SPRITE/MIDGET

WORKSHOP MANUAL

Part 2

© BRITISH LEYLAND MOTOR CORPORATION LIMITED, 1972

INTRODUCTION

DESCRIPTION

This Manual is intended to assist the skilled mechanic in carrying out repairs and replacements in a minimum of time.

References to left- or right-hand side in this Manual are made when viewing the car from the rear.

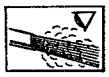
MANUAL ARRANGEMENT

The first part of the Manual includes the General Data, and Engine Tuning Data.

A Service Tools section and the Recommended Lubricants Chart are featured at the end of the Manual.

The remainder of the Manual is divided into sections and each section carries a reference letter that identifies the section with an assembly or a major component. Each section is preceded by a contents page and is sub-divided numerically. The pages and illustrations are numbered consecutively within each section and the section title and letter are shown at the top of each page.

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

IMPORTANT 

On cars fitted with emission control equipment service operations and adjustments showing this symbol must be followed by an exhaust emission check.

Servicing and adjusting vehicle control equipment must be carried out in accordance with the instructions given in **Workshop Manual Supplement AKD 4957** [Part 3 of this Manual].

REPAIRS AND REPLACEMENTS

When replacements are required it is essential that only genuine **British Leyland** parts and **Unipart** replacements are used.

Attention is particularly drawn to the following points concerning repairs and the fitting of replacement parts and accessories:

Safety features embodied in the car may be impaired if other than genuine parts are fitted. In certain territories, legislation prohibits the fitting of parts not to the vehicle manufacturers specification.

Torque wrench setting figures given in the Manual must be strictly adhered to.

Locking devices, where specified, must be fitted. If the efficiency of a locking device is impaired during removal it must be renewed.

Owners purchasing accessories while travelling abroad should ensure that the accessory and its fitted location on the car conform to mandatory requirements existing in their country of origin. **The terms of the Owner's Service Statement may be invalidated by the fitting of other than genuine British Leyland parts and Uniparts.**

All **British Leyland** parts and **Unipart** replacements have the full backing of the Owner's Service Statement.

Genuine parts are supplied in cartons bearing one or both of these symbols.

COPYRIGHT

© British Leyland UK Limited, 1973.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form, whether electronic, or mechanical, or by photocopying, recording or other means without prior written permission of Austin Morris Group, British Leyland UK Limited, Service and KD Division.

SPECIFICATION

Purchasers are advised that the specification details set out in this Manual apply to a range of vehicles and not to any particular vehicle. For the specification of any particular vehicle Purchasers should consult their Distributor or Dealer.

The Manufacturers reserve the right to vary their specifications with or without notice, and at such times and in such manner as they think fit. Major as well as minor changes may be involved in accordance with the Manufacturer's policy of constant product improvement.

Whilst every effort is made to ensure the accuracy of the particulars contained in this Manual, neither the Manufacturer nor the Distributor or Dealer, by whom this Manual is supplied, shall in any circumstances be held liable for any inaccuracy or the consequences thereof.

Getting the Best from your Car

Compression ratios 8·8 : 1 and 8·9 : 1

The high-compression engine is a highly developed unit, and it is essential that you should know something about the specialized maintenance it requires if you are to maintain it at the peak of its mechanical efficiency. Special recommendations on the sparking plugs, ignition settings, and fuel to be used are given by the manufacturers, and it is stressed that failures are bound to occur if these are not strictly adhered to. Particular care is needed with this engine owing to its high compression ratio, which makes it extremely sensitive to variations in fuel, ignition timing, and the heat range of the sparking plugs.

In lower compression engines a much wider range of fuels can be tolerated without causing serious damage to the engine, and ignition settings will stand variations of a reasonable amount. Also, even if the incorrect sparking plugs are used, no more damage may be incurred than burnt-out plugs or leaky valves. But with an engine having a very high compression ratio the range of fuels, sparking plugs, and ignition settings is much narrower and it is essential that the mixture should always be correct, and particularly never overweak at maximum load or power.

High-compression engines are very sensitive to variations in spark advance (over-advance) and to fuel/air ratio (mixture). Variations in these settings will increase the combustion temperature, and if the variation is excessive pre-ignition will cause high shock waves, resulting in damage to the engine.

The engine should be decarbonized at regular intervals as excessive deposits of ash from the combustion of lubricating oil and fuel can cause pre-ignition difficulties.

Choice of fuel

Compression ratio 8·9 : 1

The octane number of a motor fuel is an indication given by the fuel technicians of its knock resistance. High-octane fuels have been produced to improve the efficiency of engines by allowing them to operate on high compression ratios, resulting in better fuel economy and greater power. Owing to the high compression ratio of this engine, fuels with an octane rating below 98 are **not** suitable; should it be necessary to use a fuel with a lower octane number, the car must be used very carefully until the correct fuel can be obtained.

It is necessary to use Super grade fuels in the 100-octane range unless Premium fuels of minimum 98-octane Research are available.

Compression ratio 8·8 : 1

Fuels with an octane rating below 94 are **not** suitable.

Premium grade fuels with octane ratings of 97 to 99 must be used when optimum performance is required.

Sparking plugs

The correct grade of sparking plug for use under normal driving conditions is given in **'GENERAL DATA'.** Plugs of a lower heat range (hotter running) should not be used, otherwise pre-ignition will occur, with consequent rise in combustion temperature and resulting engine damage. For competition work or hard driving where high output is consistently sustained refer to Tuning Booklet C–AKD 5098. Accumulated deposits of carbon, leaking or cracked insulators, and thin electrodes are all causes of pre-ignition. The plugs should therefore be examined, cleaned, and adjusted at the specified intervals and defective ones renewed. New plugs should be fitted at regular intervals.

Ignition setting

It is of the utmost importance that the correct setting should always be maintained. It will be appreciated that any variation in the contact breaker gap will affect the ignition setting, and your particular attention is called to the check and adjustment of the distributor points specified in Section B. After adjusting the contact breaker gap to the correct setting (see **'GENERAL DATA'**) it is advisable to check the ignition timing, and to correct it if necessary.

An accurate static check can be carried out by a very simple electrical method. To do this, connect a 12-volt lamp between the low-tension terminal on the side of the distributor and a good earth point on the engine. With the ignition switched on and the sparking plugs removed, turn the crankshaft until the crankshaft pulley T.D.C. pointer is exactly at the correct number of degrees as stated under **'GENERAL DATA'.** If the ignition timing is correct the lamp will light at exactly this point. Any discrepancy in the ignition setting can be rectified by turning the vernier adjusting nut on the distributor until the test lamp lights at exactly the correct setting. If pinking should occur due to the use of a fuel of a lower range than our recommendations, retarding the ignition 2 to 3° can be tolerated. Under no circumstances should the ignition be advanced beyond the correct setting.

CONTENTS

GENERAL DATA

(948 c.c.)

ENGINE

Type	9CG.
Number of cylinders	4.
Bore	2·478 in. (62·94 mm.).
Stroke	3·00 in. (76·2 mm.).
Capacity	57·87 cu. in. (948 c.c.).
Firing order	1, 3, 4, 2.
Compression ratio: High	9 : 1.
Low	8·3 : 1.
Capacity of combustion chamber (valves fitted)	24·5 c.c.
Valve operation	Overhead, by push-rod.
Oversize bore: 1st	·010 in. (·254 mm.).
Max.	·040 in. (1·016 mm.).
Torque (H.C.)	52·8 lb. ft. (7·3 kg. m.) at 3,000 r.p.m.

Crankshaft

Main journal diameter	1·7505 to 1·7510 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 41·30 mm.).
Crankpin minimum regrind diameter	1·5854 in. (40·27 mm.).

