"TRADER" SERVICE DATA No. 138

NEW SERIES No. 13

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—

RILEY 1 1/2-LITRE

Lanchester Ten 1946-47

Manufacturers: Lanchester Motor Co., Ltd., Radford Works, Coventry. Sales and Service: Browns Lane, Coventry.

HAVING no resemblance to the pre-war models, the L.D.10 was introduced for the 1946 season, and has remained outwardly unchanged.

After the first batch of 1,000 cars, apart from 24 prototypes which were never sold to the public, modifications were introduced to cure pinking and "running on." These included a redesigned camshaft, combustion chambers and cylinder block, giving a slightly lower compression ratio.

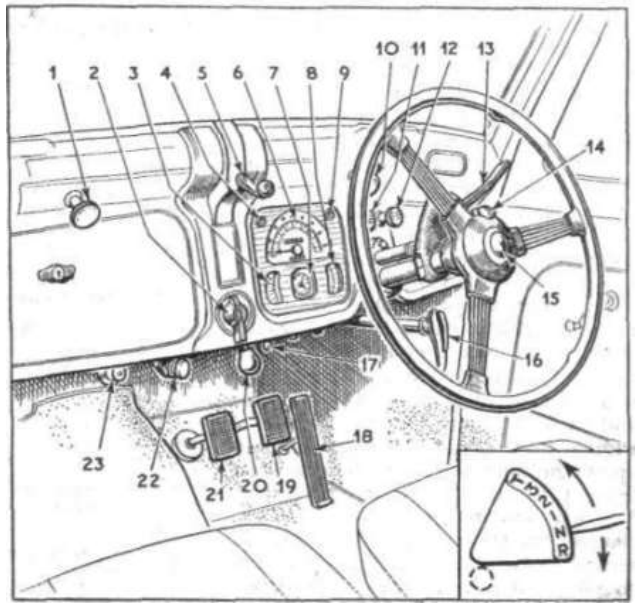
Car numbers, prefixed "L," are stamped on a plate fixed to the top of the offside chassis frame member alongside the engine. Engine numbers are stamped on the near side of the cylinder block on top of the petrol pump boss. Major components have a list number stamped on a plate attached to the component. This number and the car number should be quoted with the part drawing number for ordering spares.

Car and engine numbers are: —

	Car No.	Engine No.
Prototypes	60000-60024	16023-16043
First sanction	60025-61024	10051-11050
Current sanction (modified)	61800 onwards	13764 onwards

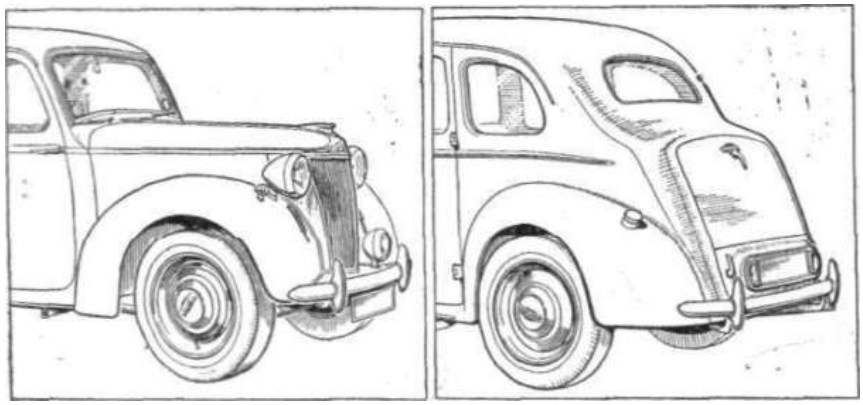
Instruments and controls :

1. Screenwiper control
2. Lighting and ignition switch
3. Petrol gauge
4. Oil warning light
5. Windscreen winder
6. Speedometer
7. Electric clock
8. Water temperature gauge
9. Ignition warning light
10. Screenwiper control
11. Starter switch
12. Choke control
13. Gear selector lever
14. Trafficator switch
15. Horn push
16. Handbrake
17. Panel light switch
18. Accelerator pedal
19. Brake pedal
20. Scuttle ventilator
21. Gear change pedal
22. Petrol reserve control
23. Pass light switch



No special tools are needed for service. B.S.F. threads are used throughout, except when tapped in aluminium, when Whitworth threads are used.

ENGINE DATA	
No. of cylinders	4
Bore and stroke : mm	63.5x101.6
in	2.50 x 4.00
Capacity : cc	1287
cu in	78.5
R.A.C. rated h.p.	10
Max b.h.p. at r.p.m.	40 at 4200
Max torque (lb/ft) at r.p.m.	60 at 2000
Compression ratio	7 :1
Firing order	1 3 4 2
Tappet clearance (both, hot)	.012in



DISTINGUISHING FEATURES of the Lanchester Ten. No change has been made during the currency of the model, which is quite different from the pre-war car

ENGINE

MOUNTING

At front moulded rubber block bolted to front of cylinder block above timing cover and to A-shaped mounting bracket which is bolted to front cross-member.

At rear vertical plate embedded in rubber bolted to rear of gearbox by two setscrews. Assembly carried in channel section cradle bolted to chassis frame X-members.

On near side torque reaction arm attached to rear engine plate rests between rubber buffers in frame bracket. No adjustments. Tighten all bolts fully.

REMOVAL

Remove engine and gearbox as unit after removal of radiator and front wing assembly.

Detach bonnet from support linkage. Detach front assembly by removing eight setscrews each side under rear edge of front wings, and one each side recessed in top edge of bonnet side towards rear. Remove front bumper. Disconnect pass light (inside lamp) and remove (nut under apron). Remove water inlet elbow completely by slackening both clips of upper

hose joint, and upper clip of lower joint. Disconnect front assembly wiring harness at push-in connectors on off side of scuttle and at bottom of steering column. Disconnect rear ends of radiator tiebars and take out bolt each side holding radiator cradle and wing stay assembly to chassis frame (reached from behind front wheel). Front assembly can then be lifted off.

Remove two bolts each side holding A-bracket to cross-member, and detach buffer over torque reaction arm. Disconnect all pipes, wires and controls, and exhaust pipe from manifold. Detach exhaust pipe bracket from bolts holding starter to bell-housing.

