

Automobile Manufacturers Association

Consolidated Specification Questionnaire

For 1939 Models

Mechanical Details

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

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 **330.2 cu. in.**

Taxable horsepower **37.81**

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

Maximum torque (lbs.-ft.) at R.P.M. **269 at 2000**

Revolutions per mile with standard rear axle and tires **2900 @ 30 MPH**

Compression Ratio—
Standard **8.25 to 1** Optional **None**

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

At cranking speed **113.8**

PISTONS and RINGS

Piston
Make **Own**

Material **Al. Alloy**

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

Weight—ounces—without rings, pin or bushing **173**

Length **4-7/16"**

Clearance—
Top **Lead .028"** to **.033"**

Bottom **Top of Skirt .0020"** to **.0028"**

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

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

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 well thickness of oil rings **.150"**

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

Full skirt relieved at pin bosses, tri-alot, cam ground-anodized.

RODS and PINS

Wristpin—
Length **2-1/16"** Diameter **7/8"**

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

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

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

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

Material **B.B.S. 1045**

Weight—ounces **38-1/2**

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

Lower bearing—
Material **Rabbit**

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 damper 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 Rabbit**

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. 1118**

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CAMSHAFT

Camshaft gear—
 Make **Own**
 Material **O.I. 1SM**
 Timing chain—
 Make **Link Belt**
 Number of links **50**
 Width **1"**
 Pitch **.500**
 Adjustment—*worn, automatic or manual* **None**

VALVES

INTAKE VALVE—

Make **Thompson or Rich**
 Overall length **5-1/4"**
 Head—
 Material **5140 or 1050**
 Actual overall diameter **1-25/32"**
 Angle of seat **45 Deg.**
 Stem—
 Diameter **.3720"**
 End style **Split Collar**
 Stem to guide clearance **.0015"** to **.0035"**
 Lift **.347"**
 Spring pressure and length—
 Outer—
 With valve closed **29½ 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. - 1-19/32"**
 Out of engine **1-7/8"**

EXHAUST VALVE—

Make **Thompson or Rich**
 Overall length **5-1/4"**
 Head—
 Material **2112 for Rich & IB for Thompson**
 Actual overall diameter **1-7/16"**
 Angle of seat **45 DEG.**
 Is valve seat an insert **No**
 Stem—
 Diameter **.3715"**
 End style **Split Collar**
 Stem to guide clearance **.0021"** to **.0039"**
 Lift **.349"**
 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)—*intake* **.015" Hot**
 Tappet clearance for valve timing—*intake* **.004" Valve off seat**
 Operating tappet clearance (hot or cold)—*exhaust* **.015" Hot**
 Tappet clearance for valve timing—*exhaust* **.004" 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 **55** " BLDC " "
 Exhaust closes **85** " 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 Inlet Screen)**
 Oil grade recommended—*SAE viscosity and temperature range—*
 Not lower than 32°F. 20-W or S.A.E. 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* **8**
 Oil pressure gauge make **A.C.**
 Oil reservoir level gauge type **Sticks**
 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* **20 Gallons**
 Fuel feed—
 Type—*vacuum tank, electric pump, vacuum pump or camshaft pump* **Camshaft Pump**
 Make **A.C.** Model
 Carburetor—
 Make **Stromberg** Model **A-A-V-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* make **A.C.**
 Exhaust pipe diameter **2-1/4"**
 Muffler make **Walker**

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COOLING

Water pump—
 Type **Centrifugal (Ball Brg. Spg. Loaded Seal)**
 Drive **Belt**
 Is pump equipped with packing out. **No**
 Water circulation thermostat make **Harrison**
 By-pass for recirculation—yes or no **Yes**
 Radiator shutter—
 Make **None**
 Control—*manual or automatic*
 Radiator core—
 Type **Vertical Cellular**
 Make **Harrison**
 Cooling system—*capacity, quarts* **17**
 Water jackets full length of cylinders—yes or no **No**
 Lower radiator hose—**1-9/16"** Length **Elbow Type**
 Inside diameter
 Upper radiator hose—**1-9/16"** Length **Elbow Type**
 Inside diameter
 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 **1110605**
 Manual or octane selector, *degrees advance* **retard**
 Maximum automatic advance, *degrees* **22 to 26 at Flywheel**
 Vacuum advance, *degrees* **10 to 12 at Flywheel**
 Breaker gap **0.15"**
 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 & Stratton**
 Spark plug—
 Thread—*10 m.m., 14 m.m. or 18 m.m.* **14 M.M.**
 Make **A.C.** Model **46**
 Gap **0.25"**
 Ignition cable make **Packard**

