

Automobile Manufacturers Association

Consolidated Specification Questionnaire

For 1951 Models

Mechanical Details

Make of Car..... **Buick** Model **Series 40 Special**

Name of Maker..... **Buick Motor Division** Address **Flint, Michigan**

Date **January 2, 1951**

NOTE: (1) Subject to Correction: It is understood that the following data are subject to correction in the case of cars not in production at the time this compilation was requested.

(2) Only standard equipment included in Factory Delivered price should be included in this questionnaire.

ENGINE

No. of cylinders **8**
 Valve arrangement **In-Head**
 Bore **3.187"** Stroke **4.125"**
 Cylinder head, cast iron or aluminum **Cast Iron**
 Cylinder sleeve, Yes..... No. **X**
 Piston displacement **263.3 Cu. In.**
 Taxable horsepower **32.51**

Horsepower rating —

To be based on actual performance corrected to 60°F. at sea level (barometric pressure 29.92 inches of mercury) with standard fuel. (Octane No. of fuel **75**

—With Bare Engine— (See Note)

Maximum brake hp. **120** at **3600** R.P.M.

—With Standard Accessories—*

Maximum brake hp. **115** at **3600** R.P.M.

*Those standard accessories needed for normal operation including fan, generator, starter, air cleaner, muffler, manifolds, fuel and water pumps.

Maximum torque —

With bare engine, lb. ft. **215** at **2000** R.P.M.

With standard accessories,* lb. ft. **217** at **2000** R.P.M.

Compression Ratio—

Standard **6.6 to 1** Optional —

Standard compression pressure —pounds—

At cranking speed **114**

At what R.P.M. **140 at 1000 R.P.M.**

PISTONS and RINGS

Piston **Sterling Aluminum Prod. Inc., Aluminum Co. of America and Bohn Aluminum and Brass Corporation**
 Make **Aluminum Alloy**
 Features—~~split skirt, inner strut, oval, tin-plated, aluminum oxide finish, auto-thermic, V-Beidge, porous chrome plate, etc.~~ **Cam Ground Turbulator Top-Trans. Slot**
 Weight—ounces—without rings, pin or bushing. **13.44**
 Length **3.76"**
 Clearance—
 Top land **.019"** to **.027"**
 Skirt, top **.0018"** bottom **.0012"**

PISTONS and RINGS (cont'd)

Piston ring groove depth—
 Oil **.165"** Compression **.165"**
 No. of oil rings used per piston **2**
 Width of oil rings Upper = **.1875"** Lower = **.1865"**
 Width of oil ring gap Upper = **.015" Lower = **.0018"** (Segmental)
 No. of compression rings used per piston **2**
 Width of compression rings **.0938"**
 Width of compression ring gap **.015"**
 Maximum wall thickness of oil rings Upper = **.147"** Lower = **.155"**
 Maximum wall thickness of compression rings Upper = **.160"** Lower = **.160"**
 Are ring expanders used, Yes..... No. **X**

RODS and PINS

Wristpin—
 Material **C.D.S. 1115**
 Length **2.6875"** Diameter **.8127"**
 Locked in rod, piston or floating **Locked in Rod**
 Clearance in piston **.0003"** to **.0004"**
 Clearance in rod ——— to ———

Connecting rod—

Length—center to center **7.3750"**
 Material **1145 Forged Steel**
 Weight—ounces **28.096**

Crankpin journal—

Diameter **2.125"** Length **1.030"**

Lower bearing—

Material **Durex 100-A**
 Clearance **.0005"** to **.0016"**
 End play **.005"** to **.010"**

Shim strip—solid, laminated or none **None**

Spun or separate **Separate**

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

CRANKSHAFT

Material **1145 Steel Forging**
 Weight—stripped **93 Lbs.**
 Vibration dampener used—yes or no **Yes**
 Type **Laminated steel flywheel supported on steel leaf springs.**

** Lower oil ring is a steel "U"-Flex ring.
 Note: Bare engine is without muffler or fan.

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CRANKSHAFT (cont'd)

