

# JAGUAR 3.4 LITRE MARK 2

Manufacturers: Jaguar Cars, Ltd., Coventry.

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ORIGINALLY introduced some two years ago at the Earls Court Motor Show, the 3.4-litre Mark 2 car bears considerable similarity to the other vehicles of the range. Differences occur in respect of the equipment which is fitted and a comparative study of the tabular data in this and previous articles in this series which have featured Jaguar cars will reveal, in detail, the extent of these variations.

The well-known six-cylindrical overhead camshaft engine is the power unit, and is available in various stages of tune and compression ratio; namely 7.0:1, 8.0:1 and 9:1. All the differences which affect tuning settings for each of the compression ratio states are to be found in the Tune-up data table on p. vi.

Disc braking is a feature of this car and is of the Dunlop pattern operating on all four wheels. While servicing details are included in the text and tabular sections of this article, a more fully detailed description of this equipment appears in Service Supplement 310/C44.

Transmission is taken through an hydraulically operated single dry plate clutch and synchromesh gearbox to the hypoid bevel drive of the semi-floating Salisbury 4HA rear axle.

Overdrive is available as an optional fitment, as is also automatic transmission. In the former case, this equipment is of Laycock-de Normanville pattern and has been fully described in Service Supplement 226/C1. In the latter case this equipment is of Borg-Warner manufacture and has been the subject of the following Service Supplement Sheets: 260/C19, 272/C25, 344/C59, 352/C63, 354/C64, 356/C65. This series comprises complete information for overhead in general and service work in particular for this transmission.

Cars are identified by chassis and engine serials. These are to be found stamped on a plate which is attached to the engine side of the dash panel, beneath the bonnet. Chassis numbers are stamped on top of the nearside frame member above the rear engine mounting bracket. Engine numbers are prefixed KG or KH and suffixed /7, /8, and /9, indicating compression ratio.

Few special tools are required for service to the car, but those considered essential are listed on p. iii. The template for use in timing the camshafts will be found in the car toolkit. Threads and hexagons are in the main of S.A.E. pattern and form, but certain proprietary equipment may be found to have threaded parts of British Standard Form.



**DISTINGUISHING FEATURES.** Slender screen and door pillars are fitted on this model, also wide wrap-around screens front and rear. Note foglamp disposition and frontal treatment

## ENGINE

### Mounting

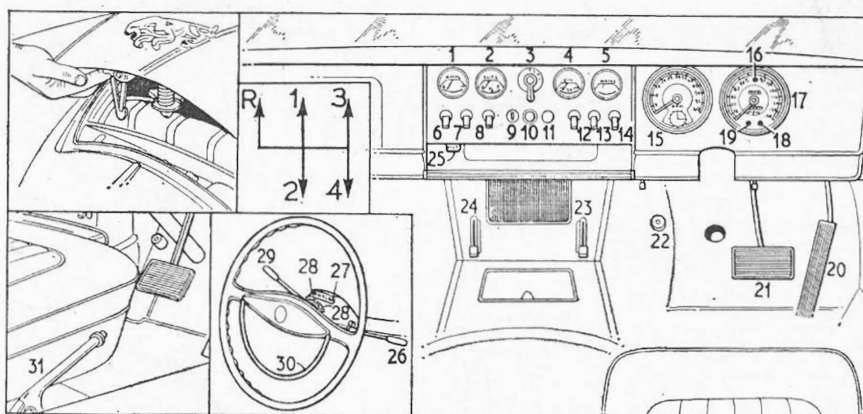
At front, cylindrical rubber blocks bonded to studded plates at each end, bolted to brackets on either side of the crankcase and to chassis brackets.

At rear, engine/gearbox unit is supported by spring-loaded "T" piece bolted up to lugs on gearbox extension casing, shank of "T" piece passes through coil spring and is located and cushioned in rubber bush pressed into channel section support bolted to body floor. Packing blocks fit between flange of channel support and stiffening plates are inserted under heads of mounting bolts.

### Removal

Engine and gearbox are best removed as assembly after removal of front suspension of car. Work should be carried out over pit with lifting tackle, or a ramp, when in either case engine/gearbox may be withdrawn from below.

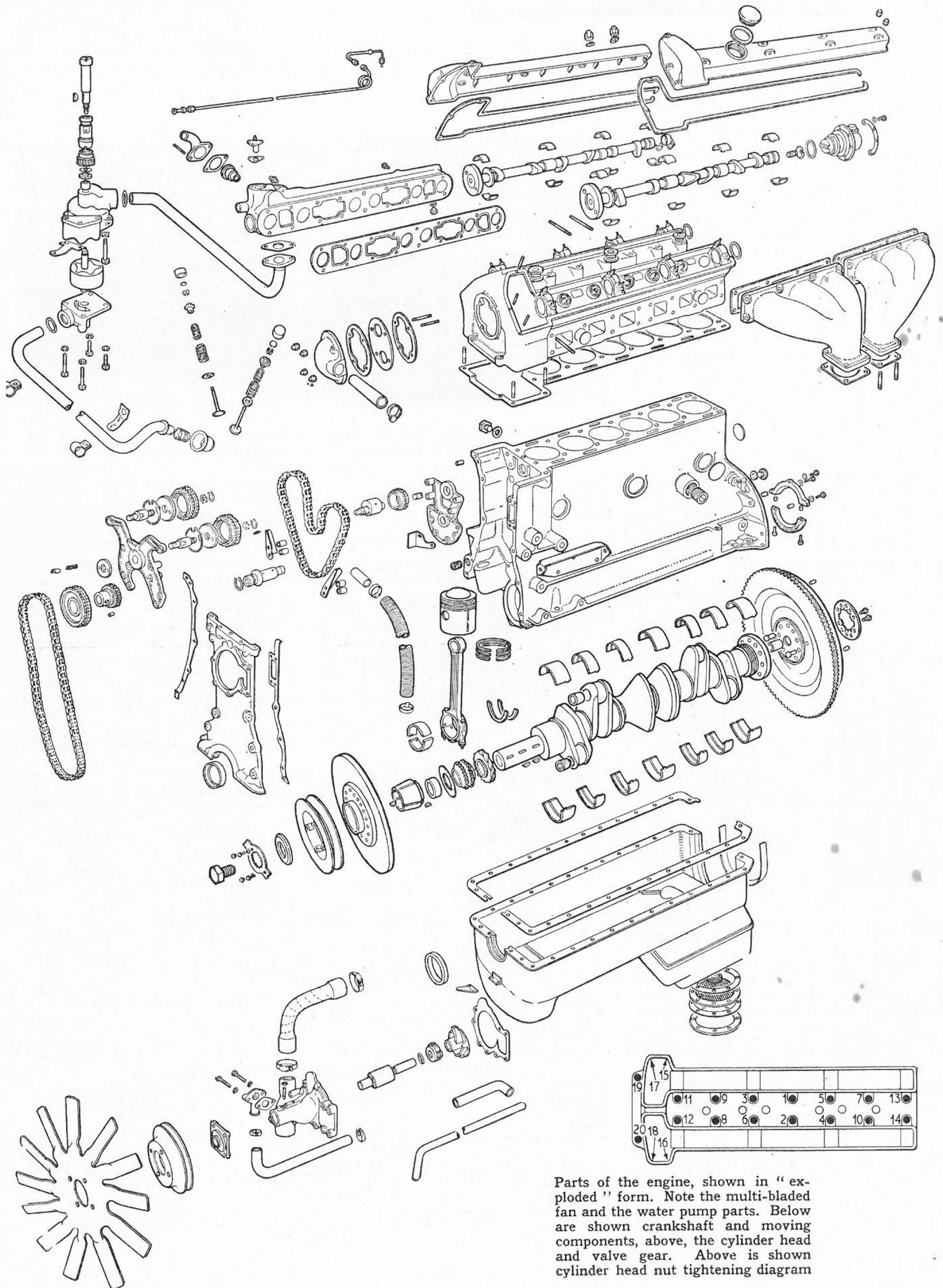
Jack up front suspension cross-member and remove road wheels. Support weight of car at front jacking points on blocks not less than 14½ in high. Leave jack in position. Remove four securing nuts between suspension member and rear mounting, and four nuts and bolts to front mounting brackets. Disconnect anti-roll bar mountings from underframe. Undo brake hoses at body brackets; re-



