AUTOMOBILE MANUFACTURERS ASSOCIATION
CONSOLIDATED SPECIFICATION QUESTIONNAIRE

MAKE OF CAR: Oldsmobile		MODEL NAME	SYMBOL
COMPANY: Oldsmobile Division General Motors Corporation Lansing 21, Michigan		Ninety-Eight Super "88" "88"	
MODEL YEAR: 1954	DATE 12-21-53		

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NOTES: 1. The specifications set forth herein are those in effect at the date of compilation and are subject to change without notice.
2. All specifications are standard for the models under which they are listed unless otherwise indicated.
3. All dimensions are nominal engineering dimensions unless otherwise indicated.
4. Unless otherwise indicated, specifications apply to 5 or 6 passenger, 4-door sedan or equivalent.

GENERAL SPECIFICATIONS

Model			"88"	Super "88"	Ninety-Eight
Wheelbase			122	122	126
Tread	Front		59	59	59
	Rear		58	58	58
Maximum Overall Dimensions	Length (L-103)		205.26	205.26	214.26
	Width (W-103)		78.26	78.26	78.26
	Height (H-101)		60.5	60.5	60.5
Steering ratio—overall			27.5:1	27.5:1	27.5:1
Turning diameter (curb to curb)			42.5 Ft.	42.5 Ft.	43 Ft.
Shipping weight*			3692	3734	3846
Transmission—(Specify standard, optional, not avail.)		Conventional	Std.	Std.	Std.
		Overdrive	N.A.	N.A.	N.A.
		Automatic	Opt.	Opt.	Opt.
Axle ratio	Conventional		3.42	3.42	3.42
	Overdrive		N.A.	N.A.	N.A.
	Automatic		307	3.23	3.23
Tire size			7.60 x 15 4-ply	7.60 x 15 4-ply	7.60 x 15 4-ply
Engine	Type		90°V	90°V	90°V
	No. of cylinders		8	8	8
	Valve arrangement		Valve in Head	Valve in Head	Valve in Head
	Bore and stroke		3 7/8 x 3 7/16	3 7/8 x 3 7/16	3 7/8 x 3 7/16
	Piston displacement, cu. in.		324.31	324.31	324.31
	Standard compression ratio		8.25:1	8.25:1	8.25:1
	Maximum bhp at engine rpm		170 at 4000	185 at 4000	185 at 4000
	Maximum torque at rpm		300 at 2000	300 at 2000	300 at 2000

*Standard car weight, not including gas and water.

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ENGINE—GENERAL

MODEL			"88"	Super "88"	Ninety-Eight
Type	V, In-line, other		V		
	Angle of V		90°		
No. of cylinders			8		
Valve arrangement			Valve in Head		
Bore and stroke			3 7/8 x 3 7/16		
Piston displacement, cu. in.			324.31		
Numbering system (front to rear)	L. Bank		1-3-5-7		
	R. Bank		2-4-6-8		
Firing order			1-8-7-3-6-5-4-2		
Compression ratio	Standard Head		8.25:1	8.25:1	8.25:1
	Optional Head		None		
Cylinders	Head Material	Standard	Cast Iron		
		Optional	None		
	Sleeve—Wet, dry, other, none		None		
Number of mounting points		Front	One		
		Rear	Two		
Taxable horsepower	(Dia.² x No. Cyl.) / 2.5		48	48	48
Advertised max. brake horsepower at engine RPM*	Standard head		170 at 4000	185 at 4000	185 at 4000
	Optional head		None	None	None
	With fuel (Octane and method)	Standard Head	92	92 Research Method	92
		Optional Head	None	None	None
Max. torque lb. ft. @ RPM	Standard head		300 at 2000	300 at 2000	300 at 2000
	Optional head		None	None	None
Recommended idle speed (neutral)			STD. - 425	Hydra-Matic (In Drive 400)	

ENGINE—PISTONS

Material			Aluminum Alloy
Description and finish			Auto-Thermic, Cam Grind, Tin Plate Steel Strut
Weight (piston only) oz.			21.700 Oz.
Clearance	Top land		.026 to .032
	Skirt	Top	.0005 to .0015
		Bottom	.0005 to .0010
Ring groove depth	No. 1 ring		Compression - .203
	No. 2 ring		Compression - .203
	No. 3 ring		Oil .198
	No. 4 ring		None

Corrected as defined by SAE Engine Test Code, with the following standard power consuming accessories:

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MODEL			"88"	Super "88"	Ninety-Eight
ENGINE—RINGS					
Type (top to bottom)	No. 1 oil or comp.		Compression		
	No. 2 oil or comp.		Compression		
	No. 3 oil or comp.		Oil		
	No. 4 oil or comp.		None		
No. rings above piston pin			3		
Compression	Material		Cast Iron		
	Coating		Upper Ring - Chrome Flash O. D. Lower Ring - P. C. Lubrite, S. P. Granoseal		
	Width		.0775 - .0785		
	Gap		Sealed Pow. .008-.016 Perfect Circle .010-.020		
	Maximum wall thickness		.194		
Oil	Material		Cast Iron		
	Coating		None		
	Width		.1860 - .1865		
	Gap		Sealed Pow. .008-.016 Perfect Circle .015 .020		
	Maximum wall thickness		.159		
Location of expanders			Oil Ring		
ENGINE—PISTON PINS					
Material			SAE #1117 Steel (Modified)		
Length			3 1/8		
Diameter			.9803 - .9807		
Type	Locked in rod, in piston, floating, etc.		Full Floating		
	Bushing	In rod or piston	Rod		
		Material	GM #4077-M Bronze		
Clearance	In piston		.0000 to .0002 Loose		
	In rod		.0005 to .0003		
Direction offset in piston			R. H. of Cyl. Bore Centerline		
ENGINE—CONNECTING RODS					
Material			GM X-1335 Modified		
Weight (oz.)			29.54		
Length (center to center)			6.625		
Bearing	Material		Durex 100-A with GM 4167-M Babbit Overlay-Steel Backed		
	Type (cast-in or removable)		Removable		
	Effective length		.876-.886		
	Clearance		.0009 to .0029		
	End play		(.004-.009 Preferred) .002 - .011 (2 rods per crankpin)		
ENGINE—CRANKSHAFT					
Material			SAE 1145 Steel (Modified)		
Weight (lb.)			57.75		