BATTERY

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

BATTERY (Cont'd)

Number of plates per cell **17**
 Beach charging rate—
 Start **7 or higher** Finish **Passing not more than 7**
 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 **600**
 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 starter pedal **Yes**
 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 teeth integral or steel ring **Steel Ring**
 Gear ratio between starter armature and flywheel **17.33 to 1**

GENERATOR

Make **Delco-Remy** Model **1101056**
 Driven by **Belt**
 Field fuse capacity **None**
 Type—*skid 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 **600 R.P.M. Hot**
 Car speed at closing **8-1/2 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 **47 Approx.**
 charge indicator make **A.C.**

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LAMPS

Lighting switch make Delco Ray
 Are tail and dash lights in series No
 Headlight—
 Make Guide
 Parking or fender light make In Headlamps
 Tail and stop light make Guide
 Horn—
 Type—*vibrator or motor* Vibrator
 Make Delco Ray
 No. used 2
 Amperage draw of each High 15 to 17, Low 14 to 18

CLUTCH

Make Own (Make of Disc Borg & Beck)
 Semi-centrifugal No
 Power operated unit—make None
 Vibration insulation or neutralizer—*fabric, rubber blocks or springs* Spring
 No. of clutch driving discs One and Flywheel
 No. of clutch driven discs 1
 Clutch facing—
 Material—*woven or moulded asbestos, cork* Woven
 Inside diameter 6-1/2"
 Outside diameter 10-1/4"
 Thickness 1/8"
 No. required 2

TRANSMISSION

Transmission—
 Make Own Model Series 80
 No. of forward speeds 3
 Shift lever location—*dash, steering column, floor* Steer. Column
 Automatic or auxiliary shifting mechanism—
 Make None
 Type—*centrifugal, vacuum, electric or hydraulic*
 Automatic overdrive—
 Make None
 Oil capacity—*quarts*
 Oil grade recommended—*S.A.E. viscosity*
 Summer Winter
 Gear ratio in high—*standard 5-passenger 4-door sedan* 4.182 to 1
 Transmission ratio—
 In overdrive In second 1.53 to 1
 In low 2.39 to 1 In reverse 2.39 to 1
 Constant mesh gears on second Yes
 Spur or helical gears—
 For second speed Helical
 For first speed Helical
 For reverse speed Helical
 Synchronous meshing second and third gears Yes

TRANSMISSION (Cont'd)

Transmission oil—
 Capacity—*quarts* 2-1/2
 Grade recommended—*S.A.E. viscosity*
 Summer 90 E.P. Winter 90 E.P.
 Universal joints—
 Make Spicer Mfg. Co.
 Number used 1
 Type—*fabric, rubber, metal with anti-friction bearing or metal with plain bearing* plain bearings
 Lubricated with From Transmission
 Type of propeller shaft Tubular
 Drive taken through springs, torque arm, torque tube or radius rods Torque Tube
 Torque taken through springs, torque arm, torque tube or radius rods Torque Tube

REAR AXLE

Rear axle—
 Make Own Model Series 80
 Type—*semi, full or three-quarter floating* Semi-Floating
 Minimum road clearance under center of rear axle—*tires inflated* 7-25/32"
 Rear axle oil—
 Capacity—*quarts* 4
 Grade and type recommended—*S.A.E. viscosity*
 Summer 90 Hypoid E.P. Winter 90 Hypoid E.P.
 Type of gearing—*spiral bevel, worm, hypoid* Hypoid
 Gear ratio—*standard 5-passenger 4-door sedan* 4.182 to 1
 Optional gear ratios None
 Number of teeth—
 In ring gear 46 In pinion 11
 How is pinion adjusted—*screw or shims* Shims
 How is pinion bearing adjusted—*screw or shims* None
 Are pinion bearings in dove No
 Backlash between pinion and ring gear .008" to .010"
 Are pinion bearings preloaded Yes
 How is pinion bearing preload obtained At Manufacturing
 Are differential bearings preloaded Yes
 How is differential bearing preload obtained Screw

TIRES and WHEELS

Tire—
 Make U.S., Firestone, and Goodyear
 Size 16" x 7.00" No. of plies 4
 Inflation pressure—*Front 27 Hot 28 Cold 30 Cold Rear 34 Hot*
 Rim—*Diameter* 16" *Width* 5.00
 Axle clearance for jack—*tires inflated*
 Front Rear
 Wheel—
 Type Demountable Steel Disc
 Make Motor Wheel