Crankshaft counterweights used, number of 8
 Which main bearing takes thrust Center
 Crankshaft end play .004" - .008"
 Main bearing—
 Type: Cast-in or Slip-in X
 If slip-in: Removable from below Yes
 Necessary to align ream No
 Material Steel Backed Durex - 100-A
 Clearance .0006" - .0020"
 Shim—solid, laminated or none None
 Main bearing journal diameter x length—
 No. 1 2.5625" x 1.2656"
 No. 2 2.5625" x 1.0312"
 No. 3 2.5625" x 1.5469"
 No. 4 2.5625" x 1.0312"
 No. 5 2.5625" x 1.7812"
 No. 6
 No. 7
 No. 8
 No. 9
 Crankshaft gear or sprocket—
 Make Link Belt
 Material C.D.S. #1140

CAMSHAFT

Camshaft gear or sprocket—
 Make Link Belt
 Material Cast Iron 13M
 Timing chain—
 Make Link Belt
 Number of links 49
 Width .812"
 Pitch .500"

VALVES

INTAKE VALVE—

Make Thompson, Rich or Eaton
 Material 3140
 Overall length 5.1094"
 Actual overall diameter of head 1.5313"
 Minimum port diameter 1.125"
 Angle of seat 45°
 Is valve seat an insert? No
 Stem diameter .3720
 Stem to guide clearance .0015" to .0035"
 Lift .348"
 Spring pressure and length—
 Outer—

VALVES (cont'd)

With valve closed—lb. 32 ins. 1.9375"
 With valve open—lb. 77 ins. 1.5938"
 Length out of engine—ins. 2.3438"
 Inner—
 With valve closed—lb. 20 ins. 1.6563"
 With valve open—lb. 51 ins. 1.3125"
 Length out of engine—ins. 1.9063"

EXHAUST VALVE—

Make Thompson, Eaton or Rich
 Material XCR or 2112N
 Overall length 5.1094"
 Actual overall diameter of head 1.3438"
 Minimum port diameter 1.0313"
 Angle of seat 45°
 Is valve seat an insert? No Material
 Stem diameter .3715"
 Stem to guide clearance .0021" to .0039"
 Lift .348"
 Spring pressure and length—

Outer—
 With valve closed—lb. 32 ins. 1.9375"
 With valve open—lb. 77 ins. 1.5938"
 Length out of engine—ins. 2.3438"
 Inner—
 With valve closed—lb. 20 ins. 1.6563"
 With valve open—lb. 51 ins. 1.3125"
 Length out of engine—ins. 1.9063"

Operating tappet clearance (hot or cold)—intake ---
 Tappet clearance for valve timing—intake ---
 Operating tappet clearance (hot or cold)—exhaust ---
 Tappet clearance for valve timing—exhaust ---
 Hydraulic valve lifters—yes or no No

Valve timing—
 Intake opens 13 degrees BUDC piston travel inches
 Intake closes 68 " ALDC " " inches
 Exhaust opens 55 " BLDC " " inches
 Exhaust closes 22 " AUDC " " inches
 Valve Timing Marks—on Flywheel, Vibration Damper, None None

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
 Tappets—yes or no No

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LUBRICATION (cont'd)

Timing gear or chain lubrication—*positive or splash* **Positive**
 Oil pump type **Gear**
 Oil grade recommended—*SAE viscosity and temperature range—*
 Not lower than 32°F. **20W or SAE 20**
 As low as plus 10°F. **20W**
 As low as minus 10°F. **10W**
 Below minus 10°F. **5W or 10W + 10%**
 Normal oil pressure—*lbs. at M.P.H.* **35 at 35 M.P.H. Kerosene**
 Pressure at which relief valve opens **35**
 Capacity of oil reservoir—*quarts, dry* **6-1/2 *refill* **5-1/2**
 Oil pressure gauge make **A. C.**
 Oil reservoir level gauge type **Stick**
 Floating type oil intake—*yes or no* **Yes**
 External oil filter make **A. C.**
 Other type of oil cleaner **None**
 Oil cooler make **None**
 Chassis lubrication—*Make* **Lincoln Mfg.**

