

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Accessory Drive Belt Idler Pulley Bolt	50 N·m	37 lb ft
Accessory Drive Belt Tensioner Bolts	50 N·m	37 lb ft
Active Fuel Management Oil Pressure Relief Valve	27 N·m	20 lb ft
Air Conditioning Drive Belt Tensioner Bolts	50 N·m	37 lb ft
Automatic Transmission Flex Plate Bolts - First Pass	20 N·m	15 lb ft
Automatic Transmission Flex Plate Bolts - Second Pass	50 N·m	37 lb ft
Automatic Transmission Flex Plate Bolts - Final Pass	100 N·m	74 lb ft
Battery Cable Channel Bolt	12 N·m	106 lb in
Camshaft Position (CMP) Actuator Magnet Bolts	12 N·m	106 lb in
Camshaft Position (CMP) Actuator Solenoid Valve - First Pass	65 N·m	48 lb ft
Camshaft Position (CMP) Actuator Solenoid Valve - Final Pass	90 degrees	
Camshaft Position (CMP) Sensor Bolt	12 N·m	106 lb in
Camshaft Position (CMP) Sensor Wire Harness Bolt	12 N·m	106 lb ft
Camshaft Retainer Bolts - Hex Head Bolts	25 N·m	18 lb ft
Camshaft Retainer Bolts - TORX Head Bolts	15 N·m	11 lb ft
Camshaft Sprocket Bolt - First Pass	75 N·m	55 lb ft
Camshaft Sprocket Bolt - Final Pass	50 degrees	
Connecting Rod Bolts - First Pass	20 N·m	15 lb ft
Connecting Rod Bolts - Final Pass	85 degrees	
Coolant Air Bleed Pipe and Cover Bolts	12 N·m	106 lb in
Coolant Temperature Sensor	20 N·m	15 lb ft
Crankshaft Balancer Bolt - First Pass	150 N·m	110 lb ft
Crankshaft Balancer Bolt - Second Pass	Loosen 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
Crossbar Bolts/Nuts - 1500 Series	100 N·m	74 lb ft

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Crossbar Bolts/Nuts - 2500 Series	120 N·m	89 lb ft
Cylinder Head M8 Bolts - in Sequence	30 N·m	22 lb ft
Cylinder Head M11 Bolts - First Pass in Sequence	30 N·m	22 lb ft
Cylinder Head M11 Bolts - Second Pass in Sequence	90 degrees	
Cylinder Head M11 Bolts - Final Pass in Sequence	70 degrees	
Cylinder Head Plug	20 N·m	15 lb ft
Differential Carrier-to-Crossbar Nuts	100 N·m	74 lb ft
Engine Block Coolant Drain Hole Plug	60 N·m	44 lb ft
Engine Block Coolant Heater	50 N·m	37 lb ft
Engine Block Oil Gallery Plugs	60 N·m	44 lb ft
Engine Harness Ground Strap Bolt/Stud	16 N·m	12 lb ft
Engine Harness-to-Generator Bracket Bolt	9 N·m	80 lb in
Engine Harness Retainer-to-Intake Manifold Nut	5 N·m	44 lb in
Engine Mount Bracket Through Bolt	100 N·m	74 lb ft
Engine Mount-to-Engine Block Bolts	50 N·m	37 lb ft
Engine Mount-to-Frame Bolts	65 N·m	48 lb ft
Engine Shield-to-Crossbar Bolts	20 N·m	15 lb ft
Evaporative (EVAP) Emission Pipe Bracket Nut	20 N·m	15 lb ft
Exhaust Manifold Bolts - First Pass	15 N·m	11 lb ft
Exhaust Manifold Bolts - Final Pass	20 N·m	15 lb ft
Exhaust Manifold Heat Shield Bolts	9 N·m	80 lb in
Exhaust Manifold Studs	20 N·m	15 lb ft
Flex Plate-to-Torque Converter Bolts - 4L60-E/4L70-E/6L80 Transmission	63 N·m	47 lb ft
Flex Plate-to-Torque Converter Bolts - 4L80-E Transmission	60 N·m	44 lb ft
Front Cover Bolts	25 N·m	18 lb ft
Front Drive Axle Bracket Bolts	90 N·m	67 lb ft
Fuel Injection Fuel Rail Bolts	10 N·m	89 lb in
Fuel Injection Fuel Rail Crossover Tube Bolts	3.8 N·m	34 lb in
Fuel Rail Stop Bracket Bolt	50 N·m	37 lb ft
Generator Bracket Bolts	50 N·m	37 lb ft
Heater Hose Bracket Nut	9 N·m	80 lb in
Ignition Coil Bracket-to-Valve Rocker Arm Cover Studs	12 N·m	106 lb in
Ignition Coil-to-Bracket Bolts	10 N·m	89 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
Intake Manifold Sight Shield Retainer Bolts	5 N·m	44 lb in
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
Negative Battery Cable Stud	25 N·m	18 lb ft

Oil Filter	30 N·m	22 lb ft
Oil Filter Fitting	55 N·m	40 lb ft
Oil Level Indicator Switch	13 N·m	10 lb ft
Oil Level Indicator Tube Bolt	25 N·m	18 lb ft
Oil Pan Baffle Bolts	9 N·m	80 lb in
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 Cover Bolts	9 N·m	80 lb in
Oil Pan Drain Plug	25 N·m	18 lb ft
Oil Pan M6 Bolts - Oil Pan-to-Rear 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 Pan Skid Plate Bolts	28 N·m	21 lb ft
Oil Pressure Sensor	35 N·m	26 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 Bolts	12 N·m	106 lb in
Oil Pump-to-Engine Block Bolts	25 N·m	18 lb ft
Power Steering Pump-to-Engine Block Bolts	50 N·m	37 lb ft
Spark Plugs	15 N·m	11 lb ft
Throttle Body Bolts	10 N·m	89 lb in
Throttle Body Nuts	10 N·m	89 lb in
Throttle Body Studs	6 N·m	53 lb in
Timing Chain Tensioner Bolts	25 N·m	18 lb ft
Transfer Case Vent Hose Bracket Nut	20 N·m	15 lb ft
Transmission Housing-to-Engine Bolts/Studs	50 N·m	37 lb ft
Transmission Oil Cooler Line Clip Bolt	9 N·m	80 lb in
Transmission Oil Level Indicator Tube Nut	18 N·m	13 lb ft
Valley Cover Bolts	25 N·m	18 lb ft
Valve Lifter Guide Bolts	12 N·m	106 lb in
Valve Lifter Oil Manifold Bolts	25 N·m	18 lb ft
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

