MANUFACTURERS MOTOR VEHICLE SPECIFICATIONS

METRIC (U.S. Customary)

1989

Manufacturer	Vehicle Line	
Mitsubishi Motors Corporation	Starion	
Mailing Address 33-8, Shiba 5-chome, Minato-ku, Tokyo, 108, Japan	Issued 1988-5	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 Motor Vehicle Manufacturers Association of the United States, Inc.

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.

Motor Vehicle Manufacturers Association of the United States, Inc.

Blank Forms Provided by Technical Affairs Division

MVMA-C-89

MVMA Specifications Form

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Ø Indicates Format Change From Previous Year

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 compilation 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.

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∅ Vehicle Origin

Design & development (company)	Mitsubishi Motors Corporation
Where built (country)	Japan
Authorized U.S. sales marketing representative	Mitsubishi Motor Sales of America, Inc.

∅ Vehicle Models

Model Description & Drive (FWD/RWD/AWD/4WD)*	Introduction Date	Make, Vehicle Models, Series, Body Type (Mfgr's Model Code)	No. of Designated Seating Positions (Front/Rear)	Max. Trunk/Cargo Load–Kilograms (Pounds)
2 DOOR HATCH BACK (RWD)		A187AMNFGL F/H A187AMRFGL F/H	5 (2/3)	35 kg (77 lbs)

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

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Power Teams (Indicate whether standard or optional)
SAE J1349 Net bhp (brake horsepower) and net torque corrected to 77°F/25° C and 29.61 in. Hg/100 kPa atmospheric pressure.

SERIES AVAILABILITY	ENGINE						Exhaust S/D*	TRANSMISSION/ TRANSAXLE	AXLE RATIO (std. first)
	Code	Displ. Liters (in^3)	Induction (FI, CARB/ BBL, etc.)	Compr. Ratio	SAE Net at RPM				
					Power kW (bhp)	Torque N • m (lb. ft.)			
A187AM Series	G54B	2.555 (156)	F.I	7.0	140 (188) at 5000	317 (234) at 2500	S	Manual 5-speed	3.545
								Automatic 4-speed	

* Single / Dual

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Engine Description/Carb. Engine Code	G54B with Inter cooled turbo (2.555 Liters)	
	MT	AT

ENGINE – GENERAL

Type & description (inline, V, angle, flat, location, front, mid, rear, transverse, longitudinal, sohc, dohc, ohv, hemi, wedge, pre-camber, etc.)		Inline front longitudinal	
Manufacturer		Mitsubishi Motors Corp.	
No. of cylinders		4	
Bore		91.1	
Stroke		98	
Bore spacing (C / L to C / L)		101	
Cylinder block material & mass kg (lbs.) (machined)		Cast iron, 48.5 (106.9)	
Cylinder block deck height		251	
Cylinder block length		439	
Deck clearance (minimum) (above or below block)		Below 0.6	
Cylinder head material & mass kg (lbs.)		Aluminum alloy, 10.0 (22.0)	
Cylinder head volume (cm^3)		75.2	
Cylinder liner material		N.A.	
Head gasket thickness (compressed)		1.25	
Minimum combustion chamber total volume (cm^3)		105.6	
Cyl. no. system (front to rear)*	L. Bank	N.A.	
	R. Bank	N.A.	
Firing order		1-3-4-2	
Intake manifold material & mass [kg (lbs.)]**		Aluminum alloy, 2.7 (6.0)	
Exhaust manifold material & mass [kg (lbs.)]**		Cast iron, 5.1 (11.2)	
Fuel required unleaded, diesel, etc.		Unleaded	
Fuel antiknock index (R + M) ÷ 2		No less than 95 [emergency No less than 91]	
Engine mounts	Number	2	
	Material and type (elastomeric, hydroelastic, hydraulic damper, etc.	Rubber, Elastomeric	
	Added isolation (sub-frame, crossmember, etc.)	Crossmember	
Total dressed engine mass (wt) dry***		180.4	167.9

Engine – Pistons

Material & mass, g (weight, oz.) - piston only	Aluminum alloy 464 (16)

Engine – Camshaft

Location		Center of IN. and EX. valve on cylinder-head
Material & mass kg (weight, lbs.)		Cast iron, 2.8 (6.2)
Drive type	Chain / belt	Chain
	Width / pitch	23.3 / 9.525

* 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:

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Engine – Valve System

Hydraulic lifters (std., opt., NA)		Std.
Valves	Number intake / exhaust	4 / 4
	Head O.D. intake / exhaust	46 / 38

Engine – Connecting Rods

Material & mass [kg., (weight, lbs.)]*	Drop-forged steel, 0.830 (1.8)
∅ Length (axes℄ to℄) mm	166

Engine – Crankshaft

Material & mass [kg., (weight, lbs.)]*		Drop-forged steel
End thrust taken by bearing (no.)		3
Length & number of main bearings		25.5
Seal (material, one, two piece design, etc.)	Front	Synthetic rubber, One piece
	Rear	Synthetic rubber, One piece

Engine – Lubrication System

Normal oil pressure [kPa (psi) at engine rpm]	390 (56.5) at 2000 rpm
Type oil intake (floating, stationary)	Stationary
Oil filter system (full flow, part, other)	Full flow
Capacity of c/case, less filter-refill-L (qt.)	4.2 (3.8)

Engine – Diesel Information

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

Turbo charger - manufacturer	With-Mitsubishi Heavy Industries Ltd.
Super charger - manufacturer	None
Intercooler	With

*Finished State

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Engine Description/Carb. Engine Code	G54B with Inter cooled turbo (2.555 Liters)	
	M/T	A/T

Engine – Cooling System

Coolant recovery system (std., opt., n.a.)		With condenser tank (Std.)	
Coolant fill location (rad., bottle)		2.8 L	
Radiator cap relief valve pressure [kPa (psi)]		88.2	
Circulation thermostat	Type (choke, bypass)	Choke pellet	
	Starts to open at °C (°F)	88 (190.4)	
Water pump	Type (centrifugal, other)	Centrifugal	
	GPM 1000 pump rpm	–	
	Number of pumps	1	
	Drive (V-belt, other)	V-belt	
	Bearing type	Ball, integral shaft, permanently sealed	
	Impeller material	Cold-rolled carbon steel sheet	
	Housing material	Aluminum die casting	
By-pass recirculation [type (inter,. ext.)]		External	
Cooling system capacity	With heater–L(qt.)	8.5 (9.0)	
	With air cond.–L(qt.)	8.5 (9.0)	
	Opt. equipment [specify–L(qt.)]	–	
Water jackets full length of cyl. (yes, no)		Yes	
Water all around cylinder (yes, no)		No	
Water jackets open at head face (yes, no)		Yes	
Radiator core	Std., A/C, HD		
	Type (cross-flow, etc.)	Down flow	
	Construction (fin & tube mechanical, braze, etc.)	Braze	
	Material, mass [kg (wgt, lbs.)]	7.2	7.5
	Width	648 (mm)	
	Height	400 (mm)	
	Thickness	32 (mm)	
	Fins per inch	15	17
Radiator end tank material		Chalcopyrite	
Fan	Std., elec., opt.	Elec.	
	Number of blades & type (flex, solid, material)	4	
	Diameter & projected width	320 + 270	
	Ratio (fan to crankshaft rev.)	–	
	Fan cutout type	–	
	Drive type (direct, remote)	–	
	RPM at idle (elec.)	2000 rpm	
	Motor rating (wattage) (elec.)	120 W, 80 W	120 W, 120 W
	Motor switch (type & location) (elec.)	Thermo type in Radiator	
	Switch point (temp., pressure) (elec.)	85°C, 100°C	
	Fan shroud (material)	Steel	

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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.		Fuel injection
Manufacturer		NIPPON INJECTOR CO.,LTD.
∅ Carburetor no. of barrels		–
Idle A:F mix.		13.0
Fuel injection	Point of injection (no.)	On throttle valve (Two)
	Constant, pulse, flow	16.39 mm³ / 2.1 msec, & 47.45 mm³ / 3.5 msec
	Control (electronic, mech.)	Electronic
	System pressure [kPa (psi)]	249
Idle spd.-rpm (spec. neutral or drive and propane if used)	Manual	850
		1000 (A/C ON)
	Automatic	750
		750 (A/C ON)
Intake manifold heat control (exhaust or water thermostatic or fixed)		N.A.
Air cleaner type		Dry, non-woven cloth
Fuel filter (type/location)		N.A.
∅ Fuel pump	Type (elec. or mech.)	Electric
	Location (eng., tank)	Near by Fuel tank
	Pressure range [kPa (psi)]	620 to 800 (90 to 120)
∅	Flow rate at regulated pressure (L (gal)/hr @ kPa (psi))	90 l/h (23.8gal/h), 245.2kpa (35.6psi)

