



# MANUFACTURERS MOTOR VEHICLE SPECIFICATIONS

METRIC (U.S. Customary)

# 1990

<b>Manufacturer</b> Isuzu Motors Limited	<b>Vehicle Line</b> Geo STORM	
<b>Mailing Address</b> Chevrolet-Pontiac-Canada Group Engineering Center General Motors Corporation 30003 Van Dyke Warren, Michigan 48090-9060	<b>Issued</b> June, 1989	<b>Revised</b> September, 1989

Direct questions concerning these specifications to the manufacturer listed above.

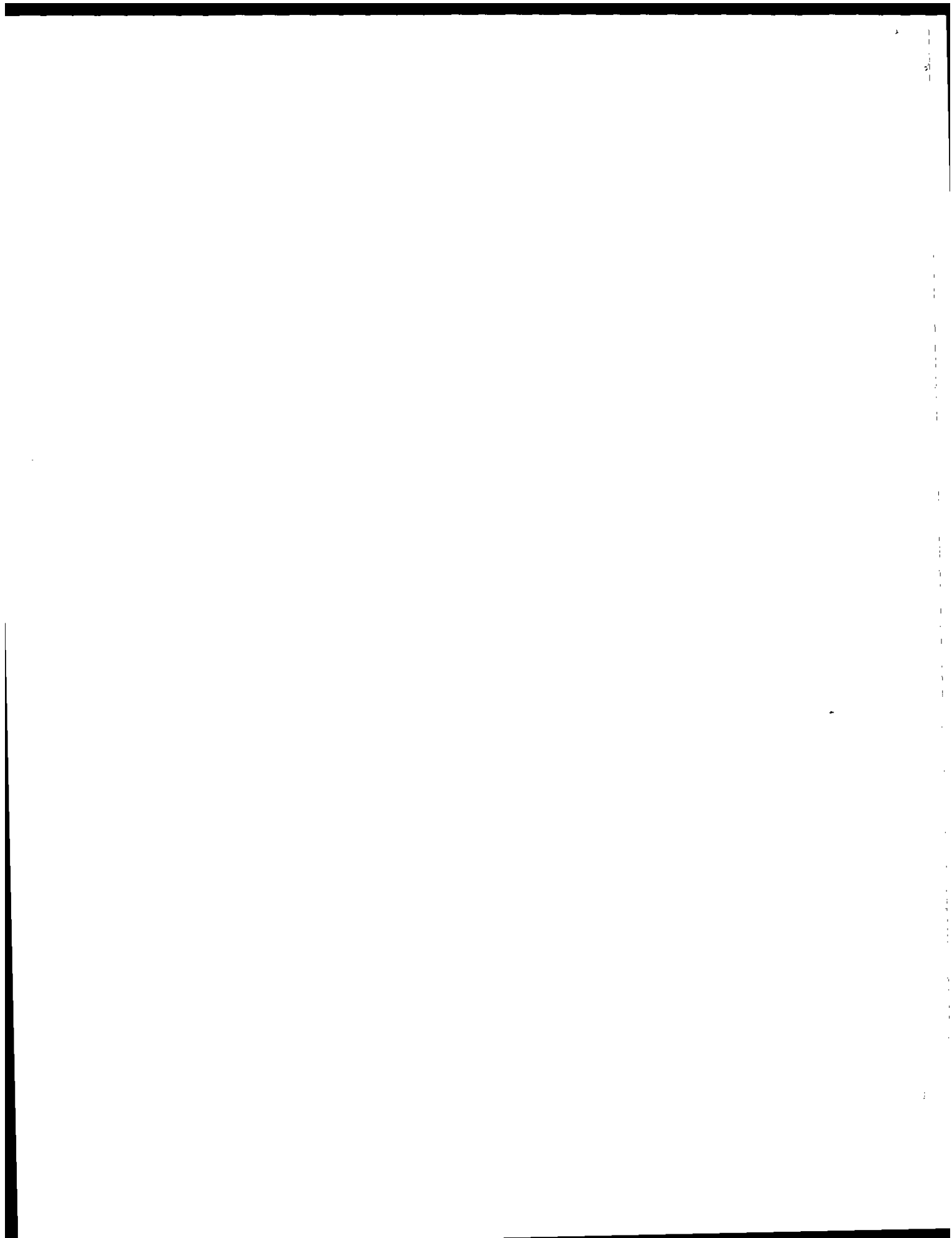
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The General Specifications herein are those in effect at date of compilation and are subject to change without notice or incurring obligation by the manufacturer.



Motor Vehicle Manufacturers Association  
of the United States, Inc.

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# MVMA Specifications

METRIC (U.S. Customary)

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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) specs. 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.

FORM MVMA-90



# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 9-89

METRIC (U.S. Customary)

## ○ Vehicle Origin

Design & development (company)	ISUZU MOTORS LIMITED
Where built (country)	JAPAN
Authorized U.S. Sales marketing representative	Geo

## ○ 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)
Geo STORM 2-Door Hatchback Coupe (FWD)		1RF77	2/2	30.0 (66)
Geo STORM GSI 2-Door Hatchback Coupe (FWD)		1RT77	2/2	30.0 (66)

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

# MVMA Specifications

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## METRIC (U.S. Customary) Power Teams

SAE J1349 Net bhp (brake hrspwr) and Net Torque corrected to 77 deg. F / 25 deg. C and 29.61 in. Hg/100 kPA atmos. press.

		A	B	C	D	
<b>E N G I N E</b>	Engine Code	L01	L01	LW0	LW0	
	Displacement Liters (cu. in.)	1.6 (97)	1.6 (97)	1.6 (97)	1.6 (97)	
	Induction system (Fi, Carb, etc.)	Multi-Port Fuel Injection	Multi-Port Fuel Injection	Multi-Port Fuel Injection	Multi-Port Fuel Injection	
	Compression ratio	9.1:1	9.1:1	9.8:1	9.8:1	
	SAE Net at RPM	Power kW (bhp)	70.8 (95) @ 5800	70.8 (95) @ 5800	97.0 (130) @ 7000	97.0 (130) @ 7000
		Torque Newton meters (lb.ft.)	131.4 (97) @ 4800	131.4 (97) @ 4800	138.3 (102) @ 5800	138.3 (102) @ 5800
Exhaust Single, dual		Single	Single	Single	Single	
<b>T R A N S</b>	Transmission/ Transaxle	Manual 5-Speed	Automatic 3-Speed	Manual 5-Speed	Automatic 4-Speed	
	Axle Ratio (std. first)	3.83	3.53	4.12	4.10	

### Series Availability

### Power Teams (A - B - C - D)

Model	Code	Standard	Optional
<b>Geo STORM</b>			
2-Dr. Hatchback Coupe	1RF77	A	B
<b>Geo STORM GSI</b>			
2-Dr. Hatchback Coupe	1RT77	C	D

# MVMA Specifications

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METRIC (U.S. Customary)

Engine Description  
 Engine Code

1.6 LITER L4 (97 CID)  
 MULTI-PORT FUEL INJECTION RPO L01

## ENGINE - GENERAL

Type & description (inline, V, angle, flat, location, front, mid, rear, transverse, longitudinal, sohc, dohc, ohv, hemi, wedge, pre-chamber, etc.)

Inline, Front, Transverse, SOHC, Hemisphere

Manufacturer	Isuzu Motors Ltd.	
No. of cylinders	4	
Bore	80 mm (3.15 in.)	
Stroke	79 mm (3.11 in.)	
Bore spacing (C/L to C/L)	87 mm (3.4 in.)	
Cyl block matl & mass kg(lbs.) <sup>***</sup> (machined)	Cast iron	
Cylinder block deck height	190 mm (7.48 in.)	
Cylinder block length	392 mm (15.4 in.)	
Deck clearance (minimum) (above or below block)	0	
Cyl. head material & mass kg (lbs.)	Aluminum Alloy	
Cylinder head volume (cu. cm.)		
Cylinder liner material	-	
Head gasket thickness (compressed)	1.2 mm (0.05 in.)	
Minimum combustion chamber total volume (cm. cu.)	49.1	
Cyl. no. system (front to rear)	L. Bank	1-2-3-4
	R. Bank	-
Firing order	1-3-4-2	
Intake manifold matl & mass(kg(lbs.)) <sup>**</sup>	Aluminum Alloy	
Exh. manifold matl & mass (kg (lbs.)) <sup>**</sup>	Cast iron, (FCD)	
Fuel required unleaded, diesel, etc.	Unleaded	
Fuel antiknock index (R + M) / 2	87	
Engine mounts	Quantity	4
	Matl and type (elastomeric, hydroelastic, hydraulic damper, etc.)	Elastomeric
	Added isolation (sub-frame, crossmember, etc.)	-
Total dressed engine mass (wt) dry <sup>***</sup>	109 (240), M/T/104 (229), A/T	

## Engine - Pistons

Material & mass, g (weight, oz.) - piston only

Aluminum Alloy

## Engine Camshaft

Location	Over Cylinder Head	
Material & mass kg (weight, lbs.)	Cast iron	
Drive type	Chain/belt	Belt
	Width/pitch	25.4/8.0 mm (1.0/0.3 in.)

\*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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## METRIC (U.S. Customary)

### Engine Description

### Engine Code

1.6 LITER L4 (97 CID)  
 MULTI-PORT FUEL INJECTION RPO LW0

## ENGINE - GENERAL

Type & description (inline, V, angle, flat, location, front, mid, rear, transverse, longitudinal, sohc, dohc, ohv, hemi, wedge, pre-chamber, etc.)

Inline, Front, Transverse, DOHC, Pent Roof

Manufacturer		Isuzu Motors Ltd.
No. of cylinders		4
Bore		80 mm (3.15 in.)
Stroke		79 mm (3.11 in.)
Bore spacing (C/L to C/L)		87 mm (3.4 in.)
Cyl block matl & mass kg(lbs.)(machined)		Cast Iron
Cylinder block deck height		190 mm (7.48 in.)
Cylinder block length		392 mm (15.4 in.)
Deck clearance (minimum) (above or below block)		0.7 mm (0.03 in.)
Cyl. head material & mass kg (lbs.)		Aluminum Alloy
Cylinder head volume (cu. cm.)		
Cylinder liner material		-
Head gasket thickness (compressed)		1.20 (0.05)
Minimum combustion chamber total volume (cm. cu.)		(45.1)
Cyl. no. system (front to rear)	L. Bank	1-2-3-4
	R. Bank	-
Firing order		1-3-4-2
Intake manifold matl & mass[kg(lbs.)]**		Aluminum Alloy
Exh. manifold matl & mass [kg (lbs.)]**		Cast Iron (FCD)
Fuel required unleaded, diesel, etc.		Unleaded
Fuel antiknock index (R + M) / 2		87
Engine mounts	Quantity	4
	Matl and type (elastomeric, hydroelastic, hydraulic damper, etc.)	Elastomeric
	Added isolation (sub-frame, crossmember, etc.)	-
Total dressed engine mass (wt) dry***		125 (276), M/T/120 (264), A/T

## Engine - Pistons

Material & mass, g (weight, oz.) - piston only

Aluminum Alloy

## Engine Camshaft

Location		Over Cylinder Head
Material & mass kg (weight, lbs.)		Cast Iron
Drive type	Chain/belt	Belt
	Width/pitch	25.4/8.0 mm (1.0/0.3 in.)

