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MANUFACTURERS MOTOR VEHICLE SPECIFICATIONS

METRIC (U.S. Customary)

1989

Manufacturer NISSAN MOTOR CO., LTD.	Vehicle Line NISSAN 240SX	
Mailing Address 560-2, OKATSUKOKU, ATSUGI-SHI, KANAGAWA, 243-01, JAPAN	Issued '88-9	Revised

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 Form

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) specifications are in kilograms (pounds).
3. The General Specifications herein are those in effect at date of compilation and are subject to change without notice or incurring obligation by the manufacturer.
4. Additional Vehicle Dimensions (based in part on SAE J1100 "Motor Vehicle Dimensions") may be available from the manufacturer.

MVMA Specifications Form

METRIC (U.S. Customary)

Vehicle Line NISSAN 240SX
 Model Year '89 Issued '88-9 Revised (e) _____

Vehicle Origin

Design & development (company)	NISSAN MOTOR CO., LTD.
Where built (country)	JAPAN
Authorized U.S. sales marketing representative	NISSAN MOTOR CORPORATION in U.S.A.

Vehicle Models

Model Description & Drive (FWD/RWD/4WD/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)
California Models	COUPE	'88-7	HLS13FV	4 (2/2)	18 (39.6)
			HLS13AV		
	HATCHBACK		RHLS13FV		
			RHLS13AV		
Non- California	COUPE	'88-7	HLS13FU	4 (2/2)	18 (39.6)
			HLS13AU		
	HATCHBACK		RHLS13FU		
			RHLS13AU		

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

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SAE J1349 Net bhp (brake horsepower) and net torque corrected to 77°F/25° C and 29.61 in. Hg/100 kPa atmospheric pressure.

[illegible]

MVA-C-89

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Vehicle Line NISSAN 240SX
 Model Year '89 Issued 88-9 Revised (#) _____

METRIC (U.S. Customary)

Engine Description/Carb.
 Engine Code

KA24E

ENGINE - GENERAL

Type & description (inline, V, angle, flat, location, front, mid, rear, transverse, longitudinal, sohc, dohc, ohv, hemi, wedge, pre-camber, etc.)	Inline SOHC Front Longitudinal pent-roof
Manufacturer	NISSAN
No. of cylinders	4
Bore	89 mm
Stroke	96 mm
Bore spacing (C/L to C/L)	96 mm - 98 mm - 96 mm
Cylinder block material & mass (kg (lbs.)) (machined)	Cast Iron 52 kg
Cylinder block deck height	247 mm
Cylinder block length	426 mm
Deck clearance (minimum) (above or below block)	0 mm
Cylinder head material & mass (kg (lbs.))	Aluminum Alloy 7.7 kg
Cylinder head volume (cm ³)	67.6 cm ³
Cylinder liner material	N.A.
Head gasket thickness (compressed)	1.2 mm
Minimum combustion chamber total volume (cm ³)	73.4 cm ³
Cyl. no. system	L Bank
(front to rear)*	R Bank
Firing order	1-2-3-4
Intake manifold material & mass (kg (lbs.))**	1-3-4-2
Exhaust manifold material & mass (kg (lbs.))**	Aluminum Alloy 4.5 kg
Fuel required unleaded, diesel, etc.	Cast Iron 6.0 kg
Fuel antiknock index (R + M) + 2	Unleaded
Number	No less than 87
Material and type (elastomeric, hydroelastic, hydraulic damper, etc.)	3
Added isolation (sub-frame, crossmember, etc.)	Elastomeric; 1 Hydroelastic; 2
	RR member
Total dressed engine mass (wt) dry***	159 kg (M/T) 153 kg (A/T)

Engine - Pistons

Material & mass, g (weight, oz.) - piston only	Aluminum Alloy 369 g
--	----------------------

Engine - Camshaft

Location	Cylinder Head
Material & mass (kg (weight, lbs.))	Cast Iron 3.7 kg
Drive type	Chain
Width / pitch	14.0 mm/9.525 mm

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

** Finished state.

*** Dressed engine mass (weight) includes the following:

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Engine Description/Code
Engine Code

KA24E

Engine - Valve System

Hydraulic lifters (std., opt., NA)	Std.
Valves	Number intake / exhaust 2/1
	Head Q.D. intake / exhaust 34 mm / 40 mm

Engine - Connecting Rods

Material & mass (kg., (weight, lbs.))*	Forged Steel 0.647 kg
Length (axle-to-toe) mm	165 mm

Engine - Crankshaft

Material & mass (kg., (weight, lbs.))*	Forged Steel
End thrust taken by bearing (no.)	No. 3
Length & number of main bearings	528.5 mm 5
Seal (material, one, two piece design, etc.)	Front Acryl Rubber One Piece
	Rear Silicon Rubber One Piece

Engine - Lubrication System

Normal oil pressure (kPa (psi) at engine rpm)	294 kPa at 2000 rpm
Type oil intake (floating, stationary)	Stationary
Oil filter system (full flow, part, other)	Full Flow
Capacity of crank, less filter-refill-L (qt.)	3.2 L

Engine - Diesel Information

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

Engine - Intake System

Turbo charger - manufacturer	N.A.
Super charger - manufacturer	N.A.
Intercooler	N.A.

*Finished State

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Engine Description/Code
Engine Code

KA24E

Engine - Cooling System

Coolant recovery system (std., opt., n.a.)		Std. (Reserve Tank)
Coolant fill location (rad., bottle)		Bottle
Radiator cap relief valve pressure (kPa (psi))		90
Circulation thermostat	Type (choke, bypass)	Bypass
	Starts to open at °C (°F)	76.5°C
Water pump	Type (centrifugal, other)	Centrifugal
	GPM 1000 pump rpm	-
	Number of pumps	1
	Drive (V-belt, other)	V-Belt
	Bearing type	Roller & Ball
	Impeller material	Steel
	Housing material	Aluminum Alloy
By-pass recirculation (type (inter., ext.))		External
Cooling system capacity	With heater-L(qt.)	6.7
	With air cond.-L(qt.)	6.7
	Opt. equipment (specify-L(qt.))	N.A.
Water jackets full length of cyl. (yes, no)		Yes
Water all around cylinder (yes, no)		No
Water jackets open at head face (yes, no)		No
Radiator core	Std., A/C, HD	Std.
	Type (cross-flow, etc.)	Vertical Flow
	Construction (fin & tube mechanical, brass, etc.)	Corrugated Fin
	Material, mass (kg (wtg. lbs.))	2.24 kg (M/T), 2.54 kg (A/T)
	Width	646 mm
	Height	360 mm
	Thickness	16 mm
	Fins per inch	17
Radiator end tank material		Aluminum & Resin
Fan	Std., elec., opt.	Std. & Elec.
	Number of blades & type (flex, solid, material)	8 Solid Type
	Diameter & projected width	410 mm (Std.) 280 mm (Elec.)
	Ratio (fan to crankshaft rev.)	1.3
	Fan cutout type	*1
	Drive type (direct, remote)	Belt Drive
	RPM at idle (elec.)	2100 rpm when on
	Motor rating (wattage) (elec.)	70
	Motor switch (type & location) (elec.)	Thermo Switch (Rad) & A/C Switch
	Switch point (temp., pressure) (elec.)	95° or A/C on
	Fan shroud (material)	P.P. & Steel

*1: Temperature Controlled Hydraulic Coupling

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Engine Description/Carb.
Engine Code

KA24E

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

Injection type: carburetor, fuel injection system, etc.		Electronic Fuel Injection
Manufacturer		NISSAN
☒ Carburetor no. of barrels		N.A.
Idle A/F mix		13.0
☐ Fuel injection	Point of injection (no.)	4
	Constant, pulse, flow	Pulse
	Control (electronic, mech.)	Electronic
	System pressure (kPa (psi))	299 kPa
Idle spd.-rpm (spec. neutral or drive and propens if used)	Manual	750 rpm
	Automatic	750 rpm (N or P Range)
Intake manifold heat control (exhaust or water thermostatic or fixed)		N.A.
Air cleaner type		Paper Element
Fuel filter (type/location)		Paper Element/Engine Room
☒ Fuel pump	Type (elec. or mech.)	Elec.
	Location (eng., tank)	InTank
	Pressure range (kPa (psi))	299 kPa
☒	Flow rate at regulated pressure (L (gal)/hr @ kPa (psi))	70 L/hr at 299 kPa