Take up carpets, floorboards and gearbox cowl. Front of cowl is turned over below toeboards. Lift rear of cowl and twist to clear toeboard. Disconnect front end of propeller shaft, and gear pedal rod from gearbox lever. Place sling round engine, passing it under exhaust manifold and round front under water pump, bringing it up behind water inlet on pump. Sling will then be diagonally across engine and will balance. Take weight of engine on sling and remove two setscrews holding rear mounting to gearbox. Lift out engine, tilting to clear.

When engine is reassembled in chassis, front mounting and A-bracket should be in place on engine. Lower engine until offside foot of A-bracket is about 1/4in from cross-member, when bolts can be inserted easily. Lower further until nearside foot is almost touching, and insert nearside bolts while engine is free to be moved.

Note that radiator cradle bolts to frame pass through rubber blocks on either side of cradle. Self-locking nuts should be tightened only enough to nip rubber without squeezing.

CRANKSHAFT

Three main bearings. Thin wall, steel-backed, white metal-lined shells, located by tabs. End float controlled by front bearing, liner flanged both sides. No hand fitting permissible. Worn shafts must be ground to standard undersizes.

Main bearings could be changed in emergency without removing shaft, but operation is difficult enough to make complete engine removal worth while.

Flywheel spigoted on rear flange of crankshaft, located by two offset dowels and retained by six setscrews. Starter ring gear shrunk on and located by six 1/4in grubscrews in tapped holes drilled half in flywheel and half in ring. Hardened thrust button for flywheel driven member pressed into end of crankshaft.

Timing sprocket keyed on front end of crankshaft by Woodruff key. Thrust ring behind sprocket with flange to bearing. Pulley, with separate Woodruff key, retained by hand starter dog nut. Pulley hub has oil return thread.

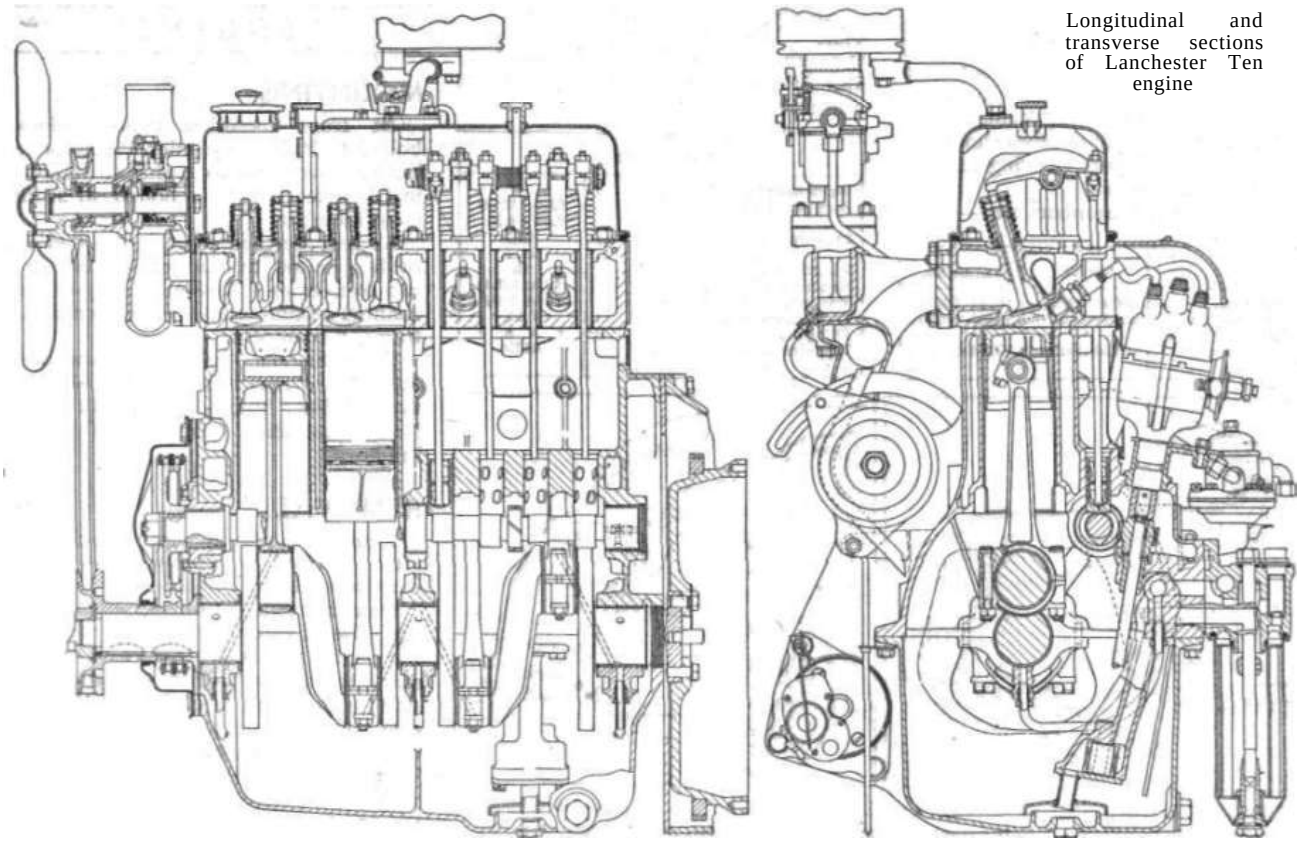
Sump flange on crankshaft centreline. Rear of sump fits round oil return thread on crankshaft. Front end of sump bolted through front engine plate to timing cover.

To remove sump, front brake compensator gear must first be dismantled. Take out two large pivot bolts and four small setscrews holding compensator assembly to cross-member, and pull away compensator frame, leaving bell-cranks and levers dangling.

To reassemble compensator slacken off brake adjustment fully at each front wheel and disconnect transverse rod from bell-crank. This will relieve tension on compensator bell-cranks and allow pivot bolts to be inserted.

CRANKSHAFT AND CONNECTING ROD DATA

	Main Bearings			Crank-pins
	No. 1	No. 2	No. 3	
Diameter	2in	2in	2in	$1\frac{15}{16}$in
Length	1.5275in	1.187in	1.595in	1.198in
Running clearance : main bearings				.001in
big ends				.00125in
End float: main bearings				.002in
big ends				.002in
Undersizes				/ .010, .020, .030, \ .040in
No. of teeth on starter ring gear				104
Con rod centres				7.5in



Longitudinal and transverse sections of Lanchester Ten engine

CONNECTING RODS

Big ends thin wall, steel-backed, white metal-lined shells as main bearings. No hand fitting permissible.