\*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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## METRIC (U.S. Customary)

Engine Description  
 Engine Code

1.6 LITER L4 (97 CID)  
 MULTI-PORT FUEL INJECTION RPO L01

### Engine - Valve System

Hydraulic lifters (std., opt., NA)	Not Applicable
Valves	Number intake/exhaust
	Head O.D. intake/exhaust

### Engine - Connecting Rods

Material & mass [kg., (weight, lbs.)]*	Forged Steel
Length (axes centerline to centerline) mm	122 (4.8)

### Engine - Crankshaft

Material & mass [kg., (weight, lbs.)]*	Cast Iron
End thrust taken by bearing (no.)	2
Length & number of main bearings	17.0 mm (.67 in.), 5
Seal (material, one, two piece design, etc.)	Front
	Rear

### Engine - Lubrication System

Normal oil pressure [kPa (psi) @ eng rpm]	441/5200
Type oil intake (floating, stationary)	Stationary
Oil filter sys. (full flow, part, other)	Full Flow
Capacity of c/case, less filter-refill-L (qt.)	3.6 (3.8)

### Engine - Diesel Information

(NOT APPLICABLE)

Diesel engine manufacturer	
Glow plug, current drain at 0 deg. F	
Injector Nozzle	Type
	Opening pressure [kPa (psi)]
Pre-chamber design	
Fuel injection pump	Manufacturer
	Type
Fuel inj. 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

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## METRIC (U.S. Customary)

Engine Description	1.6 LITER L4 (97 CID)
Engine Code	MULTI-PORT FUEL INJECTION RPO LW0

### Engine - Valve System

Hydraulic lifters (std., opt., NA)	Not Applicable	
Valves	Number intake/exhaust	8/8
	Head O.D. intake/exhaust	31 (1.22)/28 (1.10)

### Engine - Connecting Rods

Material & mass (kg., (weight, lbs.))*	Forged Steel
Length(axes centerline to centerline)mm	122 (4.8)

### Engine - Crankshaft

Material & mass (kg., (weight, lbs.))*	Cast Iron	
End thrust taken by bearing (no.)	2	
Length & number of main bearings	17.0 mm (.67 in.), 5	
Seal (material, one, two piece design, etc.)	Front	Acryl Rubber, One Piece Design
	Rear	Fluorine Rubber, One Piece Design

### Engine - Lubrication System

Normal oil pressure(kPa(psi) @ eng rpm)	490/5200
Type oil intake (floating, stationary)	Stationary
Oil filter sys. (full flow, part, other)	Full Flow
Capacity of c/case, less filter-refill-L (qt.)	4.6 (4.8)

### Engine - Diesel Information

(NOT APPLICABLE)

Diesel engine manufacturer		
Glow plug, current drain at 0 deg. F		
Injector Nozzle	Type	
	Opening pressure(kPa(psi))	
Pre-chamber design		
Fuel in-jection pump	Manufacturer	
	Type	
Fuel inj. 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

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## METRIC (U.S. Customary)

Engine Description  
 Engine Code

1.6 LITER L4 (97 CID)  
 MULTI-PORT FUEL INJECTION RPO L01

### 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
Circulation thermostat	Type (choke, bypass)	Bypass
	Starts to open @ deg's C(F)	82 (180)
Water Pump	Type (centrifugal, other)	Centrifugal
	GPM 1000 pump rpm	6.9
	Number of pumps	1
	Drive (V-belt, other)	Timing Belt
	Bearing type	Sealed Type Ball Bearing
	Impeller material	Steel
Housing material		Aluminum Alloy
By-pass recirculation [type (inter., ext.)]		External
Cooling system capacity	With heater - L (qt.)	6.8 (7.2), M/T/7.3 (7.7), A/T
	With air conditioner-L(qt.)	6.8 (7.2), M/T/7.3 (7.7), A/T
	Opt. equip.(specify-L(qt.))	Not Applicable
Water jackets full length of cyl(yes,no)		Yes
Water all around cylinder (yes, no)		Yes
Water jackets open at head face (yes,no)		No
Radiator core	Std., A/C, HD	Standard
	Type (cross-flow, etc.)	Down-Flow
	Construction (fin & tube mechanical, braze, etc.)	Tube & Corrugated Fin
	Matl., mass (kg/wgt.,lbs.)	Brass & Copper
	Width	668 mm (26.3 in.)
	Height	350 mm (13.8 in.)
	Thickness	16.0 mm (0.63 in.), M/T; 32.0 mm (1.26 in.), A/T
Fins per inch		11, M/T/10, A/T
Radiator end tank material		Nylon
Fan	Std., elec., opt.	Standard Electric
	Number of blades & type (flex, solid, material)	
	Diameter & projected width	300 mm (11.8 in.)
	Ratio(fan to crnksht.rev.)	Not Applicable
	Fan cutout type	-
	Drive type (direct, remote)	-
	RPM at idle (elec.)	2150
	Motor rating(wattage)(elec)	80, M/T/160, A/T
	Motor switch (type & location) (elec.)	Water Temperature, Radiator Tank
	Switch point (temp., pressure) (elec.)	85 deg. C (185 deg. F)
Fan shroud (material)		Polypropylene

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## METRIC (U.S. Customary)

Engine Description	1.6 LITER L4 (97 CID)
Engine Code	MULTI-PORT FUEL INJECTION RPO LW0

## 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	
Circulation thermostat	Type (choke, bypass)	Bypass
	Starts to open @ deg's C(F)	82 (180)
Water Pump	Type (centrifugal, other)	Centrifugal
	GPM 1000 pump rpm	26 Liter/Minute
	Number of pumps	1
	Drive (V-belt, other)	Timing Belt
	Bearing type	Sealed Type Ball Bearing
	Impeller material	Steel
	Housing material	Aluminum Alloy
By-pass recirculation [type (inter., ext.)]	External	
Cooling system capacity	With heater - L (qt.)	6.8 (7.32), M/T/7.4 (7.8), A/T
	With air conditioner-L(qt.)	6.8 (7.3), M/T/7.4 (7.8), A/T
	Opt. equip.[specify-L(qt.)]	Not Applicable
Water jackets full length of cykyes,no	Yes	
Water all around cylinder (yes, no)	Yes	
Water jackets open at head face (yes,no)	No	
Radiator core	Std., A/C, HD	Standard
	Type (cross-flow, etc.)	Down-Flow
	Construction (fin & tube mechanical, braze, etc.)	Tube & Corrugated Fin
	Matl. mass [kg(wgt.) lbs.]	Brass & Copper
	Width	668 mm (26.3 in.)
	Height	350 mm (13.8 in.)
	Thickness	16.0 mm (0.63 in.), M/T/32.0 mm (1.26 in.), A/T
Fins per inch	11, M/T/10, A/T	
Radiator end tank material	Nylon	
Fan	Std., elec., opt.	Standard Electric
	Number of blades & type (flex, solid, material)	4, PP
	Diameter & projected width	300 (11.8)
	Ratio(fan to crnkshft.rev.)	Not Applicable
	Fan cutout type	-
	Drive type (direct, remote)	-
	RPM at idle (elec.)	2150
	Motor rating(wattage)(elec)	80, M/T/160, A/T
	Motor switch (type & location) (elec.)	Water Temperature
	Switch point (temp., pressure)(elec.)	85 deg. C (185 deg. F)
Fan shroud (material)	Polypropylene	

# MVMA Specifications

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## METRIC (U.S. Customary)

Engine Description  
 Engine Code

1.6 LITER L4 (97 CID)  
 MULTI-PORT FUEL INJECTION RPO L01

### Engine - Fuel System (See supplemental page for details of Fuel Inj, Supercharger, Turbocharger, etc. if used)

Induction type: carburetor, fuel injection system, etc.		Fuel Injection
Manufacturer		AC/Rochester Division
Carburetor no. of barrels		-
Idle A/F mix.		Present At Manufacturer
Fuel Injection	Point of inj. (no.)	4
	Constant, pulse, flow	Pulse
	Control (elec., mech.)	Electronic
	Sys. press. (kPa (psi))	300
Idle spd.-rpm (spec. neutral or drive and propane if used)	Manual	850
	Automatic	940 (Neutral)
Intake manifold heat control (exhaust or water thermostatic or fixed)		-
Air cleaner type		Dry: 1 Element
Fuel filter (type/location)		Paper Element/Engine Room
Fuel pump	Type (elec. or mech.)	Electric
	Location (eng., tank)	Fuel Tank
	Press. range (kPa(psi))	
	Flow rate at regulated pressure (L (gal)/hr @ kPa (psi))	

### Fuel Tank

Capacity (refill L (gallons))		47 (12.4)
Location (describe)		Under Floor - Rear Seat
Attachment		Bolted
Material & Mass (kg (weight lbs.))		Lead-Tin Plating Steel 9.8 (21.6)
Filler pipe	Location & material	Rear-Left Wheel House, Painted Steel Pipe
	Connection to tank	Rubber Hose
Fuel line (material)		Copper Plating Steel Pipe
Fuel hose (material)		Rubber Hose With Intermediate Blade
Return line (material)		Copper Plating Steel Pipe
Vapor line (material)		Copper Plating Steel Pipe
Extended range tank	Opt., n.a.	Not Applicable
	Capacity [L (gallons)]	"
	Location & material	"
	Attachment	"
Auxiliary tank	Opt., n.a.	Not Applicable
	Capacity [L (gallons)]	"
	Location & material	"
	Attachment	"
	Slctr switch or valve	"
	Separate fill	"

# MVMA Specifications

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## METRIC (U.S. Customary)

Engine Description  
 Engine Code

1.6 LITER L4 (97 CID)  
 MULTI-PORT FUEL INJECTION RPO LW0

### Engine - Fuel System (See supplemental page for details of Fuel Inj, Supercharger, Turbocharger, etc. if used)

Induction type: carburetor, fuel injection system, etc.		Fuel Injection
Manufacturer		AC/Rochester Division
Carburetor no. of barrels		-
Idle A/F mix.		Present At Manufacturer
Fuel Injection	Point of inj. (no.)	4
	Constant, pulse, flow	Pulse
	Control (elec., mech.)	Electronic
	Sys. press. (kPa (psi))	300
Idle spd.-rpm (spec. neutral or drive and propane if used)	Manual	850
	Automatic	850 (Neutral)
Intake manifold heat control (exhaust or water thermostatic or fixed)		-
Air cleaner type		Dry: 1 Element
Fuel filter (type/location)		Paper Element/Engine Room
Fuel pump	Type (elec. or mech.)	Electric
	Location (eng., tank)	Fuel Tank
	Press. range (kPa (psi))	
	Flow rate at regulated pressure (L (gal)/hr @ kPa (psi))	

