

# DATSUN

## SPORTS CAR

**1600 AND 2000 MODELS THROUGH 1970**

# HANDBOOK AND SERVICE MANUAL

**Detailed, Step-by-Step Instructions  
on Maintenance and Repair**

**Emission Control System**

**Complete Specifications**

**Troubleshooting**

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# HANDBOOK AND SERVICE MANUAL

1600 AND 2000 MODELS THROUGH 1970  
(SPL311U and SRL311U Series)

Includes 5-Speed Transmission, Safety Devices &  
Emissions Control System

DD-147 - 

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## ANNOUNCEMENT

We are happy to reproduce this Handbook and Service Manual covering the increasingly popular Datsun 1600 and 2000 Models.

These excellent Japanese-built sports cars are fast gaining in popularity and sales in the United States, and are hot contenders on the racing circuit. This book gives full factory recommended methods for properly servicing and repairing these cars, built by Nissan Motor Company of Tokyo, Japan.

Included in this book are three sections, the first covering the whole Model SP (L) 311 - (U), with the 1,595 cc engine. The second section covers the Model SR (L) 311 - (U) 1982 cc U20 engine and the 5-speed transmission. The third section covers the emission control system servicing for both engines.

This handbook is designed for the layman working with home workshop tools to make repairs and maintain his vehicle. We strongly urge that the services of an authorized Datsun dealer be utilized for major repairs, where factory-trained mechanics and the necessary special tools can be found.

We have had an ever-increasing demand from owners, mechanics, dealers and enthusiasts for Shop Manuals and Handbooks covering many cars. We publish a large number of such books, and we are happy to add the Datsun Sports Car to our list. Send for free catalog of 400 automotive books.

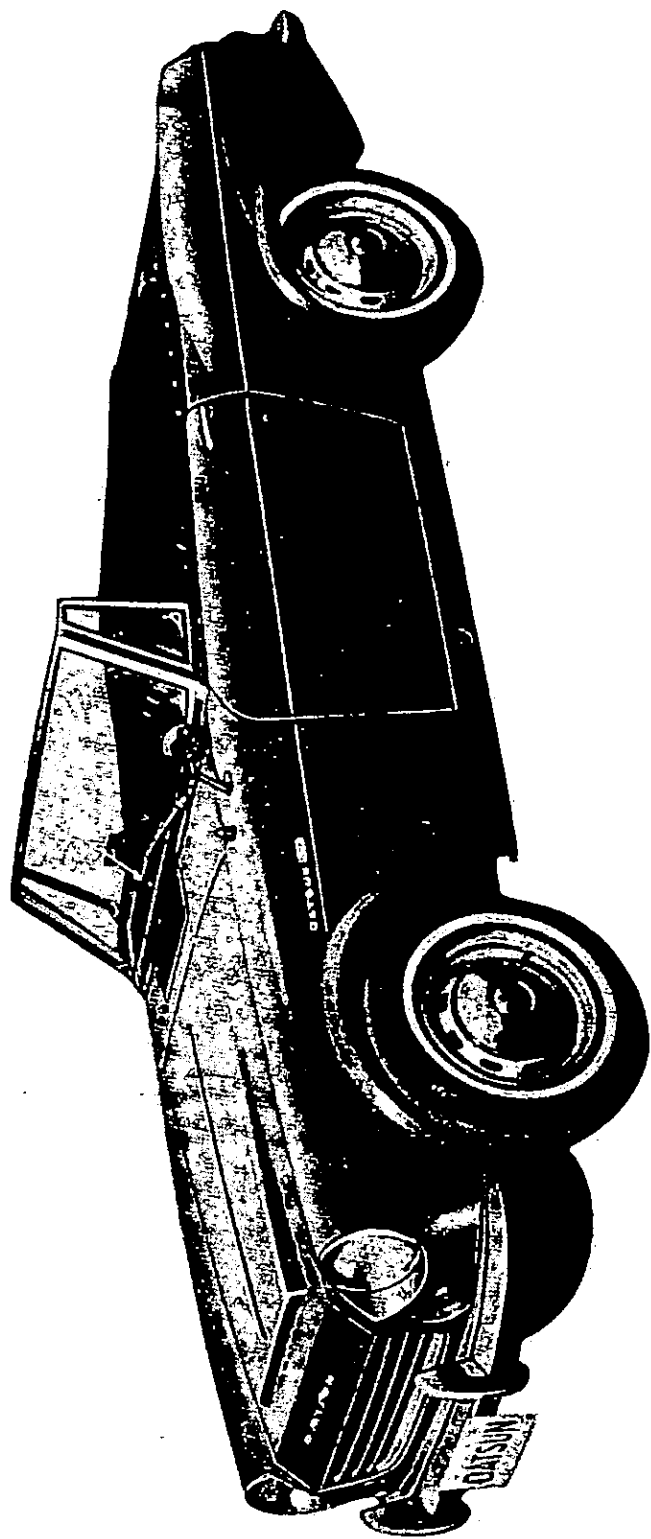
These books were originally printed in Japan and translated into English in that country. There are some expressions, instructions and descriptions that differ from our own, but we have left the wording exactly as it appears in the original books. We hope you find this book of interest.



