

1998



LUMINA



MANUFACTURERS MOTOR VEHICLE SPECIFICATIONS

METRIC (U.S. CUSTOMARY)

1998

Manufacturer	CHEVROLET MOTOR DIVISION GENERAL MOTORS CORPORATION	Vehicle Line	
Mailing Address	30007 VAN DYKE WARREN, MI 48090-9065	LUMINA	
		Issued	Revised

Direct questions concerning these specifications to the manufacturer listed above.

The information contained herein is prepared, distributed by, and is solely the responsibility of the vehicle manufacturing company to whose products it relates. This specification form was developed by the vehicle manufacturing companies under the auspices of the American Automobile Manufacturers Association.

The General Specifications herein are those in effect at date of compilation and are subject to change without notice or incurring obligation by the manufacturer.

AAMA

American Automobile Manufacturers Association

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specifications
METRIC

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NOTE:

1. This form uses both SI Metric units and U.S. Customary units. The metric unit of measure is presented first, and the U.S. Customary unit follows in parentheses.
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.
 - c. All linear dimensions are in millimeters (inches), and all mass (weight) specifications are in kilograms (pounds).
3. The General Specifications herein are those in effect at date of completion and are subject to change without notice or incurring obligation by the manufacturer.
4. Additional Vehicle Dimensions (based in part on SAE J1100 "Motor Vehicle Dimensions") may be available from the manufacturer.

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Vehicle Origin

Design & development (company)	G.M., Midsize Car Division
Where built (country)	Canada
Authorized U.S. sales marketing representative	Chevrolet Motor Division

Vehicle Models

Model Description & Drive (FWD / RWD / AWD / 4WD)*	Introduction Date	Make, Vehicle Models, Series, Body Type (Mfr's Model Code)	No. of Designated Seating Positions (Front / Rear)	Max. Trunk/Cargo Load-Kilograms (Pounds)	EPA Fuel Economy (City/Hwy)
LUMINA 4-Door Notchback Sedan (FWD)		1WL69	6 (3/3)		19/29 - L82
LUMINA LS 4-Door Notchback Sedan (FWD)		1WN69	6 (3/3) 5 (2/3) Opt.		19/29 - L82 17/26 - L36

* FWD - Front Wheel Drive RWD - Rear Wheel Drive AWD - All Wheel Drive 4WD - Four Wheel Drive

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Engine Description
 Engine Code

3.1 LITER V6
 L82

Engine - General

Type & description (inline, V, angle, flat, location, front, mid, rear, transverse, longitudinal, sohc, dohc, ohv, hemi, wedge, pre-chamber, etc.)	60 Degree V, Front, Transverse, OHV	
Manufacturer	General Motors Powertrain Group	
No. of cylinders	Six	
Bore	89.0 mm	
Stroke	84.0 mm	
Bore Spacing (C / L to C / L)	111.76 mm	
Cylinder block material & mass kg. (lbs.) (machined)	Cast Iron, 55.6 (122.6)	
Cylinder block deck height	224.0 mm	
Cylinder block length	435.5 mm	
Deck clearance (minimum) (above or below block)	0.58 (Above)	
Cylinder head material & mass kg. (lbs.)	Cast Aluminum, 6.9 (15.2)	
Cylinder head volume cm ³ (inches ³)	26.2 (1.6)	
Cylinder liner material	None	
Head gasket thickness (compressed)	1.55 mm	
Minimum combustion chamber total volume cm ³ (inches ³)	60.29 (3.7)	
Cyl. no. system (front to rear)*	L. Bank	2-4-6
	R. Bank	1-3-5
Firing order	1-2-3-4-5-6	
Intake manifold material & mass kg. (lbs.)**	Cast Aluminum, 8.7 (19.2)	
Exhaust manifold material & mass kg. (lbs)**	Cast Iron, Right: 4.3 (9.5), Left: 2.3 (5.1)	
Knock sensor (number & location)	One, Left Side of Block	
Fuel required unleaded, diesel, etc.	Unleaded	
Fuel antiknock index (R + M) + 2	86	
Engine Mounts	Quantity	Total 4 (1 Engine Mount, 1 Transmission Mount and 2 Torque Reacting Mounts)
	Material and type (elastomeric, hydroelastic, hydraulic damper, etc.)	Engine Mount - Hydroelastic; Transmission Mount - Hydroelastic Torque Reacting Mounts - Natural Rubber and Neoprene
	Added isolation (sub-frame, crossmember, etc.)	Isolated Cradle
Total dressed engine mass (wt) dry***	184 kg	

Engine - Pistons

Material & mass, g (weight, oz.) - piston only	Aluminum Alloy, 375 (13.2)
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Engine - Camshaft

Location	Above Crankshaft at Center of "V"	
Material & mass kg (weight, lbs.)	Assembled Steel, 2.3 (5.1)	
Drive type	Chain / belt	Chain
	Width / pitch	16.18 mm Max width; 3/8 pitch inverted Tooth "Silent" Chain

* Rear of engine - drive takeoff. View from drive takeoff end to determine left & right side of engine.

** Finished state.

*** Dressed engine mass (weight) includes the following: All those items necessary to make the engine a complete ready-to-run unit.

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Engine Description
 Engine Code

3.8 LITER V6
 L36

Engine - General

Type & description (inline, V, angle, flat, location, front, mid, rear, transverse, longitudinal, sohc, dohc, ohv, hemi, wedge, pre-chamber, etc.)	90 Degree V, Front, Transverse, OHV	
Manufacturer	General Motors Powertrain Group	
No. of cylinders	Six	
Bore	96.52 mm	
Stroke	86.36 mm	
Bore Spacing (C / L to C / L)	107.7 mm	
Cylinder block material & mass kg. (lbs.) (machined)	Cast Iron, 55.7 (122.8)	
Cylinder block deck height	216.49mm	
Cylinder block length	396.0 mm	
Deck clearance (minimum) (above or below block)	0.56 mm (Above)	
Cylinder head material & mass kg. (lbs.)	Cast Iron, 14.4 (31.7)	
Cylinder head volume cm ³ (inches ³)	62.93 (3.81)	
Cylinder liner material	Not Applicable	
Head gasket thickness (compressed)	1.5 mm	
Minimum combustion chamber total volume cm ³ (inches ³)	75.675 (4.618)	
Cyl. no. system (front to rear)*	L. Bank	1-3-5
	R. Bank	2-4-6
Firing order	1-6-5-4-3-2	
Intake manifold material & mass kg. (lbs.)**	Lower: Aluminum, Upper: Composite, 11.4 (25.1)	
Exhaust manifold material & mass kg. (lbs.)**	Right: Tubular Stainless Steel, 3.5 (7.7), Left: Cast Nodular Iron, 3.8 (8.4)	
Knock sensor (number & location)	Two Sides of Block	
Fuel required unleaded, diesel, etc.	Unleaded	
Fuel antiknock index (R + M) + 2	87	
Engine Mounts	Quantity	Total 4 (1 Engine Mount, 1 Transmission Mount and 2 Torque Reacting Mounts)
	Material and type (elastomeric, hydroelastic, hydraulic damper, etc.)	Engine Mount - Hydroelastic; Transmission Mount - Hydroelastic Torque Reacting Mounts - Natural Rubber and Neoprene
	Added isolation (sub-frame, crossmember, etc.)	Isolated Cradle
Total dressed engine mass (wt) dry***	201 kg	

Engine - Pistons

Material & mass, g (weight, oz.) - piston only	Eutectic Aluminum Alloy, 387 (13.65)
--	--------------------------------------

Engine - Camshaft

Location	In Block	
Material & mass kg (weight, lbs.)	5150 Steel, 2.5 (5.5)	
Drive type	Chain / belt	Chain
	Width / pitch	0.398 mm Over Guides / 0.323 mm

* Rear of engine - drive takeoff. View from drive takeoff end to determine left & right side of engine.

** Finished state.

*** Dressed engine mass (weight) includes the following: All those items necessary to make the engine a complete ready-to-run unit.

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Engine Description	3.1 LITER V6
Engine Code	L82

Engine - Valve System

Hydraulic lifters (std., opt., n.a.)	Standard	
Valves	Number intake / exhaust	Six/Six
	Head O.D. intake / exhaust	43.64 mm / 36.20 mm

Engine - Connecting Rods

Material & mass kg., (weight, lbs.)*	Forged Steel, 0.59 (1.3)
Length (axes C/L to C/L)	144.78 mm

Engine - Crankshaft

Material & mass kg., (weight, lbs.)*	Cast Iron, 17.2 (37.9)	
End thrust taken by bearing (no.)	Three	
Number & Length of main bearing journals	One - 29.5 mm, Two and Three - 24.0 mm, Four - 36.0 mm	
Seal (material, one, two piece design, etc.)	Front	Viton/Steel, One Piece
	Rear	Viton/Steel, One Piece

Engine - Lubrication System

Normal oil pressure kPa (psi) at engine rpm	280 - 360 (40.6 - 52.2) @ 2400
Type oil intake (floating, stationary)	Stationary
Oil filter system (full flow, part, other)	Full Flow
Capacity of c/case, less filter-refill-L (qt.)	3.8 (4.0)

Engine - Diesel Information

(NOT APPLICABLE)

Diesel engine manufacturer		
Glow plug, current drain at 0°F.		
Injector nozzle	Type	
	Opening pressure kPa (psi)	
Pre-chamber design		
Fuel Injection pump	Manufacturer	
	Type	
Fuel injection pump drive (belt, chain, gear)		
Supplementary vacuum source (type)		
Fuel heater (yes/no)		
Water separator, description (std., opt.)		
Turbo manufacturer		
Oil cooler-type (oil to engine coolant; oil to ambient air)		
Oil filter		

Engine - Intake System

(NOT APPLICABLE)

Turbo charger - manufacturer	
Super charger - manufacturer	
Intercooler	

* Finished State

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Engine Description	3.8 LITER V6
Engine Code	L36

Engine - Valve System

Hydraulic lifters (std., opt., n.a.)	Standard	
Valves	Number intake / exhaust	12/12
	Head O.D. intake / exhaust	45.72 mm / 38.6 mm

Engine - Connecting Rods

Material & mass kg., (weight, lbs.)*	Pearlitic Malleable Iron, 0.63 (1.4)
Length (axes C/L to C/L)	145.85 mm

Engine - Crankshaft

Material & mass kg., (weight, lbs.)*	Nodular Cast Iron, 15.4 (34.0)	
End thrust taken by bearing (no.)	Two	
Length & number of main bearings	21.95, Four	
Seal (material, one, two piece design, etc.)	Front	Rubber Lip, One Piece
	Rear	Rubber Lip, One Piece

Engine - Lubrication System

Normal oil pressure kPa (psi) at engine rpm	414 (60) @ 2000
Type oil intake (floating, stationary)	Stationary
Oil filter system (full flow, part, other)	Full Flow
Capacity of c/case, less filter-refill-L (qt.)	3.78 (4.0)

Engine - Diesel Information

(NOT APPLICABLE)

Diesel engine manufacturer		
Glow plug, current drain at 0°F.		
Injector nozzle	Type	
	Opening pressure kPa (psi)	
Pre-chamber design		
Fuel Injection pump	Manufacturer	
	Type	
Fuel injection pump drive (belt, chain, gear)		
Supplementary vacuum source (type)		
Fuel heater (yes/no)		
Water separator, description (std., opt.)		
Turbo manufacturer		
Oil cooler-type (oil to engine coolant; oil to ambient air)		
Oil filter		

Engine - Intake System

(NOT APPLICABLE)

Turbo charger - manufacturer	
Super charger - manufacturer	
Intercooler	

* Finished State

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Engine Description
 Engine Code

3.1 LITER V6
 L82

Engine - Cooling System

Coolant recovery system (std., opt., n.a.)		Standard	
Coolant fill location (rad., bottle)		Bottle	
Radiator cap relief valve pressure kPa (psi)		103.4 (15.0)	
Circulation thermostat	Type (choke, bypass)	Bypass	
	Starts to open at °C (°F)	90 (195)	
Water pump	Type (centrifugal, other)	Centrifugal	
	GPM 1000 pump rpm	12	
	Number of pumps	One	
	Drive (V-belt, other)	Poly V-Belt	
	Bearing type	Double Row (Ball/Roller)	
	Housing material	Aluminum	
By-pass recirculation type (inter., ext.)		External, Bypass	
Cooling System capacity	With heater - L (qt.)	A/C is Standard	
	With air conditioner - L (qt.)	11.59 (12.2) - Includes 0.5L Reservoir Reserve	
	Opt. equipment specify - L (qt.)	Not Applicable	
Water jackets full length of cyl. (yes, no)		No	
Water all around cylinder (yes, no)		Yes	
Water jackets open at head face (yes, no)		Yes	
Radiator core	Std., A/C, HD	A/C is Standard Equipment	
	Type (cross-flow, etc.)	Cross-Flow	
	Construction (fin & tube mechanical, braze, etc.)	High Efficiency Radiator (H.E.R.), Fin & Tube	
	Material, mass kg (wgt., lbs.)	Aluminum, 3.22 (7.16)	
	Width	774.0 mm (30.5 in.)	
	Height	382.4 mm (15.0 in.)	
	Thickness	16.0 mm (0.630 in.)	
Radiator end tank material		Plastic	
Fan	Std., elec., opt.	Electric	Electric
	Number of blades & type (flex, solid, material)	Seven Blades, Solid, Plastic	Seven Blades, Solid, Plastic
	Number & location (front, rear of radiator)	Rear (LH)	Rear (RH)
	Diameter & projected width	360.0 mm (14.2 in.), Diameter	360.0 mm (14.2 in.), Diameter
	Ratio (fan to crankshaft rev.)	Not Applicable	Not Applicable
	Fan cutout type	ECM Controlled	ECM Controlled
	Drive type (direct, remote)	Direct	Direct
	RPM at idle (elec.)	1800 Primary	1650 Secondary
	Motor rating (wattage/elec.)	150 W	90 W
	Motor switch (type & location/elec.)	Engine Mounted Coolant Temp. Sensor, A/C Liquid Line Press. Switch or Transducer	(Same)
	Switch point (temp./pressure/elec.)	(See Below)	(See Below)
	Fan shroud (material)	Not Available	Not Available

PRIMARY FAN (LH)
 A/C Head Pressure or
 Engine Coolant

ON
 190 PSI
 223 deg. F.

OFF
 140 PSI
 216 deg. F.

SECONDARY FAN (RH)
 A/C Head Pressure or
 Engine Coolant

ON
 240 PSI
 235 deg. F.

OFF
 190 PSI
 228 deg. F.

