

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Camshaft Position (CMP) Sensor Bolt	12 N·m	106 lb in
CMP Sensor Wire Harness Bolt	12 N·m	106 lb in
Camshaft Retainer Bolts - TORX® Head Bolts	15 N·m	11 lb ft
Camshaft Sprocket Bolts	30 N·m	22 lb ft
Clutch Pressure Plate Bolts - Manual Transmission	70 N·m	52 lb ft
Connecting Rod Bolts - First Pass	20 N·m	15 lb ft
Connecting Rod Bolts - Final Pass	85 degrees	
Coolant Air Bleed Pipe Bolts	12 N·m	106 lb in
Coolant Temperature Sensor	20 N·m	15 lb ft
Crankshaft Balancer Bolt - First Pass	150 N·m	111 lb ft
Crankshaft Balancer Bolt - Second Pass - Loosen Bolt	360 degrees	
Crankshaft Balancer Bolt - Third Pass	50 N·m	37 lb ft
Crankshaft Balancer Bolt - Final Pass	230 degrees	
Crankshaft Bearing Cap M8 Bolts	25 N·m	18 lb ft
Crankshaft Bearing Cap M10 Bolts - First Pass in Sequence	20 N·m	15 lb ft
Crankshaft Bearing Cap M10 Bolts - Final Pass in Sequence	80 degrees	
Crankshaft Bearing Cap M10 Studs - First Pass in Sequence	20 N·m	15 lb ft
Crankshaft Bearing Cap M10 Studs - Final Pass in Sequence	51 degrees	
Crankshaft Oil Deflector Nuts	25 N·m	18 lb ft
Crankshaft Position (CKP) Sensor Bolt	25 N·m	18 lb ft
Crankshaft Rear Oil Seal Housing Bolts	30 N·m	22 lb ft
Cylinder Head Coolant Plug	20 N·m	15 lb ft
Cylinder Head M11 Bolts - First Pass in Sequence	50 N·m	37 lb ft
Cylinder Head M11 Bolts - Second Pass in Sequence	80 degrees	
Cylinder Head M11 Bolts - Final Pass in Sequence	55 degrees	
Cylinder Head M8 Bolts - in Sequence	30 N·m	22 lb ft
Drive Belt Tensioner Bolt	50 N·m	37 lb ft
Engine Block Coolant Drain Hole Plug	60 N·m	44 lb ft
Engine Block Oil Gallery Plug	60 N·m	44 lb ft
Engine Mount Bracket to Engine Block Bolts	60 N·m	44 lb ft
Engine Mount Nut to Engine Mount Bracket - Do Not Reuse Nut	100 N·m	74 lb ft
Engine Mount Nut to Frame	100 N·m	74 lb ft
Engine Oil Cooler Coolant Fitting	50 N·m	37 lb ft
Engine Oil Cooler Coolant Hose Connector	35 N·m	26 lb ft
Engine Oil Cooler Core-to-Housing Bolts	25 N·m	18 lb ft

