SERVICE BULLETIN

MAR. 1965 VOL. 51

INTRODUCTION OF SPORTS CAR

MODEL SP(L) 311

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

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SPECIFICATIONS
SP 65—001

3.—

PREFACE

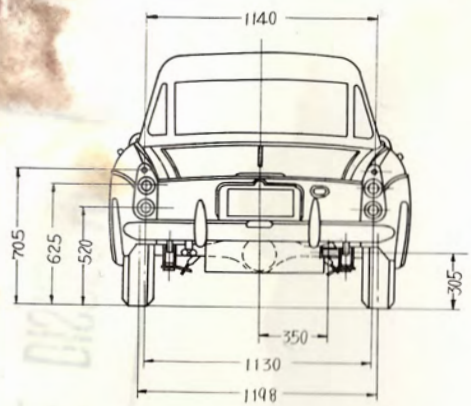
The powerful 1600 cc engine on DATSUN sports has been designed to produce 96 HP (SAE) at 6000 r.p.m. and a maximum torque of 14.3 m-kg (SAE) at 4000 r.p.m.

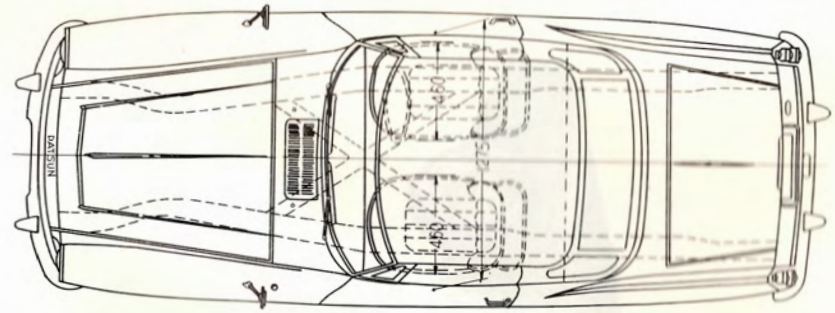
Maximum speed has also been enhanced to 170 km/h (106 m/h) and adopted the disc brakes for front wheels.

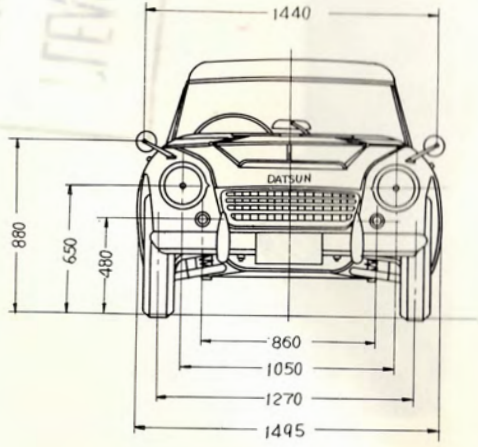
This bulletin explains the details of NEW DATSUN SPORTS CAR and gives references for servicing.

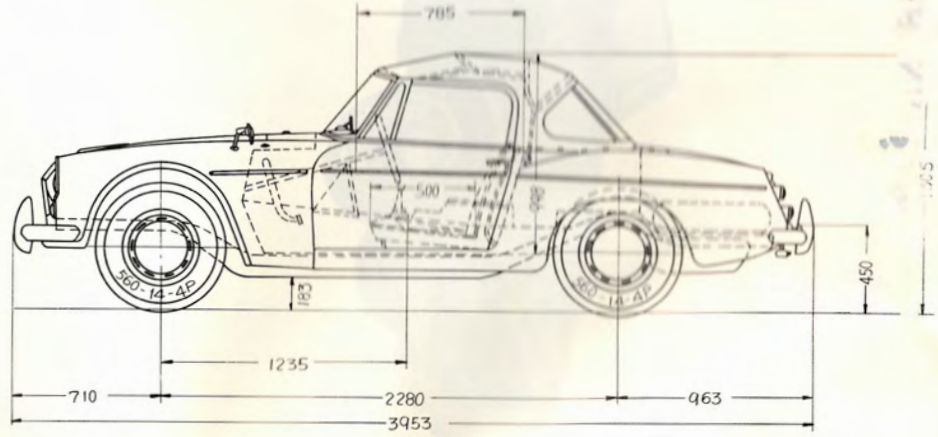
DATSUN SPORTS 1600

PLEASE DISREGARD
PART NUMBERS









GENERAL VIEW OF MODEL SP(L)311-U

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		1,305 (51.4 in.)
	Interior size of cargo space	Overall Length	785 (30.9 in.)
		Overall Width	1,275 (50.2 in.)
		Overall Height	998 (39.3 in.)
	Tread	Front	1,270 (50.0 in.)
		Rear	1,198 (47.1 in.)
	Wheel Base		2,280 (89.8 in.)
	Min. Road Clearance		183 (7.2 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)		883 (34.8 in.)
	Frame Overhang to the Front End		525 (20.7 in.)
	Frame Overhang to the Rear End		828 (32.6 in.)
Tire Size	Front		5,60 - 14 - 4P
	Rear		5,60 - 14 - 4P
Weight (kg)	Vehicle Weight		920 (2028.3 lb.)
	Seating Capacity		2
	Max. Payload		
	Vehicle Gross Weight		1030 (2270.7 lb.)
	Distribution of Vehicle weight without load	Front	515 (1135.4 lb.)
		Rear	405 (892.5 lb.)

Weight (kg)	Distribution of Vehicle weight With load	Front	565 (1245.8 lb.)
		Rear	465 (1025.2 lb.)
	Chassis Weight		502 (1106.7 lb.)
	Distribution (Front)		324 (714.3 lb.)
	Distribution (Rear)		178 (392.4 lb.)
	Height of Gravity Center mm		473 (18.6 in.)
Performance	Max. Speed km/h (m/h)		170 (106)
	Fuel Consumption by Paved Flat read with Max. load km/ℓ		16 (9.9 m/ℓ)
	Grade Abilisty Sin θ		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
	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^2 (r.p.m.)		12.7/320 (180.6 lb in^2)

Engine	Max. Exploding Pressure kg/cm^2 (r.p.m.)			50/4000 (711.2 lb/in^2)
	Max. Mean Effective kg/cm^2 (r.p.m.)			10.6/4000 (150.8 lb/in^2)
	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 Clearance	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

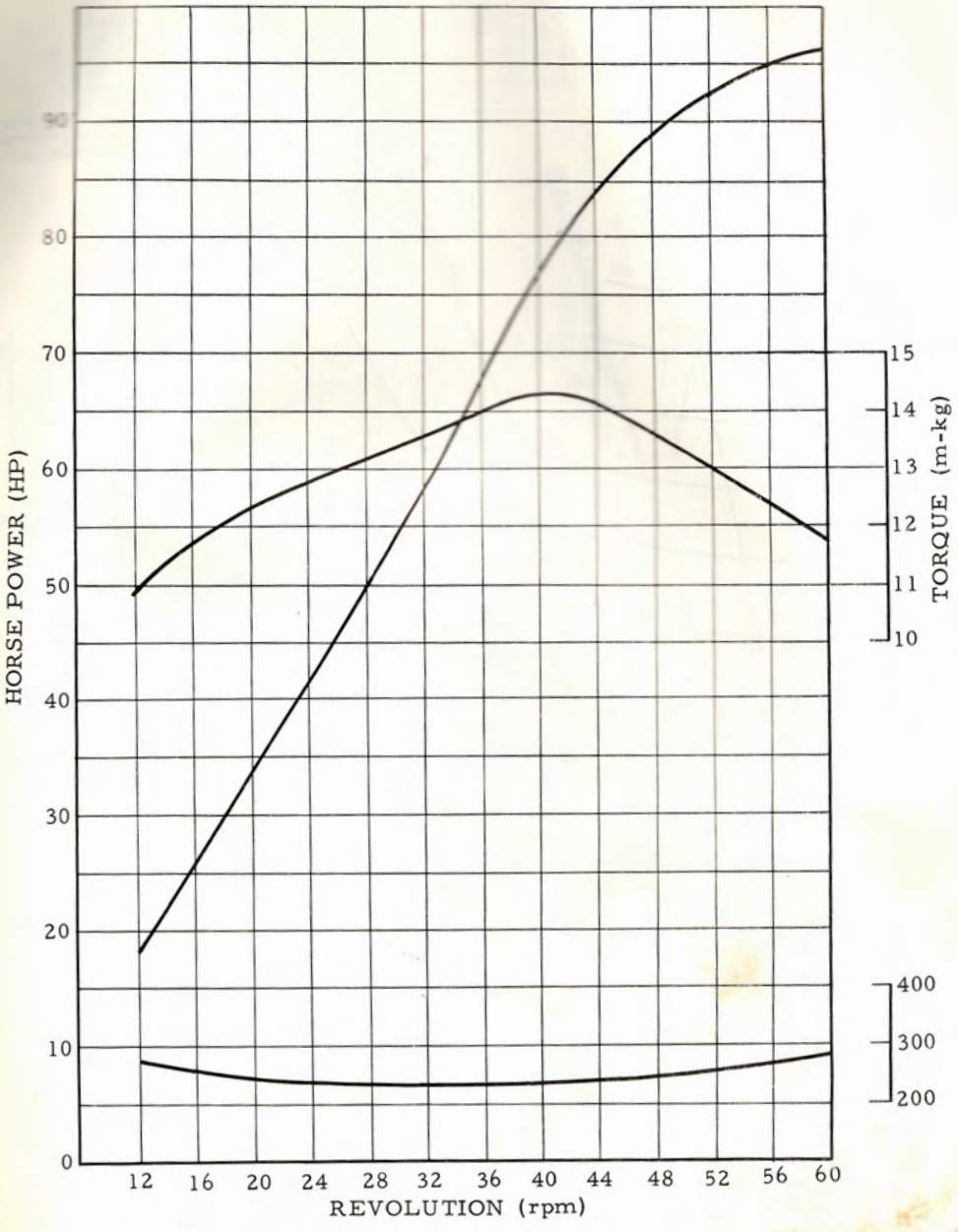
Lubricating System	Oil Filter Filter	FULL FLOW TYPE
	Oil Pan Capacity ℓ (U.S.gal.)	4.1 (1.083)
Cooling System	Type	WATER COOLING CLOSED TYPE
	Radiator	CORUGATED FIN & TUBE TYPE
	Capacity of Cooling Water	8ℓ(2.11 U.S.gal.)
	Type of Water Pump	CENTERIFUGAL TYPE
	Thermostat	PELLET TYPE
Battery	Type of No.	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 OPERATION

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^2	364 (56.42 $in.^2$)
	Transmission	Type	4 FORWARD, 1 REVERSE SYNCHROMESHED 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

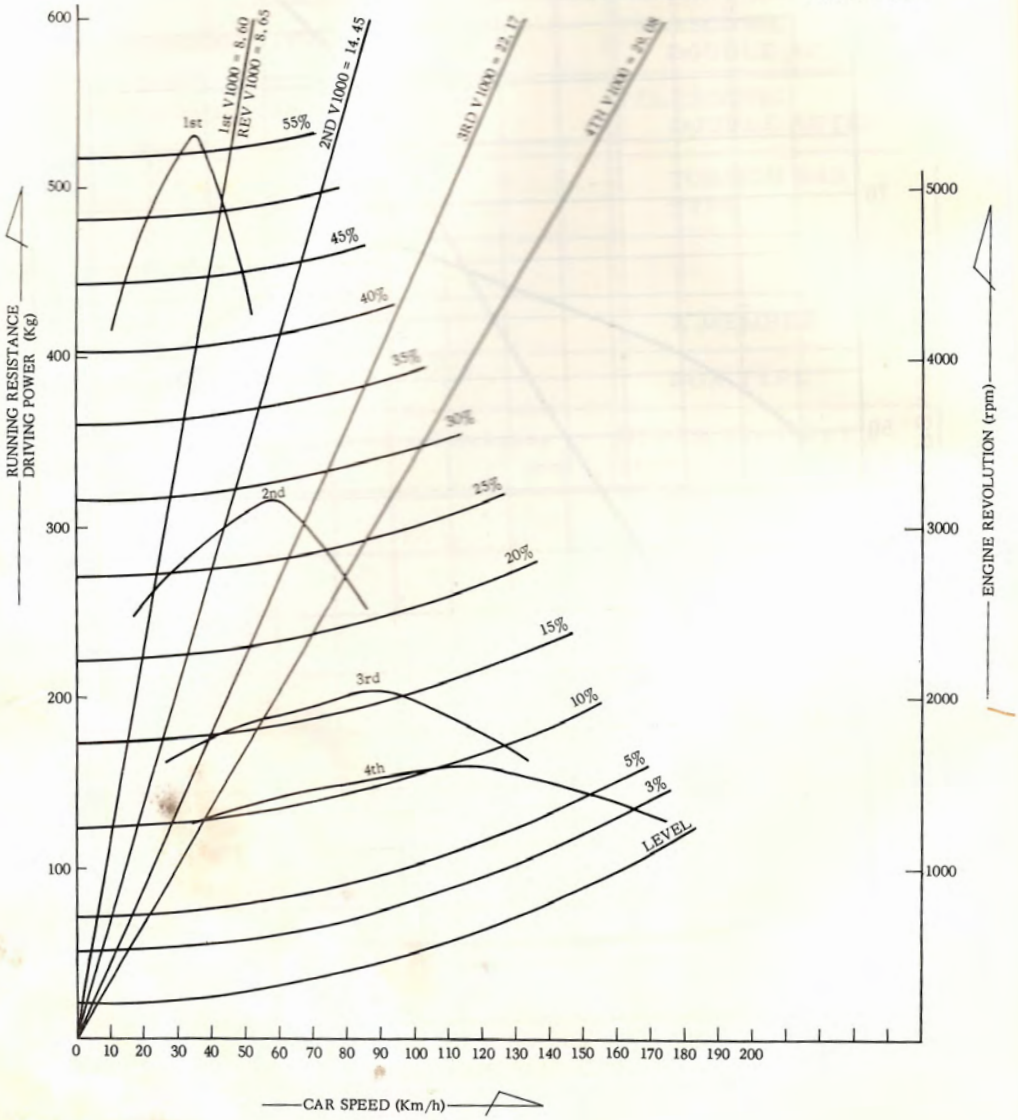
Running Device	Toe-in mm			2 ~ 3
	Camber			1°25'
	Caster			1°30'
	Inclination Angle of King Pin			6°35'
	Type of Rear Axle			SEMI-FLOATING TYPE
System of the Brake	Master Brake	Type	Front	DISC
			Rear	LEADING TRAILING
		Lining Dimension (Front) mm		47.5x16.7x53.98 (1.87x0.66x2.125 in.)
		Lining Dimension (Rear)		40 x 4.5 x 215 (1.57x0.18x8.46 in.)
		Total Braking Area (Front) cm^2		102.6 (15.9 $in.^2$)
		Total Braking Area (Rear)		351 (54.4 $in.^2$)
		Dia. of Disc (Front) mm		284 (11.18 in.)
		Dia. of Drum (Rear) mm		228.6 (90 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^2		137 (1948.6 $lb/in.^2$)
	Parking Brake	Type		MECHANICAL FOR REAR WHEEL
		Lining Dimension mm		40 x 4.5 x 215
		Total Braking Area cm^2		351
		India. of Drum mm		228.6
	Front			INDEPENDENT COIL SPRING

