



Drive

Engine block and crankshaft drive

The engine block was re-engineered to accommodate the increase in power output and torque.

- Changes

The Design of the engine block was optimized while simultaneously achieving a reduction in weight.

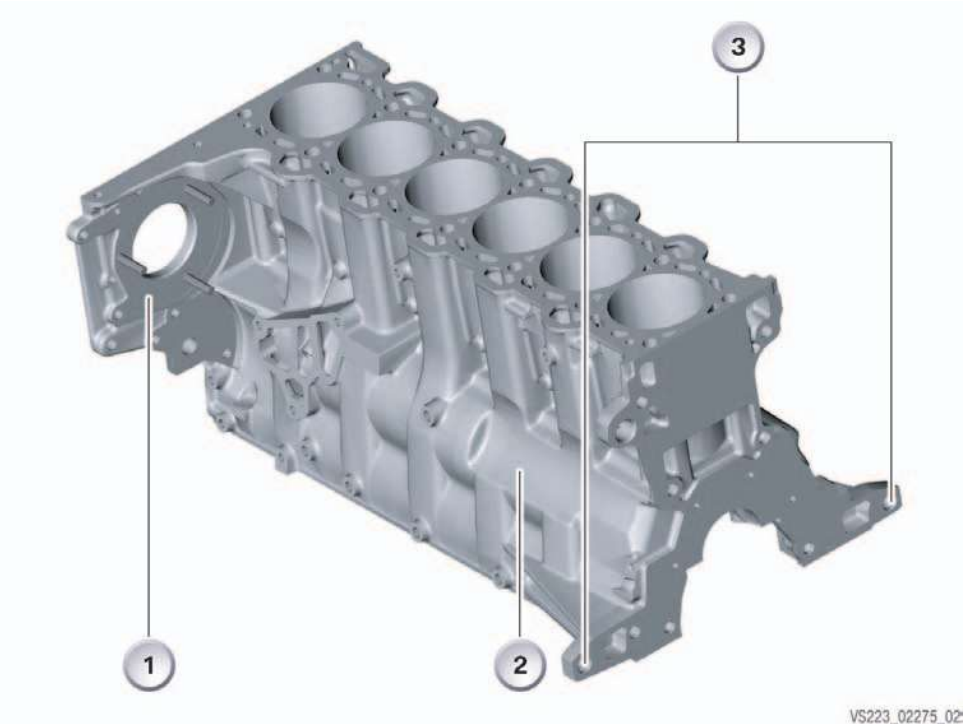
The dimensions of the pistons, connecting rods and crankshaft were changed in line with the increase in displacement and load.



Drive

- Engine block

Design



KT-10826

VS223_02275_02

Fig. 3: Engine block

Index	Explanation
1	Injection pump flange
2	Engine block
3	Gearbox flange

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M57TU Engine

Background Material

Chapter 2 P.3



Drive

The structural shape of the engine block was optimized (material: grey cast iron GG25+), thus increasing the strength at the thrust bearing and reducing the weight by 5.5 kg (10%).

The crankshaft bearing cap bolts have a higher strength rating in line with the increased engine output.

The gearbox flange was adapted to the automatic gearbox 6HP26.

The size of the bolts for securing the engine mounting bracket was changed to M10 (M57 = M8).

The geometry of the injection pump flange was changed in order to accept the new common rail pump.

- Crankshaft

The crankshaft stroke was extended from 88 mm (M57) to 90 mm (M57TU).

Crankshaft sensor (KWG)

The crankshaft sensor CSWS (Common Seal With Sensor) is located at the rear end cover of the crankshaft and was adopted from the M47TU.

The crankshaft seal is also located in the rear end cover of the crankshaft.



Drive



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VS223_02277_02

Fig. 4: Position of crankshaft sensor

Index	Explanation
1	Crankshaft sensor (KWG)
2	Core plug
3	Sensor wheel
4	Gearbox cover
5	Rear end cover



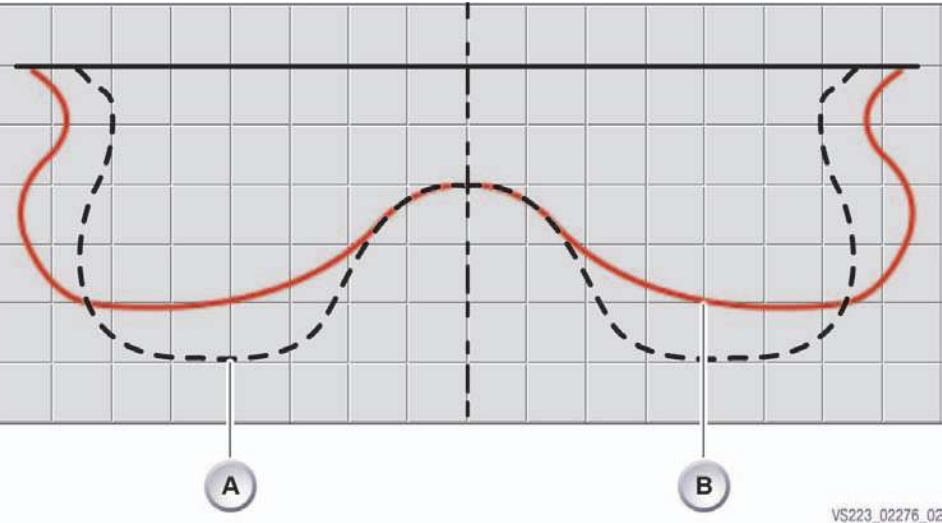
Drive

- Connecting rods

The gauge of the connecting rods was lengthened from 135 mm (M57) to 136 mm (M57TU). The stem is thicker due to the increased ignition pressure.

- Pistons

The pistons feature a modified bowl geometry (common part with M47TU). The geometry of the piston crown bowl was designed to suit the changed injection pressure.



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Fig. 5: Piston crown bowl

Index	Explanation
A	M57
B	M57TU

The bearings for the piston pins feature press-fitted brass sleeves to increase the load bearing capacity.