### Fuel Tank

Capacity (refill L (gallons))		47 (12.4)
Location (describe)		Under Floor - Rear Seat
Attachment		Bolted
Material & Mass (kg (weight lbs.))		Lead-Tin Plating Steel 9.8 (21.6)
Filler pipe	Location & material	Rear-Left Wheel House, Painted Steel Pipe
	Connection to tank	Rubber Hose
Fuel line (material)		Copper Plating Steel Pipe
Fuel hose (material)		Rubber Hose With Intermediate Blade
Return line (material)		Copper Plating Steel Pipe
Vapor line (material)		Copper Plating Steel Pipe
Extended range tank	Opt., n.a.	Not Applicable
	Capacity [L (gallons)]	"
	Location & material	"
	Attachment	"
Auxiliary tank	Opt., n.a.	Not Applicable
	Capacity [L (gallons)]	"
	Location & material	"
	Attachment	"
	Stctr switch or valve	"
Separate fill		"

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Engine Description  
 Engine Code

1.6 LITER L4 (97 CID)  
 MULTI-PORT FUEL INJECTION RPO L01

## Vehicle Emission Control

FEDERAL

CALIFORNIA

Exhaust Emission Control	Type (air injection, engine modifications, other)		EGR + 02S + TWC (MFC + UFC)
	Air injection	Pump or pulse	-
		Driven by	-
		Air distribution (head, manifold, etc.,)	-
		Point of entry	-
	Exhaust Gas Recirculation	Type (controlled flow, open orifice, other)	Open Orifice
		Exhaust source Point of exh.inj. (spacer, carb., manifold, other)	Exhaust Manifold Intake Manifold
	Catalytic Converter	Type	TWC
		Number of	1
		Location(s)	Under Floor
		Volume [L(cu.in)]	1.76 (104)
		Substrate type	Monolith
		Noble metal type	Pt/Rh
Crankcase Emission Control	Type (ventilates to atmosphere, induction system, other)		Closed
	Energy source (manifold vacuum, carburetor, other)		Manifold Vacuum Crankcase Pressure
	Discharges (to intake manifold, other)		Intake Manifold
	Air inlt(breather cap,other)		Air Duct
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)		No

## 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.)]		2. Ft: Straight Thru, Stainless Steel, 4.0 (8.8) Rr: Reverse Flow, Stainless Steel, 6.7 (14.7)
Resonator no. & type		-
Exhaust pipe	Branch o.d., wall thickness	45.0 - 1.5 mm (1.8 - 0.06 in.)
	Main o.d., wall thickness	-
	Matl. & Mass (kg(wght.lbs.))	Stainless Steel, 3.4 (7.5)
Inter-mediate pipe	o.d. & wall thickness	50.8 - 1.5 mm (2.0 - 0.06 in.)
	Matl. & Mass (kg(wght.lbs.))	Stainless Steel, 9.8 (21.6)
Tail pipe	o.d. & wall thickness	Ft Half: 45-1.5 mm (1.8-0.06 in.) Rr Half: 38.1-1.2 mm (1.5-0.05 in.)
	Matl. & Mass (kg(wght.lbs.))	Stainless Steel, 6.7 (14.7)



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## METRIC (U.S. Customary)

Engine Description	1.6 LITER L4 (97 CID)
Engine Code	MULTI-PORT FUEL INJECTION RPO LW0

## Vehicle Emission Control

Exhaust Emission Control	Type (air injection, engine modifications, other)		EGR + O2S + TWC (UFC)
	Air injection	Pump or pulse	-
		Driven by	-
		Air distribution (head, manifold, etc.,)	-
		Point of entry	-
	Exhaust Gas Recirculation	Type (controlled flow, open orifice, other)	Controlled Flow
		Exhaust source	No. 4 Port Of Exhaust Manifold Intake Manifold
	Catalytic Converter	Point of exh.inj. (spacer, carb., manifold, other)	
		Type	TWC
		Number of	1
Location(s)		Under Floor	
Volume [L(cu.in)]		1.7 (104)	
Substrate type		Monolith	
Noble metal type		Platinum (Pt); Rhodium (Rh)	
Crankcase Emission Control	Type (ventilates to atmosphere, induction system, other)		Closed
	Energy source (manifold vacuum, carburetor, other)		Manifold Vacuum Crankcase Pressure
	Discharges (to intake manifold, other)		Intake Manifold
	Air int.(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)		No

## 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.)]		2. Ft: Straight Flow, Stainless Steel, 4.0 (8.8) Rr: Reverse Flow, Stainless Steel, 6.7 (14.7)
Resonator no. & type		-
Exhaust pipe	Branch o.d., wall thickness	42.7 mm - 1.5 (1.7 - 0.06 in.)
	Main o.d., wall thickness	50.8 mm - 1.5 (2.0 - 0.06 in.)
	Matl. & Mass [kg(wght.lbs.)]	Stainless Steel, 3.4 (7.5)
Intermediate pipe	o.d. & wall thickness	50.8 mm - 1.5 (2.0 - 0.06 in.)
	Matl. & Mass [kg(wght.lbs.)]	Stainless Steel, 9.8 (21.6)
Tail pipe	o.d. & wall thickness	Ft Half: 50.8-1.5 mm (20-.069 in.), Rr Half: 38.1-1.2, (54-0.6)
	Matl. & Mass [kg(wght.lbs.)]	Stainless Steel, 9.6 (21.1)

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 8-89

METRIC (U.S. Customary)

Engine Description  
 Engine Code

1.6 LITER L4 (97 CID)  
 MULTI-PORT FUEL INJECTION RPO L01

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

Manual 3-speed (manufacturer/country)	Not Applicable
Manual 4-speed (manufacturer/country)	"
Manual 5-speed (manufacturer/country)	Isuzu Motors Ltd./Japan
Automatic (manufacturer/country)	Japan Automatic Transmission Co. / Japan/Not Applicable
Auto, overdrive (manufacturer/country)	Not Applicable; Optional, Japan Automatic Transmission Co. / Japan

## Manual Transmission/Transaxle

Number of forward speeds		5
Gear ratios	1st	3.909
	2nd	2.150
	3rd	1.448
	4th	1.027
	5th	0.829
	Reverse	3.583
Synchronous meshing (specify gears)		All Forward Gears (1st, 2nd, 3rd, 4th, 5th)
Shift lever location		Floor
Trans. case mat'l. & mass kg (lbs)*		Aluminum, 37.5 (82.7)
Lubricant	Capacity [L (pt.)]	1.9 (4.0)
	Type recommended	SAE 5W-30 SF (Engine Oil)

## Clutch (Manual Transmission)

Clutch manufacturer		Daikin
Clutch type (dry, wet; single, multiple disc)		Dry Single
Linkage (hyd., cable, rod, lever, other)		Cable
Max. pedal effort (nom. spring load, new) N (lbs.)	Depressed	108 (24)
	Released	59 (13)
Assist (spring, power/percent, nominal)		Spring
Type pressure plate springs		Diaphragm
Total spring load (nominal, new) N(lbs)		4312 (970)
Clutch facing	Facing mfr. & matl. coding	ASUKU NC80A
	Facing matl. & construction	Organic Semi-Mold
	Rivets per facing	18
	Outside x inside dia. (nom.)	200 x 130 mm (7.9 x 5.1 in.)
	Total eff. area(sq cm(sq in))	181 (28.1)
	Thickness (pressure plate side/fly wheel side)	3.5 mm (0.14 in.) / 3.2 mm (0.13 in.)
	Rivet depth (pressure plate side/fly wheel side)	1.3-1.9 mm (0.051-0.075 in.) / 1.2-1.8 mm (0.047-0.070 in.)
Engagement cushion method		Cushion Spring
Release bearing type & method lub.		Self-Centering Single Row Ball Bearing Sealed Grease
Torsional damping method, springs, hysteresis		Coil Spring

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

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 9-89

## METRIC (U.S. Customary)

Engine Description	1.6 LITER L4 (97 CID)
Engine Code	MULTI-PORT FUEL INJECTION RPO LW0

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

Manual 3-speed (manufacturer/country)	Not Applicable
Manual 4-speed (manufacturer/country)	"
Manual 5-speed (manufacturer/country)	Isuzu Motors Ltd./Japan
Automatic (manufacturer/country)	Japan Automatic Transmission Co. / Japan/Not Applicable
Auto, overdrive (manufacturer/country)	Not Applicable; Optional, Japan Automatic Transmission Co. / Japan

## Manual Transmission/Transaxle

Number of forward speeds	5	
Gear ratios	1st	3.909
	2nd	2.150
	3rd	1.448
	4th	1.027
	5th	0.829
	Reverse	3.583
Synchronous meshing (specify gears)	All Forward Gears (1st, 2nd, 3rd, 4th, 5th)	
Shift lever location	Floor	
Trans. case mat'l. & mass kg (lbs)*	Aluminum, 37.5 (82.7)	
Lubricant	Capacity [L (pt.)]	1.9 (4.0)
	Type recommended	SAE 5W-30 SF (Engine Oil)

## Clutch (Manual Transmission)

Clutch manufacturer	Daikin	
Clutch type (dry, wet; single, multiple disc)	Dry Single	
Linkage (hyd., cable, rod, lever, other)	Cable	
Max. pedal effort (nom. spring load, new) N (lbs.)	Depressed	108 (24)
	Released	59 (13)
Assist (spring, power/percent, nominal)	Spring	
Type pressure plate springs	Diaphragm	
Total spring load (nominal, new) N(lbs)	4312 (970)	
Clutch facing	Facing mfr. & mat'l. coding	ASUKU NC80A
	Facing mat'l. & construction	Organic Semi-Mold
	Rivets per facing	16
	Outside x inside dia. (nom.)	200 x 130 mm (7.9 x 5.1 in.)
	Total eff. area [sq cm (sq in)]	181 (28.1)
	Thickness (pressure plate side/fly wheel side)	3.5 mm (0.14 in.) / 3.2 mm (0.13 in.)
	Rivet depth (pressure plate side/fly wheel side)	1.3-1.9 mm (0.051-0.075 in.) / 1.2-1.8 mm (0.047-0.070 in.)
Engagement cushion method	Cushion Spring	
Release bearing type & method lub.	Self-Centering Single Row Ball Bearing Sealed Grease	
Torsional damping method, springs, hysteresis	Coil Spring	

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

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 8-89

METRIC (U.S. Customary)

Engine Description  
 Engine Code

1.6 LITER L4 (97 CID)  
 MULTI-PORT FUEL INJECTION RPO L01

**○ Automatic Transmission/Transaxle**

Trade Name		KF400
Type and special features (describe)		Torque Converter With Automatically Operated Planetary Gear
Gear selector	Location (column, floor, other)	Floor
	Ltr./No. designation (e.g. PRND21)	P-R-N-D-2-1
	Shift interlock (yes, no, describe)	Yes
Gear ratios	1st	2.841
	2nd	1.541
	3rd	1.000
	4th	-
	Reverse	2.400
Max. upshift speed - drive range [km/h (mph)]		58 (36) [1-2], 107 (67) [2-3]
Max. kickdown speed - drive range [km/h (mph)]		43 (27) [2-1], 98 (61) [3-2]
Min. overdrive speed [km/h (mph)]		-
Torque converter	Number of elements	3
	Max. ratio at stall	2.0
	Type of cooling (air, liquid)	Water
	Nominal diameter	224 (8.8)
	Capacity factor **K**	
Lubricant	Capacity (refill L(pt.))	6.5
	Type recommended	ATF DEXRON-II
Oil cooler (std., opt., N.A., internal, external, air, liquid)		Standard, External, Water
Trans. mass (kg(lbs)) & case matl.**		Aluminum, 50 (132)

**○ All Wheel / 4 Wheel Drive**

(NOT APPLICABLE)

Desc. & type (part-time, full-time, 2/4 shift while moving, mech., 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(% frt/rear)	

\* Input speed / square root of torque.  
 \*\* Dry weight including torque converter. If other, specify.

