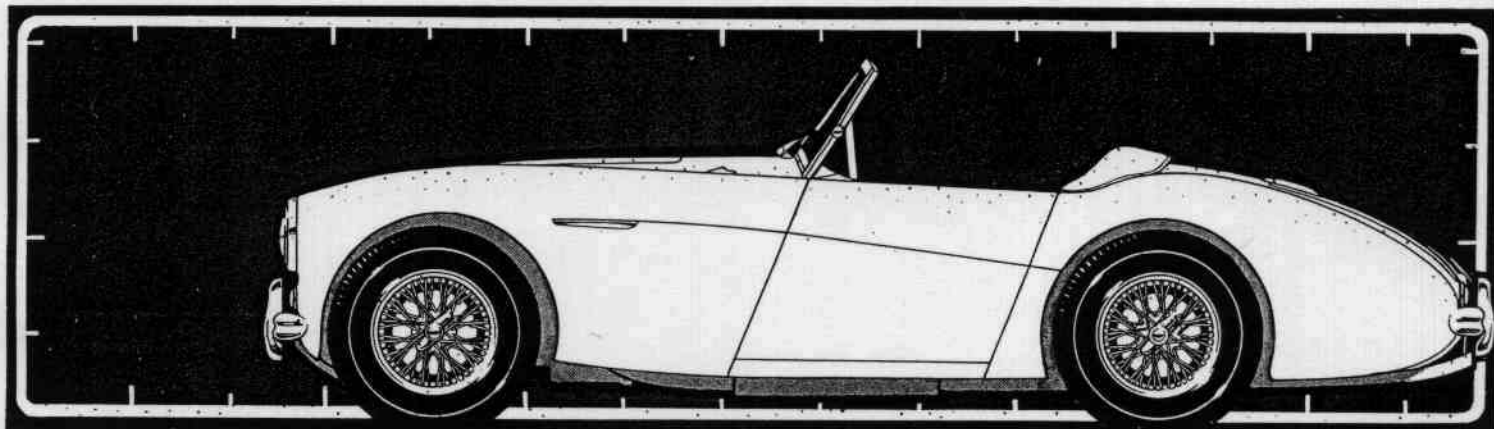


Mini Manual

The Mini-Manual is based on the original survey of the car conducted by Motor Trader when the model was still current



AUSTIN-HEALEY 100 1953/54

No12

Manufacturers: Austin Motor Co., Ltd., Longbridge, G.P.O. Box 41, Birmingham, in association with Donald Healey Motor Co., Ltd.

INTRODUCED at the 1952 Earls Court Motor Show, the Austin-Healey is quite distinct from other Healey models. The box-section chassis frame is of Healey design, but Austin components are used for the coil spring and double wishbone front suspension, semi-elliptic rear suspension, rear axle and transmission. The engine is basically that used in the now discontinued A90 chassis. The gearbox is the same as that of the A70, but a central lever has been substituted for the steering column control, bottom gear is blocked out and a Laycock-de Normanville overdrive built on to the gearbox. Automatic control of the overdrive is electrically operated. One model only, an open sports two-seater, is produced, the body shell being welded to the chassis frame. There have been no major modifications.

The chassis serial number is stamped on a plate fixed to the top of the chassis frame on the off side alongside the engine. The engine serial number, prefixed 1B, is stamped on a boss on the offside top of the cylinder block. Engine number, chassis serial number and the car type symbol, BNL (L indicating left-hand drive) are on a plate fixed inside the scuttle on the driver's side.

Special tools are the same as for the Austin A70, with the addition of certain tools for the overdrive. BSF threads and hexagons are used on most of the basic components, but Unified threads have been introduced on new or special components.

MOUNTING

At front inverted L-shaped brackets bolted to front engine plate rest on large bonded rubber blocks on brackets bolted to chassis frame. Torque reaction rubber buffers bolted to top lips of engine brackets bear on tops of frame brackets, but should have slight clearance when engine is resting on mountings.

At rear, feet cast on overdrive rear casing rest on bonded rubber mounting units bolted to cross-members. Setscrews through feet screw into mountings. Tighten all bolts fully.

Fore-and-aft stay rod between cross-member and lug on offside of overdrive casing, with buffers, nuts and locknuts. Longer threaded end fits to front.

When engine is mounted in chassis, leave rear mounting unit bolts to chassis loose. Then adjust link so that it is in neither compression nor tension, and rubbers are just firmly nipped. Then tighten rear mounting bolts to chassis.

REMOVAL

Engine, gearbox and overdrive are best removed as unit. If gearbox is left in chassis, it is difficult to reassemble engine.

Detach bonnet from hinges. Disconnect and remove radiator core (three bolts each side to wing

valances). Disconnect all pipes, wires and controls, including rev. counter drive on near side, and remove carburetors, oil filter and distributor. Take weight of engine on slings behind front engine plate and below rear of bell-housing, so that engine can be tilted sharply.

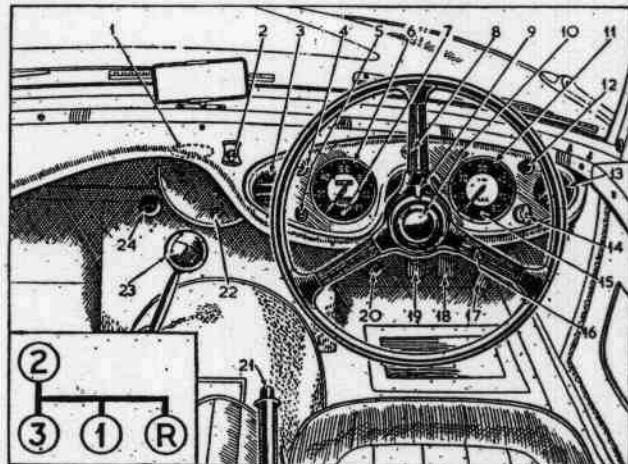
Remove metal cover over propeller shaft front joint, and detach gearbox cowl (Phillips screws to floor) and vertical scuttle plate. Disconnect overdrive wiring from centrifugal switch, solenoid and switch on off side of gearbox. Disconnect clutch linkage and front end of propeller shaft. Take out rear mounting setscrews, fore-and-aft stay rod and front mounting bracket bolts to chassis. Power unit can then be tilted and lifted out through bonnet opening.

