

Automobile Manufacturers Association

Consolidated Specification Questionnaire

For 1939 Models

Mechanical Details

Make of Car **BUICK** Model **1939 SERIES 60 - CENTURY**

Name of Maker **BUICK MOTOR DIVISION** Address **FLINT, MICHIGAN**

Date **OCTOBER 14, 1938**

NOTE—Only standard equipment included in Factory Delivered price should be included in this questionnaire

ENGINE

No. of cylinders **8**

Valve arrangement **In Head**

Bore **3-7/16"** Stroke **4-5/16"**

Engine—make and model **Own-Series 60**

Cylinder arrangement (angle of Vee in degrees) **In Line**

Cylinder head, cast iron or aluminum **Cast Iron**

Piston displacement **320.2 cu. in.**

Taxable horsepower **37.81**

Maximum brake horsepower at R.P.M. **141 @ 3600**

Maximum torque (lbs.-ft.) at R.P.M. **259 @ 2000**

Revolutions per mile with standard rear axle and tires. **2790 @ 50 MPH**

Compression Ratio—
Standard **6.25 to 1** Optional **None**

Standard compression pressure—pounds—
At what R.P.M. **130 @ 1000**

At cranking speed **113.8**

PISTONS and RINGS

Piston
Make **Own**

Material **Al. Alloy**

Features—split skirt, invar strat, oval, tin-plated, aluminum oxide finish, auto-thermic, V-Bridge, etc. *

Weight—ounces—without rings, pin or bushing **17.3**

Length **4-7/16"**

Clearance—
Top **Land .026"** to **.033"**

Bottom **Top of Skirt .0020" to .0026"**

Piston ring groove depth—
Oil **.175"** Compression **.162"**

No. of oil rings used per piston **2**

Width of oil rings **3/16"**

Width of oil ring gap **.010" to .015"**

No. of compression rings used per piston **3**

Width of compression rings **Upper 1/8" Lower 3/32"**

Width of compression ring gap **.010" to .015"**

Maximum wall thickness of oil rings **.150"**

Maximum wall thickness of compression rings **Upper .155" Lower .150"**

*Full skirt relieved at pin bosses, Tri-slot, cam ground-anodized.

RODS and PINS

Wristpin—
Length **3-1/16"** Diameter **7/8"**

Locked in rod, piston or floating **In Rod**

Clearance **.0003"** to **.0004"**

Hole finish—reamed, diamond bared, broached or ground **Diamond Bore**

Connecting rod—
Length—center to center **8-1/4"**

Material **H.R.S. 1045**

Weight—ounces **38-1/2**

Crankpin journal—
Diameter **2-1/4"** Length **1.306"**

Lower bearing—
Material **Babbitt**

Make **Own**

Clearance **.0008"** to **.0018"**

End play **.005"** to **.010"**

Shim—solid, laminated or none **Solid**

Spun or separate **Centrifugally Cast**

Rods and pistons removed from above or below **Above**

CRANKSHAFT

Vibration dampener used—yes or no **Yes**

Type **Laminated steel flywheel supported on steel leaf springs**

Crankshaft counterweights used, number of **8**

Which main bearing takes thrust **Center**

Crankshaft end play **.004" to .008"**

Main bearing—
Material **Steel Backed Babbitt**

Clearance **.0007" to .0022"**

Shim—solid, laminated or none **Solid**

Main bearing journal diameter x length—
No. 1. **2-9/16" x 1-9/32"**

No. 2. **2-5/8" x 31/32"**

No. 3. **2-11/16" x 1-15/32"**

No. 4. **2-3/4" x 31/32"**

No. 5. **2-13/16" x 2-15/32"**

No. 6.

No. 7.

No. 8.

No. 9.

Crankshaft gear—
Make **Own**

Material **C.D.S. 1112**

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CAMSHAFT

Camshaft gear—
 Make Own
 Material C.I. 13M
 Timing chain—
 Make Link Belt
 Number of links 50
 Width 1"
 Pitch500
 Adjustment—none, automatic or manual None

VALVES

INTAKE VALVE—

Make Thompson or Rich
 Overall length 5-1/4"
 Head—
 Material 3140 or 1050
 Actual overall diameter 1-25/32"
 Angle of seat 45 Deg.
 Stem—
 Diameter3720"
 End style Split Collar
 Stem to guide clearance0015" to .0035"
 Lift347"
 Spring pressure and length—
 Outer—
 With valve closed 26½ to 31½ Lbs. - 1-15/16"
 With valve open 67 to 73 Lbs. - 1-19/32"
 Out of engine 2-5/16"
 Inner—
 With valve closed 15½ to 20½ Lbs. - 1-21/32"
 With valve open 45 to 51 Lbs. - 1-5/16"
 Out of engine 1-7/8"

