

AUSTIN-HEALEY SPRITE Mk. II

Manufacturers : Austin Motor Co. Ltd., Birmingham

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SUCCESSOR to the Mk. I model, the latest version of the Sprite was introduced in July of this year. Outwardly, the car bears but slight resemblance to its predecessor, the body having been completely restyled. Internally there is more similarity, the basic B.M.C. "A"-type units are retained in modified form. The engine is of 950 c.c. capacity, has four cylinders, and has an output of 50 b.h.p. at 4,000 r.p.m. working at a compression ratio of 9.1:1. There is an option for a lower compression ratio unit, 8.3:1 and in this case the power output is slightly less.

The mechanical layout of the car in general is entirely conventional, the front-mounted longitudinally disposed engine delivers power which is transmitted through a single dry plate clutch and four-speed synchromesh gearbox to the final drive of a hypoid bevel geared rear axle through a short, open propeller shaft. Suspension at the front is of the coil spring and wishbone pattern with hydraulic shock absorbers. Greater use is now made of proprietary materials in the front suspension and Metalastik bushes are used. Steering is now by rack and pinion which combines the advantages of compactness with direct action, each end of the rack being connected to the steering arms of each front suspension unit by short track rods.

Vehicles are identified as are all those of the B.M.C. range, and a table of the code letters and symbols together with their breakdown, and significance, will be found on p. iii. Engine numbers are stamped on a plate secured to the right-hand side of the cylinder block, above the dynamo and below No. 1 sparking plug. The car (chassis) number is stamped on a plate which is secured to the inner wheel arch valance under the bonnet. It is essential that all these numbers and letters are quoted when referring to the makers or when ordering spare parts.

Threads and hexagons are in the main of the Unified thread series pattern and form, and carry standard identity markings as such. These threaded parts should be replaced only as dismantled, and are not interchangeable with B.S.F., B.S.W. or Metric threads. The Unified threads are, however, for all practical purposes interchangeable with A.N.F. threaded parts.

Special tools for use in the speeding of many repair and overhaul jobs are available from the makers or their agents, and a list of the basic essentials, or those considered to be the more essential, is to be found on p. iii.



DISTINGUISHING FEATURES. Mark II versions of the model are easily recognized. New frontal treatment shows headlamps moulded into wings, and a full width radiator grille

ENGINE

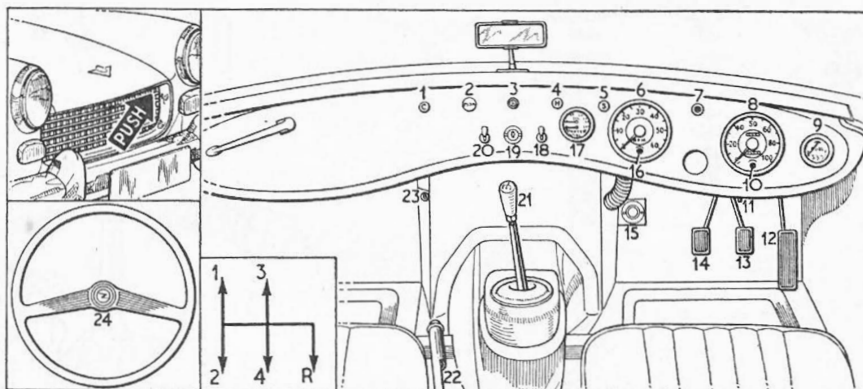
Mounting

At front, shaped bonded rubber blocks are bolted to lugs on front engine plate and to brackets on body extensions. At rear, bonded rubber blocks are bolted up between abutment pads on either side of gearbox extension housing and cradle brackets. All bolts should be tightened fully.

Removal

Engine may be removed with or without gearbox with almost equal facility. To remove with gearbox, as a unit, proceed

as follows: Remove bonnet from its hinges, drain cooling system, disconnect and remove top and bottom water hoses; remove four bolts (two each side) from radiator mounting flange and lift out radiator core. Disconnect battery and all other electrical leads to engine unit or ancillary components, together with all pipes, wires and controls, remove distributor cap. Release exhaust pipe from manifold and support stay from bellhousing. Remove self-tapping screws around gearbox cover plate, remove securing screws and anti-rattle cap, spring and plunger, and take off with gear lever. Unscrew and remove speedometer drive