**INSTRUMENTS, CONTROLS, GEAR POSITIONS AND BONNET LOCK**

- |                             |                               |                                  |
|-----------------------------|-------------------------------|----------------------------------|
| 1. Ammeter.                 | 11. Starter switch.           | 21. Brake pedal.                 |
| 2. Fuel gauge.              | 12. Map light switch.         | 22. Headlamp dipper.             |
| 3. Lighting switch.         | 13. Screen wiper switch.      | 23. Heater distribution control. |
| 4. Oil gauge.               | 14. Screen washer switch.     | 24. Heater temperature control.  |
| 5. Water temperature gauge. | 15. Engine R.P.M. indicator.  | 25. Vent control.                |
| 6. Interior light switch.   | 16. Main beam warning lamp.   | 26. Direction indicator.         |
| 7. Panel light switch.      | 17. Speedometer.              | 27. Direction indicator R.H.     |
| 8. Heater fan switch.       | 18. Fuel level warning light. | 28. Direction indicator L.H.     |
| 9. Ignition switch.         | 19. Ignition warning light.   | 29. Overdrive control.           |
| 10. Cigar lighter.          | 20. Accelerator.              | 30. Horn ring.                   |
|                             |                               | 31. Handbrake.                   |

Top left shows method of operating bonnet release catch, inner top left the operative positions of the gear lever. Below left, the handbrake and inner left, steering column controls. Note: Automatic Transmission control shown in this diagram.



Parts of the engine, shown in "exploded" form. Note the multi-bladed fan and the water pump parts. Below are shown crankshaft and moving components, above, the cylinder head and valve gear. Above is shown cylinder head nut tightening diagram

GENERAL DATA			
Wheelbase ...	8ft 11½in		
Track: front *	4ft 7in		
rear *	4ft 5½in		
Turning circle	33ft 6in		
Ground clearance	7in		
Tyre size: front	6.00/6.40—15		
rear	15ft 0½in		
Overall length	5ft 6½in		
Overall width	4ft 9½in		
Overall height	27½ cwt		
Weight (dry)			
* Plus ½in for wire wheels			
SPECIAL TOOLS			
	Part No.		
Hub puller (5-stud hub) ...	J1 (A)		
Top timing chain adjusting tool ...	J2		
Overdrive drain plug spanner ...	J3		
Gearbox oil seal removing adaptor	J5		
Note: Applicable to standard gearbox only and used in conjunction with 7657 oil seal removing tool.			
Front suspension coil spring compressor ...	J6		
Hub puller (centre lock wire wheel type) ...	J7		
Engine lifting plate ...	J8		
Valve spring compressor ...	J6118		
Oil seal remover (for use with J4 and J5) ...	7657		
NUT TIGHTENING TORQUE DATA			
	lb. ft		
Flywheel bolts ...	67		
Con-rod nuts ...	37		
Main bearing nuts ...	83		
Cylinder head nuts ...	54		
Camshaft bearings ...	15		
BALL AND ROLLER BEARING DATA			
	Part No.	Int. Ext. dia. (width in or mm)	Type
Engine:			
Water pump ...	C8167	—	—
Gearbox:			
Constant mesh pinion ...	C1838	40 × 90 mm	B
Mainshaft ...	C1845	1½ × 3½in	B
Front Axle:			
Front hub (inner) Timken ...	C15351 (LM 67000/1)		TR
(outer) Timken ...	C15352 (LM 11900/1)		TR

move clamp bolt from steering column universal joint. Lower suspension cross-member assembly on jack, draw forward and out, clear of car. Disconnect battery, drain radiator and remove bonnet after marking hinges to facilitate replacement. Take off air cleaner and bracket; remove dipstick, breather pipe, top and bottom water hoses and dynamo. Remove two setscrews each side, two nuts underneath and four nuts securing fan cowl, and take out radiator matrix followed by cowl. Disconnect all pipes, wires, leads and controls to engine, and exhaust pipes at silencer clamp, removing silencer and tail pipe, leaving down pipe in position. Remove locknut, securing nut and washer from engine stabilizer at rear of cylinder head. Take off two setscrews from front engine mounting rubbers. Remove carburettors and manifold.

Remove gear lever knob and grommet, disconnect earth strap on clutch bell-housing. Undo handbrake at operating link fulcrum pin. Remove propeller shaft complete and undo speedometer drive cable.

Sling engine (if plate is used under cylinder head nuts use 2nd and 3rd pair of studs from rear). Remove front engine mounting bracket from underframe mem-

bers, take off eight setscrews from rear engine mounting member at rear of gearbox or overdrive. Remove with slings in position and weight of unit evenly distributed, lowering engine as far left as possible. When refitting ensure that suspension is assembled so that brake discs are in straight ahead position and that the steering wheel spokes are in quarter to three position with centre motif of horn push upright. Bleed hydraulic systems after unit is completely refitted.

### Crankshaft

Seven main bearings. Thin wall, steel-backed, white metal-lined shells located by tabs. End float controlled by half thrust washers located in either side of centre bearing cap. No hand fitting permissible. Bearing shells Nos. 1, 4 and 7 are interchangeable, as are Nos. 2, 3, 5 and 6. It is possible to change all main bearing shells without removal of crankshaft but this should only be done in direct emergency. Thrust half-washers can be changed by removal of centre cap.

Flywheel, with integral starter ring gear, spigoted on rear flange of crankshaft, retained by 10 setscrews and located by two dowels. Flywheel can be refitted 180 deg. from original setting, but should be fitted with T.D.C. mark set correctly to preserve balance of assembly. Oil impregnated bronze spigot bearing bush pressed into end of crankshaft.

Oil pump and distributor drive gear (longer boss to rear), timing sprocket (either way), oil thrower, distance-piece and split tapered collet carrying fan pulley hub are keyed on front end of crankshaft with three Woodruff keys, and retained by setscrew and large washer which bears on pulley hub to which bonded rubber torsional vibration damper is riveted. Hub is keyed on tapered collet with Woodruff key. Pulley spigoted and bolted to hub.

Circular oil seal, half in timing cover and half in sump, bears on distance-piece behind pulley. Split oil collector housing fits around oil return thread on rear end of crankshaft. Lower half, on which cork strip sealing rear of sump fits, bolted to upper half by two Allen head setscrews with hollow dowels. Upper half dowelled and bolted to crankcase.