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 9-89

METRIC (U.S. Customary)

Engine Description	1.6 LITER L4 (97 CID)
Engine Code	MULTI-PORT FUEL INJECTION RPO LW0

## ○ Automatic Transmission/Transaxle

Trade Name		FA
Type and special features (describe)		Torque Converter With Automatically Operated Planetary Gear
Gear selector	Location (column, floor, other)	Floor
	Ltr./No. designation (e.g. PRND21)	P-R-N-D4-D3-2-1
	Shift interlock (yes, no, describe)	Yes
Gear ratios	1st	3.027
	2nd	1.619
	3rd	1.000
	4th	0.694
	Reverse	2.272
Max. upshift speed - drive range [km/h (mph)]		57 (35) [1-2], 105 (65) [2-3], 169 (105) [3-4]
Max. kickdown speed - drive range [km/h (mph)]		46 (29) [2-1], 89 (56) [3-2], 156 (97) [4-3]
Min. overdrive speed [km/h (mph)]		55 (34)
Torque converter	Number of elements	3
	Max. ratio at stall	2.3
	Type of cooling (air, liquid)	Water
	Nominal diameter	236 (9.3)
	Capacity factor "K"	
Lubricant	Capacity (refill L(pt.))	6.6
	Type recommended	ATF DEXRON-II
Oil cooler (std., opt., N.A., internal, external, air, liquid)		Standard, External, Water
Trans. mass [kg(lbs)] & case matl.**		75 (165)

## ○ All Wheel / 4 Wheel Drive (NOT APPLICABLE)

Desc. & type (part-time, full-time, 2/4 shift while moving, mech., 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(% frt/rear)	

\* Input speed / square root of torque.  
 \*\* Dry weight including torque converter. If other, specify.

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 8-89

## METRIC (U.S. Customary)

Engine Description	1.6 LITER L4 (97 CID)
Engine Code	MULTI-PORT FUEL INJECTION RPO L01

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

Effec. final drv. ratio (or overall top gear ratio)		3.833 (M/T)	3.526 (A/T)
Trnsfr ratio and method(chain,gear,etc)		-	
Front drive unit	Ring gear o.d.	206.4 mm (8.1 in.)	194.8 mm (7.7 in.)
	No. of teeth	Pinion	18
		Ring gear	69

## Front Drive Unit

Description (integral to trans., etc.)		Helical Gear
Limited slip differential (type)		Not Applicable
Drive pinion	Type	-
	Offset	Helical Gear
No. of differential pinions		2
Pinion/differential	Adjustment (shim, etc.)	Shim
	Bearing adjustment	Shim
Driving wheel bearing (type)		Double Row, Angular Ball Bearing
Lubricant	Capacity [L (pt.)]	Not Applicable (Part Of Transmission Assembly)
	Type recommended	Transmission

## Axle Shafts - Front Wheel Drive

Manufacturer and number used		NTN, NSK		
Type (straight, solid bar, tubular, etc.)	Left	Straight, Solid Bar		
	Right	Straight, Solid Bar		
Outer diam. x length* x wall thickness	Manual transaxle	Left	24 x 386.6 mm (.94 x 15.22 in.)	
		Right	24 x 658.1 mm (.94 x 25.91 in.)	
	Automatic transaxle	Left	24 x 342.5 mm (.94 x 13.48 in.)	
		Right	24 x 701.2 mm (.94 x 27.61 in.)	
	Optional transaxle	Left	-	
		Right	-	
Slip yoke	Type	Not Applicable		
	Number of teeth	-		
	Spline o.d.	-		
Universal joints	Make and mfg. no.	Inner	NTN, NSK	
		Outer	NTN, NSK	
	Number used	4		
	Type, size, plunge	Inner	Double Offset Joint, 82/TRI Port Joint, 82	
		Outer	Bertiled Joint, 82 Fixed	
	Attach (u-bolt, clamp, etc.)	Snap Ring		
Bearing	Type (plain, anti-friction)	Not Applicable		
	Lubrication (fitting, prepack)	"		
Drive taken through (torque tube, arms or springs)		"		
Torque taken through (torque tube, arms or springs)		"		

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

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 8-89

## METRIC (U.S. Customary)

Engine Description	1.6 LITER L4 (97 CID) MULTI-PORT FUEL INJECTION RPO LWO
Engine Code	

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

Effec. final drv. ratio (or overall top gear ratio)		4.117 (M/T)	4.470 (Overall 4.105) (A/T)
Trnsfr ratio and method(chain,gear,etc)		-	
Front drive unit	Ring gear o.d.	208.6 mm (8.2 in.)	214.4 mm (8.4 in.)
	No. of teeth	Pinion	17
		Ring gear	70

### Front Drive Unit

Description (integral to trans., etc.)		Helical Gear
Limited slip differential (type)		Not Applicable
Drive pinion	Type	-
	Offset	Helical Gear
No. of differential pinions		2
Pinion/differential	Adjustment (shim, etc.)	Shim
	Bearing adjustment	Shim
Driving wheel bearing (type)		Double Row, Angular Ball Bearing
Lubricant	Capacity {L (pt.)}	Not Applicable Part Of Transmission Assembly
	Type recommended	Transmission

### Axle Shafts - Front Wheel Drive

Manufacturer and number used		NTN, NSK	
Type (straight, solid bar, tubular, etc.)	Left	Straight, Solid Bar	
	Right	Straight, Solid Bar	
Outer diam. x length* x wall thickness	Manual transaxle	Left	32 x 386.6 mm (1.26 x 15.22 in.)
		Right	32 x 386.6 mm (1.26 x 15.22 in.)
	Automatic transaxle	Left	26 x 386.6 mm (1.02 x 15.22 in.)
		Right	26 x 658.1 mm (1.02 x 25.91 in.)
	Optional transaxle	Left	-
		Right	-
Slip yoke	Type	Not Applicable	
	Number of teeth	-	
	Spline o.d.	-	
Universal joints	Make and mfg. no.	Inner	NTN, NSK
		Outer	NTN, NSK
	Number used		4
	Type, size, plunge	Inner	Double Offset Joint, 87/TRI Port Joint, 87
		Outer	Bertied Joint, 87 Fixed
	Attach (u-bolt, clamp, etc.)		Snap Ring
	Bearing	Type (plain, anti-friction)	Not Applicable
Lubrication (fitting, prepack)		"	
Drive taken through (torque tube, arms or springs)		"	
Torque taken through (torque tube, arms or springs)		"	

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

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 8-89

## METRIC (U.S. Customary)

Body Type And/Or

Engine Displacement

Geo STORM

### Suspension - General Including Electronic Controls

Car leveling	Std./opt./not avail.	Not	
	Manual/automatic control	Applicable	
	Type (air/hydraulic)		
	Primary/assist spring		
	Rear only/4 wheel leveling		
	Single/dual rate spring		
	Single/dual ride heights		
	Provision for jacking		
Shock absorber damping controls	Standard/option/not avail.	Not	
	Manual/automatic control	Applicable	
	Number of damping rates		
	Type of actuation (manual/electric motor/air, etc.)		
	s e n s o r s	Lateral acceleration	
		Deceleration	
Acceleration			
Road surface			
Shock absorber (front & rear)	Type	Double Acting Hydraulic Telescopic	
	Make	KAYABA	
	Piston diameter	Ft: 30 mm (1.18 in.), Rr: 25 mm (0.98 in.)	
	Rod diameter	Ft: 20 mm (0.79 in.), Rr: 18 mm (0.71 in.)	

### Suspension - Front

Type and description		McPherson Strut
Travel*	Full jounce	89 mm (3.5 in.)
	Full rebound	73 mm (2.9 in.)
Spring	Type (coil, leaf, other) & matl	Coil, SUP 7 or SAE 9254
	Insulators (type & matl)	Seat Rubbers (Top & Bottom)
	Size (coil design height & i.d.)	342 x 115 mm (13.5 x 4.5 in.)
	Spring rate [N/mm (lb./in.)]	23.5 (134)
	Rate @ wheel [N/mm (lb./in.)]	19.4 (111)
Stabilizer	Type (link, inkless, frmless)	Link
	Material & bar diameter	SUP 6 or SUP 9, 18

### Suspension - Rear

Type and description		McPherson Strut With Two Parallel Transverse Links And One Trailing Link
Travel*	Full jounce	110 mm (4.33 in.)
	Full rebound	85 mm (3.35 in.)
Spring	Type (coil, leaf, other) & matl	Coil, SUP 7 or SAE 9254
	Size (length x width, coil design height & i.d.)	324.5 x 116.4 mm (13.2 x 4.6 in.)
	Spring rate [N/mm (lb/in)]	16.7 (95)
	Rate @ wheel [N/mm (lb/in)]	15.4 (88)
	Insulators (type & material)	Seat Rubbers (Top)
	If leaf	No. of leaves
Shackle (comp or tens)		"
Stabilizer	Type (link, inkless, frmless)	"
	Material & bar diameter	"
Track bar (type)		Not Applicable

\* Define load condition:



# MVMA Specifications

Vehicle Line Geo STORM  
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## METRIC (U.S. Customary)

Body Type And/Or

Engine Displacement

Geo STORM GSI

### Suspension - General Including Electronic Controls

Car leveling	Std./opt./not avail.	Not	
	Manual/automatic control	Applicable	
	Type (air/hydraulic)		
	Primary/assist spring		
	Rear only/4 wheel leveling		
	Single/dual rate spring		
	Single/dual ride heights		
	Provision for jacking		
Shock absorber damping controls	Standard/option/not avail.	Not	
	Manual/automatic control	Applicable	
	Number of damping rates		
	Type of actuation (manual/electric motor/air, etc.)		
	s e n s o r s	Lateral acceleration	
		Deceleration	
		Acceleration	
		Road surface	
Shock absorber (front & rear)	Type	Double Acting Hydraulic Telescopic	
	Make	KAYABA	
	Piston diameter	Ft: 30 mm (1.18 in.), Rr: 25 mm (0.98 in.)	
	Rod diameter	Ft: 20 mm (0.79 in.), Rr: 18 mm (0.71 in.)	

