

MORRIS

MINOR

Series MM, Series II, and 1000

WORKSHOP MANUAL

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FOREWORD

This Manual has been prepared to provide the service operator with the necessary information for maintenance and repair; it also serves as a reference book for service supervision and covers items of procedure for the guidance of both the fully qualified and the less-experienced mechanic.

Page 3, 'CONTENTS', serves as an index to the Sections, which can then be located quickly by thumbing the top right-hand corner of the Manual to locate the Section by the large reference letters included in the margin of each page.

MORRIS MINOR (Series MM)

Use the Sections as indicated in 'CONTENTS' on page 3.

MORRIS MINOR (Series II)

Use the Sections as indicated in 'CONTENTS' on page 3. Information on components which were also fitted to the Series MM model has not been repeated and will be found in the Series MM Sections of the Manual.

MORRIS MINOR 1000

Use the Sections as indicated in 'CONTENTS' on page 3. Information on components which were also fitted to the Series MM or Series II model has not been repeated and will be found in the Series MM or Series II Sections of the Manual.

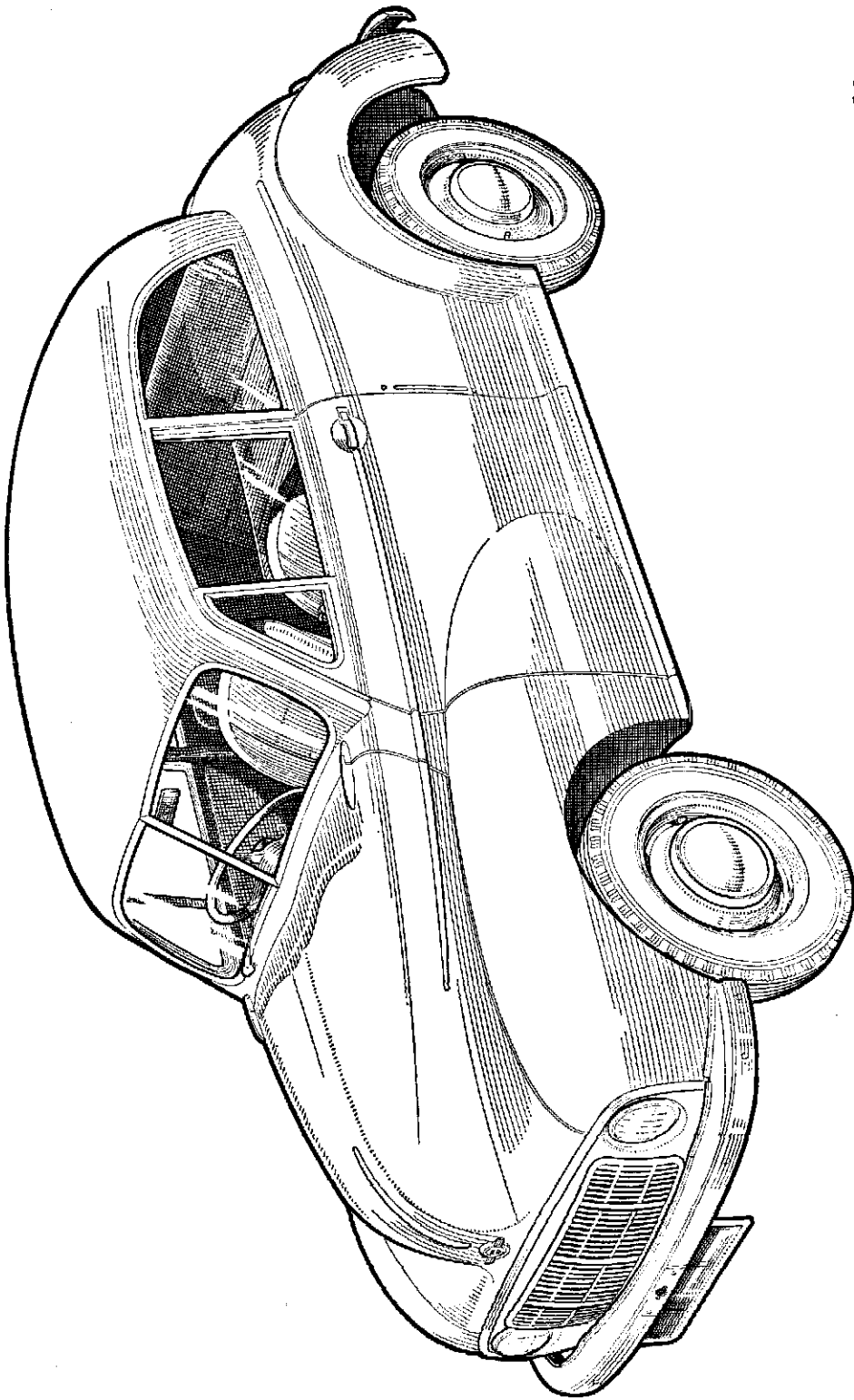
MAINTENANCE

The maintenance items within the Sections should be carried out at the intervals specified in the Driver's Handbook, Passport to Service, or Maintenance Voucher Book.

CONTENTS

	<i>Section</i>
General Data	
Engine (USHM2 Series MM)	A
Engine (APHM Series II)	AA
Engine (APJM, 9M, and 10MA Minor 1000)	AAA
Fuel System (Series MM)	B
Fuel System (Series II)	BB
Fuel System (Minor 1000)	BBB
Ignition Equipment (Series MM)	C
Ignition Equipment (Series II and Minor 1000)	CC
Cooling System (Series MM)	D
Cooling System (Series II)	DD
Cooling System (Minor 1000)	DDD
Clutch (Series MM)	E
Clutch (Series II and Minor 1000)	EE
Gearbox (Series MM)	F
Gearbox (Series II)	FF
Gearbox (Minor 1000)	FFF
Propeller Shaft (Series MM)	G
Propeller Shaft (Series II and Minor 1000)	GG
Rear Axle (First Type)	H
Rear Axle (Second Type)	HH
Rear Road Springs (All Models)	I
Steering Gear (Series MM and Series II)	J
Steering Gear (Minor 1000)	JJ
Front Suspension (All Models)	K
Hydraulic Dampers (All Models)	L
Braking System (All Models)	M
Electrical Equipment (All Models)	N
Tyres (All Models)	O
Lubrication (Series MM)	P
Lubrication (Series II)	PP
Lubrication (Minor 1000)	PPP
Service Tools (All Models)	Q
Body (All Models)	R
Heater (Series MM)	S
Heater (Series II and Minor 1000)	SS
Special Repairs	T