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MODEL			"88"	Super "88"	Ninety-Eight
ENGINE—CRANKSHAFT (cont.)					
Vibration damper type			No	Rubber	Rubber Absorbption
End thrust taken by bearing (No.)			555712 - Rear		
Crankshaft end play			.004 to .008		
Main bearing	Material		Steel Backed Durex 100-A with GM 4167-M Babbit Overlay		
	Type (cast-in or removable)		Slip In (Removable from Below)		
	Clearance		.0005 to .0030 Except Rear; Rear Only .002-.0035		
	Journal dia. and bearing effective length	No. 1	2 1/2 x 1 1/8		
		No. 2	2 1/2 x 1 1/8		
		No. 3	2 1/2 x 1 1/8		
		No. 4	2 1/2 1 1/8		
		No. 5	2 5/8 x 1.880		
		No. 6	None		
		No. 7	None		
	Direction offset from cyl. bore		None		
Connecting rod crankpin journal diameter			2 1/4		
ENGINE—CAMSHAFT					
Material			Cast Iron		
Bearings	Material		Steel backed babbit or Cu, lead, bronze		
	Number		5		
Type of drive	Gear or chain		Chain		
	Crankshaft gear or sprocket material		S. A. E. 1140 Steel - Link Belt C-1117 or 1118 Steel - Morse		
	Camshaft gear or sprocket material		Cast Iron - Link Belt Cast Iron - Morse		
	Timing chain	Make	Link Belt - Morse Optional		
		No. of links	48 L. B. - 64 Morse		
		Width	27/32 Link Belt - 7/8 Morse		
		Pitch	.500 Link Belt - .375 Morse		
ENGINE—VALVE SYSTEM					
Hydraulic lifters (yes, no)			Yes		
Special provision for valve rotation (intake, exhaust)			No		
Rocker ratio			1.8 to 1		
Operating tappet clearance (indicate hot or cold)	Intake		None		
	Exhaust		None		
Tappet clearance for timing	Intake		End of ramps used for timing		
	Exhaust		See valve timing table		
Timing marks on fly-wheel, damper, other			Crankshaft Pulley	Crankshaft Balancer	Crankshaft Balancer

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ENGINE—VALVE SYSTEM (cont.)

Timing	Intake	Opens (°BTC)	13 1/2 @ .00372 cam lift
		Closes (°ABC)	50 1/2 @ .00828 cam lift
	Exhaust	Opens (°BBC)	49 1/2 @ .00372 cam lift
		Closes (°ATC)	14 1/2 @ .00828 cam lift
Intake	Material		S. A. E. 3140 Steel or SAE 8645 Steel
	Overall length		4.917
	Actual overall head dia.		1 3/4
	Angle of seat		45°
	Seat insert material		None
	Stem diameter		.3425 - .3417
	Stem to guide clearance		.0022 to .0042
	Lift		.366
	Outer spring press. and length	Valve closed (lb. @ in.)	90# @ 1.829"
		Valve open (lb. @ in.)	156# @ 1.463"
	Inner spring press. and length	Valve closed (lb. @ in.)	None
		Valve open (lb. @ in.)	None
Exhaust	Material		Thompson Sil. XCR; Eaton Sil. XCR Head & SAE 8645 STEM
	Overall length		4.941
	Actual overall head dia.		1 7/16
	Angle of seat		45°
	Seat insert material		None
	Stem diameter		.3938 - .3930
	Stem to guide clearance		.0027 to .0045
	Lift		.366
	Outer spring press. and length	Valve closed (lb. @ in.)	90 # @ 1.829
		Valve open (lb. @ in.)	156 # @ 1.463
	Inner spring press. and length	Valve closed (lb. @ in.)	None
		Valve open (lb. @ in.)	None

ENGINE—LUBRICATION SYSTEM

Type of lubrication (splash, pressure, nozzle)	Main bearings	Pressure
	Connecting rods	Pressure
	Piston pins	Splash
	Camshaft bearings	Pressure
	Tappets	Pressure
	Timing gear or chain	Pressure
	Cylinder walls	Pressure

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ENGINE—LUBRICATION SYSTEM (cont.)

Oil pump type	Gear
Normal oil pressure (lb. @ rpm)	35-45# at 50 M. P. H.
Oil pressure gage type (electric or mechanical)	Mechanical
Type oil intake (floating, stationary)	Stationary
Oil filter type (full flow, partial flow)	Full Flow
Capacity of crankcase, less filter—refill (qt.)	5 quarts
Oil grade recommended (SAE viscosity and temperature range)	Not lower than 30°F. S. A. E. or 20W As low as 10°F S. A. E. 20W As low as -10°F S. A. E. 10W Lower than -10F S. A. E. 5W
Oil type recommended	Heavy Duty

ENGINE—FUEL SYSTEM

Recommended fuel	Standard head		Premium		
	Optional head		None		
Fuel Tank	Capacity (gals.)		20 Gal.		
	Filler Location		Left Rear Fender		
Fuel Filter	Type		Saran Type		
	Location		Gas Tank		
Fuel pump	Type (elec. or mech.)		Mechanical		
	Location		Engine Front Cover		
	Pressure range		4# to 5# at 16" above outlet at 1800 R. P. M.		
	Vacuum booster (std., opti., none)		Std.		
Carburetor	Make		Carter	Rochester	& Carter
	Model number		WGD	4 GC	WCFB
	Number used		One		
	Type	Downdraft, side inlet, other	Downdraft		
		Single or dual	Dual	Quad	Quad
	Intake manifold heat control (manual, auto., none)		Automatic		
	Automatic choke type (integral, other)		Integral		
	Air cleaner type	Standard	Dry		
		Optional	Oil Bath		

ENGINE—EXHAUST SYSTEM

Type (single, single with cross-over, dual, other)		Single with cross-over
Muffler type (rev. flow, str. thru, sep.resonator)		Rev. Flow
Exhaust pipe dia.	Branch	2"
	Main	2 1/4
Tail pipe diameter		2"