Gudgeon pins cotter-clamped in small ends.

Con. rods are symmetrical, but oil bleed hole in shoulder of big end should point away from camshaft side.

PISTONS

T-slot, cam ground. Fit with slot towards camshaft side.

Big ends will not pass through bores, nor will pistons pass crank webs. To remove piston split big end, push assembly up and drift out gudgeon pin. On modified engines compression ratio was lowered by lengthening cylinder block, leaving just sufficient clearance for gudgeon pin extraction. It is just possible that on a few engines adverse limits make gudgeon pin extraction difficult or impossible, in which case crankshaft must be removed.

PISTON DATA		
Clearance (skirt) ...	.0014- .002in	
Oversizes	.010, .020, .030, .040in	
Weight, with rings and pin	10 1/4oz	
Gudgeon pin diameter	.7in	
Gudgeon pin fit	push, warm	
Compression height	1.5in	
	Compression	Oil control
No. of rings	3	1
Ring gap	.006- .010in	.009- .013in
Side clearance in grooves	.001- .003in	.002- .004in
Width of rings	5/64 in	5/32in

Cylinder bores have renewable dry liners, which can be rebored up to maximum oversize of .040in.

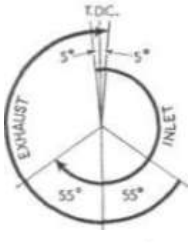
Piston compression rings are taper face type, and must be fitted with side marked "top" towards crown.

CAMSHAFT

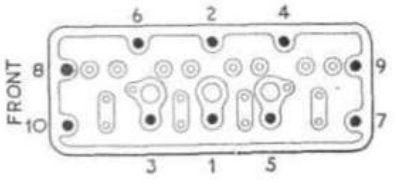
Duplex roller chain drive, spring link fastening. Camshaft sprocket keyed on end of shaft (flat face to front) with Woodruff key and retained by nut. Front bearing assembly trapped between sprocket and shoulder on shaft.

Centre and rear camshaft bearings are white metal-lined steel shells pressed into block. Front bearing consists of cast iron housing spigoted and flange-bolted to block, with white metal-lined flanged steel bushes pressed in from both ends and pegged.

If centre and rear bearings are renewed they should be locked by dimple, made by long punch inserted through oil feed from main bearings.



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



CAMSHAFT DATA			
	No. 1	No. 2	No. 3
Bearing journal : Diameter	1.248in	1.698in	1.548in
Length	1.376in	.8in	1.25in
Running clearance	.002in		
End float	.002in		
Timing chain : Pitch	3/8in		
No. of links ...	58		

Camshaft can be removed with engine in place. Sump need not be removed. Take off front assembly (radiator and wings) as for engine removal. Remove rocker gear, push-rods, tappets and distributor. Extract oil pump driving gear and shaft through distributor mounting aperture. Jack up front of engine enough to take weight, and remove A-bracket. Draw off pulley and remove timing cover and chain. Extract setscrews holding camshaft front bearing (box spanner through holes in sprocket) and draw out shaft with sprocket.

To time valves, before fitting chain, turn engine to T.D.C. mark on flywheel (visible through gearbox inspection cover and hole in bell-housing), and turn camshaft sprocket until 3/8in hole in sprocket lines up with "spare" hole in front bearing housing so that 3/8in tommy bar can be inserted. Fit chain with join at top and spring clip behind.

When fitting timing cover, before tightening setscrews, assemble pulley and check that there is .004in clearance all round oil return thread. Check again after tightening.

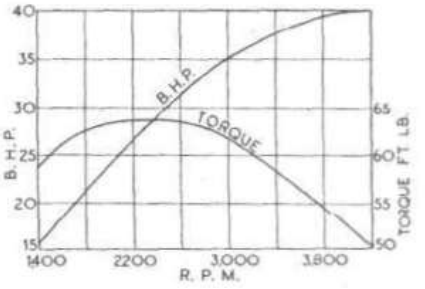
VALVES

Overhead, not interchangeable. Split cone cotter fixing with spring ring below collar to prevent valve falling into cylinder.

Single springs, with packing rings between spring and cylinder head.

Valve guides have slight shoulder and washer. Press in until washer is against shoulder.

VALVE DATA		
	Inlet	Exhaust
Head diameter	1.275in	1.175in
Stem diameter	.314in (8 mm)	.314in (8 mm)
Face angle ...	30°	30°
Spring length : Free	1.725	1.725
Loaded	1.298	1.298
At load ...	113lb	113lb



Lanchester Ten b.h.p. and torque curves

TAPPETS AND ROCKERS

Barrel tappets direct in crankcase. Extract through side opening

Rockers, offset left- and right-hand in pairs, work directly on hardened shaft carried on four pillars. Oil feed through rear pillar, in which shaft is located by setscrew. Rockers of adjacent cylinders separated by springs and plain washers End rockers retained by spring steel washers between plain washers, and by split pins through shaft.

Push rods cannot be extracted singly with rockers in place.

LUBRICATION

Gear pump in sump, bolted to bottom face of crankcase. Skew driving gear and shaft separate from pump, running in flanged white metal bush in crankcase and plain white metal bush in pump body. Skew gear keyed with Woodruff key and pressed on shaft, which drives pump gear through flats at lower end. Offset slot on upper face of skew gear drives distributor. *Note steel thrust washer below skew gear.*

Sludge trap cast in sump takes place of intake strainer, and has separate drain plug below. Main sump drain plug on near side.

Oil delivered up hollow stem of pump body and through drilling in crankcase to external Tecalemit full flow filter. Every 3,000 miles, when sump is drained, filter element should be removed and washed in petrol. Fit new element every 18,000 miles.

From filter oil is led through gallery and separate pipes to main bearing caps. Non-adjustable relief valve in front of filter body. Oil pressure switch for warning lamp at rear of filter body. Normal oil pressure 60 lb.

IGNITION DATA *(All degrees on Crankshaft rotation.)*	
Advance range : centrifugal ...	32—36°
Advance begins at r.p.m. (crankshaft)	840—1240
Max. advance at r.p.m (crankshaft)	3880—3920
Firing point	11° B.T.D.C.
Contact breaker gap	.012in
Plugs : make	Lodge
type	CB 14
size	14 mm
gap	.030in

IGNITION

Lucas coil. Distributor with centrifugal and vacuum advance, and vernier adjustment, spigoted in drive housing in crankcase and retained by setscrew and clamp plate.