Engine Oil Cooler-to-Oil Pan M6 Bolts	10 N·m	89 lb in
Engine Oil Cooler-to-Oil Pan M8 Bolts	25 N·m	18 lb ft
Engine Oil Cooler Pipe Bolt	25 N·m	18 lb ft
Engine Oil Level Sensor	13 N·m	115 lb in
Engine Oil Pressure Switch	35 N·m	25 lb ft
Engine-to-Transmission or Clutch Housing Bolts	50 N·m	37 lb ft
Evaporative Emission (EVAP) Canister Purge Solenoid Valve Bolt	10 N·m	89 lb in
Exhaust Manifold Bolts - First Pass	15 N·m	11 lb ft
Exhaust Manifold Bolts - Final Pass	20 N·m	15 lb ft
Exhaust Manifold Stud	20 N·m	15 lb ft
Flex Plate-to-Torque Converter Bolts	63 N·m	46 lb ft
Flywheel/Flex Plate Bolts - First Pass	20 N·m	15 lb ft
Flywheel/Flex Plate Bolts - Second Pass	50 N·m	37 lb ft
Flywheel/Flex Plate Bolts - Final Pass	100 N·m	74 lb ft
Front Cover Bolts	30 N·m	22 lb ft
Fuel Injection Fuel Rail Bolt	10 N·m	89 lb in
Fuel Injection Fuel Rail Studs	10 N·m	89 lb in
Fuel Injector and Ignition Coil Wire Harness Bracket Bolt	10 N·m	89 lb in
Generator Bracket Bolts	50 N·m	37 lb ft
Ignition Coil -to-Valve Rocker Arm Cover Bolts	12 N·m	106 lb in
Inlet Air Temperature Sensor	20 N·m	15 lb ft
J 41798 M8 Bolt	25 N·m	18 lb ft
J 41798 M10 Bolts	50 N·m	37 lb ft
Knock Sensor Bolts	25 N·m	18 lb ft
Motor Mount Bracket Bolts	50 N·m	37 lb ft
Oil Filter	30 N·m	22 lb ft
Oil Filter Fitting	55 N·m	40 lb ft
Oil Pan Closeout Cover Bolt - Left Side	9 N·m	80 lb in
Oil Pan Closeout Cover Bolt - Right Side	9 N·m	80 lb in
Oil Pan Drain Plug	25 N·m	18 lb ft
Oil Pan M6 Bolts - Oil Pan-to-Rear Oil Seal Housing	12 N·m	106 lb in
Oil Pan M8 Bolts - Oil Pan-to-Engine Block and Oil Pan-to-Front Cover	25 N·m	18 lb ft
Oil Pressure Sensor	35 N·m	26 lb ft
Oil Pump Cover Bolts	12 N·m	106 lb in
Oil Pump-to-Engine Block Bolts	25 N·m	18 lb ft
Oil Pump Relief Valve Plug	12 N·m	106 lb in
Oil Pump Screen-to-Oil Pump Bolt	12 N·m	106 lb in
Piston Oil Nozzle Bolts	20 N·m	15 lb ft
Spark Plugs	20 N·m	15 lb ft
Supercharger Air Outlet Pressure Sensor Bolt	10 N·m	89 lb in

Supercharger Barometric Pressure Sensor Bolt	10 N·m	89 lb in
Supercharger Belt Idler Pulley Bolt	50 N·m	37 lb ft
Supercharger Belt Idler Pulley Bracket Bolt	50 N·m	37 lb ft
Supercharger Belt Tensioner Bolt	50 N·m	37 lb ft
Supercharger Bypass Valve Actuator Bolts	25 N·m	18 lb ft
Supercharger Charge Air Bypass Regulator Solenoid Bolt	10 N·m	89 lb in
Supercharger Inlet Air Pressure Sensor Bolt	10 N·m	89 lb in
Supercharger Charge Air Cooler-to-Cover Bolts	10 N·m	89 lb in
Supercharger Charge Air Cooler Outlet Pipe Bolts	10 N·m	89 lb in
Supercharger Charge Air Cooler Isolator Bolts	10 N·m	89 lb in
Supercharger - Lower - Manifold-to-Cylinder Head Bolts - First Pass in Sequence	5 N·m	44 lb in
Supercharger - Lower - Manifold-to-Cylinder Head Bolts - Final Pass in Sequence	10 N·m	89 lb in
Supercharger - Upper - Charge Air Cooler Cover Bolts - First Pass in Sequence	5 N·m	44 lb in
Supercharger - Upper - Charge Air Cooler Cover Bolts - Final Pass in Sequence	10 N·m	89 lb in
Throttle Body Bolts	10 N·m	89 lb in
Timing Chain Tensioner Bolts	25 N·m	18 lb ft
Valley Cover Bolts	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