Fuel Tank

Capacity (refill L (gallons))		60 L (15.9 Gallons)
Location (describe)		Under Rear Floor
Attachment		Fastened with Belts
Material & Mass (kg (weight lbs))		Carbon Steel Tin-Lead Coat 12.8 kg
Filter pipe	Location & material	At the Right Rear Fender, Carbon Steel
	Connection to tank	Fastened with Belts
Fuel line (material)		Carbon Steel and Rubber
Fuel hose (material)		Rubber
Return line (material)		Carbon Steel and Rubber
Vapor line (material)		Carbon Steel and Rubber
Extended range tank	Opt., n.a.	
	Capacity (L (gallons))	
	Location & material	
	Attachment	
Auxiliary tank	Opt., n.a.	
	Capacity (L (gallons))	
	Location & material	
	Attachment	
	Selector switch or valve	
	Separate fill	

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Engine Description/Carb.
Engine Code

KA24E

Vehicle Emission Control

Exhaust Emission Control	Type (air injection, engine modifications, other)		EFI/EGR/AIV/TWC
	Air Injection	Pump or pulse	Pulse
		Driven by	-
		Air distribution (head, manifold, etc.)	Exhaust Front Tube
		Point of entry	From Air Cleaner Clean Side
	Exhaust Gas Recirculation	Type (controlled flow, open orifice, other)	Controlled Flow
		Exhaust source	Exhaust Manifold
		Point of exhaust injection (spacer, carburetor, manifold, other)	Intake Manifold
	Catalytic Converter	Type	Three Way
		Number of	1
		Location(s)	Under Floor
		Volume [L (in ³)]	1.7 L
		Substrate type	Monolith
		Noble metal type	
Crankcase Emission Control	Type (ventilates to atmosphere, induction system, other)		Induction System
	Energy source (manifold vacuum, carburetor, other)		Manifold Vacuum
	Discharges (to intake manifold, other)		Intake Manifold
	Air inlet (breather cap, other)		Air Duct
Evaporative Emission Control	Vapor vented to (crankcase, canister, other)	Fuel tank	Carbon Canister
	Vapor storage provision	Carburetor	N.A.
Electronic system	Closed loop (yes/no)	Carbon Canister	
	Open loop (yes/no)	Yes	

Engine - Exhaust System

Type (single, single with cross-over, dual, other)		Dual with Converter	
Muffler no. & type (reverse flow, straight thru, separate resonator) Material & Mass [kg (weight lbs)]		CTR; Resonator	RR; One Reverse Flow with Resonator
Resonator no. & type		Al Coat Steel 2.4 kg	Al Coat Steel 6.2 kg
Exhaust pipe	Branch o.d., wall thickness	(44.5, t2.0) x 2	
	Main o.d., wall thickness	45.4, t2.0	
	Material & Mass [kg (weight lbs)]	Stainless Steel Tube 4.2 kg	
Inter-mediate pipe	o.d. & wall thickness	45.4, t1.4	
	Material & Mass [kg (weight lbs)]	Al Coat Steel Tube 3.3 kg	
Tail pipe	o.d. & wall thickness	(38.1, t1.6) x 2	
	Material & Mass [kg (weight lbs)]	Al Coat Steel Tube 0.4 kg	

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Engine Description/Carb.
Engine Code

KA24E

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

Manual 3-speed (manufacturer/country)	N.A.
Manual 4-speed (manufacturer/country)	N.A.
Manual 5-speed (manufacturer/country)	Std.
Automatic (manufacturer/country)	
Automatic overdrive (manufacturer/country)	

Manual Transmission/Transaxle

Number of forward speeds		5
Gear ratios	1st	3.321
	2nd	1.902
	3rd	1.308
	4th	1.000
	5th	0.759
	Reverse	3.382
Synchronous meshing (specify gears)		1, 2, 3, 4, 5
Shift lever location		Floor Mounted
Trans. case mat'l. & mass kg (lbs)*		Aluminum Alloy 45
Lubricant	Capacity [L (pt.)]	2.4 L
	Type recommended	NISSAN GEAR OIL (Multi Special)

Clutch (Manual Transmission)

Clutch manufacturer		ATSUGI
Clutch type (dry, wet, single, multiple disc)		Drv Single Disc
Linkage (hydraulic, cable, rod, lever, other)		Hydraulic
Max. pedal effort (nom. spring load, new) N (lbs)	Decreased	
	Released	
Assist (spring, power/percent, nominal)		
Type pressure plate springs		Diaphragm
Total spring load (nominal, new) N (lbs)		450 kg
Clutch facing	Facing mfr. & material coding	AKEBONO AA61Z2
	Facing material & construction	Spiral Wound Asbestos
	Rivets per facing	16
	Outside x inside dia. (nominal)	225 x 150
	Total eff. area (cm ² (in. ²))	221
	Thickness (pressure plate side/ fly wheel side)	3.5/3.5
	Rivet depth (pressure plate side/ fly wheel side)	1.3~1.8/1.3~1.8
	Engagement cushion method	Flat Wave Spring
Release bearing type & method lub.		Ball Bearing Sealed Type
Torsional damping method, springs, hysteresis		Coil Springs and Friction Washers

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

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Engine Description/Carb.
Engine Code

KA24E

Automatic Transmission/Transaxle

Trade name	FULL RANGE EAT (RE4R01A)	
Type and special features (describe)	4 Speed with Lock Up Torque Converter, Electronic Control	
Selector	Location	Floor Mounted
	Ltr./No. designation	P. R. N. D. 2. 1
Gear ratios	1st	2.785
	2nd	1.545
	3rd	1.000
	4th	0.694
	Reverse	2.272
Max. upshift speed - drive range (km/h (mph))		152
Max. kickdown speed - drive range (km/h (mph))		145
Min. overdrive speed (km/h (mph))		32
Torque converter	Number of elements	3
	Max. ratio at stall	2.0 : 1
	Type of cooling (air, liquid)	Liquid
	Nominal diameter	250
	Capacity factor "K"	
Lubricant	Capacity (refill L (pt.))	8.5
	Type Recommended	NISSAN MATIC FLUID 'D'
Oil cooler (std., opt., NA, internal, external, air, liquid)		Std. Liquid
Transmission case material & mass kg (lbs)**		Aluminum Alloy 74

Axle or Front Wheel Drive Unit

Type (front, rear)	Rear	
Description	Independent Suspension	
Limited slip differential (type)	N.A.	
Drive pinion offset	35	
Drive pinion (type)	HYPOID	
No. of differential pinions	2	
Pinion / differential adjustment (shim, other)	Shim	
Pinion / differential bearing adjustment (shim, other)	Solid Spacer	
Driving wheel bearing (type)		
Lubricant	Capacity [L (pt.)]	1.3
	Type recommended	API GL-5
	SAE viscosity number	80W-90

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

Axle ratio (or overall top gear ratio)		4.083
No. of teeth	Pinion	12
	Ring gear or gear	49
Ring gear o.d.		200
Transaxle	Transfer gear ratio	N.A.
	Final drive ratio	N.A.

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

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

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Vehicle Line NISSAN 240SX
Model Year '89 Issued '88-9 Revised (e) _____

Engine Description/Carb.
Engine Code _____

All Models

Propeller Shaft - Rear Wheel Drive

Manufacturer Type (straight tube, tube-in-tube, internal-external damper, etc.)		Straight Tube (M/T) Tube in Tube (A/T)	
Outer diam. x length x wall thickness	Manual 3-speed transmission	N.A.	
	Manual 4-speed transmission	N.A.	
	Manual 5-speed transmission	75 x 395 x 1.6 + 75 x 605 x 1.6 (75 x 395 x 1.6 + 75 x 590 x 1.6 at A.B.S. Option)	
	Overdrive	N.A.	
	Automatic transmission	75 x 432 x 1.6 + 75/63.5 x 605 x 1.6 (75 x 395 x 1.6 + 75/63.5 x 590 x 1.6 at A.B.S. Option)	
Inter- mediate bearing	Type (plain, anti-friction)	Ball Bearing	
	Lubrication (fitting, prepack)	Prepack	
Slip yoke	Type	Sliding Spline	
	Number of teeth	24 (M/T)	26 (A/T)
	Spline o.d.	25 (M/T)	28 (A/T)
Universal joints	Make and mtg. no.	Front	ATSUGI
		Rear	ATSUGI
	Number used	3	
	Type (ball and trunnion, cross)	Cross, Rubber Joint (M/T 1st Joint)	
	Rear attach (u-bolt, clamp, etc.)	Clamp	
	Bearing	Type (plain, anti-friction)	Anti-Friction
Lubrication (fitting, prepack)		Prepack	
Drive taken through (torque tube, arms or springs)			
Torque taken through (torque tube, arms or springs)			

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

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Body Type And/Or
Engine Displacement

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☒ Suspension - General Including Electronic Controls

