

Fastener Tightening Specifications

Application	Specification	
	Metric	English
A/C Compressor Mounting Bolts	27 N·m	20 lb ft
A/C Compressor Mounting Bracket Bolts	50 N·m	37 lb ft
Air Filter Housing Bolts	12 N·m	106 lb in
Alternator Adjusting Bolt	20 N·m	15 lb ft
Alternator Adjusting Bracket Retaining Bolt	20 N·m	15 lb ft
Auxiliary Catalytic Converter-to-Exhaust Manifold Nuts and Bracket Bolts	40 N·m	30 lb ft
Camshaft Cap Bolts	16 N·m	12 lb ft
Camshaft Gear Bolt	67.5 N·m	49 lb ft
Camshaft Pressure Plate Bolts	10 N·m	89 lb in
Connecting Rod Bearing Cap Bolts	25 N·m+30°+15°	18 lb ft+30°+15°
Coolant Pump Retaining Bolts	10 N·m	89 lb in
Coolant Temperature Sensor	20 N·m	15 lb ft
Crankshaft Bearing Cap Bolts	50 N·m+45°+15°	37 lb ft+45°+15°
Crankshaft Position Sensor Retaining Bolt	10 N·m	89 lb in
Crankshaft Pulley Bolt	95 N·m+30°+15°	70 lb ft+30°+15°
Cylinder Head Bolts - Camshaft Support Housing and Cylinder Head Mounting Bolts	25 N·m+60°+60°+60°+15°	18 lb ft+60°+60°+60°+10°
Electronic Ignition System Ignition Coil Mounting Bolts	10 N·m	89 lb in
Electronic Ignition System Ignition Coil Mounting Plate Bolts	10 N·m	89 lb in
Engine Mount Bracket Retaining Bolt	65 N·m	48 lb ft
Engine Mount Bracket-to-Engine Mount Retaining Bolts	60 N·m	44 lb ft
Engine Mount Retaining Nuts	40 N·m	30 lb ft
Exhaust Flexible Pipe Bracket Bolts	40 N·m	30 lb ft
Exhaust Gas Recirculation Valve Adapter Bolts	25 N·m	18 lb ft
Exhaust Manifold Heat Shield Bolts	15 N·m	11 lb ft
Exhaust Manifold Nuts	25 N·m	18 lb ft
Flexible Plate Bolts	60 N·m	44 lb ft
Flexible Plate Inspection Cover Bolts	10 N·m	89 lb in
Flywheel Bolts	35 N·m+30°+15°	26 lb ft+30°+15°
Flywheel Inspection Cover Bolts	12 N·m	106 lb in
Front Muffler-to-Main Catalytic Converter Nuts	30 N·m	22 lb ft
Fuel Rail Retaining Bolts	25 N·m	18 lb ft

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Intake Manifold Retaining Nuts	25 N·m	18 lb ft
Intake Manifold Support Bracket Lower Bolt-to-Engine Block	40 N·m	30 lb ft
Intake Manifold Support Bracket Upper Bolts	25 N·m	18 lb ft
Lower Timing Belt Cover Bolts	10 N·m	89 lb in
Oil Pan Drain Plug	55 N·m	40 lb ft
Oil Pan Retaining Bolts	10 N·m	89 lb in
Oil Pressure Switch	40 N·m	30 lb ft
Oil Pump Retaining Bolts	10 N·m	89 lb in
Oil Pump/Pickup Tube and Support Bracket Bolts	10 N·m	89 lb in
Oil Pump Safety Relief Valve Bolt	36 N·m	22 lb ft
Oil Pump Rear Cover Bolts	6 N·m	53 lb in
Power Steering Pump Mounting Bolts	25 N·m	18 lb ft
Power Steering Pump Pulley Bolts	25 N·m	18 lb ft
Rear Timing Belt Cover Bolts	10 N·m	89 lb in
Spark Plug Cover Bolts	3 N·m	27 lb in
Spark Plugs	25 N·m	18 lb ft
Thermostat Housing Mounting Bolts	20 N·m	15 lb ft
Throttle Cable Bracket Bolts	8 N·m	71 lb in
Timing Belt Automatic Tensioner Bolt	25 N·m	18 lb ft
Timing Belt Idler Pulley Bolt	40 N·m	30 lb in
Transaxle Bell Housing Bolts	75 N·m	55 lb ft
Transaxle Brace Bolts	40 N·m	30 lb ft
Transaxle Torque Converter Bolts	65 N·m	48 lb ft
Upper Timing Belt Cover Bolts	10 N·m	89 lb in
Valve Cover Bolts	10 N·m	89 lb in