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ENGINE—COOLING SYSTEM					
Type (pressure system, atmospheric, other)			Pressure System		
Radiator cap relief valve press.			7#		
Circulation thermostat	Type (choke, bypass)		Choke		
	Starts to open at		157° - 162		
Water pump	Type (centrifugal, other)		Centrifugal		
	Number of pumps		One		
	Drive (V-belt, other)		V-Belt		
	Bearing type		Ball Bearing		
By-pass recirculation type (internal, external)			Internal		
Radiator core type (cellular, tube and fin)			Cellular Round "V" Type		
Cooling system capacity	With heater (qt.)		21.5		
	Without heater (qt.)		20.5		
Water jackets full length of cylinder (yes, no)			Yes		
Water all around cylinder (yes, no)			Yes		
Radiator hose	Lower	Number and type (molded, straight)	S. A. E. - Part IV Class RS or RN Coolant Hose One-Molded		
		Inside diameter and length	1.75 x 15.50		
	Upper	Number and type (molded, straight)	S. A. E. Part IV Class RS One - Molded		
		Inside diameter and length	1.50 x 11.80		
	By-pass	Number and type (molded, straight)	None		
		Inside diameter and length	None		
Drive belts	Fan	Number used	One		
		Angle of V	36°		
		Outside length	57 7/16		
		Width	.380		
	Generator	Angle of V	36°		
		Outside length	57 7/16		
		Width	.380		
Fan	Number of blades and spacing		Four -- 76° & 104°		
	Diameter		21		
	Ratio—fan to crankshaft revolutions		.815 to 1		
	Bearing type		Ball		

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ELECTRICAL—SUPPLY SYSTEM

Battery	Make and Model		Delco-Remy 3KM60W
	Voltage Rtg. & Plates/cell		12 Volts - 9 Plates
	SAE Designation & Amp Hr. Rtg		------ - 60 Amp. Hr. RTG.
	Location		Under Hood Left Side
	Terminal grounded		Negative
Generator	Make		Delco-Remey
	Model		1102003
	Type		Shunt
	Ratio—Gen. to Cr/s rev.		2.24:1
Regulator	Make		Delco-Remy
	Model		1118826
	Type		Current & Voltage Control
	Cutout relay	Closing voltage @ generator rpm	12.8 at Operating Temp. of 80°
		Reverse current to open	0 TO - 4
	Regulated	Voltage	Set to 14.5
		Current	Set to 30 Amps.
	Min. Gen. rpm required		3000 - 3400
	Voltage test conditions	Temperature	Set at operating temp. of 80°F. set .1 less for each 10°
		Load	1-10 A - Amp. above 80° - .1 more
		Other	Cycle regulated for 10° below 80°

ELECTRICAL—STARTING SYSTEM

Starting motor	Make		Delco-Remy
	Model		1107623
	Rotation (drive end view)		Clockwise
	Engine cranking speed		Summer 150 R. P. M.
	Test conditions		S. A. E. 20 with engine completely warm
	Lock test	Amps	460
		Volts	5.2
		Torque (lb. ft.)	11 Min.
	No load test	Amps	95 Max.
		Volts	10.1
		RPM (min.)	3500
Motor control	Switch (solenoid, manual)		Solenoid
	Starting procedure		Turn Ignition Key to Right Against Spring

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ELECTRICAL—STARTING SYSTEM (cont.)

Motor drive	Engagement type		Helical Spline Sliding Gear, Overrunning Clutch
	Pinion meshes (front, rear)		Front
	Number of teeth	Pinion	9
		Flywheel	176
	Flywheel tooth face width		.490 - .510

ELECTRICAL—IGNITION SYSTEM

Coil	Make		Delco Remy
	Model		1115082
	Amps	Engine stopped	4.5 (With Resistor)
		Engine idling	2.0 (With Resistor)
Distributor	Make		Delco Remy
	Model		1110843
	Spark advance data (at distributor shaft)	Centr. advance start (rpm)	650
		Centr. advance max. deg. @ rpm	29° at 3600 R. P. M.
		Vacuum advance start (in. Hg.)	4 1/2" to 6 1/2"
		Vac. adv. (max. deg. @ in. Hg.)	20° at 19" to 21"
	Breaker gap (in.)		.016"
	Cam angle (deg.)		26° to 33°
	Breaker arm tension (oz.)		19 to 23
Timing	C/S deg. @ rpm		5° B. T. C. at 850 R. P. M. with no vacuum
	Mark location		Crankshaft Pulley Slot & Pointer on Left Front Eng. Cover
	Cylinder numbering system (see page 2)		Left Bank 1-3-5-7 Right Bank 2-4-6-8
	Firing order (see page 2)		1-8-7-3-6-5-4-2
Spark plug	Make and model		AC - 46-5
	Thread (mm)		14
	Tightening torque (lb. ft.)		23-28
	Gap		.030
Cable	Conductor type		Stranded Copper
	Insulation type		Neoprene
	Spark plug protector		Silicone Sleeve

ELECTRICAL—SUPPRESSION

Description	Distributor Rotor includes surpressor

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ELECTRICAL—INSTRUMENTS AND SWITCHES

MODEL		"88"	Super "88"	Ninety-Eight
Speedometer	Make	AC		
	Trip odometer (yes, no)	No		
Charge indicator—type		Ammeter (Shunt)		
Temperature indicator—type		Electrical		
Oil pressure indicator—type		Pressure, Mechanical		
Fuel indicator—type		Electrical		
Ignition switch	Identify positions in order and circuits controlled	Vertical - Off Turn Key to Right - All Circuits on Left - Accessories only Far Right Against Spring - Starter		
	Provision for illumination	Yes-Light at Switch		
	Location	To Right of Steering Column		
	Theft protection type	No		
Main lighting switch	Identify positions and lights controlled	Pull out to first position - Parking Lamp Full - Headlamps Rotate Switch - Controls Dash Lamp Brightness		
Other light switches	Locations and lamps controlled	RH & LH Front Door Pillar Post Switches control Dome Lamp Switch at Dome Light in Car Roof controls Dome Lamp	98 4-Door has Door Switches on all Doors controlling Dome Lights. Pillar SW on 98 Lts 4-dr controls dome	
Other switches	Locations and devices controlled *	Turn Signal-Steering Column-Front Lamps and Rear Stop Lamps Stop Lt. on Tow Pan Below Brake Pedal-Rear Stop Lamps-Mechanical Safety Switch on Steering Column--interrupts started circuit with car in gear. Heater SW turn type-on panel. For Heat-HI Right, LO Left. For Defrost-Pull Out. Glove Box Lt. SW Right Side of Glove Box		
Windshield wiper	Make	Trico		
	Type	Vacuum		
	Vacuum booster provision	Standard		
	Washer provision	Yes		
Horn	Type	Vibrator		
	Number used	2		
	Amp draw (each)	10-12 Amps at 13 Volts		

*Power Brake Switch above pedal on bracked controls stop lights and power brake solenoid.

