

**Haynes**
shows you how**BMW 3-Series 320i & 320xi (12-14), 325i, 325xi, 330i & 330xi (06) & 328i & 328xi (07-14) Haynes Online Manual**

Specifications

General

Displacement	122 cubic inches (1999cc)
Bore	3.307 inches (84mm)
Stroke	3.527 inches (89.6mm)
Direction of engine rotation	Clockwise (viewed from front of vehicle)
No 1 cylinder location	Timing chain end
Firing order	1-3-4-2
Minimum compression pressure	130 psi (9.0 bar)
Maximum deviation between cylinders	29 psi (2.0 bar)

Camshafts

Endplay	0.003 to 0.005 inch (0.07 to 0.143 mm)
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Lubrication system

Minimum oil pressure at idle speed	14.5 psi (1.0 bar)
Regulated oil pressure	58.0 psi (4.0 bar)

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.

Note:

There are a number of aluminum fasteners used to prevent electrolysis between the different types of metals used. Whenever they are removed, they should be replaced with new aluminum bolts. They are easily identified, since a magnet will not stick to them as it would on steel fasteners.

Camshaft bearing cap bolts

Exhaust	108 in-lbs	12
Intake	90 in-lbs	10

Camshaft sprocket-to-counterbalance shaft bolt*

Step 1	15	20
Step 2	70	95

Chain drive module-to-cylinder head	90 in-lbs	10
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Chain drive module-to-crankcase and oil pump	90 in-lbs	10
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Chain guide rail-to-cylinder block	15	20
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Chain guide rail-to-cylinder head	120 in-lbs	14
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Chain cover plugs	18	25
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Chain tensioner-to-cylinder head	59	80
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Crankshaft vibration damper bolts	26	35
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Counterbalance shafts module-to-bedplate bolts*

Step 1	15	19
Step 2	Rotate an additional 90-degrees	

Cylinder head bolts***M11 x 173 mm bolts**

Step 1	22	30
Step 2	Rotate an additional 90-degrees	
Step 3	Rotate an additional 180-degrees	

M9 x 173 mm bolts

Step 1	22	30
Step 2	Rotate an additional 90-degrees	
Step 3	Rotate an additional 180-degrees	

M9 x 30 mm bolts	16.5	22
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M9 x 70 mm bolts	16.5	22
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Engine mounts

Mount-to-front axle support	168 in-lbs	19
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Mount-to-support arm

Left side mount	41	56
Right side mount		

F30 chassis	74	100
F31 and F34 chassis	41	56
Support arm-to-engine	28	38
Driveplate/flywheel bolts*		
Step 1	44	60
Step 2	Rotate an additional 45-degrees	
Front subframe bolts		
Front bolts (M12, 1.77 inches (45 mm) long)	88.5	120
Middle bolts (M12, 6.4 inches (165 mm) long)	88.5	120
Rear bolts (M14, 2.3 inches (60 mm) long)	88.5	120
Gear case plugs (M22 x 1.5)	37	50
High pressure fuel pump-to-valve cover bolts	108 in-lbs	12
Oil condition/level sensor	84 in-lbs	9
Oil filter cap-to-housing	18	25
Oil filter housing-to-cylinder head	16	22
Oil feed line-to-turbocharger	90 in-lbs	10
Oil feed line from turbocharger-to-crankcase	90 in-lbs	10
Oil return lines to turbocharger	90 in-lbs	10
Oil return line from turbocharger-to-crankcase	90 in-lbs	10
Oil pipe-to-cylinder head banjo bolt	90 in-lbs	10
Oil pressure/temperature switch	133 in-lbs	15
Oil pump hydraulic valve-to-crankcase bolts	90 in-lbs	10
Oil pump pick-up pipe	90 in-lbs	10
Oil pump-to-counterbalance shaft housing	90 in-lbs	10
Oil spray nozzles	108 in-lbs	12
Oil pan oil drain plug		
With all-wheel drive models (steel plug)	18	25
Without all-wheel drive models (plastic plug)	72 in-lbs	8
Oil level sensor-to-oil pan	72 in-lbs	8
Oil pan	90 in-lbs	10
Strut tower supports*		
Step 1	41	56
Step 2	Rotate an additional 90-degrees	

**Torsion damper hub-to-crankshaft
(center bolt)**

Step 1	74	100
Step 2	Rotate an additional 270-degrees	

Valvetronic settings

Eccentric shaft bearing cap-to-cylinder head*	84 in-lbs	10
Eccentric shaft stop-screw-to-cylinder head	84 in-lbs	10
Electric servodrive-to-cylinder head	84 in-lbs	10
Electric servodrive-to-valve cover	84 in-lbs	10
Guide block-to-cylinder head	84 in-lbs	10
Oil spray nozzle-to-gate	84 in-lbs	10
Return spring-to-cylinder head	84 in-lbs	10

Valve cover bolts	84 in-lbs	9
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**VANOS solenoid valve-to-camshaft
adjusters (center bolt)**

Step 1	40.5	55
Step 2	Rotate an additional 55-degrees	

* Do not re-use, replace with new fasteners