

# MANUFACTURERS MOTOR VEHICLE SPECIFICATIONS

METRIC (U.S. Customary)

# 1990

<b>Manufacturer</b> Chevrolet Motor Division General Motors Corporation	<b>Vehicle Line</b>  BERETTA	
<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.

# MVMA Specifications

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

METRIC (U.S. Customary)

## o Vehicle Origin

Design & development (company)	Chevrolet-Pontiac-GM of Canada
Where built (country)	U.S.A.
Authorized U.S. Sales marketing representative	Chevrolet Motor Division

## o 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)
BERETTA 2-Door Notchback Coupe (FWD)		1LV37	5 (2/3)	
2-Door Convertible (FWD)		1LV67	5 (2/3)	
BERETTA 'GT' 2-Door Notchback Coupe (FWD)		1LW37	5 (2/3)	
BERETTA 'GTZ' 2-Door Notchback Coupe (FWD)		1LZ37	5 (2/3)	

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

Vehicle Line BERETTA

Model Year	1990	Issued	6-89	Revised(*)	9-89
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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
E N G I N E	Engine Code		LM3	LM3	LHO	LHO
	Displacement Liters (cu. in.)		2.2 (133)	2.2 (133)	3.1 (191)	3.1 (191)
	Induction system (FI, Carb, etc.)		Throttle Body Injection	Throttle Body Injection	Multi-Port Fuel Injection	Multi-Port Fuel Injection
	Compression ratio		9.0:1	9.0:1	8.8:1	8.8:1
	SAE Net at RPM	Power kW (bhp)	71 (95) @ 5200	71 (95) @ 5200	101 (135) @ 4200	101 (135) @ 4200
		Torque Newton meters (lb.ft.)	163 (120) @ 3200	163 (120) @ 3200	244 (180) @ 3600	244 (180) @ 3600
Exhaust Single, dual		Single	Single	Single	Single	
T R A N S	Transmission/ Transaxle		MR3 Manual Transaxle 5-Speed	MD9 Automatic Transaxle 3-Speed	MG2 Manual Transaxle 5-Speed	MD9 Automatic Transaxle 3-Speed
	Axle Ratio (std. first)		3.83	3.18	3.61	2.84

[illegible]

## MVMA Specifications

Vehicle Line	BERETTA			
Model Year	1990	Issued	6-89	Revised(*)

**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.

		E	F	G	H
E N G I N E	Engine Code		LGO		
	Displacement Liters (cu. in.)		2.3 (138)		
	Induction system (FI, Carb, etc.)		Multi-Port Fuel Injection		
	Compression ratio		10.0:1		
	SAE Net at RPM	Power kW (bhp)	134 (180) @ 6200		
		Torque Newton meters (lb.ft.)	217 (160) @ 5200		
Exhaust Single, dual		Single			
T R A N S	Transmission/ Transaxle		MY5 Manual Transaxle 5-Speed		
	Axle Ratio (std. first)		3.61		

[illegible]

# MVMA Specifications

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

## METRIC (U.S. Customary)

Engine Description  
 Engine Code

2.2 LITER L4 (133 CID)  
 THROTTLE BODY INJECTION RPO LM3

## 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 - OHV	
Manufacturer	C-P-C Group - G.M. Corporation	
No. of cylinders	4	
Bore	89.0 mm (3.50 in.)	
Stroke	88.0 mm (3.46 in.)	
Bore spacing (C/L to C/L)	99.0 mm (3.90 in.)	
Cyl blk matl & mass kg(lbs.)(machined)	Cast Iron, 40 (88)	
Cylinder block deck height	216.65 mm (8.53 in.)	
Cylinder block length	443 mm (17.44 in.)	
Deck clearance (minimum) (above or below block)	.7 mm (.028 in.) Below	
Cyl. head material & mass kg (lbs.)	Aluminum, 9.7 (21.3)	
Cylinder head volume (cu. cm.)	35.5 (2.17)	
Cylinder liner material	No Liner	
Head gasket thickness (compressed)	1.4 mm (.055 in.)	
Minimum combustion chamber total volume (cm. cu.)	68.43 (4.18)	
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, 3.9 (8.6)	
Exh. manifold matl & mass [kg (lbs.)]**	Cast Iron, 4.5 (10)	
Fuel required unleaded, diesel, etc.	Unleaded	
Fuel antiknock index (R + M) / 2	87	
Engine mounts	Quantity	3
	Matl and type (elastomeric, hydroelastic, hydraulic damper, etc.)	Elastomeric
	Added isolation (sub-frame, crossmember, etc.)	No
Total dressed engine mass (wt) dry***	147.7 kg (325 lbs.) Automatic	163.3 kg (359 lbs.) Manual

## Engine - Pistons

Material & mass, g (weight, oz.) - piston only	Aluminum, 320 (11.26)
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## Engine Camshaft

Location		In Block, Right Side
Material & mass kg (weight, lbs.)		Cast Iron, 3.1 (6.8)
Drive type	Chain/belt	Chain
	Width/pitch	19.3 / 9.5 mm (.76 / .37 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:

# MVMA Specifications

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

## METRIC (U.S. Customary)

### Engine Description

### Engine Code

3.1 LITER V6 (191 CID)

MULTI-PORT FUEL INJECTION RPO LHO

## ENGINE - GENERAL

Type & description (inline, V, angle, flat, location, front, mid, rear, transverse, longitudinal, sohc, dohc, ohv, hemi, wedge, pre-chamber, etc.)		60 deg. V, Front, Transverse, OHV
Manufacturer		C-P-C Group - G.M. Corporation
No. of cylinders		6
Bore		89mm (3.6 in.)
Stroke		84mm (3.4 in.)
Bore spacing (C/L to C/L)		111.76mm (4.5 in.)
Cyl blk matl & mass kg(lbs.)(machined)		Cast Iron, 48.15 (107.0)
Cylinder block deck height		224.0mm (9.0 in.)
Cylinder block length		435.5mm (17.4 in.)
Deck clearance (minimum) (above or below block)		0.15mm (.006 in.), ABA
Cyl. head material & mass kg (lbs.)		Aluminum, 5.30 (11.7)
Cylinder head volume (cu. cm.)		28.0 (1.71)
Cylinder liner material		Not Applicable
Head gasket thickness (compressed)		1.62mm (.062 in.)
Minimum combustion chamber total volume (cm. cu.)		66.1
Cyl. no. system (front to rear)	L. Bank	2-4-6
	R. Bank	1-3-5
Firing order		1-2-3-4-5-6
Intake manifold matl & mass[kg(lbs.)]**		Inlet Plenum - Aluminum Alloy, 3.5 (7.9) Inlet Manifold - Aluminum Alloy, 5.6 (12.4)
Exh. manifold matl & mass [kg (lbs.)]**		Nodular Cast Iron, Wt. Of Manifold, Fire Wall Side 3.76 (8.283); Wt. Of Other Manifold, 2.63 (5.786)
Fuel required unleaded, diesel, etc.		Unleaded
Fuel antiknock index (R + M) / 2		87
Engine mounts	Quantity	2
	Matl and type (elastomeric, hydroelastic, hydraulic damper, etc.)	Elastomeric
	Added isolation (sub-frame, crossmember, etc.)	Not Applicable
Total dressed engine mass (wt) dry***		

## Engine - Pistons

Material & mass, g (weight, oz.) - piston only	Aluminum Alloy, 365 (12.8)
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## Engine Camshaft

Location		Cylinder Block
Material & mass kg (weight, lbs.)		Cast Iron, 3.098 (6.83)
Drive type	Chain/belt	Chain
	Width/pitch	15.9 x 9.375mm (.625 x.369 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:

# MVMA Specifications

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

## METRIC (U.S. Customary)

Engine Description  
 Engine Code

2.3 LITER L4 (138 CID)  
 MULTI-PORT FUEL INJECTION RPO LGO

## 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, Pent Roof	
Manufacturer	B-O-C Lansing Automotive Division	
No. of cylinders	4	
Bore	92 mm (3.63 in.)	
Stroke	85 mm (3.35 in.)	
Bore spacing (C/L to C/L)	100 mm (3.94 in.)	
Cyl block matl & mass kg(lbs.)(machined)	Cast Iron, 42.83 (94.226)	
Cylinder block deck height	222 mm (8.74 in.)	
Cylinder block length	499.5 (19.66)	
Deck clearance (minimum) (above or below block)	0	
Cyl. head material & mass kg (lbs.)	Aluminum Alloy, 8.60 (18.96)	
Cylinder head volume (cu. cm.)	47.0 +/- 1.5cc	
Cylinder liner material	None	
Head gasket thickness (compressed)	1.03 - 1.13 mm (.040 - .044 in.)	
Minimum combustion chamber total volume (cm. cu.)	62.8	
Cyl. no. system (front to rear)	L. Bank	1-2-3-4
	R. Bank	None
Firing order	1-3-4-2	
Intake manifold matl & mass[kg(lbs.)]**	Aluminum, 4.80 (10.56)	
Exh. manifold matl & mass [kg (lbs.)]**	Cast Iron, 6.74 (14.86)	
Fuel required unleaded, diesel, etc.	Unleaded	
Fuel antiknock index (R + M) / 2	87	
Engine mounts	Quantity	3
	Matl and type (elastomeric, hydroelastic, hydraulic damper, etc.)	Elastomeric (2) Hydraulic-Elastomeric (1)
	Added isolation (sub-frame, crossmember, etc.)	Isolated Cross Member Supporting The Front Mount
Total dressed engine mass (wt) dry***		

## Engine - Pistons

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

Location	Overhead	
Material & mass kg (weight, lbs.)	Cast Iron	Intake 3.045 (6.713) Exhaust 2.948 (6.499)
Drive type	Chain/belt	Chain
	Width/pitch	22.86 mm 9.525 mm (.375 in.) Duplex - 130 Pitches

\*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:



# MVMA Specifications

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

## METRIC (U.S. Customary)

Engine Description  
Engine Code

2.2 LITER L4 (133 CID)  
THROTTLE BODY INJECTION RPO LM3

### Engine - Valve System

Hydraulic lifters (std., opt., NA)		Standard
Valves	Number intake/exhaust	4/4
	Head O.D. intake/exhaust	43.0 mm (1.69 in.) / 37.0 mm (1.46 in.)

### Engine - Connecting Rods

Material & mass [kg., (weight, lbs.)]*	Forged Steel, .547 (1.2)
Length (axes centerline to centerline) mm	141.95 (5.59)

### Engine - Crankshaft

Material & mass [kg., (weight, lbs.)]*		Nodular Cast Iron, 14.4 (31.7)
End thrust taken by bearing (no.)		4
Length & number of main bearings		5, 20.72 mm (.82 in.)
Seal (material, one, two piece design, etc.)	Front	One Piece Fluoroelastomer
	Rear	One Piece Fluoroelastomer

### Engine - Lubrication System

Normal oil pressure [kPa (psi) @ eng rpm]	435-530 (63-77) @ 1200
Type oil intake (floating, stationary)	Stationary
Oil filter sys. (full flow, part, other)	Full Flow
Capacity of c/case, less filter-refill-L (qt.)	3.8 (4.0)

### 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

# MVMA Specifications

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

## METRIC (U.S. Customary)

### Engine Description

#### Engine Code

3.1 LITER V6 (191 CID)

MULTI-PORT FUEL INJECTION RPO LHO

### Engine - Valve System

Hydraulic lifters (std., opt., NA)		Standard
Valves	Number intake/exhaust	6/6
	Head O.D. intake/exhaust	43.64 mm (1.72 in.) / 38.20 mm (1.43 in.)

### Engine - Connecting Rods

Material & mass (kg., (weight, lbs.))*	Forged Steel, .602 (1.33) Full Assembly.
Length (axes centerline to centerline) mm	144.78 (5.79)

### Engine - Crankshaft

Material & mass {kg., (weight, lbs.)}*		Nodular Cast Iron, 17.9 (39.5)
End thrust taken by bearing (no.)		3
Length & number of main bearings		** , 4 Bearings
Seal (material, one, two piece design, etc.)	Front	Viton/Steel, One Piece
	Rear	Viton/Steel, one piece

### Engine - Lubrication System

Normal oil pressure (kPa (psi) @ eng rpm)	345-450 (50-65) @ 2400
Type oil intake (floating, stationary)	Stationary
Oil filter sys. (full flow, part, other)	Full Flow
Capacity of c/case, less filter-refill-L (qt.)	3.8 (4.0)

### 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

\*\* Standard Measurement For Width Only:

For 3.1L V6; #1,4 = 29.5mm (1.18 in.); #2,3 = 24.0mm (0.96 in.)

# MVMA Specifications

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

## METRIC (U.S. Customary)

### Engine Description Engine Code

2.3 LITER L4 (138 CID)  
MULTI-PORT FUEL INJECTION RPO LGO

### Engine - Valve System

Hydraulic lifters (std., opt., NA)		Standard
Valves	Number intake/exhaust	8/8
	Head O.D. intake/exhaust	36.50 mm (1.44 in.) / 31.50 mm (1.24 in.)