MAY, 1970

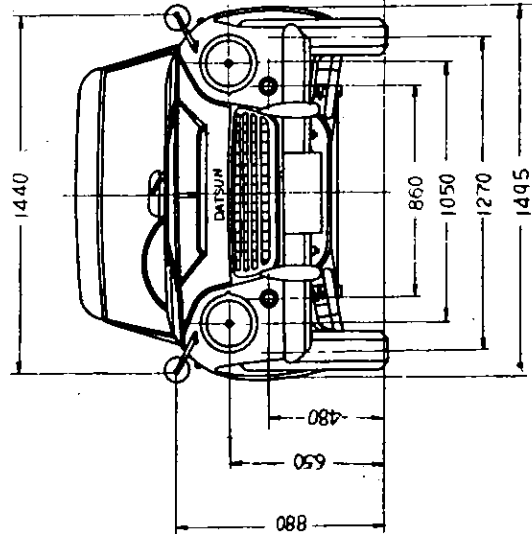
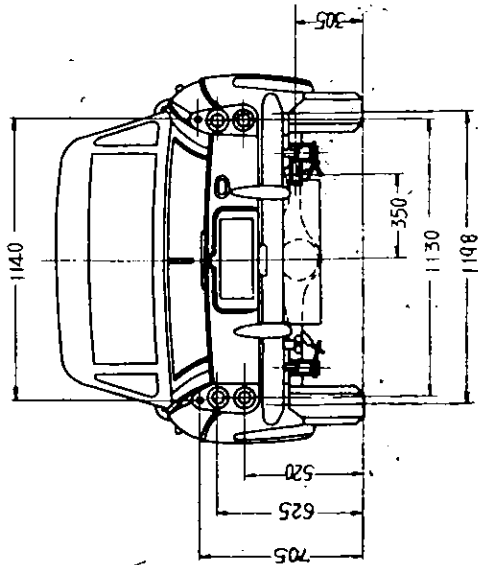
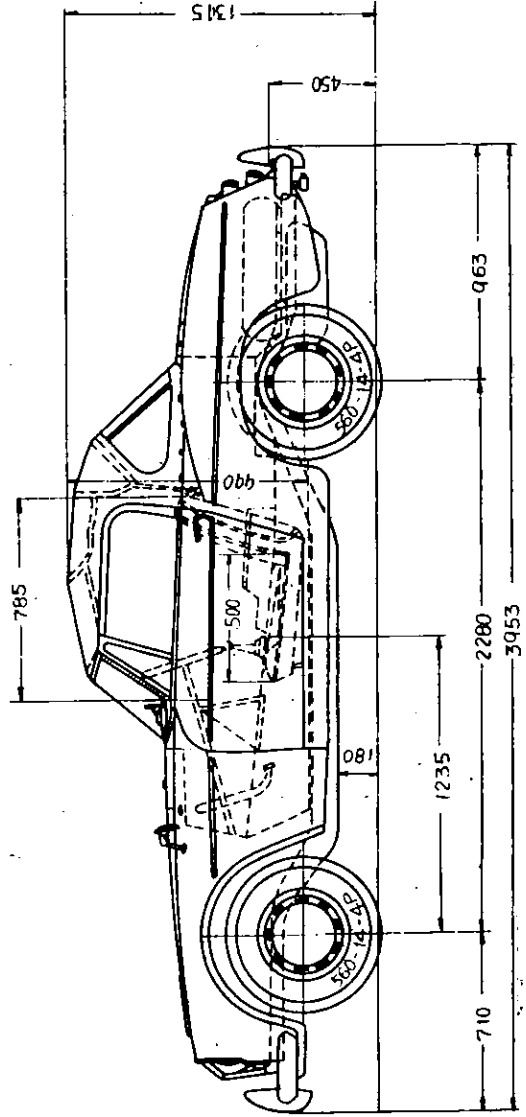
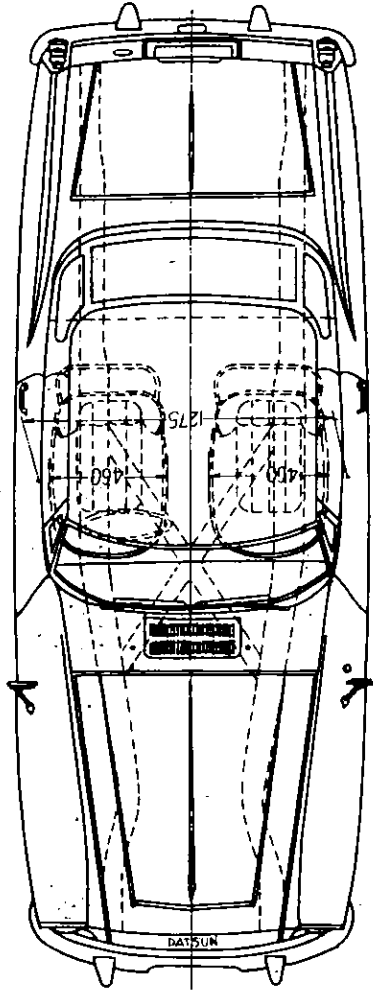
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**NEW DATSUN SPORTS CAR MODEL SP(L) 311-U**