[2009 Cadillac CTS](#) | [CTS \(VIN D\) Service Manual](#) | [Engine](#) | [Engine Mechanical - 4.8L, 5.3L, 6.0L, 6.2L, or 7.0L](#) | [Specifications](#) | Document ID: 2158460

Engine Mechanical Specifications

Application	Specification	
	Metric	English
General		
• Engine Type	V8	
• Displacement	6.2L	376 CID
• RPO	LSA	
• VIN	P	
• Bore	103.241-103.259 mm	4.0065-4.0065 in
• Stroke	92.0 mm	3.622 in
• Compression Ratio	9.1:1	
• Supercharger Boost Ratio	10.1 :1	
• Firing Order	1-8-7-2-6-5-4-3	
• Spark Plug Gap	1.02 mm	0.04 in
Block		
• Camshaft Bearing Bore 1 and 5 Diameter	59.58-59.63 mm	2.345-2.347 in
• Camshaft Bearing Bore 2 and 4 Diameter	59.08-59.13 mm	2.325-2.327 in
• Camshaft Bearing Bore 3 Diameter	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	0.006 mm	0.0002 in
• Cylinder Bore Diameter	103.241-103.259 mm	4.0065-4.0065 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	0.11 mm	0.004 in
• Cylinder Head Deck Surface Flatness - Measuring the Overall Length of the Block Deck	0.22 mm	0.008 in
• Valve Lifter Bore Diameter	21.417-21.443 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 Bearing Diameter	55.063-55.088 mm	2.1678-2.1688 in
• Camshaft Journal-to-Bearing Clearance	0.023-0.098 mm	0.0009-0.0038 in
• Camshaft Journal Out-of-Round	0.025 mm	0.001 in
• Camshaft Lobe Lift - Intake	7.2 mm	0.283 in

• Camshaft Lobe Lift - Exhaust	7.2 mm	0.283 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	0.004-0.008 mm	0.00015-0.0003 in
• Connecting Rod Bore Out-of-Round - Bearing End - Service	0.004-0.008 mm	0.00015-0.0003 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 - Production	0.02-0.052 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	64.992-65.008 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 Machining Pad	6.88-7.12 mm	0.271-0.283 in

Locations		
• 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	0.1 mm	0.004 in
• Surface Flatness - Intake Manifold Deck	0.08 mm	0.0031 in
• Valve Guide Installed Height - Measured from the Spring Seat Surface to the Top of the Guide	17.08-17.57 mm	0.672-0.692
Lubrication System		
• Oil Capacity - with Filter	5.7 liters	6.0 quarts
• Oil Capacity - without Filter	5.2 liters	5.5 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 to -0.5 mm	+0.0 to -0.2 in
• Crankshaft Rear Oil Seal Housing Alignment - at Oil Pan Surface	+0.0 to -0.5 mm	+0.0 to -0.2 in
• Oil Pan Alignment - to Rear of Engine Block at Transmission Housing Mounting Surface	+0.0 to -0.5 mm	+0.0 to -0.2 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	0.04-0.085 mm	0.00157-0.00335 in
• Piston Ring to Groove Clearance - First Compression Ring - Service	0.04-0.085 mm	0.00157-0.00335 in
• Piston Ring to Groove Clearance - Second Compression Ring - Production	0.04-0.078 mm	0.00157-0.0031 in
• Piston Ring to Groove Clearance - Second		0.00157-

