GENERAL DATA

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GENERAL DATA

GENERAL DIMENSIONS

Wheelbase—Alpine	7 ft. 2 in.	(218·4 cm.)
—Rapier	8 ft.	(243·8 cm.)
Track (front)—Alpine (disc wheels)	4 ft. 3 in.	(129·5 cm.)
—Alpine (wire wheels)	4 ft. 3¼ in.	(130·2 cm.)
—Alpine IV (disc wheels)	4 ft. 3¾ in.	(131·4 cm.)
—Alpine IV (wire wheels)	4 ft. 4 in.	(132·0 cm.)
—Rapier	4 ft. 1¾ in.	(126·3 cm.)
—Rapier IV	4 ft. 3¾ in.	(131·4 cm.)
(Rear)—Alpine (disc wheels)	4 ft. 0½ in.	(123·2 cm.)
—Alpine (wire wheels)	4 ft. 2½ in.	(128·3 cm.)
—Rapier	4 ft. 0½ in.	(123·2 cm.)
Overall length (with overriders)—Alpine	12 ft. 11¼ in.	(394·4 cm.)
—Rapier	13 ft. 6½ in.	(412·7 cm.)
—Rapier IV	13 ft. 7in.	(414 cm.)
Overall height—Alpine	4 ft. 3½ in.	(130·8 cm.)
—Rapier (saloon)	4 ft. 10½ in.	(148·6 cm.)
—Rapier (convertible)	4 ft. 10 in.	(147·3 cm.)
—Rapier IV	4 ft. 9¼ in.	(145·4 cm.)
Overall width—Alpine	5 ft. 0½ in.	(153·7 cm.)
—Rapier	5 ft. 1 in.	(155 cm.)
Ground clearance (laden)—Alpine	4¼ in.	(10·8 cm.)
—Rapier (saloon)	6in.	(15·2 cm.)
—Rapier (convertible)	5¾ in.	(14·6 cm.)
Turning circle—Alpine	34 ft.	(10·3 m.)
—Rapier	36 ft.	(10·9 m.)

Weight (approx.) with fuel and water	—Alpine I & II (soft top)	2184 lbs. (991 kg.)	Add 20 lbs. (9 kg.) to these figures if an overdrive is fitted
	—Alpine I & II (hardtop)	2218 lbs. (1006 kg.)	
	—Alpine III (soft top)	2223 lbs. (1008 kg.)	
	—Alpine III (GT)	2278 lbs. (1033 kg.)	
	—Rapier (saloon)	2352 lbs. (1067 kg.)	
	—Rapier (convertible)	2388 lbs. (1083 kg.)	
	—Rapier IV	2323 lbs. (1054 kg.)	
	—Alpine IV (soft top	2180 lbs. (989 kg.)	
	—Alpine IV (GT)	2230 lbs. (1012 kg.)	
Towing capacity (MAX)	—Rapier III	15 cwt. (762 kg.)	
	—Rapier IIIA, IV	17 cwt. (863 kg.)	

CAPACITIES

Engine—including filter	8 pints	(9·6 U.S. pints;	4·5 litres)
Gearbox	2¾ pints	(3·3 U.S. pints;	1·56 litres)
Gearbox and overdrive (if fitted)	4 pints	(4·8 U.S. pints;	2·25 litres)
Rear axle	1¾ pints	(2·1 U.S. pints;	1·0 litres)
Cooling system (with heater)—Alpine I & II	15 pints	(18 U.S. pints;	8·5 litres)
—Alpine III onwards	12½ pints	(15 U.S. pints;	7·1 litres)
—Rapier	13¼ pints	(15·9 U.S. pints;	7·57 litres)
Fuel tank—Alpine I & II	9 gallons	(10·8 U.S. galls;	40·9 litres)
—Alpine III onwards	11¼ galls.	(13·5 U.S. galls;	51 litres)
—Rapier	10 galls.	(12 U.S. galls;	45·5 litres)

ENGINE—GENERAL

No. of cylinders 4
Bore size (nominal) ... ... 3·11 in. (79 mm.) Ser. I Alpine, Series III Rapier
... ... 3·21 in. (81·5 mm.) Ser. II, III, IV Alpine, Series IIIA, IV Rapier.

"A" *grade is standard, but subject to grading as indicated below. Individual bores in any production engine may conform to any of these grades (i.e., bores in any one cylinder block may not conform to one grade).*
Grade (*stamped on two machined bosses at each end of the cylinder block just below cylinder head gasket*).

SERIES I ALPINE, SERIES III RAPIER			SERIES II, III, IV ALPINE. SERIES IIIA, IV RAPIER		
A.	3·1102 in./3·1106 in.	(78·999/79·009 mm)	A.	3·2102 in./3·2106 in.	(81·539/81·549 mm)
B.	3·1106 in./3·1110 in.	(79·009/79·019 mm)	B.	3·2106 in./3·2110 in.	(81·549/81·559 mm)
C.	3·1110 in./3·1114 in.	(79·019/79·029 mm)	C.	3·2110 in./3·2114 in.	(81·559/81·569 mm)
D.	3·1114 in./3·1118 in.	(79·029/79·040 mm)	D.	3·2114 in./3·2118 in.	(81·569/81·580 mm)

Stroke ... ... 3·00 in. (76·2 mm).
Capacity (Series I Alpine, Series III Rapier) ... 91·2 cu. ins. (1494 c.c.)
Capacity (Series II, III, IV Alpine, Series IIIA, IV Rapier) 97·1 cu. ins. (1592 c.c.)
Compression: ratio—Series I Alpine Series III Rapier ... ... 9·2:1
—Series II, III Alpine, Series IIIA, IV Rapier ... 9·1:1 (8·4:1 is available in certain export territories)
pressure—Series I Alpine, Series III Rapier ... ... 170/180 lbs. per sq. in. (average) (11·9/12·6 kg. cm.²)
—Series II, III, IV Alpine, Series IIIA, IV Rapier (9·1:1) 185/195 lbs. sq. in. (average) (13/13·7 kg. cm.²)
—Series II, III, IV Alpine, Series IIIA, IV Rapier (8·4:1) 160/170 lbs. sq. in. (average) (11·2/11·9 kg. cm.²)
Identification ... ... Letter in engine number on cylinder back—H=High; L=Low.

PERFORMANCE

	B.H.P. gross	*B.H.P. nett*	*Developed at R.P.M.*	*Max. Torque Lbs. ft.*	*Max. Torque Kg.m.*	*Max. B.M.E.P. Lbs. sq. in.*	*Max. B.M.E.P. kg. cm²*	*Developed at R.P.M.*
Alpine I	83·5	78	5300	89·5	12·4	148	10.4	3400/3800
Alpine II	85·5	80	5000	94	12·9	146	10·3	3800
Alpine III (Std) Zenith	87·7	82	5200	93	12·8	144	10·1	3600
Alpine III (GT) Zenith	80·2	75	5000	92	12·7	143	10·0	3600
Alpine III (Std) Solex	86	80·5	5000	93·4	12·9	145	10·1	3500
Alpine III (GT) Solex	82·5	77	5000	91	12·5	143	10·0	3500
Rapier III	78	73	5400	83	11·5	137	9·6	3500
Rapier IIIA	80	75	5100	88·2	12·2	137	9·6	3900
Rapier IV	84	78·5	5000	91	12·5	141	9·9	3500

ROAD SPEED/ENGINE SPEED

Road speed at 1,000 engine r.p.m.