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[Engine Mechanical - 4.8L, 5.3L, 6.0L, 6.2L, or 7.0L](#) | [Specifications](#) | **Document ID: 2041733**

Engine Mechanical Specifications (RPO LY2 VIN C)

Application	Specification	
	Metric	English
General		
▮ Bore	96.0- 96.018 mm	3.779-3.78 in
▮ Compression Ratio	9.08:1	
▮ Displacement	4.8L	293 CID
▮ Engine Type	V8	
▮ Firing Order	1-8-7-2-6-5-4-3	
▮ RPO	LY2	
▮ Stroke	83.0 mm	3.27 in
▮ VIN	C	
▮ 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	96.0- 96.018 mm	3.779-3.78 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
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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 - Exhaust	7.2 mm	0.283 in
Camshaft Lobe Lift - Intake	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	0.7 mm	0.028 in

1.0 mm (0.04 in) Below Tooth Diameter		
┆ 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	0.13 mm	0.005 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	17.32 mm	0.682 in
Intake Manifold		
┆ Surface Flatness - Measured at Gasket Sealing Surfaces and Measured Within a 200 mm (7.87 in) Area that Includes 2 Runner Port Openings	0.3 mm	0.118 in
Lubrication System		
┆ Oil Capacity - with Filter	5.68 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
┆ Active Fuel Management Relief Valve Oil Pressure - as Measured at Oil Pressure Sensor Location	379-517 kPa Maximum	55-75 psig Maximum
Oil Pan		
┆ Front Cover Alignment - at Oil Pan Surface	0.0-0.5 mm	0.0-0.02 in
┆ Crankshaft Rear Oil Seal Housing 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 Bell Housing Mounting Surface	0.0-0.1 mm	0.0-0.004 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 Compression Ring - Service	0.04-0.078 mm	0.00157-0.0031 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	0.002-0.01 mm	0.00008-0.0004 in
┆ Pin - Piston Pin Clearance-to-Piston Pin Bore - Service	0.002-0.015 mm	0.00008-0.0006 in
┆ Pin - Piston Pin Diameter	23.952-23.955 mm	0.9430-0.9431 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	0.007-0.022 mm	0.00027-0.00086 in
┆ Piston - Piston Diameter - Measured Over Skirt Coating	96.002-96.036 mm	3.7796-3.7809 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	0.071 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	
┆ Valve Lift - Exhaust	12.2 mm	0.48 in
┆ Valve Lift - Intake	12.2 mm	0.48 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 - 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 - 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
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
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

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[Engine Mechanical - 4.8L, 5.3L, 6.0L, 6.2L, or 7.0L](#) | [Specifications](#) | **Document ID: 2041734**

Engine Mechanical Specifications (RPO LMG VIN 0)

Application	Specification	
	Metric	English
General		
Engine Type	V8	
Displacement	5.3L	325 CID
RPO	LMG	
VIN	0	
Bore	96.0-96.018 mm	3.779-3.78 in
Stroke	92.0 mm	3.622 in
Compression Ratio	9.95:1	
Firing Order	1-8-7-2-6-5-4-3	
Active Fuel Management Cylinders	1-4-6-7	
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	96.0-96.018 mm	3.779-3.78 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	2.1678-

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	55.088 mm	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 - Exhaust - Non Active Fuel Management Cylinders	7.2 mm	0.283 in
Camshaft Lobe Lift - Exhaust - Active Fuel Management Cylinders	7.33 mm	0.289 in
Camshaft Lobe Lift - Intake - Non Active Fuel Management Cylinders	7.2 mm	0.283 in
Camshaft Lobe Lift - Intake - Active Fuel Management Cylinders	7.33 mm	0.289 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 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	0.13 mm	0.005 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	17.32 mm	0.682 in
Intake Manifold		
┆ Surface Flatness - Measured at Gasket Sealing Surfaces and Measured Within a 200 mm (7.87 in) Area that Includes 2 Runner Port Openings	0.3 mm	0.118 in
Lubrication System		
┆ Oil Capacity - with Filter	5.68 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
┆ Active Fuel Management Relief Valve Oil Pressure - as Measured at Oil Pressure Sensor Location	379-517 kPa Maximum	55-75 psig Maximum
Oil Pan		
┆ Front Cover Alignment - at Oil Pan Surface	0.0-0.5 mm	0.0-0.02 in

┆ Crankshaft Rear Oil Seal Housing 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 Bell Housing Mounting Surface	0.0-0.1 mm	0.0-0.004 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 Compression Ring - Service	0.04-0.078 mm	0.00157-0.0031 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	0.002-0.01 mm	0.00008-0.0004 in
┆ Pin - Piston Pin Clearance-to-Piston Pin Bore - Service	0.002-0.015 mm	0.00008-0.0006 in
┆ Pin - Piston Pin Diameter	23.952-23.955 mm	0.9430-0.9431 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	0.007-0.022 mm	0.00027-0.00086 in
┆ Piston - Piston Diameter - Measured Over Skirt Coating	96.002-96.036 mm	3.7796-3.7809 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	0.071 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	
Valve Lift - Exhaust - Non Active Fuel Management	12.24 mm	0.488 in
Valve Lift - Exhaust - Active Fuel Management	12.46 mm	0.491 in
Valve Lift - Intake - Non Active Fuel Management	12.24 mm	0.488 in
Valve Lift - Intake - Active Fuel Management	12.46 mm	0.491 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 - 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 - 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
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
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

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[Engine Mechanical - 4.8L, 5.3L, 6.0L, 6.2L, or 7.0L](#) | [Specifications](#) | **Document ID: 2041735**

