

# "TRADER" SERVICE DATA No. 144

## M.G. 1 1/4 - Litre Series Y

Manufacturers : M.G. Car Co., Ltd. Abingdon-on-Thames.

**I**NTRODUCED in April, 1947, when the first deliveries were made, the 1 1/4-litre saloon has nothing in common with the TC series Midget except the engine. This is identical apart from having a single carburettor instead of two. Neither has the new car anything more than a family resemblance to the pre-war 1 1/2-litre.

Chassis numbers, prefixed Y for the series, are serial numbers starting from 0251. Engine serial numbers start from 10,001, and are prefixed with the engine type letters XPAG/SC/ (single carburettor). Both numbers are stamped on a plate fixed to the battery box on the near side. The chassis number is also stamped on the near-side front frame extension just behind the front bumper fixing stud, and the engine number on a plate on the near side of the flywheel housing.

Two modifications affecting service have been introduced. One is the changing of the control box from RF91 to RF95, which occurred at chassis No. Y0584 (August 1947). The other is the introduction of an improved slip ring carrying the horn and trafficator contacts on the steering column, which occurred at chassis No. Y1261 (January 1948). The new slip ring can be identified by the fact that the column wires are carried down the outside of the tube to the flexible coupling instead of being threaded through a slot in the tube.

Although most service operations

### Instruments and controls :

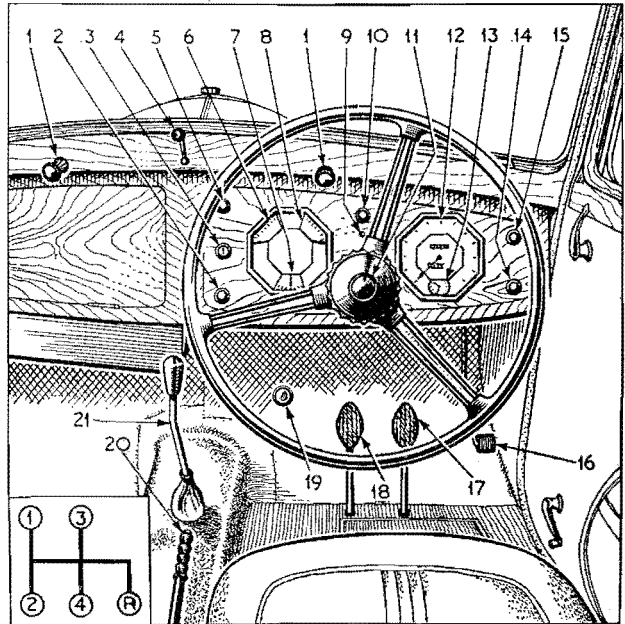
1. Screenwiper controls
2. Choke control
3. Ignition switch
4. Windscreen winder
5. Starter switch
6. Oil pressure gauge
7. Ammeter
8. Petrol gauge
9. Ignition warning light
10. Panel light switch
11. Horn push and trafficator switch
12. Speedometer
13. Clock
14. Fog lamp switch
15. Lighting switch
16. Accelerator pedal
17. Brake pedal
18. Clutch pedal
19. Dipper switch
20. Handbrake lever
21. Gear lever

can be carried out with standard workshop tools, a number of special tools have been designed by the makers to facilitate certain operations. They can either be obtained from the M.G. Car

Articles in this series are written by the Technical Staff of "The Motor Trader" and checked by the service managers of the vehicle manufacturers or importers.

Next article—

JAGUAR 2 1/2- AND 3 1/2-LITRE.



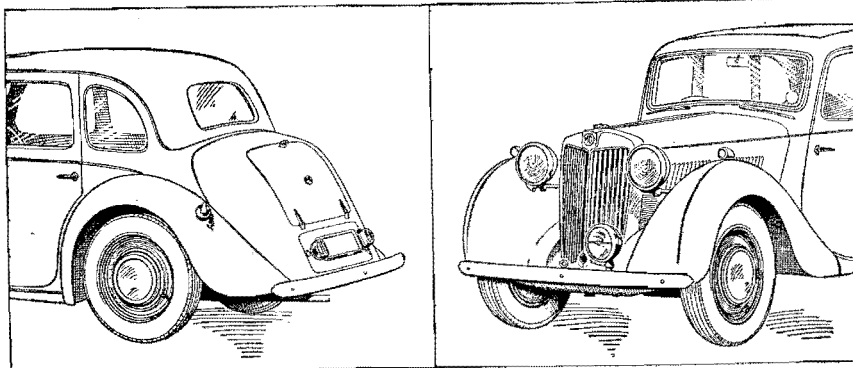
ENGINE DATA	
Type	XPAG/SC
No. of cylinders	4
Bore and stroke : mm	66.5 x 90
in	2.61 x 3.54
Capacity : c.c.	1250
cu. in	76.3
R.A.C. rated h.p.	10.9
Max. b.h.p. at r.p.m.	46 at 4800
Max. torque (lb/in) at r.p.m.	702 at 2400
Compression ratio	7.2-7.4
Compression pressure (Cranking speed)	80 lb/sq in.
Firing order	1 3 4 2
Tappet clearance (both, hot)	.019in

Co., or made up from drawings supplied by the company. A list of special tools is given on this page. All threads on the engine and gearbox are metric. Those on the rest of the car are B.S.F. The hexagons of all nuts and bolts are Whitworth standard.

