

AMA Specifications – Passenger Car

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MANUFACTURER OLDSMOBILE DIV. G. M. C.		CAR NAME OLDSMOBILE	
MAILING ADDRESS LANSING, MICH. 48921		MODEL YEAR 1964	ISSUED: 9-28-63 REVISED (•)

NOTES:

1. The Specifications herein are those in effect at date of compilation and are subject to change without notice by the manufacturer.
2. UNLESS OTHERWISE INDICATED:
 - a. Specifications apply to standard models without optional equipment. Significant deviations are noted.
 - b. Nominal design dimensions are used throughout these specifications.

TABLE OF CONTENTS

General Specifications 1	Drive Units 15	Rear Suspension 21	Body & Car - General 22
Engine - Mechanical 2	Brakes 18	Body Dimensions 22	Weights 33
Electrical 10	Front Suspension & Steering . . 19	Station Wagon 31	Index 37

BODY—TYPES AND STYLE NAMES—

Body type, number of passenger & style names; use manufacturer's code for series & body style.

<u>BODY TYPE</u>	<u>JETSTAR I</u>	<u>STARFIRE</u>	<u>98</u>
2 Door Hardtop Coupe	3457	3657	3947
2 Door Convertible	-	3667	-

AMA Specifications — Passenger Car

Page 1

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (a) _____

GENERAL SPECIFICATIONS

(All dimensions in inches unless otherwise indicated)

MODEL		Additional Information Page No.	3457	3657	3947
Wheelbase (L101)		23	123	123	126
Tread	Front (W101)	22	62.2	62.2	62.2
	Rear (W102)	22	61.06	61.06	61.06
Maximum Overall Dimensions	Length (L103)	23	215.3	215.3	222.3
	Width (W103)	22	77.76	77.76	77.76
	Height (H101)	24	54.2	54.2	54.6
Transmission— (Specify trade name - opt., not available)	Manual	15	Std.	NA	NA
	Overdrive	16	NA	NA	NA
	Automatic	16	Opt.	Std.	Std.
Axle ratio	Manual	17	3.42	NA	NA
	Overdrive	17	NA	NA	NA
	Automatic	17	3.42	3.42	3.42
Tire size		18	8.00 x 14	8.00 x 14	8.50 x 14
Engine	Type, no. cyl., valve arr.	2	90° V-8 O. H. V.		
	Fuel system (Carb., other)	8	Carburetor		
	Bore and stroke	2	4.125 x 3.688		
	Piston displ., cu.in.	2	394		
	Std. compression ratio	2	10.50:1		
	Max. bhp at engine rpm	2	345 @ 4800		
	Max. torque at rpm	2	440 @ 3200		

AMA Specifications—Passenger Car

Page 2

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (*)

MODEL 3457 3657 3947

ENGINE—GENERAL

Type, no. cyls., valve arr.		90° V-8 O. H. V.	
Bore and stroke (nominal)		4.125 x 3.688	
Piston displacement, c.u. in.		394	
Bore spacing (C/L to C/L)		4.625	
No. 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	
Compras. ratio (nominal)		10.50:1	
Cylinder Head Material		Cast Iron	
Cylinder Block Material		Cast Iron	
Cylinder Sleeve-Wet, dry, none		None	
Number of mounting points	Front	One	
	Rear	Two	
Engine installation angle		4° 30'	4° 4°
Taxable $\frac{\text{Dia.}^2 \times \text{No. Cyl.}}{2.5}$ horsepower		54	
Published max. bhp* @ eng. RPM		345 @ 4800	
Published max. torque* (lb. ft. @ RPM)		440 @ 3200	
Recommended fuel regular - premium		Premium	
Idle speed (spec. neutral or drive)	Manual	650	
	Automatic	600	

ENGINE—PISTONS

Material	Aluminum Alloy		
Description and finish	Autothermic, Cam Grind, Tin Plate - Steel Strut		
Weight (piston only) oz.	26.349		
Clearance (limits)	Top land	.028 - .034	
	Skirt	Top	.00075 - .00225
		Bottom	.00075 - .00125
Ring groove depth	No. 1 ring	.2125 - .2195	
	No. 2 ring	.2125 - .2195	
	No. 3 ring	.2045 - .2075	
	No. 4 ring	None	

*Max. bhp (brake horsepower) and max. torque corrected to 60° F and 29.92 in. Hg atmospheric pressure.

AMA Specifications – Passenger Car

Page 3

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (e) _____

POWER TEAMS

(Indicate whether standard or optional)

MODEL AVAILABILITY	ENGINE					TRANSMISSION	AXLE RATIO (Std. first)
	Displ. cu. in.	Carburetor	Compr. Ratio	BHP @ RPM	Torque @ RPM		
3457	394	4 bbl.	10.50:1	345 @ 4800	440 @ 3200	Syncromesh Hydramatic	3.42 3.42
3657 & 3947	394	4 bbl.	10.50:1	345 @ 4800	440 @ 3200	Hydramatic	3.42

AMA Specifications – Passenger Car

Page 4

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (e)

MODEL 3457 3657 3947

ENGINE—RINGS

Function (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
Compression	Description - material, type, coating, etc.	Cast Iron-Upper Ring: Chrome, Plated O. D. -Taper Face Lower Ring: Parco-Lubrited-Taper Face-Interrupted Scraper Groove
	Width	#1 .0775 - .0780 #2 .0925 -.0935
	Gap	.013 -.023
Oil	Description - material, type, coating, etc.	Spring Steel - Two Rails: Chrome Plated O. D. Spacer: Black Oxide
	Width	Rails: .0235 - .0250 Each Spacer: .177 - .182
	Gap	.015 - .055
Expanders		None

ENGINE—PISTON PINS

Material		S. A. E. #1016 Special & S. A. E. #1019
Length		3.126
Diameter		.9803 - .9807
Type	Locked in rod, in piston, floating, etc.	Full Floating
	Bushing	Rod
		Material
Clearance	In piston	.0003 - .0005 Loose
	In rod	.0003 - .0005 Loose
Direction & amount offset in piston		.090 to R. H. 0 + Cylinder Bore Centerline

ENGINE—CONNECTING RODS

Material		Steel - S. A. E. #1139
Weight (oz.)		34.55 oz.
Length (center to center)		6.998
Seating	Material & Type	Moraine 400 Aluminum with G. M. 3874 Babbitt Overlay - Steel Backed
	Overall length	.821 - .831
	Clearance (limits)	.0005 - .0025
	End play	(.004 to .009 Preferred) .002 - .011-2 Rods per Crankpin

AMA Specifications – Passenger Car

Page 5

MAKE OF CAR	<u>OLDSMOBILE</u>	MODEL YEAR	<u>1964</u>	DATE ISSUED	<u>9-28-63</u>	REVISED	<u>(•)</u>
MODEL	<u>3457</u>	<u>3657</u>	<u>3947</u>				

ENGINE—CRANKSHAFT

Material		<u>S. A. E. #1145 Modified or S. A. E. #1046</u>		
Vibration damper type		<u>Rubber Absorption</u>		
End thrust taken by bearing (No.)		<u>Rear - Upper & Lower</u>		
Crankshaft end play		<u>.004 - .008</u>		
Main bearing	Material & type	<u>#1-2-3-4: Steel Backed Aluminum Moraine 400 w/GM 3874-M Babbitt Overlay</u> <u>#5(Rear) Steel Backed Durex 100A w/GM 4176-M Babbitt Overlay</u>		
	Clearance	<u># 1 & 2: .0005-.0021 #3 & 4: .0008-.0024 #5(Rear).0020-.003</u>		
	Journal dia. and bearing overall length	No. 1	<u>3.00 x 1.068</u>	
		No. 2	<u>3.00 x .818</u>	
		No. 3	<u>3.00 x .818</u>	
		No. 4	<u>3.00 x .818</u>	
		No. 5	<u>3.00 x 1.690</u>	
		No. 6	<u>None</u>	
		No. 7	<u>None</u>	
Dir. & amt. cyl. offset		<u>None</u>		
Crankpin journal diameter		<u>2.50</u>		

ENGINE—CAMSHAFT

Location		<u>Center</u>		
Material		<u>Alloy Cast Iron</u>		
Bearings	Material	<u>Steel Backed G.M. 4195-M Babbitt</u>		
	Number	<u>5</u>		
Type of Drive	Gear or chain		<u>Chain</u>	
	Crankshaft gear or sprocket material		<u>S. A. E. #1140, 1118, 1146, G.M. 85M Steel</u> <u>or A. S. T. M. B-310 Sintered Iron</u>	
	Camshaft gear or sprocket material		<u>Aluminum & Nylon</u>	
	Timing chain	No. of links	<u>48</u>	
		Width	<u>.844</u>	
		Pitch	<u>.500</u>	

ENGINE—VALVE SYSTEM

Hydraulic lifters (Std, opt, NA)		<u>Standard</u>	
Valve rotator, type (intake, exhaust)		<u>None</u>	
Rocker ratio		<u>1.8:1</u>	
Operating tappet clearance (indicate hot or cold)	Intake	<u>None</u>	
	Exhaust	<u>None</u>	
Timing marks on flywheel, damper, other		<u>Camshaft Sprocket & Crankshaft Sprocket</u>	

(Continued)

AMA Specifications—Passenger Car

Page 6

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (*)

MODEL 3457 3657 3947

ENGINE—VALVE SYSTEM (cont.)

Timing	Intake	Opens (°BTC)	21
		Closes (°ABC)	77
		Duration - deg.	-
	Exhaust	Opens (°BBC)	60
		Closes (°ATC)	20
		Duration - deg.	-
Intake	Valve opening overlap		-
	Material		S. A. E. 1041, 1047 Steel
	Overall length		5.093
	Actual overall head dia.		1.875
	Angle of seat & face		45°
	Seat insert material		None
	Stem diameter		.3432 - .3427
	Stem to guide clearance		.0010 - .0025
	Lift (@ zero lash)		.444
	Outer spring press. and length	Valve closed (lb. @ in.)	90 @ 1.837
		Valve open (lb. @ in.)	182 @ 1.437
	Inner spring press. and length	Valve closed (lb. @ in.)	None
		Valve open (lb. @ in.)	None
Exhaust	Material		GM N82152 Steel
	Overall length		5.081
	Actual overall head dia.		1.562
	Angle of seat & face		45°
	Seat insert material		None
	Stem diameter		.3427 - .3422
	Stem to guide clearance		.0015 - .0030
	Lift (@ zero lash)		.435
	Outer spring press. and length	Valve closed (lb. @ in.)	90# @ 1.837
		Valve open (lb. @ in.)	182 # @ 1.437
	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

(Continued)

AMA Specifications – Passenger Car

Page 7

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (•)

MODEL 3457 3657 3947

ENGINE—LUBRICATION SYSTEM (cont.)