EXHAUST VALVE—

Make Thompson or Rich
 Overall length 5-1/4"
 Head—
 Material 2112 for Rich & X-B-for Thompson
 Actual overall diameter 1-7/16"
 Angle of seat 45 Deg.
 Is valve seat on insert No
 Stem—
 Diameter3715"
 End style Split Collar
 Stem to guide clearance0021" to .0039"
 Lift348"
 Spring pressure and length—
 With valve closed Same as for Intake Valve
 With valve open Same as for Intake Valve
 Out of engine Same as for Intake Valve
 Operating tappet clearance (hot or cold)—intake015" Hot
 Tappet clearance for valve timing—intake004" Valve off seat
 Operating tappet clearance (hot or cold)—exhaust015" Hot
 Tappet clearance for valve timing—exhaust004" Valve off seat

VALVES (cont'd)

Hydraulic valve lifters—yes or no No
 Valve timing—
 Intake opens 14 degrees BUDC piston travel
 Intake closes 71 " ALDC " "
 Exhaust opens 56 " BLDC " "
 Exhaust closes 25 " AUDC " "

LUBRICATION

Lubricating system type—pressure or splash Pressure
 Oil pressure to—
 Main bearings—yes or no Yes
 Connecting rods—yes or no Yes
 Wristpins—yes or no No
 Camshaft bearings—yes or no Yes
 Rocker arm—yes or no Yes
 Timing gear or chain lubrication—positive or splash Positive
 Oil pump type Gear (Floating Screen Inlet)
 Oil grade recommended—SAE viscosity and temperature range—
 Not lower than 32 F. 20W or SAE-20
 As low as Plus 10 F. 20-W
 As low as Minus 10 F. 10-W
 Below Minus 10 F. 10-W Plus 10% Kerosene
 Normal oil pressure—lbs. at M.P.H. 45 at 35
 Pressure at which relief valve opens 45
 Capacity of oil reservoir—quarts, dry 9 refill. 6
 Oil pressure gauge make A.C.
 Oil reservoir level gauge type Stick
 External oil filter make A.C. (Only with heavy duty equip.)
 Oil cooler make None
 Chassis lubrication—
 Type High Pressure
 Make Lincoln

FUEL

Gasoline tank—capacity 18 Gallons
 Fuel feed—
 Type—vacuum tank, electric pump, vacuum pump or camshaft pump Camshaft Pump
 Make A.C. Model
 Carburetor—
 Make Stromberg Model A-AV-26
 Size 1-1/4"
 Type—
 Up or down draft Down Single or dual Dual
 Supercharger—
 Make - Type
 How driven
 Intake manifold heat control—manual, automatic or none Automatic
 Automatic choke, make Stromberg
 Air cleaner—intake silencer A.C.
 Exhaust pipe diameter 2-1/4"
 Muffler make Walker

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COOLING

Water pump—
 Type Centrifugal (Ball Brg. Sprg. Loaded Seal)
 Drive Belt
 Is pump equipped with packing nut. No
 Water circulation thermostat make Harrison
 Bypass for recirculation—yes or no Yes
 Radiator shutter—
 Make None
 Control—manual or automatic
 Radiator core—
 Type Vee Cellular
 Make Harrison
 Cooling system—capacity, quarts 17
 Water jackets full length of cylinders—yes or no No
 Lower radiator hose—
 Inside diameter 1-9/16" Length Elbow Type
 Upper radiator hose—
 Inside diameter 1-9/16" Length Elbow Type
 Fan belt—
 Make Various
 Number used 1
 Angle of vee
 Length, outside Width, maximum
 Fan—
 Make Hayes Industries

IGNITION

Ignition unit—
 Make Delco-Remy Model 1110805
 Manual or octone selector, degrees advance retard
 Maximum automatic advance, degrees 22 to 26 at Flywheel
 Vacuum advance, degrees 10 to 12 at Flywheel
 Breaker gap .015"
 Cam angle 31 Deg.
 Timing—Breaker points open 3 degrees camshaft travel before) top center
 Timing marks on flywheel, vibration dampener or none Flywheel
 Firing order 1-6-2-5-8-3-7-4
 Ignition coil make Delco Remy
 Amperage draw of coil—
 With engine stopped 4-1/2
 With engine idling 2-1/2
 Ignition lock make Briggs and Stratton
 Sparkplug—
 Thread—10 m.m., 14 m.m. or 18 m.m. 14 M.M.
 Make A.C. Model 46
 Gap .025"
 Ignition cable make Packard