FUEL

Gasoline tank—*capacity* **19 Gallons**
 Fuel feed—
 Type—*vacuum tank, electric pump, gravity vacuum pump or camshaft pump* **Camshaft Pump**
 Make **A. C.** Model **Type AJ**
 Carburetor—**Stromberg or AAUVB-267 or**
 Make **Carter** Model **WCD-725SA**
 Number used **1**
 Size **1.125"**
 Type—
 Up or down draft **Down** Single or dual **Dual**
 Intake manifold heat control—*manual, automatic or none* **Automatic**
 Automatic chokes, make **Stromberg or** Model
Carter **A. C.**
 Air cleaner—*intake silencer make* **A. C.**
 Type—*dry felt; oil bath; oil coated fibre* **Oil Bath**
 Heavy Duty type—*Make* Model
 Muffler make **Walker or Hayes**
 Tail pipe diameter **2"**

COOLING

Water pump—
 Type **Centrifugal Ball Bearing-Spring Loaded Seal**
 Drive **Single Belt**
 Is pump equipped with packing nut **No**
 Water circulation thermostat make **Harrison**
 Pressure relief valve—*yes or no* **Yes**
 By-pass for recirculation—*yes or no* **Yes**
 Radiator core—
 Type **Vee Cellular**
 Make **Harrison**

COOLING (cont'd)

Without Heater With Heater
 Cooling system—*capacity, quarts* **12 13.5**
 Water jackets full length of cylinders—*yes or no* **No**
 Water all around cylinder—*yes or no* **Yes**
 Lower radiator hose—
 Inside diameter **1.5625"** Length **Elbow Type**
 Upper radiator hose—
 Inside diameter **1.5625"** Length **Elbow Type**
 Fan belt—
 Make **Various**
 Angle of vee
 Length, outside Width, maximum **.750"**
 Fan—
 Make **Hayes Industries** No. of Blades **4**

IGNITION

Ignition units—
 Make **Delco Remy** Model **1110815**
 Manual or octane selector, *degrees advance* — *retard* —
 Maximum centrifugal advance crankshaft, *degrees* **22-26**
 at **3000** engine R.P.M.
 Inches of Mercury Necessary to operate Vacuum Advance (Plus or minus 1 inch) **6 to start; 12 for full travel**
 Maximum Vacuum advance crankshaft, *degrees* **10-12**
 Breaker gap **.015"** Breaker arm tension **19-23** oz.
 Cam angle * *deg.*
 Timing—*Breaker points open* **4** *degrees crankshaft rotation*
~~*or inches piston travel (after or before) top center*~~
~~*with octane selector in the position.*~~
 Timing mark location—*flywheel, vibration dampener or none* **Flywheel**
 Firing order **1-6-2-5-8-3-7-4**
 Amperage draw of ignition coil—
 With engine stopped **4.50**
 With engine idling **2.50**
 Spark plug—
 Thread—*10 m.m., 14 m.m. or 18 m.m.* **14 MM**
 Make **A. C.** Model **46X**
 Gap **.025**
 Ignition cable make **Packard Electric**

BATTERY

Make **Delco Remy** Model **15E4-W**
 Capacity—*ampere hours* **100** @ 20 hour rate
 Number of plates per cell **15**
 Bench charging rate—
 Start **1 Amp. per Pos. Plate** Finish **1 Amp. per Pos. Plate**
 Which battery terminal is grounded **Negative**
 Location of battery **Under Hood**

* Do not recommend using a dwell meter for checking point opening.

** Add 1-1/2 Quarts for dry oil filter.

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STEERING

Steering gear—
 Type **Ball Bearing Worm & Nut**
 Make **Saginaw** Model **Series 40**
 Ratio **19.8 - 1**
 Lubricant recommended **Steering Gear Lubricant**
 Steering wheel diameter **18"**
 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 **4.5**
 Car turning radius—feet—~~right, left or both~~ **19.75**
 Caster—degrees **Positive 1/4** to **Positive 1-1/2**
 Camber—degrees or **7/8 Pos. inches** to **5/8 Neg.**
 Toe-in—*inches* **1/16"** to **1/8"**
 Crosswise inclination of kingpin—degrees **1/4** at **3/8** Camber
 Front axle—
 Make Model
 Section type—*I-beams, tubular or none*
 End type—*Elliott or reverse Elliott*
 Minimum road clearance—*tires inflated* **6.80"**