## ENGINE

### MOUNTING

Single bonded rubber block at front, bolted to bottom of front engine plate and to frame cross-member. Rear of



DISTINGUISHING FEATURES of the 1 1/4-litre M.G. With its six-light saloon body it is unlike any previous M.G. model

### SPECIAL TOOLS

	M.G. Tool No.
Rear hub nut spanner	T 108
Base and spanner for front hub and locking ring	T 107
Universal joint flange extractor	T 108
Synchromesh assembly tool	T 109
Preloading tester for bevel pinion bearings	T 110
Reamer for front camshaft bearing	T 111
Line reamer for steering box pinion bearings	T 112
Peg spanner for steering ball housing	T 113
Spanner for steering ball cap	T 114
Spanner for diff. adjusting nut	T 115
Supports for chassis for testing steering angles	T 117
Hub drawer	T 119
Bars for checking front end alignment	T 120
Cranking handle for crown wheel assembly	T 121
Extractor for track rod ball housing	T 122
Extractor for crankshaft and camshaft sprockets	T 123
Clutch alignment bar	T 124

gearbox rests on two loose blocks in frame cradle. Single forked bolt projects downwards from gearbox through cradle and rebound rubber bush. Cup washer (edge downwards) goes between nut and rubber. Tighten nut only enough to insert split pin.

Torque reaction taken by transverse link between front of engine and bracket bolted to frame. Link anchored in rubber at both ends, with left- and right-hand threaded adjusting turnbuckle in middle. Before engine is removed link must be detached. Undo nuts at both ends and remove washers and outer rubbers. Shorten link and lift out. When engine is reassembled in chassis refit link before exhaust system is connected, so that engine is quite free. Secure inner end of link, tightening nut only enough to insert split pin. Rock engine slightly and let it assume natural poise on mountings. Then lengthen link until rubber at outer end is firmly against bracket, without altering position of engine. Tighten outer nut (not fully) and pin.

**REMOVAL**

Remove engine and gearbox together. Remove bonnet. Detach headlamps and pull wiring through bracket. Disconnect nearside bracket from wing, remove pinch-bolt and slide bracket over tube. Remove pinch-bolt from offside bracket and slide tube out of bracket. Disconnect water hoses and

stay rods, and remove two nuts and locknuts below cross-member. Lift off radiator.

Take out front seats, carpet, gearbox cowl, front floorboards and toeboard, and remove exhaust system. Detach gearbox extension cover with lever. Disconnect speedo cable, reverse light switch wires and front end of propeller shaft.

Disconnect all pipes, wires and controls, and remove steering column (see under "Steering Gear"—removal). Detach engine breather pipe and remove air cleaner, carburettor and torque reaction link. Take weight of engine on slings round front and rear of sump, disconnect front mounting from engine plate and remove nut from rear mounting bolt. Lift rear of gearbox until clevis pin can be extracted and forked bolt removed. Unit can then be lifted forwards and upwards clear of chassis.

**CRANKSHAFT**

Three main bearings. Thick steel white metal-lined shells doweled in block and caps. End float controlled by centre bearing, flanged both sides. No hand fitting permissible. Worn shafts must be ground to standard undersizes. Bearings cannot be changed with engine in place.