Oil pump type	Gear
Normal oil pressure (lb. @ engine rpm)	35-45 @ 50 M. P. H.
Oil pressure sending unit (elect. or mech.)	Electric
Type oil intake (floating, stationary)	Stationary
Oil filter system (full flow, partial, other)	Full Flow
Filter replacement (element, complete)	Complete
Capacity of crankcase, less filter-refill (qt.)	4 Quarts
Oil grade recommended (SAE viscosity and temperature range)	Above 32° F - S. A. E. 10W-30, S. A. E. 20W Below 32° F & Above 0° F. SAE 5W-20, SAE 10W Below 0° F - SAE 5W-20, SAE 5W
Engine Service Requirement (MM, MS, etc.)	MS (or Meets G. M. 4745 M)

ENGINE—EXHAUST SYSTEM

Type (single, single with cross-over, dual, other)	Dual
Muffler No. & type (reverse flow, straight thru, separate resonator)	Reverse Flow Separate Resonators
Exhaust pipe dia. (O.D. Branch wall thickness)	2.00 O. D. x .090
Main	2.25 O. D. x .036 & .048 Laminated
Tail pipe diameter (O.D. & wall thickness)	2.25 O. D. x .054

ENGINE—CRANKCASE VENTILATION SYSTEM

Type (ventilates to atmos., induction system, other)	Standard Optional	Positive Crankcase Ventilation None
Control unit	Make and model Location Energy source (manifold vacuum, carburetor air stream, other) Control method (variable orifice, fixed orifice, other)	A. C. Dual Action Valve Cover Manifold Vacuum and Carburetor Air Fixed Orifice
Complete system	Discharges (to Intake manifold, carb. air intake, air cleaner intake, other) Air inlet (breather cap, carburetor air cleaner, other) Flame arrestor (screen, check valve, other)	Intake Manifold and Air Cleaner Breather Cap Screen

AMA Specifications— Passenger Car

Page 8

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (•)

MODEL 3457 3657 3947

ENGINE—FUEL SYSTEM

(See Supplement to Page 8 for Details of Fuel Injection, Supercharger, etc. If used)

Induction type: Carburetor, fuel injection, supercharger.		Carburetor
Fuel Tank	Capacity (gals.)	21 Gallons
	Filler location	L. H. Rear Quarter
Fuel Pump	Type (elec. or mech.)	Mechanical
	Locations	
	Pressure range	5 lbs to 6 lbs @ 16" above Outlet @ 1000 Engine R. P. M.
Vacuum booster (std., optional, none)		None
Fuel Filter	Type	Accreted & Saran Type
	Locations	Fuel Pump & Fuel Tank
Carburetor	Choke type	Automatic
	Intake manifold heat control (exhaust or water)	Exhaust
	Air clnr. type	Paper
		None

CARBURETOR SUPPLEMENTARY INFORMATION

Model Usage	Engine Displ.	Transmission	Carburetors		No. Used and Type	Barrel Size
			Make	Model		
457-3657 & 3947	394		Rochester	4GC	Single Quad	1.5625 Prim. 1.6875 Sec.

AMA Specifications – Passenger Car

Page 9

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (a)

MODEL 3457 3657 3947

ENGINE—COOLING SYSTEM

Type system (pressure, pressure vented, atmospheric, other)			Pressure System	
Radiator cap relief valve pressure			15 Pounds	
Circulation thermostat	Type (choke, bypass)		Choke	
	Starts to open at (°F)		177° - 182°	
Water pump	Type (centrifugal, other)		Centrifugal	
	GPM @ 1000 pump rpm		17.5	
	Number of pumps		One	
	Drive (V-belt, other)		V-Belt	
	Bearing type		Ball	
By-pass recirculation type (internal, external)			Internal	
Radiator core type (cellular, tube and fin, other)			Tube & Center	
Cooling system capacity	With heater (qt.)		20.25	
	Without heater (qt.)		19.25	
	Opt. equipment-specify (qt.)		1.65 Additional for Air Conditioned Cars	
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. 20 R4 Class R - Grade 1A	
		Inside diameter	One - Molded - Modified	
	Upper	Number and type (molded, straight)	SAE 20 R 4 Class R - Grade 1A	
		Inside diameter	One - Molded - Modified	
	By-pass	Number and type (molded, straight)	1.50	
		Inside diameter	None	
	Fan	Number of blades & Spacing		4-76° & 104° (6A/C)
		Diameter		18" (19" A/C)
Ratio-fan to crankshaft rev.		.849 to 1 (1.33 to 1 A/C)		
Fan cutout type		None (Fan Clutch A/C)		
Bearing type		Ball		
*Drive belts (indicate belt used by letter)	Fan		A	
	Generator		B	
	Water Pump		C	
	Power Steering		D	
	Air Conditioning		E	

* Drive Belt Dimensions	A	B	C	D	E
Angle of V	36°	36°	36°	36°	36°
Nominal length (SAE)	52.41	52.41	52.41	61.70	67.25
Width	.380	.380	.380	.380	.380

AMA Specifications – Passenger Car

Page 10

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (a) _____

MODEL 3457 3657 3947

ELECTRICAL—SUPPLY SYSTEM

Battery	Make and Model		Delco Remy 1980562
	Voltage Rtg. & Total Plates		12V-66 Plates
	SAE Designation & Amp Hr. Rtg		3 KMB - 70 Amp Hr.
	Location		Engine Compartment - Front L. H. Side
	Terminal grounded		Negative
Generator	Make		Delco Remy
	Model		1100659
	Type		Self Rectifying AC
	Ratio—Gen. to Cr/s rev.		2.24 Std. 2.57 with A/C
	Gen. cut-in (hot)—engine rpm		Charge on Idle
Regulator	Make		Delco Remy
	Model		1119515
	Type		Vibrating Contact
	Cutout relay	Closing voltage @ generator rpm	None
		Reverse current to open	None
	Regu-lated	Voltage	13.5 - 14.4
		Current	None - Self Regulating
	Voltage test con-ditions	Temperature	120° F
		Load	Less than 10 Amps
		Other	Upper Contacts

ELECTRICAL—STARTING SYSTEM

Starting motor	Make		Delco Remy
	Model		1107776 E/L 65, L90
	Rotation (drive end view)		Clockwise
	Engine cranking speed		150
	Test conditions		80° F
	Lock test	Amps	Not Specified
		Volts	" "
		Torque (lb. ft.)	" "
	No load test	Amps	110 to 140
		Volts	10.6
		RPM (min.)	3900
Motor control	Switch (solenoid, manual)		Solenoid
	Starting procedure		Turn Ignition Switch against Spring Load to Full Clockwise Position. Cars with Hydramatic Transmissions Must be on Park or Neutral to Start.

(Continued)

AMA Specifications – Passenger Car

Page 11

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (•)

MODEL 3457 3657 3947

ELECTRICAL—STARTING SYSTEM (cont.)

Motor Drive	Engagement type		Solenoid with Overrun in Clutch
	Pinion meshes (front, rear)		Front
	Number of teeth	Pinion	9
		Flywheel	166
	Flywheel tooth face width		.438

ELECTRICAL—IGNITION SYSTEM

Coil	Make		Delco Remy
	Model		1115191
	Amps	Engine stopped	4.5
		Engine idling	2.0
Distributor	Make		Delco Remy
	Model		1111033
	Cent'gal adv. in crankshaft degrees @ engine rpm (nominal)	Start (rpm)	0° - 4° @ 800 R. P. M.
		Intermediate points deg. @ rpm	18° - 22° @ 2400 R. P. M.
		Max deg. @ rpm	24° - 28° @ 4000 R. P. M.
		Start (in Hg)	9 - 11
	Vacuum adv. in crankshaft degrees @ in. Hg. (nominal)	Intermediate points, deg @ in Hg	NA
		Max. deg. in. Hg.	25° @ 19 in HG
	Breaker gap (in.)		.016
	Cam angle (deg.)		28 to 32
	Breaker arm tension (oz.)		19 to 23
Timing	Crankshaft deg. @ rpm.		5° @ 850 R. P. M.
	Mark location		Vibration Damper
	Cylinder numbering system (see page 2)		Right Bank 2-4-6-8 Left Bank 1-3-5-7
	Firing order (see page 2)		1-8-7-3-6-5-4-2
Spark Plug	Make and model		AC 44
	Thread (mm)		14 MM
	Tightening torque (lb. ft.)		23 - 28
	Gap		.030
Cable	Conductor type		Resistance
	Insulation type		Neoprene
	Spark plug protector		Silicone

ELECTRICAL—SUPPRESSION

Locations & type	Resistance Core Sparkplug Leads & Coil Lead. Bypass Condensers at Alternator., Regulator, & Coil on Radio Equipped Cars.
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AMA Specifications – Passenger Car

Page 12

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (•)

MODEL 3457 3657 3947

ELECTRICAL—INSTRUMENTS AND SWITCHES

Speed-ometer	Make	AC
	Trip odometer (yes, no)	No
Charge indicator—type		Ind. Lamp
Temperature indicator—type		Ind. Lamp
Oil pressure indicator—type		Ind. Lamp
Fuel indicator—type		Gage
Other		Ind. Lamp
Ignition switch	Identify positions in order and circuits controlled	1. Accessory on Ignition Off 2. Off - Lock Position 3. Accessory On - Ignition thru Resistor 4. Accessory Off - Ignition Direct, Solenoid On
	Run	
	Start	
	Provision for illumination	Yes
	Location	Instrument Panel - Right of Driver
Main light-ing switch	Identify positions and lamps controlled	1. Park, Instrument, Tail & License Lights 2. Headlights, Instrument, Tail & License Lights
	Rotate Control	Dims Instrument Lights
Other light switches	Locations and lamps controlled	
	Foot Dimmer Map Lights & Courtesy Lights	On Left Hand Toe Pan - Controls Headlights - Hi & Lo Beam Right of Driver on Instrument Panel Overhang.
Other switches	Locations and de-vices controlled	
	W/S Wiper	Left of Driver on Instrument Panel
	Heater	Right of Driver on Instrument Panel
	Power Top	Right of Driver in Instrument Panel Overhang
	Electric Antenna	Right of Driver in Instrument Panel Overhang
Windshield wiper	Make	Delco Appliance Div. G. M. C.
	Type	Electric 2 Speed
	Vacuum booster provision	No
	Washer provision	Yes
Horn	Type	Vibrator
	Number used	2
	Amp draw (each)	5.2 to 5.7

AMA Specifications – Passenger Car

Page 13

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (e)

MODEL 3457 3657 3947

ELECTRICAL—LAMP BULBS

Give quantity used and trade number, e.g., Headlamp 2-5400 5, dual headlight 2-4001, 2-4002.

Headlamps & arrangement		Dual Headlight	2-L4001,	2-L4002
Headlamp beam indicator			1-194	
Parking			2-1157	
Tail			2-1157	
Stop			2-1157	
Direction signal	Front		2-1157	
	Rear		2-1157	
	Indicator		2-194	
License Plate			1-1155	
Oil pressure indicator			1-194	
Charge indicator			1-194	
Instrument			3-194	
Clock			1-1816	*
Radio			1-1893	*

Indicate also whether the following lamp assemblies are standard equipment, optional, or NA.

Ignition lock	1-1445
Back up	2-1156 *
Dome	1-1004 or 2-90
Glove compartment	1-1893
Prkg. brake signal	1-57X
Luggage compartment	1-631 *
Underhood	1-631 *
Courtesy	2-90
Map	1-90
Temp Ind. (Hot)	1-194
Temp Ind. (Cold)	1-194
Safety Sentinel	1-194 *
Shift Ind.	1-1895 or 1-1445

Heat & Vent	1-1895
Tachometer	1-1895
Ash Tray	2-1445
Cruise Control	1-1445 *
Console Lights	3-90
Arm Rests	2-90
Door Lights	2-212
Console Comp.	1-1895

* Clock Std. on 3657 & 3947

* Optional on All

AMA Specifications – Passenger Car

Page 14

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (e)

MODEL 3457 3657 3947

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 lamp SFE-10 (a), Direction Indicator same as (a).