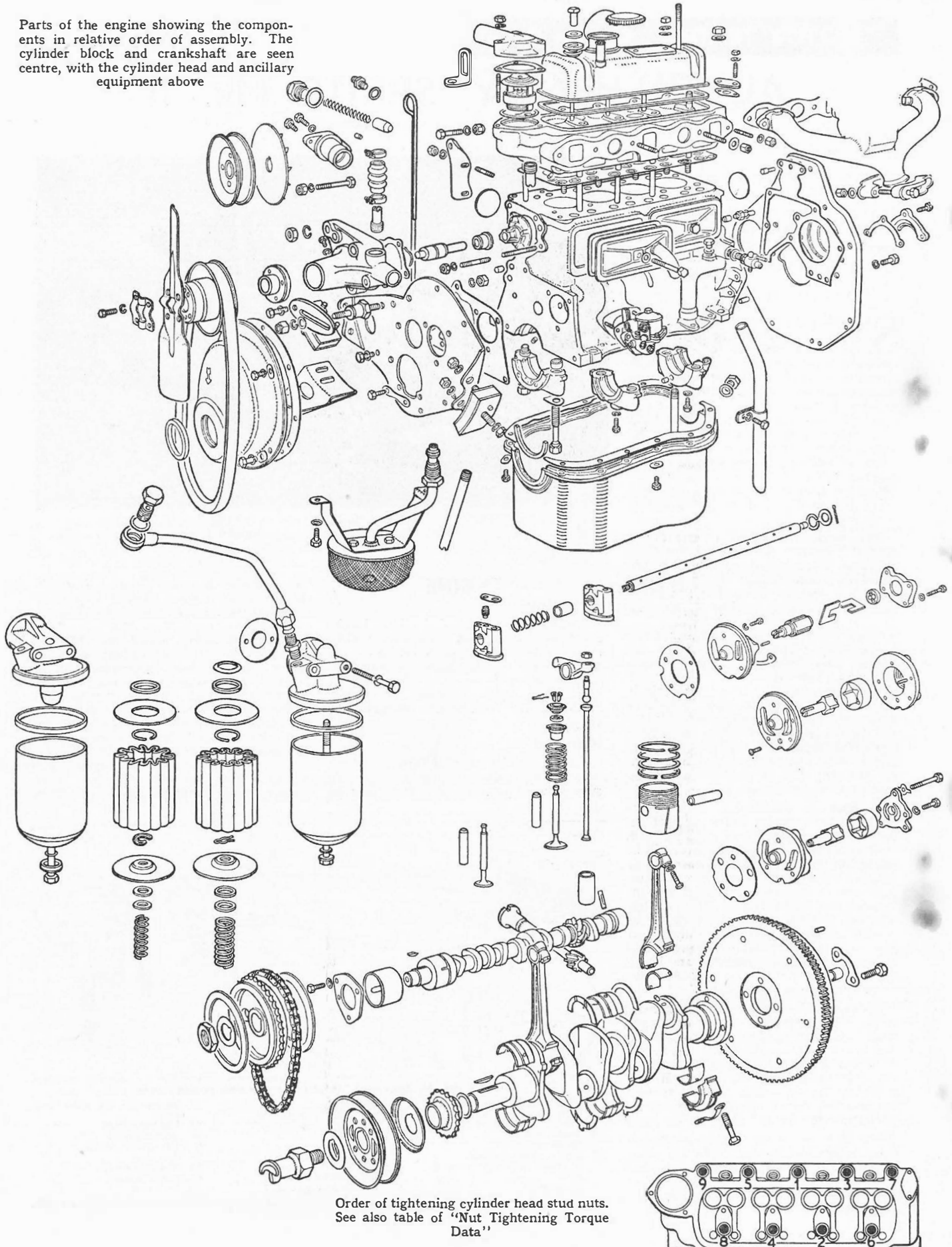


INSTRUMENTS, CONTROLS, GEAR POSITIONS AND BONNET LOCK

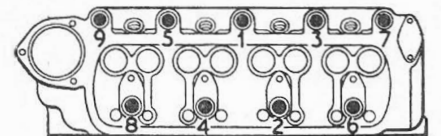
- | | | |
|--------------------------------------|-----------------------------|--|
| 1. Choke control | 9. Fuel gauge | 17. Oil pressure and water temp. gauge |
| 2. Screen washer button | 10. Main beam warning light | 18. Lighting switch |
| 3. Direction indicator switch | 11. Panel lamp switch | 19. Ignition switch |
| 4. Heater switch | 12. Accelerator | 20. Screenwiper switch |
| 5. Starter switch | 13. Brake pedal | 21. Gear lever |
| 6. Engine r.p.m. indicator | 14. Clutch pedal | 22. Handbrake lever |
| 7. Direction indicator warning light | 15. Headlamp dip switch | 23. Bonnet release |
| 8. Speedometer | 16. Ignition warning lamp | 24. Horn push |

Inset upper left shows method of releasing bonnet safety catch and below left shows the steering wheel horn push. Inner left shows the operative positions of the centrally placed gear lever

Parts of the engine showing the components in relative order of assembly. The cylinder block and crankshaft are seen centre, with the cylinder head and ancillary equipment above



Order of tightening cylinder head stud nuts.
See also table of "Nut Tightening Torque
Data"



GENERAL DATA

Wheelbase ...	6ft. 8in
Track: front ...	3ft 9in
rear ...	3ft 8in
Turning circle ...	16ft (app.)
Ground clearance ...	5in
Tyre size: front ...	5.20-13
rear ...	not quoted
Overall length ...	4ft 5in
Overall width ...	4ft 1in
Overall height ...	1,566lb
Weight (kerb) ...	

SPECIAL TOOLS

	Part No.
ENGINE	
Camshaft liner remover and replacer	18G 124A
Camshaft liner remover and replacer adaptor	18G 124K
Valve rocker bush drift	18G 148
Crankshaft gear/pulley, fan and dynamo pulley extractor	18G 2
Oil release valve grinding-in tool	18G 69
Crankshaft gear/pulley and front cover locating bush	18G 138
Camshaft liner reamer (basic tool)	18G 123A
Pilots and reamer	18G 123AJ
	18G 123AH
	18G 23W

GEARBOX AND CLUTCH

Clutch assembly tool ...	18G 99A
Clutch plate centralizer	18G 139
Dummy layshaft	18G 471
Synchronizer assembly tool	18G 144
First motion shaft bearing assembly and replacer	18G 140
Rear oil seal remover (basic tool)	18G 339
Adaptor for use with above	13G 389A
Bearing and oil seal replacer	18G 134
Adaptor for use with above	13G 134L

FRONT AXLE

Swivel axle bracing equipment	18G 155
Swivel axle bush remover and replacer	18G 154
Coil spring compressor	18G 153
Front hub assembly replacer	18G 7
Front hub extractor	18G 146

REAR AXLE

Bevel pinion rear bearing inner race remover and replacer	18G 285
Rear hub oil seal replacer	18G 134
Adaptor for use with above	18G 134Q
Differential bearing remover	18G 47C
Adaptor for use with above	18G 47M
Bevel pinion outer race remover (basic tool)	18G 264
Adaptors for use with above	18G 264D
	18G 264E
Bevel pinion bearing pre-load gauge	18G 207
Bevel pinion setting gauge	18G 191
Differential bearing gauge	18G 191A
Bevel pinion flange wrench	18G 34A

NUT TIGHTENING TORQUE DATA

	lb. ft
Cylinder head stud nuts	40
Con. rod big end bolts	35
Main bearing nuts	60
Flywheel setscrews	40
Road wheel nuts	45

BALL AND ROLLER BEARING DATA

	Int. dia., Ext. dia., Width (in or mm)	Type
GEARBOX		
Primary shaft (front) ...	} $1 \times 2\frac{1}{2} \times \left\{ \begin{array}{l} .623\text{in} \\ .625\text{in} \end{array} \right.$	B
Mainshaft (rear) ...		
REAR AXLE		
Pinion (front) ...	$1 \times 2\frac{1}{2} \times \frac{1}{2}\text{in}$	TR
(rear) ...	$1 \times 2.6785 \times .689\text{in}$	TR
Diff. side bearings ...	$35 \times 72 \times 17\text{mm}$	TR
Hubs ...	$35 \times 72 \times 17\text{mm}$	TR
FRONT AXLE		
Hubs (inner) ...	$25 \times 52 \times 15\text{mm}$	TR
(outer) ...	$17 \times 47 \times 14\text{mm}$	TR

cable at gearbox end. Disconnect propeller shaft at flange joints and remove complete. Support gearbox on trolley jack and remove four gearbox member mounting setbolts (two from inside car). Detach cross-member from gearbox. Remove two clutch slave cylinder mounting setbolts on bellhousing and tie up unit out of way.