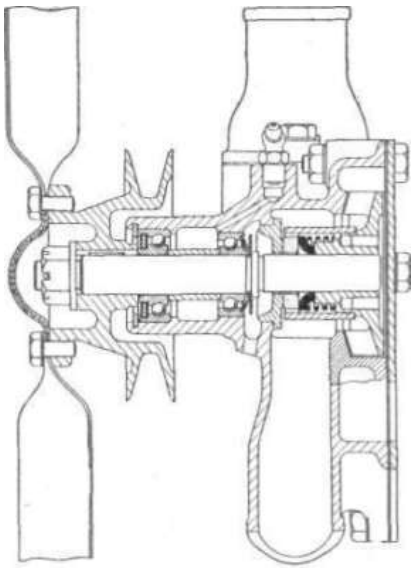
Set contact points to break 11 deg. before T.D.C. " IGN " mark on flywheel visible through gearbox inspection cover.

FUEL SYSTEM DATA	
Carburettor : make	Zenith
type	30 VIG-3
Settings : choke tube	23 mm
main jet	70
compensating jet	80
slow running jet	50
pump jet	50
needle seating	1.5 mm
capacity well restrictor jet	3 mm
Air silencer : make	Blundell
Fuel pump : make	AC
type	T 1524274
pressure	1.1/2—2.1/2 lb sq. in

COOLING SYSTEM

Pump, fan and non-adjustable thermostat. Spring-loaded carbon and rubber seal in pump body. Pump can be removed from engine with radiator in place. Take out four lower setscrews (two long, two short) holding pump body to cylinder head, when pump will slide out sideways

To dismantle pump detach backplate (four bolts), and draw off impeller,



Section through water pump

which is pressed on to shaft. Two holes, tapped 1/4in B.S.F. at 1in centres, are provided for drawer. Extract spring, rubber seal and carbon disc. Take off fan, undo shaft nut and draw off pulley (Woodruff key). Extract spring ring retaining ball bearings in pump body, and press out shaft with bearings to front. Thrust face in contact with carbon disc is renewable, and can be tapped out from front.

If ball bearings are renewed note that oil thrower disc fits between rear (smaller) bearing and shoulder on shaft. Bearings fit with seals outwards and are separated by distance-piece between inner races.

Adjust fan belt by swinging dynamo until belt has 1/2in free movement either way at middle of longest run.

If trouble is experienced with boiling, suspect overflow pipe relief valve in header tank. Pressure build-up in radiator will hold thermostat shut. Thermostat should be tested to start opening at 160 deg. F, and to be fully open at 180 deg. F.

TRANSMISSION DATA	
Gearbox : No. of speeds	4
Final drive ratios: 1st	21.40
2nd	11.65
3rd	7.55
Top	5.00
Rev.	31.15
Crown wheel/bevel pinion teeth	40/8

TRANSMISSION

FLUID FLYWHEEL

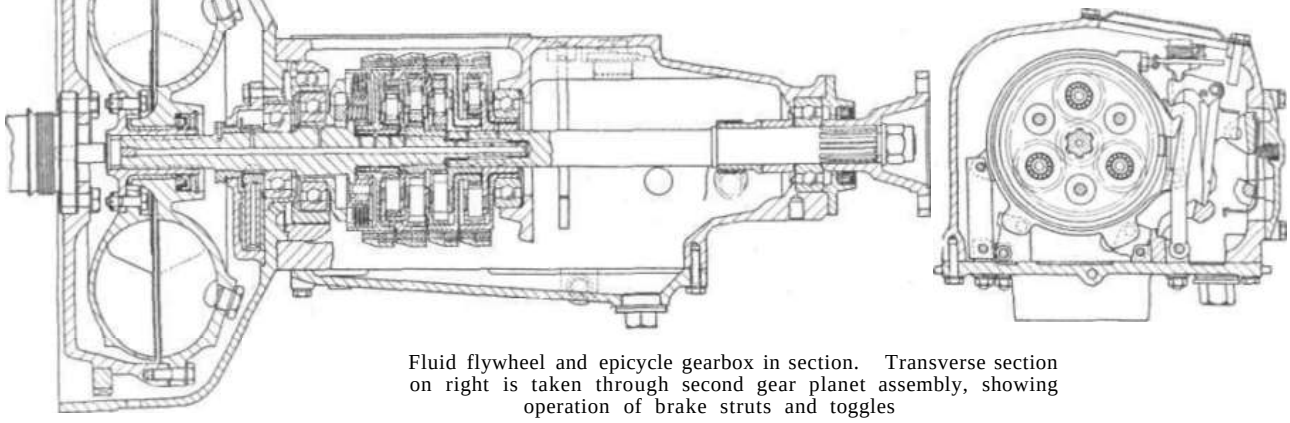
Open circuit type, using engine oil. Only attention needed is topping up every 3,000 miles. Two combined filler and level plugs on opposite sides ; either can be used. For access take up carpet and remove gearbox inspection cover. Filler plug can be reached through hole in bell-housing. Add oil until it overflows.

For major attention to flywheel remove gearbox. Light alloy driving member flange-bolted to flywheel with thin gasket. Three holes tapped 5/16in Whit. for splitting joint. Light alloy driven member bolted to flange of elongated hub, which is splined to fit gearbox shaft. Hub runs in flanged bronze bush in driving member. Lipped synthetic rubber oil seal (lip inwards) retained in back of driving member by spring ring and thick washer.

GEARBOX

Four-speed epicyclic self-changing with preselector.

To adjust gearbox select each gear in turn and pump pedal about ten times. If this does not stop slipping remove top cover, which exposes automatic adjusters for each brake band. Adjustment takes place automatically each time gear is disengaged, when heel of adjuster ring strikes pin and wrapping action of spring turns round nut. Degree of automatic adjustment governed by setting of adjuster stop screws on brake bands. Excessive automatic adjustment may tend to reduce toggle action and cause slip-



Fluid flywheel and epicycle gearbox in section. Transverse section on right is taken through second gear planet assembly, showing operation of brake struts and toggles

ping of brake bands. Select gear which is slipping and mark adjuster nut with pencil. Pump gear pedal until nut stops turning (it moves only slightly each time pedal is moved). If gear still slips toggle action must be increased. Unhook spring round adjuster nut, select and engage another gear, and unscrew adjuster nut one turn (if special tool is not available use 5/16in B.S.F. bolt and locknut). Unlock adjuster stop screw, screw in half a turn and lock. Select and engage gear which is being adjusted, refit spring on round nut, and pump pedal until nut stops turning.