Headlamp	20 C.B. (A)
Headlamp beam indicator	Same as (A)
Parking lamp	Same as (A)
Tail lamp	SFE - 9 (B)
Stop lamp	FE-20 (C)
Direction Indicator	SFE-9
License plate lamp	Same as (B)
Instrument lamp	AGA - 3 (D)
Ignition lamp	Same as (D)
Back up lamp	SFE-9 (E)
Dome lamp	AGC - 25 (F)
Clock	AGA - 2
Clock lamp	Same as (D)
Radio	AGN-2 1/2 AGN 7 1/2 (Super DeLuxe)
Glove compartment lamp	AGC - 5 (G)
Under Hood Lamp	Same as (G)
W/S Wiper	SFE - 20
Cigar Lighter	SFE - 20
Ind. Lights	Same as (E)
Fuel Gage	Same as (E)
Brake Warning Light	Same as (E)
Trunk Light	Same as (B)
Courtesy Lights	Same as (F)
Heater Control Lamp	Same as (D)
Heater	SFE-20 AGC - 25 with A/C or Rear Defroster
Electric Window or Seats	SFE-20 AGC - 25 with A/C or Rear Defroster

ELECTRICAL—LOCATION OF OUTSIDE LAMPS

Height above ground to center of bulb	Tail	Lowest	28.5	27.9	27.8
		Highest	28.5	27.9	27.8
	Stop		28.5	27.9	27.8
	Backup		22.5	22.1	20.7
	License, rear		23.1	22.6	22.7
	Directional	Front	24.4	24.3	24.1
		Rear	28.5	27.9	27.8
	Headlamp	Inside	32.0	31.6	31.7
		Outside*	32.0	31.6	31.7
	Distance from C/L of car to center of bulb	Tail	Inside	27.3	27.3
Outside			-	-	-
Stop		27.3	27.3	33.5	
Backup		13.7	13.7	12.4	
License, rear		0	0	0	
Directional		Front	30.3	30.3	30.3
		Rear	27.3	27.3	33.5
Headlamp		Inside	22.1	22.1	22.1
		Outside*	30.2	30.2	30.2

* If single headlamps are used enter here.

AMA Specifications – Passenger Car

Page 15

MAKE OF CAR	OLDSMOBILE	MODEL YEAR	1964	DATE ISSUED	9-28-63	REVISED (*)
MODEL	3457	3657	3947			

DRIVE UNITS—CLUTCH (Manual Transmission)

Make & type	Long - 11CF - Semi-Centrifugal	
Type pressure plate springs	Coil	
Effective plate pressure (lb.)	2043 Static+505 at 2800 RPM Centrifugal	
No. of clutch driven discs	One	
Clutch facing	Material	Woven Asbestos
	Outside & inside dia.	11 x 7
	Total eff. area (sq.in.)	113
	Thickness	.137 each Facing
	Engagement cushioning method	Torbend Plate
Release bearing	Type & method of lubrication	Ball
Torsional damping	Methods: springs, friction material	Coil Springs-Steel Friction

NOT OFFERED
3657 - 3947

DRIVE UNITS—TRANSMISSIONS

Manual (std. or opt.)	Std.	NA	NA
Manual with overdrive (std. or opt.)	NA	NA	NA
Automatic (std. or opt.)	Opt.	Std.	Std.

DRIVE UNITS—MANUAL TRANSMISSION

Number of forward speeds		3	
Transmission ratios	In first	2.1527:1	
	In second	1.3725:1	
	In third	Direct	
	In fourth	-	
	In reverse	2.2793:1	
Synchronous meshing, specify gears		2 & 3	
Shift lever location		Steering Column	
Lubricant	Capacity (pt.)	2.5	
	Type recommended	Multipurpose	
	SAE viscosity number	Summer	80 or 90
		Winter	80 or 90
		Extreme cold	80 or 90

AMA Specifications – Passenger Car

Page 16

MAKE OF CAR <u>OLDSMOBILE</u>	MODEL YEAR <u>1964</u>	DATE ISSUED <u>9-28-63</u>	REVISED (•)
MODEL	<u>3457</u>	<u>3657</u>	<u>3947</u>

DRIVE UNITS—MANUAL TRANSMISSION WITH OVERDRIVE

For transmission data see manual transmission section

Overdrive	Type (planetary or other)		X	
	Manual lockout (yes, no)			
	Downshift accelerator control (yes, no)			
	Minimum cut-in speed			
	Gear ratio			
	Lu- bri- cant	Capacity (pt.) (Overdrive only)		
		Separate filler (yes, no)		
		Type recommended		
SAE vis- cosity number		Summer	OFFERED	
	Winter			
	Ext. cold			

DRIVE UNITS—AUTOMATIC TRANSMISSION

Trade name	Hydra-Matic																	
Type describe	4 Stage, Controlled Coupling with Accel-A-Rotor																	
Method of Selection (Lever, Push Button or other)	Lever																	
Selector Pattern	P	N	D															
	Park	Neutral	Drive															
		S	L															
		Super	Low															
			R															
			Reverse															
List gear ratios Selector Pattern and indicate which are used in each selector position	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">Drive & Super</td> <td style="width:33%;">Low</td> <td style="width:33%;">Reverse</td> </tr> <tr> <td>1st Stage = 3.32:1</td> <td>3.32:1</td> <td>3.11:1</td> </tr> <tr> <td>2nd Stage = 2.93:1</td> <td>2.93:1</td> <td>2.43:1</td> </tr> <tr> <td>3rd Stage = 1.56:1</td> <td>Not Used</td> <td>Not Used</td> </tr> <tr> <td>4th State = Direct</td> <td>Not Used</td> <td>Not Used</td> </tr> </table>			Drive & Super	Low	Reverse	1st Stage = 3.32:1	3.32:1	3.11:1	2nd Stage = 2.93:1	2.93:1	2.43:1	3rd Stage = 1.56:1	Not Used	Not Used	4th State = Direct	Not Used	Not Used
Drive & Super	Low	Reverse																
1st Stage = 3.32:1	3.32:1	3.11:1																
2nd Stage = 2.93:1	2.93:1	2.43:1																
3rd Stage = 1.56:1	Not Used	Not Used																
4th State = Direct	Not Used	Not Used																
Max. upshift speeds—drive range	1-2 *	2-3 = 35 M. P. H.	3-4 = 78 MPH															
Max. kickdown speeds—drive range	2-1 *	3-2 = 24 M. P. H.	4-3 = 68 MPH															
Torque convertor	Number of elements																	
	Max. ratio at stall																	
	Type of cooling (air, water)																	
Lubricant	Capacity—refill (pt.)																	
	Type recommended																	
Special transmission features	Type-A-Automatic Transmission Fluid with Suffix A * Accel-A-Rotor and Rear Unit Gears Produce Starting Ratio for 1st Stage, as the Car Speed Increases Accel-A-Rotor Effectiveness Diminishes Gradually.																	

DRIVE UNITS—PROPELLER SHAFT

Number used	One		
Type (exposed, torque tube)	Exposed		
Outer diameter x length* x wall thickness	Manual transmission	3.38 x 58.00 x .065	None
	Overdrive transmission	None	None
	Automatic transmission	3.00 x 58.00 x .065	3.25 x 61.00 x .065

*Center to center of universal joints, or to centerline of rear attachment.

(Continued)

AMA Specifications – Passenger Car

Page 17

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (•)

MODEL 3457 3657 3947

DRIVE UNITS—PROPELLER SHAFT (cont.)

Inter-mediate bearing	Type (plain, anti-friction)		Anti-Friction
	Lubrication (fitting, prepack)		Prepack
Universal joints	Make		Saginaw Steering Gear & Spicer
	Number used		Two
	Type (ball and trunnion, cross, other)		Cross
	Bearing	Type (plain, anti-friction)	Anti-Friction
		Lubric. (fitting, prepack)	Prepack
Drive taken through (torque tube or arms, springs)			Arms
Torque taken through (torque tube or arms, springs)			Arms

DRIVE UNITS—REAR AXLE

Description (see instructions)		Banjo - Live - Hypoid - Semi-Floating		
Limited Slip differential, type		Multiple Plate Clutch		
Drive Pinion Offset		1.75		
No. of differential pinions		2		
Gear ratios (Std. equip.)	Manual transmission	3.42:1	NA	NA
	Overdrive transmission	NA	NA	NA
	Automatic transmission	3.42:1		
Ring gear O.D. (std. ratio)		9.25		
Pinion adjustment (shim, other)		Shim		
Pinion bearing adj. (shim, other)		Coll. Spacer		
Wheel bearing type		Ball		
Lubricant	Capacity (pt.)		5.38	
	Type recommended		Multi-Purpose Mil-L-2105 B	
	SAE viscosity number	Summer	90	
		Winter	90	
		Extreme cold	90	

REAR AXLE RATIO TOOTH COMBINATIONS

(See page 3 for axle ratio usage)

Axle ratio		2.56:1	2.69:1	2.87:1	3.08:1	3.23:1	3.42:1
No. of teeth	Pinion	16	16	15	13	13	12
	Ring gear	41	43	43	40	42	41

AMA Specifications – Passenger Car

Page 18

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (a)

MODEL 3457 3657 3947

DRIVE UNITS—WHEELS

Type & material		Drop Center	Welded Wheels
Rim (size and flange type)	Std.	14 x 6K	
	Opt.	14 x 6K	
Attachment	Type (bolt or stud)	Stud	
	Circle diameter	5.00	
	Number and size	5 x 1/2	

DRIVE UNITS—TIRES

Standard (List option below)	Size & ply	8.00 x 14	8.00 x 14	8.50 x 14
	Type - Nylon, etc.	Rayon		
Rev/mile at 50 mph.		773	773	756
Inflation press.(cold)	Front	24	24	24
	Rear	24	24	24
Optional tires - size and ply				

BRAKES—SERVICE

Type (duo-servo, disc, balanced, etc.)			Duo-Servo
Self adjusting (std., opt., N.A.)			Standard
Hydraulic system type (single, dual, etc.)			Single
Power brake make & type (remote, integral, etc.)			Moraine & Bendix (Integral)
Effective area (sq. in.)*			163.5
Gross lining area (sq. in.)**			189.4
Swept drum area (sq. in.)***			310.0
Percent brake effectiveness—front			56
Drum	Diameter	Front	11.0
		Rear	11.0
	Type and material		Centrifuse Cast Iron in Steel Shell
Wheel cyl- inder bore	Front	1 1/8	
	Rear	1"	
Master cylinder bore			1" Manual 1" Power
Available pedal travel			5.50 Manual 3.82 Power
Line pressure at 100 lb. pedal load			750 PSI Manual 560 @ 40 lb. Pedal Load
Shoe clearance adjustment			.015

* Excludes rivet holes, grooves, chamfers, etc.

** Includes rivet holes, grooves, chamfers, etc.

*** Total swept areas for four brakes:

Widest lining contact width for each brake x its drum circumference.

(Continued)

AMA Specifications – Passenger Car

Page 18 A

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (a)

MODEL 3457 3657 3947

DRIVE UNITS—WHEELS

Type & material	
Rim (size and flange type)	Std.
	Opt.
Attachment	Type (bolt or stud)
	Circle diameter
	Number and size

DRIVE UNITS—TIRES

Standard (List option below)	Size & ply
	Type - Nylon, etc.
Rev/mile at 50 mph.	
Inflation press.(cold)	Front
	Rear

Optional tires - size and ply

BRAKES—SERVICE

METALLIC LININGS OPTIONAL

Type (duo-servo, disc, balanced, etc.)	Duo-Servo	
Self adjusting (std., opt., N.A.)	Standard	
Hydraulic system type (single, dual, etc.)	Single	
Power brake make & type (remote, integral, etc.)	Moraine & Bendix Integral	
Effective area (sq. in.)*	137.8	
Gross lining area (sq. in.)**	137.8	
Swept drum area (sq. in.)***	310.0	
Percent brake effectiveness—front	58.5 %	
Drum	Diameter	Front 11.0
		Rear 11.0
	Type and material Centrifuse Cast Iron in Steel Shell	
Wheel cyl- inder bore	Front	1 3/16
	Rear	1
Master cylinder bore	7/8 Manual	7/8 Power
Available pedal travel	5.50 Manual	3.82 Power
Line pressure at 100 lb. pedal load	980 PSI Manual	730 @ 40 lbs Pedal Load
Shoe clearance adjustment	.015	

* Excludes rivet holes, grooves, chamfers, etc.