Main bearings

Number and type	3 shell type.
Material: Bottom half	Steel-backed, lead-indium-lined.
Top half	Steel-backed, lead-indium-lined.
Length	1·1875 in. (30·16 mm.).
End-clearance	·002 to ·003 in. (·051 to ·076 mm.).
End-thrust	Taken by thrust washers at centre main bearing.
Diametrical clearance	·001 to ·0025 in. (·025 to ·063 mm.).
Undersizes	—·010 in., —·020 in., —·030 in., —·040 in. (—·254 mm., —·508 mm., —·762 mm., —1·02 mm.).

Connecting rods

Length between centres	5·75 in. (14·605 cm.).

Big-end bearings

Material: Bottom half	Steel-backed, lead-indium-lined.
Top half	Steel-backed, lead-indium-lined.
Bearing side clearance	·008 to ·012 in. (·203 to ·305 mm.).
Bearing diametrical clearance	·001 to ·0025 in. (·025 to ·063 mm.).

Pistons

Type	Flat crown, aluminium alloy, anodized.
Clearances: Bottom of skirt	·0016 to ·0022 in. (·040 to ·056 mm.).
Top of skirt	·0036 to ·0042 in. (·0914 to ·1067 mm.).
Oversizes	+·010 in., +·020 in., +·030 in., +·040 in. (+·254 mm., +·508 mm., +·762 mm., +1·02 mm.).

Piston rings

Compression: Plain	Top ring.
Tapered	Second and third rings.
Width (plain)	·069 to ·070 in. (1·75 to 1·78 mm.).
Thickness	·103 to ·109 in. (2·62 to 2·78 mm.).
Fitted gap	·007 to ·012 in. (·178 to ·30 mm.).
Clearance in groove	·0015 to ·0035 in. (·038 to ·089 mm.).
Oil control type	Slotted scraper.
Width	·124 to ·125 in. (3·15 to 3·175 mm.).
Thickness	·103 to ·109 in. (2·62 to 2·78 mm.).
Fitted gap	·007 to ·012 in. (·178 to ·30 mm.).
Clearance in groove	·0015 to ·0035 in. (·038 to ·089 mm.).

Gudgeon pin	
Type	Semi-floating.
Fit in piston	·0001 to ·00035 in. (·0025 to ·009 mm.).
Fit in connecting rod	·0001 to ·0006 in. (·0025 to ·015 mm.).
Diameter (outer)	·6244 to ·6246 in. (15·86 to 15·865 mm.).
Valves	
Seat angle: Inlet and exhaust	45°.
Head diameter: Inlet	1·151 to 1·156 in. (29·23 to 29·36 mm.).
Exhaust	1·000 to 1·005 in. (25·4 to 25·53 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 ·063 mm.).
Exhaust	·002 to ·003 in. (·051 to ·076 mm.).
Valve rocker clearance: Running (cold)	·012 in. (·305 mm.); ·015 in. (·381 mm.) for competition work.
Valve rocker bush bore (reamed)	·5630 to ·5635 in. (14·30 to 14·31 mm.).
Valve timing	
Timing markings	Dimples on timing wheels.
Chain pitch and number of pitches	$\frac{3}{8}$ in. (9·52 mm.). 52 pitches.
Inlet valve: Opens	5° B.T.D.C.
Closes	45° A.B.D.C.
Exhaust valve: Opens	51° B.B.D.C.
Closes	21° A.T.D.C.
Valve rocker clearance: timing check	·021 in. (·74 mm.).
Valve guides	
Length: Inlet and exhaust	1·687 in. (42·86 mm.).
Diameter—inlet and exhaust: Outside	·4695 to ·470 in. (11·92 to 11·94 mm.).
Inside	·2813 to ·2818 in. (7·145 to 7·177 mm.).
Fitted height above head	$\frac{19}{32}$ in. (15·1 mm.).
Valve springs	
Free length: Inner	1·672 in. (42·47 mm.).
Outer	1·75 in. (44·45 mm.).
Fitted length: Inner	1·179 in. (29·95 mm.).
Outer	1·291 in. (32·79 mm.).
Number of working coils: Inner	$6\frac{1}{2}$.
Outer	$4\frac{1}{2}$.
Pressure: Valve open: Inner	30 lb. (13·6 kg.).
Outer	88 lb. (39·9 kg.).
Valve closed: Inner	18 lb. (8·17 kg.).
Outer	52 lb. (23·6 kg.).
Tappets	
Type	Bucket.
Diameter	·8120 in. (20·62 mm.).
Length	1·505 in. (38·23 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.).
Bearing: number and type	3. Steel-backed white metal.
Inside diameter (reamed in position): Front	1·667 to 1·6675 in. (42·342 to 42·355 mm.).
Centre	1·62425 to 1·62475 in. (41·256 to 41·369 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	Eccentric rotor or vane type.
Relief pressure valve operates	60 lb./sq. in. (4·2 kg./cm.²).
Relief valve spring: Free length	2·859 in. (72·63 mm.).
Fitted length	2·156 in. (54·77 mm.).

Oil filter

Type	Full-flow.
Capacity	1 pint (1·2 U.S. pints, ·57 litre).

Oil pressure

Normal running	30 to 60 lb./sq. in. (2·1 to 4·22 kg./cm.²).
Idling (minimum)	10 to 25 lb./sq. in. (·7 to 1·7 kg./cm.²).

FUEL SYSTEM

Carburetters

Make and type	S.U. twin HS2 semi-downdraught.
Diameter	1¼ in. (31·75 mm.).
Jet	·090 in. (2·29 mm.).
Needles	Standard V3. Rich V2. Weak GX.
Piston spring	Light blue.

Fuel pump

Make and type	A.C. 'Y' type. Mechanical.
Delivery rate	40 pints/hr. (48 U.S. pints/hr., 22·8 litres/hr.).
Delivery pressure	1·5 to 2·5 lb./sq. in. (·105 to ·175 kg./cm.²).

Air cleaners

Type	Paper element.

COOLING SYSTEM

Type	Pressurized radiator. Thermo-siphon, pump- and fan-assisted.
Thermostat setting	65 to 70° C. (149 to 158° F.).
Blow-off pressure	7 lb./sq. in. (·49 kg./cm.²).

IGNITION SYSTEM

Sparking plugs	Champion N5.
Size	14 mm.
Plug gap	·024 to ·026 in. (·625 to ·660 mm.).
Coil	Lucas Type LA12.
Distributor	Lucas Type DM2P4.
Distributor contact points gap	·014 to ·016 in. (·36 to ·40 mm.).
Static ignition setting: High compression	4° B.T.D.C.
Low compression	1° B.T.D.C.

CLUTCH

Type	Single dry plate.
Diameter	6¼ in. (16 cm.).
Facing material	Wound yarn.
Pressure springs	6.
Colour	Yellow and dark green.
Damper springs	4.
Colour	Light grey.
Clutch fluid	Lockheed Super Heavy Duty.

GEARBOX

Number of forward speeds	4.
Synchromesh	Second, third, and top gears.
Ratios: Top	1·0 : 1.
Third	1·357 : 1.
Second	1·916 : 1.
First	3·200 : 1.
Reverse	4·114 : 1.
Overall ratios: Top	4·22 : 1.
Third	5·726 : 1.
Second	8·085 : 1.
First	13·504 : 1.
Reverse	17·361 : 1.
Speedometer gear ratio	5/13.

STEERING

Type	Rack and pinion.	
Steering-wheel turns—lock to lock	$2\frac{1}{4}$.	
Steering-wheel diameter	16 in. (40·6 cm.).	
Camber angle	$\frac{3}{4}°$.	Static unladen condition.
Castor angle	3°.	
King pin inclination	$6\frac{3}{4}°$.	
Toe-in	0 to $\frac{1}{8}$ in. (0 to 3·17 mm.).	
Steering lock angle of outer wheel with inner wheel at 20°	$18\frac{1}{2}°$.	