Car leveling	Standard/optional/not avail.	N.A.
	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	
Shock absorber damping controls	Standard/option/not avail.	N.A.
	Manual/automatic control	
	Number of damping rates	
	Type of actuation (manual/electric motor/air, etc.)	
	s e n s i t i v e	
	o Lateral acceleration	
Shock absorber (front & rear)	n Deceleration	
	o Acceleration	
	r Road surface	
	s	
Shock absorber (front & rear)	Type	Direct Double Acting Hydraulic
	Make	Front: ATSUGI Rear: TOKICO/KAYABA
	Piston diameter	Front: $\phi 30$ Rear: $\phi 25$
	Rod diameter	Front: $\phi 20$ Rear: $\phi 12.5$

☒ Suspension - Front

Type and description		Independent-Strat Type with Coil Spring	
Travel*	Full bounce	85 mm	
	Full rebound	76 mm	
Spring	Type (coil, leaf, other) & material	Coil, Spring Steel	
	Insulators (type & material)	Rubber Insulation Type	
	Size (coil design height & Ld., bar length & dia.)	160 x 157	160 x 157 (Opt')
		2500 x 13.3	2435 x 13.5 (Opt')
	Spring rate (N/mm (lb./in.))	2.0	2.2 (Opt')
Stabilizer	Rate at wheel (N/mm (lb./in.))	2.1	2.2 (Opt')
	Type (link, linkless, frameless)	Link	
	Material & bar diameter	High Carbon Steel $\phi 24$	High Carbon Steel $\phi 25$ (Opt')

☒ Suspension - Rear

Type and description		Independent Multi-Link Type	
Travel*	Full bounce	85 mm	
	Full rebound	70 mm	
Spring	Type (coil, leaf, other) & material	Coil, Spring Steel	
	Size (length x width, coil design height & Ld., bar length & dia.)	230 x 88	230 x 88 (Opt')
		2880 x 11.0	2895 x 11.3 (Opt')
	Spring rate (N/mm (lb./in.))	2.0	2.2 (Opt')
	Rate at wheel (N/mm (lb./in.))	2.7	2.9 (Opt')
	Insulators (type & material)	Rubber Insulation Type	
Stabilizer	if leaf	No. of leaves	N.A.
		Shackle (comp. or tens.)	N.A.
Stabilizer	Type (link, linkless, frameless)	Link	
	Material & bar diameter	High Carbon Steel $\phi 15$	High Carbon Steel $\phi 17$ (Opt')
Track bar (type)		None	(Opt')

* Define load condition:

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Body Type And/Or
Engine Displacement

Standard - All

Optional - All

Brakes - Service

Description			
Manufacturer and brake type (std., opt., n.a.)	Front (disc or drum)	Disc: Std.	
	Rear (disc or drum)	Disc: Std.	
Valving type (proportion, delay, metering, other)		Front: Std. Rear: Std.	
Power brake (std., opt., n.a.)		Std.	
Booster type (remote, integral, vac., hyd., etc.)		Integral	
Vacuum	Source (inline, pump, etc.)	Inline	
	Reservoir (volume in. ³) and source	143.4 147.1	
	Pump-type (elec. gear driven, belt driven)	N.A.	
Traction control	Operational speed range		
	Type engine intervention (electronic, mech.)		
Anti-lock device	Front/rear (std., opt., n.a.)		
	Manufacturer		
	Type (electronic, mech.)	Opt.	
	Number sensors or circuits		
	Number anti-lock hydraulic circuits		
	Integral or add-on system		
	Yaw control (yes, no)		
Hydraulic power source (elec. vac. mtr., pwr. strg.)			
Effective area (cm ² (in. ²))*		Front: 176 Rear: 104 Front: 204 Rear: 104	
Gross lining area (cm ² (in. ²))* (F/R)		Front: 176 Rear: 104 Front: 204 Rear: 104	
Swept area (cm ² (in. ²))* (F/R)		2241 2280	
Rotor	Outer working diameter	F/R Front: 250 Rear: 256 Front: 255 Rear: 256	
	Inner working diameter	F/R Front: 160.4 Rear: 176 Front: 164.4 Rear: 176	
	Thickness	F/R Front: 20 Rear: 9 Front: 22 Rear: 9	
	Material & type (vented/solid)	F/R Front: Cast Iron (VENTED) Rear: Cast Iron (SOLID)	
Drum	Diameter & width	F/R N.A.	
	Type and material	F/R N.A.	
Wheel cylinder bore		Front: 54.0 Rear: 33.96 Front: 57.2 Rear: 33.96	
Master cylinder	Bore/stroke	F/R 22.22/31 23.81/31	
Pedal arc ratio		3.8	
Line pressure at 445 N(100 lb.) pedal load (kPa (psi))		10731 11175	
Lining clearance		F/R Front: No Major Adjustment Required, Rear: No Major Adjustment Required	
Brake lining	Front wheel	Bonded or riveted (rivets/seg.)	Bonded
		Rivet size	N.A.
		Manufacturer	HITACHI
		Lining code****	HITACHI HP12FE
		Material	Molded Semi Metallic
		*** Primary or out-board	112.8 x 44.8 x 10 125.6 x 45.3 x 11
		Size Secondary or in-board	112.8 x 44.8 x 10 125.6 x 45.3 x 11
	Rear wheel	Shoe thickness (no lining)	6.0 6.0
		Bonded or riveted (rivets/seg.)	Bonded
		Manufacturer	N.B.K.
		Lining code****	NBKNP01FF
		Material	Molded Asbestos
		*** Primary or out-board	75 x 40 x 9.5
		Size Secondary or in-board	75 x 40 x 9.5
Shoe thickness (no lining)		5.0	

*Excludes rivet holes, grooves, chamfers, etc.

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

***Total swept area for four brakes. (Drum brake: Widest lining contact width for each brake x its contact circumference.)

(Disc brake: Square of Outer Working Dia. minus Square of inner Working Dia. multiplied by $\pi/2$ for each brake.)

****Size for drum brakes includes length x width x thickness.

*****Manufacturer I.D., catalog or formulation designation and coefficient of friction classification.

MVMA Specifications Form

METRIC (U.S. Customary)

Vehicle Line NISSAN 240SX
Model Year '89 Issued '88-9 Revised (e) _____

Body Type And/Or
Engine Displacement

All Models

Tires And Wheels (Standard)

Tires	Size (load range, ply)		195/60R15 86H Load Range B, Ver 2 Ply
	Type (bias, radial, steel, nylon, etc.)		Radial
	Inflation pressure (cold) for recommended max. vehicle load	Front (kPa (psi))	200 kPa (28 psi)
		Rear (kPa (psi))	200 kPa (28 psi)
Rev./mile—at 70 km/h (45 mph)		627 rpm	
Wheels	Type & material		Disc-Stamped Steel
	Rim (size & flange type)		15 x 6JJ
	Wheel offset		40
	Attachment	Type (bolt or stud)	Stud
		Circle diameter	114.3
Number & size		M12 x 1.25 4 Hex Nuts	
Spare	Tire and wheel		15 x 4T
	Storage position & location (describe)		

Tires And Wheels (Optional)

Tire size (load range, ply)		205/60 R15 89H Load Range B, Net 2 Ply
Type (bias, radial, steel, nylon, etc.)		Radial
Wheel (type & material)		Aluminum Casting
Rim (size, flange type and offset)		15 x 6JJ
Tire size (load range, ply)		
Type (bias, radial, steel, nylon, etc.)		
Wheel (type & material)		
Rim (size, flange type and offset)		
Tire size (load range, ply)		
Type (bias, radial, steel, nylon, etc.)		
Wheel (type & material)		
Rim (size, flange type and offset)		
Tire size (load range, ply)		
Type (bias, radial, steel, nylon, etc.)		
Wheel (type & material)		
Rim (size, flange type and offset)		
☒ Spare tire and wheel size (If configuration is different than road tire or wheel, describe optional spare tire and/or wheel location & storage position)		

Brakes - Parking

Type of control		Center Lever Hand Operated
Location of control		Between Front Seats
Operates on		Rear Wheels
If separate from service brakes	Type (internal or external)	N.A.
	Drum diameter	N.A.
	Lining size (length x width x thickness)	N.A.

