

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

2004 ENGINE PERFORMANCE**Engine Mechanical (Introduction) - 5.7L - Corvette****SPECIFICATIONS****FASTENER TIGHTENING SPECIFICATIONS****Fastener Tightening Specifications**

Application	Specification	
	Metric	English
Accessory Drive Belt Idler Pulley Bolt	50 N.m	37 lb ft
Accessory Drive Belt Tensioner Bolt	50 N.m	37 lb ft
Air Conditioning (A/C) Compressor and Condenser Hose Bolt	27 N.m	20 lb ft
A/C Drive Belt Idler Pulley Bolt	50 N.m	37 lb ft
A/C Drive Belt Tensioner Bolt	25 N.m	18 lb ft
Air Injection Reaction (AIR) Pipe-to-Exhaust Manifold Bolts	20 N.m	15 lb ft
AIR Right Side Pipe Bracket-to-Cylinder Head Bolt	20 N.m	15 lb ft
Automatic Transmission Fluid Cooler Line Clamp Bolt - at Oil Pan	12 N.m	106 lb in
Automatic Transmission Fluid Cooler Line Clamp Bolt - at Right Transmission Cover	2.2 N.m	19 lb in
Automatic Transmission Fluid Cooler Pipe	25 N.m	18 lb ft
Camshaft Retainer Bolts	25 N.m	18 lb ft
Camshaft Sensor Bolt	25 N.m	18 lb ft
Camshaft Sprocket Bolts	35 N.m	26 lb ft
Connecting Rod Bolts - First Pass	20 N.m	15 lb ft
Connecting Rod Bolts - Final Pass	75 degrees	
Coolant Temperature Gage Sensor	20 N.m	15 lb ft
Crankshaft Balancer Bolt - Installation Pass-to Ensure the Balancer is Completely Installed	330 N.m	240 lb ft
Crankshaft Balancer Bolt - First Pass - Install a NEW Bolt After the Installation Pass and Tighten as Described in the First and Final Passes	50 N.m	37 lb ft
Crankshaft Balancer Bolt - Final Pass	140 degrees	
Crankshaft Bearing Cap Bolts - Inner Bolts - First Pass in Sequence	20 N.m	15 lb ft

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

Crankshaft Bearing Cap Bolts - Inner Bolts - Final Pass in Sequence	80 degrees	
Crankshaft Bearing Cap Side Bolts	25 N.m	18 lb ft
Crankshaft Bearing Cap Studs - Outer Studs - First Pass in Sequence	20 N.m	15 lb ft
Crankshaft Bearing Cap Studs - Outer Studs - Final Pass in Sequence	53 degrees	
Crankshaft Oil Deflector Nuts	25 N.m	18 lb ft
Crankshaft Position Sensor Bolt	25 N.m	18 lb ft
Crossmember Nut	110 N.m	81 lb ft
Cylinder Head Bolts - First Design - First Pass all M11 Bolts in Sequence	30 N.m	22 lb ft
Cylinder Head Bolts - First Design - Second Pass all M11 Bolts in Sequence	90 degrees	
Cylinder Head Bolts - First Design - Final Pass all M11 Bolts in Sequence - Excluding the Medium Length Bolts at the Front and Rear of Each Cylinder Head	90 degrees	
Cylinder Head Bolts - First Design - Final Pass M11 Medium Length Bolts at the Front and Rear of Each Cylinder Head	50 degrees	
Cylinder Head Bolts - Second Design - First Pass all M11 Bolts in Sequence	30 N.m	22 lb ft
Cylinder Head Bolts - Second Design - Second Pass all M11 Bolts in Sequence	90 degrees	
Cylinder Head Bolts - Second Design - Final Pass all M11 Bolts in Sequence	70 degrees	
Cylinder Head Bolts - M8 Inner Bolts in Sequence	30 N.m	22 lb ft
Cylinder Head Coolant Plug	20 N.m	15 lb ft
Cylinder Head Core Hole Plug	20 N.m	15 lb ft
Driveline Close-Out Panel Bolt	12 N.m	106 lb in
Driveline Support Bolt	50 N.m	37 lb ft
Driveline Support Plug	50 N.m	37 lb ft
Engine Block Coolant Drain Plugs	60 N.m	44 lb ft
Engine Block Heater	40 N.m	30 lb ft
Engine Block Oil Gallery Plugs	60 N.m	44 lb ft
Engine Coolant Air Bleed Pipe and Cover Bolts and Studs	12 N.m	106 lb in
Engine Flywheel Bolts - First Pass	20 N.m	15 lb ft

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

Engine Flywheel Bolts - Second Pass	50 N.m	37 lb ft
Engine Flywheel Bolts - Final Pass	100 N.m	74 lb ft
Engine Flywheel Hub Collar Bolt - Automatic Transmission	130 N.m	96 lb ft
Engine Front Cover Bolts	25 N.m	18 lb ft
Engine Mount Bracket Bolt	50 N.m	37 lb ft
Engine Mount Nut	65 N.m	48 lb ft
Engine Mount-to-Engine Mount Bracket Nut	65 N.m	48 lb ft
Engine Oil Filter	30 N.m	22 lb ft
Engine Rear Cover Bolts	25 N.m	18 lb ft
Engine Service Lift Bracket M8 Bolt	25 N.m	18 lb ft
Engine Service Lift Bracket M10 Bolts	50 N.m	37 lb ft
Engine Valley Cover Baffle Cover Bolts - LS6	5 N.m	44 lb in
Engine Valley Cover Bolts	25 N.m	18 lb ft
Engine Wiring Harness Generator Lead Nut	13 N.m	115 lb in
Engine Wiring Harness Ground Strap Bolt	32 N.m	24 lb ft
Exhaust Manifold Bolts - First Pass	15 N.m	11 lb ft
Exhaust Manifold Bolts - Final Pass	25 N.m	18 lb ft
Exhaust Manifold Heat Shield Bolts	9 N.m	80 lb in
Flywheel Housing Bolt	50 N.m	37 lb ft
Fuel Injection Fuel Rail Bolts	10 N.m	89 lb in
Generator Bracket Bolt	50 N.m	37 lb ft
Ignition Coil Bracket-to-Valve Rocker Arm Cover Bolts	12 N.m	106 lb in
Ignition Coil-to-Bracket Bolts	12 N.m	106 lb in
Intake Manifold Bolts - First Pass in Sequence	5 N.m	44 lb in
Intake Manifold Bolts - Final Pass in Sequence	10 N.m	89 lb in
Intermediate Steering Shaft Bolt	48 N.m	35 lb ft
Knock Sensors	20 N.m	15 lb ft
Oil Filter	30 N.m	22 lb ft
Oil Filter Fitting	55 N.m	40 lb ft
Oil Level Indicator Tube Bolt	16 N.m	12 lb ft
Oil Level Sensor	13 N.m	115 lb in
Oil Pan Closeout Cover Bolt - Left Side	12 N.m	106 lb in
Oil Pan Closeout Cover Bolt - Right Side	12 N.m	106 lb in
Oil Pan Cover Bolts	12 N.m	106 lb in
Oil Pan Drain Plug	25 N.m	18 lb ft
Oil Pan - Lower - Bolts	12 N.m	106 lb in
Oil Pan M8 Bolts - Oil Pan-to-Engine Block and		