Fuel Tank

Capacity [refill L (gallons)]		75 (19.8)
Location (describe)		Underneath rear floor pan cargo area between axle and rear bumper
Attachment		Bolts
Material & Mass [kg (weight lbs)]		Steel, 14.5 (31.97)
Filler pipe	Location & material	Left side rear quarter panel, Steel pipe
	Connection to tank	Rubber hose
Fuel line (material)		Steel pipe
Fuel hose (material)		Rubber hose
Return line (material)		Steel pipe
Vapor line (material)		Steel pipe
Extended range tank	Opt., n.a.	–
	Capacity [L (gallons)]	–
	Location & material	–
	Attachment	–
Auxiliary tank	Opt., n.a.	–
	Capacity [L (gallons)]	–
	Location & material	–
	Attachment	–
	Selector switch or valve	–
	Separate fill	–

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Engine Description/Carb. Engine Code: G54B with Inter cooled turbo (2.555 Liters)

Vehicle Emission Control

Exhaust Emission Control	Type (air injection, engine modifications, other)		Three-way catalyst with feedback control. Exhaust gas recirculation and Air induction.
	Air Injection	Pump or pulse	Pulse
		Driven by	N.A.
		Air distribution (head, manifold, etc.)	N.A.
		Point of entry	Catalytic Converter
	Exhaust Gas Recirculation	Type (controlled flow, open orifice, other)	Controlled flow
		Exhaust source Point of exhaust injection (spacer, carburetor, manifold, other)	Exhaust port No. 2 Intake manifold
	Catalytic Converter	Type	Three-way
		Number of	2
		Location(s)	In engine compartment & Under floor
		Volume [L (in^3)]	1.0 (61) + 1.0 (61)
		Substrate type	Monolith
		Noble metal type	-
		Noble metal concentration (g/cm^3)	-
Crankcase Emission Control	Type (ventilates to atmosphere, induction system, other)		Induction system
	Energy source (manifold vacuum, carburetor, other)		Intake manifold vacuum
	Discharges (to intake manifold, other)		To intake manifold
	Air inlet (breather cap, other)		Air cleaner
Evaporative Emission Control	Vapor vented to (crankcase, canister, other)	Fuel tank	Canister
		Carburetor	-
	Vapor storage provision		Canister
Electronic system	Closed loop (yes/no)		Yes
	Open loop (yes/no)		Yes

Engine – Exhaust System

Type (single, single with cross-over, dual, other)			Single
Muffler no. & type (reverse flow, straight thru, separate resonator) Material & Mass [kg (weight lbs)]			One (Straight thru.), Stainless steel 3.2 (7.05)
Resonator no. & type			-
Exhaust pipe	Branch o.d., wall thickness		-
	Main o.d., wall thickness		54 x 1.5 (mm)
	Material & Mass [kg (weight lbs)]		Stainless steel 1.6 (3.5)
Intermediate pipe	o.d. & wall thickness		54 x 1.2 (mm)
	Material & Mass [kg (weight lbs)]		Stainless steel 4.1 (9.0)
Tail pipe	o.d. & wall thickness		42.7 x 1.2 (Dual) (mm)
	Material & Mass [kg (weight lbs)]		Stainless steel 1.2 (2.7)

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

Manual 3-speed (manufacturer/country)	N.A.
Manual 4-speed (manufacturer/country)	N.A.
Manual 5-speed (manufacturer/country)	Std., Mitsubishi Motors Corp./Japan
Automatic (manufacturer/country)	N.A.
Automatic overdrive (manufacturer/country)	Std., JATCO/Japan

Manual Transmission/Transaxle

Number of forward speeds		5
Gear ratios	1st	3.400
	2nd	2.016
	3rd	1.345
	4th	1.000
	5th	0.856
	Reverse	3.578
Synchronous meshing (specify gears)		1, 2, 3, 4, 5, R
Shift lever location		Floor
Trans. case mat'l. & mass kg (lbs)*		ADC10, 35 (77)
Lubricant	Capacity [L (pt.)]	2.3 (4.9)
	Type recommended	Multipurpose gear oil conforming to API GL4

Clutch (Manual Transmission)

Clutch manufacturer		Daikin Manufacturing Co., Ltd.
Clutch type (dry, wet; single, multiple disc)		Dry single plate
Linkage (hydraulic, cable, rod, lever, other)		Hydraulic
Max. pedal effort (nom. spring load, new) N (lbs)	Depressed	130
	Released	80
Assist (spring, power/percent, nominal)		No
Type pressure plate springs		Diaphragm
Total spring load (nominal, new) N (lbs)		6178 (1389)
Clutch facing	Facing mfgr. & material coding	Hitachi Chemical Co., Ltd.
	Facing material & construction	Woven (Asbestos)
	Rivets per facing	16
	Outside x inside dia. (nominal)	240 x 160 (mm)
	Total eff. area [cm^2($in.^2$)]	503 (78.0)
	Thickness (pressure plate side/ fly wheel side)	3.5 / 3.5 (mm)
	Rivet depth (pressure plate side/ fly wheel side)	1.6 / 1.6 (mm)
	Engagement cushion method	Flat-wave springs
Release bearing type & method lub.		Ball bearing, permanently lubricated
Torsional damping method, springs, hysteresis		Coil springs and Friction washers

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

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Automatic Transmission/Transaxle

Trade name		JATCO L4N71B
Type and special features (describe)		Lock up torque converter with automatically operated planetary gear transmission
Selector	Location	Lever: Console mounted
	Ltr./No. designation	P, R, N, D, 2, L / 6
Gear ratios	1st	2.458
	2nd	1.458
	3rd	1.000
	4th	0.686
	Reverse	2.182
Max. upshift speed - drive range [km/h (mph)]		107 (67)
Max. kickdown speed - drive range [km/h (mph)]		89 (56)
Min. overdrive speed [km/h (mph)]		44 (28)
Torque converter	Number of elements	Three
	Max. ratio at stall	2.0 : 1
	Type of cooling (air, liquid)	Liquid
	Nominal diameter	250
∅	Capacity factor "K"*	190
Lubricant	Capacity [refill L (pt.)]	7.4 (15.6)
	Type Recommended	DEXRON or DEXRON II automatic transmission fluid
Oil cooler (std., opt., NA, internal, external, air, liquid)		External air cooling
∅ Transmission case material & mass kg (lbs)**		ADC12, 75.3 (166)

Axle or Front Wheel Drive Unit

Type (front, rear)		Rear
Description		Separable
Limited slip differential (type)		Std. (Friction)
Drive pinion offset		30 (mm)
Drive pinion (type)		Hypoid
No. of differential pinions		4
Pinion/differential adjustment (shim, other)		Shim
Pinion/differential bearing adjustment (shim, other)		Shim
Driving wheel bearing (type)		Ball
Lubricant	Capacity [L (pt.)]	1.3 (2.4)
	Type recommended	Multipurpose gear oil conforming to API GL-5

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

Axle ratio (or overall top gear ratio)		3.545
No. of teeth	Pinion	11
	Ring gear or gear	39
Ring gear o.d.		200 (mm)
Transaxle	Transfer gear ratio	-
	Final drive ratio	-

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

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

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Propeller Shaft – Rear Wheel Drive

Manufacturer Type (straight tube, tube-in-tube, internal-external damper, etc.)			Mitsubishi Motors Corp., Straight tube	
Outer diam. x length* x wall thickness	Manual 3-speed transmission		N.A.	
	Manual 4-speed transmission		N.A.	
	Manual 5-speed transmission		75 x 722 x 1.6	N.A. (mm)
	Overdrive		N.A.	
	Automatic transmission		N.A.	75 x 538 x 1.6 (mm)
Inter-mediate bearing	Type (plain, anti-friction)		–	
	Lubrication (fitting, prepack)		–	
Slip yoke	Type		Sliding spline	
	Number of teeth		23 (24 Indexed)	25 (26 Indexed)
	Spline o.d.		27.3	28.5
Universal joints	Make and mfg. no.	Front	Mitsubishi Motors Corp. (Bearing: Koyo Seiko Co., Ltd.)	
		Rear	Mitsubishi Motors Corp. (Bearing: Koyo Seiko Co., Ltd.)	
	Number used		Two	
	Type (ball and trunnion, cross)		Cross	
	Rear attach (u-bolt, clamp, etc.)		Clamp (Snap ring)	
	Bearing	Type (plain, anti-friction)	Anti-friction	
		Lubrication (fitting, prepack)	Prepack	
Drive taken through (torque tube, arms or springs)			Torque tube	
Torque taken through (torque tube, arms or springs)			Torque tube	