MVMA Specifications Form

Vehicle Line NISSAN 240SX
Model Year '89 Issued '88-9 Revised (e) _____

METRIC (U.S. Customary)

Body Type And/Or
Engine Displacement

All Models

Steering

Manual (std., opt., n.a.)		N.A.		
Power (std., opt., n.a.)		Std.		
Adjustable steering wheel/column (tilt, telescope, other)	Type			
	Manufacturer			
	(Std., opt., n.a.)			
Wheel diameter** (W9) SAE J1100	Manual	ø370		
	Power	ø370		
Turning diameter in (R.)	Outside front	Wall to wall (l. & r.)		
		Curb to curb (l. & r.)		
	Inside rear	Wall to wall (l. & r.)		
		Curb to curb (l. & r.)		
Scrut Radius*				
Manual	Gear	Type	-	
		Manufacturer	-	
		Ratios	Gear	-
			Overall	-
	No. wheel turns (stop to stop)		-	
Power	Type (coaxial, elec., hyd., etc.)		Integral Gear & Power Piston with Vane Type Pump	
	Manufacturer		NISSAN	
	Gear	Type	Rack & Pinion	
		Ratios	Gear	~
			Overall	17.1
	Pump (drive)		Belt from Crank-Shaft Pulley	
	No. wheel turns (stop to stop)		3.1	
Linkage	Type		Parallelogram	
	Location (front or rear of wheels, other)		Rear	
	Tie rods (one or two)		2	
Steering axis	Inclination at camber (deg.)			
	Bearings (type)	Upper	Thrust Ball Bearing	
		Lower	Ball Joint	
		Thrust	None	
Steering spindle & joint type		Ball Joint		
Wheel spindle/hub	Diameter	Inner bearing	ø30	
		Outer bearing	ø30	
	Thread (size)		M22x1.5	
	Bearing (type)		Angular Ball	

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

**See Page 22

MVMA Specifications Form

METRIC (U.S. Customary)

Vehicle Line NISSAN 240SX
Model Year '89 Issued '88-9 Revised (e) _____

Body Type And/Or
Engine Displacement

All Models

Wheel Alignment

Front wheel at curb mass (wt.)	Service checking	Caster (deg.)	$6^{\circ}44' \pm 45'$
		Camber (deg.)	$-0^{\circ}44' \pm 45'$
		Toe-in (outside track-mm (in.))	1.29 ± 2
	Service reset*	Caster	$6^{\circ}44' \pm 45'$
		Camber	$-0^{\circ}44' \pm 45'$
		Toe-in	1.29 ± 2
	Periodic M.V. inspection	Caster	$6^{\circ}44' \pm 45'$
		Camber	$-0^{\circ}44' \pm 45'$
		Toe-in	1.29 ± 2
Rear wheel at curb mass (wt.)	Service checking	Camber (deg.)	$-1^{\circ}06' \pm 30'$
		Toe-in (outside track-mm (in.))	0 ± 4
	Service reset*	Camber	$-1^{\circ}06' \pm 30'$
		Toe-in	0 ± 4
	Periodic M.V. inspection	Camber	$-1^{\circ}06' \pm 30'$
		Toe-in	0 ± 4

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

Electrical - Instruments and Equipment

Speedometer	Type (analog, digital, std., opt.)	Dial with Pointer (Opt. Digital)
	Trip odometer (std., opt., n.a.)	Std.
EGR maintenance indicator		None
Charge indicator	Type	Warning Light
	Warning device (light, audible)	Light
Temperature indicator	Type	Electric Gauge
	Warning device (light, audible)	None
Oil pressure indicator	Type	Warning Light
	Warning device (light, audible)	Light
Fuel indicator	Type	Electric Gauge & Warning Light
	Warning device (light, audible)	Light
Windshield wiper	Type (standard)	Electric 2 Speed Intermittent
	Type (optional)	N.A.
	Blade length	500 mm x 2
	Swept area (cm ² (in. ²))	6380 cm ²
Windshield washer	Type (standard)	Electric
	Type (optional)	N.A.
	Fluid level indicator (light, audible)	*1 Warning Light
Rear window wiper, wiper/washer (std., opt., n.a.)		Opt. Electric (H/B), N.A. (COUPE)
Horn	Type	Vibrator
	Number used	2
Other		

*1 For SGL

MVMA Specifications Form

METRIC (U.S. Customary)

Vehicle Line NISSAN 240SX
Model Year '89 Issued '88-9 Revised (e) _____

Engine Description/Carb.
Engine Code

KA24E

Electrical - Supply System

Battery	Manufacturer	SHIN-KORE, YUASA, MATSUSHITA, JAPAN-STORAGE, FURUKAWA
	Model, std., (opt.)	55D23R
	Voltage	12V
	Amps at 0°F cold crank	356
	Minutest-reserve capacity	99
	Amp/hrs. - 20 hr. rate	60
	Location	Right Side Front of Engine Compartment
Alternator	Manufacturer	HITACHI, MITSUBISHI
	Rating (idle/max. rpm)	80A
	Ratio (alt. crank/rev.)	2.2
	Output at idle (rpm, park)	30A
	Optional (type & rating)	N.A.
Regulator	Type	IC REGULATOR

Electrical - Starting System

Start, motor	Manufacturer	HITACHI/MITSUBISHI
	Current drain at 0°F	N.A.
	Power rating [kw (hp)]	1.4 KW
Motor drive	Engagement type	Solenoid
	Pinion engages from (front, rear)	Front

Electrical - Ignition System

Type	Electronic (std., opt., n.a.)	Std.
	Other (specify)	N.A.
Coil	Manufacturer	HANSHIN
	Model	SMC-102
	Current	Engine stopped - A
		0A
Spark plug	Manufacturer	NGK
		Model
	Thread (mm)	ZFR5D-11
		14 mm
	Tightening torque (N-m (lb. ft))	19.6 - 29.4 Nm
		Gap
Distributor	Manufacturer	1.0 - 1.1 mm
		Number per cylinder
	Model	1
	Manufacturer	HITACHI/MITSUBISHI
	Model	D4P87-03/T2T42071

Electrical - Suppression

Locations & type	Resistance Type Ignition Cables & Spark Plugs
------------------	---

MVMA Specifications Form

METRIC (U.S. Customary)

Vehicle Models NISSAN 240SX
Model Year '89 Issued '88-9 Revised (e) _____

Body Type

COUPE

HATCHBACK

Body

Structure

Monocoque Body

☒ Bumper system
front - rear

Urethane

Anti-corrosion treatment

Surface treatment Steel Seat
Anti-corrosion Sealant
Anti-corrosion Wax

☒ Body - Miscellaneous Information

Type of finish (lacquer, enamel, other)		
Hood	Material & mass	Steel
	Hinge location (front, rear)	Rear
	Type (counterbalance, prop)	Prop.
	Release control (internal, external)	Internal
Trunk lid	Material & mass	Steel
	Type (counterbalance, other)	Counter Balance
	Internal release control (elec., mech., n.a.)	Mech.
Hatch-back lid	Material & mass	Steel
	Type (counterbalance, other)	Telescoping Gas Spring
	Internal release control (elec., mech., n.a.)	Mech.
Tailgate	Material & mass	
	Type (drop, lift, door)	
	Internal release control (elec., mech., n.a.)	N.A.
Vent window control (crank, friction, pivot, power)	Front	
	Rear	
Window regulator type (cable, tape, flex, drive, etc.)	Front	Cable
	Rear	N.A.
Seat cushion type (e.g., 80/40, bucket, bench, wire, foam etc.)	Front	Spring + Urethane Foam
	Rear	Urethane Foam
	3rd seat	N.A.
Seat back type (e.g., 80/40, bucket, bench, wire, foam etc.)	Front	Spring + Urethane Foam
	Rear	Frame + Urethane Foam
	3rd seat	N.A.

MVMA Specifications Form

METRIC (U.S. Customary)

Vehicle Line NISSAN 240SX
 Model Year '89 Issued '88-9 Revised (e) _____

Body Type

All Models

☒ Restraint System

Seating Position			Left	Center	Right
Active	Type & description (lap & shoulder belt, lap belt, etc.)	First seat	None	None	None
	Standard / optional	Second seat	Lap & shoulder belt with Retractor (ALR)	None	Lap & shoulder belt with Retractor (ALR)
		Third seat	None	None	None
Passive	Type & description (air bag, motorized - 2-point belt, fixed belt, knee bolster, manual - lap belt)	First seat	Motorized 2 Point belt, manual lap belt, Knee bolster	None	Motorized 2 Point belt, manual lap belt, Knee bolster
	Standard / optional	Second seat	None	None	None
		Third seat	None	None	None

Glass	S&I Ref. No.	COUPE	HATCHBACK
Windshield glass exposed surface area (cm ² /in. ²)	S1	9940	
Side glass exposed surface area (cm ² /in. ²) - total 2-sides	S2	8360	10880
Backlight glass exposed surface area (cm ² /in. ²)	S3	8700	10790
Total glass exposed surface area (cm ² /in. ²)	S4	27000	31610
Windshield glass (type)		Laminated	
Side glass (type)		Curved Tempered Plate	
Backlight glass (type)		Tempered	

☒ Lamps and Headlamp Locations

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

Frame

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

MVMA Specifications Form

METRIC (U.S. Customary)