Safety switch on Hydra-Matic Transmission cars also contains back up light switch and Hydra-Matic electrical indicator switch.

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ELECTRICAL—LAMP BULBS

Give quantity used and trade number, e.g., Headlamp 2-4030. Indicate accessories which are not standard equipment by an asterisk following the numbers.

Headlamp		2-4400	2-4400
Headlamp beam indicator		1-53	1-53
Parking light		2-1034	2-1034
Tail light		2-1034	2-1034
Stop light		2-1034	2-1034
Direction indicator	Front	2-1034	2-1034
	Rear	2-1034	2-1034
	Tell-Tale	2-57	2-57
License plate light		2-67	2-67
Instrument light		4-57	4-57
Ignition lock light		1-57	1-57
Map light		1-57	1-57
Dome light		1004	2-90
Clock light		1-57*	1-57
Radio dial light		1-57*	1-57*
Glove compartment light		1-57*	1-57*
Courtesy light		2-90*	2-90*
Trunk compartment light		1-89*	1-89*
Other		None	
Underhood		1-89*	1-89*
Brake Indicator		1-57*	1-57*
Ash Tray		2-53	2-53

*Optional Equipment

ELECTRICAL—FUSE & CIRCUIT BREAKER DATA

Use trade number of fuse, e.g., SFE-10. Indicate circuit breaker by ampere capacity suffixed by letters "C.B", e.g., 30 C.B. Where fuse or circuit breaker protects multiple circuits indicate first use by a letter and repeat the same letter for all units protected by the same fuse or circuit breaker, e.g., Parking light: SFE-10 (a), Direction indicators same as (a).

Headlamp	25CB (A)	
Headlamp beam indicator	25CB (A)	
Parking light	25CB (A)	
Tail light	SFE9 (A)	
Stop light	SFE20 (A)	
Direction indicator	SFE9	
License plate light	SFE9 (B)	
Instrument light	AGA2 (A)	
Ignition light	SFE9 (C)	
Map light	SFE20 (B)	
Dome light	SFE20 (C)	AGC25
Clock	AGA1	
Clock light	AGA2 (B)	
Radio	SFE7.5	
Glove compartment light	SFE9(D)	
Courtesy light	SFE20 (D)	
Trunk compartment light	SFE9 (E)	
Other	None	
Underhood	SFE9 (F)	
Brake Indicator	SFE9 (A)	
Cigar Lighter	SFE20	
Heater	SFE (20)	
Instrument Feed	SFE9 (B)	
Back Up	SFE9 (C)	
Air Conditioner	AGC (25)	

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DRIVE UNITS—CLUTCH (PEDAL OPERATED)

Make			Long Mfg.
Type (dry or wet plate)			Dry
In combination with fluid coupling (yes, no)			No
Semi-centrifugal (yes, no)			Yes
Type pressure plate springs			Compression
Total plate pressure (lb.)			1400#
No. of clutch driven discs			One
Clutch facing	Material		Woven Molded
	Inside diameter		7"
	Outside diameter		11"
	Total eff. area (sq. in.)		56.52
	Thickness		136"
	Number required		Two
	Engagement cushioning method		Flat Springs Between the Facings
	Release bearing — Type		Ball
	Release bearing — Method of lubrication		Pressure Gun
	Torsional damping — Method (springs, other)		Springs
	Torsional damping — Frict. mat.		Steel

DRIVE UNITS—TRANSMISSIONS

Conventional (std. or opt.)	Std.
Conventional with overdrive (std. or opt.)	Not Available
Automatic (std. or opt.)	Opt.

DRIVE UNITS—CONVENTIONAL TRANSMISSION

Number of forward speeds		3
Transmission ratios	In first	2.3933:1
	In second	1.5259:1
	In third	1:1
	In fourth	None
	In reverse	2.534:1
Constant mesh gears in 2nd (yes, no)		Yes
Spur gear used in (indicate speeds)		None
Helical gears used in (indicate speeds)		Yes-All
Synchronous meshing in 2nd and 3rd gears (yes, no)		Yes

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DRIVE UNITS—CONVENTIONAL TRANSMISSION (cont.)

Lubricant	Capacity (pt.)		2.5 Pints
	Type recommended		Multi Purpose Gear Lub.
	SAE viscosity number	Summer	SAE-80
		Winter	SAE-80
		Extreme cold	SAE-80

DRIVE UNITS—CONVENTIONAL TRANSMISSION WITH OVERDRIVE

For transmission data see conventional transmission section

Overdrive	Type (planetary or other)			Overdrive Not Available		
	If planetary, No. of pinions			"	"	"
	Manual lockout (yes, no)			"	"	"
	Downshift accelerator control (yes, no)			"	"	"
	Minimum cut-in speed			"	"	"
	Gear ratio			"	"	"
	Lubricant	Capacity (O.D. only)		"	"	"
		Separate filter (yes, no)		"	"	"
		Type recommended		"	"	"
		SAE viscosity number	Summer	"	"	"
			Winter	"	"	"
			Ext. cold	"	"	"

DRIVE UNITS—AUTOMATIC TRANSMISSION

Trade name		Hydra-Matic
Type (fluid coupling with gears, torque convertor with gears, other)		Automatic Transmission with drive thru planetary gears and fluid coupling.
Manual selector positions, left to right (show symbols and define, e.g., N- Neutral)		N - Neutral DR - Drive S - Super Performance LO - Low R - Reverse
List gear ratios in each drive position (range)	First Second Third Fourth Reverse	3.8195:1 2.6341:1 1.45:1 1:1 4.3045:1
Shifting within drive position range by accelerator control and speed limiting governor (yes, no)		Yes
By governor—forced shift (yes, no)		Yes
Downshift of gears in high range possible up to (mph)		65 M.P.H.