Compression Ring - Service	0.04-0.078 mm	0.0031 in
• Piston Ring to Groove Clearance - Oil Control Ring - Production	0.012-0.2 mm	0.0005-0.0078 in
• Piston Ring to Groove Clearance - Oil Control Ring - Service	0.012-0.2 mm	0.0005-0.0078 in
Pistons and Pins		
• Pin - Piston Pin Clearance to Piston Pin Bore - Production	0.003-0.011 mm	0.0001-0.0004 in
• Pin - Piston Pin Clearance to Piston Pin Bore - Service	0.002-0.015 mm	0.0008-0.0006 in
• Pin - Piston Pin Diameter	24.997-25.0 mm	0.984-0.984 in
• Pin - Piston Pin Fit in Connecting Rod Bore - Production	0.007-0.02 mm	0.00027-0.00078 in
• Pin - Piston Pin Fit in Connecting Rod Bore - Service	0.007-0.0022 mm	0.00027-0.00086 in
• Piston - Piston Diameter - Measured Over Skirt Coating	103.235-103.258 mm	4.064-4.065 in
• Piston - Piston to Bore Clearance - Production	-0.036 to +0.016 mm	-0.0014 to +0.0006 in
• Piston - Piston to Bore Clearance - Service Limit with Skirt Coating Worn Off	0.71 mm	0.0028 in
Valve System		
• 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	12.24 mm	0.482 in
• Valves - Valve Lift - Exhaust	12.24 mm	0.482 in
• Valves - Valve Seat Angle	45 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	7.95 mm	0.313 in
• Valves - 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 - Stem-to-Guide Clearance - Service - Exhaust	0.093 mm	0.0037 in
• Rocker Arms - Rocker Arm Ratio	1.70:1	
• Valve Springs - Valve Spring Free Length	53.1-53.7 mm	2.09-2.11 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	1175 N at 33.05 mm	264 lb at 1.30 in

Engine Content Specifications

RPO	VIN	Displacement	Camshaft Position (CMP) Actuator Control System	Active Fuel Management Control System	E85 Capable	Block Material
LSA	P	6.2L	No	No	No	Aluminum

Adhesives, Fluids, Lubricants, and Sealers

Application	Type of Material	GM Part Number	
		United States	Canada
All Purpose Parts Cleaner	Cleaner	12378553	88900920
Coolant Temperature Sensor Threads	Sealant	12346004	10953480
Crankshaft Key	Sealant	9985969	--
Crankshaft Rear Cup Plug	Sealant	89021297	10953488
Engine Block Coolant Drain Hole Plug	Sealant	12346004	10953480
Engine Block Oil Gallery Plug - Front	Threadlock	12345382	10953489
Engine Block Oil Gallery Plug - Side	Sealant	12346004	10953480
Engine Degreaser	Cleaner	12378482	992878
Engine Oil	5W-30 Oil - Synthetic	12345610	993193
Engine Oil Pressure Sensor Threads	Sealant	12346004	10953480
Engine Oil Supplement	Fluorescent Dye	12345795	10953470
Exhaust Manifold Bolts	Threadlock	12345493	10953488
Flywheel Bolts	Threadlock	12345382	10953489
Fuel Injection Fuel Rail Bolts	Threadlock	12345382	10953489
Ignition Coil-to-Rocker Arm Cover Bolts	Threadlock	12345382	10953489
Intake Air Temperature Sensor Threads	Sealant	12346004	10953480
Intake Manifold Bolts	Threadlock	12345382	10953489
Oil Pan Surface at Front Cover and Rear Housing	Sealant	12378521	88901148
Supercharger Charge Air Cooler-to-Cover Bolts	Threadlock	12345382	10953489
Supercharger-to-Cylinder Head Bolts	Threadlock	12345382	10953489
Thread Repair Component Cleaner	Cleaner	12346139	10953463
Thread Repair Component Cleaner	Cleaner	12377981	10953463
Thread Repair Cutting Oil	Lubricant	1052864	992881

Thread Repair Specifications

Table 1: [Engine Block - Front/Rear Views](#)