CRANKSHAFT

Three main bearings. Thin, steel-backed, white

INSTRUMENTS AND CONTROLS:

1. Bonnet lock (behind fascia)
2. Overdrive switch
3. Oil pressure and water temp. gaug
4. Starter push
5. Screenwiper switch
6. Speedometer
7. Beam warning light
8. Flasher warning light indicator
9. Direction indicator switch
10. Horn push
11. Rev. counter
12. Lighting switch
13. Petrol gauge
14. Ignition switch
15. Ignition warning light
16. Panel light switch
17. Accelerator
18. Brake pedal
19. Clutch pedal
20. Dipper switch
21. Handbrake
22. Heater switch
23. Gear lever
24. Starting mixture control



metal-lined shells located by tabs. End float controlled by split thrust washers on either side of entire bearing, located by tabs in cap.

Centre bearing and thrust washers can be changed in emergency with crankshaft in place, but end caps cannot be removed unless engine is dismantled. Caps have $\frac{3}{16}$ in BSF drawholes.

Flywheel, with shrunk-on starter ring gear, spigoted on rear flange of crankshaft and retained by four equally spaced bolts and flatted dowel nuts.

Timing sprocket and pulley keyed to front end of shaft with separate Woodruff keys, oil thrower ring between, and secured by hand starter dog nut with timing washers behind sprocket for alignment.

Front and rear main bearing caps fit in square recesses in crankcase with round cork seals, which should be inserted after caps have been tightened down, and should stand well proud of sump face. Rear cap forms lower half of collector ring round oil return thread on shaft. Upper half bolted to crankcase with three setscrews and paper washer. If upper half is detached, it should be refitted after bearing cap to ensure that ends butt on cap.

CONNECTING RODS

Big ends thin steel-backed, white metal-lined shells located by tabs as main bearings. No hand fitting permissible. Gudgeon pins cotter-clamped in small ends.

Big ends offset, Nos. 1 and 3 with larger boss to rear and small end clamp bolt to rear side. Nos. 2 and 4 with clamp bolt to off side.

CRANKSHAFT AND CONNECTING ROD DATA

	Main Bearings			Crank-pins
	No. 1	No. 2	No. 3	
Diameter	2.479in*	2.479in*	2.479in*	2.000in*
Length	1.75in	1.75in	1.995in	1.230in
Running clearance:				
main bearings			.001-.0025in	
big ends			.0005-.002in	
End float: main bearings			.002-.003in	
big ends			.008-.012in	
Undersizes			.020, .040in	
No. of teeth on starter ring gear/pinion			106/11	
Con. rod centres			8.183 ± .0045in	
*Machining limits plus .0005in, minus .000in				

PISTONS

Aluminium alloy, split skirt, dished head, tin plated. Fit with split to rear side in conjunction with big end offset ("Front" stamped on top face of piston).

Second and third compression rings have taper face (larger diameter downwards). Fit with side marked "T" to crown.

Pistons supplied in five grades. Numbers stamped on diamond on piston crown and cylinder block must correspond. Piston and bore sizes and grades in inches) are:

PISTON DATA

Clearance (skirt)	.0012-.0018in	
Oversizes	.010, .020, .030, .040in	
Weight with rings and pin	1lb 8oz 14dr	
Max. weight variation per set	4 dr	
Gudgeon pin: diameter fit in piston	$\frac{1}{8}$ in	
Compression height	Thumb push at 70 deg F	
	2.000in	
	Com-pression	Oil Control
No. of rings	3	1
Gap	.011-.015in	.011-.015in
Side clearance in grooves	.002-.004in	.002-.004in
Width of rings	$\frac{3}{16}$ in	$\frac{3}{16}$ in

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

CAMSHAFT

Duplex roller endless chain drive. Sprockets must be removed and fitted together.

Camshaft sprocket, with rubber tensioner ring between teeth, and oil catcher plates, keyed on

BALL AND ROLLER BEARING DATA

Journal Ball Bearings	Int. dia.	Ext. dia. (in or mm)	width
Water pump (two)		1 $\frac{1}{8}$	$\frac{3}{4}$
Gearbox:			
Primary shaft	35	80	21
Mainshaft	1 $\frac{1}{2}$	3 $\frac{1}{2}$	$\frac{1}{2}$
Overdrive: Centre	1 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$
Rear	30	62	16
Clutch thrust	50	90	11
Rear axle:			
Differential (two) semi-thrust	40	80	18
Hubs (two)	40	80	23
Front hubs:			
Inner (two)	1 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$
Outer (two)	$\frac{1}{2}$	2	1 $\frac{1}{8}$
Taper Roller bearings			
Rear axle bevel pinion shaft:			
Front	1	2 $\frac{1}{2}$	1 $\frac{1}{2}$
Rear	1 $\frac{1}{2}$	2.86	30

NUT TIGHTENING TORQUE DATA

	Bolt size	lb/ft
Cylinder head	$\frac{7}{16}$ in BSF	65-70
Main bearings	$\frac{7}{16}$ in BSF	—
Big ends	$\frac{7}{16}$ in BSF	—
Flywheel	$\frac{3}{4}$ in BSF	35-40

*Castellated nuts. Tighten to nearest slot.

ENGINE DATA

No. of cylinders	4
Bore x stroke: mm	87.3 x 111.1
in	3.4375 x 4.375
Capacity: cc	2660
cu in	162.26
R.A.C. rated hp	18.91
Max bhp at rpm	90 at 4000
Max torque (lb/ft) at rpm	144 at 2000
Compression ratio	7.5:1

shaft with Woodruff key and retained by nut. Thrust plate trapped between sprocket and shoulder of front journal, and bolted to crankcase. Thrust plate has oil groove in back face, plain side stamped "front".

Three bearings, thin white metal-lined steel bushes pressed into crankcase. Replacement bushes must be line-reamed. Centre bush cut away for oil pump and distributor gears.

Camshaft cannot be removed with engine in place. To remove with engine out, remove sump oil pump and distributor. Extract push rods and tappets. Draw off pulley, remove timing cover and draw off both sprockets together. Detach thrust plate and draw out shaft.

Timing marks are dot-punched on sprocket teeth in line with centres.

CAMSHAFT DATA

	No. 1	No. 2	No. 3
Bearing journal:			
diameter	1.790in	1.750in	1.625in
length	1 $\frac{1}{4}$ in	1 $\frac{1}{2}$ in	1 $\frac{1}{2}$ in
Bearing clearance		.001-.002in	
End float		.002-.008in	
Timing chain:			
pitch		$\frac{3}{16}$ in	
No. of pitches		62	

VALVES

Overhead, not interchangeable, inlet larger than exhaust. Split cone cotter fixing, double springs. Rubber sealing washers located on valve stems below spring collars by pressed caps. Spring clips retain split cotters in place. Lower ends of springs located by stepped collars round guides.

Valve guides: plain, no shoulder. Exhaust guides are longer than inlet, with slightly stepped bore, and are counterbored at inner end. Press in new guides from combustion chamber until they project $\frac{1}{16}$ in from spring seats.

