

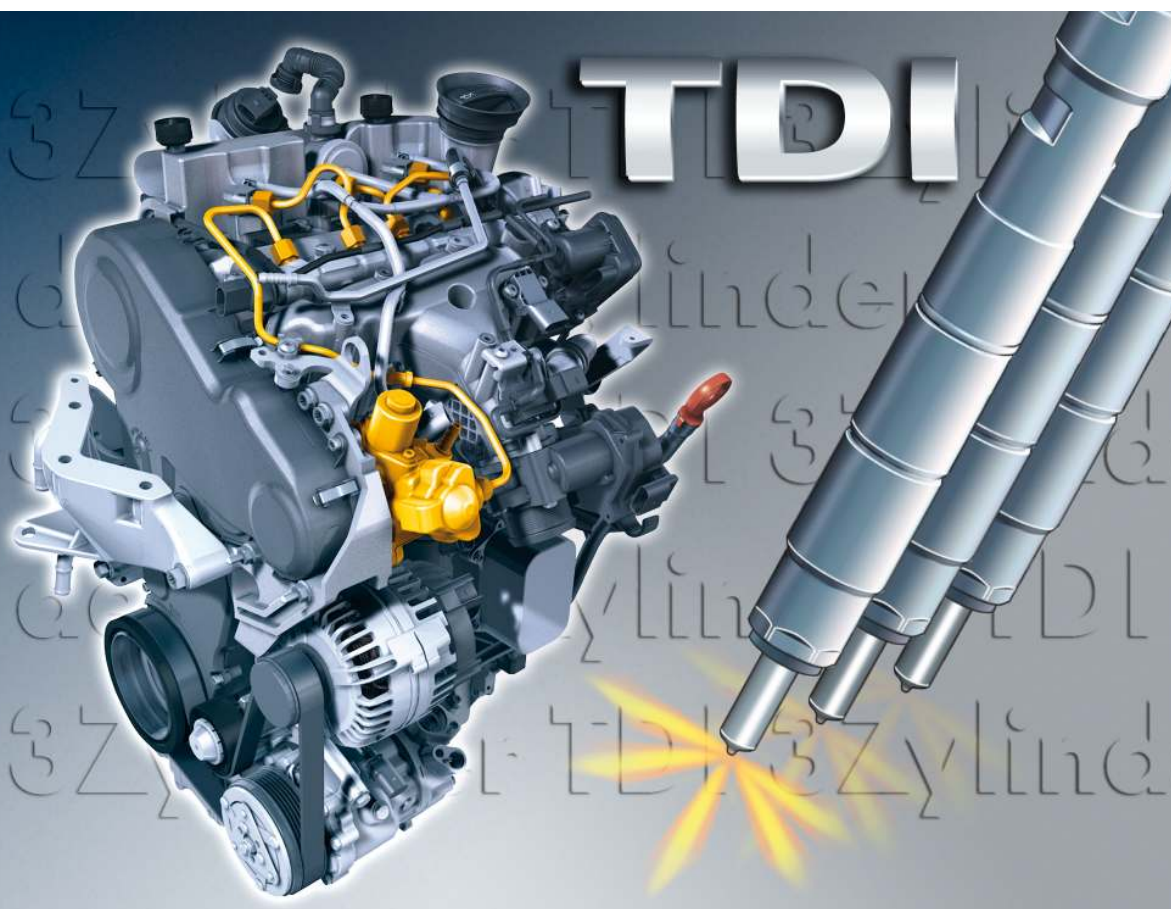
Service Training



Self-study Programme 465

The 1.2l 3-cylinder TDI engine with common rail fuel injection system

Design and Function





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Reduced to the maximum

The 1.2l TDI engine with common rail injection system has joined the new generation of efficient, economic and dynamic diesel engines from Volkswagen.

This new three-cylinder diesel engine was developed on the basis of the 1.6l TDI four-cylinder diesel engine introduced in early 2009 and replaces the successful 1.4l TDI engine with unit injector system.

The new 1.2l TDI engine not only meets the growing demand for dynamics and comfort in an ideal way, it also boasts extremely low consumption and pollutant emissions.

Thanks to this engine, the Polo Blue Motion scores top marks with a minimal fuel consumption of 3.3l/100km and CO₂ emissions of 87g/km.

**The self-study programme portrays the design and function of new developments.
The contents will not be updated.**

For current testing, adjustment and repair instructions, refer to the relevant service literature.