BATTERY

Make Delco-Remy
 Capacity—ampere hours 115 @ 20 hour rate

BATTERY (Cont'd)

Number of plates per cell 17
 Bench charging rate—
 Start 7 or higher Finish more than If gassing not
 Which battery terminal is grounded Negative
 Location of battery Under Hood

STARTING MOTOR

Make Delco-Remy Model 1107908
 Normal engine cranking speed
 Lock test—
 Amperage draw 800
 Volts 3
 Torque in pounds feet 16
 No load test—
 Amperage draw 65 Approx.
 Volts 5 Approx. R.P.M. 5500 Approx.
 Type of drive—sliding gear with overrunning clutch Yes
 Starter operation—check items required to start engine
 1. Turn on ignition Yes
 2. Depress stator pedal
 3. Depress accelerator pedal Yes
 4. Depress clutch pedal
 5. Operate button on dash
 6. Pull out throttle Either 3 or 6 (Not both)
 Starting motor pinion meshes front or rear Front
 No. of teeth in flywheel 156
 Face width of flywheel teeth 43/64"
 Flywheel tooth integral or steel ring Steel Ring
 Gear ratio between starter armature and flywheel 17, 33 to 1

GENERATOR

Make Delco-Remy Model 1101053
 Driven by Belt
 Field fuse capacity None
 Type—third brush, shunt, etc. Compensated Third Brush
 Current regulator, voltage regulator or current and voltage control unit Voltage Regulator
 Cutout relay—
 Voltage at closing 6.3 to 6.9
 Armature speed at closing 800 R.P.M. Hot
 Car speed at closing 8.0 Approx.
 Amperes to open 0 to discharge 3.5
 Maximum charging rate cold—
 Temperature
 Amperes 27 to 31
 Voltage 8
 R.P.M. 4000
 Maximum charging rate hot—
 Temperature
 Amperes 25 to 28
 Voltage 8
 R.P.M. 4200
 Car speed for maximum charging rate 45 Approx.
 charge indicator make A.C.

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SPRINGS

FRONT SPRING—

Independent or conventional suspension **Independent**
 Type—coil, semi-elliptic or transverse **Coil**
 Make **OWN**
 Material **Steel 9260**
 If conventional, are radius rods used on axle **—**
 Sway eliminators—torsional, lateral, none **Torsional**
 If leaf—
 Length Width
 Number of leaves—5-passenger, 4-door sedan
 If coil—
 Free length **14-7/8"**
 Length **9-1/2" at normal load**
 Rate for above **97 at wheel** pounds per inch
 Shackled front or rear
 Anti-shock shackle location

REAR SPRING—

Independent or conventional suspension **Coil Spg. Suspension**
 Type—coil, semi-elliptic or transverse **Coil**
 Make **OWN**
 Material **Steel 9260**
 Sway eliminators—torsional, lateral, none **None**
 If leaf—
 Length Width
 Number of leaves—5-passenger, 4-door sedan
 If coil—
 Free length **20-1/8"**
 Length **11-1/8" at Normal Load**
 Rate for above **138 at wheel** pounds per inch
 Spring leaves lubricated with
 Spring cover make
 Spring shackles—
 Front—Type Make
 Rear—Type Make

Spring bolts—

Type

Shock absorbers—

Make **Delco**
 Type—*one way, two way* **2-Way**
 Fluid capacity

STEERING

Steering gear—

Type **Worm and Double Roller**
 Make **Saginaw** Model **Series 60**
 Ratio **19 to 1**

Drag link longitudinal or transverse **None**

Tie rod—one or two **2**

Is intermediate steering arm used **No**

Number of turns of steering wheel for full left to right swing of wheels **4-1/2**

Car turning radius—*feet—right, left or both*

Caster—degrees **7/8 ± 3/8 Reverse**

Camber—degrees or 1/4 Rev. ~~max~~ to **1 Pos.**

STEERING (Cont'd)

Toe-in—*inches* **0** to **1/16"**
 Crosswise inclination of kingpin—*degrees* **3-1/2 to 4-1/2**
 Front axle—
 Make Model
 Section type—*I-beams, tubular or none*
 End type—*Elliott or reverse Elliott*
 Minimum road clearance—*tires inflated*