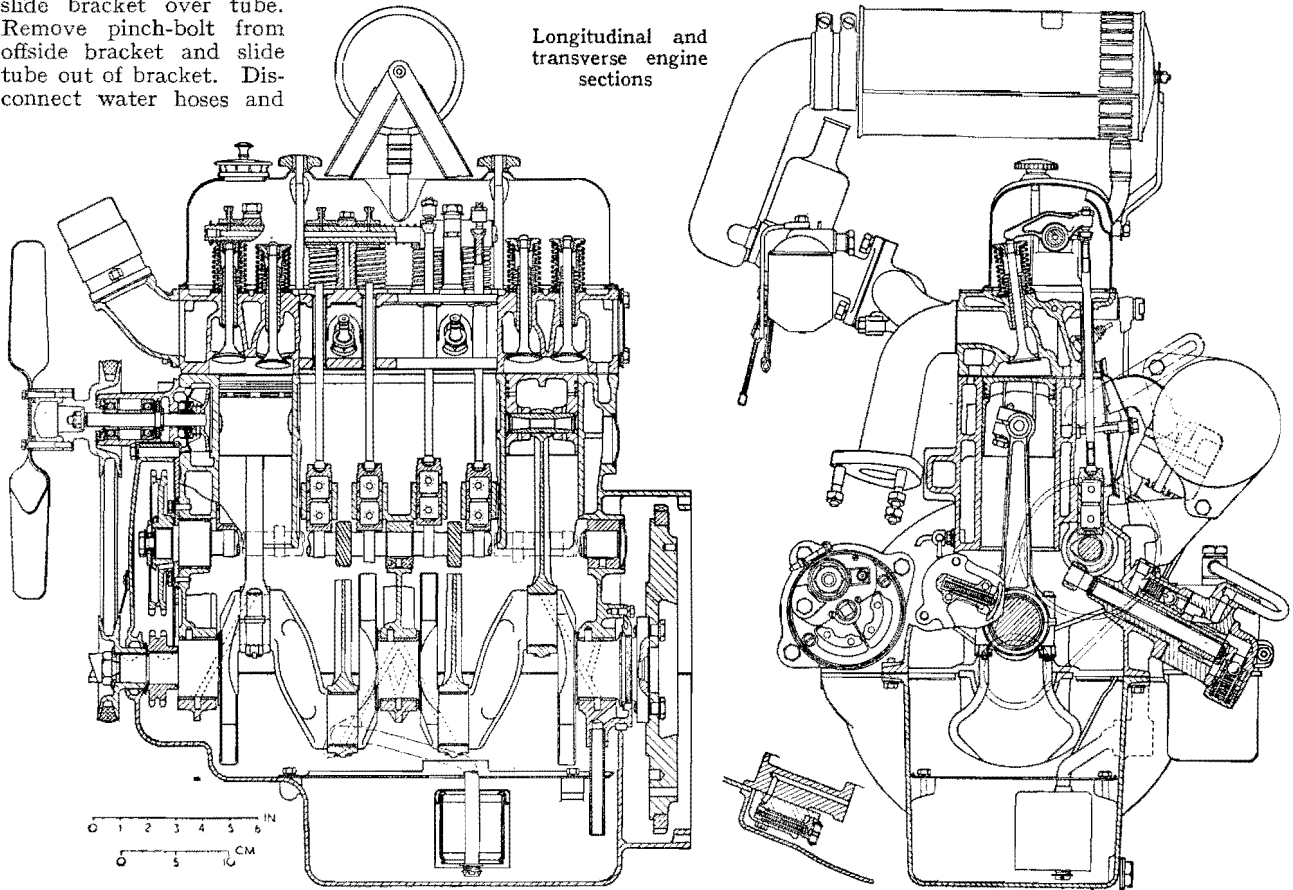
Flywheel, with shrunk-on starter

CRANKSHAFT AND CONNECTING ROD DATA				
	Main bearings			Crankpins
	No. 1	No. 2	No. 3	
Diameter	52 mm	52 mm	52 mm	45 mm
Length	38 mm	38 mm	40 mm	28 mm
Running clearance :				
main bearings	...	...	...	.0005—.002in
big ends	...	...	...	.0005—.002in
End float : main bearings	...	...	...	.0015—.004in
big ends	...	...	...	.004—.006in
Undersizes	...	...	...	.3, .5, .75, 1.00, 1.25 mm
No. of teeth on starter ring gear...	...	...	...	83
Con. rod centres	...	...	...	178 mm (7.00in)

ring gear, spigoted on crankshaft flange, located by two dowels and secured by four setscrews. Spigot bush for clutch shaft pressed into end of crankshaft. Timing sprocket (long boss to rear) and pulley keyed on front of crankshaft with separate Woodruff keys, oil thrower between. Assembly retained by hand starter dog setscrew with shims (.005, .010, .020in thick) for positioning of handle.

Split composition oil seal located in groove in timing cover and nose of sump. When new packing is fitted ends of both halves should stand slightly proud. Rear wall of sump fits round rear main bearing cap with cork strip in groove in cap. Ends of cork sump gasket must fit over ends of front and rear seals.

Longitudinal and transverse engine sections



At rear of crankshaft oil return thread works in split collector housing, lower half cast in sump, upper half dowelled and bolted to crankcase. Ends of housing must butt together, and should be coated with jointing compound when sump is refitted.

**CONNECTING RODS**

Big ends thin wall steel-backed, white metal-lined shells located by tabs. No hand fitting permissible.

Gudgeon pins cotter-clamped in small ends.

**PISTONS**

Aerolite aluminium alloy, oval skirt. Big ends will not pass through cylinder bores. Remove assembly downwards to off side of crankshaft. When reassembling see that small end pinch-bolts are towards offside.

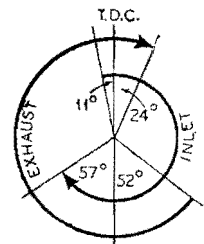
Replacement pistons are supplied in five ranges of sizes, stamped A, C, D, E and F. A is standard size, C .5 mm oversize, D .75 mm oversize, E 1.0 mm oversize, and F 1.25 mm oversize. In each range, in addition to nominal sizes (marked "OK"),

PISTON DATA		
Clearance	.0022-.0028in	
Oversizes	see text	
Weight (with rings and pin)	12½oz	
Gudgeon pin diameter	18 mm	
fit in piston	Two-thumb push	
Compression height	45 mm	
	Compression	Oil Control
No. of rings	2	1
Ga)	.006-.010in	.006-.010in
Side clearance in groove	.001-.002in	.001-.002in
Width of rings	.0885in	.175in

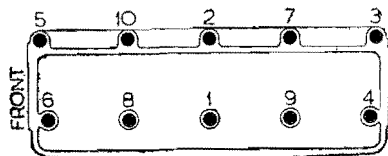
there are oversizes of .020 and .040 mm. Sizes refer to cylinder bores to which pistons should be fitted. For example, AOK = nominal standard size (66.50 mm). A+.02 = 66.50 + .02 mm. C+.02 = 66.50 + .50 + .02 mm. DOK = 66.50 + .75 mm, and so on. Bore sizes are stamped on bore and piston. Piston and bore markings must correspond.

