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ROAD TESTS • HERITAGE • SPORT • TUNING • 7

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GT
UK



TWINCHARGED
GOLF GTI DRIVEN - 170 PS, 40+ MPG!



ROAD TEST: New Jetta
2.0 TDI



TUNED TDI: 274 bhp, 600 Nm
DieselPower Touareg



MODEL PROFILE: Mk 4 GTI
Anniversary

**THE DIESELPower MODULE
ENDOWS THE TOUAREG TDI
WITH AN EXTRA 49 BHP AND
100 NM OF TORQUE...!**



Despite being Mercedes tuning specialists, the Greve family have always run VW cars as well, with a Touran TDI serving as the family hack until it was recently replaced by the Touareg 3.0 TDI. Since the Touareg is very popular in the UK, it was only natural that this car should serve as the demonstrator for DieselPower UK, the company they founded for this purpose.

Having recently had a Touareg 3.0 TDI on test, our impressions of the factory standard car were still relatively fresh, enabling us to immediately recognise the improvement that the DieselPower module made.


Weighing in at 2,229 kg, the six-speed Tiptronic gearbox equipped Touareg is a heavy vehicle and needs every bit of help it can get to move it smartly off from rest. The DieselPower module endows the Touareg TDI with an extra 49 bhp and 100 Nm of torque, taking the big numbers to 274 bhp and an astounding 600 Nm.

According to DieselPower, this gives the Touareg the grunt to lop two whole seconds from its 0-60 mph time, with a

claimed 7.9 sec, while top speed goes up from 125 to 141 mph.

More important than raw numbers however, is the way the car feels on the road. The V6 TDI motor has a keener edge to it now and noticeably stronger thrust, even with as little as 1,200 rpm on the rev counter. But as the torque of the standard motor peaks at just 1,750 rpm, and the modified engine matches the standard peak torque figure by 1,500 rpm this comes as no real surprise.

The extra urge is most apparent when you come to overtake or simply want to regain your cruising speed quickly after being held up by slower traffic. That's when you realise that the mid-range thrust makes driving more effortless. While the tuned engine will use more fuel if you insist on flat-out motoring, in normal driving the superior torque allows you to 'throttle back', to the benefit of fuel economy.

We were very impressed by the DieselPower upgrade, and as H&N are one of the three best specialist diesel tuners in Germany, we can only wonder why they took so long to get here... 



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'THIS LUSTY TURBO-DIESEL IS SUFFICIENT TO SATISFY MOST PEOPLE, BUT – AS ALWAYS – THERE ARE THOSE WHO WANT MORE...'

possible situation – cold, warm, hot, low speed, high-speed, different throttle openings and so on,' said Michael.

While the module for the PD unit works by keeping the injectors open longer, with common rail systems like the VW 3.0 TDI, the signals from the module increase fuel pressure. The Bosch CDI – common-rail diesel – system used by Volkswagen operates under very high pressure, the latest generation running at 1,600 bar. When you tune a diesel, you need to get even more fuel in and that means increasing pressure, which puts more stress on the components. Specifically, you have to be very careful to avoid damaging the rail pump.

Some tuners use an in-line electronic box to increase the fuelling on a diesel engine. This is usually a device which simply adds say 20 per cent more fuel

across the whole working range. In comparison, the DieselPower module is a separate in-line computer which makes fine adjustments and calibrations to ensure that fuel quantity, pressure and duration are all optimised. 'We do raise the fuel pressure slightly, so you have more power immediately off idle,' Michael explained.

'But the trick is to put more fuel in and then back it off so that the emissions are not compromised,' he continued. 'For instance, we put in a lot of extra fuel from 2,200 rpm and then back it off again at 3,200 rpm, the point where the engine can't really use it and it would not burn fully, thereby causing high emissions.'

The arrival of digital control for diesel engines has made a huge difference to their power, emissions and economy. 'When the first common-rail units came

out they were largely analogue controlled,' Michael explained. 'Now they are fully digital and we are seeing the benefits all round.'

Importantly, DieselPower's module also has control functions for engine temperature. This means that if you are pulling a trailer, and overheat the engine, the ECU reverts to the standard factory programme in fail-safe mode. Some other add-on boxes don't do this and could push the engine into a dangerous overload situation.

DieselPower's presence on our shores is very recent and came about because, following several customer requests, the UK distributor for Danish Mercedes tuner, Kleemann, was looking for a reliable company to supply diesel tuning modules. Kleemann specialise in supercharging Mercedes V6 and V8 motors, but many customers wanted their turbo-diesel Mercedes uprated too. Kleemann UK's Steen Greve and his son, Sune, were recommended to H&N and approached them with the idea of extending their tuning business into diesel cars.

