

Engine - GTDi 2.0L Petrol -

Lubricants, Fluids, Sealers and Adhesives

Description	Description and part number.
Front cover to block sealant	WSE-M4G323-A6 (5900)
Oil pan to block sealant	WSE-M4G323-A6 (5900)
Camshaft end cap sealant	WSK-M2G348-A2 (5182) / WSK-M2G349-A13 (962)
Engine Oil	SAE 5W-30 WSS-M2C913-B

General Specification

Item	Specification
Type	2.0 litre, Inline 4, turbocharged and intercooled Gasoline engine, direct injection, twin overhead camshaft, 4 valves per cylinder
Cylinder arrangement	Inline 4
Cylinder numbering	No.1 from Front of the engine
Bore - nominal	87.5 mm (3.44 in)
Stroke	83.1 (3.27 in)
Capacity	1999 cm ³ (121.98 in ³)
Firing order	1 - 3 - 4 - 2
Compression ratio	10.0:1
Direction of rotation	Clockwise viewed at FEAD
Maximum permissible cylinder head warp	0.08mm overall, 0.05mm over an area of 150x150mm, and 0.025mm over an area of 25x25mm
Maximum power	
All markets	176.5 kW (240 ps) @ 5500rpm
Maximum torque	340 Nm (250 lb-ft) @ 1750rpm
Engine oil pressure*:	
At 2000 rev/min	200-268 kPa/29.01-38.87 lb/in ²
Balance shaft to crankshaft clearance**:	
Maximum	0.101mm

* Prior to checking the engine oil pressure, a road test of 6 miles (10 kilometres) must be carried out. Do not attempt to attain normal engine operating temperature by allowing the engine to idle.

**If the backlash between the balance shaft and crankshaft is greater than 0.101 mm then the balance shaft assembly must be replaced.

Torque Specifications

Description	Nm	lb-ft
Engine upper support insulator bolts	80	59
Accessory drive overarm idler assembly bolt	25	18
Accessory drive belt idler pulley(s) bolt(s)	47	35
Accessory drive belt tensioner bolt	47	35
Camshaft timing chain front cover bolts (A)		
M6*	10	7
M10*	48	35
Camshaft Sprocket bolts	72	53
Camshaft position sensor	6	4
Camshaft timing chain tensioner bolts	10	7
Camshaft variable timing valve retaining bolts	10	7
Camshaft auxiliary drive adapter	62	46
Camshaft bearing cap bolts (A)		
Stage 1	7	5
Stage 2	15	11
Crankshaft pulley bolt:		
Stage 1	100	74
Stage 2	90°	90°
Crankshaft rear seal retainer plate bolts(A)	10	7
Crankshaft timing sensor bolts	6	4
Cylinder head bolts (A)		
Stage 1	7	5
Stage 2	15	11
Stage 3	55	40
Stage 4	90°	90°
Stage 5	90°	90°
Coolant thermostat housing bolts	10	7
Coolant outlet housing bolts	10	7
Engine insulator cover bolts	10	7
Engine mount bracket LH:		
M10 Bolts	48	35
M10 Engine mount Nuts	48	35
Engine mount bracket RH:		
M10 Bolts	48	35
M10 Engine mount Nuts	48	35
Flywheel bolts (manual transmission) (A)		
Stage 1	50	37

Description	Nm	lb-ft
Stage 2	80	59
Stage 3	112	83
Flexplate bolts (automatic transmission) (A)	112	83
Spark plugs	12	9
Coil on plug retaining bolt	8	6
Spark knock sensor bolt	20	15
Fuel injector rail bolts (A)		
Stage 1	7	5
Stage 2	26°	26°
High pressure fuel pump housing to cylinder head bolts	20	15
High pressure fuel pump bolts		
Stage 1	5	4
Stage 2	45°	45°
High pressure fuel pipe unions		
Stage 1	15	11
Stage 2	30°	30°
High pressure fuel pipe retaining bolt	10	7
High pressure fuel pump shield M8 bolts (A)	25	18
High pressure fuel pump shield M6 bolts (A)	10	7
Intake manifold bolts (A)	20	15
Exhaust manifold studs	17	12
Throttle body bolts	8	6
Manifold absolute pressure sensor bolts	5	4
Oil filter		
Stage 1	8	6
Stage 2	180°	180°
Oil pressure sensor	15	11
Oil filter/cooler housing bolts	25	18
Oil cooler bolt		
Stage 1	22	16
Stage 2	75°	75°
Stage 3	15°	15°
Oil pan drain plug	26	19
Cylinder head oil gallery plug	20	15
Oil pan bolts (A)	20	15
Oil pump sprocket bolt	25	18
Oil pick up screen bolts	10	7
Oil pump bolts:		
Stage 1	10	7
Stage 2	20	15
Oil level sensor	10	7
Piston cooling jet bolt	10	7
Timing chain tensioner bolts	10	7
Timing chain guide bolts	10	7
Lower timing chain tensioner bolt	10	7
Lower timing chain guide bolts	10	7
Crankcase vent oil separator housing bolts	10	7
Valve cover bolts (A)	10	7
Vacuum pump bolts	10	7
Turbocharger oil drain pipe	10	7
Turbocharger water outlet pipe banjo bolt	28	21
Turbocharger water outlet pipe retaining bolt.	10	7
Turbocharger/Exhaust manifold to cylinder head nuts (A)	37	27
Turbocharger oil feed pipe banjo fitting	25	18
Turbocharger heat shield bolts	10	7
Turbocharger water inlet pipe banjo bolts.	28	21

*** New nuts/bolts must be fitted**

A = refer to procedure for correct torque sequence