### Suspension - Front

Type and description		McPherson Strut
Travel*	Full jounce	89 mm (3.5 in.)
	Full rebound	73 mm (2.9 in.)
Spring	Type (coil, leaf, other) & matl	Coil, SUP 7 or SAE 9254
	Insulators (type & matl)	Seat Rubbers (Top & Bottom)
	Size (coil design height & i.d.)	344 x 115 mm (13.5 x 4.5 in.)
	Spring rate [N/mm (lb./in.)]	24.5 (140)
	Rate @ wheel [N/mm (lb./in.)]	20.2 (116)
Stabilizer	Type (link, linkless, frmless)	Link
	Material & bar diameter	SUP 6 or SUP 9, 18

### Suspension - Rear

Type and description		McPherson Strut With Two Parallel Transverse Links And One Trailing Link	
Travel*	Full jounce	110 mm (4.33 in.)	
	Full rebound	85 mm (3.35 in.)	
Spring	Type (coil, leaf, other) & matl	Coil, SUP 7 or SAE 9254	
	Size (length x width, coil design height & i.d.)	319 x 116.2 mm (12.6 x 4.6 in.)	
	Spring rate [N/mm (lb/in)]	17.6 (101)	
	Rate @ wheel [N/mm (lb/in)]	16.3 (93)	
	Insulators (type & material)	Seat Rubbers (Top)	
	If leaf	No. of leaves	Not Applicable
		Shackle (comp or tens)	"
Stabilizer	Type (link, linkless, frmless)	Link	
	Material & bar diameter	SUP 6 or SUP 9, 12	
Track bar (type)		Not Applicable	

\* Define load condition:

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# MVMA Specifications

Vehicle Line Geo STORM  
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METRIC (U.S. Customary)

Body Type And/Or

Geo STORM

Geo STORM GSI

Engine Displacement

Brakes - Service

Description		Hydraulic, Front: Disc Rear: Leading Trailing Self-Adjusting			
Manufacturer and brake type (std., opt., n.a.)	Front (disc or drum)	Disc			
	Rear (disc or drum)	Drum			
Valving type(prop, delay, metering, other)		Proportioning			
Power brake (std., opt., n.a.)		Standard			
Booster type(rmt, intgr, vac., hyd., etc.)		Integral Vacuum Servo			
Vacuum	Source (inline, pump, etc.)	Inline			
	Reservoir (volume cu. in.)	Not			
	Pump-type	Applicable			
Traction Control	Operational speed range				
	Type engine intervention				
Anti-lock device	Front/rear (std., opt., n.a.)	Not			
	Manufacturer	Applicable			
	Type (electronic, mech.)				
	Number sensors or circuits				
	No. anti-lock hyd. circuits				
	Integral or add-on system				
	Yaw control (yes, no)				
Hydraulic power source					
Effective area [sq. cm. (sq. in.)]*		Ft: 141.6 (21.9), Rr: 192 (29.8)			
Gross Lng area [sq cm (sq in)]**(F/R)		Ft: 145.6 (22.6), Rr: 192 (29.8)			
Swept area [sq cm (sq in)]*** (F/R)		Ft: 1069 (165.7), Rr: 314 (48.7)			
Rotor	Outer working diameter	F/R	248 mm (9.76 in.)/-		
	Inner working diameter	F/R	162.8 mm (6.41 in.)/-		
	Thickness	F/R	22.0 mm (0.87 in.)/-		
	Matl & type (vented/sid)	F/R	Cast Iron, Vented/-		
Drum	Diameter & width	F/R	-/200 mm (7.87 in.) x 25 mm (0.98 in.)		
	Type and material	F/R	-/Cast Iron		
Wheel cylinder bore		Ft: 51.1 mm (2.0 in.), Rr: 15.9 mm (0.6 in.)			
Master cylinder	Bore/stroke	F/R	20.6mm (0.81 in.)/31.0mm (1.22 in.) 22.2mm (0.875 in.)/31.0mm (1.22 in.)		
Pedal arc ratio		3.9:1			
Line pressure at 445 N (100 lb.) pedal load [kPa (psi)]		8924 kPa at 66.7 kPa Vacuum 9218 kPa			
Lining clearance		F/R	Self-Adjusting		
Brake lining	Front wheel	Bonded or riveted		Bonded	
		Rivet size		-	
		Manufacturer		SUMITOMO	
		Lining code *****		M9218HFF	
		Material		Resin Molded (Asbestos Free)	
		****	Pri. or out-brd	101.0 x 43.0 x 10.0 mm (4.0 x 1.7 x 0.4 in.)	
		Size	Sec. or in-brd	101.0 x 43.0 x 10.0 mm (4.0 x 1.7 x 0.4 in.)	
	Shoe thckns.(no lng)		4.5 mm (0.18 in.)		
	Rear wheel	Bonded or riveted		Bonded	
		Manufacturer		AKEBONO	
		Lining code *****		AKL612FF	
		Material		Resin Molded (Asbestos Free)	
		****	Pri. or out-brd	192 x 25 x 4.5 mm (7.56 x 0.98 x 0.18 in.)	
		Size	Sec. or in-brd	192 x 25 x 4.5 mm (7.56 x 0.98 x 0.18 in.)	
Shoe thckns (no lng)		1.6 mm (0.06 in.)			

\* 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 circum.)  
 (Disc brake: Square of Outer Working Dia. - Square of inner Working Dia. x 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 Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 9-89

METRIC (U.S. Customary)

Body Type And/Or  
 Engine Displacement

Geo STORM

Geo STORM GSI

## Tires And Wheels (Standard)

Tires	Size (load range, ply)		P185/60R14 82H	P185/60R14 82V	
	Type (bias, radial, etc.)		Radial (Mud And Snow)		
	Inflation pressure (cold) for recommended max. vehicle load	Front [kPa(psi)]	30 (210)		
		Rear [kPa(psi)]	30 (210)		
Rev/mile—at 70 km/h(45mph)		919			
Wheels	Type & material		Wide Rim With Deep Bottom, Steel	Aluminum	
	Rim (size & flange type)		14 x 5.5JJ		
	Wheel offset		40 (1.57)		
	Attachment	Type(bolt,stud)	Nut		
		Circle diameter	100 mm (3.94 in.)		
Number & size		4, M12x1.5			
Spare	Tire and wheel		Tire: T115/70 D14 Wheel: 14x4T		
	Storage position & location (describe)		Flat Under Rear Load Floor		

## Tires And Wheels (Optional)

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)	-
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	Grip Handle	
Location of control	In Console Between Front Seats	
Operates on	Rear Service Brakes	
If separate from service brakes	Type(internal or external)	Not Applicable
	Drum diameter	-
	Lining size (length x width x thickness)	-

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 9-89

METRIC (U.S. Customary)

Body Type And/Or  
 Engine Displacement

Geo STORM

Geo STORM GSI

## Steering

Manual (std., opt., n.a.)		Not Applicable		
Power (std., opt., n.a.)		Standard		
Adjustable steering wheel/ column (tilt, telescope, other)	Type	-		
	Manufacturer (std., opt., n.a.)	-		
		Not Applicable		
Wheel diameter ** (W9) SAE J1100	Manual	382 mm (15.0 in.)		
	Power	382 mm (15.0 in.)		
Turning diameter m (ft.)	Out-side front	Wall to wall (l. & r.)	11.2 (36.7)	
		Curb to curb (l. & r.)	9.8 (32.2)	
	In-side rear	Wall to wall (l. & r.)	4.9 (16.1)	
		Curb to curb (l. & r.)	5.1 (16.7)	
Scrub Radius *		-5.0 mm (-0.20 in.)		
Manual	Gear	Type	-	
		Manufacturer	-	
		Ratios	Gear	-
			Overall	-
	No. wheel turns(stop to stop)		-	
Power	Type (hydraulic, elec., etc.)		Coaxial	
	Manufacturer		JIDOSHA KIKI And NIPPON POWER STEERING	
	Gear	Type	Rack And Pinion	
		Ratios	Gear	
			Overall	16.1
	Pump (drive)		Belt	
	No. wheel turns(stop to stop)		2.96	2.59
Linkage	Type		Accar Man.	
	Location (front or rear of wheels, other)		Rear Of Wheels	
	Tie Rods (one or two)		2	
Steering axis	Inclination at camber (deg.)		10.10'	
	Bear-ings (type)	Upper	Ball Bearing	
		Lower	Ball Bearing	
		Thrust	Not Applicable	
Steering spindle/knuckle & joint type			"	
Wheel spindle/ hub	Dia-meter	Inner bearing	34.0 mm (1.34 in.)	
		Outer bearing	64.0 mm (2.52 in.)	
	Thread (size)		M20 x 1	
	Bearing (type)		Double Row, Angular Ball Bearing-Double Row Taper Roller Bearing	

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

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 9-89

## METRIC (U.S. Customary)

Body Type And/Or  
 Engine Displacement

Geo STORM

## Wheel Alignment

Front wheel at curb mass (wt.)	Service checking	Caster (deg.)	3 (+/-) 30'
		Camber (deg.)	-30' (+/-) 1
		Toe-in [outside track-mm (in.)]	0 (+/-) 2
	Service reset*	Caster (deg.)	3 (+/-) 30'
		Camber (deg.)	-30' (+/-) 1
		Toe-in	0 (+/-) 2
	Periodic M.V. inspection	Caster (deg.)	3 (+/-) 30'
		Camber (deg.)	-30' (+/-) 1
		Toe-in	0 (+/-) 2
Rear wheel at curb mass (wt.)	Service checking	Camber (deg.)	-30' (+/-) 1
		Toe-in [outside track-mm (in.)]	4 (+/-) 2
	Service reset*	Camber (deg.)	-30' (+/-) 1
		Toe-in	4 (+/-) 2
	Periodic M.V. inspection	Camber (deg.)	-30' (+/-) 1
		Toe-in	4 (+/-) 2