**Important
Note**



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Introduction



1.2l 55kW TDI engine

A new 3-cylinder engine has been developed in the form of the 1.2l 55kW TDI engine. It is based on the 1.6l TDI engine introduced at the beginning of 2009.

This engine design is a prime example of “down-sizing”.

Down-sizing refers to a reduction in the displacement of an engine without changing the output or the torque. The displacement can be reduced by reducing the displacement of each cylinder, reducing the number of cylinders or a combination of both. This reduces the weight and the internal friction of the engine and thus the fuel consumption.

In the case of the 1.2l TDI CR engine, the number of cylinders has been reduced from 4 to 3 compared with the 1.6l TDI CR engine while the cylinder displacement is unchanged.

In addition to the weight and friction-reducing measures, this engine is equipped with a new common rail injection system that contributes to reducing harmful emissions by using a high maximum injection pressure and precise control.

Thanks to the new 1.2l 55kW TDI engine and further measures like aerodynamic modifications to the front, sides, floor and rear end, the start/stop system and low rolling resistance tires mounted on alloy rims, the Polo Blue Motion scores top marks with a low fuel consumption of 3.3l/100km and CO₂ emissions of 87g/km.



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The design and function of the 1.6l TDI engine are described in self-study programme no. 442 “1.6ltr. TDI engine with common rail injection system”.

Technical features

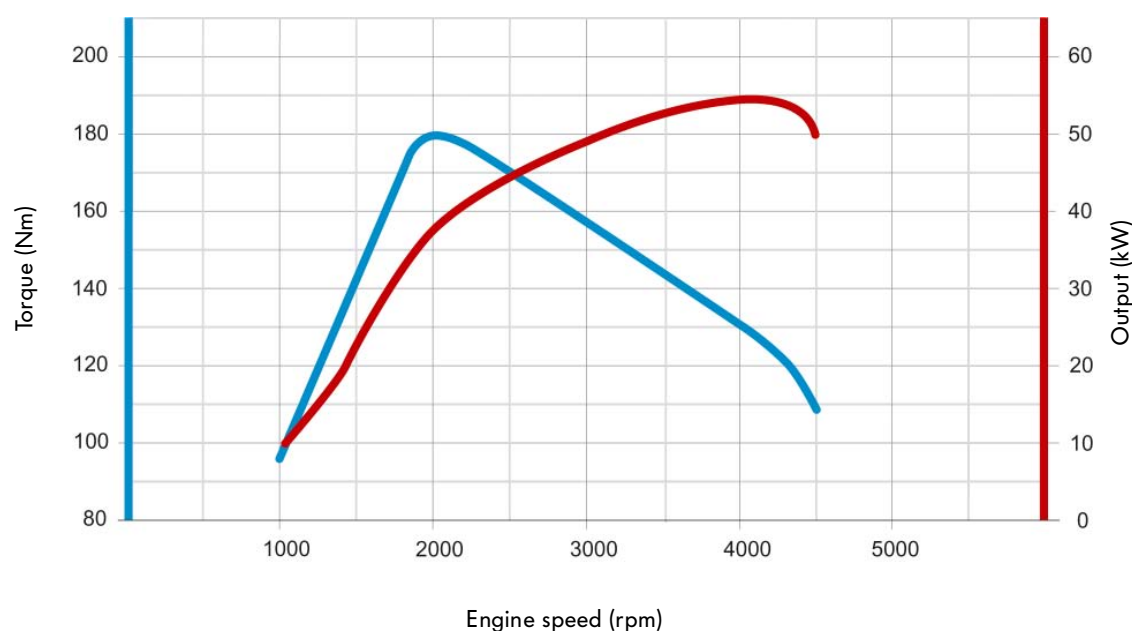
- Common rail fuel injection system with solenoid valve-controlled injectors
- Adjustable turbocharger
- Exhaust gas recirculation module consisting of an exhaust gas recirculation valve and switchable exhaust gas recirculation cooler
- Oxidising catalytic converter
- Balancer shaft module



Technical data

Engine code	CFWA
Type	3-cylinder in-line engine
Displacement	1,199cm ³
Bore	79.5mm
Stroke	80.5mm
Valves per cylinder	4
Compression ratio	16.5 : 1
Maximum output	55kW at 4,200rpm
Maximum torque	180Nm at 2,000rpm
Engine management	Delphi DCM 3.7
Fuel	Diesel complying with DIN EN590
Exhaust gas treatment	Exhaust gas recirculation, oxidising catalytic converter, diesel particulate filter
Emissions standard	EU5

Output and torque graph



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