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

Oil Pan-to-Front Cover	25 N.m	18 lb ft
Oil Pan M6 Bolts - Oil Pan-to-Rear Cover	12 N.m	106 lb in
Oil Pressure Sensor	20 N.m	15 lb ft
Oil Pump Cover Bolts	12 N.m	106 lb in
Oil Pump Relief Valve Plug	12 N.m	106 lb in
Oil Pump Screen Nuts	25 N.m	18 lb ft
Oil Pump Screen-to-Oil Pump Bolt	12 N.m	106 lb in
Oil Pump-to-Engine Block Bolts	25 N.m	18 lb ft
Oil Temperature Sensor	20 N.m	15 lb ft
Power Steering Pump Bolt	25 N.m	18 lb ft
Propeller Shaft Hub Collar Bolt	125 N.m	92 lb ft
Spark Plugs - Cylinder Heads - New	20 N.m	15 lb ft
Spark Plugs - all Subsequent Installations	15 N.m	11 lb ft
Steering Knuckle Nut - First Pass	20 N.m	15 lb ft
Steering Knuckle Nut - Second Pass	50 degrees	
Steering Knuckle Nut - Final Pass	55 N.m	41 lb ft
Throttle Body Bolts	12 N.m	106 lb in
Timing Chain Guide Bolts	35 N.m	26 lb ft
Transmission Cover Bolt	12 N.m	106 lb in
Transmission Wiring Harness Bracket Bolt	50 N.m	37 lb ft
Transmission Wiring Harness Clip Bolt - near the Harness Ground	32 N.m	23 lb ft
Transmission Wiring Harness Clip Bolt - near the Oil Pan	25 N.m	18 lb ft
Valve Lifter Guide Bolts	12 N.m	106 lb in
Valve Rocker Arm Bolts	30 N.m	22 lb ft
Valve Rocker Arm Cover Bolts	12 N.m	106 lb in
Water Inlet Housing Bolts	15 N.m	11 lb ft
Water Pump Bolts - First Pass	15 N.m	11 lb ft
Water Pump Bolts - Final Pass	30 N.m	22 lb ft
Water Pump Cover Bolts	15 N.m	11 lb ft

ENGINE MECHANICAL SPECIFICATIONS (LS1)

Engine Mechanical Specifications (LS1)

Application	Specification	
	Metric	English
General		
• Engine Type	V 8	

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

• Displacement	5.7L - 5665 cc	346 CID
• RPO	LS1	
• VIN	G	
• Bore	99.0 -99.018 mm	3.897-3.898 in
• Stroke	92.0 mm	3.622 in
• Compression Ratio	10.1 :1	
• Firing Order	1-8-7-2-6-5-4-3	
• Spark Plug Gap	1.016 mm	0.04 in
Block		
• Camshaft Bearing Bore 1 and 5 Diameter - First Design	59.08-59.13 mm	2.325-2.327 in
• Camshaft Bearing Bore 2 and 4 Diameter - First Design	58.83-58.88 mm	2.316-2.318 in
• Camshaft Bearing Bore 3 Diameter - First Design	58.58-58.63 mm	2.306-2.308 in
• Camshaft Bearing Bore 1 and 5 Diameter - Second Design	59.58-59.63 mm	2.345-2.347 in
• Camshaft Bearing Bore 2 and 4 Diameter - Second Design	59.08-59.13 mm	2.325-2.327 in
• Camshaft Bearing Bore 3 Diameter - Second Design	58.58-58.63 mm	2.306-2.308 in
• Crankshaft Main Bearing Bore Diameter	69.871-69.889 mm	2.75-2.751 in
• Crankshaft Main Bearing Bore Out-of-Round	0.005 mm	0.0002 in
• Cylinder Bore Diameter	99.0-99.018 mm	3.897-3.898 in
• Cylinder Bore Taper - Thrust Side	0.018 mm	0.0007 in
• Cylinder Head Deck Height - Measuring from the Centerline of Crankshaft to the Deck Face	234.57-234.82 mm	9.235-9.245 in
• Cylinder Head Deck Surface Flatness - Measured Within a 152.4 mm (6.0 in) Area	0.08 mm	0.003 in
• Cylinder Head Deck Surface Flatness - Measuring the Overall Length of the Block Deck	0.22 mm	0.008 in
	21.417-21.443	