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Engine Description	3.8 LITER V6
Engine Code	L36

Engine - Cooling System

Coolant recovery system (std., opt., n.a.)		Standard		
Coolant fill location (rad., bottle)		Bottle		
Radiator cap relief valve pressure kPa (psi)		103.4 (15.0)		
Circulation thermostat	Type (choke, bypass)	Bypass		
	Starts to open at °C (°F)	90 (194)		
Water pump	Type (centrifugal, other)	Centrifugal		
	GMP 1000 pump rpm	10		
	Number of pumps	One		
	Drive (V-belt, other)	Poly V-Belt		
	Beaming type	Double Row (Ball/Roller)		
	Impeller material	Cast Iron		
	Housing material	Aluminum		
By-pass recirculation type (inter., ext.)		External		
Cooling System capacity	With heater - L (qt.)	A/C is Standard		
	With air conditioner - L (qt.)	9.63 (10.02) - Includes Reservoir Reserve		
	Opt. equipment specify - L (qt.)	Not Available		
Water jackets full length of cyl. (yes, no)		No		
Water all around cylinder (yes, no)		Yes		
Water jackets open at head face (yes, no)		Yes		
Radiator core	Std., A/C, HD	A/C is Standard Equipment		
	Type (cross-flow, etc.)	Cross-Flow		
	Construction (fin & tube mechanical, braze, etc.)	High Efficiency Radiator (H.E.R.) Fin & Tube		
	Material, mass kg (wt., lbs.)	Aluminum, 3.2 (7.05)		
	Width	774.0 mm (30.5 in.)		
	Height	382.0 mm (15.0 in.)		
	Thickness	16.0 mm (0.630 in.)		
	Fins per inch	20, 2.5 mm		
Radiator end tank material		Plastic		
Fan	Std., elec., opt.	Electric	Electric	
	Number of blades & type (flex, solid, material)	Seven Blades, Solid, Plastic	Seven Blades, Solid, Plastic	
	Number & location (front, rear of radiator)	Rear (LH)	Rear (RH)	
	Diameter & projected width	360 mm (14.2 in.) Diameter	360 mm (14.2 in.) Diameter	
	Ratio (fan to crankshaft rev.)	Not Applicable	Not Applicable	
	Fan cutout type	PCM Controlled	PCM Controlled	
	Drive type (direct, remote)	Direct	Direct	
	RPM at idle (elec.)	1650 RPM (Parallel Mode)	1500 RPM (Parallel Mode)	
	Motor rating (wattage/elec.)	90 W	115 W	
	Motor switch (type & location/elec.)	Engine Mounted Coolant Temp. Sensor, A/C liquid Line Press. Switch or Transducer	Same	
	Switch point (temp./pressure/elec.)	Series Mode (Both Low Fan Speed)	Parallel Mode (Both High Fan Speed)	
		On: 222.8°F Off: 219.2°F	On: 230°F Off: 226.4°F	
	Engine Coolant or A/C head Pressure with Vehicle Speed	On: 190 PSI & Below 70 MPH	Off: 140 PSI or 75+MPH	On: 240 PSI & Below 48 MPH or 50+MPH
	Fan shroud (material)		Not Applicable	

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 issued _____ Revised (●) _____

METRIC (U.S. Customary)

Engine Description Engine Code	3.1 LITER V6 L82
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Engine - Fuel System (See Supplemental page for details of Fuel Injection, Supercharger, Turbocharger, etc. if used.)

Induction type: carburetor, fuel injection system, etc.		Sequential Fuel Injection
Manufacturer		Delphi
Carburetor no. of barrels		Not Applicable
Idle A/F mix.		PCM Controlled
Fuel injection	Point of injection (no.)	Ports (Six)
	Constant, pulse, flow	Pulse
	Control (electronic, mech.)	Electronic
	System pressure kPa (psi)	300 (43.5)
Idle speed-rpm (spec. neutral or drive and propane if used)	Manual	Not Applicable
	Automatic	PCM Controlled
Intake manifold heat control (exhaust or water thermostatic or fixed)		Fixed
Air cleaner type		Replaceable Paper Element
Fuel filter (type/location)		Inline, Replaceable / Near Fuel Tank
Fuel pump	Type (elec. or mech.)	Electric
	Location (eng., tank)	Tank
	Pressure range kPa (psi)	0-300 (0-43.5)
	Flow rate at regulated pressure L (gal)/hr @ kPa (psi)	72.0 @ 300 (19 @ 43.5)

Fuel Tank

Capacity refill L (gallons)		62.8 (16.6)
Location (describe)		Underbody, Forward of Cross Member
Attachment		Two Steel Straps w/Four Vertical Fasteners
Material & Mass kg. (weight lbs.)		Stamped Zinc/Nickle Steel Upper & Lower w/Perimeter Seam Weld, 11.388 (25.065)
Filler pipe	Location & material	Left Rear Quarter Panel-Steel
	Connection to tank	Flexible Hose - Low Permeation
Fuel line (material)		Steel & Nylon - Low Permeation, High Conductivity Nylon
Fuel hose (material)		Nylon - Low Permeation, High Conductivity
Return line (material)		Steel & Nylon - Low Permeation, High Conductivity
Vapor line (material)		Steel & Nylon - Low Permeation
Extended range tank	Opt., n.a.	Not Available
	Capacity L (gallons)	Not Available
	Location & material	Not Available
	Attachment	Not Available
Auxiliary tank	Opt., n.a.	Not Available
	Capacity L (gallons)	Not Available
	Location & material	Not Available
	Attachment	Not Available
	Selector switch or valve	Not Available
Separate fill		Not Available

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Engine Description
 Engine Code

3.8 LITER V6
 L36

Engine - Fuel System (See Supplemental page for details of Fuel Injection, Supercharger, Turbocharger, etc. if used.)

Induction type: carburetor, fuel injection system, etc.		Sequential Fuel Injection
Manufacturer		Bosch
Carburetor no. of barrels		Not Applicable
Idle A/F mix.		PCM Controlled
Fuel injection	Point of injection (no.)	Ports (Six)
	Constant, pulse, flow	Pulse
	Control (electronic, mech.)	Electronic
	System pressure kPa (psi)	350 (50.8)
Idle speed-rpm (spec. neutral or drive and propane if used)	Manual	Not Applicable
	Automatic	PCM Controlled
Intake manifold heat control (exhaust or water thermostatic or fixed)		Throttle Body Water Heat; No Induction Air Heat
Air cleaner type		Replaceable paper Element
Fuel filter (type/location)		Inline, Replaceable / Near Fuel Tank
Fuel pump	Type (elec. or mech.)	Electric
	Location (eng., tank)	Tank
	Pressure range kPa (psi)	270-350 (39.2 - 50.8)
	Flow rate at regulated pressure L (gal)/hr @ kPa (psi)	111 @ 350 (29.3 @ 50.8)

Fuel Tank

Capacity refill L (gallons)		62.8 (16.6)
Location (describe)		Underbody, Forward of Rear Cross Member
Attachment		Two Steel Straps w/Four Vertical Fasteners
Material & Mass kg. (weight lbs.)		Stamped Zinc/Nickel Steel Upper & Lower w/Perimeter Seam Weld, 11.338 (25.065)
Filler pipe	Location & material	Left Rear Quarter Panel-Steel
	Connection to tank	Flexible Hose - Low Permeation
Fuel line (material)		Steel & Low Permeation High Conductivity Nylon
Fuel hose (material)		Low Permeation High Conductivity Nylon
Return line (material)		Steel & Low Permeation High Conductivity Nylon
Vapor line (material)		Steel & Low Permeation High Conductivity Nylon
Extended range tank	Opt., n.a.	Not Available
	Capacity L (gallons)	Not Available
	Location & material	Not Available
	Attachment	Not Available
Auxiliary tank	Opt., n.a.	Not Available
	Capacity L (gallons)	Not Available
	Location & material	Not Available
	Attachment	Not Available
	Selector switch or valve	Not Available
Separate fill		Not Available

MVMA Specifications

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METRIC (U.S. Customary)

Engine Description 3.1 LITER V6
 Engine Code L82

Vehicle Emission Control

Type (air injection, engine modifications, other)		See Below	
Exhaust Emission Control	Air injection	Pump or pulse	Not Applicable
		Driven by	Not Applicable
		Air distribution (head, manifold, etc.)	Not Applicable
		Point of entry	Not Applicable
	Exhaust Gas Recirculation	Type (controlled flow, open orifice, other)	Controlled Flow
		Exhaust source	Exhaust Manifold
		Point of exhaust injection (spacer, carburetor, manifold, other)	Intake Manifold
	Catalytic Converter	Type	Three Way Catalyst
		Number of	One
		Locations(s)	Underbody
		Volume L (in ³)	2.67 (163)
		Substrate type	Monolith/Ceramic
Noble metal type		Platinum / Palladium / Rhodium	
Noble metal concentration (g/cm ³)			
Crankcase Emission Control	Type (ventilates to atmosphere, induction system, other)		Induction System
	Energy source (manifold vacuum, carburetor, other)		Manifold Vacuum
	Discharges to (intake manifold, other)		Intake Manifold
	Air inlet (breather cap, other)		Right Rear Rocker Arm Cover
Evaporative Emission Control	Vapor vented to (crankcase, canister, other)	From Fuel Tank To	Canister
		From Carburetor To	Not Applicable
	Vapor storage provision		Canister
Electronic system	Closed loop (yes/no)		Yes
	Open loop (yes/no)		No

Engine - Exhaust System

Type (single, single with cross-over, dual, other)	Single w/Crossover	
○ Muffler no. & type (reverse flow, straight thru, separate resonator), Muffler volume (liters), Material & Mass kg. (weight lbs.)	Single, Reverse Flow, 17.0L, 409 Stainless Steel	
○ Resonator no., type, & volume (liters)	Round Bottle, Straight Thru, 2.4L	
Exhaust pipe	Branch o.d., wall thickness	N/A
	Main o.d., wall thickness	N/A
	Material & Mass kg. (weight lbs.)	N/A
Intermediate pipe	o.d. & wall thickness	50.8 x 1.1 mm (2.0 x 0.043 in.)
	Material & Mass kg. (weight lbs.)	409 Stainless Steel
Tail pipe	o.d. & wall thickness	50.8 x 1.1 mm (2.0 x 0.043 in.)
	Material & Mass kg. (weight lbs.)	409 Stainless Steel - Painted Black

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Engine Description 3.8 LITER V6
 Engine Code L36

Vehicle Emission Control

Type (air injection, engine modifications, other)		See Below	
Exhaust Emission Control	Air injection	Pump or pulse	Not Applicable
		Driven by	Not Applicable
		Air distribution (head, manifold, etc.)	Not Applicable
		Point of entry	Not Applicable
	Exhaust Gas Recirculation	Type (controlled flow, open orifice, other)	Controlled Flow
		Exhaust source	Exhaust Manifold
		Point of exhaust injection (spacer, carburetor, manifold, other)	Intake Manifold
	Catalytic Converter	Type	Three Way Catalyst
		Number of	One
		Locations(s)	Underbody
Volume L (in ³)		2.67 (163)	
Substrate type		Ceramic/Monolith	
Noble metal type		Platinum , Rhodium , Palladium	
Crankcase Emission Control	Type (ventilates to atmosphere, induction system, other)	Positive Ventilation to Induction System	
	Energy source (manifold vacuum, carburetor, other)	Manifold Vacuum	
	Discharges to (intake manifold, other)	Inlet Manifold	
	Air inlet (breather cap, other)	Throttle Body	
Evaporative Emission Control	Vapor vented to (crankcase, canister, other)	From Fuel Tank To	Canister
		From Carburetor To	Not Applicable
	Vapor storage provision	Canister	
Electronic system	Closed loop (yes/no)	Yes	
	Open loop (yes/no)	No	

Engine - Exhaust System

Type (single, single with cross-over, dual, other)	Dual, w/Crossover	
⊗ Muffler no. & type (reverse flow, straight thru, separate resonator) , Muffler volume (liters), Material & Mass kg. (weight lbs.)	Dual, Reverse Flow, 22.2 L, 409 Stainless Steel	
⊗ Resonator no., type, & volume (liters)	Round Bottle, Straight Thru, 2.4L	
Exhaust pipe	Branch o.d., wall thickness	Not Applicable
	Main o.d., wall thickness	Not Applicable
	Material & Mass kg. (weight lbs.)	Not Applicable
Intermediate pipe	o.d. & wall thickness	57.2 x 1.4 mm, Legs 50.8 x 1.4 mm (2.25 x 0.055 in.)
	Material & Mass kg. (weight lbs.)	409 Stainless Steel
Tail pipe	o.d. & wall thickness	Two @ 57.2 x 1.2 mm, (2.25 x .055 in.)
	Material & Mass kg. (weight lbs.)	409 Stainless Steel -Painted Black

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Engine Description 3.1 LITER V6
 Engine Code L82

Transmissions/Transaxle (Std., Opt., N.A.)

Manual 4-speed (manufacturer/country)	Not Available
Manual 5-speed (manufacturer/country)	Not Available
Manual 6-speed (manufacturer/country)	Not Available
Automatic (manufacturer/country)	Not Available
Automatic overdrive (manufacturer/country)	Hydra-Matic/U.S.A.

Manual Transmission/Transaxle (NOT APPLICABLE)

Number of forward speeds		
Gear ratios	1st	
	2nd	
	3rd	
	4th	
	5th	
	6th	
	Reverse	
Synchronous meshing (specify gears)		
Shift lever location		
Trans. case material & mass kg. (lbs.)*		
Lubricant	Capacity L (pt.)	
	Type recommended	

Clutch (Manual Transmission) (NOT APPLICABLE)

Clutch manufacturer		
Clutch type (dry, wet; single, multiple disc)		
Linkage (hydraulic, cable, rod, lever, other)		
Max. pedal effort (nom. spring load) N (lbs.)	Depressed	
	Released	
Assist (spring, power/percent, nominal)		
Type pressure plate springs		
Total spring load (nominal) N (lbs.)		
Clutch facing	Facing mfr. & material coding	
	Facing material & construction	
	Rivets per facing	
	Outside x inside dia. (nominal)	
	Total eff. area cm ² (in. ²)	
	Thickness (pressure plate side/fly wheel side)	
	Rivet depth (pressure plate side/fly wheel side)	
Engagement cushion method		
Release bearing type & method lub.		
Torsional damping method, springs, hysteresis		

* Includes shift linkage, lubricant, and clutch housing. If other specify.

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Engine Description 3.8 LITER V6
 Engine Code L36

Transmissions/Transaxle (Std., Opt., N.A.)

Manual 4-speed (manufacturer/country)	Not Applicable
Manual 5-speed (manufacturer/country)	Not Applicable
Manual 6-speed (manufacturer/country)	Not Applicable
Automatic (manufacturer/country)	Not applicable
Automatic overdrive (manufacturer/country)	Gm Powertrain Group, USA

Manual Transmission/Transaxle (NOT APPLICABLE)

Number of forward speeds		
Gear ratios	1st	
	2nd	
	3rd	
	4th	
	5th	
	6th	
	Reverse	
Synchronous meshing (specify gears)		
Shift lever location		
Trans. case material & mass kg. (lbs.)*		
Lubricant	Capacity L (pt.)	
	Type recommended	

Clutch (Manual Transmission) (NOT APPLICABLE)

Clutch manufacturer		
Clutch type (dry, wet; single, multiple disc)		
Linkage (hydraulic, cable, rod, lever, other)		
Max. pedal effort (nom. spring load) N (lbs.)	Depressed	
	Released	
Assist (spring, power/percent, nominal)		
Type pressure plate springs		
Total spring load (nominal) N (lbs.)		
Clutch facing	Facing mfr. & material coding	
	Facing material & construction	
	Rivets per facing	
	Outside x inside dia. (nominal)	
	Total eff. area cm ² (in. ²)	
	Thickness (pressure plate side/fly wheel side)	
	Rivet depth (pressure plate side/fly wheel side)	
Engagement cushion method		
Release bearing type & method lub.		
Torsional damping method, springs, hysteresis		

* Includes shift linkage, lubricant, and clutch housing. If other specify.