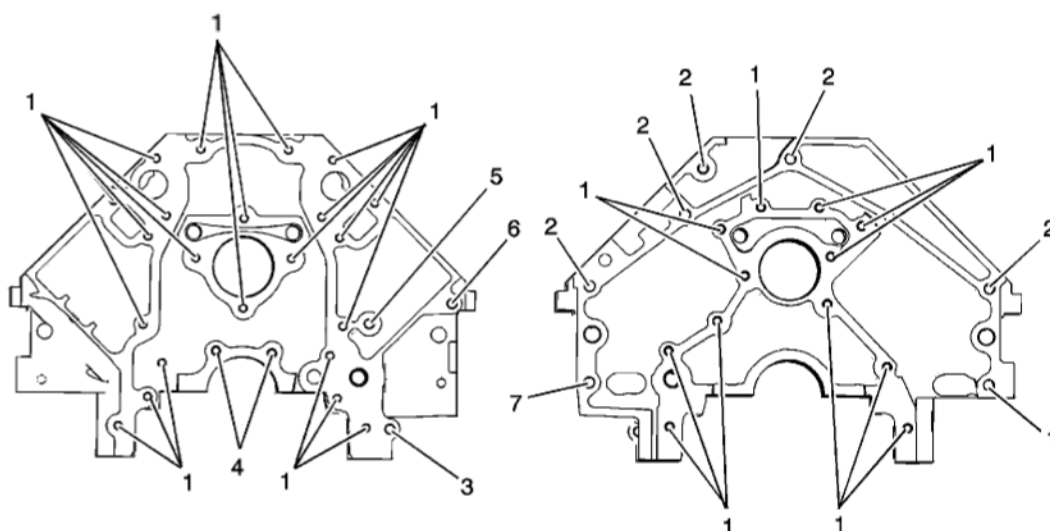
Table 2: [Engine Block - Left/Right Side Views](#)

Table 3: [Engine Block - Top/Bottom Views](#)

Table 4: [Cylinder Head - Top/End Views](#)

Table 5: [Cylinder Head - Intake/Exhaust Side Views](#)

Engine Block - Front/Rear Views



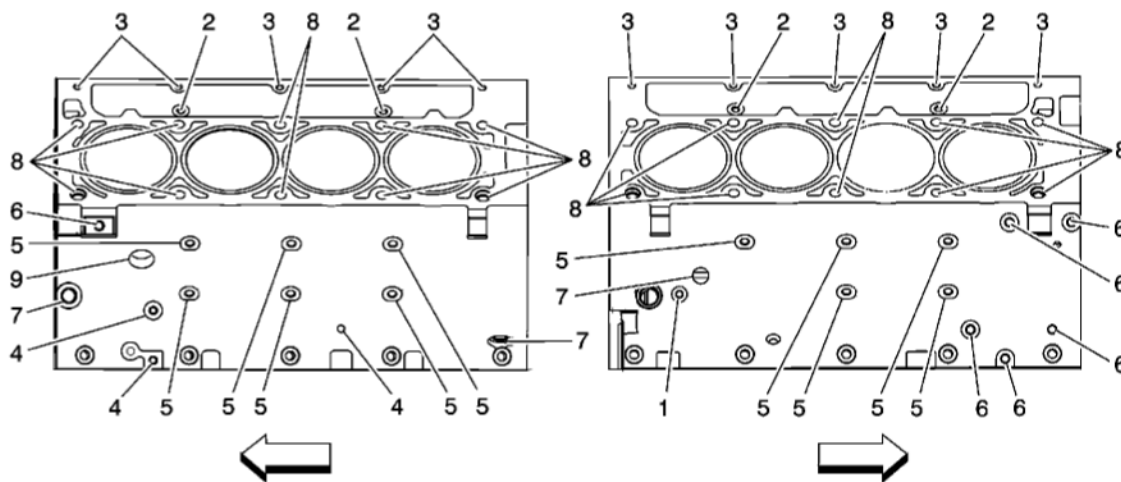
Engine Block - Front/Rear Views

Hole	Thread Size	Insert	Drill	Counterbore Tool	Tap	Driver	Drill Depth - Maximum mm (in)	Tap Depth - Maximum mm (in)
J 42385-								
1	M8 x 1.25	210	206	207	208	209	22.5 (0.885)	17.5 (0.688)
2	M10 x 1.5	215	211	212	213	214	27.5 (1.08)	22.0 (0.866)
3	M10 x 1.5	215	211	212	213	214	Thru	Thru