# GENERAL VIEW OF MODEL SP(L)311



## INTRODUCTION

This manual has been compiled for purpose of assisting our distributors and dealers for effective service and maintainance of the *New Model SP(L)311*. Each assembly of the major components is described in detail. In addition, comprehensive instructions are given for complete dismantling, assembling, and inspection of these assemblies.

It is emphasised that only genuine Spare Parts should be used as replacements.

# SPECIFICATIONS

	Item	Model	
		SP(L)311-U	
Dimensions (mm)	Vehicle Overall Length		3,953 (155.6 in.)
	Vehicle Overall Width		1,495 (58.9 in.)
	Vehicle Overall Height		1,300 (51.6 in.)
	Interior size of cargo space	Overall Length	750 (29.52 in.)
		Overall Width	1,275 (50.2 in.)
		Overall Height	990 (39.0 in.)
	Tread	Front	1,275 (50.2 in.)
		Rear	1,200 (47.24 in.)
	Wheel Base		2,280 (89.8 in.)
	Min. Road Clearance		145 (5.71 in.)
	Floor Height		313 (12.3 in.)
	Overhang to the Front End (Without Bumper)		620 (24.4 in.)
	Overhang to the Rear End (Without Bumper)		885 (34.84 in.)
Frame Overhang to the Front End		525 (20.7 in.)	
Frame Overhang to the Rear End		830 (32.68 in.)	
Tire Size	Front	5,60 - 14 - 4P	
	Rear	5,60 - 14 - 4P	
Weight (kg)	Vehicle Weight                      kg (lbs.)		920 (2028.3 lb.)
	Seating Capacity		2
	Max. Payload		
	Vehicle Gross Weight		1010 (2226.6 lb.)
	Distribution of Vehicle weight without load	Front	555 (1,223.5 lb.)
		Rear	455 (1,003.0 lb.)



Weight (kg)	Chassis Weight kg (lbs.)	495 (1091.2 lb.)
	Distribution (Front) kg (lbs.)	340 (749.5 lb.)
	Distribution (Rear)	155 (341.91 lb.)
	Height of Gravity Center mm(in.)	470 (18.50 in.)
Performance	Max. Speed km/h (m/h)	170 (106)
	Fuel Consumption by Paved Flat road with Max. load km/l	12
	Grade Ability Sin $\theta$	0.497
	Min. Turning Radius m	4.9 (16.08 ft.)
	Brake Stopping Distance (50 km/h)	13.5(m)(44.3 ft)
Engine	Model	R type
	Manufacturer	NISSAN
	Classification	GASOLINE
	Cooling System	WATER FORCED CIRCULATION
	No. of Cylinder & Arrang	4 in line
	Cycle	4
	Combustion Chamber	WEDGE TYPE
	Valve Arrangement	OVER HEAD
	Bore x Stroke mm	87.2 x 66.8 (3.433 x 2.630 in.)
	Displacement l	1.595 (97.32 cu.in.)
	Compression Ratio	9.0
	Compression Pressure kg/cm <sup>2</sup> (r.p.m.)	12.7/320 (180.6 lb in <sup>2</sup> )