Arrange sling of lifting tackle around engine unit so that it will assume a near vertical angle (fan uppermost) when lifted. Remove front mounting nuts from bolts and take weight of engine/gearbox unit on hoist. Lift unit up and out of car, manoeuvring trolley jack forward at the same time to provide support for gearbox. To remove engine *without* gearbox, proceed as above and note following items. Remove filter bowl and starter motor from right-hand rear of cylinder block. Take weight of gearbox on suitable jack and remove setscrews securing gearbox to engine crankcase. Remove left-hand front engine mounting complete with bracket and right-hand front engine mounting rubber together with front exhaust down pipe support bracket from its fixing on gearbox bellhousing. Take weight of assembly with suitable equipment, and remove engine from vehicle.

Crankshaft

Three main bearings, thin wall steel-backed lead-indium-lined located by tabs. End float controlled by split thrust washers recessed either side of centre main bearing and retained by tabs in cap. Fit with oil grooves to crankshaft, no hand fitting permissible.

Main bearings cannot be changed with engine in place, as rear cap cannot be detached without removal of rear engine plate, but thrust washers can be renewed *in situ*. Oil intake strainer and suction tube assembly (union screwed into bottom face of crankcase) must be removed completely before centre bearing cap can be removed.

Flywheel, with shrunk-on starter ring gear, spigoted on rear flange of crankshaft and retained by four equally spaced setscrews. Oil-impregnated spigot bearing bush pressed into end of shaft.

Timing sprocket and pulley hub, with oil thrower between, pressed on front end of crankshaft, sharing special flat Woodruff key, and retained by hand starter dog setscrew. Sprocket fits with longer boss to rear, with shims behind for alignment. Pulley hub passes through felt sealing ring in timing cover. Tighten starter dog setscrew until, with crankshaft at T.D.C. 1 and 4, jaws are at "20 past 10."

Rear main bearing cap forms lower half of oil collector through round return thread on shaft. Upper half detachable, retained by three setscrews. If detached, upper half must be refitted so that it butts on cap after cap has been tightened fully.

Connecting Rods

Big ends thin wall, steel-backed, lead indium lined shells, located by tabs. No hand fitting permissible. Rods split diagonally, cap and rod stamped on same side.

Big ends are offset. Fit Nos. 1 and 3 with larger boss to rear, 2 to 4 to front. Oil bleed hole on longer side of big end must go to offside, away from camshaft.

Gudgeon pins cotter-clumped in small ends, clamp towards camshaft.

ENGINE DATA

General ...	...
Type ...	ohv
No. of cylinders ...	4
Bore x stroke: mm ...	62.94 x 76.2
in ...	2.478 x 3.00
Capacity: c.c. ...	948
cu in ...	57.87
R.A.C. rated h.p. ...	9.8
B.M.E.P. ...	135 lb/sq in at 4000
Compression ratio ...	9.0 : 1 or 8.3 : 1

CRANKSHAFT AND CON. RODS

	Main Bearings	Crankpins
Diameter ...	1.7505-1.7510in	1.6254-1.6259in
Length ...	1.312in	1.068-1.072in
Running clearance:		
main bearings ...	...	.001-.0025in
big ends ...	...	.001-.0025in
End float: main bearings ...	...	.002-.003in
big ends ...	...	.008-.012in
Undersizes ...	...	.010-1st size .040in—max. 5.75in
Con. rod centres ...	...
No. of teeth on starter ring gear/pinion ...	...	104/9

PISTONS AND RINGS

Clearance (skirt): bottom ...	.0016-.0022in
top ...	.0036-.0042in
Oversizes ...	.010, .020, .030, .040in
Weight without rings or pin ...	6 oz 12 dr ± 2 dr
Gudgeon pin: diameter ...	.6244-.6246in
fit in piston ...	.0001-.00035in
fit in con. rod ...	.0001-.0006in

	Compression	Oil Control
No. of rings (1 plain 2 tapered)	3	1
Gap ...	.007-.012in	.007-.012in
Side clearance in grooves ...	.0015-.0035in	.0015-.0035
Width of rings (plain) ...	.069-.070in	.124-.125in

CAMSHAFT

	Front	Centre	Rear
Bearing journal: diameter ...	1.6655-1.666in	1.62275-1.62325in	1.3725-1.375in
Bearing clearance001-.002in	
End float003-.007in	
Timing chain: pitch	1/2 in	
No. of links	52	

VALVES

	Inlet	Exhaust
Head diameter ...	1.151-1.156in	1.00-1.005in
Stem diameter ...	.2793-.2798in	.2788-.2793in
Face-angle ...	45°	45°
	Inner	Outer
Spring length: free ...	1.672in	1.75in
fitted ...	1.179in	1.291in
at load (valve shut) ...	18 lb	52 lb

POWER UNIT

SERIAL NUMBER CODING

The engine number comprises a series of letters and numbers, presenting in code the capacity, make and type of unit, ancillaries fitted, and the type of compression together with the serial number of the unit.

1st Prefix Group
Cubic capacity, make and type.
1st Prefix number
8-803 c.c. 9-950 c.c.
1st Prefix letter A-Z
C—Austin-Healey
2nd Prefix letter A-Z
used for the variations of engine type.
2nd Prefix Group
Gearbox and Ancillaries
U—Centre or side gear change gearbox
3rd Group
Compression and serial number
H—High compression } and serial number of unit
L—Low compression }

Pistons

Aluminium alloy, anodized finish, with flat crown.

Pistons are supplied in five size gradings for selective assembly, rising in .0003in steps. Grade numbers 1 to 5 stamped in diamond with "front" on piston crown. Grade number must correspond with number stamped on top of cylinder block alongside bore.

Top compression ring plain, second and third rings taper faced and must be fitted with sides marked "TOP" upwards.

Big ends will pass through bores, but pistons will not pass crank throws. Remove and assemble through top.

Camshaft

Single roller endless chain drive. Camshaft sprocket spigoted on camshaft, keyed with Woodruff key and retained by nut. No alternative fitting for valve timing. Sprockets must be removed and assembled together.

Camshaft runs in three bearings in crankcase. Front bearing has white metal-lined steel bush, pressed in. Others direct. End float controlled by thrust plate trapped between sprocket and shoulder on shaft, and bolted to front face of crankcase.

Dot-punched timing marks on sprockets must be together when chain is fitted, with No. 1 piston at T.D.C. on compression stroke.

Valves

Overhead, not interchangeable. Inlet larger than exhaust. Split cone cotter fixing, double springs. Cotters retained by spring clips. Rubber sealing rings with retainers on valve stems below collars.

Valve guides plain, no shoulder, non-interchangeable. Inlet guides are longer, exhaust guides counterbored at bottom

and countersunk at top. Press in both types until they project $\frac{1}{32}$ in from spot face of spring seat.

Tappets and Rockers

Plain barrel tappets sliding directly in crankcase. Access through opening in side.

