

Automobile Manufacturers Association Consolidated Specification Questionnaire For 1949 Models Mechanical Details

Make of Car Buick Model Series 40 Special
 Name of Maker Buick Motor Division Address Flint, Michigan

Date October 25, 1948

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 3-3/32" Stroke 4-1/8"
 Cylinder head, cast iron or aluminum Cast Iron
 Cylinder sleeve, Yes. No. No. X
 Piston displacement 248.1 Cu. in.
 Taxable horsepower 30.63
 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. 110 at 3600 R.P.M.

—With Standard Accessories—*

Maximum brake hp. 105 at 3500 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. 206 at 2000 R.P.M.
 With standard accessories,* lb. ft. 202 at 2000 R.P.M.

Compression Ratio—
 Standard 6.3 to 1 Optional —

Standard compression pressure —pounds—
 At cranking speed 112
 At what R.P.M. 135 at 1000 R.P.M.

PISTONS and RINGS Sterling Aluminum Products Inc.
Aluminum Alloy Corp., Aluminum Company of
America, and Bohn Aluminum & Brass
 Piston Corporation

Make Aluminum Alloy
 Material Aluminum Alloy
 Features spin-chill-mech-stamp-coat-sin-plated, aluminum oxide finish, anti-striking, 7-Bridger porous chrome plate, etc. Cam Ground Turbulator Top-Trans-Slot

Weight—ounces—without rings, pin or bushing 13.776
 Length 4-21/64"
 Clearance—
 Top land .023" to .030"
 Skirt, top .002" bottom .0015"

PISTONS and RINGS (cont'd)

Piston ring groove depth—
 Oil .166" Compression .166"
 No. of oil rings used per piston 2
 Width of oil rings Upper .1875" Lower .1860"
 * Width of oil ring gap Upper .015" Lower .0015" (Segmental)
 No. of compression rings used per piston 2
 Width of compression rings 3/32"
 Width of compression ring gap .015"
 Maximum wall thickness of oil rings Upper .140" Lower .155"
 Maximum wall thickness of compression rings Upper .360" Lower .140"
 Are ring expanders used, Yes. No. X

RODS and PINS

Wristpin—
 Material C.D.S. 1115
 Length 2-11/16" Diameter 13/16"
 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 7-5/8"
 Material H.R.S. 1045
 Weight—ounces 28.464

Crankpin journal—
 Diameter 2" Length 1-7/32"

Lower bearing—
 Material Durex 100-A
 Clearance .0005" to .0018"
 End play .005" to .010"

Shims — ~~shims~~ solid, laminated or none. None
 Spun or separate Separate
 Rods and pistons removed from above or below Above

CRANKSHAFT

Material 1045 H.R.S.
 Weight—stripped 87 lbs.
 Vibration dampener used—yes or no Yes
 Type Laminated steel flywheel supported on steel leaf springs.

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

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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 Durez - 100A**
 Clearance..... **.0005"-.0020"**
 Shim—solid, laminated or none..... **None**
 Main bearing journal diameter x length—
 No. 1..... **2-5/16" x 1-17/64"**
 No. 2..... **2-3/8" x 15/16"**
 No. 3..... **2-7/16" x 1-5/8"**
 No. 4..... **2-1/2" x 15/16"**
 No. 5..... **2-9/16" x 1-25/32"**
 No. 6.....
 No. 7.....
 No. 8.....
 No. 9.....