**CAMSHAFT**

Duplex roller endless chain drive,



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



with spring-loaded, oil-damped slipper tensioner. Oil fed through drilling in tensioner body from main bearing to back of plunger. Spring details: Free length 71 mm. Loaded length 48 mm. at 1½ lb. load.

Camshaft sprocket keyed on shaft with Woodruff key and retained by setscrew in end of shaft. To remove chain detach tensioner assembly and draw off both sprockets together.

Camshaft runs in three white metal bushes. Centre bush split. Front bush pressed into crankcase. Centre and rear bushes located by setscrews from outside. End float controlled by thrust plate trapped between sprocket and shoulder on shaft, and bolted to crankcase. If bearings are renewed, centre and rear bearings can be pushed in, but front bush must be pressed in and located in slot with punch, and then lined bored or reamed.

Camshaft can be removed with engine in place, but front mounting must be removed and engine raised slightly so that oil pump can be withdrawn. Remove radiator, sump, timing cover, chain and sprockets, oil pump, distributor, rocker gear, push rods and tappets. Detach thrust plate and take out bearing locating setscrews. Shaft can then be drawn out to front, bringing centre bearing with it. Take out centre bearing when shaft is half out.

When reassembling, insert shaft and assemble centre bearing on journal (noting dowels between halves) so that locating hole lines up with setscrew.

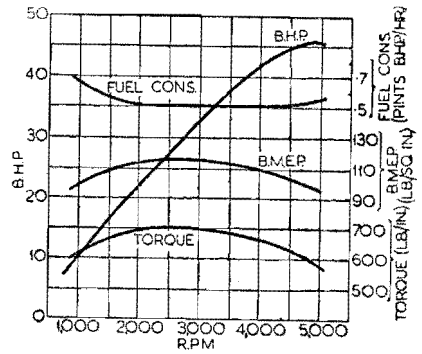
When reassembling timing chain, assemble sprockets in chain so that bright links on chain correspond with T-marks on sprockets, and shorter run of chain between bright links is towards top of engine. Turn crankshaft and camshaft keys to correspond and fit chain and sprocket assembly.

CAMSHAFT DATA			
	No. 1	No. 2	No. 3
Bearing journal diameter	41 mm	23 mm	23 mm
length	29 mm	25 mm	29 mm
Bearing clearance	.0015-.004in		
End float	.006-.013in		
Timing chain pitch	¾in		
no. of pitches	60		

**VALVES**

Overhead, not interchangeable, inlet larger than exhaust. Split cone cotter fixing, double springs. Spring cup fits over valve guide between springs and head, and shroud fits inside inner spring under collar. Synthetic rubber sealing ring fits over valve stem inside collar and below cotters.

Valve guides not shouldered. Fit with smaller outside diameter at top, and press in until guide projects 24 mm. above face of head. Inlet guides longer than exhaust.



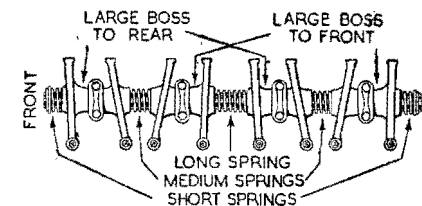
VALVE DATA			
	Inlet		Exhaust
Head diameter	33 mm	31 mm	31 mm
Stem diameter	8 mm	8 mm	8 mm
Face angle	30 deg		
	Inner	Outer	
Spring length: free	2.565in	2.927in	
fitted	1.438in	1.532in	
at load	43 lb	80 lb	

**TAPPETS AND ROCKERS**

Barrel tappets sliding directly in crankcase. Can be extracted upwards with push-rods out.

Rocker shaft carried on four identical pillars. Shaft located by round washers in slots on Nos. 2 and 3 brackets, engaging in keyways in shaft. Rocker oil feed holes are at top, single oil feed hole at bottom in rear pillar. Slots in Nos. 1 and 4 brackets are occupied by D-washers.

Rockers are bushed, and are of four types. Two are practically square, but offset to right and left-hand on bosses. Other two are considerably offset, one each way. Three sizes of spacing spring. Assemble rockers on shaft as shown in diagram.



Push rods cannot be extracted until rocker assembly is removed.

**LUBRICATION**

"Dry" gear pump spigoted and bolted to near side of crankcase, and driven by skew gear from camshaft.

To remove pump slacken radiator hose connections and disconnect front engine mounting. Raise front of engine slightly and draw pump out.

Integral drive housing bushed for drive shaft. Skew gear integral with shaft. Driving gear keyed on shaft with Woodruff key and retained by spring ring. To dismantle detach cover and extract spring ring. Tap face of pump body on wooden block to dis-

REAR SPRING DATA	
Length ... ..	42½ in
Width ... ..	1½ in
No. of leaves ... ..	7
Free camber ... ..	4 in
Loaded camber ... ..	1 in
at load... ..	650 lb

FRONT SPRING DATA		
Free length ... ..	9.82 ± 1/16 in	
Loaded length ... ..	7.47 ± 1/16 in	6.83 ± 1/16 in
at load ... ..	1023 lb	1390 lb

link until distance between outer edge of outer cup washer and centre of frame bracket is 2 in. Lock inner locknut against link, and tighten adjusting nut until distance between outer edges of cup washers is 2 in. Lock second locknut against adjusting nut.