BRAKES

Foot brakes—
 Make **Duo-Servo Single Anchor**
 Type of mechanism, *hydraulic or mechanical* **Hydraulic**
 If vacuum booster is standard, state make **None**
 Brake lining moulded, semi-moulded or woven—
 Primary shoe **Moulded**
 Secondary shoe **Moulded**
 Drum—
 Material **Cast Iron** Diameter **12"**
 Lining—
 Length per wheel **23.0625"**

BRAKES (cont'd)

Width **1.750"** Thickness **.1875"**
 Clearance—*toe* **.015"** *heel* **.015"**
 Total foot braking area **161.5 Sq. In.**
 Percent braking power on rear wheels **47**
 Parking brake
~~None~~ lever operates on—~~transmission, separate rear brakes, rear service brakes or all four service brakes~~ **Rear Service**
 Hand brake, if separate from service brake—
 Internal or external
 Drum diameter
 Lining—
 Length per drum
 Width Thickness
 Clearance

FRAME and OTHER GENERAL DATA

Frame—
 Depth—*maximum* **5.58"**
 Thickness—*maximum* **.090"**
 Flange width—*maximum* **2"**
 Wheelbase **121.5"**
 Tread—
 Front **59.1"**
 Rear **59.0"**
 Weight of standard 5-passenger, four-door sedan—
 Shipping
 Curb
 Price of standard 5-passenger, 4-door sedan
 First serial number, this series **See Note**
 Serial number location **Plate on L. Frt. Door Pillar and stamped on left side rail - near front.**
 Overall length of car—
 With bumpers and bumper guards **204.8"**
 Overall width of car **76.7"**
 Overall height, road to roof with no load **63.4"**

Note: Flint 1-6031301; Southgate 2-6050001; Linden 3-6055001; Kansas City 4-6061001; Wilmington 5-6070001; Atlanta 6-6075001; Framingham 7-6080001.

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

BEARINGS

Water pump and Fan bearing—
 Make or type New Departure 885156
 Size or number 954208

Fan bearing—
 Make or type
 Size or number

Starting motor commutator end bearing—
 Make or type Oilless Bushing
 Size or number750" x .563" x .9688"

Starting motor drive end bearing—
 Make or type Oilless Bushing
 Size or number500" x .562" x .7813"

Starting motor outboard bearing—
 Make or type
 Size or number

Generator commutator end bearing—
 Make or type Bushing
 Size or number5625" x .7835" x .7969"

Generator drive end bearing—
 Make or type New Departure 3203
 Size or number 903203

Transmission main drive gear front pilot bearing—
 Make or type New Departure 7109
 Size or number 907109

Clutch throwout bearing—
 Make or type CTL-48 BCA or N. D.
 Size or number 1308159 or 954222

Transmission main drive gear rear bearing—
 Make or type New Departure 4507 x 1250A
 Size or number 954379

Transmission main shaft front pilot bearing—
 Make or type Roller
 Size or number 435845

Transmission main shaft rear bearing—
 Make or type New Departure 3206 x 1270A
 Size or number 954380

Transmission countershaft front bearing—
 Make or type Roller
 Size or number 1302154

Transmission countershaft rear bearing—
 Make or type Roller
 Size or number 1302154

Transmission reverse idler bearing—
 Make or type Bushing

BEARINGS (cont'd)

Size or number 1307898

Overdrive shaft rear bearing—
 Make or type
 Size or number

Overdrive shaft pilot 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 905607

Rear axle pinion shaft rear bearing—
 Make or type Hyatt - two used
 Size or number 126047

Differential right bearing—
 Make or type Bower or Hyatt
 Size or number 1317716 or 187434

Differential left bearing—
 Make or type Bower or Hyatt
 Size or number 1317716 or 187434