** Includes rivet holes, grooves, chamfers, etc.

*** Total swept areas for four brakes

Widest lining contact width for each brake x its drum circumference.

(Continued)

AMA Specifications—Passenger Car

Page 19 A

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (o)

MODEL 3457 3657 3947

BRAKES—SERVICE (cont.)

METALLIC LINING

OPTIONAL

Brake lining	Bonded or riveted		Riveted	
	Front Shoe	Material	Moraine 705	
		Size (length x width x thickness)	6 Segments	
			4.92 x 2.50 x .200	
		Rear wheel	6 Segments	
			6.00 x 2.00 x .200	
		Segments per shoe	3	
	Rear Shoe	Material	Moraine 703	
		Size (length x width x thickness)	12 Segments	
			9.84 x 2.50 x .320	
		Rear wheel	10 Segments	
			10.0 x 2.00 x .320	
		Segments per shoe		

BRAKES—PARKING

Type of control	
Location of control	
Operates on	
If separate from service brakes	Type (internal or external)
	Drum diameter
	Lining size (length x width x thickness)

FRAME or UNITIZED CONSTRUCTION

Type and description

SUSPENSION—GENERAL (See Supplemental page 19 for details on Air Suspension)*

Provision for car leveling	
Provision for brake dip control	
Provision for acc. squat control	
Special provisions for car jacking	
Shock absorber front & rear	Type
	Make
	Piston dia.
Other special features	

SUSPENSION—FRONT

Type and description

* Air Suspension:
Air spring type
Compressor data
type
make
drive ratio

Normal operating pressures
spring rates
leveling data

(Continued)

AMA Specifications—Passenger Car

Page 19

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (o)

MODEL 3457 3657 3947

BRAKES—SERVICE (cont.)

Brake lining	Bonded or riveted		Riveted	
	Front Shoe	Material	Marshall H 3144 Pri.	
		Size (length x width x thickness)	Front wheel	8.95 x 2.50 x .19
			Rear wheel	8.95 x 2.00 x .19
		Segments per shoe	One	
	Rear Shoe	Material	Marshall H3152F	
		Size (length x width x thickness)	Front wheel	11.5 x 2.50 x .255
			Rear wheel	11.5 x 2.00 x .255
		Segments per shoe		

BRAKES—PARKING

Type of control	Suspended Pedal		
Location of control	Left Drivers Compartment		
Operates on	Rear Brakes		
If separate from service brakes	Type (internal or external)	Not Separate	
	Drum diameter	Not Separate	
	Lining size (length x width x thickness)	Not Separate	

FRAME or UNITIZED CONSTRUCTION

Type and description	Box Section Side Rails and 4 Cross Bars (Guard Beam Frame)
----------------------	---

SUSPENSION—GENERAL (See Supplemental page 19 for details on Air Suspension)*

Provision for car leveling		None
Provision for brake dip control		Counter Dive Design of Suspension Springs & Control Arms
Provision for acc. squat control		
Special provisions for car jacking		None
Shock absorber front & rear	Type	Direct Acting
	Make	Delco
	Piston dia.	1 inch
Other special features		None

SUSPENSION—FRONT

Type and description	Independent Coil Spring
----------------------	-------------------------

* Air Suspension:
Air spring type
Compressor data
type
make
drive ratio

Normal operating pressures
spring rates
leveling data

(Continued)

AMA Specifications – Passenger Cars

Page 20

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (e)

MODEL 3457 3657 3947

SUSPENSION FRONT (cont.)

Spring	Type	Independent Coil Spring
	Material	SAE 9260 or 5160
	Size (coil design height & I.D.; bar length x dia.)	11" Design Height - 4.05 I. D. 155" Long .690 Dia.
	Spring rate (lb. per in.)	335
	Rate at wheel (lb. per in.)	89
	Design load (lb. @ design height)	2360 @ 11"
Stabilizer	Type (link, linkless, frameless)	Link
	Material & bar diameter	SAE 1070 - 1.062

STEERING

Manual (std., opt., NA)			Standard		NA		NA	
Power (std., opt., NA)			Optional		Standard		Standard	
Adjustable steering wheel (tilt, swing, other)		Type and description	Tilt Type					
		(std., opt., NA)	Optional					
Wheel diameter		Manual	16.00					
		Power	16.00					
Turning diameter	Outside front	Wall to wall (l. & r.)	45.3	45.3		47.5		
		Curb to curb (l. & r.)	42.8	42.8		44.1		
	Inside rear	Wall to wall (l. & r.)	26.7	26.7		28.4		
		Curb to curb (l. & r.)	27.4	27.4		29.1		
Outside wheel angle with inside wheel at 20°			Manual 18.1°		Power 17.6°			
Manual	Gear	Type	Ball Nut		NA		NA	
		Make	Saginaw Steering Gear					
		Ratios	Gear	24.0:1				
			Overall	33.24:1				
	No. wheel turns		6.1 (Lock to Lock)					
Power	Type (coaxial, linkage, etc.)		Gear Integral					
	Make		Saginaw Steering Gear					
	Gear	Type	Ball Nut					
		Ratios	Gear	17.5:1				
			Overall	21.77:1				
	Pump driven by		Belt from Crank					
	Number wheel turns		3.8 (Lock to Lock)					
	Linkage	Type		Forged				
Location (front or rear of wheels, other)		Rear						
Drag link (trans. or longit.)		Transverse						
Tie rods (one or two)		2						

Continued)

AMA Specifications – Passenger Car

Page 21

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (a)

MODEL 3457 3657 3947

STEERING (cont.)

Steering Axis	Inclination at camber (deg.)		10° at + 1° Camber
	Bearings (type)	Upper	Ball Joint
		Lower	Ball Joint
		Thrust	Ball Joint
Wheel alignment (range and preferred)	Caster (deg.)		Range 0 to 1° Negative
	Camber (deg.)		Range - 1/4° to + 3/4°
	Toe-in (outside tread-inches)		0 to .12
	Steering spindle & joint type		Ball Joint
Wheel spindle	Diameter	Inner bearing	1.3748 - 1.3743
		Outer bearing	.8435 - .8430
	Thread size		13/16 - 20
	Bearing type		Tapered Roller

SUSPENSION—REAR

Type and description			4 Link Coil Spring			
Drive and torq. taken through (see page 17)			Arms			
Spring	Type		Coil			
	Material		SAE # 5160 or 9260			
	Size (length x width, coil design height and I.D.; bar length & dia.)		9.00 Design Height - 5.50 I. D. 137" Long .568 Dia.			
	Spring rate (lb. per in.)		100			
	Rate at wheel (lb. per in.)		100			
	Design load (lb. at design height)		1000 @ 9" 1020 @ 9" 1020 @ 9"			
	Mounting insulation type		Rubber			
	If leaf	No. of leaves		-		
		Inserts	Type and size	-		
			Material	-		
Shackle (comp. or tens.)		-				
Stabilizer	Type (link, linkless, frameless)		None			
	Material		None			
Track bar type			None			

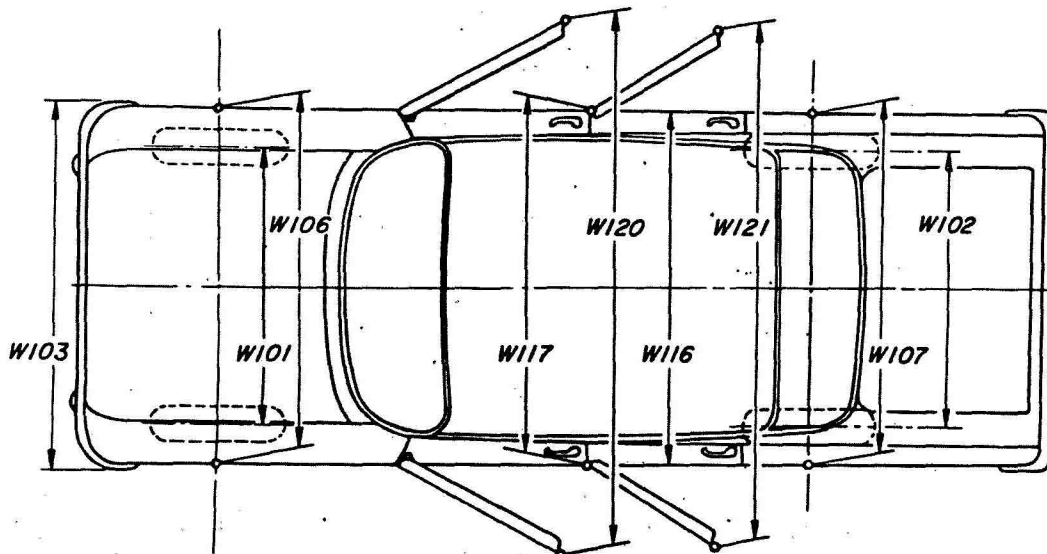
MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (a)

CAR AND BODY DIMENSIONS—GENERAL

Dimensions herein are those adopted by the Society of Automotive Engineers. Brief descriptions of these dimensions are listed on pages 34-36. Complete definitions are listed in section E-1 of the SAE Aeronautical - Automotive Drawing Standards. The dimensions are developed from the following basic points:

1. Body dimensions are for all body styles.
2. All interior dimensions are taken with manikin 15.0 inches outboard of car centerline unless otherwise stated.
3. All interior dimensions are measured with the front seat in the lowest and rearmost position.
4. Unless otherwise specified, all exterior height dimensions are taken with a full design load which consists of 5 passengers, 300 lbs. front, 450 lbs. rear; includes spare wheel, tire and tools, and full complement of gas, oil, water and tires to recommended pressure, etc.
5. The SAE manikin with 90th percentile leg length will be used for recording purposes.
6. The H Point is the pivot center of the manikin's torso and thigh.
7. The D Point is the point of tangency of a horizontal line and the lowest point of the manikin.
8. The Torso Line is a line parallel to the small of manikin's back and extending through the H Point.