### FRONT SUSPENSION

Independent, coil springs and double wishbone links. Inner ends of upper links pivot on shock absorbers. Inner ends of lower links rubber bushed. Outer ends of both links pivot in bronze bushes in pivot lugs, which are threaded on to king pins. Near side king pin and stub axle have left-hand threads.

If suspension is to be dismantled jack up chassis until front wheels are just clear of ground, then jack up separately under each spring pad until upper link is clear of rebound rubber. Disconnect track rods by slackening

springs, press down lower links and take out springs. Dismantle lower links and remove from inner pivots. Rubber bush assemblies are similar to those on rear spring shackles. Upper links are removed with shock absorbers (two setscrews, and two bolts inserted from below through spring abutment—note flats on bolt heads to register with edge of spring locating plate, through which bolts pass).

King pins pressed downwards into stub axles and located by steering arms. Pivot lugs screw on to king pins, which are waisted at centre of top and bottom threads to clear pivot bolts. When reassembling make sure that stub axle swivels fully.

Outer pivot bearings consist of bush in lug, cut away to clear king pin, and distance-piece, which is clamped up by bolt with link, thrust washers and seal retainers, and works in bush. Distance piece should stand proud of lug

bearings. Chamfered collar behind inner race of inner bearings. Tighten hub nut fully.

Outer steering ball joints are sealed side plug type, serviced as assembly.

Adjust track (wheels parallel) by screwing track rods in outer ball sockets. Both track rods must be of equal length. Check by measuring from end of flat on rod to face of locknut.

STEERING DATA	
Castor ... ..	1° ± 1/4°
Camber ... ..	Nil
King pin inclination ... ..	10°
Toe-in ... ..	Nil
No. of turns lock to lock ... ..	2½

### STEERING GEAR

Helical rack and pinion. Inner ends of short track rods attached to ends of rack by ball joints covered by concertina gaiters and lubricated from steering gear. Track rods interchangeable. Upper section of steering column connected to pinion shaft by rubber-bushed flexible coupling, and supported in felt bushes in column tube. Horn and trafficator contacts carried by slip ring.

To remove column assembly unscrew small screw in side of wheel hub and lift out centre assembly of horn button and trafficator switch. Disconnect wiring. Remove adjuster clamp bolt, slide back clamp and extract key. Steering wheel and adjuster assembly can then be drawn out.

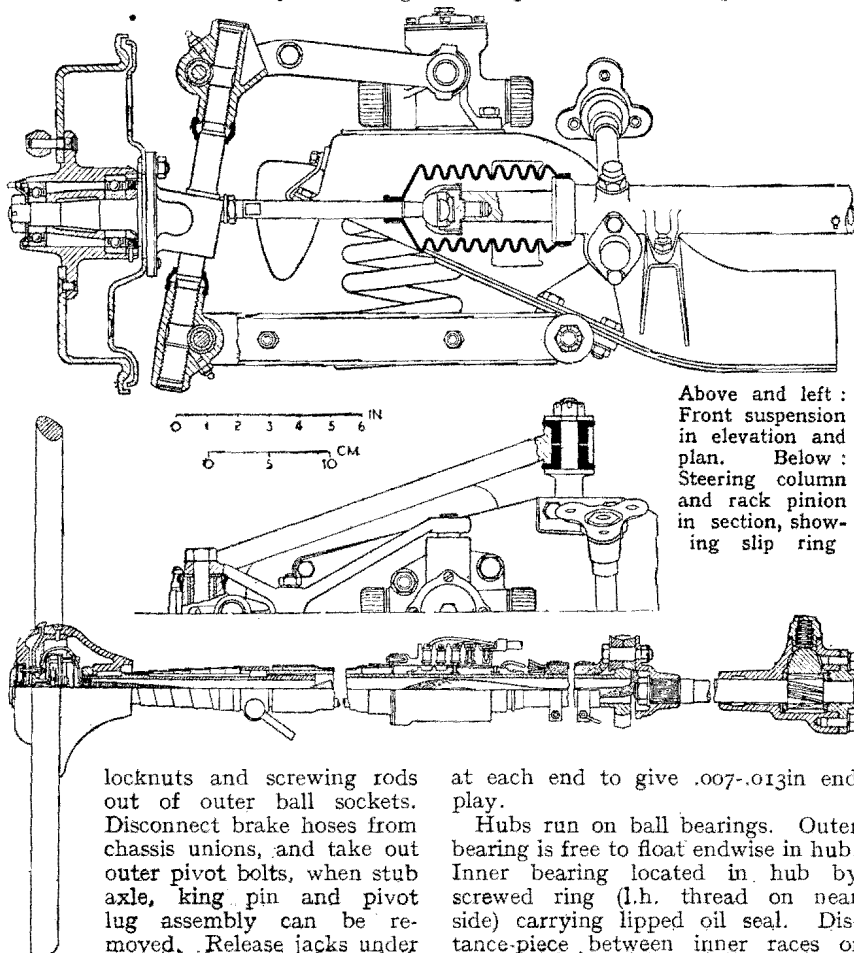
Disconnect slip ring wiring at push-in connectors, and remove flexible coupling bolts. Detach draught excluder retaining plate and column support clip. Slide clip and draught excluder over top of column, which can then be lifted out to front.