	O/D TOP	TOP	O/D THIRD	THIRD	SECOND	FIRST	REVERSE
Alpine (std) 3.89 :1 axle ratio	—	17.3mph (27.8kph)	—	12.4mph (19.7kph)	8.0mph (12.8kph)	5.1mph (8.1kph)	4.0mph (6.4kph)
Alpine (O/d) 4.22 :1 axle ratio	19.8mph (31.8kph)	15.9mph (25.5kph)	14.2mph (22.8kph)	11.4mph (18.3kph)	7.4mph (11.9kph)	4.8mph (7.7kph)	3.7mph (5.9kph)

Alpine III (all models) 3.89:1 axle ratio	21.9mph (35.2kph)	17.6mph (28.3kph)	17.8mph (28.6kph)	14.3mph (23.0kph)	9.3mph (14.9kph)	5.9mph (9.5kph)	4.7mph (7.5kph)
Rapier (std) 4.55 : 1 axle ratio	— —	16.0mph (25.7kph)	— —	11.5mph (18.5kph)	7.5mph (12.0kph)	4.8mph (7.6kph)	3.8mph (6.0kph)
Rapier (std) 4.22 : 1 axle ratio	— —	17.3mph (27.4kph)	— —	12.4mph (19.9kph)	8.1mph (13.0kph)	5.2mph (8.3kph)	4.1mph (6.4kph)
Rapier (O/d) 4.78 : 1 axle ratio	19.1mph (30.5kph)	15.3mph (24.5kph)	13.7mph (22.0kph)	11.0mph (17.7kph)	7.1mph (11.3kph)	4.6mph (7.3kph)	3.6mph (5.7kph)
Rapier (O/d) 4.86 : 1 axle ratio	18.7mph (29.0kph)	15.0mph (24.1kph)	13.5mph (21.7kph)	10.8mph (17.3kph)	7.0mph (11.2kph)	4.5mph (7.2kph)	3.5mph (5.6kph)
Rapier (O/d) 4.44 : 1 axle ratio	20.4mph (32.8kph)	16.3mph (26.2kph)	14.6mph (23.4kph)	11.7mph (18.8kph)	7.6mph (12.2kph)	4.9mph (7.8kph)	3.9mph (6.2kph)
Rapier, Alpine IV (std)	—	17.6mph (28.3kph)	—	12.6mph (20.3kph)	8.2mph (13.2kph)	5.3mph (8.5kph)	4.2mph (6.7kph)
Rapier, Alpine IV (O/d)	20.2mph (32.5kph)	16.2mph (26.0kph)	14.5mph (23.3kph)	11.6mph (18.6kph)	6.3mph (10.1kph)	4.8mph (7.7kph)	3.2mph (5.1kph)

CYLINDER BLOCK

Material	Cast Iron	
Max. oversize with or without liners	0·040 in.	(1·02 mm.)
Linering size (Series I Alpine, Series III Rapier) ...	3·254 in. /3·255 in.	(82·65/82·67 mm.)
Linering size (Series II, III, IV Alpine, Series IIIA, IV Rapier)	3·354 in. /3·355 in.	(85·19/85·21 mm.)
Interference fit	0·002 in. /0·004 in.	(0·051/0·102 mm.)
Dia. of main bearing bore (without shells)	2·3947 in. /2·3955 in.	(60·82/60·84 mm.)

CYLINDER HEAD (for torque loading figures see table at end of section)

Material	Aluminium	
Size of cylinder head studs	$\frac{3}{8}$ in. U.N.F.	
Valve guide fit—see under "Valves".		
Gasket—Type	Pressing (Steel-Copper-Asbestos)	
Thickness	·030 in. (·76 mm.) Compressed	

VALVES

Position and operation	Overhead, push rods and rockers	
Head diameter—Inlet	1·436 in. /1·432 in.	(36·47/36·37 mm.)
—Inlet (from chassis Nos. B.3062665 and B.9117425)	1·475 in. /1·471 in.	(37·45/37·35 mm.)
Exhaust	1·176 in. /1·172 in.	(29·87/29·77 mm.)
Angle of seat in cylinder head—Inlet and Exhaust	45°	
Angle of valve face—Inlet and Exhaust	45°	
Valve stem diameter—Inlet	·3110 in. /·3105 in.	(7·90/7·89 mm.)
Exhaust	·3100 in. /·3095 in.	(7·87/7·86 mm.)
Valve stem clearance in guide—Inlet	·0010 in. /·0025 in.	(·025/·064 mm.)
Exhaust	·0020 in. /·0035 in.	(0·51/·089 mm.)

Length of valves (inlet and exhaust) ...	4·66 in.	(118·36 mm.)
Type of springs	Dual	
Spring retention	Cup and split cotters	
Valve spring—free length—Inner	1·93 in.	(4·9 cms.)
—Outer ...	2·23 in.	(5·66 cms.)
Valve spring—fitted length—Inner ...	1·43 in.	(3·63 cms.)
—Outer ...	1·55 in.	(3·93 cms.)
Valve spring—load fitted—Inner	35·9 lbs.	(16·32 kg.)
—Outer ...	70·8 lbs.	(32·20 kg.)
Guides—Inlet ... 2·0 in. (50·7 mm.)	long X ·5640/·5636 in.	(14·3/14·27 mm.) O/dia.
—Exhaust ... 2·15 in. (54·6 mm.)	long X ·5640/·5636 in.	(14·3/14·27 mm.) O/dia.
—Interference fit ·0025/·0045 in. (·063/·114 mm.)		

The valve guide protrusion from the valve spring pocket face is controlled by a circlip that fits in a groove in the outside of the valve guide. This circlip rests on the cylinder head recess below the valve spring pocket.

Rocker clearance (Engine hot)—Inlet ...	·012 in.	(·30 mm.)
Exhaust	·014 in.	(·35 mm.)
Timing—inlet opens	14° B.T.D.C.	
—inlet closes	52° A.B.D.C.	
—exhaust opens	56° B.B.D.C.	
—exhaust closes	10° A.T.D.C.	
Port diameter—Inlet	1·31 in.	(3·33 cms.)
Exhaust	1·06 in.	(2·69 cms.)

CAMSHAFT

No. of bearings	3	
Type of bearings (front, centre and rear) ...	Steel back white metal	
End thrust	Location plate at front	
Drive	Duplex chain	
Lubrication	Oil jet	
Chain tensioner	Spring blade	
End float	·002 in. /·004 in.	(·05/·10 mm.)
Journal diameters (front, centre and rear)	1·7477 in. /1·7470 in.	(44·392/44·374 mm.)

CRANKSHAFT (for torque loading figures see table at end of section)

Balance	Integrally forged counterweights	
No. of main bearings	3	
Type of main bearings	Steel shell white metal lined	
Dia. of main journals	2·2495 in. /2·2490 in.	(57·137/57·125 mm.)
Type of crankpin bearings	Steel shell with copper-lead bearing, indium lined	
Dia. of crankpin bearings (Series I Alpine, Series III Rapier)	1·8760 in. /1·8755 in.	(47·650/47·638 mm.)
Dia. of crankpin bearings (Alpine II, Rapier IIIA onwards)	2·0010 in. /2·0005 in.	(50·825/50·812 mm.)