Engine Mechanical Specifications (RPO LY5 VIN J)

Application	Specification	
	Metric	English
General		
Engine Type	V8	
Displacement	5.3L	325 CID
RPO	LY5	
VIN	J	
Bore	96.0-96.018 mm	3.779-3.78 in
Stroke	92.0 mm	3.622 in
Compression Ratio	9.95:1	
Firing Order	1-8-7-2-6-5-4-3	
Active Fuel Management Cylinders	1-4-6-7	
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	96.0-96.018 mm	3.779-3.78 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	2.1678-

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	55.088 mm	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 - Exhaust - Non Active Fuel Management Cylinders	7.2 mm	0.283 in
Camshaft Lobe Lift - Exhaust - Active Fuel Management Cylinders	7.33 mm	0.289 in
Camshaft Lobe Lift - Intake - Non Active Fuel Management Cylinders	7.2 mm	0.283 in
Camshaft Lobe Lift - Intake - Active Fuel Management Cylinders	7.33 mm	0.289 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 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	0.13 mm	0.005 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	17.32 mm	0.682 in
Intake Manifold		
┆ Surface Flatness - Measured at Gasket Sealing Surfaces and Measured Within a 200 mm (7.87 in) Area that Includes 2 Runner Port Openings	0.3 mm	0.118 in
Lubrication System		
┆ Oil Capacity - with Filter	5.68 liters	6.0 quarts
┆ Oil Capacity - without Filter	5.20 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
┆ Active Fuel Management Relief Valve Oil Pressure - as Measured at Oil Pressure Sensor Location	379-517 kPa Maximum	55-75 psig Maximum
Oil Pan		
┆ Front Cover Alignment - at Oil Pan Surface	0.0-0.5 mm	0.0-0.02 in

┆ Crankshaft Rear Oil Seal Housing 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 Bell Housing Mounting Surface	0.0-0.1 mm	0.0-0.004 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 Compression Ring - Service	0.04-0.078 mm	0.00157-0.0031 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	0.002-0.01 mm	0.00008-0.0004 in
┆ Pin - Piston Pin Clearance-to-Piston Pin Bore - Service	0.002-0.015 mm	0.00008-0.0006 in
┆ Pin - Piston Pin Diameter	23.952-23.955 mm	0.9430-0.9431 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	0.007-0.022 mm	0.00027-0.00086 in
┆ Piston - Piston Diameter - Measured Over Skirt Coating	96.002-96.036 mm	3.7796-3.7809 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	0.071 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	
Valve Lift - Exhaust - Non Active Fuel Management	12.24 mm	0.488 in
Valve Lift - Exhaust - Active Fuel Management	12.46 mm	0.491 in
Valve Lift - Intake - Non Active Fuel Management	12.24 mm	0.488 in
Valve Lift - Intake - Active Fuel Management	12.46 mm	0.491 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 - 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 - 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
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
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

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[Engine Mechanical - 4.8L, 5.3L, 6.0L, 6.2L, or 7.0L](#) | [Specifications](#) | **Document ID: 2041736**

Engine Mechanical Specifications (RPO LC9 VIN 3)

Application	Specification	
	Metric	English
General		
Engine Type	V8	
Displacement	5.3L	325 CID
RPO	LC9	
VIN	3	
Bore	96.0-96.018 mm	3.779-3.78 in
Stroke	92.0 mm	3.622 in
Compression Ratio	9.95:1	
Firing Order	1-8-7-2-6-5-4-3	
Active Fuel Management Cylinders	1-4-6-7	
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	96.0-96.018 mm	3.779-3.78 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	2.1678-

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	55.088 mm	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 - Exhaust - Non Active Fuel Management Cylinders	7.2 mm	0.283 in
Camshaft Lobe Lift - Exhaust - Active Fuel Management Cylinders	7.33 mm	0.289 in
Camshaft Lobe Lift - Intake - Non Active Fuel Management Cylinders	7.2 mm	0.283 in
Camshaft Lobe Lift - Intake - Active Fuel Management Cylinders	7.33 mm	0.289 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 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	0.13 mm	0.005 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	17.32 mm	0.682 in
Intake Manifold		
┆ Surface Flatness - Measured at Gasket Sealing Surfaces and Measured Within a 200 mm (7.87 in) Area that Includes 2 Runner Port Openings	0.3 mm	0.118 in
Lubrication System		
┆ Oil Capacity - with Filter	5.68 liters	6.0 quarts
┆ Oil Capacity - without Filter	5.20 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
┆ Active Fuel Management Relief Valve Oil Pressure - as Measured at Oil Pressure Sensor Location	379-517 kPa Maximum	55-75 psig Maximum
Oil Pan		
┆ Front Cover Alignment - at Oil Pan Surface	0.0-0.5 mm	0.0-0.02 in

┆ Crankshaft Rear Oil Seal Housing 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 Bell Housing Mounting Surface	0.0-0.1 mm	0.0-0.004 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 Compression Ring - Service	0.04-0.078 mm	0.00157-0.0031 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	0.002-0.01 mm	0.00008-0.0004 in
┆ Pin - Piston Pin Clearance-to-Piston Pin Bore - Service	0.002-0.015 mm	0.00008-0.0006 in
┆ Pin - Piston Pin Diameter	23.952-23.955 mm	0.9430-0.9431 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	0.007-0.022 mm	0.00027-0.00086 in
┆ Piston - Piston Diameter - Measured Over Skirt Coating	96.002-96.036 mm	3.7796-3.7809 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	0.071 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	
Valve Lift - Exhaust - Non Active Fuel Management	12.24 mm	0.488 in
Valve Lift - Exhaust - Active Fuel Management	12.46 mm	0.491 in
Valve Lift - Intake - Non Active Fuel Management	12.24 mm	0.488 in
Valve Lift - Intake - Active Fuel Management	12.46 mm	0.491 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 - 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 - 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
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
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

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[Engine Mechanical - 4.8L, 5.3L, 6.0L, 6.2L, or 7.0L](#) | [Specifications](#) | **Document ID: 2041739**

Engine Mechanical Specifications (RPO LY6 VIN K)