FRONT SUSPENSION

Type	Independent. Coil springs.
Free length	9·4 in. (23·8 cm.).
Mean coil diameter	3·625 in. (9·2 cm.).
Number of effective coils	7.
Working load	750 lb. (340 kg.).
Spring rate	271 lb. in. (3·127 kg. m.).
Dampers (front)	Lever arm type.

REAR SUSPENSION

Type	Quarter-elliptic.
Spring details: Number of leaves	15.
Thickness of leaves	5 at $\frac{5}{32}$ in. (3·97 mm.), 10 at $\frac{1}{8}$ in. (3·18 mm.).
Width of leaves	$1\frac{3}{4}$ in. (44·45 mm.).
Working load	375 lb. (170 kg.).
Free camber	$3\frac{7}{32}$ in. (81·76 mm.).
Dampers (rear)	Lever arm type.

PROPELLER SHAFT

Type	Tubular. Reverse spline.
Make and type of joints	Hardy Spicer. Needle-roller.
Propeller shaft length (between centres of joints)	$26\frac{1}{4}$ in. (66·6 cm.).
Diameter	$1\frac{3}{4}$ in. (44·45 mm.).

REAR AXLE

Type	Three-quarter-floating.
Ratio	9/38 (4·22 : 1).
(Later cars)	3·9 : 1

ELECTRICAL EQUIPMENT

System	12-volt. Positive earth.
Charging system	Compensated voltage control.
Battery	Lucas BT7A (BTZ7A Export).
Capacity	43 amp.-hr. (at 20-hour rate).
Electrolyte to fill one cell	¾ pint (430 c.c., ⅞ U.S. pint).
Starter motor	Lucas 4-brush M35G/1.
Dynamo	Lucas C39.
Maximum output	19 amps.
Field coil resistance	6·1 ohms±5%.
Control box	Lucas RB106.
Cut-out: Cut-in voltage	12·7 to 13·3.
Drop-off voltage	8·5 to 11·0.
Reverse current	5·0 amps. (max.).
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.	

BRAKES

Type	Lockheed hydraulic.
Front	Two leading shoes.
Rear	Single leading shoe.
Drum size	7 in. (17·78 cm.).
Lining dimensions: Front and rear	6¾ in. × 1¼ in. (17·14 cm. × 3·175 cm.).
Total lining area	67·5 sq. in. (435·37 cm.²).
Brake fluid	Lockheed Super Heavy Duty.

WHEELS

Type	Ventilated disc. 4-stud fixing.

TYRES

Size	5·20—13.
Tyre pressures—normal and fully loaded: Front	18 lb./sq. in. (1·27 kg./cm.²).
Rear	20 lb./sq. in. (1·41 kg./cm.²).
Tyre pressures—for sustained speeds in excess of 80–85 m.p.h. (129–136 km.p.h.) increase pressure to: Front	24 lb./sq. in. (1·69 kg./cm.²).
Rear	26 lb./sq. in. (1·83 kg./cm.²).

CAPACITIES

	Imp.	*U.S*	*Litres*
Engine sump (including filter)	6·5 pts.	7·8 pts.	3·7
Gearbox	2·25 pts.	2·7 pts.	1·3
Rear axle	1·75 pts.	2·1 pts.	·99
Cooling system (without heater)	10 pts.	12 pts.	5·68
Heater	·5 pt.	·6 pt.	·25
Fuel tank	6 gal.	7·2 gal.	27·3

GENERAL DIMENSIONS

Wheelbase	6 ft. 8 in. (2·03 m.).
Overall length	11 ft. 5⅜ in. (3·49 m.).
Overall width	4 ft. 5 in. (1·35 m.).
Overall height	4 ft. 1¾ in. (1·25 m.).
Ground clearance	5 in. (12·7 cm.).
Turning circle: Left lock	32 ft. 1½ in. (9·79 m.).
Right lock	31 ft. 2½ in. (9·51 m.).
Track: Front	3 ft. 9¾ in. (1·16 m.) (static unladen condition).
Rear	3 ft. 8¾ in. (1·14 m.).
Vehicle weight (dry)	1,400 lb. (635 kg.).

WEIGHTS OF COMPONENTS

Engine	246 lb. (111·5 kg.).
Gearbox	44 lb. (19·95 kg.).
Axle	83 lb. (37·64 kg.).

TORQUE WRENCH SETTINGS

Cylinder head nuts	40 lb. ft. (5·5 kg. m.).
Main bearing set screws	60 lb. ft. (8·3 kg. m.).
Connecting rod bolts	35 lb. ft. (4·8 kg. m.).
Flywheel securing bolts	40 lb. ft. (5·5 kg. m.).
Steering-wheel nut	40 lb. ft. (5·5 kg. m.).
Road wheel nuts	45 lb. ft. (6·22 kg. m.).
Rear damper bolts	25 lb. ft. (3·4 kg. m.).
Front hub nuts	25 to 65 lb. ft. (3·4 to 8·9 kg. m.).

GENERAL DATA

(1098 c.c.)

The following information is applicable to the 1098-c.c.-engined car and should be used in conjunction with the preceding specification for the 948-c.c.-engined car.

ENGINE

Type	10CG.
Bore	2·543 in. (64·58 mm.).
Stroke	3·296 in. (83·72 mm.).
Capacity	67 cu. in. (1098 c.c.).
Compression ratio	8·9 : 1 (or 8·1 : 1).
Capacity of combustion chamber (valves fitted)	1·8 cu. in. (28·2 c.c.).
Valve operation	Overhead by push-rod.
Oversize bore: 1st	+·010 in. (·254 mm.).
Max.	+·020 in. (·508 mm.).
Torque	H.C. 62 lb. ft. (8·6 kg. m.) 3,250 r.p.m. L.C. 61 lb. ft. (8·4 kg. m.) 3,250 r.p.m.

Main bearings

Length	$1\frac{1}{16}$ in. (27 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.).
Clearance in groove	·002 to ·004 in. (·051 to ·102 mm.).
Oil control: Type: Early engines	Slotted scraper.
Thickness	·106 to ·112 in. (2·69 to 2·84 mm.).
Type: Later engines	Wellworthy-Duraflex 61.
Fitted gap: Rails	·012 to ·028 in. (·31 to ·7 mm.).
Side spring	·10 to ·15 in. (2·54 to 3·81 mm.).

Gudgeon pin

Type	Fully floating.
Fit in piston	Hand push fit.

Valves

Head diameter: Inlet	1·213 to 1·218 in. (30·81 to 30·94 mm.).

FUEL SYSTEM

Carburetters

Needles: Standard	GY.
Weak	GG.
Rich	M.
Piston spring	Blue.

COOLING SYSTEM

Thermostat setting

Standard	82° C. (180° F.).
Hot climates	74° C. (165° F.).
Cold climates	88° C. (190° F.).

GENERAL DATA

SPRITE (Mk. III) and MIDGET (Mk. II)

The following information is applicable to the Sprite (Mk. III) and Midget (Mk. II) and should be used in conjunction with the preceding specifications.

ENGINE

Type	10CC.
Torque	H.C. 65 lb. ft. (8·9 kg. m.) at 3,500 r.p.m. L.C. 64 lb. ft. (8·8 kg. m.) at 3,250 r.p.m.
Crankshaft	
Main journal diameter	2·0005 to 2·0010 in. (50·79 to 50·80 mm.).