Lubrication	Pressure	
End thrust	Thrust washer on centre bearing	
End float	·002 in. / ·004 in.	(·05/·10 mm.)
Main bearing running clearance	·0010 in. / ·0025 in. (on dia.)	(·025/·063 mm.)
Max. undersize for re-grinding	·06 in.	(1·52 mm.)
Size of main bearing bolts	$\frac{7}{16}$ in.	(11·1 mm.)

CONNECTING ROD (for torque loading figures see table at end of section)

Material	Steel forging	
Type	'H' section	
Distance between centres	5·751 in./5·749 in.	(146·3/146·25 mm.)
Small end bearings	Bushed	
Big end bearings	Steel shell with copper-lead bearing, indium coated	
Big end bore (without bearings)	2·0215 in./2·0210 in.	(51·34/51·33 mm.) Series I Alpine, Series III Rapier
Big end bore (without bearings)	2·1465 in./2·1460 in.	/54·52/54·50 mm) Series II, III, IV Alpine, Series IIIA, IV Rapier

Small end bore size (bushed), graded:

	SERIES I ALPINE, SERIES III RAPIER		SERIES II, III, IV ALPINE, SERIES IIIA, IV RAPIER	
High grade (painted white)	·8753 in. / ·8752 in.	(22·233/22·230 mm.)	·9379/.9377 in.	(23·822/23·820 mm)
Medium grade (painted green)	·8752 in. / ·8751 in.	(22·230/22·228 mm.)	·9378/·9377 in.	(23·820/23·817 mm)
Low grade (painted yellow)	·8751 in. / ·8750 in.	(22·228/22·225 mm.)	·9377/.9376 in.	(23·817/23·815 mm)

Big end, end float	·0012 in. / ·0075 in.	(·030/·190 mm.)
Big end bearing running clearance	·0015 in. / ·002 in.	(·038/·051 mm.)
Size of big end bolts	$\frac{5}{16}$ in. U.N.F. Series I Alpine, Series III Rapier $\frac{11}{32}$ in. U.N.F. Series II, III, IV Alpine, Series IIIA, IV Rapier	
Lubrication	Squirt hole in big end	

GUDGEON PIN

Type	Tubular fully floating	
Diameter		
High grade (marked with white paint)	·8752 in. / ·8751 in. (22·230/22·228 mm.)	Series I Alpine, Series III Rapier
Medium grade (marked with green paint)	·8751 in. / ·8750 in. (22·228/22·225 mm.)	Series I Alpine, Series III Rapier
Low grade (marked with yellow paint)	·8750 in. / ·8749 in. (22·225/22·223 mm.)	Series I Alpine, Series III Rapier
High grade (marked with white paint)	·9377 in. / ·9376 in. (23·817/23·815 mm.)	Series II, III, IV Alpine, Series IIIA, IV Rapier
Medium grade (marked with green paint)	·9376 in. / ·9375 in. (23·815/23·812 mm.)	Series II, III, IV Alpine, Series IIIA, IV Rapier
Low grade (marked with yellow paint)	·9375 in. / ·9374 in. (23·812/23·810 mm.)	Series II, III, IV Alpine, Series IIIA, IV Rapier
Oversize available	·003 in./·076 mm.	
Method of location	Circlips	

PISTON

Type	Slotted
Material	Aluminium alloy tin plated.
Form	Taper and oval turned

No. of rings—Compression	Two	
—Scraper	One	
Compression—Height	1·850 in. /1·845 in.	(48·99/46·86 mm.)
—Identification (mark on crown)	High { M84 / R92 } or HC	
	Low { M78 / R84 } or LC	
Piston length	3·25 in. (85·57 mm.)	
Max. permissible weight variation between any two pistons in a set	2 Drams (3·55 grms.)	

Grade

SERIES I ALPINE, SERIES III RAPIER	SERIES II, III ALPINE, SERIES IIIA, IV RAPIER	SERIES IV ALPINE
A. 3·1088 /3·1092 in. (78·963/78·974mm.)	A. 3·2088 /3·2092 in. (81·503/81·514 mm.)	A. 3·2092 /3·2096 in. (81·514/81·524 mm.)
B. 3·1092 /3·1096 in. (78·974/78·984 mm.)	B. 3·2092 /3·2096 in. (81·514/81·524 mm.)	B. 3·2096 /3·2100 in. (81·524/81.534 mm.)
C. 3·1096 /3·1100 in. (78·984/78·994 mm.)	C. 3·2096 /3·2100 in. (81·524/81·534 mm.)	C. 3·2100 /3·2104 in. (81·534/81·544 mm.)
D. 3·1100 /3·1104 in. (78·994/79·004 mm.)	D. 3.2100 /3.2104 in. (81·534/81·544 mm.)	D. 3.2104 /3·2108 in. (81·544/81·554 mm.)
E. 3·1104 /3·1108 in. (79·004/79·014 mm.) *(For Service use)*	E. 3·2104 /3·2108 in. (81·544/81·554 mm.) *(For Service use)*	E. 3·2108 /3·2112 in. (81.554/81·564 mm.) *(For Service use)*
F. 3·1108 /3·1112 in. (79·014/79·024 mm.) *(For Service use)*		

Ring clearance (between ring and groove) ...	·0015 in. /·0035 in.	(·038/·088 mm.)
Ring gap—Top ring (Series I Alpine, Series III Rapier)	·012 in. /·020 in.	(·30/·51 mm.)
(Series II, III, IV Alpine, Series IIIA, IV Rapier)	.024 in. /·032 in.	(·1/·816 mm.)
—Second and third ring	·009 in. /·014 in.	(·23/·36 mm.)

LUBRICATION SYSTEM

Type of pump	Eccentric lobe type	
Types of intake	Gauze filter on pump	
Pump drive	Skew gear on camshaft	
Normal pressure	55/65 lbs. sq. in.	(3·8/4·5 kg./cm.²)
...	(Hot) at 50 m.p.h.	(80 k.p.h.)
Filter—Make	Fram or Tecalemit	
—Type	Full flow	
—Maker's element No.	Fram FC.41721.	Tecalemit FP.3305/101
—Model	Fram FF.42378.	Tecalemit PSK.1663
—Filter (cars with Solex carburettor) ...	Full-flow throw away type	

FUEL PUMP

Make and type	A.C. No. E/FP.1880B mechanical	
Operation	Lever by eccentric on camshaft	
Pressure	1½–2½ lbs./sq. in.	(0·11–0·18 kg./cm.²)

CARBURETTOR—Alpine I-III (early)

	Series I ★With gauze type air filter	Series II With gauze type air filter	Series II With dry element type air cleaner	Series III (Std.) With gauze type air filter	Series III (GT) With dry element type air cleaner
Make	2×Zenith	2×Zenith	2×Zenith	2×Zenith	2×Zenith
Type	36W.I.P.2	36WIP2 or 36WIP3	36WIP2 or 36WIP3	36WIP3	36WIA3

Settings (Sea level to 4,000 ft. [1219 m.])

Choke	28 mm.	30 mm.	30 mm.	28 mm.	28 mm.	29 mm.	29 mm.
Main discharge Jet	016289	016289	016289	016219	016219	016289SE	016289
Main jet	130	142	142	112	112	127	105
By-pass jet ...	Blank	Blank	Blank	57	57	Blank	55
High speed bleed	100	100	100	60	60	100	120
Slow running ...	50	50	45	45	45	45	45
Progression holes	2×0·8	2×0·8	2×1·0	2×0·8	1×1·1, 1×1·0	1×1·0, 2×1·1	1×0·8, 1×1·1
Pump jet ...	50	†50 see below	70	70	70	90	90

CARBURETTOR TYPE NUMBER IS STAMPED ABOVE FLOAT CHAMBER

★ Note: (Series I only) For export territories where dust is prevalent a dry element type air cleaner is available. This should be used only with 120 main jet, 180 high speed bleed and a No. 77 by-pass jet.