Bushed rockers, all interchangeable on shaft carried in four pillars. Shaft located by grub screw in No. 1 pillar, which is drilled for oil feed through drillings in head and cylinder block. Pair of rockers for each cylinder located on either side of pillar, separating springs between rockers of adjacent cylinders.

Note: either pressed steel or forged rockers may be used. Forged rockers may be rebushed, but no attempt must be made to rebush those of the pressed steel type.

Push rods can be removed singly after adjustment has been slackened right off. Inner rockers can be pulled aside against separating springs, but end rockers must be taken off after removal of split pin, plain washer and double-coil spring washer.

Lubrication

Hobourn-Eaton eccentric rotor pump spigoted in recess in rear face of cylinder block and driven by pin and slotted shaft from rear end of camshaft. Some engines fitted with Burman pump; pumps not interchangeable without changing retaining studs.

Engine must be removed from car for removal of pump.

Oil delivered through drillings to gallery on off side of crankcase, and to full flow filter screwed into crankcase and retained by clamp.

Non-adjustable spring-loaded plunger relief valve on off side of crankcase below distributor. Remove distributor for access.

Cooling System

Pump and fan. Non-adjustable thermostat in water outlet port on cylinder head. Pump has spring-loaded carbon and rubber seal.

Adjust fan belt by swinging dynamo until there is lin movement either way on vertical run of belt.

TRANSMISSION

Clutch

Borg & Beck single dry plate. Sintered carbon thrust release bearing.

Only external adjustment is on front end of pedal pull rod, to give $\frac{1}{2}$ in free movement at pedal pad.

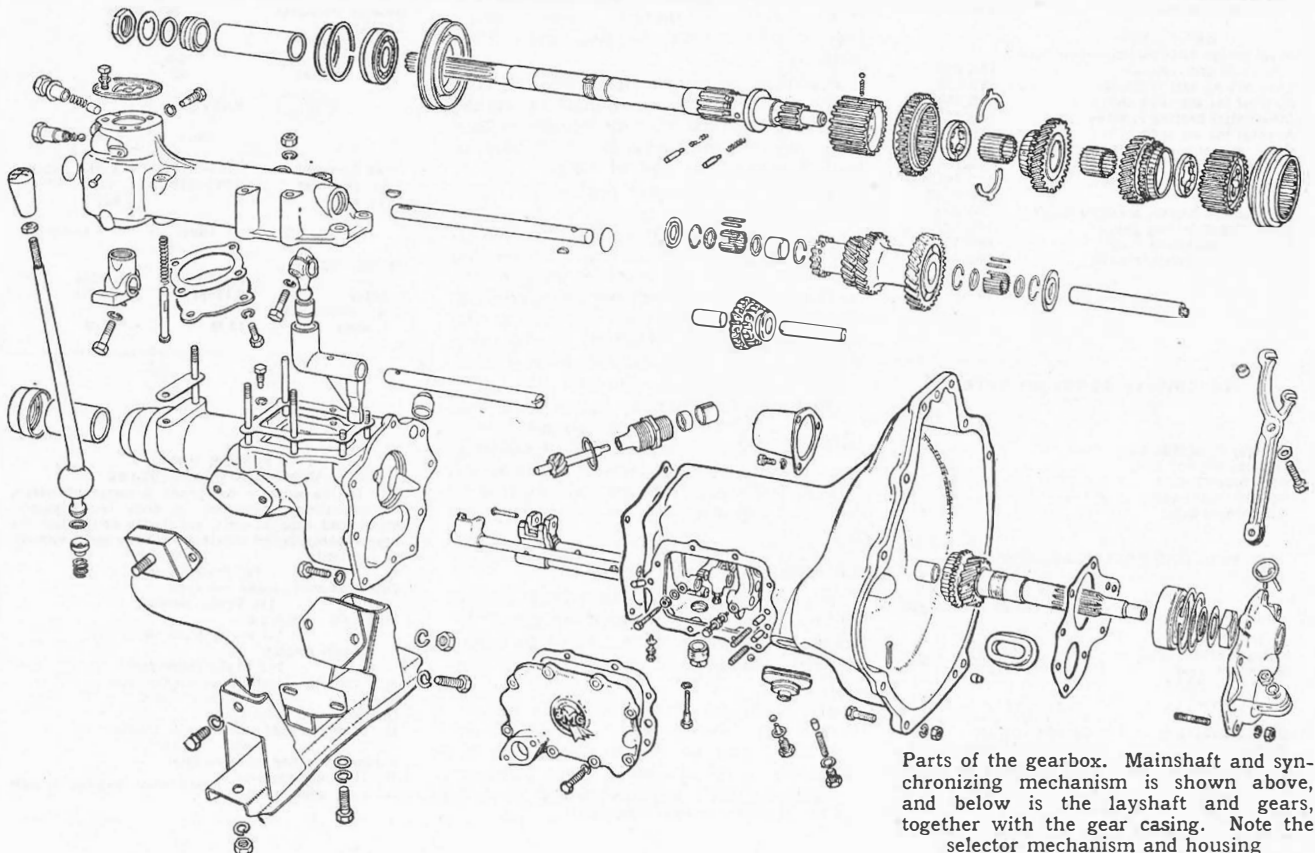
Access to clutch for service after removal of gearbox.

Gearbox

Four speed. Synchromesh on 2nd, 3rd and top gears. Central lever, remote control. Propeller shaft sliding joint on mainshaft.

To dismantle gearbox, remove drain plug and speedo drive pinion and bush. Take off clutch arm dust seal, and unhook withdrawal arm pivot bolt. Take off nut and washer, unscrew bolt and take out lever.

Unscrew eight nuts, remove remote control casing from rear extension; unscrew nine bolts and remove extension, manoeuvring control lever from selector preserving bearing packing washer as faces are separated. Remove seven nuts and washers and take off front cover. Detach side cover and pick out 1st/2nd and 3rd/top selector springs and plungers. Take out plug nearest front in bottom of box, retaining reverse selector spring and plunger. Take out selector fork set-screws, and draw rods out one at a time, catching interlock plunger and balls recessed in walls of box. Lift out forks.



Parts of the gearbox. Mainshaft and synchronizing mechanism is shown above, and below is the layshaft and gears, together with the gear casing. Note the selector mechanism and housing

Drive out layshaft spindle either way, allowing cluster to fall to bottom of box. Draw out primary shaft with spigot bush and ball bearing, drifting from inside if necessary. Tap out mainshaft assembly to rear with ball bearing and housing (spigoted in rear of box). Take out reverse spindle locking setscrew and drive spindle out to rear. Lift out bushed idler gear and layshaft cluster with thrust washers.