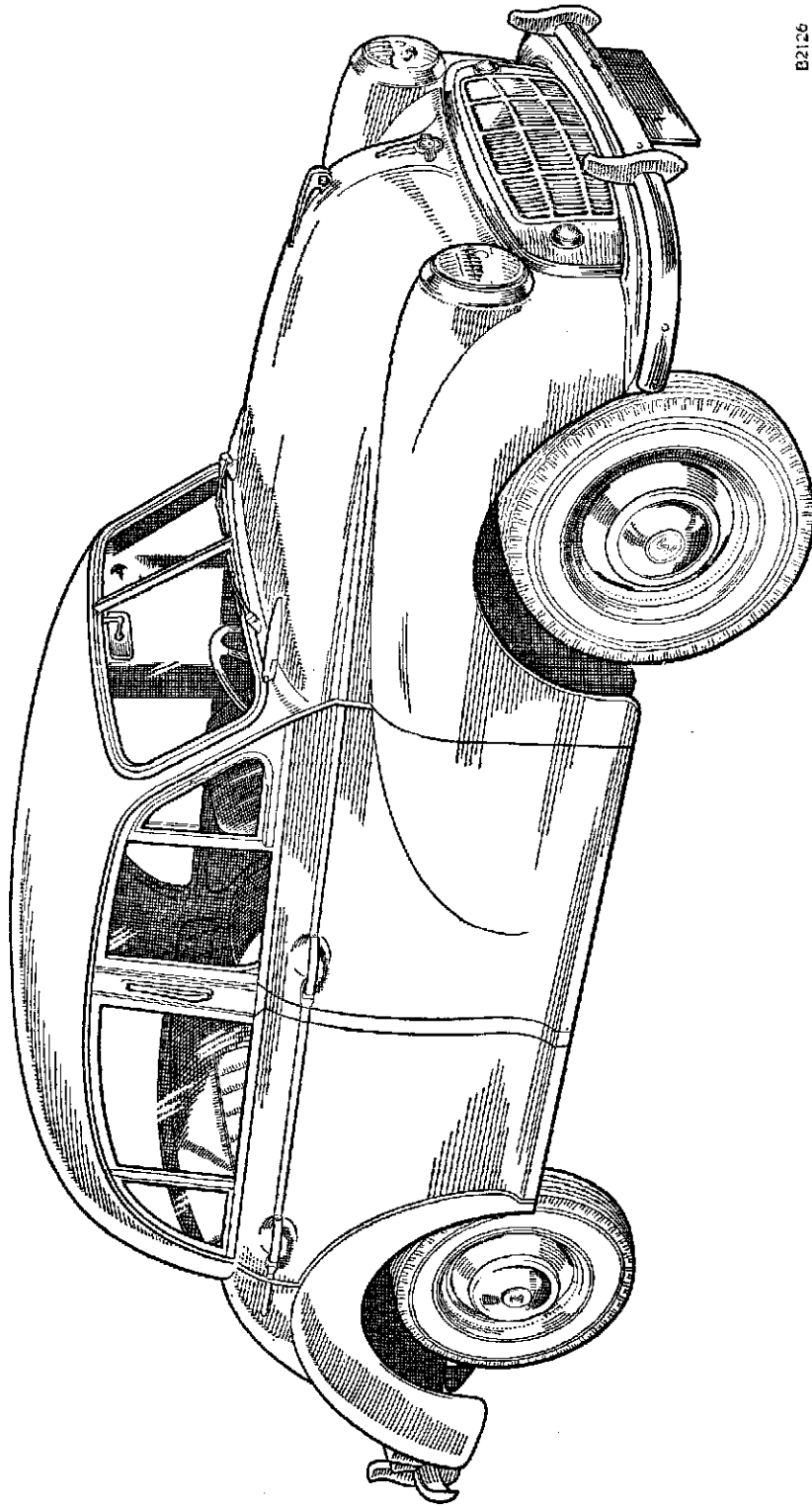
THE MORRIS MINOR (Series MM)



B2143

TWO-DOOR SALOON

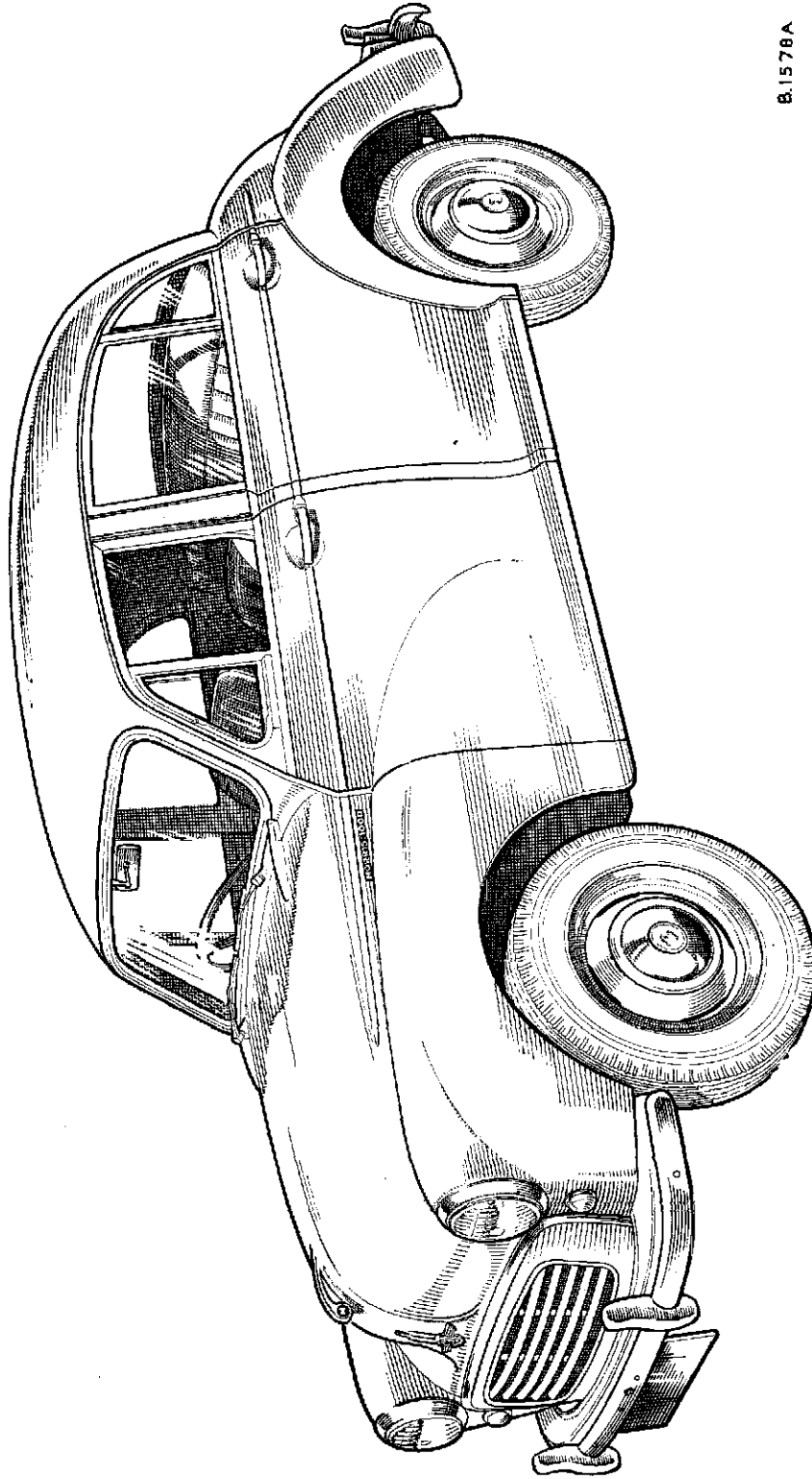
THE MORRIS MINOR (Series II)