One of the most reputable companies in the business is H&N Electronics GmbH, who also work in the background for some of the big-name tuners. Based in Isny, near Abt's home town of Kempten in the Allgau region of Bavaria, H&N was founded by engineer Michael Hammerle and Steffen Nerlich.

Michael has a Diploma in motor engineering and worked for the German TÜV organisation before moving into the commercial sector as an engineer for a company specialising in motorhomes. 'In those days, diesel engines had purely mechanical systems and if a customer wanted more power, we had to add a turbo,' he said. 'As the technology advanced, Mercedes came out with engines using the Bosch VP37 in-line diesel pump, which was the first semi-electronic controlled system,' he continued. 'As BMW

and VW diesel motors evolved, I saw the makings of a potential big business, and in 1990 I left to set up my own company specialising in diesel tuning, with my friend Steffen Nerlich.'


With his background with the German TÜV organisation, Michael has never lost sight of the need to balance the extra power and torque with reliability and emissions. 'With little effort, we could get another 25 per cent more power out of the VW 3.0-litre V6 TDI motor, but then it wouldn't meet the EU4 regulations,' Michael told us. 'If you see black smoke coming from a modified diesel under acceleration, that engine will not meet emissions standards. You will never see that with one of our cars.'

Today, under the DieselPower trademark, their modules cover the full range of late-model VW/Audi diesel

motors and have the latest German TÜV and full EC E1 Approval certification for both common-rail and pompe duse motors. Internally, the modules are referred to as DIGI CR and DIGI PD.

H&N Electronics say they have sold more than 100,000 DieselPower modules over the years and offer a three-year warranty. Each module comes with a 'plug and play' wiring harness which interfaces perfectly with the factory connectors and can be removed leaving no trace.

In a diesel engine, everything revolves around fuel pressure. More fuel means more power, but it has to be regulated in the right way. 'We need information on engine speed, load and temperature and then we map out control data for every



**'ANY ENGINE WHICH CAN DELIVER HIGH PERFORMANCE,
EXCELLENT ECONOMY AND LOW EMISSIONS HAS GOT
TO BE GOOD NEWS...'**

**Ian Kuah drives
the Dieselpower
Touareg TDI, with
an extra 100 Nm
of torque...**

Torque-meister

Modified cars: DieselPower Touareg 3.0 TDI

JUST 10 YEARS AGO, no-one would have thought that diesel power would become the new option for sporting drivers. But times change, and as the artificially induced price of oil continues to spiral upwards, any engine which can deliver high performance, excellent economy and low emissions has got to be good news.

Along the way, many petrolheads who hitherto turned up their noses at oil burners have been suitably enlightened. And of course after Audi's recent Sebring and Le Mans 24 Hour wins, diesel fans are having the last laugh.

The reality, as any acceleration junkie will tell you, is that it's torque not horsepower which gives you acceleration, especially in the mid-range, a fact made abundantly clear by the 130 and 150 PS TDI engines in the Mk 4 Golf, which had

far superior mid-range performance compared with the petrol-powered GTI, not to mention an extra 10-15 mpg on average.

While the rapidly evolving turbo-diesel engine continued to score brownie points at the hatchback end of the market, the rise in popularity throughout the Nineties of big and heavy 4x4s prompted its application there too. Good relative economy, compared with the very thirsty big petrol engines in such vehicles, was the main reason, but the low-down lugging ability of the turbo-diesel made it a natural for buyers wanting performance as well.

The latest V6 and V8 TDI engines used by Volkswagen and Audi are astonishing for their power, torque, refinement and economy. But, as good as the stunning 4.2-litre TDI is, most will find that the 3.0-

litre V6 used in the Touareg and Phaeton, as well as the Audi A6, A8 and Q7 models, is more than adequate. With 225 PS and 500 Nm of torque, this lusty turbo-diesel is sufficient to satisfy most people, but – as always – there are those who want more...

While there are plenty of options for increasing power and torque, the question is who do you go to for your power hike? In Germany, while many prospective customers feel safest buying from one of the top-name tuners like Abt, MTM or Oettinger, others feel that they can get the same thing done for less by one of the independent chip tuners. However, the problem is that while there are many people who know how to change the electronic parameters, due to their lack of knowledge of engines, they can push the mechanical parts beyond their design limits.