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Engine Description
 Engine Code

3.1 LITER V6
 L82

Automatic Transmission/Transaxle

Trade Name		Hydra-Matic 4T60-E Transaxle - ECCC
Type and special features (describe)		Four-Speed Automatic w/Torque Converter Clutch
Shift mechanics		Hydraulic Clutches/Electronic Controls
Gear selector	Location (column, floor, other)	Column & Floor (Mechanical)
	Ltr./No. designation (e.g. PRND21)	P-R-N- D -D-2-1
	Shift interlock (yes, no, describe)	Yes - Brake, Ignition Key
Gear ratios	1st	2.92
	2nd	1.57
	3rd	1.00
	4th	0.70
	5th	Not Applicable
	6th	Not Applicable
	Reverse	2.38
Final drive ratio		3.29
Max. upshift vehicle speed - drive range km/h (mph)		One - Two = 66 (41) Three - Four = 163 (101) Two - Three = 124 (77)
Max. upshift engine speed RPM		5600
Max. kickdown speed - drive range km/h (mph)		Two - One = 48 (30) Four - Three: 151 (94) Three - Two = 113 (70)
Min. overdrive speed km/h (mph)		50 (31) Minimum 4-3
Torque converter	Type	ECCC
	Torus design	Yes
	Number of elements	Three
	Max. ratio at stall	1.95
	Type of cooling (air, liquid)	Liquid
	Nominal diameter	245.0 mm
Capacity factor "K"		180
Pump type		Variable Displacement Vane
Lubricant	Capacity refill L (qts.)	12.7 (13.4) Dry
	Type recommended	Dexron III
Oil cooler (std., opt., N.A., internal, external, air, liquid)		Standard, Integral with Radiator
Transmission mass kg (lbs.) & case material**		81.0 (178.50), Cast Aluminum

All Wheel / 4 Wheel Drive

(NOT APPLICABLE)

Description & type (part-time, full-time, 2/4 shift while moving, mechanical, elect., chain/gear, etc.)		
Transfer case	Manufacturer and model	
	Type and location	
Low-range gear ratio		
System disconnect (describe)		
Center differential	Type (bevel, planetary, w or w/o viscous bias, torsen, etc.)	
	Torque split (% front/rear)	

* Input speed + $\sqrt{\text{torque}}$

** Dry weight including torque converter. If other, specify.

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Engine Description	3.8 LITER V6
Engine Code	L36

Automatic Transmission/Transaxle

Trade Name	Hydra-Matic 4T65E Transaxle	
Type and special features (describe)	Four Speed, Front Wheel Drive, Electronically Controlled, Automatic Transaxle with Torque Converter Clutch and Overdrive	
Shift mechanics	Hydraulic Clutches/Electronic Controls	
Gear selector	Location (column, floor, other)	Floor
	Ltr./No. designation (e.g. PRND21)	P - R - N - D D - 2 - 1
	Shift interlock (yes, no, describe)	Yes - Brake, Ignition Key
Gear ratios	1st	2.92
	2nd	1.57
	3rd	1.00
	4th	0.71
	5th	Not Applicable
	6th	Not Applicable
	Reverse	2.39
	Final drive ratio	3.05 3.43 Effective
Max. upshift vehicle speed - drive range km/h (mph)	One - Two = 77 (48) Three - Four = 185 (115) Two - Three = 138 (86)	
Max. upshift engine speed RPM	6500	
Max. kickdown speed - drive range km/h (mph)	Two - One = 59 (37) Three - Two = 122 (76)	
Min. overdrive speed km/h (mph)	67 (42)	
Torque converter	Type	ECCC
	Torus design	Yes
	Number of elements	Three
	Max. ratio at stall	2.35
	Type of cooling (air, liquid)	Liquid
	Nominal diameter	245.0 mm (9.7 in.)
Capacity factor "K"	177	
Pump type	Variable Displacement Vane	
Lubricant	Capacity refill L (pt.)	12.7 (26.8), Dry Transmission
	Type recommended	Dexron III
Oil cooler (std., opt., N.A., internal, external, air, liquid)	Standard, Integral with Radiator	
Transmission mass kg (lbs.) & case material**	93 wet, Cast Aluminum	

All Wheel / 4 Wheel Drive (NOT APPLICABLE)

Description & type (part-time, full-time, 2/4 shift while moving, mechanical, elect., chain/gear, etc.)		
Transfer case	Manufacturer and model	
	Type and location	
Low-range gear ratio		
System disconnect (describe)		
Center differential	Type (bevel, planetary, w or w/o viscous bias, torsen, etc.)	
	Torque split (% front/rear)	

* Input speed + $\sqrt{\text{torque}}$

** Dry weight including torque converter. If other, specify.

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Engine Description
 Engine Code

3.1 LITER V6
 L82

Axle Ratio and Tooth Combinations (See 'Power Teams' for axle ratio usage)

Effective final drive ratio (or overall top gear ratio)		3.33 (2.35)
Transfer ratio and method (chain, gear, etc.)		1.00 Chain
Front drive unit	Ring gear o.d.	Not Applicable
	No. of teeth	Not Applicable
	Pinion	Not Applicable
	Ring gear	Not Applicable

Front Drive Unit

Description (integral to trans., etc.)		Planetary Final Drive Integral with Transmission
Limited slip differential (type)		Not Applicable
Drive pinion	Type	Not Applicable
	Offset	Not Applicable
No. of differential pinions		Two
Pinion / differential	Adjustment (shim, etc.)	Not Applicable
	Bearing adjustment	Not Applicable
Driving wheel bearing (type)		
Lubricant	Capacity L (pt.)	8.0 (16.9)
	Type recommended	Dexron II

Axle Shafts - Front Wheel Drive

Manufacturer and number used		Two Per Car		
Type (straight, solid bar, tubular, etc.)	Left	Straight Solid Bar		
	Right	Straight Solid Bar		
Outer diam. x length* x wall thickness	Manual Transaxle	Left	Not Applicable	
		Right	Not Applicable	
	Automatic transaxle	Left	27.1 x 326.0 mm (1.07 x 12.83 in.)	
		Right	27.1 x 363.0 mm (1.07 x 14.19 in.)	
	Optional transaxle	Left	Not Applicable	
		Right	Not Applicable	
Slip yoke	Type	-		
	Number of teeth	-		
	Spline o.d.	-		
Universal joints	Make and mfg. no.	Inner	Delphi Saginaw Steering Systems	
		Outer	Delphi Saginaw Steering Systems	
	Number used		Four, Two on Each Shaft	
	Type, size, plunge	Inner	Tripot Joint, 27 Size 66.0 mm Plunge	
		Outer	Rzeppa Joint; Fixed, 27 Size	
	Attach (u-bolt, clamp, etc.)		Inboard Joint - Snap Ring, Outboard Joint (Nut/Washer - Clamping)	
Bearing	Type (plain, anti-friction)	Inboard Joint: Ball Bearing, Needle Roller Bearing (Anti-Friction Bearing) Outboard Joint: Ball Bearing		
	Lubrication (fitting, prepack)	Prepacked		
Drive taken through (torque tube, arms or springs)		Wishbone Lower Control Arm, Upper MacPherson Strut		
Torque taken through (torque tube, arms or springs)		Engine Mounting System		

* Centerline to centerline of universal joints, or to centerline of attachment.

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Engine Description	3.8 LITER V6
Engine Code	L36

Axle Ratio and Tooth Combinations (See 'Power Teams' for axle ratio usage)

Effective final drive ratio (or overall top gear ratio)		3.43 (2.41)
Transfer ratio and method (chain, gear, etc.)		
Front drive unit	Ring gear o.d.	
	No. of teeth	Pinion
		Ring gear

Front Drive Unit

Description (integral to trans., etc.)		Integral to Transmission
Limited slip differential (type)		Not Applicable
Drive pinion	Type	Not Applicable
	Offset	Not Applicable
No. of differential pinions		Two
Pinion / differential	Adjustment (shim, etc.)	Not Applicable
	Bearing adjustment	Not Applicable
Driving wheel bearing (type)		Sealed Ball Bearing
Lubricant	Capacity L (pt.)	
	Type recommended	

Axle Shafts - Front Wheel Drive

Manufacturer and number used		Delphi Saginaw Steering Systems, Two		
Type (straight, solid bar, tubular, etc.)	Left	Straight Solid Bar		
	Right	Straight Solid Bar		
Outer diam. x length* x wall thickness	Manual Transaxle	Left	Not Applicable	
		Right	Not Applicable	
	Automatic transaxle	Left	27.8 x 323.0 mm (1.09 X 12.7in.)	
		Right	27.8 x 353.0 mm (1.09 x 13.9 in.)	
	Optional transaxle	Left	Not Available	
		Right	Not Available	
Slip yoke	Type	Not Applicable		
	Number of teeth	Not Applicable		
	Spline o.d.	Not Applicable		
Universal joints	Make and mfg. no.	Inner	Delphi Saginaw Steering Systems	
		Outer	Delphi Saginaw Steering Systems	
	Number used	Inboard & Outboard on Each Shaft Assembly		
	Type, size, plunge	Inner	Tripot Joint, 32 Size 66.0 mm Plunge	
		Outer	Rzeppa Joint; Fixed Center, 32 Size	
	Attach (u-bolt, clamp, etc.)		Snap Ring (Inboard) Nut/Washer (Outboard)	
	Bearing	Type (plain, anti-friction)	Inner - Ball & Roller Outer - Ball	
Lubrication (fitting, prepack)		Prepacked		
Drive taken through (torque tube, arms or springs)		Wishbone Lower Control Arm, Upper MacPherson Strut		
Torque taken through (torque tube, arms or springs)		Engine Mounting System		

* Centerline to centerline of universal joints, or to centerline of attachment.

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Model Code/Description And/Or
 Engine Code/Description

3.1 LITER V6
 L82

Suspension - General Including Electronic Controls

Car leveling	Standard/optional/not available	Not Available	
	Manual/automatic control	Not Available	
	Type (air/hydraulic)	Not Available	
	Primary/assist spring	Not Available	
	Rear only/4 wheel leveling	Not Available	
	Single/dual rate spring	Not Available	
	Single/dual ride heights	Not Available	
	Provision for jacking	Body Rails, Under Rocker Panels; Jack Pad at Center of Rear Crossmember	
Shock absorber damping controls	Standard/option/not available	Not Available	
	Manual/automatic control	Not Available	
	Number of damping rates	Not Available	
	Type of actuation (manual/ electric motor/air, etc.)	Not Available	
	Sensors	Lateral acceleration	Not Available
		Deceleration	Not Available
Acceleration		Not Available	
Road surface		Not Available	
Shock absorber (front & rear)	Type	MacPherson Strut Front, MacPherson Strut Rear	
	Make	Delphi Chassis Systems	
	Piston diameter	35.0 mm (1.38 in.)	
	Rod diameter	25.0 mm (1.00 in.)	

Suspension - Front

Type and description		MacPherson Strut with Coil Springs, One-Piece "A" Configuration Lower Control Arms
Travel	Full jounce (define load condition)	78.0 mm (3.07 in.)
	Full rebound	95.0 mm (3.74 in.)
Spring	Type (coil, leaf, other & material)	Coil
	Insulators (type & material)	Rubber
	Size (Leaf: length & width; Coil: design height & i.d.; Bar: length & diameter)	Coil: 200.3 mm (7.89 in.); 173 mm (6.81 in.)
	Spring rate N/mm (lb./in.)	23.5 (134.2)
	Rate at wheel N/mm (lb./in.)	26.8 (153.0)
Stabilizer	Type (link, linkless, frameless)	Linkless
	Material & O.D. bar/tube, wall thickness	Steel, 32.0 mm (1.26 in.) - Hollow; (Wall Thickness = 4.8 mm)

Suspension - Rear

Type and description		Tri-Link Independent MacPherson Strut with Coil Springs, Lateral Links Attached to Body Cross Member, Trailing Arms	
Travel	Full jounce (define load condition)	102.0 mm (4.02 in.)	
	Full rebound	105.0 mm (4.13 in.)	
Spring	Type (coil, leaf, other & material)	Coil	
	Size (Leaf: length & width; Coil: design height & i.d.; Bar: length & diameter)	Coil; 224.0 (8.8 in.); 137.0 mm (5.4 in.)	
	Spring rate N/mm (lb./in.)	18.5 / 33.3 Variable Rate	
	Rate at wheel N/mm (lb./in.)	TBD	
	Insulators (type & material)	Rubber	
	If leaf	No. of leaves	--
		Shackle (comp. or tens.)	--
Stabilizer	Type (link, linkless, frameless)	Link	
	Material & O.D. bar/tube, wall thickness	Steel, 16.0 mm (0.63 in.) Solid	
Track bar (type)		Not Applicable	

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Model Code/Description And/Or
 Engine Code/Description

3.8 LITER V6
 L36

Suspension - General Including Electronic Controls

Car leveling	Standard/optional/not available		Not Available	
	Manual/automatic control		Not Available	
	Type (air/hydraulic)		Not Available	
	Primary/assist spring		Not Available	
	Rear only/4 wheel leveling		Not Available	
	Single/dual rate spring		Not Available	
	Single/dual ride heights		Not Available	
Provision for jacking		Body Rails, Under Rocker Panels; Jack Pad at Center of Rear Crossmember		
Shock absorber damping controls	Standard/option/not available		Not Available	
	Manual/automatic control		Not Available	
	Number of damping rates		Not Available	
	Type of actuation (manual/ electric motor/air, etc.)		Not Available	
	Sensors	Lateral acceleration		Not Available
		Deceleration		Not Available
Acceleration		Not Available		
Road surface		Not Available		
Shock absorber (front & rear)	Type		MacPherson Strut Front, MacPherson Strut Rear	
	Make		Delco Chassis Division	
	Piston diameter		35.0 mm (1.38 in.)	
	Rod diameter		25.0 mm (1.00 in.)	