Crankshaft gear or sprocket—

Make..... **Link Belt**
 Material..... **C.D.S. #1112**

CAMSHAFT

Camshaft gear or sprocket—

Make..... **Link Belt**
 Material..... **Cast Iron 13 M**

Timing chain—

Make..... **Link Belt**
 Number of links..... **49**
 Width..... **1"**
 Pitch..... **500"**

VALVES

INTAKE VALVE—

Make..... **Thompson or Rich**
 Material..... **3140**
 Overall length..... **5-7/64"**
 Actual overall diameter of head..... **1-17/32"**
 Minimum port diameter..... **1-1/8"**
 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. **1-15/16"**
 With valve open—lb..... **77**..... ins. **1-19/32"**
 Length out of engine—ins..... **2-11/32**
 Inner—
 With valve closed—lb..... **20**..... ins. **1-21/32"**
 With valve open—lb..... **51**..... ins. **1-5/16"**
 Length out of engine—ins..... **1-29/32**

EXHAUST VALVE—

Make..... **Thompson, Eaton or Rich**
 Material..... **X.B. or 2112**
 Overall length..... **5-7/64"**
 Actual overall diameter of head..... **1-11/32"**
 Minimum port diameter..... **1-1/32"**
 Angle of seat..... **45°**
 Is valve seat an insert?..... **No** Material.....
 Stem diameter..... **.3715**
 Stem to guide clearance..... **.0021 to .0039**
 Lift..... **.342"**
 Spring pressure and length—
 Outer—
 With valve closed—lb..... **32**..... ins. **1-15/16"**
 With valve open—lb..... **77**..... ins. **1-19/32"**
 Length out of engine—ins..... **2-11/32"**
 Inner—
 With valve closed—lb..... **20**..... ins. **1-21/32"**
 With valve open—lb..... **51**..... ins. **1-5/16"**
 Length out of engine—ins..... **1-29/32"**
 Operating tappet clearance (hot or cold)—intake..... **Hot015"**
 Tappet clearance for valve timing—intake..... **.015"**
 Operating tappet clearance (hot or cold)—exhaust..... **Hot015"**
 Tappet clearance for valve timing—exhaust..... **.015"**
 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. **10W + 10% kerosene**
 Normal oil pressure—*lbs. at M.P.H.*, **35 at 35 M.P.H.**
 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 **None**
 Other type of oil cleaner **None**
 Oil cooler make **None**
 Chassis lubrication—*Make* **Lincoln**

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—
 Make **Stromberg or Carter** Model **AAV-167 or WCD-6638**
 Number used **1**
 Size **1"**
 Type—
 Up or down draft **Down** Single or dual **Dual**
 Intake manifold heat control—*manual, automatic or none* **Automatic**
 Automatic choke make **Stromberg or Carter** Model **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— <i>capacity, quarts</i>	13	14-1/4
Water jackets full length of cylinders— <i>yes or no</i>	No	No
Water all around cylinder— <i>yes or no</i>	Yes	Yes
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		
Angle of vee		
Length, outside		Width, maximum 3/4"
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
 with ~~octane selector in the~~ *inches piston travel (after or before) top center* ~~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 **4-1/2**
 With engine idling **2-1/2**
 Spark plug—
 Thread—*10 m.m., 14 m.m. or 18 m.m.* **14 mm**
 Make **A. C.** Model **48**
 Gap **.025**
 Ignition cable make **Packard**

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 **1/2 Amp. per positive plate**
 Which battery terminal is grounded **Negative**
 Location of battery **Under hood**

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

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STARTING MOTOR

Make **Delco Remy** Model **1107049**
 Normal engine cranking speed **90**
 Brush spring tension **24 - 28 oz.**
 Lock test—
 Amperage draw **575**
 Volts **3.4**
 Torque in pounds feet **12**
 No load test—
 Amperage draw **65**
 Volts **5** R.P.M. **5500**
 Type of drive—*Belt or sliding gear with overrunning clutch*
 Starting device—*Solenoid, manual, etc.* **Solenoid**
 Starter operation—check items required to start engine
 1. Turn on ignition **Yes**
 2. Depress starter pedal
 3. Depress accelerator pedal **Yes**
 4. Depress clutch pedal
 5. Operate button on dash
 6. Pull out throttle
 Starting motor pinion meshes front or rear **Front**
 No. of teeth in flywheel **146**
 Face width of flywheel teeth **35/64"**
 Gear ratio between starter armature and flywheel **16.22 to 1**