### Connecting Rods

"H"-section stampings, horizontally split big-end bearings, thin-wall steel-backed, lead-indium-lined shells located by tabs in caps, no hand fitting permissible.

Small ends bronze bushed for fully floating gudgeon pins.

### Pistons

Brico semi-split skirt aluminium alloy. Gudgeon pins located by spring rings. Top compression ring chromium plated. Pistons should be fitted with cylinder bore number stamped on crown towards rear with split to non-thrust (near) side. Note that Jaguar practice is to number cylinders from rear to front. Tapered periphery compression rings fitted. Refit on piston with side marked "Top" uppermost.

Con. rods will pass through bores, but bolts may have to be extracted. Remove and assemble through top.

### Camshafts

Duplex endless roller chain drive in two stages. First stage drives double idler

ENGINE DATA		
<b>GENERAL:</b>		
Type ...	...	o.h.c.
No. of cylinders ...	...	6
Bore × stroke: mm	...	83 × 106
in	...	3.267 × 4.173
Capacity: c.c.	...	3442
cu in	...	210
R.A.C. rated h.p.	...	25.6
Max. b.h.p. at r.p.m.	...	210 at 5,500
Max. torque at r.p.m.	...	215lb. ft at 3000
Compression ratio	...	7 : 1, 8 : 1 or 9 : 1

CRANKSHAFT AND CON. RODS				
Diameter	Main Bearings			
	2.75in			
	Numbers			
	1	2, 3, 5, 6	4	7
Length (in)	1½	1½	1½	1½
<b>Running clearance:</b>				
main bearings ...	...	...	...	.0015-.003in
big ends ...	...	...	...	.0023-.0039in
End float: main bearings	...	...	...	.004-.006in
big ends ...	...	...	...	.006-.008in
Undersizes	...	...	...	.010, .020, .030, .040in
Con. rod centres	...	...	...	7½in
No. of teeth on starter ring gear/pinion	...	...	...	104/10
PISTONS AND RINGS				
Clearance (skirt) ...	...	...	...	.0011-.0017in
Oversizes	...	...	...	.010, .020, .030in
Weight without rings or pin (8 : 1 and 9 : 1 CR) ...	...	...	...	1lb 14 ozs 13 dr
Gudgeon pin: diameter	...	...	...	.8751-.8749in
fit in piston	...	...	...	finger push fit at 68°F
fit in con. rod	...	...	...	double thumb push fit at 68°F
CAMSHAFT				
Bearing journal: diameter	...	...	...	1.000in + .0005in - .001in
Bearing clearance	...	...	...	.0005-.002in
End float	...	...	...	.0045-.008in
Cam lift	...	...	...	½in
Timing chain:	...	...	...	
pitch	...	...	...	½in
No. of links (upper)	...	...	...	100
(lower)	...	...	...	82
VALVES				
	Inlet		Exhaust	
	1½in 45°		1½in 45°	
Head diameter	...	...	...	...
Stem diameter	...	...	...	...
Face-angle	...	...	...	...
Spring length:	Inner		Outer	
	1½in 69.3 lb/in		1½in 77.4 lb/in	
free	...	...	...	...
fitted	...	...	...	...
spring rate	...	...	...	...

sprocket and has Renold hydraulic tensioner on offside, rubber rubbing blocks. Second stage passes round idler sprocket, both camshaft sprockets and below small tensioner sprocket on eccentric hub.

Complete assembly of timing chain sprockets and brackets can be removed after removal of engine unit.

Each camshaft runs in four split steel-backed white metal-lined shells, located

by dowels. Oil fed through drillings in head to rear bearings, and through hollow shafts to other bearings. End float of camshaft controlled by front bearing between sprocket and flange on shaft.

When removing head for top overhaul, first slacken chain tensioner, then detach each sprocket and slide it inwards along slot, securing it with elastic band on boss.

Before refitting cylinder head, it is important to observe procedure, as follows to avoid fouling of inlet and exhaust valves or valves with pistons, in addition to noting that the engine should not be rotated with camshaft sprockets removed.

Position camshafts, using valve timing gauge provided in tool kit. Key of gauge locates in keyways of camshaft and bottom face of gauge with camshaft cover face in cylinder head. Turn crankshaft to T.D.C. No. 1 firing (flywheel mark visible through aperture in base of bell-housing.) Check rotor arm position in distributor, refit cylinder head and connect timing chains.

### Valves and Tappets

Overhead, set at 70 deg, included angle. Not interchangeable, inlet larger than exhaust. Spit cone cotter fixing, double springs with seats between springs and head.

Valve guides plain, no shoulder, non-interchangeable. Press in until outer end of guide projects  $\frac{1}{16}$ in from spring seat, after total immersion of cylinder head in boiling water for 30 mins.

Valve seat inserts for inlet and exhaust shrunk into light alloy head.

Plain cylindrical tappets fit over valves and slide in guides shrunk into head. Adjust clearance between cam and valve by pad on top of valve stem. Pads are available in thicknesses ranging from .085in to .110in in .001in steps. Pads are identified by etched letter A to Z, A being thinnest.

Camshafts must be removed for tappet adjustment.

For removal of valve seat inserts or tappet guides, light alloy head must be heated in oven or muffle for one hour from cold at a temperature of 300 deg F, when new parts should press in easily.

### Lubrication

Hobourn-Eaton eccentric rotor pump fitted, with pressure relief valve situated in filter head. Skew drive gear retained on shaft (Woodruff key) by nut. Shaft runs in bronze bush pressed into housing on front of crankcase. Upper end of shaft has offset slot for distributor drive.

When refitting skew gear, shaft and bush assembly, turn crankshaft to T.D.C.  $1/6$ , and push in assembly so that, when skew gear meshes with crankshaft gear, larger segment of distributor drive shaft is towards engine.

### Cooling System

Pump and fan. Non-adjustable bellows thermostat in front end of inlet manifold water jacket.

Adjust fan belt by swinging dynamo until there is about  $\frac{1}{2}$ in movement either way on vertical run of belt.

## TRANSMISSION

### Clutch

Borg & Beck single dry plate, graphite thrust release bearing, hydraulic actuation through slave cylinder operated by foot pedal. Only external adjustment is by nut on rear end of pedal pull rod to give  $\frac{3}{4}$ in free movement at pedal pad.

Access to clutch for service after removal of gearbox and bell-housing.

### Gearbox

Four-speed synchromesh on 2nd, 3rd and top gears. Single helical gear forms. Overdrive available as optional equipment on these cars has been fully described in

Trader Service Data Supplement No. 226/C1.