### Engine - Connecting Rods

Material & mass [kg., (weight, lbs.)]*	Steel, .673 (1.5) Each
Length (axes centerline to centerline) mm	147.5 (5.81)

### Engine - Crankshaft

Material & mass {kg., (weight, lbs.)}*		Nodular Iron, 19.0 (41.9)
End thrust taken by bearing (no.)		#3
Length & number of main bearings		#1, 2, 4, & 5 21.25 mm (.84 in.) #3 27.25 mm (1.09 in.)/5
Seal (material, one, two piece design, etc.)	Front	One Piece, Viton
	Rear	One Piece, Viton

### Engine - Lubrication System

Normal oil pressure [kPa (psi) @ eng rpm]	207 (30) @ 2000
Type oil intake (floating, stationary)	Stationary Pick-Up
Oil filter sys. (full flow, part, other)	Full Flow
Capacity of c/case, less filter-refill-L (qt.)	3.79 (4)

### 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

# MVMA Specifications

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

## METRIC (U.S. Customary)

### Engine Description

2.2 LITER L4 (133 CID)

### Engine Code

THROTTLE BODY INJECTION RPO LM3

## Engine - Cooling System

Coolant recovery system (std, opt, n.a.)		Standard
Coolant fill location (rad., bottle)		Bottle, Coolant Recovery
Radiator cap relief valve pressure (kPa (psi))		103.4 (15)
Circulation thermostat	Type (choke, bypass)	Choke
	Starts to open @ deg's C(F)	84 (199)
Water Pump	Type (centrifugal, other)	Centrifugal
	GPM 1000 pump rpm	7.3
	Number of pumps	1
	Drive (V-belt, other)	V-Belt
	Bearing type	Sealed, Ball Roller
	Impeller material	Stamped Steel
	Housing material	Aluminum
By-pass recirculation (type (inter., ext.))		External - Thru Intake Manifold Internal
Cooling system capacity	With heater - L (qt.)	
	With air conditioner-L(qt.)	
	Opt. equip.(specify-L(qt.))	
Water jackets full length of cyl(yes,no)		Yes
Water all around cylinder (yes, no)		Yes
Water jackets open at head face (yes,no)		Yes
Radiator core	Std., A/C, HD	
	Type (cross-flow, etc.)	
	Construction (fin & tube mechanical, braze, etc.)	
	Matl., mass (kg(wgt.,lbs.))	
	Width	
	Height	
	Thickness	
	Fins per inch	
Radiator end tank material		
Fan	Std., elec., opt.	Electric
	Number of blades & type (flex, solid, material)	
	Diameter & projected width	
	Ratio(fan to crnkshft.rev.)	
	Fan cutout type	ECM Controlled
	Drive type (direct, remote)	Direct - Electric Motor
	RPM at idle (elec.)	
	Motor rating(wattage)(elec)	
	Motor switch (type & location) (elec.)	Engine Block
	Switch point (temp., pressure) (elec.)	On At 108; Off At 101
	Fan shroud (material)	

# MVMA Specifications

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

## METRIC (U.S. Customary)

### Engine Description

### Engine Code

3.1 LITER V6 (191 CID)  
 MULTI-PORT FUEL INJECTION RPO LHO

### Engine - Cooling System

Coolant recovery system (std, opt, n.a.)		Standard
Coolant fill location (rad., bottle)		Bottle, Coolant Recovery
Radiator cap relief valve pressure [kPa (psi)]		89.6 - 103.4 (13-15)
Circulation thermostat	Type (choke, bypass)	Bypass
	Starts to open @ deg's C(F)	90 (195)
Water Pump	Type (centrifugal, other)	Centrifugal
	GPM 1000 pump rpm	12
	Number of pumps	1
	Drive (V-belt, other)	Serpentine
	Bearing type	Ball-Roller
	Impeller material	Cast Iron
	Housing material	Aluminum
By-pass recirculation [type (inter., ext.)]		External, Bypass
Cooling system capacity	With heater - L (qt.)	12.33 (13.1)
	With air conditioner-L(qt.)	12.47 (13.2)
	Opt. equip.[specify-L(qt.)]	12.67 (13.4)
Water jackets full length of cyl(yes,no)		No
Water all around cylinder (yes, no)		Yes
Water jackets open at head face (yes,no)		Yes
Radiator core	Std., A/C, HD	Not
	Type (cross-flow, etc.)	Available
	Construction (fin & tube mechanical, braze, etc.)	
	Matl., mass [kg(wgt.,lbs.)]	
	Width	
	Height	
	Thickness	
	Fins per inch	
Radiator end tank material		
Fan	Std., elec., opt.	
	Number of blades & type (flex, solid, material)	
	Diameter & projected width	
	Ratio(fan to crnkshft.rev.)	
	Fan cutout type	
	Drive type (direct, remote)	
	RPM at idle (elec.)	
	Motor rating(wattage)(elec)	
	Motor switch (type & location) (elec.)	
	Switch point (temp., pressure)(elec.)	
	Fan shroud (material)	

# MVMA Specifications

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

## METRIC (U.S. Customary)

### Engine Description

#### Engine Code

2.3 LITER L4 (138 CID)  
 MULTI-PORT FUEL INJECTION RPO LGO

### Engine - Cooling System

Coolant recovery system (std, opt, n.a.)		
Coolant fill location (rad., bottle)		
Radiator cap relief valve pressure [kPa (psi)]		
Circulation thermostat	Type (choke, bypass)	Bypass
	Starts to open @ deg's C(F)	89 (192)
Water Pump	Type (centrifugal, other)	Centrifugal
	GPM 1000 pump rpm	6.5
	Number of pumps	1
	Drive (V-belt, other)	Chain
	Bearing type	2 Row Ball
	Impeller material	Sheet Metal
	Housing material	Die Cast Aluminum
By-pass recirculation (type (inter., ext.))		
Cooling system capacity	With heater - L (qt.)	
	With air conditioner-L(qt.)	
	Opt. equip.(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	Not
	Type (cross-flow, etc.)	Available
	Construction (fin & tube mechanical, braze, etc.)	
	Matl., mass [kg(wgt., lbs.)]	
	Width	
	Height	
	Thickness	
Fins per inch		
Radiator end tank material		
Fan	Std., elec., opt.	
	Number of blades & type (flex, solid, material)	
	Diameter & projected width	
	Ratio(fan to crnkshft.rev.)	
	Fan cutout type	
	Drive type (direct, remote)	
	RPM at idle (elec.)	
	Motor rating(wattage)(elec)	
	Motor switch (type & location)(elec.)	
	Switch point (temp., pressure)(elec.)	
Fan shroud (material)		

# MVMA Specifications

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

## METRIC (U.S. Customary)

### Engine Description

#### Engine Code

2.2 LITER L4 (133 CID)  
 THROTTLE BODY INJECTION RPO LM3

### 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 Products
Carburetor no. of barrels		None
Idle A/F mix.		Preset - No Adjustment Provided
Fuel Injection	Point of inj. (no.)	Throttle Body Above Throttle Blade (Single)
	Constant, pulse, flow	Pulse
	Control (elec., mech.)	Electronic
	Sys. press. [kPa (psi)]	68.95 - 92.74 (10-12)
Idle spd.-rpm (spec. neutral or drive and propane if used)	Manual	900 In Neutral
	Automatic	800 In drive.
Intake manifold heat control (exhaust or water thermostatic or fixed)		Water
Air cleaner type		Single Snorkel
Fuel filter (type/location)		Replaceable Paper Element Located Near Fuel Tank
Fuel pump	Type (elec. or mech.)	Electrical
	Location (eng., tank)	Fuel tank
	Press. range [kPa (psi)]	Pressure Depends On Flow Rate And System Voltage
	Flow rate at regulated pressure (L (gal)/hr @ kPa (psi))	8.16 (22.5) @ 83 (12)

### Fuel Tank

Capacity [refill L (gallons)]		59.0 (15.6)
Location (describe)		Under Rear Seat (Forward Of Rear Axle)
Attachment		Two Longitudinal Steel Straps
Material & Mass [kg (weight lbs.)]		High Density Polyethylene 8.92 (20.46) W/Sender
Filler pipe	Location & material	Right Rear Quarter
	Connection to tank	Fuel Filler And Vent Hose With Clamps
Fuel line (material)		Steel/Nylon With Quick Connect Fittings
Fuel hose (material)		Filler Hose - Rubber
Return line (material)		Steel/Nylon With Quick Connect Fittings
Vapor line (material)		Steel/Nylon
Extended range tank	Opt., n.a.	Not Applicable
	Capacity [L (gallons)]	"
	Location & material	"
	Attachment	"
Auxiliary tank	Opt., n.a.	"
	Capacity [L (gallons)]	"
	Location & material	"
	Attachment	"
	Slctr switch or valve	"
	Separate fill	"

# MVMA Specifications

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

## METRIC (U.S. Customary)

### Engine Description

### Engine Code

3.1 LITER V6 (191 CID)  
 MULTI-PORT FUEL INJECTION RPO LHO

### 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 Products
Carburetor no. of barrels		None
Idle A/F mix.		Preset-No Adjustment Provided
Fuel Injection	Point of inj. (no.)	Fuel Injectors At Inlet Ports
	Constant, pulse, flow	Pulse
	Control (elec., mech.)	Electronic
	Sys. press. [kPa (psi)]	300 (43.5)
Idle spd.-rpm (spec. neutral or drive and propane if used)	Manual	Not Applicable
	Automatic	600 In Drive
Intake manifold heat control (exhaust or water thermostatic or fixed)		Water
Air cleaner type		Single Snorkel
Fuel filter (type/location)		Replaceable Enclosed Paper Element Located Near Fuel Tank.
Fuel pump	Type (elec. or mech.)	Electrical
	Location (eng., tank)	Fuel Tank
	Press. range [kPa (psi)]	Pressure Depends On Flow Rate And System Voltage
	Flow rate at regulated pressure (L (gal)/hr @ kPa (psi))	62.4 @ 350 (Figures For Wide Open Throttle) (16.51 @ 50.8)

### Fuel Tank

Capacity [refill L (gallons)]		59.0 (15.6)
Location (describe)		Under Rear Seat (Forward Of Rear Axle)
Attachment		Two Longitudinal Steel Straps
Material & Mass [kg (weight lbs.)]		High density Polyethylene 8.92 (20.46) W/Sender
Filler pipe	Location & material	Right Rear Quarter
	Connection to tank	Fuel Filler And Vent Hose With Clamps
Fuel line (material)		Steel/Nylon With Quick Connect Fittings
Fuel hose (material)		Filler Hose - Rubber
Return line (material)		Steel/Nylon With Quick Connect Fittings
Vapor line (material)		Steel/Nylon
Extended range tank	Opt., n.a.	Not Applicable
	Capacity [L (gallons)]	"
	Location & material	"
	Attachment	"
Auxiliary tank	Opt., n.a.	"
	Capacity [L (gallons)]	"
	Location & material	"
	Attachment	"
	Slctr switch or valve	"
	Separate fill	"



# MVMA Specifications

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

## METRIC (U.S. Customary)

### Engine Description

### Engine Code

2.3 LITER L4 (138 CID)  
 MULTI-PORT FUEL INJECTION RPO LGO

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

Induction type: carburetor, fuel injection system, etc.		Port Fuel Injection
Manufacturer		AC/Rochester Products
Carburetor no. of barrels		None
Idle A/F mix.		ECM Controlled
Fuel Injection	Point of inj. (no.)	4 Injectors At Ports In Cylinder Head
	Constant, pulse, flow	Pulse
	Control (elec., mech.)	Electronic
	Sys. press. [kPa (psi)]	300 (43)
Idle spd.-rpm (spec. neutral or drive and propane if used)	Manual	
	Automatic	
Intake manifold heat control (exhaust or water thermostatic or fixed)		None
Air cleaner type		Single Snorkel
Fuel filter (type/location)		Replaceable Enclosed Paper Element Located Near Fuel Tank
Fuel pump	Type (elec. or mech.)	Electrical
	Location (eng., tank)	Fuel Tank
	Press. range [kPa (psi)]	Pressure Depends On Flow Rate And System Voltage
	Flow rate at regulated pressure (L (gal)/hr @ kPa (psi))	62.4 @ 350 (Figures For Wide Open Throttle) (16.51 @ 50.8)