B2126

FOUR-DOOR SALOON

THE MORRIS MINOR 1000



B.1578A

FOUR-DOOR SALOON

GENERAL DATA

ENGINE USHM2

Number of cylinders	.. .. .	4.
Cubic capacity	.. .. .	918-636 c.c. (56.06 cu. in.).
Bore	.. .. .	57 mm. (2.244 in.).
Stroke	.. .. .	90 mm. (3.543 in.).
Compression ratio	.. .. .	6.5/6.7 : 1.
System of cooling	.. .. .	Thermo-siphon and fan.
Radiator hose: Top	.. .. .	(Special) 4 $\frac{3}{8}$ in. \times 1 $\frac{1}{8}$ in. (inside dia.) (12 cm. \times 41.3 mm.).
Bottom	.. .. .	3 in. \times 1 $\frac{1}{8}$ in. (inside dia.) (7.6 cm. \times 41.3 mm.).
First oversize bore	.. .. .	+ .020 in. (.50 mm.). Actual bore 57.5 mm. (2.264 in.).
Maximum oversize for boring	.. .. .	+ .040 in. (1.01 mm.). Actual bore 58.0 mm. (2.284 in.).
Firing order	.. .. .	1, 3, 4, 2.
Piston clearance: Top	.. .. .	.06 mm. (.002 in.).
Bottom	.. .. .	.06 mm. (.002 in.).
Ring gap	.. .. .	.0025 to .0065 in. (.06 to .17 mm.).
Number of compression rings	.. .. .	2.
Width of compression rings	.. .. .	2.23 mm. (.088 in.).
Number of oil rings	.. .. .	1.
Width of oil ring	.. .. .	2.96 mm. (.116 in.).
Oil pressure relief valve operates	.. .. .	60 lb./sq. in. (4.2 kg./cm. ²).
Gudgeon pin: Type	.. .. .	Semi-floating.
Diameter	.. .. .	15 mm. \pm .005 mm. (.591 in.).
Fit in piston	.. .. .	Floating.
Fit in connecting rod	.. .. .	Clamped.
Crankpin: Length	.. .. .	27 mm. (1.063 in.).
Diameter (standard)	.. .. .	40 mm. (1.575 in.).
Minimum diameter after regrind	.. .. .	38.984 mm. (1.535 in.).
Connecting rod: Length between centres	.. .. .	165 mm. (6.496 in.).
Type of bearing	.. .. .	Shimless, steel-backed, white-metal-lined.
Side-clearance	.. .. .	.100 to .150 mm. (.004 to .006 in.).
Diametral clearance	.. .. .	Normal .001 in. (.025 mm.), max. .002 in. (.050 mm.).
Number of crankshaft bearings	.. .. .	3.
Type of main bearings	.. .. .	Shimless, steel-backed, white-metal-lined.
Standard main journal diameter	.. .. .	42 mm. (1.654 in.).
Main journals—minimum diameter after regrind	.. .. .	40.984 mm. (1.614 in.).
Main bearings: Length	.. .. .	Front 32 mm. (1.26 in.). Centre 35 mm. (1.378 in.). Rear 32 mm. (1.26 in.).
End-clearance	.. .. .	.0013 to .0037 in. (.03 to .09 mm.).
Diametral clearance	.. .. .	Normal .001 in. (.025 mm.), max. .003 in. (.075 mm.).
Crankshaft—end-thrust taken on	.. .. .	Centre main bearing.
Number of camshaft bearings	.. .. .	3.
Type of camshaft bearings	.. .. .	Plain (running in block).
Camshaft: Bearing clearance	.. .. .	.002 to .004 in. (.05 to .10 mm.).
End-thrust taken on	.. .. .	Front end on spring plate riveted to chain case.
Drive (type)	.. .. .	Chain (duplex roller).
Camshaft chain: Pitch	.. .. .	$\frac{3}{8}$ in. (9.52 mm.).
Number of links	.. .. .	50.
Valve timing markings	.. .. .	'T' mark on teeth and bright links on chain. Pointer on chain case and groove in crankshaft pulley.
Exhaust valve: Throat diameter	.. .. .	25 mm. (.984 in.).
Diameter	.. .. .	Head 28 mm. (1.102 in.), stem 7 mm. (.276 in.).

GENERAL DATA

Inlet valve: Throat diameter	.. .. .	..984 in. (25 mm.).
Diameter	.. .. .	Head 1.102 in. (28 mm.), stem .276 in. (7 mm.).
Valve seat angle	.. .. .	45°.
Tappet type	.. .. .	Hollow chill cast.
Inlet valve clearance for timing	.. .. .	.023 in. (.58 mm.) for inlet to open at T.D.C. when cold.
Valve lift: Inlet	.. .. .	.256 in. (6.5 mm.).
Exhaust	.. .. .	.260 in. (6.6 mm.).
Inlet valve: Opens	.. .. .	8° B.T.D.C.
Closes	.. .. .	52° A.B.D.C.
Exhaust valve: Opens	.. .. .	52° B.B.D.C.
Closes	.. .. .	20° A.T.D.C.
Valve spring: Valve shut..	.. .. .	19 lb. (8.62 kg.).
Valve open	.. .. .	37 lb. (16.78 kg.).
Inlet valve opens—piston traverse	.. .. .	.022 in. B.T.D.C. (.557 mm.).
Valve working clearance	.. .. .	.018 in. (.46 mm.) cold.
Valve guides	.. .. .	Removable.

FUEL SYSTEM

Petrol tank level	.. .. .	Recorded by electric gauge on instrument panel.
Fuel delivery	.. .. .	S.U. electric pump, Type L. Pressure $\frac{3}{4}$ to 1 lb./sq. in. (.05 to .07 kg./cm. ²).
Carburettor	.. .. .	S.U. horizontal, Type H1.
Carburettor needles	.. .. .	EK (standard). M9 (rich). MOW (weak).

CLUTCH

Type	.. .. .	Borg & Beck 6 $\frac{1}{4}$ in. (157.8 mm.) dry plate. Type A.G.
Facing	.. .. .	Borg & Beck composite.
Spring identification colour	.. .. .	Blue (pressure springs), black (plate springs).
Free length of pressure springs	.. .. .	1.58 in. (40.1 mm.).

GEARBOX

Synchromesh	.. .. .	..	Second, third, top.
Ratios	.. .. .	..	Reverse and first 3.95 : 1.
			Second 2.3 : 1.
			Third 1.54 : 1.
			Top 1.00 : 1.
Overall gear ratios	.. .. .	Normal	Reverse and first 97.994 : 1.
			Second 10.477 : 1.
			Third 7.015 : 1.
			Top 4.55 : 1.
Special	.. .. .	Special	20.878 : 1.
			12.157 : 1.
			8.140 : 1.
			5.286 : 1.
		8/43 axle	21.23 : 1.
			12.36 : 1.
			8.20 : 1.
			5.375 : 1.