GENERATOR

Make **Delco Remy** Model **1102679**
 Type—*third brush, shunt, etc.* **Shunt**
 Brush spring tension **24 - 28 oz.**
 Current regulator, voltage regulator or current and voltage control unit **Current and voltage**
 Maximum controlled charging rate
 Temperature **Hot**
 Amperes **34 - 36**
 Voltage **8**
 R.P.M. **2600 approx.**
 Cutout relay—
 Voltage at closing **6.1 - 6.6 at 150°F.**
 Amperes to open, reverse current **1 to 6**
 Air gap **.018" - .022"**
 Voltage regulator—
 Volts **7.4**
 Temperature **150°F.**
 Air gap **.068 - .073**
 Current regulator—
 *Amperes **34 - 36**
 Temperature **150°F.**
 Air gap **.082" - .088"**
 Car speed for maximum charging rate **25 M.P.H. approx.**
 Ammeter charge indicator make **A.C.**

LAMPS

Lighting switch make **Delco Remy**
 Are tail and dash lights in series **No - Parallel**
 Headlights—
 Make **Guide Lamp**
 Location—*in fender, in catwalk, or radiator shell* **In fender**
 Parking or fender light make **Guide Lamp**
 Tail and stop light make **Guide Lamp**
 Horn—
 Type—*vibrator or motor* **Vibrator** No. used **2**
 Make **Delco Remy**
 Amperage draw of each **Left 17-19 Right 19-21**

CLUTCH

Make **Buick (Disc by Long or Borg & Beck)**
 Drive type—
 Direct to flywheel face **Yes**
 Through fluid flywheel **No**
 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 **One**
 Clutch facing—
 Material—*woven or moulded asbestos, cork* **Woven**
 Inside diameter **6"**
 Outside diameter **10"**
 Thickness **.125"**
 No. required **2**

TRANSMISSION

Transmission—
 Make **Own** Model **Series 40**
 No. of forward speeds **3**
 Manual shift—*yes, no* **Yes**
 Automatic or auxiliary shifting mechanism—*yes, no* **X**
 If yes, Make
 Type—*centrifugal, vacuum, electric or hydraulic*
 Automatic overdrive—
 Make **None**
 Oil capacity—*pints*
 Oil grade recommended—*S.A.E. viscosity*
 Summer **Winter**
 Gear ratio in high—*standard 5-passenger 4-door sedan* **Direct**
 Transmission ratio—
 in overdrive **—** in second **1.66 - 1**
 in third **Direct** in fourth **—**
 in low **2.67 - 1** in reverse **3.02 - 1**

* At 6 Volts - Voltage Regulator not operating.

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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 **4-1/2**
 Car turning radius—feet—right, left or both. Rt. **20.1** L. **20.5**
 Caster—degrees **Positive 1/4** so **Positive 1-1/2**
 Camber—degrees or **7/8 Positive** so **5/8 Neg.**
 Toe-in—*inches* **1/16"** so **1/8"**
 Crosswise inclination of kingpin—degrees **4-1/4** 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*

BRAKES

Foot brakes—
 Make **Bendix or Delco**
 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 **23-1/16"**

BRAKES (cont'd)

Width **1-3/4"** Thickness **3/16"**
 Clearance—*see* **.015"** *heel* **.015"**
 Total foot braking area **161-1/2**
 Percent braking Power on rear wheels **47**
 Parking Brake
 Hand 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* **6-1/8"**
 Thickness—*maximum* **7/64"**
 Flange width—*minimum* **2-1/8"**
 Wheelbase **121"**
 Tread—
 Front **58-7/8"**
 Rear **61-15/16"**
 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 **Under hood - stamped on plate on upper right side of shroud.**
 Overall length of car—
 With bumpers and bumper guards **207-1/2"**
 Overall width of car **77-9/16"**
 Overall height, road to roof with no load **66-55/64"**