Layshaft cluster runs on caged needle rollers, thrust washers at outer ends, see note below. Rollers will not drop out.

To dismantle mainshaft assembly, slide off top/3rd gear synchro assembly. Depress plunger locating splined thrust washer inside 3rd gear cone, turn washer and slide off, releasing 3rd speed gear with needle roller bearings. Thrust washer behind on shaft.

From opposite end of shaft, take off securing nut, lockwasher, speedo drive gear and distance piece. Remove ball bearing journal, complete with its housing and drift bearing out of housing. Draw 1st gear and synchro assembly off the shaft. Depress spring loader plunger, which locks rear splined ring at end of 3rd motion shaft. Lift out both halves of the washer provided for the splined ring. Slide 2nd gear off shaft, preserving needle roller bearings.

Primary shaft ball bearing (same as mainshaft bearing) retained on shaft by nut with right-hand thread.

To reassemble gearbox, reverse procedure of dismantling, noting following points:—

Layshaft cluster: Push inner spring rings into bore, making sure that they bed securely, insert short distance-piece in rear end, then insert inner retainer caged rollers into each end, using layshaft spindle as guide. Fit outer retainers and spring rings. Lower cluster into gearbox with large front and small rear thrust washers, and locate with thin rod so that large gear is clear of primary shaft when it is entered. Thrust washers available in thicknesses of .123-.124in, .1255-.1265in, .1275-.1285in and .130-.131in to take up end float.

Mainshaft: Press on ball bearing in housing (spring ring and flange on housing to rear), and fit distance-piece, speedo drive gear and nut.

When inserting selector rods, note that two interlock balls fit in cross-drillings, one between top/3rd and reverse, one between 1st/2nd and reverse, just behind selector locating springs and plungers. Short plunger, rounded at both ends, fits in cross-drillings between top/3rd and 1st/2nd rods in rear wall of box.

When fitting front cover and rear extension housing, refit shims as found in bearing locations. These shims need changing only if new cover or housing is fitted, in which depth of bearing location varies. Shims are available in three thicknesses, .004in, .006in and .010in.

Propeller Shaft

Hardy Spicer needle roller bearing universal joints. Nipples for lubrication of joints. Sliding joint, yoke integral with sleeve, on gearbox mainshaft.

Rear Axle

Three-quarter floating hypoid bevel, banjo type, rear cover welded to casing. Apart from attention to hubs and half shafts, axle cannot be overhauled without use of full range of tools listed. Re-

placement axles are available as units and should be used when possible.

To remove axle raise rear of car, remove road wheels, release hand brake. Take off downpipe, exhaust pipe and silencer. With jack in position under differential unit, release check straps at body connections. Undo damper linkages and disconnect each suspension upper link from rear axle bracket. Remove brake cable at adjustment point. Mark propeller shaft coupling flanges and remove shaft. Disconnect hydraulic brake pipe at main union, forward of differential housing. Take weight of axle on jack and remove spring shackle pins. Lower axle unit away and clear of car. Refitting is reverse of above process.

Distance piece and shims between pinion bearings. Shims (.003 and .005in) to give 8-10 lb/in in preload drag (plus 3 lb/in if oil seal is fitted) when flange nut is tightened to 140 lb/in. Adjustment for pinion mesh by distance piece. Shims between differential cogs and inner bearings to give backlash etched on rear face of crown wheel. Add .002in shims each side to give preload.

Maximum backlash is .007in and minimum backlash is .004in. Bearing cap nuts are tightened to 65 lb/ft.

CHASSIS

Brakes

Lockheed hydraulic. Two leading shoe front brakes with separate cylinder to each shoe. Rear brakes have single floating expander unit incorporating bell-crank for both hand and foot brake operation.

Adjuster on each wheel cylinder, with micram adjuster reached through holes in drum and wheel. Turn adjuster clockwise until shoe touches drum, then back off one notch. Note two adjusters on each front wheel.

Handbrake operates on rear wheels only, through a cable to the compensator mechanism. From this point pull to the rear brake expanders is by transverse rods which are non-adjustable. Provision for adjustment is on threaded end of outer cable at attachment point on underside of diff. casing. To adjust, rear brake shoes should be locked by wheel adjustment to drums and the hand control applied slightly (one notch on lever ratchet). Cable slackness, if then present, may be removed by adjusting sleeve nut of cable at compensator. Correct wheel adjustment should then be restored, with hand-brake lever fully released. Brake shoes must be adjusted before any attempt is made to reset the band linkage.

Rear Springs

Quarter elliptical leaf springs, plates of different thicknesses, see data tables.

To remove, raise vehicle by placing jack under differential unit and support body. Take out shackle pins. Springs may be removed by extracting bolts which pass upwards at forward end of springs into attachment plates. "U" bolts must also be removed, when springs may be removed from their mountings. Refitting is a reversal of above process.