Engine Mechanical Specifications

Table 1: [Valve Guide Reaming Table](#)

Application	Specification	
	Metric	English
General Data		
• Engine Type	4 Cylinder - In-Line	
• Displacement	1598 cm ³	97.51 in ³
• Bore Stroke	79.0x81.5 mm	3.1x3.21 in
• Compression Ratio	9.5:1	
• Firing Order	1-3-4-2	
• Maximum Power - At 6200 RPM	77 kw/103.3 hp	
• Maximum Torque - At 3400 RPM	145 N·m	106.9 lb ft
Cylinder Bore		
• Diameter	79 mm	3.1102 in
• Out of Round - Maximum	0.0065 mm	0.00025 in
• Taper - Maximum	0.0065 mm	0.00025 in
Piston		
• Diameter	78.970 mm	3.1090 in
• Clearance to Bore	0.020-0.040 mm	0.0008-0.0016 in
Piston Rings		
• Ring, End Gap - Top Compression	0.15-0.3 mm	0.006-0.012 in
• Ring, End Gap - Second Compression	0.3-0.5 mm	0.012-0.019 in
• Groove Clearance - Top Impression	0.05-0.08 mm	0.0019-0.0031 in
• Groove Clearance - Second Compression	0.05-0.082 mm	0.002-0.003 in
Piston Pin		
• Diameter	18 mm	0.708 in
• Pin Off-Set	0.5-0.7 mm	0.019-0.027 in
Camshaft		
• Lift Intake	7.2 mm	0.283 in
• Lift Exhaust	7.2 mm	0.283 in
• End Play	0.1-0.25 mm	0.0039-0.0079 in
• Journal OD - No. 1	29.935-29.95 mm	1.1785-1.1791 in
• Journal OD - No. 2	26.935-26.95 mm	1.0604-1.0610 in
• Journal OD - No. 3	26.935-26.95 mm	1.0604-1.0610 in
• Journal OD - No. 4	26.935-26.95 mm	1.0604-1.0610 in
• Journal OD - No. 5	26.935-26.95 mm	1.0604-1.0610 in
• Bearing OD - No. 1	30.01 mm	1.181 in
• Bearing OD - No. 2	27.01 mm	1.063 in

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• Bearing OD - No. 3	27.01 mm	1.063 in
• Bearing OD - No. 4	27.01 mm	1.063 in
• Bearing OD - No. 5	27.01 mm	1.063 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	0.026-0.042 mm	0.001-0.00165 in
• Crankshaft End Play	0.05-0.28 mm	0.002-0.011 in
• Connecting Rod Journal - Diameter - All	43 mm	1.69 in
• Taper - Maximum	0.005 mm	0.00019 in
• Out of Round - Maximum	0.004 mm	0.00015 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	45-45, 25 degrees	
• Seat Angle - All	44.5-45 degrees	
• Seat Runout - Maximum, All	0.05 mm	0.0197 in
• Face Runout - Maximum, All	0.03 mm	0.0012 in
• Seat Width - Intake	1.17-1.57 mm	0.0461-0.0618 in
• Seat Width - Exhaust	1.4-1.8 mm	0.055-0.071 in
• Valve Guide Inside Diameter - All	6-6.02 mm	0.236-0.237 in
• Valve Stem Diameter - Intake	5.955-5.97 mm	0.234-0.235 in
• Valve Stem Diameter - Exhaust	5.935-5.95 mm	0.2336-0.2342 in
• Valve Diameter - All - Intake	28.45-28.69 mm	1.120-1.129 in
• Valve Diameter - Exhaust	27.10-27.38 mm	1.067-1.078 in
• Valve Spring Loads - Valve Open	554-608 N·m	408-447 lb ft
• Valve Spring Loads - Valve Closed	247-273 N·m	181-200 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-805	1	K1
0.150	--	2	K2