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DRIVE UNITS—AUTOMATIC TRANSMISSION (cont.)

Torque convertor	Number of elements		Not Available		
	Max. ratio at stall at engine rpm		"	"	
	Mechanical lockup	Provided (yes, no)	"	"	
		Speed range	"	"	
		Releases at (speed range, mph)	"	"	
	Type of cooling (forced air, oil cooler and type, other)		"	"	
	Anti-creep device (yes, no)		"	"	
Lubricant	Capacity—refill (pt.)		21		
	Type recommended		Type "A" Automatic Trans. or G. M. Hydra-Matic Drive Fluid		
	Grade	Summer	"	"	"	"	"
		Winter	"	"	"	"	"
		Extreme cold	"	"	"	"	"

DRIVE UNITS—PROPELLER SHAFT

Number used			One		
Type (exposed, torque tube)			Exposed		
Outer diameter x length* x wall thickness	Conventional trans.		3.25 x 59.86 x .065	3.25x59x.065	3.25x59x.065
	Overdrive trans.		Not Available		
	Automatic trans.		3 x 55 x .065	3 x 55 x .065	3 x 59 x .065
Intermediate bearing	Type (plain, anti-friction)		No		
	Lubri. (fitting, prepack)		No		
Universal joints	Make		Saginaw Steering Gear		
	Number used		2		
	Type (ball and trunnion, cross, other)		Cross		
	Bearing	Type (plain, anti-friction)	Needle		
		Lubric. (fitting, prepack)	Prepack		
Drive taken through (torque tube or arms, spring)			Springs		
Torque taken through (torque tube or arms, springs)			Springs		

*Centerline to centerline of joints or centerline of rear attachment point.

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MODEL	"88"	Super "88"	Ninety-Eight

DRIVE UNITS—REAR AXLE

Type (semi-floating, other)			Semi-Floating		
Gear type (hypoid, other)			Hypoid		
Gear ratio and No. of teeth	Conventional trans.		Standard 3.42:1 Optional 3.64:1		41 x 12 40 x 11
	Overdrive trans.				
	Automatic trans.		3.07:1 40-13	3.23:1 42-13	3.23:1 42-13
Pinion adjustment (shim, other)			Shims		
Pinion bearing adj. (shim, other)			Nut		
Lubricant	Capacity (pt.)		5		
	Type recommended		Multi-Purpose Hypoid Lubricant		
	SAE viscosity number	Summer	SAE-90		
		Winter	SAE-90		
		Extreme cold	SAE-80		

DRIVE UNITS—WHEELS

Type (disc, other)		Steel Disc
Rim (size and flange type)		15 x 5 1/2K
Attachment	Type (bolt or stud)	Stud
	Circle diameter	5
	Number and size	5 - 1/2

DRIVE UNITS—TIRES

Size and ply rating	Standard	7.60 x 15 - 4
	Optional	8.00 x 15 - 4
Rev/mile at 30 mph		721.9
Inflation press. (cold)	Front	24
	Rear	22

BRAKES—SERVICE

Type			Bendix
Booster type			Optional
Effective area (sq. in.)			191.7
Percent brake effectiveness—rear			44%
Drum	Diameter	Front	11" x 2 1/2"
		Rear	11" x 2"
	Type and material		Cast Iron & Steel Centrifuse

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BRAKES—SERVICE (cont.)

Brake lining	Bonded or riveted			Riveted
	Primary	Material		Marshall 4641
		Size (length x width x thickness)	Front wheel	9 3/8 x 2 1/2 x 7/32
			Rear wheel	9 3/8 x 2 x 7/32
		Segments per shoe		One
	Secondary	Material		Marshall 9795 D
		Size (length width x thickness)	Front wheel	12 1/32 x 2 1/2 x 7/32
			Rear wheel	12 1/32 x 2 x 7/32
		Segments per shoe		One
Wheel cylinder bore	Front			1 3/32
	Rear			31/32
Master cylinder bore				1"
Available pedal travel				6 1/2
Line pressure at 100 lb. pedal load				735 APP
Shoe clearance adjustment				.015"

BRAKES—PARKING

Type of control		T-Handle
Location of control		Left of Steering Column
Operates on		Rear
If separate from service brakes	Type (internal or external)	Service - Internal
	Drum diameter	11"
	Lining size (length x width x thickness)	Primary 9 3/8 x 2 x 7/32 - Secondary 12 1/32 x 2 x 7/32

FRAME

Type and description	Deep, Channel Section Side Rails and Sub-Bars, I Beam "X" Members and Five Cross Members.

FRONT SUSPENSION

Type and description	Independent, Coil Springs

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MODEL			"88"	Super "88"	Ninety-Eight

FRONT SUSPENSION (cont.)

	Type		Coil		
	Material		Spring Steel	GM 29M	GM 9260M Spring Steel
Spring	Size (length x width x No. leaves or coil I.D.)		3 11/16	4 3/64	4 3/64
	Spring rate (lb. per in.)		325	325	325
	Rate at wheel (lb. per in.)		100	100	100
	Normal load (lb. @ rated length)		1950	2000	2050
Shock absorbers	Manufacturer		Delco		
	Type (direct or lever)		Lever		
	Piston diameter		1 1/2		
Stabilizer	Type (link, linkless, frameless)		Link		
	Material		S. A. E. 1070		