FUEL SYSTEM

Carburetters	
Needles	Standard AN. Rich H6. Weak GG.
Fuel pump	
Make and type	S.U. (electrical) Type AUF200.
Delivery rate	56 pints/hr. (67 U.S. pints/hr., 32 litres/hr.).
Delivery pressure	2·5 to 3·0 lb./sq. in. (·17 to ·21 kg./cm.²).

FRONT SUSPENSION

Spring free length	9·59 in. (24·4 cm.).

REAR SUSPENSION

Type	Semi-elliptic.
Spring details: Number of leaves	5.
Thickness of leaves	$\frac{11}{64}$ in. (4·37 mm.).
Width of leaves	$1\frac{1}{2}$ in. (38·10 mm.).
Working load	375 lb. (170 kg.).
Free camber	4·437 (112·7 mm.).

TYRES

Tyre pressures—for sustained speeds in excess of 80–85 m.p.h. (129–136 km.p.h.) increase pressure to: Front	22 lb./sq. in. (1·55 kg./cm.²).
Rear	24 lb./sq. in. (1·69 kg./cm.²).

WEIGHTS

Vehicle weight (dry)	1,490 lb. (676 kg.).

TORQUE WRENCH SETTINGS

Cylinder side cover (deep pressed type)	5 lb. ft. (·7 kg. m.).

GENERAL DATA
SPRITE (Mk. IV) and MIDGET (Mk. III)

The following information is applicable to the Sprite (Mk. IV) and Midget (Mk. III) and should be used in conjunction with the preceding specifications.

ENGINE

Type: Early cars	12CC, 12CE.
Midget Mk. III from Car No. G–AN5–105501	12V.
Number of cylinders	4.
Bore	2·78 in. (70·61 mm.).
Stroke	3·2 in. (81·28 mm.).
Capacity	77·8 cu. in. (1274·86 c.c.).
Firing order	1, 3, 4, 2.
Valve operation	Overhead by push-rod.
Compression ratio: H.C.	8·8 : 1.
L.C.	8·0 : 1.
B.M.E.P.: H.C. (Standard)	139 lb./sq. in. (9·77 kg./cm.²) at 3,000 r.p.m.
L.C. (Standard)	127 lb./sq. in. (8·93 kg./cm.²) at 3,000 r.p.m.
Torque: H.C. (Standard)	72 lb. ft. (9·96 kg. m.) at 3,000 r.p.m.
L.C. (Standard)	64·5 lb. ft. (8·91 kg. m.) at 3,000 r.p.m.
Cranking pressure: H.C.	120 lb./sq. in. (8·44 kg./cm.²) at 350 r.p.m.
Engine idle speed	650 to 700 r.p.m.
Oversize bore: 1st	·010 in. (·254 mm.).
Max.	·020 in. (·508 mm.).

Crankshaft

Main journal diameter	2·0005 to 2·0010 in. (50·813 to 50·825 mm.).
Crankpin journal diameter	1·6252 to 1·6259 in. (41·28 to 41·29 mm.).
Regrind—Main and crankpin journals	Maximum permissible, without heat treatment: 0·010 in. (·254 mm.) below the standard diameter.
Crankshaft end-thrust	Taken by thrust washers at centre main bearing.
Crankshaft end-float	·002 to ·003 in. (·051 to ·076 mm.).

Main bearings

Number and type	3 thin-wall; split shells, steel backed: copper-lead-indium.
Material	VP3 lead-indium or NFM/3B.
Length	·975 to ·985 in. (24·765 to 25·019 mm.).
Diametrical clearance	·0010 to ·0027 in. (·0254 to ·067 mm.).

Connecting rods

Type	Horizontally split big-end, plain small-end.
Length between centres	5·748 to 5·792 in. (145·99 to 145·101 mm.).

Big-end bearings

Type and material	Steel-backed lead-indium plated.
Length	·840 to ·850 in. (21·336 to 21·590 mm.).
Diametrical clearance	·0010 to ·0025 in. (·0254 to ·063 mm.).
End-float on crankpin	·006 to ·010 in. (·15 to ·254 mm.).

Pistons

Type	Aluminium solid skirt dished crown.
Clearance in cylinder: Top of skirt	·0029 to ·0037 in. (·074 to ·095 mm.).
Bottom of skirt	·0015 to ·0021 in. (·038 to ·054 mm.).
Number of rings	4 (3 compression, 1 oil control).
Width of ring grooves: Top, second, and third	·0484 to ·0494 in. (1·229 to 1·255 mm.).
Oil control	·1578 to ·1588 in. (4·008 to 4·033 mm.).
Gudgeon pin bore	·8125 to ·8129 in. (20·638 to 29·647 mm.).

Piston rings

Compression:	
Type: Top	Internally chamfered chrome.
Second and third	Tapered cast iron.
Width: Top	·0615 to ·0625 in. (1·558 to 1·583 mm.).
Second and third	
Fitted gap: Top	·011 to ·016 in. (·279 to ·406 mm.).
Second and third	·008 to ·013 in. (·203 to ·330 mm.).
Ring to groove clearance: Top	·0015 to ·0035 in. (·038 to ·088 mm.).
Second and third	

Oil control

Type	Duaflex 61.
Fitted gap: Rails	·012 to ·028 in. (·305 to ·70 mm.).
Side spring	

Gudgeon pin

Type	Pressed in connecting rod.
Fit in piston	Hand push-fit.
Diameter (outer)	·8123 to ·8125 in. (20·63 to 20·64 mm.).
Fit to connecting rod	·0008 to ·0015 in. (·020 to ·038 mm.) interference.

Camshaft

Journal diameters: Front	1·6655 to 1·6660 in. (42·304 to 42·316 mm.).
Centre	1·62275 to 1·62325 in. (41·218 to 41·231 mm.).
Rear	1·37275 to 1·37350 in. (34·866 to 34·889 mm.).
Bearing liner inside diameter (reamed after fitting): Front	1·6670 to 1·6675 in. (42·342 to 42·355 mm.).
Centre	1·62425 to 1·62475 in. (41·256 to 41·369 mm.).
Rear	1·3745 to 1·3750 in. (34·912 to 34·925 mm.).
Bearings: Type	White-metal lined, steel backed.
Diametrical clearance	·001 to ·002 in. (·0254 to ·0508 mm.).
End-thrust	Taken on locating plate.
End-float	·003 to ·007 in. (·076 to ·178 mm.).
Cam lift	·250 in. (6·35 mm.).
Drive	Duplex chain and gear from crankshaft.
Timing chain	$\frac{3}{8}$ in. (9·52 mm.) pitch × 52 pitches.

Tappets

Type	Bucket.
Outside diameter	·81175 to ·812 in. (20·618 to 20·64 mm.).
Length	1·495 to 1·505 in. (37·973 to 38·23 mm.).

Rocker gear

Rocker shaft:	
Diameter	·5615 to ·5625 in. (14·262 to 14·287 mm.).
Rocker arm:	
Bore	·686 to ·687 in. (17·424 to 17·449 mm.).
Rocker arm bush inside diameter	·5630 to ·5635 in. (14·3 to 14·313 mm.).

Valves

Seat angle: Inlet and exhaust	45°.
Head diameter: Inlet	1·307 to 1·312 in. (33·198 to 33·21 mm.).
Exhaust	1·1515 to 1·1565 in. (29·243 to 29·373 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.).
Stem to guide clearance: Inlet and exhaust	·0015 to ·0025 in. (·0381 to ·0778 mm.).
Valve lift: Inlet and exhaust	·318 in. (8·076 mm.).