TAPPETS AND ROCKERS

Barrel tappets sliding directly in crankcase. Remove through side opening.

Bushed rockers (all interchangeable) carried on hollow shaft clamped in four phosphor bronze pillars. Oil feed from drilling through cylinder head

to No. 3 pillar. Other pillars interchangeable. Rocker shaft located by banjo plug in No. 3 pillar. Three interchangeable spacing springs. Centre spring has distance-piece to make up length.

All but end rockers can be pushed aside against spacing springs for push rod removal. End rockers retained by washers, double-coil spring washers and split pins.

LUBRICATION

Gear pump in sump. Rev. counter drive taken from upper end of pump shaft.

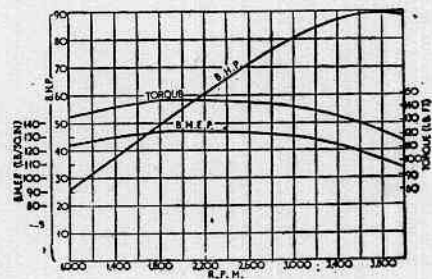
Pump and drive housing assembly spigoted in crankcase and located by taper-ended grub screw and cap nut on outside.

To remove pump, disconnect delivery pipe from crankcase, slacken grub screw and draw out pump assembly. When refitting, do not omit spring and washer on return pipe from relief valve to intake strainer.

To dismantle pump, detach intake strainer and bottom cover. Tip out driven gear and draw driving gear off shaft, which is integral with skew gear. Do not drive shaft out of driving gear, or Woodruff key will foul body. Shaft runs directly in drive housing integral with body.

Rectangular intake strainer body with gauze panels bolted to pump cover. Oil delivered from pump through pipe to opposite side of crankcase, and through drillings to Tecalemit full-flow felt-element filter with FG 2313 element, on off side of engine. Purolator filter with element MF 26A fitted as alternative.

Non-adjustable spring-loaded taper-seated relief valve in crankcase below filter, accessible from outside. Normal oil pressure 50-55lb at 30 mph.



IGNITION DATA

Advance range:	
centrifugal (crank °)	32-36
vacuum (crank °)	12
Advance starts (crank rpm)	600-1,000
Max. advance (crank rpm)	4,000
Cam angle (closed period)	60° = 3°
Contact spring tension	20-24 oz
Condenser capacity	.2 mf
Firing point	6° B.T.D.C.
Firing order	1 3 4 2
Contact breaker gap	.014-.016in
Plugs: make	Champion
type	NA 8
size	14mm
gap	.025in

IGNITION

Anti-clockwise distributor, with centrifugal and vacuum control, spigoted in crankcase and retained by clamp plate and setscrew. Drive shaft, with integral skew gear, pinned to distributor shaft and supported at lower end in renewable cast iron bush located in crankcase by setscrew.

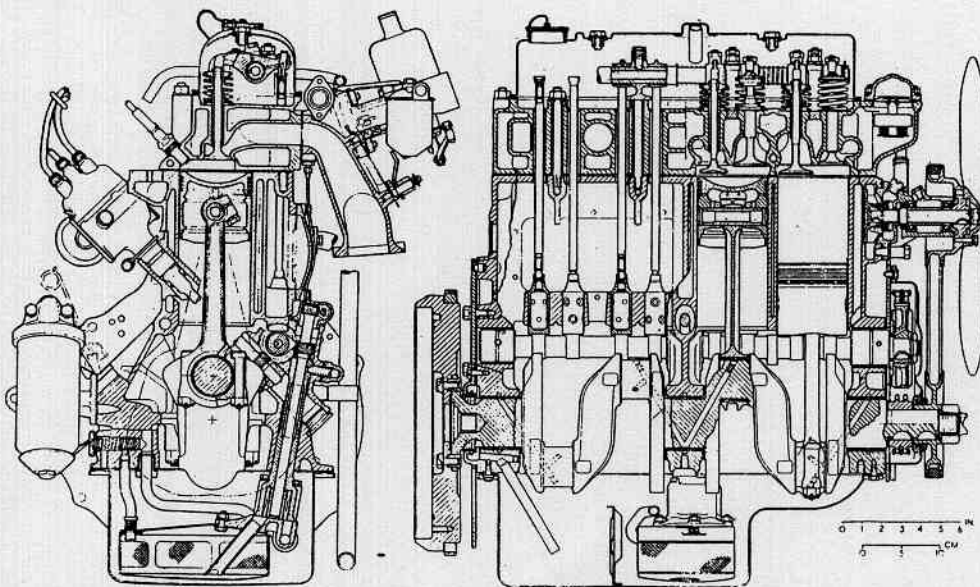
Set contact points to open 6 degrees before T.D.C. No marks visible, use rod through sparking plug hole.

COOLING SYSTEM

Pump and fan. Non-adjustable bellows thermostat in cylinder head. System pressurised to 7lb. Pump has carbon and rubber seal.

Pump can be removed with radiator in place. Remove fan. Pump body spigoted in front of cylinder block and attached by three studs. Note that two nearside studs have elongated nuts.

To dismantle pump draw off pulley (nut and Woodruff key) and tap shaft, impeller and seal assembly out to rear. Ball bearings (interchangeable) and lipped oil seal behind rear bearing can be pressed out to front with distance-piece between inner races, and outer oil retainer, after spring ring locating front bearing has been extracted.



Seal assembly, consisting of carbon ring, rubber seal, spring cap and spring, retained by impeller with nut and Woodruff key. When renewing seal, see that spring just holds carbon ring against shoulder on shaft before assembly in pump body. This ensures correct pressure in assembled position.

Adjust fan belt by swinging dynamo until there is about 1/2 in movement either way on longest run of belt.

FUEL SYSTEM DATA

Carburettor: make	S.U. inclined (Two)
type	H4
Settings: needle	QW
Air cleaner	Burgess oil-wet
Fuel pump: make	S.I. electric
type	PP 36/L
pressure	2lb

CLUTCH

Borg & Beck single dry plate. Graphite thrust release bearing.

Only external adjustment is for free movement of pedal (about 1 1/2 in at pad). Adjust on link at cross-shaft lever by nuts and locknuts.

Access to clutch for service after removal of gearbox.

GEARBOX

Three-speed. Synchromesh on all forward gears. Austin A70 four-speed gearbox is used, but central lever and selector assembly is substituted for column change mechanism on rear side of gearbox, and 1st gear is blocked out by special gate.