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

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Body Type And/Or Engine Displacement	A187A

∅ Suspension - General Including Electronic Controls

Car leveling	Standard/optional/not avail.		N.A.
	Manual/automatic control		N.A.
	Type (air/hydraulic)		N.A.
	Primary/assist spring		N.A.
	Rear only/4 wheel leveling		N.A.
	Single/dual rate spring		N.A.
	Single/dual ride heights		N.A.
	Provision for jacking		N.A.
Shock absorber damping contols	Standard/option/not avail.		Opt.
	Manual/automatic control		Manual
	Number of damping rates		8
	Type of actuation (manual/electric motor/air, etc.)		Manual
	sensors	Lateral acceleration	-
		Deceleration	-
		Acceleration	-
		Road surface	-
Shock absorber (front & rear)	Type		Front: Strut type Rear: Strut type [Opt.]
	Make		Front: Kayaba Industry Co.,Ltd. Rear: Tokiko Co.,Ltd. [Kayaba Industry Co.,Ltd.]
	Piston diameter		Front: 30 Rear: 32 [30] (mm)
	Rod diameter		22

∅ Suspension – Front

Type and description			Independent strut type [Opt.]
Travel*	Full jounce		85 (mm)
	Full rebound		75 (mm)
Spring	Type (coil, leaf, other) & material		Coil / SUP12*1 [SUP9]
	Insulators (type & material)		Cylindrical, Rubber
	Size (coil design height & i.d., bar length x dia.)		346 x 117.2 x 2650 x 12.8 [327 x 117.2 x 2485 x 12.8](mm)
	Spring rate [N/mm (lb./in.)]		23.5 (134.4) [26.0 (148.4)]
	Rate at wheel [N/mm (lb./in.)]		22.0 (125.6) [24.3 (138.7)]
Stabilizer	Type (link, linkless, frameless)		Link
	Material & bar diameter		SUP6, 21 (mm)

∅ Suspension – Rear

Type and description			Independent strut type [Opt.]
Travel*	Full jounce		95 [85] (mm)
	Full rebound		90 (95] (mm)
Spring	Type (coil, leaf, other) & material		Coil / SUP7, SUP9
	Size (length x width, coil design height & i.d., bar length & dia.)		327.7 x 107.8 x 2515 x 12.2 [320.4 x 108.0 x 2385 x 12.0] (mm)
	Spring rate [N/mm (lb./in.)]		22.6 (129.5)
	Rate at wheel [N/mm (lb./in.)]		20.0 (114.6)
	Insulators (type & material)		Cylindrical, Rubber
	If leaf	No. of leaves	-
		Shackle (comp. or tens.)	-
Stabilizer	Type (link, linkless, frameless)		Link
	Material & bar diameter		S45C, 19 (mm)
Track bar (type)			-

* Define load condition:

*1 Spring steel, specified in JIS

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Body Type And/Or Engine Displacement	A187A

∅ Brakes - Service

Description				
Manufacturer and brake type (std., opt., n.a.)	Front (disc or drum)		Sumitomo Electric Industries, Ltd., Disc	
	Rear (disc or drum)		Akebono Brake Industry, Ltd., Disc	
Valving type (proportion, delay, metering, other)			Proportion valve	
Power brake (std., opt., n.a.)			Std.	
Booster type (remote, integral, vac., hyd., etc.)			Integral	
Vacuum	Source (inline, pump, etc.)		Inline	
	Reservoir (volume in.³) and source		-	
	Pump-type (elec, gear driven, belt driven)		-	
Traction control	Operational speed range		-	
	Type engine intervention (electronic, mech.)		-	
Anti-lock device	Front/rear (std., opt., n.a.)		Rear (Std.)	
	Manufacturer		Nippon Air Brake Co., Ltd.	
	Type (electronic, mech.)		Electronic	
	Number sensors or circuits		1	
	Number anti-lock hydraulic circuits		1	
	Integral or add-on system		Add-on	
	Yaw control (yes, no)		No	
	Hydraulic power source (elect., vac. mtr., pwr. strg.)		Vacuum	
Effective area [cm²(in.²)]*			F: 184 (28.5) / R: 128 (19.8)	
Gross lining area [cm²(in.²)]**(F/R)			F: 189 (29.3) / R: 133 (20.6)	
Swept area [cm²(in.²)]***(F/R)			F: 1461 (226.5) / R: 1091 (169.1)	
Rotor	Outerworking diameter	F/R	F: 274 / R: 264	(mm)
	Inner working diameter	F/R	F: 169 / R: 187	(mm)
	Thickness	F/R	F: 24 / R: 18	(mm)
	Material & type (vented/solid)	F/R	Cast iron (Vented)	
Drum	Diameter & width	F/R	-	
	Type and material	F/R	-	
Wheel cylinder bore			F: 57.2 / R: 41.3	(mm)
Master cylinder	Bore/stroke	F/R	F: 23.81 / R: 31	(mm)
Pedal arc ratio			4.42	
Line pressure at 445 N(100 lb.) pedal load [kPa (psi)]			10563 (1532)	
Lining clearance		F/R	F: No major adjustment required / R: No major adjustment required	
Brake lining — Front wheel	Bonded or riveted (rivets/seg.)		Bonded	
	Rivet size		-	
	Manufacturer		Akebono Brake Industry, Ltd.	
	Lining code*****		AKV 3017 EE	
	Material		Molded	
	**** Primary or out-board		107.0 x 43.0 x 10	(mm)
	Size Secondary or in-board		107.0 x 43.0 x 10	(mm)
	Shoe thickness (no lining)		5.5	(mm)
Brake lining — Rear wheel	Bonded or riveted (rivets/seg.)		Bonded	
	Manufacturer		Akebono Brake Industry, Ltd.	
	Lining code*****		AKS 26 GF	
	Material		Molded	
	**** Primary or out-board		95 x 33.8 x 8.5	(mm)
	Size Secondary or in-board		95 x 33.8 x 8.5	(mm)
	Shoe thickness (no lining)		6	(mm)

*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 or formulation designation and coefficient of friction classification.

MVMA Specifications Form

Vehicle Line Starion
Model Year 1989 Issued 1988-5 Revised (•) _____

METRIC (U.S. Customary)

Body Type And/Or Engine Displacement	A187A

Tires And Wheels (Standard)

Tires	Size (load range, ply)		Front: 205/55 VR16 Rear: 225/50 VR16
	Type (bias, radial, steel, nylon, etc.)		Radial, Steel
	Inflation pressure (cold) for recommended max. vehicle load	Front [kPa (psi)]	190 (27)
		Rear [kPa (psi)]	190 (27)
	Rev./mile–at 70 km/h (45 mph)		829
Wheels	Type & material		Disc, Aluminum
	Rim (size & flange type)		Front: 16 x 7J Rear: 16 x 8J
	Wheel offset		Front: 18 Rear: -10
	Attachment	Type (bolt or stud)	Stud
		Circle diameter	114.3
		Number & size	Five, M12 x 1.5 (Metric)
∅ Spare	Tire and wheel		Other, T135/90D15 High pressure tire
	Storage position & location (describe)		Luggage room

Tires And Wheels (Optional)

Tire size (load range, ply)	Front: 225/50 VR16 Rear: 245/45 VR16
Type (bias, radial, steel, nylon, etc.)	Radial, Steel
Wheel (type & material)	Disc, Aluminum
Rim (size, flange type and offset)	Front: 16 x 8J, 18 Rear: 16 x 9J, 0
Tire size (load range, ply)	Front: 225/50 ZR16 Rear: 245/45 ZR16
Type (bias, radial, steel, nylon, etc.)	Radial, Steel
Wheel (type & material)	Disc, Aluminum
Rim (size, flange type and offset)	Front: 16 x 8J, 18 Rear: 16 x 9J, 0
Tire size (load range, ply)	–
Type (bias, radial, steel, nylon, etc.)	–
Wheel (type & material)	–
Rim (size, flange type and offset)	–
Tire size (load range, ply)	–
Type (bias, radial, steel, nylon, etc.)	–
Wheel (type & material)	–
Rim (size, flange type and 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		One handle, Hand-operated
Location of control		Between front seats
Operates on		Rear wheels
If separate from service brakes	Type (internal or external)	–
	Drum diameter	–
	Lining size (length x width x thickness	–

