth. Still no tapering-off in seat-back thrust, the same "WOOOP" up to red-line in sixth, and then it's time to back off, and the car brakes effortlessly down to walking pace.

How fast was that? A quick 330 km/h, faster than I have ever been on the green planet, and yet it all felt so, well, un-dramatic! "That's why I'm glad we went with the Gallardo, even though we considered Ferrari at one point. The big point about this car is its four-wheel drive, which makes transferring this sort of power to the tar realistic, and Ferrari doesn't make a four-wheel drive car," explains De Weerdt.

"There's just such an integrity about the whole car. I mean, there we were, going faster than a Formula One car goes at most tracks other than Indy, and we are on standard suspension, standard wheels and tyres, and, okay, ceramic brakes, but they are optional factory items too. "In development, I twisted a front driveshaft and so I disconnected the front diff and tried it with rear-wheel drive only, and I have to tell you it was undrivable."

Faster than a Formula One car

So how did this Pretoria motor mechanic (he was the youngest person to ever qualify as a mechanic in South Africa) get to where he is today? The answer is an amazing work ethic, instilled in him by his father Chris. "My father arrived here from Holland at the age of three, soon after the Depression, and with no money there was no choice but to go to work even though he was still a kid. He started out as a toilet cleaner in Grosvenor Motors' Rolls-Royce branch in Johannesburg.

"Then a factory representative out from England needed to use the loo, and when he emerged he went up to the manager, demanding to know who was responsible for cleaning the toilets. When told it was young Chris de Weerdt, this senior Rolls-Royce man said that Mr De Weerdt was the sort of person who should be working on Rolls-Royces, such was his attention to detail."

Thanks to its Unichip and those two giant turbos, Pieter's Gallardo makes over 1 000 kW on the dyno.

Chris de Weerdt duly qualified as a motor mechanic working on Rolls-Royces, and some years later ended up as president of the Motor Industries Federation! He now had the wherewithal to buy his own Rolls-Royce, which his son Pieter, newly qualified as a mechanic, modified by building a pulse-charging inlet manifold for it, enabling De Weerdt senior to nonchalantly blow off Opel Superbosses and the like from the traffic lights, while still pretending to be the epitome of Pretoria's quiet middle-aged gentry.

As for the Dastek thing, it happened because Pieter's passion was, and remains, engine tuning. "There's a big misnomer about the word 'tuning'. In Germany, it can mean anything from white facia dials and fender skirts to fully modified engines. But for me, you tune a piano by adjusting its keys. If you chop off its legs, that's modification. I have done my share of modifying, but tuning remains my first love. It's almost an obsession for me to the extent where I used to make my own emulsion tubes for carburettors on a lathe, to get the ultimate fuel mixtures.

"This was all fine, and then one day someone stole my favourite toy, the carburettor, replacing it with fuel injection. I got by for a while, manipulating airflow sensors and the ignition distributor, and then along came a friend with a BMW 525e, the one that only revved to 4 500 revs for so-called economy reasons. I took a quick drive and knew that the timing was too slow, but when I looked for the distributor advance mechanism it wasn't there. That's when I

De Weerdt used the services of 'bike drag racer Brad Anassis (right) to work the Gallardo up to Veyron-beating pace at Mad Dog Raceway.

knew I had to find a way to change things in the new cars' computer systems."

Pieter *did* find a way of improving the old 525e. He removed the gearbox and altered the ignition trigger point on the flywheel. And later he began to replace the factory ECUs with one programmed with his own settings for fuelling and ignition timing.

"But the trouble with this was that it was trial and error and you never really knew if the 'address' you were changing on the engine map was the right one. You may be achieving a different mixture, but that could be because you were changing the temperature compensation rather than the fuel map. So it was hit and miss, and added to this, in just one year in working on Volkswagens, the factory changed the look-up addresses of the various maps three times."

Then Pieter hit upon the idea of electronically, rather than mechanically, manipulating the signals that the ECU was receiving, and dispersing.

"The sensors located around the engine providing the ECU with signals are all fixed. So what our Unichip does is enable us to change the ignition and fuelling signals *before* they reach the factory ECU, which remains unaltered. We plumb the Unichip into the circuit leading either to or from the computer. We run the car at part throttle and full throttle opening in standard form on the dyno, and we experiment with various timing and fuelling settings. And when we reach the optimum safe settings, we push a button that burns those settings into the Unichip's memory. In this way we optimise the car for its environment. And it's completely reversible. Remove it and the car is back to standard."

Pieter is quick to point out that he is under no illusions that he knows any more about engine tuning than the good people from Bosch, or Mercedes-Benz for example. But because cars are mass-produced for such varying climatic conditions across the globe, not to mention varying driving styles, he and his Unichip dealers can often offer significant gains in either performance or economy.

And, of course, when an engine is modified for performance in the hard sense – cams, valves, cylinder heads or turbos – the Unichip can be used for appropriate re-tuning, as borne out by the 1 000 kW Gallardo. Yes, it still runs the stock factory ECU with all its attendant safety devices fully operational.

So what motivates Pieter de Weerdt to keep on going at it? "One thing I have a passion for is watches. It was a crisis point for me in a way when I walked into my favourite watch shop and realised that not only could I afford any watch in the place, but I could afford to buy the whole shop. It was a case of one day lying on my death bed and asking myself whether I should have played harder or worked harder. So yes, the Lambo is going to do a job for Dastek and Unichip, but it has been a bit of fun too."

MAKING OF A MEGACAR

Pieter de Weerdt makes no bones about the fact that the Bugatti Veyron (pictured) was the benchmark car for the Unichip Q Lamborghini Gallardo. To convincingly beat the Veyron's terrific mid-range acceleration he calculated he'd need about 1 000 kW and, in fact, the car has been dyno'd at slightly above that figure.

The engine uses two large turbochargers with air-to-air intercooling and extra fuel injectors to provide adequate fuelling for in excess of 1,0 bar boost. Special aftermarket pistons and connecting rods are used, but the crank and engine casings were left standard, De Weerdt remarking on just how strong the internals of the stock Gallardo are.

The external plumbing and design of the installation are credited to André Haupt, who did his apprenticeship at the family's Erasmusrand Motors, started by Pieter's father, Chris, and where Pieter also qualified as a mechanic. For high horsepower installations such as this, the intake runners had to be kept as short as possible, and the engine bay is substantially, but tastefully, modified and finished off with deft touches.

These include the fabricated high-capacity air-box, and the plumbing for the 10 extra injectors. The Unichip Q (along with special Unichip injector drivers) is employed to control the extra injectors too, and an additional Unichip Q was fitted to synchronise the Lamborghini e.gear electro-hydraulic clutch and gear shifting.

Bugatti's Veyron reaches 300 km/h in a claimed time of 16,2 seconds and takes around 13,7 seconds between 100 and 300 km/h. At the end of March, the Dastek team, including 'bike drag racer Brad Anassis, took the Gallardo to Mad Dog Raceway with the objective of breaking the 12-second barrier from 100 to 300 km/h. This was achieved thanks to an electrifying run in which De Weerdt reached the target speed in a time of 11,93 seconds – a figure which puts the likes of the Bugatti Veyron in the shade, and is about the same time a standard Gallardo takes to accelerate between 100 and 200 km/h. The twin-turbo version sprints between those two numbers in 4,3 seconds and reached 300 km/h in a further 7,63 seconds.

As for the zero-to-100 km/h run, that remains for another day, when the new strengthened driveshafts have proven themselves. CAR