EXTERIOR WIDTH DIMENSIONS



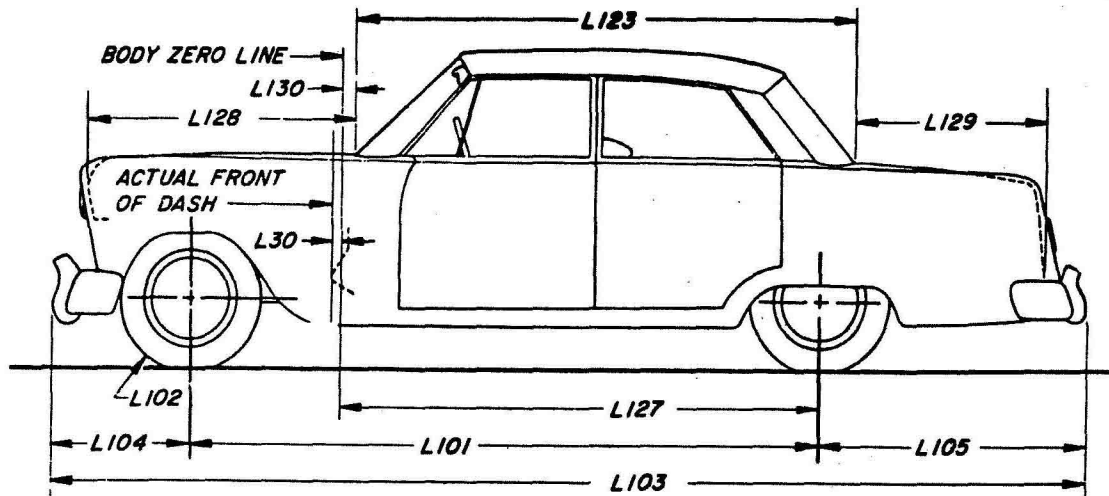
MODEL	Ref. No.	3457	3657	3667	3947
Tread - front	W101	62.2	62.2	62.20	62.2
Tread - rear	W102	61.06	61.06	61.06	61.06
Maximum overall car width	W103	77.76	77.76	77.76	77.76
Maximum overall body width	W116	77.3	77.3	77.3	76.4
Maximum body width at #2 pillar	W117	-	-	-	-
Front fender overall width	W106	77.4	77.4	77.4	77.4
Rear fender overall width	W107	77.3	77.3	77.3	76.3
Maximum overall car width - front doors open	W120	155.9	155.9	155.9	155.9
Maximum overall car width - rear doors open	W121	-	-	-	-

AMA Specifications – Passenger Car

Page 23

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED(•) _____

EXTERIOR LENGTH DIMENSIONS



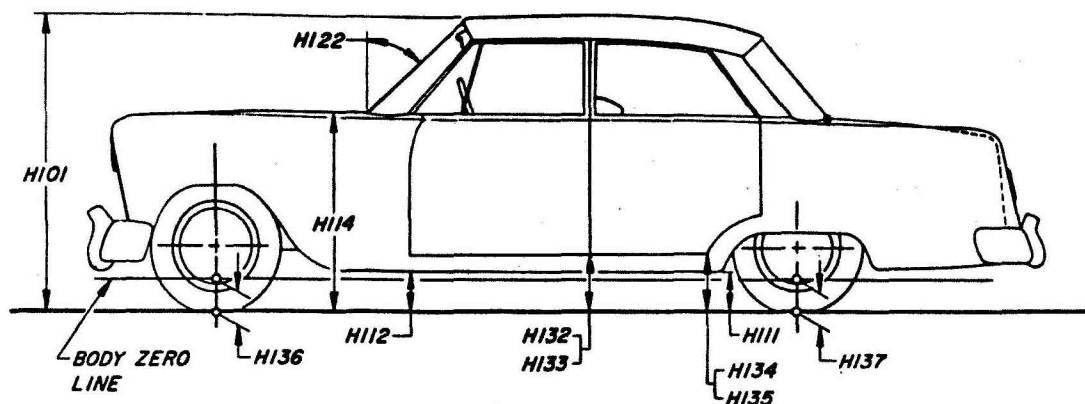
MODEL	Ref. No.	3457	3657	3667	3947
Body zero line to actual front of dash	L30	.54	.54	.54	.54
Wheelbase	L101	123.0	123.0	123.0	126.0
Overhang - front	L104	36.0	36.0	36.0	36.0
Overhang - rear	L105	56.3	56.3	56.3	60.3
Overall length	L103	215.3	215.3	215.3	222.3
Hood length at car centerline	L128	59.4	59.3	59.4	59.4
Body upper structure length at car centerline	L123	102.95	102.95	105.78	108.83
Deck length at car centerline	L129	49.78	49.78	46.84	49.61
Body zero line to centerline of rear wheels	L127	102.0	102.0	102.0	105.0
Body zero line to windshield cowl point	L130	3.78	3.78	3.89	3.87
Tire size	L102	8.00 x 14	8.00 x 14	8.50 x 14	8.50 x 14

AMA Specifications— Passenger Car

Page 24

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (a)

EXTERIOR HEIGHT DIMENSIONS



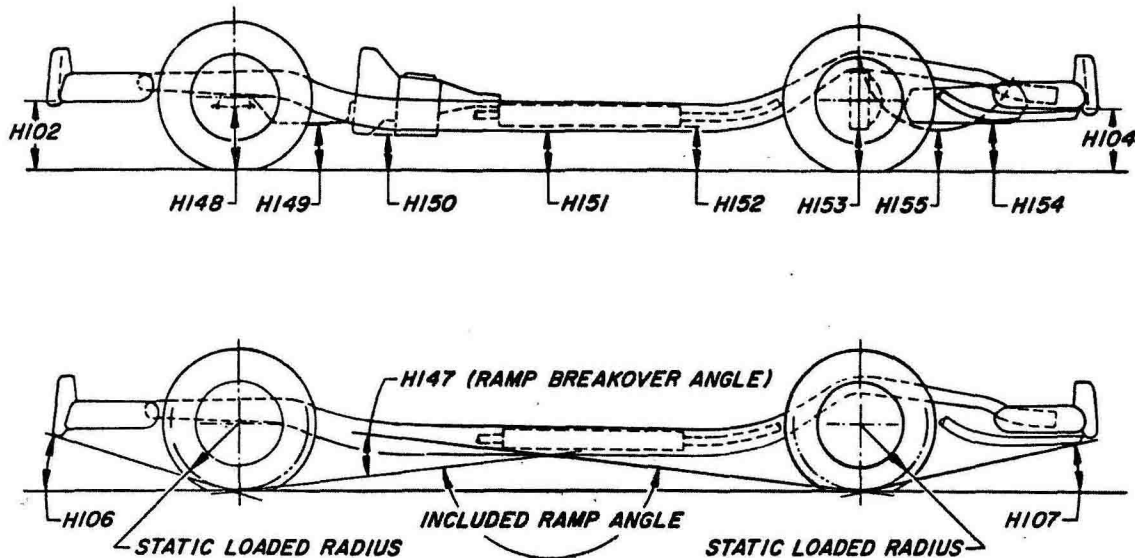
MODEL	Ref. No.	3457	3657	3667	3947
Overall height	H101	54.2	54.2	55.2	54.6
Hood at rear to ground	H114	38.2	37.7	37.9	37.8
Rocker panel to ground - front	H112	8.5	8.5	8.7	8.6
Rocker panel to ground - rear	H111	7.6	7.6	7.7	7.6
Bottom of door to ground, open - front	H132	12.8	12.8	12.9	13.2
Bottom of door to ground, closed - front	H133	11.3	11.3	11.4	11.7
Bottom of door to ground, open - rear	H134	-	-	-	-
Bottom of door to ground, closed - rear	H135	-	-	-	-
Windshield slope angle	H122	57.5°	57.5°	54.5°	55.0°
Body zero to ground - front	H136	5.18	5.18	5.41	5.29
Body zero to ground - rear	H137	4.31	4.31	4.44	4.31

AMA Specifications—Passenger Car

Page 25

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (•)

GROUND CLEARANCE DIMENSIONS



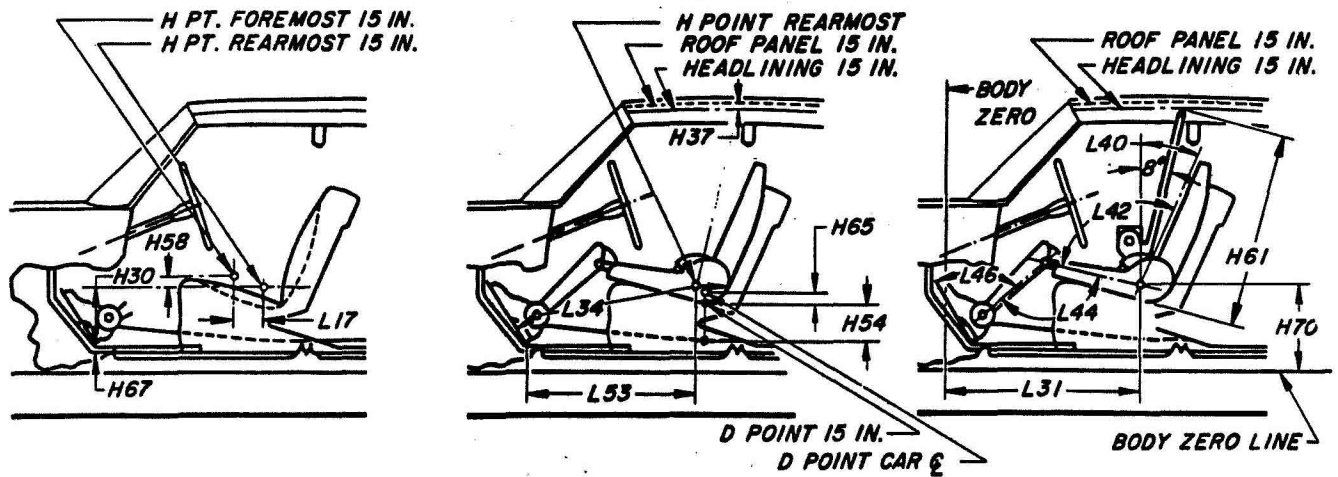
MODEL	Ref. No.	3457	3657	3667	3947
Front bumper to ground	H102	12.0	12.0	12.26	12.41
Rear bumper to ground	H104	10.02	10.02	10.11	9.28
Angle of approach	H106	24° 40'	24° 40'	24° 40'	24° 50'
Angle of departure	H107	11° 52'	11° 52'	11° 52'	10° 50'
Ramp breakover angle	H147	10° 50'	10° 50'	10° 50'	10° 20'
Front suspension to ground	H148	5.77	5.77	6.00	5.88
Oil pan to ground	H149	5.38	5.57	5.80	5.68
Flywheel housing to ground	H150	5.80	5.62	5.83	5.71
Frame structure to ground	H151	4.87	4.87	5.02	4.89
Exhaust system to ground	H152	5.25	5.25	5.44	5.20
Rear axle differential to ground	H153	6.45	6.45	6.75	6.75
Fuel tank to ground	H154	6.43	6.43	6.55	6.42
Spare tire well to ground	H155	-	-	-	-
Minimum running ground clearance	H156	4.87	4.87	5.02	4.89

AMA Specifications—Passenger Car

Page 26

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (a)

FRONT COMPARTMENT DIMENSIONS



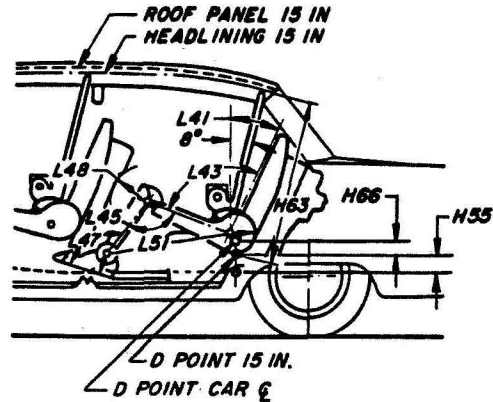
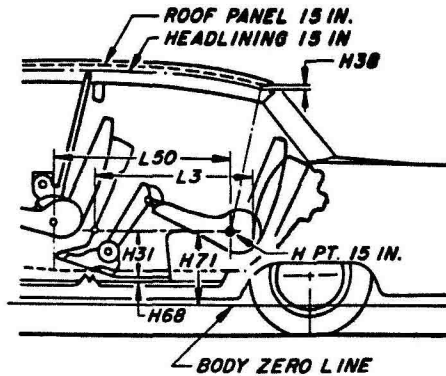
MODEL	Ref. No.	3457	3657	3667	3947
H Point to body zero line	L31	42.1	42.1	42.1	42.1
H Point to body zero line - front	H70	NA	NA	NA	NA
Effective head room	H61	37.8	37.8	39.2	38.3
Headlining to roof height	H37	.7	.7	-	.5
Maximum effective leg room - accelerator	L34	41.4	41.4	41.4	41.4
H Point to heel point	H30	9.1	9.0	9.0	9.1
Depressed floor covering thickness	H67	.7	.8	.8	.7
Back angle	L40	24°	24°	24°	25°
Hip angle	L42	95°	95°	95°	96.5°
Knee angle	L44	125°	125°	125°	125°
Foot angle	L46	82°	82°	85°	82°
D Point differential, side to center	H65	-	-	-	-
D Point to tunnel	H54	-	-	-	-
H Point to accelerator floor point	L53	33.8	33.8	33.8	33.8
H Point travel	L17	4.7	4.7	4.7	4.8
H Point rise	H58	.6	.6	.6	.9

