

Technical documentation

M57TU Engine

Technical status:

September 2002

M57TU Engine

Background Material



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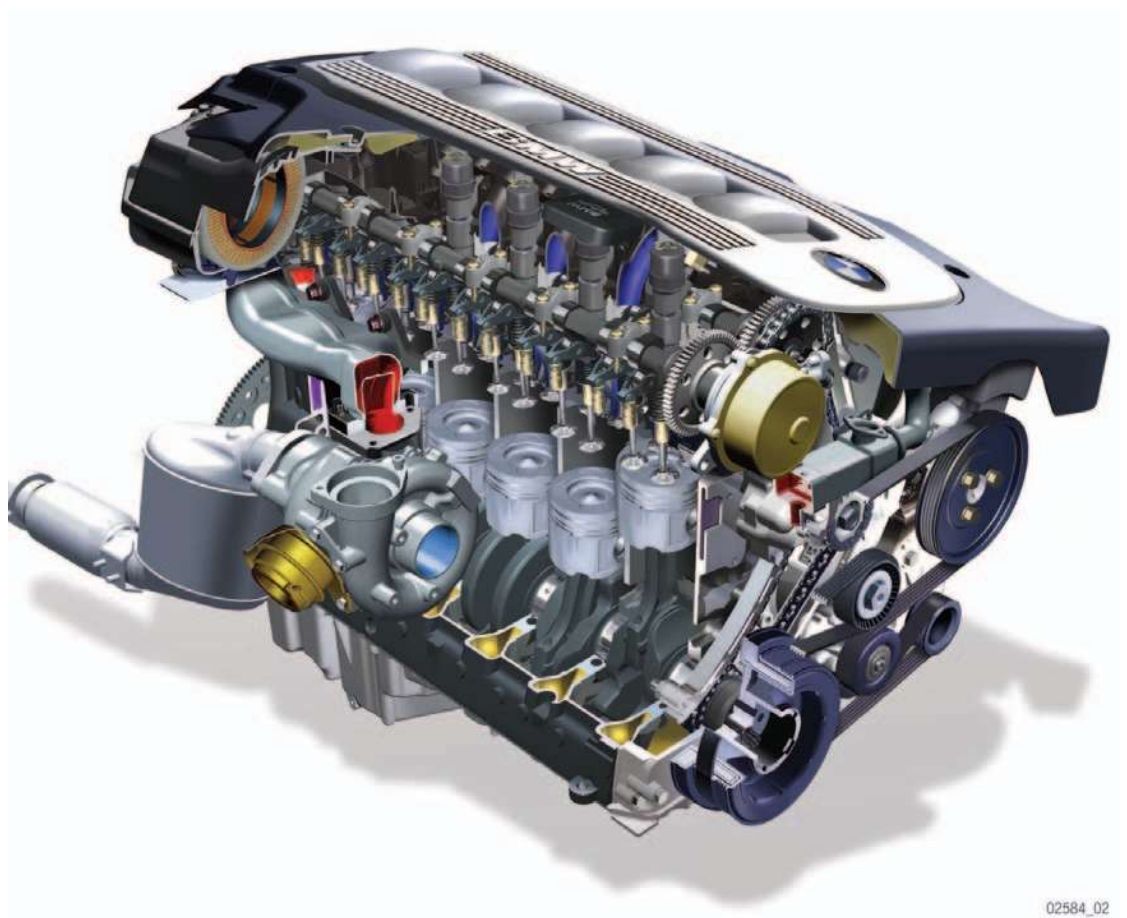


Drive

Introduction

The M57D30TU engine (technical update) is a further development of the M57D30 EU3 engine.

This publication describes all changes and new features of the M57D30TU compared to the previous M57D30 EU3 engine.



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Fig. 1: Sectional view M57TU



Drive

- Changes

The engine was optimized in the following areas:

- 2nd generation 1600 bar common rail (as on the M47TU).
- Digital diesel electronics DDE506/508.
- Preheating system (as on the M47TU).
- Displacement increased from 2903 cm³ to 2993 cm³.
- Re-engineered combustion chamber geometry.
- Weight-optimized crankcase.
- Air gap insulated exhaust manifold.
- Turbocharger with improved efficiency.
- Optimized oil filter system.

- Advantages

The new features and modifications offer the following advantages:

- Increased dynamics in the form of higher power output and torque.
- Longer maintenance intervals thanks to improved oil filter system and lower soiling susceptibility due to optimized combustion.
- Reduced fuel consumption.
- Weight reduction from 222 kg to 213 kg.
- Improved noise and vibration comfort through optimized combustion.
- Increased operating convenience provided by optimized preheating system, automatic start function and graduated cruise control.