Engine

Max. Exploding Pressure kg/cm <sup>2</sup> (r.p.m.)		50/4000 (711.2 lb/in <sup>2</sup> )	
Max. Mean Effective kg/cm <sup>2</sup> (r.p.m.)		10.6/4000 (150.8 lb/in <sup>2</sup> )	
Max. Power B.H.P./r.p.m. (SAE)		96/6000	
Max. Torque m-kg/r.p.m. (SAE)		14.3/4000 (103 ft.lb.)	
Length x Width x Height mm		635 x 650 x 623 (25 x 25.6 x 24.5 in.)	
Weight kg		155 (341.7 lb.)	
Position of Engine		FRONT	
Type of Piston		AUTO THERMIC TYPE	
Material of Piston		LO - EX	
No. of Piston Ring	Pressure	2	
	Oil	1	
Valve Timing	Intake Open	20° B.T.D.C.	
	Intake Close	56° A.B.D.C.	
	Exhaust Open	58° B.B.D.C.	
	Exhaust Close	18° A.T.D.C.	
Valve Clear- ance	Intake mm	0.43 (0.0169 in.)	
	Exhaust mm	0.43 (0.0169 in.)	
Ignition System	Starting Method		MAGNETIC STARTING SYSTEM
	Ignition Method		BATTERY COIL TYPE
	Ignition Timing	B.T.D.C./r.p.m.	16°/600
	Firing Order		1 - 3 - 4 - 2

Ignition System	Ignition Coil	Type	Coil : Resistor C6R-50 :5650R-1500 (HU-13Y: RA-16)	
		Manufacturer	HITACHI (HANSHIN)	
	Distributor	Type	D407-51	
		Manufacturer	HITACHI	
		Ignition Timing Advance System	VACUUM & GOVERNOR	
	Spark Plug	Type	B-6E (L-45)	
		Manufacturer	NIHON TOKUSHU TOGYO (HITACHI)	
		Thread mm	14 (0.551 in.)	
		Gap mm	0.7 ~ 0.8 (0.027 ~ 0.031 in.)	
	Fuel System	Carburetor	Type & No.	HJB38W-3 2 each
			Manufacturer	HITACHI
			Throttle Valve Bore mm	38 (1.496 in.)
Venturi Size mm			VARIABLE	
Air Draught			SIDE DRAFT	
Air Cleaner		Type & No.	PAPER TYPE 1 each	
		Manufacturer	TSUCHIYA	
Fuel Pump		Type	DIAPHRAGM	
		Manufacturer	SHOWA, KYOSAN	
Fuel Tank		Capacity of Fuel Tank ℓ	43 (11.36 U.S. gal)	
Lubricating System	Lubricating Method		FORCED PRESSURE TYPE	
	Oil Pump Type		GEAR TYPE	

Lubricating System	Oil Filter Filter		FULL FLOW TYPE
	Oil Pan Capacity      ℓ (U.S.gal.)		4.1 (1.083)
Cooling System	Type		WATER COOLING CLOSED TYPE
	Radiator		CORUGATED FIN & TUBE TYPE
	Capacity of Cooling Water		8ℓ(2.11 U.S.gal.)
	Type of Water Pump		CENTERIFUGAL TYPE
	Thermostat		PELLET TYPE
Battery	Type of No.		N41      1 each
	Voltage V		12
	Capacity A.H.		40
Generator	Type		AC300/12 x R
	Manufacturer		mitsubishi
	Generating Method		ALTERNATOR
	Voltage      V		12
	Capacity      kw		0.3
	Voltage Regulator		RL-2B
Starter	Type		S114-71 (MP1.0/1.2YR)
	Manufacturer		HITACHI (MITSUBISHI)
	Voltage & Power    V-HP		12V - 1.4
Removing Device	Engine-Transmission Mechanism		ENGINE-CLUTCH TRANSMISSION
	Clutch	Type	SINGLE DRY DISC HYDRAULIC OPERA- TION

Transmitting Device	Clutch	Number of Plate	(FACING) 2
		Outdia. x India x Thickness mm	200 x 130 x 3.5 (7.87x5.12x0.138 in.)
		Total Friction Area cm <sup>2</sup>	364 (56.42 in. <sup>2</sup> )
	Transmission	Type	4 FORWARD, 1 REVERSE SYNCHRO-MESHED ON 1ST, 2ND, 3RD, 4TH
		Operating Method	FLOOR GEAR SHIFT
		1st	3.382
		2nd	2.013
		3rd	1.312
		4th	1.000
		Reverse	3.365
Propeller Shaft	Length x Outdia x India. mm	760 x 63 x 59.8 (29.92x2.48x2.35 in.)	
	Type of Universal Joint	SPICER TYPE	
Final Gear	First Gear	Type of Gear	HYPOID
		Gear Ratio	3.889 (OPTION 4.111)
		Speedometer	16/5 (17/5)
Diff. Gear	Housing Type	BANJO	
	Type of Number of Gear	STRAIGHT BEVEL PINION 2 each	
Steering System	Type of Gear	CAM AND LEVER	
	Gear Ratio	14.8	
	Steering Angle In and Out.	36° 16', 28° 20'	
	Steering Wheel Dia.	400 (15.75 in.)	
Running Device	Wheel Arrangement	2 FRONT, 2 REAR	
	Front Axle	WISH BONE BALL JOINT TYPE	