AMA Specifications – Passenger Car

Page 27

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED(•) _____

REAR COMPARTMENT DIMENSIONS



MODEL	Ref. No.	3457	3657	3667	3947
H Point couple distance	L50	33.44	33.44	32.94	35.97
H Point to body zero line - rear	H71	NA	NA	NA	NA
Effective head room	H63	37.7	37.7	38.0	38.3
Headlining to roof height	H38	.8	.8	-	.5
Minimum effective leg room	L51	36.6	36.3	35.8	39.3
H Point to heel point	H31	10.2	9.6	9.8	10.2
Depressed floor covering thickness	H68	.4	.9	.9	.4
Minimum knee room	L48	4.3	4.4	3.9	6.6
Rear compartment room	L3	26.3	26.3	26.1	29.3
Back angle	L41	18°	18°	20°	21.5°
Hip angle	L43	79°	77.5°	78.5°	88.5°
Knee angle	L45	97.5°	96°	93.5°	111.5°
Foot angle	L47	120°	124°	122.5°	127.5°
D Point differential, side to center	H66	1.5	1.6	1.3	1.7
D Point to tunnel	H55	.9	.9	.8	1.4

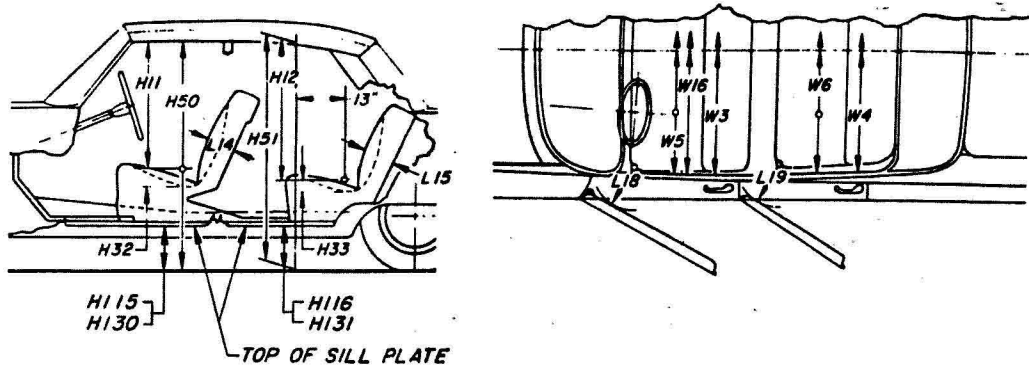
Form rev. 5-63

AMA Specifications – Passenger Car

Page 28

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED(•)

SEAT AND ENTRANCE DIMENSIONS



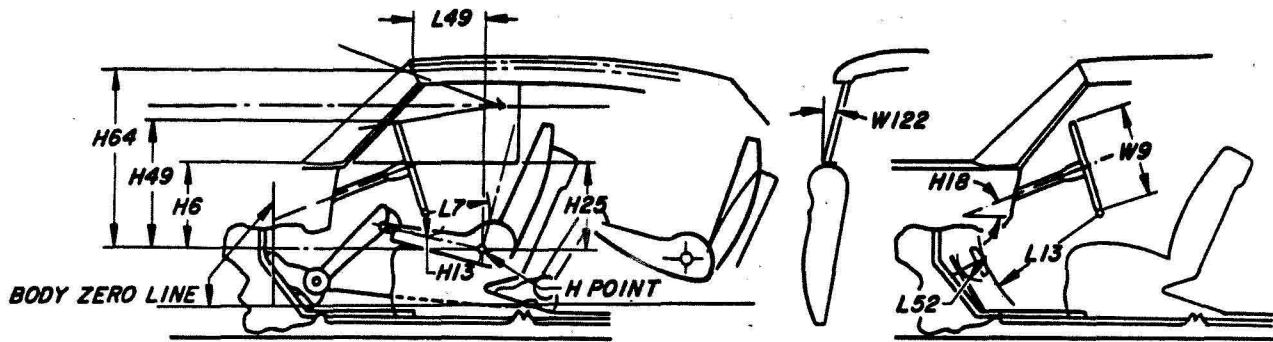
	Ref. No.	3457	3657	3667	3947
Shoulder room - front	W3	58.6	58.6	58.6	58.7
Hip room - front	W5	63.6	63.6	63.6	63.3
Seat width - front	W16	25.0	25.0	25.0	25.1
Upper body opening to ground - front	H50	50.0	50.0	48.6	49.6
Entrance height - front	H11	30.3	30.3	28.8	29.8
Step height - front (design load)	H115	13.06	13.06	13.24	13.13
Step height - front (curb load)	H130	14.95	14.95	15.00	15.00
Entrance foot clearance - front	L18	15.5	15.5	15.5	14.3
Seat cushion deflection - front	H32	4.3	4.3	4.3	4.3
Seat back thickness - front	L14	6.4	6.4	6.4	6.4
Shoulder room - rear	W4	57.5	57.3	51.0	57.4
Hip room - rear	W6	55.2	55.2	51.7	54.9
Upper body opening to ground - rear	H51	-	-	-	-
Entrance height - rear	H12	-	-	-	-
Step height - rear (design load)	H116	-	-	-	-
Step height - rear (curb load)	H131	-	-	-	-
Entrance foot clearance - rear	L19	10.1	10.1	10.1	11.0
Seat cushion deflection - rear	H33	2.5	2.5	2.8	4.0
Seat back thickness - rear	L15	7.6	7.6	7.6	7.6

AMA Specifications – Passenger Car

Page 29

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (0)

VISION AND CONTROL DIMENSIONS



MODEL	Ref. No.	3457	3657	3667	3947
H Point to windshield bottom DLO	H6	19.1	19.1	19.1	19.1
H Point to windshield upper DLO	H64	31.1	31.1	31.8	31.9
H Point to windshield upper DLO	L49	14.5	14.5	13.7	13.8
Belt height - front	H25	16.9	16.9	16.9	16.9
Steering wheel center to centerline of car	W7	15.9	15.9	15.9	15.9
Steering wheel maximum outside diameter	W9	16.0	16.0	16.0	16.0
Steering column angle - horizontal	H18	28°	28°	28°	28°
H Point to top of steering wheel	H49	22.6	22.6	22.6	22.6
Steering wheel torso clearance	L7	11.5	11.5	11.5	11.7
Steering wheel thigh clearance	H13	4.9	4.9	4.9	4.9
Brake pedal knee clearance	L13	24.4	24.4	24.4	27.5
Brake pedal to accelerator	L52	-4.7	-4.7	-4.7	-1.4
Tumble-home	W122	11.9°	11.9°	11.9°	11.8°

AMA Specifications – Passenger Car

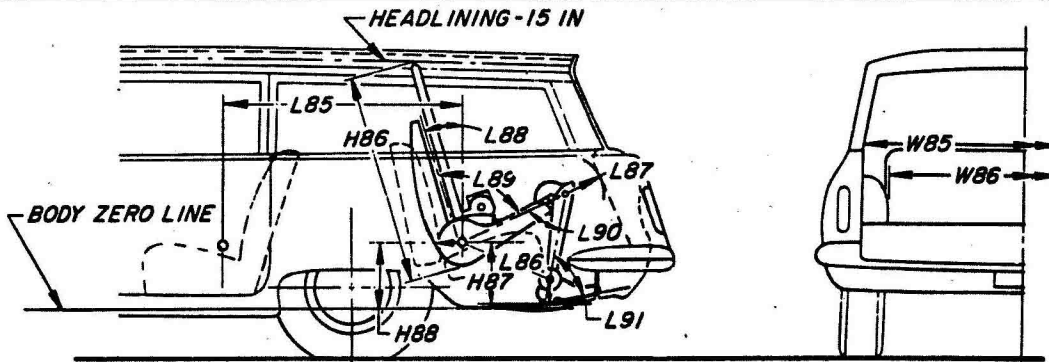
Page 30

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED(•) _____

LUGGAGE COMPARTMENT

MODEL	Ref. No.	3457	3657	3667	3947
Usable luggage capacity (See instructions)		17.1	17.1	NA	19.7
Liftover height	H195	27.6	27.6	27.6	26.7
Position of spare tire storage		On Shelf on all except Convertible that are in Well in Trunk			
Method of holding lid open		Counter Balance Torsion Bar			

THIRD SEAT DIMENSIONS



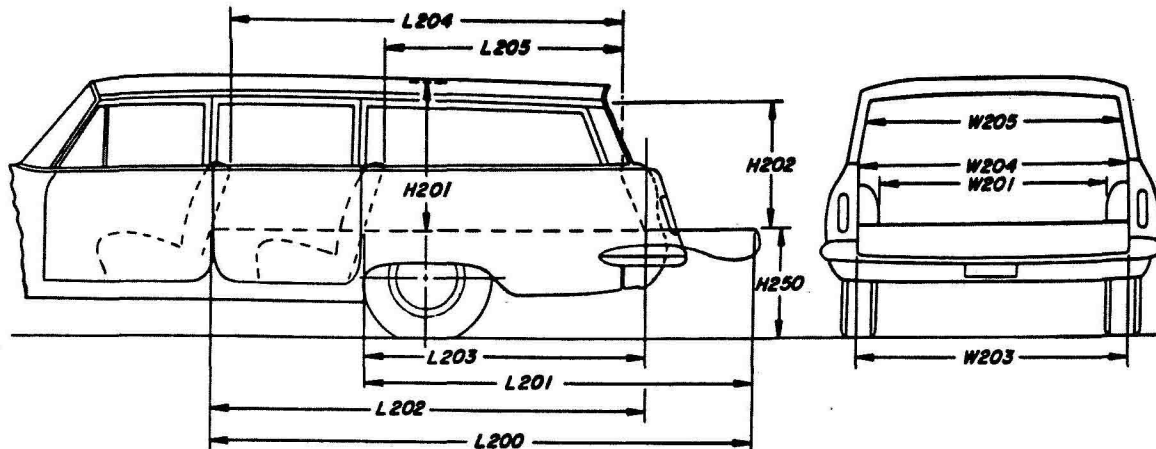
MODEL	Ref. No.	
Seat facing direction		
Shoulder room	W85	
Hip room	W86	
H Point couple distance	L85	
H Point to body zero line - third seat	H88	
Effective head room	H86	
Effective leg room	L86	
H Point to heel point	H87	
Knee room	L87	
Back angle	L88	
Hip angle	L89	
Knee angle	L90	
Foot angle	L91	

AMA Specifications—Passenger Car

Page 31

MAKE OF CAR _____ MODEL YEAR _____ DATE ISSUED 9-28-63 REVISED(*)