GENERAL DATA

ENGINE APHM

Number of cylinders	.. .. .	4.
Cubic capacity	.. .. .	803 c.c. (49 cu. in.).
Bore	.. .. .	2.28 in. (57.92 mm.).
Stroke	.. .. .	3.00 in. (76.2 mm.).
Compression ratio	.. .. .	7.2 : 1.
System of cooling	.. .. .	Thermo-siphon, fan, and pump.
Thermostat setting: Standard	.. .. .	70 to 75° C. (158 to 167° F.).
With heater	.. .. .	80 to 85° C. (175 to 185° F.).
Radiator hoses	.. .. .	Moulded.
Oversize bores: First	.. .. .	+ .010 in. (.254 mm.).
Second	.. .. .	+ .020 in. (.508 mm.).
Third	.. .. .	+ .030 in. (.762 mm.).
Fourth	.. .. .	+ .040 in. (1.016 mm.).
Firing order	.. .. .	1, 3, 4, 2.
Piston clearance: Bottom of skirt	.. .. .	.0006 to .0024 in. (.015 to .061 mm.).
Top of skirt	.. .. .	.0021 to .0039 in. (.053 to .099 mm.).
Ring gap	.. .. .	.006 to .011 in. (.15 to .275 mm.).
Number of compression rings	.. .. .	3.
Width of compression rings	.. .. .	.069 to .070 in. (1.75 to 1.78 mm.).
Number of oil rings	.. .. .	1.
Width of oil ring	.. .. .	.124 to .125 in. (3.15 to 3.175 mm.).
Oil pressure relief valve operates	.. .. .	60 lb./sq. in. (4.2 kg./cm. ²).
Gudgeon pin: Type	.. .. .	Clamped in little-end.
Diameter	.. .. .	.562 in. (14.27 mm.).
Fit in piston	.. .. .	Floating.
Crankpin: Length	.. .. .	1.068 in. (27.13 mm.).
Bearing length (shell)	.. .. .	.870 to .880 in. (22.1 to 22.35 mm.).
Diameter (standard)	.. .. .	1.4379 to 1.4384 in. (36.52 to 36.535 mm.).
First regrind size	.. .. .	Std. —.020 in. (.508 mm.).
Second regrind size	.. .. .	Std. —.040 in. (1.016 mm.).
Connecting rod: Length between centres	.. .. .	5.75 in. (14.605 cm.).
Type of bearing	.. .. .	Shimless, steel-backed, white-metal-lined.
Side-clearance	.. .. .	.008 to .010 in. (.203 to .254 mm.).
Diametral clearance	.. .. .	.0006 to .0016 in. (.015 to .041 mm.).
Type of main bearings	.. .. .	Shimless, steel-backed, white-metal-lined.
Standard main journal diameter	.. .. .	1.7505 in. (44.46 mm.).
Main journals: First regrind size	.. .. .	— .020 in. (.508 mm.). Actual size 1.7305 in. (43.95 mm.).
Second regrind size	.. .. .	— .040 in. (1.016 mm.). Actual size 1.7105 in. (43.45 mm.).
Main bearings: Length	.. .. .	1.395 in. (35.43 mm.).
Length (shell)	.. .. .	1.182 to 1.192 in. (30.02 to 30.28 mm.).
End-clearance	.. .. .	.002 to .003 in. (.051 to .076 mm.).
Diametral clearance	.. .. .	.001 to .002 in. (.025 to .051 mm.).
Crankshaft—end-thrust taken on	.. .. .	Centre main bearing.
Number of camshaft bearings	.. .. .	3.
Type of camshaft bearings: Front	.. .. .	White-metal-lined, steel-backed.
Centre and rear	.. .. .	Plain (running in block).
Camshaft bearing clearance: Front	.. .. .	.001 to .002 in. (.025 to .051 mm.).
Centre and rear	.. .. .	.00125 to .00275 in. (.032 to .070 mm.).
Camshaft: End-thrust taken on	.. .. .	Front end on plate bolted to crankcase.
Drive (type)	.. .. .	Chain (single roller).
Camshaft chain: Pitch	.. .. .	$\frac{3}{8}$ in. (9.525 mm.) (single roller).
Number of links	.. .. .	52.

} See page
AA.14.

GENERAL DATA

Valve timing markings	Dimples on camshaft and crankshaft chain wheels. Pointer on chain case and groove in crankshaft pulley.
Exhaust valve: Throat diameter	$\frac{7}{8}$ in. (22.22 mm.).
Diameter	Head: 1.000 to 1.005 in. (25.40 to 25.53 mm.).
	Stem: .2788 to .2793 in. (7.081 to 7.096 mm.).
Inlet valve: Throat diameter	$\frac{31}{32}$ in. (24.61 mm.) mean.
Diameter	Head: 1.093 to 1.098 in. (27.76 to 27.89 mm.).
	Stem: .2793 to .2798 in. (7.096 to 7.109 mm.).
Valve seat angle	45°.
Valve lift: Inlet .. .. .	.285 in. (7.24 mm.).
Exhaust .. .. .	.285 in. (7.24 mm.).
Inlet valve: Opens	5° B.T.D.C.
Closes	45° A.B.D.C.
Exhaust valve: Opens	40° B.B.D.C.
Closes	10° A.T.D.C.
	with .019 in. (.48 mm.) valve rocker clearance (for checking purposes only).
Valve spring: Pressure—valve shut	37½ lb. ±2 lb. (17.01 kg. ±91 kg.).
Length—valve shut	1 $\frac{11}{16}$ in. (32.94 mm.).
Pressure—valve open	70 lb. (31.75 kg.).
Length—valve open	1 $\frac{1}{4}$ in. (25.8 mm.).
Valve working clearance .. .. .	.012 in. (.305 mm.) cold.
Valve guides	Renewable.
Valve guide clearance: Inlet .. .. .	.0015 to .0025 in. (.038 to .064 mm.).
Exhaust .. .. .	.0010 to .0019 in. (.025 to .048 mm.).

TORQUE SPANNER READINGS

Cylinder head stud nuts	40 lb. ft. (5.5 kg. m.).
Main bearing stud nuts	65 lb. ft. (9.0 kg. m.).
Connecting rod big-end bolts	33 lb. ft. (4.5 kg. m.).
Flywheel attachment bolts	35 to 40 lb. ft. (4.8 to 5.5 kg. m.).
Rocker shaft bracket nuts: Inner	25 lb. ft. (3.46 kg. m.).
Outer	40 lb. ft. (5.5 kg. m.).

FUEL SYSTEM

Carburettor	S.U. H1 type. 30° semi-downdraught. 1½ in. throttle.
Carburettor needle	GG (standard). MOW (weak). EB (rich).

CLUTCH

Type	Borg & Beck 6½ in. (158.7 mm.) dry plate.
Facing	Borg & Beck composite.
Spring identification colour	Blue (pressure springs), black (plate springs).
Free length of pressure springs	1.58 in. (40.1 mm.).
Pedal free movement	$\frac{1}{2}$ in. (20 mm.).