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

• Valve Lifter Bore Diameter	mm	0.843-0.844 in
Camshaft		
• Camshaft End Play	0.025-0.305 mm	0.001-0.012 in
• Camshaft Journal Diameter	54.99-55.04 mm	2.164-2.166 in
• Camshaft Journal Out-of-Round	0.025 mm	0.001 in
• Camshaft Lobe Lift - Exhaust	7.13 mm	0.281 in
• Camshaft Lobe Lift - Intake	6.96 mm	0.274 in
• Camshaft Runout - Measured at the Intermediate Journals	0.05 mm	0.002 in
Connecting Rod		
• Connecting Rod Bearing Clearance - Production	0.023-0.065 mm	0.0009-0.0025 in
• Connecting Rod Bearing Clearance - Service	0.023-0.076 mm	0.0009-0.003 in
• Connecting Rod Bore Diameter - Bearing End	56.505-56.525 mm	2.224-2.225 in
• Connecting Rod Bore Out-of-Round - Bearing End - Production	0.006 mm	0.00023 in
• Connecting Rod Bore Out-of-Round - Bearing End - Service	0.006 mm	0.00023 in
• Connecting Rod Side Clearance	0.11-0.51 mm	0.00433-0.02 in
Crankshaft		
• Connecting Rod Journal Diameter - Production	53.318-53.338 mm	2.0991-2.0999 in
• Connecting Rod Journal Diameter - Service	53.308 mm	2.0987 in
• Connecting Rod Journal Out-of-Round - Production	0.005 mm	0.0002 in
• Connecting Rod Journal Out-of-Round - Service	0.01 mm	0.0004 in
• Connecting Rod Journal Taper - Maximum for 1/2 of Journal Length - Production	0.005 mm	0.0002 in
• Connecting Rod Journal Taper - Maximum for 1/2 of Journal Length - Service	0.02 mm	0.00078 in
• Crankshaft End Play	0.04-0.2 mm	0.0015-0.0078 in

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

• Crankshaft Main Bearing Clearance - Production	0.021-0.052 mm	0.0008-0.0021 in
• Crankshaft Main Bearing Clearance - Service	0.02-0.065 mm	0.0008-0.0025 in
• Crankshaft Main Journal Diameter - Production	64.993-65.007 mm	2.558-2.559 in
• Crankshaft Main Journal Diameter - Service	64.993 mm	2.558 in
• Crankshaft Main Journal Out-of-Round - Production	0.003 mm	0.000118 in
• Crankshaft Main Journal Out-of-Round - Service	0.008 mm	0.0003 in
• Crankshaft Main Journal Taper - Production	0.01 mm	0.0004 in
• Crankshaft Main Journal Taper - Service	0.02 mm	0.00078 in
• Crankshaft Rear Flange Runout	0.05 mm	0.002 in
• Crankshaft Reluctor Ring Runout - Measured 1.0 mm (0.04 in) Below Tooth Diameter	0.7 mm	0.028 in
• Crankshaft Thrust Surface - Production	26.14-26.22 mm	1.029-1.0315 in
• Crankshaft Thrust Surface - Service	26.22 mm	1.0315 in
• Crankshaft Thrust Surface Runout	0.025 mm	0.001 in
Cylinder Head		
• Cylinder Head Height/Thickness - Measured from the Cylinder Head Deck to the Valve Rocker Arm Cover Seal Surface	120.2 mm	4.732 in
• Surface Flatness - Block Deck - Measured Within a 152.4 mm (6.0 in) Area	0.08 mm	0.003 in
• Surface Flatness - Block Deck - Measuring the Overall Length of the Cylinder Head	0.1 mm	0.004 in
• Surface Flatness - Exhaust Manifold Deck	0.22 mm	0.008 in
• Surface Flatness - Intake Manifold Deck	0.22 mm	0.008 in
Intake Manifold		
• Surface Flatness - Measured at Gasket Sealing Surfaces	0.5 mm	0.02 in
Lubrication System		

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

• Oil Capacity - with Filter	6.151 Liters	6.5 Quarts
• Oil Capacity - without Filter	5.678 Liters	6.0 Quarts
• Oil Pressure - Minimum - Hot	41 kPa at 1,000 engine RPM 124 kPa at 2,000 engine RPM 165 kPa at 4,000 engine RPM	6 psig at 1,000 engine RPM 18 psig at 2,000 engine RPM 24 psig at 4,000 engine RPM
Oil Pan		
• Front Cover Alignment - at Oil Pan Surface	0.0-0.5 mm	0.0-0.02 in
• Rear Cover Alignment - at Oil Pan Surface	0.0-0.5 mm	0.0-0.02 in
• Oil Pan Alignment - to Rear of Engine Block at Transmission Bellhousing Mounting Surface	0.0-0.25 mm	0.0-0.01 in
Piston Rings		
• Piston Ring End Gap - First Compression Ring - Measured in Cylinder Bore - Production	0.23-0.44 mm	0.009-0.017 in
• Piston Ring End Gap - First Compression Ring - Measured in Cylinder Bore - Service	0.23-0.5 mm	0.009-0.0196 in
• Piston Ring End Gap - Second Compression Ring - Measured in Cylinder Bore - Production	0.44-0.7 mm	0.017-0.027 in
• Piston Ring End Gap - Second Compression Ring - Measured in Cylinder Bore - Service	0.44-0.76 mm	0.0173-0.03 in
• Piston Ring End Gap - Oil Control Ring - Measured in Cylinder Bore - Production	0.18-0.75 mm	0.007-0.029 in
• Piston Ring End Gap - Oil Control Ring - Measured in Cylinder Bore - Service	0.18-0.81 mm	0.007-0.032 in
• Piston Ring to Groove Clearance - First Compression Ring - Production	0.04-0.086 mm	0.00157-0.0033 in
• Piston Ring to Groove Clearance - First Compression Ring - Service	0.04-0.068 mm	0.00157-0.0033 in
• Piston Ring to Groove Clearance - Second Compression Ring - Production	0.05-0.088 mm	0.002-0.0034 in