Valve guides		
Length: Inlet	1·6875 in. (42·87 mm.).	
Exhaust		
Fitted height above seat: Exhaust	·540 in. (13·72 mm.).	
Inlet		
Valve springs	*Outer*	*Inner*
Free length	1·828 in. (46·47 mm.).	1·703 in. (43·26 mm.).
Fitted length	1·383 in. (35·13 mm.).	1·270 in. (32·26 mm.).
Load at fitted length	51 lb. (23·1 kg.).	25 lb. (11·3 kg.).
Load at top of lift	87 lb. (39·5 kg.).	44 lb. (20 kg.).
Valve crash speed	6,750 r.p.m.	
Valve timing		
Timing marks	Dimples on timing gears.	
Rocker clearance: Running (Standard)	·012 in. (·30 mm.) cold.	
(Competition work)	·015 in. (·38 mm.) cold.	
Timing	·029 in. (·72 mm.).	
Inlet valve: Opens	5° B.T.D.C.	
Closes	45° A.B.D.C.	
Exhaust valve: Opens	51° B.B.D.C.	
Closes	21° A.T.D.C.	
Lubrication		
System pressure: Running	40 to 70 lb./sq. in. (2·81 to 4·92 kg./cm.²).	
Idling	20 lb./sq. in. (1·4 kg./cm.²).	
Oil pump	Eccentric rotor: splined drive from camshaft.	
Oil filter	Full-flow type; renewable element: differential pressure switch. Later cars: disposable cartridge type.	
Oil pressure relief valve	50 lb./sq. in. (5·3 kg./cm.²).	
Relief valve spring: Free length	2·86 in. (72·64 mm.).	
Fitted length	2·156 in. (54·77 mm.).	
Load at fitted length	13 to 14 lb. (5·90 to 6·35 kg.).	

IGNITION SYSTEM

Coil	Lucas 11C 12.	
Resistance at 20° C. (68° F.) primary winding	3 to 3·4 ohms.	
Consumption: Ignition switch on	3·5 to 4 amps.	
At 2,000 r.p.m.	1 amp.	
Distributor	Lucas 23D4.	
Rotation of rotor arm	Anti-clockwise.	
Cam closed period	60°±3°.	
Cam open period	30°±3°.	
Serial number	40819.	41198.
Type	23D4.	25D4.
Automatic advance	Centrifugal.	Centrifugal and vacuum.
Centrifugal advance		
Crankshaft degrees—(vacuum pipe disconnected)	0°–3° at 600 r.p.m.	0°–1° at 600 r.p.m.
	6°–12° at 1,000 r.p.m.	2°–6° at 800 r.p.m.
	11°–15° at 2,000 r.p.m.	4°–8° at 1,000 r.p.m.
	22°–26° at 5,200 r.p.m.	10°–14° at 2,000 r.p.m.
	28°–32° at 7,000 r.p.m.	20°–24° at 5,600 r.p.m.
Vacuum advance		
Starts		5 in. Hg.
Finishes		8 in. Hg.
Total crankshaft degrees		6°±2°.
Contact point gap setting	·014 to ·016 in. (·35 to ·40 mm.).	
Breaker spring tension	18 to 24 oz. (510 to 680 gm.).	
Condenser capacity	·18 to ·24 mF.	
Timing marks	Pointer on timing chain case and notch in crankshaft pulley.	

Static ignition timing: H.C.	7° B.T.D.C.
L.C.	7° B.T.D.C.
Stroboscopic ignition timing	22° at 1,200 r.p.m. (23D4 distributor). 13° at 1,000 r.p.m. (25D4 distributor).
Sparking plugs	Champion N9Y.
Size	14 mm.
Gap	·024 to ·026 in. (·62 to ·66 mm.).

COOLING SYSTEM

Thermostat settings: Standard	82° C. (180° F.).
Hot countries	74° C. (165° F.).
Cold countries	88° C. (190° F.).
Pressure cap: Early cars	7 lb./sq. in. (·49 kg./cm.²).
Later cars	15 lb./sq. in. (1·05 kg./cm.²).
Capacity with heater	6 pints (3·4 litres, 7 U S. pints).

FUEL SYSTEM

Carburetter	Twin S.U. Type H.S.2.
Choke diameter	1·25 in. (31·75 mm.).
Jet size	·090 in. (2·29 mm.).
Needles	Standard AN; Weak GG; Rich H6.
Piston spring	Light blue.

CLUTCH

Make and type	Borg & Beck; diaphragm-spring type.
Clutch plate diameter	6·5 in. (165 mm.).
Facing material: Early cars	Wound yarn.
Later cars	Thermoid 11046
Number of damper springs	4.
Damper spring colour	2 lavender, 2 white and violet. Later cars: 2 violet and white, 1 pale blue, 1 maroon and cream.
Clutch release bearing	Carbon pad. Later cars: carbon pad, Schunke and Ebe ref. U.5671.
Clutch fluid	Lockheed Disc brake (Series II).

STEERING

Type	Rack and pinion.
Steering-wheel turns lock to lock:	
Early cars	2·25.
Midget Mk. III from Car No. G–AN5–114643	2·8.
Steering-wheel diameter	$15\frac{1}{2}$ in. (39·4 cm.).
Toe-in	0 to $\frac{1}{8}$ in. (0 to 3·17 mm.).
Camber angle	$\frac{3}{4}°$.
Caster angle	3°.
Pinion end-float:	
Midget Mk. III from Car No. G–AN5–114643	·010 in. (·25 mm.).
King pin inclination:	
Early cars	$6\frac{3}{4}° \pm 1\frac{1}{4}°$.
Later cars: Laden	6° 30′ } $\pm 1°$ 15′.
Unladen	6° 45′ }
Steering lock angle of outer wheel with inner wheel at 20°:	
Early cars	$19\frac{3}{4}° \pm 1\frac{1}{4}°$.
Later cars	$19° 30' {}^{+30'}_{-1°}$.

BRAKES

Lining material: front	Ferodo 2424F–GG.
rear	Ferodo AM8–FF.
Brake fluid	Lockheed Disc Brake (Series II).
Front brake disc size: Standard width	·300 to ·305 in. (7·62 to 7·75 mm.).
Minimum permissible width	·29 in. (7·37 mm.).

WHEELS

Size and type (Pressed spoked)	4½J SL×13.
(Pressed disc)	3·5D×13.
(Wire)	4J×13.

GEARBOX

Number of forward speeds	4.
Synchromesh	Second, third, and top gears.
Ratios: Top	1·0 : 1.
Third	1·357 : 1.
Second	1·916 : 1.
First	3·200 : 1.
Reverse	4·114 : 1.
Overall ratios: Top	3·9 : 1.
Third	5·292 : 1.
Second	7·472 : 1.
First	12·480 : 1.
Reverse	16·044 : 1.
Speedometer gear ratio	5/13.

TYRE PRESSURES

	5·20—13S Cross-ply tyres		145SR—13 Radial-ply tyres	
	Front	*Rear*	*Front*	*Rear*
Normal car weight	18 lb./sq. in. (1·27 kg./cm.²)	20 lb./sq. in. (1·4 kg./cm.²)	22 lb./sq. in. (1·55 kg./cm.²)	24 lb./sq. in. (1·69 kg./cm.²)
Maximum weight	18 lb./sq. in. (1·27 kg./cm.²)	24 lb./sq. in. (1·69 kg./cm.²)	22 lb./sq. in. (1·55 kg./cm.²)	26 lb./sq. in. (1·83 kg./cm.²)

It is recommended that for sustained speeds at near the maximum the above tyre pressures are increased by 4 lb./sq. in. (·28 kg./cm.²).