When adjusting 1st or reverse gear engage 2nd, 3rd or top. Do not select neutral, as this partially engages both 1st and reverse. Interlock plungers prevent full engagement and thus hold all gears out.

Top gear stop screw is not adjustable. If automatic adjustment fails to secure results gearbox must be dismantled and top gear plate clutch inspected.

If gear engagement is harsh, toggle action must be decreased. Screw stop screw out one full turn and pump pedal until nut stops turning.

To remove gearbox leaving engine in place, remove gearbox cowl and floorboards. Disconnect propeller shaft at both ends and remove. Jack up engine under rear of sump and detach rear mounting and cradle from chassis frame and gearbox. Disconnect pedal rod and selector linkage from gearbox levers. Take weight of gearbox and remove 11 setscrews round bell-housing flange (two top setscrews from rear, others from front). Detach starter motor, and rest it on exhaust pipe. Gearbox can then be drawn back and up through floor.

To dismantle gearbox remove large top cover and side cover with selector camshaft and followers. Unhook spring from top gear adjuster nut and slacken nut right off. Detach small top cover and remove busbar spring. (Take two long setscrews right out, and slacken others evenly, releasing spring pressure on cover.) Take out rear cover setscrews and extract mainshaft, rear cover and ball bearings by tapping flange. Draw flange, bearing and speedo drive worm off shaft. Remove bell-housing setscrews.

Insert mainshaft and drive out running gear and bell-housing assembly to front. Reverse gear drum will stay in box with centre ball bearing, and can be tapped out to front.

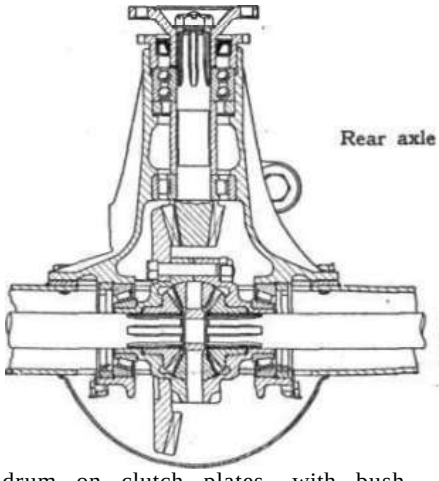
Running gear components—drums and epicyclic trains—can be picked off until only primary shaft and top gear operating ring and clutch assembly are left on bell-housing. Unscrew nut on primary shaft inside bell-housing (locked by spring ring), and detach oil pump housing. Draw off oil thrower ring, plunger and eccentric (Woodruff key), and tap shaft out of front ball bearing with clutch plate assembly (riveted on). Brake band and busbar assembly mounted on bottom plate can then be removed from box.

To assemble gearbox place clutch thrust plate and ball thrust bearing on primary shaft, with return springs and plungers in clutch driving member. See that thrust ring is in top gear actuating ring so that it bears on thrust bearing, and that distance piece is against shoulder on shaft. Insert shaft into front bearing in bell-housing and assemble pump eccentric, plunger, oil thrower and pump body. Tighten nut, making sure that oil return thread is clear of pump body.

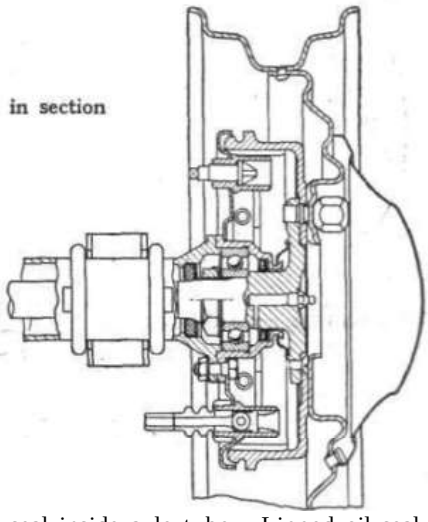
Assemble running gear: 3rd gear drum on clutch plates, with bush, thrust washer, 2nd gear drum and 3rd gear planet assembly, 1st and 2nd gear sun wheel (larger pinion to front), thrust washer, 2nd gear planet assembly, 1st gear planet assembly, 1st gear drum, reverse planet assembly, reverse drum with centre bearing. Mount bell-housing assembly in vice, running gear upwards. Place packing ring on centre bearing outer race, and lower box, with bottom cover and brake assembly, on to running gear.

Build up mainshaft with speedo drive gear, distance-piece, oil thrower, ball bearing, rear cover and driving flange. Insert assembly in box and secure rear cover. Insert busbar spring assembly, selector gear and side cover. Operate busbar several times in each gear to make up automatic adjustment. Fit top cover.

Caution—If car is to be towed more than two or three miles, propeller shaft must be removed. Running gear relies on pressure lubrication from pump driven by primary shaft, which only revolves when engine is running.



Rear axle in section



PROPELLER SHAFT

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

REAR AXLE

Spiral bevel drive, semi-floating shafts. Rear cover welded to casing.

To remove axle from car disconnect propeller shaft, brake and shock absorber linkage, check straps and spring U-bolts. Remove brake drum, shaft and bearing assembly from one side and pass axle through springs.

Axle shafts carried on ball bearings retained against shoulder at outer end of shaft by nut. Outer race of bearing carried in housing which is spigoted and bolted to axle tube flange with brake backplate. Outer end of axle upset to form flange for wheel studs and brake drum. Felt oil seal inside axle tube. Lipped oil seal in bearing housing, behind bearing (lip to bearing).

To extract shaft disconnect brake linkage at centre compensator and remove nuts round axle tube flange. Brake, axle and bearing assembly can then be drawn off. To reassemble insert axle with backplate before fitting brake drum, so that bearing housing bolts can be pushed through flange.

Bevel pinion shaft carried in roller inner and double-row ball outer bearings retained in housing by ring nut. Distance-piece between inner races of bearings. No adjustment for bearings. Packing piece and shims behind outer race of outer bearing for bevel mesh adjustment.