Front Suspension

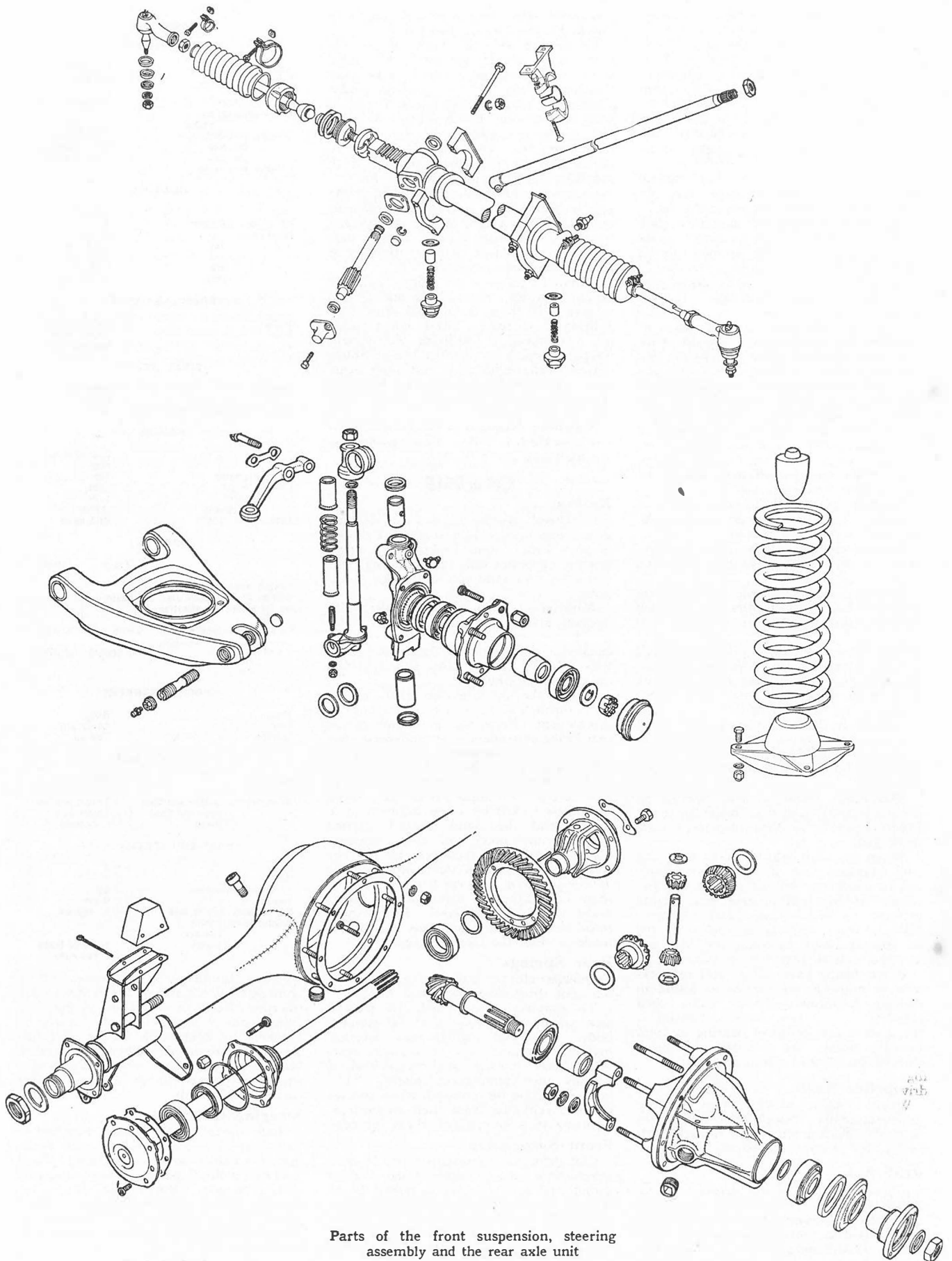
Coil spring and wishbone type. In each symmetrical unit, a single armed double-acting hydraulic damper is bolted to its support bracket at its upper end. Arm of damper is towards front of car and is secured to swivel pin trunnion link by a fulcrum pin and Metalastik rubber

CHASSIS DATA				
CLUTCH				
Make	...	...	...	Borg & Beck
Type	...	...	...	Sdp 6½in
Springs: no.	...	...	...	6
colour	...	...	...	yellow/dk. green
Centre springs: no.	...	...	...	4
colour	...	...	...	light grey
Linings: thickness	...	...	...	.130-.120in
dia. ext.	...	...	...	6.28-6.22in
dia. int.	...	...	...	4.260-4.250in
Release lever ratio	...	...	...	3.6 : 1
GEARBOX				
Type	...	...	...	synchromesh
No. of forward speeds	...	...	...	4
Final ratios: 1st	...	...	...	13.504 : 1
2nd	...	...	...	8.085 : 1
3rd	...	...	...	5.726 : 1
4th	...	...	...	4.22 : 1
Rev.	...	...	...	17.361 : 1
PROPELLER SHAFT				
Make	...	...	...	Hardy Spicer
Type	...	...	...	Needle roller bearing U.J.
FINAL DRIVE				
Type	...	...	...	2-floating hypoid
Crownwheel/bevel pinion teeth	...	...	...	38/9
BRAKES				
Type	...	...	...	2LS front, L & T rear
Drum diameter	...	...	...	7in
Lining: length	...	...	...	6½in
width	...	...	...	1½in
thickness	...	...	...	.187in
Total lining area	...	...	...	67.5 sq in
SPRINGS				
		Front	Rear	
Length (eye centres, laden)		3.625in	—	
Width (or mean coil dia.)		—	—	
No. of leaves (or effective coils)		7	—	
Free camber (length, coil)		9.40in	3½in	
Loaded camber (length, coil) at load		Not quoted	at 375lb	
SHOCK ABSORBERS				
Make	...	...	...	BMC
Type	...	...	...	Lever/arm
Service	...	...	...	Top up
STEERING BOX				
Make	...	...	...	BMC
Type	...	...	...	Rack & pinion
Adjustments: pinion end float	...	...	...	Thrust washer
rack end float	...	...	...	Shims on damper
mesh	...	...	...
FRONT-END SERVICE DATA				
Castor	...	...	...	3°
Camber	...	...	...	1°
King pin inclination	...	...	...	6½°
Toe-in	...	...	...	0-½in
No. of turns lock to lock	...	...	...	2½ approx.
Adjustments: castor	...	...	...	nil
camber	...	...	...
toe-in	...	...	...	Screwed track rod ends

bushes. Bottom end of swivel pin is secured to outer end of lower links by a fulcrum block, cotter pinned in position. Inner arms of lower links are secured to brackets by Metalastik bushes and fulcrum pins. Rebound rubbers are fitted to bottom of coil spring top bracket and a smaller rebound rubber is fitted under each damper arm.

Steering Gear

Rack and pinion. Tie rods attached to each end of steering rack by ball joints operate swivel arms. Steering wheel operates behind toothed pinion engaging with rack gear. Pinion end play is removed by adjustment of shims beneath pinion tail end bearings. Backlash of gears controlled by damper pad in rack mechanism.



