



LANCHESTER

HANDBOOK FOR THE LANCHESTER TEN

*Rec'd
Nov. 1918*

The Lanchester Motor Co. Ltd.,
London and Coventry

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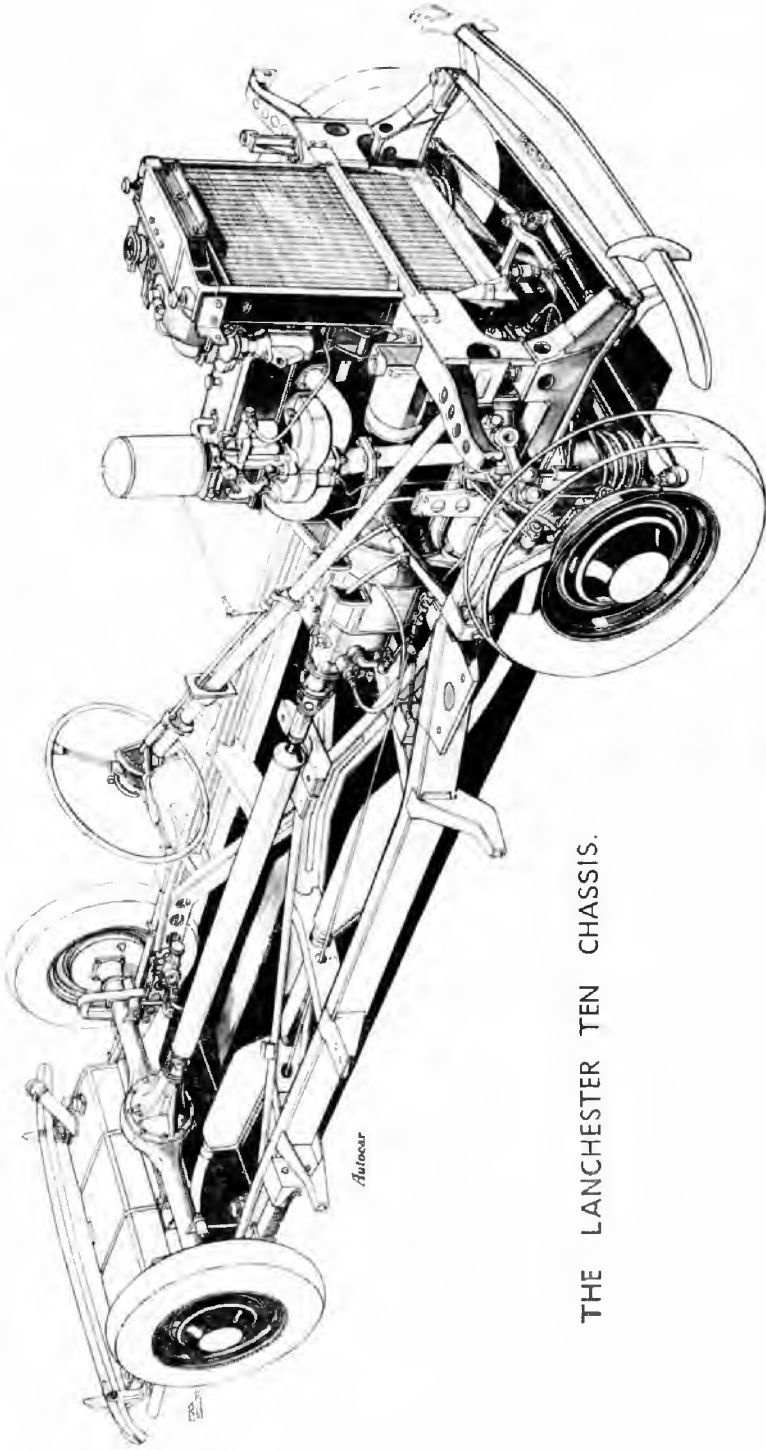
LANCHESTER

**Handbook
for
THE LANCHESTER TEN**

**The Lanchester Motor Co. Ltd.,
London and Coventry**

THE LANCHESTER TEN

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THE LANCHESTER TEN CHASSIS.

Fig. 1

FOREWORD

This handbook has been prepared with the object of giving all the information that is necessary for the Owner to obtain the greatest pleasure and satisfaction from the Lanchester Ten.

We would draw special attention to certain sections of the Handbook dealing with the operation of a new car, and the detailed recommendations as to the method of driving. These sections have been included in the Handbook in the hope that they will help the Owner to get the best out of the Car.

The whole resources of the Company are behind the Car, and if additional information on any point is desired by the Owner, application should be made to The Lanchester Motor Co. Ltd., Coventry.

This book is applicable to the following cars :—

Chassis Numbers 60025 to 61024.

61800-63799

It is specially important that the Car number should be quoted in all correspondence and spares orders.

The type is LD.10 and the Chassis Number will be found on a brass plate on the frame just below the steering column. See Chassis, Fig. No. 53 page 94.

THE LANCHESTER TEN

INDEX TO CONTENTS

	Page
Foreword	3
Index	4 - 5
List of Illustrations	6 - 7
Chapter I. GENERAL INFORMATION	9
Part 1. Taking over a new car	10
Part 2. Driving controls and instruments	11
Part 3. Starting Instructions	14
Part 4. Driving. Recommended use of the controls	15
Part 5. Specification	20
Chapter II. THE POWER UNIT	27
Part 1. The Engine	29
Part 2. The Carburettor and Air Silencer	32
Part 3. The Fuel Supply System	36
Part 4. The Lubrication System	38
Part 5. The Cooling System	42
Part 6. The Ignition System	45
Chapter III. THE TRANSMISSION	49
Part 1. The Fluid Flywheel	50
Part 2. The Gearbox	52
Part 3. The Propellor Shaft	57
Part 4. The Rear Axle	58
Part 5. Front and Rear Hubs	60
Part 6. Wheels and Tyres	62
Chapter IV. THE SUSPENSION	63
Part 1. Front and Rear Springs	64
Part 2. The Shock Absorbers	65

INDEX TO CONTENTS

	Page
Chapter V. THE STEERING	67
Chapter VI. THE BRAKES	71
Chapter VII. THE ELECTRICAL EQUIPMENT	75
Part 1. Lighting	76
Part 2. Starting	82
Part 3. Charging	83
Part 4. Battery	85
Part 5. Accessories	86
Chapter VIII. COACHWORK	89
Chapter IX. THE CHASSIS	91
Part 1. The Jacking System	92
Part 2. Chassis Identification	94
Chapter X. MAINTENANCE SUMMARY	95

THE LANCHESTER TEN

LIST OF ILLUSTRATIONS

	Page
Fig. 1 ... The Lanchester Ten Chassis	2
Fig. 2 ... The Controls and Instruments	12
Fig. 3 ... Identification of the Driving Controls	15
Fig. 4 ... Operation of Controls for Driving Away	16
Fig. 5 ... Operation of Controls for Changing Up	17
Fig. 6 ... Operation of Controls for Changing Down (a)	18
Fig. 7 ... Operation of Controls for Changing Down (b)	18
Fig. 8 ... The Tools	25
Fig. 9 ... The Engine Unit	28
Fig. 10 ... Adjusting Valve Clearance	30
Fig. 11 ... Valve Timing Mark	30
Fig. 12 ... Setting Valve Timing	31
Fig. 13 ... Carburettor Control Rods	35
Fig. 14 ... Petrol Pump with Top removed and Filter exposed ...	36
Fig. 15 ... Petrol Pump Hand Primer Lever	37
Fig. 16 ... Engine Oil Filler and Dipstick	38
Fig. 17 ... Removal of Engine Oil Filter Body	39
Fig. 18 ... Location of Oil Light Switch and Drain Plug	40
Fig. 19 ... Removing Oil Pressure Relief Valve	41
Fig. 20 ... Greasing Water Pump	42
Fig. 21 ... Location of Radiator Drain Tap	43
Fig. 22 ... Distributor Showing Maintenance	45
Fig. 23 ... High Tension Lead	46
Fig. 24 ... Distributor Cover Removed to show Rotor Arm location when No. 1 Cylinder is firing	47
Fig. 25 ... Ignition Timing Mark on Flywheel in line with groove in Housing	48
Fig. 26 ... Topping-Up the Fluid Flywheel Oil Level	51
Fig. 27 ... Topping-Up the Gearbox Oil Level	53

LIST OF ILLUSTRATIONS

	Page
Fig. 28 ... Gearbox Selector and Operating Controls, Lubricate	54
Fig. 29 ... Operation of Controls to take up gear adjustment	55
Fig. 30 ... Gearbox Top Cover Removed to illustrate Method of Manual Adjustment	56
Fig. 31 ... Lubricating Propellor Shaft Spline through trap between front seats	57
Fig. 32 ... Location of Rear Axle Plugs, with access through board beneath rear seat	58
Fig. 33 ... Topping-up Rear Axle	59
Fig. 34 ... Lubrication of Hubs	61
Fig. 35 ... Taking Tyre Pressure	62
Fig. 36 ... The Front for the Chassis, showing the independent suspension	64
Fig. 37 ... Topping-up the Steering Box, beneath Offside front wing with wheel removed	68
Fig. 38 ... Front Wheel Track setting diagram	69
Fig. 39 ... Layout of the Braking System, (with inset to show Location of Adjuster	73
Fig. 40 ... Headlamp and Passlamp Setting diagram	77
Fig. 41 ... Focussing the Headlamp	78
Fig. 42 ... Removal of Headlamp Front	79
Fig. 43 ... Opening the Sidelamp	80
Fig. 44 ... The Passlight	80
Fig. 45 ... Freeing Starter	82
Fig. 46 ... Examining Brushes	83
Fig. 47 ... Blown Fuse	84
Fig. 48 ... Location of the Battery beneath rear seat and correct reading of hydrometer	85
Fig. 49 ... Lubrication of the Trafficator Arms	86
Fig. 50 ... Dismantling a Trafficator Arm	87
Fig. 51 ... Horn with Cover removed	87
Fig. 52 ... The location of jacking brackets and operation of Bevelift jack	93
Fig. 53 ... Location of Chassis Number Plate	94
Fig. 54 ... Diagrammatic Arrangement of Grease Nipples	(Insert)

Chapter I

GENERAL INFORMATION

Part 1. ...	Taking over a new car	... ..	Page 10
Part 2. ...	The Controls and Instruments	... ..	„ 11
Part 3. ...	Starting Instructions	... ..	„ 14
Part 4. ...	Driving—Recommended use of the Controls	... ..	„ 15
Part 5. ...	General Data	... ..	„ 20

Part 1

TAKING OVER A NEW CAR

Driving

An owner who has not previously handled a car fitted with the Daimler Transmission will find all the information he requires on this subject in the remainder of this chapter. We feel sure that the recommendations will well repay study in the additional pleasure obtained.

Running-In

The Engine, Gearbox and Rear Axle are all run and Bench Tested before installation in the chassis and the complete car is thoroughly Road tested. We do not recommend running-in at a fixed low speed as this will under certain conditions, do as much harm as driving at high speeds. The most important point to bear in mind is that for the first 500 miles the throttle should not be fully opened in any gear nor should the engine be made to labour by driving at low speeds in high gears. In other words, do not rev. up too much in any gear, and on the other hand, do not delay your change down more than normally in the false impression that you are saving the engine.

Service

It is advisable to change the oil in the Engine, Gear Box and Rear Axle after the completion of the first 500 miles.

This, and any other necessary lubrication and adjustment will be carried out by the Distributor or Agent from whom the car was purchased.

No charge, other than for the new oil and any additional materials used will be made.

GENERAL INFORMATION

Part 2

THE CONTROLS AND INSTRUMENTS

Hand Controls (See fig. 2 on page 12.)

Lights Switch. In the centre of the facia at the bottom of the facia panel. "S" for side and tail lights. "H" for head, side and tail lights.

Ignition Switch. Key in centre of the lights switch.

Choke Control. Situated on the facia panel just to the right of the steering column. Pull out and turn to lock. For fast idle, push in part way and lock in position.

Starter Control. Situated on the left of the choke control. Pull to operate.

Windscreen. The handle for opening the windscreen is located at the top of the facia panel in the centre.

Windscreen Wipers. Twin screen wipers are provided. The operating knobs are at the top of the facia panel. To operate, push in and turn the knobs. The wipers only operate when the ignition is switched on.

Horn Button. Located in the centre of the steering wheel.

Trafficator Switch. Placed just above the horn button. This is self-cancelling.

Gear Selector Lever. Placed below the steering wheel on the right hand side. Details of operation are given in the driving instructions in Part 4. Page 15

Ventilator. A handle projects below the centre of the facia panel. Push to open the ventilator.

Parking Brake. A pistol-grip control is fitted below the facia on the right hand side. To apply brake, pull out. To release the brake, pull slightly, press the small inset section with the thumb, and allow the whole handle to move forward as far as it will go.

Petrol Reserve. The control is placed on the left of the facia below the glove box. Pull out to bring the reserve supply of $1\frac{1}{2}$ gal. into use. Replaced by pushing in before filling up.

Interior Light Switch. Placed on the pillar between the two off-side doors.

Inspection Lamp Plug. Located underneath the facia below the glove box.

THE LANCHESTER TEN

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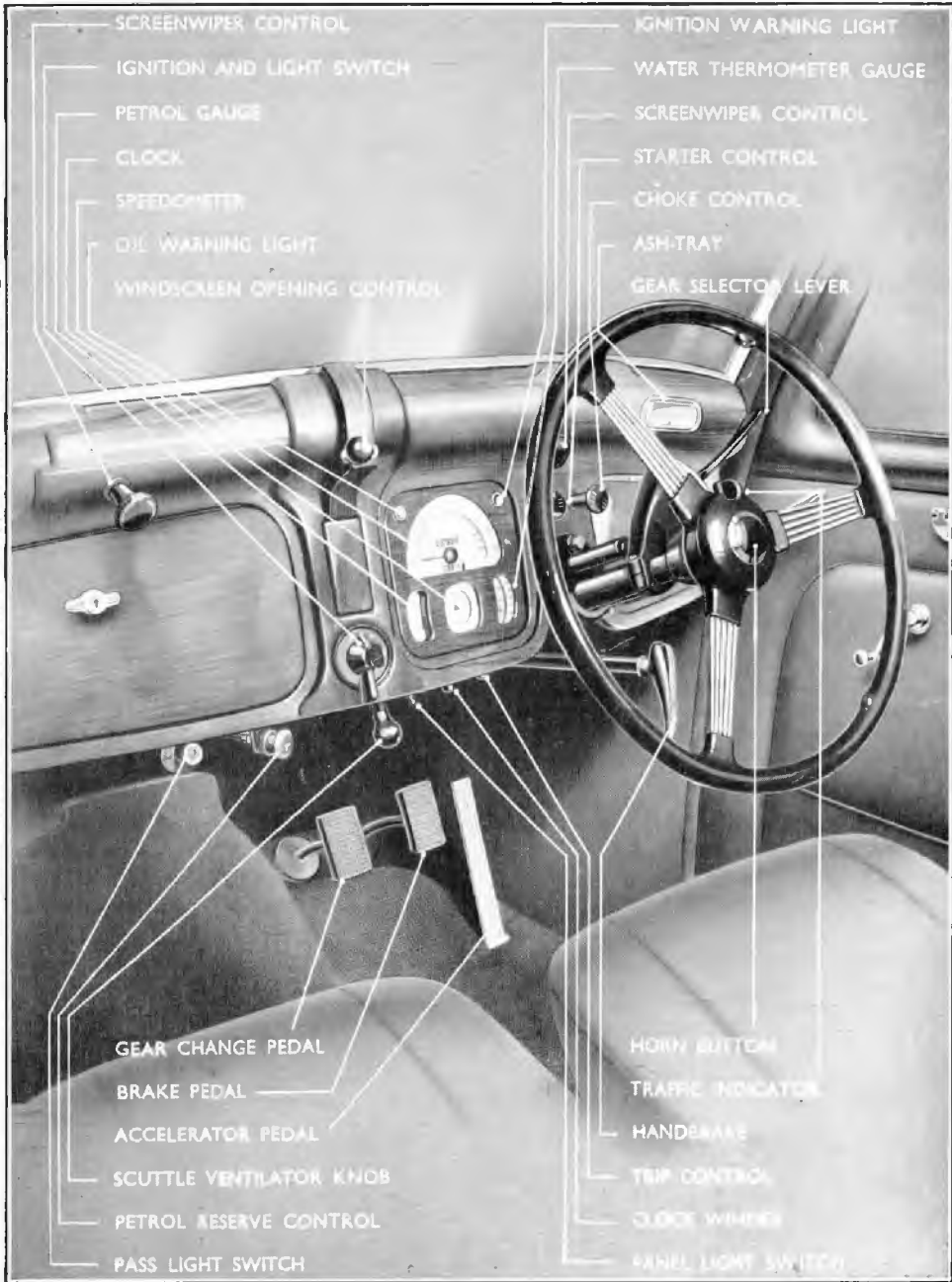


Fig. 2

The Controls and Instruments

Foot Controls. (See Fig. 2, page 12)

Accelerator. On the right.