† 70 Accelerator pump jet is used if 7 mm. radius pump cam is fitted. Where this cam and jet is used, there is a 50 leak hole in the accelerator pump suction valve.

Altitude settings (differences above 4,000 ft. [1219 m])

	4000 ft. (1219 m.) to 7500 ft. (2288 m.)	7500 ft. (2288 m.) to 10000 ft. (3048 m.)	10000 ft. (3048 m.) to 12500 ft. (3812 m.)	12500 ft. (3812 m.) to 15000 ft. (4576 m.)	From 15000 ft. (4576 m.)
Main jet—Series I	125	120	117	115	112
—Series I (Export)	112	110	107	105	102
—Series II (gauze filter)	135	132	130	127	125
—Series II (dry element)	107	105	102	100	97
—Series III (Std.) (gauze filter)	120	117	115	112	110
—Series III (GT) (dry element)	100	98	95	93	90
By-pass jet—Series I (Export)	No change	72	72	70	67
—Series II (dry element)	No change	52	52	50	50
—Series III (GT) (dry element)	No change	50	50	48	48

CARBURETTOR—Alpine III (where fitted), Alpine IV, Rapier IV

Make ... ... Solex compound (twin choke)
Type ... ... 32 PAIA

Settings

	Alpine III, Rapier IV				Alpine IV	
	Primary throttle		*Secondary throttle*		*Primary throttle*	*Secondary throttle*
	STD.	GT. & RAP.	STD.	GT. & RAP.	STD. & GT.	STD. & GT.
Choke	24mm	24mm	26mm	26mm	24mm	26mm
Main jet	120	117·5	155	130	120	155
Air correction	210	190	210	190	210	210
Pilot jet	60	60	60	60	60	60
Pilot air bleed	Nil	1·0	Nil	·8	1·0	1·0
Pump jet...	70	70	Nil	Nil	70	Nil

Float chamber—Pump back bleed	50	Alpine III, Rapier IV
Needle valve	2·5 x 1·0mm	Alpine III, Rapier IV
—Pump back bleed...	50	Alpine IV
—Needle valve	2·5 x 1·0mm	Alpine IV

CARBURETTOR—Rapier III-IIIA

Make	2 X Zenith	
Type	36-W.I.A. 2 or 36 WIA-3	36 WIA-3

Settings (Sea level to 4000 ft. [1219 m.])	*Series* III	*Series* IIIA
Venturi	28 mm.	29 mm
Main discharge jet	016289	016289
Main jet	115	117
By-pass jet	65	65
High-speed bleed	180	180
Slow running	50 (36WIA-2)45 (36WIA-3)	45
Progression holes	2 X 0·8	2 X 1·0
Pump jet...	50 or 70 *	70
Air cleaner and silencer	Oil bath (twin horn)	Oil bath (twin horn)†

NOTE: *when a 70 pump jet is used there is a 50 leak hole in the accelerator pump valve suction valve.*

*70 if 7 mm. radius accelerator pump cam is used or if WIA-3 carburettor is fitted.
†Later models are fitted with a dry (paper element) air clearer

Altitude settings (differences above 4,000 ft. [1219 m.])

	4000 ft. (1219 m.) to 7500 ft. (2288 m.)	7500 ft. (2288 m.) to 10000 ft. (3048 m.)	10000 ft. (3048 m.) to 12500 ft. (3812 m.)	12500 ft. (3812 m.) to 15000 ft. (4576 m.)	From 15000 ft. (4576 m.)
Main jet—Series III	110	107	105	102	100
—Series IIIA	112	110	107	105	102
By-pass jet—Series III	62	60	57	55	55
—Series IIIA	62	60	57	55	52

COOLING SYSTEM

Type of system	Pump and fan
Type of pump	Centrifugal
Fan—No. of blades (Alpine)	Six
—No. of blades (Rapier)	Four
—No. of blades (Alpine III only)	Four
—Diameter (Alpine)	12·70 in. (32·3 cm.)
—Diameter (Rapier)	14·5 in. (36·8 cm.)
—Diameter (Alpine III only)	12·5 in. (31·7 cm.)
Drive of pump and fan	"V" belt from crankshaft
Cooling system control	Thermostat
Radiator relief valve	A.C. (in filler cap)

Relief valve operating pressure—Alpine I,II ...	7 lbs. in.^{2}	(·49 kg./cm.^{2})
—Alpine III,IV ...	9 lbs. in.^{2}	(·63 kg./cm.^{2})
—Rapier III,IIIA ...	4 lbs. in.^{2}	(·28 kg./cm.^{2})
—Rapier IV ...	9 lbs. in.^{2}	(·63 kg./cm.^{2})
Fan belt—depth	·31 in.	(7·9 mm.)
—Width at outside	·375 in.	(9·3 mm.)
—Angle of "V"	40°	
—Length (outside circumference) ...	37·25 in.	(946·2 mm.)
Thermostat (bellows type) —Opens at (Alpine)	162°F	(72°C)
—Opens at (Rapier)	176°F	(79°C)
—Fully open at (Alpine)	185°F	(85°C)
—Fully open at (Rapier)	199°F	(92°C)
Thermostat (wax type)—Opens at (All models)	183°F	(84°C)
—Fully open at (All models)	200°F	(93°C)

IGNITION SYSTEM

Type of system	Coil and distributor
Firing order	1 : 3 : 4 : 2
Ignition control	Fully automatic—Vacuum and centrifugal
*Ignition timing—full retard	5°-7° (6·5-9mm) B.T.D.C.
	(Low comp.: 8°—10° (10·3-12·8mm) B.T.D.C.)
*Ignition timing—full retard (from chassis Nos. B.3062930 and B.9118359)...	9°—11° (11·5-14mm) B.T.D.C. (all ratios)
*Ignition timing—full retard (Rapier IV)	7°—9° (9-11·5mm) B.T.D.C.
Distributor—Maker's type...	Lucas DM.2.P.4 or Lucas 25.D.4
—Maker's despatch No.	40683B (Alpine I Rapier III)
—Maker's despatch No.	40766A or 40799 (Alpine II Rapier IIIA)
—Maker's despatch No.	40924B (Alpine III)
—Maker's despatch No.	40942A (Alpine IV, Rapier IV)
—Drive	Skewgear on camshaft and offset coupling
—Direction of drive	Anti-clockwise (viewed from above)
—Firing angles	0°, 90°, 180°, 270° ± 1°
—Contacts closed period	60° ± 3°
—Contact breaker gap	·015 in. (·38mm.)