To remove gearbox and overdrive assembly, remove gear lever and ball housing cover, and detach metal cover, gearbox cowl and vertical scuttle plate. Disconnect front end of propeller shaft, clutch link and wires from overdrive solenoid, centrifugal switch and gearbox switch. Take out fore-and-aft stay rod (take off outer locknuts, nuts and rubbers, and screw inner nuts and locknuts as far as they will go towards centre of rod, which can then be extracted). Remove rear mounting setscrews, take weight of engine under sump and take out bell-housing flange bolts. Gearbox and overdrive can then be drawn back and lifted out.

Note.—Although gearbox has only three operative speeds, it will be treated as four-speed box for dismantling procedure, as unused 1st gear is still in place.

To dismantle gearbox, remove clutch cross-shaft lever (cotter) and extract two cotters from release fork. Draw out cross-shaft. Take off front cover nuts, but leave cover in place. Detach side cover with cross-shaft and striking lever, and extract gate, located in recesses in side face.

Undo four nuts on short studs holding overdrive to adapter plate on gearbox, then undo nuts on two long studs together, releasing pressure of eight clutch springs. Overdrive unit can then be drawn off mainshaft.

Note.—Before removing overdrive unit, operate small valve setting lever on off side of casing about 12 times to release accumulated pressure.

Take off five setscrews and three nuts holding adapter plate to gearbox, and extract spring ring locating distance-piece on mainshaft. Hold gearbox by adapter plate and tap shaft until adapter plate and ball bearing are free of shaft.

Tap each selector rod forward slightly until locating keys can be extracted. This will release front cover, which can be removed. Then push each selector rod out to front, catching ball and spring recessed in each fork. Note distance-piece behind top/3rd fork. Forks can be lifted out.

Take out setscrew locating forward end of reverse idler spindle, and tap out spindle to front, lifting out bushed reverse cluster as released. Drive layshaft spindle out to front. Reassembly is facilitated if spindle is followed up by thin rod, which keeps thrust washers in place, but allows cluster to drop clear.

Mainshaft assembly can now be drawn out to rear, and primary shaft with ball bearing and floating spigot bush drifted out to front, when bushed layshaft cluster can be lifted out with thrust washers (larger to front).

To dismantle mainshaft assembly slide off top/3rd synchro assembly. Release splined 3rd speed thrust washer by depressing spring-loaded plunger in shaft, and turning washer until splines register. Keeping plunger depressed, slide off 3rd and 2nd gears on bronze bush with central flange, followed by 2nd gear splined thrust washer and synchro assembly with sliding 1st gear. If synchro assemblies are dismantled note that top/3rd synchro has three locating balls and springs, and 2nd synchro has six.

To assemble gearbox, reverse order of dismantling. Splined 3rd gear thrust washers are available in three thicknesses, .1565-.1575in, .1585-.1595in and .1605-.1615in. Selector rods can be identified thus: Top/3rd has three notches close together at front end, and fits nearest to shaft, with distance-piece behind fork. 1st/2nd rod has three more widely spaced notches towards rear, and goes above other two. Reverse rod has two notches to rear.

OVERDRIVE

Laycock-de Normandie overdrive unit fits on end of gearbox with adapter plate. Overdrive consists of epicyclic gear train with double planet pinions. Planet carrier is splined to end of gearbox mainshaft. Larger planet pinions mesh with sun gear, and smaller pinions mesh with annulus which is integral with output shaft. Double cone clutch member is splined to sun gear, which revolves freely on gearbox mainshaft. Clutch member is spring-loaded so that inner cone normally engages with annulus. In this position, with sun wheel locked to annulus, gear train revolves as unit, giving direct drive.

One-way roller clutch between end of gearbox mainshaft and output shaft gives self-synchronizing change from overdrive to direct drive, and takes driving torque. Overrun and reverse torques are taken by cone clutch in what would otherwise be free-wheel condition.

Overdrive is obtained by application of hydraulic pressure which overcomes spring pressure and

moves clutch member forward so that outer cone engages with female cone fixed to casing. Thus sun gear is held stationary and drive is taken through planet pinions to annulus, which is driven at higher speed, and overruns roller clutch.

Plunger pump, driven by eccentric on gearbox mainshaft, supplies oil under pressure through non-return ball valve to spring-loaded hydraulic accumulator, which stores it at 450-500 lb/sq in.

Oil from accumulator is admitted to clutch operating cylinders through ball control valve. Normally hydraulic pressure and spring hold ball on seating. For overdrive engagement ball is lifted off seating by solenoid acting on lever on end of operating cross-shaft. Solenoid has two windings. Low resistance closing winding (18-20 amps) is in series with contacts which open when solenoid plunger is operated, cutting out closing winding and leaving high resistance holding winding (1-1 1/2 amps) in circuit.

Automatic operation of overdrive is normally effected by three switches in series with relay. These switches are: Manual switch on fascia panel; switch on gearbox which is closed only in top and 2nd gear positions; and centrifugal switch which is closed only when road speed is above about 40 mph.

To prevent change from overdrive to direct drive when throttle is closed but road speed is only just below cutting-in speed of centrifugal switch, or when manual switch is opened, second relay is connected between solenoid and throttle operated switch, which is closed until throttle is opened more than about 1/2. This combination keeps overdrive engaged until throttle is opened, when direct drive will be engaged. Overdrive control circuit is shown in wiring diagram.

To check operation, applying current to solenoid. Small setting lever on opposite end of cross-shaft should move until 1/8 in hole in end is in line with hole in casing. If 1/8 in rod cannot be inserted, detach solenoid bracket cover and move lever on cross-shaft by slackening clamp bolt. For fine adjustment, extract split pin and turn rod in solenoid plunger. Stop screw below solenoid should have 1/4 in clearance when solenoid is operated.

Operating valve ball, with plunger and spring, retained by plug (painted red) on top of casing. To test hydraulic pressure, connect slave gauge (reading to 800 lb/sq in) to plug hole. If unit sticks in overdrive and car cannot be reversed, extract operating valve and clean out jet in side of valve.

Pump non-return valve, with ball, plunger and spring, retained in side of pump body by plug with copper washer. Valve can be reached through hole in side of casing covered by bracket carrying operating solenoid.

For access to valve, detach bracket cover and solenoid, slacken clamp and draw off operating lever and distance-piece. Take off two 1/8 in nuts holding bracket to casing, then unscrew two setscrews (painted red) together, releasing tension on accumulator spring. Setscrews must never be slackened until nuts have been removed.

