

GROUP 2 ENGINE

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SECTION 2-A ENGINE SPECIFICATIONS

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NOTES

2-1 ENGINE TIGHTENING SPECIFICATIONS

Use a reliable torque wrench to tighten the parts listed, to insure proper tightness without straining or distorting parts. These specifications are for *clean and lightly lubricated threads* only; dry or dirty threads produce increased friction which prevents accurate measurement of tightness.

Part	Location	Thread Size	Torque Ft. Lbs.
Plug	Spark	14 MM	22-28
Plug	Crankcase Drain	18 MM	30-35
Bolt	Water Pump Cover	1/4-20	6-8

Part	Location	Thread Size	Torque Ft. Lbs.
Bolt	Timing Chain Cover	5/16-18	20-25
Bolt	Lower Crankcase (Oil Pan)	5/16-18	6-15
Bolt	Valve Lifter Cover	5/16-18	4-6
Nut	Valve Rocker Arm Cover	5/16-24	4-6
Bolt	Intake Manifold	3/8-16	25-30
Bolt	Exhaust Manifold	3/8-16	10-15
Bolt	Rocker Arm Shaft Bracket	3/8-16	30-35
Bolt	Water Manifold	3/8-16	25-30
Bolt	Generator Mounting Bracket	3/8-16	25-30
Nut	Connecting Rod Bolt	3/8-24	40-45
Bolt	Flywheel to Crankshaft	1/2-20	50-60
Bolt	Cylinder Head	1/2-14	65-75
Bolt	Crankshaft Bearing Cap	1/2-13	100-110
Bolt	Harmonic Balancer	3/4-16	100-110

2-2 ENGINE GENERAL SPECIFICATIONS

NOTE: See paragraph 2-3 for dimensions.

Items	Series 40	Series 50-60-70
Type—No. of Cylinders	← 8.0 to 1 →	← 10 to 1 →
Valve Arrangement	← 90 Deg. V-8 →	← In Head →
Bore and Stroke	← 4.125" x 3.4" →	← 364 →
Piston Displacement (cu. in.)	← 8.0 to 1 →	← 10 to 1 →
Compression Ratio, Synchronesh	← 9.5 to 1 →	← 10 to 1 →
Compression Pressure @ 190 RPM Cranking Speed—		
Synchronesh (P.S.I.)	← 150 →	← 185 →
Dynaflow (P.S.I.)	← 170 →	← 185 →
Taxable Horsepower	← 54.45 →	← 54.45 →
Max. Brake Horsepower, Bare Engine—		
Dynaflow, H.P. @ RPM	← 250 @ 4400 →	← 300 @ 4600 →
Engine Torque (Lbs-ft @ RPM)	← 380 @ 2400 →	← 400 @ 3200 →
Engine manifold vacuum at idle	← 14 in. Hg. (Min.) →	← 14 in. Hg. (Min.) →
Cylinder Numbers, Front to Rear—		
Right Bank	← 1-3-5-7 →	← 1-3-5-7 →
Left Bank	← 2-4-6-8 →	← 2-4-6-8 →
Firing Order	← 1-2-7-8-4-5-6-3 →	← 1-2-7-8-4-5-6-3 →
Crankshaft Bearings, No. and Type	← 5, Replaceable Liners →	← 5, Replaceable Liners →
Material—Front Four	← Steel Backed Moraine 400 →	← Steel Backed Moraine 400 →
Material—Rear	← Steel Backed Durex—100A →	← Steel Backed Durex—100A →
Bearing Which Takes End Thrust	← No. 5 →	← No. 5 →
Connecting Rod Bearings, Type	← Replaceable Liners →	← Replaceable Liners →
Material	← Steel Backed Moraine 400 →	← Steel Backed Moraine 400 →
Piston Material & Surface Treatment	← Aluminum Alloy—Tin Plated →	← Aluminum Alloy—Tin Plated →
Compression Rings—No./Piston, Material	← 2, Cast Iron →	← 2, Cast Iron →
Oil Rings—No./Piston	← One →	← One →
Type	← 3-Piece/Expander →	← 3-Piece/Expander →
Location of all Piston Rings	← Above Piston Pin →	← Above Piston Pin →
Camshaft, Type and Material	← Cast Iron Alloy →	← Cast Iron Alloy →
Camshaft Drive	← Chain →	← Chain →
No. & Type of Camshaft Bearings	← 5, Steel Backed Babbitt →	← 5, Steel Backed Babbitt →
Valve Lifter Type and Material	← Hydraulic, Cast Iron →	← Hydraulic, Cast Iron →
Valve Spring Type	← Dual Helical →	← Dual Helical →
Oiling System Type	← Forced Feed →	← Forced Feed →
Oil Supplied to Bearing Surfaces—		
Crankshaft, Camshaft, Con. Rods	← Full Pressure →	← Full Pressure →
Pistons, Pins, Cylinders	← Splash →	← Splash →
Cylinder Walls	← Splash & Nozzle →	← Splash & Nozzle →
Valve Lifters, Rocker Arms, Valves	← Low Pressure →	← Low Pressure →
Normal Oil Pressure	← 40 lbs. @ 35 MPH →	← 40 lbs. @ 35 MPH →
Vacuum Pump—Static Head (Min.)	← 22" Hg. @ 1600 Eng. RPM →	← 22" Hg. @ 1600 Eng. RPM →
Oil Reservoir Capacity—Quarts		
Dry Engine	← 5 (5½ with dry filter) →	← 5 (5½ with dry filter) →
Refill	← 4 (5 with dry filter) →	← 4 (5 with dry filter) →
Oil Filter, Make and Type	← AC, Type PF-122 →	← AC, Type PF-122 →
Cooling System Type	← Pressure (15 lb. Rad. Cap.) →	← Pressure (15 lb. Rad. Cap.) →
Water Temperature Control	← Thermostat & Fixed By-Pass →	← Thermostat & Fixed By-Pass →
Thermostat Opens at—(deg. F)	← 157 to 162 →	← 157 to 162 →
Cooling System Capacity—Quarts		
Less Heater	← 16.5 →	← 16.5 →
With Heater	← 18 →	← 18 →
Fan Diameter, No. of Blades, Regular	← 18", 4 →	← 18", 4 →
With Air Conditioning	← 18.5", 5 →	← 18.5", 5 →