Brake. Placed in the centre.

Gear Change Pedal. On the left.

NOTE.—that this is referred to as the **Gear Change Pedal NOT the clutch**
The recommended method for the use of this is given in the **Driving**
recommendations. (See page 15).

Dipper Switch. Just to the left and above the gear pedal. Push and release to change from headlights to passlight, push and release again to bring the headlights on again and the passlight off.

Instruments. (See Fig. 2).

These are grouped on the fascia to the left of the Steering Column and consist of :—

Speedometer. To return the trip mileage recorder (the lower of the two) to zero—pull down the small knurled knob which projects behind the fascia beneath the speedometer, and turn to the right. Push control in after setting as recorder will not function unless this is done.

Clock. This is electric and needs no winding. Pull small knob below and turn to reset hands. Push knob up to restart clock.

Petrol Gauge. This is the left of the clock and reads from 0 to 8 galls. It includes a reserve supply of $1\frac{1}{2}$ galls. which is obtained by pulling out the petrol reserve tap knob.

Temperature Gauge. Situated on the right of the clock reading from 90° to 212°F. The normal running temperature should be between 170° and 190°.

Green light. Above the speedometer, on the left. This will light up when the ignition is switched on, but should go out immediately the engine is started. This is an oil pressure warning light, and will light up as soon as the pressure drops below 10lbs. per square inch. Should this light up when the engine is running, stop and switch off **at once**.

See Section on Page 40 of this book for the action to be taken.

NOTE.—When the engine is hot, this light may tend to flicker slightly when the engine is ticking over. This may be ignored.

Red light. Above the speedometer on the right. This will light up when the engine is switched on and will go out as soon as the dynamo commences to charge. If it lights up while the engine is running at more than a tick over, it is a warning that the dynamo has ceased to charge. (See Page 84).

THE LANCHESTER TEN

Part 3

STARTING INSTRUCTIONS

1. Starting from Cold.

- a. Make sure that the parking brake is "ON."
- b. Make sure that neutral is engaged. This entails first checking that the gear selector lever is in the Neutral position, and then making a full stroke of the gear change pedal, i.e. depress and release.
- c. Pull out the choke control fully.
- d. Switch on the ignition and pull the starter control. Release this as soon as the engine fires.
- e. If the engine does not fire immediately, release the control, pause for about ten seconds and pull again rather than keeping the control out for lengthy periods.
- f. The Choke control should be returned to the fast idle and then to the closed position as soon as possible.
- g. The car may be driven away without waiting to warm up, but should the Owner prefer to allow the engine to warm up before starting off this should be done by running the engine at fast idle for long periods. **Note.—We do not recommend that the engine should be allowed to tick over when it is cold.**
- h. Whether the car is driven straight off after starting or the engine allowed to warm up first, the choke control should be fully closed as soon as possible.

2. Normal Start.

- a. Always repeat the process of making sure that the parking brake is "ON" and that neutral is engaged.
- b. Switch on the ignition and pull the starter control.

GENERAL INFORMATION

Part 4

DRIVING—RECOMMENDED USE OF CONTROLS

The Daimler Transmission.

The Daimler Transmission, fitted to Lanchester Cars and incorporating the fluid flywheel and the self-change gearbox makes gear-changing an exceedingly simple operation. The Fluid flywheel provides entirely automatic clutch action, and all that is necessary to engage a gear is to select the required gear by means of the selector lever mounted on the steering column, and to engage the gear by depressing fully and releasing the gear change pedal.

It is therefore with some hesitation that we give here our detailed recommendations as to the method to be employed. The length of the instructions should not be taken as any indication that the operations are in any way complicated, but we feel that Owners will be interested to have before them the fullest details of the method of operating this transmission, so that the skill so quickly attained will ensure that the full potentialities of the fluid flywheel and self-changing gearbox are realized.

It will be noted that the left pedal is referred to as the "Gear Change Pedal." We recommend that this should be regarded as a foot operated gear lever and that under no circumstances should it be used as a clutch. The pedal should always be moved with a positive action whether depressing or releasing, as detailed in the instructions which follow.

It is important that the gear pedal is always operated to the full extent of its travel. With the Daimler transmission it is unnecessary to engage neutral or to depress the gear pedal when coming to a stop or whilst temporarily stationary during traffic halts.

While it is possible to drive at very low speeds in top gear, we recommend that full use is made of the lower gears in order to get the best performance. Gear changing has been reduced to a simple operation and we suggest that drivers should **change down** as soon as the speed drops to 3 or 4 miles below the speeds at which we recommend the **change up** should be made. See table on page 17.

Fig. 3
Identification of the Driving Controls

A simplified illustration of the actual driving controls. The detailed recommendations give the correct sequence of operation of each separate control.



THE LANCHESTER TEN

Driving Away

The engine will be running and the controls in the neutral position with the parking brake "ON."

1. Move the selector lever to the 1st gear position.
2. Depress and release the gear change pedal.

NOTE.—The pedal should be depressed and released in two positive movements. It is unnecessary for the pedal to be released by degrees as in the case of a normal clutch pedal.

3. Release the parking brake.
4. Accelerate.



Fig. 4
Operation of Controls
for Driving Away

Special Conditions.

1. **Car standing on down gradient.** No special action is necessary, but, of course, the car will begin to move forwards as soon as the parking brake is released. The start can be made in a higher gear.
2. **Car standing on up gradient.** To prevent the car rolling backwards, press the accelerator slightly before releasing the parking brake. The start should be made in first gear.

Changing up

1. Move the selector lever to the next higher gear.
2. Release the accelerator and depress the gear pedal. Hold the gear pedal right down until the engine "revs" have decreased. See note below.
3. Release the gear pedal.
4. Accelerate.



Fig. 5
Operation of Controls
for Changing Up

NOTE.—Providing the gear pedal is held down for the correct length of time, a perfectly smooth change will be effected. This can easily be ascertained by trial and error. Too short or too long a pause will not effect the actual engagement of the gear selected, but will reduce the smoothness with which the change is made.

At low speeds, the pause is very slight, but should be made longer the nearer the approach to the maximum speed in each gear.

For the guidance of the owner, the following information relates to speeds in the intermediate gears.

1. Speeds at which changes should be made for maximum economy when maximum acceleration is not required.

1st to 2nd gear	...	...	...	...	5 miles per hour.
2nd to 3rd gear	...	...	...	...	15 " "
3rd to Top gear	...	...	...	...	25 " "

2. Maximum speeds at which changes should be made for best acceleration :

1st to 2nd gear	...	...	...	...	10 miles per hour
2nd to 3rd gear	...	...	...	...	22 " "
3rd to Top gear	...	...	...	...	35 " "

3. Maximum speeds which should not be exceeded under any consideration :

1st gear	...	...	...	...	12 miles per Hour
2nd gear	...	...	...	...	25 " "
3rd gear	...	...	...	...	40 " "

Changing Down

(a) When climbing a hill.

When the speed falls below the figures in the table on page 17 change down at once, thus:

1. Select the next lower gear.
2. Depress and release the gear pedal quickly.

NOTE.—Hold the accelerator pedal down in the same position, as the throttle will already be well open. This ensures a perfectly smooth change.



Fig. 6

Operation of Controls
for Changing Down (a)

(b) On level going.

If traffic or other checks have reduced speed below the figures indicated in the table on page 17, then change down in the following manner:

1. Select the next lower gear.
2. Depress the gear pedal and hold down.
3. Increase the engine "revs" by quickly opening and closing the accelerator.
4. Release gear pedal.
5. Accelerate.



Fig. 7

Operation of Controls
for Changing Down (b)

NOTE.—It may well be that the enforced reduction in speed has brought the car almost to a standstill. In this event, it is permissible to change straight from top gear to second gear or even first gear, should you wish for maximum acceleration after the check.

GENERAL INFORMATION

(c) Descending steep hills.

When descending very steep hills, it may be desired to use the braking effect of the engine on the overrun by changing into a lower gear. The recommended method of making this change down is the same as for changing down on level going.

NOTE.—It is important to rev. up the engine before letting the gear pedal back.

Reversing.

To select reverse gear push the selector lever downwards to clear the reverse safety stop and then move the lever into the reverse position.

Engage reverse by depressing and releasing the gear pedal.

NOTE.—The car should be at rest when changing from forward gear into reverse or vice versa, but it is not necessary to engage to neutral in the course of the changeover.

Special Information on unusual Conditions.

If the gear pedal is operated at the same time as the selector lever is being moved or the gear pedal is not fully depressed before release, a false neutral may be obtained and the pedal will stay well down and no gear be engaged. Be sure the selector lever is correctly positioned and then depress and release the pedal again, when the required gear will engage.

Another effect of incorrect use of these two controls is that the pedal may come well back much further and stronger than normal. Again, make sure the selector lever is correctly positioned and depress and release the pedal. This time the pedal may take considerable effort to depress it, but will return to normal at once if this procedure is carried out. It is emphasized that these happenings come about as a result of either indefinite selection or inadequate operation of the pedal or a combination of the two mistakes.

THE LANCHESTER TEN

Part 5

SPECIFICATION

General.

1. Dimensions.

Wheelbase	8 ft. 3 ins.
Track	4 ft.
Length overall	13ft. 2½ ins.
Width overall	4 ft. 10 ins.
Height (unladen)	5 ft. 2½ ins.
Ground clearance	6 ins.

2. Weight.

Chassis	12 cwt.
Six-light Saloon DRY	1 Ton 2 cwt.
Ready for Road	1 Ton 3 cwt.

The Engine Unit.

1. The Engine.

Horse-power (R.A.C. rating)	10
Number of cylinders	4
Bore	2.5" (63.5 m/m.)
Stroke	4 in. (101.6 m/m.)
Cubic capacity	1287 c.c.'s.
Compression ratio	7.4 : 1.
Firing order	1, 3, 4, 2.
Max. B.H.P.	40 at 4,200 R.P.M.
.. Torque	60 lbs. ft. at 2,000 R.P.M.

2. The Carburettor.

Type	Zenith "V" Type Model 30 VIG—2.
Throttle Diameter	30 m/m.
Choke Tube	23 m/m.
Main Jet	70 m/m.
Compensating Jet	77 m/m.
Slow Running Jet	50 m/m.
Pump Jet	50 m/m.
Needle Seating	1.5 m/m.

3. Fuel Supply.

(a) Pump —Type	A.C. Mechanical "T" with handpriming lever.
Drive	Eccentric on camshaft
(b) Petrol Tank —position	Rear.
Capacity	8 gallons (1¼ Reserve)

4. Lubrication.

Type	Gear Type Pump
Sump capacity	8 Pints
Pressure	60 lbs. per square inch.
Filter	Tecalemit full pressure

GENERAL INFORMATION

- 5. Cooling System.**
 - Type Centrifugal Pump and Fan
 - Temperature control Thermostat
 - Water capacity 2 gallons
 - Running temperature 170° F. to 190° F.

- 6. Ignition.**
 - Type Lucas 12 volt.
 - (a) Coil-Type L.O. Model B.12
 - (b) Distributor-Type B.S. 36, Model D.V.X. 4A. with automatic advance centrifugal and suction operated.
 - Drive Skew gear from camshaft.
 - Contact-breaker setting012 in. (with points fully open).
 - (c) Sparking Plugs-Type C.B. 14 Lodge 14 m/m. thread 3 point.
 - Gap setting030 in.

The Transmission.

- 1. Fluid Flywheel.**
 - Type Open circuit (Licensed under Vulcan,
 - Oil capacity 5½ Pints. Sinclair & Daimler Patents)

- 2. Gearbox.**
 - Type Daimler Epicyclic pre-selective.
 - Oil capacity 4 pints.
 - Gear ratios Top gear 1.00 : 1 2nd gear 2.33 : 1
3rd gear 1.51 : 1 1st gear 4.28 : 1
Reverse gear 6.23 : 1.

- 3. Propeller Shaft.**
 - Type Hardy Spicer open shaft with needle roller universal joints.

- 4. Rear Axle.**
 - Type Semi-floating Spiral Bevel.
 - Oil capacity 3 pints
 - Reduction ratio 5 : 1 (8/40).

- 5. Overall Gear Ratios.**
 - Top gear 5.00 : 1
 - 3rd gear 7.55 : 1
 - 2nd gear 11.65 : 1
 - 1st gear 21.40 : 1
 - Reverse 31.15 : 1

Suspension

- 1. Front.**
 - Type Daimler Independent by coil springs and links.

- 2. Rear.**
 - Type Semi-elliptic leaf springs.

- 3. Shock Absorbers.**
 - Type P.5. Luvax piston type Hydraulic.

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Steering

1. Steering Box.

Type	Bishop Cam and Gear.
Ratio	12 : 1.

2. Steering Wheel.

Type	17 in. Diameter Spring Spoke
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3. Turning Circle.

Right lock	35 feet.
Left lock	35 feet.

Brakes.

1. Foot brake.

Type	Girling Mechanical
Drums	...	...	...	...	9 in. diameter.
Linings	Mintex N.M.T.

2. Hand Brake.

Type	Pistol-grip operating on rear wheels.
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Wheels and Tyres.

1. Wheels.

Type	Disc.
Size	16 in. x 4 in.

2. Tyres.

Type	Dunlop low-pressure.
Size	...	...	...	...	5.25 in. x 16.00 in.
Pressures	...	...	...	...	26 lbs. per sq. inch front
					28 lbs. „ „ „ rear

Electrical Equipment.

Type	Lucas 12 volt.
------	-----	-----	-----	-----	----------------

1. Lighting.

(a) Lamps.

Headlamps	...	...	...	...	M.B.D. 143.
Sidelamps	...	...	...	...	L.D. 109A/5.
Pass light	...	...	...	...	F.T. 600.
Rear light	}	...	...	...	Illuminated Panel
Brake light						Model 288—3 Type L.31.

(b) Bulbs.