	R.P.M.	*Distributor Degrees*
Ignition centrifugal advance	600	1½—4
(with distributor decelerating on test rig)	1400	8½—10
Despatch No's:- 40683B, 40766A, 40799, 40924B	2200	9—11
Ignition centrifugal advance	600	0—2
(with distributor decelerating on test rig)	1200	4—6
Despatch No:- 40942A	2000	8—10
Ignition vacuum advance (all distributors) ...	Hg in (inches of mecury)	
	5	½°—3°
	7	3°—5°
	8·25	4°—6°

** The mm. conversion is measured on the periphery of the crankshaft damper. From B.9204755 and B.3300001, 6 extra timing marks at 5° intervals B.D.T.C. have been added.*

Spark plugs—Make and type (All models except Alpine III, Rapier IV)	Champion N.5*
—Make and type (Alpine III, Rapier IV onwards) ...	KLG.FE75†
—Size ...	14 mm.
—Gap ...	·025 in. (·63 mm.)
Coil maker's No. (Alpine I and II) ...	LA.45053E
Coil maker's No. (Rapier III, Alpine III onwards) ...	HA.45102

* *For consistent high speed driving use Champion N.3.*

† *For consistent high speed driving use KLG. FE80.*
For racing use KLG. FE100.

CLUTCH

Make ...	Borg and Beck
Type ...	Single dry plate
Driven plate—Diameter ...	8·0 in. (20·32 cm.)
—Type ...	"Borglite"
Operation (Series I Alpine, Series III Rapier) ...	Hydraulic
Operation (Alpine II, Rapier IIIA onwards) ...	Hydrostatic
Thrust bearing ...	Carbon ring
Free movement at withdrawal lever outer end ...	·135 in. (·33 cm.) (Alpine, Series Rapier IIIA, IV—Nil)
Colour of cover springs (Series Alpine I, Rapier III) ...	Light grey
Colour of cover springs (Alpine II, III, Rapier IIIA) ...	Orange (6), Dark blue/white (3)
Number of cover springs (Alpine I, Rapier III) ...	6
Number of cover springs (Alpine II, III, Rapier IIIA) ...	9
Colour of driven plate springs ...	Light grey/violet
Number of driven plate springs ...	6
Driven plate compressed thickness ...	·285 in. (7·24 mm.)
Lever tip—Height (Alpine I, Rapier III) ...	1·815 in. (4·61 cm.)
—Height (Alpine II, III, Rapier IIIA) ...	2·14 in. (5·43 cm.)
Clutch assembly (with Solex carburettor).	
—Diaphragm spring ...	Not adjustable (see Section D)
—Thrust bearing ...	Carbon ring
—No. and colour driven plate springs ...	6, Violet/light grey

GEARBOX

Type ...	Four speed and reverse with control ring synchromesh
Synchromesh on ...	Top, 3rd and 2nd
Bearings—Mainshaft ...	Front spigot—needle roller; rear–ball bearing
—Layshaft ...	Needle roller
—Reverse gear ...	Phosphor bronze bush
Stemwheel spigot bearing type ...	"Oilite" bush

		All models except Alpine III	Alpine III
Gearbox ratios—Top	1·00 : 1		1·00:1
—Third	1·39 : 1		1·23:1
—Second	2·14 : 1		1·89:1
—First	3·35 : 1		2·96:1
—Reverse	4·24 : 1		3·75:1

Layshaft end float ... ... ·006 in. / ·008 in. (0·15/0·20 mm.)

Adjustment—Mainshaft ... ... None

—Layshaft ... ... Selective assembly

Speedometer gears—Alpine

	PINION	WHEEL	REVS/MILE (KM)	SPEEDO. HEAD		
Series I (std) 5.60 x 13 tyres	P.113464 (17 teeth)	P.113467 (5 teeth)	1020	1046560	(SN.6117/00)	MPH
			640	1046611	(SN.6117/03)	KPH
Series I (std) 5.90 x 13 tyres	P.113464 (17 teeth)	P.113467 (5 teeth)	1000	1046609	(SN.6117/01)	MPH
			620	1046612	(SN.6117/04)	KPH
Series II (std) 5.60 x 13 tyres	P.113464 (17 teeth)	1207201 (5 teeth)	1020	1046560	(SN.6117/00)	MPH
			640	1046611	(SN.6117/03)	KPH
Series II (std) 5.90 x 13 tyres	P.113464 (17 teeth)	1207201 (5 teeth)	1000	1046609	(SN.6117/01)	MPH
			620	1046612	(SN.6117/04)	KPH
Series II (std) 6.00 x 13 low profile & 5.90 x 13 RS.5 tyres	P.113464 (17 teeth)	1207201 (5 teeth)	1000	1206264	(SN.6117/11)	MPH
			620	1206265	(SN.6117/12)	KPH
Series III, IV (std) 6.00 x 13 low profile & 5.90 x 13 RS.5 tyres	P.113464 (17 teeth)	1207201 (5 teeth)	1000	1223587	(SN.5324/25)	MPH
			620	1223588	(SN.5324/26)	KPH
Series I, II (O/d) 5.60 x 13 tyres	5037405 (15 teeth)	5037404 (4 teeth)	1000	1046609	(SN.6117/01)	MPH
			620	1046612	(SN.6117/04)	KPH
Series I, II (O/d) 5.90 x 13 tyres	5037405 (15 teeth)	5037404 (4 teeth)	980	1046610	(SN.6117/02)	MPH
			620	1046613	(SN.6117/05)	KPH
Series II (O/d) 6.00 x 13 low profile & 5.90 x 13 RS.5 tyres	5037405 (15 teeth)	5037404 (4 teeth)	1000	1206264	(SN.6117/11)	MPH
			620	1206265	(SN.6117/12)	KPH
Series III (O/d) 6.00 x 13 low profile & 5.90 x 13 RS.5 tyres	5031066 (12 teeth)	K.25632 (5 teeth)	1408	1218031	(SN.5324/18)	MPH
			880	1218032	(SN.5324/19)	KPH
Series IV (O/d) 6.00 x 13 low profile & 5.90 x 13 RS. 5 tyres	5031066 (12 teeth)	K.25632 (5 teeth)	1534	1223540	(SN.5324/23)	MPH
			960	1223541	(SN.5324/24)	KPH

Speedometer gears—Rapier

Series III (std)	P.112163 (14 teeth)	P.115296 (6 teeth)	1600	1203400	(SN.5324/00)	MPH
			980	1203401	(SN.5324/01)	KPH
Series IIIa (std)	1207586 (13 teeth)	1207585 (6 teeth)	1568	1203400	(SN.5324/00)	MPH
			980	1203401	(SN.5324/01)	KPH
Series III (O/d)	5031066 (12 teeth)	K.25632 (5 teeth)	1600	1203402	(SN.5324/02)	MPH
			980	1203403	(SN.5324/03)	KPH
Series IIIA (O/d)	5031066 (12 teeth)	K.25632 (5 teeth)	1632	1208052	(SN.5324/04)	MPH
			1020	1208053	(SN.5324/05)	KPH
Series IIIA (O/d)	5031066 (12 teeth)	K.25632 (5 teeth)	1504	1219420	(SN.5324/14)	MPH
			940	1219421	(SN.5324/15)	KPH
Series IV (std)	P.113464 (17 teeth)	1207201 (5 teeth)	1000	1223587	(SN.5324/25)	MPH
			620	1223588	(SN.5324/26)	KPH
Series IV (O/d)	5031066 (12 teeth)	K.25632 (5 teeth)	1534	1223540	(SN.5324/23)	MPH
			960	1223541	(SN.5324/24)	KPH

PROPELLER SHAFT (for torque loading figures see table at end of section)