MVMA Specifications Form

Vehicle Line Starion
Model Year 1989 Issued 1988-5 Revised (•) _____

METRIC (U.S. Customary)

Body Type And/Or Engine Displacement	A187A

Steering

Manual (std., opt., n.a.)					N.A.
Power (std., opt., n.a.)					Std.
Adjustable steering wheel/column (tilt, telescope, other)		Type			Tilt
		Manufacturer			Mitsubishi Motors Corp.
		(Std., opt., n.a.)			Std.
Wheel diameter** (W9) SAE J1100		Manual			–
		Power			380 (mm)
Turning diameter m (ft.)	Outside front	Wall to wall (l. & r.)			10.7 (35.1)
		Curb to curb (l. & r.)			9.6 (31.5)
	Inside rear	Wall to wall (l. & r.)			–
		Curb to curb (l. & r.)			–
Scrub Radius*					
Manual	Gear	Type			N.A.
		Manufacturer			N.A.
		Ratios	Gear		N.A.
			Overall		N.A.
	No. wheel turns (stop to stop)				N.A.
Power	Type (coaxial, elec., hyd., etc.)				Integral type power steering
	Manufacturer				Koyo Seiko Co., Ltd.
	Gear	Type			Recirculating ball nut
		Ratios	Gear		14.3
			Overall		14.3
	Pump (drive)				V – belt
	No. wheel turns (stop to stop)				2.8
Linkage	Type				Parallelogram, trailing, equal length tie rods
	Location (front or rear of wheels, other)				Rear
	Tie rods (one or two)				Two
Steering axis	Inclination at camber (deg.)				10°00'
	Bearings (type)	Upper			Ball bearing
		Lower			Ball joint
		Thrust			–
Steering spindle & joint type					Ball
Wheel spindle/hub	Diameter	Inner bearing			31.750 (mm)
		Outer bearing			19.050 (mm)
	Thread (size)				M16 x 1.0 (Metric)
	Bearing (type)				Tapered roller

*The horizontal distance in the front elevation between wheel centerline and kingpin (ball joint) axis at ground.
**See Page 22

MVMA Specifications Form

Vehicle Line Starion
Model Year 1989 Issued 1988-5 Revised (•) _____

METRIC (U.S. Customary)

Body Type And/Or Engine Displacement	A187A

Wheel Alignment

Front wheel at curb mass (wt.)	Service checking	Caster (deg.)	5°50' ± 30'
		Camber (deg.)	-0°30' ± 30'
		Toe-in [outside track-mm (in.)]	-5 (-0.20) to 5 (0.20)
	Service reset*	Caster	–
		Camber	–
		Toe-in	–
	Periodic M.V. inspection	Caster	–
		Camber	–
		Toe-in	–
Rear wheel at curb mass (wt.)	Service checking	Camber (deg.)	-0°15' ± 30'
		Toe-in [outside track-mm (in.)]	-2 (-0.08) to 2 (0.08)
	Service reset*	Camber	–
		Toe-in	–
	Periodic M.V. inspection	Camber	–
		Toe-in	–

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

Electrical – Instruments and Equipment

Speedometer	Type (analog, digital, std., opt.)	Analog (Std.)
	Trip odometer (std., opt., n.a.)	Std. with combination meter
EGR maintenance indicator		N.A.
Charge indicator	Type	Moving iron
	Warning device (light, audible)	Voltmeter (Drive pointer) & Light
Temperature indicator	Type	Electric thermal
	Warning device (light, audible)	Drive pointer
Oil pressure indicator	Type	Electric thermal
	Warning device (light, audible)	Drive pointer
Fuel indicator	Type	Electric thermal
	Warning device (light, audible)	Drive pointer & Light
Windshield wiper	Type (standard)	Electric two speed with variable intermittent operation
	Type (optional)	N.A.
	Blade length	480 (mm)
	Swept area [cm²(in.²)]	5630 (873)
Windshield washer	Type (standard)	Electric
	Type (optional)	N.A.
	Fluid level indicator (light, audible)	Light
Rear window wiper, wiper-washer (std., opt., n.a.)		Electric one speed with intermittent operation (Std.)
Horn	Type	90 diameter
	Number used	two
Other		Brake system and parking brake warning light, Fasten belts warning light.

MVMA Specifications Form

Vehicle Line Starion
Model Year 1989 Issued 1988-5 Revised (•)

METRIC (U.S. Customary)

Engine Description/Carb. Engine Code	G54B with Inter cooled turbo (2.555 Liters)

Electrical – Supply System

Battery	Manufacturer	Yuasa Battery Co.,Ltd., Japan Storage Battery Co.,Ltd., Matsushita Battery Ind. Co.,Ltd., or Shin-Kobe Electric Machinery Co.,Ltd.
	Model, std., (opt.)	65D23R-MF or [75D26R-MF, 80D26R-MF (Opt.)]
	Voltage	12 [12]
	Amps at 0°F cold crank	420 [490 , 582]
	Minutes-reserve capacity	111 [123 , 133]
	Amp/hrs. - 20 hr. rate	65 [65]
	Location	Front, left side of engine compartment
Alternator	Manufacturer	Mitsubishi Electric Corp.
	Rating (idle/max. rpm)	75A
	Ratio (alt. crank/rev.)	1.89 : 1
	Output at idle (rpm, park)	-
	Optional (type & rating)	N.A.
Regulator	Type	Voltage control

Electrical – Starting System

Start. motor	Manufacturer	Mitsubishi Electric Corp.
	Current drain at 0°F	-
	Power rating [kw (hp)]	1.2
Motor drive	Engagement type	Solenoid
	Pinion engages from (front, rear)	Front

Electrical – Ignition System

Type	Electronic (std., opt., n.a.)		Std.
	Other (specify)		
Coil	Manufacturer		Diamond Electric Manufacturing Co.,Ltd.
	Model		LB-119
	Current	Engine stopped – A	0
		Engine idling – A	1.4
Spark plug	Manufacturer		NGK Spark Plug Co.,Ltd., Nippon Denso or Champion Spark Plug Co.,Ltd.
	Model		BUR7EA-11, W22EPR-S11 or RN7YC4
	Thread (mm)		14
	Tightening torque [N-m (lb, ft)]		20 to 30 (15 to 22)
	Gap		1.0 to 1.1
	Number per cylinder		1
Distributor	Manufacturer		Mitsubishi Electric Corp.
	Model		T2T72071

Electrical – Suppression

Locations & type	

MVMA Specifications Form

Vehicle Models Starion
Model Year 1989 Issued 1988-5 Revised (•)

METRIC (U.S. Customary)

Body Type	A187A

Body

Structure	Monocock body
∅ Bumper system front - rear	Impact absorbing system Facia (Polyurethane) Energy absorber (Polyurethane) Reinforcement (Steel)
Anti-corrosion treatment	Cathodic ED paint Extend use of galvanized steel Wax injection Stone chipping resistance coating

∅ Body – Miscellaneous Information

Type of finish (lacquer, enamel, other)		Heat setting acrylic enamel
Hood	Material & mass	Steel, 17.2 (kg)
	Hinge location (front, rear)	Rear
	Type (counterbalance, prop)	Prop
	Release control (internal, external)	Internal
Trunk lid	Material & mass	–
	Type (counterbalance, other)	–
	Internal release control (elec., mech., n.a.)	–
Hatch-back lid	Material & mass	Glass, 22.7 (included others) (kg)
	Type (counterbalance, other)	Counterbalance
	Internal release control (elec., mech., n.a.)	Mech.
Tailgate	Material & mass	–
	Type (drop, lift, door)	–
	Internal release control (elec., mech., n.a.)	–
Vent window control (crank, friction, pivot, power)	Front	–
	Rear	–
Window regulator type (cable, tape, flex, drive, etc.)	Front	Lift arm
	Rear	–
Seat cushion type (e.g., 60/40, bucket, bench, wire, foam etc.)	Front	Bucket, Spring
	Rear	Bench, Urethane foam
	3rd seat	–
Seat back type (e.g., 60/40, bucket, bench, wire, foam etc.)	Front	Bucket, Spring
	Rear	Spring, Urethane foam
	3rd seat	–