4	M8 x 1.25	210	206	207	208	209	Thru	Thru
5	M10 x 1.5	215	211	212	213	214	25.0 (0.984)	19.5 (0.767)
6	M10 x 1.5	215	211	212	213	214	32.5 (1.279)	25.0 (0.984)
7	M10 x 1.5	215	211	212	213	214	Thru	Thru

Bolt hole 6 is drilled and tapped for aluminum block applications only.

Engine Block - Left/Right Side Views

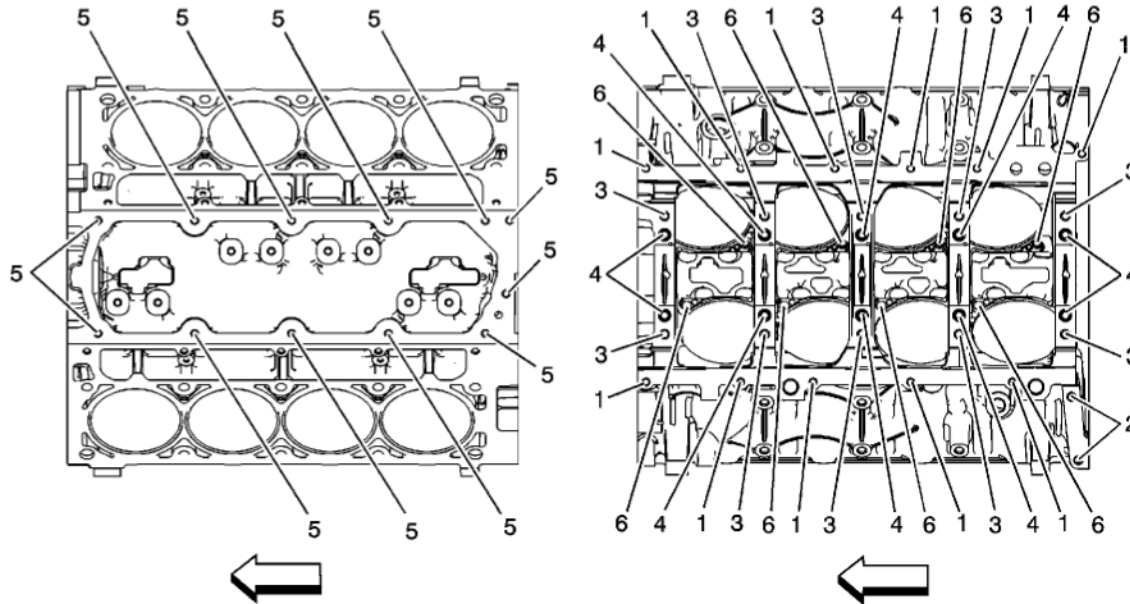


Engine Block - Left/Right Side Views

Hole	Thread Size	Insert	Drill	Counterbore Tool	Tap	Driver	Drill Depth - Maximum mm (in)	Tap Depth - Maximum mm (in)
J 42385-								
1	M8 x 1.25	210	206	207	208	209	22.5 (0.885)	17.5 (0.688)
2	M6 x 1.0	205	201	202	203	204	22.5 (0.885)	15.0 (0.688)
3	M8 x 1.25	210	206	207	208	209	28.5 (1.122)	23.0 (0.905)
4	M8 x 1.25	210	206	207	208	209	21.5 (0.846)	16.0 (0.629)
5	M10 x 1.25	215	211	212	213	214	29.0 (1.141)	23.0 (0.905)
6	M10 x 1.5	215	211	212	213	214	27.0 (1.062)	21.5 (0.846)
7	M16 x 1.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A