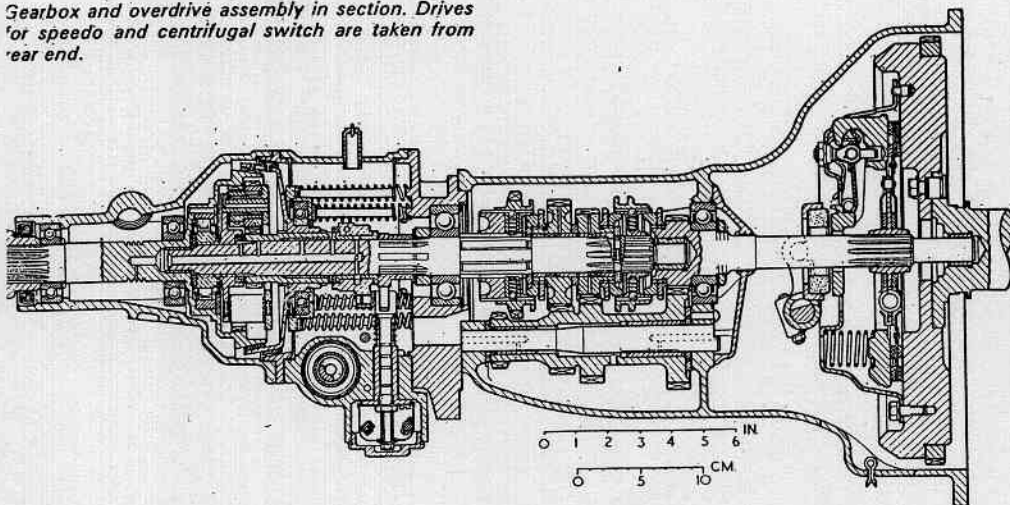
When reassembling solenoid and lever, set lever as described under "To check operation".

To remove pump, remove valve through side, unscrew large plug at bottom (draining oil), detach filter and remove screwed plug in centre of pump body flange, and two cheese-head screws. Screw special withdrawal tool into plug hole (1/2 in x 20 T.P.I.) and draw out pump with plunger.

To remove overdrive, remove gearbox and overdrive unit from car. Overdrive can be removed with gearbox in place, but reassembly is very difficult. Operate valve setting lever about 12 times to release pressure, drain oil, take off four nuts on short adapter plate studs, and undo two nuts on long studs evenly to release clutch spring pressure.

To dismantle overdrive, take off clutch springs and undo nuts holding bridge-pieces, after which pistons can be withdrawn. Split centre joint and draw off rear casing with output shaft, annulus, roller clutch, planet assembly, sun gear and moving clutch member with operating ring and gall bearing. Note three small thrust washers between sun gear and planet cage (plain steel washer between two grooved bronze washers), and two large thrust washers between sun gear and bushed housing (plain steel washer next to housing, grooved bronze washer to sun gear). Output shaft runs on two ball bearings. Inner bearing will come out with shaft, and outer bearing will stay in casing after

Gearbox and overdrive assembly in section. Drives for speedo and centrifugal switch are taken from rear end.



TRANSMISSION DATA

CLUTCH	
Make	Borg & Beck
Type	9 A6-G
Springs: No	9
colour	Yellow, Lt. green stripe
free length	2.688in
Centre springs:	
colour	Maroon
Linings: thickness	.140-.150in
dia. ext.	9.13-9.16in
dia. int.	6½in
GEARBOX	
No. of speeds	3
Overdrive (2nd and top)	Laycock-de Normánville
Final ratios:	
1st	9.28
2nd	5.85
2nd overdrive	4.43
Top	4.125
Top overdrive	3.12
Rev.	20.5
Crown wheel/bevel pinion teeth	33/8

driving flange has been drawn off.

When reassembling, note packing washer between rear bearing and shoulder on output shaft. This is available in four thicknesses, .146, .151, .156, and .161in, to give no end play and no pre-loading of bearings when driving flange nut is tight. Turn planet pinions until dot-punched teeth are radially outwards, and assemble in annulus, turning planet carrier until it engages with peg in freewheel inner member, lining up splines.

Offer up overdrive to gearbox, and tighten nuts on two long studs evenly. If nuts become tight when gap is still about 6in; splines in planet carrier and inner clutch member are slightly out of line. Remove overdrive and insert slave shaft, or reassemble without clutch springs, then withdraw carefully and reassemble with springs. See that springs locate on bosses in adapter plate, and depress pump plunger with screwdriver to clear eccentric on gearbox mainshaft while pulling up nuts for last ¾in.

PROPELLER SHAFT

Hardy Spicer needle roller bearing universal joints. Series 1300. Nipples for lubrication of joints.

REAR AXLE

Three-quarter floating, spiral bevel drive. Rear cover welded to banjo casing.

To remove axle from car jack up rear of frame, remove wheels, disconnect rear end of propeller shaft, brake linkage and hydraulic pipe, shock absorbers, spring U-bolts and lateral link. Draw out one axle shaft and remove brake backplate assembly. Detach bump rubber on opposite side, and lift axle out sideways through gap between body and chassis frame.

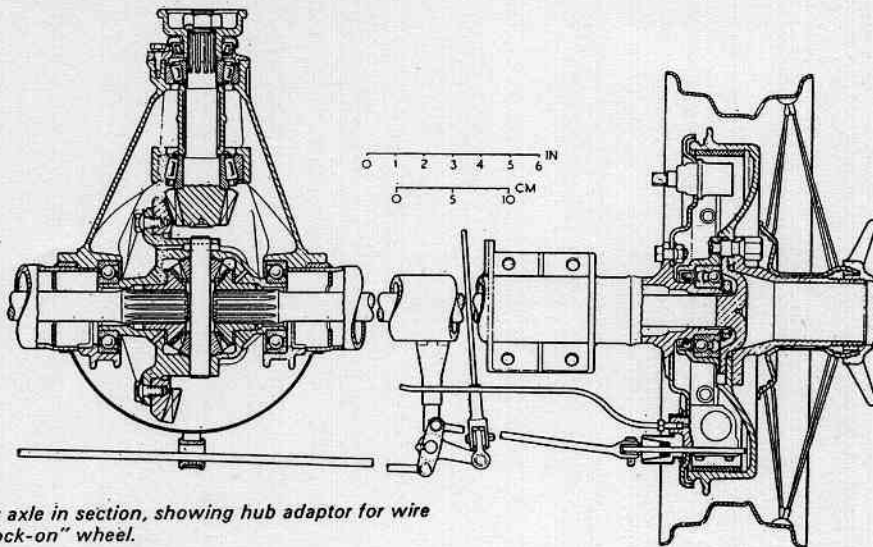
Half-shafts (interchangeable) upset at outer ends to form flanges, which register on wheel studs on hub flanges, with brake drums outside. Hub adapters for "knock-on" wire wheels bolted to wheel studs. Hubs run on double row ball bearings retained on axle tube ends by nuts with tab-washers. Lipped oil seal in hub behind bearing (lip to bearing). If shaft is withdrawn note paper washer

behind flange. Bearing must stand proud of hub by .001-.004in plus thickness of paper washer.