Suspension - Front

Type and description		MacPherson Strut with Coil Springs, One-Piece "A" Configuration Lower Control Arms
Travel	Full jounce (define load condition)	78.0 mm (3.07 in.)
	Full rebound	95.0 mm (3.74 in.)
Spring	Type (coil, leaf, other & material)	Coil
	Insulators (type & material)	Rubber
	Size (Leaf: length & width; Coil: design height & i.d.; Bar: length & diameter)	Coil: 200.3 mm (7.89 in.); 173.0 mm (6.81 in.)
	Spring rate N/mm (lb./in.)	23.5 (134.2)
	Rate at wheel N/mm (lb./in.)	26.8 (153.0)
Stabilizer	Type (link, linkless, frameless)	Linkless
	Material & O.D. bar/tube, wall thickness	Steel, 34.0 mm (1.34 in.) - Hollow (Wall Thickness = 5.1 mm)

Suspension - Rear

Type and description		Tri-Link Independent MacPherson Strut with Coil Springs Lateral Links Attached to Body Cross Member, Trailing Arms	
Travel	Full jounce (define load condition)	102.0 mm (4.02 in.)	
	Full rebound	105.0 mm (4.13 in.)	
Spring	Type (coil, leaf, other & material)	Coil	
	Size (Leaf: length & width; Coil: design height & i.d.; Bar: length & diameter)	Coil; 224.0 mm (8.8 in.); 137.0 mm (5.4 in.)	
	Spring rate N/mm (lb./in.)	18.5 / 33.3 Variable Rate	
	Rate at wheel N/mm (lb./in.)	TBD	
	Insulators (type & material)	Rubber	
	If leaf	No. of leaves	--
		Shackle (comp. or tens.)	--
Stabilizer	Type (link, linkless, frameless)	Link	
	Material & O.D. bar/tube, wall thickness	Steel, 20.0 mm (0.79 in.) Solid	
Track bar (type)		Not Applicable	

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Model Code/Description And/Or
 Engine Code/Description

ALL

Brakes - Service

Description		Dual Piston Caliper - Front Disc; Single Piston Caliper - Rear Disc			
Manufacturer and brake type (std., opt., n.a.)	Front (disc or drum)	Disc			
	Rear (disc or drum)	Drum			
Valving type (proportion, delay, metering, other)		Proportioning			
Power brake (std., opt., n.a.)		Standard			
Booster type (remote, integral, vac., hyd., etc.)		Vacuum			
Vacuum	Source (inline, pump, etc.)	Inline			
	Reservoir (volume in. ³)	Not Applicable			
	Pump-type (elec., gear or belt driven)	Not Applicable			
Traction assist	Operational speed range	Not Applicable			
	Type (engine or brake intervention)	Not Applicable			
Antilock device	Front/rear (std., opt., n.a.)	Standard - All Models Exc. Available on Base Sedan			
	Manufacturer	Delphi Chassis Systems			
	Type (electronic, mech.)	Electronic			
	Number sensors or circuits	Four			
	Number antilock hydraulic circuits	Four Separate Brake Lines/Three Controlled Channels (LF, RF, RR)			
	Integral or add-on system	Add-On Mounted to Master Cylinder			
	Yaw control (yes, no)	Yes			
Hyd. power source (elec., vac., mtr., pwr., strg.)		Not Applicable			
Effective area cm ² (in. ²)*		563.7 (87.4)			
Gross Lining area cm ² (in. ²)** (F/R)		F: 167.7 (26.0); R: 396.0 (61.4)			
Swept area cm ² (in. ²)** (F/R)		F: 1165.2 (180.6); R: 636.0 (98.6)			
Rotor	Outer working diameter	F/R	F: 282.5 mm (11.1 in.); R: 278.0 mm (10.9 in.)		
	Inner working diameter	F/R	F: 206.0 mm (8.1 in.); R: 205.0 mm (8.1 in.)		
	Thickness	F/R	F: 26.3 mm (1.04 in.); R: 11.0 mm (0.43 in.)		
	Material & type (vented/solid)	F/R	F: Composite Vented; R: Composite Solid		
Drum	Diameter & width	F/R	225.0 x 45.0 mm (8.86 x 1.77 in.)		
	Type and material	F/R	Composite Solid		
Wheel cylinder bore		F: 42.0 mm (1.65 in.); R: 38.0 mm (1.50 in.)			
Master cylinder	Bore/stroke	F/R	Bore: 24.0 mm (0.94 in.); Stroke: 35.5 mm (1.40 in.)		
Pedal arc ratio		3.5:1			
Line press. at 445 N (100 lb.) pedal load [kPa (psi)]		13600 kPa (1972 psi)			
Lining clearance		F/R	F: 0 / R: 0.38 mm (0.015 in.)		
Brake lining	Front wheel	Bonded or riveted (rivets/seg.)		Integrally Molded	
		Rivet Size		-	
		Manufacturer		Delphi Chassis Systems	
		Lining code *****		DM130EE	
		Material		Semi-Metallic	
		****	Primary or out-board	119.4 x 38.1 mm / (4.7 x 1.5 in.)	
		Size	Secondary or in-board	119.4 x 38.1 mm / (4.7 x 1.5 in.)	
	Shoe thickness (no lining)		4.98 mm (0.197 in.)		
	Rear wheel	Bonded or riveted (rvts/seg.)		Riveted (Drum) Integrally Molded (Disc)	
		Manufacturer		Delphi Chassis Systems	
		Lining code *****		DM131EE (Disc); 245FF (Drum)	
		Material		Semi-Metallic	
		****	Primary or out-board	225 x 44 x 6.4 mm (8.85 x 1.73 x 0.25 in.)	
		Size	Secondary or in-board	225 x 44 x 6.4 mm (8.85 x 1.73 x 0.25 in.)	
Shoe thickness (no lining)		2.0 mm (0.079 in.) (Drum); 5.0 mm (0.197 in.) (Disc)			

* Excludes rivet holes, grooves, chamfers, etc.

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

*** Total swept area for four brakes. (Drum brake: Widest lining contact width for each brake x its contact circumference.)
 (Disc brake: Square of Outer Working Dia. minus Square of inner Working Dia. multiplied by Pi/2 for each brake.)

**** Size for drum brakes includes length x width x thickness. *****Manufacturer I.D., catalog for formulation designation and coefficient of friction classification.

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Model Code/Description And/Or
 Engine Code/Description

ALL

Tires And Wheels (Standard)

Tires	Size (service description)		P205/70R15 ALS BW (95 S)
	Type (bias, radial, steel, nylon, etc.)		Steel Belted Radial (Two Ply)
	Inflation pressure (cold) for recommended max. vehicle load	Front kPa (psi)	205 (30)
		Rear kPa (psi)	205 (30)
Rev./mile at 70 km/h (45 mph)		492 Rev/Km	
Wheels	Type & material		Stamped Steel
	Rim (size & flange type)		15 x 6
	Wheel offset		42.0 mm (1.65 in.)
	Attachment	Type (bolt or stud & nut)	Stud (M12 x 1.5)
		Circle diameter	115 mm (4.52 in.)
Number & size		5 & M12	
Spare	Tire and wheel		Compact Spare T125/70D16 16 x 4 Wheel
	Storage position & location (describe)		Horizontal, Under Trunk Compartment Load Floor

Tires And Wheels (Optional)

Tire size (service description)		P215/65R15 - Police (95 H)
Type (bias, radial, steel, nylon, etc.)		Steel Belted Radial
Wheel (type & material)		Stamped Steel
Rim (size, flange type and offset)		15 x 6 (42.0 mm Offset)
Tire size (service description)		
Type (bias, radial, steel, nylon, etc.)		
Wheel (type & material)		
Rim (size, flange type and offset)		
Tire size (service description)		P225/60R16 - AL2 BW (97 S)
Type (bias, radial, steel, nylon, etc.)		Steel Belted Radial
Wheel (type & material)		Cast Aluminum
Rim (size, flange type and offset)		16 x 6.5 (38 mm Offset)
Tire size (service description)		P225/60R16 - AL3 BL - Z34 (97 H)
Type (bias, radial, steel, nylon, etc.)		Steel Belted Radial
Wheel (type & material)		Cast Aluminum
Rim (size, flange type and offset)		16 x 6.5 (38.0 mm Offset)
Spare tire and wheel size		
(if configuration is different than road tire or wheel, describe optional spare tire and/or wheel location & storage position)		

Brakes - Parking

Type of control		Single Stroke - Push to Release, Foot Pedal Application
Location of control		Left of Driver's Left Knee
Operates on		Rear Service Brakes
If separate from service brakes	Type (internal or external)	--
	Drum diameter	--
	Lining size (length x width x thickness)	--

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Model Code/Description And/Or
 Engine Code/Description

ALL

Steering

Manual (std., opt., n.a.)		Not Available		
Power (std., opt., n.a.)		Standard		
Speed-sensitive (std., opt., n.a.)		Not Available		
4-wheel steering (std., opt., n.a.)		Not Available		
Adjustable steering wheel/column (tilt, telescope, other)	Type	Tilt		
	Manufacturer	Saginaw Division		
	(std., opt., n.a.)	Standard		
Wheel diameter** (W9) SAE J1100	Manual	Not Available		
	Power	380.0 mm		
Turning diameter m (ft.)	Outside front	Wall to wall (l. & r.)	Sedan: FE1 - 12.91 (42.37); F41 - 13.56 (44.50)	
		Curb to curb (l. & r.)	FE1 - 11.2 (36.7); F41 - 11.88 (39.0)	
	Inside rear	Wall to wall (l. & r.)	Not Available	
		Curb to curb (l. & r.)	7.18 (23.6)	
Scrub Radius*		Base - 15.78 mm; Touring - 16.39; Sport - 24.05 mm		
Manual	Gear	Type	Not Available	
		Manufacturer	Not Available	
		Ratios	Gear	Not Available
			Overall	Not Available
	No. wheel turns (stop to stop)		Not Available	
Power	Type (coaxial, elec. hyd., etc.)		Hydraulic	
	Manufacturer		Delphi Saginaw Steering Systems	
	Gear	Type	End Take-Off Rack and Pinion	
		Gear	49.9 mm/Rev	
	Ratios	Overall	15.7:1	
		Pump (drive)		Belt
	No. wheel turns (stop to stop)		P205/70R15-2.60; (FE1) P225/60R16-2.26; (FE1) P225/60R16 RS-2.26 (F41)	
Linkage	Type		End Take-Off	
	Location (front or rear of wheels, other)		Rear	
	Tie rods (one or two)		Two	
Steering axis	Inclination at camber (deg.)		13.4	
	Bearings (type)	Upper	Ball Bearing	
		Lower	Ball Joint	
		Thrust	Not Applicable	
Steering spindle/knuckle & joint type		MacPherson Strut		

* The horizontal distance in the front elevation between wheel centerline and kingpin (ball joint) axis at ground.

** See Page 23.

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METRIC (U.S. Customary)

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ALL

Wheel Alignment

Front wheel at curb mass (wt.)	Service checking	Caster (deg.)	1.8 ± 0.5
		Camber (deg.)	0.7 ± 0.5
		Toe-in outside track mm (in.)	0.0 ± 0.20
	Service reset*	Caster (deg.)	Pre-set
		Camber (deg.)	0.7
		Toe-in mm (in.)	0.0
Periodic M.V. in-spection	Caster (deg.)		
	Camber (deg.)		
	Toe-in mm (in.)		
Rear wheel at curb mass (wt.)	Service checking	Camber (deg.)	15" Wheel - 0.35 ± 0.5; 16" Wheel -0.45 ± 0.5
		Toe-in outside track (deg.)	0.0 ± 0.3 (Sum Toe)
	Service reset*	Camber (deg.)	15" Wheel -0.35 ± 0.5; 16" Wheel -0.45 ± 0.5
		Toe-in mm (deg.)	0.0 ± 0.3 (Sum Toe)
	Periodic M.V. insp.	Camber (deg.)	
		Toe-in mm (in.)	

* Indicates pre-set, adjustable, trend set or other.

Electrical - Instruments and Equipment

Speedometer	Type (analog, digital, std., opt.)	Analog	
	Trip odometer (std., opt., n.a.)	Mechanical	
Head-up display	Standard, optional, not available		Not Available
	Type	Secondary, opto-electronic	Not Available
	Speedometer	Digital	Not Available
	Status/warning indicators	Turn signals, high beam, low fuel, check gauges	Not Available
	Brightness control	Day / night mode, adjustable	Not Available
EGR maintenance indicator		Not Available	
Charge indicator	Type	Analog	
	Warning device (light, audible)	Tell-Tale Light	
Temperature indicator	Type	Analog	
	Warning device (light, audible)	Tell-Tale Light	
Oil pressure indicator	Type	Not Available	
	Warning device (light, audible)	Tell-Tale Light	
Fuel indicator	Type	Analog	
	Warning device (light, audible)	Not Available	
Windshield wiper	Type (standard)	Depressed Park/Pulse Wiper	
	Type (optional)	Not Available	
	Blade length	560 mm (22.0 in.)	
	Swept area cm ² (in. ²)	7558.3 (1171.5)	
Windshield washer	Type (standard)	Wet-Arm System	
	Type (optional)	Not Available	
	Fluid level indicator (light, audible)	Not Available	
Rear window wiper, wiper/washer (std., opt., n.a.)		Not Available	
Horn	Type	Vibrator	
	Number used	Two	
Other	PRNDL Odometer	Mechanical	
	Tachometer	Mechanical Analog	

MVMA Specifications

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METRIC (U.S. Customary)

Engine Description
 Engine Code

3.1 LITER V6
 L82

Electrical - Supply System

Battery	Manufacturer	Delphi Energy & Engine Management Systems
	Model, std., (opt.)	SAE 78-600
	Voltage	12
	Amps at 0° F. cold crank	600
	Minutes-reserve capacity	115
	Amps/hrs.-20 hr. rate	69
	Location	Engine Compartment
Alternator	Manufacturer	Delphi
	Rating (idle/max. rpm)	36/100 Amps
	Ratio (alt. crank/rev.)	2.75
	Output at idle (rpm, park)	68 Amps W/AC
Optional (type & rating)	Not Applicable	
Regulator	Type	Integral with Alternator

Electrical - Starting System

Motor	Manufacturer	Delphi
	Current drain -29 (-20) °C (°F)	325 Amps
	Power rating kw (hp)	1.4 (1.9)
Motor drive	Engagement type	Solenoid Actuated, Positive Engagement
	Pinion engages from (front, rear)	Front

Electrical - Ignition System

Type	Electronic (std., opt., n.a.)	Standard	
	Other (specify)	None	
Coil	Manufacturer	Delphi	
	Model	Direct Ignition	
	Current	Engine stopped - A	Less than 100 mA
		Engine idling - A	Less than 1.5 A (Avg.)
Spark plug	Manufacturer	Delphi	
	Model	41-940	
	Thread (mm)	14	
	Tightening torque N-m (lb. ft.)	9-20 (7-15)	
	Gap	1.5 mm	
Distributor	Number per cylinder	One	
	Manufacturer	Not Applicable	
Distributor	Model	Not Applicable	

Electrical - Suppression

Locations & type	
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Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Engine Description	3.8 LITER V6
Engine Code	L36

Electrical - Supply System

Battery	Manufacturer	Delphi Energy & Engine Management Systems
	Model, std., (opt.)	Standard 78-690
	Voltage	12
	Amps at 0° F. cold crank	690 CCA
	Minutes-reserve capacity	115
	Amps/hrs.-20 hr. rate	69
	Location	Engine Compartment
Alternator	Manufacturer	Delphi
	Rating (idle/max. rpm)	42/105 Amps
	Ratio (alt. crank/rev.)	2.98
	Output at idle (rpm, park)	70 Amps
	Optional (type & rating)	Not Applicable
Regulator	Type	Integral with Alternator

Electrical - Starting System

Motor	Manufacturer	Delphi
	Current drain -29 (-20) °C (°F)	400 Amps
	Power rating kw (hp)	1.5 (2.0)
Motor drive	Engagement type	Solenoid Actuated, Positive Engagement
	Pinion engages from (front, rear)	Front

Electrical - Ignition System

Type	Electronic (std., opt., n.a.)	Standard	
	Other (specify)	Not Applicable	
Coil	Manufacturer	Delphi	
	Model	Direct Ignition	
	Current	Engine stopped - A	Less than 100.0 mA
		Engine idling - A	Less than 1.5 A (Avg.)
Spark plug	Manufacturer	Delphi	
	Model	R44LTSM6	
	Thread (mm)	14	
	Tightening torque N-m (lb. ft.)	9-20 (7-15)	
	Gap	1.5 mm	
	Number per cylinder	One	
Distributor	Manufacturer	Not Applicable	
	Model	Not Applicable	

Electrical - Suppression

Locations & type	Alternator - Internal Capacitor Suppression Ignition - Internal Resistor/Capacitor Networks
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MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Model Code/Description

ALL

Body

Structure	Unitized Body - Frame. Body Side Assembly Includes Full Drawn Quarter Panels. Fully Stamped Inner/Outer Door Panels with Header Extending into Roof. Full-Length Deck Lid Inner/Outer Panels, Full-Drawn Floor Pan.
Bumper system front - rear	Body Color Soft Fascia, Fr.-Honeycomb Absorber/Rr.-Foam Absorber and Rigid Reinforcing Bar Used at Both Front and Rear.
Anti-corrosion treatment	Double-Sided Galvanizing or Gavaneal of all Major Body/Sheet Metal Inner/Outer Panels Including Hood, Deck Lid, Doors as well as Rear and End Panel, Plenum, Fenders, Compartment Pan, Quarter Panels, Rocker Panels and Wheelhouse Outer Panels.