### Fuel Tank

Capacity [refill L (gallons)]		59.0 (15.6)
Location (describe)		Under Rear Seat (Forward Of Rear Axle)
Attachment		Two Longitudinal steel Straps
Material & Mass [kg (weight lbs.)]		High Density Polyethylene 8.92 (20.46) W/Sender
Filler pipe	Location & material	Right rear Quarter
	Connection to tank	Fuel Filler And Vent Hose With Clamps
Fuel line (material)		Steel/Nylon With Quick Connect Fittings
Fuel hose (material)		Filler Hose - rubber
Return line (material)		Steel/Nylon With Quick Connect Fittings
Vapor line (material)		Steel/Nylon
Extended range tank	Opt., n.a.	Not Applicable
	Capacity [L (gallons)]	"
	Location & material	"
	Attachment	"
Auxiliary tank	Opt., n.a.	"
	Capacity [L (gallons)]	"
	Location & material	"
	Attachment	"
	Slctr switch or valve	"
	Separate fill	"

# MVMA Specifications

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

## METRIC (U.S. Customary)

### Engine Description

### Engine Code

2.2 LITER L4 (133 CID)  
 THROTTLE BODY INJECTION RPO LM3

## Vehicle Emission Control

Exhaust Emission Control	Type (air injection, engine modifications, other)		CCC Control
	Air Injection	Pump or pulse	Not
		Driven by	Applicable
		Air distribution (head, manifold, etc.,)	
		Point of entry	
	Exhaust Gas Recirculation	Type (controlled flow, open orifice, other)	Negative Back Pressure EGR Valve With Integral Transducer And Single Shaft Cross Hole
		Exhaust source	#4 Cylinder At Cylinder Head
	Catalytic Converter	Point of exh.inj. (spacer, carb., manifold, other)	Inlet Manifold
		Type	3-Way Monolith
		Number of	1
		Location(s)	Mounted To Center Underbody
		Volume [L(cu.in)]	1.8 (110)
		Substrate type	Monolith
		Noble metal type	Platinum (Pt), Rhodium (Rh)
		Noble metal concentration (g/cu. cm.)	
Crankcase Emission Control	Type (ventilates to atmosphere, induction system, other)		Induction System
	Energy source (manifold vacuum, carburetor, other)		Manifold Vacuum
	Discharges (to intake manifold, other)		Intake Manifold
	Air inh(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)		1, Triflow Muffler, Aluminized Steel, 6.5 (14.4)
Material & Mass [kg (weight lbs.)]		
Resonator no. & type		Not Applicable
Exhaust pipe	Branch o.d., wall thickness	"
	Main o.d., wall thickness	50.8 x 1.77 mm (2.0 x .070 in.)
	Matl. & Mass [kg(wght.lbs.)]	409 Stainless Steel, 3.4 (7.6)
Inter-mediate pipe	o.d. & wall thickness	50.8 x 1.09 mm (2.0 x .043 in.)
	Matl. & Mass [kg(wght.lbs.)]	Aluminized Steel, 3.0 (6.7)
Tail pipe	o.d. & wall thickness	50.8 x 1.09 mm (2.0 x .043 in.)
	Matl. & Mass [kg(wght.lbs.)]	Aluminized Steel, .4 (.9)

# MVMA Specifications

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

## METRIC (U.S. Customary)

### Engine Description

### Engine Code

3.1 LITER V6 (191 CID)

MULTI-PORT FUEL INJECTION RPO LHO

### Vehicle Emission Control

#### Manual Transmission

#### Automatic Transmission

Exhaust Emission Control	Type (air injection, engine modifications, other)		Air Injection	Not Applicable
	Air injection	Pump or pulse	Pump	"
		Driven by	Belt	"
		Air distribution (head, manifold, etc.,)	Exhaust Manifold	
		Point of entry	Manifold Facing Fire Wall, Single Port	
	Exhaust Gas Recirculation	Type (controlled flow, open orifice, other)	3 Sized Orifices Which Are Opened Or Closed Using, Pintles And Solenoids. 8 Flow Combination.	
		Exhaust source		
		Point of exh.inj. (spacer, carb., manifold, other)	Plenum, Near Throttle Body	
	Catalytic Converter	Type	Bed Monolith (Dual)	
		Number of	1	
		Location(s)	Mounted To Underbody	
		Volume [L(cu.in)]	2.79 (170)	
		Substrate type	Ceramic Monolith	
		Noble metal type	Platinum (Pt), Rhodium (Rh), Palladium (Pd)	
		Noble metal concentration (g/cu. cm.)		
Crankcase Emission Control	Type (ventilates to atmosphere, induction system, other)		Closed Induction System	
	Energy source (manifold vacuum, carburetor, other)		Plenum Vacuum	
	Discharges (to intake manifold, other)		Discharges To Plenum	
	Air Int.(breather cap, other)		Duct Between Air Cleaner And Throttle Body	
Evaporative Emission Control	Vapor vented to (crankcase, canister, other)	Fuel tank	Fuel Tank To Canister To Throttle Body Port	
		Carburetor	Not Applicable	
	Vapor storage provision		Canister	
Electronic System	Closed loop (yes/no)		Yes	
	Open loop (yes/no)		No	

### Engine - Exhaust System

Type (single, single with cross-over, dual, other)		Single
Muffler no. & type (reverse flow, straight thru, separate resonator) Material & Mass [kg (weight lbs.)]		1, Triflow Muffler, Aluminized Steel, 6.5 (14.4)
Resonator no. & type		Not Applicable
Exhaust pipe	Branch o.d., wall thickness	"
	Main o.d., wall thickness	50.8 x 1.77 mm (2.0 x .070 in.)
	Matl. & Mass [kg(wght.lbs.)]	409 Stainless Steel, 1.9 (4.2)
Inter-mediate pipe	o.d. & wall thickness	50.8 x 1.09 mm (2.0 x .043 in.)
	Matl. & Mass [kg(wght.lbs.)]	Aluminized Steel, 3.0 (6.7)
Tail pipe	o.d. & wall thickness	50.8 x 1.09 mm (2.0 x .043 in.)*
	Matl. & Mass [kg(wght.lbs.)]	Aluminized Steel .8 (1.8); W/Z21 1.0 (2.2)

\* W/Z21 57.1 x 1.09 mm (2.2 x .043 in.)

# MVMA Specifications

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

## METRIC (U.S. Customary)

### Engine Description

2.3 LITER L4 (138 CID)

### Engine Code

MULTI-PORT FUEL INJECTION RPO LG0

## Vehicle Emission Control

Exhaust Emission Control	Type (air injection, engine modifications, other)		C3 Engine Modification
	Air injection	Pump or pulse	None
		Driven by	
		Air distribution (head, manifold, etc.)	
		Point of entry	
	Exhaust Gas Recirculation	Type (controlled flow, open orifice, other)	California Only - Controlled Flow Dual None/Orifice Digital EGR Valve
		Exhaust source Point of exh.inj. (spacer, carb., manifold, other)	Intake Manifold
	Catalytic Converter	Type	Single Bed
		Number of	1
		Location(s)	Under Floor
		Volume [L(cu.in)]	2.786 (170)
		Substrate type	Monolith - Ceramic
		Noble metal type	Platinum (Pt), Paladium (Pd), Rhodium (Rh)
		Noble metal concentration (g/cu.cm.)	.00102/ - / .00010
Crankcase Emission Control	Type (ventilates to atmosphere, induction system, other)		Orifice + Bypass. No PCV Valve. Closed - Ventilates To Induction System.
	Energy source (manifold vacuum, carburetor, other)		Orificed Connection To Manifold Vacuum. Open Hose Connection To Clean Side Of A/C.
	Discharges (to intake manifold, other)		Induction System
	Air inlt(breather cap, other)		None
Evaporative Emission Control	Vapor vented to (crankcase, canister, other)	Fuel tank	Canister
		Carburetor	None
	Vapor storage provision		Charcoal 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.)]		1, Triflow Muffler, Aluminized Steel, 7.5 (16.7)
Resonator no. & type		1, 63 mm O.D. "Bottle" Resonator
Exhaust pipe	Branch o.d., wall thickness	Not Applicable
	Main o.d., wall thickness	57.2 x 2.2 mm (2.3 x .090 in.)
	Matl. & Mass [kg(wght.lbs.)]	409 Stainless Steel, 3.2 (7.1)
Inter-mediate pipe	o.d. & wall thickness	50.8 x 1.89 mm (2.0 x .074 in.)
	Matl. & Mass [kg(wght.lbs.)]	Aluminized Steel, 5.0 (11.1)
Tail pipe	o.d. & wall thickness	76.0 x .86 mm (3.0 x .034 in.)
	Matl. & Mass [kg(wght.lbs.)]	304 Stainless Steel, 1.8 (4.0)

# MVMA Specifications

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

## METRIC (U.S. Customary)

Engine Description  
Engine Code

2.2 LITER L4 (133 CID)  
THROTTLE BODY INJECTION RPO LM3

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

Manual 3-speed (manufacturer/country)	-
Manual 4-speed (manufacturer/country)	-
Manual 5-speed (manufacturer/country)	Standard (MR3)
Automatic (manufacturer/country)	Optional - Hydra-Matic, U.S.A. (MD9)
Auto, overdrive (manufacturer/country)	

## Manual Transmission/Transaxle

Number of forward speeds		5
Gear ratios	1st	3.73
	2nd	2.15
	3rd	1.33
	4th	.92
	5th	0.74
	Reverse	3.58
Synchronous meshing (specify gears)		1-5
Shift lever location		Floor
Trans. case mat'l. & mass kg (lbs)*		Aluminum, 36.5
Lubricant	Capacity [L (pt.)]	2.0 (4.0)
	Type recommended	Synchromesh transmission fluid (STF)

## Clutch (Manual Transmission)

Clutch manufacturer		Daikin
Clutch type (dry, wet; single, multiple disc)		Dry Disc
Linkage (hyd., cable, rod, lever, other)		Hydraulic
Max. pedal effort (nom. spring load, new) N (lbs.)	Depressed	133.4 (30.0)
	Released	115.6 (26.0)
Assist (spring, power/percent, nominal)		Not Applicable
Type pressure plate springs		Diaphragm
Total spring load (nominal, new) N(lbs)		5391 (1212)
Clutch facing	Facing mfr. & matl. coding	Daikin
	Facing matl. & construction	Non-Asbestos
	Rivets per facing	16
	Outside x inside dia. (nom.)	215.0 x 154.0 mm (8.46 x 6.06 in.)
	Total eff.area[sq cm(sq in)]	176.6 (23.37)
	Thickness (pressure plate side/fly wheel side)	3.5 mm (.14 in.) Pressure Plate Side, 3.2 (.13) Flywheel Side
	Rivet depth (pressure plate side/fly wheel side)	1.3 mm (0.05 in.) / 1.2 mm (0.05 in.)
	Engagement cushion method	Driven Plate, Wave Spoke Springs
Release bearing type & method lub.		Self-Centering, Angular Contact Ball Bearing - Prepacked & Sealed
Torsional damping method, springs, hysteresis		Coil Springs With Non-Metal Friction Control

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

# MVMA Specifications

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

## METRIC (U.S. Customary)

### Engine Description

### Engine Code

3.1 LITER V6 (191 CID)

MULTI-PORT FUEL INJECTION RPO LHO

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

Manual 3-speed (manufacturer/country)	
Manual 4-speed (manufacturer/country)	
Manual 5-speed (manufacturer/country)	Standard - Muncie, U.S. (MG2)
Automatic (manufacturer/country)	Optional - Hydra-Matic, U.S. (MD9)
Auto, overdrive (manufacturer/country)	

## Manual Transmission/Transaxle

Number of forward speeds		5
Gear ratios	1st	3.50
	2nd	2.05
	3rd	1.38
	4th	0.94
	5th	0.72
	Reverse	3.41
Synchronous meshing (specify gears)		1, 2, 3, 4 and 5
Shift lever location		Floor Mount
Trans. case mat'l. & mass kg (lbs)*		Aluminum, 41.0 (90.2)
Lubricant	Capacity [L (pt.)]	2.0 (4.2)
	Type recommended	Synchromesh Transmission Fluid (STF)

## Clutch (Manual Transmission)

Clutch manufacturer		LUK
Clutch type (dry, wet; single, multiple disc)		Dry Single Disc
Linkage (hyd., cable, rod, lever, other)		Hydraulic
Max. pedal effort (nom. spring load, new) N (lbs.)	Depressed	133.4 (30.0)
	Released	133.4 (30.0)
Assist (spring, power/percent, nominal)		Not Applicable
Type pressure plate springs		Diaphragm
Total spring load (nominal, new) N(lbs)		1382 (310.70)
Clutch facing	Facing mfr. & matl. coding	LUK
	Facing matl. & construction	Non-Abestos
	Rivets per facing	32
	Outside x inside dia. (nom.)	232 x 156mm (9.12 x 6.12 in.)
	Total eff.area[sq cm(sq in)]	232 (35.90)
	Thickness (pressure plate side/fly wheel side)	7.50 – 8.00mm (.295 – .315 in.)
	Rivet depth (pressure plate side/fly wheel side)	1.4mm (0.06 in.) / 1.4mm (0.06 in.)
	Engagement cushion method	Cushion Springs
Release bearing type & method lub.		Self Centering, Angular Contact Ball Bearing Pre-Packed & Sealed
Torsional damping method, springs, hysteresis		Coil Springs With Non-Metal Friction Control