Bevel pinion shaft runs in taper roller bearings, outer races pressed into final drive housings. Distance-piece between inner races, which are nipped up by driving flange nut. Shims between distance-piece and front bearing (.003 and .005in thick) regulate preload on bearings which should give 6-8 lb/in drag. No adjustment for pinion mesh set originally by selective assembly of rear bearings.

Crown wheel spigoted on one-piece differential cage and retained by set-screws. Differential side gears have flat thrust washers, and planet pinions have spherical washers.

Differential assembly carried in semi-thrust ball bearings in split housing. Thrust side of bearing must face outwards. Shims (.002 and .004in) between inner races of bearings and differential cage for bearing and mesh adjustment. Adjust so that differential assembly and bearings have interference fit of about .002in in housing (tap-in fit), with .005-.008in backlash on crown wheel. While tightening cap nuts tap caps inwards, as they are machined to register in outer casing, edge of which may be damaged if caps are displaced.



Rear axle in section, showing hub adaptor for wire "knock-on" wheel.

BRAKES

Giroling hydraulic. Two leading shoe front brakes have separate cylinder for each shoe. Handbrake operates rear brakes through rods, cable and compensator on axle.

Snail cam adjustment for front brakes. Jack up car, turn each adjuster (two per wheel) clockwise and back off until wheel is free. Square-ended adjusters on rear brakes should be tightened and backed off two clicks.

REAR SPRINGS

Semi-elliptic. Three zinc interleaves between upper leaves. Silentbloc bushes in spring eyes. Frame shackle brackets have flanged bronze bushes, and pins are shouldered. Nut and spring washer fit

on outside, self-locking nut on inside.

Lateral link anchored in rubber between chassis frame on off side and axle bracket on near side.

FRONT SUSPENSION

Independent. Coil springs and double wishbone links. Inner ends of upper links pivoted on shock absorbers. Outer ends of upper links and inner ends of lower links rubber bushed. Outer ends of lower links have screwed bushes. Anti-roll bar linked to brackets bolted to front arms of lower links with spring plates.

To dismantle suspension jack up under frame and remove wheel. Then relieve spring compression by taking out two opposite lower spring plate bolts and fitting spring compressor.

Relieve pressure on upper link outer bushes by slackening pivot bolt, removing bolt holding two arms of link together, slackening shock absorber end clamp bolt and pulling arms apart slightly. Pivot bolt can then be withdrawn and link pulled off king pin trunnion, when rubber bushes can be withdrawn from trunnion.

Take out lower link inner pivot bolts and pick out rubber half-bushes. Lower link, king pin and stub axle assembly can then be removed. Undo nut at top of king pin and lift off trunnion, thrust washers and bushed stub axle assembly. Slacken cotter holding screwed bushes, unscrew bushes and remove lower link arms. Drive out cycle cotter locating lower pivot pin, and draw pin out of king pin lower trunnion.

Reassemble in reverse order. Before entering screwed bushes in lower link arms, note that cork washers are in place on either side of pivot pin, and half-moon cotters are in place in bush holes. Temporarily attach special checking plate. Tighten screwed bushes and back off one flat, when it should be possible to insert .002in feeler under head of bush. Lock with cotters.

Fit cork washer (chamfer downwards) on king pin, and insert into stub axle, making sure that dust excluder tubes are in place between bushes, with spring. Oilite thrust washer fits between two stainless steel washers on top of stub axle, followed by upper trunnion. Tighten nut at top to test end float which must not exceed .002in. Correct by selecting stainless steel washers (.052-.057, .058-.063, .064-.069in thicknesses available). Slacken nut after testing.

Moisten rubber bushes and fit into upper

trunnions. These bushes fit in groove in king pin, and must be removed before king pin can be drawn out of trunnion. Place upper link in position with arms slightly separated, and fit pivot bolt. Tighten shock absorber arm clamp bolt and connecting bolt, but do not yet tighten pivot bolt or nut at top of king pin.

Fit one rubber bush in outer side of each lower link eye, and offer up links to frame brackets. Insert each pivot bolt, and slide on second rubber bush and stepped washer (smaller diameter fits hole in bracket). Fit nut but do not tighten.

Lower link inner pivot bolts, upper link outer pivot bolt and nut at top of king pin should be tightened when suspension is in normal loaded

GENERAL DATA

Wheelbase	7ft 6in
Track: front	4ft 1in
rear	4ft 2½in
Turning circle	35ft 0in
Ground clearance	5½in
Weight (dry)	19½cwt
Tyre size	5-90-15
Overall length	12ft 7in
Overall width	5ft 0½in
Overall height	3ft 11½in

ELECTRICAL DATA

Lucas Equipment

	Model	Service No.
Dynamo	C 45 PV5	22456
Starter	M418G	25521
Starter solenoid switch	ST950	76411
Lighting switch	PPG 1	31432
Ignition switch	S45	31403
Control box	RB106/1	37139
Fuse box	SF6	033240
Battery	SLTW11E	—
Distributor	DM2	40320
Coil	B12/1	45012
Headlamps: Dip left	F 700	51337
Dip right	F 700	51336
Europe (vert. dip)	F 700	51339
Side lamps	488	52162
Stop/tail lamps	488	53178
Number plate lamp	467/2	53093
Screenwiper	CRT15	75144
Horns: Low note	HF 1748	70063
High note	HF 1748	70071
Flasher relay	DB10	33117
Flasher unit	FL3	35003
Battery master switch	ST330	76604
Overdrive: Facia switch	2TS	31425
Throttle switch	RTS1	31402
Centrifugal switch	OCS1	76108
Gearbox switch	SS10/1	31077
Solenoid	TGS1	76500
Relays (two)	SB40/1	33157

BULBS

	Voltage	Wattage	Cap
Headlamps: Dip left	12	42/36	Prefocus
Dip right	12	42/36	Prefocus
Europe (vert. dip)	12	45/40	Prefocus
Side, stop/tail and flasher lamps	12	18/6	s.b.c. *
Number plate lamp	12	4	m.c.c.
Panel and warning lamps	12	2-2	me.s.

*Offset pin.

FUSES

Horns	50 amperes
Ignition controlled accessories	35 amperes

position. This is obtained by lifting assembly and inserting distance-piece 2in long between front arm of upper link and upper spring plate opposite rubber buffer. Spring can then be fitted. Use spring compressor.