### To Remove Gearbox

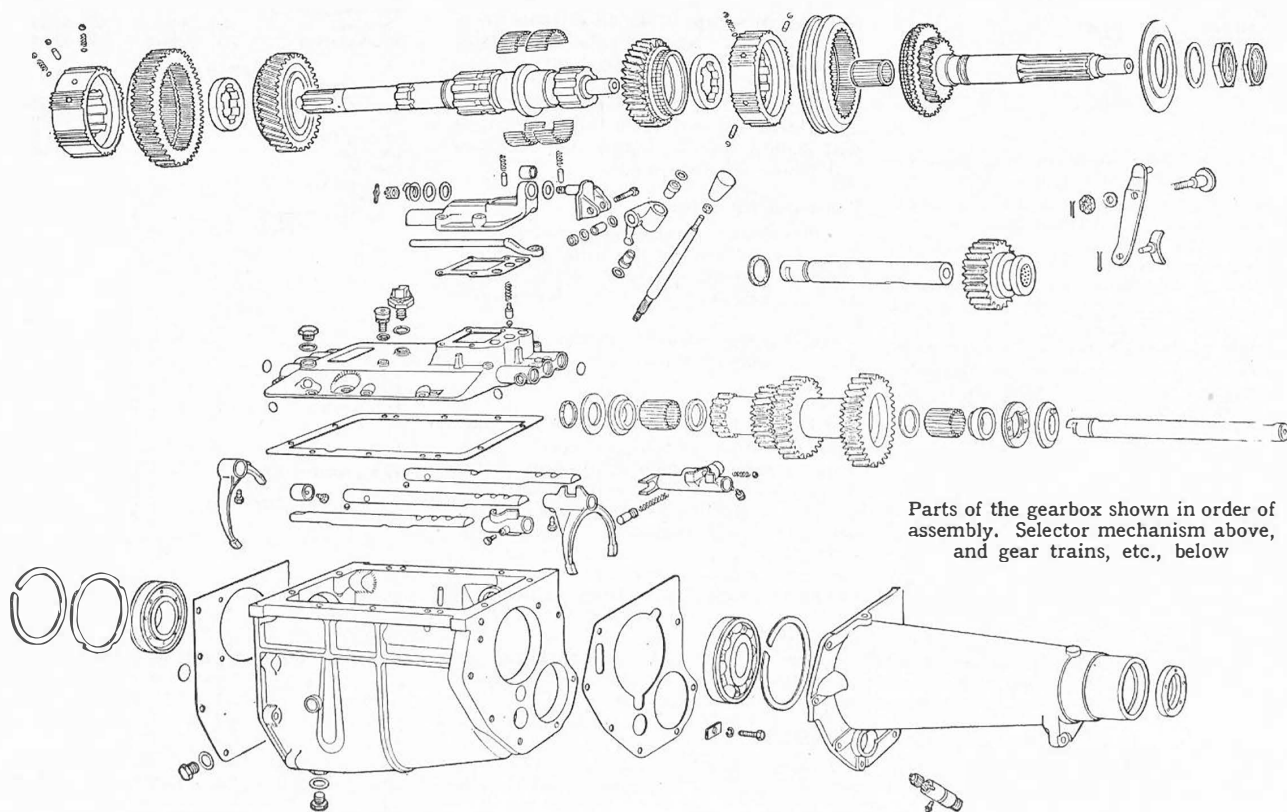
Gearbox should be removed with engine unit as detailed in engine section. It is possible to remove gearbox as a separate unit, but this procedure is not recommended as standard practice. When overdrive is fitted, it is imperative to remove engine and gearbox as complete unit to achieve access to gearbox.

To dismantle gearbox, remove top cover with remote control assembly, selector rods and forks. Engage top and 1st gears to lock box, and undo driving flange nut. Draw off flange, extract speedo drive pinion and detach rear cover with lipped oil seal complete with layshaft and reverse spindles. Draw off speedo drive gear and thick washer.

Using suitable extractor withdraw rear ball bearing from mainshaft. Remove bell-housing and front bearing cover with lipped oil seal (note copper washers under setscrew heads). Turn primary shaft so that cut-away on top gear dogs clears layshaft constant mesh gear. Tap mainshaft forward to drive out primary shaft and ball bearing with caged roller spigot bearing. Mainshaft assembly can then be lifted out through top. Lift out layshaft cluster with needle roller bearings and thrust washers, and bushed reverse idler.

Primary shaft ball bearing retained on shaft with chip shield by nut and lock-nut.

To dismantle mainshaft assembly slide off top/3rd synchro assembly, noting interlocking plunger and ball in drilling through synchro hub. Press down plunger in shaft, locking 3rd gear splined thrust washer, releasing washer. Slide off 3rd gear with 41 needle rollers. Remove 1st gear and synchro assembly (same as top/3rd gear, with interlocking plunger and ball). Remove 2nd gear



Parts of the gearbox shown in order of assembly. Selector mechanism above, and gear trains, etc., below



(same as 3rd gear). When reassembling note that interlocking plunger and ball in top/3rd and 2nd synchro hubs must be opposite cutaway splines on mainshaft and in synchro sleeves.

Reverse idler spindle should not be separated from rear extension housing as rubber sealing ring recessed in spindle cannot be replaced without special thimble.

When reassembling box insert small retaining rings in layshaft needle roller recesses, and insert 29 needle rollers in each end, sticking them in with thick grease. Insert outer retaining ring in front end of shaft with large bronze thrust washer. Stick on steel thrust washer (pegged to box). Insert stepped steel washer at rear (pegged to shaft) and small bronze thrust washer. Insert reverse gear into casing. Lower cluster into box and insert thin rod to support it.

Move reverse gear and lever forward in casing. Feed in mainshaft and primary shaft assemblies, and drive in ball bearing. Lift layshaft cluster with rod and insert dummy spindle .980in in diameter, with generous chamfer on end, into layshaft so as not to disturb needle rollers. Assemble distance-piece and speedo gear on mainshaft, and offer up rear extension housing with layshaft spindle, and reverse spindle. Insert layshaft spindle, pushing out dummy spindle to front, picking up reverse gear on spindle as rear extension is pushed home. Complete assembly of box.

### Propeller Shaft

Hardy-Spicer needle roller bearing universal joints. Nipples provided for lubrication. Two stage shaft on cars fitted with automatic transmission.

### Rear Axle

Salisbury 4HA hypoid bevel drive, semi-floating shafts. Final drive housing integral with axle tubes, rear cover detachable.

To remove axle from car, jack up and support rear end of vehicle at suitable points under chassis frame members, disconnect brake fluid pipes, shock absorbers, brake cables rear end of propeller shaft, rear torque arms, Panhard rod and rear springs. Axle unit may then be removed clear of car.

Rear axle used in this car compares in detail with that employed on Mk. VII models, with the exception of the disc brake fitments. For all practical purposes and so far as the differential gear and half-shaft arrangement is concerned and for overhaul procedure, readers are referred to Trader Service Data No. 197, noting that the nominal distance from crown wheel centre line to pinion head is 2.625in, not 2.750in and that hub bearing end float is .003in-.005in not .006in-.008in, as stated on page v of that data sheet. For additional information readers are also referred to Service Supplement Sheet No. 298/C38 which features this axle unit.

## CHASSIS

### Brakes

Dunlop disc type on all four wheels. Lockheed vacuum servo-operated from footbrake pedal, handbrake operates mechanical linkage to rear wheels. Brake units comprise hub mounted disc and braking unit rigidly attached to rear axle. Caliper unit houses a pair of brake pads and pad carriers.

Since friction pads are self adjusting adjustment and maintenance are confined to examination for wear and replacement of pads when worn to  $\frac{1}{4}$ in thick.