WEIGHTS

	Including	*Total weight*	*Distribution*	
			Front	*Rear*
Kerbside	Full fuel tank, all optional extras and accessories	1,701 lb. (772 kg.)	861 lb. (391 kg.)	840 lb. (381 kg.)
Normal	Kerbside weight, driver, passenger, and 50 lb. (22·7 kg.) luggage	2,001 lb. (908 kg.)	959 lb. (435 kg.)	1,042 lb. (473 kg.)
Maximum	Normal weight and towbar hitch load	2,151 lb. (975 kg.)	926 lb. (420 kg.)	1,225 lb. (556 kg.)
Maximum permissible towing weight		1,344 lb. (610 kg.)		
Towbar hitch load		Maximum 100 lb. (45·4 kg.)		

CAPACITIES

Fuel tank: Midget Mk. III from Car No. G–AN5–105501 ..	7 gallons (32 litres).

DIMENSIONS

	Pressed spoked wheels	*Wire wheels*	*Pressed disc wheels*
Turning circle: Later cars		32 ft. 5 in. (9·88 m.).	
Track: Front	3 ft. 10 9/16 in. (1·18 m.).	3 ft 10 5/16 in. (1·18 m.).	3 ft. 10 5/16 (1·18 m.).
Rear	3 ft. 10 in. (1·17 m.).	3 ft. 9¼ in. (1·15 m.).	3 ft. 8¾ in. (1·14 m.).
Overall width		4 ft. 8½ in. (1·5 m.).	4 ft. 6⅞ in. (1·4 m.).
Overall height		4 ft. ⅝ in. (1·22 m.).	

DIMENSIONS (1974 U.S.A. cars)

Overall width	4 ft. 5⅝ in. (1·36 m.).	4 ft. 8⅛ in. (1·44 m.)	4 ft. 6⅞ in. (1·39 m.).
Overall height:			
Cross-ply tyres	4 ft. ⅝ in. (1·24 m.).	4 ft. ⅝ in. (1·24 m.)	4 ft. ⅝ in. (1·24 m.).
Radial-ply tyres	4 ft. ¼ in. (1·23 m.).	4 ft. ¼ in. (1·23 m.).	4 ft. ¼ in. (1·23 m.).
Overall length (Midget Mk. III from Car No. G–AN5–138801)	11 ft. 4½ in. (3·47 m.).	11 ft. 4½ in. (3·47 m.)	11 ft. 4½ in. (3·47 m.).

TORQUE WRENCH SETTINGS

Oil pump securing bolts	12 lb. ft. (1·66 kg. m.).
Cylinder head nuts:	
Plain studs	42 lb. ft. (5·81 kg. m.).
Studs stamped 22 or with small drill point	50 lb. ft. (6·91 kg. m.).
Connecting rod nuts	40 lb. ft. (5·53 kg. m.).
	Nyloc nut: 32 to 34 lb. ft. (4·43 to 4·70 kg. m.).
Fan securing bolts	100 lb. in. (1·15 kg. m.).
Road wheel nuts	45 lb. ft. (6·22 kg. m.).
Steering-column pinch bolt	9 to 11 lb. ft. (1·2 to 1·5 kg. m.).
Oil filter	10 to 15 lb. ft. (1·38 to 2 kg. m.).
Petrol tank drain plug	100 to 120 lb. in. (1·15 to 1·38 kg. m.).
Oil pipe union adaptor—oil filter head	19 to 21 lb. ft. (2·63 to 2·9 kg. m.).
Clutch bolts	18 to 22 lb. ft. (2·49 to 3·04 kg. m.).
Midget Mk. III from Car No. G–AN5–114643:	
Steering rack clamp bolts	20 to 22 lb. ft. (2·77 to 3·04 kg. m.).
Steering rack mounting bracket retaining bolts	23 to 25 lb. ft. (3·18 to 3·46 kg. m.).
Tie-rod end assembly locknut	30 to 35 lb. ft. (4·15 to 4·84 kg. m.).
Tie-rod end assembly ball joint nut	28 to 32 lb. ft. (3·87 to 4·48 kg. m.).
Tie-rod inner ball joint assembly locknut	80 lb. ft. (11·06 kg. m.).

ELECTRICAL

Regulator

Make/type	Lucas RB340.
Setting at 20° C. (68° F.), 3,000 r.p.m. dynamo	14·5 to 15·5 volts.
Cut-in voltage	12·7 to 13·3 volts.
Drop-off voltage	9·5 to 11·0 volts.

Starter

Make/type	Lucas M35J.
Brush spring tension	28 oz. (·8 kg.).
Minimum brush length	⅜ in. (9·5 mm.).
Minimum commutator thickness	·08 in. (2·05 mm.).
Lock torque	7 lb. ft. (·97 kg. m.) at 250–375 amps.
Light running current	65 amps. at 8,000 to 10,000 r.p.m.
Maximum armature end-float	·010 in. (·25 mm.).
Torque at 1,000 r.p.m.	4·4 lb. ft. (·61 kg. m.) at 260 to 275 amps.

Battery

Make/type	Lucas A9/AZ9–A11/AZ11.
Capacity at 20-hr. rate	A9/AZ9: 40 amp. hr. A11/AZ11: 50 amp. hr.

Fusebox

Make/type	Lucas 7FJ.

Alternator (Later Midget Mk. III cars)

Type	Lucas 16ACR.
Brush length—new	·5 in. (12·6 mm.).
Brush length—minimum	·2 in. (5 mm.) protruding beyond brush box moulding.
Brush spring pressure	9 to 13 oz. (255 to 369 gm.) when brush is pushed in flush with brush box face.
Field winding:	
Resistance at 20° C. (68° F.):	
Rotor with forged claw	4·3 ohms±5%.
Rotor with pressed claw	3·3 ohms±5%.
Current flow at 12 volts	3 amperes.
Insulation test equipment	110-volt A.C. supply and 15-watt test lamp.
Stator windings:	
Continuity test equipment	12-volt D.C. supply and 36-watt test lamp.
Insulation test equipment	110-volt A.C. supply and 15-watt test lamp.
Diode current test equipment	12-volt D.C. supply and 1·5-watt test lamp.
Alternator output at 14 volts	34 amperes at 6,000 alternator r.p.m.

FRONT SUSPENSION (Later Midget Mk. III from Car No. G–AN5–123837)

Spring coil diameter (mean)	3·575 to 3·625 in. (9·1 to 9·2 cm.).
Free height	9·85 in. (25 cm.).
Fitted length at load of 750±15 lb. (337±6·8 kg.)	7·08 in. (18 cm.).
Number of effective coils	7.

The data given in this section refers specifically to equipment fitted to the Sprite Mk. IV and Midget Mk. III in conformity with local and territorial requirements, and must be used in conjunction with the standard data given.

ENGINE

Type (1969–70)	12CD (EEC).
Type (1970–71)	12CJ (EEC, ELC).
Type (1971–72)	12V 587Z (EEC, ELC).
Type (1972-74)	12V 671Z (EEC, ELC).

Abbreviations: EEC, Exhaust Emission Controls ELC, Evaporative Loss Control.

Valve guides .. .. ·5 molybdenum added.

Only valve guides having a ·025×·010 in. (·635×·254 mm.) identification groove machined ·187 in. (4·76 mm). from the top of the valve guide should be used on engines 12CD, 12CJ, and 12V.

Servicing, adjusting and tuning the above type engines and cars fitted with vehicle emission control equipment must be carried out in accordance with the instructions given in Workshop Manual Supplement AKD 4957. [Part 3 of this Manual].

FUEL SYSTEM

Fuel tank capacity:	
Early cars	6 U.S. gallons (22·7 litres).
Midget Mk. III from Car No. G–AN5–105501	7 U.S. gallons (27·3 litres).
Fuel pump (later cars):	
Type	S.U. electric AUF 300.
Minimum flow	18 U.S. gal./hr. (68·2 litres/hr.).
Suction head	18 in. (·457 mm.).
Delivery head	4 ft. (122 cm.).
Fuel pump (1974 cars):	
Type	S.U. electric AUF 305.
Delivery pressure	2·8 to 3·8 lb./sq. in. (0·2 to 0·27 kg./m.^{2}).