MVMA Specifications Form
METRIC (U.S. Customary)

Vehicle Line Starion
Model Year 1989 Issued 1988-5 Revised (•) _____

Body Type	A187A

Ø Restraint System

Seating Position			Left	Center	Right
Active	Type & description (lap & shoulder belt, lap belt, etc.) Standard/optional	First seat	–	–	–
		Second seat	3 point seat belt with ELR	2 point seat belt with manual adjusting device	3 point seat belt with ELR
		Third seat	–	–	–
Passive	Type & description (air bag, motorized - 2-point belt, fixed belt, knee bolster, manual - lap belt) Standard/optional	First seat	Motorized 2 point belt with ELR, manual lap belt with ELR & knee bolster	–	Motorized 2 point belt with ELR, manual lap belt with ALR/ELR & knee bolster
		Second seat	–	–	–
		Third seat	–	–	–

Glass	SAE Ref. No.	
Windshield glass exposed surface area [cm^2($in.^2$)]	S1	7368 (1142)
Side glass exposed surface area [cm^2($in.^2$)] - total 2-sides	S2	8740 (1350)
Backlight glass exposed surface area [cm^2($in.^2$)]	S3	9350 (1450)
Total glass exposed surface area [cm^2($in.^2$)]	S4	25458 (3942)
Windshield glass (type)		Curved-laminated plate
Side glass (type)		Curved-tempered plate
Backlight glass (type)		Curved-tempered plate

Ø Lamps and Headlamp Locations

Headlamps	Description - sealed beam, halogen, replaceable bulb, etc.	Sealed beam-Halogen
	Shape	Rectangular
	Lo-beam type (2A1, 2B1, 2C1, etc.)	2B1
	Quantity	Two
	Hi-beam type (1A1, 2A1, 1C1, 2C1, etc.)	2B1
	Quantity	Two

Frame

Type and description (separate frame, unitized frame, partially-unitized frame)	–

MVMA Specifications Form

METRIC (U.S. Customary)

Vehicle Line Starion
Model Year 1989 Issued 1988-5 Revised (•) _____

Body Type	A187A

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

∅ Air conditioning (manual, auto. temp control)		Opt. (Auto)
Clock (digital, analog)		Std. (Digital)
Compass/thermometer		N.A.
Console (floor, overhead)		Std. (Floor)
Defroster, elec. backlight		Std.
Electronic	Diagnostic monitor (integrated, individual)	Std. (Partly integrated)
	Instrument cluster (list instruments)	N.A.
	Keyless entry	N.A.
	Tripminder (avg. spd., fuel)	N.A.
	Voice alert (list items)	N.A.
	Other	
Fuel door lock (remote, key, electric)		Std. (Remote, Key)
Lamps	Auto head on/off delay, dimming	N.A.
	Cornering	N.A.
	Courtesy (map, reading)	Std.
	Door lock, ignition	N.A.
	Engine compartment	N.A.
	Fog	Std.
	Glove compartment	Std.
	Trunk	Std.
∅	Illuminated entry system (list lamps, activation)	N.A.
	Other	N.A.
Mirrors	Day/night (auto. man.)	Std. (Man)
	L.H. (remote, power, heated)	Std. (Power, heated)
	R. H. (convex, remote, power, heated)	Std. (Convex, Power, heated)
	Visor vanity (RH / LH, illuminated)	RH / LH (Opt. Illumination)
∅ Navigation system (describe)		N.A.
Parking brake-auto release (warning light)		–

MVMA Specifications Form

METRIC (U.S. Customary)

Vehicle Line Starion
Model Year 1989 Issued 1988-5 Revised (•) _____

Body Type	A187A

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

∅	Deck lid (release, pull down)		
	Door locks (manual, automatic, describe system)		N.A.
Power equipment	Seats	2 - 4 - 6 way, etc.	N.A.
		Reclining (R.H., L.H.)	N.A.
		Memory (R.H., L.H., preset, recline)	N.A.
		Lumbar, hip, thigh, support	N.A.
		Heated (R.H., L.H., other)	N.A.
	Side windows		Std.
	Vent windows		N.A.
	Rear windows		N.A.
	Antenna (location, whip. w/shield, power)		Std. (Power on rear quarter), Whip (Opt.)
∅	Radio systems — Standard	AM, FM, stereo, tape, compact disc, graphic equalizer, theft deterrent, radio prep package, headphone jacks, etc.	AM/FM MPX, electronic auto tuning radio with cassette player & equalizer
	Radio systems — Optional		-
	Speaker (number, location)		Std. (6 or 8 Speaker : on I/Pan, on R/Shelf, on Door)
Roof open air fixed (flip-up, sliding, "T")			Opt. (Flip-up)
Speed control device			Std.
Speed warning device (light, buzzer, etc.)			N.A.
Tachometer (rpm)			Std. (8000 rpm)
Telephone system (describe)			N.A.
Theft deterrent system			Disc tumbler key locks on ignition switch, Doors, Fuel lid, Luggage compartment & Lockable steering.

MVMA Specifications Form

Vehicle Models Starion
Model Year 1989 Issued 1988-5 Revised (•) _____

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.

Body Type	SAE Ref. No.	A187A
Width		
Tread (front)	W101	1465
Tread (rear)	W102	1455
Vehicle width	W103	1735
Body width at Sg RP (front)	W117	1685
Vehicle width (front doors open)	W120	3595
Vehicle width (rear doors open)	W121	–
Front fender overall width	W106	1720
Rear fender overall width	W107	1735
Tumble-home (deg.)	W122	31°
Vehicle width including mirrors		1845
Length		
Wheelbase	L101	2435
Vehicle length	L103	4400
Overhang (front)	L104	970
Overhang (rear)	L105	995
Upper structure length	L123	2600
Rear wheel C/L "X" coordinate	L127	2010
Cowl point "X" coordinate	L125	85
Front end length at centerline	L126	1480
Rear end length at centerline	L129	320
Height*		
Passenger distribution (front/rear)	PD1,2,3	Front:2, Rear:3
Trunk/cargo load		–
Vehicle height	H101	1275
Cowl point to ground	H114	915
Deck point to ground	H138	895
Rocker panel-front to ground	H112	180
Bottom of door closed-front to ground	H133	260
Rocker panel-rear to ground	H111	175
Bottom of door closed-rear to ground	H135	–
Windshield slope angle	H122	60°
Backlight slope angle	H121	70°
Ground Clearance*		
Front bumper to ground	H102	350
Rear bumper to ground	H104	300
Bumper to ground [front at curb mass (wt.)]	H103	355
Bumper to ground [rear at curb mass (wt.)]	H105	370
Angle of approach (degrees)	H106	16°
Angle of departure (degrees)	H107	19°
Ramp breakover angle (degrees)	H147	12°
Axle differential to ground (front / rear)	H153	160
Min. running ground clearance	H156	115
Location of min. run. grd. clear.		Exhaust pipe

* All vehicle **height** and **ground** clearances are measured at the Manufacturer's Design Load Weight.
Manufacturers Design Load Weight is defined with indicated passenger distribution and trunk/cargo load, unless otherwise specified.
All linear dimensions are in millimeters (inches) unless otherwise noted.

MVMA Specifications Form

Vehicle Models Starion
Model Year 1989 Issued 1988-5 Revised (•) _____

METRIC (U.S. Customary)
Vehicle Dimensions See Key Sheets for definitions

Body Type		A187A
Front Compartment	**SAE Ref. No.**	
Sg RP front, "X" coordinate	L31	995
Effective head room	H61	930
Max. eff. leg room (accelerator)	L34	1035
SgRP to heel point	H30	215
SgRP to heel point	L53	825
Back angle	L40	25°
Hip angle	L42	91°
Knee angle	L44	117°
Foot angle	L46	87°
Design H-point front travel	L17	180
Normal driving & riding seat track trvl.	L23	180
Shoulder room	W3	1330
Hip room	W5	1350
Upper body opening to ground	H50	1190
Steering wheel maximum diameter*	W9	380
Steering wheel angle	H18	21°
Accel. heel pt. to steer. whl. cntr	L11	445
Accel. heel pt. to steer. whl. cntr	H17	595
Steering wheel to C/L of thigh	H13	45
Steering wheel torso clearance	L7	380
Headlining to roof panel (front)	H37	15
Undepressed floor covering thickness	H67	20
Rear Compartment		
Sg RP Point couple distance	L50	605
Effective head room	H63	900
Min. effective leg room	L51	740
Sg RP (second to heel)	H31	250
Knee clearance	L48	0
Compartment room	L3	525
Shoulder room	W4	1300
Hip room	W6	1030
Upper body opening to ground	H51	–
Back angle	L41	25° (Outboard), 28° (Center)
Hip angle	L43	74°
Knee angle	L45	64°
Foot angle	L47	118°
Headlining to roof panel (second)	H38	15
Depressed floor covering thickness	H73	15
Luggage Compartment		
Usable luggage capacity [L (cu. ft.)]	V1	–
Liftover height	H195	–
Interior Volumes (EPA Classification)		
Vehicle class		Subcompact
Interior volume index (cu. ft.)		86.5 ft^3
Trunk/cargo index (cu. ft.)		10.3 ft^3

* See Page 14.