Handbrake should only be adjusted by means of adjuster screws on rear calipers and then only to compensate for pad wear. Insert .004in feeler between pad and disc, screw in bolt until gauge is just nipped, withdraw gauge and check free rotation. If handbrake travel is still excessive, yoke at rear end of main cable may be adjusted and repositioned on its threaded rod by means of nut and securing locknut. Adjust so that there is no slack, but no cable should be in tension.

Further details of this system are contained in Service Supplement No. 310/C44. Lockheed 6 $\frac{1}{2}$ in vacuum servo unit has no mechanical connection with master cylinder, but operates integral hydraulic boost cylinder, and is controlled through reaction valve operated by fluid pressure.

### Rear Springs

Semi-elliptic cantilever type springs, secured to axle brackets on tube outer ends, and front rubber buffered ends rest on steel plates mounted on chassis frame members. Spring eyes bushed and secured to mounting brackets with through bolts and locknuts. Centre-plate bolts up around centre pad of spring to locate assembly and pair of torque arms are fitted together with adjustable Panhard rod between.

### Front Suspension

Independent, coil springs with double wishbone links. Fulcrum shafts and blocks mounted and rubber bushed in inner ends of upper links; sealed ball joints with castor adjusting shims, packing piece and rebound rubber mounting block bolted up in outer ends of upper links. Camber adjusting shims are provided on machine face of fulcrum shaft blocks and shafts are retained in links by slotted nuts and split pins. Non-adjustable ball joints grease sealed, bolted up between outer ends of upper links on transverse mounting link and shank is taper fit in upper end of stub axle carrier.

Lower links are one-piece forgings; fulcrum shafts which swivel in inner ends of links and attach lower part of suspension units to front suspension cross-member are rubber bushed and bolted up each end with flat washers and slotted nuts. Outer ends of lower links attached to wheel carrier arms on taper of adjustment and built-up ball joints working in steel spigots and Railko sockets. Shims (.002-.004in) provide for adjustment on initial assembly beneath base plate which is bolted up to carrier arm by four hexagon-headed setbolts and locked with tabs. Ball joints fitted to each end of tie rods and track rod is left- and right-hand threaded to provide track adjustments.

### Steering Gear

Burman recirculating ball type; column connected to box by universal joint. Inner column splined for steering wheel adjustment. Worm gear carried in casing in loose cup and cone ball bearings, shims provided beneath both end plates for adjustment of column end float; rocker shaft movement is adjusted by grub screw and locknut in steering box top cover.

Movement of rocker shaft is transmitted to front road wheels via centre track rod,

CHASSIS DATA			
Clutch	...	...	...
Make	...	...	...
Type	...	...	...
Springs: No.	...	...	...
colour	...	...	...
free length	...	...	...
Centre springs: No.	...	...	...
colour	...	...	...
Linings: thickness	...	...	...
dia. ext.	...	...	...
dia. int.	...	...	...
		Borg & Beck sdp 10A6/G 12	
		Yellow/Lt. green	
		2.68in	
		6	
		red/cream	
		Not quoted	
		9.84—9.87in	
		6.75—6.76in	
GEARBOX			
Type	...	...	...
No. of speeds	...	...	...
Axle ratio	...	...	...
Final ratios: 1st	...	11.954	12.731
2nd	...	6.584	7.012
3rd	...	4.541	4.836
4th	...	3.54	3.77
Overdrive	...	—	2.933
Rev.	...	11.954	12.731
PROPELLER SHAFT			
Make	...	...	...
Type	...	...	...
		Hardy Spicer	
		Needle roller	
		bearing U.J.	
FINAL DRIVE			
Type	...	...	...
Crown wheel/bevel pinion teeth	...	...	...
3.54 : 1 (std.)	...	46/13	
3.77 : 1 (o'd)	...	49/13	
BRAKES			
Type	...	...	...
Disc diameter: front	...	11in	
rear	...	11 $\frac{1}{2}$ in	
Brake cylinder bore dia., front	...	2 $\frac{1}{2}$ in	
Brake cylinder bore dia., rear	...	1 $\frac{1}{2}$ in	
Servo unit type	...	Lockheed 6 $\frac{1}{2}$ in (suspended vacuum type)	
Main friction pad material	...	Mintex M33	
Handbrake friction pad material	...	Mintex M34	
SPRINGS			
		Front	Rear
Length (eye centres, laden)(in)...	...	19 $\pm\frac{1}{16}$	
Width (or wire dia. of coils)...	...	.635in	2 $\frac{1}{2}$ in
No. of leaves (or effective coils)...	...	6.5	5
Free camber (length, coil) ...	...	14 $\frac{1}{16}$ in	3.45-3.71in
Loaded camber (length, coil) at load	...	8 $\frac{1}{2}$ in @ 1865lb static load	2in pos at 620 lb
SHOCK ABSORBERS			
Make	...	...	...
Type	...	...	...
Service	...	...	...
		Girling	
		Telescopic	
		Replacement	
STEERING BOX			
Make	...	...	...
Type	...	...	...
Adjustments:	...	...	...
column end float	...	shims	
cross shaft end float mesh	...	grub screw and nut	
FRONT-END SERVICE DATA			
Castor	...	0° $\pm\frac{1}{4}$ °	
Camber	...	2° $\pm\frac{1}{4}$ ° pos	
King pin inclination	...	3 $\frac{1}{2}$ °	
Toe-in	...	Parallel to $\frac{1}{16}$ in toe-in	
No. of turns lock to lock	...	4 $\frac{1}{2}$	
Adjustments: castor	...	shims	
camber	...	Screwed track rod ends	
toe-in	...		

steering idler and left- and right-hand tie rods.