STEERING

Type used (Standard or optional)		Mechanical	Standard		
		Power	Optional		
Wheel diameter			18.00"		
Turning diameter	Outside front	Wall to wall (r. & l.)	44.7 Ft.	44.7 Ft.	45.6 Ft.
		Curb to curb (r. & l.)	42.5 Ft.	42.5 Ft.	43 Ft.
	Inside rear	Wall to wall (r. & l.)	26.6 Ft.	26.6 Ft.	27.2 Ft.
		Curb to curb (r. & l.)	26.2 Ft.	26.2 Ft.	26.7 Ft.
Inside wheel angle with outside wheel at 20°			23°		
Mechanical	Gear	Type	Ball Nut		
		Make	Saginaw		
		Ratios — Gear	21.3:1		
		Ratios — Overall	27.5:1		
	No. wheel turns		4 3/4		
Power	Type		Hydraulic Booster		
	Make		Saginaw Steering Gear Division		
	Trade name		Power Steering		
	Gear	Type	Ball Nut		
		Ratios — Gear	21.3:1		
		Ratios — Overall	25.73:1		
	Pump driven by		Belt from Crank		
	Overall torque ratio		Variable		
	Number wheel turns		4 1/2		
Linkage	Type		Symmetrical		
	Location (front or rear of wheels)		Rear		
	Drag link (trans. or long) Tie rods (one or two)		Transverse Two		

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MODEL			"88"	Super "88"	Ninety-Eight
STEERING (cont.)					
Kingpin	Inclination at camber (deg.)		5°51'10" @ 0° Camber		
	Diameter		.86175		
	Bearings (type)	Upper	Bronze Bushing		
		Lower	Bronze Bushing		
		Thrust	Ball		
Wheel alignment (range and preferred)	Caster (deg.)		0° to - 3/4° (Neg.)		
	Camber (deg.)		-1/4° to + 3/4°		
	Toe-in (outside tread-inches)		1/16" to 1/8"		
Steering knuckle type			Reverse Elliot		
Wheel spindle	Diameter	Inner bearing	1.3736 1.3741		
		Outer bearing	.7490 .7495		
	Thread size		3/4 - 20		
	Bearing type		Ball and Cone		
REAR SUSPENSION					
Type			Longitudinal Leaf		
Drive and torq. taken through (see page 14)			Springs		
Spring	Type		Semi-Elliptic		
	Material		AISI #5155 or AISI #5160		
	Size (length x width x No. leaves or coil I.D.)		58 x 2 1/2 - 5		
	Spring rate (lb. per in.)		95	95	100
	Rate at wheel (lb. per in.)		115	115	120
	Normal load (lb. at rated length)		960-1.85	960-1.85	975-1.85
	Mounting insulation type		Rubber		
	If leaf	No. of leaves	5		
		Covers (yes, no)	No		
		Lubricated (yes, no)	No		
		Inserts: Type and size	Full Length		
		Inserts: Material	Composition		
		Shackle (comp. or tens.)	Compression		
Shock absorbers	Manufacturer		Delco		
	Type (direct or lever)		Direct		
	Piston diameter		1"		
Stabilizer	Type (link, linkless, frameless)		Link		
	Material		SAE 1070		
Track bar type			None		

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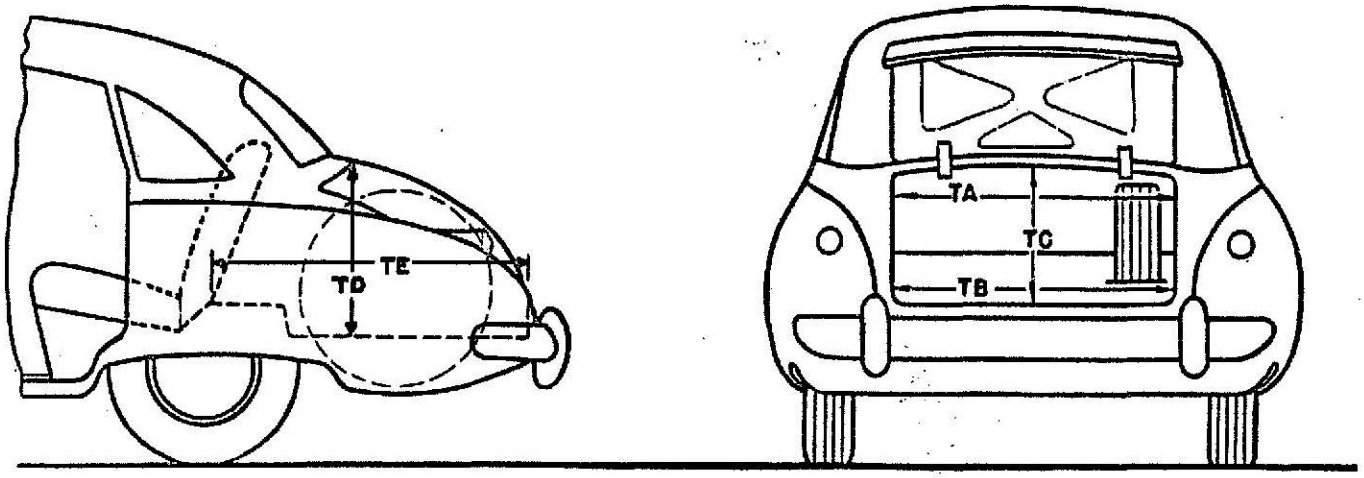
BODY—GENERAL DEFINITIONS

NOTE: Included in the dimension definitions listed on this and the following pages are those which have been proposed for adoption by the SAE. These are indicated by a number following the type of dimension, e.g., L 3. Additional dimensions have been added by the AMA Specifications Body Sub-Committee for inclusion in the Questionnaire. These are shown by an additional letter, e.g., HA. The dimensions are developed from the following basic points:

1. Front and rear seat "A" points are taken 5" forward of vertical tangent to seat back 15" from center of body.
2. Front seat is in the rear position.
3. Loaded position—5 passengers, front 300 lb., rear 450 lb., includes spare wheel, tire and tools, and full complement of gas, oil, water, etc. and tires to recommended pressure, etc.
4. . . . (centerline).
5. D. L. O. (daylight opening, exposed glass dimension).
6. Ramp breakover angle (page 20-A) is the supplement of the included ramp angle (180° minus the included ramp angle) over which a car can pass without hanging up.