GEARBOX

Synchromesh	Second, third, top.																													
	<table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;"><i>To Engine</i></td> <td style="text-align: center;"><i>To Engine</i></td> <td style="text-align: center;"><i>From Engine</i></td> </tr> <tr> <td></td> <td style="text-align: center;">No. 183113</td> <td style="text-align: center;">No. 266533</td> <td style="text-align: center;">No. 266534</td> </tr> <tr> <td rowspan="5" style="vertical-align: middle;">Ratios</td> <td style="border-left: 1px solid black; padding-left: 5px;">Reverse</td> <td style="text-align: center;">5.174 : 1</td> <td style="text-align: center;">5.54 : 1</td> <td style="text-align: center;">5.382 : 1</td> </tr> <tr> <td style="border-left: 1px solid black; padding-left: 5px;">First</td> <td style="text-align: center;">4.09 : 1</td> <td style="text-align: center;">4.09 : 1</td> <td style="text-align: center;">3.965 : 1</td> </tr> <tr> <td style="border-left: 1px solid black; padding-left: 5px;">Second</td> <td style="text-align: center;">2.588 : 1</td> <td style="text-align: center;">2.588 : 1</td> <td style="text-align: center;">2.588 : 1</td> </tr> <tr> <td style="border-left: 1px solid black; padding-left: 5px;">Third</td> <td style="text-align: center;">1.679 : 1</td> <td style="text-align: center;">1.679 : 1</td> <td style="text-align: center;">1.679 : 1</td> </tr> <tr> <td style="border-left: 1px solid black; padding-left: 5px;">Top</td> <td style="text-align: center;">1.000 : 1</td> <td style="text-align: center;">1.000 : 1</td> <td style="text-align: center;">1.000 : 1</td> </tr> </table>		<i>To Engine</i>	<i>To Engine</i>	<i>From Engine</i>		No. 183113	No. 266533	No. 266534	Ratios	Reverse	5.174 : 1	5.54 : 1	5.382 : 1	First	4.09 : 1	4.09 : 1	3.965 : 1	Second	2.588 : 1	2.588 : 1	2.588 : 1	Third	1.679 : 1	1.679 : 1	1.679 : 1	Top	1.000 : 1	1.000 : 1	1.000 : 1
	<i>To Engine</i>	<i>To Engine</i>	<i>From Engine</i>																											
	No. 183113	No. 266533	No. 266534																											
Ratios	Reverse	5.174 : 1	5.54 : 1	5.382 : 1																										
	First	4.09 : 1	4.09 : 1	3.965 : 1																										
	Second	2.588 : 1	2.588 : 1	2.588 : 1																										
	Third	1.679 : 1	1.679 : 1	1.679 : 1																										
	Top	1.000 : 1	1.000 : 1	1.000 : 1																										

GENERAL DATA

	<i>To Engine</i> No. 183113	<i>To Engine</i> No. 266533	<i>From Engine</i> No. 266534	
Over-all gear ratios : 7/37 axle	Reverse	27·38 : 1	29·347 : 1	28·438 : 1
	First	21·618 : 1	21·618 : 1	20·958 : 1
	Second	13·69 : 1	13·69 : 1	13·69 : 1
	Third	8·88 : 1	8·88 : 1	8·88 : 1
	Top	5·286 : 1	5·286 : 1	5·286 : 1
8/43 axle	Reverse	27·81 : 1	29·777 : 1	28·928 : 1
	First	21·985 : 1	21·985 : 1	21·312 : 1
	Second	13·909 : 1	13·909 : 1	13·909 : 1
	Third	9·029 : 1	9·029 : 1	9·029 : 1
	Top	5·375 : 1	5·375 : 1	5·375 : 1

MORRIS MINOR (Series MM AND Series II)

FRONT AXLE AND STEERING

Camber	Nil (1° on models with rubber top link bushes).
Caster angle	3°.
Toe-in	$\frac{3}{8}$ in. (2·5 mm.).
King pin inclination	8½° (7½° on models with rubber top link bushes).
Turns of steering-wheel (lock to lock)	2·6.
Track	50 $\frac{1}{8}$ in. (1·284 m.).
Turning circle	R.H. 33 ft. 1 in. (10·09 m.). L.H. 32 ft. 11 in. (10·04 m.).
Wheelbase	86 in. (218·44 cm.).
Ground clearance	6 $\frac{3}{4}$ in. (17 cm.).
Tyre size	5·00/5·20—14.
Tyre pressures: Normal with two passengers	Front: 22 lb./sq. in. (1·6 kg./cm. ²). Rear: 22 lb./sq. in. (1·6 kg./cm. ²).
Fully loaded with four passengers and luggage	Front: 22 lb./sq. in. (1·6 kg./cm. ²). Rear: 24 lb./sq. in. (1·7 kg./cm. ²).

REAR AXLE

Type of axle	Semi-floating or three-quarter-floating.
Type of drive	Hypoid gears.
Ratio or number of teeth	9/41, 7/37, or 8/43.
Adjustment	By distance pieces.
Track	50 $\frac{1}{16}$ in. (1·278 m.).

BRAKES

Type	Lockheed hydraulic 7 in. (17·8 cm.) dia.
Type of linings	MR11.
Lining size: Front	6·54 in. × 1·22 in. × 198 in. (16·6 cm. × 31·0 mm. × 5·0 mm.).
Rear	6·54 in. × 1·22 in. × 198 in. (16·6 cm. × 31·0 mm. × 5·0 mm.).
Number of rivets	10.

SPRINGS

Type: Front	Torsion bar.
Rear	Semi-elliptic.
Working load: Front	462 lb. (209·5 kg.).
Rear	440 lb. (199·6 kg.).
Length—rear	43·5 in. (110·5 cm.).
Width—rear	1½ in. (38·1 mm.).

GENERAL DATA

Number of leaves—rear	7.
Thickness of leaves—rear	$\frac{3}{8}$ in. (5.56 mm.).
Free camber—rear	3.5 in. (88.9 mm.); models with second-type axle 4.125 in. (10.5 cm.).
Working camber—rear28 in. (7.1 mm.) negative; models with second-type axle .34 in. (8.6 mm.) positive.

HYDRAULIC DAMPERS

Type	Armstrong double-acting.
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IGNITION SYSTEM

Distributor: Rotation	Anti-clockwise (viewed from above).
Manual advance	None.
Automatic advance: Series MM	Centrifugal governor 18° 22'.
Series II	Vacuum control 7 to 9°; centrifugal 17 to 19°.
Advance starts at	400 to 650 r.p.m.
Contact breaker gap .. .. .	.010 to .012 in. (.25 to .30 mm.).
Contact breaker gap (high-lift cam) .. .. .	.014 to .016 in. (.36 to .40 mm.).
Contact spring tension	20 to 24 oz. (567 to 680 gm.).
Condenser or capacitor capacity .. .. .	.2 mf.
Sparking plug, make and type: Series MM	Champion L10, 14 mm., $\frac{1}{2}$ in. reach.
Series II	Champion N5 (was code NA8), 14 mm., $\frac{3}{4}$ in. reach.
Sparking plug gap: Series MM	Champion L10, .025 in. (.64 mm.).
Series II	Champion N5 (was code NA8), .025 in. (.64 mm.).
Ignition timing: Series MM	T.D.C. (fully retarded), final setting by road trial.
Series II	2° B.D.T.C. ($\frac{3}{8}$ in. (2.4 mm.) on periphery of crankshaft pulley).