BRAKES

Foot brakes—
 Make **OWN**
 Type of mechanism, *hydraulic or mechanical* **Hydraulic**
 If vacuum booster is standard, state make
 Brake lining moulded, semi-moulded or woven **Woven on primary**
 Moulded on **Secondary**
 Drum—
 Material **Centrifuse** Diameter **12"**
 Lining—
 Length per wheel **22-11/16"**
 Width **2"** Thickness **3/16"**
 Clearance—*toe* **.010"** *heel* **.010"**
 Total foot braking area **181.4 sq. in.**
 Percent braking power on rear wheels **47**
 Hand brake location **Under Instrument Panel (Lt. Side)**
 Hand lever operates on—*transmission, separate rear brakes, rear service brakes or all four service brakes* **Rear Service**
 Hand brake—
 Internal or external **Internal**
 Drum diameter **12"**
 Lining—
 Length per drum **Same as Rear Service**
 Width **Same as Rear Service**
 Clearance **Same as Rear Service**

FRAME

Frame—
 Make **Midland**
 Type **Double Drop**
 Depth—*maximum* **8"**
 Thickness—*maximum* **9/64"**
 Flange width—*maximum* **2-1/4"**
 Wheelbase **126"**

Tread—

Front **58-23/32"**
 Rear **59-21/32"**

Weight of standard 5-passenger, 4-door sedan—

Shipping **3782 lbs.**

Per cent on front axle **53**

Curb **3943 lbs.**

Price of standard 5-passenger, 4-door sedan **\$1246.00**

* First serial number, this series **Flint-13388547**

Serial number location **Right Side on top of frame—by dash.**

Overall length of car—

With bumpers and bumper guards **208-21/32"**

* California **23395088**

Linden **33405088**

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NOTE—in giving bearing dimensions, kindly use the following order: inside diameter, outside diameter and width. Where tapered cone bearings are used, give both cup and cone numbers.

BEARINGS

Water Pump & Fan Bearing

Make or type **New Departure**
 Size or number **954208**

Fan bearing—
 Make or type
 Size or number

Starting motor commutator end bearing—
 Make or type **Cast Iron**
 Size or number **.5630" x 15/16"**

Starting motor drive end bearing—
 Make or type **Oilless Bushing**
 Size or number **.5630" x .6250" x 3/4"**
 Middle

Starting motor bearing—
 Make or type **Oilless Bushing**
 Size or number **.7575" x .8120" x .23/32"**

Generator commutator end bearing—
 Make or type **Bushing**
 Size or number **.5625" x .7835" x 51/64"**

Generator drive end bearing—
 Make or type **New Departure**
 Size or number **903203**

Super-charger—
 Make or type
 Size or number

Clutch throwout bearing—
 Make or type **N.D. (Angular Contact)**
 Size or number **954221**

Clutch pilot bearing—
 Make or type **Hyatt**
 Size or number **142655**

Transmission pocket or spigot bearing—
 Make or type **Holler-14 Required**
 Size or number **1294780**

Transmission reverse idler bearing—
 Make or type **Bushing**
 Size or number **553119 (.847" x .987" x 1")**

Transmission main shaft front bearing—
 Make or type **New Departure**
 Size or number **954144**

Transmission main shaft rear bearing—
 Make or type **New Departure**
 Size or number **954120**

Transmission countershaft front bearing—
 Make or type **Roller-26 required**
 Size or number **1298445**

Transmission countershaft rear bearing—
 Make or type **Roller-26 Required**
 Size or number **1298445**

Overdrive shaft rear bearing—
 Make or type
 Size or number

Overdrive shaft front bearing—
 Make or type
 Size or number

Main shaft extension bearing—
 Make or type
 Size or number

Rear axle pinion shaft front bearing—
 Make or type **New Departure**
 Size or number **905806**

Rear axle pinion shaft rear bearing—
 Make or type **Hyatt**
 Size or number **125430**

Differential right bearing—
 Make or type **Hyatt**
 Size or number **149520**

Differential left bearing—
 Make or type **Hyatt**
 Size or number **149520**

Rear wheel bearing—
 Make or type **Hyatt**
 Size or number **111121**

Rear wheel outer bearing—
 Make or type
 Size or number

Front wheel inner bearing—
 Make or type **New Departure**
 Size or number **909042 (Cup 909802; Cone 909542)**

Front wheel outer bearing—
 Make or type **New Departure**
 Size or number **909001 (Cup 909801; Cone 909501)**

Kingpin upper bearing—
 Make or type **Split Bushing**
 Size or number **1266949 (.863" x .987" x 1-1/4")**

Kingpin lower bearing—
 Make or type **Split Bushing**
 Size or number **1266949 (.863" x .987" x 1-1/4")**

Kingpin thrust bearing—
 Make or type **Nice or Hoover**
 Size or number **134630 or 148393**

Front spring—
 Bolt—
 Bushing size
 Bushing type
 Shackles—
 Upper end
 Lower end

Rear spring—
 Bolt—
 Bushing size
 Bushing type
 Shackles—
 Upper end
 Lower end