Vehicle Line NISSAN 240SX
 Model Year '89 Issued '88-9 Revised (e) _____

Body Type

COUPE

HATCHBACK

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

☒ Air conditioning (manual, auto, temp control)	Manual	
Clock (digital, analog)	Std. (Digital) in Instrument Cluster	
Compass/thermometer	None	
Console (floor, overhead)	Std. (Floor)	
Defroster, elec. backlight		
Electronic	Diagnostic monitor (integrated, individual)	
	Instrument cluster (list instruments)	
	Keyless entry	None
	Tripfinder (avg. spd., fuel)	None
	Voice alert (list items)	None
	Other	
Fuel door lock (remote, key, electric)	Remote	
Lamps	Auto head on/off delay, dimming	
	Cornering	None
	Courtesy (map, reading)	Opt.
	Door lock, ignition	
	Engine compartment	None
	Fog	None
	Glove compartment	
	Trunk	Std.
	Illuminated entry system (list lamps, activation)	
	Other	High mount stop lamp
Mirrors	Day/night (auto, man.)	Manual
	L.H. (remote, power, heated)	Std: Manual, Opt: Power
	R. H. (convex, remote, power, heated)	Std: Convex Manual, Opt: Convex Power
	Visor vanity (RH/LH, illuminated)	RH/LH
☒ Navigation system (describe)	None	
Parking brake-auto release (warning light)		

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

Vehicle Line NISSAN 240SX
 Model Year '89 Issued '88-9 Revised (a) _____

Body Type

COUPE

HATCHBACK

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

Power equipment	Deck lid (release, pull down)		
	Door locks (manual, automatic, describe system)		Std.
	Seats	2 - 4 - 6 way, etc.	None
		Reclining (R.H., L.H.)	None
		Memory (R.H., L.H., preest. recline)	None
		Lumber, hip, thigh, support	None
		Heated (R.H., L.H., other)	None
	Side windows		Electric
	Vent windows		
	Rear windows		
Radio systems	Antenna (location, whip, w/ shield, power)		Rear Fender Whip & Rear Glass
	Standard	AM, FM, stereo, tape, compact disc, graphic equalizer, theft deterrent, radio prep package, headphone jacks, etc.	AM/FM MPX
	Optional		AM/FM MPX with Cassette
	Speaker (number, location)		4 Speakers
	Roof open or fixed (flip-up, sliding, "T")		Sliding (Opt.) Flip-up (Opt.)
Speed control device		Opt.	
Speed warning device (light, buzzer, etc.)		None	
Tachometer (rpm)		Std.	
Telephone system (describe)		None	
Theft deterrent system		Steering Lock (Std.)	

MVMA Specifications Form

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 Practices J1100 "Motor Vehicle Dimensions," unless otherwise specified.

Body Type	SAE Ref. No.	COUPE	HATCHBACK
Width			
Tread (front)	W101	1465	
Tread (rear)	W102	1460	
Vehicle width	W103	1690	
Body width at Sg RP (front)	W117	1688	
Vehicle width (front doors open)	W120	3730	
Vehicle width (rear doors open)	W121		
Front fender overall width	W108		
Rear fender overall width	W107	1690	
Tumble-home (deg.)	W122		
Vehicle width including mirrors			
Length			
Wheelbase	L101	2475	
Vehicle length	L103	4520	
Overhang (front)	L104	990	
Overhang (rear)	L105	1055	
Upper structure length	L123	2400	
Rear wh. w/ C/L "X" coordinate	L127	2475	
Coil point "X" coordinate	L125		
Front end length at centerline	L128		
Rear end length at centerline	L129	534	
Height*			
Passenger distribution (front/rear)	PD1,2,3	2/2	
Trunk/cargo load		18	
Vehicle height	H101	1260	
Cowl point to ground	H114	835	
Deck point to ground	H138	880	925
Rocker panel-front to ground	H112	180	
Bottom of door closed-front to ground	H133	270	
Rocker panel-rear to ground	H111	165	
Bottom of door closed-rear to ground	H135		
Windshield slope angle	H122	61°	
Backlight slope angle	H121	61°	
Ground Clearance*		WITHOUT SPOILER	WITH SPOILER
Front bumper to ground	H102	207	172
Rear bumper to ground	H104	261	266
Bumper to ground (front at curb mass (wt.))	H103	227	224
Bumper to ground (rear at curb mass (wt.))	H106	307	312
Angle of approach (degrees)	H108	13°	
Angle of departure (degrees)	H107	15°	
Ramp breakover angle (degrees)	H147	12°	
Axle differential to ground (front / rear)	H153	145	
Min. running ground clearance	H156	110	
Location of min. run. grd. clear.		FR EXT. TUBE	

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

MVMA Specifications Form

METRIC (U.S. Customary)

Vehicle Dimensions See Key Sheets for definitions

Vehicle Models NISSAN 240SX
Model Year '89 Issued '83-9 Revised (e) _____

Body Type

COUPE

HATCHBACK

Front Compartment

SAE
Ref.
No.

WITHOUT SUNROOF

WITH SUNROOF

WITHOUT SUNROOF

WITH SUNROOF

Sg RP front, "X" coordinate	L31	1500			
Effective head room	H61	925	885	925	920
Max. eff. leg room (accelerator)	L34	1067			
SgRP to heel point	H30	153			
SgRP to heel point	L53	871			
Back angle	L40	25°			
Hip angle	L42	90°			
Knee angle	L44	125°			
Foot angle	L46	87°			
Design H-point front travel	L17	224.5			
Normal driving & riding seat track trvl.	L23				
Shoulder room	W3	1430			
Hip room	W5	1450			
Upper body opening to ground	H50				
Steering wheel maximum diameter*	W9	370 mm			
Steering wheel angle	H18				
Accel. heel pt. to steer. whl. cnt	L11				
Accel. heel pt. to steer. whl. cnt	H17				
Steering wheel to C/L of thigh	H13				
Steering wheel torso clearance	L7				
Headlining to roof panel (front)	H37	21.2			
Undepressed floor covering thickness	H67				

Rear Compartment

Sg RP Point couple distance	L50	565			
Effective head room	H63	774		737	
Min. effective leg room	L51	672			
Sg RP (second to heel)	H31	233			
Knee clearance	L48	134			
Compartment room	L3	491			
Shoulder room	W4	1380			
Hip room	W6				
Upper body opening to ground	H51				
Back angle	L41	27°			
Hip angle	L43	67°			
Knee angle	L45	54°			
Foot angle	L47	100°			
Headlining to roof panel (second)	H38				
Depressed floor covering thickness	H73				

Luggage Compartment

Usable luggage capacity [L (cu. ft.)]	V1				
Liftover height	H185	845		890	

Interior Volumes (EPA Classification)

Vehicle class		Minicompact			
Interior volume index (cu. ft.)		79.9		84.9	
Trunk/cargo index (cu. ft.)		8.622		14.189	

* See Page 14.

MVMA Specifications Form

METRIC (U.S. Customary)

Vehicle Dimensions See Key Sheets for definitions

Vehicle Line NISSAN 240SX
Model Year '89 Issued '88-9 Revised (e) _____

Body Type

COUPE

HATCHBACK

Station Wagon - Third Seat

SAE
Ref.
No.

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

Station Wagon - Cargo Space

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

Hatchback - Cargo Space

Cargo length at front seatback height	L206		800
Cargo length at floor (front)	L208		1559
Cargo length at second seatback height	L210		585
Cargo length at floor (second)	L211		1018
Front seatback to load floor height	H197	None	552
Second seatback to load floor height	H198	None	402
Cargo volume index (m ³ (ft. ³))	V3		
Hidden cargo volume index (m ³ (ft. ³))	V4		
Cargo volume index-rear of 2-seat	V11		

Aerodynamics*

Wheel lip to ground, front		690	
Wheel lip to ground, rear		670	
Frontal area (m ² (ft. ²))		19.8 ft ² (1.84 m ²)	
Drag coefficient (Cd)		0.34	0.31

* EPA Loaded Vehicle Weight, Loading Conditions

MVMA Specifications Form
METRIC (U.S. Customary)

Vehicle Line NISSAN 240SX
 Model Year '89 Issued '88-9 Revised (e) _____

Body Type

All Models

Vehicle Fiducial Marks

Fiducial Mark
Number*

Define Coordinate Location

Front

The Center of the Hole ($\phi 16$) on front Side Member.

Rear

The Center of the Hole ($\phi 16$) on the Rear Side Member.

Fiducial
Mark
Number

Front	W21°	373
	L54°	-23
	H81°	55
	H181°	308
	H183°	285

Rear	W22°	520
	L55°	3050
	H82°	200
	H182°	455
	H184°	413

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

METRIC (U.S. Customary)

Vehicle Line NISSAN 240SX
Model Year '89 Issued '88-9 Revised (e) _____

SHIPPING MASS (weight) = Curb Weight Less Kg. (lbs.) deduct 98.5# for empty fuel tank

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

* ETWC - Equivalent Test Weight Class - U.S. Environmental Protection Agency emission certifications are based on the ETWC's shown.

NA - Not Applicable - applies to model / series combinations not requiring testing.