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

# MVMA Specifications

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

## METRIC (U.S. Customary)

Engine Description  
Engine Code

2.3 LITER L4 (138 CID)  
MULTI-PORT FUEL INJECTION RPO LG0

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

Manual 3-speed (manufacturer/country)	Not Available
Manual 4-speed (manufacturer/country)	Not Available
Manual 5-speed (manufacturer/country)	Standard, (Muncie MY5)
Automatic (manufacturer/country)	Not Available
Auto, overdrive (manufacturer/country)	Not Available

## Manual Transmission/Transaxle

Number of forward speeds		5
Gear ratios	1st	3.50
	2nd	2.19
	3rd	1.38
	4th	1.03
	5th	.81
	Reverse	3.41
Synchronous meshing (specify gears)		All Forward Gears
Shift lever location		Floor - Console
Trans. case mat'l. & mass kg (lbs)*		Aluminum
Lubricant	Capacity [L (pt.)]	1.9 (4.0)
	Type recommended	Standard Transmission Fluid (STF)

## Clutch (Manual Transmission)

Clutch manufacturer	Daikin	
Clutch type (dry, wet; single, multiple disc)	Dry, Single	
Linkage (hyd., cable, rod, lever, other)	Hydraulic	
Max. pedal effort (nom. spring load, new) N (lbs.)	Depressed	151 (34)
	Released	0 (0)
Assist (spring, power/percent, nominal)	None	
Type pressure plate springs	Belleville Spring	
Total spring load (nominal, new) N(lbs)	5892 (1325)	
Clutch facing	Facing mfg. & matl. coding	Daikin
	Facing matl. & construction	NC80
	Rivets per facing	16
	Outside x inside dia. (nom.)	225 x 150 mm (8.86 x 5.91 in.)
	Total eff. area [sq cm (sq in)]	442 (68.5)
	Thickness (pressure plate side/fly wheel side)	3.2 (.126) Pressure Plate; 3.5 (.138) Fly Wheel
	Rivet depth (pressure plate side/fly wheel side)	1.6 (.06) Pressure Plate; 1.5 (.06) Fly Wheel
	Engagement cushion method	Driven Plate Cushion
Release bearing type & method lub.	Ball Thrust - Prepacked & Sealed	
Torsional damping method, springs, hysteresis	Coil Spring With Friction Washer	

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

# MVMA Specifications

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

## METRIC (U.S. Customary)

### Engine Description

### Engine Code

2.2 LITER 'L4' (133 CID)  
THROTTLE BODY INJECTION RPO LM3

## Automatic Transmission/Transaxle

Trade Name		THM 125c (Hydra-Matic 3T40)
Type and special features (describe)		3-Speed Automatic
Gear selector	Location (column, floor, other)	Column & Floor
	Ltr./No. designation (e.g. PRND21)	P-R-N-D-2-1
	Shift interlock (yes, no, describe)	NO
Gear ratios	1st	2.84
	2nd	1.60
	3rd	1.00 (Converter Clutch Engagement)
	4th	
	Reverse	2.07
Max. upshift speed - drive range [km/h (mph)]		1 - 2 = 46 (29) 2 - 3 = 78 (49)
Max. kickdown speed - drive range [km/h (mph)]		3 - 2 = 120 (75) 2 - 1 = 52 (32)
Min. overdrive speed [km/h (mph)]		Not Applicable
Torque converter	Number of elements	3
	Max. ratio at stall	2.35
	Type of cooling (air, liquid)	Liquid
	Nominal diameter	245 mm (9.8 in.)
	Capacity factor "K"	177
Lubricant	Capacity (refill L(pt.))	8.5 (17.85) (Dry Transmission)
	Type recommended	Dexron II
Oil cooler (std., opt., N.A., internal, external, air, liquid)		Standard, Integral With Radiator
Trans. mass [kg(lbs)] & case matt.**		65.7 (144.54)

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

## METRIC (U.S. Customary)

### Engine Description

### Engine Code

3.1 LITER V6 (191 CID)  
 MULTI-PORT FUEL INJECTION RPO LHO

### ○ Automatic Transmission/Transaxle

Trade Name		THM 125c (Hydra-Matic 3T40)
Type and special features (describe)		3-Speed Automatic
Gear selector	Location (column, floor, other)	Column & Floor
	Ltr./No. designation (e.g. PRND21)	P-R-N- <b>D</b> -D-2-1
	Shift interlock (yes, no, describe)	No
Gear ratios	1st	2.84
	2nd	1.60
	3rd	1.00 (Converter Clutch Engagement)
	4th	
	Reverse	2.07
Max. upshift speed - drive range [km/h (mph)]		1-2 = 74 (46) 2-3 = 127 (79)
Max. kickdown speed - drive range [km/h (mph)]		3-2 = 121 (76) 2-1 = 51 (32)
Min. overdrive speed [km/h (mph)]		Not Applicable
Torque converter	Number of elements	3
	Max. ratio at stall	2.35
	Type of cooling (air, liquid)	Liquid
	Nominal diameter	245mm (9.8 in.)
	Capacity factor "K"	177
Lubricant	Capacity (refill L(pt.))	8.5 (17.85)
	Type recommended	Dexron II
Oil cooler (std., opt., N.A., internal, external, air, liquid)		Standard, Integral Part Of Radiator
Trans. mass [kg(lbs)] & case matl.**		65.7 (144.54)

### ○ 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

METRIC (U.S. Customary)

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

Engine Description  
Engine Code

2.3 LITER L4 (138 CID)  
MULTI-PORT FUEL INJECTION RPO LGO

## Automatic Transmission/Transaxle (NOT APPLICABLE)

Trade Name		
Type and special features (describe)		
Gear selector	Location (column, floor, other)	
	Ltr./No. designation (e.g. PRND21)	
	Shift interlock (yes, no, describe)	
Gear ratios	1st	
	2nd	
	3rd	
	4th	
	Reverse	
Max. upshift speed - drive range [km/h (mph)]		
Max. kickdown speed - drive range [km/h (mph)]		
Min. overdrive speed [km/h (mph)]		
Torque converter	Number of elements	
	Max. ratio at stall	
	Type of cooling (air, liquid)	
	Nominal diameter	
	Capacity factor "K"	
Lubricant	Capacity (refill L(pt.))	
	Type recommended	
Oil cooler (std., opt., N.A., internal, external, air, liquid)		
Trans. mass [kg(lbs)] & case matl.**		

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

## METRIC (U.S. Customary)

### Engine Description

2.2 LITER L4 (133 CID)

### Engine Code

THROTTLE BODY INJECTION RPO LM3

### ○ Axle Ratio and Tooth Combinations

AUTOMATIC - MD9

MANUAL - MR3

Effective final drive ratio (or overall top gear ratio)			3.18	3.83 (2.83)
Transfr ratio and method(chain,gear,etc)			1.12, Chain	Not Applicable
Front drive unit	Ring gear o.d.		Not Applicable	"
	No. of teeth	Pinion	"	"
		Ring gear	"	"

### ○ Front Drive Unit

Description (integral to trans., etc.)		Planetary Final Drive
		Integral With Transmission
Limited slip differential (type)		Not Applicable
Drive pinion	Type	"
	Offset	"
No. of differential pinions		2
Pinion/differential	Adjustment (shim, etc.)	Not Applicable
	Bearing adjustment	"
Driving wheel bearing (type)		
Lubricant	Capacity [L (pt.)]	See Automatic Trans Spec
	Type recommended	"

### ○ Axle Shafts - Front Wheel Drive

Manufacturer and number used			2	
Type (straight, solid bar, tubular, etc.)		Left	Straight, Solid Bar	
		Right	Straight, Solid Bar	
Outer diam. x length* x wall thickness	Manual transaxle	Left	23.81 X 320.0 (A)	27.05 X 313.5 (B)
		Right	46.5 X 663.0 (A)	27.05 X 315.5 (B)
	Automatic transaxle	Left	23.81 X 311.0 (A)	27.05 X 308.0 (B)
		Right	23.81 X 364.3 (A)	27.05 X 357.0 (B)
	Optional transaxle	Left	None	
		Right	None	
Slip yoke	Type		None	
	Number of teeth		None	
	Spline o.d.		None	
Universal joints	Make and mfg. no.	Inner	Saginaw Division	
		Outer	Saginaw Division	
	Number used		2 On Each Drive Shaft	
	Type, size, plunge	Inner	TRI-POT (C)	Cross-Groove (D) (E)
		Outer	Rzeppa - Fixed	
	Attach (u-bolt, clamp, etc.)		Splined	
	Bearing	Type (plain, anti-friction)	Anti-Friction	
		Lubrication (fitting, prepack)	Prepacked	
Drive taken through (torque tube, arms or springs)			Wishbone Lower Control Arm; Upper MacPherson Strut	
Torque taken through (torque tube, arms or springs)			Engine Mounting System	

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

(SEE ATTACHED NOTES)

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# MVMA Specifications

METRIC (U.S. Customary)

SUPPLEMENTAL PAGE

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

- 
- (A) - Shaft Size = 2300 N.m.
  - (B) - Shaft Size = 2700 N.m.
  - (C) - Plunge = Manual, Left - 24.84mm  
Manual, Right - 33.29mm  
Auto, Left - 24.51mm  
Auto, Right - 25.11mm
  - (D) - Plunge = Manual, Left - 21.89mm  
Manual, Right - 27.59mm  
Auto, Left - 24.14mm  
Auto, Right - 25.29mm
  - (E) - TRI-POT Same As "Auto" In Note C, Is Used With FE3 Suspension And Auto Transmission.

# MVMA Specifications

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

## METRIC (U.S. Customary)

### Engine Description

### Engine Code

3.1 LITER V6 (191 CID)  
 MULTI-PORT FUEL INJECTION RPO LHO

### ○ Axle Ratio and Tooth Combinations

AUTOMATIC - MD9

MANUAL - MG2

Effective final drive ratio (or overall top gear ratio)			2.84	3.61 (2.60)
Transfr ratio and method(chain,gear,etc)			1.00, Chain	Not Applicable
Front drive unit	Ring gear o.d.		Not Applicable	"
	No. of teeth	Pinion	"	"
		Ring gear	"	"

### ○ Front Drive Unit

Description (integral to trans., etc.)		Planetary Final Drive Integral With Transmission
Limited slip differential (type)		Not Applicable
Drive pinion	Type	"
	Offset	"
No. of differential pinions		2
Pinion/differential	Adjustment (shim, etc.)	Not Applicable
	Bearing adjustment	"
Driving wheel bearing (type)		
Lubricant	Capacity [L (pt.)]	See Automatic Trans Spec
	Type recommended	"

### ○ Axle Shafts - Front Wheel Drive

Manufacturer and number used			2	
Type (straight, solid bar, tubular, etc.)		Left	Straight, Solid Bar	
		Right	Straight, Solid Bar	
Outer diam. x length* x wall thickness	Manual transaxle	Left	23.81 X 320.0 (A)	27.05 X 313.5 (B)
		Right	46.5 X 663.0 (A)	27.05 X 315.5 (B)
	Automatic transaxle	Left	23.81 X 311.0 (A)	27.05 X 308.0 (B)
		Right	23.81 X 364.3 (A)	27.05 X 357.0 (B)
	Optional transaxle	Left	None	
		Right	None	
Slip yoke	Type		None	
	Number of teeth		None	
	Spline o.d.		None	
Universal joints	Make and mfg. no.	Inner	Saginaw Division	
		Outer	Saginaw Division	
	Number used		2 On Each Drive Shaft	
	Type, size, plunge	Inner	TRI-POT (C)	Cross-Groove (D) (E)
		Outer	Rzeppa - Fixed	
	Attach (u-bolt, clamp, etc.)		Splined	
	Bearing	Type (plain, anti-friction)	Anti-Friction	
		Lubrication (fitting, prepack)	Prepacked	
Drive taken through (torque tube, arms or springs)			Wishbone Lower Control Arm; Upper MacPherson Strut	
Torque taken through (torque tube, arms or springs)			Engine Mounting System	

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

(SEE ATTACHED NOTES)

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# MVMA Specifications

METRIC (U.S. Customary)

## SUPPLEMENTAL PAGE

Vehicle Line	BERETTA		
Model Year	1990	Issued	6-89
		Revised(*)	

(A) - Shaft Size = 2300 N.m.

(B) - Shaft Size = 2700 N.m.

(C) - Plunge = Manual, Left - 24.84mm

Manual, Right - 33.29mm

Auto, Left - 24.51mm

Auto, Right - 25.11mm

(D) - Plunge = Manual, Left - 21.89mm

Manual, Right - 27.59mm

Auto, Left - 24.14mm

Auto, Right - 25.29mm

(E) - TRI-POT Same As "Auto" In Note C, Is Used With FE3 Suspension And Auto Transmission.