Note:— Flint 1-5020984; Southgate 2-5030001; Linden 3-5036001; Kansas City 4-5043001
 Wilmington 5-5050001; Atlanta 6-5054001; Framingham 7-5057001

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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

and Fan

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

Fan bearing—
 Make or type

Starting motor commutator end bearing—
 Make or type Cast Iron
 Size or number .563 x 31/32"

Starting motor drive end bearing—
 Make or type Oilless Bushing
 Size or number .500 x .562 x 25/32"

Starting motor outboard bearing—
 Make or type

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 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
 Size or number 1308159

Transmission main drive gear rear bearing—
 Make or type New Departure 47507 -X57
 Size or number 954144

Transmission main shaft front pilot bearing—
 Make or type Roller
 Size or number 1294780

Transmission main shaft rear bearing—
 Make or type New Departure 3206
 Size or number 903206

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

Overdrive shaft pilot bearing—
 Make or type

Main shaft extension bearing—
 Make or type

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 Hoover 3021 or Nics 4984
 Size or number #148393 or 134630

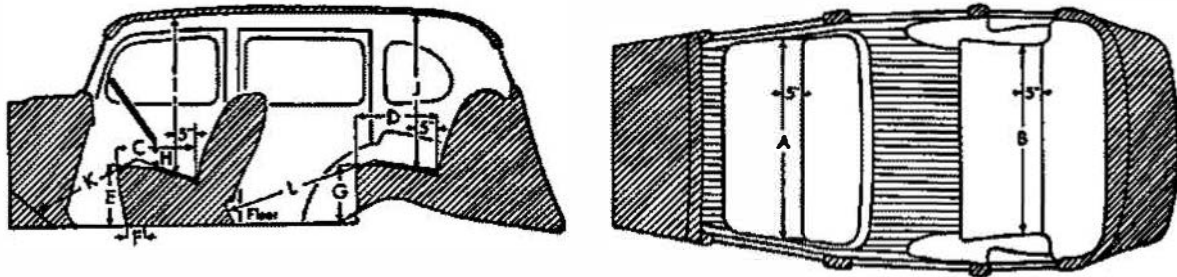
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NOTE: (1) List only that equipment which is included in the factory delivered price. Special equipment which is fitted, but not included in the factory delivered price should be listed with its additional price.
 (2) Enter on top line your own model 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	Terstedt		
Speedometer make	A. C.		
Gasoline gauge make	A. C.		
Thermometer make	A. C.		
Car lock make	Briggs & Stratton or Delco	Reay	
Car lock operates on ignition or ignition and steering	Ignition		
Clock make	Borg		
Cigar lighter make	Casco		
Safety glass make	L.O.P.		
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	Guide Lamp		
Car heater make	Type		
Direction signal make	Guide Lamp		
Front—yes or no ..	Yes		
Rear—yes or no ..	Yes		
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	One		

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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)	60-1/2.....
Width of rear seat cushion, measured 5 inches from back (B)	51.....
Depth of front seat cushion (C)	18.....
Depth of rear seat cushion (D)	20.....
Height of front seat cushion measured 12 1/2 inches from center line of body (E)	12-3/8.....
Front seat horizontal adjustment, inches (F)	4-3/8.....
Front seat vertical adjustment, inches	1/4.....
Height of rear cushion measured 12 1/2 inches from center line of body (G)	13.....
Vertical distance steering wheel and seat cushion (H)	6-1/4.....
Head room at front seat, measured 5 inches from back (I)	38.....
Head room at rear seat, measured 5 inches from back (J)	35-3/4.....
Leg room in front seat, measured from 6 inches up on toe board, following contour of seat cushion (K)	42-1/2.....
Leg room in rear seat, measured from center of foot rest, following contour of seat cushion (L)	42-1/2.....
Trunk capacity, cubic feet	17-1/2.....
Width of left front pillar on diagonal with door closed	4.....