Hubs run on ball bearings, inner races separated by cast-iron distance-piece. Lipped oil seal pressed in behind inner bearing, lip to bearing. Tighten stub axle nuts fully. Pressed-in grease caps inside hubs have ⅝ U.N.F. studs for extraction. Extractor in tool kit.

Three-piece track rod, centre section supported between drop arm and corresponding relay arm on opposite side, both arms held on taper serrated shafts by split pinned nuts.

Relay arm shaft pivoted in bracket attached to chassis frame by three set-screws inserted from outside. Shaft has flange at top, fitting in recess, and works in two plain bushes. Retaining cap flange-bolted to top of bracket with joint washer.

Steering ball joints are sealed side plug type. Joints on side sections are integral with tubes. Track adjustment on centre section by left-hand right-hand threaded joints, locked by lock-nuts.

STEERING GEAR

Burman type L3 cam and lever, with ball bearing peg.

To remove gear from car, lock front wheels over for access to five nuts and clips along top edge inside radiator grille, releasing grille which is pegged at lower edge. Disconnect column wiring

BRAKE DATA

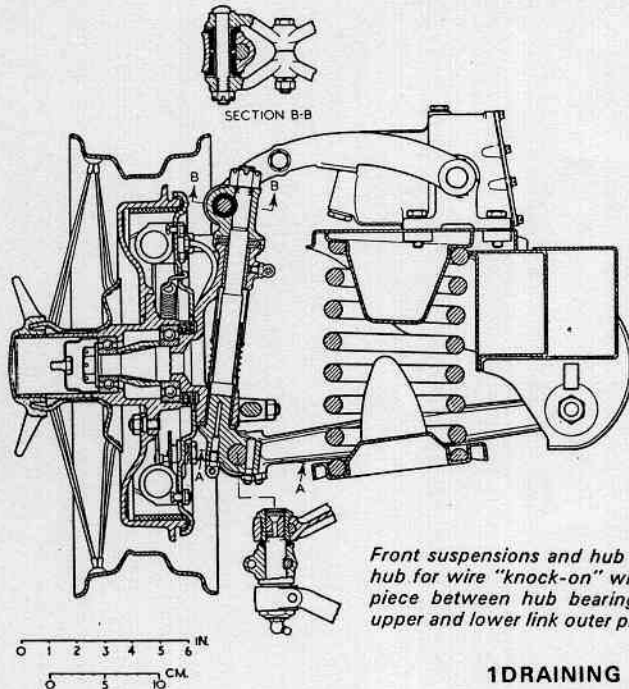
	Front	Rear
Drum diameter	11in	11in
Lining: length: leading	10½in	10½in
trailing	—	9½in
width	1½in	1½in
thickness	⅞in	⅞in
No. of rivets per shoe	12	12

SPRING DATA

	Front	Rear Early	Later
Length (eye centres, laden)	—	36in	36in
Width	—	1½in	1½in
No. of leaves	—	7	7
Free camber (length, coil)	11-14in	5in	5½in
Loaded camber (length, coil)	7in	½in neg	½in pos
at load	967lb	490lb	490lb

STEERING DATA

Castor	1½°
Camber	1°
King pin inclination	6½°
Toe-in	⅞-½in
No. of turns lock to lock	2½



SHOCK ABSORBERS

Armstrong piston type. Front: 1S9/10R. Rear: DAS 9R.

BODY DETAILS

Instrument panel attached to facia panel by eight Phillips screws behind. For access to instruments and wiring remove facia panel complete (two Phillips screws each side, one at centre and two to stays below instrument panel).

Petrol tank strapped to floor of boot. Pipe line connections at front of top. Undo strap nut (projecting below rear of body) and lift tank out.

Front and rear wing outer panels detachable, bolted along top and vertical flanges with anchored nuts where heads are inside body. Phillips screws on door opening edges.

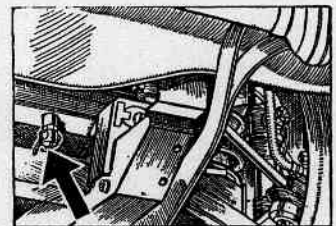
FILL-UP DATA

		Litres
Engine sump	11½ pints	6.7
extra for filter	1½ pints	.7
Gearbox and overdrive	4½ pints	2.5
Rear axle	2½ pints	1.3
Cooling system	20 pints	10.8
Fuel tank	12 gallons	54.6

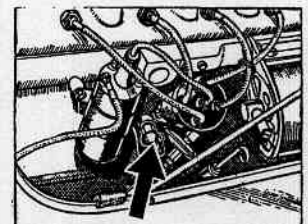
Tyre pressures: front 20lb
rear 23lb

Front suspensions and hub details. Note extended hub for wire "knock-on" wheel and solid distance piece between hub bearings. Scrap views show upper and lower link outer pivot bearings.

1DRAINING POINTS



Above: Radiator drain tap reached from below
Below: Cylinder block drain tap on offside. System is pressurised.



VALVE DATA

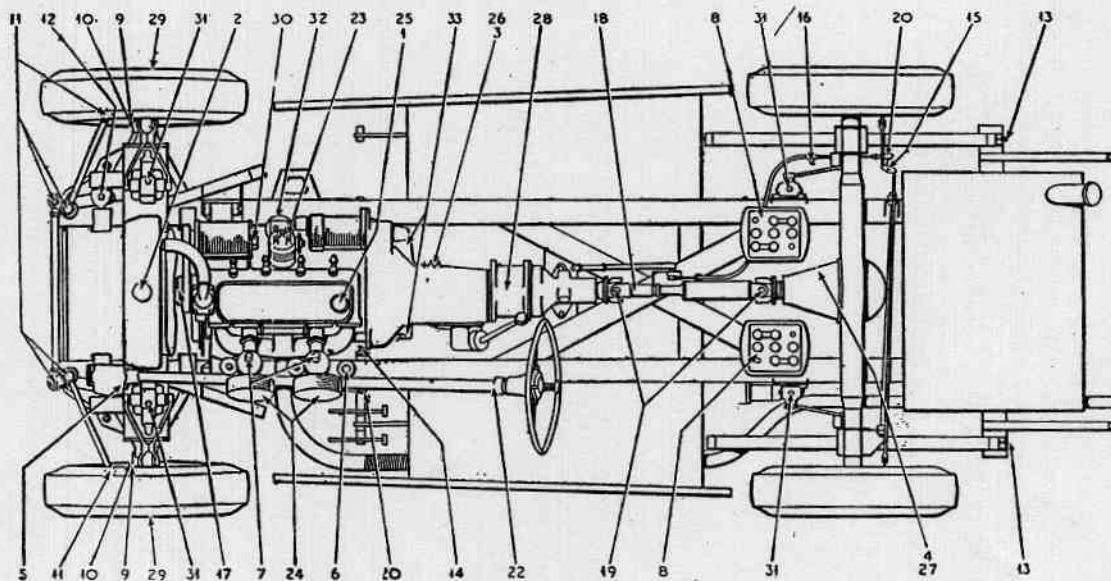
	Inlet	Exhaust
Head diameter	1.725in	1.415in
Stem diameter	⅝in	⅝in
Face angle	45°	45°
Tappet clearance (cold)	-.012in	-.012in