# MVMA Specifications

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

## METRIC (U.S. Customary)

Engine Description  
 Engine Code

2.3 LITER L4 (138 CID)  
 MULTI-PORT FUEL INJECTION RPO LGO

### ○ Axle Ratio and Tooth Combinations MANUAL - MY5

Effective final drive ratio (or overall top gear ratio)			3.61 (2.92)
Transfr ratio and method(chain,gear,etc)			
Front drive unit	Ring gear o.d.		
	No. of teeth	Pinion	
		Ring gear	

### ○ Front Drive Unit

Description (integral to trans., etc.)		Planetary Final Drive
		Integral With Transmission
Limited slip differential (type)		Not Applicable
Drive pinion	Type	"
	Offset	"
No. of differential pinions		2
Pinion/differential	Adjustment (shim, etc.)	Not Applicable
	Bearing adjustment	"
Driving wheel bearing (type)		
Lubricant	Capacity [L (pt.)]	See Automatic Trans Spec
	Type recommended	"

### ○ Axle Shafts - Front Wheel Drive

Manufacturer and number used			2	
Type (straight, solid bar, tubular, etc.)		Left	Straight, Solid Bar	
		Right	Straight, Solid Bar	
Outer diam. x length* x wall thickness	Manual transaxle	Left	23.81 X 320.0 (A)	27.05 X 313.5 (B)
		Right	46.5 X 663.0 (A)	27.05 X 315.5 (B)
	Automatic transaxle	Left	23.81 X 311.0 (A)	27.05 X 308.0 (B)
		Right	23.81 X 364.3 (A)	27.05 X 357.0 (B)
	Optional transaxle	Left	None	
		Right	None	
Slip yoke	Type		None	
	Number of teeth		None	
	Spline o.d.		None	
Universal joints	Make and mfg. no.	Inner	Saginaw Division	
		Outer	Saginaw Division	
	Number used		2 On Each Drive Shaft	
	Type, size, plunge	Inner	TRI-POT (C)	Cross-Groove (D) (E)
		Outer	Rzeppa - Fixed	
	Attach (u-bolt, clamp, etc.)		Splined	
	Bearing	Type (plain, anti-friction)	Anti-Friction	
Lubrication (fitting, prepack)		Prepacked		
Drive taken through (torque tube, arms or springs)			Wishbone Lower Control Arm; Upper MacPherson Strut	
Torque taken through (torque tube, arms or springs)			Engine Mounting System	

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

(SEE ATTACHED NOTES)

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Page 10.4

(Front Wheel Drive)

# MVMA Specifications

Vehicle Line BERETTA

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

## METRIC (U.S. Customary)

Body Type And/Or

Engine Displacement

2-DOOR NOTCHBACK COUPES, CONVERTIBLE

## Suspension - General Including Electronic Controls

Car leveling	Std./opt./n.a.	Not Available
	Manual/automatic control	"
	Type (air/hydraulic)	"
	Primary/assist spring	"
	Rear only/4 wheel leveling	"
	Single/dual rate spring	"
	Single/dual ride heights	"
	Provision for jacking	Body Pickup At Rocker Panels
Shock absorber damping controls	Std./opt./n.a.	Not Available
	Manual/automatic control	"
	Number of damping rates	"
	Type of actuation (manual/ electric motor/air, etc.)	"
	s e n s o r	Lateral acceleration
		Deceleration
Shock absorber (front & rear)		Acceleration
		Road surface
	Type	Front: MacPherson Strut, Rear: Double Acting Hydraulic
	Make	Delco
Shock absorber (front & rear)	Piston diameter	32.0 mm (1.26 in.) Front, 25.0 mm (.98 in.) Rear
	Rod diameter	25.0 mm (.98 in.) Front, 12.7 mm (.50 in.) Rear

## Suspension - Front

Type and description		MacPherson With Coil Springs, Stamped Weldment Lower Control Arms And Nodular Iron Steering Knuckles
Travel*	Full jounce	92.5mm (3.6 in.)
	Full rebound	84.0mm (3.3 in.)
Spring	Type (coil, leaf, other) & matl	Coil, Steel
	Insulators (type & matl)	Upper And Lower, Natural Rubber
	Size (coil design height & i.d.)	206.6 x 139.0 x 2700 x 13.3 mm (8.1 x 5.47 x 106.3 x .52 in.)
	Spring rate [N/mm (lb./in.)]	22.0 (126.0) Base, 27.0 (154.0) & FE3
	Rate @ wheel [N/mm (lb./in.)]	23.2 (132.0) Base, 27.5 (157.0) & FE3
Stabilizer	Type (link, linkless, frmless)	Link
	Material & bar diameter	Steel, 30.0 mm (1.18 in.), 1

## Suspension - Rear

Type and description		Trailing Twist Axle With Tubular Control Arms And Open Section Transverse Beam
Travel*	Full jounce	111.0 mm (4.37 in.)
	Full rebound	86.0 mm (3.4 in.)
Spring	Type (coil, leaf, other) & matl	Progressive Rate Coil, HR Steel
	Size (length x width, coil design height & i.d.)	290.0 x 105.0 x 2626 x 13.6 mm (11.42 x 4.13 x 103.4 x .54 in.)
	Spring rate [N/mm (lb/in)]	28 (160)
	Rate @ wheel [N/mm (lb/in)]	16.7 (95)
	Insulators (type & material)	Rubber - Top, Rubber & Urethane - Bottom
	If leaf	No. of leaves
		Shackle (comp or tens)
Stabilizer	Type (link, linkless, frmless)	Linkless Bolted Directly To Axle
	Material & bar diameter	Steel, 18.5mm (.65 in.) Solid, 19.0mm (.75 in.) Solid With FE3
Track bar (type)		Not Applicable

\* Define load condition:



# MVMA Specifications

METRIC (U.S. Customary)

Body Type And/Or

Engine Displacement

Brakes - Service

Vehicle Line BERETTA

Model Year 1990

Issued

6-89

Revised(\*)

2-DOOR NOTCHBACK COUPES, CONVERTIBLE

Description			Single Caliper Disc Front, Leading Trailing Drum Rear		
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, Diagonal Split Circuit.		
Power brake (std., opt., n.a.)			Standard		
Booster type(rmt, intgrl, vac., hyd., etc.)			Tandem Vacuum		
Vacuum	Source (inline, pump, etc.)		Inline (Intake Manifold)		
	Reservoir (volume cu. in.)		None		
	Pump-type		"		
Traction Control	Operational speed range		Not Available		
	Type engine intervention		"		
Anti-lock device	Front/rear (std., opt., n.a.)		Not Available		
	Manufacturer		"		
	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.)]*			517.8 (80.3)		
Gross Lng area [sq cm (sq in)] **(F/R)			531.8 (82.4)		
Swept area [sq cm (sq in)]*** (F/R)			1669.9 (258.9)		
Rotor	Outer working diameter	F/R	242.4 mm (9.54 in.)		
	Inner working diameter	F/R	149.6 mm (5.89 in.)		
	Thickness	F/R	22.4 mm (0.88 in.) / --		
	Matl & type (vented/sld)	F/R	Cast Iron, Vented / --		
Drum	Diameter & width	F/R	-- / 200 x 45 mm (7.87 x 1.77 in.)		
	Type and material	F/R	-- / Cast Iron, Non-Finned		
Wheel cylinder bore			57 mm (2.24 in.) / 19 mm (.75 in.)		
Master cylinder	Bore/stroke	F/R	22.2 mm (.87 in.) / 35.21 mm (1.39 in.)		
Pedal arc ratio			3.7:1		
Line pressure at 445 N (100 lb.) pedal load (kPa (psi))			Not Available		
Lining clearance		F/R	Self-Adjusting		
Brake lining	Front wheel	Bonded or riveted		In Board, Outboard - Integrally Molded	
		Rivet size		Not Applicable	
		Manufacturer		Delco Moraine	
		Lining code *****		128 FE	
		Material		Semi-Metallic	
		****	Pri. or out-brd	116.7 x 42.9 x 7.9 mm (4.59 x 1.69 x .31 in.)	
		Size	Sec. or in-brd	122.0 x 41.5 x 11.2 mm (4.80 x 1.63 x .44 in.)	
		Shoe thcknss.(no lng)		Inboard 4.85 mm (.119 in.); Outboard 3.27 mm (.129 in.)	
	Rear wheel	Bonded or riveted		Riveted, (10)	
		Manufacturer		Inland Division	
		Lining code *****		242 FE	
		Material		Organic	
		****	Pri. or out-brd	187.3 x 43.9 x 5.7 mm (7.36 x 1.73 x .22 in.)	
		Size	Sec. or in-brd	187.3 x 43.9 x 5.7 mm (7.36 x 1.73 x .22 in.)	
Shoe thcknss (no lng)		1.98 mm (.07 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 BERETTA  
 Model Year 1990 Issued 6-89 Revised(\*)

## METRIC (U.S. Customary)

Body Type And/Or  
 Engine Displacement

2-DOOR NOTCHBACK COUPES, CONVERTIBLE

## Tires And Wheels (Standard)

Tires	Size (load range, ply)		P195/70R14 BW
	Type (bias, radial, etc.)		Steel Belted Radial
	Inflation pressure (cold) for recommended max. vehicle load	Front [kPa(psi)]	240 (35)
		Rear [kPa(psi)]	240 (35)
Wheels	Rev/mile—at 70 km/h(45mph)		
	Type & material		Steel
	Rim (size & flange type)		14 x 6
	Wheel offset		47.0 mm (1.89 in.)
	Attachment	Type(bolt,stud)	Stud
		Circle diameter	100.0 mm (3.94 in.)
Spare	Number & size		5-M12 x 1.5 - 6H, 1HD. (Metric)
	Tire and wheel		T115/70D - 14 BW, Wheel Dia. 14 x 4. Inflation 415 (60)
	Storage position & location (describe)		Flat Under Rear Load Floor

## Tires And Wheels (Optional)

Tire size (load range, ply)		P205/60R15 BW
Type (bias, radial, steel, nylon, etc.)		Steel Belted Radial
Wheel (type & material)		Steel
Rim (size, flange type and offset)		15 x 6
Tire size (load range, ply)		P205/60R15 BW
Type (bias, radial, steel, nylon, etc.)		Steel Belted Radial
Wheel (type & material)		Aluminum
Rim (size, flange type and offset)		15 x 7
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		Hand Lever Assembly
Location of control		In Console Between Front Seats
Operates on		Rear Service Brakes
If separate from service brakes	Type(internal or external)	--
	Drum diameter	--
	Lining size (length x width x thickness)	--

# MVMA Specifications

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

## METRIC (U.S. Customary)

Body Type And/Or  
Engine Displacement

2-DOOR NOTCHBACK COUPES, CONVERTIBLE 1LV37

### Steering

Manual (std., opt., n.a.)			Not Available		
Power (std., opt., n.a.)			Standard		
Adjustable steering wheel/ column (tilt, telescope, other)		Type	Tilt		
		Manufacturer	Saginaw Division		
		(std., opt., n.a.)	Optional		
Wheel diameter ** (W9) SAE J1100		Manual	--		
		Power	378-381mm (14.88 - 15.00 in.)		
Turning diameter m (ft.)	Out-side front	Wall to wall (l. & r.)	12.41 (40.59)		
		Curb to curb (l. & r.)	11.53 (37.83)		
	In-side rear	Wall to wall (l. & r.)	Not Available		
		Curb to curb (l. & r.)	Not Available		
Scrub Radius *					
Manual	Gear	Type	--		
		Manufacturer		--	
		Ratios	Gear	--	
			Overall	--	
	No. wheel turns(stop to stop)		--		
Power	Type (hydraulic, elec., etc.)		Rack And Pinion W/Center Take-Off Tie Rods - Integral		
	Manufacturer		Saginaw Division		
	Gear	Type	Rack And Pinion W/Center Take-Off Tie Rods - Integral		
		Ratios	Gear	Not Applicable	
			Overall	13.96:1	
	Pump (drive)		Belt Off Crankshaft Pulley		
	No. wheel turns(stop to stop)		2.50		
Linkage	Type		Center Take Off Tie Rods, Rack And Pinion		
	Location (front or rear of wheels, other)		Rear		
	Tie Rods (one or two)		2		
Steering axis	Inclination at camber (deg.)		14 at +0.5		
	Bear-ings (type)	Upper	Strut Mount		
		Lower	Ball Joint		
		Thrust	Not Applicable		
Steering spindle/knuckle & joint type			"		
Wheel spindle/ hub	Dia-meter	Inner bearing	"		
		Outer bearing	"		
	Thread (size)		M20 x 1.5		
	Bearing (type)		Integral Double Row Ball, Permanently Lubricated		

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

\*\* See Page 22.