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

• Piston Ring to Groove Clearance - Second Compression Ring - Service	0.05-0.088 mm	0.002-0.0034 in
• Piston Ring to Groove Clearance - Oil Control Ring - Production	-0.008 to +0.176 mm	-0.0003 to +0.0069 in
• Piston Ring to Groove Clearance - Oil Control Ring - Service	-0.008 to +0.176 mm	-0.0003 to +0.0069 in
Pistons and Pins		
• Piston - Piston Diameter- Non Coated Skirt - at Size Point	98.969-98.987 mm	3.8964-3.8997 in
• Piston - Piston Diameter- Measured Over Skirt Coating	98.984-99.027 mm	3.897-3.899 in
• Piston - Piston to Bore Clearance - Non Coated Skirt - Production	0.013-0.049 mm	0.0005-0.0019 in
• Piston - Piston to Bore Clearance - Non Coated Skirt - Service	0.013-0.074 mm	0.0005-0.0029 in
• Piston - Piston to Bore Clearance - Coated Skirt - Production	-0.027 to +0.029 mm	-0.001 to +0.0011 in
• Piston - Piston to Bore Clearance - Coating Worn Off - Service Limit	0.074 mm	0.0029 in
• Pin - First Design Press Fit Pin Fit in Connecting Rod Bore	0.02-0.043 mm - Interference	0.00078-0.00169 in - Interference
• Pin - First Design Press Fit Pin Clearance to Piston Pin Bore - Production	0.01-0.02 mm	0.0004-0.00078 in
• Pin - First Design Press Fit Pin Clearance to Piston Pin Bore - Service	0.01-0.022 mm	0.0004-0.00086 in
• Pin - First Design Press Fit Pin Diameter	23.997-24.0 mm	0.9447-0.9448 in
• Pin - Second Design Full Floating Pin Fit in Connecting Rod Bore - Production	0.007-0.02 mm	0.00027-0.00078 in
• Pin - Second Design Full Floating Pin Fit in Connecting Rod Bore - Service	0.007-0.022 mm	0.00027-0.00086 in
• Pin - Second Design Full Floating Pin Clearance to Piston Pin Bore - Production	0.002-0.01 mm	0.00008-0.0004 in
• Pin - Second Design Full Floating Pin Clearance to Piston Pin Bore - Service	0.002-0.015 mm	0.00008-0.0006 in
• Pin - Second Design Full Floating Pin Diameter	23.952-23.955 mm	0.943-0.943 in

Valve System

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

• Valves - Valve Face Angle	45 degrees	
• Valves - Valve Face Width	1.25 mm	0.05 in
• Valves - Valve Lash	Net Lash - No Adjustment	
• Valves - Valve Lift - Intake	11.79 mm	0.464 in
• Valves - Valve Lift - Exhaust	12.16 mm	0.479 in
• Valves - Valve Seat Angle	46 degrees	
• Valves - Valve Seat Runout	0.05 mm	0.002 in
• Valves - Valve Seat Width - Exhaust	1.78 mm	0.07 in
• Valves - Valve Seat Width - Intake	1.02 mm	0.04 in
• Valves - Valve Stem Diameter- Production	7.955-7.976 mm	0.313-0.314 in
• Valves - Valve Stem Diameter- Service	7.96 mm	0.314 in
• Valves - Valve Stem-to-Guide Clearance - Production - Intake	0.025-0.066 mm	0.001-0.0026 in
• Valves - Valve Stem-to-Guide Clearance - Service - Intake	0.093 mm	0.0037 in
• Valves - Valve Stem-to-Guide Clearance - Production - Exhaust	0.025-0.066 mm	0.001-0.0026 in
• Valves - Valve Stem-to-Guide Clearance - Service - Exhaust	0.093 mm	0.0037 in
• Rocker Arms - Valve Rocker Arm Ratio	1.70:1	
• Valve Springs - Valve Spring Free Length	52.9 mm	2.08 in
• Valve Springs - Valve Spring Installed Height	45.75 mm	1.8 in
• Valve Springs - Valve Spring Load - Closed	340 N at 45.75 mm	76 lb at 1.8 in
• Valve Springs - Valve Spring Load - Open	980 N at 33.55 mm	220 lb at 1.32 in

ENGINE MECHANICAL SPECIFICATIONS (LS6)

Engine Mechanical Specifications (LS6)

Application	Specification	
	Metric	English
General		
• Engine Type	V 8	
	5.7 L - 5665 cc	346 CID

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

• Displacement		
• RPO	LS6	
• VIN	S	
• Bore	99.0-99.018 mm	3.897-3.898 in
• Stroke	92.0 mm	3.622 in
• Compression Ratio	10.5:1	
• Firing Order	1-8-7-2-6-5-4-3	
• Spark Plug Gap	1.016 mm	0.04 in
Block		
• Camshaft Bearing Bore 1 and 5 Diameter - First Design	59.08-59.13 mm	2.325-2.327 in
• Camshaft Bearing Bore 2 and 4 Diameter - First Design	58.83-58.88 mm	2.316-2.318 in
• Camshaft Bearing Bore 3 Diameter - First Design	58.58-58.63 mm	2.306-2.308 in
• Camshaft Bearing Bore 1 and 5 Diameter - Second Design	59.58-59.63 mm	2.345-2.347 in
• Camshaft Bearing Bore 2 and 4 Diameter - Second Design	59.08-59.13 mm	2.325-2.327 in
• Camshaft Bearing Bore 3 Diameter - Second Design	58.58-58.63 mm	2.306-2.308 in
• Crankshaft Main Bearing Bore Diameter	69.871-69.889 mm	2.75-2.751 in
• Crankshaft Main Bearing Bore Out-of-Round	0.005 mm	0.0002 in
• Cylinder Bore Diameter	99.0-99.018 mm	3.897-3.898 in
• Cylinder Bore Taper - Thrust Side	0.018 mm	0.0007 in
• Cylinder Head Deck Height - Measuring from the Centerline of Crankshaft to the Deck Face	234.57-234.82 mm	9.235-9.245 in
• Cylinder Head Deck Surface Flatness - Measured Within a 152.4 mm (6.0 in) Area	0.08 mm	0.003 in
• Cylinder Head Deck Surface Flatness - Measuring the Overall Length of the Block Deck	0.22 mm	0.008 in
	21.417-21.443	