	Inner	Outer
Spring length: free	1⅝in	1⅞in
fitted	1½in	1⅞in
at load	22½lb	65lb

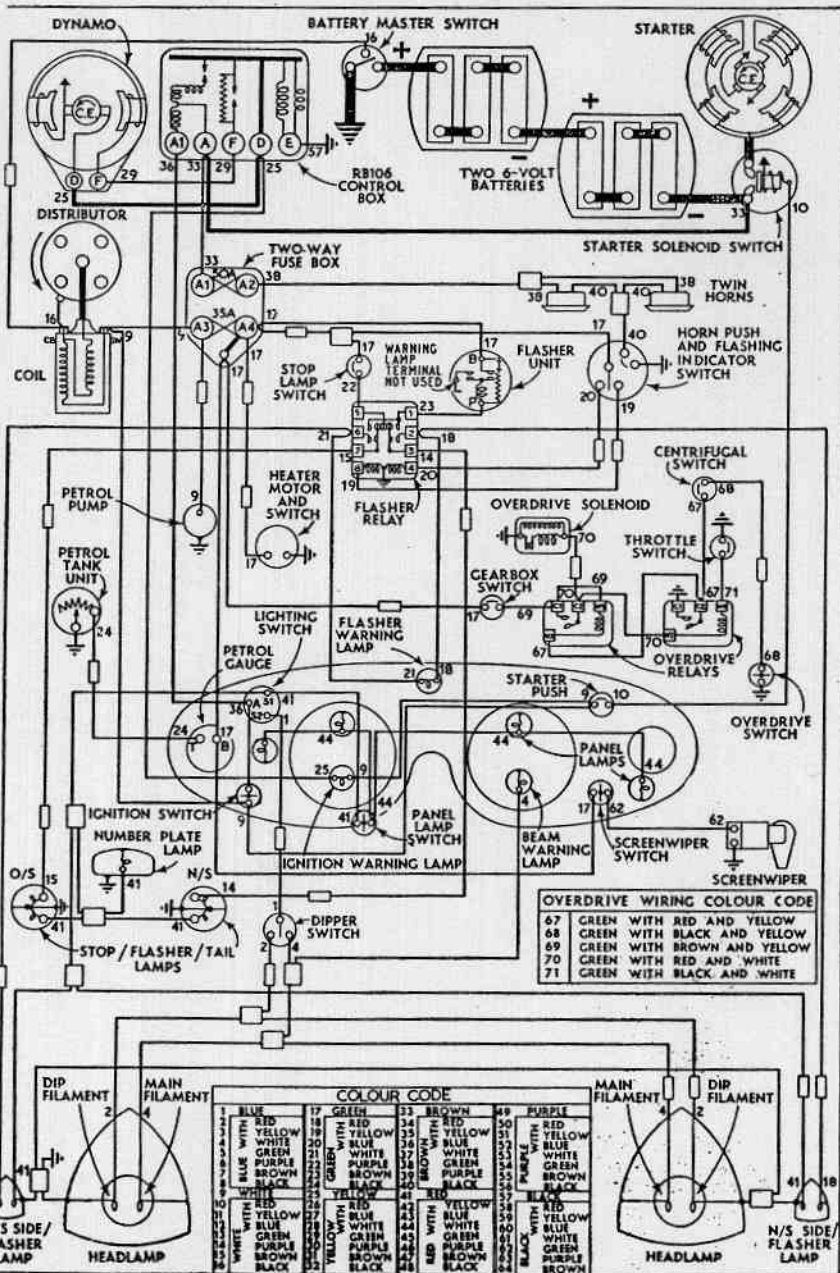
Lever peg carried in ball thrust bearing with eight loose balls running directly in lever and retained by spring ring. Adjustment for end play of lever shaft and mesh of peg in cam by grub screw and locknut on cover.

Grade	Cylinder bore	Piston
1	3-4370-3-4373	3-4355-3-4358
2	3-4374-3-4377	3-4359-3-4362
3	3-4378-3-4381	3-4363-3-4366
4	3-4382-3-4385	3-4367-3-4370
5	3-4386-3-4389	3-4371-3-4374

AUSTIN-HEALEY 100 MAINTENANCE DIAGRAM



AUSTIN-HEALEY 100 WIRING DIAGRAM



KEY TO MAINTENANCE DIAGRAM

- 1. Engine sump } Top up
- 2. Radiator
- EVERY 1,000 MILES
- 3. Gearbox and overdrive (one filler)
- 4. Rear axle
- 5. Steering box
- 6. Brake fluid reservoir
- 7. Carburettor dashpots
- 8. Batteries
- 9. King pin bearings (4)
- 10. Front suspension lower link outer pivots (2)
- 11. Steering ball joints (6)
- 12. Steering relay lever pivot (1)
- 13. Rear spring shackles (2)
- 14. Clutch and brake pedals (1)
- 15. Handbrake compensator (1)
- 16. Handbrake cable (1)
- 17. Water pump bearings (1)
- 18. Propeller shaft splines (1)
- 19. Propeller shaft universal joints (2)
- 20. Brake and clutch linkage
- 21. Control joints
- 22. Steering column top bush
- 23. Distributor—Oil shaft bearings, auto advance and contact breaker pivot. Smear cam with engine oil
- 24. Air cleaners—Clean and re-oil
- EVERY 3,000 MILES
- 25. Engine sump—Drain and refill
- EVERY 6,000 MILES
- 26. Gearbox and overdrive (two plugs)
- 27. Rear axle
- 28. Overdrive—Clean pump filter (inside drain plug)
- 29. Front hubs—Repack with grease
- 30. Dynamo—Refill lubricator with H.M.P. grease
- 31. Shock absorbers—Top up
- EVERY 9,000—12,000 MILES
- 32. Engine oil filter—Renew element (Puroator MF 26 A or Tecalemit FG 2313)
- 33. Clutch cross-shaft—Oil gun
- 34. Speedo and rev. counter drives—Disconnect top end, extract inner cable and grease

Left: Valve timing diagram. Below: Diagram showing order of tightening of cylinder head nuts.