Headlamps	...	...	...	No. 54	12 volt	36 watt	Single Pole
Sidelamps	...	...	...	No. 207	„	6	„ „
Pass light	...	...	...	No. 162	„	36	„ „
Rear light	...	...	...	No. 207	„	6	Prefocus Cap Single Pole
Brake light	...	...	...	No. 207	„	6	„ „
Reversing light	...	...	...	No. 1	„	24	„ „
Rear number plate panel	...	...	...	No. 207	„	6	„ „

GENERAL INFORMATION

- 2. Starting.**
 Type L.O. Model M. 35 G.
 Operation Manual. Pull to operate.
- 3. Charging.**
 Type L.I. Voltage Controlled Dynamo
 Model C.45. YV.3.
 Drive Single V. Section Belt.
 Regulator R.F. 91. Type L.24.
- 4. Storage.**
 Battery Lucas S.T. X. W. 9A.
 Capacity 58 ampere hours at 20 hours.
 Dimensions $13\frac{1}{4}$ " long \times $6\frac{7}{8}$ " wide \times $9\frac{1}{4}$ " high.
- 5. Accessories.**
- (a) **Trafficators.**
 Type Lucas S.F. 40J./329
 Bulbs Lucas No. 256. 3 watt.
- (b) **Horns.**
 Type Lucas Windtone
 W.T. 29 H.N. W.T. 29 L.N.
- (c) **Windscreen Wiper.**
 Type Lucas No. 735510.
- (d) **Warning Lights (Ignition and Oil).**
 Bulbs No. C.252A. (M.E.S. Cap).
- (e) **Instrument Panel Light.**
 Bulbs Lucas No. 207 12 volt, 6 watt.
- (f) **Interior Lights.**
 Bulbs Lucas No. 207 12 volt 6 watt.
- (g) **Speedometer.**
 Type A.C No. 869729.
- (h) **Clock.**
 Type A.C. No. 869730.
- (i) **Petrol Gauge.**
 Type A.C. No. 1519784.
- (j) **Temperature Gauge.**
 Type A.C. No. 1509557.
- Chassis Frame.**
 Type Box Section underslung at rear,
 cruciform braced.
- Jacking System.**
 Type Mechanical.

THE LANCHESTER TEN

Tools

LIST OF TOOLS

Ref. No.	Part No.	Description	No. per Set
1	264185	Hub Cap Spanner	1
2		Double Ended Spanner $\frac{1}{8}$ " - $\frac{3}{16}$ "	1
3		" " " $\frac{1}{4}$ " - $\frac{5}{16}$ "	1
4		" " " $\frac{3}{8}$ " - $\frac{7}{16}$ "	1
5		" " " $\frac{1}{2}$ " - $\frac{9}{16}$ "	1
6		Adjustable Spanner	1
7	950066	Tommy Bar for Box Spanner M.T.36-8	1
8	950049	Box Spanner for Sparking Plug M.T. 33-6	1
9	950046	Box Spanner M.T. 33-3	1
10	35-7594	" "	1
11	950174	Tyre Lever	2
12	298946	Grease Gun	1
13	414774	Adaptor Nozzle	1
14	404595	Oil Can	1
15	299531	Wheel Brace	1
16	131355	Bevelift Jack	1
17		Screwdriver	1
18		Tyre Pressure Gauge	1
19	404025	Valve Split Cone (2 halves)	1
20	902575	Bolt for Valve Spring Compressor	2
21	951516	Valve Spring Compressor (M.T. 73	1
22	412184	Valve Spring	1
23		Pliers	1
24	276412	Screw Driver and Feeler for Igniter	1
25	405143	Wheel Nuts	2
26	401058	Tappet Gauge	1
27		Tyre Pump	1

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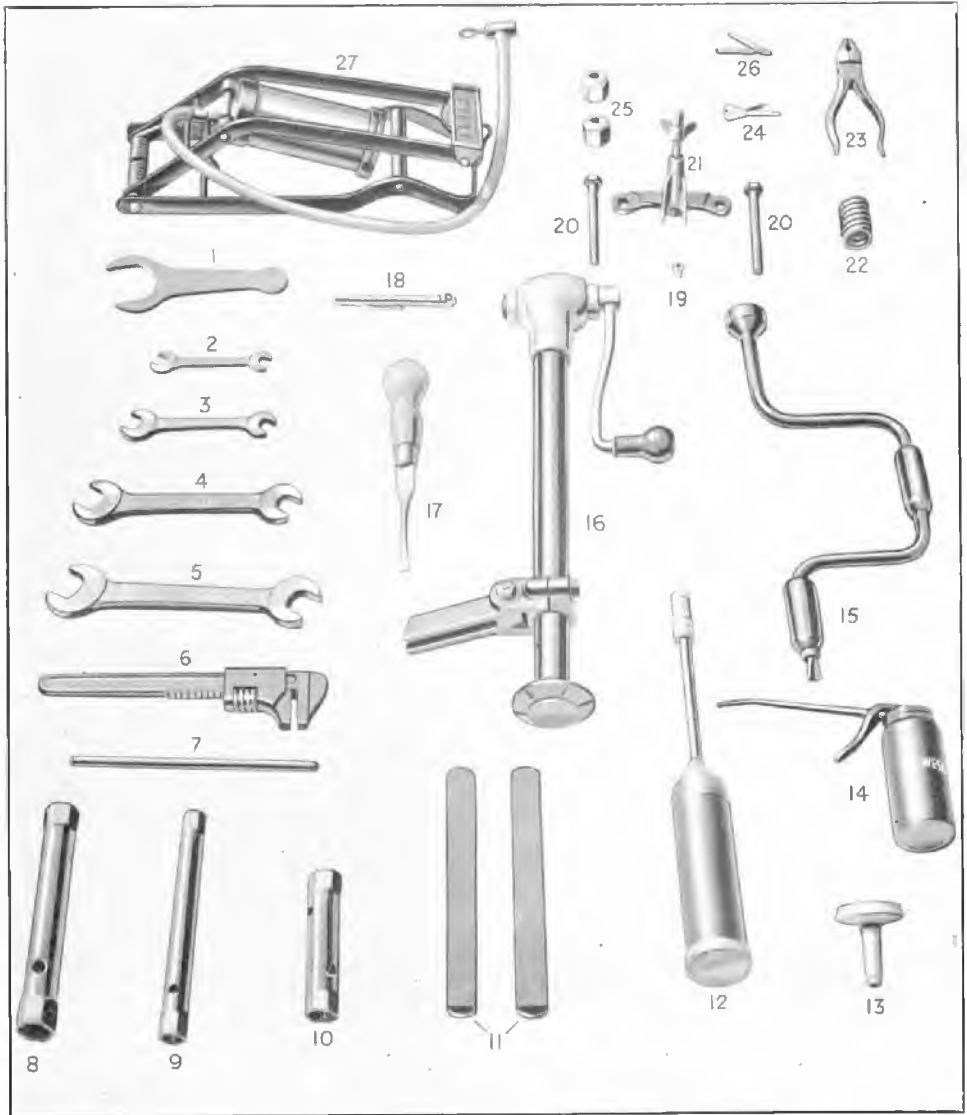


Fig. 8
The Tools

Chapter II

THE POWER UNIT

Part 1. ...	The Engine	Page 29
Part 2. ...	Carburettor and Air Silencer	32
Part 3. ...	Fuel Supply	...	...	...	„ 36
Part 4. ...	Lubrication	...	...	...	38
Part 5. ...	Cooling	...	...	...	„ 42
Part 6. ...	Ignition	...	...	...	„ 45

The maintenance and adjustment of each component is dealt with under its own heading.

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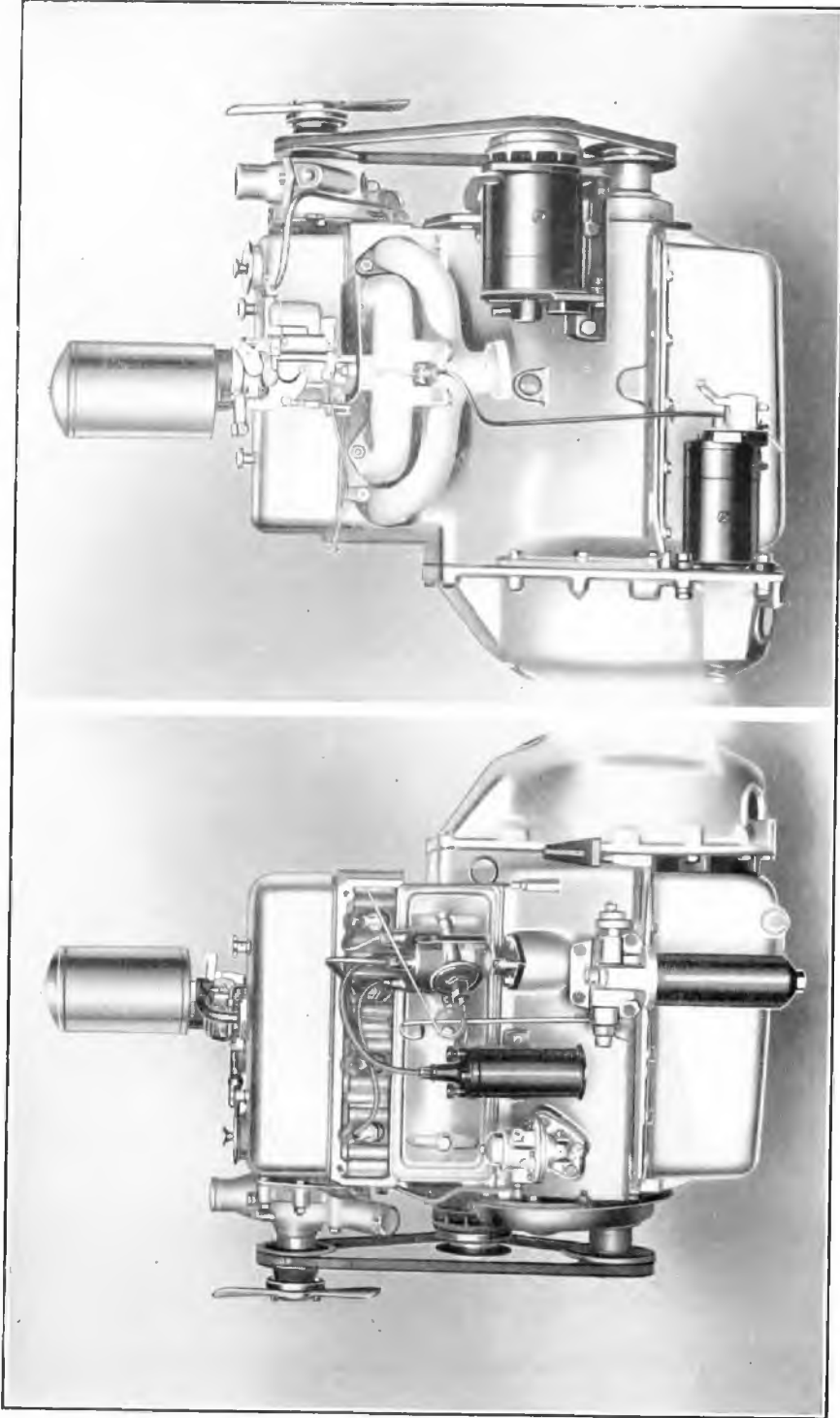


Fig. 9
The Engine Unit

THE POWER UNIT

Part 1

THE ENGINE

General Description

The engine has 4 cylinders and overhead valves operated by push rods. Its R.A.C. rated horse power is 10, but at 4,200 revolutions per minute it develops approximately 40 brake horse power.

A statically and dynamically balanced crankshaft runs in three large main bearings.

The aluminium alloy pistons are slotted enabling them to be fitted with very fine clearances. This virtually eliminates all piston noise.

Overhead valves and a cylinder head and camshaft of special design provide high performance without any sacrifice of smoothness.

Maintenance.

This is dealt with in Parts 2 to 7 of this Chapter.

Tappets. Check and adjust clearances after the first 500 miles, and then every 6,000 miles.

1. The engine must be at normal running temperature (170°F.).
2. Open bonnet.
3. Remove the air silencer. To do this slacken the clip where the air intake elbow is fastened to the carburettor, and the two setscrews securing the air cleaner to the valve cover.
4. Remove the valve cover by undoing the two knurled nuts and lift off.
5. Turn the engine with the starting handle until No. 8 valve (**NOTE No. 8 valve is the one nearest the scuttle**) is fully open, i.e., the spring is fully compressed. No. 1 valve will now be closed and in the correct position for checking the clearances.
6. Insert a .012" feeler gauge which should just slide between the end of the rocker arm and the valve.
7. If the setting requires adjustment loosen the locknut on the screw at the other end of the rocker arm and tighten or slacken the screw until the correct clearance is obtained. Hold the screw with a screwdriver to prevent it moving and tighten the lock nut.
8. After tightening, check the clearance again in order to make sure that tightening the lock nut has not altered the setting.
9. Adjust the tappets in the following order:—

With No. 8 valve fully open adjust No. 1.
" 7 " " " " No. 2.
" 6 " " " " No. 3.
" 5 " " " " No. 4.
" 4 " " " " No. 5.
" 3 " " " " No. 6.
" 2 " " " " No. 7.
" 1 " " " " No. 8.
10. When the valve cover is replaced tighten the two knurled nuts.
11. Replace the air silencer.

THE LANCHESTER TEN

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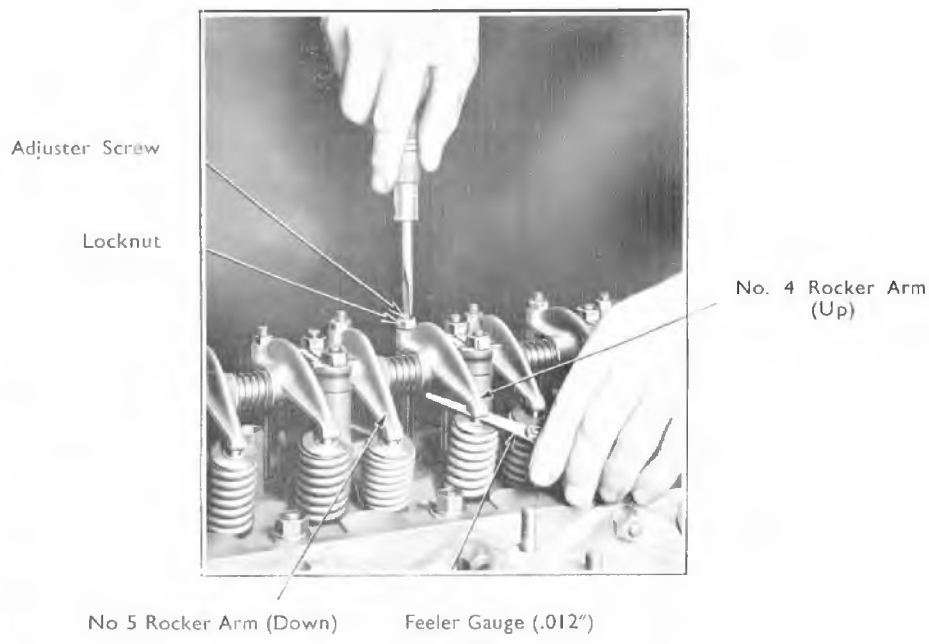


Fig. 10
Adjusting Valve Clearance

Special Information

Valve Timing.

To check the valve timing without first removing the chain cover, proceed as follows :—

1. Remove the valve cover and set tappets to the correct clearance.
2. Remove flywheel inspection cover and turn engine until the flywheel is at the T.D.C. position and firing on No. 1 cylinder (See Fig. 11).
3. Now check that the valves of No. 4 cylinder are both slightly open. This can be done by endeavouring to rotate the push rods. Both push rods should be slightly "up" or in the "open" position, indicating that the valves are open. If it is possible to rotate either of the push rods it will indicate that the particular valve is in the fully closed position and the valve timing is out by one or more teeth.



Fig. 11
Valve Timing Mark

THE POWER UNIT

If the valve timing has been disturbed for any reason, the correct method of re-setting is as follows :—

Turn the crankshaft until the T.D.C. mark on the flywheel is at the top and opposite the peg in the flywheel casing Fig. 11. Now turn the camshaft until a suitable tommy bar can be inserted in the hole in the camshaft chainwheel, so that it locates with the hole in the crankcase. Fig. 12. Replace the camshaft chain and connecting link.

NOTE :—The chain link spring clip must be fitted with the rounded end facing the direction of rotation of the chain. When replacing the chain cover, tighten all setscrews lightly, then check that the crankshaft pulley will rotate without touching the cover. Centralize by lightly tapping cover until a clearance of .004 is obtained. Check this with feeler gauges and then, finally, tighten all setscrews.