ELECTRICAL EQUIPMENT

Charging system	Compensated voltage control.
Battery: Type	Lucas BTW7A/1.
Voltage	12.
Capacity	43 amp.-hr. at 20-hr. rate.
Earth	Positive.

GENERAL DIMENSIONS

Over-all length	148 in. (376 cm.).
Over-all width	61 in. (155 cm.).
Over-all height	60 in. (152 cm.).
Ground clearance.. .. .	6 $\frac{1}{2}$ in. (17.1 cm.).

WEIGHTS

Kerbside	
2-door saloon	1,662 lb. (753 kg.).
4-door saloon	1,748 lb. (793 kg.).
Convertible	1,656 lb. (751 kg.).
Traveller	1,776 lb. (806 kg.).
Towing	1,344 lb. (609.5 kg.).

CAPACITIES (Series MM)

Sump	6 $\frac{1}{2}$ pints (7.8 U.S. pints, 3.7 litres).
Gearbox	1 $\frac{1}{2}$ pints (1.8 U.S. pints, .85 litre).
Rear axle (use Hypoid oil only)	1 $\frac{1}{2}$ pints (1.8 U.S. pints, .85 litre).
Cooling system	13 $\frac{1}{2}$ pints (14.2 U.S. pints, 7.7 litres).
Fuel	5 gallons (6 U.S. gallons, 22.7 litres).

GENERAL DATA

CAPACITIES (Series II)

Sump and oil filter	..	..	..	..	..	6½ pints (7·8 U.S. pints, 3·7 litres).
Gearbox (use engine oil supply)	..	..	..	..	..	2¼ pints (2·7 U.S. pints, 1·3 litres).
Rear axle (use Hypoid oil only)	..	..	..	..	..	1½ pints (1·8 U.S. pints, ·85 litre).
Cooling system	..	..	..	..	..	9¾ pints (11·7 U.S. pints, 5·5 litres).
Heater (when fitted)	..	..	..	..	..	1 pint (1·2 U.S. pints, ·568 litre).
Fuel	..	..	..	..	..	5 gallons (6 U.S. gallons, 22·7 litres).

GENERAL DATA

The general data for the Minor 1000 with 948-c.c. engine are the same as for the Minor (Series II), with the following exceptions:

ENGINE APJM or 9M

Cubic capacity	..	..	..	..	..	..	948 c.c. (57.846 cu. in.).
Bore	..	..	..	..	..	..	2.478 in. (62.94 mm.).
Compression ratio	..	..	..	..	..	..	8.3 : 1 or 7.2 : 1.

Crankshaft

Standard main bearing diameter	..	..	..	..	..	..	1.7505 to 1.751 in. (44.46 to 44.47 mm.).
Main bearing length: Front	..	..	..	..	..	..	1.336 to 1.352 in. (33.96 to 34.33 mm.).
Centre	..	..	..	..	..	..	1.379 to 1.381 in. (35.02 to 35.07 mm.).
Rear	..	..	..	..	..	..	1.393 to 1.397 in. (35.38 to 35.48 mm.).
Crankpin: Diameter (standard)	..	..	..	..	..	..	1.6254 to 1.6259 in. (41.28 to 41.29 mm.).
Bearing length	..	..	..	..	..	..	1.068 to 1.070 in. (27.15 to 27.20 mm.).
Connecting rod—type of bearing	..	..	..	..	..	..	Steel-backed, lead-bronze, lead-indium-plated surface or steel-backed, copper-lead, lead-tin-plated surface.

Piston rings

Compression: Plain	..	..	..	..	..	..	Top ring (chrome-faced on later engines).
Tapered	..	..	..	..	..	..	Second and third rings.
Oil control type	Slotted scraper.

Lubrication system

Oil filter type	Full-flow.
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IGNITION SYSTEM

Ignition timing: Low compression	4° B.T.D.C. ($\frac{1}{16}$ in. (4.76 mm.) on the periphery of the crankshaft pulley).
High compression	..	..	..	..	..	..	5° B.T.D.C.
High compression (alternative: for cars using fuel of an octane value not exceeding 83)	..	..	..	..	..	..	T.D.C.

ELECTRICAL EQUIPMENT

System	..	..	..	..	..	..	12-volt. Positive earth.
Charging system	..	..	..	..	..	..	Compensated voltage control.
Battery	..	..	..	..	..	..	Lucas BT7A (BTZ7A Export).
Battery capacity	..	..	..	..	..	..	43 amp.-hr. (at 20-hour rate).
Starter motor	..	..	..	..	..	..	Lucas 4-brush M35G.
● Starter motor lock current draw	..	..	..	..	..	..	370 to 390 amps. at 7.9 to 7.3 volts.●
Dynamo	..	..	..	..	..	..	Lucas C40/1.
● Maximum output	..	..	..	..	..	..	22 amps. at 13.5 volts at 2,250 dynamo r.p.m.●
Control box	..	..	..	..	..	..	Lucas RB106/2.
Cut-out: Cut-in voltage	..	..	..	..	..	..	12.7 to 13.3.
Drop-off voltage	..	..	..	..	..	..	8.5 to 11.0.
● Reverse current	..	..	..	..	..	..	3.0 to 5.0 amps.●

GENERAL DATA

Regulator RB106/2 (at 3,000 r.p.m. dynamo speed):

Open-circuit setting at 20° C. (68° F.) 16.0 to 16.6 volts.

For ambient temperatures other than 20° C. (68° F.)
the following allowances should be made to the
above setting:

For every 10° C. (18° F.) above 20° C. (68° F.)
subtract .1 volt.

For every 10° C. (18° F.) below 20° C. (68° F.)
add .1 volt.

FUEL SYSTEM

Carburettor	S.U. H2 type, 1½ in. (31.75 mm.) throttle.
Carburettor needle: 1957/8	BX1 (standard). S (rich). MO (weak).
1957/8 (paper air cleaner)	M (standard).
Later models	M (standard). AH2 (rich). EB (weak).
Carburettor (later models)	S.U. HS2 type, 1½ in. (31.75 mm.) throttle.
Carburettor needle	M (standard). AH2 (rich). EB (weak).
Carburettor spring	Red.

AIR CLEANER

Make	A.C.
Type: Early models	CL oil bath.
Later models	Coopers' dry type with paper element.

CLUTCH

Facing	Wound yarn.
Spring identification colour: Pressure: Early models	3 dark blue, 3 yellow and green.
Later models	6 yellow and green.
Plate	Light grey.

