



VW Golf MKV 1.9 TDi 103bhp

The proven 4 cylinder 1.9 TDi engine has come through the generations from running high pressure VM pumps to VW's patented PD (Pump Deuse) system. The PD engine brought new levels of refinement and economy to the VW range and was used right up until the MKVI Golf, at which point common rail has taken over due to ever stringent emission regulations.

The 1.9TDi PD engine was used in earlier generations to generate outputs from 100bhp right up to 160bhp in the Ibiza Cupra R. The internals were identical; it was a simple case of Turbo, Injectors and software alterations to provide the variations. The principal behind it is to design a modular engine which keeps costs down and benefits economies of scale. The 1.9 TDi 103bhp engine in the MKV Golf (and VAG range) is very much detuned through a series of limiters. It is these limiters which are the source of impressive power gains and all whilst maintaining maximum reliability. As with all VW TDi engines, the standard power output is higher than the acclaimed figures, the 103bhp managed 116bhp and 203lbft torque, up 13bhp and 19lbft from manufacturers figures.

Our modified software takes this engine up to 164bhp and 278lbft, an increase of 48bhp and 75lbft which provides for massive improvements in performance. The power increase is well within tolerances when you consider that these exact internals manage 160bhp standard in the Ibiza. The 103bhp variant utilises a Borg & Warner KKK turbo which, unlike its competition from Garrett, isn't particularly robust to large boost pressure gains. The power at 164bhp is therefore obtained using a mere 0.1 bar of boost, equating to only 1.47 Psi, which is well within tolerance and ensures maintained longevity.

On the road the transformation is unreal, with 0-60mph times reduced by 2.1 seconds and 0-100mph reduced by 10.4 seconds clearing it in just 23.1 seconds! (See chart for all stats). On the road the original took 1050metres to reach 100mph, modified this was reduced to just 700 metres.

The 1.9 TDi 103bhp is fitted to the entire VAG range and can benefit from this upgrade. There are a few variations of engine and ECU for the 103bhp which means that power can rise as high as 172bhp on certain variants, all within the same tolerances. The MPG figures were showing an average improvement of 4mpg on tests, testament to the clean emissions and linear torque the engine now produces.

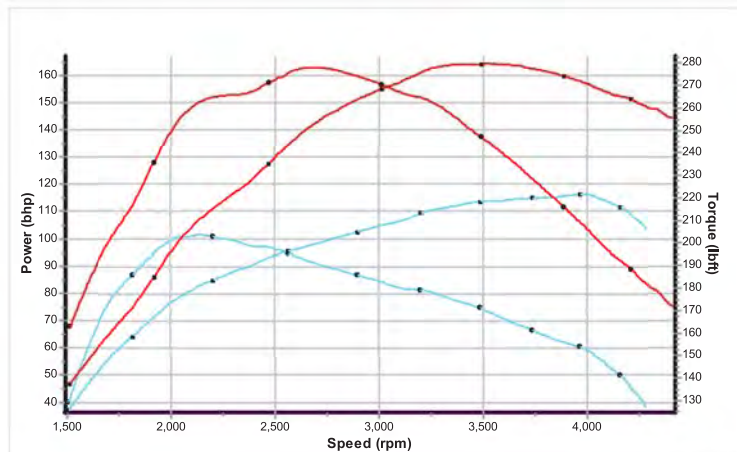
Speed in MPH	0-30	0-40	0-50	0-60	0-70	0-80	0-90	0-100
Original time in secs	3.7	5.3	7.8	10.0	13.9	18.2	24.3	33.5
Modified time in secs	3.0	4.4	6.1	7.9	11.0	14.4	18.0	23.1
Improvement (s) in secs	-0.7	-0.9	-1.7	-2.1	-2.9	-3.8	-6.3	-10.4

RUN NO 1

Maximum Power - Wheels	82.5 bhp @ 3,276 rpm	Correction Factor	103.2 %
Maximum Power - Engine	116.2 bhp @ 3,967 rpm	Environment Temperature	10.7 °C
Maximum Torque	203.5 lbft @ 2,141 rpm	Barometric Pressure	967 mBar

RUN NO 2

Maximum Power - Wheels	137.5 bhp @ 3,271 rpm	Correction Factor	103.2 %
Maximum Power - Engine	164.1 bhp @ 3,551 rpm	Environment Temperature	10.9 °C
Maximum Torque	277.9 lbft @ 2,670 rpm	Barometric Pressure	967 mBar



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Tel: (01726) 892873
 Email: enquiries@celtictuning.co.uk
 Website: www.celtictuning.co.uk

Celtic Tuning
 www.celtictuning.co.uk

Celtic Tuning, Unit 3 Victoria Trading Est. Victoria Business Park, Roche, St Austell, Cornwall PL26 8LX

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