Application	Specification	
	Metric	English
General		
Engine Type	V8	
Displacement	6.0L	364 CID
RPO	LY6	
VIN	K	
Bore	101.618-101.636 mm	4.0007-4.0017 in
Stroke	92.0 mm	3.622 in
Compression Ratio	9.67:1	
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	101.618-101.636 mm	4.0007-4.0017 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 - Exhaust	7.13 mm	0.281 in
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┆ Camshaft Lobe Lift - Intake	6.96 mm	0.274 in
┆ Camshaft Runout - Measured at the Intermediate Journals	0.05 mm	0.002 in
Camshaft Position Actuator		
┆ Range of Authority	52 degrees	
┆ Park Position	7 degrees Advanced	
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 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	0.13 mm	0.005 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	17.32 mm	0.682 in
Intake Manifold		
┆ Surface Flatness - Measured at Gasket Sealing Surfaces and Measured Within a 200 mm (7.87 in) Area that Includes 2 Runner Port Openings	0.3 mm	0.118 in
Lubrication System		
┆ Oil Capacity - with Filter	5.68 liters	6.0 quarts
┆ Oil Capacity - without Filter	5.20 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
┆ Active Fuel Management Relief Valve Oil Pressure - as Measured at Oil Pressure Sensor Location	379-517 kPa Maximum	55-75 psig Maximum
Oil Pan		
┆ Front Cover Alignment - at Oil Pan Surface	0.0-0.5 mm	0.0-0.02 in
┆ Crankshaft Rear Oil Seal Housing 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 Bell Housing Mounting Surface	0.0-0.1 mm	0.0-0.004 in
Piston Rings		
┆ Piston Ring End Gap - First Compression Ring - Measured in Cylinder Bore - Production	0.20-0.41 mm	0.0079-0.0161 in
┆ Piston Ring End Gap - First Compression Ring - Measured in Cylinder Bore - Service	0.20-0.46 mm	0.0079-0.0181 in
┆ Piston Ring End Gap - Second Compression Ring - Measured in Cylinder Bore - Production	0.37-0.69 mm	0.0146-0.0272 in
┆ Piston Ring End Gap - Second Compression Ring -		0.0146-

Measured in Cylinder Bore - Service	0.37-0.75 mm	0.0295 in
┆ Piston Ring End Gap - Oil Control Ring - Measured in Cylinder Bore - Production	0.22-0.79 mm	0.0086-0.0311 in
┆ Piston Ring End Gap - Oil Control Ring - Measured in Cylinder Bore - Service	0.22-0.84 mm	0.0086-0.0331 in
┆ Piston Ring-to-Groove Clearance - First Compression Ring - Production	0.04-0.083 mm	0.0016-0.0033 in
┆ Piston Ring-to-Groove Clearance - First Compression Ring - Service	0.04-0.083 mm	0.0016-0.0033 in
┆ Piston Ring-to-Groove Clearance - Second Compression Ring - Production	0.035-0.078 mm	0.0014-0.0031 in
┆ Piston Ring-to-Groove Clearance - Second Compression Ring - Service	0.035-0.078 mm	0.0014-0.0031 in
┆ Piston Ring-to-Groove Clearance - Oil Control Ring - Production	0.013-0.201 mm	0.0005-0.0079 in
┆ Piston Ring-to-Groove Clearance - Oil Control Ring - Service	0.013-0.201 mm	0.0005-0.0079 in
Pistons and Pins		
┆ Pin - Piston Pin Clearance-to-Piston Pin Bore - Production	0.002-0.01 mm	0.00008-0.0004 in
┆ Pin - Piston Pin Clearance-to-Piston Pin Bore - Service	0.002-0.015 mm	0.00008-0.0006 in
┆ Pin - Piston Pin Diameter	23.952-23.955 mm	0.9430-0.9431 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	0.007-0.022 mm	0.00027-0.00086 in
┆ Piston - Piston Diameter - Measured Over Skirt Coating	101.615-101.649 mm	4.0006-4.0019 in
┆ Piston - Piston-to-Bore Clearance - Production	-0.031 to +0.021 mm	-0.0012 to +0.0008 in
┆ Piston - Piston-to-Bore Clearance - Service Limit with Skirt Coating Worn Off	0.071 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	
┆ Valve Lift - Exhaust	12.12 mm	0.477 in
┆ Valve Lift - Intake	11.83 mm	0.466 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	7.95 mm	0.313 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
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
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

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Engine Mechanical Specifications (RPO LH6 VIN M)

Application	Specification	
	Metric	English
General		
Engine Type	V8	
Displacement	5.3L	325 CID
RPO	LH6	
VIN	M	
Bore	96.0-96.018 mm	3.779-3.78 in
Stroke	92.0 mm	3.622 in
Compression Ratio	9.95:1	
Firing Order	1-8-7-2-6-5-4-3	
Displacement-on-Demand Cylinders	1-4-6-7	
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	96.0-96.018 mm	3.779-3.78 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	2.1678-

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	55.088 mm	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 - Non Displacement-on-Demand Cylinders	7.20 mm	0.283 in
┆ Camshaft Lobe Lift - Intake - Displacement-on-Demand Cylinders	7.33 mm	0.289 in
┆ Camshaft Lobe Lift - Exhaust - Non Displacement-on-Demand Cylinders	7.20 mm	0.283 in
┆ Camshaft Lobe Lift - Exhaust - Displacement-on-Demand Cylinders	7.33 mm	0.289 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 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	0.13 mm	0.005 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	17.32 mm	0.682 in
Intake Manifold		
┆ Surface Flatness - Measured at Gasket Sealing Surfaces and Measured Within a 200 mm (7.87 in) Area that Includes Two Runner Port Openings	0.3 mm	0.118 in
Lubrication System		
┆ Oil Capacity - with Filter	5.68 liters	6.0 quarts
┆ Oil Capacity - without Filter	5.20 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
┆ Displacement-on-Demand Relief Valve Oil Pressure - as Measured at Oil Pressure Sensor Location	379-517 kPa Maximum	55-75 psig Maximum
Oil Pan		
┆ Front Cover Alignment - at Oil Pan Surface	0.0-0.5 mm	0.0-0.02 in
┆ Crankshaft Rear Oil Seal Housing 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 Bell Housing Mounting Surface	0.0-0.1 mm	0.0-0.004 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 Compression Ring - Service	0.04-0.078 mm	0.00157-0.0031 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	0.002-0.01 mm	0.00008-0.0004 in
Pin - Piston Pin Clearance-to-Piston Pin Bore - Service	0.002-0.015 mm	0.00008-0.0006 in
Pin - Piston Pin Diameter	23.952-23.955 mm	0.9430-0.9431 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	0.007-0.022 mm	0.00027-0.00086 in
Piston - Piston Diameter - Measured Over Skirt Coating	96.002-96.036 mm	3.7796-3.7809 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	0.071 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	
Valve Lift - Intake - Non Displacement on Demand	12.24 mm	0.482 in
Valve Lift - Intake - Displacement on Demand	12.41 mm	0.489 in
Valve Lift - Exhaust - Non Displacement on Demand	12.24 mm	0.482 in
Valve Lift - Exhaust - Displacement on Demand	12.41 mm	0.489 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 - 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 - 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