Parts of the front suspension, steering assembly and the rear axle unit

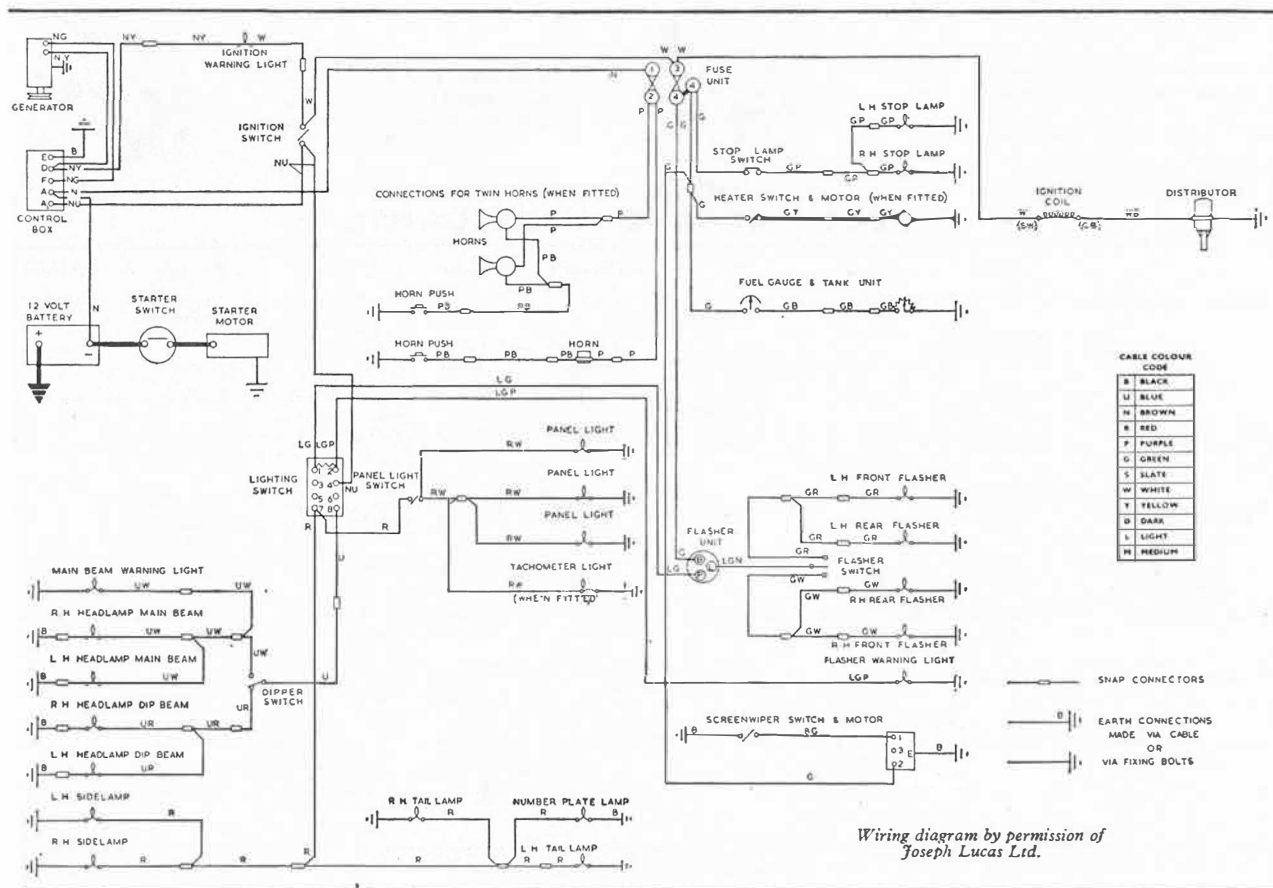
TUNE-UP DATA

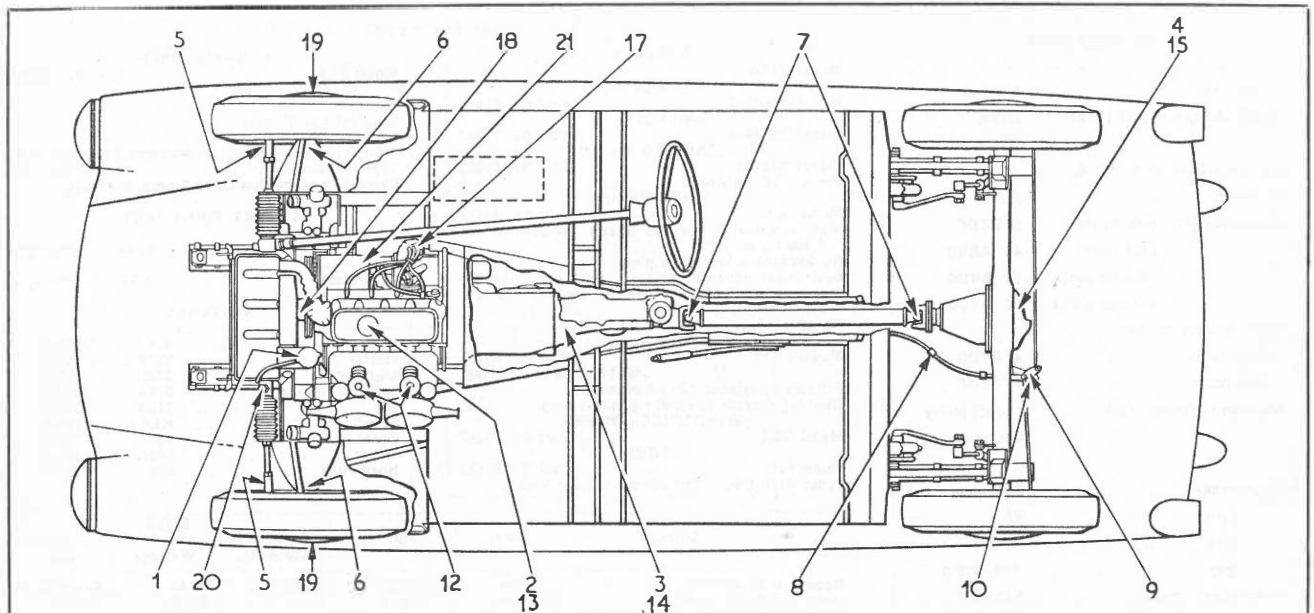
Firing order	1-3-4-2
Tappet clearance (cold): inlet	.012in
exhaust	.012in
for competition work (I. & E.)	.015in
for timing	.029in
Valve timing*: inlet opens	5° BTDC
inlet closes	45° ABDC
exhaust opens	51° BBDC
exhaust closes	21° ATDC
Static ignition timing	
High comp.	4° BTDC
Low comp.	1° BTDC
Location of timing mark	c/shaft pulley and pointer
Plugs: make	Champion
type	N5
size	14 mm
gap	.024-.026in
Carburettors: make	S.U.
type	HS2 semi-d.d.
Settings: Choke	1½in
Main jet	.090in
Std. needle	V3
Air cleaner: make	Cooper
type	paper element
Fuel pump: make	AC
type	mech-Y
pressure	1½-2½ lb/sq in
Valve clearances set to	.021in

LUCAS EQUIPMENT

BATTERY		FLASHER UNIT	
Model BT7A		Model FL5	Part No. 35020
GENERATOR		FUSE UNIT	
Model C39PV-2	Part No. 22265	Model 4FJ	
CONTROL BOX		Fuse ratings 35 amp.	
Model RB106-2	Part No. 37283	*Horns (optional) Model 9H Part Nos. 54068008 (H.N.) Type: Windtone 54068009 (L.N.) Current consumption 3.0-3.5 amp. per horn	
STARTING MOTOR		SUNDRY EQUIPMENT	
Model M35G-1	Part No. 25022		
Drive "SB" Inboard			
DISTRIBUTOR			
Model DM2	Part No. 40752		
Max. centrifugal advance (crank degrees) 32° at 4,400 r.p.m.			
No advance below 500 r.p.m.			
Centrifugal advance springs. Part No. 54414060			
Max. vacuum advance (crank degrees) 10°-14° with 18in Hg.			
No advance below 2in. Hg.			
IGNITION COIL		SWITCHES	
Model LA12	Part No. 45113		
(45111 when re-ordering)			
Primary resistance 3.0-3.4 ohms			
Running current at 1,000 r.p.m. 1.5 amp.			
WINDSCREEN WIPER			
Model DR2	Part No. 75387		
*HORN			
Model 6H	Part No. 70159		
Type: High freq. Current cons. 3.0-3.5 amp.			

