



VAGtech's HPA turbo conversion  
for the 3.2 DSG TT provides  
Porsche performance with  
everyday practicality



# Turbo TT





**'The team soon found a suitable demo car with this 3.2 DSG...'**

VAGTECH IS A company which will already be familiar to regular readers of our sister title *Volkswagen Driver*, primarily because of its work on turbocharger conversions for the VR6 engines. In particular, its 400 bhp turbo'd R32, featured in the August 2005 issue, has shown its awesome ability not only on track days and in quarter-mile drag-racing competitions, but also as reliable daily transport for VAGtech's founder Jon Watts.

A former IT specialist and self-trained technician with a penchant for high-tech engineering, Jon is now the UK agent for Canadian company HPA Motorsports. This is the operation which was commissioned by Volkswagen of America to produce the high-powered Jetta and Passat R-GT concept cars which made such a stir at last year's SEMA show in Las Vegas.

Working in conjunction with development partner HGP Engineering in Germany, HPA's speciality is a range of turbo conversions for the 2.8 and 3.2-litre narrow-angle V6 engines. These include the entry-level 360 PS direct-to-manifold kit, through 370, 400, 410 and 450 PS single turbo set-ups, culminating in a 550+ PS twin-turbo conversion. This made its debut in the

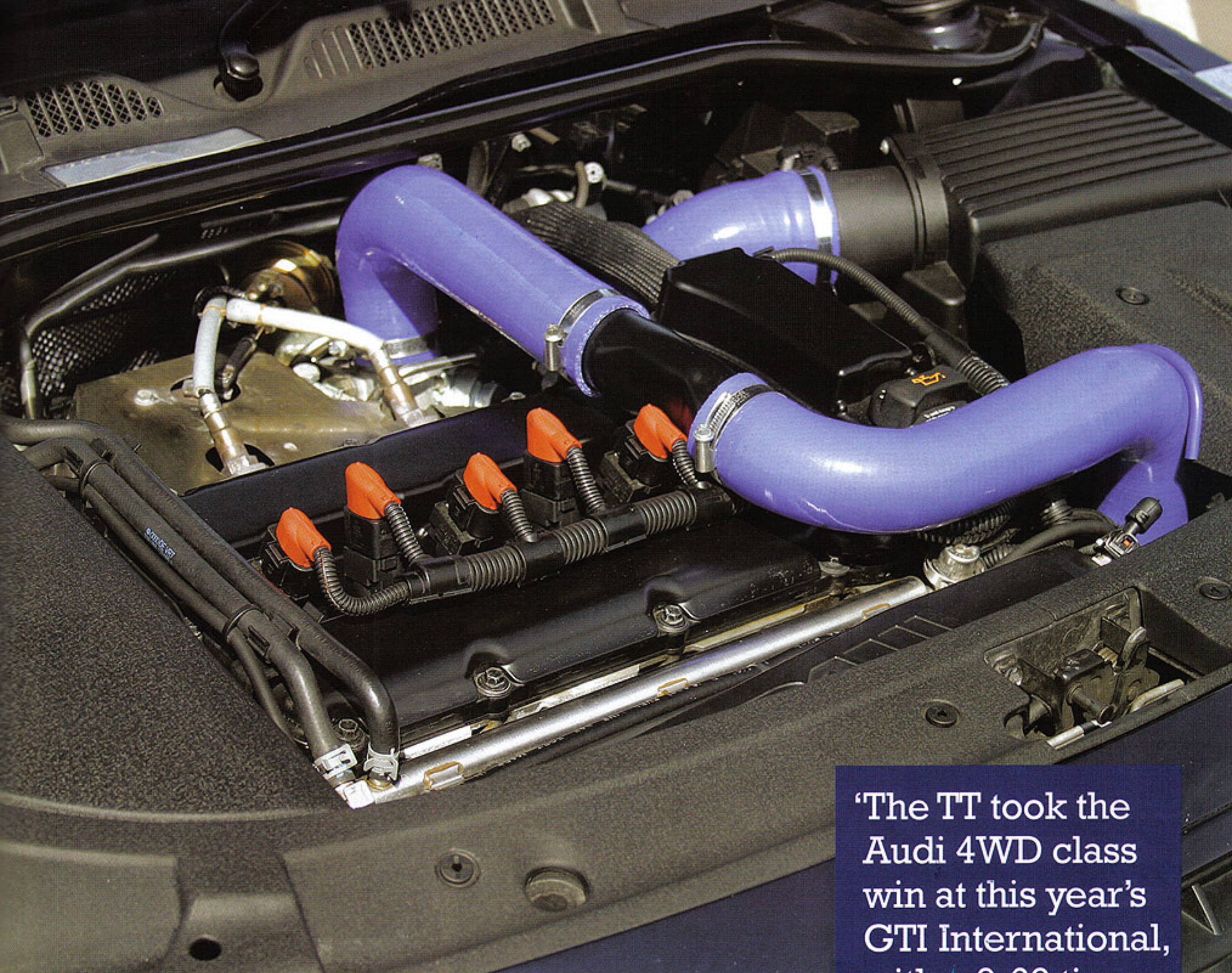
UK at this year's GTI International, installed in a Beetle RSi.