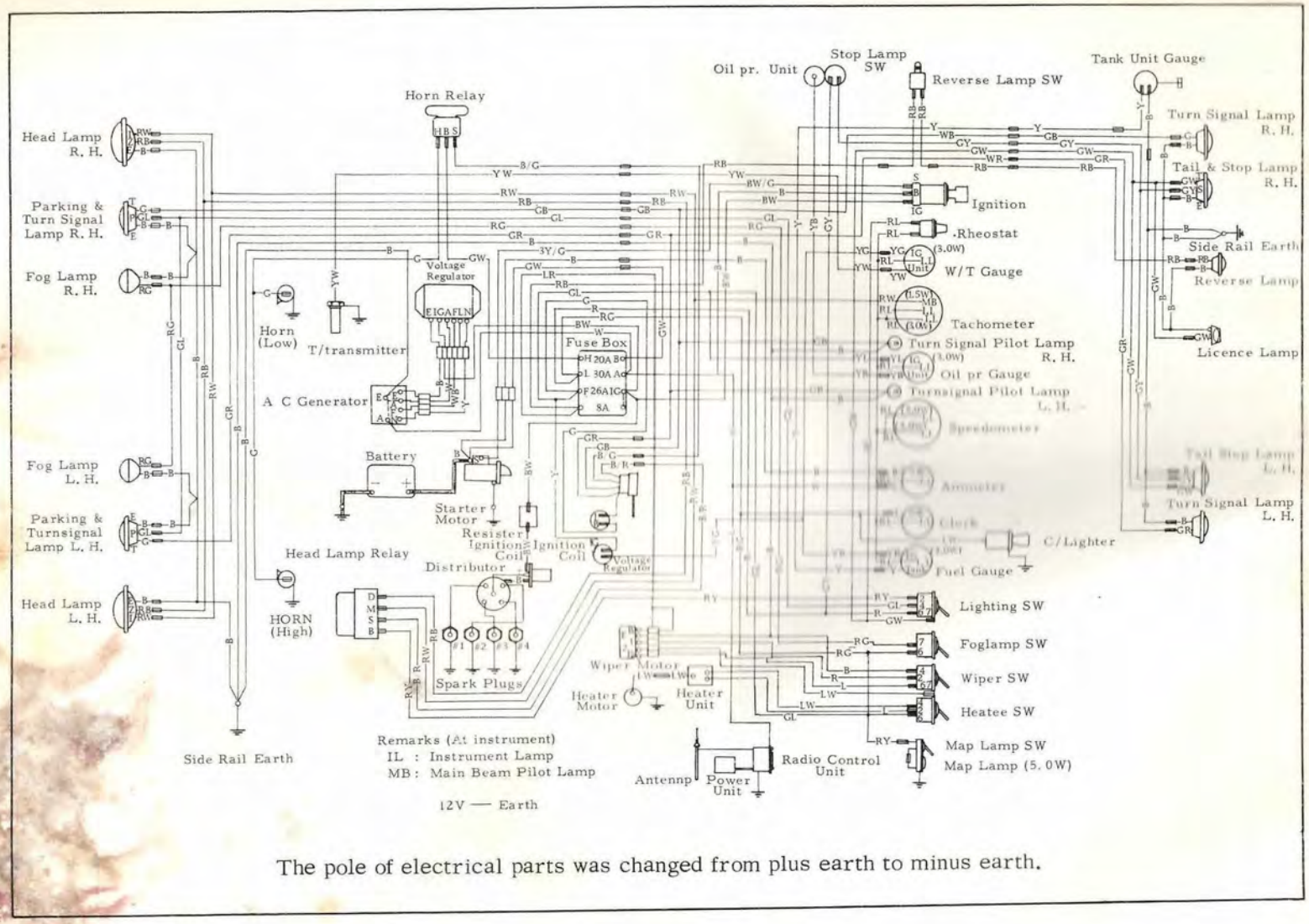
Suspension	Coil Spring Size Length x Width x Thickness - No.	12.7 x 87.5 x 290 - 6
	Rear	PARALLEL SEMI ELLIPTIC
	Spring Size Length x Width x Thickness - No.	1200 x 60 x 6 - 2 5 - 2
	Shock Absorber (Front)	TELESCOPIC DOUBLE ACTION
	Shock Absorber (Rear)	TELESCOPIC DOUBLE ACTION
	Stabilizer (Front)	TORSION 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

MODEL [illegible] ENGINE PERFORMANCE CURVE

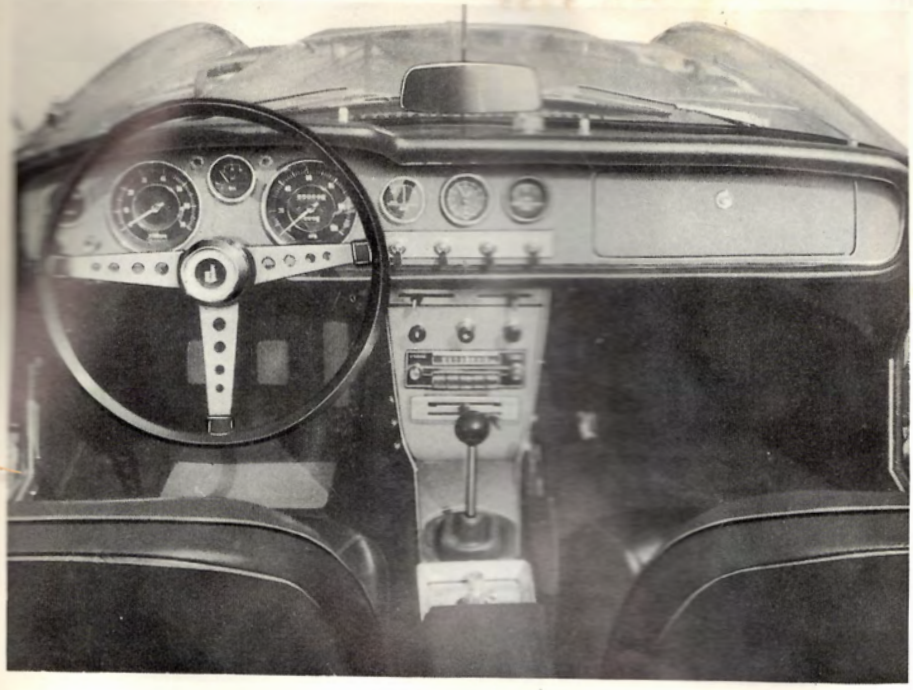


Final Gear Ratio	3.889
1st Speed Ratio	3.382
2nd Speed Ratio	2.013
3rd Speed Ratio	1.312
4th Speed Ratio	1.000
Gross Vehicle Weight	1030 kg
Max. Grade Ability	tan θ = 0.573 (sin θ =0.497)
Max. Torque	14.3 mkg/400 rpm
Max. BHP (SAE)	96 HP/6000 rpm





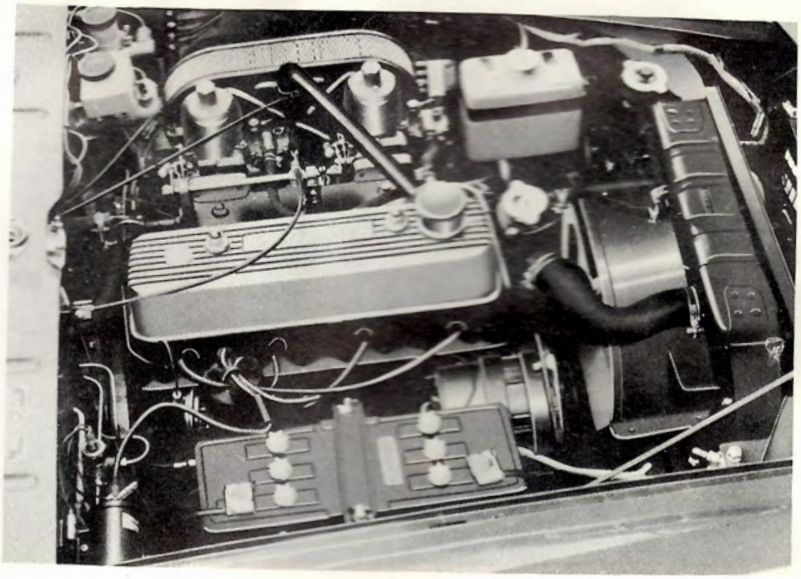
The pole of electrical parts was changed from plus earth to minus earth.



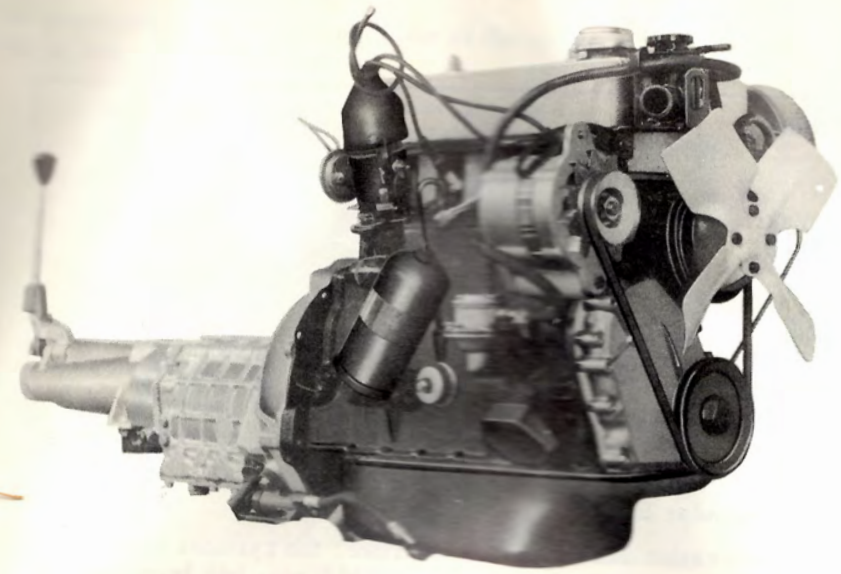
Manueverability

All meters are separately installed in front of the driver for clear visibility. Switches are snap-type. The four speed short gear shift lever is close to the driver. Large lockable glove compartment is placed on the non-lustered dashboard in front of the passenger.