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Drive

- Technical data

Technical data	M57D30	M57D30TU
Configuration/V-angle	6-cylinder in-line engine	6-cylinder in-line engine
Displacement (cm ³)	2903	2993
Stroke/bore (mm)	88.0/84.0	90.0/84.0
Output (kW/bhp) at engine speed (rpm)	142/184 4000	160/218 4000
Torque (Nm) at engine speed (rpm)	410 1750	500 2000
Cut-off speed (rpm)	From 4000 to 4800	From 4000 to 4800
Compression ratio	1 : 18	1 : 17
Valves/cylinders	4	4
Digital motor electronics	DDE4	DDE5
Complies with exhaust emission regulation - Germany Rest of world	EU3 EU3	EU3 (from 03/04 EU4) EU3 (from 03/04 EU4)
Exhaust gas treatment	Oxidation catalytic converter	Oxidation catalytic converter
Engine weight (kg)	222	213



Drive

- Full load diagram

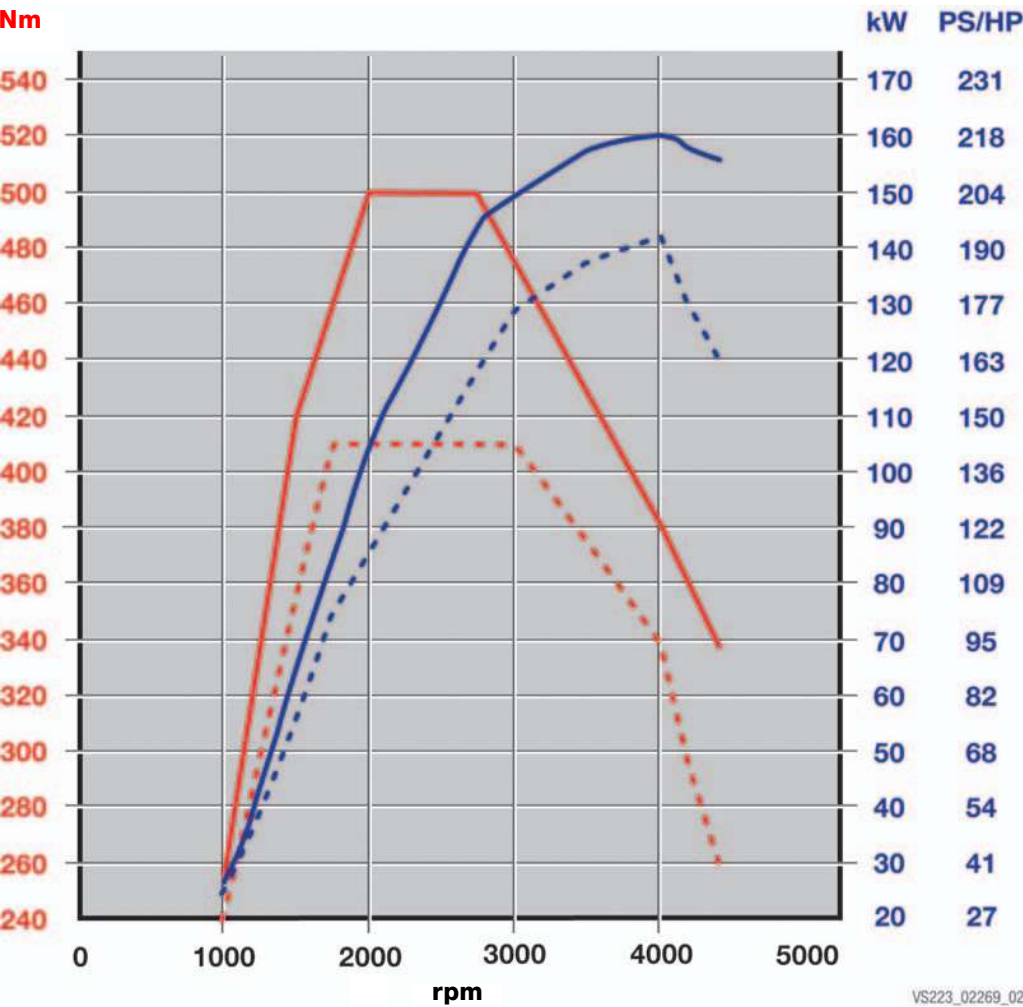


Fig. 2: Full load diagram M57 and M57TU

Index	Explanation
Dashed lines	M57
Continuous lines	M57TU

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Drive

- Reference to existing documents

The components and functions used to date are described in the following technical vehicle documentation:

M57 EU3 seminar working material, M57/M67 Common Rail

M47D20TU, Engine mechanical systems