Body - Miscellaneous Information

Type of finish (lacquer, enamel, other)		Base Coat-Clear Coat Acrylic Enamel Over ELPO Primer
Hood	Material & mass	Steel, 17.3 kg.
	Hinge location (front, rear)	Rear
	Type (counterbalance, prop)	Gas Charged Strut
	Release control (internal, external)	Internal
Trunk lid	Material & mass	Steel
	Type (counterbalance, other)	Dual Torque Rods
	Internal release control (elec., mech., n.a.)	Electric, Optional
Hatchback lid	Material & mass	Not Available
	Type (counterbalance, other)	Not Applicable
	Internal release control (elec., mech., n.a.)	Not Applicable
Tailgate	Material & mass	Not Applicable
	Type (drop, lift, door)	Not Applicable
	Internal release control (elec., mech., n.a.)	Not Applicable
Vent window control (crank, friction, pivot, power)	Front	Not Applicable
	Rear	Not Applicable
Window regulator type (cable, tape, flex drive, etc.)	Front	Cross Arm Regulator
	Rear	Cross Arm Regulator
Seat cushion type (e.g., 60/40 bucket, bench, wire, foam, etc.)	Front	Base - 60/40 Split Bench, Trim Material on Foam Uplevel - 60/40 Split Bench or 40/40 Bucket, Trim Material Bonded to Foam
	Rear	Base - Bench, Trim Material on Foam with Encapsulated Frame Uplevel - Bench, Trim Material Bonded to Foam with Encapsulated Frame
	3rd seat	Not Applicable
Seat back type (e.g., 60/40 bucket, bench, wire, foam, etc.)	Front	Base - 60/40 Split Bench, Trim Material on Foam Uplevel - 60/40 Split Bench or 40/40 Bucket, Trim Material Bonded to Foam
	Rear	Base - Bench, Trim Material on Foam with Encapsulated Frame Uplevel - Bench, Trim Material Bonded to Foam with Encapsulated Frame
	3rd seat	Not Applicable

Frame

Type and description (separate frame, unitized frame, partially-unitized frame)	Unitized Body/Frame, Bolted-On Powertrain Cradle with Mounting Provisions for Suspension, Steering Rack and Engine Mounts.
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MVMA Specifications

Vehicle Line LUMINA
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METRIC (U.S. Customary)

Model Code/Description

ALL

Restraint System

Seating Position			Left	Center	Right
Active	Type & description (lap & shoulder belt, lap belt, etc.) Standard/Optional	First seat	3 Pt. Single Loop W/Shldr. Retractor, End Release Buckle, Adjustable Guide Loop/All Retractors are Web & Vehicle Sensitive Retractors.	Lap Belt Manual Adjustment End Release Buckle	3 Pt. Single Loop W/Shldr. Retractor, End Release Buckle, Adjustable Guide Loop, Child Cinch Retractor/All Retractors are Web & Vehicle Sensitive Retractors.
		Second seat	3 Pt. Single Loop W/Shldr. End Release Buckle, Child Cinch Retractor, Child Comfort Guide/All Retractors are Web & Vehicle Sensitive Retractors	Lap Belt Manual Adjustment End Release Buckle	3 Pt. Single Loop W/Shldr. Retractor, End Release Buckle, Child Cinch Retractor, Child Comfort Guide/All Retractors are Web & Vehicle Sensitive Retractors.
		Third seat			
Passive	Type & description (air bag, motorized-2-point belt, fixed belt, knee bolster, manual-lap belt) Standard / Optional	First seat	Air Bag	Air Bag (Passenger Side)	Air Bag
		Second seat			
		Third seat			
Glass		SAE Ref.No.			
Windshield glass exposed surface area cm ² (in. ²)		S1	8798.0 (1363.7)		
Side glass exposed surface area cm ² (in. ²) - total 2 sides		S2	2771.94 cm ² F/D; 2610.53 cm ² R/D		
Backlight glass exposed surface area cm ² (in. ²)		S3	4624.0 (716.7)		
Total glass exposed surface area cm ² (in. ²)		S4	--		
Windshield glass (type/thickness)			Curved-2nd Laminated Float, 5.4 mm		
Side glass (type/thickness)			Curved-Tempered Float: 5.0 mm F/D Sedan; 4.0 mm R/D Sedan, Quarter		
Backlight glass (type/thickness)			Curved-Tempered Float, 4.0 mm		
Tinted (yes/no, location)			Tinted All Around		
Solar control (yes/no, coated/batched, location)			No		

Headlamps

Description (sealed beam, halogen, replaceable bulb, etc.)	Halogen, Replacement Bulb Unit
Shape	Aero
Lo-beam type (2A1, 2B1, 2C1, etc.)	Trade No. 9006/HB4
Quantity	Two
Hi-beam type (1A1, 2A1, 1C1, 2C1, etc.)	Trade No. 9005/HB3
Quantity	Two

MVMA Specifications

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METRIC (U.S. Customary)

Engine Code/Description

ALL

Climate Control System

Air conditioning (std., opt., man., auto.)		Standard - L82, L36
Condenser	Type	Tube & Fin
	Eff. face area (sq. mm.)	315,181
	Fins per inch	13
Evaporator	Type	U Flow, Aluminum
	Eff. face area (sq. mm.)	48,437
	Fins per inch	14
Heater core	Material	Aluminum
	Eff. face area (sq. mm.)	33,028
	Fins per inch	30
Compressor	Type	V5
	Displacement (cc.)	Variable Displacement
	Manufacturer	Delphi Harrison Thermal Systems
	A/C pulley ratio	1.37
Accumulator	Type	Non-Serviceable, Sealed, Integral Design
	Height (mm.)	206.0
	Diameter (mm.)	89.0
Receiver	Type	Not Applicable
	Height (mm.)	Not Applicable
	Diameter (mm.)	Not Applicable
Refrigerant control (CCOT, TVS, etc.)		Variable Displacement Compressor VDOT
Heater water valve (yes / no)		No
Refrigerant (R - 12, R - 134a, etc.)		R134A
Charge level (lbs. - oz.)		1.875 lbs.
Cold engine lockout switch (yes / no)		No
Wide open throttle cutout switch (yes / no)		Yes
Power steering cut-out switch (yes/no)		No

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METRIC (U.S. Customary)

Model Code/Description

ALL

Convenience Equipment (standard, optional, n.a.)

	Clock (digital, analog)	Digital - In Radio, Standard
	Compass / thermometer	Not Available
	Console (floor, overhead)	Optional, Floor (Overhead - Not Available)
	Defroster, electric windshield	Not Available
	Defroster, electric backlight	Optional
Electronic	Diagnostic monitor (integrated, individual)	Not Available
	Instrument cluster (list instruments)	Not Available
	Keyless entry	Optional
	Tripminder (avg. spd., fuel)	Not Available
	Voice alert (list items)	Not Available
	Other	
	Fuel door lock (remote, key, electric)	
Integrated Child Seating	Std./opt. & location in vehicle	OPT, Center
	Number of occupants	(One)
	Occupant weight/height (min. & max.)	Not Available
	Restraint system description (3 or 5-point belts/booster seat capability)	Not Available
Lamps	Daytime Running Lamps (Yes/No)	Yes
	Cornering	Not Available
	Courtesy (map, reading) Dome	Standard
	Door lock, ignition	
	Engine compartment	Standard
	Fog	Not Available
	Glove compartment	Standard
	Trunk	Standard
	Illuminated entry system (list lamps, activation)	Sustained Interior Illumination - Standard
	Other DRL (Day Time Running Lamp)	Standard
	Ashtray	Standard
CHMSL	Standard	
Mirrors	Day / night (auto., man.)	Standard - Manual
	L.H. (remote, power, heated)	Standard - Remote; Optional - Power
	R.H. (convex, remote, power, heated)	Standard - Manual; Optional - Power
	Visor vanity (RH / LH, illuminated)	
	Navigation system (describe)	Not Available
	Parking brake-auto release (warning light)	Standard - Warning Light

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METRIC (U.S. Customary)

Model Code/Description

ALL

Convenience Equipment (standard, optional, n.a.)

Power equipment	Deck lid (release, pull down)		Optional, Electric Release
	Door locks (manual, automatic, describe system)		Electric, Standard
	Seats	2 - 4 - 6 way, etc.	Standard Four-Way, Driver Side Only; Optional Six-Way
		Reclining (R.H., L.H.)	Standard - Manual
		Memory (R.H., L.H., preset recline)	Not Available
		Support (lumbar, hip, thigh, etc.)	Not Available
		Heated (R.H., L.H., other)	Not Available
	Side windows		Optional Electric
	Vent windows		Not Applicable
Rear windows		Optional Electric	
Radio systems	Antenna (location, whip, w/shield, power)		Standard, Fixed Whip Located on Right Rear Upper Quarter Panel
	Standard	AM, FM, stereo, tape, compact disc, graphic equalizer, theft deterrent, radio prep package, headphone jacks, etc.	AM/FM Stereo, Seek & Scan/Standard
	Optional		AM/FM Stereo, Seek & Scan, Cassette ATC (Theft Deterrent) - Optional AM/FM Stereo, Seek & Scan, Cassette - Optional AM/FM Stereo, Seek & Scan/Compact Disc ATC (Theft Deterrent) - Optional
	Speaker (number, location)		Standard - Two In Front Doors, Two In Package Shelf, Optional - Dual Coax
Roof: open air or fixed (flip-up, sliding, "T")			Not Available
Speed control device			Optional, Automatic Electronic
Speed warning device (light, buzzer, etc.)			Not Available
Tachometer (rpm)			Optional (Included as Part of Optional Gauge Package)
Telephone system (describe)			Not Available
Theft deterrent system			Not Available

Trailer Towing

Towing capable	Yes / No	Yes
Engine / transmission / axle	Std. / Opt.	3.1L, Four-Spd. Auto., 3.33; 3.8L, Four-Spd. Auto., 3.43
Tow class (I, II, III)*	Std. / Opt.	One
Max. gross trailer wgt. (lbs.)	Std / Opt.	1000
Max. trailer tongue load (lbs.)	Std. / Opt.	100
Towing package available	Yes / No	No

* Class I - 2,000 lbs. Class II - 3,500 lbs. Class III - 5,000 lbs.

MVMA Specifications

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METRIC (U.S. Customary)

Vehicle Dimensions

See Key Sheets for definitions

All dimensions to ground are for comparative purposes only. Dimensions are to be shown for all base body models of each vehicle line. SAE Ref. no. refers to the definition published in SAE Recommended Practice J1100 "Motor Vehicle Dimensions," unless otherwise specified.

Model Code/Description	SAE Ref. No.	ALL
------------------------	--------------	-----

Width

Tread (front)	W101	1512.0 (59.5)
Tread (rear)	W102	1500.0 (59.1)
Vehicle width	W103	1841.0 (72.5)
Body width at SgRP (front)	W117	1800.0 (70.9)
Vehicle width (front doors open)	W120	3481.5 (137.1)
Vehicle width (rear doors open)	W121	3483.0 (137.1)
Tumble-home (degrees)	W122	27.0
Outside mirror width	W410	1980.0 (78.0)

Length

Wheelbase	L101	2730.0 (107.5)
Vehicle length	L103	5104.0 (200.9)
Overhang (front)	L104	1174.0 (46.2)
Overhang (rear)	L105	1200.0 (47.2)
Upper structure length	L123	2881.0 (113.4)
Rear Wheel C/L "X" coordinate	L127	4525.0 (178.1)

Height **

Passenger distribution (front/rear)	PD1 ,2,3	3/3
Trunk/cargo load		**
Vehicle height	H101	1391.9 (54.8)
Cowl point to ground	H114	947.8 (37.3)
Deck point to ground	H138	1033.8 (40.7)
Rocker panel-front to ground	H112	239.4 (9.4)
Rocker panel-rear to ground	H111	241.9 (9.5)
Windshield slope angle (degrees)	H122	60.0
Backlight slope angle (degrees)	H121	64.0

Ground Clearance **

Front bumper to ground	H102	226.7 (8.9)
Rear bumper to ground	H104	332.8 (13.1)
Bumper to ground front at curb mass (wt.)	H103	356.0 (14.0)
Bumper to ground rear at curb mass (wt.)	H105	370.0 (14.6)
Angle of approach (degrees)	H106	15.3
Angle of departure (degrees)	H107	12.4
Ramp breakover angle (degrees)	H147	10.0
Axle differential to ground (front/rear)	H153	163.0 (6.4)
Min. running ground clearance	H156	165.0 (6.5)
Location of min. running ground clear.		Exhaust Pipe Rear of Converter

** All Vehicle Height And Ground Clearance Are Made Using EPA Loaded Vehicle Weight, Loading Conditions. EPA loaded vehicle weight is the base vehicle weight plus all coolant and fluids necessary for operation plus 100% of the fuel capacity, plus the weight of all options and accessories which weigh three pounds or more and which are sold on at least 33% of the car line, plus two occupants.

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 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Vehicle Dimensions

See Key Sheets for definitions

Model Code/Description	SAE Ref. No.	ALL
------------------------	--------------	-----

Front Compartment

SgRP front, "X" coordinate	L31	3159.5 (124.4)
Effective head room	H61	975 (38.4)
Max. effective leg room (accelerator)	L34	1077 (42.4)
SgRP to heel point	H30	251.0 (9.9)
SgRP to heel point	L53	874.5 (34.4)
Back angle (degrees)	L40	26.0
Hip angle (degrees)	L42	99.0
Knee angle (degrees)	L44	128.0
Foot angle (degrees)	L46	87.0
Design H-point front travel	L17	218.0 (8.6)
Normal driving & riding seat track trvl.	L23	178.5 (7.0)
Shoulder room	W3	1483.0 (58.4)
Hip room	W5	1407.0 (55.4)
*** Upper body opening to ground	H50	1279.0 (50.4)
Steering wheel maximum diameter*	W9	375.0 (14.8)
Steering wheel angle (degrees)	H18	22.0
Accel. heel pt. to steer. whl. cntr.	L11	515.0 (20.3)
Accel. heel pt. to steer. whl. cntr.	H17	620.0 (24.4)
Undepressed floor covering thickness	H67	25.0 (1.0)

Front Compartment Interior Dimensions are Measured with the Seating Reference Point (SgRP) 39.5 mm forward and 5.5 mm Upward of Rearmost Position.

Rear Compartment

SgRP point couple distance	L50	825.5 (32.5)
Effective head room	H63	949.0 (37.4)
Min. effective leg room	L51	930.0 (36.6)
SgRP (second to heel)	H31	286.0 (11.3)
Knee clearance	L48	34.0 (1.3)
Shoulder room	W4	1457.5 (57.4)
Hip room	W6	1404.0 (55.3)
*** Upper body opening to ground	H51	1295.6 (51.0)
Back angle (degrees)	L41	28.0
Hip angle (degrees)	L43	90.0
Knee angle (degrees)	L45	95.0
Foot angle (degrees)	L47	123.0
Depressed floor covering thickness	H73	17.0 (0.7)

Luggage Compartment

*** Usable luggage capacity L (cu. ft.)	V1	444.4 (15.7)
Liftover height	H195	729.6 (28.7)

Interior Volumes (EPA Classification)

Vehicle class		Mid Size
Interior volume index including trunk/cargo (cu. ft.)**	E1	116.1
Cargo utility index (%)	V13	51.3

* See page 14.