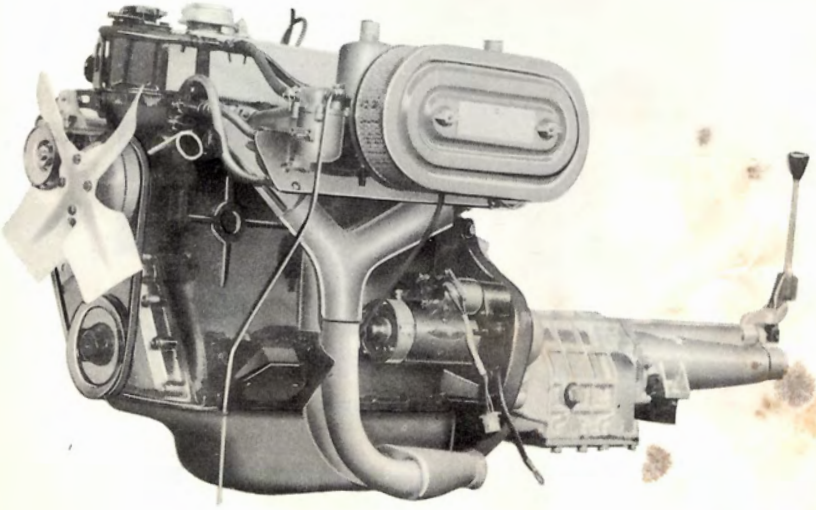
ENGINE COMPARTMENT



The powerful 1600 cc engine develops a maximum output of 96 HP at 6000 rpm (SAE) and a maximum torque of 14.3 m-kg(SAE) at 4000 rpm.



ENGINE-RIGHT SIDE



ENGINE-LEFT SIDE

ENGINE

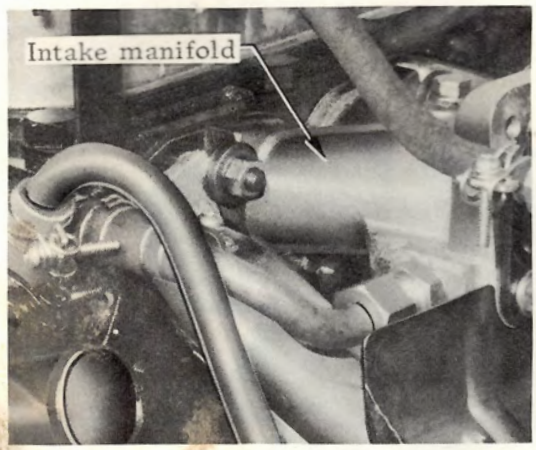
Engine model		R (New)	G (Former)
Cylinder		4 in. line	4 in. line
Valve		Overhead	Overhead type
Displacement		1,595 cc	1,488 cc
Bore x Stroke	mm	87.2 x 66.8	80 x 74
Max. power SAE B.H.P./r.p.m.		96/6000	85/5600
Max. torque	m-kg/rpm (ft-lb)	14.3/4000(103/4000)	12.7/4000
Compression ratio		9.0	9.0
Grade ability	sin θ	0.497	0.460

Alteration of Cylinder Block

Due to the alteration of bore dia. and stroke, the cylinder block, cylinder head, piston, piston ring, connecting rod and crankshaft etc. has been altered.

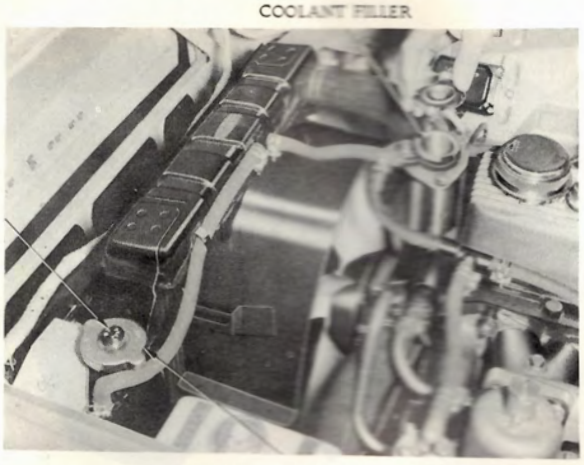
Intake Manifold

Inner diameter of the intake manifold is enlarged from 32 mm to 34 mm.



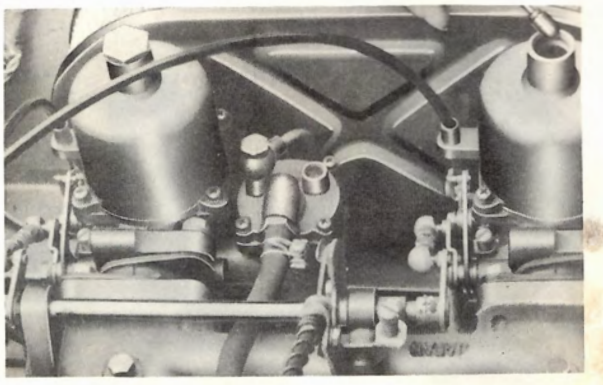
WATER PUMP

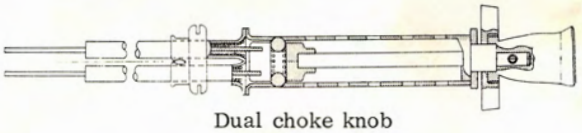
The shape of out-let of cooling water at the out-let of water pump is altered and the inlet of water is newly adopted.



DUAL CHOKE

The dual wire type for the choke of carburetors is newly adopted.



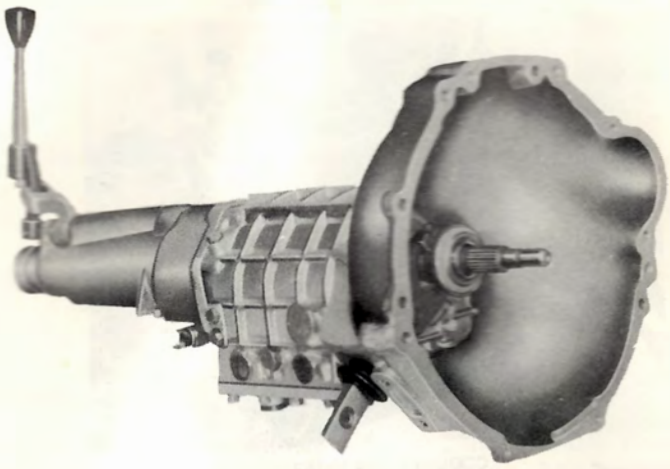


Dual choke knob

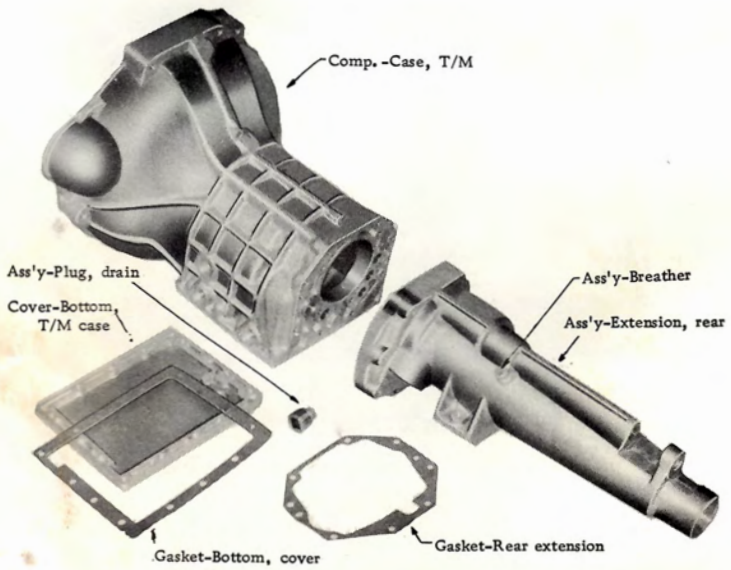
Adoption of the battery pole⊖earth. The pole of Battery is altered from⊕earth to⊖earth. Due to this alteration, a part of AC dynamo with the regulator is changed.

TRANSMISSION

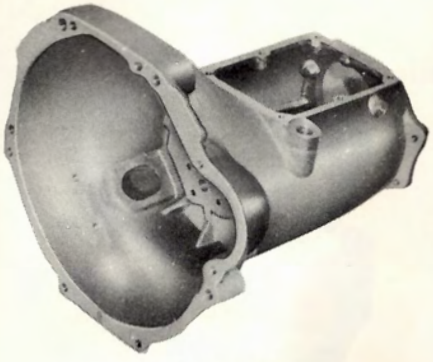
The case of transmission is changed as the shown below.



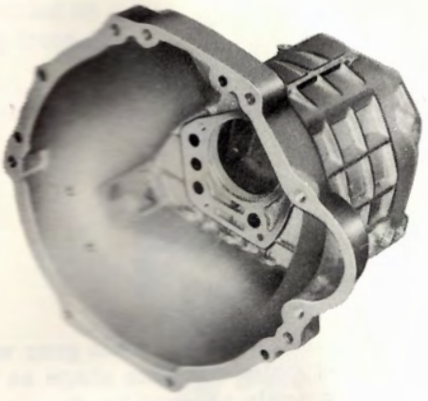
The cover of transmission was attached to a side of it, but the bottom of case. The filler hole of oil is located at the side of case.



Dimension of the transmission assembly is extended about 131 mm with the rear extension.

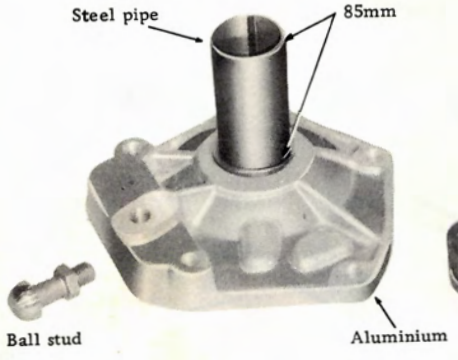


SP(L)310

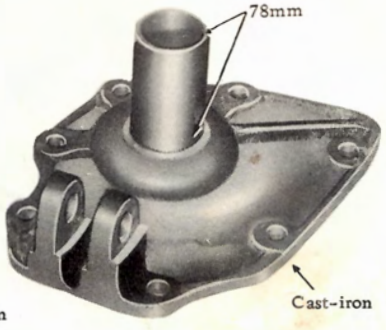


SP(L)311

Front Cover



SPL(311)



SP(L)310

Main Gear

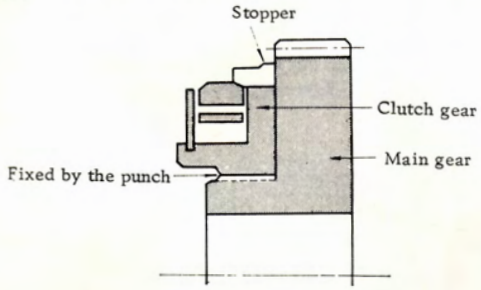
SP(L)311

SP(L)310

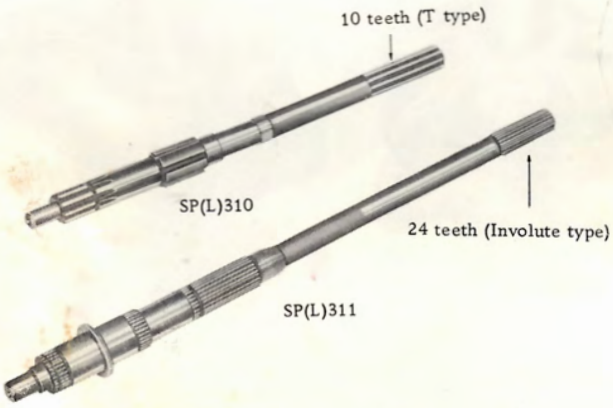
The constructure of former main gear was a block of the main gear and clutch gear, but the new type is separate shape as a main gear.

The stopper is newly adopted for the clutch gear.

To prevent from slipping of clutch gear, the main gear and clutch gear are assembled by fixing punch from inside of it.



Main Shaft



The main shaft is altered as the shown above;
It is completed with a center washer as one block of the shaft.

The bearings has been altered from bushing type to the needle bearing with the race of a cage type.

The needle bearing with bushing is used for only low gear.

Synchro Hub

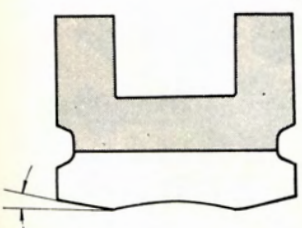
The synchronizing hub is tightly settled on the main shaft by spline with inclined contact surface of sleeve to preventing from slipping of gear.

SP(L)311

SP(L)310

Coupling Sleeve

The coupling sleeve is also altered thin shape and tapered along the contact surface of synchro ring as the shown below.



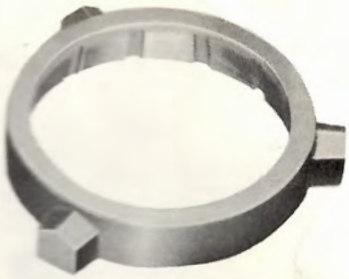
Tapper

SP(L)311

SP(L)311

Synchro Ring

SP(L)311



SP(L)310

Former type was synchronized by synchroner ring with gear and hub sleeve, but the new type operate by function of the synchro ring brake band, thrust block and anchor block etc. instead of bulk ring.

Counter Gear

The bearings of counter gear has been altered from the separate needle roller to the needle bearing of cage type.

The anti-split on the counter shaft is operated by the rear bearing retainer of front cover.