Running Device	Toe-in		mm	2 ~ 3
	Camber			1°25'
	Caster			1°30'
	Inclination Angle of King Pin			6°35'
	Type of Rear Axle			SEMI-FLOATING TYPE
System of the Brake	Master Brake	Type	Front	DISC
			Rear	LEADING TRAILING
		Lining Dimension (Front)	mm	47.5x16.7x53.98 (1.87x0.66x2.125 in.)
		Lining Dimension (Rear)		40 x 4.5 x 215 (1.57x0.18x8.46 in.)
		Total Braking Area (Front)	cm <sup>2</sup>	102.6 (15.9 in. <sup>2</sup> )
		Total Braking Area (Rear)		351 (54.4 in. <sup>2</sup> )
		Dia. of Disc (Front)	mm	284 (11.18 in.)
		Dia. of Drum (Rear)	mm	228.6 (9 in.)
	Oil Brake	Inner Dia. of Master Cyl.	mm	19.05 (0.75 in.)
		India. of Wheel Cyl. (Front)	mm	53.98 (2.125 in.)
		India. of Wheel Cyl. (Rear)	mm	20.64 (0.813 in.)
		Max. Oil Pressure	kg/cm <sup>2</sup>	137 (1948.6 lb/in. <sup>2</sup> )
	Parking Brake	Type		MECHANICAL FOR REAR WHEEL
		Lining Dimension	mm	40 x 4.5 x 215
		Total Braking Area	cm <sup>2</sup>	351
India. of Drum		mm	228.6	
	Front		INDEPENDENT COIL SPRING	

Suspension	Coil Spring Size Length x Width x Thickness - No.	12.7 x 87.5 x 290 - 6
	Rear	PARALLEL SEMI ELLIPTIC
	Spring Size Length x Width x Thickness - No.	1200 x 60 x 6 - 2 5 - 2
	Shock Absorber (Front)	TELESCOPIC DOUBLE ACTION
	Shock Absorber (Rear)	TELESCOPIC DOUBLE ACTION
	Stabilizer (Front)	TORSION BAR TYPE
	Stabilizer (Rear)	
Frame	Type	X MEMBER
	Section	BOX TYPE
	Dimension Height x Width x Thickness mm	UPPER 75 x 100 x 1.6 LOWER 25 x 100 x 2.3

PORTION USED INCH SIZE SCREWS OR BOLTS

- 1) Screw for cylinder head fixing bolt (but bolt head is mm size)
- 2) Connecting rod bolt and nut
- 3) Stud and nut of cartridge oilfilter
- 4) Drain plug for water (but bolt head is mm size)
- 5) Ex. manifold (Ex. tube fixing stud and nut)
- 6) Others ..... screws except engine unit.

	Altered portion to mm size	
	Applied metric type from E/# 040001	Used screw threads of inch-type E/# ~ 40000
Maine bearing cap	M12 x 1.75	1/2 - 13UNC
Fly wheel (crankshaft)	M10 x 1.25	3/8 - 16UNC
Fly wheel (clutch cover)	M8 x 1.25	5/16 - 24UNF
Oil pan	M6 x 1.0	1/4 - 20UNC
Rocker cover	M8 x 1.25	5/16 - 18UNC (Stud)
Front cover	M8 x 1.25	5/16 - 24UNF (Nut)
Manifold fixing	M8 x 1.25	1/4 - 20UNC
Carburator fixing	M8 x 1.25	5/16 - 24UNF
Water pump fixing bolt	M8 x 1.25	5/16 - 18UNC (Stud)
Water pump fixing stad	M10 x 1.25	5/16 - 24UNF (Nut)
Fan blade	M6 x 1.0	5/16 - 18UNC
Air cleaner fixing (support)	M8 x 1.25	3/8 - 24UNF
Air cleaner fixing (manifold)	M8 x 1.25	1/4 - 28UNF
Water out-let	M8 x 1.25	5/16 - 18UNC
Starter motor fixing	M10 x 1.5	5/16 - 18UNC
Distributor fixing	M6 x 1.0	3/8 - 24UNF
Fuel pump	M8 x 1.25	1/4 - 20UNC
Oil filter fixing	M10 x 1.25	5/16 - 24UNF
Oil pump fixing (block)	M8 x 1.25	3/8 - 24UNF
Oil pump (body ~ cover)	M6 x 1.0	5/16 - 18UNC
Oil pump (Strainer ~ suction pipe)	M6 x 1.0	1/4 - 20T x 14L
Valve rocker bracket	M10 x 1.5	1/4 - 20T x 25L
Chain tensioner	M6 x 1.0	7/16 - 20UNF
Cam shaft gear	M10 x 1.5	1/4 - 20UNC
Crank pulley bolt	M16 x 1.5	3/8 - 16UNC
Generator bracket	M8 x 1.25	5/8 - 18UNF
Transmission fixing	M10 x 1.5	5/16 - 24UNF
		3/8 - 24UNF