MVMA Specifications Form

Vehicle Line Starion
Model Year 1989 Issued 1988-5 Revised (•) _____

METRIC (U.S. Customary)
Vehicle Dimensions See Key Sheets for definitions

Body Type		A187A
Station Wagon – Third Seat	**SAE Ref. No.**	
Seat facing direction	SD1	–
Sg RP couple distance	L85	–
Shoulder room	W85	–
Hip room	W86	–
Effective leg room	L86	–
Effective head room	H86	–
Sg RP to heel point	H87	–
Knee clearance	L87	–
Back angle	L88	–
Hip angle	L89	–
Knee angle	L90	–
Foot angle	L91	–
Station Wagon – Cargo Space		
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	–
Hatchback – Cargo Space		
Cargo length at front seatback height	L208	1250
Cargo length at floor (front)	L209	1515
Cargo length at second seatback height	L210	590
Cargo length at floor (second)	L211	890
Front seatback to load floor height	H197	285
Second seatback to load floor height	H198	305
Cargo volume index [$m^3(ft.^3)$]	V3	0.51
Hidden cargo volume index [$m^3(ft.^3)$]	V4	–
Cargo volume index-rear of 2-seat	V11	–
Aerodynamics*		
Wheel lip to ground, front		–
Wheel lip to ground, rear		–
Frontal area [$m^2(ft^2)$]		1.84 (19.81)
Drag coefficient (Cd)		0.35

* EPA Loaded Vehicle Weight, Loading Conditions

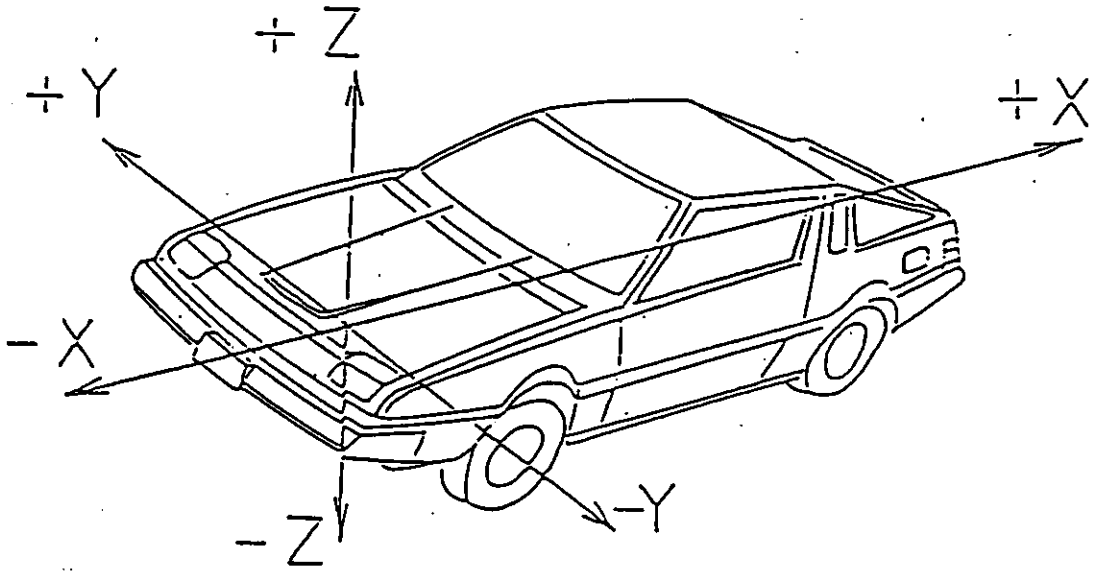
MVMA Specifications Form

METRIC (U.S. Customary)

Vehicle Line Starion
Model Year 1989 Issued 1988-5 Revised (•) _____

Body Type	A187A

Vehicle Fiducial Marks

Fiducial Mark Number*	Define Coordinate Location
Front	
Rear	

Datum plane difinition – Vertical longitudinal plane through the longitudinal center of the car.
Vertical transverse place through the front wheel center.
Horizontal plane through the bottom of the rocker panels.

Fiducial Mark Number		
Front	W21*	345
	L54*	0.35
	H81*	111
	H161*	295
	H163*	-
Rear	W22*	520
	L55*	2965
	H82*	291
	H162*	450
	H164*	-

* Reference – SAE Recommended Practice, J182, Motor Vehicle Fiducial Marks.

MVMA Specifications Form

Vehicle Line Starion
Model Year 1989 Issued 1988-5 Revised (•) _____

METRIC (U.S. Customary)

Code	Model	Vehicle Mass (weight)							
		CURB MASS, kg. (lb.)*			% PASS. MASS DISTRIBUTION				
					Pass In Front		Pass In Rear		
		Front	Rear	Total	Front	Rear	Front	Rear	ETWC**
A187AMNFGLF/H		724	653	1377	63	73	95	109	1329
		(1596)	(1440)	(3036)					(2930)
A187AMRFGLF/H		746	661	1407	63	73	95	109	1359
		(1645)	(1457)	(3102)					(2996)

SHIPPING MASS (weight) = Curb Weight Less Kg. (lbs.) _____

* Reference – SAE J1100 Motor vehicle dimensions, curb weight definition.

** ETWC - Equivalent Test Weight Class - U.S. Environmental Protection Agency emission certifications are based on the ETWC's shown.
NA - Not Applicable - applies to model/series combinations not requiring testing.

MVMA Specifications Form

METRIC (U.S. Customary)

Vehicle Line Starion
Model Year 1989 Issued 1988-5 Revised (•) _____

Code	Equipment	Optional Equipment Differential Mass (weight)* MASS, kg. (lb.) Front	Rear	Total	Remarks Restrictions, Requirements
	Air conditioning	26.4	-2.0	24.4	
		(58.2)	(-4.4)	(53.8)	
	Sun roof	2.0	5.0	7.0	
		(4.4)	(11.0)	(15.4)	

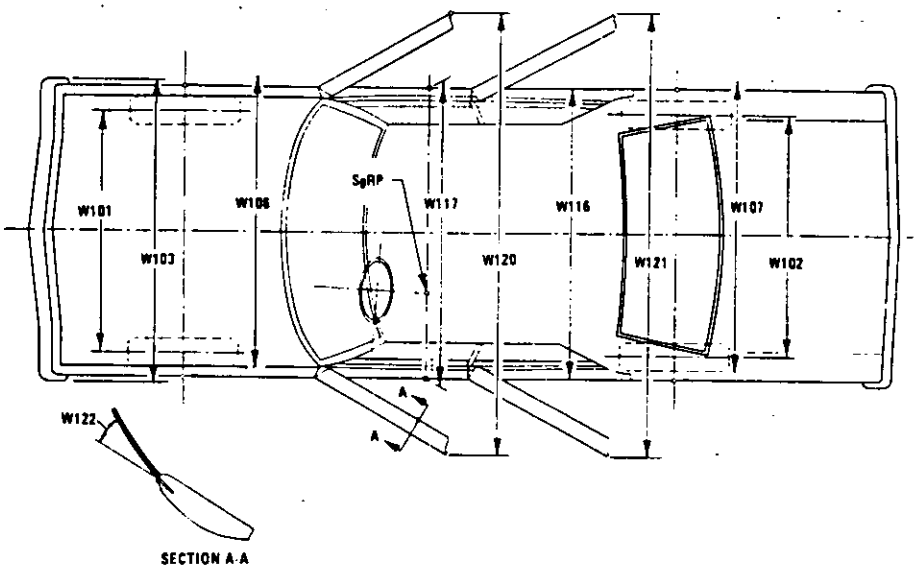
* Also see Engine - General Section for dressed engine mass (weight).