SP(L)311

SP(L)310

Fork Rods

Each position of 1st and 2nd forks are decide by the stopper which located the end of clutch gear of main gear.

Accordance with this alteration, all grooves was abolished except a groove for neutral position.

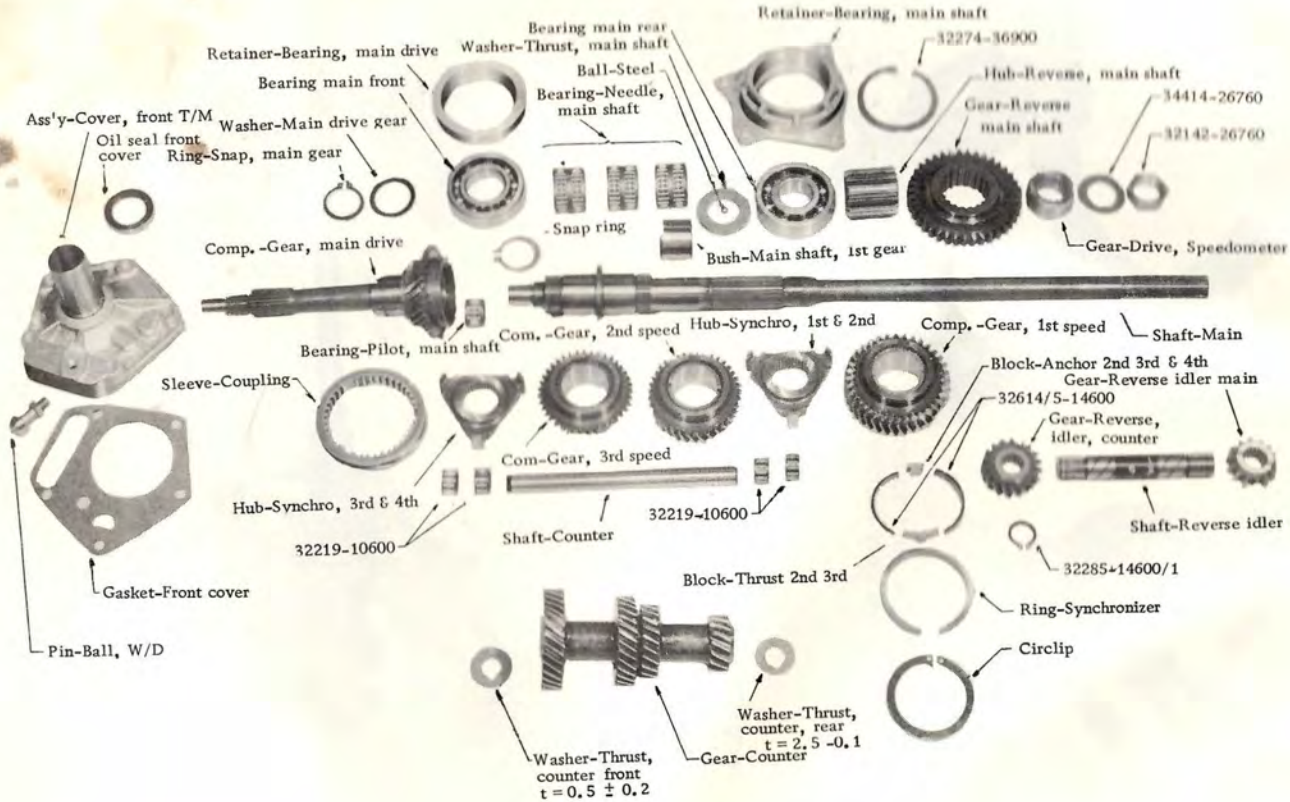
The fork of reverse rod is not altered.

Reverse Idler & Main Shaft Reverse Gear

SP(L)311

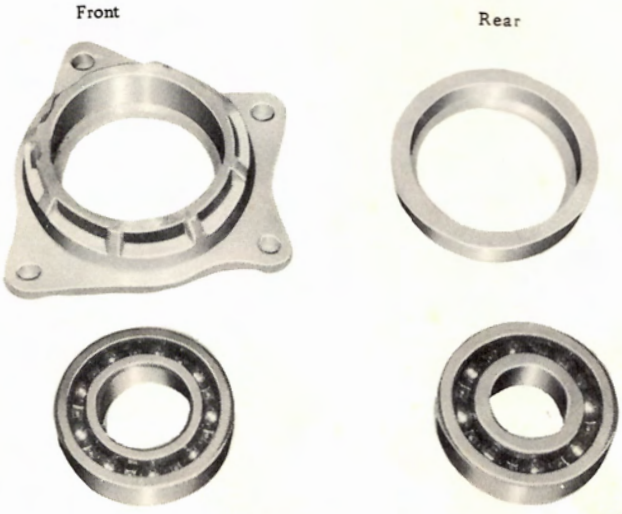
SP(L)310

SP(L)311


Retainer-Bearing, main shaft
32274-36900
Bearing main rear
Washer-Thrust, main shaft
Retainer-Bearing, main drive
Bearing main front
Ball-Steel
Bearing-Needle, main shaft
Hub-Reverse, main shaft
Gear-Reverse main shaft
34414-26760
32142-26760
Ass'y-Cover, front T/M
Oil seal front cover
Washer-Main drive gear
Ring-Snap, main gear
Snap ring
Bush-Main shaft, 1st gear
Gear-Drive, Speedometer
Comp.-Gear, main drive
Com.-Gear, 2nd speed
Hub-Synchro, 1st & 2nd
Comp.-Gear, 1st speed
Shaft-Main
Bearing-Pilot, main shaft
Block-Anchor 2nd 3rd & 4th
Gear-Reverse idler main
32614/5-14600
Sleeve-Coupling
Gear-Reverse, idler, counter
Com-Gear, 3rd speed
Hub-Synchro, 3rd & 4th
32219-10600
Shaft-Counter
32219-10600
Shaft-Reverse idler
32285-14600/1
Block-Thrust 2nd 3rd
Ring-Synchronizer
Gasket-Front cover
Circlip
Pin-Ball, W/D
Washer-Thrust, counter, rear t = 2.5 -0.1
Gear-Counter
Washer-Thrust, counter front t = 0.5 ± 0.2

Front Bearing Retainer

Front bearing of transmission in the former type was inserted directly to the case of transmission but the bearing in the new type is inserted with the retainer as the shown below.



Bearing retainer

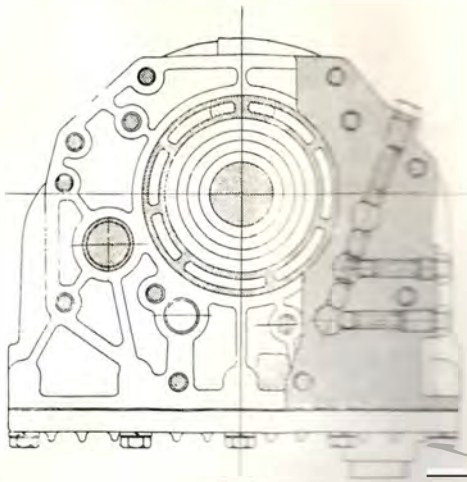
Control Linkage

As to control linkage, using fully the gum bushes or springs to prevent from vibration and shock, the constructure is improved;

The constructure of control linkage has been altered so as to work smothly with eht lever of gear change by the fork system which is composed in the rear extension.

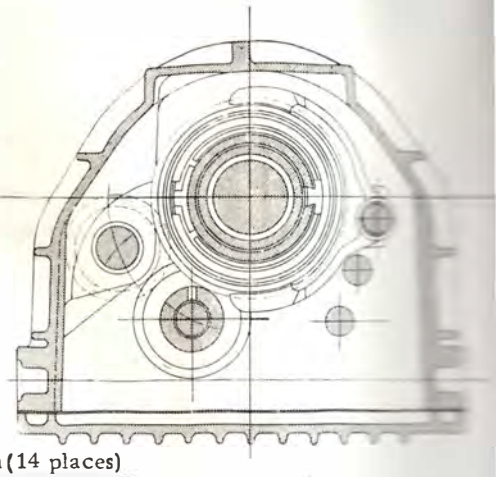
Sleeve Yoke

The spline of yoke for attachment of propeller shaft is altered to 25 mmø 24 teeth spline as same as the clutch disc.



SECTION C-C

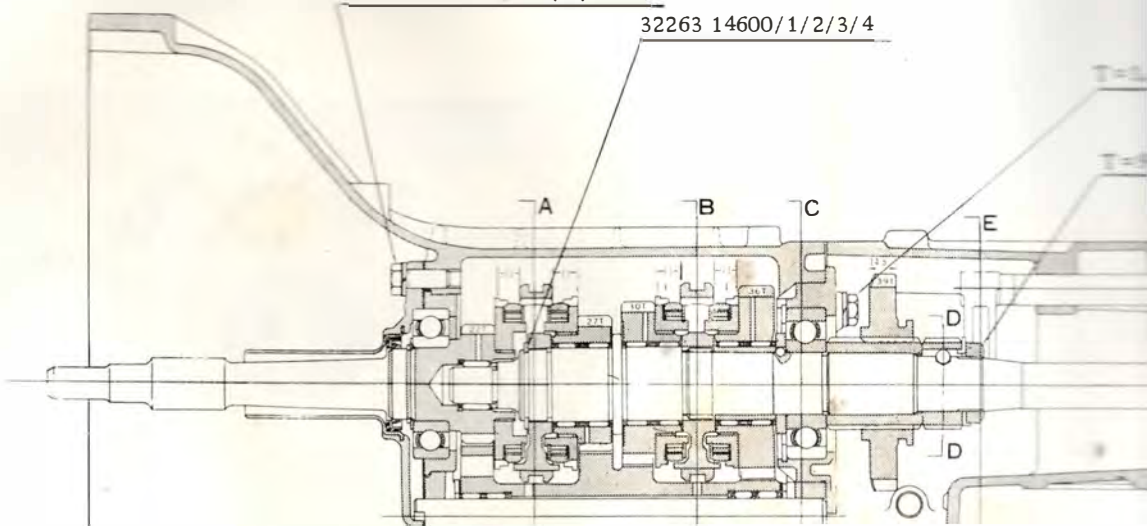
T = 1.2 ~ 1.4 kg-m (14 places)



SECTION B-B

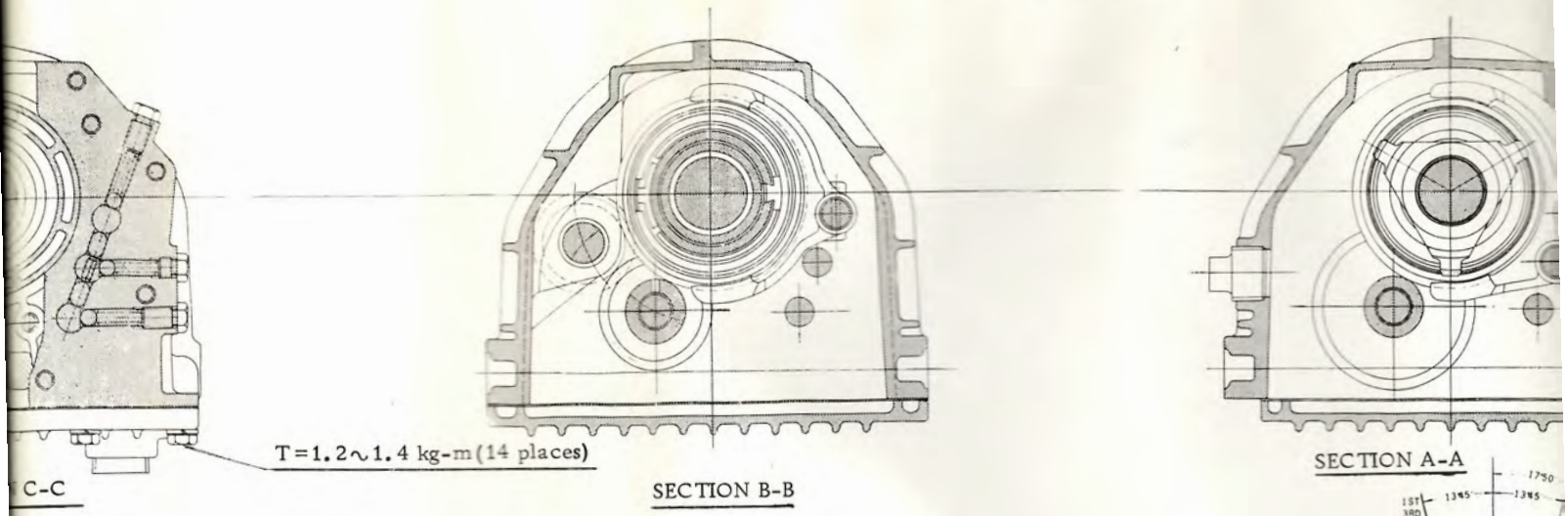
T = 1.2 ~ 1.4 kg-m (5 places)