METRIC (U.S. Customary)

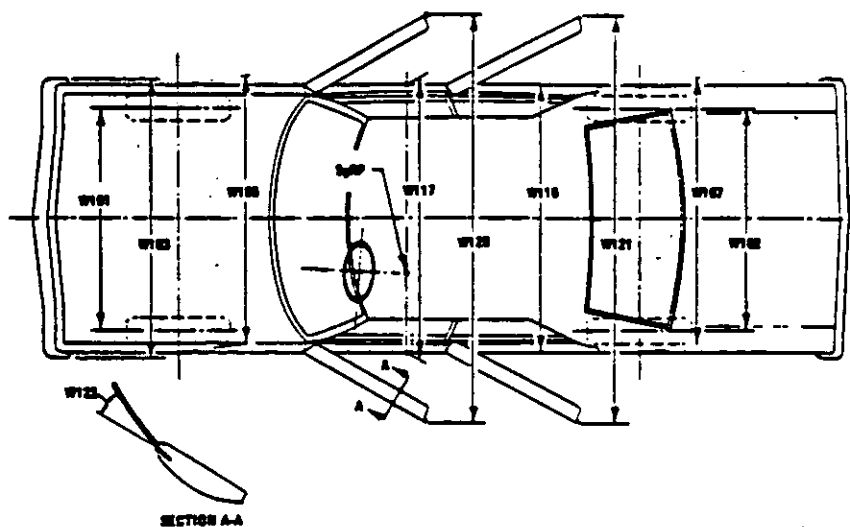
Vehicle Line NISSAN 240SX
Model Year '89 Issued '88-9 Revised (e) _____

[illegible]

MMMA-C-89

METRIC (U.S. Customary)

Exterior Width



Technical drawing of a car side profile. The drawing includes various dimension lines and labels:

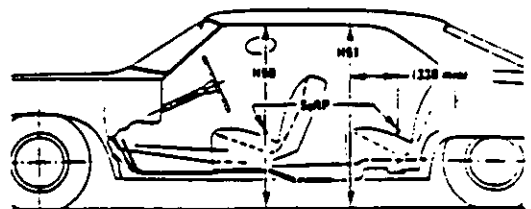
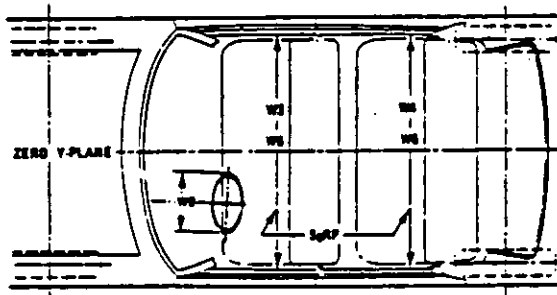
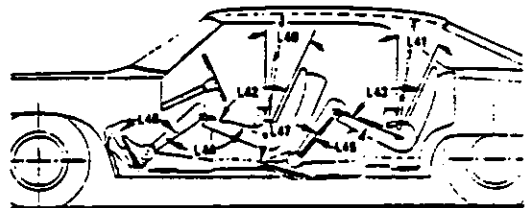
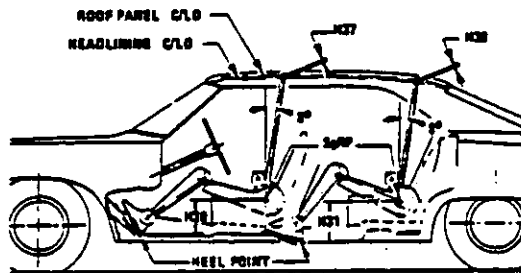
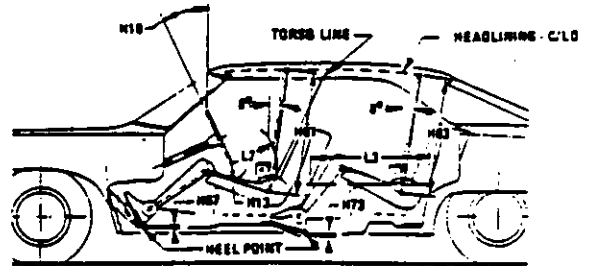
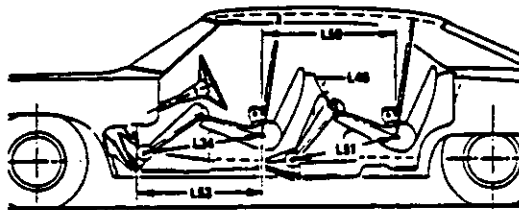
- Dimensions:**
 - $L120$ (three segments at the top)
 - $H101$ (overall height on the left)
 - $H106$ (height at the rear)
 - $L104$, $L101$, $L105$ (bottom dimensions)
 - $L103$ (bottom center dimension)
- Labels:**
 - $H122$ (pointing to the front roofline)
 - $H129$ (pointing to the rear roofline)
 - $H114$ (pointing to the front wheel center)
 - $H112$ (pointing to the front wheel hub)
 - $H123$ (pointing to the front wheel hub)
 - $H135$ (pointing to the front wheel hub)
 - $H117$ (pointing to the front wheel hub)
 - $H130$ (pointing to the rear wheel center)
 - $H108$ (pointing to the rear wheel center)
 - $H105$ (pointing to the rear wheel hub)
 - $H102$, $H103$ (pointing to the front wheel hub)

A technical diagram of a vehicle chassis from a top-down perspective, focusing on the front suspension. The diagram shows two wheels with solid disc rotors and multi-spoke brake discs. The suspension arms are connected to a central differential housing. Key angles are labeled: 'N147 (RAMP BREAKOVER ANGLE)' at the front wheel hub, 'INCLUDES RAMP ANGLE' at the differential, and 'N100' at the rear wheel hub. A dashed line indicates a reference angle 'N10' at the rear. The diagram illustrates the geometry of the chassis and how it relates to the vehicle's center of gravity and stability during a ramp breakover event.

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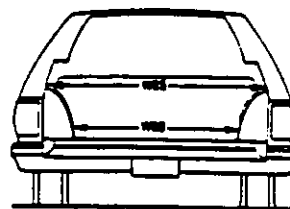
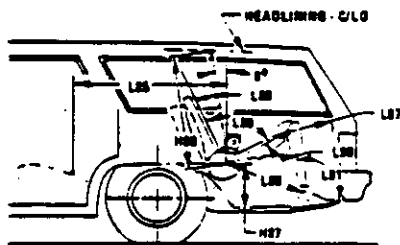
METRIC (U.S. Customary)

Interior Vehicle And Body Dimensions - Key Sheet

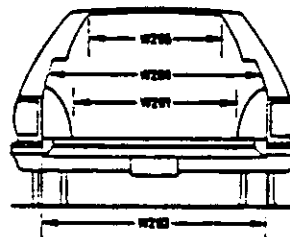
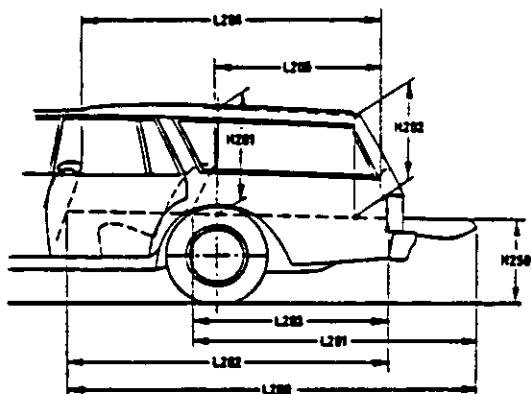


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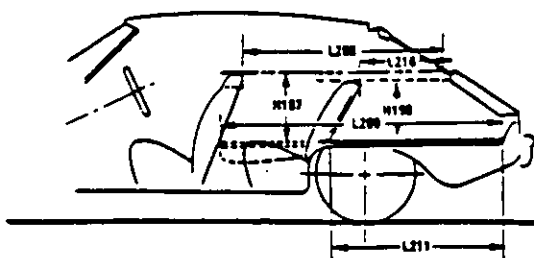
Third Seat



Cargo Space



Station Wagon



Hatchback

MVMA Specifications Form

METRIC (U.S. Customary)

Exterior Vehicle And Body Dimensions - Key Sheet Dimensions Definitions

Seating Reference Point

SEATING REFERENCE POINT means the manufacturer's design reference point which -

- (a) Establishes the rearmost normal design driving or riding position of each designated seating position in a vehicle;
- (b) Has coordinates established relative to the design vehicle structure;
- (c) Simulates the position of the pivot center of the human torso and thigh; and
- (d) Is the reference point employed to position the two dimensional templates described in SAE Recommended Practice J826, "Devices for Use in Defining and Measuring Vehicle Seating Accommodations."