BRAKES

Lining material: front	Ferodo 2424F–GG.
rear	Ferodo AM8–FF.
Brake fluid	Lockheed Disc Brake (Series 329).

ELECTRICAL

Alternator (Midget Mk. III from Car No. G–AN5–105501)

Type	Lucas 16ACR.
Brush length—new	0·5 in. (12·6 mm.).
Brush length—minimum	0·2 in. (5 mm.) protruding beyond brush box moulding.
Brush spring pressure	9 to 13 oz. (255 to 369 gm.) when brush is pushed in flush with brush box face.
Field winding:	
Resistance	4·33 ohms.
Current flow at 12 volts	3 amperes.
Insulation test equipment	110-volt A.C. supply and 15-watt test lamp.
Stator windings:	
Continuity test equipment	12-volt D.C. supply and 36-watt test lamp.
Insulation test equipment	110-volt A.C. supply and 15-watt test lamp.
Diode current test equipment	12-volt D.C. supply and 1·5-watt test lamp.
Alternator output at 14 volts	34 amperes at 6,000 alternator r.p.m.

ENGINE TUNING DATA 1

MODEL: SPRITE Mk. II/MIDGET Mk. I (948-c.c. ENGINE)

ENGINE

Type	9CG.
Displacement	57·87 cu. in. (948 c.c.).
Compression ratio	9 : 1.
Compression pressure	168 lb./sq. in. (11·82 kg./cm.²).
Firing order	1, 4, 3, 2.
Static ignition timing	4° B.T.D.C.
Stroboscopic ignition timing	6° B.T.D.C. at 600 r.p.m. (engine).
Timing mark location	Pointer on timing chain cover and notch on crankshaft pulley.

DISTRIBUTOR

Make/Type	Lucas/DM2P4.
Serial No.	40561.
Contact breaker gap	·014 to ·016 in. (·36 to ·40 mm.).
Contact spring tension	18 to 24 oz. (510 to 680 gm.).
Rotation at rotor	Anti-clockwise.
Dwell angle	60°±3°.

Centrifugal advance

Crankshaft degrees/speed (vacuum pipe disconnected)	0°–4° at 1,200 r.p.m. 10°–15° at 2,000 r.p.m. 24°–28° at 4,600 r.p.m. 24°–28° at 5,600 r.p.m. (max.).

Vacuum advance

Starts	5 in. Hg.
Finishes	12 in. Hg.
Total crankshaft degrees	12°.

IGNITION COIL

Make/Type	Lucas/LA12.
Resistance	3·2 to 3·4 ohms.

SPARKING PLUGS

Make/Type	Champion/N5.
Gap	·024 to ·026 in. (·61 to ·66 mm.).

ELECTRICAL

Dynamo	Lucas/C39.
Battery	Lucas/BT7A or BT27A.
Volts/Polarity	12 volt/Positive earth.
Starter	Lucas/N35G/1.
Control unit	Lucas/RB106/2.

CARBURETTERS

Make/Type	S.U./HS2.
Jet	·090 in. (2·29 mm.).
Needle	Standard V3; Rich V2; Weak GX.
Piston spring	Light blue

ENGINE TUNING DATA 2

MODEL: SPRITE Mk. II/MIDGET Mk. I (1098-c.c. ENGINE)

ENGINE

Type	10CG.
Displacement	67 cu. in. (1098 c.c.).
Compression ratio	8·9 : 1.
Compression pressure	165 lb./sq. in. (11·6 kg./cm.²).
Firing order	1, 3, 4, 2.
Static ignition timing	5° B.T.D.C.
Stroboscopic ignition timing	8° B.T.D.C. at 600 r.p.m. (engine).
Timing mark location	Pointer on timing chain case and notch on crankshaft pulley.
Engine idle speed	1,000 r.p.m.

DISTRIBUTOR

Make/Type	Lucas/25D4.
Serial No.	40919.
Contact breaker gap	·014 to ·016 in. (·36 to ·40 mm.).
Contact spring tension	18 to 24 oz. (510 to 680 gm.).
Rotation at rotor	Anti-clockwise.
Condenser capacity	·22 mF.
Dwell angle	60°±3°.

Centrifugal advance

Crankshaft degrees/speed (vacuum pipe disconnected)	1° at 800 r.p.m. 4° at 1,200 r.p.m. 16° at 1,800 r.p.m. 28° at 4,400 r.p.m. 32° at 5,500 r.p.m.

Vacuum advance

Starts	4 in. Hg.
Finishes	13 in. Hg.
Total crankshaft degrees	20°.

IGNITION COIL

Make/Type	Lucas/LA12.
Resistance	3·2 to 3·4 ohms.

SPARKING PLUGS

Make/Type	Champion/N5.
Gap	·024 to ·026 (·610 to ·660 mm.).

ELECTRICAL

Dynamo	Lucas/C40.
Battery	Lucas/N9 or NZ9.
Volts/Polarity	12 volt/Positive earth.
Starter	Lucas/M35G.
Control unit	Lucas/RB106/2.

CARBURETTER

Make/Type	S.U./HS2.
Jet	·090 in. (2·29 mm.).
Needle	Standard GY; Rich M; Weak GG.
Piston spring	Blue.

ENGINE TUNING DATA 3

MODEL: SPRITE Mk. III/MIDGET Mk. II (1098-c.c. ENGINE)

ENGINE

Type	10CG.
Displacement	67 cu. in. (1098 c.c.).
Compression ratio	8·9 : 1.
Compression pressure	165 lb./sq. in. (11·6 kg./cm.²).
Firing order	1, 3, 4, 2.
Static ignition timing	5° B.T.D.C.
Stroboscopic ignition timing	8° B.T.D.C. at 600 r.p m. (engine).
Timing mark location	Pointer on timing chain case and notch on crankshaft pulley.
Engine idle speed	1,000 r.p.m.

DISTRIBUTOR

Make/Type	Lucas/25D4.
Serial No.	40919.
Contact breaker gap	·014 to ·016 in. (·36 to ·40 mm.).
Contact spring tension	18 to 24 oz. (510 to 680 gm.).
Rotation at rotor	Anti-clockwise.
Dwell angle	60°±3°.

Centrifugal advance

Crankshaft degrees/speed (vacuum pipe disconnected)	0°–1° at 800 r.p.m. 2°–6° at 1,200 r.p.m. 17°–21° at 2,000 r.p.m. 19°–23° at 2,400 r.p.m. 26°–30° at 4,400 r.p.m. 30°–34° at 6,000 r.p.m.

Vacuum advance

Starts	4 in. Hg.
Finishes	13 in. Hg.
Total crankshaft degrees	20°.

IGNITION COIL

Make/Type	Lucas/LA.12.
Resistance	3·2 to 3·4 ohms.

SPARKING PLUGS

Make/Type	Champion/N5.
Gap	·024 to ·026 in. (·610 to ·660 mm.).

ELECTRICAL

Dynamo	Lucas/C40.
Battery	Lucas/N9 or NZ9.
Volts/Polarity	12 volt/Positive earth.
Starter	Lucas/M35G.
Control unit	Lucas/RB106/2.

CARBURETTER

Make/Type	S.U./HS2.
Jet	·090 in. (2·29 mm.).
Needle	Standard AN; Rich H6; Weak GG.
Piston spring	Blue.