GEARBOX

Ratios	Reverse	4.664 : 1.
	First	3.628 : 1.
	Second	2.374 : 1.
	Third	1.412 : 1.
	Top	1.000 : 1.
Over-all ratios	Reverse	21.221 : 1.
	First	16.507 : 1.
	Second	10.802 : 1.
	Third	6.425 : 1.
	Top	4.555 : 1.
Speedometer drive gear to pinion ratio	5/13.	

CAPACITIES

Fuel (commencing Car No. 487048 and Traveller No.

485127) 6½ gallons (7.83 U.S. gallons, 29.6 litres).

REAR AXLE

Type of axle	Three-quarter-floating.
Ratio	4.55 : 1.

GENERAL DATA

REAR SPRINGS (from Car No. 680464)

Number of leaves	..	..	..	..	..	5.
Thickness of leaves	..	..	..	..	..	$\frac{1}{4}$ in. (6.35 mm.).
Free camber	..	..	..	..	..	4.22 in. (10.72 cm.).
Working camber	..	..	..	..	..	.78 in. (19.84 mm.) positive.

TORQUE SPANNER READINGS

Front hub nut	..	..	..	..	..	35 to 40 lb. ft. (4.8 to 5.5 kg. m.).
Road wheel nuts	..	..	..	..	..	37 to 39 lb. ft. (5.1 to 5.4 kg. m.).
Steering-wheel nut	..	..	..	..	..	41 lb. ft. (5.7 kg. m.).

GENERAL DATA

The following general data for the Minor 1000 with 1098-c.c. engine should be read in conjunction with the general data given for the Minor 1000 with 948-c.c. engine, and the Minor (Series II).

ENGINE 10MA

Bore	.. .. .	.. ..	2.543 in. (64.58 mm.).
Stroke	.. .. .	.. ..	3.296 in. (83.72 mm.).
Capacity	.. .. .	.. ..	67 cu. in. (1098 c.c.).
● Idling speed	.. .. .	.. ..	500 r.p.m.●
Compression ratio	.. .. .	.. ..	8.5 : 1 (7.5 : 1 available).
● Compression pressure: (H.C.)	.. .. .	.. ..	150 lb./sq. in. (10.54 kg./cm. ²).
(L.C.)	.. .. .	.. ..	130 lb./sq. in. (9.14 kg./cm. ²).●
Capacity of combustion chamber (valves fitted)	.. .. .	.. ..	1.95 cu. in. (32 c.c.).
Oversize bore: First	.. .. .	.. ..	+ .010 in. (.254 mm.).
Max.	.. .. .	.. ..	+ .020 in. (.508 mm.).
Crankshaft			
Main journal diameter	.. .. .	.. ..	1.7505 to 1.751 in. (44.46 to 44.47 mm.).
Minimum regrind diameter	.. .. .	.. ..	1.7105 in. (43.45 mm.).
Crankpin journal diameter	.. .. .	.. ..	1.6254 to 1.6259 in. (41.28 to 41.29 mm.).
Crankpin minimum regrind diameter	.. .. .	.. ..	1.5854 in. (40.27 mm.).
Main bearings			
Number and type	.. .. .	.. ..	3 Shell type.
Material	.. .. .	.. ..	Steel-backed copper-lead.
Length	.. .. .	.. ..	1 $\frac{1}{8}$ in. (27 mm.).
Diametral clearance	.. .. .	.. ..	.001 to .0027 in. (.025 to .070 mm.).
Undersizes	.. .. .	.. ..	-.010 in., -.020 in., -.030 in., -.040 in. (.254 mm., .508 mm., .762 mm., 1.016 mm.).
Big-end bearings			
Material	.. .. .	.. ..	Steel-backed copper-lead.
Bearing side-clearance	.. .. .	.. ..	.008 to .012 in. (.203 to .305 mm.).
Bearing diametral clearance	.. .. .	.. ..	.001 to .0025 in. (.025 to .063 mm.).
Pistons			
Type	.. .. .	.. ..	Solid skirt.
Clearances: Bottom of skirt	.. .. .	.. ..	.0005 to .0011 in. (.013 to .028 mm.).
Top of skirt	.. .. .	.. ..	.0021 to .0037 in. (.053 to .094 mm.).
Oversizes	.. .. .	.. ..	+ .010 in., + .020 in. (.254 mm., .508 mm.).
Piston rings			
Compression: Type: Top ring	.. .. .	.. ..	Plain, internally chamfered (chrome-faced).
Second and third rings	.. .. .	.. ..	Tapered.
Width: Top ring	.. .. .	.. ..	.062 to .0625 in. (1.575 to 1.587 mm.).
Second and third rings	.. .. .	.. ..	.0615 to .0625 in. (1.558 to 1.587 mm.).
Thickness	.. .. .	.. ..	.106 to .112 in. (2.69 to 2.84 mm.).
Fitted gap	.. .. .	.. ..	.007 to .012 in. (.178 to .305 mm.).
Clearance in groove	.. .. .	.. ..	.002 to .004 in. (.051 to .102 mm.).
Oil control: Type	.. .. .	.. ..	Slotted scraper.
Width	.. .. .	.. ..	.124 to .125 in. (3.15 to 3.175 mm.).
Thickness	.. .. .	.. ..	.106 to .112 in. (2.69 to 2.84 mm.).
Fitted gap	.. .. .	.. ..	.007 to .012 in. (.178 to .035 mm.).
Clearance in groove	.. .. .	.. ..	.0015 to .0035 in. (.038 to .089 mm.).

GENERAL DATA

Gudgeon pin

Type	Fully floating.
Fit in piston	Hand push fit.

Valves

Head diameter: Inlet	1.156 in. (29.37 mm.).
Exhaust	1.000 in. (25.40 mm.).
Stem diameter: Inlet .. .. .	.2793 to .2798 in. (7.094 to 7.107 mm.).
Exhaust .. .. .	.2788 to .2793 in. (7.081 to 7.094 mm.).
Valve lift .. .. .	.312 in. (7.925 mm.).
Valve stem to guide clearance: Inlet .. .. .	.0015 to .0025 in. (.038 to .064 mm.).
Exhaust .. .. .	.002 to .003 in. (.051 to .076 mm.).
Valve rocker clearance: Running .. .. .	.012 in. (.305 mm.) (cold).
Timing .. .. .	.021 in. (.53 mm.).
Valve rocker bush bore (reamed) .. .. .	.5630 to .5635 in. (14.30 to 14.312 mm.).

Valve timing

Inlet valve: Opens	5° B.T.D.C.	} With .021 in. (.53 mm.) valve rocker clearance (for checking purposes only).
Closes	45° A.B.D.C.	
Exhaust valve: Opens	51° B.B.D.C.	
Closes	21° A.T.D.C.	

Valve guides

Length	1.531 in. (38.89 mm.).
Diameter: Outside .. .. .	.469 in. (11.91 mm.).
Inside .. .. .	.2813 to .2818 in. (7.145 to 7.157 mm.).

Valve springs

Free length	1.750 in. (44.45 mm.).
Number of working coils	4½.
Pressure: Valve open	85 lb. (38.6 kg.).
Valve closed	52.5 lb. (23.8 kg.).