# MVMA Specifications

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

## METRIC (U.S. Customary)

Body Type And/Or  
 Engine Displacement

2-DOOR NOTCHBACK COUPES, CONVERTIBLE

## Wheel Alignment

Front wheel at curb mass (wt.)	Service checking	Caster (deg.)	Not Adjustable
		Camber (deg.)	.6 (+/-) .6 F41, -.2 (+/-) .6 FE3
		Toe-in (outside track-mm (in.))	0 (+/-) .10
	Service reset*	Caster (deg.)	Not Adjustable
		Camber (deg.)	.6 (+/-) .6 F41, -.2 (+/-) .6 FE3
		Toe-in (deg.)	0 (+/-) .10
	Periodic M.V. inspection	Caster (deg.)	Not Adjustable
		Camber (deg.)	--
		Toe-in (deg.)	--
Rear wheel at curb mass (wt.)	Service checking	Camber (deg.)	Not Applicable
		Toe-in (outside track-mm (in.))	"
	Service reset*	Camber (deg.)	"
		Toe-in (deg.)	"
	Periodic M.V. inspection	Camber (deg.)	"
		Toe-in (deg.)	"

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

## Electrical - Instruments and Equipment

### Electric Base Cluster

### Optional Electric Cluster

Speedometer	Type (analog, digital, std., opt.)	Half Circle Analog Dial W/ Pointer	Digital
	Trip odometer (std., opt., n.a.)	Standard	Digital Bar Graph
EGR maintenance indicator		Not Available	Not Available
Charge indicator	Type	Gauge	Bar Graph
	Warning device (light, audible)	Not Available	Not Available
Temperature indicator	Type	Gauge	Bar Graph
	Warning device	Tell-Tale Warning Light	Not Available
Oil pressure indicator	Type	Gauge	Bar Graph
	Warning device	Not Available	Not Available
Fuel indicator	Type	Electric Gauge W/Pointer	Bar Graph
	Warning device	Not Available	Not Available
Wind-shield wiper	Type (standard)	Electric 2-Speed	
	Type (optional)	Intermittent Wiper System	
	Blade length	482.6 mm (19.0 in.)	
	Swept area (sq cm (sq in))	622.2 (964.4)	
Wind-shield washer	Type (standard)	Wet-Arm System, Sliding Switch On RH Instrument Cluster Pod	
	Type (optional)	Not Available	
	Fluid level indicator	"	
Rear window wiper, wiper/washer (std., opt., n.a.)		"	
Horn	Type	Vibrator	
	Number used	Two ('A' Note and 'F' Note)	
Other	Headlamp-on Warning	Standard, Chimes	

# MVMA Specifications

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

## METRIC (U.S. Customary)

Engine Description  
 Engine Code

2.2 LITER L4 (133 CID)  
 THROTTLE BODY INJECTION RPO LM3

### Electrical - Supply System

Battery	Manufacturer	Delco Remy
	Model, std., (opt.)	
	Voltage	12
	Amps at 0 deg F cold crnk	630
	Minutes-reserve capacity	90
	Amps/hrs. - 20 hr. rate	
	Location	Engine Compartment
Alternator	Manufacturer	Delco Remy
	Rating (idle/max. rpm)	
	Ratio (alt. crank/rev.)	
	Output at idle (rpm, park)	
	Optional (type & rating)	
Regulator	Type	Integral With Alternator

### Electrical - Starting System

Motor	Manufacturer	Delco Remy
	Current drain -20 deg F	320 Amps
	Power rating [kw (hp)]	1.4 (1.9)
Motor drive	Engagement type	Solenoid Operated Shift Lever
	Pinion engages from (front, rear)	Front

### Electrical - Ignition System

Type	Electronic (std, opt,n.a.)		Electronic – Direct Ignition	
	Other (specify)		–	
Coil	Manufacturer		Delco Remy	
	Model			
	Current	Engine stopped–A	Not Applicable	
		Engine idling – A	"	
Spark plug	Manufacturer		AC Spark Plug	Champion Spark Plug
	Model		R44LTSM	RS13LYC
	Thread (mm)		14 x 1.25	14 x 1.25
	Tightening torque (Newton meters (lb. ft.))		10–20 (7–15)	10–20 (7–15)
	Gap		0.9 mm (0.035 in.)	0.9 mm (0.035 in.)
	Number per cylinder		1	1
Distributor	Manufacturer		Not	
	Model		Applicable	

### Electrical - Suppression

Locations & type	Not Available
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# MVMA Specifications

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

## METRIC (U.S. Customary)

### Engine Description

### Engine Code

3.1 LITER V6 (191 CID)

MULTI-PORT FUEL INJECTION RPO LHO

## Electrical - Supply System

Battery	Manufacturer	Delco Remy
	Model, std., (opt.)	Standard
	Voltage	12
	Amps at 0 deg F cold crnk	525
	Minutes-reserve capacity	90
	Amps/hrs. - 20 hr. rate	54
	Location	Engine Compartment
Alternator	Manufacturer	Delco Remy
	Rating(idle/max rpm drive)	42/105 Amps
	Ratio (alt. crank/rev.)	2.75
	Output at idle (rpm, park)	54 Amps
	Optional (type & rating)	None
Regulator	Type	Integral With Alternator

## Electrical - Starting System

Motor	Manufacturer	Delco Remy
	Current drain -20 deg F	350 Amps
	Power rating [kw (hp)]	1.4 (1.9)
Motor drive	Engagement type	Solenoid Operated Shift Lever
	Pinion engages from (front, rear)	Front

## Electrical - Ignition System

Type	Electronic (std, opt, n.a.)		Electronic - Direct ignition
	Other (specify)		
Coil	Manufacturer		Delco Remy
	Model		
	Current	Engine stopped-A	Not
		Engine idling - A	Applicable
Spark plug	Manufacturer		AC/Rochester Products
	Model		R43CTLSF
	Thread (mm)		14 x 1.25
	Tightening torque [Newton meters (lb. ft.)]		9-20 (7-15)
	Gap		1.14mm (.045 in.)
	Number per cylinder		1
Distributor	Manufacturer		Not
	Model		Applicable

## Electrical - Suppression

Locations & type	Not Available
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# MVMA Specifications

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

## METRIC (U.S. Customary)

Engine Description  
 Engine Code

2.3 LITER L4 (138 CID)  
 MULTI-PORT FUEL INJECTION RPO LGO

## Electrical - Supply System

Battery	Manufacturer	Delco Remy
	Model, std., (opt.)	75-630
	Voltage	12
	Amps at 0 deg F cold crnk	630
	Minutes-reserve capacity	90
	Amps/hrs. - 20 hr. rate	54
	Location	
Alternator	Manufacturer	Delco Remy
	Rating (idle/max. rpm)	36/100
	Ratio (alt. crank/rev.)	2.08
	Output at idle (rpm, park)	54
	Optional (type & rating)	None
Regulator	Type	

## Electrical - Starting System

Motor	Manufacturer	
	Current drain deg F	
	Power rating [kw (hp)]	
Motor drive	Engagement type	
	Pinion engages from (front, rear)	

## Electrical - Ignition System

Type	Electronic (std, opt, n.a.)	Standard/Direct Ignition System
	Other (specify)	None
Coil	Manufacturer	Delco Remy (2)
	Model	
	Current	Engine stopped-A 300 MA
		Engine idling - A Peak 9.5 Amps
Spark plug	Manufacturer	A/C Spark Plug
	Model	FR 3LS
	Thread (mm)	14 x 1.25
	Tightening torque [Newton meters (lb. ft.)]	21 - 24 (15 - 18)
	Gap	.889 mm (.035 in.)
	Number per cylinder	1
Distributor	Manufacturer	Not Applicable
	Model	"

## Electrical - Suppression

Locations & type	Not Available
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# MVMA Specifications

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

METRIC (U.S. Customary)

## Body Type

2-DOOR NOTCHBACK COUPES, CONVERTIBLE

## Body

Structure	Unitized Body Construction Including Front End Structure With Bolted-On Fenders And Hood
Bumper System Front - Rear	Bumper Fascias Are Attached To Steel Impact Bar And Dual Energy Absorbers For Collision Energy Absorption. (Meets G.M. 5 mph Impact Standard)
Anti-Corrosion Treatment	Special Anti-Corrosion Materials Are Used On Interior And Exterior Metal Panel Surfaces. Materials Include One And Two-Sided Galvanized, ELPO Coating, Primers, Protective Waxes And Sealers Are Used On Interior Surfaces.

## Body - Miscellaneous Information

Type of finish (lacquer, enamel, other)	High Solids Basecoat/Clearcoat Enamel	
Hood	Material & mass	Two Sided Galvanized Steel 17.91 Kg (39.5 lbs.)
	Hinge location (front, rear)	Rear
	Type (counterbalance, prop)	Prop
	Release control (int., ext.)	Internal
Trunk lid	Material & mass	Two sided Galvanized Steel 10.6 Kg (23.4 lbs.)
	Type (counterbalance, other)	Torsion Rods
	Internal release control (elec., mech., n.a.)	Electrical - Optional
Hatch-back lid	Material & mass	Not Applicable
	Type (counterbalance, other)	"
	Internal release control (elec., mech., n.a.)	"
Tailgate	Material & mass	"
	Type (drop, lift, door)	"
	Internal release control (elec., mech., n.a.)	"
Vent window control (crank, friction, pivot, power)	Front	None
	Rear	"
Window regulator type (cable, tape, flex drive, etc.)	Front	Not Applicable
	Rear	"
Seat cushion type (e.g., 60/40, bucket, bench wire, foam, etc.)	Front	Bucket With Polyurethane Padding
	Rear	Bench With Polyurethane Padding
	3rd seat	Not Applicable
Seat back type (e.g., 60/40, bucket, bench, wire, foam, etc.)	Front	Reclining Bucket With Polyurethane Padding
	Rear	Fixed Bench With Polyurethane Padding*
	3rd seat	Not Applicable
* For Beretta GT & GTZ, 60/40 Split Folding Rear Seat Standard		



# MVMA Specifications

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

## METRIC (U.S. Customary)

### Body Type

2-DOOR NOTCHBACK COUPES, CONVERTIBLE

### Restraint System

Seating Position			Left	Center	Right
Active	Type & description (lap & shoulder belt, lap belt, etc.)	First seat			
		Second seat			
	Standard/ optional	Third seat			
Passive	Type & description (air bag, motorized-2-point belt, fixed belt, knee bolster, manual-lap belt)	First seat	3-Point Door Mounted Passive System		3-Point Door Mounted Passive System
		Second seat	3-Point Active Belt	Adjustable Latch 2-Point Belt (Non-Retractor)	3-Point Active Belt
	Standard/ optional	Third seat			

Glass		SAE Ref No
Windshield glass exposed surface area [sq. cm. (sq. in.)]	S1	10303 (1598)
Side glass exposed surface area [sq. cm. (sq. in.)] - total 2- sides	S2	1794 (278)
Backlight glass exposed surface area [sq. cm. (sq. in.)]	S3	4813 (746)
Total glass exposed surface area [sq. cm. (sq. in.)]	S4	16910 (2622)
Windshield glass (type)		Laminated
Side glass (type)		Tempered
Backlight glass (type)		Tempered

### Headlamps

Description - sealed beam, halogen, replaceable bulb, etc.	Halogen, Replaceable Bulb
Shape	Rectangular
Lo-beam type (2A1, 2B1, 2C1, etc.)	HB3
Quantity	2
Hi-beam type (1A1, 2A1, 1C1, 2C1, etc.)	HB4
Quantity	2

### Frame

Type and description (separate frame, unitized frame, partially-unitized frame)	Body-Frame Integral With Bolt-On Powertrain Cradle.
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# MVMA Specifications

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

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

**Body Type**

2-DOOR NOTCHBACK COUPES, CONVERTIBLE

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

Air conditioning (manual, auto, temp control)		Optional (Manual Control)
Clock (digital, analog)		Digital (Integ. W/Stereo Radios)
Compass / thermometer		Outside Temp Part Of U52 Cluster
Console (floor, overhead)		Standard, Full Floor, Overhead Console*
Defroster, elec. backlight		Optional
Electronic	Diagnostic monitor (integrated, individual)	Not Available
	Instrument cluster (list instruments)	Optional Bar Graph Fuel, Temperature, Oil Pressure, Battery Charge Gauges And Bar Graph/Digital Speedo (U52) **
	Keyless entry	Not Available
	Tripminder (avg. spd. fuel)	Part Of U52 Cluster - Optional
	Voice alert (list items)	Not Available
	Other	Digital/Bar Graph Tachometer (U52)
Fuel door lock (remote, key, electric)		Digital Trip Odometer, Outside Temperature & Instant Range Average
Lamps	Auto head on/off delay, dimming	Not Available
	Cornering	"
	Courtesy (map, reading)	Courtesy Standard. Map Reading Optional*
	Door lock, ignition	Not Available
	Engine compartment	"
	Fog	Not Available
	Glove compartment	"
	Trunk	Standard
	Illuminated entry system (list lamps, activation)	
Mirrors	Other	Ash Tray Lamp Standard
	Day / night (auto. man.)	Standard (Manual)
	L.H. (remote, pwr., heated)	Standard (Remote)
	R.H.(convex, rmt, pwr, htd)	Standard (Manual Convex)
Navigation system (describe)		Visor Mirror R.H. ***
Prkg. brake-auto release (warn. light)		Not Available
		Standard (Manual Release) Lower Area Of Speedometer