2-3 ENGINE DIMENSIONS, FITS AND ADJUSTMENTS

NOTE: These dimensions and limits for fit of parts apply to new parts only. "T" means tight. "L" means loose.

Items	All Series
Crankshaft Journal Diameter	← 2.498—2.499 →
Crankshaft Journal to Bearing Clearance	← .0005"—.0025" →
Crankshaft End Play at Rear Bearing	← .004"—.008" →
Crankshaft Bearing Effective Length—	
No. 1, 2, 3, 4	← .804" →
No. 5	← 1.105" →
Crankpin Journal Diameter	← 2.249"—2.250" →
Crankpin Journal to Bearing Clearance	← .0002"—.0023" →
Connecting Rod End Play on Crankpin	← .005"—.012" →
Connecting Rod Bearing Length	← .781" →
Cylinder Bores, Standard Size	← 4.1235"—4.1265" →

Items	All Series
Piston Clearance in Bore	.0008" — .0014"
Piston Fit @ 70 Deg. F., Pull on Scale with .003" Feeler—Lbs.	7 to 13
Piston Pin Diameter	.9995"
Piston Pin Fit @ 70° F.	Finger Push (.0004")
Piston Ring Side Clearance in Groove— Compression Ring	.003" — .005"
Oil Ring	.0035" — .0095"
Piston Ring Gap, Compression Ring in Bore	.015" — .025"
Oil Ring in Bore	.015" — .035"
Camshaft Bearing Journal Diam.	
No. 1	1.785" — 1.786"
No. 2	1.755" — 1.756"
No. 3	1.725" — 1.726"
No. 4	1.695" — 1.696"
No. 5	1.665" — 1.666"
Camshaft Journal Clearance in Bearings	.0005" — .0035"
Valve Lifter Diameter	.8425"
Valve Lifter Clearance in Crankcase	.0015" — .003"
Valve Lifter Leakdown Rate, in Test Fixture	12 to 40 Sec.
Rocker Arm Clearance on Shaft	.002" — .004"
Valve Head Diameter—Inlet	1.875"
Valve Head Diameter—Exhaust	1.437"
Valve Seat Angle—Inlet & Exhaust	45 Degrees
Valve Stem Diameter—Inlet	.372"
Valve Stem Diameter—Exhaust	.371"
Valve Stem Clearance in Guide—Inlet	.002" — .003"
Exhaust	.003" — .004"
Valve Spring—Outer	
Valve Closed (lbs. @ length)	39.5 — 44.5 @ 1.53"
Valve Open (lbs. @ length)	93 — 99 @ 1.11"
Valve Spring—Inner	
Valve Closed (lbs. @ length)	23 — 28 @ 1.62"
Valve Open (lbs. @ length)	63 — 69 @ 1.2"
Oil Pump Shaft to Bearing Clearance	.001" — .0025"
Oil Pump Idler Gear Bearing Clearance	.001" — .0025"
Oil Pump Driving Gear Backlash	.002" — .004"
Oil Pump, Drive and Idler Gear Backlash	.004" — .008"
Oil Pump Gear End Clearance in Body	.005"
Fan Belt Adjustment (Torque to Slip Generator Pulley)	20-25 ft. lbs.
Water Pump Bearing Fit in Body	.0008"T to .0023"T
Fan Hub Fit on Bearing Shaft	.001"T — .0025"T
Fan Hub Position from End of Shaft	1/4"