MODEL	"88"	Super "88"	Ninety-Eight

BODY—TRUNK OPENING DIMENSIONS



TA—Width across the top	55.5	55.5	56
TB—Width across the bottom	53.0	53.0	53
TC—Diagonal dimension at CL from top of opening to bottom	34.8	34.8	40
TD—Vertical height of opening (floor to top, inside edge of opening)	23.4	23.4	23.4
TE-Max. horizontal depth (forward from vertical projection of inside edge of opening)	46.0	46.0	55.0
Position of spare tire stowage	Right side, Longitudinal, Vertical		
Method of holding lid open	Counterbalanced spring at trunk lid hinge		

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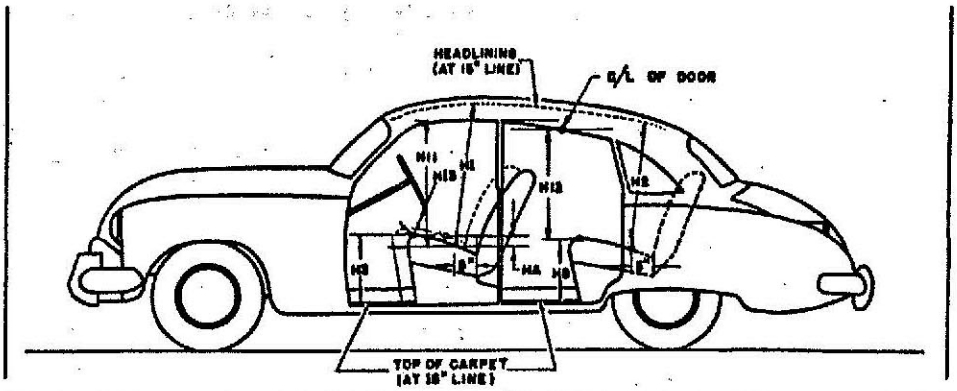
MODEL	"88"	Super "88"	Ninety-Eight

BODY—HEIGHT DIMENSIONS—INTERIOR



H1. Front headroom—from "A" pt. to headlining at 8° back of vertical on 15" line. (For "A" pt. see note 1, page 19)	35.6	35.6	35.6
H2. Rear headroom—from "A" pt. to headlining at 8° back of vertical on 15" line.	34.6	33.8	33.8
H3. Front seat height to floor carpet on 15" line (front edge of cushion).	13.2	13.2	13.1
H8. Rear seat height to floor carpet on 15" line (front edge of cushion).	12.4	13.2	13.0
H11. Entrance—front—cushion "A" point to bottom windcord vertical.	29.2	29.2	29.2
H12. Entrance—rear—top of cushion to bottom windcord vertical at C/L of rear door.	27.5	26.7	26.7
H13. Steering wheel clearance to seat cushion taken on arc.	4.9	4.9	4.9
HA. Front seat vertical rise at "A" pt. (inches.)	.4	.4	.4

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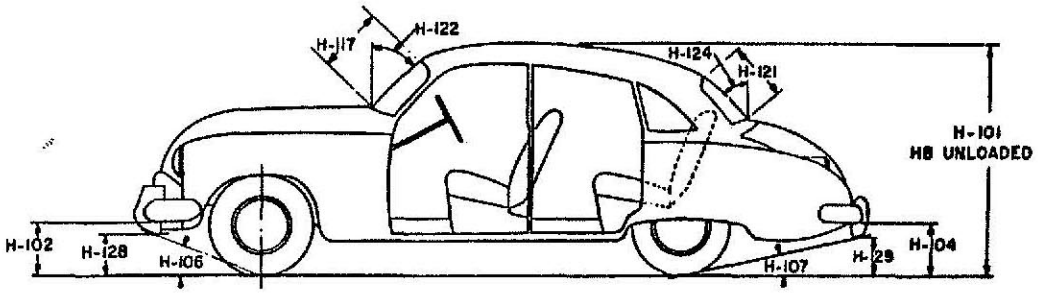
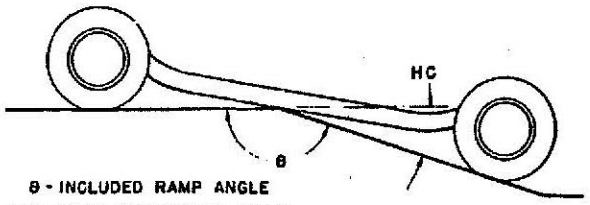
MODEL	"88"	Super "88"	Ninety-Eight

BODY—HEIGHT DIMENSIONS—EXTERIOR





θ - INCLUDED RAMP ANGLE
HC - RAMP BREAKOVER ANGLE
(SUPPLEMENT OF INCLUDED RAMP ANGLE)

H101. Overall height.	60.5	60.5	60.5
HB. Overall height—unloaded.	62.16	62.16	62.16
H102. Front bumper bottom to ground at normal section.	11.09	11.09	11.09
H104. Rear bumper bottom to ground at normal section.	*10.16	*10.16	*10.46
H106. Angle of approach—from the tire rolling radius to lowest point on front bumper or guard.	24°15'	24°15'	24°15'
H107. Angle of departure—from the tire rolling radius to lowest point on rear bumper or guard.	15°	15°	13°15'
HC. Ramp breakover angle.*	11°40'	11°40'	11°12'
H117. Windshield DLO-slant height.	17.4	17.4	17.4
H121. Backlight DLO*—Max., slant height.	16.1	16.1	16.1
H122. Windshield slope angle to vertical line on car axis.	44°	44°	44°
H124. Backlight slope angle to vertical line on car axis.	46°	46°	46°
H128. Ground to bottom of front bumper guard.	11.88	11.88	11.88
H129. Ground to bottom of rear bumper guard.	*10.16	*10.16	*10.16
HD. Min. road clearance (location and dimension).	6.26 Frame Side Bar	6.26 Frame Side Bar	6.23 Frame Side Bar
HE. Min. road clearance at rear axle.	7.66 Axle Clip & Banjo Housing	7.66 Axle Clip & Banjo Housing	7.66 Axle Clip & Banjo Housing

*See Notes, page 19.