To detach slip ring pull column out of tube, exposing inner member of slip ring, which is split sleeve held together by spring clips. Wiring, which passes down outside column to flexible coupling, can be pulled out.

On earlier cars inner member of slip ring consisted of block carrying contacts and fitting into slot in column, wiring passing up inside column.

When reassembling, hold column in line with pinion shaft while tightening (shouldered) coupling bolts. Before tightening column tube clamp see that slip ring contacts are in line. On earlier type end of inner member should be 1/4 in inset from face of outer member. On later type inner split sleeve projects, and distance from face of outer member to spring ring on inner member should be 1/16 in.

To remove steering gear, leaving column in place, remove engine torque reaction link and bracket from frame. Take out column coupling bolts and screw track rods out of outer ball



Above and left : Front suspension in elevation and plan. Below : Steering column and rack pinion in section, showing slip ring

locknuts and screwing rods out of outer ball sockets. Disconnect brake hoses from chassis unions, and take out outer pivot bolts, when stub axle, king pin and pivot lug assembly can be removed. Release jacks under

at each end to give .007-.013 in end play.

Hubs run on ball bearings. Outer bearing is free to float endwise in hub. Inner bearing located in hub by screwed ring (l.h. thread on near side) carrying lipped oil seal. Distance-piece between inner races of

sockets. Disconnect wiring clips on steering box and take off horn. Take out four bolts holding gear to frame. Push rack over to rear side as far as it will go, and lift gear assembly towards rear side until offside track rod clears hole in frame extension. Gear can then be drawn out to off side.

Both rack and pinion shaft work directly in housing. To remove pinion undo nut, draw off coupling spider and extract spring ring behind it. Take off lower cap with shims and lower thrust washer. Lift out pinion, leaving upper washer trapped by rack.

Remove concertina gaiters, unlock and unscrew ball caps, when ball seats

and shims will drop out. Unscrew ball seat housings with peg spanner. Unscrew rack damper cap and take out spring, plunger and shims. Rack can then be drawn out.

If pinion bearing in cap is worn, cap must be renewed. Caps supplied with reaming allowance, and must be reamed in line with housing bore. See that oil groove is at top when cap is fitted for reaming and assembly. Assemble rack first. To adjust damping, screw in cap with plunger and spring, but no shims, and screw down solid. Test gap between cap and housing with feeler. To this measurement add .05in, and refit cap with

GENERAL DATA	
Wheelbase	8ft 3in
Track : front	3ft 11 1/2in
rear	4ft 2in
Turning circle	35ft 0in
Ground clearance	6in
Weight (dry)	19 1/2 cwt
Tyre size	5.25-16
Overall length	13ft 5in
Overall width	4ft 10 1/2in
Overall height	4ft 9in

extra shims to thickness of total figure.

Assemble pinion when rack is central, and mesh so that arrow on pinion shaft is at top. Fit coupling with a bolt hole in line with arrow. Fit pinion cap with shims (.005 and .007in available) to give .002-.005in end play.

Assemble track rods to rack with shims under ball seats (.003 and .005in available) so that, when ball cap is tightened, rod is free fit without play.