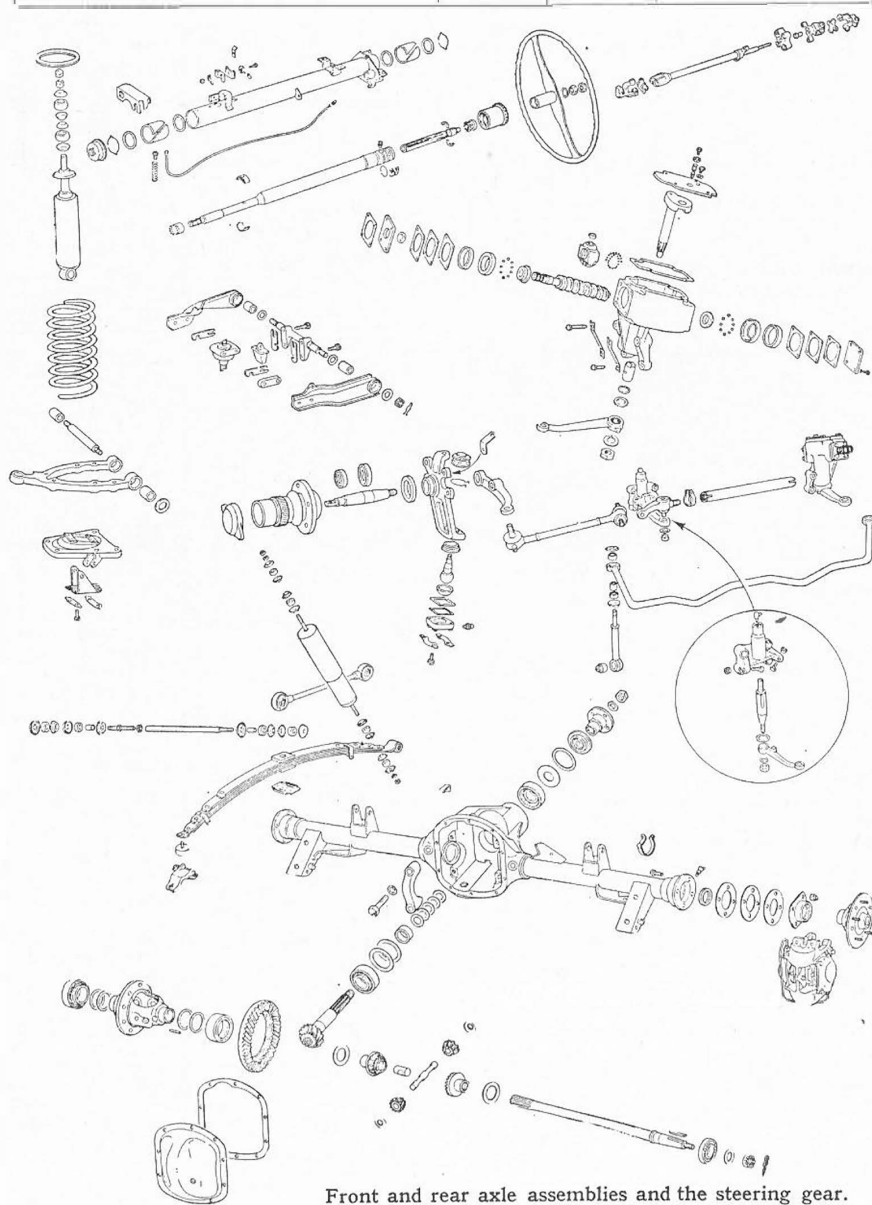
### Shock Absorbers

Girling telescopic front and rear, no provision for topping-up or maintenance.

## TUNE-UP DATA

Firing order (No. 1 at rear of engine unit) ... ..			1—5—3—6—2—4			Plugs make type ... .. size ... .. gap ... ..			Champion N5 (7:1 CR—L7) 14 mm .025in		
Tappet clearance (cold): inlet ... .. exhaust ... ..			.004in .006in			Carburettor: make type ... ..			S.U. H.D.6 (twin)		
Valve timing: inlet opens ... .. inlet closes ... .. exhaust opens ... .. exhaust closes ... ..			15° BTDC 57° ABDC 57° BBDC 15° ATDC			Settings: Choke  Jet needle types: 7 : 1 C.R. ... .. 8 : 1 C.R. ... .. 9 : 1 C.R. ... ..			1½in		
Location of timing mark: ...			Scale on c/shaft damper—pointer on sump.			Air cleaner: make type ... ..			Oil bath air cleaner		
Standard ignition timing:			Oil bath air cleaner		Paper element	Fuel pump: make type ... ..			Paper element		
7 : 1 C.R. ... ..			TDC		TDC				SC		
8 : 1 C.R. ... ..			2° BTDC		7° BTDC				TM		
9 : 1 C.R. ... ..			TDC		5° BTDC				TU		
									Cooper Paper element		
									A.C. oil bath		
									SU		
									AUA 52		

Component	Model	Part No.	BULB		
			Lucas No.	Wattage	Cap
Export Norway, Sweden and Germany...	F700	51792	350	35/35	B.P.F.
Export Sweden (later) ... ..	F700	58450	410	45/40	U.E.C.
Export Italy ... ..	F700	58230	410	45/40	U.E.C.
Export U.S.A. ... ..	F700	58493	—	—	—



Front and rear axle assemblies and the steering gear.  
Note the rear axle build-up and also the disc brake arrangement

## LUCAS EQUIPMENT

## BATTERY

Model BV11A.

## GENERATOR

Model C45PVS-6 | Part No. 22495

## CONTROL BOX

Model RB310 | Part No. 37297

## STARTING MOTOR

Model M45G ... | Part No. 26140

Drive "S" Type Inboard.

## \*DISTRIBUTOR

Model DMBZ6A | Part No. 40578

(7 : 1 Compression ratio) Max. centrifugal advance (crank degrees) 32°-36° at 7,000 r.p.m.  
No advance below 800 r.p.m.

Centrifugal advance

springs ... | Part No. 425183

Max. vacuum advance (crank degrees) 20°-24° with 20" Hg.

No advance below 2½in Hg.

## IGNITION COIL

Model HA12 ... | Part No. 45067

Primary resistance 3.0-3.5 ohms.

Running current at 1,000 r.p.m. 1.0 amp

## WINDSCREEN WIPER

Model DR3 ... | Part No. 75310 (R.H.D.)  
Part No. 75311 (L.H.C.)

## \*HORN(S)

Model HF1748 | Part No. 70063 L.N.  
Part No. 70071 H.N.

Type: High frequency.

Current consumption: 4 amp. (per horn).

## \*FLASHER UNIT

Model FL5 ... | Part No. 35010

## FUSE UNIT

Model SF6

Fuse ratings: 50A; 50A.

*Component	Model	Part No.
Distributor (8 : 1 CR) ... ..	DMBZ6A	40576
Centrifugal advance springs. Part No. 424950.		
Centrifugal advance commences at 550 R.P.M.		
Maximum centrifugal advance 34°-38° at 6,400 R.P.M.		
Vac. advance commences at 5in. Hg.		
Maximum vacuum advance 16°-20° with 20in. Hg.		
Distributor (9 : 1 CR) ... ..	DMBZ6A	40617
Centrifugal advance springs. Part No. 54410416.		
Centrifugal advance commences at 650 R.P.M.		
Maximum centrifugal advance 20°-24° with 4,000 R.P.M.		
Vac. advance commences at 4½in. Hg.		
Maximum vacuum advance 14°-18° with 20in. Hg.		
Horns		
(later fitment)		
High note ... ..	WT618	69090
Low note ... ..	WT618	69087
Current consumption 13½-15 amp. per horn.		
Flasher unit (later fitment) ... ..	FL5	35020



SUNDRY EQUIPMENT		
	Model	Part No.
Mirror ...	608	62564
Ammeter ...	CZU60	36262
Horn relay (with WT618 horns) ...	6RA	33209
*Screen Jet ...	28J	077011
SWITCHES		
Ignition ...	S45	31962
Starter ...	S85	31967
Starter solenoid ...	ST950	76411
*Lighting ...	PRS7	31981
*Direction indicator ...	37SA	31964
Dip ...	F822-1	31284
Reverse lamp ...	SS10-1	31077
Stop light ...	HL2	31082
Panel light ...	57SA	31969
Wiper ...	79SA	31966
Steering column control ...	C62	33550
Interior light and map light ...	65SA	31963
Heater ...	57SA	31960