\*\* - Requires V6 Engine

\*\*\* - Avail In Optional Custom Interior (B18)

# MVMA Specifications

Vehicle Line BERETTA  
Model Year S1990 Issued 6-89 Revised(\*)

## METRIC (U.S. Customary)

Engine Description  
Engine Code

2-DOOR NOTCHBACK COUPES, CONVERTIBLE

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

Power equipment	Deck lid(release, pull down)		Optional Power Release
	Door locks (manual, auto., describe system)		Optional Manual Power Door Locks
	Seats	2 - 4 - 6 way, etc.	Not Applicable
		Reclining(R.H., L.H.)	"
		Memory (R.H., L.H., preset, recline)	"
		Lumbar, hip, thigh, support	"
		Heated (R.H., L.H., other)	"
	Side windows		Optional *
	Vent windows		Not Available
	Rear windows		"
Radio systems	Antenna (location, whip, w/shield, power)		R.F. Fender Fixed Mast Standard
	Stan.	AM, FM, stereo, tape, compact disc, graphic equalizer, theft deterrent, radio prep package, headphone jacks, etc.	Electronically Tuned AM/FM Stereo Radio With Seek And Scan And Clock. Includes Dual Front And Extended Range Rear Speakers.
	Opt.		UM6 **Electronically Tuned AM/FM Stereo With Cassette, Seek And Scan And Clock. Includes Dual Front And Extended Range Rear Speakers. UX1 **Electronically Tuned AM Stereo/FM Stereo With Cassette, Seek And Scan, Clock And Graphic Equalizer. Includes Dual Front And Extended Range Rear Speakers.
	Speaker (number, location)		4 Speakers; 2 In Front And 2 In Rear
	Roof: open air or fixed (flip-up, sliding, 'T')		Optional Flip-Up And Removable Vista Vent
Speed control device		Optional	
Speed warn. dev. (light, buzzer, etc.)		Optional ***	
Tachometer (rpm)		Standard	
Telephone system (describe)			
Theft deterrent system		Not Available	
		Auto. Trans. - Lock MOUNTed On Steering Column; Locks Steering Wheel, Auto Trans. Shift Lever And Igniton. Manual Trans. - Lock Mounted On Steering Column; Locks Steering Wheel And Igniton. Plus Anti-Theft Design Door Lock Buttons.	

\* - Requires AU3 Power Locks

\*\* - Requires C60 Air Conditioning

\*\*\* - Requires N33 Tilt Steering Wheel

# MVMA Specifications

Vehicle Line BERETTA

Model Year 1990 Issued 6-89 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

2-DOOR NOTCHBACK COUPES, CONVERTIBLE

#### Width

SAE Ref. No.

Tread (front)	W101	1413 (55.6)
Tread (rear)	W102	1438 (56.6)
Vehicle width	W103	1733 (68.2)
Body width at Sg RP (front)	W117	1726 (68.0)
Vehicle width (front doors open)	W120	3903 (153.7)
Vehicle width (rear doors open)	W121	Not Applicable
Tumble-home (deg.)	W122	27.0
Outside mirror width	W410	

#### Length

Wheelbase	L101	2627 (103.4)
Vehicle length	L103	4756 (187.2)
Overhang (front)	L104	1067 (42.0)
Overhang (rear)	L105	1062 (41.8)
Upper structure length	L123	2663 (104.8)
Rear wheel C/L 'X' coordinate	L127	2410 (94.9)

#### Height \*\*

Passenger distribution (front/rear)	PD1,2,3	**
Trunk/cargo load		**
Vehicle height	H101	1345 (52.9)
Cowl point to ground	H114	955 (37.6)
Deck point to ground	H138	1057 (41.6)
Rocker panel-front to ground	H112	221 (8.7)
Rocker panel-rear to ground	H111	225 (8.8)
Windshield slope angle (deg.)	H122	61.0
Backlight slope angle (deg.)	H121	60.4

#### Ground Clearance \*\*

Front bumper to ground	H102	351 (13.8)
Rear bumper to ground	H104	352 (13.8)
Bumper to ground [front at curb mass (wt.)]	H103	362 (14.3)
Bumper to ground [rear at curb mass (wt.)]	H105	381 (15.0)
Angle of approach (deg.)	H106	13.0
Angle of departure (deg.)	H107	19.2
Ramp breakover angle (deg.)	H147	6.0
Axle differential to ground (front/rear)	H153	Not Available
Min. running ground clearance	H156	148 (5.8)
Location of min. run. grd. clear.		

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

## METRIC (U.S. Customary)

### Vehicle Dimensions

See Key Sheets for Definitions

#### Body Type

2-DOOR NOTCHBACK COUPES, CONVERTIBLE

#### ○ Front Compartment

##### SAE Ref. No. COUPE LEVEL II TRIM

##### COUPE LEVEL I & III TRIM

SgRP front, 'X' coordinate	L31	1138 (44.8)	1138 (44.8)
Effective head room	H81	964 (38.0)	957 (37.7)
Max. eff. leg room (accelerator)	L34	1102 (43.4)	1102 (43.4)
SgRP to heel point	H30	234 (9.2)	241 (9.5)
SgRP to heel point	L53	912 (35.9)	912 (35.9)
Back angle (deg.)	L40	26.5	26.5
Hip angle (deg.)	L42	103.0	103.5
Knee angle (deg.)	L44	136.0	136.0
Foot angle (deg.)	L48	87.0	87.0
Design H-point front travel	L17	222 (8.7)	221 (8.7)
Normal driving & riding seat track trvl.	L23	198 (7.8)	199 (7.8)
Shoulder room	W3	1404 (55.3)	1386 (54.6)
Hip room	W5	1351 (53.2)	1258 (49.5)
*** Upper body opening to ground	H50	987 (38.8)	897 (35.3)
Steering wheel maximum diameter*	W9	382 (15.0)	382 (15.0)
Steering wheel angle (deg.)	H18	18.5	18.5
Accel. heel pt. to steer. whl. cntr	L11	Not Available	Not Available
Accel. heel pt. to steer. whl. cntr	H17	"	"
Undepressed floor covering thickness	H67	15 (0.6)	14 (0.55)

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

#### ○ Rear Compartment

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

SgRP point couple distance	L50	760 (29.9)	760 (29.9)
Effective head room	H83	930 (36.6)	930 (36.6)
Min. effective leg room	L51	880 (34.6)	880 (34.6)
SgRP (second to heel)	H31	256 (10.1)	257 (10.1)
Knee clearance	L46	4 (0.2)	3 (0.12)
Shoulder room	W4	1400 (55.1)	1400 (55.1)
Hip room	W8	1287 (50.7)	1288 (50.7)
*** Upper body opening to ground	H51	--	--
Back angle (deg.)	L41	24.5	24.5
Hip angle (deg.)	L43	81.0	81.0
Knee angle (deg.)	L45	86.5	86.5
Foot angle (deg.)	L47	122.0	122.0
Depressed floor covering thickness	H73	17 (0.7)	18 (0.7)

#### Luggage Compartment

Usable luggage capacity [L (cu. ft.)]	V1	382 (13.5)
*** Litter height	H195	891 (35.1)

#### Interior Volumes (EPA Classification)

Vehicle class	Compact
Interior volume index (cu. ft.)**	106.7
Trunk / cargo index (cu. ft.)	13.5

\* 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 BERETTA  
Model Year 1989 Issued 6-89 Revised(\*)

## METRIC (U.S. Customary)

### Vehicle Dimensions

See Key Sheets for Definitions

#### Body Type:

2-DOOR: NOTCHBACK, COUPES, CONVERTIBLE

#### Station Wagon - Third Seat

SAE Ref. No. (NOT APPLICABLE)

Seat facing direction	SD1	
SgRP couple distance	L85	
Shoulder room	W85	
Hip Room	W88	
Effective leg room	L88	
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

(NOT APPLICABLE)

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

\* EPA Loaded Vehicle Weight, Loading Conditions

All linear dimensions are in millimeters (inches)

# MVMA Specifications

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

## METRIC (U.S. Customary)

Body Type

2-DOOR NOTCHBACK COUPES, CONVERTIBLE

## Vehicle Fiducial Marks

Number*	Define Coordinate Location	
Front	X -	Fiducial Mark To Vertical Zero Grid Line - Front Measured Horizontally, From The Zero Grid Line To The Front Fiducial Mark Located On Top Of The Front Seat Adjuster Mounting Bolt.
	Y -	Fiducial Mark To Centerline Of Car - Front, Width Measurement Made From Centerline Car To Fiducial Mark Located On Top Of The Front Seat Adjuster Mounting Bolt.
	Z -	Fiducial Mark To Horizontal Zero Grid Line - Front, Measured Vertically From The Zero Grid Line Front Fiducial Mark Located On Top Of The Front Seat Adjuster Mounting Bolt.
Rear	X -	Fiducial Mark To Vertical Zero Grid Line - Rear, Measured Horizontally From The Zero Grid Line To Rear Fiducial Mark Located On The Rail (Compartment Pan - Longitudinal).
	Y -	Fiducial Mark To Centerline Of Car - Rear, Width Measurement Made From Centerline Of Car To Fiducial Mark Located On The Rail (Compartment Pan - Longitudinal).
	Z -	Fiducial Mark To Horizontal Zero Grid Line - Rear, Measured Vertically From The Zero Grid Line To Rear Fiducial Mark Located On The Rail (Compartment Pan - Longitudinal).
Fiducial Mark Number		
Front	W21*	346 (13.6)
	L54*	2761 (108.7)
	H81*	2001 (7.9)
	H161*	Not Available
	H163*	"
Rear	W22*	340 (13.4)
	L55*	4953 (195.0)
	H82*	362 (14.3)
	H162*	Not Available
	H164*	"

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

\*\* EPA Loaded Vehicle Weight, Loading Conditions

All Linear Dimensions Are In Millimeters (Inches)

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

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

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:**

35 (77)



# MVMA Specifications

METRIC (U.S. Customary)

Vehicle Line  
Model Year

BERETTA

1990

Issued

6-89

Revised(\*)

		Optional Equipment Differential Mass (weight)*			
Code	Equipment	MASS, kg. (lb.)			Remarks Restrictions, Requirements
		Front	Rear	Total	
AU3	Power Door Lock System	.6 (1.3)	1.2 (2.6)	1.8 (3.9)	
A31	Power Windows	1.4 (3.1)	2.2 (4.8)	3.6 (7.9)	
A90	Power Trunk Opener	-.2 (-.4)	1.0 (2.2)	.8 (1.8)	
B18	Custom Interior	1.0 (2.2)	1.0 (2.2)	2.0 (4.4)	Standard On 'GT' model (Z21)
B34	Floor Mats - Front	1.0 (2.2)	.2 (0.4)	1.2 (2.6)	
B35	Floor Mats - Rear	.2 (0.4)	.4 (0.9)	.6 (1.3)	
B84	Body Side Moldings	.8 (1.8)	1.4 (3.1)	2.2 (4.8)	
CD4	Intermittent Windshield Wiper System	.2 (0.4)	0 (0)	.2 (0.4)	
C49	Electric Rear Window Defogger	0 (0)	.6 (1.3)	.6 (1.3)	
C60	Air Conditioning	20.4 (45.0)	-1.4 (-3.1)	18.6 (41.0)	With RPO LL8 Engine & MR3
		20.0 (44.1)	-1.4 (-3.1)	18.6 (41.0)	With RPO LB6 Engine & MG2
K05	Engine Block Heater	.2 (0.4)	0 (0)	.2 (0.4)	

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

# MVMA Specifications

METRIC (U.S. Customary)