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[Engine Mechanical - 4.8L, 5.3L, 6.0L, 6.2L, or 7.0L](#) | [Specifications](#) | **Document ID: 2045478**

Engine Mechanical Specifications (RPO L9H)

Application	Specification	
	Metric	English
General		
Engine Type	V8	
Displacement	6.2L	376 CID
RPO	L9H	
VIN	2	
Bore	103.241-103.259 mm	4.065-4.065 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	1.02 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	4.065-4.065 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 - Exhaust	7.48 mm	0.294 in
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┆ Camshaft Lobe Lift - Intake	7.48 mm	0.294 in
┆ Camshaft Runout - Measured at the Intermediate Journals	0.05 mm	0.002 in
Camshaft Position Actuator		
┆ Range of Authority	52 degrees	
┆ Park Position	7 degrees Advanced	
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 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	0.13 mm	0.005 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	17.32 mm	0.682 in
Intake Manifold		
┆ Surface Flatness - Measured at Gasket Sealing Surfaces and Measured Within a 200 mm (7.87 in) Area that Includes 2 Runner Port Openings	0.3 mm	0.118 in
Lubrication System		
┆ Oil Capacity - with Filter	5.68 liters	6.0 quarts
┆ Oil Capacity - without Filter	5.20 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
┆ Active Fuel Management Relief Valve Oil Pressure - as Measured at Oil Pressure Sensor Location	379-517 kPa Maximum	55-75 psig Maximum
Oil Pan		
┆ Front Cover Alignment - at Oil Pan Surface	0.0-0.5 mm	0.0-0.02 in
┆ Crankshaft Rear Oil Seal Housing 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 Bell Housing Mounting Surface	0.0-0.1 mm	0.0-0.004 in
Piston Rings		
┆ Piston Ring End Gap - First Compression Ring - Measured in Cylinder Bore - Production	0.17-0.38 mm	0.0067-0.0150 in
┆ Piston Ring End Gap - First Compression Ring - Measured in Cylinder Bore - Service	0.17-0.44 mm	0.0067-0.0173 in
┆ Piston Ring End Gap - Second Compression Ring - Measured in Cylinder Bore - Production	0.32-0.63 mm	0.0126-0.0248 in
┆ Piston Ring End Gap - Second Compression Ring -		0.0126-

Measured in Cylinder Bore - Service	0.32-0.69 mm	0.0272 in
┆ Piston Ring End Gap - Oil Control Ring - Measured in Cylinder Bore - Production	0.22-0.79 mm	0.0086-0.0311 in
┆ Piston Ring End Gap - Oil Control Ring - Measured in Cylinder Bore - Service	0.22-0.85 mm	0.0086-0.0335 in
┆ Piston Ring-to-Groove Clearance - First Compression Ring - Production	0.030-0.083 mm	0.0012-0.0033 in
┆ Piston Ring-to-Groove Clearance - First Compression Ring - Service	0.030-0.083 mm	0.0012-0.0033 in
┆ Piston Ring-to-Groove Clearance - Second Compression Ring - Production	0.040-0.083 mm	0.0016-0.0033 in
┆ Piston Ring-to-Groove Clearance - Second Compression Ring - Service	0.040-0.083 mm	0.0016-0.0033 in
┆ Piston Ring-to-Groove Clearance - Oil Control Ring - Production	0.013-0.201 mm	0.0005-0.0079 in
┆ Piston Ring-to-Groove Clearance - Oil Control Ring - Service	0.013-0.201 mm	0.0005-0.0079 in
Pistons and Pins		
┆ Pin - Piston Pin Clearance-to-Piston Pin Bore - Production	0.002-0.01 mm	0.00008-0.0004 in
┆ Pin - Piston Pin Clearance-to-Piston Pin Bore - Service	0.002-0.015 mm	0.00008-0.0006 in
┆ Pin - Piston Pin Diameter	23.952-23.955 mm	0.9430-0.9431 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	0.007-0.022 mm	0.00027-0.00086 in
┆ Piston - Piston Diameter - Measured Over Skirt Coating	103.258-103.289 mm	4.0653-4.0665 in
┆ Piston - Piston to Bore Clearance - Production	-0.048 to +0.001 mm	-0.0019 to +0.000 in
┆ Piston - Piston to Bore Clearance - Service Limit With Skirt Coating Worn Off	0.055 mm	0.0022 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	
┆ Valve Lift - Exhaust	12.72 mm	0.501 in
┆ Valve Lift - Intake	12.72 mm	0.501 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	7.95 mm	0.313 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
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
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

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[Engine Mechanical - 4.8L, 5.3L, 6.0L, 6.2L, or 7.0L](#) | [Specifications](#) | **Document ID: 2089670**

Engine Mechanical Specifications (RPO L76 VIN Y)