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

• Valve Lifter Bore Diameter	mm	0.843-0.844 in
Camshaft		
• Camshaft End Play	0.025-0.305 mm	0.001-0.012 in
• Camshaft Journal Diameter	54.99-55.04 mm	2.164-2.166 in
• Camshaft Journal Out-of-Round	0.025 mm	0.001 in
• Camshaft Lobe Lift - Exhaust	8.19 mm	0.322 in
• Camshaft Lobe Lift - Intake	8.24 mm	0.324 in
• Camshaft Runout - Measured at the Intermediate Journals	0.05 mm	0.002 in
Connecting Rod		
• Connecting Rod Bearing Clearance - Production	0.023-0.065 mm	0.0009-0.0025 in
• Connecting Rod Bearing Clearance - Service	0.023-0.076 mm	0.0009-0.003 in
• Connecting Rod Bore Diameter - Bearing End	56.505-56.525 mm	2.224-2.225 in
• Connecting Rod Bore Out-of-Round - Bearing End	0.006 mm	0.00023 in
• Connecting Rod Bore Out-of-Round - Bearing End - Service	0.006 mm	0.00023 in
• Connecting Rod Side Clearance	0.11-0.51 mm	0.00433-0.02 in
Crankshaft		
• Connecting Rod Journal Diameter - Production	53.318-53.338 mm	2.0991-2.0999 in
• Connecting Rod Journal Diameter - Service	53.308 mm	2.0987 in
• Connecting Rod Journal Out-of-Round - Production	0.005 mm	0.0002 in
• Connecting Rod Journal Out-of-Round - Service	0.01 mm	0.0004 in
• Connecting Rod Journal Taper - Maximum for 1/2 of Journal Length - Production	0.005 mm	0.0002 in
• Connecting Rod Journal Taper - Maximum for 1/2 of Journal Length - Service	0.02 mm	0.00078 in
• Crankshaft End Play	0.04-0.2 mm	0.0015-0.0078 in
• Crankshaft Main Bearing Clearance -	0.02-0.052 mm	0.0008-0.0021 in

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

Production		
• Crankshaft Main Bearing Clearance - Service	0.02-0.065 mm	0.0008-0.0025 in
• Crankshaft Main Journal Diameter - Production	64.992-65.008 mm	2.558-2.559 in
• Crankshaft Main Journal Diameter - Service	64.992 mm	2.558 in
• Crankshaft Main Journal Out-of-Round - Production	0.003 mm	0.000118 in
• Crankshaft Main Journal Out-of-Round - Service	0.008 mm	0.0003 in
• Crankshaft Main Journal Taper - Production	0.01 mm	0.0004 in
• Crankshaft Main Journal Taper - Service	0.02 mm	0.00078 in
• Crankshaft Rear Flange Runout	0.05 mm	0.002 in
• Crankshaft Reluctor Ring Runout - Measured 1.0 mm (0.04 in) Below Tooth Diameter	0.7 mm	0.028 in
• Crankshaft Thrust Surface - Production	26.14-26.22 mm	1.029-1.0315 in
• Crankshaft Thrust Surface - Service	26.22 mm	1.0315 in
• Crankshaft Thrust Surface Runout	0.025 mm	0.001 in
Cylinder Head		
• Cylinder Head Height/Thickness - Measured from the Cylinder Head Deck to the Valve Rocker Arm Cover Seal Surface	120.2 mm	4.732 in
• Surface Flatness - Block Deck - Measured Within a 152.4 mm (6.0 in) Area	0.08 mm	0.003 in
• Surface Flatness - Block Deck - Measuring the Overall Length of the Cylinder Head	0.1 mm	0.004 in
• Surface Flatness - Exhaust Manifold Deck	0.22 mm	0.008 in
• Surface Flatness - Intake Manifold Deck	0.22 mm	0.008 in
Intake Manifold		
• Surface Flatness - Measured at Gasket Sealing Surfaces	0.5 mm	0.02 in
Lubrication System		
• Oil Capacity - with Filter	6.151 Liters	6.5 Quarts

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

• Oil Capacity - without Filter	5.678 Liters	6.0 Quarts
• Oil Pressure - Minimum - Hot	41 kPa at 1,000 engine RPM 124 kPa at 2,000 engine RPM 165 kPa at 4,000 engine RPM	6 psig at 1,000 engine RPM 18 psig at 2,000 engine RPM 24 psig at 4,000 engine RPM
Oil Pan		
• Front Cover Alignment - at Oil Pan Surface	0.0-0.5 mm	0.0-0.02 in
• Rear Cover Alignment - at Oil Pan Surface	0.0-0.5 mm	0.0-0.02 in
• Oil Pan Alignment - to Rear of Engine Block at Transmission Bellhousing Mounting Surface	0.0-0.25 mm	0.0-0.01 in
Piston Rings		
• Piston Ring End Gap - First Compression Ring - Measured in Cylinder Bore - Production	0.23-0.44 mm	0.009-0.017 in
• Piston Ring End Gap - First Compression Ring - Measured in Cylinder Bore	0.23-0.5 mm	0.009-0.0196 in
• Piston Ring End Gap - Second Compression Ring - Measured in Cylinder Bore - Production	0.44-0.7 mm	0.017-0.027 in
• Piston Ring End Gap - Second Compression Ring - Measured in Cylinder Bore	0.44-0.76 mm	0.0173-0.03 in
• Piston Ring End Gap - Oil Control Ring - Measured in Cylinder Bore - Production	0.18-0.75 mm	0.007-0.029 in
• Piston Ring End Gap - Oil Control Ring - Measured in Cylinder Bore - Service	0.18-0.81 mm	0.007-0.032 in
• Piston Ring to Groove Clearance - First Compression Ring - Production	0.04-0.086 mm	0.00157-0.0033 in
• Piston Ring to Groove Clearance - First Compression Ring - Service	0.04-0.068 mm	0.00157-0.0033 in
• Piston Ring to Groove Clearance - Second Compression Ring - Production	0.05-0.088 mm	0.002-0.0034 in
• Piston Ring to Groove Clearance - Second Compression Ring - Service	0.05-0.088 mm	0.002-0.0034 in
• Piston Ring to Groove Clearance - Oil	-0.008 to +0.0176	-0.0003 to