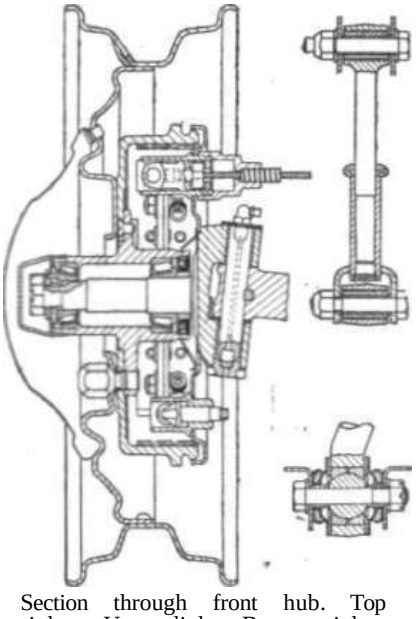
Crown wheel spigoted on split differential cage and bolted up with cage bolts. Differential assembly carried in taper roller bearings in split housings. Tighten ring nuts and slack back one notch after adjusting mesh to give o.oo8in backlash.

CHASSIS

BRAKES

Girling mechanical. Front brakes operated through special compensator and cables in flexible conduits. Handbrake operates on rear wheels only. Compensator at foot of pedal lever proportions braking between front and rear.

Running adjustment by squared adjusters on brake backplates. Tighten until shoe makes contact with drum, and back off one notch. No need to jack up car.



Section through front hub. Top right : Upper link. Bottom right : lower link ball joint

Front compensator consists of vertical bell-crank connected to transverse rod. Other end carries rocker which makes contact with bell cranks linked to brake cables. Assembly carried in box bolted to rear of front cross-member. Bell cranks have Oilite bushes operating on sleeves. Pivot bolts pass through sleeves and must be tightened fully. Assembly must be dismantled completely before brake cables can be disconnected.

BRAKE **DATA**		
	Front	Rear
Drum diameter	9in	9in
Lining : length	8.5/8in	7.7/8in
width	1.3/4in	1.3/4in
thickness ...	3/16in	3/16in

REAR SPRINGS

Semi-elliptic. Silentbloc shackles and anchorages. If spring is removed and replaced car should be loaded before shackle bolts are tightened fully.

FRONT SUSPENSION

Independent. Coil springs carried between frame brackets and locations on lower links. Longitudinal radius arms bolted to wheel carrier arms—or pedestals—which are carried between upper and lower transverse links. Silentbloc bearings on both ends of upper links, inner ends of lower links and rear ends of radius arms. Lower ends of pedestals house spherical bearings for outer ends of lower links.

Spherical bearing consists of ball with distance-pieces on either side carried by bolt passing through assembly and flanges of lower link. Split spherical seatings retained in pedestal by plates with shims for adjustment. Bearing protected by rubber seals with inner and outer retainers.

Upper links are in two parts. Inner part screws into outer for initial camber adjustment, with rubber seal.

If lower links are to be removed, front brake compensator must be dismantled for access to inner nuts.

King pins cottered in pedestals. Plain bushes in stub axles. Thrust taken on buttons recessed in lower end of king pin and in plug screwed into stub axle below lower bush. Buttons of varying thickness available to give .002—.005in up-and-down movement of stub axle when plug is tightened fully. Cork washer and cover retained on top of king pin by grease nipple. Felt washer and cover between pedestal and lower bearing. King pin can be driven out either way after removal of brake backplate.

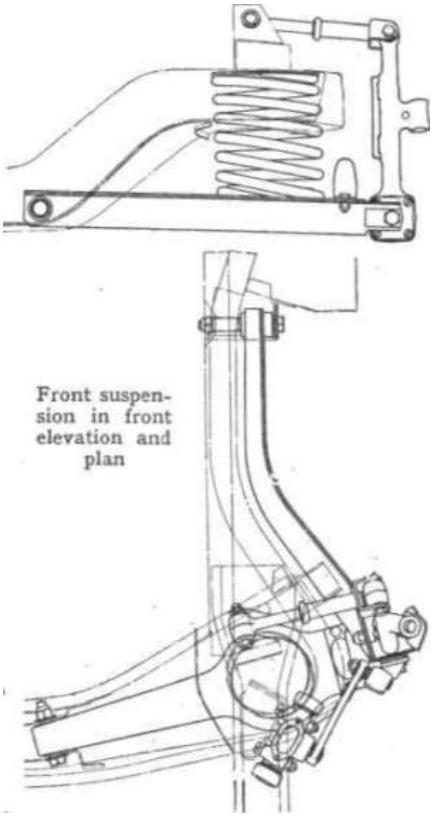
Hubs run on taper roller bearings adjusted by pegged nuts with perforated locking washers. Plain nuts outside locked by tabwashers. Adjust pegged nut until, when outer nut is tightened fully, wheel is still quite free. Lipped oil seals behind inner bearings, lip to bearing.

Steering ball joints are spring-loaded side-plug type, with renewable spherical seatings retained, with spring and cap, by spring ring. Inner ends of track rods cranked and each connected to half-ball pin working in split spherical seatings retained in swing arm by plate with shims for adjustment. Offside track rod goes above, nearside below swing arm.

Ball sockets threaded left- and right-hand (l.h. at outer ends on track rods, drop-arm end of drag link). Adjust track so that with swing arm central both rods are equal. Disconnect one end of drag link and set drop arm in centre of travel (not parallel to centreline of car). Adjust drag link so that drop arm and swing arm are central.

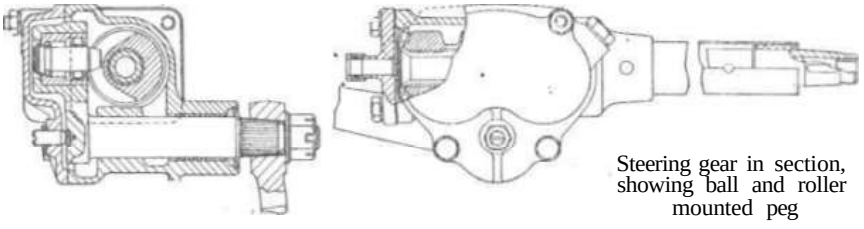
Swing arm cotter-clamped on vertical pin in bushed bracket. Tighten nut at bottom of pin until there is no play , but thrust washers can be turned.