Application	Specification	
	Metric	English
General		
Engine Type	V8	
Displacement	6.0L	364 CID
RPO	L76	
VIN	Y	
Bore	101.618-101.636 mm	4.0007-4.0017 in
Stroke	92.0 mm	3.622 in
Compression Ratio	9.67:1	
Firing Order	1-8-7-2-6-5-4-3	
Active Fuel Management Cylinders	1-4-6-7	
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	101.618-101.636 mm	4.0007-4.0017 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
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┆ Camshaft Lobe Lift - Exhaust - Non Active Fuel Management Cylinders	7.47 mm	0.294 in
┆ Camshaft Lobe Lift - Exhaust - Active Fuel Management Cylinders	7.61 mm	0.299 in
┆ Camshaft Lobe Lift - Intake - Non Active Fuel Management Cylinders	7.47 mm	0.294 in
┆ Camshaft Lobe Lift - Intake - Active Fuel Management Cylinders	7.61 mm	0.299 in
┆ Camshaft Runout - Measured at the Intermediate Journals	0.05 mm	0.002 in
Camshaft Position Actuator		
┆ Range of Authority	52 degrees	
┆ Park Position	7 degrees Advanced	
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 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	0.13 mm	0.005 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	17.32 mm	0.682 in
Intake Manifold		
┆ Surface Flatness - Measured at Gasket Sealing Surfaces and Measured Within a 200 mm (7.87 in) Area that Includes 2 Runner Port Openings	0.3 mm	0.118 in
Lubrication System		
┆ Oil Capacity - with Filter	5.68 liters	6.0 quarts
┆ Oil Capacity - without Filter	5.20 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
┆ Active Fuel Management Relief Valve Oil Pressure - as Measured at Oil Pressure Sensor Location	379-517 kPa Maximum	55-75 psig Maximum
Oil Pan		
┆ Front Cover Alignment - at Oil Pan Surface	0.0-0.5 mm	0.0-0.02 in
┆ Crankshaft Rear Oil Seal Housing 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 Bell Housing Mounting Surface	0.0-0.1 mm	0.0-0.004 in
Piston Rings		

┆ Piston Ring End Gap - First Compression Ring - Measured in Cylinder Bore - Production	0.20-0.41 mm	0.0079-0.0161 in
┆ Piston Ring End Gap - First Compression Ring - Measured in Cylinder Bore - Service	0.20-0.46 mm	0.0079-0.0181 in
┆ Piston Ring End Gap - Second Compression Ring - Measured in Cylinder Bore - Production	0.37-0.69 mm	0.0146-0.0272 in
┆ Piston Ring End Gap - Second Compression Ring - Measured in Cylinder Bore - Service	0.37-0.75 mm	0.0146-0.0295 in
┆ Piston Ring End Gap - Oil Control Ring - Measured in Cylinder Bore - Production	0.22-0.79 mm	0.0086-0.0311 in
┆ Piston Ring End Gap - Oil Control Ring - Measured in Cylinder Bore - Service	0.22-0.84 mm	0.0086-0.0331 in
┆ Piston Ring-to-Groove Clearance - First Compression Ring - Production	0.04-0.083 mm	0.0016-0.0033 in
┆ Piston Ring-to-Groove Clearance - First Compression Ring - Service	0.04-0.083 mm	0.0016-0.0033 in
┆ Piston Ring-to-Groove Clearance - Second Compression Ring - Production	0.035-0.078 mm	0.0014-0.0031 in
┆ Piston Ring-to-Groove Clearance - Second Compression Ring - Service	0.035-0.078 mm	0.0014-0.0031 in
┆ Piston Ring-to-Groove Clearance - Oil Control Ring - Production	0.013-0.201 mm	0.0005-0.0079 in
┆ Piston Ring-to-Groove Clearance - Oil Control Ring - Service	0.013-0.201 mm	0.0005-0.0079 in
Pistons and Pins		
┆ Pin - Piston Pin Clearance- to-Piston Pin Bore - Production	0.002-0.01 mm	0.00008-0.0004 in
┆ Pin - Piston Pin Clearance-to-Piston Pin Bore - Service	0.002-0.015 mm	0.00008-0.0006 in
┆ Pin - Piston Pin Diameter	23.952-23.955 mm	0.9430-0.9431 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	0.007-0.022 mm	0.00027-0.00086 in
┆ Piston - Piston Diameter - Measured Over Skirt Coating	101.615-101.649 mm	4.0006-4.0019 in
┆ Piston - Piston to Bore Clearance - Production	-0.031 to +0.021 mm	-0.0012 to +0.0008 in
┆ Piston - Piston to Bore Clearance - Service Limit With Skirt Coating Worn Off	0.071 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	
┆ Valve Lift - Exhaust - Non Active Fuel Management	12.61 mm	0.496 in

Valve Lift - Exhaust - Active Fuel Management	12.93 mm	0.509 in
Valve Lift - Intake - Non Active Fuel Management	12.61 mm	0.496 in
Valve Lift - Intake - Active Fuel Management	12.93 mm	0.509 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	7.95 mm	0.313 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
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
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

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Engine Content Specifications

RPO	VIN	Displacement	Camshaft Position (CMP) Actuator Control System	Active Fuel Management Control System	E85 Capable	Block Material
LY2	C	4.8L	No	No	No	Iron
LH6	M	5.3L	No	Yes	No	Aluminum
LMG	O	5.3L	No	Yes	Yes	Iron
LC9	3	5.3L	No	Yes	Yes	Aluminum
LY5	J	5.3L	No	Yes	No	Iron
LY6	K	6.0L	Yes	No	No	Iron
L76	Y	6.0L	Yes	Yes	No	Aluminum
L9H	2	6.2L	Yes	No	Yes	Aluminum

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Adhesives, Fluids, Lubricants, and Sealers