** See definition page 33.

All linear dimensions are in millimeters (inches) unless otherwise noted.

*** EPA Loaded Vehicle Weight, Loading Conditions

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Vehicle Dimensions See Key Sheets for definitions

Model Code/Description

ALL

Station Wagon/MPV*
 -Third Seat

SAE
 Ref.
 No.

(NOT APPLICABLE)

Seat facing direction	SD1	
SgRP couple distance	L85	
Shoulder room	W85	
Hip room	W86	
Effective leg room	L86	
Effective head room	H86	
SgRP to heel point	H87	
Knee clearance	L87	
Back angle (degrees)	L88	
Hip angle (degrees)	L89	
Knee angle (degrees)	L90	
Foot angle (degrees)	L91	

Station Wagon/MPV* - Cargo Space

(NOT APPLICABLE)

Cargo length (open front)	L200	
Cargo length (open second)	L201	
Cargo length (closed front)	L202	
Cargo length (closed second)	L203	
Cargo length at belt (front)	L204	
Cargo length at belt (second)	L205	
Cargo width (wheelhouse)	W201	
Rear opening width at floor	W203	
Opening width at belt	W204	
Min. rear opening width above belt	W205	
Cargo height	H201	
Rear opening height	H202	
** Tailgate to ground height	H250	
Front seat back to load floor height	H197	
Cargo volume index m ³ (ft. ³)	V2	
Hidden cargo volume index m ³ (ft. ³)	V4	
Cargo volume index-rear of 2-seat	V10	
Cargo volume index*	V6	
Cargo width at floor*	W500	
Maximum cargo height*	H505	

Hatchback - Cargo Space

(NOT APPLICABLE)

Cargo length at front seatback height	L208	
Cargo length at floor (front)	L209	
Cargo length at second seatback height	L210	
Cargo length at floor (second)	L211	
Front seatback to load floor height	H197	
Second seatback to load floor height	H198	
Cargo volume index m ³ (ft. ³)	V3	
Hidden cargo volume index m ³ (ft. ³)	V4	
Cargo volume index - rear of 2-seat	V11	

All linear dimensions are in millimeters (inches) unless otherwise noted.

* MPV - Multipurpose Vehicle

** EPA Loaded Vehicle Weight, Loading Conditions

MVMA Specifications

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

METRIC (U.S. Customary)

Model Code/
Description

ALL

Vehicle Fiducial Marks

Fiducial Mark Number*	Define Coordinate Location	
Front	<p>X - Fiducial mark to vertical zero grid line - front measured horizontally, from the zero grid line to the front fiducial mark located on top of the front seat adjuster mounting bolt.</p> <p>Y - Fiducial mark to centerline of car - front, width measurement made from centerline car to fiducial mark located on top of the front seat adjuster mounting bolt.</p> <p>Z - Fiducial mark to horizontal zero grid line - front, measured vertically from zero grid line to front fiducial mark located on top of the front seat adjuster mounting bolt.</p>	
Rear	<p>X - Fiducial mark to vertical zero grid line - rear, measured horizontally from the zero grid line to rear fiducial hole located on the rail (compartment pan - longitudinal.)</p> <p>Y - Fiducial mark to centerline of car - rear, width measurement made from centerline of car to fiducial hole located on the rail (compartment pan - longitudinal.)</p> <p>Z - Fiducial mark to horizontal zero grid line - rear, measured vertically from the zero grid line to rear fiducial hole located on the rail (compartment pan - longitudinal.)</p>	
NOTE: Provide 3 of 4 Fiducial Mark Locations		
Front	W21**	555.0 (21.9)
	L54**	2775.0 (109.3)
	H81**	278.0 (10.9)
	H161**	340.7 (13.4)
	H163**	324.8 (12.8)
Rear	W22**	488.0 (19.2)
	L55**	5200.0 (204.7)
	H82**	388.0 (15.3)
	H162**	458.2 (18.0)
	H164**	439.1 (17.3)

* Reference - SAE Recommended Practice, J182a, Motor Vehicle Fiducial Marks.

** Reference - SAE Recommended Practice J1100 - Motor Vehicle Dimensions.

*** EPA Loaded Vehicle Weight, Loading Conditions

All linear dimensions are in millimeters (inches) unless otherwise noted.

MVMA Specifications

METRIC (U.S. Customary)

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

		VEHICLE MASS (WEIGHT)					% PASS MASS DISTRIBUTION			
Code	Model	CURB MASS, kg. (lb.)*			Shipping Mass kg (lb)***	ETWC* Code	Pass in Front		Pass in Rear	
		Front	Rear	Total			Front	Rear	Front	Rear
LUMINA LS 1WL69		961.2	548.0	1509.2	1474.2	V	49.4	50.6	21.8	78.2
4-Dr. Notchback Sedan (L82 & M13)		(2119)	(1208)	(3327)	(3250)					
LUMINA LTZ 1WL69		962.6	550.8	1513.4	1478.4	V	49.4	50.6	21.8	78.2
4-Dr. Notchback Sedan (L82 & M13)		(2122)	(1214)	(3336)	(3259)					

* Reference - SAE J1100 Motor vehicle dimensions, curb weight definition.
 ** ETWC - Equivalent Test Weight Class - basis for U.S. Environmental Protection Agency emission certifications.
 Refer to ETWC code legend below for test weight class.

ETWC LEGEND			
A = 1000	I = 2000	Q = 3000	Y = 4000
B = 1125	J = 2125	R = 3125	Z = 4250
C = 1250	K = 2250	S = 3250	AA = 4500
D = 1375	L = 2375	T = 3375	BB = 4750
E = 1500	M = 2500	U = 3500	CC = 5000
F = 1625	N = 2625	V = 3625	DD = 5250
G = 1750	O = 2750	W = 3750	EE = 5500
H = 1875	P = 2875	X = 3875	FF = 5750

*** Shipping Mass (weight) = Curb Weight Less:
35 (77.2)

MVMA Specifications
METRIC (U.S. Customary)

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

		Optional Equipment Differential Mass (weight)*			
Code	Equipment	MASS, kg. (lb.)			Remarks Restrictions, Requirements
		Front	Rear	Total	
AG1	Seat Adj-6 Way Power Driver Only	1.0 (2.2)	0.6 (1.3)	1.6 (3.5)	
AN2	Seat - Child Integral	0.4 (0.9)	4.8 (10.6)	5.2 (11.5)	
AQ9	Seat Front-Bucket/Recliner	0.6 (1.3)	0.6 (1.3)	1.2 (2.6)	
AR9	Seat Front Bucket, Euro P/D Recliner	-1.0 (-2.2)	-1.0 (-2.2)	-2.0 (-4.4)	1WL69
AU0	Lock Control - Remote Entry	0.2 (0.4)	0.0 (0.0)	0.2 (0.4)	
A31	Windows - Power	2.2 (4.4)	2.2 (4.9)	4.4 (9.7)	1WL69
A90	Lock-RR Compt. Lid, Rem Count Ele.	0.0 (0.0)	0.2 (0.4)	0.2 (0.4)	
BF9	Cover-Floor Mat Delete	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	
B34	Front Floor Mats	1.4 (3.1)	0.6 (1.3)	2.0 (4.4)	
B35	Rear Floor Mats	0.4 (0.9)	0.8 (1.8)	1.2 (2.6)	
B36	Luggage Compartment Mats	-0.2 (-0.4)	2.2 (4.9)	2.0 (0.4)	
B42	Covering Floor Mat, Luggage Compartment	-1.2 (-2.6)	10.0 (22.0)	8.8 (19.4)	1WL69
B81	Exterior Ornament Delete	-1.0 (-2.2)	-1.0 (-2.2)	-2.0 (-4.4)	1WL69
CF5	Sunroof Electric	5.4 (11.9)	6.4 (14.2)	11.8 (26.0)	
CJ3	HVAC Systems, A/C Front, MTC, ATC	0.4 (0.9)	0.0 (0.0)	0.4 (0.9)	
C49	Defogger-RR Window, Electric	0.0 (0.0)	0.2 (0.4)	0.2 (0.4)	
DG7	Mirror-O/S, L&R, Elec Painted	0.4 (0.9)	0.0 (0.0)	0.4 (0.9)	1WL69
D55	Console-Frt. Compt Floor, Var 1	1.8 (4.0)	1.8 (4.0)	3.6 (7.9)	1WN69

* Also see Engine - General Section for dressed engine mass (weight.)

MVMA Specifications
METRIC (U.S. Customary)

Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

		Optional Equipment Differential Mass (weight)*			
Code	Equipment	MASS. kg. (lb.)			Remarks Restrictions, Requirements
		Front	Rear	Total	
F41	Suspension System-Frt/RR, Firm Ride, Hdlg	0.6 (1.3)	2.6 (5.7)	3.2 (7.0)	
JL9	Brake System-Power Frt & RR Disc ABS	5.4 (11.9)	0.8 (1.8)	6.2 (13.7)	1WL69
JL9	Brake System-Power Frt & RR Disc ABS	0.2 (0.4)	0.0 (0.0)	0.2 (0.4)	1WN69
JM4	Antilock Brakes	5.4 (11.9)	0.8 (1.8)	6.2 (13.7)	1WL69
KC4	Cooling System-Engine Oil	1.0 (2.0)	0.0 (0.0)	1.0 (2.0)	
KD1	Cooling System-Transmission Oil	1.4 (3.1)	-0.2 (-0.4)	1.2 (2.6)	
K05	Heater-Engine Block	0.2 (0.4)	0.0 (0.0)	0.2 (0.4)	
K34	Cruise Control Auto Electronic	1.2 (2.6)	0.0 (0.0)	1.2 (2.6)	
K68	Generator 105, AMP 1 Fan	0.2 (0.4)	0.0 (0.0)	0.2 (0.4)	
L36	Engine-Gas, 6 Cylinder, 3.8L MF1	18.2 (40.1)	0.0 (0.0)	18.2 (40.1)	
M15	Transmission-Four Speed Auto, 4T65E	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	
NC5	Exhaust-Dual Vert Tail Pipes	0.4 (0.9)	11.2 (24.7)	11.6 (25.6)	
NW0	Wheel 16 x 6.5 Cast Aluminum	-3.6 (-7.9)	-3.6 (-7.9)	-7.2 (-15.8)	
N81	Fullsize Spare Tire	0.0 (0.0)	6.4 (14.1)	6.4 (14.1)	
P01	Trim Discs-Wheel, Var 1	0.8 (1.8)	0.8 (1.8)	1.6 (3.5)	1WL69
QNJ	Tire AL3 P215/65R15 BW (Police/Taxi)	2.2 (4.9)	2.2 (4.9)	4.4 (9.7)	
QNX	Tire AL2 P225/60R16/NBL	1.6 (3.5)	1.6 (3.5)	3.2 (7.1)	1WL69
QVG	Tire AL3 P225/60R16/N	0.6 (1.3)	0.6 (1.3)	1.2 (2.6)	1WN69

* Also see Engine - General Section for dressed engine mass (weight.)

MVMA Specifications
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Vehicle Line LUMINA
 Model Year 1998 Issued _____ Revised (●) _____

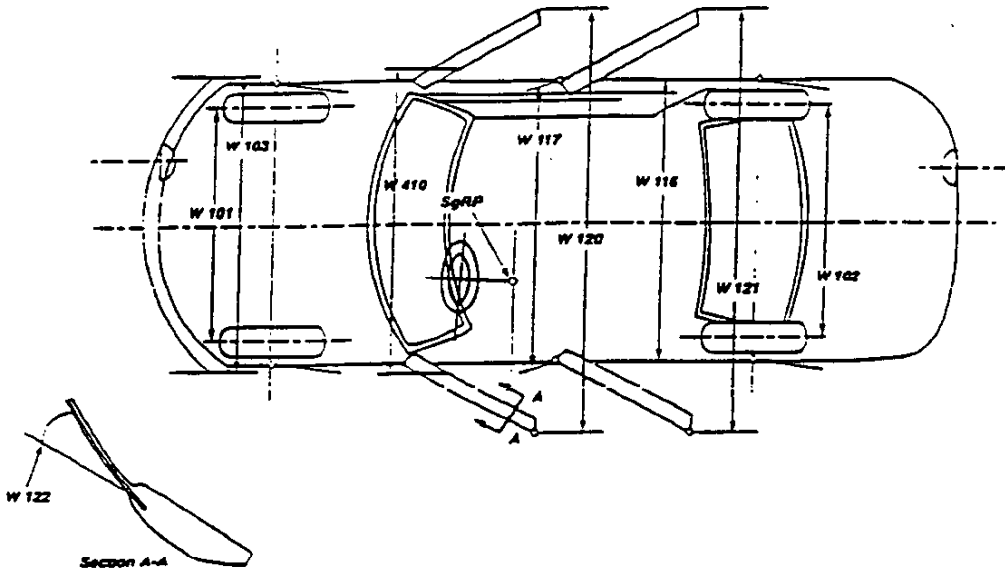
		Optional Equipment Differential Mass (weight)*			
Code	Equipment	MASS, kg. (lb.)			Remarks Restrictions, Requirements
		Front	Rear	Total	
UA1	Battery-High Capacity, Wet	0.6 (1.3)	0.0 (0.0)	0.6 (1.3)	
UL0	Radio AM/FM Stereo	0.6 (1.3)	0.0 (0.0)	0.8 (1.7)	1WL69
UL5	Radio-Delete	-1.2 (-2.6)	-0.8 (-1.8)	-2.0 (-4.4)	1WN69
UL5	Radio-Delete	-0.8 (-1.7)	-0.4 (-0.9)	-1.2 (-2.6)	1WL69
UM6	Radio-AM/FM Stereo, Seek & Scan, Cass	0.6 (1.3)	0.2 (0.4)	0.8 (1.7)	
UN0	Radio-AM/FM Cassette	0.8 (1.8)	0.0 (0.0)	0.8 (1.8)	1WL69
UN0	Radio-AM/FM Compact Disc	0.2 (0.4)	0.0 (0.0)	0.2 (0.4)	1WN69
UV8	Telephone Provision	0.2 (0.4)	0.2 (0.4)	0.4 (0.8)	
U62	Speaker System-4 Dual Front Coax	0.0 (0.0)	0.2 (0.4)	0.2 (0.4)	1WL69
VK3	License Plate Frt Mount Package	0.4 (0.8)	-0.2 (-0.4)	0.2 (0.4)	
VR6	Hook Tie Down	0.2 (0.4)	0.0 (0.0)	0.2 (0.4)	
V08	Radiator-Heavy Duty	1.6 (3.5)	-0.2 (-0.4)	1.4 (3.1)	

* Also see Engine - General Section for dressed engine mass (weight.)