Lamps	Model	Part No.	BULB		
			Lucas No.	Wattage	Cap
Head R.H.D. dip left	F700	58713	54521060	60/45	Sealed beam
Head L.H.D. dip right	F700	51533	355	42/36	B.P.F.
Head export Europe (except France and Sweden)	F700	58272	410	45/40	Unified European Cap
Head export France	F700	58273	411	45/40	
Head export Sweden	F700	58451	410	45/40	
Head export U.S.A.	F700	58499			
Head export U.S.A. (later)	F700	58621			
*Side/flasher (R.H.)	584	52507	382 (F)	21	S.C.C.
*Side/flasher (L.H.)	584	52506	989 (S)	6	M.C.C.
*Stop tail and rear flasher	676	53915	380 (S.T.)	6/21	S.B.C.
Number plate	467	53836	382 (F.)	21	S.C.C.
Panel		989	987	6	M.C.C.
Flasher warning	WL13	319417	987	2.2	M.E.S.
*Side/flasher (N. America)	686	52535	380	6/21	S.B.C.
*Stop, tail and rear flasher (N. America)	676	53916	380 (S.T.)	6/21	S.B.C.
			382 (F.)	21	S.C.C.





KEY TO MAINTENANCE DIAGRAM

DAILY

1. Radiator } check and top up
2. Engine sump }

EVERY 1,000 MILES (1,600 km)

3. Gearbox } check and top up
4. Rear axle }
5. Steering tie rod ball joints (2)
6. Swivel pins and suspension lower joints (6)
7. Propeller shaft (2)
8. Handbrake cable
9. Handbrake compensator lever (1)
10. Handbrake linkage joints
11. Clutch, brake and throttle joints
12. Carburettors—top up dampers
- } grease gun
} oil can

EVERY 3,000 MILES (4,800 km)

13. Engine sump—drain and refill

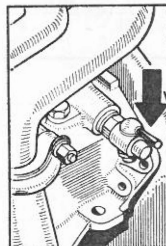
EVERY 6,000 MILES (9,600 km)

14. Gearbox } drain and refill
15. Rear axle }
16. Engine oil filter element—renew

17. Distributor—oil shaft bearing, auto advance mechanism and contact breaker pivot, smear cam with grease
18. Water pump—remove plug, add a few drops SAE 140 oil, replace plug
19. Front hubs—strip, clean and repack with grease

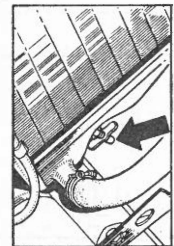
EVERY 12,000 MILES (19,200 km)

20. Steering rack—grease gun (10 strokes only)
21. Dynamo—remove lubricator cap, felt pad and spring half fill cap with grease replace parts and refit cap



DRAINING POINTS

Left: shows the cylinder block drain tap situated below the manifold, and right: the radiator matrix drain tap access from beneath



FILL-UP DATA

	Pints	Litres
Engine sump (including filter)	6 1/2	3.7
Gearbox	2 1/2	1.3
Rear axle	1.5	.85
Cooling system	10	5.68
Fuel tank	6 galls	27.3
Tyre pressure*:		
front	18lb/sq in	1.27 Kg/cm ²
rear	20lb/sq in	1.41 Kg/cm ²

*For speeds in excess of 80-85 m.p.h.: Front 24lb/sq in-1.69 Kg/cm². Rear 26lb/sq in-1.83 Kg/cm².

RECOMMENDED LUBRICANTS

		Castrol	Esso	B.P.	Duckham's	Mobil	Shell	Filtrate	Sternol
Engine	Above 32°F	Castrol XL	Extra Motor Oil 20W/30	Energol S.A.E. 30	N.O.L. Thirty	Mobiloil A	X-100 30	Medium Filtrate 30	WW 30
	32° to 10°F	Castrolite		Energol S.A.E. 20W	N.O.L. Twenty	Mobiloil Arctic	X-100 20/20W	Zero Filtrate 20	WW 20
	Below 10°F	Castrol Z		Motor Oil 10	Energol S.A.E. 10W	N.O.L. Ten	Mobiloil 10W	X-100 10W	Sub-Zero Filtrate 10W	WW 10
Transmission	...	Castrol XL	Extra Motor Oil 20W/30	Energol S.A.E. 30	N.O.L. Thirty	Mobiloil A	X-100 30	Medium Filtrate 30	WW 30
Rear axle, steering box, and idler (a)		Castrol Hypo	Gear Oil GP90	Energol EP S.A.E. 90	Hypoid 90	Mobilube GX 90	Spirax 90 EP	Hypoid Filtrate Gear 90	Ambroleum EP 90
Oil nipples (b) and water pump		Castrol Hipress	Gear Oil GP 140	Energol EP S.A.E. 140	N.O.L. EP 140	Mobilube GX 140	Spirax 140 EP	EP Filtrate Gear 140	Ambroleum EP 140
Front wheel hubs	...	Castrolase LM	Multi-purpose Grease H	Energol EP S.A.E. 140	LB 10 Grease	Mobilgrease MP	Retinax A	Super Lithium Filtrate Grease	Ambrolite LHT Grease
Distributor, oil can		Castrolite	Extra Motor Oil 20W/30	Energol S.A.E. 20W	N.O.L. Twenty	Mobiloil Arctic	X-100 20/20W	Zero Filtrate 20	WW 20
Upper cylinder lubrication	...	Castrolite	Upper Cylinder Lubricant	Energol U.C.L.	Adcoil Liquid	Mobil Upperlube	Upper Cylinder Lubricant	Petroyle	Magikoyl
Brake fluid	...	Lockheed Spec. S.A.E. 70R-3			Shock Absorbers—use Armstrong Super (Thin) Shock Absorber Fluid No. 624				

(a) Rear axle and steering—For temperatures below 10°F use S.A.E. 80 hypoid lubricant.

(b) Oil nipples—Alternatively the grease as shown for hubs can be used.