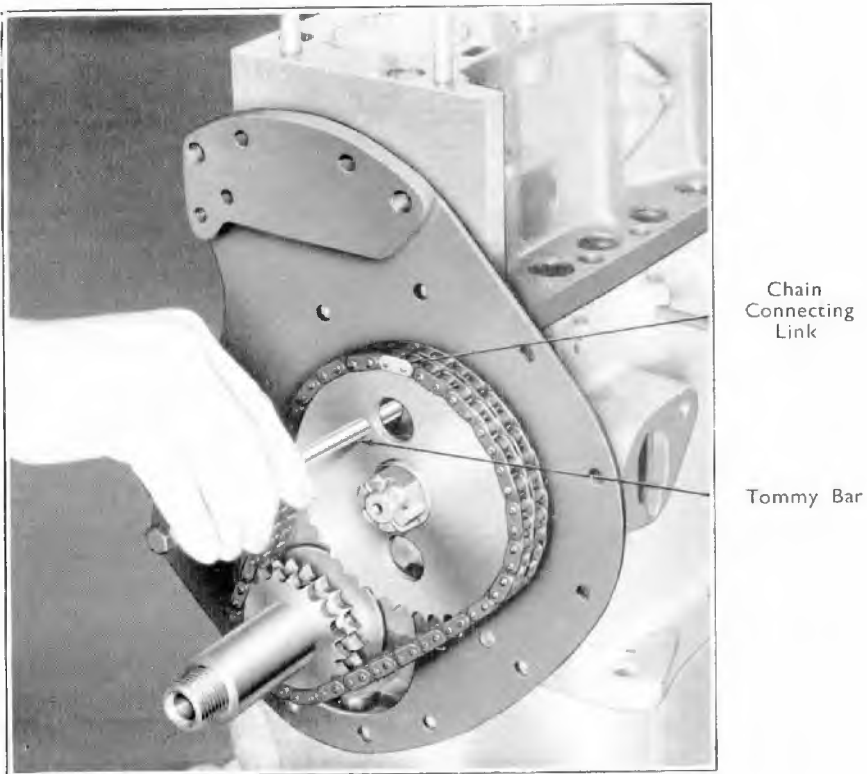


Fig. 12
Setting Valve Timing

THE LANCHESTER TEN

Part 2 CARBURETTOR

General Description

The standard setting fitted in the carburettor is as follows :—

- 23 Choke Tube.
- 70 Main Jet.
- 77 Compensating Jet.
- 50 Slow Running Jet.
- 50 Pump Jet.
- 1.5 Needle Seating.

The carburettor is a downdraft design of the Zenith " V " type, model 30 VIG—2, or 30 VIG—3, embodying the well known principle of main and compensating jets with the addition of depression operated economy device to lean out the part throttle mixture, and mechanically operated accelerating pump.

Petrol enters through the inlet union, the filter gauze and the needle seating into the float chamber. As the float chamber and passages fill with petrol the float rises and closes the needle in its seating, thus regulating the flow of petrol and maintaining the correct fuel level. The petrol level is not adjustable.

The float chamber, held in position by two square headed screws, contains the main jet, the compensating jet, slow running jet, also the pump piston and the inlet and outlet valves for the accelerating pump. The main and compensating jets are the two screwing in the base of the float chamber beneath the float, the smaller in external diameter being the main jet, the larger the compensating jet, whilst the slow running jet screws in the top face of the float chamber and has a screw-driver slot.

The petrol flows through the main and compensating jets and also rises in the capacity well and in the pump cylinder. From the jets it flows along two separate channels into a common channel in the emulsion block attached to the side of the float chamber by five screws.

Air bleeding to the jets is by way of the capacity well, the extent of the bleeding depending on the position of the diaphragm in the economy device.

Economy Device.

When the manifold depression is high, i.e., at cruising speeds at small throttle opening a leaner mixture can be employed and this is the principle governing the economy device as incorporated in these carburettors.

The mixture strength is controlled by varying the degree of air bleeding to the jets via the capacity well.

When the depression is high it will lift the diaphragm against the spring which normally holds same on its seating, thus uncovering the main air bleed hole to the capacity well, and provide the weaker part throttle cruising mixture.

When depression in the manifold is low at wide throttle openings, the diaphragm spring will return the diaphragm on the seating thus closing the main air bleed to the well, enriching the mixture to the ratio required for maximum power.

THE POWER UNIT

The Accelerating Pump

The object of this pump is to ensure clean and rapid acceleration from small throttle openings when the mixture is as lean as possible, as provided in this type of carburettor with the economy device.

The accelerating pump is interconnected with the throttle lever and as the throttle is opened the pump rod forces down the piston against the action of a spring, consequently, petrol in the pump cylinder is forced out through the drilling in the base of the cylinder.

The petrol cannot return to the float chamber, as the non-return inlet valve closes and the outlet is through the ball valve to the pump jet at the back of the beak of the emulsion block. The petrol is forced through the pump jet and is ejected from the emulsion block beak in a fine spray to the barrel of the carburettor. The result is instant engine response to the depression of the accelerator pedal.

Starting.

The carburettor is provided with an interconnected automatic air strangler to facilitate cold starting. The strangler flap in the intake should be closed completely when starting from cold, which automatically opens the throttle a pre-determined amount beyond the normal slow running position. When the engine fires, the spring blade in the strangler flap will open, to the extent as imposed by the stop pin, to provide a volume of air to weaken the initial starting mixture, but at the same time the strangler control should be released gradually to the full open position, as the engine attains temperature.

Maintenance

Every 6,000 Miles.

The jet sizes were determined after lengthy bench and road tests and selected to give the most satisfactory operation of the entire range of engine speeds and nothing is to be gained by interfering with or altering these.

The only factor likely to affect adversely the operation of the carburettor is the presence of dirt or water in the float chamber or jets, and the float chamber should be removed to empty any sediment. Having removed the float chamber by undoing the square headed set screws, the main and compensating jets can be taken out by using the set screw having the squared end, which fits the square recess in the main and compensating jets. When removing the float chamber take great care not to break the beak.

To clean the jets, wash them in petrol and blow through them, which will remove any obstruction. Never use a pin or piece of wire for cleaning the jets, as this is liable to increase the size of the accurately calibrated orifice and upset the operation of the carburettor.

Remove the pump piston by unscrewing the small retaining screw, wiping the outside of the piston with a piece of clean rag and rinsing out the pump cylinder to ensure free operation of the piston. Unscrew both the disc and ball valves in the pump circuit, rinsing these in clean petrol to ensure the disc closes and the ball valve is free.

Lubricate control rod joints with oil can (see Fig. 13 Page 35).

THE LANCHESTER TEN

Adjustment

The only adjustment provided is for the setting of the slow running.

Two different carburettors may be fitted to this car, known as the Zenith 30 VIG-2 and the 30 VIG-3.

The type is stamped on the flange of the carburettor immediately above the shield towards the rear.

30 VIG-2. The adjustment screw is located at the top of the carburettor to the rear beneath the choke control wire bracket. This controls the volume of **air** that is admitted for slow running.

When the engine is warm turn the throttle stop adjusting screw so that the engine will run at a reasonable idling speed. The air volume screw should then be turned in or out until the engine runs evenly at the speed determined by the throttle opening. Turning the air volume screw clockwise richens the idling mixture, and anti-clockwise will weaken it.

30 VIG-3. The adjustment screw is located at the bottom of the carburettor adjacent to the flange and away from the engine. The screw controls the volume of a predetermined petrol-air mixture that is admitted for slow running.

When the engine is warm turn the throttle stop adjusting screw so that the engine will run at a reasonable idling speed. The volume screw should be turned in or out until the engine runs evenly at the speed determined by the throttle opening. Turning the screw clockwise will weaken the idling mixture and anti-clockwise will enrich it.

NOTE. It will be seen from the above that the only practical difference between the two carburettors is in the location of the adjuster screws and the direction of rotation of the screws to weaken or enrich the mixture for idling.

The slow running is set correctly when the engine will run **evenly** with top gear engaged and the **hand brake on**.

THE POWER UNIT

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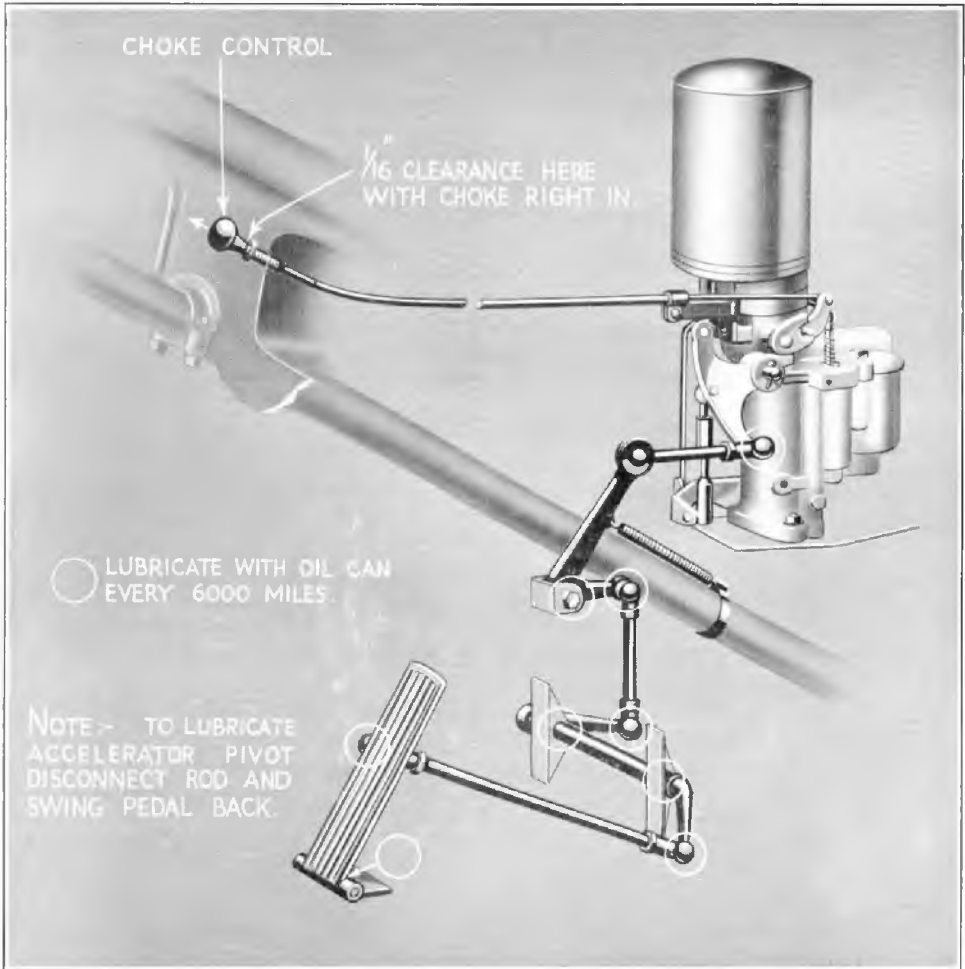


Fig. 13
Carburettor Control Rods

THE LANCHESTER TEN

Part 3 FUEL SUPPLY

General Description

Petrol is pumped into the carburettor from the 8 gallon tank which is at the rear of the car by an A.C. mechanical pump. This pump is operated by an eccentric on the camshaft.

Maintenance

1. **Every 6,000 miles**, remove the top of the A.C. pump (see Fig. 14) lift off the gauze filter and wash in clean petrol.
2. If there is any sediment in the bottom of the pump body, wash out with petrol.
3. If the cork washer is damaged in any way it is advisable to renew this. When refitting, tighten down firmly but do not use excessive force.
4. Check that the unions of the pipes from the petrol tank to pump and from the pump to the carburettor are tight, but be careful not to use excessive force.



Fig. 14

Petrol Pump with top removed and Filter exposed

THE POWER UNIT

Adjustment

There is no adjustment required to this component.

Special Information

1. To check the operation of the pump, disconnect from the pump the pipe which leads to the carburettor and work the hand-priming lever. (See Fig. 15 below.)
2. If there is petrol in the tank, each stroke of the hand-priming lever should deliver about an eggcup full of petrol.
3. An air leak at any point between the pump and the petrol tank will seriously reduce the amount of petrol which the pump can supply to the carburettor. Check that all unions are tight on the pump, the reserve tap, and the tank.
4. To remove air locks or dirt from the petrol pipes, blow through them with the tyre pump.
5. Make sure that the screw which holds down the dome top of the pump and the screws which fasten the two halves of the pump together, are not loose. These should be screwed down firmly but without using excessive force.



Fig. 15

Petrol Pump Hand Primer Lever.

THE LANCHESTER TEN

Part 4

LUBRICATION SYSTEM

General Description

The lubrication is of the wet sump fully forced feed type. The oil pump, driven from a gear on the camshaft, pumps the oil from the sump through a large capacity filter and then to the engine bearings. Should the pressure fall below 10 lbs. per square inch a green warning light on the instrument panel will be illuminated. This should be investigated immediately. When the engine is running very slowly the green light may flicker. This can be disregarded.

Maintenance

1. **To check the oil level.**

The dipstick is located on the left hand side of the engine. (See Fig. 16). This should be removed and wiped and then replaced and removed again to obtain a reading of the oil level. Do not allow the level to fall below the three-quarters full mark.

If it is necessary to top up the oil, remove the filler cap on top of the valve cover and pour in the required amount of oil.



Fig. 16

Engine Oil Filler and Dipstick

THE POWER UNIT

2. To change the oil.

The oil in the engine should be changed after the **first 500 miles**, and subsequently **every 3,000 miles**.

- (a) It greatly facilitates the draining of the sump if the engine is warm when the operation is carried out.
- (b) The drain plug is located on the left hand side of the engine sump, towards the rear. Place a container (which should be large enough to hold approximately 1 gallon) underneath and remove the plug. (See Fig. 18 over page.)
- (c) Whilst the sump is draining into the container, unscrew the nut on top of the oil filter (See Fig. 17), and remove the element. Wash the element in clean petrol. A new element should be fitted every 20,000 miles.

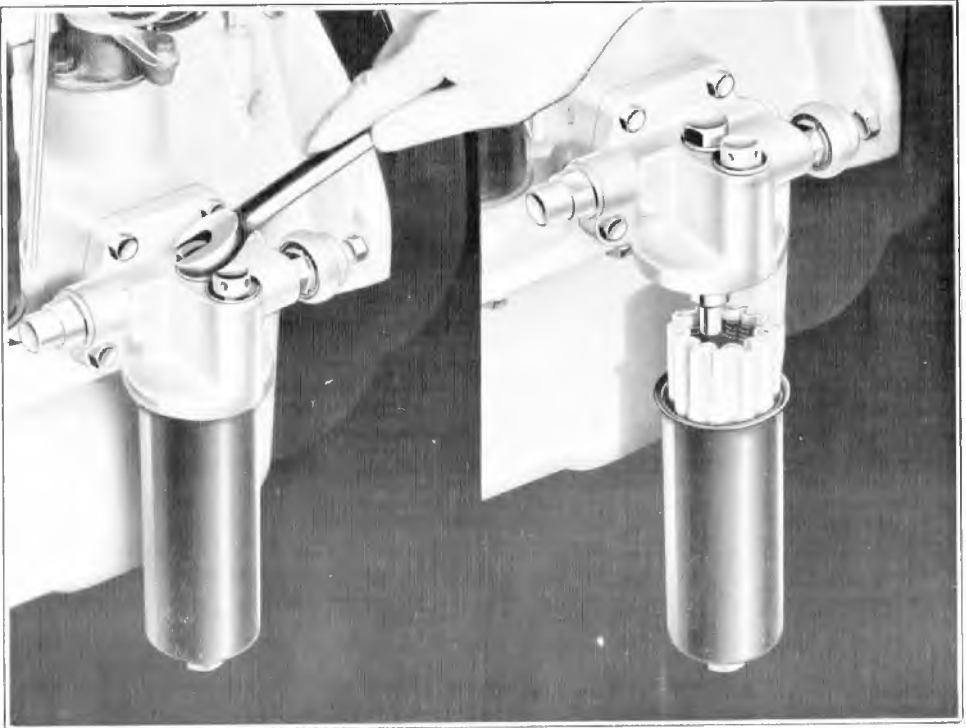


Fig. 17

Removal of Engine Oil Filter Body

- (d) Replace the filter element and cover making sure that the cork washer is in position and undamaged.
- (e) Replace the sump drain plug and tighten up. Fill up with fresh oil (8 pints).
- (f) Recommended oil, Daimler Solvent Process Engine Oil.