Application	Type of Material	GM Part Number	
		United States	Canada
Coolant Temperature Sensor Threads	Sealant	12346004	10953480
Cylinder Head Core Hole Plug	Threadlock	12345382	10953489
Cylinder Head Plug	Threadlock	12345382	10953489
Engine Block Coolant Drain Hole Plug Sealing Washer	Sealant	12346004	10953480
Engine Block Front Oil Gallery Plug	Threadlock	12345382	10953489
Engine Block Oil Gallery Plug Sealing Washers	Sealant	12346004	10953480
Engine Oil Pressure Sensor Threads	Sealant	12346004	10953480
Engine Oil Supplement	Fluorescent Dye	12345795	10953470
Exhaust Manifold Bolts	Threadlock	12345493	10953488
Flywheel/Flex Plate Bolts	Threadlock	12345382	10953489
Fuel Injection Fuel Rail Bolts	Threadlock	12345382	10953489
Ignition Coil Bracket-to-Valve Cover Studs	Threadlock	12345382	10953489
Ignition Coil-to-Bracket Bolts	Threadlock	12345382	10953489
Intake Manifold Bolts	Threadlock	12345382	10953489
Oil Pan Oil Gallery Plug Threads	Sealant	12346004	10953480
Oil Pan Surface at Front Cover and Rear Housing	Sealant	12378521	88901148
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](#)

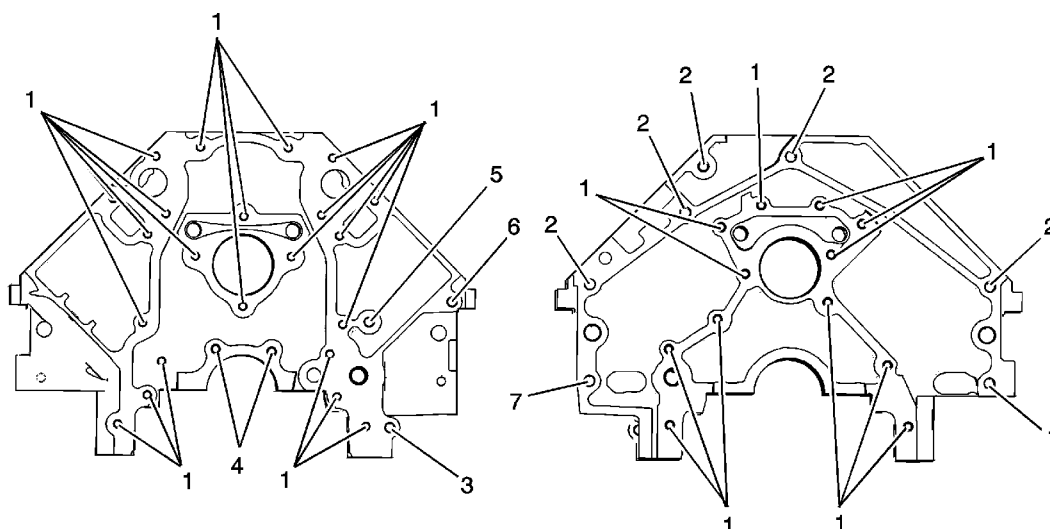
Table 2: [Engine Block - Left/Right Side Views](#)

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

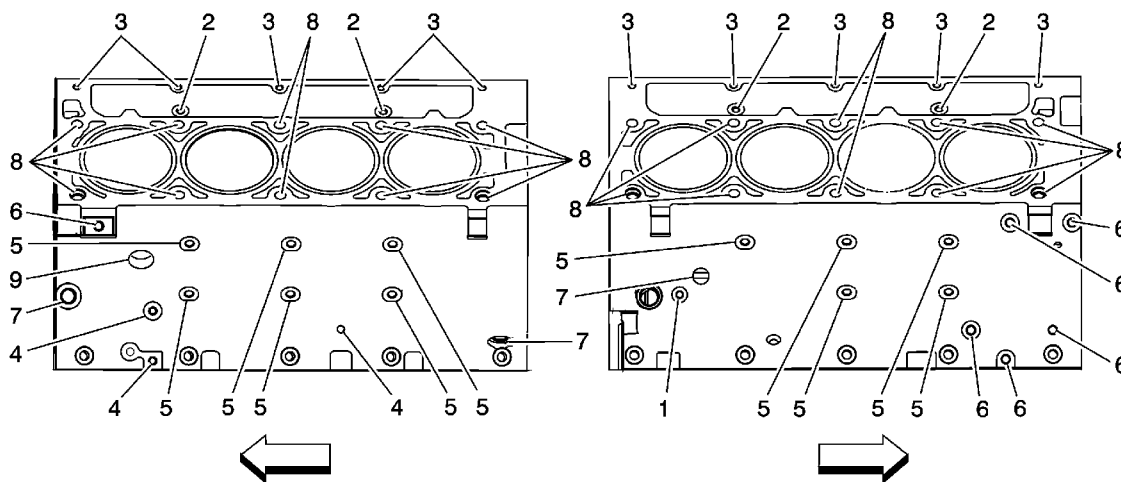
Hole	Thread Size	Insert	Drill	Counterbore Tool	Tap	Driver	Drill Depth - Maximum mm (in)	Tap Depth - Maximum mm (in)
J 42385-								
1	M8 x 1.25	210	206	207	208	209	22.5 (0.885)	17.5 (0.688)
2	M10 x 1.5	215	211	212	213	214	27.5 (1.08)	22.0 (0.866)
3	M10 x 1.5	215	211	212	213	214	Thru	Thru

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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