ENGINE TUNING DATA 4

MODEL: SPRITE Mk. IV/MIDGET Mk. III (1275-c.c. ENGINE) TO ENGINE No. 12CC/Da/H16300

ENGINE

Type	12CC.
Displacement	77·8 cu. in. (1274·86 c.c.).
Compression ratio	8·8 : 1.
Compression pressure	120 lb./sq. in. (8·4 kg./cm.²) at 350 r.p.m.
Firing order	1, 3, 4, 2.
Static ignition timing	7° B.T.D.C.
Stroboscopic ignition timing (vacuum pipe disconnected)	22° B.T.D.C. at 1,200 r.p.m. (23D4), 13° B.T.D.C. at 1,000 r.p.m. (25D4).
Timing mark location	Pointer on timing chain case and notch on crankshaft pulley.
Engine idle speed	700 r.p.m. (hot).

DISTRIBUTOR

Make	Lucas.	
Contact breaker gap	·014 to ·016 in. (·36 to ·40 mm.).	
Contact spring tension	18 to 24 oz. (510 to 680 gm.).	
Rotation at rotor	Anti-clockwise.	
Dwell angle	60°±3°.	
Condenser capacity	·18 to ·24 mF.	
Type	**23D4**	**25D4**
Automatic advance	Centrifugal	Centrifugal and vacuum
Serial number	40819	41198 or 41270.
Centrifugal advance		
Crankshaft degrees speed (vacuum pipe disconnected)	0°–3° at 600 r.p.m.	0°–2° at 600 r.p.m.
	6°–12° at 1,000 r.p.m.	2°–6° at 800 r.p.m.
	11°–15° at 2,000 r.p.m.	4°–8° at 1,000 r.p.m.
	22°–26° at 5,200 r.p.m.	10°–14° at 2,000 r.p.m.
	28°–32° at 7,000 r.p.m.	20°–24° at 3,600 r.p.m.
Vacuum advance (25D4 Distributor only)		
Starts		5 in. Hg.
Finishes		8 in. Hg.
Total crankshaft degrees		6°±2°.

IGNITION COIL

Make/Type	Lucas/11C12.
Resistance	3·0 to 3·4 ohms.

SPARKING PLUGS

Make/Type	Champion/N9Y.
Gap	·024 to ·026 in. (·610 to ·660 mm.).

ELECTRICAL

Dynamo	Lucas/C40.
Battery	Lucas/N9 or NZ9.
Volts/Polarity	12 volt/Positive earth.
Starter	Lucas/M35G.
Control unit	Lucas/RB106.

CARBURETTER

Make/Type	S.U./HS2.
Jet	·090 in.
Needle	Standard AN; Rich H6; Weak GG.
Piston spring	Blue.

ENGINE TUNING DATA 5

MODEL: SPRITE Mk. IV/MIDGET Mk. III (1275-c.c. ENGINE) FROM ENGINE No. 12CE/Da/H101

ENGINE

Type	12CE and 12CD.
Displacement	77·8 cu. in. (1274·86 c.c.).
Compression ratio	8·8 : 1.
Compression pressure	120 lb./sq. in. (8·4 kg./cm.²) at 350 r.p.m.
Firing order	1, 3, 4, 2.
Static ignition timing	7° B.T.D.C.
Stroboscopic ignition timing (vacuum line disconnected)	13° B.T.D.C. at 1,000 r.p.m.
Timing mark location	Pointer on timing chain case and notch on crankshaft pulley.
Engine idle speed	700 r.p.m. (hot).

DISTRIBUTOR

Make/Type	Lucas/25D4.
Serial No.	41198 or 41270.
Contact breaker gap	·014 to ·016 in. (·36 to ·40 mm.).
Contact spring tension	18 to 24 oz. (510 to 680 gm.).
Rotation at rotor	Anti-clockwise.
Dwell angle	60°±3°.

Centrifugal advance

Crankshaft degrees/speed (vacuum pipe disconnected)	0°–2° at 600 r.p.m. 2°–6° at 800 r.p.m. 4°–8° at 1,000 r.p.m. 10°–14° at 2,000 r.p.m. 20°–24 at 3,600 r.p.m.

Vacuum advance

Starts	5 in. Hg.
Finishes	8 in. Hg.
Total crankshaft degrees	6°±2°.

IGNITION COIL

Make/Type	Lucas/HA12.
Resistance	3·0 to 3·4 ohms.

SPARKING PLUGS

Make/Type	Champion/N9Y.
Gap	·024 to ·026 in. (·610 to ·660 mm.).

ELECTRICAL

Dynamo	Lucas/C40.
Battery	Lucas/N9 or NZ9. Later cars Lucas A9/AZ9 or A11/AZ11.
Volts/Polarity	12 volt/**Negative** earth.
Starter	Lucas/M35G. Later cars Lucas M35J.
Control unit	Lucas/RB106. Later cars Lucas RB340.

CARBURETTER

Make/Type	S.U./HS2.
Jet	·090 in.
Needle	Standard AN; Rich H6; Weak GG.
Piston spring	Blue.

ENGINE TUNING DATA 6, 7 AND 8

MODEL: MIDGET Mk. III (1275-c.c. ENGINE) FROM ENGINE No. 12V/586F/H101 and 12V/586F/L101
MODEL: MIDGET Mk. III (1275-c.c. ENGINE) FROM ENGINE No. 12V/588F/H101 and 12V/588F/L101
MODEL: MIDGET Mk. III (1275-c.c. ENGINE) FROM ENGINE No. 12V/778F/H101

ENGINE

Type	12V 586F; 12V 588F, and 12V 778F.
Displacement	77·8 cu. in. (1274·86 c.c.).
Compression ratio	8·8 : 1.
Compression pressure	Nominal 170 lb./sq. in. (12 kg./cm.²) at 350 r.p.m.
Firing order	1, 3, 4, 2.
Static ignition timing	7° B.T.D.C.
Stroboscopic ignition timing (vacuum pipe disconnected)	16° B.T.D.C. at 1,000 r.p.m.
Timing mark location	Pointer on timing chain case and notch on crankshaft pulley.
Engine idle speed	700 r.p.m. (hot).

DISTRIBUTOR

Make/Type	Lucas/25D4.
Serial No.	41270.
Contact breaker gap	·014 to ·016 in. (·36 to ·40 mm.).
Contact spring tension	18 to 24 oz. (510 to 680 gm.).
Rotation at rotor	Anti-clockwise.
Dwell angle	60°±3°.

Centrifugal advance

Crankshaft degrees/speed (vacuum pipe disconnected)	0°–1° at 600 r.p.m. (0°–2° at 600 r.p.m. on 12V 588F and 12V 778F engines) 2°–6° at 800 r.p.m. 4°–8° at 1,000 r.p.m. 10°–14° at 2,000 r.p.m. 20°–24° at 3,600 r.p.m.

Vacuum advance

Starts	5 in. Hg.
Finishes	8 in. Hg.
Total crankshaft degrees	6°±2°.

IGNITION COIL

Make/Type	Lucas/HA12 (Lucas 11C12 on 12V 778F engines).
Resistance	3·0 to 3·4 ohms (2· to 3·1 ohms on 11 C12 coils).

SPARKING PLUGS

Make/Type	Champion/N9Y.
Gap	·024 to ·026 in. (·610 to ·660 mm.).

ELECTRICAL

Dynamo/Alternator	Lucas/C40 (Lucas/16 ACR alternator on 12V 588F and 12V 778F engines).
Battery	Lucas A9/AZ9, A11/AZ11 or A98.
Volts/Polarity	12 volt/Negative earth.
Starter	Lucas M35J.
Control unit	Lucas RB340 (C40 dynamo only).

CARBURETTER

Make/Type	S.U./HS2.
Jet	·090 in.
Needle	Standard AN; Rich H6; Weak GG (AAC on 12V 778F engines only).
Piston spring	Blue.