Type	Open shaft (reverse spline)	
Outside diameter—Alpine	2·0 in.	(5·1 cm.)
—Rapier	2·75 in.	(6·9 cm.)
Overall length—Alpine (Std.)	39·34 in.	(99·9 cm.)
—Rapier (Std.)	51·84 in.	(131·6 cm.)
—Alpine (O/d.)	36·59 in.	(95·0 cm.)
—Rapier (O/d.)	48·72 in.	(123·7 cm.)
Length between centres—Alpine (Std.) ...	32·25 in	(81·9 cm.)
—Rapier (Std.) ...	46 in.	(116·8 cm.)
—Alpine (O/d.) ...	29·5 in.	(74·9 cm.)
—Rapier (O/d.) ...	42·88 in.	(108·9 cm.)
Universal joint	Needle roller	

REAR AXLE (for torque loading figures see table at end of section)

Type	Semi-floating	
Final drive ratio—Alpine (Series I, II) ...	3·89 : 1	(4·22 : 1 with Overdrive)
—Rapier (Spiral bevel axles)	4·55 : 1	(4·78 : 1 with Overdrive)
—Rapier (Hypoid bevel axles)	4·22 : 1	(4·86 : 1 or from chassis No. B3062492 4·44 : 1 with Overdrive)
—Alpine (all Series III)	3·89 : 1	
—Rapier (Series IV)	3·89 : 1	(4·22:1 with Overdrive)
Bearings—Bevel pinion	Taper roller	
—Differential and crown wheel assembly	Taper roller	
—Hub	Ball	
Crown wheel to pinion backlash	·005 in. / ·009 in.	(0·127/0·229 mm.)
Number of teeth—Crown wheel (Alpine) ...	35	38
—Bevel pinion (Alpine) ...	9 } 3·89	9 } 4·22
—Crown wheel (Rapier) ...	41	43
—Bevel pinion (Rapier) ...	9 } 4.55	9 } 4·78
—Crown wheel (Rapier) ...	38	34
—Bevel pinion (Rapier) ...	9 } 4.22	7 } 4·86
—Crown wheel (Rapier) ...	35	38
—Bevel pinion (Rapier) ...	9 } 4·89	9 } 4·22
		40 / 9 } 4·44
Adjustment—Bevel pinion	Shims	
—Differential assembly	Shims	

OVERALL RATIOS

	O/d Top	Top	O/d 3rd	Third	Second	First	Reverse
Alpine 1,11 (std)	—	3.89:1	—	5.41:1	8.33:1	13.01:1	16.48;1
Alpine 1,11 (O/d)	3.39:1	4.22:1	4.72:1	5.88:1	9.04:1	14.13:1	17.90:1
Alpine 111 (all models)	3.12:1	3.89:1	3.85:1	4.80:1	7.38:1	11.53:1	14.61:1
Rapier 111 (std) (spiral bevel)	—	4.55:1	—	6.34:1	9.75:1	15.24:1	19.31:1
Rapier 111 (O/d) (spiral bevel)	3.83:1	4.78:1	5.34:1	6.65:1	10.23:1	15.99:1	20.25:1
Rapier 111,111A (std)	—	4.22:1	—	5.88:1	9.04.1	14.13:1	17.90:1
Rapier 111,111A (O/d)	3.90.1	4.86:1	5.43:1	6.76:1	10.40:1	16.25:1	20.59:1
Rapier 111A (O/d)...	3.56:1	4.44:1	4.96:1	6.18:1	9.51:1	14.87:1	18.83:1
Rapier, Alpine IV (std)	—	3.89:1	—	5.41:1	8.32:1	13.01:1	16.48:1
Rapier, Alpine IV (O/d)	3.39:1	4.22:1	4.72:1	5.88:1	9.04:1	14.13:1	17.90:1

FRONT SUSPENSION (for torque loading figures see table at end of section)

Type	Independent with unequal length wishbones	
Spring (Alpine) —Outside diameter (Series I, II)	3·87 in.	(9·84 cm.)
—Outside diameter (Series III only)	4·40 in.	(11·17 cm.)
—Static laden length (up to chassis No. B. 9106289 and Series III models)	7·375 in.	(18·73 cm.)
—Static laden length (from chassis No. B. 9106290)	7·85 in.	(19·93 cm.)
—Static laden loading(off car) ...	950 lbs.	(430·91 kgs.)
—Free length (up to chassis No. B. 9106289 and Series III models)	11·175 in.	(28·38 cm.)
—Free length (from chassis No. B. 9106290) ...	11·65 in.	(29·59 cm.)
Spring (Alpine IV)—Outside diameter	4·47 in.	(11·35 cm.)
—Static laden length	7·55 in.	(19·17 cm.)
—Static laden loading (off car)	1040 lbs.	(472 kg.)
—Free length	12·62 in.	(32·05 cm.)
Spring (Rapier)—Outside diameter (saloon) ...	4·51 in.	(11·45 cm.)
—Outside diameter (convertible)	4·46 in.	(11·35 cm.)
—Static laden length	7·75 in. ± ·10 in.	(19·68 ± ·25cm.)
—Static laden loading (off car)	1190 lbs.	(539·77 kgs.)
—Free length (saloon) ...	10·96 in.	(27·83 cm.)
—Free length (convertible) ...	11·52 in.	(29·26 cm.)
Spring (Rapier IV)—Outside diameter ...	4·55in.	(11·55 cm.)
—Static laden length ...	7·90±·1in.	(20±·25 cm.)
—Static laden loading (off car)...	1270 lbs.	(576 kg.)
—Free length ...	11·86in.	(30 cm.)
Castor angle—Alpine	3° 50′	
—Rapier	0° 30′ ± 15′	
Wheel camber angle	0° 30′ ± 15′	
Steering axis inclination	5° 15′ ± 15′	
Toe-in (track setting) *at wall of tyres* ...	$\frac{1}{8}$ in. (3 mm.)	*equivalent to an angle beetween the wheels of 17′ ±5′*

All steering angles and dimensions MUST be checked with the car on gap gauges. For full explanation see Section F.

Ackerman angles (toe-out on turns)	Inner wheel 22° 45′ plus or minus $\frac{1}{2}$°
	Outer wheel 20°.

Wheel lock angle	24° on each outer lock	
Hub bearings—Inner	Taper roller (Timken 1988/1922)	
—Outer	Taper roller (Timken L.M.11949/L.M.11910)	
—End float	·002/·007 in.	(·05/·18 mm.)
Length of top link	7·625 in.	(19·37 cm.)
Length of bottom link	12·85 in.	(32·64 cm.)
Trunnion thrust washer end float	·015/018 in.	(·38/·46 mm.)
Wheel movement—laden to rebound	2·80 in.	(7·11 cm.)
—Laden to bump (Alpine) ...	2·10 in.	(5·33 cm.)
—Laden to bump (Rapier) ...	2·75 in.	(6·98 cm.)
Type of bushes	Threaded steel	

REAR SUSPENSION (for torque loading figures see table at end of section) (Alpine)

	Series I	*Series II*	*Series III*
Type	Semi-elliptic	Semi-elliptic	Semi-elliptic
Springs—Length (between centres)	44 in. (111·76 cm.)	44 in. (111·76 cm.)	43·5 in. (110·49 cm.)
—Width	1·75 in. (4·45 cm.)	2·25 in. (5·72 cm.)	2·25 in. (5·72 cm.)
—Depth	1·547 in. (3·93 cm.)	1·172 in. (2·97 cm.)	*1·172 in. (2·97 cm.)
—Bushes	Rubber	Rubber	Rubber
Number of blades per spring ...	8	6	*6
Number of clips per spring ...	4	4	4
Laden camber—on or off car	1·25 in. (3·1 cm.) negative	·50 in. (1·2 cm.) negative	·70 in. (1·77 cm.) negative
Laden camber load (on car) Load to be evenly distributed approx. 20in. (50cm) rearwards from centre line of rear axle (in boot).	165 lbs. (75 kg.)	165 lbs. (75 kg.)	165 lbs. (75 kg.)