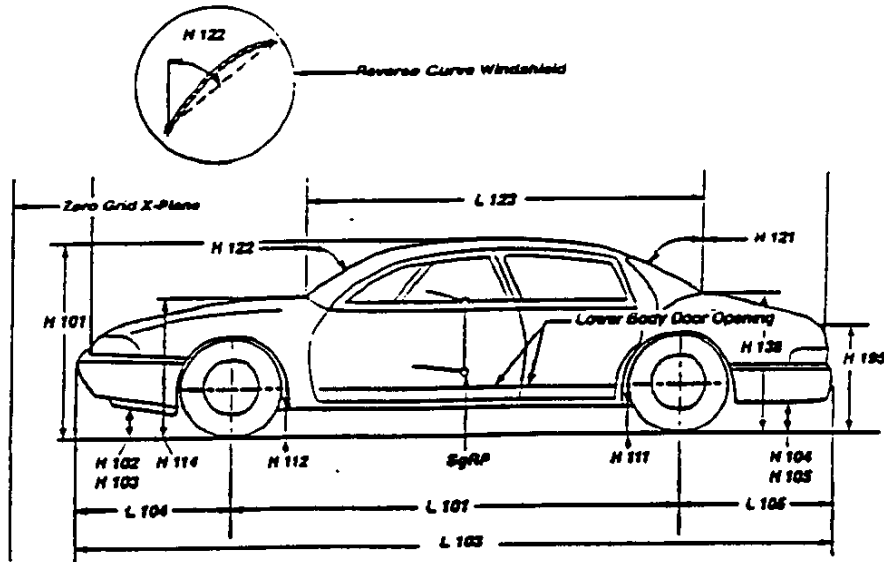
Specifications
METRIC

Exterior Vehicle And Body Dimensions - Key Sheet

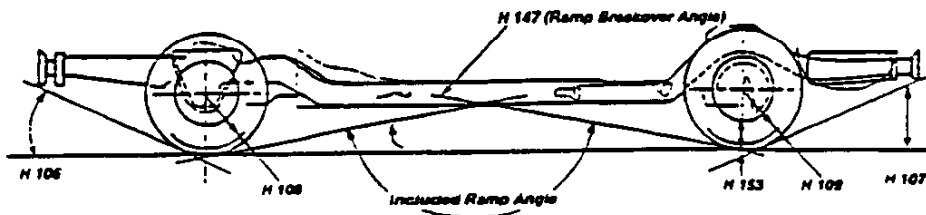
Exterior Width Dimensions



Exterior Length & Height Dimensions



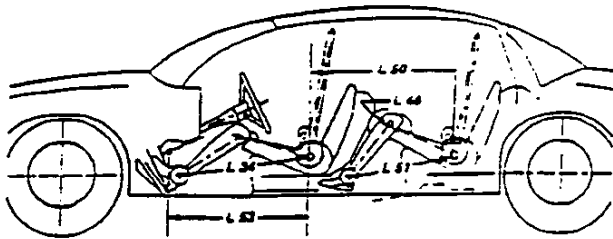
Ground Clearance Dimensions



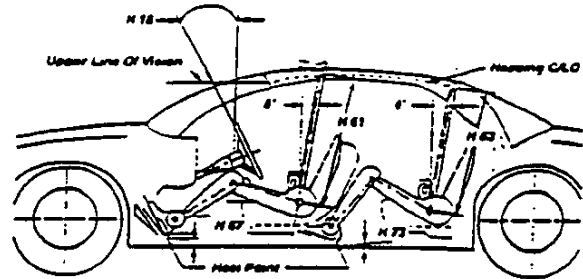
Specifications METRIC

Interior Vehicle And Body Dimensions - Key Sheet

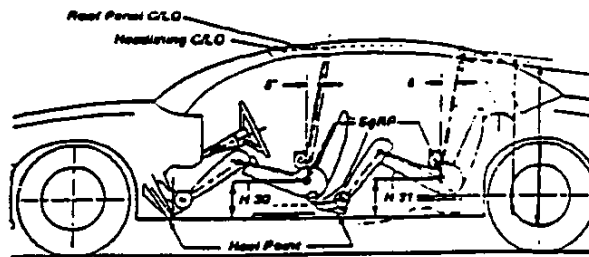
Interior Length Dimensions



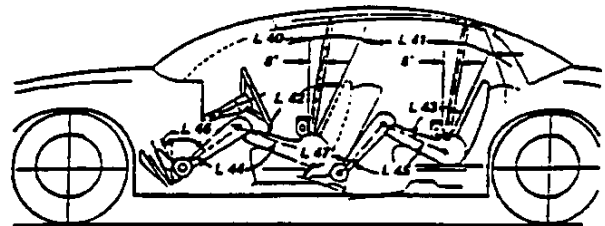
Interior Height Dimensions



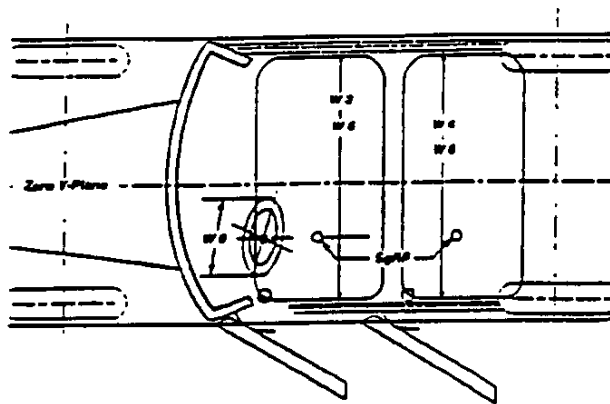
Interior Height Dimensions



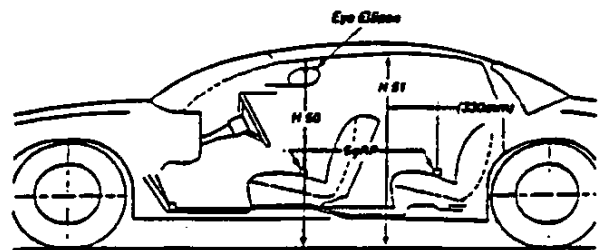
Interior Length Dimensions



Interior Width Dimensions



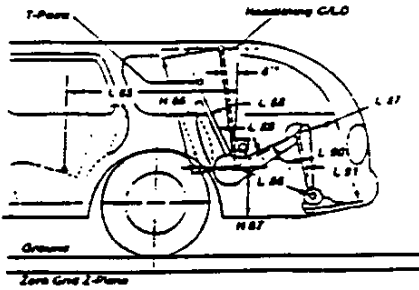
Interior Height Dimensions



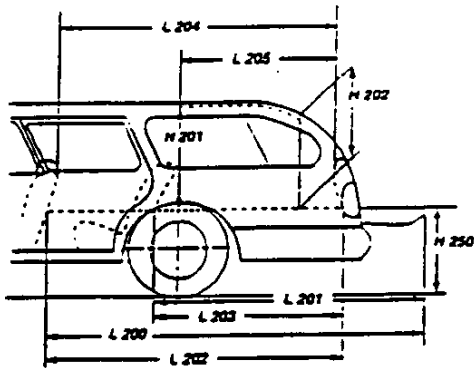
Specifications METRIC

Interior Vehicle And Body Dimensions - Key Sheet

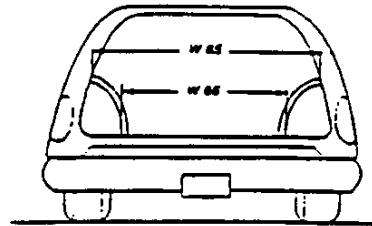
Interior Dimensions, Seated Height Third Seat



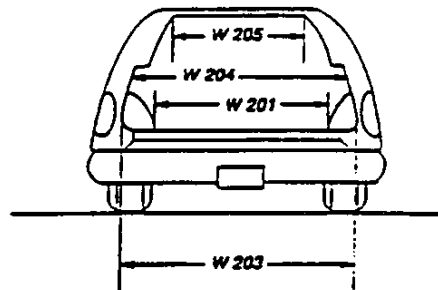
Cargo Space Dimensions



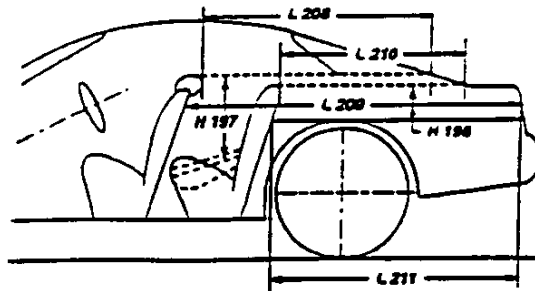
Interior Dimensions



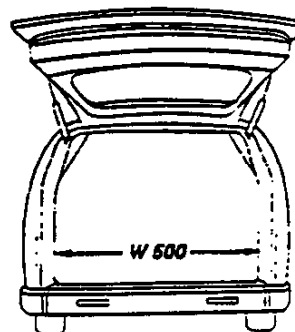
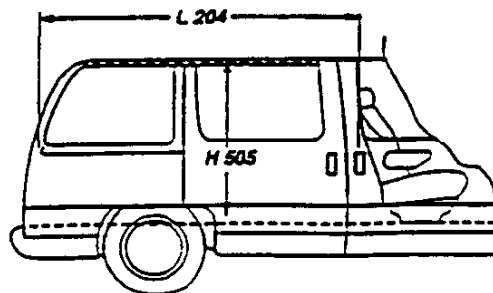
Cargo Space Dimensions



Cargo Space Dimensions



Multipurpose Vehicle Cargo Space



Specifications

METRIC

Exterior Vehicle And Body Dimensions - Key Sheet Dimensions Definitions

Seating Reference Point SEATING REFERENCE POINT means the manufacturer's design reference point which - (a) Establishes the rearmost normal design driving or riding position of each designated seating position in a vehicle; (b) Has coordinates established relative to the design vehicle structure; (c) Simulates the position of the pivot center of the human torso and thigh; and (d) is the reference point employed to position the two dimensional templates described in SAE Recommended Practice J826, "Devices for Use in Defining and Measuring Vehicle Seating Accommodations."		L123	UPPER STRUCTURE LENGTH. The dimension measured longitudinally from the cowl point to the deck point.
		L127	REAR WHEEL CENTERLINE "x" COORDINATE or in the case of dual rear axles, the coordinate shall be the midpoint of the distance between the rear axle centerlines.
Width Dimensions			
W101	TREAD-FRONT. The dimension measured between the tire centerlines at the ground.		
W102	TREAD-REAR. The dimension measured between the tire centerlines at the ground. In case of dual wheels, the dimension will be measured to the centerline of tire and wheel assemblies.		
W103	VEHICLE WIDTH. The maximum dimension measured between the widest point on the vehicle, excluding exterior mirrors, flexible mud flaps, marker lamps, but including bumpers, moldings, sheet metal protrusions or dual wheels, if standard equipment.		
W117	BODY WIDTH AT SGRP-FRONT. The dimension measured laterally between the widest points on the body at the SGRP-front, excluding door handles, applied moldings, or appliques.		
W120	VEHICLE WIDTH-FRONT DOORS OPEN. The dimension measured between the widest point on the rear doors in maximum hold-open position.		
W121	VEHICLE WIDTH-REAR DOORS OPEN. The dimension measured between the widest point on the rear doors in maximum hold-open position. For vehicles with a rear door on only one side, this dimension is to the zero "Y" plane.		
W122	TUMBLE-HOME, STRAIGHT SIDE GLASS. The angle measured from a vertical to the outside surface of the front door glass at the SGRP "X" plane. CURVED SIDE GLASS. The angle measured from a vertical to a chord extending from the upper DLO to the lower DLO at the outside surface of the front door glass at the front SGRP "X" plane.		
W410	OUTSIDE MIRROR WIDTH: The dimension between the widest point on the outside mirrors. The standard right and left mirror adjusted for normal driving will be shown unless otherwise noted. When only one outside mirror is standard, the dimension will be to the zero "Y" plane.		
Length Dimensions			
L101	WHEELBASE (WB). The dimension measured longitudinally between front and rear wheel centerline. In case of dual rear axles, the dimension shall be to the midpoint of the centerlines of the rear wheels.		
L103	VEHICLE LENGTH. The maximum dimension measured longitudinally between the foremost point and the rearmost point on the vehicle, including bumper, bumper guards, tow hooks and/or rub strips, if standard equipment.		
L104	OVERHANG-FRONT. The dimension measured longitudinally from the centerline of the front wheels to the foremost point on the vehicle including bumper, bumper guards, tow hook and/or rub strips, if standard equipment.		
L105	OVERHANG-REAR. The dimension measured longitudinally from the centerline of the rear wheels; or in the case of dual rear axles, the dimension shall be the midpoint of the centerlines of the rear wheels, to the rearmost point on the vehicle including rear bumpers, bumper guards, tow hooks and rub strips, if standard equipment.		
		Height Dimensions	
		H101	VEHICLE HEIGHT. The dimension measured vertically from the highest point on the vehicle body to ground.
		H111	ROCKER PANEL-REAR TO GROUND. The dimension measured vertically from the bottom of the rocker or side quarter panel at the front of the rear wheel opening, excluding flanges, to ground.
		H112	ROCKER PANEL-FRONT TO GROUND. The dimension measured vertically from the foremost point on the bottom of the rocker panels, excluding flanges, to ground.
		H114	COWL POINT TO GROUND. Measured at zero "Y" plane.
		H121	BACKLIGHT SLOPE ANGLE. The angle between the vertical reference line and the surface of backlight at vehicle zero "Y" plane. For curve backlight, the angle is to chord of backlight arc from lower DLO to upper DLO.
		H122	WINDSHIELD SLOPE ANGLE. The angle between the vertical reference line and a chord of the windshield arc running from the lower DLO to the upper DLO at the vehicle zero "Y" plane. In the case of wrap over glass, the angle to be measured will be formed by a chord 457 mm (18.0 in.) long drawn from the lower DLO to the intersecting point on the windshield.
		H138	DECK POINT TO GROUND. Measured at zero "Y" plane.
		H109	STATICLOAD-TIRE RADIUS-REAR. Specified by the manufacturer in accordance with composite TIRE SECTION STANDARD.
		Ground Clearance Dimensions	
		H102	FRONT BUMPER TO GROUND. The minimum dimension measured vertically from the lowest point on the front bumper to ground, including bumper guards, if standard equipment.
		H103	FRONT BUMPER TO GROUND-CURBMASS(WT.). Measured in the same manner as H102.
		H104	REAR BUMPER TO GROUND. The minimum dimension measured vertically from the lowest point on the rear bumper to ground, including bumper guards, if standard equipment.
		H105	REAR BUMPER TO GROUND-CURB MASS(WT.). Measured in the same manner as H104.
		H106	ANGLE OF APPROACH. The angle measured between a line tangent to the front tire static loaded radius arc and the initial point of structural interference forward of the front tire to ground. The limiting structural component shall be designated.
		H107	ANGLE OF DEPARTURE. The angle measured between a line tangent to the rear tire static loaded radius arc and the initial point of structural interference rearward of the rear tire to ground. The limiting component shall be designated.
		H147	RAMP BREAKOVER ANGLE. The angle measured between two lines tangent to the front and rear tire static loaded radius and intersecting at a point on the underside of the vehicle which defines the largest ramp over which the vehicle can roll.
		H153	REAR AXLE DIFFERENTIAL TO GROUND. The minimum dimension measured from the rear axle differential to ground.
		H156	MINIMUM RUNNING GROUND CLEARANCE. The minimum dimension measured from the sprung vehicle to ground. Specify location.