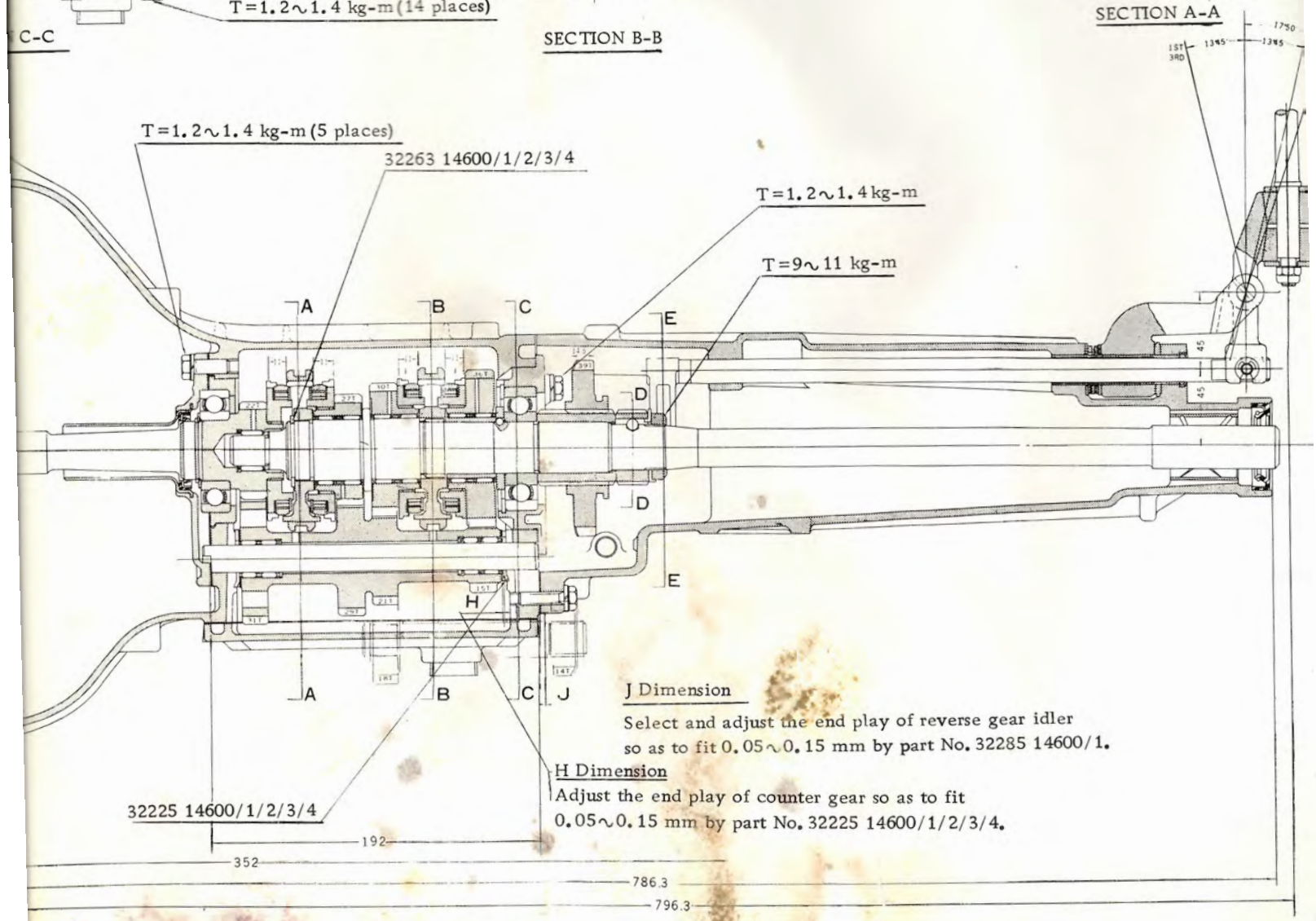
32263 14600/1/2/3/4



SECTIONAL VIEWS OF

The case of transmission is changed





J Dimension

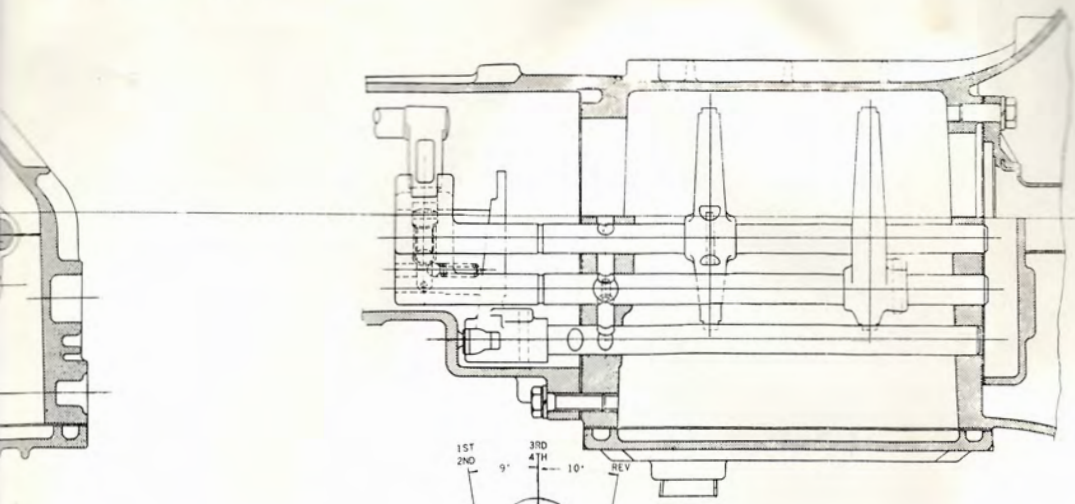
Select and adjust the end play of reverse gear idler so as to fit 0.05∼0.15 mm by part No. 32285 14600/1.

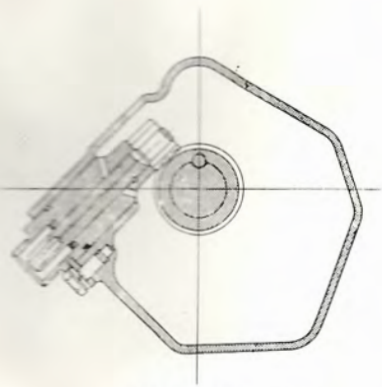
H Dimension

Adjust the end play of counter gear so as to fit 0.05∼0.15 mm by part No. 32225 14600/1/2/3/4.

AN MISSI

s the shown below





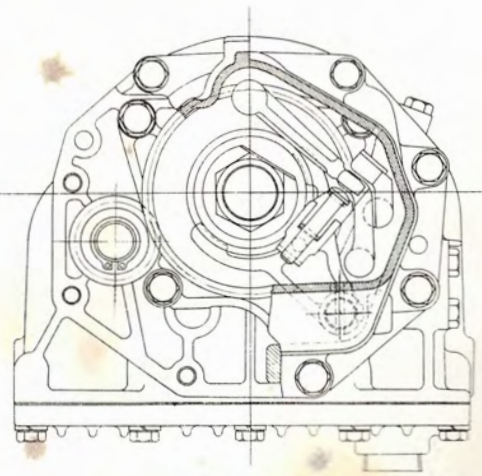
SECTION D-D

Gear Ratio	
First	3.382
Second	2.013
Third	1.312
Fourth	1.000
Reverse	3.365

T=2.7∼3.7 kg-m (4 places)

T=1.7∼2.3 kg-m (4 places)

T=0.91∼1.28 kg-m
(2 places)



SECTION E-E

T = Tightening Torque

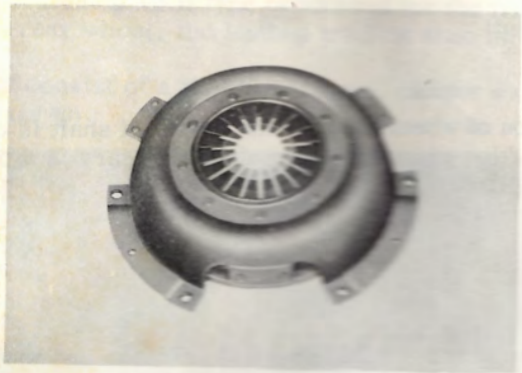
CHASSIS

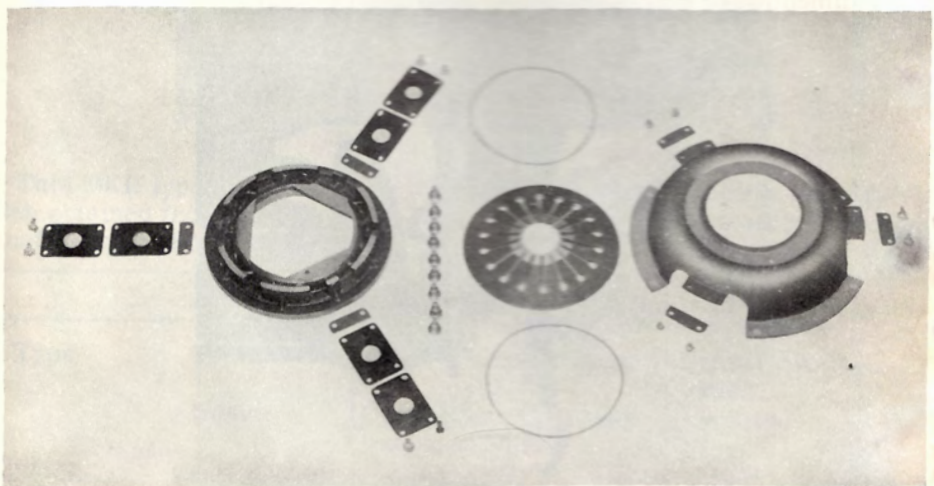
CLUTCH

The clutch of diaphragm spring type is adopted, this is in the shape of a dished plate.

The exploded view in following figure shows each of the parts more clearly.

(See page 40).





PROPELLER SHAFT

The length of propeller shaft is shortened about 160 mm between both universal joints. The grease sealed type without grease nipple is adopted.

REAR AXLE

Strengthened for differential gears.
The hypoid gear size is enlarged from 165.1 mmø to 170.5 mmø.
Final gear ratio is changed from 3.889 (35/9) to 4.111 (47/9).

Rear Axle Case

The tube banjo type is adopted with the strengthed differential gear.
The length of this case is not altered in dimention by shortening 25 mm each side of tube.

Axle Shaft

By the alteration of wheel off-set, the length of shaft is changed and at the same time, the portion of insertion for the side gears is altered from splined form to serrated form.

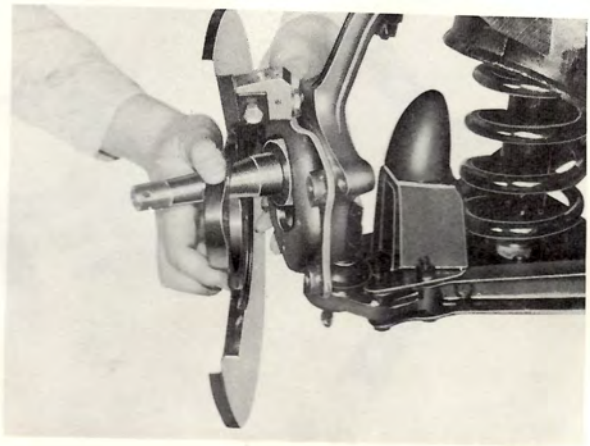
FRONT AXLE

Alteration of Tread

Tread is incleased from 1,213 mm to 1,270 mm as much as 57 mm.

Knuckle Spindle

The dimention of knucle spindle is altered as following figures.



Front Hub

The front hub is newly adopted with strengthened one to attach the roter of disc brake.

Wheel Bearing

To increase the distance between inner and outer bearing of the wheel, the size of outer bearing is shortened.

Accordingly the diameter of hub cap is altered to smaller than former one.

ADOPTION OF DISC BRAKE FOR FRONT WHEEL

The disc brake of Dunlop MKII type is adopted for the front wheel.

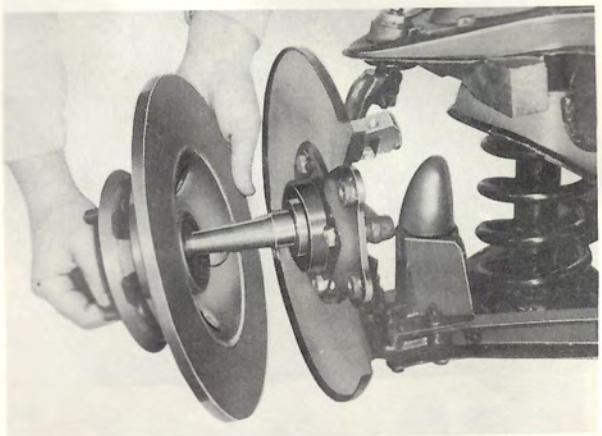
Reference to the rear wheel, the leading trailing shoe is used for drum of the wheel as before.

This disc brake consist of a flat disc (rotor), caliper assembly, and carrier adapter etc. (See page 43).

This MKII type is made of the transferee, Smitomo Electric Industry Co., which obtained from the patentee, Dumlop corporation as to all the patent for manufacturing technique.