**From B.9203548 and all Series IV cars only 5 blades with a total depth of ·984 in. (2·5 cm.) are used.*

REAR SUSPENSION (for torque loading figures see table at end of section) (Rapier)

Type	Semi-elliptic	
Springs—Length (between centres)	47·01/46·89 in.	(119·40/119·10 cm.)
—Width	1·5 in.	(3·80 cm.)
—Depth	1·72 in.	(4·35 cm.)
—Bushes	Steel and rubber	
Springs (Rapier IV)—Depth	1·66 in. (4·21 cm.)	
—No. of blades	$5 \times \frac{7}{32}$ in. (5·5mm) + $1 \times \frac{1}{4}$ in. (6·3mm) + $1 \times \frac{5}{16}$ in. (7·9mm)	
—Laden camber	1·25 in. (3·2cm.) negative	
No. of blades	$6 \times \frac{5}{64}$ in. (5·9 mm.) + $1 \times \frac{5}{16}$ in. (7·9 mm.)	
No. of clips	3	
Laden camber—on car	1·0 in. (2·5 cm.) negative	
Laden camber—on car ... ... (springs with eccentric bush)	·45 in. (1·1 cm.) negative	
Laden camber load (on car) Load to be evenly distributed over centre line of rear axle (in boot).	395 lbs. (179 kg.)	

SUSPENSION CONTROL

Shock Absorber—Make (Alpine)	Armstrong
—Make (Rapier)	Girling
—Type	Hydraulic
—Linkage	Rubber bushed
Sway eliminator—Type	Torsion bar between front suspension links

STEERING (for torque loading figures see table at end of section)

Make and type	Burman "F" recirculating ball
Turns—lock to lock (Alpine)	3
—Lock to lock (Rapier)	3·15
Steering box ratio (straight ahead)	14·5 : 1 (16·4:1 from B3303416 R/H; B.3304752 L/H)
Total angular movement of drop arm—Alpine ...	65°
—Rapier ...	74°
Adjustment—Column pre-load	Shims (·0015 in. [·038 mm.])
—Rocker shaft end float	Shims (·004/·008 in. [·10/·20 mm.])

BRAKES (for torque loading figures see table at end of section)

Make—Alpine	Girling
—Rapier	Lockheed
Type of system	Hydraulic
Front brakes	Disc
Rear brakes	Leading and trailing shoe
Linings—Front	Don 55
—Front (Alpine III, Rapier IV)	M. 40
—Rear (Alpine and Rapier IV)	Don 24
—Rear (Rapier III, IIIA)	Ferodo DM53A
Handbrake—Type	Ratchet and pawl
Brake discs—Material	Cast iron
—Diameter (Alpine I, II)	9·5 in. (24·1 cm.)
—Diameter (Alpine III)	9·85 in. (25cm.)
—Diameter (Rapier)	10·8 in. (27·4 cm.)
Brake drums—Material	Cast iron
—Diameter	Rear 9 in. (228·6 mm.)
Brake lining (rear)	1·75 in. (44·4 mm.)
Access to master cylinder	Under bonnet

WHEELS AND TYRES (Alpine)

Road wheels—type	Pressed steel disc or wire
—Size	4J × 13
No. of wheel studs	4
Max. permissible "run-out" at wheel rim ...	·07 in. (1·8 mm.)
Max. permissible "lift" at wheel rim	·07 in. (1·8 mm.)
Jack—Type	Screw
—Location	Sockets below bumpers
Tyres—Size	5·60 × 13, 5·90 × 13 or 6·00 × 13
—Rolling radius	5·60 × 13—11·25 in. (28·6 cms.)
	5·90 × 13—11·45 in. (29·0 cms.)
	6·00 × 13—11·50 in. (29·2 cms.)
—Pressures (Series I, II)*	
Normal motoring—5·60 × 13 tyres	Front: 22 lbs. sq. in. (1·55 kg. cm.²)
	Rear: 23 lbs. sq. in. (1·62 kg. cm.²)
,, ,, —5·90 × 13 ,,	Front: 22 lbs. sq. in. (1·55 kg. cm.²)
—6·00 × 13 ,,	Rear: 23 lbs. sq. in. (1·62 kg. cm.²)
Fast motoring —5·60 × 13 ,,	Front: 25 lbs. sq. in. (1·76 kg. cm.²)
	Rear: 27 lbs. sq. in. (1·90 kg. cm.²)
,, ,, —5·90 × 13 ,,	Front: 24 lbs. sq. in. (1·69 kg. cm.²)
—6·00 × 13 ,,	Rear: 25 lbs. sq. in. (1·76 kg. cm.²)

**For competition work or other circumstances when it may be required to drive continuously near maximum speed, we strongly recommend the use of 5·90x13 Road Speed tyres with minimum pressures of 28 lbs. per sq. in. (Front) and 30 lbs. per sq. in. (Rear) (1·97 and 2·11 kg./cm.). For prolonged touring at high speeds in all other circumstances, the pressures in the front and rear tyres should be increased by 6 lbs. per sq. in. (·42 kg/cm²).*

—Pressures (Series III onwards)	
Normal motoring—6·00 × 13 tyres	Front: 24 lbs. sq. in. (1·69 kg. cm.²)
	Rear: 24 lbs. sq. in. (1·69 kg. cm.²)
—5·90 × 13 tyres	Front: 24 lbs. sq. in. (1·69 kg. cm.²)
	Rear: 24 lbs. sq. in. (1·69 kg. cm.²)
Prolonged high speed driving	
—6·00 × 13 tyres	Front: 24 lbs. sq. in. (1·69 kg. cm.²)
	Rear: 26 lbs. sq. in. (1·82 kg. cm.²)
—5·90 × 13 tyres	Front: 24 lbs. sq. in. (1·69 kg. cm.²)
	Rear: 26 lbs. sq. in. (1·82 kg. cm.²)

WHEELS AND TYRES (Rapier)

Road wheels—Type	Pressed steel disc
—Size	4J × 15 (Rapier IV 4½J × 13)
No. of wheel studs	4
Max. permissible "run-out" at wheel rim	·10 in. (2·54 mm.)
Max. permissible "lift" at wheel rim	·10 in. (2·54 mm.)
Tyres—Type and size	Dunlop 5.60 × 15 (Rapier IV Dunlop 6.00 × 13)
—Rolling radius—15 in. wheel	12·3 in. (31·24 cm.)
—13 in. wheel	11·5 in. (29·21 cm.)