Adjustment

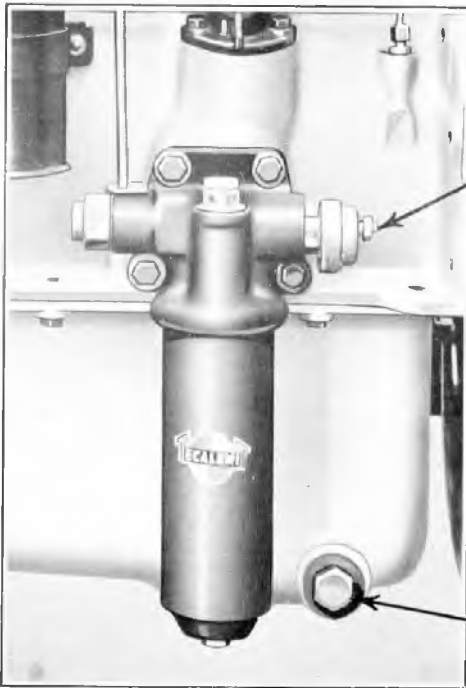
No adjustment is required.

THE LANCHESTER TEN

Special Information

Oil Warning Light. If this lights up whilst the car is being driven normally, the following is the procedure to adopt :—

1. Check the level of the oil in the sump and replenish if it is low.
2. A fault in either the oil light switch (See Fig. 18) or the wiring may affect the operation of the warning light. To test, check circuit and/or fit another switch.
3. Low pressure may be due to the relief valve sticking, but this is unlikely. See Pressure Relief Valve.
4. The pressure should be 60 lb. per square inch and can be checked by removing the oil light switch, and by means of a suitable adaptor, attaching a pressure gauge to this point. If the bearings are worn, the pressure will naturally be lower than 60 lb.



Oil Warning Light Switch

Fig. 18

Location of Oil Light Switch and
Drain Plug

Engine Sump Drain Plug

THE POWER UNIT

Pressure Relief Valve. This is located on top of the filter body (see Fig. 19). It is not adjustable and the only attention that can be given is to remove it, clean thoroughly and replace.

It is necessary to undo the cap at each end, as shown in the illustration below, removing the valve from the rear and the spring from the front.

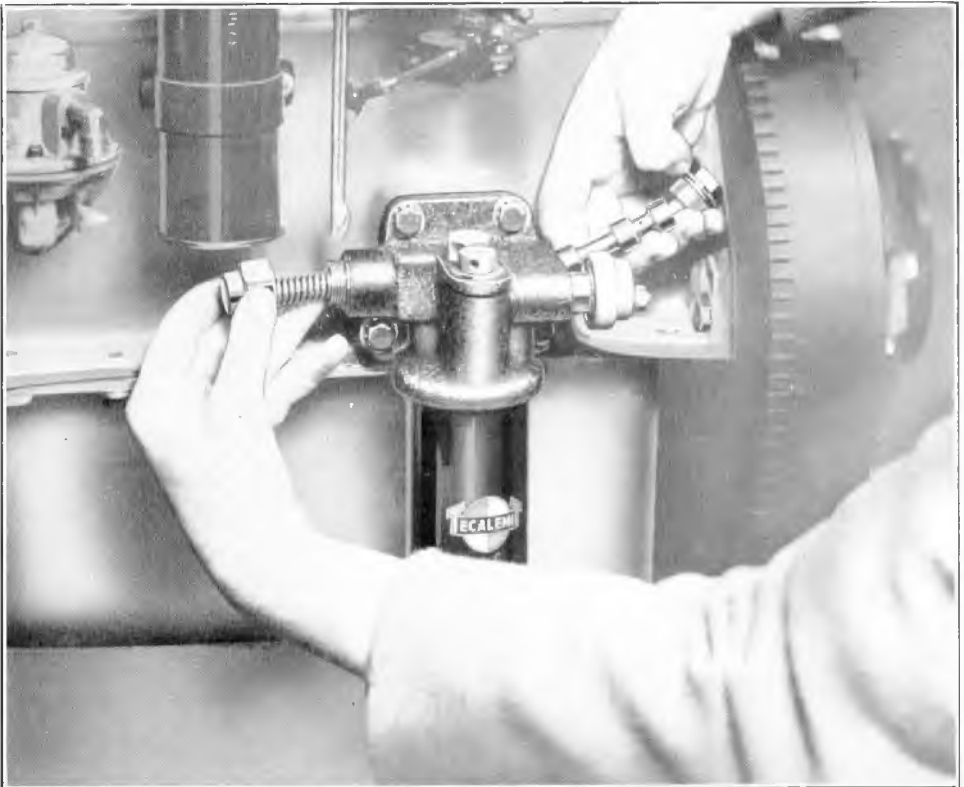


Fig. 19

Removing Oil Pressure Relief Valve

THE LANCHESTER TEN

Part 5

COOLING SYSTEM

General Description

The cooling water is circulated through the radiator and the engine by a pump mounted on the front of the cylinder head. This pump is driven by a single V-section belt from the crankshaft pulley. A thermostat is incorporated in the system. When the engine is cold the thermostat is closed and restricted circulation takes place around the engine only and not through the radiator. This enables the engine to warm up rapidly to its proper working temperature at which point the thermostat opens and permits normal circulation through the radiator. In addition to the water cooling, a fan is fitted.

Normal running temperature is 170° F. to 190° F. and any persistent variation should be investigated.

Maintenance

There is one grease nipple on the water pump. This should be greased with Daimler R.B. Grease **every 3,000 miles**. Continue to pump in grease until an excess is seen to exude from the small hole on top of the pump. (See Fig. 20 and also Fig. 54 No. 6).

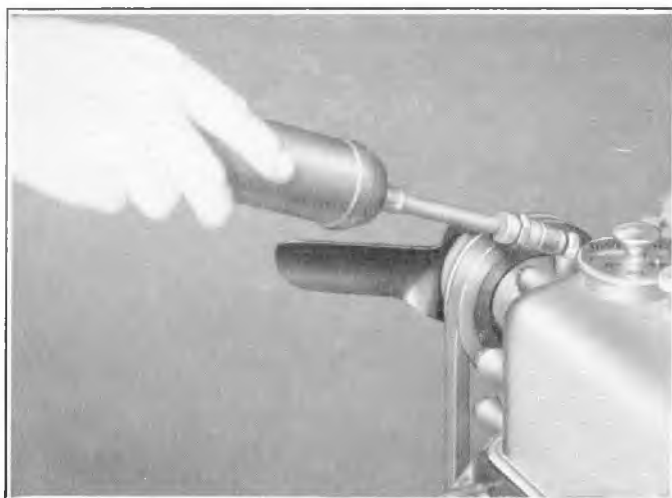


Fig. 20
Greasing Water Pump

THE POWER UNIT

Adjustment
None.

Special Information

Frost Precautions. The use of Smith's Bluecol Antifreeze Mixture is strongly recommended in winter time. This obviates the need for draining and refilling. As sold, most antifreeze compounds will protect the engine up to about 15° F. of frost, if it is anticipated that lower temperatures may be experienced when the car has to be left out all night, it is of course necessary to increase the strength of the mixture by using a greater quantity of compound in proportion to water. Remember that topping up weakens the mixture so, over a long period, it will be necessary to add compound to retain protective strength.

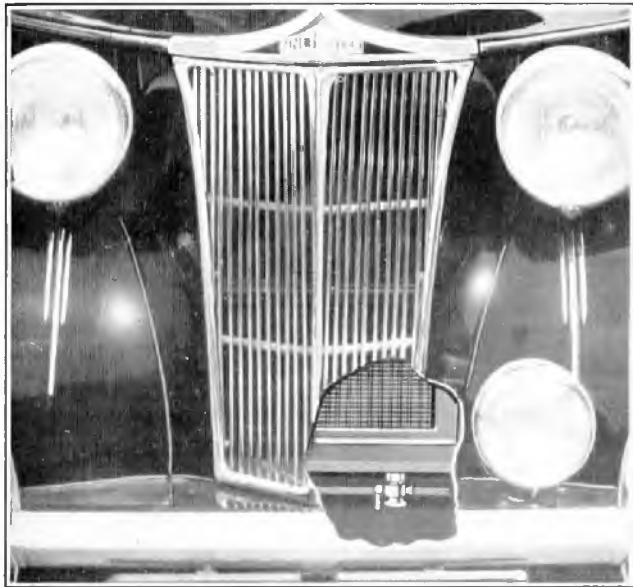


Fig. 21
Location of Radiator Drain Tap

Draining Instructions. To drain the water from the cooling system, it is necessary to open two taps.

1. Open the drain tap for the radiator—this is placed at the bottom of the radiator towards the near side. It is best reached from in front of the car, beneath the radiator grill.
2. Open the cylinder drain tap which is just behind the petrol pump.
3. Open the radiator cap to speed up the draining.
4. When completely drained, close both taps. If these are left open, small drops of water will cause them to freeze up with resultant trouble when re-filling.

THE LANCHESTER TEN

Maintenance of Correct Running Temperature in cold weather. In very cold weather it may be found that the engine does not reach its correct running temperature of 170°—190°F. This is undesirable and the use of a radiator muff, by means of which part of the radiator can be blanked off, is strongly recommended.

Alternatively, part of the radiator can be blanked off by a suitably shaped piece of sheet metal. The radiator muff, however, is probably more satisfactory, as it can more easily be removed.

Thermostat. By restricting the water circulation when the engine is cold, the thermostat makes possible rapid warming up. If it is suspected that the thermostat is not functioning correctly, its operation can be easily be checked.

Drain the radiator and then remove the top water hose and water pipe by undoing the flange bolts. The thermostat can now be lifted out.

Place it in a pan of cold water and heat on a stove. As the temperature of the water rises the thermostat should gradually open. To ensure that the valves close, observe while the water is allowed to cool down.

THE POWER UNIT

Part 6

IGNITION SYSTEM

General Description

A 12 volt coil ignition system is used. The distributor incorporates an automatic advance and retard mechanism with, in addition, a suction operated advance and retard device.

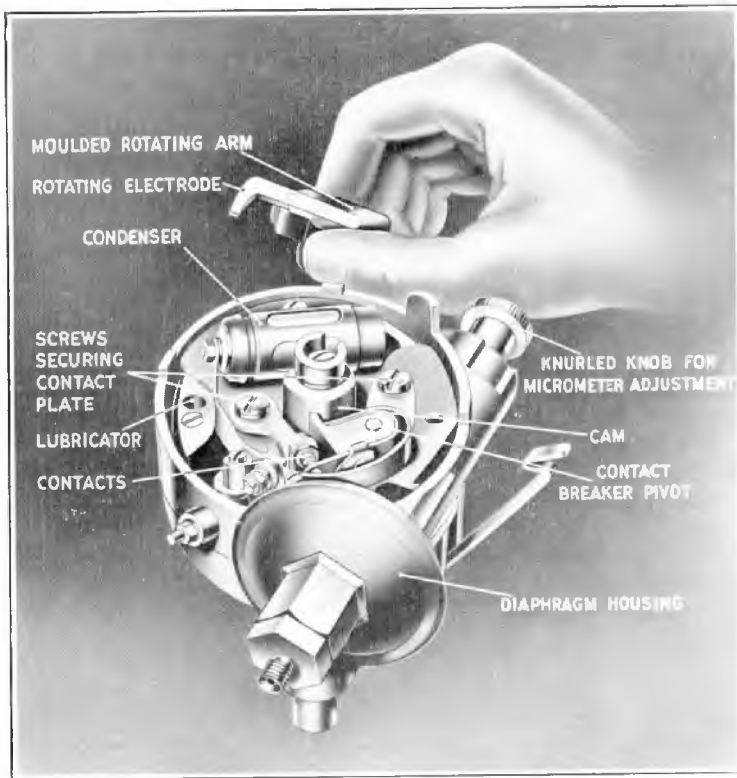


Fig. 22
Distributor Showing Maintenance

Maintenance

1. Cam and Contact Breaker Pivot.

Every 3,000 miles, give the cam and the pivot on which the contact breaker rocker arm works a light smear of grease or clean engine oil.

THE LANCHESTER TEN

2. Cam Bearing.

About every 3,000 miles, withdraw the moulded rotor from the top of the spindle by pulling it off, and add a few drops of thin machine oil. Do not remove the screw exposed to view, as there is a clearance between the screw and the inner face of the spindle through which the oil passes to lubricate the cam bearing. Take care to refit the arm correctly and to push it on to the shaft as far as possible, otherwise there is a risk of tracking and burning of the moulding.

3. Automatic Timing Control.

About every 3,000 miles, add a few drops of thin machine oil to the oil reservoir through the hole in the contact breaker base. Do not allow any oil to get on to the contacts.

4. Cleaning.

Keep the outside of the distributor clean, particularly the spaces between the high tension terminals. Very occasionally remove the moulding by springing aside its two securing spring clips and wipe the inside with a dry cloth. See that the carbon brush is quite free in its holder. Clean the metal electrodes inside the moulding and also the rotor electrode on the distributor arm, if necessary use a cloth moistened with a drop of petrol for this. Examine the contact breaker. Keep the contacts free from any grease or oil. If they are burned or blackened, clean them with fine carborundum stone, or if this is not available, use very fine emery cloth. Finish off with a cloth moistened with petrol, and remove all traces of dirt and metal dust. Misfiring is sometimes caused by dirty contacts.

5. Renewing the High-tension Cable.

The high-tension cables are those connecting the coil to the distributor and the distributor to the sparking plugs. When these cables show signs of perishing or cracking, they must be replaced by 7 m.m. rubber covered ignition cable. The method of connecting the cable is to remove the rubber only for about $\frac{1}{2}$ "., thread the wire through the brass washer provided and bend back the strands. Finally screw the nut into its terminal.

6. The Coil.

The coil requires no attention whatever beyond keeping its exterior clean, particularly between the terminals, and occasionally checking that terminal connections are quite tight.

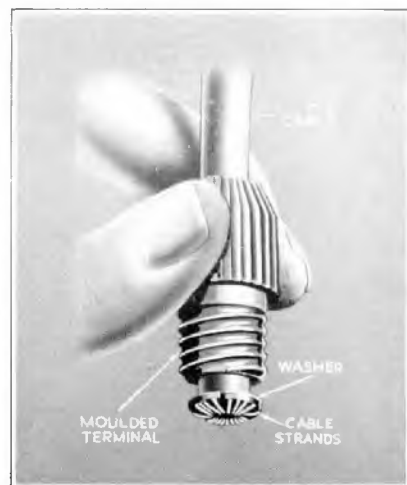


Fig. 23
High Tension Lead

THE POWER UNIT

7. Ignition Switch and Warning Light.

The ignition switch, besides forming a means of stopping the engine, is provided for the purpose of preventing the batteries being discharged by the current flowing through the coil windings when the engine is stopped. A warning lamp is provided in the instrument panel which gives a red light when the ignition is switched on and the vehicle is running very slowly or is stationary, thus reminding you to switch off.

Should the warning lamp bulb burn out, this will not in any way effect the ignition system, but it should be replaced as soon as possible in order to safeguard the battery.