8	M11 x 2.0	108	105	N/A	106	107	69.0 (2.72)	60.0 (2.36)
9	M28 x 1.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Engine Block - Top/Bottom Views

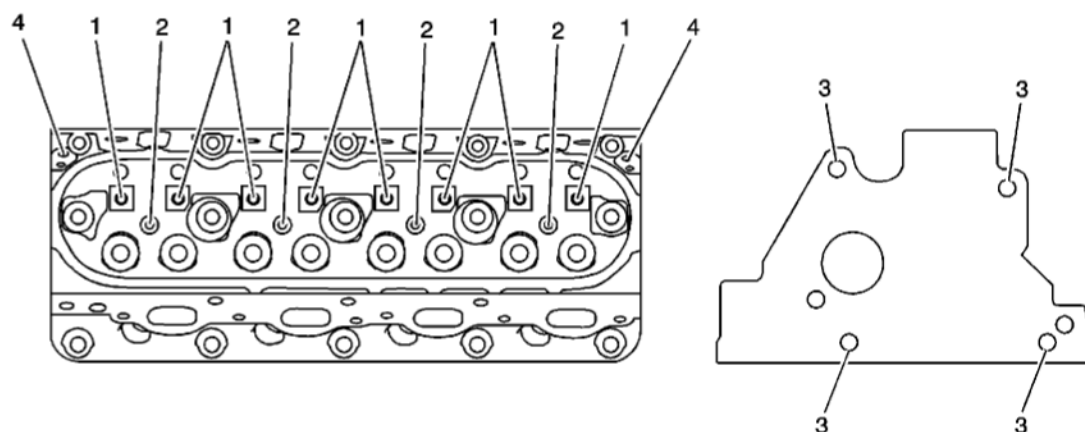


Engine Block - Top/Bottom Views

Hole	Thread Size	Insert	Drill	Counterbore Tool	Tap	Driver	Drill Depth - Maximum mm (in)	Tap Depth - Maximum mm (in)
J 42385-								
1	M8 x 1.25	210	206	207	208	209	22.5 (0.885)	17.5 (0.688)
2	M10 x 1.5	215	211	212	213	214	42.5 (1.67)	37.0 (1.45)
3	M10 x 2.0	104	101	N/A	102	103	31.0 (1.22)	25.5 (1.0)
4	M10 x 2.0	104	101	N/A	102	103	53.5 (2.10)	44.0 (1.73)
5	M8 x 1.25	210	206	207	208	209	26.5 (1.043)	19.0 (0.748)
6	M10 x	N/A	N/A	N/A	N/A	N/A	61 (2.4)	55 (2.17)

1.5									
- Bolt hole 2 has an 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. - Bolt hole 3 has 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 hole 4 has a 20.5 mm (0.807 in) counterbore included in the 53.5 mm (2.10 in) drill depth. - Piston oil nozzle bolt holes (6) are not serviceable.									