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

## Electrical - Instruments and Equipment

Speed-ometer	Type (analog, digital, std., opt.)	Analog, Round Standard
	Trip odometer (std., opt., n.a.)	Standard
EGR maintenance indicator		Not Applicable
Charge indicator	Type	Tell-Tale Warning Light
	Warning device (light, audible)	Light
Temperature indicator	Type	Electrical Gauge With Pointer
	Warning device	-
Oil pressure indicator	Type	Tell-Tale Warning light
	Warning device	Light
Fuel indicator	Type	Electrical Gauge With Pointer
	Warning device	-
Wind-shield wiper	Type (standard)	Electric 2-Speed
	Type (optional)	-
	Blade length	550 mm (21.7 in.)
	Swept area [sq cm (sq in)]	7390 (1145)
Wind-shield washer	Type (standard)	Electric
	Type (optional)	Not Applicable
	Fluid level indicator	"
Rear window wiper, wiper/washer (std., opt., n.a.)		"
Horn	Type	Vibrator
	Number used	2
Other		

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 9-89

## METRIC (U.S. Customary)

Body Type And/Or  
 Engine Displacement

Geo STORM GSI

## Wheel Alignment

Front wheel at curb mass (wt.)	Service checking	Caster (deg.)	3 (+/-) 30'
		Camber (deg.)	-30' (+/-) 1
		Toe-in [outside track-mm (in.)]	0 (+/-) 2
	Service reset*	Caster	3 (+/-) 30'
		Camber	-30' (+/-) 1
		Toe-in	0 (+/-) 2
	Periodic M.V. in-spection	Caster	3 (+/-) 30'
		Camber	-30' (+/-) 1
		Toe-in	0 (+/-) 2
Rear wheel at curb mass (wt.)	Service checking	Camber (deg.)	-30' (+/-) 1
		Toe-in [outside track-mm (in.)]	4 (+/-) 2
	Service reset*	Camber	-30' (+/-) 1
		Toe-in	4 (+/-) 2
	Periodic M.V. in-spection	Camber	-30' (+/-) 1
		Toe-in	4 (+/-) 2

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

## Electrical - Instruments and Equipment

Speed-ometer	Type (analog, digital, std., opt.)	Analog, Round Standard
	Trip odometer (std., opt., n.a.)	Standard
EGR maintenance indicator		Not Applicable
Charge indicator	Type	Tell-Tale Warning Light
	Warning device (light, audible)	Light
Temperature indicator	Type	Electrical Gauge With Pointer
	Warning device	-
Oil pressure indicator	Type	Tell-Tale Warning light
	Warning device	Light
Fuel indicator	Type	Electrical Gauge With Pointer
	Warning device	-
Wind-shield wiper	Type (standard)	Electric 2-Speed
	Type (optional)	-
	Blade length	550 mm (21.7 in.)
	Swept area [sq cm (sq in)]	7390 (1145)
Wind-shield washer	Type (standard)	Electric
	Type (optional)	Not Applicable
	Fluid level indicator	"
Rear window wiper, wiper/washer (std., opt., n.a.)		"
Horn	Type	Vibrator
	Number used	2
Other		

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 9-89

## METRIC (U.S. Customary)

Engine Description  
 Engine Code

Geo STORM

### Electrical - Supply System

Battery	Manufacturer	FURUKAWA, NIHONDENCHI, MATSUSHITA
	Model, std., (opt.)	55D23L
	Voltage	12
	Amps at 0 deg F cold crnk	356
	Minutes-reserve capacity	99
	Amps/hrs. - 20 hr. rate	60
	Location	Engine Compartment Left Front
Alternator	Manufacturer	DELCO REMY
	Rating (idle/max. rpm)	Alternating Current 12V-61A(M/T), 12V-85A (A/T)
	Ratio (alt. crank/rev.)	133/62
	Output at idle (rpm, park)	-
	Optional (type & rating)	Not Applicable
Regulator	Type	Non-Contact Voltage Control Relay

### Electrical - Starting System

Motor	Manufacturer	NIPPON DENSO
	Current drain deg F	-
	Power rating [kw (hp)]	1.0 (M/T), 1.2 (A/T)
Motor drive	Engagement type	Solenoid
	Pinion engages from (front, rear)	Front

### Electrical - Ignition System

Type	Electronic (std, opt, n.a.)	Standard		
	Other (specify)	Not Applicable		
Coil	Manufacturer	Delco Remy		
	Model			
	Current	Engine stopped-A Engine idling - A		
Spark plug	Manufacturer	Nippon Denso	NGK	AC
	Model	W20EXR-VII	BPR6ES-11	R42XLS
	Thread (mm)	14 (0.55)	14 (0.55)	14 (0.55)
	Tightening torque [Newton meters (lb. ft.)]	18.6 +/- 4.9	18.6 +/- 4.9	18.6 +/- 4.9
	Gap	1.05 mm (0.04 in.)	1.05 mm (0.04 in.)	1.05mm (0.04in.)
	Number per cylinder	1		
Distributor	Manufacturer	Delco Remy		
	Model			

### Electrical - Suppression

Locations & type	Resistive Cord Resistive Spark Plug
------------------	--

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 9-89

## METRIC (U.S. Customary)

Engine Description  
 Engine Code

Geo STORM GSI

### Electrical - Supply System

Battery	Manufacturer	FURUKAWA, NIHONDENCHI, MATSUSHITA
	Model, std., (opt.)	55D23L
	Voltage	12
	Amps at 0 deg F cold crnk	356
	Minutes-reserve capacity	99
	Amps/hrs. - 20 hr. rate	60
	Location	Engine Compartment Left Front
Alternator	Manufacturer	DELCO REMY
	Rating (idle/max. rpm)	Alternating Current 12V-61A(M/T), 12V-85A (A/T)
	Ratio (alt. crank/rev.)	133/62
	Output at idle (rpm, park)	-
	Optional (type & rating)	Not Applicable
Regulator	Type	Non-Contact Voltage Control Relay

### Electrical - Starting System

Motor	Manufacturer	NIPPON DENSO
	Current drain deg F	-
	Power rating (kw (hp))	1.0 (M/T), 1.4 (A/T)
Motor drive	Engagement type	Solenoid
	Pinion engages from (front, rear)	Front

### Electrical - Ignition System

Type	Electronic (std, opt, n.a.)	Standard	
	Other (specify)	Not Applicable	
Coil	Manufacturer	Delco Remy	
	Model		
	Current	Engine stopped - A Engine idling - A	
Spark plug	Manufacturer	Nippon Denso	NGK
	Model	K10PR-U11	BKR6E-11
	Thread (mm)	14 (0.55)	14 (0.55)
	Tightening torque (Newton meters (lb. ft.))	18.6 +/- 4.9	18.6 +/- 4.9
	Gap	1.05 mm (0.04 in.)	1.05 mm (0.04 in.)
	Number per cylinder	1	
Distributor	Manufacturer	Delco Remy	
	Model		

### Electrical - Suppression

Locations & type	Resistive Cord Resistive Spark Plug
------------------	--



# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 9-89

METRIC (U.S. Customary)

Body Type

ALL

## Body

Structure	Monocoque Body
Bumper System Front - Rear	Large Plastic Type
Anti-Corrosion Treatment	Various Sealer, Wax Coat, Under Coat, Galvanized Steel

## Body - Miscellaneous Information

Type of finish (lacquer, enamel, other)	Enamel	
Hood	Material & mass	Steel 11.9 (26.2)
	Hinge location (front, rear)	Rear
	Type (counterbalance, prop)	Prop
	Release control (int., ext.)	Internal
Trunk lid	Material & mass	-
	Type (counterbalance, other)	-
	Internal release control (elec., mech., n.a.)	-
Hatch-back lid	Material & mass	Steel, Glass 29 (64)
	Type (counterbalance, other)	Counterbalance
	Internal release control (elec., mech., n.a.)	Mechanical
Tailgate	Material & mass	-
	Type (drop, lift, door)	-
	Internal release control (elec., mech., n.a.)	-
Vent window control (crank, friction, pivot, power)	Front	Crank
	Rear	Not Applicable
Window regulator type (cable, tape, flex drive, etc.)	Front	X-Arm Type
	Rear	-
Seat cushion type (e.g., 60/40, bucket, bench wire, foam, etc.)	Front	Spring + Foam Pad
	Rear	Wire Frame + Foam Pad
	3rd seat	-
Seat back type (e.g., 60/40, bucket, bench, wire, foam, etc.)	Front	Spring + Foam Pad
	Rear	Panel Frame + Foam Pad
	3rd seat	-

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 9-89

METRIC (U.S. Customary)

Body Type

ALL

## Restraint System

Seating Position		Left	Center	Right
Active	Type & description (lap & shoulder belt, lap belt, etc.)	First seat	3-Pt. Seat Belt With E.L.R. - Standard	3-Pt. Seat Belt With E.L.R. - Standard
		Second seat	3-Pt. Seat Belt With E.L.R. - Standard	3-Pt. Seat Belt with E.L.R. - Standard
	Standard/optional	Third seat		
Passive	Type & description (air bag, motorized-2-point belt, fixed belt, knee bolster, manual-lap belt)	First seat	Air Bag With Knee Bolster - Standard	
		Second seat		
	Standard/optional	Third seat		

Glass	SAE Ref No	
Windshield glass exposed surface area (sq. cm. (sq. in.))	S1	10642 (1650)
Side glass exposed surface area (sq. cm. (sq. in.)) - total 2- sides	S2	9058 (1404)
Backlight glass exposed surface area (sq. cm. (sq. in.))	S3	14293 (2215)
Total glass exposed surface area (sq. cm. (sq. in.))	S4	33993 (5269)
Windshield glass (type)		Laminated Glass
Side glass (type)		Tempered Glass
Backlight glass (type)		Tempered Glass

## Headlamps

Description - sealed beam, halogen, replaceable bulb, etc.	Sealed Beam, Halogen
Shape	Rectangle
Lo-beam type (2A1, 2B1, 2C1, etc.)	H4703
Quantity	2
Hi-beam type (1A1, 2A1, 1C1, 2C1, etc.)	H4701
Quantity	2

## Frame

Type and description (separate frame, unitized frame, partially-unitized frame)	Partially Unitized
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# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 8-89 Revised(\*) 9-89

METRIC (U.S. Customary)

Body Type

Geo STORM	Geo STORM GSI
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## Convenience Equipment (standard, optional, n.a.)