Fig. 24

Distributor Cover Removed to show Rotor Arm location when No. 1 cylinder is firing

Adjustment

1. Cleaning and adjusting the contacts.

The chief cause of variation in the gap is wear of the heel of the contact rocker arm which bears upon the actuating cam. Provided the cam is smeared with grease however (see lubrication instructions), the wear on the heel will be negligible and the contact gap setting should only require adjustment at infrequent intervals.

To check the setting, turn the engine by hand until the contacts are fully open. Insert the gauge provided on the ignition screwdriver between the contacts, the gauge has a thickness of .012" and it should be a sliding fit between the contacts when the gap is correct. We do not advise altering the setting unless there is quite an appreciable variation from the gauge.

To make the adjustment keep the engine in the position to give maximum opening of the contacts and slacken the two screws securing the contact plate. Then move the plate until the gap is set to the thickness of the gauge.

After making the adjustment, care must be taken to tighten the locking screws.

2. Every 6,000 miles clean the plugs and reset the gaps to .030".

3. Ignition Timing.

To check and reset ignition timing. Turn the engine slowly until groove marked "IGN" on the flywheel is at T.D.C.

Remove distributor top and loosen pinch bolt underneath distributor. Set distributor with rotor in retarded position and micrometer adjustment at zero (i.e. long mark on scale level with mark on body), so that the points are just breaking to fire on appropriate cylinder (No. 1 or 4).

After fixing pinch bolt, micrometer adjustment can be operated to adjust for pinking according to petrol in use.



Fig. 25

Ignition Timing Mark on Flywheel
in line with groove in Housing

Chapter III

THE TRANSMISSION

Part 1. ... Fluid Flywheel	Page 50
Part 2. ... Gearbox	„ 52
Part 3. ... Propellor Shaft	„ 57
Part 4. ... Rear Axle	„ 58
Part 5. ... Hubs	„ 60
Part 6. ... Wheels and Tyres	„ 62

Part 1

FLUID FLYWHEEL

General Description

The fluid flywheel is an entirely automatic coupling which takes the place of the normal clutch. The drive is transmitted hydraulically by means of oil.

Maintenance

Every 3,000 miles check level.

Recommended oil : Daimler Solvent Process Engine Oil.

- (a) Remove the front mat and inspection cover. See Fig 26.
- (b) Turn the engine with the starting handle until one of the two filler plugs appears opposite the inspection hole. See Fig. 26.
- (c) Remove the plug with the special key provided.
- (d) Top up until it overflows using the flywheel gun provided. Use engine oil. See Fig. 26.
- (e) Replace plug, taking care that the washer is in place and in good condition. Tighten plug securely, replace inspection cover plate and front mat.

NOTE.—The oil in the flywheel never needs changing.

Adjustment

None required.

THE TRANSMISSION

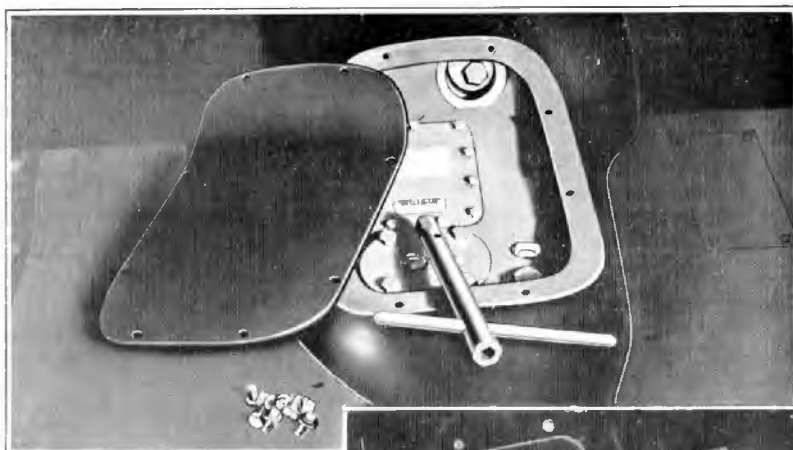
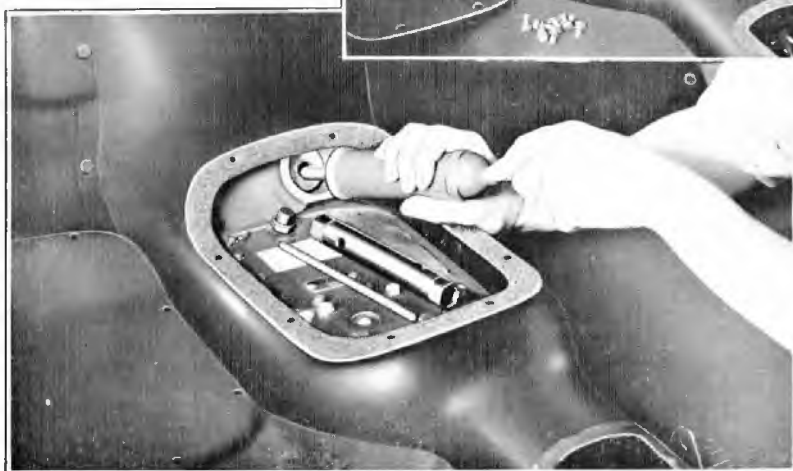


Fig. 26
Topping up the Fluid
Flywheel Oil level



Part 2

GEARBOX

Operation

Pre-selective epicyclic type with four forward speeds and reverse. The hand lever below the steering wheel selects the gear required and the left hand foot pedal, known as the gear pedal, when depressed and released engages the gear selected. See driving instructions page 15.

Maintenance

1. **After first 500 miles and then every 3,000 miles** check the level of the oil.
Recommended oil : Daimler Solvent Process Engine Oil.
 - (a) Remove the front mat and inspection cover. (See Fig. 27.)
 - (b) Pull out the dipstick. (See Fig. 27.)
 - (c) If level is below full mark on the dipstick top up as required, through the filler plug which is adjacent to the dipstick.
 - (d) Replace filler plug and dipstick, inspection cover and mat.

2. **Every 6,000 miles** change the oil.
This is best done when the gearbox and the oil is hot, that is, after running.
 - (a) Place a container under the drain plug.
 - (b) Remove the drain plug and whilst the oil is draining off into the container take out the front mat and inspection cover.
 - (c) Replace the drain plug and refill with 4 pints of oil.

THE TRANSMISSION

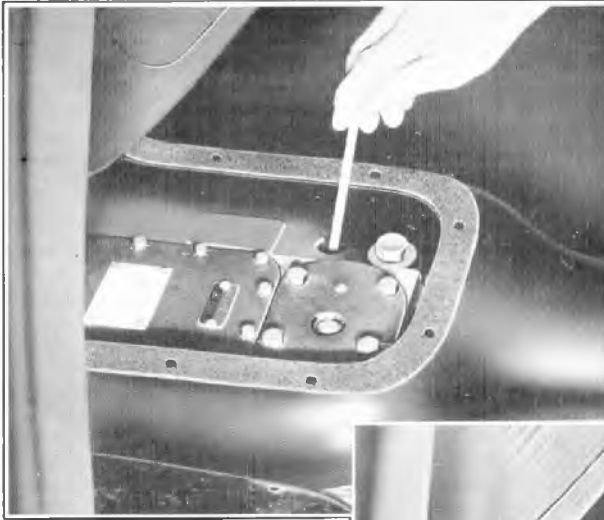
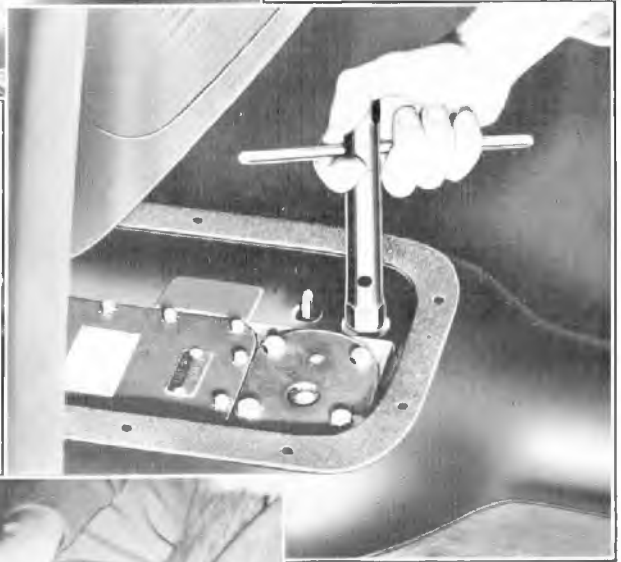


Fig. 27
Topping up the Gearbox
oil level



THE LANCHESTER TEN

3. When draining and whilst the floorboards are out, lubricate all control rod joints with the oil can. (See Fig. 28.)

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Fig. 28
Gearbox Selector and Operating Controls. Lubricate.

THE TRANSMISSION

Adjustment

1. Adjustment of the gearbox requires a high degree of experience and should not be attempted except by a mechanic with this experience.
2. The gears are automatically adjusted for possible wear. It is possible however, to effect adjustment if it is thought that any gear is slipping. This is done as follows :—
 - (a) Car should be stationary and engine switched off.
 - (b) Select gear that it is desired to adjust.
 - (c) Depress and release the gear pedal 12 to 20 times. It is essential to make a full stroke.



Fig. 29

Operation of Controls to take up gear adjustment

Special Information

To test for Gear Slip. Should it be felt that any gear is slipping, which is unlikely owing to the automatic adjustment provided and if "pumping" has been carried out as recommended above, first test the gear suspected as follows :—

Start the engine, select and engage the gear suspected, and whilst holding the footbrake firmly down with the left foot, open the throttle with the right foot. The car should be felt to be pulling against the brake and the engine should tend to stall. If the "revs." rise, it is an indication that the gear is slipping. When carrying out this test it is assured that the flywheel has been checked for correct level.

Manual Adjustment of Gears.

1. Remove the front mat and inspection cover.
2. Remove the top cover of the gearbox.
3. Select and engage the gear that is slipping. When the gear pedal is released one of the struts will rise up.

THE LANCHESTER TEN

Manual Adjustment of Gears (cont.)

4. Remove the spring which is wound round the adjusting nut (Fig 30).
5. Select and engage another gear.
6. **Unscrew** the round adjuster nut of the gear to be adjusted one full turn (see Fig. 30).
7. Loosen the locknut of the adjuster stop and screw in the adjuster screw half a turn. Tighten locknut (see Fig. 30).
8. Select and engage the gear to be adjusted and replace the spring.
9. Mark the adjuster nut with a pencil or chalk and then depress and release the gear pedal continually until the nut ceases to rotate. It will need watching carefully as it only moves a very small amount each time the gear pedal is operated.
10. Replace the top cover of the gearbox and then repeat the test for slip. If there is no improvement, repeat the whole process once more.
11. If it appears that all gears are slipping, check the level in the flywheel before altering the adjustment of the gearbox, as lack of oil in the flywheel will cause it to slip under load.
12. For a gear which is too fierce, unscrew squared adjuster nut one full turn and tighten lock nut. Pump gear pedal in gear concerned until round adjuster nut ceases to rotate.

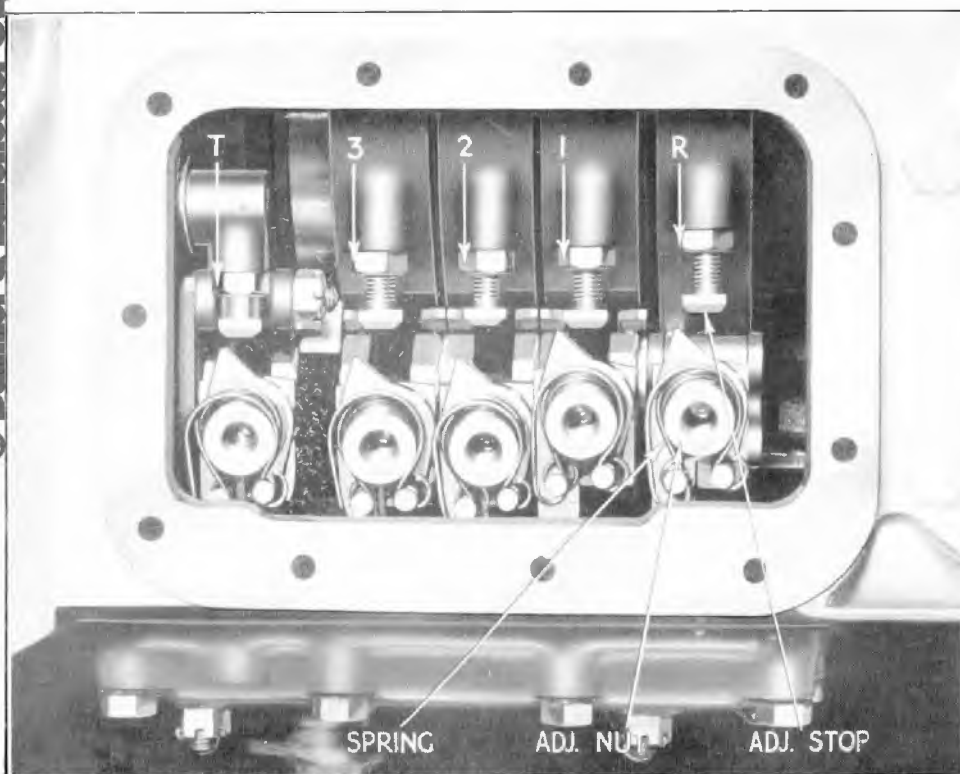


Fig. 30

Gearbox Top Cover Removed to illustrate Method of Manual Adjustment

THE TRANSMISSION

Part 3

PROPELLER SHAFT

General Description

A Hardy Spicer Shaft with needle roller bearings is used to connect the drive from the gearbox to the rear axle.

Maintenance

One grease nipple on the spline requires attention **every 3,000 miles**. This can be reached by removing inspection plate. (see Fig. 31 and Fig. 54 No. 9).

In addition, two grease nipples on the universal joints (one on each) require attention **every 12,000 miles**. (See Fig. 54, Nos. 7 and 9).

In each case, use Daimler R.B. Grease.

Adjustment

There is no adjustment required.



Fig. 31

Lubricating Propellor Shaft Spline, through trap between front seats

THE LANCHESTER TEN

Part 4

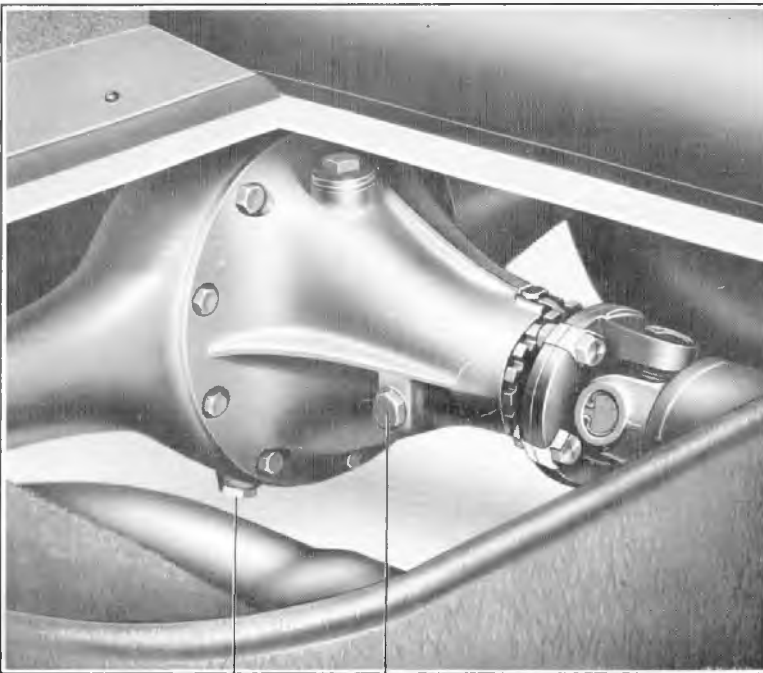
REAR AXLE

Operation

The rear axle is of the spiral bevel type, incorporating the differential in a central housing. The ratio is 5 : 1—Pinion 8 teeth. Crownwheel 40 teeth.