		New Model	Former Model
Type	Front	Disc (Dunlop MKII type)	Drum (Two leading shoe type
	Rear	Drum (Leading & trailing shoe type)	→ Same
Lining dimension (Width x Thickness x Length - Nos.)			
	Front(mm)	47.5 x 16.7 x 53.98 - 4	40 x 4.5 x 219.5 - 4
	Rear (mm)	40 x 4.5 x 215 - 4	40 x 4.5 x 219.5 - 4
Total braking area			
	Front (mm)	102.6	351
	Rear (mm)	351	351

Roter (disc) Outer dia. Front (mm)	284 (11.1 in.)	Drum inner dia. 228.6 (9 in.)
Drum inner dia. Rear (mm)	228.6 (9 in.)	Drum inner dia. 228.6 (9 in.)
Master cylinder Inner dia. (mm)	19.05 (3/4 in.)	22.22 (7/8 in.)
Wheel cylinder Front (mm)	53.98 (2 1/8 in.)	25.4 (1 in.)
Rear (mm)	20.64 (13/16 in.)	23.81 (15/16 in.)
Pedal ratio	3.9	4.5
Friction pad	TEXTAL TP 9L	

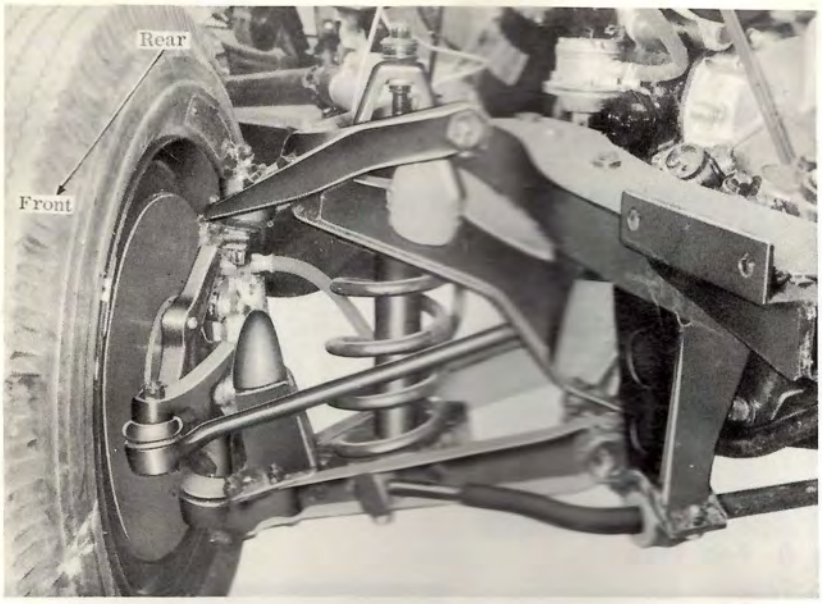


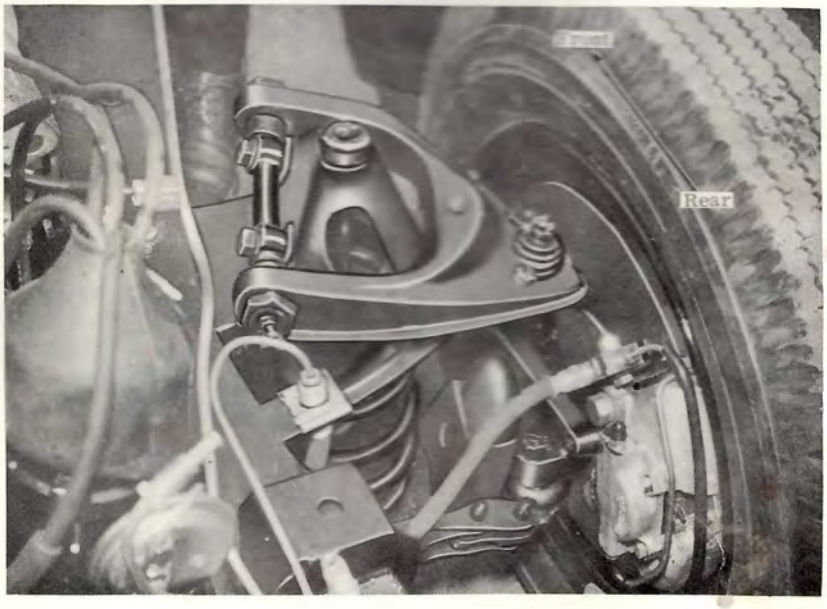
Front Tread

The tread of front wheel is changed from 1.213 mm to 1.270 mm.

Tires

The tires for front and rear wheel is altered from 5.60-13-4P to 5.6-14 4P.





FRONT AXLE

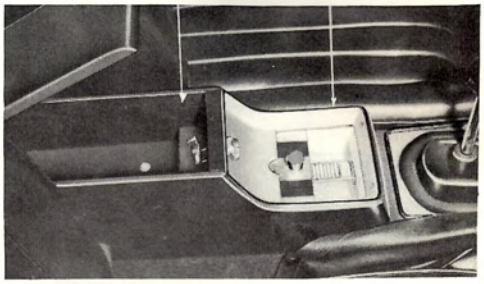
BODY

Radiator Grille

It brings about an elegant and refreshing feeling.

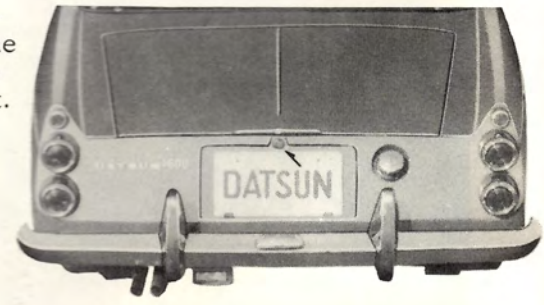
Glove Box & Ash Tray

The ash tray is newly designed front of the glove box on the floor.



Trunk Lid

The outer hinge of trunk lid is removed to behind of the trunk lid and the torsion bars are newly adopted on the back of trunk lid to lift up the lid by it.



Ventilator on the Cowl

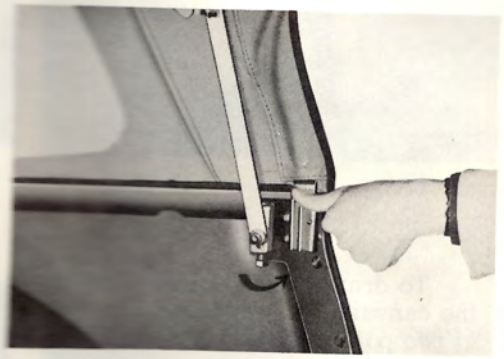
The out-let of rain for the ventirator on the cowl is enlarged and the drain pipe is newly fitted for the out-let.

IMPROVEMENT OF SOFT TOP

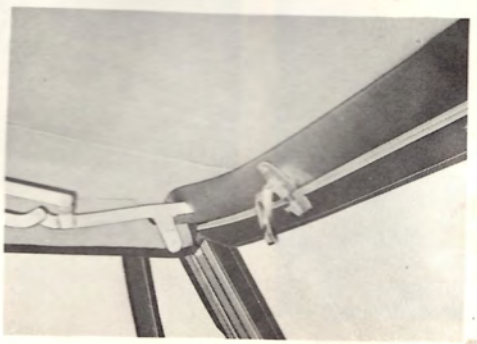
The soft top is improved to control easily with the light frames.

HOW TO CONTROL THE CANVASS TOP

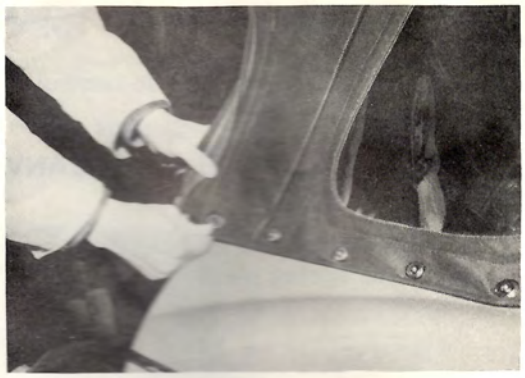
Disconnect the pushing plate from the spring plate.



Pull out of the catcher at the top of canvass.

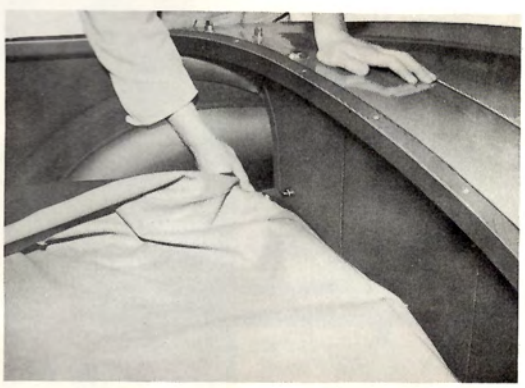


Take off the snap at the edge of canvass from front side by turns.



To draw out the solid frame of the canvass end where is inserted at two points.

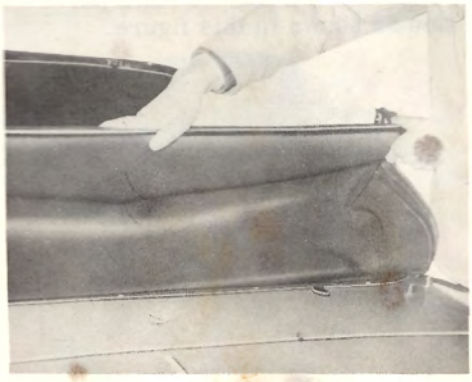
Before falling down the canvass top, spread the cover on the back of room and fix it at the three positions as shown.



Turn over sufficiently the edge of canvass on the top of frame as shown in this figure and fall into the back way.

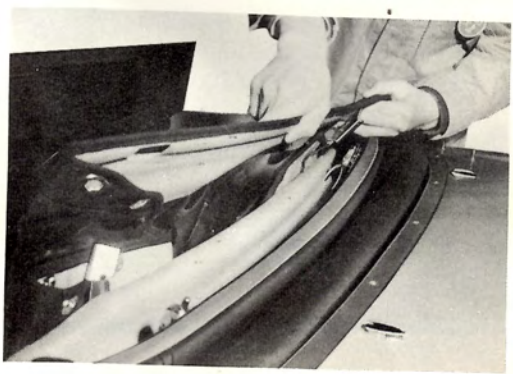
Press down the frame assembly of canvass top holding the corner of top as shown in the figure.

Press down the frame assembly of canvass top evenly.

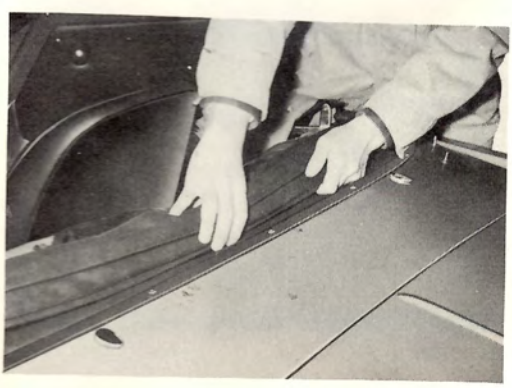


Then, arrange the edge of canvass preventing from harm for the windows by the pushing plates.

Roll up the rear canvass by holding the solid portion of it.

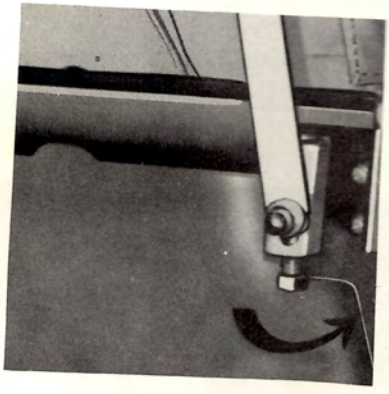


Insert the edge of solid portion as shown in this figure.



Put the rolled canvass in order to keep in good care and then insert the edge of canvass cover to the catcher as shown in this figure.

TO STRETCH THE CANVASS TOP



CYLINDER BLOCK OF THE R TYPE ENGINE

The cylinder block is structurally almost the same with the G type, but 2 mm higher in height. Diameter of the cylinder bore is enlarged from 80 mm to 87.2 mm and stroke is also altered from 74 mm to 66.8 mm. The water jacket wall is enlarged in widthness to promote the faculty of cooling for the water.

Cylinder Head & Gasket

The combustion chamber was increased in the volume to match the new piston and bore of the cylinder.

Part name	SP(L)311	SP(L)310	Interchange-ability
Cyl. head	11041 14602	11041 12200	X
Cyl. gasket	11044 14600	11044 32200	X
Thickness at free	1.4 ~ 1.5	1.1 ~ 1.2	X
Attached thickness	1.35	1.06	X

Crankshafts & Connecting Rods

The length of the above mentioned parts are altered in length but the dimension of the journal are not changed.

As to the bushing of connecting rod, the material is changed from F500 to F770.