Air conditioning (manual, auto, temp control)	Optional, Manual	
Clock (digital, analog)	Optional, Digital (In Radio)	
Compass / thermometer	Not Applicable	
Console (floor, overhead)	Standard, Floor	
Defroster, elec. backlight	Standard, Rear Electrical Defogger	
Electronic	Diagnostic monitor (integrated, individual)	Standard, Tell-Tale Warning Light
	Instrument cluster (list instruments)	Not Applicable
	Keyless entry	"
	Tripminder (avg. spd. fuel)	"
	Voice alert (list items)	"
	Other	"
Fuel door lock (remote, key, electric)	"	
Lamps	Auto head on/off delay, dimming	"
	Cornering	"
	Courtesy (map, reading)	"
	Door lock, ignition	"
	Engine compartment	"
	Fog	" Standard
	Glove compartment	"
	Trunk	Standard (Luggage)
	Illuminated entry system (list lamps, activation)	Not Applicable
Other	Standard, Dome Lamp	
Mirrors	Day / night (auto. man.)	Standard, Manual
	L.H. (remote, pwr., heated)	Standard, Manual Remote
	R.H. (convex, rmt, pwr, htd)	Standard, Convex Manual Remote
	Visor vanity (RH/LH illum.)	Standard, RH
Navigation system (describe)	Not Applicable	
Pkgs. brake-auto release (warn. light)	Not Applicable	

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 9-89

METRIC (U.S. Customary)

Engine Description  
 Engine Code

ALL

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

Power equipment	Deck lid(release, pull down)		Not
	Door locks (manual, auto., describe system)		Applicable
	Seats	2 - 4 - 6 way, etc.	
		Reclining(R.H., L.H.)	
		Memory (R.H., L.H., preset, recline)	
		Lumbar, hip, thigh, support	
		Heated (R.H., L.H., other)	
	Side windows		
	Vent windows		
	Rear windows		
Radio systems	Antenna (location, whip, w/shield, power)		Standard, On Roof Front-Left, Non-Power
	Stan.		-
	Opt.	AM, FM, stereo, tape, compact disc, graphic equalizer, theft deterrent, radio prep package, headphone jacks, etc.	AM/FM Stereo AM/FM Stereo, Cassette
	Speaker (number, location)		Standard, Ft 2 Speakers Rr 2 Speakers
Roof: open air or fixed (flip-up, sliding, 'T')			Not Applicable
Speed control device			Optional
Speed warn. dev. (light, buzzer, etc.)			Not Applicable
Tachometer (rpm)			Standard
Telephone system (describe)			Not Applicable
Theft deterrent system			Lock Mounted On Steering Column
			Lock Steering Wheel Automatic Transmission Shift Lever And Ignition

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 8-89

## 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

Geo STORM

Geo STORM GSI

#### Width

##### SAE Ref. No.

	SAE Ref. No.	Geo STORM	Geo STORM GSI
Tread (front)	W101	1430 (56.3)	
Tread (rear)	W102	1401 (55.2)	
Vehicle width	W103	1694 (66.69)	
Body width at Sg RP (front)	W117	1683 (66.26)	
Vehicle width (front doors open)	W120	3683 (152.9)	
Vehicle width (rear doors open)	W121	-	
Tumble-home (deg.)	W122	26.7	
Outside mirror width	W410	1886 (74.3)	

#### Length

	SAE Ref. No.	Geo STORM	Geo STORM GSI
Wheelbase	L101	2450 (96.5)	
Vehicle length	L103	4150 (163.4)	4162 (163.9)
Overhang (front)	L104	974 (38.3)	
Overhang (rear)	L105	726 (28.6)	738 (29.1)
Upper structure length	L123	2712 (106.8)	
Rear wheel C/L 'X' coordinate	L127	2251.5 (88.6)	

#### Height \*\*

	SAE Ref. No.	Geo STORM	Geo STORM GSI
Passenger distribution (front/rear)	PD1,2,3	2/0	**
Trunk/cargo load		30.0 (66)	**
Vehicle height	H101	1298 (51.1)	
Cowl point to ground	H114	904 (35.6)	
Deck point to ground	H138	946 (37.2)	
Rocker panel-front to ground	H112	202 (8.0)	
Rocker panel-rear to ground	H111	202 (8.0)	
Windshield slope angle (deg.)	H122	64.1	
Backlight slope angle (deg.)	H121	72.0	

#### Ground Clearance \*\*

	SAE Ref. No.	Geo STORM	Geo STORM GSI
Front bumper to ground	H102	227 (8.9)	218 (8.6)
Rear bumper to ground	H104	269 (10.6)	232 (9.1)
Bumper to ground [front at curb mass (wt.)]	H103	246 (9.7)	237 (9.3)
Bumper to ground [rear at curb mass (wt.)]	H105	291 (11.5)	254 (10.0)
Angle of approach (deg.)	H108	15.9	15.8
Angle of departure (deg.)	H107	24.8	21.6
Ramp breakover angle (deg.)	H147	12.7	
Axle differential to ground (front/rear)	H153	-	
Min. running ground clearance	H156	131 (5.2)	
Location of min. run. grd. clear.		Under Floor 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.

All linear dimensions are in millimeters (inches)

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 9-89

## METRIC (U.S. Customary) Vehicle Dimensions

See Key Sheets for Definitions

Body Type

ALL

### ○ Front Compartment

SAE Ref. No.

SgRP front, 'X' coordinate	L31	1149 (45.2)
Effective head room	H81	952 (37.5)
Max. eff. leg room (accelerator)	L34	1113 (43.8)
SgRP to heel point	H30	177 (7.0)
SgRP to heel point	L53	938 (36.9)
Back angle (deg.)	L40	25
Hip angle (deg.)	L42	98
Knee angle (deg.)	L44	140
Foot angle (deg.)	L46	87
Design H-point front travel	L17	230 (9.1)
Normal driving & riding seat track trvl.	L23	230 (9.1)
Shoulder room	W3	1354 (53.3)
Hip room	W5	1292 (50.9)
*** Upper body opening to ground	H50	1161 (45.7)
Steering wheel maximum diameter*	W9	382 (15.0)
Steering wheel angle (deg.)	H18	20.1
Accel. heel pt. to steer. whl. cntr	L11	554 (21.8)
Accel. heel pt. to steer. whl. cntr	H17	564 (22.2)
Undepressed floor covering thickness	H87	25 (1.0)

Front Compartment Int. Dim. Are Measured With The Seating Ref. Pt.

(SgRP) mm Forward And 2.3 mm Upward of Rearmost Position.

### ○ Rear Compartment

SgRP point couple distance	L50	679 (26.7)
Effective head room	H83	810 (31.9)
Min. effective leg room	L51	771 (30.4)
SgRP (second to heel)	H31	279 (11.0)
Knee clearance	L48	-23 (-0.91)
Shoulder room	W4	1301 (51.2)
Hip room	W6	1084 (42.7)
*** Upper body opening to ground	H51	-
Back angle (deg.)	L41	28
Hip angle (deg.)	L43	87.8
Knee angle (deg.)	L45	88.6
Foot angle (deg.)	L47	141.1
Depressed floor covering thickness	H73	10 (0.4)

### Luggage Compartment

Usable luggage capacity [L (cu. ft.)]	V1	-
*** Lifter height	H195	831 (36.7)

### Interior Volumes (EPA Classification)

Vehicle class		Subcompact
Interior volume index (cu. ft.)**		2.566 (90.568)
Trunk / cargo index (cu. ft.)		0.311 (10.968)

\* See page 14.

\*\* Includes passenger and trunk / cargo index - see definition page 32.

\*\*\* EPA Loaded Vehicle Weight, Loading Conditions

All Linear Dimensions Are in Millimeters (Inches)

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*) 9-89

## METRIC (U.S. Customary) Vehicle Dimensions

See Key Sheets for Definitions

Body Type

ALL

### Station Wagon - 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	L88	
Hip angle	L89	
Knee angle	L90	
Foot angle	L91	

### Station Wagon - 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 [cu. m.(cu.ft.)]	V2	
Hidden cargo vol. index [cu.m.(cu.ft.)]	V4	
Cargo volume index-rear of 2-seat	V10	

### Hatchback - Cargo Space

Cargo length at front seatback height	L208	1153 (45.4)
Cargo length at floor (front)	L209	1394 (54.9)
Cargo length at second seatback height	L210	433 (17.0)
Cargo length at floor (second)	L211	728 (28.7)
Front seatback to load floor height	H197	373 (14.7)
Second seatback to load floor height	H198	441 (16.2)
Cargo volume index [cu. m. (cu. ft.)]	V3	0.619 (21.843)
Hidden cargo vol. index [cu.m.(cu.ft.)]	V4	-
Cargo volume index-rear of 2-seat	V11	0.311 (10.968)

#### \* EPA Loaded Vehicle Weight, Loading Conditions

All Linear Dimensions Are In Millimeters (Inches)

# MVMA Specifications

Vehicle Line Geo STORM  
 Model Year 1990 Issued 6-89 Revised(\*)           

**METRIC (U.S. Customary)**

Body Type ALL MODELS

## Vehicle Fiducial Marks

Number*	Define Coordinate Location	
Front	The Center Of The Hole (16) On The Front Side Member	
Rear	The Center Of The Hole (13) On The Rear Side Member. (Note: The Rearmost One Of The Drain Holes.)	
Fiducial Mark Number		
Front	W21*	403 (15.9)
	L54*	250 (9.8)
	H81*	336.5 (13.2)
	H181*	177 (7.0)
	** H183*	157 (6.2)
Rear	W22*	460.5 (18.1)
	L55*	2594 (102.1)
	H82*	563 (22.2)
	H182*	405 (15.9)
	** H184*	384 (15.1)

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

\*\*\* EPA Loaded Vehicle Weight, Loading Conditions  
 All Linear Dimensions Are In Millimeters (Inches)



# MVMA Specifications

METRIC (U.S. Customary)

Vehicle Line Geo STORM

Model Year 1990 Issued 6-89 Revised(\*) 9-89

		Vehicle Mass (weight)								
Code	Model	CURB MASS, kg. (lb.)*			% PASS MASS DISTRIBUTION				ETWC** Code	
		Front	Rear	Total	Pass in Front		Pass in Rear			
					Front	Rear	Front	Rear		
Geo STORM 1RF77	2-Door Hatchback Coup	853 (1340)	382 (842)	1035 (2282)	45	55	25	75	N	
Geo STORM GSI 1RT77	2-Door Hatchback Coupe	685 (1510)	400 (882)	1085 (2392)	45	55	25	75	O	

Curb Mass - The calculated mass of a vehicle with standard equipment only as designed with the additional load of oil, lubes, coolants, and fuel all filled to capacity.

Shipping Mass - Same as base curb weight, except 3 gallons of gasoline.

\* 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) Calculation (Kg. (lbs.))

