



# CADILLAC - 1959-1960

## Engine Mechanical

### Specifications

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<b>Subject and Remarks</b>	<b>All Series</b>
Bore	4"
Stroke	3-7/8"
<b>Compression Pressure --</b>	
At cranking speed (throttle open)	165 to 185
At 1000 R.P.M	212 to 230
Compression Ratio	10.50 to 1
<b>Horsepower --</b>	
Rated (taxable)	51.2
Standard Engine developed at 4800 R.P.M	325
Tri-power Engine developed at 4800 R.P.M	345
Piston Displacement	390 Cu. In.
Points of Suspension	3
Torque, Standard Engine, at 3100 R.P.M.	430 Ft. Lbs.
Torque, Tri-power Engine, at 3400 R.P.M.	435 Ft. Lbs.
<b>VALVES, EXHAUST</b>	
Clearance between stem and guide --	
New limits	0.0010" - 0.0025"
Worn limits, not over	0.005"
Clearance between lifter body and crankcase	0.0005" - 0.0020"
Head diameter, overall	1.50"
Lift	0.450"

Seat angle	44°
Seat width in head	0.045" - 0.063"
Seat concentricity, not over (total indicator reading)	0.004"
Stem, length overall	4.727" - 4.694"
Stem, diameter	0.3415" - 0.3420"

**VALVES, INLET**

Clearance between stem and guide --

New limits	0.0005" - 0.0025"
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Worn limits, not over	0.005"
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Clearance between lifter body and crankcase	0.0005" - 0.0020"
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Head diameter, overall	1.875"
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Lift	0.450"
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Seat angle	44°
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Seat width in head	0.045" - 0.063"
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Seat concentricity, not over (total indicator reading)	0.004"
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Stem, length overall	4.717" - 4.688"
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Stem, diameter	0.3415" - 0.3425"
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**VALVE SPRINGS**

Free length	2.250"
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Lbs. required to compress to 1.946" (valve closed)	60 - 65
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Lbs. required to compress to 1.496" (valve open)	155 - 165
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**ROCKER SHAFT ASSEMBLY**

Clearance between arm and shaft --

New limits	0.0007" - 0.0022"
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Worn limits	0.003"
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Clearance between shaft and bracket	0.0002" - 0.0017"
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Shaft diameter	0.8108" - 0.8113"
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Diameter of hole in arm	0.812" - 0.813"
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Short spring (center) --

Free length	3.73"
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Pressure (lbs) when compressed to 1.594"	10-1/2 - 12
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Long spring (end) --

Free length	4-31/32"
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Pressure (lbs) when compressed to 2.219"	10-1/2 - 12
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**VALVE TIMING (without ramp)**

Intake opens	27° B.T.D.C.
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Intake closes	75° A.B.D.C.
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Exhaust opens	73° B.B.D.C.
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Exhaust closes	29° A.T.D.C.
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**CONNECTING RODS**

Bearing Material	Moraine 400 Alum.
Clearance between bearing and shaft --	
New limits	0.0005" - 0.0020"
Worn limits, not over	0.0045"
Diameter lower end, without bearing	2.3740" - 2.3745"
Length, center to center	6-1/2"
End play of rods on crank pin	0.008" - 0.014"

**PISTON RINGS**

Clearance between rings and sides of groove in piston --	
Compression rings	0.0022" - 0.0035"
Oil rings	0.0013" - 0.0026"
Gap between ends in 4.0000" cylinder --	
Compression rings	0.013" - 0.023"
Oil rings	0.013" - 0.023"
Number of compression rings	2
Number of oil rings	1
Width of compression rings	5/64"
Width of oil ring	3/16"
Diameter at bottom of groove --	
Oil ring	3.551" - 3.556"
Compression rings	3.551" - 3.556"
Maximum wall thickness --	
Oil ring	0.145"
Compression ring top	0.200"
Compression ring bottom	0.200"

**PISTON PINS**

Clearance between pin and piston --	
New limits	0.00005" - 0.0001" at 70°F.
Pin length	3-3/32"
Pin diameter	0.9994" - 0.9997"

**PISTON AND CYLINDERS**

Cylinder out of round (new or reground limit) --	
Not over	0.0005"
Taper, not over	0.0007"
Cylinder bore, standard	4.0000" - 4.0020"

**CYLINDER CLASS SIZES (10) A to M**

(Indicated by letters stamped on top of block)

Letter	Cylinder Sizes	Piston Sizes
A	4.0000 - 4.0002	3.9985 - 3.9987

B	4.0002 - 4.0004	3.9987 - 3.9989
C	4.0004 - 4.0006	3.9989 - 3.9991
D	4.0006 - 4.0008	3.9991 - 3.9993
E	4.0008 - 4.0010	3.9993 - 3.9995
H	4.0010 - 4.0012	3.9995 - 3.9997
J	4.0012 - 4.0014	3.9997 - 3.9999
K	4.0014 - 4.0016	3.9999 - 4.0001
L	4.0016 - 4.0018	4.0001 - 4.0003
M	4.0018 - 4.0020	4.0003 - 4.0005

Piston material	Aluminum Alloy
Piston skirt diameter --	
Standard	3.9958" - 4.0005"
Piston skirt diameter - oversize --	
0.010" oversize	4.0085" - 4.0105"
0.020" oversize	4.0185" - 4.0195"
0.030" oversize	4.0285" - 4.0295"
Piston skirt top clearance	0.0015"
Piston skirt bottom clearance	0.000"
Piston top land diameter, standard	3.9650" - 3.9680"
Piston top land clearance	0.032" - 0.037"

### **OIL PUMP**

Backlash between drive gears	0.008" - 0.012"
Clearance between pump body and drive shaft --	
New limits	0.0010" - 0.0025"
Worn limits, not over	0.005"
Clearance between pump body and gears --	
New limits	0.003" - 0.005"
Worn limits, not over	0.006"
End play in pump gears --	
New limits	0.001" - 0.004"
Worn limits, not over	0.006"
Oil pump type	Spur gear

### **CRANKSHAFT AND MAIN BEARINGS**

Clearance, main bearings --	
New limits	0.0008" - 0.0025"
Worn limits, not over	0.005"
Main bearing caps --	
Bolt thread diameter	1/2"
Main bearing journal diameter	2-5/8"
Main bearing journals, out of round not over	0.00025"
Main bearing journal length --	

Front	0.907"
Intermediate	0.907"
Rear	1.622"
Main bearings, material --	
(Except Rear)	400M Alum.
(Rear)	Moraine Durex 100A
Crankpin diameter	2.2488" - 2.2493"
Crankpin out of round, not over	0.00025"
End play in crankshaft --	
New limits	0.001" - 0.007"
Worn limits	0.010"A

### OIL PRESSURE REGULATOR

Clearance between valve plunger and housing --	
New limits	0.0020" - 0.0035"
Worn limits, not over	0.005"
Normal pressure to 30 M.P.H --	
Minimum	30-35 lbs. psi
Idle (average)	15 lbs. psi
Spring --	
Free length (approx)	2.65"
Lbs. required to compress to 1.443"	5.28 - 5.78
Valve opens at	35 lbs. psi

### CAMSHAFT

Chain --	
Adjustment	None
Length	23"
Make	Link Belt
Number of links	46
Pitch	0.500"
Width	11/16"
Bearing clearance --	
New limits	0.001" - 0.0022"
Worn limits, not over	0.004"
Number of bearings	5
Cam lift	0.273"

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