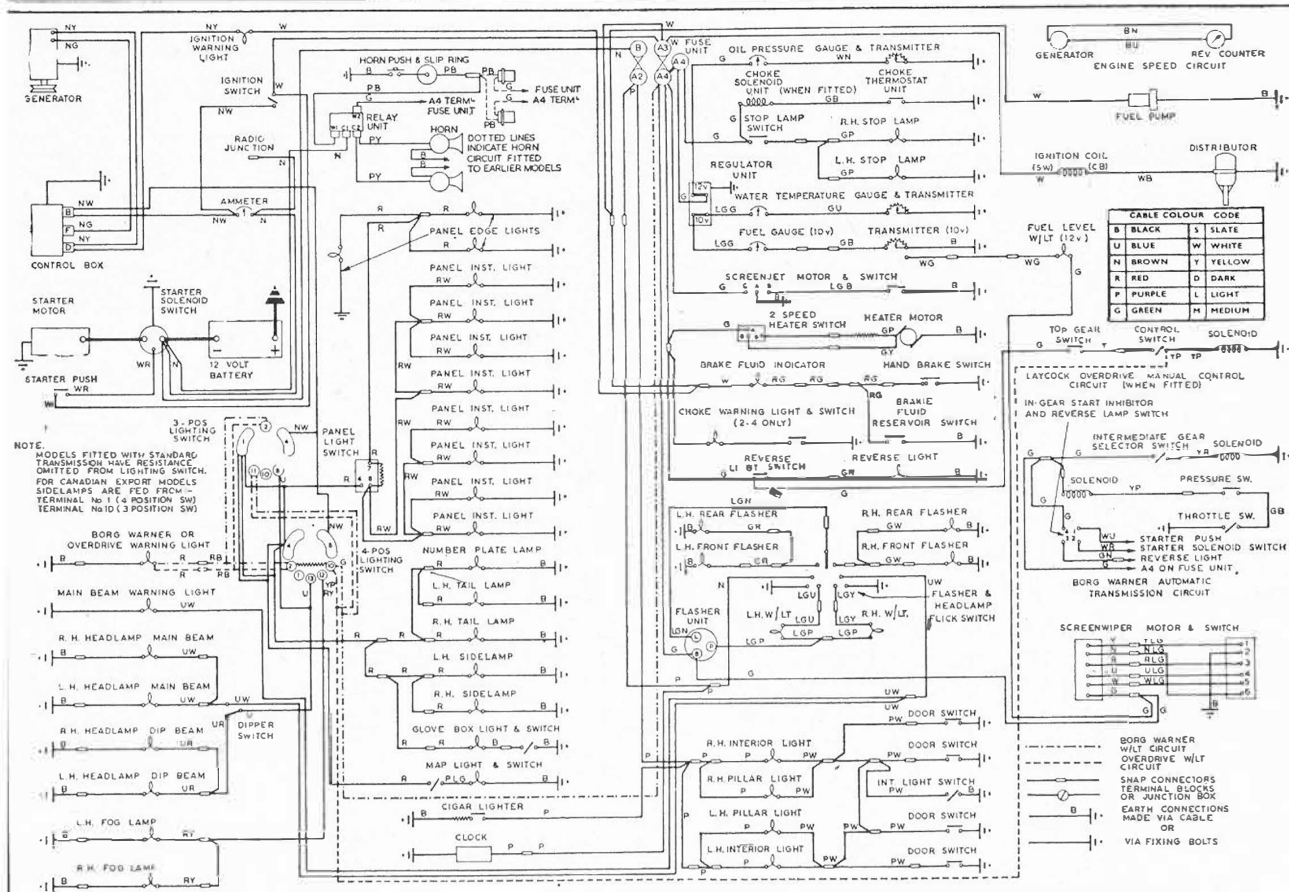
\* See also p. vi.

SWITCHES		
	Model	Part No.
Screen Jet Handbrake ...	65SA	31984
Handbrake ...	12SA	31504
TRANSMISSION UNITS		
LAYCOCK Control switch ...	52SA	31965
Transmission gear solenoid ...	11S	76515
Rotary throttle switch ...	12SA	31504
Interruption switch ...	SS10-1	31077
Relay ...	SB40	33174
BORG WARNER Throttle switch ...	TOS1	31931
Gear holding solenoid ...	11S	76516
Starting motor ...	MA5G	26097
Interruption switch ...	SS10-1	31077
Brake line valve solenoid ...	BV51	76502
Hydraulic pressure switch ...	HPS1	31393

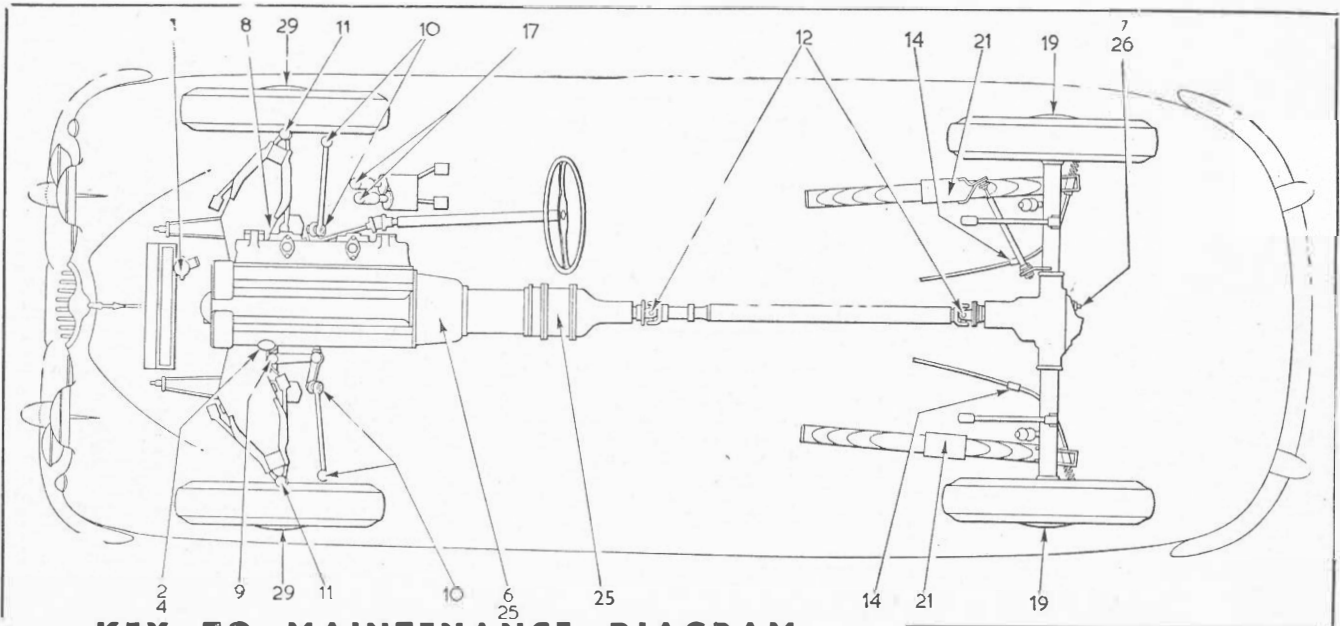
Lamps			BULB		
	Model	Part No.	Lucas No.	Wattage	Cap
Head Home & Export, R.H.D., Dip Left ...	F700	58225	404	60/36	B.P.F.
" Home & Export, L.H.D., Dip Right ...	F700	58226	406	60/36	B.P.F.
" *Export Austria ...	F700	58634	410	45/40	Unified European Cap.
" " Europe (except Countries stated) ...	F700	51738	370	45/40	B.P.F.
" " (Later) Europe (except Countries stated) ...	F700	58230	410	45/40	U.E.C.
" Export France ...	F700EF	51886	411	45/40	U.E.C.
" " (Later) ...	F700EF	58231	411	48	B.P.F.
*Fog ...	5FWT	55232	323	48	B.P.F.
*Long range driving (Special orders) ...	5WLR	55256	323	48	M.C.C.
*Side ...	490	52474	382	21	S.C.C.
*Front Flasher ...	563	52479	382	6/21	S.B.C.
*Stop tail and Rear flasher (L.H.) ...	627	53726	382 (F.)	21	S.C.C.
*Number plate Reverse and Boot ...	512	53453	382 (R.)	4	M.C.C.
Ignition warning Light Bulb holder ...	—	863511	987	2.2	M.E.S.
Main beam warning Light Bulb holder ...	—	554734	987	2.2	M.E.S.
Petrol Warning Light Bulb holder ...	—	863511	987	2.2	M.E.S.
Brake Fluid Level Indicator W.L. ...	WL3	38091	987	2.2	M.E.S.
" " " " " (Later) ...	WL3	38091	987	2.2	M.E.S.