Shipping Mass (weight) = Curb Mass (weight) Less:

26 (57)

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# MVMA Specifications

METRIC (U.S. Customary)

Vehicle Line Geo STORM  
 Model Year 1990 Issued \_\_\_\_\_ Revised(\*) 6-89

Code		Optional Equipment Differential Mass (weight)*			Remarks Restrictions, Requirements
		MASS, kg. (lb.)			
		Front	Rear	Total	
	Air Conditioning	20.4	-2.0	18.4	
	AM/FM Stereo Radio	1.0	0.4	1.4	
	AM/FM Stereo Cassette	1.2	0.5	1.7	

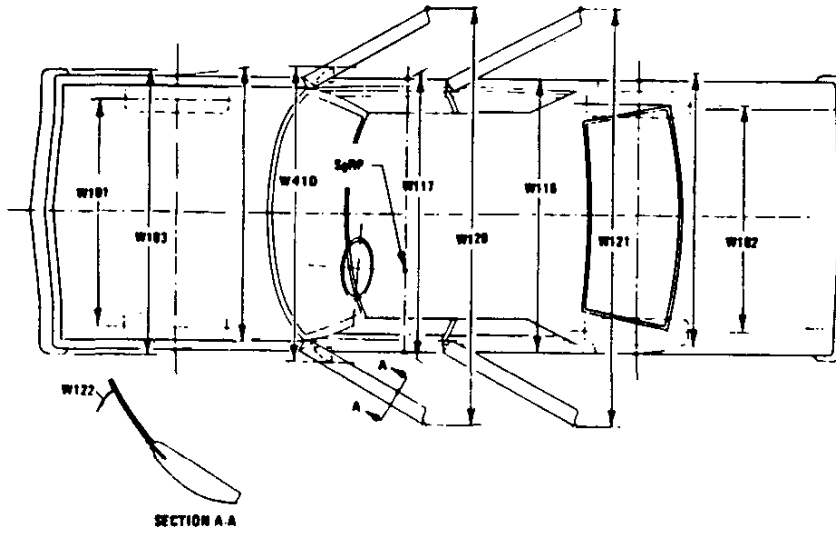
\* Also see Engine - General Section for dressed engine mass (weight).

# MVMA Specifications

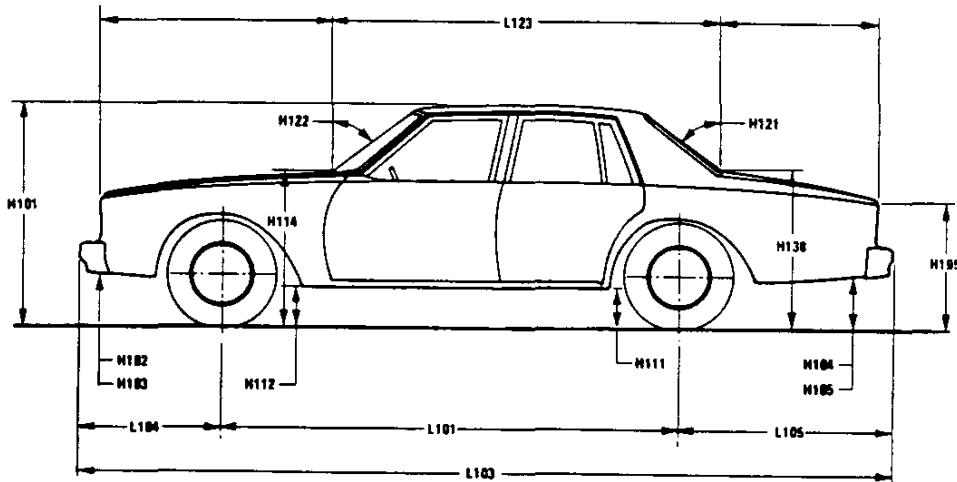
METRIC (U.S. Customary)

## Exterior Vehicle And Body Dimensions - Key Sheet

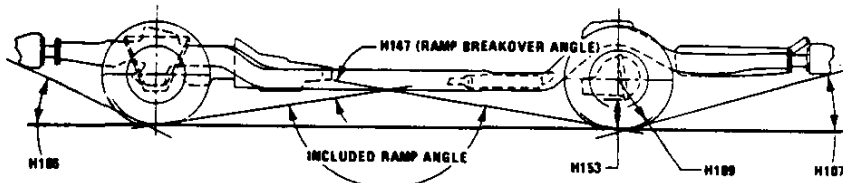
### Exterior Width



### Exterior Length & Height



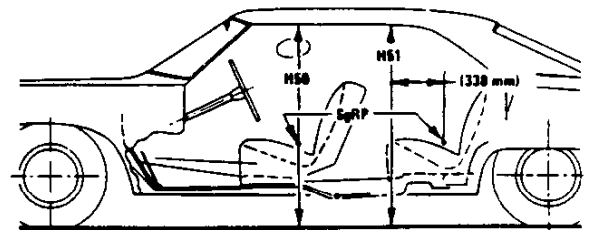
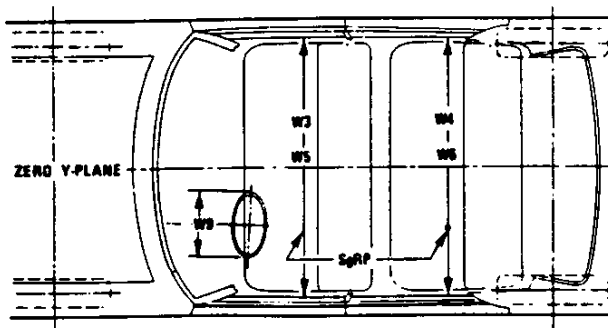
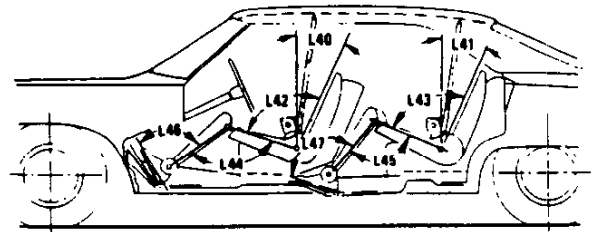
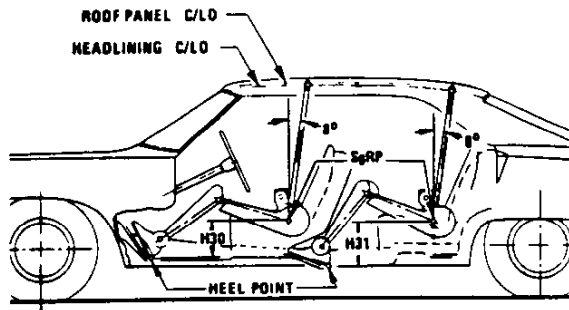
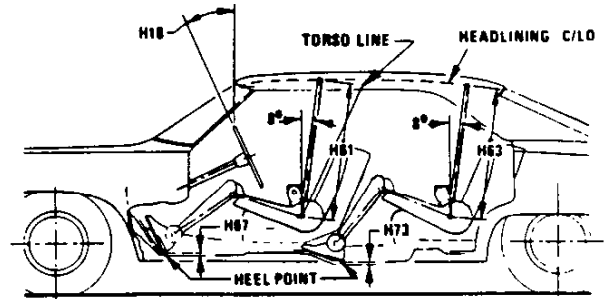
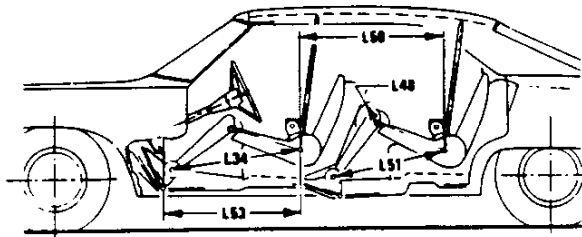
### Exterior Ground Clearance



# MVMA Specifications Form

## METRIC (U.S. Customary)

### Interior Vehicle And Body Dimensions – Key Sheet

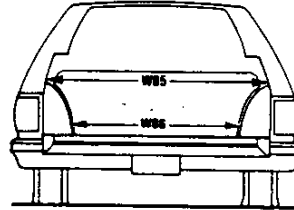
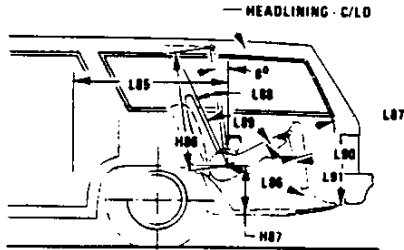


# MVMA Specifications Form

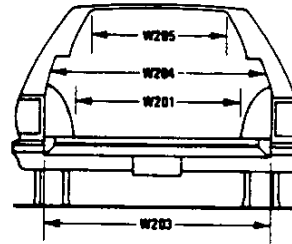
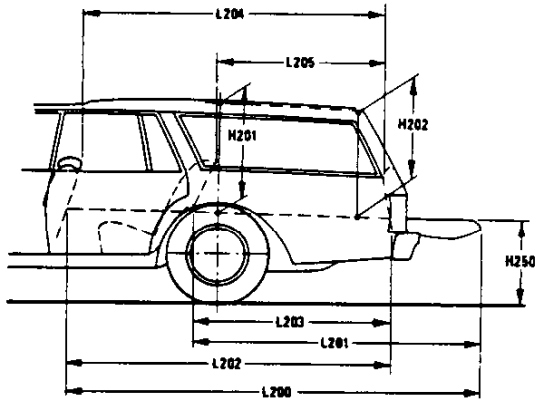
METRIC (U.S. Customary)

## Interior Vehicle And Body Dimensions – Key Sheet

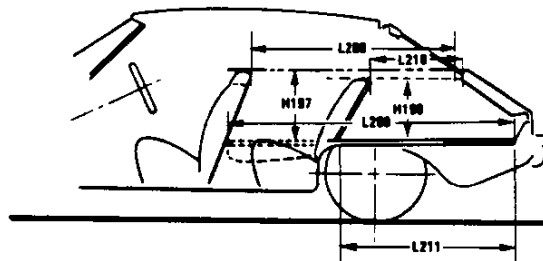
### Third Seat



### Cargo Space



### Station Wagon



### Hatchback

# MVMA Specifications

## 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.
- 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.
- 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 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 OVERHAND – 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.
- 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.

#### 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 of the windshield.
- 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.
- 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 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.

# MVMA Specifications

## METRIC (U.S. Customary)

### Interior Vehicle And Body Dimensions – Key Sheet Dimensions Definitions

#### 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

- 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 the 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.
- 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.
- 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.
- 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 covering to the underbody sheet metal at the accelerator heel point.

#### Rear Compartment Dimensions

- 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 254 mm (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.
- 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 dimension measured vertically from the heel point to the underbody sheet metal.

# MVMA Specifications

## METRIC (U.S. Customary)

### 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 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 51 mm (2.0 in.). 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 – 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 backpan 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 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 pickup 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 headliner 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:

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

Measured in mm:

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



# MVMA Specifications

## METRIC (U.S. Customary)

### Interior Vehicle And Body Dimensions – Key Sheet Dimensions Definitions

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:

$$\frac{L506 \times W505 \times H503}{1728} = \text{ft}^3$$

Measured in mm:

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

V6 TRUCKS AND MPV'S WITH CLOSED AREA.

Measured in inches:

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

Measured in mm:

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

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:

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

Measured in mm:

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

#### 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 electronically 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 "X" 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 seatback to the undepressed floor covering.

V3 HATCHBACK.

Measured in inches:

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

Measured in mm:

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

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:

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

Measured in mm:

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

# MVMA Specifications

## METRIC (U.S. Customary)

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