Vehicle Line BERETTA

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

		Optional Equipment Differential Mass.(weight)*			
Code	Equipment	MASS, kg. (lb.)			Remarks Restrictions, Requirements
		Front	Rear	Total	
K34	Electronic Speed Control	1.8 (3.9)	0 (0)	1.8 (3.9)	
LB6	2.8 Liter V6 Engine	44.6 (98.3)	-3.0 (-6.6)	41.6 (91.7)	With Manual Transmission
		35.6 (78.5)	-2.8 (-6.2)	32.8 (72.3)	With Automatic Transmission
MD9	Automatic Transmission	15.2 (33.5)	-1.4 (-3.1)	13.8 (30.4)	With RPO LL8 Engine
		19.6 (43.2)	-1.8 (-4.0)	17.8 (39.2)	With RPO LB6 Engine
N33	Comfortilt Steering Wheel	.4 (0.9)	.2 (0.4)	.6 (1.3)	
PD8	Aluminum Wheels - 14"	-4.4 (-9.7)	-4.4 (-9.7)	-8.8 (-19.4)	
PF1	Styled Steel Wheels - 15"	5.6 (12.3)	5.8 (12.8)	11.4 (25.1)	
UA1	Heavy Duty Battery	3.0 (6.6)	-0.4 (-0.9)	2.6 (5.7)	Required With Auto. Trans. On L4. Mandatory For Canada.
UM8	AM/FM Stereo Radio, Cassette Player With Clock	.8 (1.8)	.2 (0.4)	1.0 (2.2)	
UX1	AM/FM Stereo Radio, Cassette Player, Graphic Equalizer With Clock	1.8 (4.0)	.2 (0.4)	2.0 (4.4)	
U52	Electronic Instrumentation	.2 (0.4)	0 (0)	.2 (0.4)	

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

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

Vehicle Line  
Model Year

BERETTA

1990

**Issued**

6-89

Revised(\*)

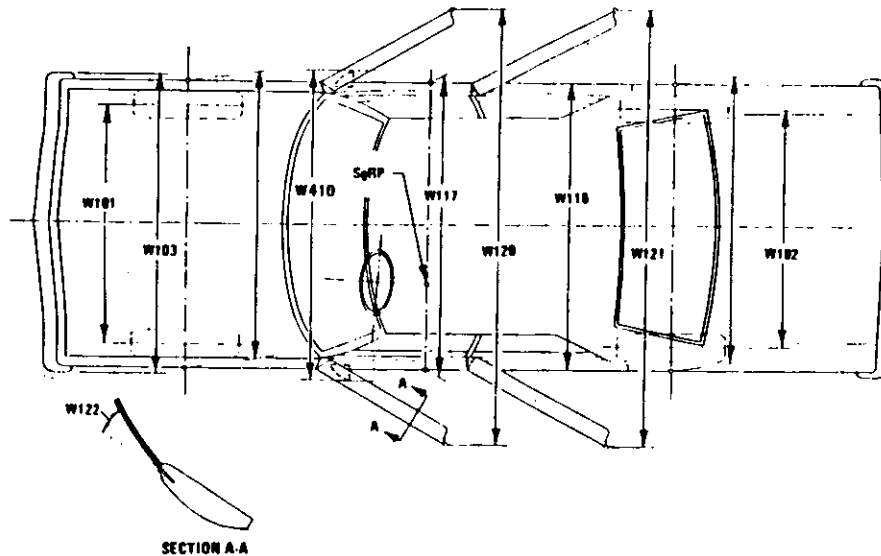
\* Also see Engine - General Section for dressed engine mass (weight).

# MVMA Specifications

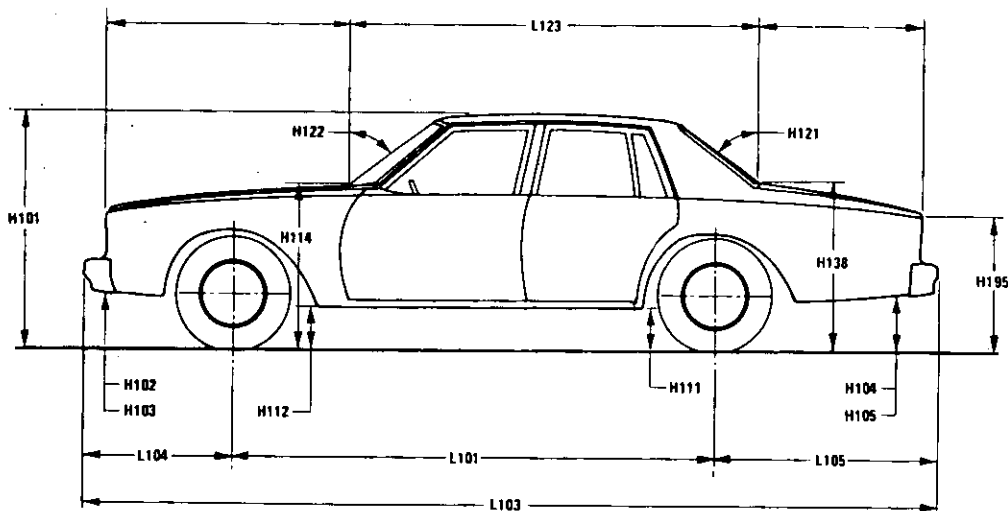
## METRIC (U.S. Customary)

### Exterior Vehicle And Body Dimensions – Key Sheet

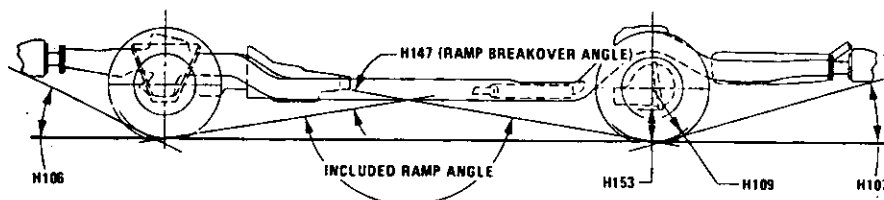
#### Exterior Width



#### Exterior Length & Height



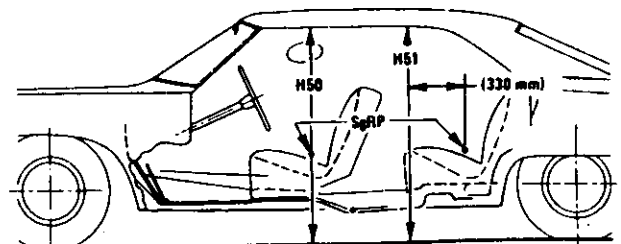
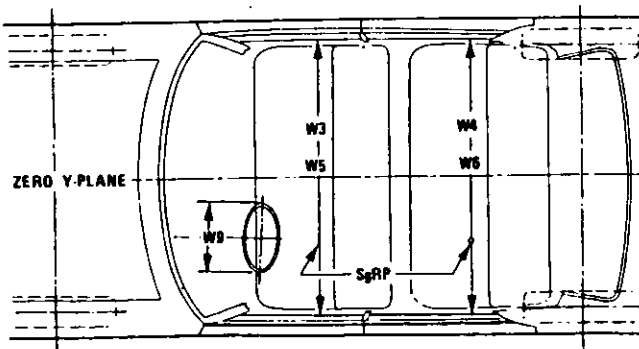
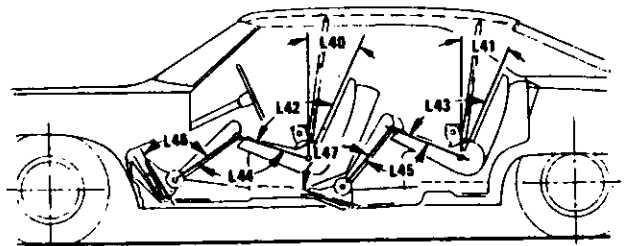
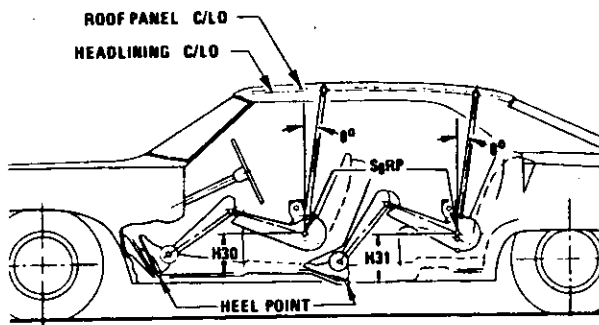
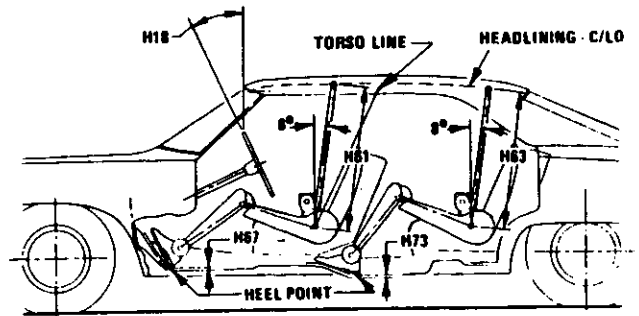
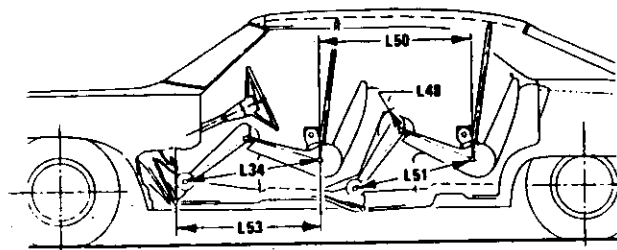
#### Exterior Ground Clearance



# MVMA Specifications Form

## METRIC (U.S. Customary)

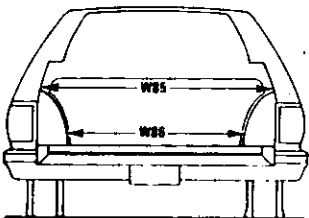
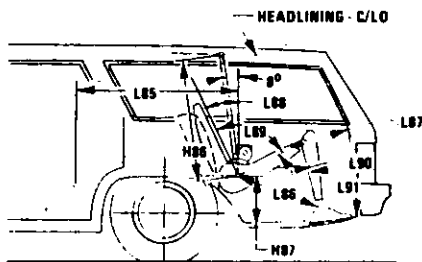
### Interior Vehicle And Body Dimensions – Key Sheet



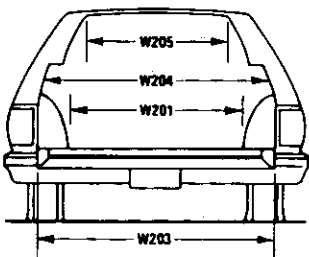
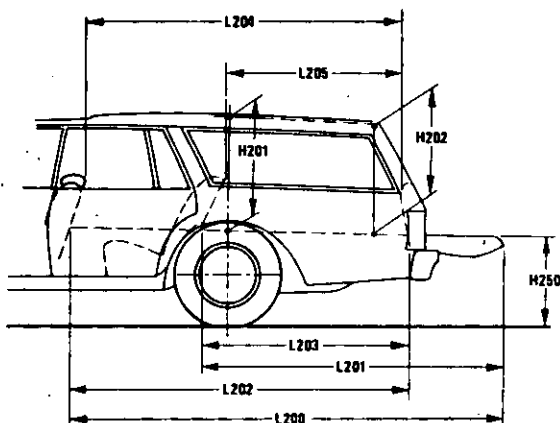
**MVMA Specifications Form**  
**METRIC (U.S. Customary)**

**Interior Vehicle And Body Dimensions – Key Sheet**

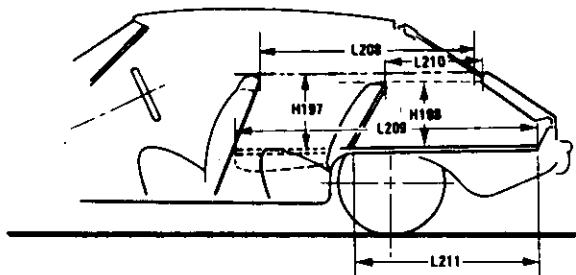
**Third Seat**



**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 on 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 undeepressed floor covering to the rearmost point on the undeepressed 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 undeepressed floor covering to the rearmost point on the undeepressed 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 undeepressed floor covering to the rearmost point on the undeepressed 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 undeepressed floor covering to the rearmost point on the undeepressed 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 the foremost normal surface of the closed tailgate at the height of the belt, on the zero "Y" plane.
- W201 CARGO WIDTH – WHEELHOUSE. The minimum dimension measured laterally between the trimmed wheelhousings at floor level. For any vehicle not trimmed, measure to the sheet metal.
- W203 REAR OPENING WIDTH AT FLOOR. The minimum dimension measured laterally between the limiting interferences of the rear opening at floor level.
- W204 REAR OPENING WIDTH AT BELT. The minimum dimension measured laterally between the limiting interferences of the rear opening at belt height or top of pick up box.
- W205 REAR OPENING WIDTH ABOVE BELT. The minimum dimension measured laterally between the limiting interferences of the rear opening above the belt height.
- H197 FRONT SEATBACK TO LOAD FLOOR HEIGHT. The dimension measured vertically from the horizontal tangent to the top of the seatback to the undeepressed floor covering.
- H201 CARGO HEIGHT. The dimension measured vertically from the top of the undeepressed 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 undeepressed 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 undeepressed 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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