In connection with the alteration of the screw threads from inch type to metric type, the crank shaft supporting ribs for R type engine is altered from 3 bearings method to 5 bearings method.

This standardizing the screw threads for R type engine (1600 cc) has been adopted by the international standardzation organization I.S.O. from E/# R-40001.



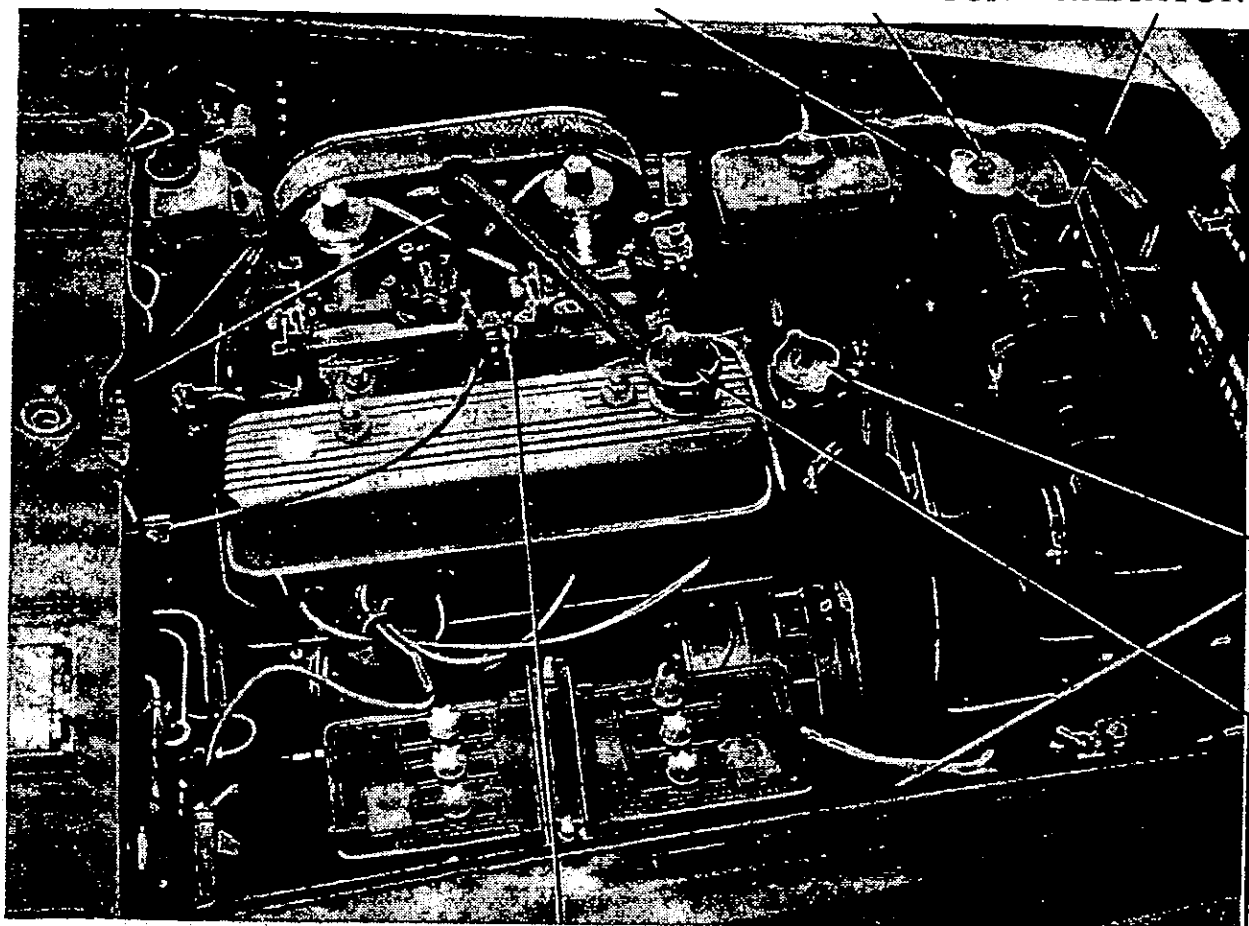
Inch 3/8" →	Metric M10	x	1.25
Nominal size (inch)	Nominal size (mm)		Pitch (mm)