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

Control Ring - Production	mm	+0.0069 in
<ul style="list-style-type: none"> ● Piston Ring to Groove Clearance - Oil Control Ring - Service 	-0.008 to +0.0176 mm	-0.0003 to +0.0069 in
Pistons and Pins		
<ul style="list-style-type: none"> ● Piston - Piston Diameter - Non Coated Skirt - at Size Point 	98.969-98.987 mm	3.8964-3.8997 in
<ul style="list-style-type: none"> ● Piston - Piston Diameter - Measured Over Skirt Coating 	98.984-99.027 mm	3.897-3.899 in
<ul style="list-style-type: none"> ● Piston - Piston to Bore Clearance - Non Coated Skirt - Production 	0.013-0.049 mm	0.0005-0.0019 in
<ul style="list-style-type: none"> ● Piston - Piston to Bore Clearance - Non Coated Skirt - Service 	0.013-0.074 mm	0.0005-0.0029 in
<ul style="list-style-type: none"> ● Piston - Piston to Bore Clearance - Coated Skirt - Production 	-0.027 to +0.029 mm	-0.001 to +0.0011 in
<ul style="list-style-type: none"> ● Piston - Piston to Bore Clearance - Coating Worn Off - Service Limit 	0.074 mm	0.0029 in
<ul style="list-style-type: none"> ● Pin - First Design Press Fit Pin Fit in Connecting Rod Bore 	0.02-0.043 mm - Interference	0.00078-0.00169 in - Interference
<ul style="list-style-type: none"> ● Pin - First Design Press Fit Pin Clearance to Piston Pin Bore - Production 	0.01-0.02 mm	0.0004-0.00078 in
<ul style="list-style-type: none"> ● Pin - First Design Press Fit Pin Clearance to Piston Pin Bore - Service 	0.01-0.022 mm	0.0004-0.00086 in
<ul style="list-style-type: none"> ● Pin - First Design Press Fit Pin Diameter 	23.997-24.0 mm	0.9447-0.9448 in
<ul style="list-style-type: none"> ● Pin - Second Design Full Floating Pin Fit in Connecting Rod Bore - Production 	0.007-0.02 mm	0.00027-0.00078 in
<ul style="list-style-type: none"> ● Pin - Second Design Full Floating Pin Fit in Connecting Rod Bore - Service 	0.007-0.022 mm	0.00027-0.00086 in
<ul style="list-style-type: none"> ● Pin - Second Design Full Floating Pin Clearance to Piston Pin Bore - Production 	0.002-0.01 mm	0.00008-0.0004 in
<ul style="list-style-type: none"> ● Pin - Second Design Full Floating Pin Clearance to Piston Pin Bore - Service 	0.002-0.015 mm	0.00008-0.0006 in
<ul style="list-style-type: none"> ● Pin - Second Design Full Floating Pin Diameter 	23.952-23.955 mm	0.943-0.943 in
Valve System		
<ul style="list-style-type: none"> ● Valves - Valve Face Angle 	45 degrees	
<ul style="list-style-type: none"> ● Valves - Valve Face Width 	1.25 mm	0.05 in

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

• Valves - Valve Lash	Net Lash - No Adjustment	
• Valves - Valve Lift - Intake	14.02 mm	0.552 in
• Valves - Valve Lift - Exhaust	13.92 mm	0.548 in
• Valves - Valve Seat Angle	46 degrees	
• Valves - Valve Seat Runout	0.05 mm	0.002 in
• Valves - Valve Seat Width - Exhaust	1.78 mm	0.07 in
• Valves - Valve Seat Width - Intake	1.02 mm	0.04 in
• Valves - Valve Stem Diameter - Production	7.955-7.976 mm	0.313-0.314 in
• Valves - Valve Stem Diameter - Service	7.96 mm	0.314 in
• Valves - Valve Stem-to-Guide Clearance - Production - Intake	0.025-0.066 mm	0.001-0.0026 in
• Valves - Valve Stem-to-Guide Clearance - Service - Intake	0.093 mm	0.0037 in
• Valves - Valve Stem-to-Guide Clearance - Production - Exhaust	0.025-0.066 mm	0.001-0.0026 in
• Valves - Valve Stem-to-Guide Clearance - Service - Exhaust	0.093 mm	0.0037 in
• Valve Rocker Arm - Valve Rocker Arm Ratio	1.70:1	
• Valve Springs - Valve Spring Free Length	53.4 mm	2.1 in
• Valve Springs - Valve Spring Installed Height	45.75 mm	1.8 in
• Valve Springs - Valve Spring Load - Closed	400 N at 45.75 mm	90 lb at 1.8 in
• Valve Springs - Valve Spring Load- Open	1310 N at 31.75 mm	294 lb at 1.25 in

SEALERS, ADHESIVES, AND LUBRICANTS

Sealers, Adhesives, and Lubricants

Application	Type of Material	GM Part Number	
		United States	Canada
Coolant Sensor Threads	Sealant	12346004	10953480
Cylinder Head Core Hole Plugs	Threadlock	12345382	10953489
Cylinder Head Expansion Plugs	Threadlock	12345382	10953489
Engine Block Front Oil Gallery Plug	Threadlock	12345382	10953489

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

Engine Block Plug Sealing Washers	Sealant	12346004	10953480
Engine Flywheel Bolt Threads	Threadlock	12345382	10953489
Engine Oil	5W-30 Synthetic Oil	12345885	10953468
Engine Oil Supplement	Fluorescent Dye	12345795	10953470
Exhaust Manifold Bolt Threads	Threadlock	12345493	10953488
Fuel Rail Bolt Threads	Threadlock	12345382	10953489
Ignition Coil and Bracket Assembly Bolts	Threadlock	12345382	10953489
Intake Manifold Bolt Threads	Threadlock	12345382	10953489
Oil Pan Surface at Front and Rear Covers	Sealant	12378190	-
Oil Pressure Sensor Threads	Sealant	12346004	10953480
Thread Repair Component Cleaner	Cleaner	12346139	10953463
Thread Repair Component Cleaner	Cleaner	12377981	10953463
Thread Repair Cutting Oil	Lubricant	1052864	992881

THREAD REPAIR SPECIFICATIONS**Engine Block - Front View**

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

Fig. 1: Engine Block Bolt Holes Component View - Front View
 Courtesy of GENERAL MOTORS CORP.