Tappets

Type	Barrel.
Diameter .. .. .	.812 in. (20.64 mm.).
Length	1.5 in. (38.10 mm.).

Camshaft

Journal diameters: Front	1.6655 to 1.666 in. (42.304 to 42.316 mm.).
Centre	1.62275 to 1.62325 in. (41.218 to 41.231 mm.).
Rear	1.3725 to 1.3735 in. (34.862 to 34.887 mm.).
End-float .. .. .	.003 to .007 in. (.076 to .178 mm.).
Bearings: Type	White-metal-lined, steel-backed.
Inside diameter: Front	1.667 to 1.6675 in. (42.342 to 42.355 mm.).
Centre	1.62425 to 1.62475 in. (41.256 to 41.269 mm.).
Rear	1.3745 to 1.3750 in. (34.912 to 34.925 mm.).
Clearance .. .. .	.001 to .002 in. (.025 to .051 mm.).

ENGINE LUBRICATION SYSTEM

Oil pump

Type	Internal gear or vane.
Relief pressure valve operates	60 lb./sq. in. (4.2 kg./cm. ²).
Relief valve spring: Free length	2 ¹¹ / ₃₂ in. (72.63 mm.).
Fitted length	2 ⁵ / ₃₂ in. (54.77 mm.).

GENERAL DATA

Oil filter

Type	Full-flow with paper element.
Capacity	1 pint (1.2 U.S. pints, .57 litre).

Oil pressure

Normal running	60 lb./sq. in. (4.2 kg./cm. ²).
Idling (minimum)	15 lb./sq. in. (1.05 kg./cm. ²).

TORQUE WRENCH SETTINGS

Cylinder head stud nuts	40 lb. ft. (5.5 kg. m.).
Connecting rod big-end bolts	35 lb. ft. (4.8 kg. m.).
Main bearing set screws	60 lb. ft. (8.3 kg. m.).
Flywheel set screws	35 to 40 lb. ft. (4.8 to 5.5 kg. m.).
Rocker bracket nuts	25 lb. ft. (3.46 kg. m.).
Sump to crankcase	6 lb. ft. (.8 kg. m.).
Cylinder side cover	2 lb. ft. (.28 kg. m.).
Timing cover— $\frac{1}{4}$ in. UNF. bolts	6 lb. ft. (.8 kg. m.).
Timing cover— $\frac{5}{16}$ in. UNF. bolts	14 lb. ft. (1.9 kg. m.).
Water pump	17 lb. ft. (2.3 kg. m.).
Water outlet elbow	8 lb. ft. (1.1 kg. m.).
Oil filter	16 lb. ft. (2.2 kg. m.).
Oil pump	9 lb. ft. (1.2 kg. m.).
Manifold to cylinder head	15 lb. ft. (2.1 kg. m.).
Rocker cover	4 lb. ft. (.56 kg. m.).
Crankshaft pulley nut	70 lb. ft. (9.6 kg. m.).

FUEL SYSTEM

Carburetter

Make and type	S.U. Type HS2.
Float setting	$\frac{1}{8}$ to $\frac{3}{8}$ in. (3.18 to 4.76 mm.).
Diameter	$1\frac{1}{4}$ in. (31.75 mm.).
Jet .. .. .	.090 in. (2.29 mm.).
Needle	AN (standard). H6 (rich). EB (weak).
Spring	Red.

IGNITION SYSTEM

Sparking plugs

Make	Champion.
Type	N5.
Size	14 mm.
Gap .. .. .	.024 to .026 in. (.61 to .66 mm.).

Coil

Make	Lucas.
Type	LA 12.
Resistance	3.2 to 3.4 ohms.

GENERAL DATA

Distributor

Make	Lucas.
Type	25D4.
Serial number: (H.C.)	40849B.
(L.C.)	40899B.
Contact breaker gap .. .. .	.014 to .016 in. (.36 to .40 mm.).
Condenser capacity .. .. .	.18 to .24 mF.
Timing: (static)	3° B.T.D.C.
(stroboscopic)	6° B.T.D.C. at 600 engine r.p.m.
Centrifugal advance: (H.C.)	No advance below 200 r.p.m. 0° to 2° at 500 r.p.m. 1° to 5° at 800 r.p.m. 12° to 16° at 2,000 r.p.m. 25° to 29° at 4,400 r.p.m. 30° to 34° at 6,400 r.p.m.
Vacuum advance (H.C.):	
Starts	6 in. (152 mm.) Hg.
Ends.. .. .	14° at 13 in (330 mm.) Hg.
Dwell angle	60°±3°.
Centrifugal advance: (L.C.)	No advance below 500 r.p.m. 0° to 1° at 700 r.p.m. 1° to 5° at 1,200 r.p.m. 14° to 18° at 2,500 r.p.m. 28° to 32° at 3,800 r.p.m. 32° to 36° at 5,600 r.p.m.
Vacuum advance (L.C.):	
Starts	5 in. (127 mm.) Hg.
Ends.. .. .	20° at 17 in. (432 mm.) Hg.
Dwell angle	60°±3°.

ELECTRICAL EQUIPMENT

Battery	Lucas BT7A (BTZ7A Export). Lucas N9 (NZ9 Export). Lucas D9 (DZ9 Export)—later models.
●Capacity (Type D9): 20-hour rate	40 amp.-hr.●

CLUTCH

Type	Single dry plate.
Diameter	7½ in. (184 mm.).
Facing material	Wound yarn.
Pressure springs	6.
Colour	Yellow.
Pedal free movement	1¾ to 1½ in. (35 to 38 mm.).

GEARBOX

Number of forward speeds	4.
Synchromesh	Second, third, and fourth gears.
Ratios: Top	1.0 : 1.
Third	1.412 : 1.
Second	2.172 : 1.
First	3.628 : 1.
Reverse	4.664 : 1.

GENERAL DATA

Over-all ratios: Top	..	..	..	..	..	..	4.220 : 1.
Third	5.950 : 1.
Second	9.169 : 1.
First	15.276 : 1.
Reverse	19.665 : 1.

REAR AXLE

Ratio	4.22 : 1.
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BRAKES

Type	Lockheed hydraulic.
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Front

Drum diameter	8 in. (20.3 cm.).
Swept area	73.9 sq. in. (477 cm. ²).
Lining material	Ferodo AM8.

Rear

Drum diameter	7 in. (17.8 cm.).
Swept area	53.6 sq. in. (346 cm. ²).
Lining material	Ferodo AM8.

TYRES

Size	5.20—14.
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WEIGHTS

Kerbside

2-door saloon	1,686 lb. (764 kg.).
4-door saloon	1,733 lb. (786 kg.).
Convertible	1,688 lb. (766 kg.).
Traveller	..	..	..	..	..	..	1,821 lb. (826 kg.).
Towing	..	..	..	..	..	..	1,344 lb. (609.5 kg.).

CAPACITIES

Cooling system	..	..	..	..	..	..	8½ pints (10.5 U.S. pints, 5.0 litres).
Heater (when fitted)	..	..	..	..	..	..	1 pint (1.2 U.S. pints, .57 litre).