STATION WAGON—CARGO SPACE DIMENSIONS



MODEL	Ref. No.	
Floor length from back of front seat at floor level to end of lowered tail gate or floor	L200	
Floor length from back of second seat at floor level to end of lowered tail gate or floor	L201	
Floor length from back of front seat at floor level to inside of closed tail gate	L202	
Floor length from back of second seat at floor level to inside of closed tail gate	L203	
Minimum horizontal distance from top rear of front seat back to inside of tail gate at belt	L204	
Minimum horizontal distance from top rear of second seat back to inside of tail gate at belt	L205	
Maximum width of cargo space at floor - specify location	W200	
Minimum distance between wheel houses at floor level	W201	
Rear end opening width at floor	W203	
Rear end opening width at belt	W204	
Maximum width of rear opening above belt	W205	
Maximum height - floor covering to headlining at centerline of rear axle	H201	
Maximum height of rear opening - tail and lift gates open	H202	
Platform height from ground to top of tail gate floor covering at rear most edge of tail gate - curb weight	H250	
Rear end closure (e.g., one piece door, hinged left - sliding glass, drop tail gate)		
Cargo volume index (cu. ft.) $W4 \times L204 \times H201$		
1728		

AMA Specifications – Passenger Car

Page 32

MAKE OF CAR OLDSMOBILE MODEL YEAR 1964 DATE ISSUED 9-28-63 REVISED (e)

MODEL 3457 3657 3947

BODY—MISCELLANEOUS INFORMATION

Drs. hinged (front, rear)	Front doors	Front	
	Rear doors	-	-
Type of finish (lacquer, enamel, other)		Lacquer	
Hood counterbalanced (yes, no)		Yes	
Hood release control (internal, external)		External	
Vehicle (Serial) No. Location		L. H. Front pillar Post	
Engine No. Location		None	
Theft protection - type		Key Type Starting	
Vent window control method (crank, friction pivot)	Front	Crank	
	Rear	None	
Seat cushion type	Front	Zig Zag	
	Rear	Zig Zag	
	3rd seat	-	
Seat back type	Front	Zig Zag	
	Rear	Zig Zag	
	3rd seat	-	
Windshield glass type (i.e., single curved - laminated plate)		Compound Curve	
Backlight glass type (i.e., compound curved - tempered plate, three piece)		Curved One Piece	
Side glass type (i.e., curved - tempered plate)		Flat	
Side glass exposed surface area		1418.2 1418.2 **A	1449.6
Windshield glass exposed surface area		1468.0 1468.0 **B	1522.6
Backlight glass exposed surface area		1136.4 1136.4 **C	1289.4
Total glass exposed surface area		4022.6 4022.6 **D	4261.6

BODY—CONVENIENCE EQUIPMENT (Indicate whether standard, optional or NA on each series)

Power windows	Side Windows	Optional	Optional *	Standard
	Vent Windows	NA	Optional	Optional
	Backlight or tailgate	NA	NA	NA
Power seats (specify type as well as availability)	2 Way L. H. Bucket Opt.	Opt. *	Standard	
	4 Way L. H. Bucket Opt.	Opt.	Optional	
Reclining front seat back	NA	NA	NA	
Front seat headrest	NA	NA	NA	
Radios (specify type as well as availability)	Deluxe - Opt.	Opt.	Opt.	
	Super Deluxe - Opt.	Opt.	Opt.	
	A M - F M - Opt.	Opt.	Opt.	
Rear seat speaker	Opt.	Opt.	Opt.	
Power Antenna	Opt.	Opt.	Opt.	
Clock	Opt.	Standard	Standard	
Air Conditioner (specify type and availability)	Opt.	Opt.	Opt.	

* Standard on Convertible ** 3667 Convertible

A = 1208.6

B = 1522.6

C = 1350.0

D = 4081.2

Page 33

WEIGHTS

Form Rev. 5-63

DIMENSION DEFINITIONS

W3 SHOULDER ROOM - FRONT. The minimum lateral dimension between the door garnish moldings or nearest interference. Measured at H Point station.

W4 SHOULDER ROOM - REAR. Measured in the same manner as W3.

W5 HIP ROOM - FRONT. The lateral dimension through H Point to trimmed surfaces.

W6 HIP ROOM - REAR. Measured in the same manner as W5.

W7 STEERING WHEEL CENTER TO CENTERLINE OF CAR. Measured horizontally from steering wheel center to centerline of car. The point at steering wheel center is located in the surface plane of wheel.

W9 STEERING WHEEL MAXIMUM OUTSIDE DIAMETER. Define if other than round.

W16 SEAT WIDTH - FRONT. The maximum trimmed width of front seat cushion.

W85 SHOULDER ROOM - THIRD SEAT. Measured in the same manner as W3.

W86 HIP ROOM - THIRD SEAT. Measured in the same manner as W5.

W101 TREAD - FRONT. Measured at centerline of tires, with nominal camber, at ground.

W102 TREAD - REAR. Measured at centerline of tires at ground.

W103 MAXIMUM OVERALL CAR WIDTH. Include bumpers, moldings, or sheet metal protrusions.

W106 FRONT FENDER OVERALL WIDTH. Measured at centerline of front wheels, excluding moldings.

W107 REAR FENDER OVERALL WIDTH. Measured at centerline of rear wheels, excluding moldings.

W116 MAXIMUM OVERALL BODY WIDTH. Measured across body, excluding hardware and applied moldings, but including fenders when integral with body.

W117 MAXIMUM BODY WIDTH AT #2 PILLAR. Measured across body at #2 pillar, excluding hardware and applied moldings.

W120 MAXIMUM OVERALL CAR WIDTH, FRONT DOORS OPEN. Measured with front doors in maximum hold-open position.

W121 MAXIMUM OVERALL CAR WIDTH, REAR DOORS OPEN. Measured in same manner as W120.

W122 TUMBLE-HOME. The angle from vertical to the front door glass outer surface or the chord of a curved door glass, measured at the front H Point station.

L3 REAR COMPARTMENT ROOM. The horizontal dimension from the back of front seat to front of rear seat back at a height tangent to the top of rear seat cushion.

L7 STEERING WHEEL TORSO CLEARANCE. The minimum distance from the back edge of steering wheel, in straight-ahead position, to the Torso Line.

L13 BRAKE PEDAL KNEE CLEARANCE. The minimum dimension from the lower edge of the steering wheel to the brake pedal face centerline.

L14 SEAT BACK THICKNESS - FRONT. The maximum thickness of the seat back, excluding bolsters.

L15 SEAT BACK THICKNESS - REAR. Measured in the same manner as L14.

L17 H POINT TRAVEL. The horizontal dimension between the H Point in the most forward and rearward seat positions.

L18 ENTRANCE FOOT CLEARANCE - FRONT. The minimum horizontal dimension between seat and normal line of door or pillar at a height between the sill plate bead and 4.0 inches above the bead. Door should be in the maximum hold-open position.

L19 ENTRANCE FOOT CLEARANCE - REAR. Measured in the same manner as L18 on four-door models. On two-door styles, the minimum dimension between rear corner of front seat, with front seat back tilted forward, and trimmed lock pillar, built-in quarter armrest panel, or rear seat cushion at a height between the sill plate bead and 4.0 inches above the bead.

L30 BODY ZERO LINE TO ACTUAL FRONT OF DASH. If actual Front of Dash is to the rear of Body Zero Line, it is identified by a minus (-) sign.

L31 H POINT TO BODY ZERO LINE - FRONT. Horizontal dimension.

L34 MAXIMUM EFFECTIVE LEG ROOM - ACCELERATOR. Measured along a diagonal line from ankle pivot center to H Point plus a constant of 10.0 inches. Measured with the right foot on accelerator pedal.

L40 BACK ANGLE - FRONT. The angle between a vertical line through the H Point and the Torso Line.

L41 BACK ANGLE - REAR. Measured in the same manner as L40.

L42 HIP ANGLE - FRONT. The angle between Torso Line and a line extending from knee pivot center to H Point.

L43 HIP ANGLE - REAR. Measured in the same manner as L42.

L44 KNEE ANGLE - FRONT. The angle between a line from H Point to knee pivot center and a line from the knee pivot center to the ankle pivot center.

L45 KNEE ANGLE - REAR. Measured in the same manner as L44.

L46 FOOT ANGLE - FRONT. The angle between a line extended from the knee pivot center through the ankle pivot center and a line tangent to the sole and heel of manikin bare foot.

L47 FOOT ANGLE - REAR. Measured in the same manner as L46.

L48 MINIMUM KNEE ROOM - REAR. The minimum dimension from the knee pivot center to the back of front seat back.

L49 H POINT TO WINDSHIELD UPPER DLO. The horizontal dimension from H Point to the point of tangency of horizontal line of vision (described in dimension H64) with body upper structure.

DIMENSION DEFINITIONS (cont.)

- L50 H POINT COUPLE DISTANCE.** The horizontal dimension from the front seat H Point to the rear seat H Point.
- L51 MINIMUM EFFECTIVE LEG ROOM – REAR.** Measured along a diagonal line from ankle pivot center to H Point plus a constant of 10.0 inches. Measured with the foot positioned to nearest interference between seat structure and toe, instep or lower leg.
- L52 BRAKE PEDAL TO ACCELERATOR.** The minimum dimension from center of brake pedal face to accelerator. Measured in the side view.
- L53 H POINT TO ACCELERATOR FLOOR POINT.** The horizontal dimension from intersection of accelerator and depressed floor covering to the H Point.
- L85 H POINT COUPLE DISTANCE – THIRD SEAT.** The horizontal dimension from the second seat H Point to the third seat H Point.
- L86 EFFECTIVE LEG ROOM – THIRD SEAT.** Measured in the same manner as L51. With rear-facing third seat, foot is positioned in foot well or to nearest interference with rear end or rear closure.
- L87 KNEE ROOM – THIRD SEAT.** Measured in the same manner as L48. With rear-facing third seat, dimension is measured to rear closure.
- L88 BACK ANGLE – THIRD SEAT.** Measured in the same manner as L40.
- L89 HIP ANGLE – THIRD SEAT.** Measured in the same manner as L42.
- L90 KNEE ANGLE – THIRD SEAT.** Measured in the same manner as L44.
- L91 FOOT ANGLE – THIRD SEAT.** Measured in the same manner as L46.
- L101 WHEELBASE.**
- L102 TIRE SIZE.**
- L103 OVERALL LENGTH.** Include bumper guards if standard equipment.
- L104 OVERHANG – FRONT.** Measured from C/L of front wheels to front of car, including bumper guards if standard equipment.
- L105 OVERHANG – REAR.** Measured from C/L of rear wheels to rear of car, including bumper guards if standard equipment.
- L123 BODY UPPER STRUCTURE LENGTH AT CAR CENTERLINE.** The horizontal dimension from the theoretical intersection of extended windshield glass plane and normal cowl surface to the theoretical intersection of extended back window glass plane and normal deck surface; or in the case of a Fastback roof or Station Wagon, to back glass lower reveal molding, or rubber when molding is not used.
- L127 BODY ZERO LINE TO CENTERLINE OF REAR WHEELS.** A horizontal dimension.
- L128 HOOD LENGTH AT CAR CENTERLINE.** The horizontal dimension from the foremost point on sheet metal hood surface, excluding series identification or ornamentation, to the theoretical intersection of extended windshield glass plane and normal cowl surface.
- L129 DECK LENGTH AT CAR CENTERLINE.** The horizontal dimension from the rearmost point of the body sheet metal (visible above bumper), excluding series identification or ornamentation, to the theoretical intersection of extended back window glass plane and normal deck surface.
- L130 BODY ZERO LINE TO WINDSHIELD COWL POINT.** The horizontal dimension from body zero line to the theoretical intersection of extended windshield glass plane and normal cowl surface.
- H6 H POINT TO WINDSHIELD BOTTOM DLO.** Vertical dimension.
- H11 ENTRANCE HEIGHT – FRONT.** The vertical dimension from H Point to upper trimmed body opening.
- H12 ENTRANCE HEIGHT – REAR.** The vertical dimension from H Point to the upper trimmed body opening at a section 13.0 inches forward of the H Point.
- H13 STEERING WHEEL THIGH CLEARANCE.** The minimum dimension from the bottom of steering wheel, in straight-ahead position, to centerline of thigh.
- H18 STEERING COLUMN ANGLE – HORIZONTAL.** The angle the centerline of steering column makes with the horizontal.
- H25 BELT HEIGHT – FRONT.** The vertical dimension from H Point to bottom of side window DLO.
- H30 H POINT TO HEEL POINT – FRONT.** The vertical dimension from the H Point to the manikin accelerator heel point on the depressed floor covering.
- H31 H POINT TO HEEL POINT – REAR.** The vertical dimension from the H Point to the manikin heel point on the depressed floor covering.
- H32 SEAT CUSHION DEFLECTION – FRONT.** The vertical dimension from a point on the undeformed seat cushion to the depressed seat cushion. Measured at the H Point station.
- H33 SEAT CUSHION DEFLECTION – REAR.** Measured in the same manner as H32.
- H37 HEADLINING TO ROOF HEIGHT – FRONT.** The dimension from the intersection of the headlining and the extended effective head room line to the roof panel. Measured perpendicularly to the roof panel.
- H38 HEADLINING TO ROOF HEIGHT – REAR.** Measured in the same manner as H37.
- H49 H POINT TO TOP OF STEERING WHEEL.** The vertical dimension from the H Point to top of steering wheel, in straight-ahead position.
- H50 UPPER BODY OPENING TO GROUND – FRONT.** The vertical dimension from a point on the trimmed body opening to the ground. Measured at the H Point station.
- H51 UPPER BODY OPENING TO GROUND – REAR.** The vertical dimension from a point on the trimmed body opening to the ground. Measured 13.0 inches forward of the H Point.