Maintenance

- I. Check the level of the oil **every 3,000 miles.**
 - (a) Take out the rear seat cushion.
 - (b) Open the trap door found underneath and this will expose to view the axle casing. (See Fig. 32).
 - (c) Take out the plug and add new oil as necessary to bring up to level. Use Shell Spirax Heavy Gear Oil.



Drain Plug.

Level and Filler Plug

Fig. 32

Location of Rear Axle Plugs, with access through board beneath rear seat

THE TRANSMISSION

2. Change the oil after the **first 500 miles** and then **every 6,000 miles**.
 - (a) This is best done after the car has been run and the oil is hot.
 - (b) Remove the drain plug (see Fig. 32).
 - (c) Replace the drain plug and tighten up, pour in the new oil. The capacity is 3 pints.

Use Shell E.P. Spirax Heavy Gear Oil.

Adjustment

No adjustment is necessary.



Fig. 33
Topping up Rear Axle

Part 5

HUBS

General Description

The front hubs are mounted on twin taper roller bearings and the rear hubs on large journal bearings.

Maintenance (See Fig. 34 opposite.)

1. Front Hubs.

Lubricate every 6,000 miles.

- (a) Remove the cover plates from the front wheels.
- (b) Remove the hub caps with the special spanner provided and pack half full with Daimler R.B. Grease.
- (c) Replace the hub caps and cover plates.

2. Rear Hubs.

Remove the cover plates and give three or four pumps with the grease gun to each nipple. (See Fig. 54 Nos. 1 and 10.)

Use Daimler R.B. Grease.

Adjustment

There is no adjustment required.



Fig. 34
Lubrication of Hubs



Part 6

WHEELS AND TYRES

General Description

16" x 4" disc wheels fitted with 5.25" x 16" tyres. Spare wheel is housed under the rear luggage compartment.

Maintenance

1. Keep at the following pressures :—
Front : 26 lbs. per sq. inch.
Rear : 28 lbs. per sq. inch.
2. Examine for embedded flints etc., remove with a pocket knife.
3. Uneven wear of tyres may be due to maladjustment of the track of the front wheels. Refer to Steering. (Page 68.)

NOTE.—When heavily loaded increase pressures slightly.

Adjustment

None.

Special Information

Synthetic Tyres. If synthetic rubber tyres are fitted, they can be identified by a red medallion in the side wall.

Synthetic tyres are more susceptible to failure from abuse than natural rubber tyres and therefore require more careful treatment in service.

It will be appreciated that the fitting of synthetic tyres is only a temporary expedient until supplies of natural rubber tyres are once more available.



Fig. 35
Taking Tyre Pressure

Care of Tyres. Precautions to be taken with all tyres—especially synthetic tyres.

Avoid under-inflation and over-inflation by checking pressure at least weekly and adjust pressure when necessary.

Avoid hitting kerbs and other causes of severe impact.

Do not allow flints, etc., to remain embedded in the tread.

Have damage repaired immediately.

Change tyres round regularly, including the spare.

Keep brakes in proper adjustment.

Have wheels checked frequently for misalignment and other mechanical irregularities.

Chapter IV

SUSPENSION

Part 1	...	Front and Rear Suspension	...	...	...	Page 64
Part 2	...	Shock Absorbers	...	...	...	„ 65

THE LANCHESTER TEN

Part 1

FRONT AND REAR SUSPENSION

General Description

1. **Front.** This is completely independent by means of swinging arms and coil springs.
2. **Rear.** Long flat leaf springs of normal semi-elliptic type are used. Anti-roll bars are used front and rear.

Maintenance

1. **Front.** Every 3,000 miles use grease gun on the two grease nipples. See Fig. 54 Nos. 4 and 13). Use Daimler R.B. Grease.
2. **Rear.** The springs should be sprayed or painted with penetrating oil every 3,000 miles.

Adjustment

None required.

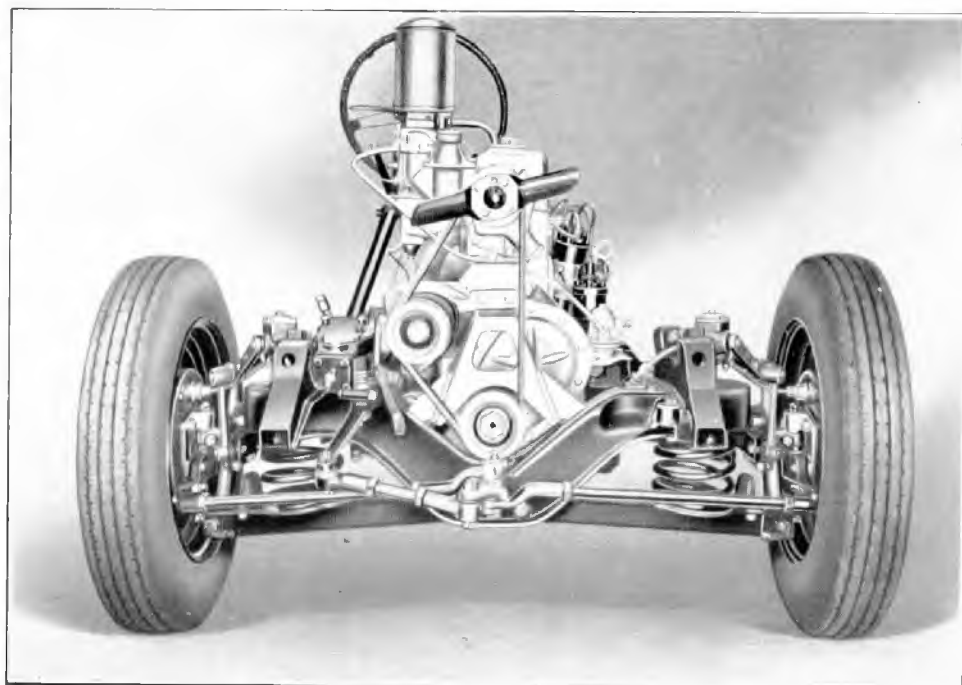


Fig. 36

The Front of the Chassis, showing the independent suspension

THE SUSPENSION

Part 2

SHOCK ABSORBERS

General Description

The hydraulic dampers are double acting, equal resistance being offered to the compression as to the recoil of the road springs.

The operating arms of the pairs of shock absorbers are joined by an anti-roll bar.

Maintenance

The only attention required is the occasional renewal of the connecting link bearings, and the topping up with fluid at **about every 12,000 miles**. It is necessary to remove the dampers from the chassis to fit new bearings, and it is recommended that the topping up with fluid is also carried out with the units removed from the car, as it is most important that no dirt or foreign matter enters the damper movement through the filler hole.

The maintenance of the dampers in position is confined to the periodical examination of the anchorage to the chassis, the fixing bolts being tightened as required.

To Top-up with Fluid

Remove the dampers from the chassis, place in vice (hold by the fixing lugs to avoid damage to the body).

Before removing the filler cap, completely clean the exterior of the damper to ensure that dirt cannot enter the filler hole.

Use only Luvax Piston Type Shock Absorber Oil.

Fill up to the bottom of the filler plug hole.

While adding the fluid, the lever arm must be worked throughout its full stroke to expel air from the pressure chamber.

When re-fitting the dampers to the chassis, after bolting in position, but before reconnecting links, work the arms throughout the complete stroke several times to make sure that no air is present.

Adjustment

No adjustment to the damper is required or provided for, any attempt to dismantle the movement by removing the end caps will seriously affect the performance.

Chapter V

STEERING

THE LANCHESTER TEN

STEERING

General Description

A Bishop Can Gear Type of steering box is fitted and a track rod divided in the centre so that the independant movement of the front wheels which is allowed by the front suspension does not affect the steering.

A 17" diameter spring spoke steering wheel is fitted.

Maintenance

1. **Every 3,000 miles** check the level of the oil in the steering box. See Fig. 37 for method of access to the filler plug. Remove the plug and top up with oil to the level of the hole, and replace the plug. Use Shell E.P. Spirax Heavy Gear Oil.
2. **Every 3,000 miles**, lubricate the grease nipples on the steering rods and the swivels. These are :—
 - (a) One at each end of drag link. (See Fig. 54 No. 15).
 - (b) One at each end of centre pivot lever. (See Fig. 54 No. 8).
 - (c) One at the outer end of each of the track rods. (See Fig. 54 Nos. 5 and 14).
 - (d) One at the top of each swivel. (See Fig. 54 Nos. 3 and 12) Use Daimler R.B. Grease.

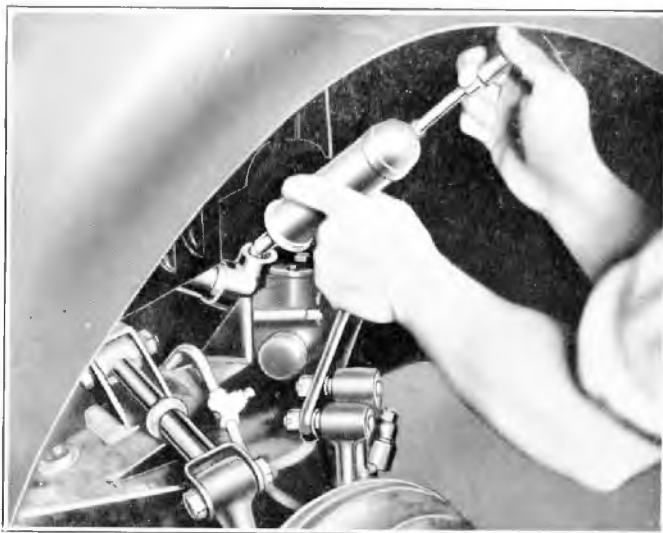


Fig. 37

Topping up the Steering Box, beneath offside front wing with wheel removed

Adjustment

Setting the Track of the Front Wheels.

- (a) The "toe-in" should be $\frac{1}{8}$ " to $\frac{3}{16}$ ", that is the distance between the inner edges of the rims of the front wheels, measured at the height of the wheel centres should be less at the front than at the back by $\frac{1}{8}$ " to 3"
- (b) The car should be standing on its wheels when adjusting the track.

THE STEERING

- (c) If it should be necessary to reset the track, proceed as follows :—
- (i) Undo locknuts at both ends of the track rods. (See Fig. 38)
 - (ii) Set steering pivot lever in the central position. (See Fig. 38).
 - (iii) Turn the rods until the correct "toe-in" is obtained. **Note.—**that it is essential to set these each by the same amount so that after adjustment they are of equal length.
 - (iv) Tighten locknuts making sure that the steering pivot lever is still in the central position.
 - (v) Re-check the track.
 - (vi) The length of the drag link should be adjusted to suit, remembering that the drop arm should also be in its midway position so that the movement on each lock is the same.
 - (vii) To set the drop arm in the midway position disconnect the drag link and count the number of turns and fraction of a turn of the steering wheel to go from full lock one side to full lock the other side. Then turn it back from the full lock position exactly half the number of turns it was found necessary to go from lock to lock.

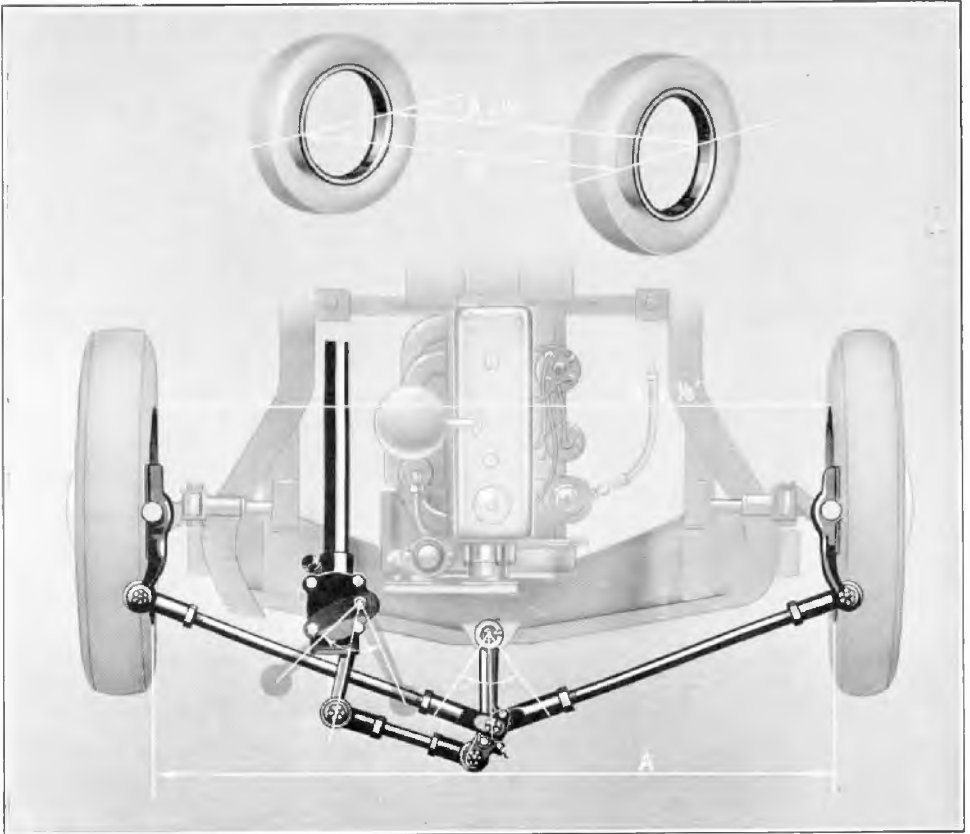


Fig. 38
Front Wheel Track setting diagram

Chapter VI

BRAKES

BRAKES

General Description

Girling type Brakes are fitted, which are operated by a rod and cable linkage. The Parking Brake operates the rear brake only.

Maintenance

Grease front brake cables **every 3,000 miles**. (See Fig. 54 Nos. 2. and 11.) Apart from these cables, little further maintenance is required as the balance levers have self lubricating bushes and the expander mechanism is packed with grease on assembly and does not need further attention. However a spot of oil on the pivot points of the linkage periodically is advised. (See Fig. 39).

Adjustment

Turn the adjuster screw until resistance can be felt, i.e. the shoes touching the brake drum. Slack back one notch which can be felt and heard. It is not necessary to jack up. (See Fig. 39).

© Operate the pedal several times to centralise the shoes.

THE BRAKES



Fig. 39
Layout of the Braking System, with inset to show Location of Adjuster

Chapter VII

ELECTRICAL EQUIPMENT

Part 1	...	Lighting	...	...	...	...	...	...	Page 76
Part 2	...	Starting	...	...	...	...	...	„	82
Part 3	...	Charging	...	...	...	...	...	„	83
Part 4	...	Battery	...	...	...	...	...	„	85
Part 5	...	Accessories	...	...	...	...	...	„	86

Part 1

LIGHTING

General Description

The electric equipment is a Lucas 12 volt earth return system, comprising dynamo, combined voltage control, cutout and fuse unit, starter, battery, distributor and coil, lamps, switches, and ammeter. In the earth return system, a single wire is used to convey the current which returns through the metal parts of the chassis. It is, therefore, important to see that all earth connections such as battery to frame, lamps to frame, etc., are clean and that a metal to metal connection is made. It is advisable to disconnect one of the battery terminals before removing any unit from the chassis, so preventing short circuiting which may result in burnt out wiring and equipment.

Maintenance and Adjustment

1. Setting the Lamps.

The Lamps should be set as shown in Fig. 40. Check the setting by placing the car in front of a blank wall at the greatest possible distance, taking care that the surface on which the car is standing is not sloping relative to the wall.