SPRING DATA		
	Front	Rear
Length	- (coil)	45in
Width		1.1/2in
No. of leaves ...		8
Free camber ...	(length) 11.9in	4.75in
Loaded camber	(length) 6.75in	1.93in neg.
at load	909 lb	702 lb



Front suspension in front elevation and plan

STEERING DATA *(Springs Fully Laden)*	
Castor	1.1/2°
Camber	1.1/2°
King pin inclination	4° 47'
Toe-in ...	1/8in
No. of turns lock to lock	2.3/4



Steering gear in section, showing ball and roller mounted peg

STEERING GEAR

Bishop cam and lever, type Q on current models, TQ on first sanction.

To remove gear from car remove front wing and radiator assembly. Draw out control column and block lower nut and olive with rag to prevent loss of oil. Draw off wheel (taper and key). Slacken gear control and column clamps, and disconnect support bracket from dash. Disconnect drag link. Remove single bolt holding gear to frame and draw out to front.

Cam and lower end of column supported in cup and cone ball bearings. Adjust for end play by shims under lower cover (0.0024, 0.005 and 0.010in shims available).

Lever shaft carried in bronze bushes. End play adjusted by grub screw in top cover. Peg runs in ball thrust and roller bearings, renewable as assembly.

SHOCK ABSORBERS

Luvax Girling piston type. Front pair linked by anti-roll torsion bar.

To top up remove from car and mount in vice. While adding fluid work lever through full movement to expel air.

BODY MOUNTING

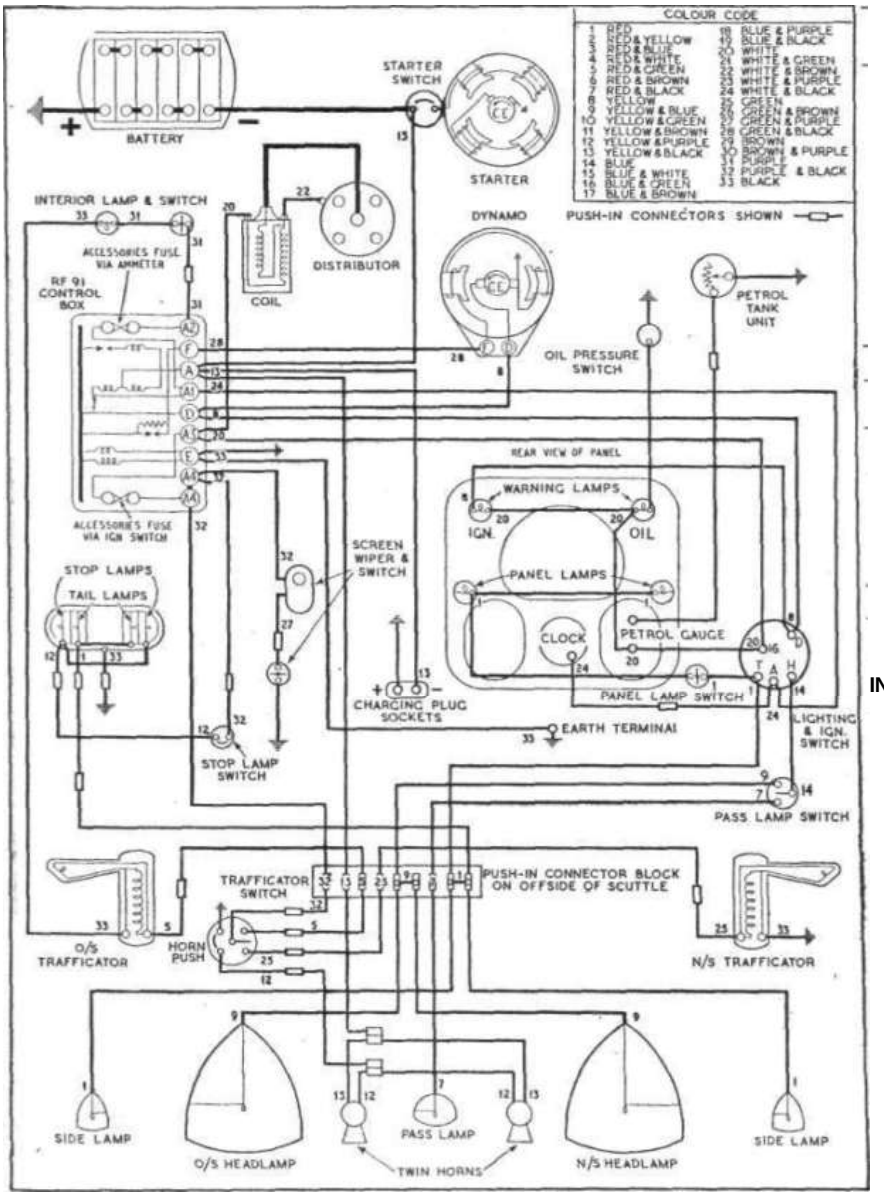
Three mounting brackets on each side of frame, with packing, one mounting each side at extreme rear of frame and two on centre of X-member.

To remove body remove front wing and radiator assembly, and steering gear. Lift front of body and insert carrying pole. Second pole can be passed through rear wheel arch.

To remove petrol tank take out two setscrews at front, one at rear. Disconnect filler hose and plate inside spare wheel compartment. Lift front of tank so that rear bracket clears frame, and drop out.

GENERAL DATA	
Wheelbase	8ft 3in
Track: front	4ft 0in
rear	4ft 0in
Turning circle	35ft 0in
Ground clearance	6in
Weight (dry)	22 cwt
Tyre size	5.25—16
Overall length	13ft 2.1/4in
Overall width	4ft 10in
Overall height	5ft 2.1/2in

LANCHESTER TEN WIRING DIAGRAM



ELECTRICAL DATA
Lucas Equipment

	Model	Service No.
Dynamo	C45 YV	228139
Starter	M35 G	25000B
Lighting and ign. switch	PLC2	344890
Control box	RF91	37031A
Battery	STXW9A	
Distributor	DVX4A	40112A
Coil	B12	402010
Trafficators	SF40J	54014A
Horns (twin windtone)	WT 29 (Pair)	69003A (High Note) 69002A (Low Note)
Screen wiper	SW4	72542D