Width Dimensions

- W101 TREAD-FRONT. The dimension measured between the tire centerlines at the ground.
- W102 TREAD-REAR. The dimension measured between the tire centerlines at the ground. In case of dual wheels, the dimension will be measured to the centerline of tire and wheel assemblies.
- W103 VEHICLE WIDTH. The maximum dimension measured between the widest point on the vehicle, excluding exterior mirrors, flexible mud flaps, marker lamps, but including bumpers, moldings, sheet metal protrusions or dual wheels, if standard equipment.
- W106 FRONT FENDER WIDTH. The dimension measured between the widest points at the front wheel centerline, excluding moldings.
- W107 REAR FENDER WIDTH. The dimension measured between the widest points at the rear wheel centerline, excluding moldings.
- W117 BODY WIDTH AT SgRP-FRONT. The dimension measured laterally between the widest points on the body at the SgRP-front, excluding door handles, applied moldings, or appliques.
- W120 VEHICLE WIDTH-FRONT DOORS OPEN. The dimension measured between the widest point on the front doors in maximum hold-open position.
- W121 VEHICLE WIDTH-REAR DOORS OPEN. The dimension measured between the widest point on the rear doors in maximum hold-open position. For vehicles with a rear door on only one side, this dimension is to the zero "Y" plane.
- W122 TUMBLE-HOME, STRAIGHT SIDE GLASS. The angle measured from a vertical to the outside surface of the front door glass at the SgRP "X" plane.
CURVED SIDE GLASS. The angle measured from a vertical to a chord extending from the upper DLO to the lower DLO at the outside surface of the front door glass at the front SgRP "X" plane.

Length Dimensions

- L101 WHEELBASE (WB). The dimension measured longitudinally between front and rear wheel centerlines. In case of dual rear axles, the dimension shall be to the midpoint of the centerlines of the rear wheels.
- L103 VEHICLE LENGTH. The maximum dimension measured longitudinally between the foremost point and the rearmost point on the vehicle, including bumper, bumper guards, tow hooks and/or rub strips, if standard equipment.
- L104 OVERHANG-FRONT. The dimension measured longitudinally from the centerline of the front wheels to the foremost point on the vehicle including bumper, bumper guards, tow hooks and/or rub strips, if standard equipment.
- L105 OVERHANG-REAR. The dimension measured longitudinally from the centerline of the rear wheels; or in the case

of dual rear axles, the dimension shall be the midpoint of the centerlines of the rear wheels, to the rearmost point on the vehicle including rear bumpers, bumper guards, tow hooks and rub strips, if standard equipment.

- L123 UPPER STRUCTURE LENGTH. The dimension measured longitudinally from the cowl point to the deck point.
- L125 COWL POINT "X" COORDINATE.
- L126 FRONT END LENGTH. The dimension measured longitudinally from the cowl point to the foremost point on the vehicle at the zero "Y" plane excluding ornamentation or bumpers. In cases where bumpers and/or grills are integrated with the profile, measurement is made at the foremost point of front end contour.
- L127 REAR WHEEL CENTERLINE "X" COORDINATE or in the case of dual rear axles, the coordinate shall be the midpoint of the distance between the rear axle centerlines.
- L129 REAR END LENGTH. The dimension measured longitudinally from the deck point to the rearmost visible point of the body sheet metal at the zero "Y" plane, excluding ornamentation or bumpers.

Height Dimensions

- H101 VEHICLE HEIGHT. The dimension measured vertically from the highest point on the vehicle body to ground.
- H111 ROCKER PANEL-REAR TO GROUND. The dimension measured vertically from the bottom of the rocker or side quarter panel at the front of the rear wheel opening, excluding flanges, to ground.
- H112 ROCKER PANEL-FRONT TO GROUND. The dimension measured vertically from the foremost point on the bottom of the rocker panels, excluding flanges, to ground.
- H114 COWL POINT TO GROUND. Measured at zero "Y" plane.
- H121 BACKLIGHT SLOPE ANGLE. The angle between the vertical reference line and the surface of backlight at vehicle zero "Y" plane. For curve backlight, the angle is to chord of backlight arc from lower DLO to upper DLO.
- H122 WINDSHIELD SLOPE ANGLE. The angle between the vertical reference line and a chord of the windshield arc running from the lower DLO to the upper DLO at the vehicle zero "Y" plane. In the case of wrap over glass, the angle to be measured will be formed by a chord 457 mm (18.0 in) long drawn from the lower DLO to the intersecting point on the windshield.
- H133 BOTTOM OF DOOR CLOSED-FRONT TO GROUND. The dimension measured vertically from the bottom outside corner of the door on the lock pillar side, in maximum closed position, to ground.
- H135 BOTTOM OF DOOR CLOSED-REAR TO GROUND. The dimension measured vertically from the bottom outside corner of the door on the lock pillar side, in maximum closed position, to ground.
- H138 DECK POINT TO GROUND. Measured at zero "Y" plane.
- H109 STATIC LOAD-TIRE RADIUS-REAR. Specified by the manufacturer in accordance with composite TIRE SECTION STANDARD.

Ground Clearance Dimensions

- H102 FRONT BUMPER TO GROUND. The minimum dimension measured vertically from the lowest point on the front bumper to ground, including bumper guards, if standard equipment.
- H103 FRONT BUMPER TO GROUND-CURB MASS WT. Measured in the same manner as H102.

MVMA Specifications Form

METRIC (U.S. Customary)

Interior Vehicle And Body Dimensions - Key Sheet Dimensions Definitions

- H104** REAR BUMPER TO GROUND. The minimum dimension measured vertically from the lowest point on the rear bumper to ground, including bumper guards, if standard equipment.
- H105** REAR BUMPER TO GROUND - CURB MASS (WT.). Measured in the same manner as H104.
- H106** ANGLE OF APPROACH. The angle measured between a line tangent to the front tire static loaded radius arc and the initial point of structural interference forward of the front tire to ground. The limiting structural component shall be designated.
- H107** ANGLE OF DEPARTURE. The angle measured between a line tangent to the rear tire static loaded radius arc and the initial point of structural interference rearward of the rear tire to ground. The limiting component shall be designated.
- H147** RAMP BREAKOVER ANGLE. The angle measured between two lines tangent to the front and rear tire static loaded radius and intersecting at a point on the underside of the vehicle which defines the largest ramp over which the vehicle can roll.
- H153** REAR AXLE DIFFERENTIAL TO GROUND. The minimum dimension measured from the rear axle differential to ground.
- H156** MINIMUM RUNNING GROUND CLEARANCE. The minimum dimension measured from the sprung vehicle to ground. Specify location.

Glass Areas

- S1** Windshield area.
- S2** Side windows area. Includes the front door, rear door, vents, and rear quarter windows on both sides of the vehicle.
- S3** Backlight area.
- S4** Total area. Total of all areas (S1 + S2 + S3).

Fiducial Mark Dimensions

- Fiducial Mark - Number 1**
- L54** "X" coordinate.
- W21** "Y" coordinate.
- H81** "Z" coordinate.
- H161** Height "Z" coordinate to ground at curb weight.
- H163** Height "Z" coordinate to ground.
- Fiducial Mark - Number 2**
- L55** "X" coordinate.
- W22** "Y" coordinate.
- W82** "Z" coordinate.
- H162** Height "Z" coordinate to ground at curb weight.
- H164** Height "Z" coordinate to ground.

Front Compartment Dimensions

- L7** STEERING WHEEL TORSO CLEARANCE. The minimum dimension measured in the side view from the rearmost edge of the steering wheel, with front wheels in the straight ahead position, to the torso line.
- L11** ACCELERATOR HEEL POINT TO STEERING WHEEL CENTER. The dimension measured horizontally from the AHP to the intersection of the steering column centerline and a plane tangent to the upper surface of the steering wheel rim.
- L17** DESIGN H-POINT-FRONT TRAVEL. The dimension measured horizontally between the design H-point-front in the foremost and rearmost seat track positions. (See SAE J1100)
- L23** NORMAL DRIVING AND RIDING SEAT TRACK TRAVEL. The dimension measured horizontally between a point on the design H-point travel line from the SgRP to the displaced point on the design H-point travel line with the seat moved to the foremost seat position, but not to include seat track travel used for purposes other than normal driving and riding positions. (See SAE J1100)

