Fastener Tightening Specifications

Application	Specification	
	Metric	English
Accessory Mounting Bracket Bolts	37 N·m	27 lb ft
Camshaft Position Sensor Bolts	12 N·m	106 lb in
Crankshaft Position Sensor Retaining Bolt	6.5 N·m	58 lb in
Electronic Ignition System Ignition Coil Retaining Bolts	10 N·m	89 lb in
Engine Control Module Bolts	4 N·m	35 lb in
Engine Coolant Temperature Sensor Retaining Bolt	20 N·m	15 lb ft
Evaporative Emission Canister Flange Bolt	20 N·m	15 lb ft
Evaporative Emission Canister Protective Cover	8 N·m	71 lb in
Evaporative Emission Canister Purge Solenoid Bracket Bolt	5 N·m	44 lb in
Fuel Filter Mounting Bracket Assembly Bolt	4 N·m	35 lb in
Fuel Pressure Regulator Retaining Screw	12 N·m	106 lb in
Fuel Rail Retaining Bolts	25 N·m	18 lb ft
Fuel Tank Retaining Bolts	20 N·m	15 lb ft
Idle Air Control Valve Retaining Bolts	3 N·m	27 lb in
Knock Sensor Bolt	20 N·m	15 lb ft
Manifold Absolute Pressure Sensor Mounting Bracket Bolt	4 N·m	35 lb in
Manifold Absolute Pressure Sensor Retaining Bolts and Nuts	8 N·m	71 lb in
Oxygen Sensor Retaining Bolt	42 N·m	31 lb ft
Parking Brake Cable Retainer Clamps	10 N·m	89 lb in
Rear A/C Compressor Mounting Bracket Bolts	35 N·m	26 lb ft
Spark Plug Cover Bolts	3 N·m	27 lb in
Throttle Body Retaining Nuts	15 N·m	11 lb ft
Throttle Position Sensor Retaining Bolts	2 N·m	18 lb in

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Engine Mechanical Specifications

Table 1: Valve Guide Reaming Table

Application	Specification	
	Metric	English
General Data		
• Engine Type	4 Cylinder - In-Line	
• Displacement	1 498 cm^3	91.44 in^3
• Bore Stroke	76.5x81.5 mm	3.01x3.21 in
• Compression Ratio	9.5:1	
• Firing Order	1-3-4-2	
• Maximum Power - At 5,600 RPM	62 kw (83.1 hp)	
• Maximum Torque - At 3,000 RPM	128 N·m	94.4 lb ft
Cylinder Bore		
• Diameter	76.5 mm	3.01 in
• Out of Round - Maximum	0.0065 mm	0.00025 in
• Taper - Maximum	0.0065 mm	0.00025 in
Piston		
• Diameter	77.870 mm	3.066 in
• Clearance to Bore	0.02-0.04 mm	0.0008-0.0016 in
Piston Rings		
• Ring, End Gap - Top Compression	0.3-0.5 mm	0.012-0.020 in
• Ring, End Gap - Second Compression	0.3-0.5 mm	0.012-0.020 in
• Groove Clearance - Top Impression	0.060-0.092 mm	0.0024-0.0036 in
• Groove Clearance - Second Compression	0.050-0.082 mm	0.0020-0.0032 in
Piston Pin		
• Diameter	17.990-17.995 mm	0.7083-0.7085 in
• Pin Off-Set	0.4-0.6 mm	0.016-0.024 in
Camshaft		
• Lift Intake	4.773 mm	0.188 in
• Lift Exhaust	5.267 mm	0.207 in
• End Play	0.09-0.21 mm	0.0035-0.0082 in
• Journal OD - No. 1	39.435-39.455 mm	1.552-1.553 in
• Journal OD - No. 2	39.685-39.705 mm	1.562-1.553 in

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• Journal OD - No. 3	39.935-39.955 mm	1.572-1.573 in
• Journal OD - No. 4	40.185-40.205 mm	1.582 in
• Journal OD - No. 5	40.435-40.455 mm	1.591-1.592 in
• Bearing OD - No. 1	39.5-39.525 mm	1.555-1.556 in
• Bearing OD - No. 2	39.75-39.775 mm	1.564-1.565 in
• Bearing OD - No. 3	40-40.025 mm	1.574-1.575 in
• Bearing OD - No. 4	40.25-40.275 mm	1.584-1.585 in
• Bearing OD - No. 5	40.5-40.525 mm	1.594-1.595 in
Crankshaft		
• Main Journal - Diameter - All	54.982-54.994 mm	2.164-2.165 in
• Taper - Maximum	0.005 mm	0.0001 in
• Out of Round - Maximum	0.004 mm	0.0001 in
• Main Bearing Clearance - All	0.026-0.046 mm	0.001-0.00181 in
• Crankshaft End Play	0.1 mm	0.003 in
• Connecting Rod Journal - Diameter - All	42.971-42.987 mm	1.691-1.692 in
• Taper - Maximum	0.005 mm	0.0001 in
• Out of Round - Maximum	0.004 mm	0.0001 in
• Rod Bearing Clearance - All	0.019-0.07 mm	0.0007-0.0027 in
• Rod Side Clearance	0.07-0.242 mm	0.0027-0.009 in
Valve Stem		
• Valve Lash Compensators	Hydraulic	
• Face Angle - All	45.87-46.12 degrees	
• Seat Angle - All	45 degrees	
• Seat Runout - Maximum, All	0.03 mm	0.0012 in
• Face Runout - Maximum, All	0.03 mm	0.0012 in
• Seat Width - Intake	1.3-1.5 mm	0.051-0.059 in
• Seat Width - Exhaust	1.6-1.8 mm	0.063-0.071 in
• Valve Guide Inside Diameter - All	6-6.015 mm	0.236-0.237 in
• Valve Stem Diameter - Intake	5.97-5.984 mm	0.232-0.238 in
• Valve Stem Diameter - Exhaust	5.96-5.974 mm	0.231-0.237 in
• Valve Diameter - All - Intake	37.9-38.1 mm	1.486-1.494 in
• Valve Diameter - Exhaust	30.9-31.1 mm	1.216-1.224 in
• Valve Spring Free Length - SOHC	40.9 mm	1.61 in
• Valve Spring Loads - Valve Open @ 21.5 mm (0.846 in)	600-650 N·m	443-479 lb ft
• Valve Spring Loads - Valve Closed @ 31.5 mm		

(1.24 in)	260-290 N·m	191-213 lb ft
Lubricating Type	Forced Feed	
Oil Filter Type	Cartridge (Full Flow)	
Oil Pan Capacity Including Oil Filter	3.75 liter	4 quarts
Oil Pump		
• Gap Between Oil Pump Body and Out Rotor	0.4-0.484 mm	0.0157-0.0191 in
• Out Rotor Side Clearance	0.045-0.1 mm	0.0018-0.0039 in
• Inner Rotor Side Clearance	0.035-0.085 mm	0.0014-0.0033 in
• Relief Valve Spring Free Length	81 mm	3.2 in
Oil Pump Type	Rotary (Trochoid)	

Valve Guide Reaming Table

Size	Reamer	Production Code	Service Code
Normal	--	--	K
0.075	KM-253	1	K1
0.150	KM-254	2	K2
0.250	KM-255	--	A