Rear wheel inner bearing—
 Make or type None
 Size or number

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

Front wheel inner bearing—
 Make or type New Departure
 Size or number 909062

Front wheel outer bearing—
 Make or type New Departure
 Size or number 909025

Kingpin upper bearing—
 Make or type Split Bushing
 Size or number 1266949

Kingpin lower bearing—
 Make or type Split Bushing
 Size or number 1266949

Kingpin thrust bearing—
 Make or type Nice 4984
 Size or number 134630

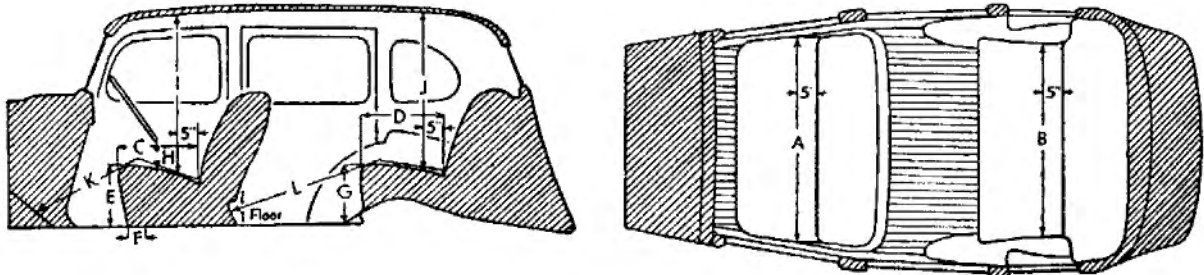
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NOTE: (1) List only that equipment which is included in the factory delivered price. Special equipment which is fitted, but not included in the factory delivered price should be listed with its additional price.
 (2) Enter on top line your own model name, or series mark corresponding to Standard, DeLuxe or Custom.

EQUIPMENT	Models		
	Standard	DeLuxe	Custom
Catalog Designation of Model	Series 40		
Lacquer make	Duco		
Body finish, lacquer or synthetic enamel	Lacquer		
Fender finish, lacquer or synthetic enamel	Lacquer		
Hardware make	Ternstedt		
Speedometer make	A. C.		
Gasoline gauge make	A. C.		
Thermometer make	A. C.		
Car lock make	Briggs & Stratton or Delco	Remy	
Car lock operates on ignition or ignition and steering	Ignition		
Clock make <i>mechanical or electrical</i>			
Cigar lighter make	Casco or Rochester		
Safety glass make	L.O.F.		
Safety glass type, laminated or tempered	Safety Plate Glass		
In windshield	Laminated		
In side windows	Laminated		
In rear window	Tempered		
Bumper make	Standard Steel Spg. Co. or	Gordon Mfg. Co.	
Bumper guard make	Brown, Lipe, Chapman		
Car heater make	Type		
Direction signal make			
Front—yes or no			
Rear—yes or no			
No. of tail lights included	2		
No. of visors included	2		
No. of horns included	2		
No. of windshield wipers included	2		
No. of spare tires included	1		

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BODY DIMENSIONS (Five-Passenger, Four-Door Sedan)



INTERIOR

All interior body dimensions taken with front seat in its rear position

Width of front seat cushion, measured 5 inches from back (A) ... (Hip Room)	63.1"
Width of rear seat cushion, measured 5 inches from back (B) ... (Hip Room)	63.4"
Depth of front seat cushion (C)	18.1"
Depth of rear seat cushion (D)	18.6"
Height of front seat cushion measured 12½ inches from center line of body (E)	13.5"
Front seat horizontal adjustment, inches (F)	4.00"
Front seat vertical adjustment, inches	.25"
Height of rear cushion measured 12½ inches from center line of body (G)	12.3"
Vertical distance steering wheel and seat cushion (H)	5.0"
Head room at front seat, measured 5 inches from back (I)	36.0"
Head room at rear seat, measured 5 inches from back (J)	35.6"
Leg room in front seat, measured from 6 inches up on toe board, following contour of seat cushion (K)	43.1"
Leg room in rear seat, measured from center of foot rest, following contour of seat cushion (L)	41.2"
Trunk capacity, cubic feet	—
Width of left front pillar on diagonal with door closed	3.17"