Engine Block - Front View

Hole	Thread Size	Insert	Drill	Counterbore Tool	Tap	Driver	Drill Depth - Maximum mm (in)	Tap Depth - Maximum mm (in)
1-6	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	22.5 (0.885)	17.5 (0.688)
7	M10 x 1.5	J 42385-215	J 42385-211	J 42385-212	J 42385-213	J 42385-214	25.0 (0.984)	19.5 (0.767)
8	M10 x 1.5	J 42385-215	J 42385-211	J 42385-212	J 42385-213	J 42385-214	32.5 (1.28)	25.0 (0.984)
9	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	22.5 (0.885)	17.5 (0.688)
10	M10 x 1.5	J 42385-215	J 42385-211	J 42385-212	J 42385-213	J 42385-214	Thru	Thru
11-13	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	22.5 (0.885)	17.5 (0.688)
14	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	Thru	18.0 (0.708)
15	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	22.5 (0.885)	17.5 (0.688)
16	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	Thru	18.0 (0.708)
17-27	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	22.5 (0.885)	17.5 (0.688)

Engine Block - Rear View

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

Fig. 2: Engine Block Bolt Holes Component View - Rear View
 Courtesy of GENERAL MOTORS CORP.

Engine Block - Rear View

Hole	Thread Size	Insert	Drill	Counterbore Tool	Tap	Driver	Drill Depth - Maximum mm (in)	Tap Depth - Maximum mm (in)
1	M10 x 1.5	J 42385-215	J 42385-211	J 42385-212	J 42385-213	J 42385-214	27.0 (1.06)	21.5 (0.846)
2-4	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	22.5 (0.885)	17.5 (0.688)
5-6	M10 x 1.5	J 42385-215	J 42385-211	J 42385-212	J 42385-213	J 42385-214	27.0 (1.06)	21.5 (0.846)
7-13	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	22.5 (0.885)	17.5 (0.688)
14-16	M10 x 1.5	J 42385-	J 42385-	J 42385-212	J 42385-	J 42385-	27.0 (1.06)	21.5 (0.846)

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

		215	211		213	214		
17-18	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	22.5 (0.885)	17.5 (0.688)

Engine Block - Left Side View

Fig. 3: Engine Block Bolt Holes Component View - Left Side View
 Courtesy of GENERAL MOTORS CORP.

Engine Block - Left Side View

Hole	Thread Size	Insert	Drill	Counterbore Tool	Tap	Driver	Drill Depth - Maximum mm (in)	Tap Depth - Maximum mm (in)
J 42385								
1	M28 x 1.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	M8 x 1.25	210	206	207	208	209	28.5 (1.122)	23.0 (0.905)
3	M8 x 1.25	210	206	207	208	209	21.5 (0.846)	16.0 (0.629)

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

4	M10 x 1.25	215	211	212	213	214	29.0 (1.141)	23.0 (0.905)
5	M10 x 1.5	215	211	212	213	214	27.0 (1.062)	21.5 (0.846)
6	M16 x 1.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	M11 x 2.0 First Design	108	105	N/A	106	107	124.0 (4.88)	115.0 (4.52)
7	M11 x 2.0 Second Design	108	105	N/A	106	107	69.0 (2.72)	60.0 (2.36)
8	M11 x 2.0	108	105	N/A	106	107	69.0 (2.72)	60.0 (2.36)

- Bolt holes 7, second design, and 8 have a 30 mm (1.18 in) counterbore included in the 69.0 mm (2.72 in) drill depth. Use sleeve J 42385-315 with the drill and tap.
- Bolt holes 7, first design, have a 85 mm (3.34 in) counterbore included in the 124.0 mm (4.88 in) drill depth.

Engine Block - Right Side View

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

7	M11 x 2.0 First Design	108	105	N/A	106	107	124.0 (4.88)	115.0 (4.52)
7	M11 x 2.0 Second Design	108	105	N/A	106	107	69.0 (2.72)	60.0 (2.36)
<ul style="list-style-type: none"> • Bolt holes 7, second design, and 3 have a 30 mm (1.18 in) counterbore included in the 69.0 mm (2.72 in) drill depth. Use sleeve J 42385-315 with the drill and tap. • Bolt holes 7, first design, have a 85 mm (3.34 in) counterbore included in the 124.0 mm (4.88 in) drill depth. 								

Engine Block - Bottom View

Fig. 5: Engine Block Bolt Holes Component View - Bottom View
 Courtesy of GENERAL MOTORS CORP.

Engine Block - Bottom View

							Drill Depth -	Tap Depth -
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2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

Hole	Thread Size	Insert	Drill	Counterbore Tool	Tap	Driver	Maximum mm (in)	Maximum mm (in)
1	M10 x 2.0	J 42385-104	J 42385-101	-	J 42385-102	J 42385-103	31.0 (1.22)	25.5 (1.0)
2	M10 x 2.0	J 42385-104	J 42385-101	-	J 42385-102	J 42385-103	53.5 (2.10)	44.0 (1.73)
3	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	22.5 (0.885)	17.5 (0.688)
4	M10 x 2.0	J 42385-104	J 42385-101	-	J 42385-102	J 42385-103	31.0 (1.22)	25.5 (1.0)
5	M10 x 2.0	J 42385-104	J 42385-101	-	J 42385-102	J 42385-103	53.5 (2.10)	44.0 (1.73)
6	M16 x 1.5	-	-	-	-	-	-	-
7	N/A	-	-	-	-	-	-	-
8	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	22.5 (0.885)	17.5 (0.688)
9	M10 x 2.0	J 42385-104	J 42385-101	-	J 42385-102	J 42385-103	31.0 (1.22)	25.5 (1.0)
10-11	M10 x 2.0	J 42385-104	J 42385-101	-	J 42385-102	J 42385-103	53.5 (2.10)	44.0 (1.73)
12	M10 x 2.0	J 42385-104	J 42385-101	-	J 42385-102	J 42385-103	31.0 (1.22)	25.5 (1.0)
13-14	M10 x 1.5	J 42385-215	J 42385-101	-	J 42385-213	J 42385-214	42.5 (1.67)	37.0 (1.45)
15	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	22.5 (0.885)	17.5 (0.688)
16	M16 x 1.5	-	-	-	-	-	-	-
17	M10 x	J 42385-	J 42385-	-	J 42385-	J 42385-	53.5 (2.10)	44.0 (1.73)

