

**Haynes**
shows you how**BMW 3-Series and Z4 (99-05) Includes 2006 325ci/330ci Coupe and Convertible models Haynes Online Manual.**

Specifications

General

Engine code

M52 TU B25	152 cu. In. (2494 cc)
M52 TU B28	170 cu. In. (2793 cc)
M54 B25	152 cu. In. (2494 cc)
M54 B30	182 cu. In. (2979 cc)
M56 B25	152 cu. In. (2494 cc)

Direction of engine rotation

Clockwise (viewed from front of vehicle)

No 1 cylinder location

Timing chain end

Firing order

1-5-3-6-2-4

Minimum compression pressure

142 to 156 psi (10.0 to 11.0 bar)

Cylinder head warpage limit

0.002 inch (0.050 mm)

Camshafts

Endplay

0.006 to 0.013 inch (0.150 to 0.330 mm)

Lubrication system

Oil pump rotor clearances

Outer rotor to pump body	0.004 to 0.007 inch (0.100 to 0.176 mm)
Inner rotor endplay	0.001 to 0.003 inch (0.030 to 0.080 mm)
Outer rotor endplay	0.002 to 0.004 inch (0.040 to 0.090 mm)

Ft-lbs (unless otherwise indicated) Nm

Torque specifications

Note:

One foot-pound (ft-lb) of torque is equivalent to 12 inch-pounds (in-lbs) of torque. Torque values below approximately 15 foot-pounds are expressed in inch-pounds, because most foot-pound torque wrenches are not accurate at these smaller values.

Camshaft bearing cap nuts	124 in-lbs	14
Camshaft screw-in pins		
Step 1	44 in-lbs	5
Step 2	15	20
Camshaft sprocket nuts		
Step 1	44 in-lbs	5
Step 2	89 in-lbs	10
Camshaft set-screw (left-hand thread)	89 in-lbs	10
Chain tensioner cover plug	30	40
Chain tensioner plunger cylinder	52	70
Chain guide (secondary, lower) Torx bolts	89 in-lbs	10
Crankshaft rear oil seal housing bolts		
M6 bolts	89 in-lbs	10
M8 bolts	16	22
Crankshaft vibration damper/pulley-to-hub bolts	16	22
Crankshaft vibration damper/pulley hub bolt*	303	410
Crossmember-to-chassis bolts*		
Grade 8.8	57	77
Grade 10.9	81	110
Grade 12.9	77	105
Cylinder head bolts*		
Step 1	30	40
Step 2	Tighten an additional 90-degrees	
Step 3	Tighten an additional 90-degrees	
Driveplate bolts*	89	120
Flywheel bolts*	77	105
Oil feed pipe banjo bolt-to-VANOS unit	24	32
Oil pressure switch	20	27
Oil temperature switch	20	27
Oil pump bolts	16	22
Oil pump cover	79 in-lbs	9

Oil pump sprocket nut (left-hand thread)	18	25
Oil pump pick-up tube bolts	89 in-lbs	10
Reinforcement plate/bar bolts*		
Bar type	31	42
Plate style		
Step 1	43.5	59
Step 2	Tighten an additional 90-degrees	
Oil pan oil drain plug	18	25
Oil pan to block		
M6 Grade 8.8	89 in-lbs	10
M6 Grade 10.9	106 in-lbs	12
Oil pan lower section to upper section	89 in-lbs	10
Timing chain cover-to-engine block bolts		
M6	89 in-lbs	10
M7	132 in-lbs	15
M8	16	22
M10	34	47
Valve cover bolts		
M6	89 in-lbs	10
M7	132 in-lbs	15
VANOS solenoid valve	22	30
VANOS oil feed pipe to oil filter housing	24	32
VANOS unit-to-cylinder head nuts		
M6	89 in-lbs	10
M7	120 in-lbs	14
VANOS sealing plugs	37	50

*Do not re-use