- L31** SgRP-FRONT. "X" COORDINATED.
- L34** MAXIMUM EFFECTIVE LEG ROOM-ACCELERATOR. The dimension measured along a line from the ankle pivot center to the SgRP-front plus 254 mm (10.0 in.) measured with right foot on the undepressed accelerator pedal. For vehicles with SgRP to heel (H30) greater than 18 in., the accelerator pedal may be depressed as specified by the manufacturer. If the accelerator is depressed, the manufacturer shall place foot flat on pedal and note the depression of the pedal.
- L40** BACK ANGLE-FRONT. The angle measured between a vertical line through the SgRP-front and the torso line. If the seatback is adjustable, use the normal driving and riding position specified by the manufacturer.
- L42** HIP ANGLE-FRONT. The angle measured between torso line and thigh centerline.
- L44** KNEE ANGLE-FRONT. The angle measured between thigh centerline and lower leg centerline measured on the right leg.
- L48** FOOT ANGLE-FRONT. The angle measured between the lower leg centerline and a line tangent to the ball and heel of the bare foot flesh line measured on the right leg. Ref SAE J826.
- L53** SgRP-FRONT TO HEEL. The dimension measured horizontally from the SgRP-front to the accelerator heel point.
- W3** SHOULDER ROOM-FRONT. The minimum dimension measured laterally between the trimmed surfaces on the "X" plane through the SgRP-front at height between the belt line and 254 mm (10.0 in.) above the SgRP-front, excluding the door assist strap and attaching parts.
- W5** HIP ROOM-FRONT. The minimum dimension measured laterally between the trimmed surfaces on the "X" plane through the SgRP-front within 25 mm (1.0 in.) below and 76 mm (3.0 in.) above the SgRP-front and 76 mm (3.0 in.) fore and aft of the SgRP-front.
- W9** STEERING WHEEL MAXIMUM OUTSIDE DIAMETER. Define if other than round.
- H13** STEERING WHEEL TO CENTERLINE OF THIGH. The minimum dimension measured from the bottom of steering wheel, with front wheels in the straight position, to the thigh centerline.
- H17** ACCELERATOR HEEL POINT TO THE STEERING WHEEL CENTER. The dimension measured vertically from the AHP-front to the intersection of the steering column centerline to a plane tangent to the upper surface of the steering wheel rim.
- H18** STEERING WHEEL ANGLE. The angle measured from a vertical to the surface plane of the steering wheel.
- H30** SgRP-FRONT TO HEEL. The dimension measured vertically from the SgRP-front to the accelerator heel point.
- H37** HEADLINING TO ROOF PANEL-FRONT. The dimension measured from the intersection of the headlining and the extended effective head room line normal to the sheet metal.
- H50** UPPER BODY OPENING TO GROUND-FRONT. The dimension measured vertically from the trimmed body opening to the ground on the SgRP-front "X" plane.
- H61** EFFECTIVE HEAD ROOM-FRONT. The dimension measured along a line 8 deg. rear of vertical from the SgRP-front to the headlining plus 102 mm (4.0 in.).
- H67** FLOOR COVERING THICKNESS-UNDEPRESSED-FRONT. The dimension measured vertically from the surface of the undepressed floor covering to the underbody sheet metal at the accelerator heel point.

Rear Compartment Dimensions

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

MVMA Specifications Form

METRIC (U.S. Customary)

Interior Vehicle And Body Dimensions - Key Sheet Dimensions Definitions

- L41 BACK ANGLE-SECOND. The angle measured between a vertical line through the SgRP-second and the torso line.
- L43 HIP ANGLE-SECOND. The angle measured between torso line and thigh centerline.
- L45 KNEE ANGLE-SECOND. The angle measured between thigh centerline and lower leg centerline.
- L47 FOOT ANGLE-SECOND. The angle measured between the lower leg centerline and a line tangent to the ball and heel of the three-dimensional devices bare foot flesh line (Reference J826).
- L48 KNEE CLEARANCE-SECOND. The minimum dimension measured from the knee pivot center to the back of the front seatback minus 51 mm (2.0 in.).
- L50 SgRP COUPLE DISTANCE-SECOND. The dimension measured horizontally from the driver SgRP-front to the SgRP-second.
- L51 MINIMUM EFFECTIVE LEG ROOM-SECOND. The dimension measured along a line from the ankle pivot center to the SgRP-second plus 254mm (10.0 in.).
- W4 SHOULDER ROOM-SECOND. The minimum dimension measured laterally between door or quarter trimmed surfaces on the "X" plane through the SgRP-second at height between 254-406 mm (10.0-16.0 in.) above the SgRP-second, excluding the door assist straps and attaching parts.
- W6 HIP ROOM-SECOND. Measured in the same manner as W5.
- H31 SgRP-SECOND TO HEEL. The dimension measured vertically from the SgRP-second to the two dimensional device heel point on the depressed floor covering.
- H38 HEADLINING TO ROOF PANEL-SECOND. The dimension measured from the intersection of the headlining and the extended effective head room line normally to the roof sheet metal.
- H51 UPPER BODY OPENING TO GROUND-SECOND. The dimension measured vertically from the trimmed body opening to the ground on the "X" plane 330 mm (13.0 in.) forward of the SgRP-second.
- H63 EFFECTIVE HEAD ROOM-SECOND. The dimension measured along a line 8 deg. rear of vertical from the SgRP to the headlining, plus 102 mm (4.0 in.).
- H73 FLOOR COVERING-DEPRESSED-SECOND. The dimension measured vertically from the heel point to the underbody sheet metal.

Luggage Compartment Dimensions

- V1 USABLE LUGGAGE CAPACITY-Total of volumes of individual pieces of standard luggage set plus H-boxes stowed in the luggage compartment in accordance with the procedure described in paragraph 8.2 of SAE-J1100a.
- H195 LIFTOVER HEIGHT. The dimension measured vertically from the luggage compartment lower opening at the zero "Y" plane to ground.

Interior Volumes (EPA Classification)

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

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

Station Wagon - Third Seat Dimensions

- L85 SgRP COUPLE DISTANCE-THIRD. The dimension measured horizontally from the SgRP-second to the SgRP-third.
- L86 EFFECTIVE LEG ROOM-THIRD. The dimension measured along a line from the ankle pivot center to the SgRP-third plus 254 mm (10.0 in.).
- L87 KNEE CLEARANCE-THIRD. The minimum dimension from the knee pivot center to the back of second seatback minus a constant of 51mm (2.0 in.). With rear-facing third seat, dimension is measured to closure.
- L88 BACK ANGLE-THIRD. Measured in the same 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 wheelhouseings at floor level. For any vehicle not trimmed, measure to the sheet metal.

MVMA Specifications Form

METRIC (U.S. Customary)

Interior Vehicle And Body Dimensions - Key Sheet Dimensions Definitions

W203 REAR OPENING WIDTH AT FLOOR. The minimum dimension measured laterally between the limiting interferences of the rear opening at floor level.

W204 REAR OPENING WIDTH AT BELT. The minimum dimension measured laterally between the limiting interferences of the rear opening at belt height or top of pick up box.

W205 REAR OPENING WIDTH ABOVE BELT. The minimum dimension measured laterally between the limiting interferences of the rear opening above the belt height.

H197 FRONT SEATBACK TO LOAD FLOOR HEIGHT. The dimension measured vertically from the horizontal tangent to the top of the seatback to the undepressed floor covering.

H201 CARGO HEIGHT. The dimension measured vertically from the top of the undepressed floor covering to the headlining at the rear wheel "X" coordinate on the zero "Y" plane.

H202 REAR OPENING HEIGHT. The dimension measured vertically from the top of the undepressed floor covering to the upper trimmed opening on the zero "Y" plane with rear door fully open.

H250 TAILGATE TO GROUND CURB MASS (WT.). The dimension measured vertically from the top of the undepressed floor covering on the lowered tailgate to ground on the zero "Y" plane.

V2 STATION WAGON

Measured in inches:

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

Measured in mm:

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

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.

V5 TRUCKS AND MPV'S WITH OPEN AREA.

Measured in inches:

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

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

L206 CARGO LENGTH AT FRONT SEATBACK HEIGHT. The minimum horizontal dimension from the "X" plane tangent to the rearmost surface of the driver's seatback to the inside limiting interference of the hatchback door on the vehicle zero "Y" plane.

L209 CARGO LENGTH AT FLOOR-FRONT-HATCHBACK. The minimum horizontal dimension measured at floor level from the rear of the front seatback to the normal limiting interference of the hatchback door on the vehicle zero "Y" plane.

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

L211 CARGO LENGTH AT FLOOR-SECOND HATCHBACK. The minimum horizontal dimension measured at floor level from the rear of the second seatback or load floor panel to the normal limiting interference of the hatchback door on the vehicle zero "Y" plane.

H197 FRONT SEATBACK TO LOAD HEIGHT. The dimension measured vertically from the horizontal tangent to the top of the seatback to the undepressed floor covering.

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

V3 HATCHBACK.

Measured in inches:

$$\frac{\frac{L206 + L209}{2} \times W4 \times H197}{1728} = \text{ft}^3$$

Measured in mm:

$$\frac{\frac{L206 + L209}{2} \times W4 \times H197}{10^9} = \text{m}^3 \text{ (cubic meter)}$$

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:

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

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METRIC (U.S. Customary)

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