Of course, these conversions are also equally applicable to the 3.2 V6 in the TT, the model to which VAGtech has recently turned its attention. With the R32 project car sold on to make space in the workshop, the team soon found a suitable demo car with this 3.2 DSG. Purchased from a private owner in Broxbourne, near Ware in Hertfordshire, it was a well cared-for example with 29,500 miles on the clock, originally supplied by Charles Audi.

Now, a few thousand miles later, it has been transformed, with the HPA single-turbo (Garrett R30) FT400 kit. Used in conjunction with the larger competition-standard side-mounted intercooler, it now pumps out 399 PS at 6360 rpm and develops 486 Nm (360 lb.ft.) torque at 4865 rpm. These figures were recorded on the rolling-road at AmD Technik in Bicester,







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during a hot (36 degree ambient) and humid TT Forum rolling-road test day. At least 120 PS higher than any other car which was measured that day, it shows just how accomplished this conversion is. Almost certainly, in cooler and more conducive conditions, the turbo TT would easily return figures well into 400 PS territory.

Although there are other turbo conversions available for the V6 engine, including some which are simple bolt-ons, the HPA kits all require the use of

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a head spacer plate to reduce the static compression ratio from the standard 11.3 to 8.5:1. Although removing the cylinder head inevitably entails a lot more work during installation, VAGtech consider this essential for the long-term health of the engine. Developing up to 1 bar (14 psi) of boost, the HPA conversions have been tested in extremely arduous conditions in the deserts of America and have proved very effective and reliable in the long term. Also highly recommended are a set of race-grade connecting rod bearings and high-tensile bolts, to upgrade the only weak link of the V6 engine.

Worth noting, too, is that the HPA turbo conversion is specifically tailored for use in conjunction with the DSG gearbox, with a different turbo actuator used to provide more progressive boost characteristics. Not only does it ensure that the transmission reacts more effectively, but it also results in a very tractable and driveable power delivery. The HPA turbo'd TT will trickle along quite tamely at low speeds, without

any hint of temperament, the extra power being delivered smoothly and progressively as the boost builds up at higher engine speeds.

There's absolutely no hint of turbo lag, and on full throttle it reacts with astounding efficiency, with a massive surge of linear acceleration which can consistently carry the TT to easy low 12-second quarter-mile times, the kind of territory normally reserved for supercars like the Porsche GT3.

Indeed, driven by VAGtech's Greig Brookes, the TT took the Audi 4WD class win at this year's GTI International, with a 0-60 time of 3.9 seconds and an elapsed time of 12.2. It has also run at Santa Pod, clocking consistent times around the 12.6-second mark, but here the





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problem is matching the timing of the launch control program with the progressive operation of the staging lights.


Surprisingly, the rest of the specification of the car is quite modest, even retaining the standard brakes for the time being. VAGtech had previously equipped its R32 with monstrous 358 and 305 mm ECS brakes, but subsequently experienced problems with cracks appearing around the drilled holes. Although the standard brakes perform very well, an ECP/Ate big-brake kit, with 326 x 30 mm diameter front discs and 4-pot callipers will be the preferred option for the TT in the very near future.

Like the R32, though, the TT is also fitted with a KW suspension kit, the fully-adjustable Variant 3 set-up which lowers the car by around 40 mm, as well as Forge Motorsport adjustable rear tie-bars, an HPA heavy-duty polyurethane dog-bone transmission mount, and a Haldex competition controller. This enhances the torque transfer to the rear axle under hard acceleration and cornering and transforms the characteristics of the car, producing more rearward bias and making it more agile, while also keeping the rear axle fully engaged under braking.



The wheels are from the TT quattro Sport, but VAGtech uses the 8.0 x 18-inch rims both front and rear, with 10 mm spacers on the rear rather than fit the 8.5-inch rims. Although the car came equipped with Michelin Pilot Sports, an excellent tyre for all-round road use, VAGtech has swapped these for 225/40 ZR 18 Yokohama AVS, preferable for uncompromising high-performance use and offering optimum grip for track days and quarter-mile competition.



But for all its prodigious performance potential, the most impressive thing about this conversion is how civilised it can be in normal road use. Expertly engineered, providing a well-mannered and progressive power delivery, the VAGtech TT is the epitome of a perfect performance car – effortless to drive on an everyday basis, but also astonishingly quick and responsive when required. In combination with its suspension and brake upgrades, it provides the kind of awesome driving experience you'd normally only achieve with a much more expensive product from Stuttgart. 

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