Screw threads	1/4" → 6 mm 5/16" → 8 mm 3/8" → 10 mm 7/16" → 10 mm (Exception: Cylinder head bolt)
Bolts front cover to block ..... Spring washer ..... Stud cover to oil pan ..... Bolt clutch cover to flywheel ..... Bolt flywheel to crankshaft ..... Bolt drive plate fix ..... Stud and nut or bolt ..... Washer ..... Stud and nut ..... Washer ..... Stud and nut water pump ..... Bolt water pump to block ..... Bolt (and nut) alternator to bracket ..... Bolt (and nut) bracket to block ..... Nut adjust bar to cylinder head ..... Bolt or nut support to cylinder block ..... Screw fixing distributor to support ..... Pan head eccentric advance screw ..... Ass'y sleeve speedometer pinion ..... (R-Sports) The clearance hole of distributor support is changed ..... Bolt starter motor fix ..... Bolt cover to body ..... Bolt oil pump to block ..... Bolt camshaft gear ..... Screw set ..... Washer camshaft gear ..... Clearance hole of locating plate ..... Screw set chain tensioner ..... Bolt bracket to cylinder block ..... Bolt T/M case to engine block ..... Bolt and nut T/M case to engine rear plate .....	1/2" → 12 mm 1/4" → M8 x 1.25 1/4" → 8 1/4" → M6 5/16" → M8 x 1.25 3/8" → M10 x 1.25 3/8" → M10 x 1.25 5/16" → M8 x 1.25 5/16" → 8 mm 3/8" → M10 x 1.25 3/8" → 10 mm 3/8" → M10 x 1.25 5/16" → M8 x 1.25 5/16" → M8 x 1.25 3/8" → M10 x 1.5 3/8" → M10 x 1.25 1/4" → M6 x 1.0 1/4" → M6 x 1.0 1/4" → M6 x 1.0 7/8" → M22 x 1.5 7.5mm dia. → 7.0mm dia. 3/8" → M10 x 1.5 1/4" → M6 x 1.0 5/16" → M8 x 1.25 3/8" → M10 x 1.5 1/4" → M6 x 1.0 10mm dia. → 10.5mm dia. 7mm dia. → 6.6mm dia. 1/4" → M6 x 1.0 3/8" → M10 x 1.5 3/8" → M10 x 1.5 3/8" → M10 x 1.5

Stud and cap nut rocker cover .....	5/16" → M8 x 1.25
Bolt or stud manifold .....	5/16" → M8 x 1.25
Stud water outlet .....	3/8" → M10 x 1.5
Stud adjust bar .....	3/8" → M10 x 1.25
Plug heater outlet hole .....	5/8" → M16 x 1.5
Stud or bolt rocker bracket .....	7/16" → M10 x 1.5
Stud or bolt manifold fix .....	5/16" → M8 x 1.25
Stud carburetor fix .....	5/16" → M8 x 1.25
Stud and nut carburetor to manifold .....	5/16" → M8 x 1.25
Bolt air cleaner to carburetor (R) .....	5/16" → M8 x 1.25
Bolt air cleaner to carburetor (R) .....	5/16" → M8 x 1.25
Bolt water outlet to cylinder head .....	3/8" → M10 x 1.5
(R-Sports)	
Stud water outlet to cylinder head .....	3/8" → M10 x 1.5
(R)	
Stud and nut bracket (R) .....	7/16" → M10 x 1.5
Screw set rocker shaft (No.4) .....	5/16" → M8 x 1.25
Screw threads of valve rocker R/L .....	7/16" → M10 x 1.25
Adjust screw and nut valve rocker .....	7/16" → M10 x 1.25
In connection with the change of the rocker bracket bolt, its clearance hole of the rocker bracket is changed	... 11.8mm dia. → 10.8mm dia.
Bolt fan .....	1/4" → M6 x 1.0