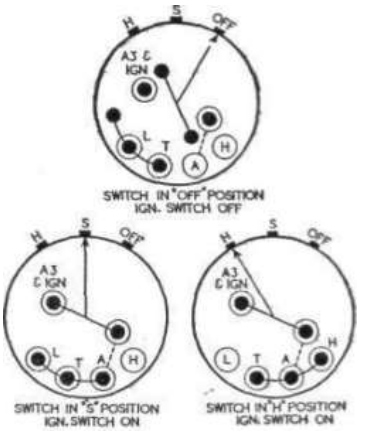
BULBS

	Voltage	Wattage	Lucas No.
Headlamps	12	36	54
Side rear and stop lamps	12	6	207
Pass light (Prefocus)	12	36	162
Trafficators	12	3	256
Instrument panel and interior lamps	12	6	207
Oil and ign. warning lamps (Supplied by AC)	16/18		AC No 1570598-2

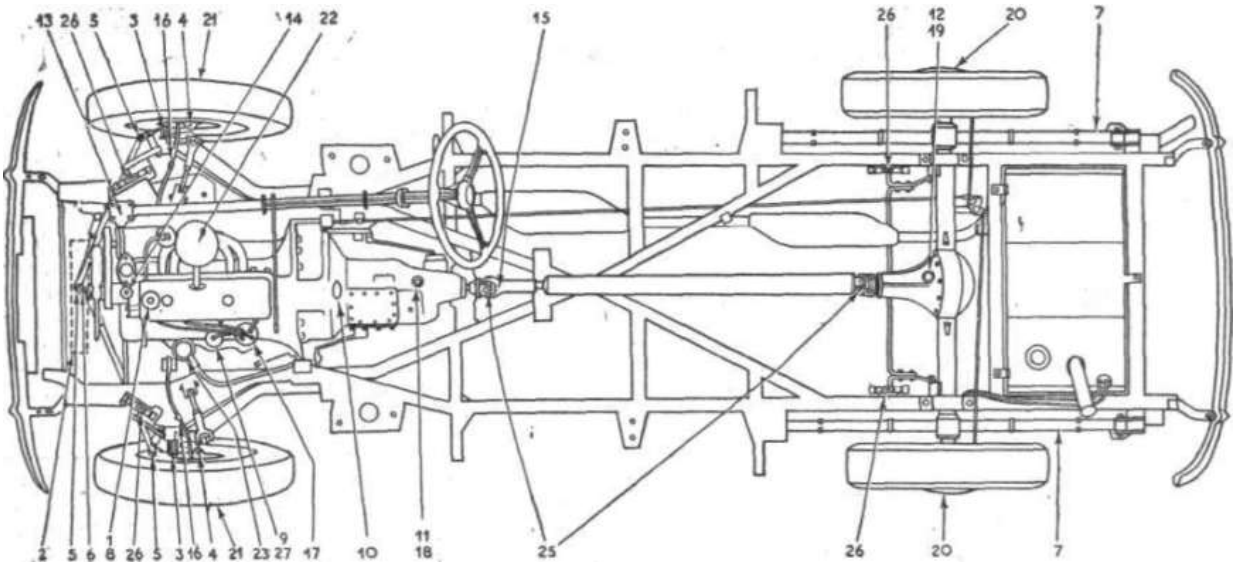
FUSES

Accessories	FA25	25 amperes

INTERNAL CONNECTIONS OF PLC2 SWITCH



LANCHESTER TEN MAINTENANCE DIAGRAM



KEY TO MAINTENANCE DIAGRAM

DAILY

1. Engine sump
2. Radiator

} Top up

EVERY 1,000 MILES

3. Front suspension spherical bearings (2)
4. King pin bearings (2)
5. Steering ball joints (4)

} Grease gun

6. Steering centre swing arm (2)
7. Rear springs—penetrating oil

EVERY 3,000 MILES

8. Engine sump—drain and refill
9. Oil filter—clean
10. Fluid flywheel
11. Gearbox
12. Rear axle

} Top up

13. Steering box
14. Water pump bearings
15. Propeller shaft splines

} Grease gun

16. Front brake cables
17. Distributor—Grease cam and pivot (smear). Few drops of light machine oil under rotor arm and in hole in contact base plate.

EVERY 6,000 MILES

18. Gearbox
19. Rear axle

} Drain and refill

20. **Rear wheel hubs (2)**—Grease gun
21. **Front wheel hubs**—Half-fill caps with grease
22. **Carburettor**—clean float chamber and jets
23. **Petrol pump**—clean filter and pump body
24. **Control rod joints**—Oil can

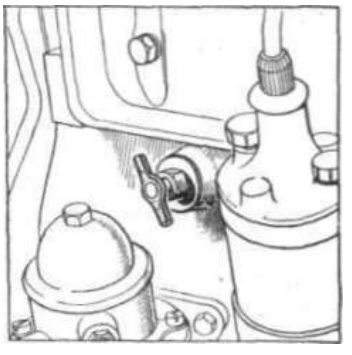
EVERY 12,000 MILES

25. Propeller shaft universal joints (2)—Grease
26. Shock absorbers—top up

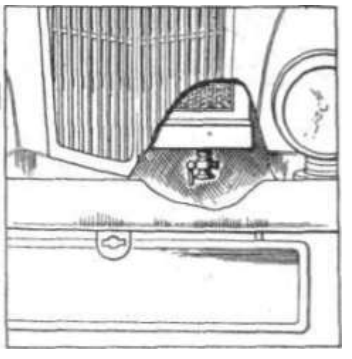
EVERY 18,000 MILES

27. Oil filter—Renew element

DRAINING POINTS



Cylinder block drain tap, near side front



Radiator drain tap below apron

RECOMMENDED LUBRICANTS

	Daimler	Wakefield	Vacuum	Shell Mex
Engine, Fluid Flywheel, Gearbox	Daimler Solvent Process	Castrol XL	Mobiloil A	Double Shell
Rear axle		Castrol Hi-press	Mobiloil EP	Shell Spirax EP 140
Hubs, front and rear, Water pump, Propeller shaft, Chassis nipples	Daimler R B	Castrolease Heavy	Mobil Hub Grease	Retinax RB
Steering Box		Castrol Hi-press	Mobiloil CW	Shell Spirax EP 140
Rear Springs	Penetrating oil	Penetrating oil	Penetrating oil	Shell Donax P
Shock absorbers		Luvax piston type shock absorber oil		

FILL-UP DATA

Engine sump		8 pints
Cooling system		2 gallons
Fluid flywheel		5.1/2 pints
Gearbox		4 pints
Rear axle		3 pints
Petrol tank		8 gallons
Tyre pressures ;	front	26 lb
	rear	28 lb