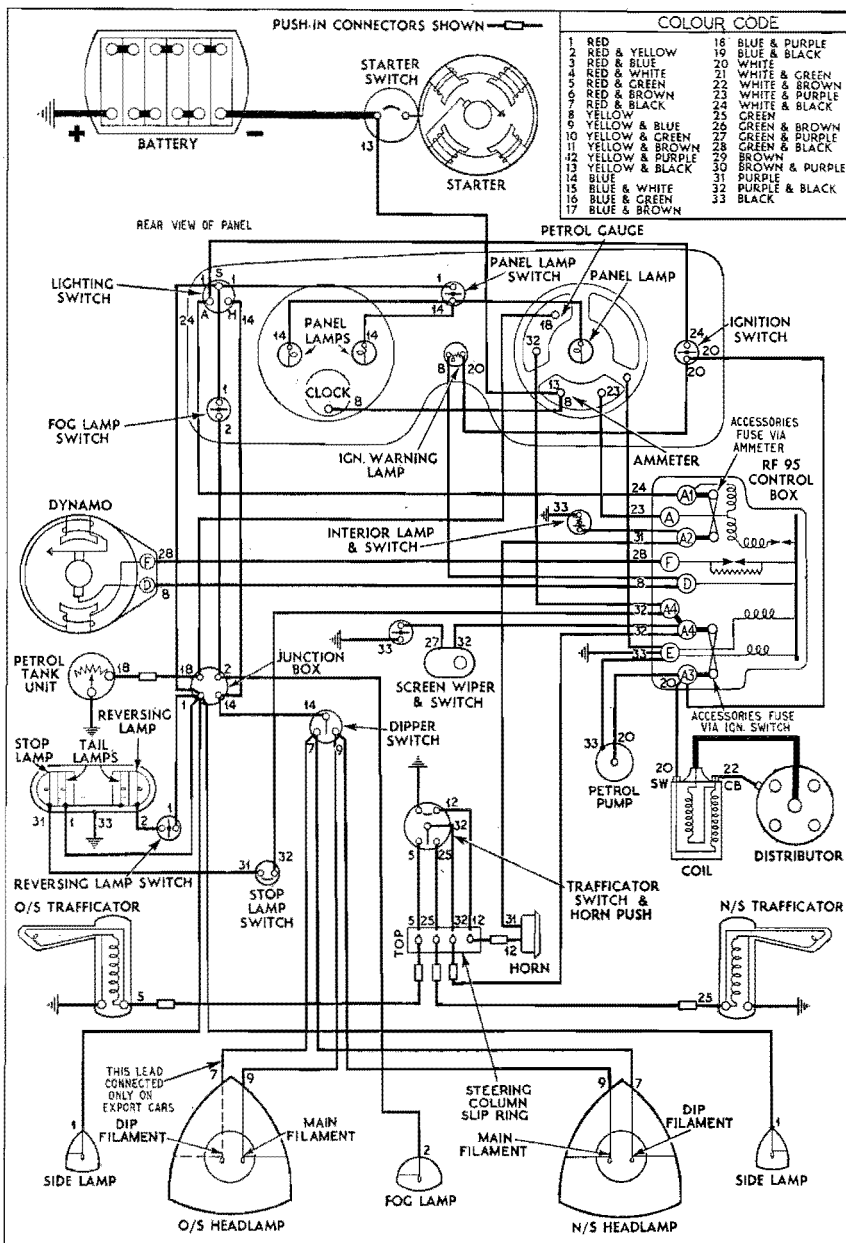
### SHOCK ABSORBERS

Luvax Girling piston type, no adjustment. Top up in place.

### BODY MOUNTING

Three bolts each side to frame brackets. Two bolts each side at extreme rear of frame. Two bolts each side to scuttle stay brackets (nuts inside body). One setscrew each side in rear corner of bonnet valance (cage nut inside body). These setscrews can only be reached with a cranked socket spanner.

## M.G. 1 1/4-LITRE WIRING DIAGRAM



### ELECTRICAL DATA Lucas Equipment

	Model	Service No.
Dynamo	G45YV	228139
Starter	M418G	255378
Lighting switch	PPG 1	31081A
Ignition switch	S45	312151
Control box : Up to Y0583	RF91	37031A
Y0584 on	RF95	37057A
Battery	STXW9A	—
Distributor	DKYH4A	40089A
Coil	Q12	45020A
Headlamps : nearside	MBD 140	50458A*
offside	MBD 140	50490A*
Side lamps	1130	52030
Stop and tail lamp unit	ST 51	53027B
Reverse and tail lamp unit	RT 51	53032B
Fog lamp	FT 57	55010
Trafficators	SF40L	539889
Screenwiper	CR2	75053
		(Motor)
Horn	HF 1235	701403
Starter switch	ST 18	78406A

\* For diamond-fluted lamps, Service Nos. for U-fluted lamps 50459A (nearside), 50491A (offside).

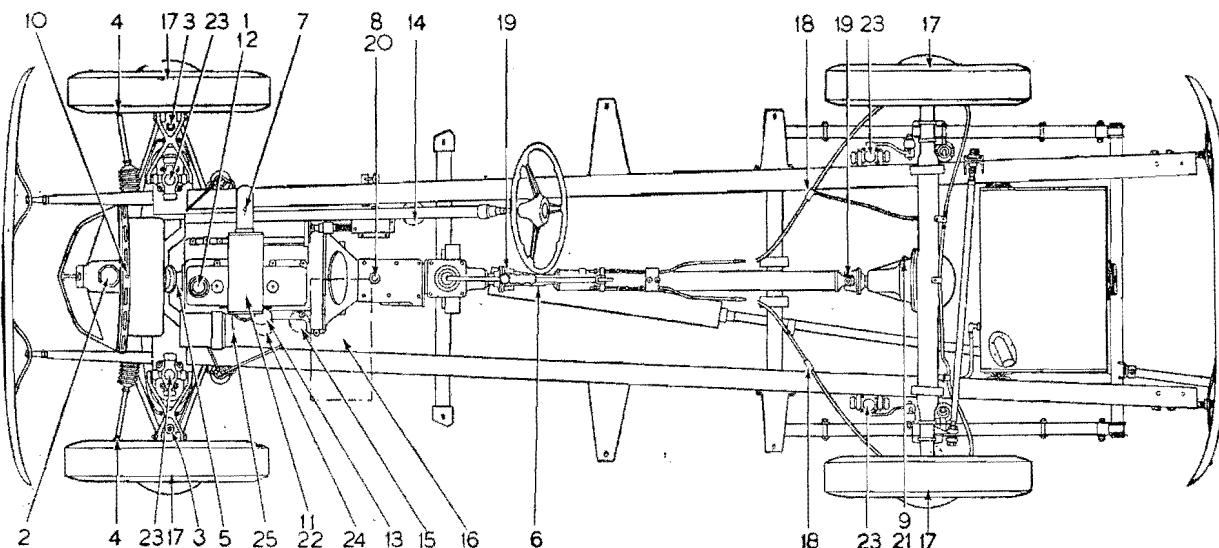
### BULBS

	Voltage	Wattage	Lucas No.
Headlamp : nearside	12	36/36	171
offside	12	36	54
Fog lamp	12	60	87
Side, tail, stop and interior lamps	12	6	207
Reverse lamp	12	24	1
Ignition warning amp	2.5	0.5	970
Trafficators	12	3	258
Panel lamps	12	2.2	987