—Pressures *	
Normal motoring — 5.60 × 15 tyres ...	Front: 24 lbs. in.² (1·69 kg. cm.²)
	Rear: 24 lbs. in.² (1·69 kg. cm²)
Fully laden — 5.60 × 15 „ ...	Front: 24 lbs. in.² (1·69 kg. cm.²)
	Rear: 28 lbs. in.² (1·96 kg. cm.²)
—Pressures (Rapier IV) all conditions ...	Front and rear 27 lbs. in² (1·89kg. cm.²)
Jack—Type	Screw
—Location	Sockets below bumpers

**For fast driving, particularly when using high speed motorways which allow lengthly periods near maximum speed, pressures in front and rear tyres should be increased by 6 lbs. in.² (·42 kg. cm²).*

BATTERY

Make	Lucas
Capacity and type	38 amp. hr. normal service
	51 amp. hr. (certain export territories)
Location—Alpine	Under rear floor
—Rapier	N/S wing valance
Voltage	12
System	Positive earth
Specific gravity reading	See Section N

Coil and Distributor
(See Ignition System)

CONTROL BOX

Make and type	Lucas RB. 106/2
Make and type (Alpine IV)	Lucas RB. 340

GENERATOR

Make	Lucas
Type	C.40—1
Drive	"V" belt from crankshaft (see also under Cooling System)
Control of output	C.V.C.
Brush spring tension (new)...	15/25 ozs. (·42/·71 kgs.)
Cutting-in speed	1250 to 1450 r.p.m. at 13 generator volts
Maximum output	22 amps. at 2050 to 2250 r.p.m. (max.) at 13·5 generator volts (on resistance load of ·61 ohm)
Field resistance	6·0 ohms

STARTER

Make	Lucas
Type	M.35.G
Control type	Solenoid
Drive type	Lucas "SB"
Lock torque	9·3 lbs. ft. (1·28 kg.m.) 370/390 amps at 7·7/7·3 volts
Brush spring tension	15/25 ozs. (·42/·71 kgs.)

LIGHTING

System	Earth return
Headlamp type	P.700
Sidelamp type—Alpine	L.594
—Rapier	L.539
—Rapier	L.662

LAMP BULBS

Head—

Home and Export R.H.D.	Lucas No. 414 12V. 50/40W. (Sealed beam on Alpine III Rapier IV onwards)
Export L.H.D.	Lucas No. 410 12V. 45/40W.
,, France	Lucas No. 411 12V. 45/40W.
U.S.A. and Canada	Standard sealed beam unit

Note.—*It is important that the bulbs specified for each type of lamp are used. Otherwise the maximum anti-dazzle properties will not be obtained.*

Side front flasher	Lucas 380 12V. 21/6W.
Beam indicator	Phillips 12829 12V. 2W.
Ignition warning lamp	Phillips 12829 12V. 2W.
Panel illumination bulbs	Lucas 987 12V. 2·2W.
Stop/tail	Lucas 380 12V. 21/6W.
Rear flashing signals	Lucas 382 12V. 21W.
Rear number plate	Lucas 222 12V. 4W. or Lucas 989 12V. 6.W
Speedometer	Lucas 987 12V. 2·2W.
Direction indicator pilot lamp	Phillips 12829 12V. 2W.
Interior lamp (where fitted)	Lucas 254 12V. 6W. (festoon)
Revolution indicator (where fitted)	Lucas 984 12V. 3·6W.
Map lamp (where fitted)	Lucas 354 12v. 6W. (festoon)
Side Lamp-Alpine IV (capless)	Lucas 501 12v. 5W.

OTHER EQUIPMENT

Flasher unit—Make	Lucas
—Type	FL.3
Windscreen wiper—Make	Lucas
—Type	Dual arm, automatic park, dual speed
Horn—Make and type (early Alpine)	Lucas WT.618
—Make and type (later Alpine)	Clear-Hooter 725
—Make and type (Rapier)	Lucas windtone
Fuses	Lucas 4FJ unit, 2×35 amp.
Heater blower fuse	1x10 amp. (when fitted)

Alpine IV and Rapier IV

(Differences from B.94100001 and B.3100001)

CAPACITIES

Gearbox oil—Std	3½ pints	(4·2 U.S. pints; 1·9 litres)
—O/D	4½ pints	(5·4 U.S. pints; 2·5 litres)

CARBURETTOR SETTINGS (Rapier only)

Primary throttle main jet ... 115

GEARBOX

Gearbox ratios—Top	1·000:1
—Third	1·392:1
—Second ...	2·140:1
—First	3·353:1
—Reverse ...	3·569:1

SPEEDOMETER DRIVE GEARS

Standard gearbox only both Alpine and Rapier (Overdrive is not affected)

PINION	*WHEEL*	*REVS*	*SPEEDO. HEAD*
P.113464	1207201	1000	1224524 (SN. 5324/33) MPH
(17 teeth)	(5 teeth)	620	1224525 (SN. 5324/34) KPH

OVERALL RATIOS

	STANDARD	*OVERDRIVE*
O/D Top	———	3·387:1
Top	3·89 :1	4·22 :1
O/D Third	———	4·714:1
Third	5·413:1	5·877:1
Second	8·324:1	9·038:1
First	13·04 :1	14·158:1
Reverse	13·88 :1	15·07 :1

TORQUE LOADING FIGURES

ENGINE

Cylinder head (tighten when cold)	48 lbs. ft.	(6·6 kg.m)
Crankshaft (mains)	55 lbs. ft.	(7·6 kg.m)
Con. rod (big-end)—Series I Alpine, Series III Rapier	20 lbs. ft.	(2·7 kg.m)
—Alpine, II Series Rapier IIIA Onwards ...	24 lbs. ft.	(3·3 kg.m)
Flywheel	40 lbs. ft.	(5·5 kg.m)

GEARBOX

Mainshaft nuts	80 lbs. ft.	(11·0 kg.m)

REAR AXLE

Hypold bevel pinion nut	110 lbs. ft.	(15·2 kg.m)
Axle shaft	180 lbs. ft.	(24·8 kg.m)

PROPELLER SHAFT

Universal joint—metal to rubber (where fitted)	50 lbs. ft.	(6·9 kg.m)

FRONT SUSPENSION

Fulcrum pin to crossmember mounting bolts (upper)	48 lbs. ft.	(6·6 kg.m)
Fulcrum pin to crossmember mounting bolts (lower)	32 lbs. ft.	(4·4 kg.m)
Eye bolt—trunnion to link	40 lbs. ft.	(5·5 kg.m)
	85 lbs. ft.	(11·7 kg.)
Ball pin—stub carrier to link	52 lbs. ft.	(7·1 kg.m)
Ball pin—housing to link	33 lbs. ft.	(4·5 kg.m)
Shock absorber to spring pan	6 lbs. ft.	(·8 kg.m)
Crossmember to frame	62 lbs. ft.	(8·5 kg.m)
Road wheel nut	48 lbs. ft.	(6·6 kg.m)

REAR SUSPENSION

Rear spring "U" bolts—Alpine	42 lbs. ft.	(5·8 kg.m)
—Rapier	16 lbs. ft.	(2·2 kg.m)

STEERING

Box to frame	30 lbs. ft.	(4·1 kg.m)
Relay lever to frame	30 lbs. ft.	(4·1 kg.m)
Steering crosstube ball pin—centre	30 lbs. ft.	(4· 1kg.m)
—outer	28 lbs. ft.	(3·8 kg.m)

BRAKES (Front)

Brake disc to hub	38 lbs. ft. (5·2 kg.m)
Caliper to adaptor	52 lbs. ft. (7·1 kg.m)
Steering arm to carrier and adaptor	38 lbs. ft. (5·2 kg.m) 60 lbs. ft. (8·2 kg.m)
Adaptor to carrier	38 lbs. ft. (5·2 kg.m)

BRAKES (Rear)

Backplate to casing	17 lbs. ft. (2·0 kg.m)
Wheel cylinder to backplate	12 lbs. ft. (1·6 kg.m)