DIMENSION DEFINITIONS (cont.)

- H54 D POINT TO TUNNEL - FRONT. The vertical dimension from the D Point, at car centerline, to top of tunnel.
- H55 D POINT TO TUNNEL - REAR. Measured same manner as H54.
- H58 H POINT RISE. The vertical dimension between the H Point in the most forward and rearward seat position.
- H61 EFFECTIVE HEAD ROOM - FRONT. The dimension from H Point to the headlining, plus a constant of 4.0 inches. Measured along a line 8° to rear of vertical.
- H63 EFFECTIVE HEAD ROOM - REAR. Measured same as H61.
- H64 H POINT TO WINDSHIELD UPPER DLO. Vertical dimension: from H Point to highest horizontal line of vision through windshield at 15 inch section.
- H65 D POINT DIFFERENTIAL, SIDE TO CENTER - FRONT. Vertical dimension from side occupant to center occupant D Point.
- H66 D POINT DIFFERENTIAL, SIDE TO CENTER - REAR. Measured in the same manner as H65.
- H67 DEPRESSED FLOOR COVERING THICKNESS - FRONT. The vertical dimension from manikin accelerator heel point normally to underbody sheet metal immediately below heel point.
- H68 DEPRESSED FLOOR COVERING THICKNESS - REAR. Measured same as H67.
- H70 H POINT TO BODY ZERO LINE - FRONT. Vertical dimension.
- H71 H POINT TO BODY ZERO LINE - REAR. Vertical dimension.
- H86 EFFECTIVE HEAD ROOM - THIRD SEAT. Measured in the same manner as H61.
- H87 H POINT TO HEEL POINT - THIRD SEAT. Measured in the same manner as H31.
- H88 H POINT TO BODY ZERO LINE - THIRD SEAT. Vertical dimension.
- H101 OVERALL HEIGHT. Measured with full design load.
- H102 FRONT BUMPER TO GROUND. Minimum dimension
- H104 REAR BUMPER TO GROUND. Minimum dimension.
- H106 ANGLE OF APPROACH. The angle between the ground and a line tangent to the front tire static loaded radius arc and the first point of interference, i.e. bumper, guard, gravel deflector, fender or other interfering component, excluding license plate.
- H107 ANGLE OF DEPARTURE. The angle between the ground and a line tangent to the rear tire static loaded radius arc and the first point of interference, i.e. bumper, guard, gravel deflector, tail pipe, fender or other interfering component, excluding license plate.
- H111 ROCKER PANEL TO GROUND - REAR. The vertical dimension from ground to bottom of rocker panel, excluding flanges. Measured at front of rear wheel opening.
- H112 ROCKER PANEL TO GROUND - FRONT. The vertical dimension from ground to bottom of rocker panel, excluding flanges. Measured at foremost point of rocker panel.
- H114 HOOD AT REAR TO GROUND. Measured from hood opening line on shroud, exclusive of moldings.
- H115 STEP HEIGHT - FRONT (DESIGN LOAD). The vertical dimension from top of sill plate bead, at C/L of front door sill plate, to ground.
- H116 STEP HEIGHT - REAR (DESIGN LOAD). Measured in same manner as dimension H115.
- H122 WINDSHIELD SLOPE ANGLE. The angle between a vertical line and the windshield surface at car centerline. On compound-curved windshields the chord of the arc is used and limited to that section of the windshield comprehended by an 18-inch chord.
- H130 STEP HEIGHT - FRONT (CURB LOAD). The vertical dimension from top of sill plate, at C/L of front door sill plate, to ground.
- H131 STEP HEIGHT - REAR (CURB LOAD). Measured same as H130.
- H132 BOTTOM OF DOOR TO GROUND, OPEN - FRONT. Measured from bottom outside corner of door with door in maximum hold-open position.
- H133 BOTTOM OF DOOR TO GROUND, CLOSED - FRONT. Same point on door as H132 dimension, with door closed.
- H134 BOTTOM OF DOOR TO GROUND, OPEN - REAR. Measured in same manner as H132.
- H135 BOTTOM OF DOOR TO GROUND, CLOSED - REAR. Measured in same manner as H133.
- H136 BODY ZERO TO GROUND - FRONT. A vertical dimension measured at front wheel centerline.
- H137 BODY ZERO TO GROUND - REAR. A vertical dimension measured at rear wheel centerline.
- H147 RAMP BREAKOVER ANGLE. Supplement of included ramp angle (180° minus included ramp angle) over which car can pass without interference; measured with car sitting on a level surface, using lines tangent to arcs of front and rear static loaded radii and intersecting at point on underside of car which defines the smallest angle.
- H148 FRONT SUSPENSION TO GROUND. Minimum clearance from lower control arm inner shaft or lowest point on the car centerline.
- H149 OIL PAN TO GROUND. Minimum clearance measured from sheet metal or drain plug.
- H150 FLYWHEEL/CONVERTER HOUSING AND TRANSMISSION ASSEMBLY TO GROUND. Minimum clearance.
- H151 FRAME STRUCTURE TO GROUND. Minimum clearance measured approximately midway between front and rear axles. In this measurement, cross bars and X-members shall be considered part of frame.
- H152 EXHAUST SYSTEM TO GROUND. Minimum clearance. Specify location.
- H153 REAR AXLE DIFFERENTIAL SYSTEM TO GROUND. Minimum clearance.
- H154 FUEL TANK TO GROUND. Minimum clearance measured from sheet metal or drain plug, but excluding supports or straps.
- H155 SPARE TIRE WELL TO GROUND. Minimum clearance.
- H156 MINIMUM RUNNING GROUND CLEARANCE. Location of measurement on the car is to be clearly recorded.
- H195 LIFTOVER HEIGHT. Vertical dimension from luggage compartment lower opening to ground.

INDEX

SUBJECT	PAGE NO.	SUBJECT	PAGE NO.
Angles of Approach, Departure	25	Lamp Height & Spacing	14
Automatic Transmission	1, 16	Legroom	26, 27, 30
Axis, Steering	21	Lengths - Overall	1, 23
Axle, Rear	1, 17	Lifters, Valve	5
		Linings - Clutch, Brake	15, 19
Battery	10	Lubrication	6, 7, 15, 16, 17
Bearings, Engine	4, 5, 6	Luggage Capacity	30
Belts - Fan, Generator, Water Pump	9		
Body - General Information, types	Title, 1, 22, 32	Motor, Starting	10
Exterior Dimensions	1, 22, 23, 24	Muffler	7
Interior Dimensions	26, 27, 28, 29, 30		
Clearance Dimensions	25	Overdrive	16
Brakes - Parking, Service, Power	18, 19		
		Piston Pins & Rings	2, 4
Camber	21	Pistons	2
Camshaft	5	Power Brakes	18
Capacities		Power Steering	20
Cooling System	9	Power Teams	3
Fuel Tank	8	Propeller Shaft, Universal Joints	16, 17
Lubricants		Pumps - Oil, Fuel	7, 8
Engine Crankcase	7	Water	9
Transmission and Overdrive	15, 16	Radiator, Hoses	9
Rear Axle	17	Ramp Break-over Angle	25
Carburetor	3, 8	Ratios - Axle	1, 3, 17
Caster	21	Compression	1, 2, 3
Choke, Automatic	8	Steering	20
Circuit Breakers, Fuses	14	Transmission	15, 16
Clearance, Ground	25	Rear Axle	1, 3, 17
Clutch - Pedal Operated	15	Regulator - Generator	10
Coil, Ignition	11	Rims	18
Connecting Rods	4	Rings, Piston	4
Cooling System	9	Rods - Connecting	4
Crankcase Ventilation	7		
Crankshaft	5	Shock Absorbers, Front & Rear	19
Cylinders and Cylinder Head	2	Spark Plugs	11
		Speedometer	12
Dimension Definitions	34, 35, 36	Springs - Front & Rear Suspension	20, 21
Distributor - Ignition	11	Valve, Engine	6
		Stabilizer (Sway Bar) - Front & Rear	20, 21
Electrical System	10, 11, 12, 13, 14	Starting Motor	10
Engine		Steering	20, 21
Bore, Stroke, Displacement, Type	1, 2	Suppression - Ignition, Radio	11
Compression Ratio	1, 2	Suspension - Front & Rear	19, 20, 21
Firing Order, Cylinder Numbering	2, 11	Switches	12
General Information, H.P. & Torque	1, 2		
Lubrication	6, 7	Tailpipe	7
Power Teams	3	Thermostat, Cooling	9
Exhaust System	7	Timing, Engine & Valve	5, 6, 11
Equipment Availability	32	Tires	1, 18
Fan, Cooling	9	Toe in	21
Filters - Engine Oil, Fuel System	7, 8	Torque Converter	16
Frame	19	Torque - Engine, Rated	1, 2, 3
Front Suspension	19, 20	Transmission - Types	1, 3, 8, 15, 16
Fuel, Fuel Pump, Fuel System	1, 2, 8	Automatic	1, 3, 8, 15, 16
Fuel Injection	1, 8	Manual & Overdrive	1, 3, 8, 15, 16
Fuses, Circuit Breakers	14	Ratios	15, 16
		Tread	1, 22
Generator and Regulator	10	Trunk Luggage Capacity	30
Glass	24, 32	Turning Diameter	20
Height (Lamps)	14	Unitized Construction	19
Headroom - Body	26, 27, 30	Universal Joints, Propeller Shaft	16, 17
Heights - Overall	1, 24		
Hood	23	Valves - Intake & Exhaust	5, 6
Horns	12	Vibration Damper	5
Horsepower - Brake, Taxable	1, 2, 3	Voltage Regulator	10
Ignition System	11	Water Pump	9
Inflation - Tires	18	Weights - Shipping, Curb	33
Instruments	7, 12	Wheel Alignment	21
Kingpin (Steering Axis)	21	Wheelbase	1, 23
Lamp Bulbs	13	Wheels & Tires	18
		Wheel Spindle	21
		Widths - Car & Body	1, 22
		Windshield	24, 32
		Windshield Wiper	12