Part name	SP(L)311	SP(L)310	Interchange-ability
Complete, crank shaft	12200 14600	12200 12200	X
Con. rod (less pal nut)	12100 14650	12100 32250	X
Bush (bearing)			
(STD)	12111 12210	12111 10400	X
(-25)	12117 12210	12117 10400	
Materials of bush	F770	F500	

Piston & Piston Rings

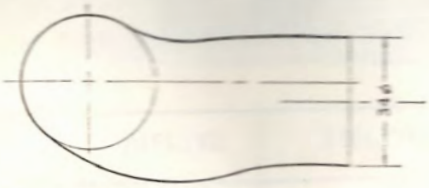
By the increasement of bore size, shape of strut is altered to meet high explosive pressure.

Part name	SP(L)311	SP(L)310	Interchange-ability
Set-piston with pin (STD)	12010 14611	12010 12206	X
"	12010 14613	12010 12201	X
Pin	12024 14600	12024 32200	X
Set piston ring	12033 14600	12033 32201	X
" +25	12035 14600	12035 32201	X

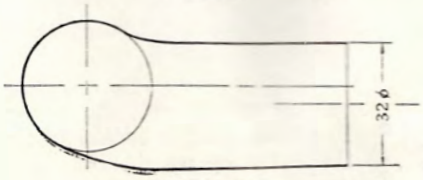
Intake Manifold

Accompanying with adoption of the cylinder block and the new cylinder head, shape of the flange of intake manifold is changed.

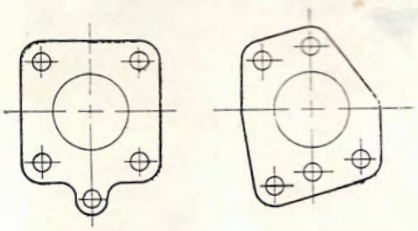
Part name	SP(L)311	SP(L)310	Interchange-ability
Ass'y manifold intake	14002 14600	14002 12200	X
Coller intake manifold	14034 14600	14034 32200	X
Gasket manifold to cyl. head	14035 14600	14035 71200	X



SP(L)311



SP(L)310



SP(L)311 SP310

The flange of intake manifold

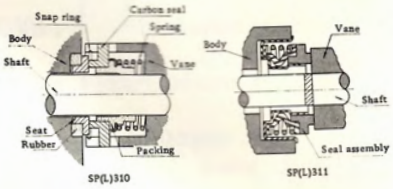
Flywheel

The pitch circle of fixing hole to fly wheel is altered

Part name	SP(L)311	SP(L)310	Interchange-ability
Ass'y fly wheel	12310 14600	12310 37000	X

Water Pump

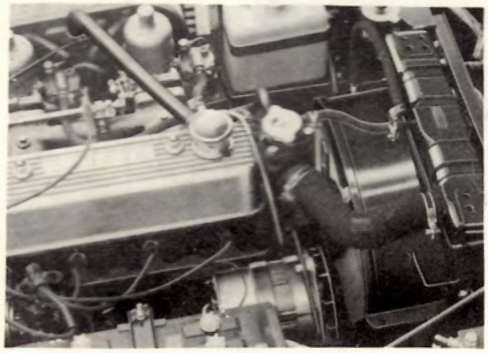
The diameter of bearing is increased from 26 mmø to 30 mmø so as to promote durability and the components of it are simplified as shown the figure.



Part name	SP(L)311	S)(L)310	Interchange-ability
Ass'y pump water	21010 12600	21010 38700	O

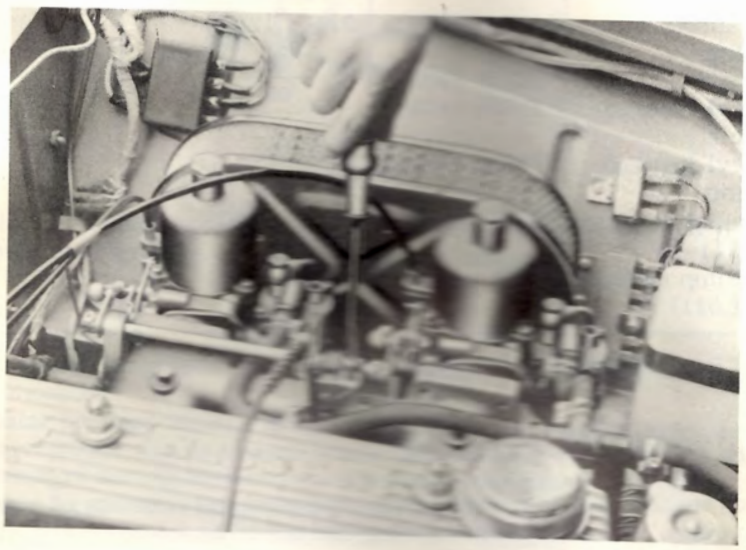
Water Out-let

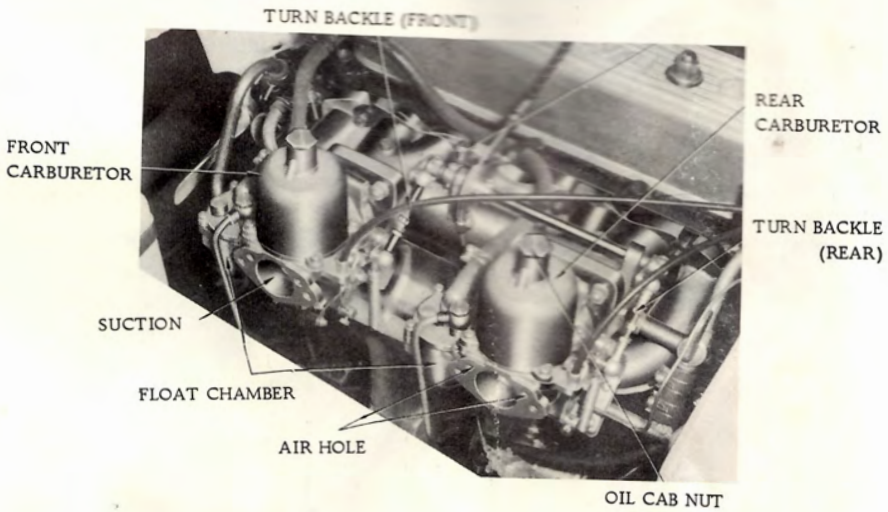
By the alteration of radiator, the filler cap is newly provided at a portion for out-let of water on the top of the cylinder head.



Carburetors

To simplify for the process of servicing, the shape of flange and the system of choke linkages has been improved. The method of fixing has been changed so as to fix at 45° inclined, former complicated links of choke has been abolished and provided independently dual wires for carburetors.





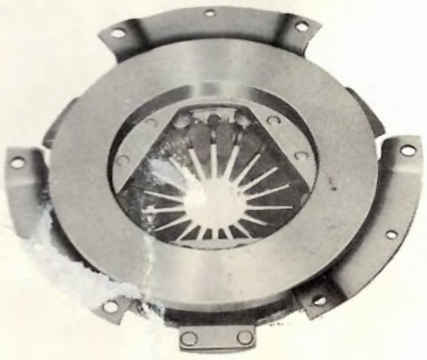
Radiator

Part name	SP(L)311	SP(L)310	Interchange-ability
Ass'y radiator	21400 14600	21400 12200	X
Ass'y-cap radiator (water out-let)	21430 14601	21430 30001	X
Ass'y-cap, radiator (reservoir)	*21430 16300	——	
Ass'y shroud radiator	21474 12900	21475 12201	○
Guide-air	*21476 14600	——	
Hose-cyl. head to radiator	*21501 14700	——	
Hose-cyl. head to radiator	*21501 16300	——	
Hose-pump radiator to (SP311-U)	21503 16301	21503 12201	
Hose-pump radiator to (SPL311)	21503 14701	21503 12201	

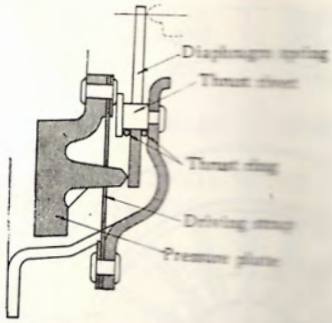
* mark = Newly adopted part.

CONSTRUCTURE OF CLUTCH

The clutch mechanism is hydraulically operated and consists of a pressure plate, a disc plate, and a diaphram spring and cover assembly.



The cover is bolted to the fly wheel and encloses a disc plate, pressure plate, and diaphragm spring.



The hydraulic system comprises a master cylinder coupled to a operating cylinder which operates the clutch release mechanism.

Clutch Cover

The disc plate comprises a splined hub connected to a flexible steel plate by a spring mounted.

The annular friction facings are riveted to the plate and damper springs are assembled around the hub to absorb power shocks and torsional vibration.

The diaphragm spring is interposed between two annular rings which provide fulcrum points for the diaphragm when it is fixed.

The rings and the diaphragm are located and secured to the cover by nine equally spaced rivets. Three clips that engage the outer edge of the diaphragm are bolted to the pressure plate. The bolts pass through three straps which are riveted to the inside of the cover, the straps prevent the diaphragm and the pressure plate from rotating in relation to the cover.

A release plate having an annular thrust is fitted to the outer face of the diaphragm and retained by a circlip. The release bearing is g hite d mounted in a cup which fits into the fork of the cluch withdrawal leve

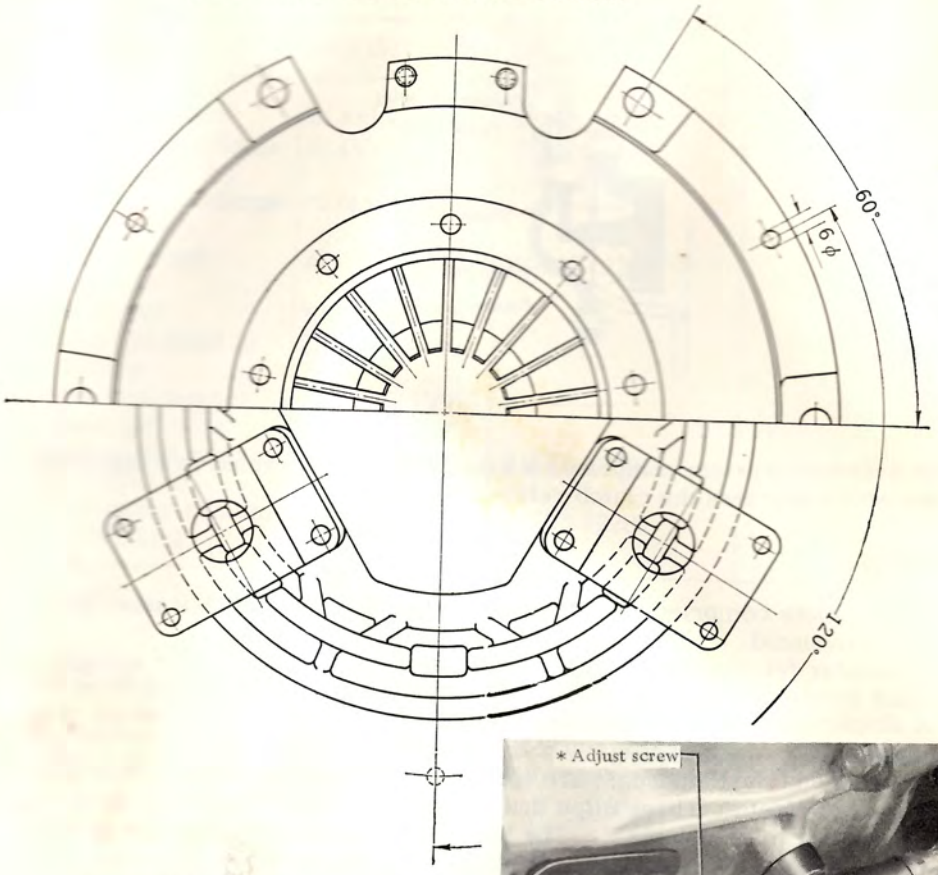
The cup is held in position by the spring retainers.

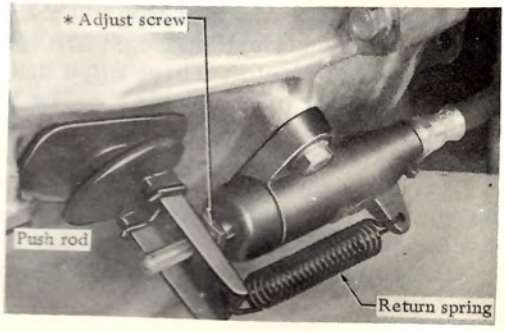
Removing

Loosen each of the bolts securing the clutch assembly the flywheel by slackening them a turn at a time until spring pre ure is rele

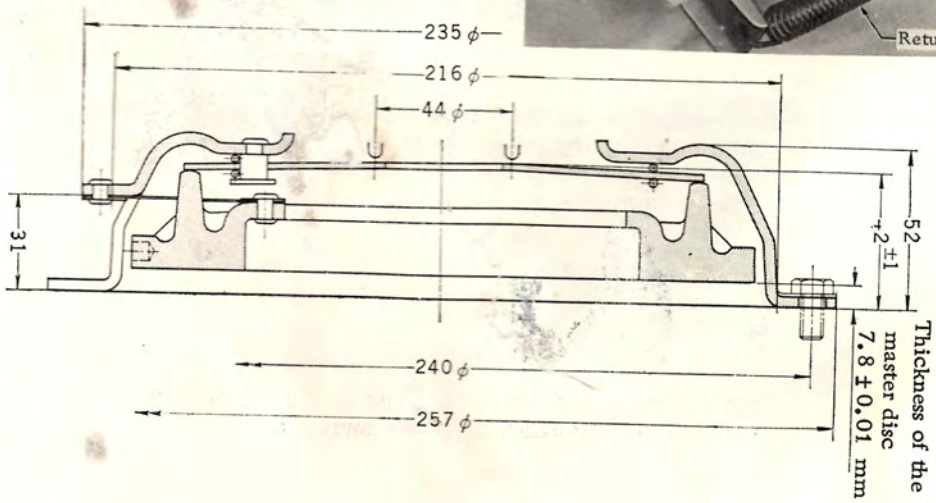
The clutch cover can now be disenga l from the d s on the flywheel and the assembly removed.