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

	2.0	104	101		102	103		
18	M10 x 2.0	J 42385- 104	J 42385- 101	-	J 42385- 102	J 42385- 103	31.0 (1.22)	25.5 (1.0)
19	M8 x 1.25	J 42385- 210	J 42385- 206	J 42385-207	J 42385- 208	J 42385- 209	22.5 (0.885)	17.5 (0.688)
20	M10 x 2.0	J 42385- 104	J 42385- 101	-	J 42385- 102	J 42385- 103	53.5 (2.10)	44.0 (1.73)
21	M10 x 2.0	J 42385- 104	J 42385- 101	-	J 42385- 102	J 42385- 103	31.0 (1.22)	25.5 (1.0)
22	M8 x 1.25	J 42385- 210	J 42385- 206	J 42385-207	J 42385- 208	J 42385- 209	22.5 (0.885)	17.5 (0.688)
23	M10 x 2.0	J 42385- 104	J 42385- 101	-	J 42385- 102	J 42385- 103	31.0 (1.22)	25.5 (1.0)
24	M10 x 2.0	J 42385- 104	J 42385- 101	-	J 42385- 102	J 42385- 103	53.5 (2.10)	44.0 (1.73)
25- 26	M8 x 1.25	J 42385- 210	J 42385- 206	J 42385-207	J 42385- 208	J 42385- 209	22.5 (0.885)	17.5 (0.688)
27	M10 x 2.0	J 42385- 104	J 42385- 101	-	J 42385- 102	J 42385- 103	31.0 (1.22)	25.5 (1.0)
28- 29	M10 x 2.0	J 42385- 104	J 42385- 101	-	J 42385- 102	J 42385- 103	53.5 (2.10)	44.0 (1.73)
30	M10 x 2.0	J 42385- 104	J 42385- 101	-	J 42385- 102	J 42385- 103	31.0 (1.22)	25.5 (1.0)
31	M8 x 1.25	J 42385- 210	J 42385- 206	J 42385-207	J 42385- 208	J 42385- 209	22.5 (0.885)	17.5 (0.688)
32	M28 x 1.25	-	-	-	-	-	-	-
33	M8 x 1.25	J 42385- 210	J 42385- 206	J 42385-207	J 42385- 208	J 42385- 209	22.5 (0.885)	17.5 (0.688)

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

34	M10 x 2.0	J 42385- 104	J 42385- 101	-	J 42385- 102	J 42385- 103	53.5 (2.10)	44.0 (1.73)
35	M10 x 2.0	J 42385- 104	J 42385- 101	-	J 42385- 102	J 42385- 103	31.0 (1.22)	25.5 (1.0)
36	M8 x 1.25	J 42385- 210	J 42385- 206	J 42385-207	J 42385- 208	J 42385- 209	22.5 (0.885)	17.5 (0.688)
<ul style="list-style-type: none"> • Bolt holes 2, 5, 10, 11, 18, 21, 24, 28, 29, and 34 have a 20.5 mm (0.807 in) counterbore included in the 53.5 mm (2.10 in) drill depth. • Bolt holes 1, 4, 9, 12, 17, 20, 23, 27, 30, and 35 have a 1.5 mm (0.059 in) counterbore included in the 31.0 mm (1.22 in) drill depth. Use sleeve J 42385-316 with the drill and tap. • Bolt holes 13 and 14 have a 11.5 mm (0.452 in) counterbore included in the 42.5 mm (1.67 in) drill depth. Use sleeve J 42385-311 with the drill and tap. 								

Engine Block - Top View

Fig. 6: Engine Block Bolt Holes Component View - Top View
 Courtesy of GENERAL MOTORS CORP.

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

Engine Block - Top View

Hole	Thread Size	Insert	Drill	Counterbore Tool	Tap	Driver	Drill Depth - Maximum mm (in)	Tap Depth - Maximum mm (in)
1-4	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	26.5 (1.04)	19.0 (0.784)
5	M16 x 1.5	-	-	-	-	-	-	-
6-7	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	26.5 (1.04)	19.0 (0.784)
8	M10 x 1.5	J 42385-216	J 42385-211	J 42385-212	J 42385-213	J 42385-214	22.5 (0.885)	17.0 (0.669)
9-10	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	26.5 (1.04)	19.0 (0.784)
11	M10 x 1.5	J 42385-216	J 42385-211	J 42385-212	J 42385-213	J 42385-214	22.5 (0.885)	17.0 (0.669)
12-14	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	26.5 (1.04)	19.0 (0.784)

Cylinder Head - Top View

Fig. 7: Cylinder Head Bolt Holes Component View - Top View
 Courtesy of GENERAL MOTORS CORP.

2004 Chevrolet Corvette

2004 ENGINE PERFORMANCE Engine Mechanical (Introduction) - 5.7L - Corvette

Hole	Size	Insert	Drill	Tool	Tap	Driver	mm (in)	mm (in)
1	M10 x 1.5	J 42385-215	J 42385-211	J 42385-212	J 42385-213	J 42385-214	28.0 (1.10)	20.0 (0.787)
2	-	N/A	-	-	-	-	-	-
3	M10 x 1.5	J 42385-215	J 42385-211	J 42385-212	J 42385-213	J 42385-214	28.0 (1.10)	20.0 (0.787)
4	N/A	-	-	-	-	-	-	-
5-6	M10 x 1.5	J 42385-215	J 42385-211	J 42385-212	J 42385-213	J 42385-214	28.0 (1.10)	20.0 (0.787)

Cylinder Head - Exhaust Manifold Deck View

Fig. 9: Cylinder Head Bolt Holes Component View - Exhaust Manifold Deck View
 Courtesy of GENERAL MOTORS CORP.

Cylinder Head - Exhaust Manifold Deck View

Hole	Thread Size	Insert	Drill	Counterbore Tool	Tap	Driver	Drill Depth - Maximum mm (in)	Tap Depth - Maximum mm (in)
1-2	M10 x 1.5	J 42385-215	J 42385-211	J 42385-212	J 42385-213	J 42385-214	28.0 (1.10)	20.0 (0.787)
3	M8 x 1.25	J 42385-210	J 42385-206	J 42385-207	J 42385-208	J 42385-209	21.0 (0.826)	16.0 (0.629)
	M14 x							