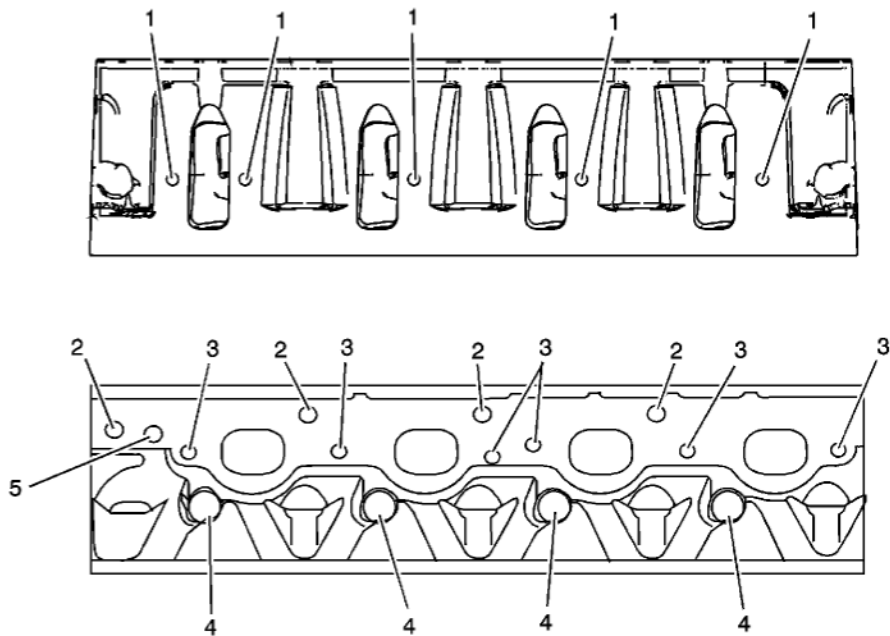
Cylinder Head - Top/End Views



Cylinder Head - Top/End Views

Hole	Thread Size	Insert	Drill	Counterbore Tool	Tap	Driver	Drill Depth - Maximum mm (in)	Tap Depth - Maximum mm (in)
J 42385-								
1	M8 x 1.25	210	206	207	208	209	26.5 (1.04)	19.0 (0.784)
2	M6 x 1.0	205	201	202	203	204	20.05 (0.789)	16.05 (0.632)
3	M10 x 1.5	215	211	212	213	214	28.0 (1.10)	20.0 (0.787)
4	M6 x 1.0	205	201	202	203	204	22.5 (0.885)	15.0 (0.688)

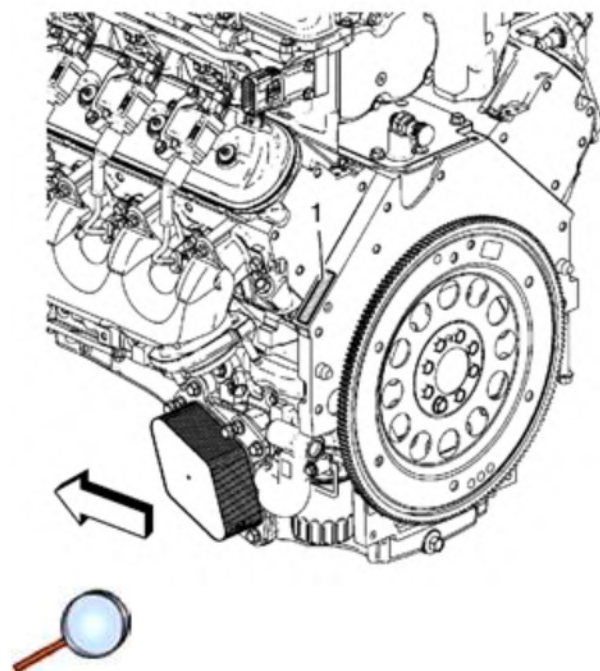
Cylinder Head - Intake/Exhaust Side Views



Cylinder Head - Intake / Exhaust Side Views

Hole	Thread Size	Insert	Drill	Counterbore Tool	Tap	Driver	Drill Depth - Maximum mm (in)	Tap Depth - Maximum mm (in)
J 42385-								
1	M6 x 1.0	205	201	202	203	204	Thru	Thru
2	M10 x 1.5	215	211	212	213	214	28.0 (1.10)	20.0 (0.787)
3	M8 x 1.25	210	206	207	208	209	21.0 (0.826)	16.0 (0.629)
4	M14 x 1.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	M12 x 1.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Engine Identification



The vehicle identification number (VIN) is located on the left side rear of the engine block (1) and is typically a 9 digit number stamped or laser-etched onto the engine at the vehicle assembly plant.

- The first digit identifies the division.
- The second digit identifies the model year.
- The third digit identifies the assembly plant.
- The fourth through ninth digits are the last 6 digits of the VIN.