\*See also p. vi.

Component			BULB		
	Model	Part No.	Lucas No.	Wattage	Cap
Foglamp (export France) ...	5WFT	55233	323	48	B.P.F.
Driving Lamp (special orders) (export France) ...	5WLR	55257	323	48	B.P.F.
Side lamp (later) ...	490	52474	382	6	M.C.C.
Side lamp and flasher (export Switzerland) ...	563	52498	380	6/21	S.B.C.
Front flasher (export U.S.A.) ...	563	52480	382	21	S.C.C.
Stop, tail and flasher R.H. ...	627	53727	380(S/T)	6/21	S.B.C.
Stop, tail and flasher (export U.S.A.): L.H. ...	627	53757	382(F)	21	S.C.C.
R.H. ...	627	53758	382(R)	21	S.C.C.
No. plate, reverse and boot (export France) ...	512	53557	222(N.P.B.)	4	M.C.C.
Screenjet (later) ...	28J	077026	—	—	—
Lighting switch (export U.S.A.) ...	PRS7	31982	—	—	—
Direction indicator switch (later) ...	37SA	34314	—	—	—



Wiring diagram by permission of Joseph Lucas Ltd.



## KEY TO MAINTENANCE DIAGRAM

### KEY DAILY

1. Radiator
2. Engine sump

} check and top up

### EVERY 2,500 MILES

3. \*Battery—check electrolytic level and top up
4. Engine sump—drain and refill
5. \*Oil filter element—clean
6. Gearbox
7. Rear axle
8. Steering box
9. Steering idler box
10. Steering tie rod and track rod ball joints
11. King pins
12. Propeller shaft universal joints
13. \*Propeller shaft splines (O/D and Auto. models only)
14. \*Sparking plugs—clean and reset
15. \*Carburettor piston dampers—oil
16. Distributor—oil shaft bearing, auto advance, contact breaker pivot, smear cam with grease
17. Brake and clutch master cylinder reservoirs—check and top up

### EVERY 5,000 MILES

18. \*Carburettor filters—clean

19. Rear wheel bearings—grease gun
20. \*Oil filter element—renew
21. Rear road springs—spray with penetrating oil
22. \*Air cleaner—clean and re-oil
23. \*Brake servo air cleaner—clean
24. Door hinges, seat runners, handbrake ratchet, catches, etc.—oil can

### EVERY 10,000 MILES

25. Gearbox (and o/d if fitted)
26. Rear axle
27. \*Overdrive oil pump filter (if fitted)—clean
28. \*Engine sump strainer—clean
29. Front wheel hub bearings—dismantle clean and repack with h.m.p. grease
30. \*Petrol pump filter—clean
31. \*Chassis and body nuts—check for tightness
32. \*Auto. transmission (if fitted)—drain and refill
33. \*Air cleaner (later cars)—change paper element.

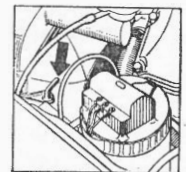
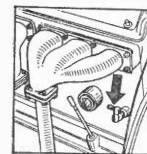
N.B. Check level of fluid in Automatic transmission every 1,250 miles.

\*Not shown on diagram.

### FILL-UP DATA

	Pints	Litres
Engine sump	11	6.24
Gearbox (plus 1½ pt. for O.D.)	2½	1.42
Rear axle	2½	1.42
Cooling system (including htr.)	22	12.5
Fuel tank	12 galls	54
Tyre pressures: front	28lb/sq in	1.97 kg/cm²
rear	24 lb/sq in	1.69 kg/cm²

## DRAINING POINTS



## RECOMMENDED LUBRICANTS

Left: the cylinder block drain tap, and right: the radiator matrix drain tap

COMPONENT	MOBIL	CASTROL	SHELL	ESSO	B.P.	DUCKHAM	REGENT Caltex/Texaco
Engine—Summer, 32°F.-90°F. Winter, below 32°F. ... Tropical, above 90°F.	Mobiloil A Mobiloil Arctic Mobiloil AF	XL Castrolite XXL	X-100 30 X-100 20/20W X-100 40	Extra Motor Oil 20W/30 Extra Motor Oil 20W/30 Extra Motor Oil 40	Energol 30 Energol 20 Energol 40	NOL 30 NOL 20 NOL 40	Advanced Havoline 30 Advanced Havoline 20/20W Advanced Havoline 40
Upper cylinder lubri- cant ...	Upperlube	Castrollo	U.C.L. or Donax U.	U.C.L.	Energol U.C.L.	Adcoide Liquid	U.C.L.
Gearbox ... Carburettor hydraulic piston dampers ... Distributor oil can points ... Oil can lubrication ...	Mobiloil A	XL	X-100 30	Extra Motor Oil 20W/30	Energol 30	NOL 30	Advanced Havoline 30
Rear axle ...	Mobilube G.X. 90	Hypoy	Spirax 90 E.P.	Gear Oil GP 90	Energol E.P. 90	Hypoid 90	Universal Thuban 90
Steering box ...	Mobilube C 140	D	Spirax 140 E.P.	Gear Oil ST 140	Energol 140	NOL EP 140	Universal 140 Thuban
Propeller shaft ... Front wheel bearings ... Rear wheel bearings ... Distributor cam ...	Mobilgrease MP	Castrolase LM	Retinax A	Multi-purpose Grease H	Energolase L.2	LB 10	Marfak Multi-purpose 2
Steering idler hous- ing ... Steering tie-rods ... Wheel swivels ... Door hinges ...	Mobilgrease MP	Castrolase Medium or LM	Retinax A	Multi-purpose Grease H	Energolase L.2	LB 10	Marfak Multi-purpose 2
Automatic transmission (capacity 15pts-8.5 litres)	Fluid 200	T.Q. Automatic Transmission Fluid Grade "A"	Donax T6	Automatic Transmission Fluid 55	Energol Auto- matic Trans- mission Fluid Type "A" or Type "A" with Suffix "A"	Nolmatic	3528 Texamatic Fluid
Power steering system	Fluid 200	T.Q. Automatic Transmission Fluid Grade "A"	Donax T6	Automatic Transmission Fluid 55	Energol Auto- matic Trans- mission Fluid Type "A" or Type "A" with Suffix "A"	Nolmatic	3528 Texamatic Fluid