MVMA Specifications Form

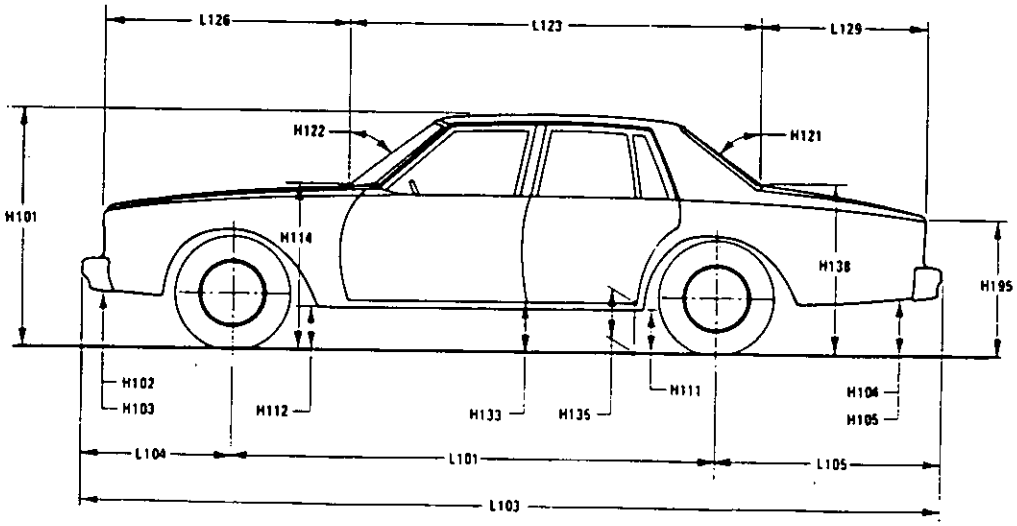
METRIC (U.S. Customary)

Exterior Vehicle And Body Dimensions – Key Sheet

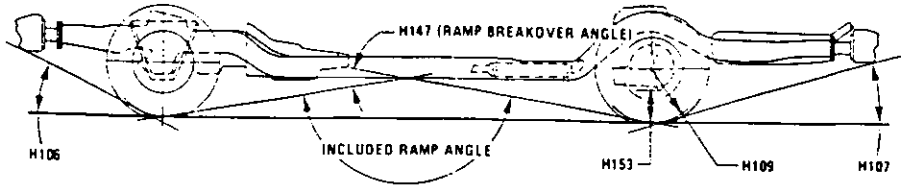
Exterior Width



Exterior Length & Height



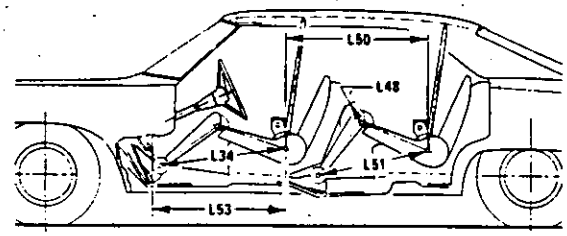
Exterior Ground Clearance

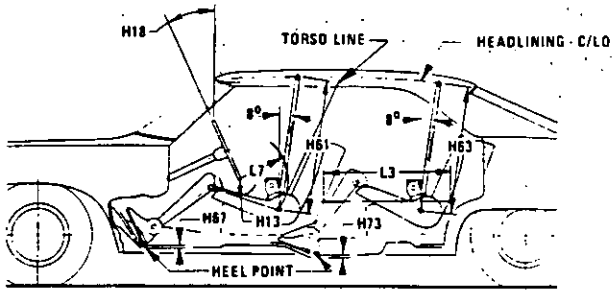


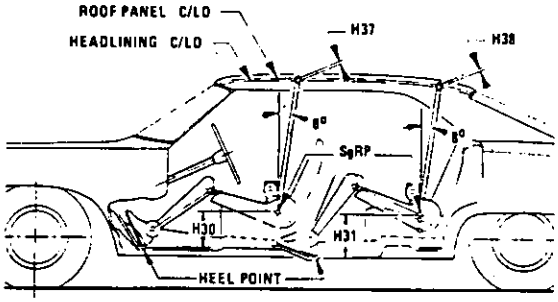
MVMA Specifications Form

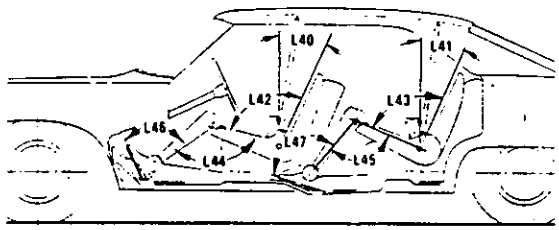
METRIC (U.S. Customary)

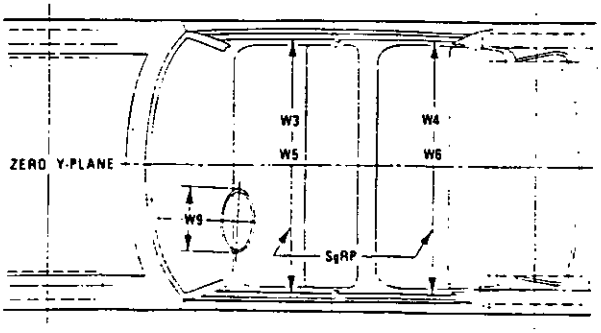
Interior Vehicle And Body Dimensions – Key Sheet

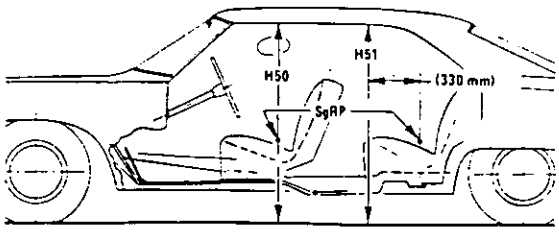




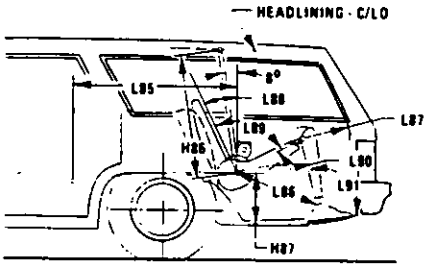


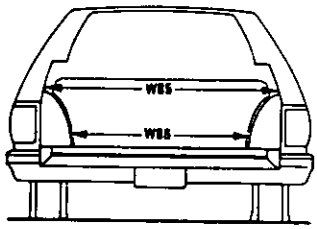




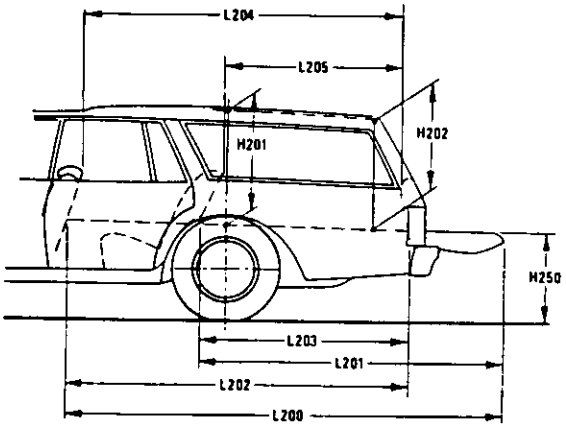


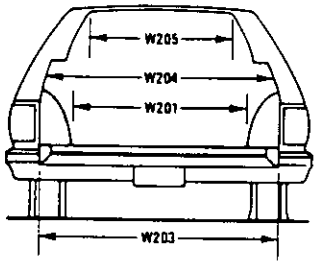
Third Seat



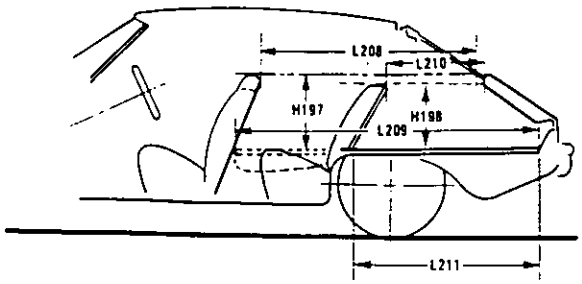


Cargo Space





Station Wagon



Hatchback

MVMA Specifications Form

METRIC (U.S. Customary)

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,".