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SPRINGS

FRONT SPRING—

Independent or conventional suspension **Independent**
 Type—coil, semi-elliptic or transverse **Coil**
 Make **Own**
 Material **Steel 9830**
 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 **14-3/4"**
 Length **10-1/16"** At Normal Load
 Rate for above **119** At Wheel pounds per inch
 Shackled front or rear
 Anti-shock shackle location

REAR SPRING—

Independent or conventional suspension **Coil Spring Suspension**
 Type—coil, semi-elliptic or transverse **Coil**
 Make **Own**
 Material **Steel 9830**
 Sway eliminators—torsional, lateral, none **None**

If leaf—

Length Width
 Number of leaves—5-passenger, 4-door sedan

If coil—

Free length **20-1/4"**
 Length **10-7/8"** at Normal Load
 Rate for above **147** 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 **Dalec**
 Type—one way, two way **Two-way**
 Fluid capacity

STEERING

Steering gear—

Type **Worm and Double Roller**
 Make **Saginaw** Model **Series 80**
 Ratio **22 to 1**

Drag link longitudinal or transverse **Longitudinal**

Tie rod—one or two **2**

Is intermediate steering arm used **Yes**

Number of turns of steering wheel for full left to right swing of wheels **5-1/4**

Car turning radius—feet—right, left or both

Caster—degrees **7/8** & **3/8** B.A.V. to

Camber—degrees or 1-1/4 Reverse to 1 Pos.

STEERING (Cont'd)

Toe-in—Inches **0** to **1/16**
 Crosswise inclination of kingpin—degrees **4-1/4** to **5-1/4**

Front axle—

Make Model
 Section type—I-beams, tubular or none
 End type—Elliot or reverse Elliot
 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 **Cast Iron** Diameter **12"**

Lining—

Length per wheel **22-11/16"**
 Width **2"** Thickness **3/16"**

Clearance—top **.010"** heel **.010"**

Total foot braking area **181.4 sq. in.**

Percent braking power on rear wheels **47.4**

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** Thickness

Clearance **Same as Rear Service**

FRAME

Frame—

Make **A. O. Smith**
 Type **Double Drop**

Depth—maximum **9**
 Thickness—maximum **7/64"**

Flange width—maximum **2-1/4"**

Wheelbase **133"**

Tread—

Front **50-19/32"**
 Rear **62-1/2"**

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

Shipping **4247 lbs.**

Per cent on front axle **51**

Curb **4400 lbs.**

Price of standard 5-passenger, 4-door sedan **\$1543.00**

First serial number, this series **Plint 13388547**

Serial number location **Rt. side on top of frame - by-dash**

Overall length of car—

With bumpers and bumper guards **218-87/32"**

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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 cone and cup 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 1 15/16"**
 Starting motor drive end bearing—
 Make or type **Oilless Bushing**
 Size or number **.5630" x .6250" x 3/4"**
 Starting motor bearing—
 Make or type **Middle 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 **Roller-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 **905307**
 Rear axle pinion shaft rear bearing—
 Make or type **Hyatt**
 Size or number **126047**
 Differential right bearing—
 Make or type **Hyatt**
 Size or number **149523**
 Differential left bearing—
 Make or type **Hyatt**
 Size or number **149523**
 Rear wheel bearing—
 Make or type **Hyatt**
 Size or number **125686**
 Rear wheel outer bearing—
 Make or type
 Size or number
 Front wheel inner bearing—
 Make or type **New Departure**
 Size or number **909026 (Cup 909626; Cone 909526)**
 Front wheel outer bearing—
 Make or type **New Departure**
 Size or number **909035 (Cup 909635; Cone 909535)**
 Kingpin upper bearing—
 Make or type **Split Bushing**
 Size or number **1269232 (1.0635" x 1.1610" x 1 1/4")**
 Kingpin lower bearing—
 Make or type **Split Bushing**
 Size or number **1269232 (1.0635" x 1.1610" x 1 1/4")**
 Kingpin thrust bearing—
 Make or type **Nico**
 Size or number **1269123**
 Front spring—
 Bolt—
 Bushing size
 Bushing type
 Shackles—
 Upper end
 Lower end
 Rear spring—
 Bolt—
 Bushing size
 Bushing type
 Shackles—
 Upper end
 Lower end