# ENGINE

COOLANT RESERVOIR    PUSH BUTTON    RADIATOR

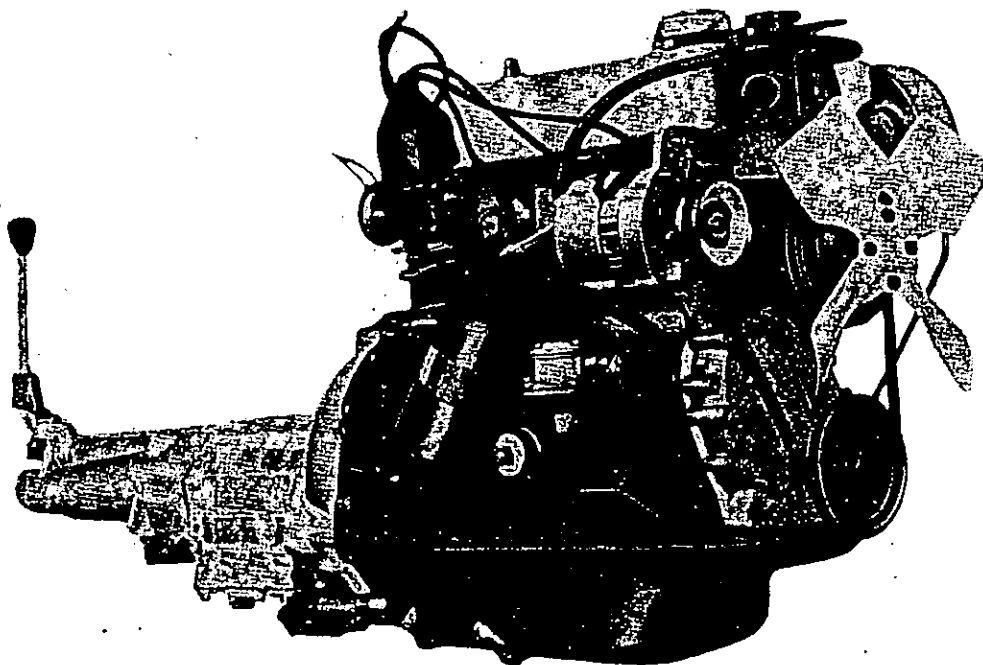


IDLING ADJUST SCREW

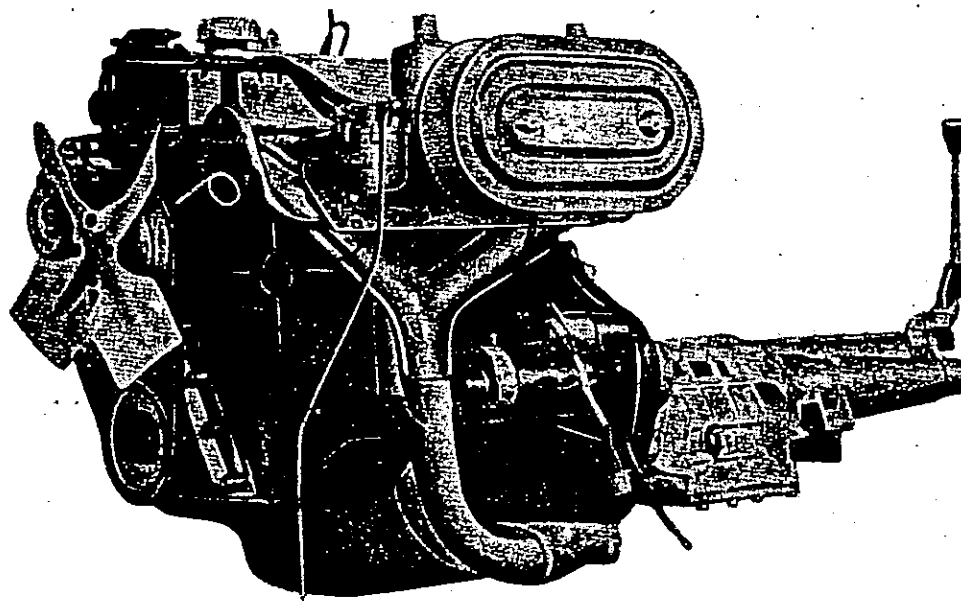
OIL FILLER  
CAP

RADIATOR  
CAP

Engine	R type
Cylinder	4
Valve	Overhead
Displacement	1595 cc
Bore x stroke    mm	87.2 x 66.8
Max. HP            SAE	96/6000
B.H.P. / r.p.m.	
Max. torque kg/rpm	14.3/4000
	(103 ft. lbs)
Compression ratio	9.0
Compression pressure	12.7/320
kg/cm <sup>2</sup> (r.p.m.)	(180.6 lb in <sup>2</sup> )



**ENGINE-RIGHT SIDE**



**ENGINE-LEFT SIDE**