*With five passenger load

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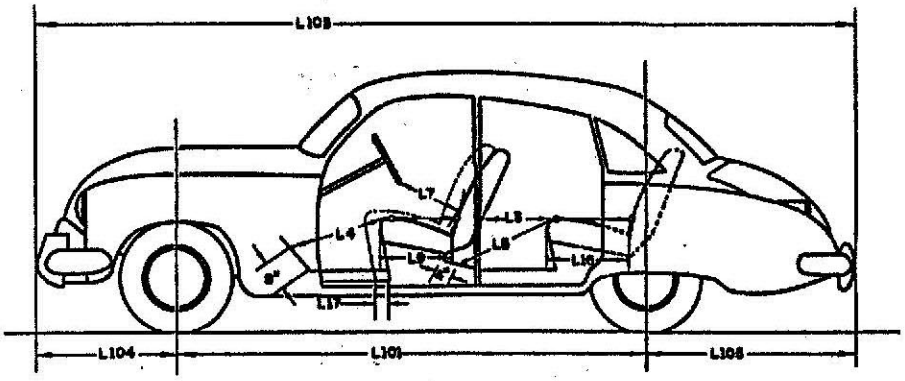
BODY—LENGTH DIMENSIONS



	MODEL	"88"	Super "88"	Ninety-Eight
Interior	L3. Rear compartment back of front seat back to rear seat back.	32.6	32.6	32.4
	L4. Leg room—front—diagonal—ball of foot to top of seat to front seat back—15" line.	42.9	42.9	42.8
	L5. Leg room—rear—diagonal—from ball of foot to top of rear seat cushion and to seat back.	43.8	44.3	44.0
	L7. Steering wheel clearance to seat back taken on arc.	12.9	12.9	12.9
	L9. Front seat depth (front edge to vert. tan. to seat back on 15" line).	18.6	18.6	18.6
	L16. Depth of rear seat (front edge to seat back).	18.9	18.9	18.9
	L17. Total adjustment of front seat at floor.	4.40	4.40	4.40
Exterior	L101. Wheel base.	122.	122.	126.
	L103. Overall length (bumper to bumper inc. guards).	205.26	205.26	214.26
	L104. Overhang—front including bumper guards.	33.92	33.92	33.92
	L105. Overhang—rear including bumper guards.	49.34	49.34	54.34

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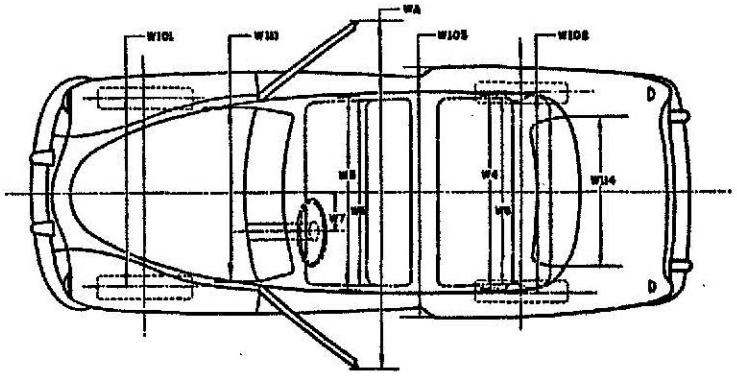
MODEL	"88"	Super "88"	Ninety-Eight

BODY—WIDTH DIMENSIONS



Interior	**W3.** Front shoulder room, at garnish moulding height or nearest interference 5" forward of seat back.	58.2	58.2	58.2
	W4. Rear shoulder room, at garnish moulding height or nearest interference 5" forward of seat back.	56.74	56.74	56.74
	W5. Front hip room, at top of seat 5" forward of vert. tan. to seat back.	62.3	62.3	62.3
	W6. Rear hip room, at top of seat 5" forward of vert. tan. to seat back.	62.4	62.1	62.1
	W7. Steering wheel center to center of body.	15.32	15.32	15.32
Exterior	**W101.** Front tread at ground.	59	59	59
	W102. Rear tread at ground.	58	58	58
	W103. Max. overall width of car including bumpers or mouldings.	78.26	78.26	78.26
	WA. Max. overall width of car with doors open.	137.74	137.74	137.74
	W111. Windshield DLO, max. width.	58	58	58
	W114. Back window DLO, max. width.	58.5	58.5	58.5

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BODY—MISCELLANEOUS INFORMATION

Doors hinged (front, rear)	Front	Front	Front	Front
	Rear	Front	Front	Front
Type of finish (lacquer, enamel)		Lacquer	Lacquer	Lacquer
Hood opening (front, side; semi-full, full, half)		Front	Front	Front
Hood counterbalanced (yes, no)		Yes	Yes	Yes
Hood release control (internal, external)		External	External	External
Vent window control method (crank, friction, pivot).		Front-Crank Rear-Stationary	Front-Crank Rear-Friction	Front-Crank Rear-Friction
Windshield (one piece, two piece; curved, flat)		One Piece Curved	One Piece Curved	One Piece Curved
Rear window type (one piece, two piece, three piece; curved, flat)		One Piece Curved	One Piece Curved	One Piece Curved
Windshield glass area		1179.53	1179.53	1179.53
Backlight glass area		1045.79	1045.79	1045.79
Total glass area		3744.38	3712.38	3712.38

BODY—TYPES AND STYLE NAMES

Body type, number of passengers, and style names (use letter code shown below followed by passenger capacity and style name e.g., N-6 Ranchwagon)			
	G-5 4 Door Sedan	G-5 4 Door Sedan	G-5 Four Door Sedan
	D-5 2 Door Sedan	D-5 2 Door Sedan	J-5 Del. Hol. Cpe
	J-5 Holiday Coupe	J-5 Holiday Coupe	J-5 Holiday Cpe.
		L-5 Convert. Coupe	L-5 Starfire

Body type code

A—Coupe—2 door flatback
B—Coupe—2 door notchback
C—Sedan—2 door flatback
D—Sedan—2 door notchback
E—Sedan—4 door flatback (4 windows)
F—Sedan—4 door flatback (6 windows)
G—Sedan—4 door notchback (4 windows)
H—Sedan—4 door notchback (6 windows)
J—Hardtop—2 door
K—Hardtop—4 door
L—Convertible—2 door
M—Convertible—4 door
N—Station wagon—2 door
P—Station wagon—4 door
Q—Combined passenger and utility—2 door
R—Combined passenger and utility—4 door
S—Sedan delivery
T—Limousine

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