### FUSES

Accessories	25 amperes	FA25
-------------	------------	------

### M.G. 1 1/4-LITRE MAINTENANCE DIAGRAM



#### KEY TO MAINTENANCE DIAGRAM

**DAILY**

- 1. Engine sump } top up
- 2. Radiator } top up

**EVERY 1,000 MILES**

- 3. King pin bearings (4)
- 4. Track rod outer ball joints (2) } grease
- 5. Fan bearing (1) } gun
- 6. Propeller shaft splines (1) }
- 7. Carburettor dashpot—oil can

**EVERY 2,000 MILES**

- 8. Gearbox } top up
- 9. Rear axle } top up
- 10. Steering box—oil gun
- 11. Air cleaner (oil bath)—clean and refill with engine oil

**EVERY 3,000 MILES**

- 12. Engine sump—drain and refill
- 13. Distributor—oil bearings and auto-advance. Grease contact breaker pivot and cam

**EVERY MONTH**

- 14. Brake fluid tank } top up
- 15. Hydraulic jack tank } top up
- 16. Battery

**EVERY 6,000 MILES**

- 17. Front and rear hubs (4) } grease
- 18. Brake cables (2) } gun
- 19. Propeller shaft joints (2) }
- 20. Gearbox } drain
- 21. Rear axle } and refill
- 22. Air cleaner (Home)—clean and re-oil

**EVERY 10,000 MILES**

- 23. Hydraulic dampers—top up

- 24. Engine oil filter—renew

**EVERY 12,000 MILES**

- 25. Dynamo—refill lubricator with vaseline

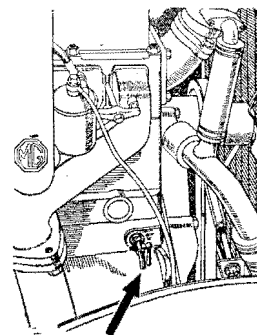
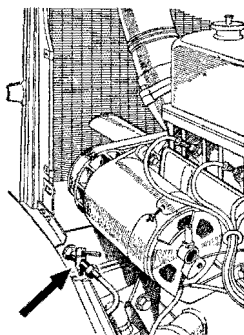
#### FILL-UP DATA

Engine sump	9 pints
Gearbox	1 1/2 pints
Rear axle	1 1/2 pints
Cooling system	13 1/2 pints
Fuel tank	8 gallons
Tyre pressures: front	23 lb
rear	25 lb

#### DRAINING POINTS

Left: Radiator drain tap on near side

Right: Cylinder block drain tap, offside front



#### LUBRICANTS

	RECOMMENDED		APPROVED						
	Duckham's	Duckham's	Wakefield	Essolube	Filtrate	Vacuum	Price's	Shell	Sternol
<b>Engine Summer</b>	N.O.L. Thirty	Adcol NPXX	Castrol XL	Essolube 30	Medium Filtrate	Mobiloil A	Motorine M	Double Shell	W.W. 30
<b>Winter (below 32° F)</b>	N.O.L. Twenty	Adcol NPX	Castrolite	Essolube 20	Zero Filtrate	Mobiloil Arctic	Motorine E	Single Shell	W.W. 20
<b>Gearbox, steering box, rear axle</b>	N.O.L. E.P. transmission oil 140	Adcol XS Press 140	Castrol Hi-press	Essoleum Expee 140 Compound	EP Filtrate	Mobiloil EP	Motorine EP	Spirax EP 140	Liquid Ambroleum EP 140
<b>Wheel hubs, fan bearings</b>	Adcol H.B.B. grease	Adcol H.B.B. grease	Castrol ease heavy	Esso grease	Filtrate R.B. grease	Mobil hub grease	Belmoline C	Retinax R.B.	R.B. grease
<b>Chassis nipples, propeller-shaft</b>	Laminoid Soft or Adcol H.P.G. grease	Adcol H.P.G. grease	Castrol ease medium	Esso fluid grease	High pressure solidified Filtrate	Mobilgrease No. 4	Belmoline D	Retinax C	M.M. grease
<b>Cables and control joints</b>	ZNOL K.G. 16 grease	ZNOL K.G. 16 grease	Castrol ease brake cable grease	Anti-freeze grease	Filtrate AF grease	Mobilgrease No. 4	Belmoline H	Retinax C	Anti-freeze grease
<b>Oil can, carburettor dash-pot</b>	N.O.L. Twenty	Adcol NPX	Castrolite	Essolube 20	Zero Filtrate	Mobiloil Arctic	Motorine E	Single Shell	W.W. 20

Printed in England by The Cornwall Press Ltd., Paris Garden, London, S.E.1.