Specifications

METRIC

Interior Vehicle And Body Dimensions - Key Sheet

Dimensions Definitions

Glass Areas		W5	HIP ROOM-FRONT. The minimum dimension measured laterally between the trimmed surfaces on the "X" plane through the SgRP-front within 25 mm (1.0 in.) below and 76 mm (3.0 in.) above the SgRP-front and 76 mm (3.0 in.) fore and aft of the SgRP-front.
S1	Windshield area.	W9	STEERING WHEEL MAXIMUM OUTSIDE DIAMETER. Define if other than round.
S2	Side windows area. Includes the front door, rear door, vents, and rear quarter windows on both sides of the vehicle.	H7	ACCELERATOR HEEL POINT TO THE STEERING WHEEL CENTER. The dimension measured vertically from the AHP-front to the intersection of the steering column centerline to a plane tangent to the upper surface of the steering wheel rim.
S3	Backlight areas.	H18	STEERING WHEEL ANGLE. The angle measured from a vertical to the surface plane of the steering wheel.
S4	Total area. Total of all areas (S1 + S2 + S3).	H30	SgRP-FRONT TO HEEL. The dimension measured vertically from the SgRP-front to the accelerator heel point.
Fiducial Mark Dimensions		H50	UPPER BODY OPENING TO GROUND-FRONT. The dimension measured vertically from the trimmed body opening to the ground on the SgRP-front "X" plane.
Fiducial Mark - Number 1		H61	EFFECTIVE HEAD ROOM-FRONT. The dimension measured along a line 8 deg. rear of vertical from the SgRP-front to the headlining plus 102 mm (4.0 in.).
L54	"X" coordinate.	H67	FLOOR COVERING THICKNESS - UNDEPRESSED - FRONT. The dimension measured vertically from the surface of the undepressed floor covering to the underbody sheet metal at the accelerator heel point.
W21	"Y" coordinate.	Rear Compartment Dimensions	
H81	"Z" coordinate.	L41	BACK ANGLE-SECOND. The angle measured between a vertical line through the SgRP-second and the torso line.
H161	Height "Z" coordinate to ground at curb weight.	L43	HIP ANGLE-SECOND. The angle measured between torso line and thigh centerline.
H163	Height "Z" coordinate to ground.	L45	KNEE ANGLE-SECOND. The angle measured between thigh centerline and lower leg centerline.
Fiducial Mark - Number 2		L47	FOOT ANGLE-SECOND. The angle measured between the lower leg centerline and a line tangent to the ball and heel of the three-dimensional devices bare foot flesh line (Reference J826).
L55	"X" coordinate.	L48	KNEE CLEARANCE-SECOND. The minimum dimension measured from the knee pivot center to the back of the front seatback minus 51 mm (2.0 in.).
W22	"Y" coordinate.	L50	SgRP COUPLE DISTANCE-SECOND. The dimension measured horizontally from the driver SgRP-front to the SgRP-second.
H82	"Z" coordinate.	L51	MINIMUM EFFECTIVE LEG ROOM-SECOND. The dimension measured along a line from the ankle pivot center to the SgRP-second plus 254 mm (10.0 in.).
H162	Height "Z" coordinate to ground at curb weight.	W4	SHOULDER ROOM-SECOND. The minimum dimension measured laterally between door or quarter trimmed surfaces on the "X" plane through the SgRP-second at height between 254-406 mm (10.0-16.0 in.) above the SgRP-second, excluding the door assist straps and attaching parts.
H164	Height "Z" coordinate to ground.	W6	HIP ROOM-SECOND. Measured in the same manner as W5.
Front Compartment Dimensions		H31	SgRP-SECOND TO HEEL. The dimension measured vertically from the SgRP-second to the two dimensional device heel point on the depressed floor covering.
L11	ACCELERATOR WHEEL POINT TO STEERING WHEEL CENTER. The dimension measured horizontally from the AHP to the intersection of the steering column centerline and a plane tangent to the upper surface of the steering wheel rim.	H51	UPPER BODY OPENING TO GROUND-SECOND. The dimension measured vertically from the trimmed body opening to the ground on the "X" plane 330 mm (13.0 in.) forward of the SgRP-second.
L17	DESIGN-H-POINT-FRONT TRAVEL. The dimension measured horizontally between the design H-point-front in the foremost and rearmost seat track positions. (See SAE J1100)	H63	EFFECTIVE HEAD ROOM-SECOND. The dimension measured along a line 8 deg. rear of vertical from the SgRP to the headlining, plus 102 mm (4.0 in.).
L23	NORMAL DRIVING AND RIDING SEAT TRACK TRAVEL. The dimension measured horizontally between a point on the design H-point travel line from the SgRP to the displaced point on the design H-point travel line with the seat moved to the foremost seat position, but not to include seat track travel used for purposes other than normal driving and riding positions. (See SAE J1100).	H73	FLOOR COVERING-DEPRESSED-SECOND. The dimension measured vertically from the heel point to the underbody sheet metal.
L31	SgRP-Front. "X" Coordinated.		
L34	MAXIMUM EFFECTIVE LEG ROOM-ACCELERATOR. The dimension measured along a line from the ankle pivot center to the SgRP-front plus 254 mm (10.0 in.) measured with right foot on the undepressed accelerator pedal. For vehicles with SgRP to heel (H30) greater than 18 in., the accelerator pedal may be depressed as specified by the manufacturer. If the accelerator is depressed, the manufacturer shall place foot flat on pedal and note the depression of the pedal.		
L40	BACK ANGLE-FRONT. The angle measured between a vertical line through the SgRP-front and the torso line. If the seatback is adjustable, use the normal driving and riding position specified by the manufacturer.		
L42	HIP ANGLE-FRONT. The angle measured between torso line and thigh centerline.		
L44	KNEE ANGLE-FRONT. The angle measured between thigh centerline and lower leg centerline measured on the right leg.		
L46	FOOT ANGLE-FRONT. The angle measured between the lower leg centerline and a line tangent to the ball and heel of the bare foot flesh line measured on the right leg. Ref SAE J826.		
L53	SgRP-FRONT TO HEEL. The dimension measured horizontally from the SgRP-front to the accelerator heel point.		
W3	SHOULDER ROOM-FRONT. The minimum dimension measured laterally between the trimmed surfaces on the "X" plane through the SgRP-front at height between the belt line and 254 mm (10.0 in.) above the SgRP-front, excluding the door assist strap and attaching parts.		

Specifications

METRIC

Interior Vehicle And Body Dimensions - Key Sheet Dimensions Definitions

Luggage Compartment Dimensions

V1 **USABLE LUGGAGE CAPACITY**-Total of volumes of individual pieces of standard luggage set plus H-boxes stowed in the luggage compartment in accordance with the procedure described in paragraph 8.2 of SAE-J1100a.

Interior Volumes (EPA Classification)

The Interior Index is listed for each body style except two seaters. The Interior Volume Index estimates the space in a car. It is based on four measurements - head room, shoulder room, hip room, and leg room - for the front and rear seats, plus trunk capacity.

The Trunk/Cargo Index is an estimate of the size of the trunk/cargo space. In station wagons and hatchbacks it is an estimate of the space behind the second seat.

Station Wagon/MPV - Third Seat Dimensions

- L85 **SgRP COUPLE DISTANCE-THIRD**. The dimension measured horizontally from the SgRP-second to the SgRP-third.
- L86 **EFFECTIVE LEG ROOM-THIRD**. The dimension measured along a line from the ankle pivot center to the SgRP-third plus 254 mm (10.0 in).
- L87 **KNEE CLEARANCE-THIRD**. The minimum dimension from the knee pivot center to the back of second seatback minus a constant of 51 mm (2.0in.). With rear-facing third seat, dimension is measured to closure.
- L88 **BACK ANGLE-THIRD**. Measured in the same manner as L41.
- L89 **HIP ANGLE-THIRD**. Measured in the same manner as L43.
- L90 **KNEE ANGLE-THIRD**. Measured in the same manner as L45.
- L91 **FOOT ANGLE-THIRD**. Measured in the same manner as L47.
- W85 **SHOULDER ROOM-THIRD**. Measured in the same manner as W4.
- W86 **HIP ROOM-THIRD**. Measured in the same manner as W5.
- H86 **EFFECTIVE HEAD ROOM-THIRD**. The dimension measured along a line 8 deg. from the SgRP-third to the headlining rear of vertical plus a constant of 102 mm (4.0 in.).
- H87 **SgRP-THIRD TO HEEL POINT**
- SD1 **SEAT FACING DIRECTION-THIRD**.

Station Wagon/MPV - Cargo Space Dimensions

- L200 **CARGO LENGTH-OPEN-FRONT**. The minimum dimension measured longitudinally from the back of the front seatback at the height of the undepressed floor covering to the rearmost point on the undepressed floor covering on the open tailgate or cargo surface if the rear closure is a conventional door type tailgate at the zero "Y" plane.
- L201 **CARGO LENGTH-OPEN-SECOND**. The dimension measured longitudinally from the back of the second seatback at the height of the undepressed floor covering on the open tailgate or cargo floor surface if the rear closure is a conventional door type tailgate, at the zero "Y" plane.

- L202 **CARGO LENGTH-CLOSED-FRONT**. The minimum dimension measured horizontally from the back of the front seat at the height of the undepressed floor covering to the rearmost point on the undepressed floor covering on the closed tailgate or taildoor for station wagons, trucks and mpv's at the zero "Y" plane.
- L203 **CARGO LENGTH-CLOSED-SECOND**. The dimension measured horizontally from the back of the second seat at the height of the undepressed floor covering to the rearmost point on the undepressed floor covering on the closed tailgate or taildoor for station wagons, trucks and mpv's at the zero "Y" plane.
- L204 **CARGO LENGTH AT BELT-FRONT**. The minimum dimension measured horizontally from the back of the front seatback at the seatback top in the foremost normal surface of the closed tailgate or inside surface of the cab backpanel at the height of the belt, on the zero "Y" plane.
- L205 **CARGO LENGTH AT BELT-SECOND**. The minimum dimension measured horizontally from the back of the second seatback top to the foremost normal surface of the closed tailgate at the height of the belt, on the zero "Y" plane.
- W201 **CARGO WIDTH-WHEELHOUSE**. The minimum dimension measured laterally between the trimmed wheelhousings at floor level. For any vehicle not trimmed, measure to the sheet metal.
- W203 **REAR OPENING WIDTH AT FLOOR**. The minimum dimension measured laterally between the limiting interferences of the rear opening at floor level.
- W204 **REAR OPENING WIDTH AT BELT**. The minimum dimension measured laterally between the limiting interferences of the rear opening at belt height or top of pick up box.
- W205 **REAR OPENING WIDTH ABOVE BELT**. The minimum dimension measured laterally between the limiting interferences of the rear opening above the belt height.
- W500 **CARGO WIDTH AT FLOOR**. The maximum dimension measured laterally between the limiting interferences at the floor level. This dimension shall include ribs and pillars, but will exclude wheelhouses.
- H197 **FRONT SEATBACK TO LOAD FLOOR HEIGHT**. The dimension measured vertically from the horizontal tangent to the top of the seatback to the undepressed floor covering.
- H201 **CARGO HEIGHT**. The dimension measured vertically from the top of the undepressed floor covering to the headlining at the rear wheel "X" coordinate on the zero "Y" plane.
- H202 **REAR OPENING HEIGHT**. The dimension measured vertically from the top of the undepressed floor covering to the upper trimmed opening on the zero "Y" plane with rear door fully open.
- H250 **TAILGATE TO GROUND CURB MASS (WT.)** The dimension measured vertically from the top of the undepressed floor covering on the lowered tailgate to ground on the zero "Y" plane.
- H505 **MAXIMUM CARGO HEIGHT**. The maximum vertical dimension rear of the front seat from the cargo floor to roof bow or headlining at the zero "Y" plane.

Specifications

METRIC

Interior Vehicle And Body Dimensions - Key Sheet Dimensions Definitions

<p>V2 STATION WAGON Measured in inches:</p> $\frac{W4 \times H201 \times L204}{1728} - ft^3$ <p>Measured in mm:</p> $\frac{W4 \times H201 \times L204}{10^9} - m^3(cubicmeter)$	<p>L208 CARGO LENGTH AT FRONT SEATBACK HEIGHT. The minimum horizontal dimension from the "X" plane tangent to the rearmost surface of the driver's seatback to the inside limiting interference of the hatchback door on the vehicle zero "Y" plane.</p> <p>L209 CARGO LENGTH AT FLOOR-FRONT. The minimum horizontal dimension measured at floor level from the rear of the front seatback to the normal limiting interference of the hatchback door on the vehicle zero "Y" plane.</p> <p>L210 CARGO LENGTH AT SECOND SEATBACK HEIGHT. The minimum dimension measured from the "X" plane tangent to the rearmost surface of second seatback or the load floor which is towed at least one half of the H198 dimension height above the rear load floor, to the rearmost inside limiting interference on the zero "X" plane.</p>
<p>V4 HIDDEN LUGGAGE CAPACITY-REAR OF FRONT SEAT. The total volumes of individual pieces of one set of standard luggage stowed in any hidden cargo area below the load floor rear of the front seat.</p>	<p>L211 CARGO LENGTH AT FLOOR-SECOND SEATBACK. The minimum horizontal dimension measured at floor level from the rear of the second seatback or load floor panel to the normal limiting interference of the hatchback door on the vehicle zero "Y" plane.</p>
<p>V5 TRUCKS AND MPV'S WITH OPEN AREA. Measured in inches:</p> $\frac{L506 \times W505 \times H503}{1728} - ft^3$ <p>Measured in mm:</p> $\frac{L506 \times W500 \times H503}{10^9} - m^3(cubicmeter)$	<p>H197 FRONT SEATBACK TO LOAD HEIGHT. The dimension measured vertically from the horizontal tangent to the top of the seatback to the undepressed floor covering.</p> <p>H198 SECOND SEATBACK TO LOAD FLOOR HEIGHT. The dimension measured vertically from the second seatback to the undepressed floor covering.</p>
<p>V6 TRUCKS AND MPV'S WITH CLOSED AREA Measured in inches:</p> $\frac{L204 \times W500 \times H505}{1728} - ft^3$ <p>Measured in mm:</p> $\frac{L204 \times W500 \times H505}{10^9} - m^3(cubicmeter)$	<p>V3 HATCHBACK. Measured in inches:</p> $\frac{L208 - L209}{2} \times W4 \times H197 - ft^3$ <p>Measured in mm:</p> $\frac{L208 - L209}{2} \times W4 \times H197 - m^3(cubicmeter)$
<p>V8 HIDDEN LUGGAGE CAPACITY-REAR OF SECOND SEAT. The total volume of individual pieces of one set of standard luggage stowed in any hidden cargo area below the load floor rear of the second seat.</p>	<p>V4 HIDDEN LUGGAGE CAPACITY-REAR OF FRONT SEAT. The total volumes of individual pieces of one set of standard luggage stowed in any hidden cargo area below the load floor rear of the front seat.</p>
<p>V10 STATION WAGON CARGO VOLUME INDEX. Measured in inches:</p> $\frac{H201 \times L205 \times \frac{W4 - W201}{2}}{1728} - ft^3$ <p>Measured in mm:</p> $\frac{H201 \times L205 \times \frac{W4 - W201}{2}}{10^9} - m^3(cubicmeter)$	<p>V11 HATCHBACK CARGO VOLUME INDEX. Usable luggage (one (1) stand and luggage set) below floor: Measured in inches:</p> $\frac{L210 - L211}{2} \times W4 \times H198 - ft^3$ <p>Measured in mm:</p> $\frac{L210 - L211}{2} \times W4 \times H198 - m^3(cubicmeter)$

Hatchback - Cargo Space Dimensions

All Hatchback cargo dimensions are to be taken with the front seat in full down and rear position, and the rear seat folded down. The hatchback door is in the closed position. (For electronically adjusted seats, see the manufacturer's specifications for Design "H" Point).

Specifications

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