Sectional views of the clutch





Adjust and tig[illegible]here by push rod
* adjust screw before fitting the return spring



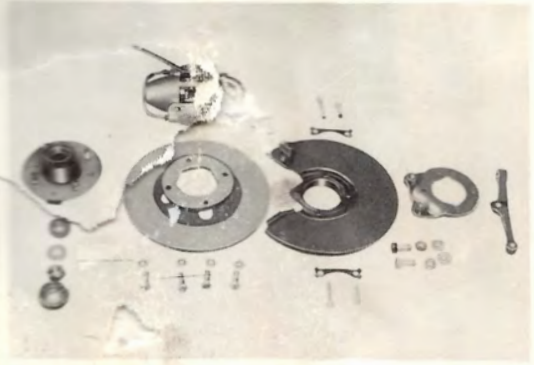
Thickness of the master disc
7.8 ± 0.01 mm

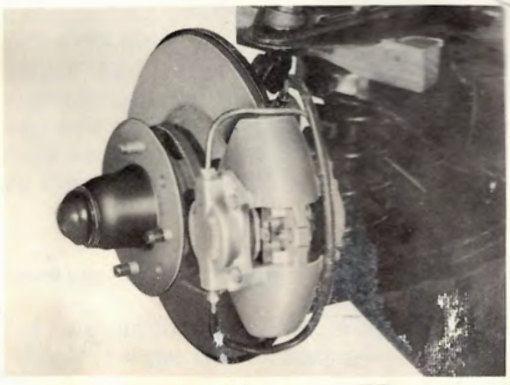
Part name	SP(L)311	SP(L)310	Interchange-ability
Ass'y-disc, clutch	30100 14600	30100 32207	X
Ass'y-cover, clutch	30210 14600	30210 37001	X
Sleeve bearing clutch	30501 14601	30501 32200	X
Bearing-clutch release	30502 14600	30502 32200	X
Spring-helper, sleeve	30514 14600	30513 26760	X
Lever-with drawal clutch	30531 14601	30531 32200	X
Spring-return, w/d lever	30533 14600	30533 32200	X
Spring-retainer, w/d lever	30534 14601	Newly adopted	
Pin-ball, w/d	30537 14600	30536 30002	X
Cover-dust, w/d lever	30542 14601	30534 30000	X
Nut-push, w/d lever	30547 14600	30547 32200	X
Ass'y-cylinder, clutch operating	30620 14600	30620 32200	X
Ass'y-tube, clutch master to hose	30650 14600	30650 10401	X

Mark "O" = Interchangeable parts
"X" = Not interchangeable

THE DISC BRAKE UNIT

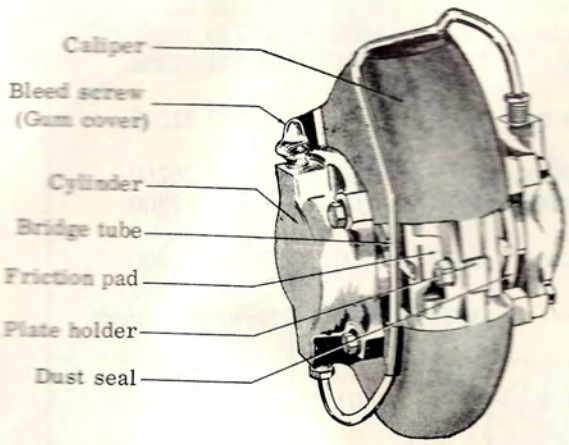
The brake unit consists of a calliper settled in two halves which are held together by the bolts.





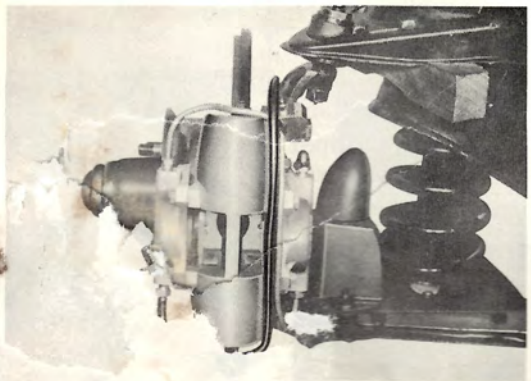
Each front wheel brake unit comprises a hub-mounted disc rotating with the wheel and a braking unit rigidly attached to the swivel axle.

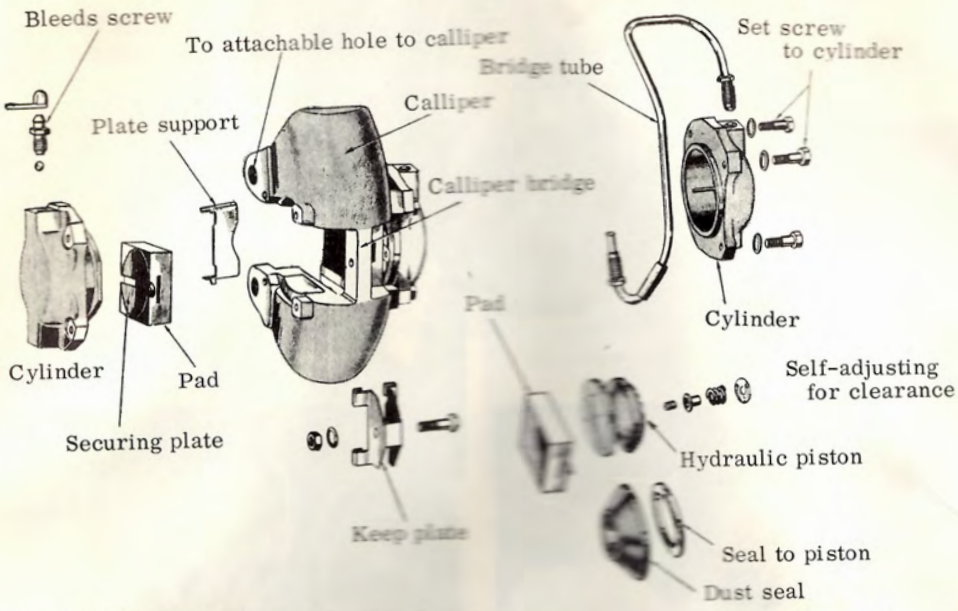
Components of the Calliper



A cylinder in each calliper half houses a self-adjusting hydraulic piston, a fluid seal, a dust seal, and a seal retainer.

Each piston is located on a guide post securely held in the back of each cylinder.

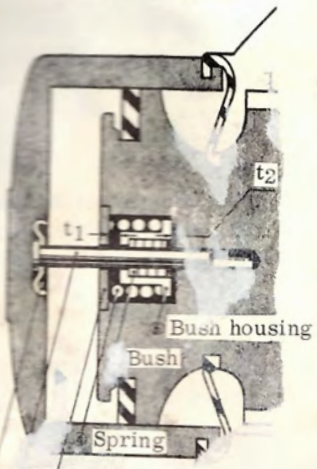




The friction pad assemblies are fitted adjacent to the pistons by the securing plate and are retained in position by a support plate and bolted with the keep plate.

Fluid pressure generated in the master cylinder enters mounting half of each calliper and passes through internal fluid ports into the rim half. An even pressure is therefore exerted on both hydraulic pistons, moving them along the cylinder bores until the friction pad assemblies contact the disc.

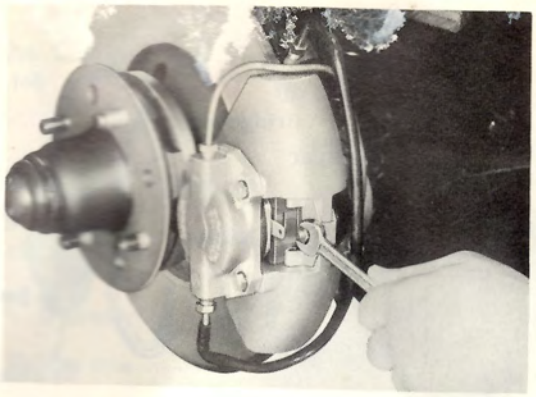
In order to compensate for wear of the pads the pistons move progressively for wear of the pads the pistons move progressively along each corresponding guide post, and the friction stops, which grip the posts, provide a positive datum to which the pistons return. The movement of the piston deflects the fluid seal in the cylinder bore, and on releasing the pressure the piston moves back into its original position thus providing the required clearance for the friction pads.

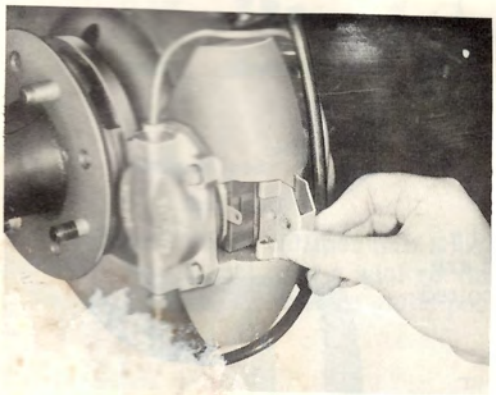


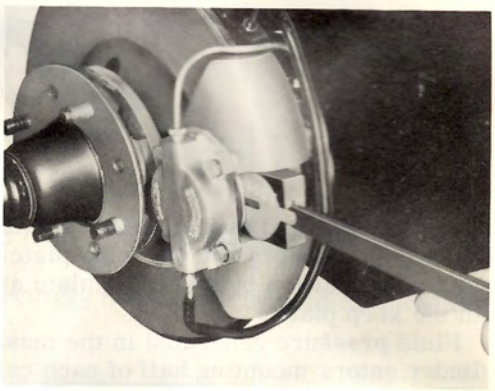
hydraulic

Removing Disc Friction Pads

Apply the hand brake jack up the car and remove the road wheel.
Unscrew the bolt of keep plate, take out the keep plate from the calliper bridge.
Withdraw the brake friction pads out of the calliper with a tool by a hole of it.







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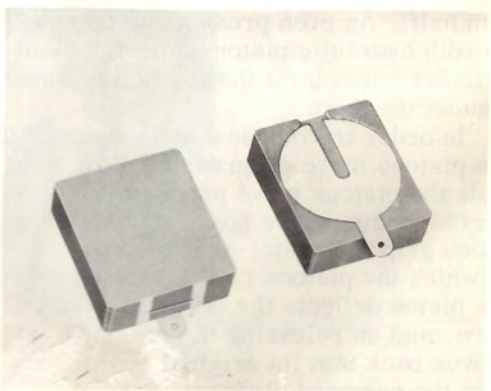
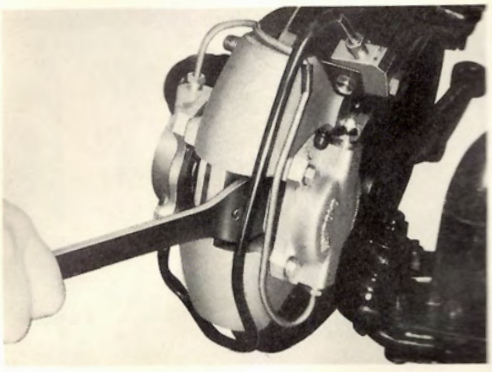
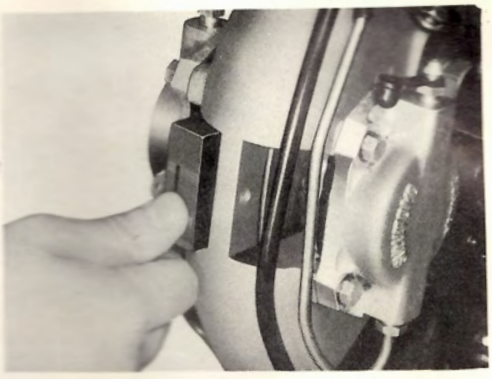


Before fitting new friction pads the calliper pistons, which will be at their maximum adjustment must be returned to the base of the bores, using a suitable tool





Insert the friction pads.

Note: The level of the fluid in the master cylinder supply tank will rise during this operation and it may be necessary to siphon off any surplus fluid to prevent it from overflowing.