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.

W106 FRONT FENDER WIDTH. The dimension measured between the widest points at the front wheel centerline, excluding moldings.

W107 REAR FENDER WIDTH. The dimension measured between the widest points at the rear wheel centerline, excluding moldings.

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 front 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.

Length Dimensions

L101 WHEELBASE (WB). The dimension measured longitudinally between front and rear wheel centerlines. 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 hooks 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.

L123 UPPER STRUCTURE LENGTH. The dimension measured longitudinally from the cowl point to the deck point.

L125 COWL POINT "X" COORDINATE.

L126 FRONT END LENGTH. The dimension measured longitudinally from the cowl point to the foremost point on the vehicle at the zero "Y" plane excluding ornamentation or bumpers. In cases where bumpers and/or grills are integrated with the profile, measurement is made at the foremost point of front end contour.

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.

L129 REAR END LENGTH. The dimension measured longitudinally from the deck point to the rearmost visible point of the body sheet metal at the zero "Y" plane, excluding ornamentation or bumpers.

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.

H133 BOTTOM OF DOOR CLOSED–FRONT TO GROUND. The dimension measured vertically from the bottom outside corner of the door on the lock pillar side, in maximum closed position, to ground.

H135 BOTTOM OF DOOR CLOSED–REAR TO GROUND. The dimension measured vertically from the bottom outside corner of the door on the lock pillar side, in maximum closed position, to ground.

H138 DECK POINT TO GROUND. Measured at zero "Y" plane.

H109 STATIC LOAD–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–CURB MASS (WT.). Measured in the same manner as H102.

MVMA Specifications Form

METRIC (U.S. Customary)

Interior Vehicle And Body Dimensions – Key Sheet
Dimensions Definitions

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.

Glass Areas

S1 Windshield area.

S2 Side windows area. Includes the front door, rear door, vents, and rear quarter windows on both sides of the vehicle.

S3 Backlight areas.

S4 Total area. Total of all areas (S1 + S2 + S3).

Fiducial Mark Dimensions

Fiducial Mark – Number 1

L54 "X" coordinate.

W21 "Y" coordinate.

H81 "Z" coordinate.

H161 Height "Z" coordinate to ground at curb weight.

H163 Height "Z" coordinate to ground.

Fiducial Mark – Number 2

L55 "X" coordinate.

W22 "Y" coordinate.

W82 "Z" coordinate.

H162 Height "Z" coordinate to ground at curb weight.

H164 Height "Z" coordinate to ground.

Front Compartment Dimensions

L7 STEERING WHEEL TORSO CLEARANCE. The minimum dimension measured in the side view from the rearmost edge of the steering wheel, with front wheels in the straight ahead position, to the torso line.

L11 ACCELERATOR HEEL 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.

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)

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)

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 teh accelerator is depressed, the manufacturer shall place foot flat on pedal and note the depression of the pedal.

L-40 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.

L-42 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.

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.

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

H13 STEERING WHEEL TO CENTERLINE OF THIGH. The minimum dimension measured from the bottom of steering wheel, with front wheels in the straight position, to the thigh centerline.

H17 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.

H18 STEERING WHEEL ANGLE. The angle measured from a vertical to the surface plane of the steering wheel.

H30 SgRP–FRONT TO HEEL. The dimension measured vertically from the SgRP–front to the accelerator heel point.

H37 HEADLINING TO ROOF PANEL–FRONT. The dimension measured from the intersection of the headlining and the extended effective head room line normal to the sheet metal.

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.

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.).

H67 FLOOR COVERING THICKNESS–UNDEPRESSED–FRONT. The dimension measured vertically from the surface of the undepressed floor covereing to the underbody sheet metal at the accelerator heel point.

Rear Compartment Dimensions

L3 COMPARTMENT ROOM–SECOND. The dimension measured horizontally from the back of the front seat to the front of the second seatback at a height tangent to the top of the second seat cushion.

Interior Vehicle And Body Dimensions – Key Sheet Dimensions Definitions

L-41 BACK ANGLE–SECOND. The angle measured between a vertical line through the SgRP–second and the torso line.

L43 HIP ANGLE–SECOND. The angle measured between torso line and thigh centerline.

L45 KNEE ANGLE–SECOND. The angle measured between thigh centerline and lower leg centerline.

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).

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.).

L50 SgRP COUPLE DISTANCE–SECOND. The dimension measured horizontally from the driver SgRP–front to the SgRP–second.

L51 MINIMUM EFFECTIVE LEG ROOM–SECOND. The dimension measured along a line from the ankle pivot center to the SgRP–second plus 254mm (10.0 in.).

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.

W6 HIP ROOM–SECOND. Measured in the same manner as W5.

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.

H38 HEADLINING TO ROOF PANEL–SECOND. The dimension measured from the intersection of the headlining and the extended effective head room line normally to the roof sheet metal.

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.

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.).

H73 FLOOR COVERING–DEPRESSED–SECOND. The dimesnion measured vertically from the heel point to the underbody sheet metal.

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.

H195 LIFTOVER HEIGHT. The dimension measured vertically from the luggage compartment lower opening at the zero "Y" plane to ground.

Interior Volumes (EPA Classification)

The Interior Volume 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 interior volume index is an estimate of the size of the passenger compartment.

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 – 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 51mm (2.0 in.). With rear-facing third seat, dimension is measured to closure.

L88 BACK ANGLE–THIRD. Measured in the same mannere 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 – 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 to the rearmost point on 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 to 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 at the seatback top to he 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.

MVMA Specifications Form

METRIC (U.S. Customary)

Interior Vehicle And Body Dimensions – Key Sheet
Dimensions Definitions

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.

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.

V2 STATION WAGON
Measured in inches:

$$\frac{W4 \times H201 \times L204}{1728} = ft^3$$

Measured in mm:

$$\frac{W4 \times H201 \times L204}{10^9} = m^3 \text{ (cubic meter)}$$

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.

V5 TRUCKS AND MPV'S WITH OPEN AREA.
Measured in inches:

$$\frac{L506 \times W500 \times H503}{1728} = ft^3$$

Measured in mm:

$$\frac{L506 \times W500 \times H503}{10^9} = m^3 \text{ (cubic meter)}$$

V6 TRUCKS AND MPV'S WITH CLOSED AREA.
Measured in inches:

$$\frac{L204 \times W500 \times H505}{1728} = ft^3$$

Measured in mm:

$$\frac{L204 \times W500 \times H505}{10^9} = m^3 \text{ (cubic meter)}$$

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.

V10 STATION WAGON CARGO VOLUME INDEX.
Measured in inches:

$$\frac{H201 \times L205 \times \frac{W4 + W201}{2}}{1728} = ft^3$$

Measured in mm:

$$\frac{H201 \times L205 \times \frac{W4 + W201}{2}}{10^9} = m^3 \text{ (cubic meter)}$$

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 electrically adjusted seats, see the manufacturer's specifications for Design "H" Point).

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.

L209 CARGO LENGTH AT FLOOR–FRONT–HATCHBACK. 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.

L210 CARGO LENGTH AT SECOND SEATBACK HEIGHT–HATCHBACK. The minimum dimension measured from the "X" plane tangent to the rearmost surface of second seatback or the load floor which is stowed at least one half of the H198 dimension height above the rear load floor, to the rearmost inside limiting interference on the zero "Y" plane.

L211 CARGO LENGTH AT FLOOR–SECOND HATCHBACK. 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.

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.

H198 SECOND SEATBACK TO LOAD FLOOR HEIGHT: The dimension measured vertically from the second seat back to the undepressed floor covering.

V3 HATCHBACK.
Measured in inches:

$$\frac{\frac{L208 + L209}{2} \times W4 \times H197}{1728} = ft^3$$

Measured in mm:

$$\frac{\frac{L208 + L209}{2} \times W4 \times H197}{10^9} = m^3 \text{ (cubic meter)}$$

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.

V11 HATCHBACK CARGO VOLUME INDEX. Usable luggage (one (1) stand and luggage set) below floor:
Measured in inches:

$$\frac{\frac{L210 + L211}{2} \times W4 \times H198}{1728} = ft^3$$

Measured in mm:

$$\frac{\frac{L210 + L211}{2} \times W4 \times H198}{10^9} = m^3 \text{ (cubic meter)}$$

MVMA Specifications Form

METRIC (U.S. Customary)

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