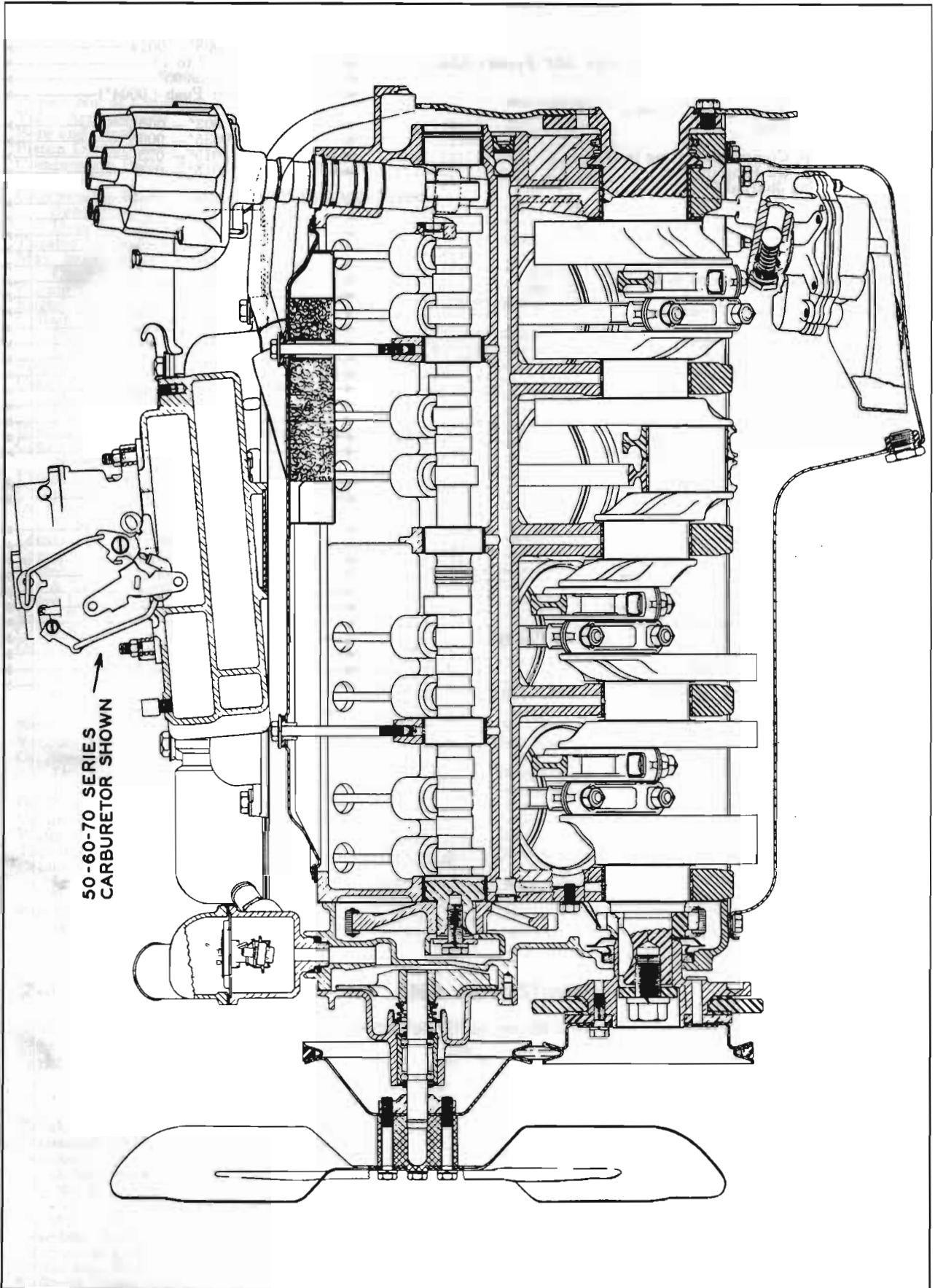


Figure 2-1 — Engine, Side Sectional View—All Series