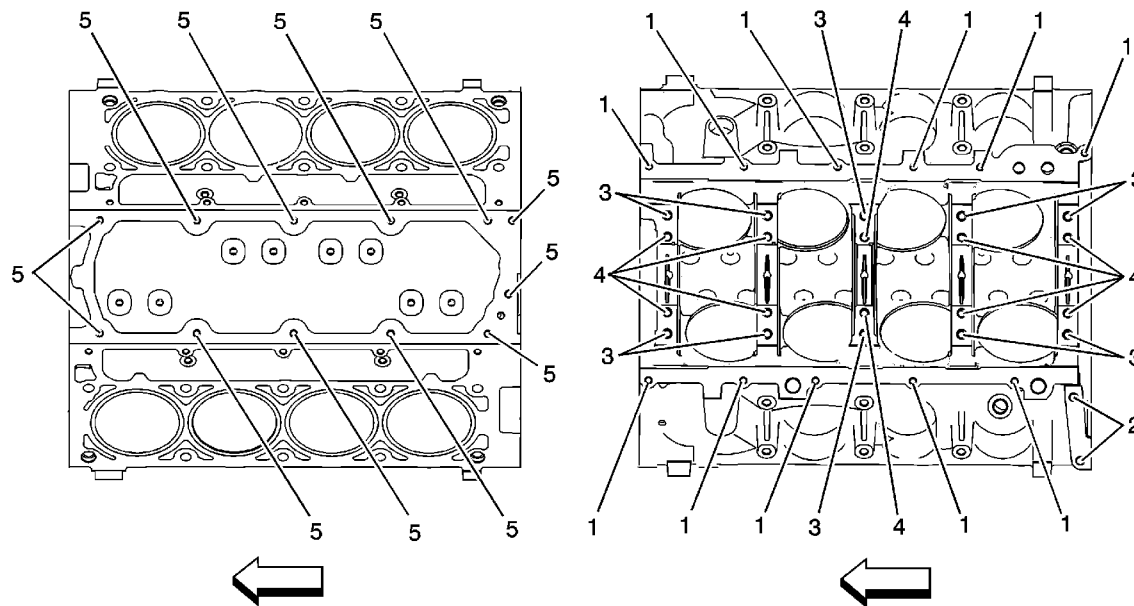
Engine Block - Left/Right Side Views

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

Bolt hole 8 has 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.

Engine Block - Top/Bottom Views

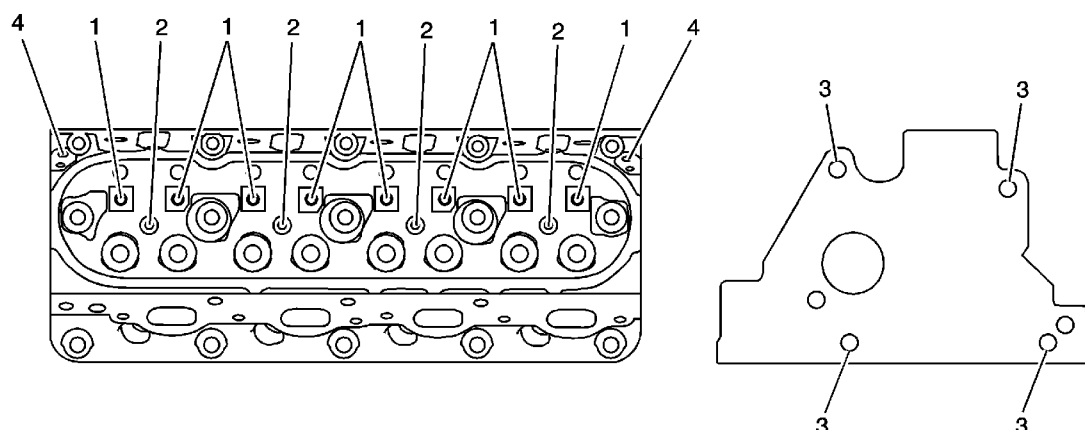


Engine Block - Top/Bottom Views

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	210	206	207	208	209	26.5 (1.043)	19.0 (0.748)

1.25								
<ul style="list-style-type: none"> 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. 								

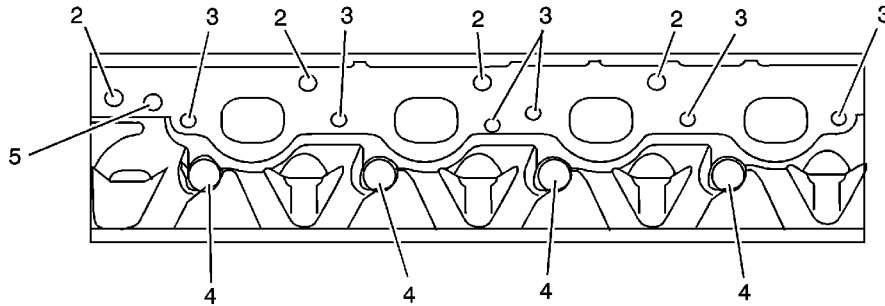
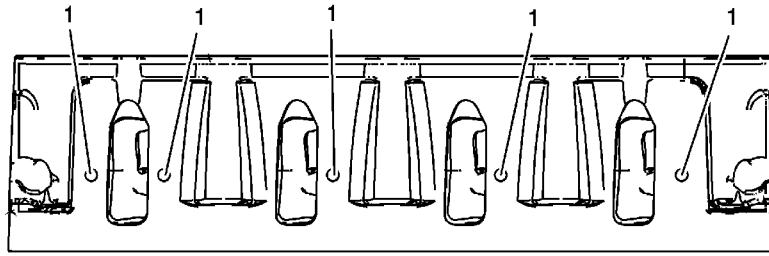
Cylinder Head - Top/End Views



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)

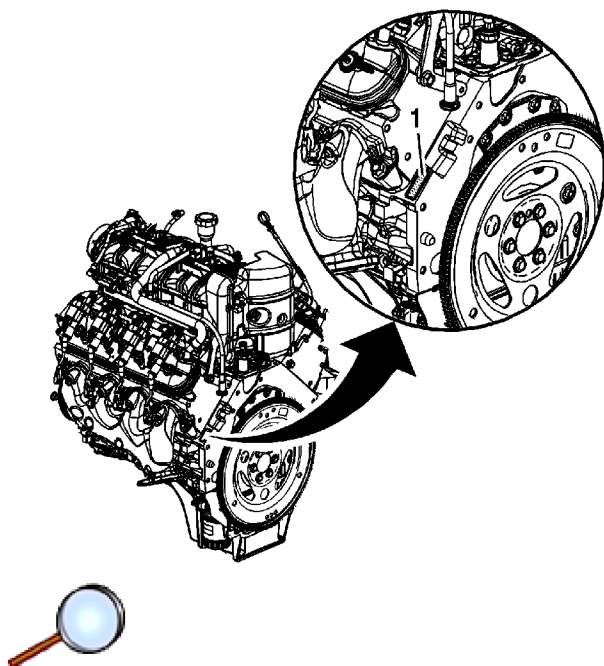
Cylinder Head - Intake/Exhaust Side Views



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.