(a) **Headlamps.** The headlamps must be set so that the beams of light are parallel with the road and with each other. If adjustment is necessary, slacken the single fixing nut at the base of the lamp and move the lamp on its adjustable mounting to the required position. Finally, tighten the locking nut.

(b) **Passlight.** The lamp must be set so that the beam does not rise above the horizontal when the car is standing on level ground. To ensure this, dip the lamp very slightly to compensate for road inequalities or an extra load in the rear of the car, and also tilt the lamp to the right to allow for road camber. In addition, the lamp can be swung slightly to the left to give additional illumination on the nearside of the road. If adjustment is necessary, slacken the single fixing nut and move the lamp on its adjustable mounting to the required position. Finally, tighten the locking nut.

ELECTRICAL EQUIPMENT

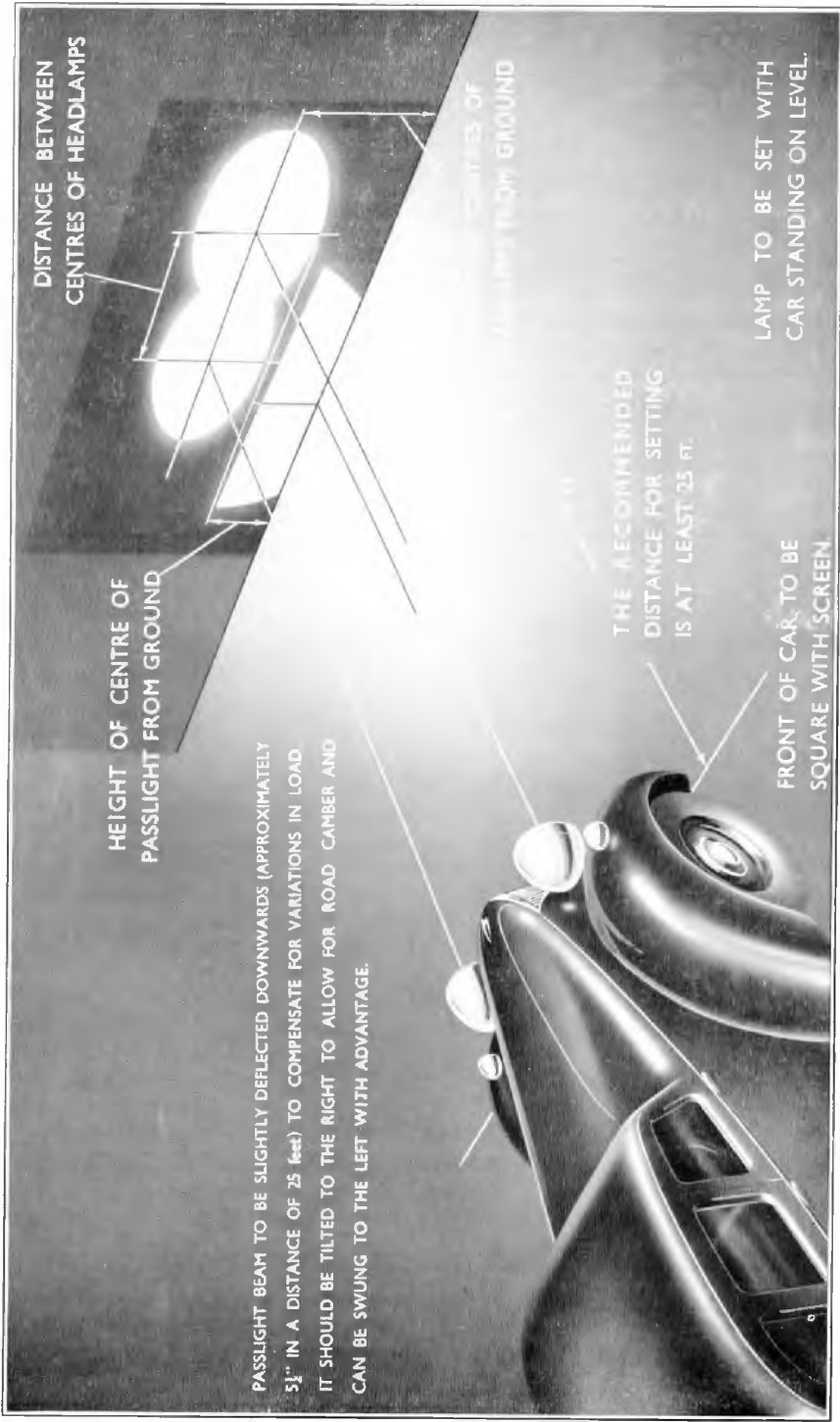


Fig. 40
Headlamp and Passlamp Setting Diagram

2. Focussing.

(a) **Headlamps.** To enable the best light to be obtained from the lamps, the bulb filament must be as near as possible to the focus of the reflectors. If a bulb is out of focus, the lamps will have a poor range and will cause dazzle to approaching traffic.

Before lamps leave the works, the bulbs are focussed to give the best results and provided that Genuine Lucas spare bulbs are fitted as replacements, it should not be necessary to alter the setting. If, however, other bulbs are fitted, it may be necessary to re-focus by moving the bulb backwards or forwards until the best lighting is obtained.

The bulb and its holder can be adjusted when the lamp front and reflector are removed and the clamping clip on the bulb is slackened.

When focussing headlamps, it is an advantage to cover one lamp while testing the other. If the lamp does not give a uniform long range beam without a dark centre, the bulb needs adjusting.

Tighten the clamping screw after the best position for the bulb has been found.

(b) **Passlight.** The Passlight incorporates a Lucas Unit and is fitted with a Lucas Pre-focus cap bulb. The position of the filament relative to the cap is accurately controlled and no focussing is necessary.



Fig. 41
Focussing the Headlamp

3. Removing Lamp Fronts and Reflectors.

(a) **Headlamps.** To remove the lamp front pull forward the fixing clip at the bottom of the lamp and swing it downwards. Remove front from bottom of lamp first. When replacing, locate the top of the rim first, then press on at the bottom and secure by the clip. The reflector is secured to the lamp by means of a rubber bead and can be withdrawn when it is removed. When replacing, the projection on the rim must fit the left hand location at the top of the lamp body. Fit the rubber bead over the rim of the reflector and the edge of the lamp body so that the thinner lip of the bead is in the groove at the front of the lamp body.

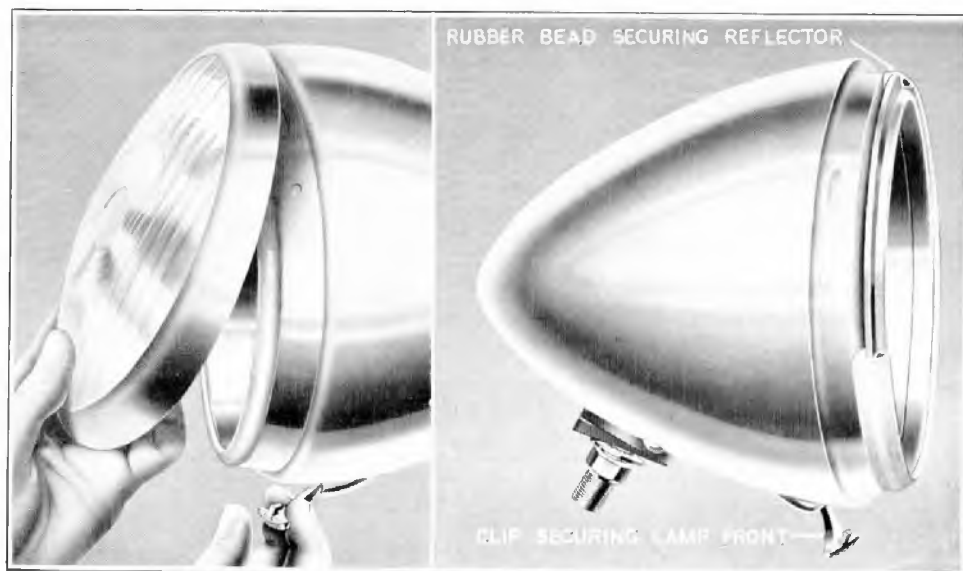


Fig. 42

Removal of Headlamp Front

(b) **Sidelamps.** Slacken the screw at the top of the lamp about two turns and the front together with the reflector can be withdrawn. The bulb holder is clipped on the back of the reflector and can be removed by twisting it to the left and pulling it off. When replacing, line up the slots in the bulb holder with the springs on the back of the reflector and push home. When refitting the front, locate the bottom first and secure with the screw. (See Fig. 43). **NOTE.** Be careful not to undo the securing screws more than a few turns.

THE LANCHESTER TEN

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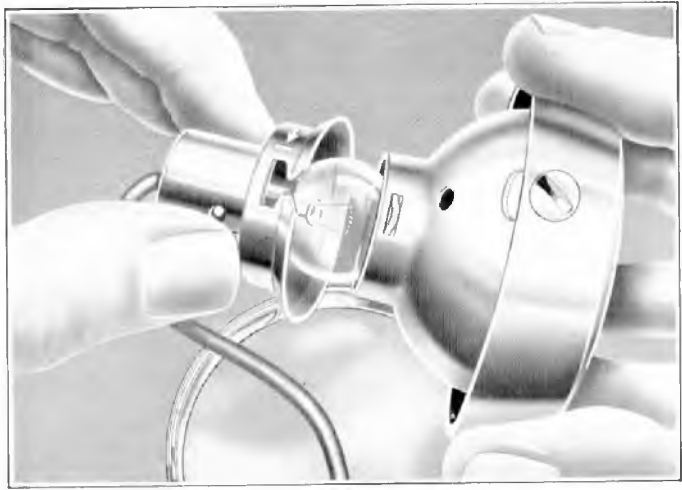


Fig. 43
Opening the Side Lamp

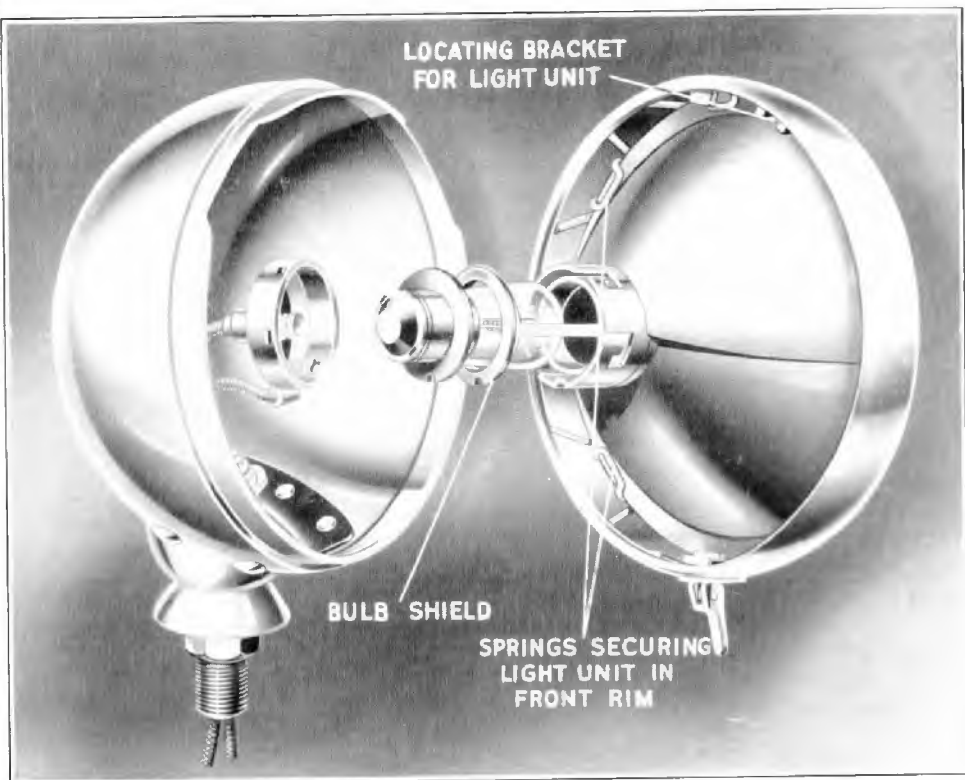


Fig. 44
The Passlight

ELECTRICAL EQUIPMENT

(c) **Passlight.** Press down the catch at the bottom of the lamp and remove the rim and light unit assembly by withdrawing it from the bottom of the lamp first. Twist the back shell in an anticlockwise direction and pull it off. The bulb can then be removed by inverting the light unit and holding one hand under the bulb holder so that the bulb falls into the hand.

Place the replacement bulb in the holder, taking care to locate it correctly.

Engage the projection on the inside of the back shell with the slots in the holder, press on and secure by twisting it to the right.

Engage the top of the rim with the lamp body, press on at the bottom and secure by swinging the catch at the bottom of the lamp into the locked position.

(d) **Rear Number Plate Box.** The fronts of the top tail lamp and the tail and reverse lamp can be swung open when the fixing screws are slackened.

4. Cleaning.

Care must be taken when handling reflectors to prevent them from becoming finger marked. If they do become marked, however, a transparent and colourless protective covering enables any finger marks to be removed by polishing with a chamois leather or a very soft cloth.

DO NOT USE METAL POLISH ON REFLECTORS.

No metal polish must be used for cleaning chromium plated lamp bodies. They must be washed with plenty of water and when the dirt is completely removed the lamp bodies must be polished with a chamois leather or a soft dry cloth.

5. Replacement of Bulbs.

When replacing a bulb it is important not only that the same size bulb is fitted, but also that the bulb has a high efficiency and will focus in the reflector. Cheap and inferior bulbs often have the filament of such a shape that it is impossible to focus properly. This will cause dazzle and will result in loss of range and light efficiency.

Lucas Genuine Spare Bulbs are sold by most garages and are specially tested to ensure that the filament is in the correct position to give the best results with Lucas Lamps. Lucas bulbs have a number marked on the metal cap; when fitting a replacement, see that it is of the same number as the original bulb. It is advisable to replace bulbs after long service before they actually burn out, as often the filaments sag, making it impossible for them to be focussed properly.

Replacement Bulbs

Headlamp	...	...	...	Lucas No. 54	12 volt	36 watt.	Single pole
Passlight	...	...	...	Lucas No. 162	12 "	36 "	Single pole. Pre-focus cap.
Sidelamps	...	...	...	Lucas No. 207	12 "	6 "	Single pole.
Reversing lamp	...	...	...	Lucas No. 1	12 "	24 "	Single pole.
Tail and Stop Lamp	...	...	...	Lucas No. 207	12 "	6 "	Single pole.
Ignition warning lamp	...	...	...	Lucas No. C252A	2.5 "	.5 "	M.E.S. screw cap type.

Part 2

STARTING

General Description

To obtain the longest life from the starter and battery, the following points should be observed when starting :—

1. See that the controls are properly set. (See page 14.)
2. Operate the starter control firmly and, of course, release it as soon as the engine fires.
3. Never operate the starter while the engine is still running. If the engine will not fire at once, allow it to come to rest before operating the control again.
4. Do not run the battery down by keeping the starter on when the engine will not start.

Maintenance

Approximately every 12,000 miles remove the starter cover band in order to examine the brushes and commutator.

Check that the brushes move freely in their holders by holding back the brush springs and gently pulling the flexible connectors. If the movement is sluggish, remove the brush from its holder and clean its sides with a petrol moistened cloth. Replace brushes in their original positions in order to retain the correct " bedding." If the brushes are worn so that they do not bear properly on the commutator, they must be replaced by a Lucas Agent or Service Depot, and correctly bedded to the commutator.

The commutator should be clean and dirt-free and should have a polished appearance. If it is dirty, clean it by pressing a soft dry cloth against it while the starter is turned by hand. The square shaft extension at the commutator end can be used to rotate the starter. If the commutator is very dirty, the cloth should be moistened with petrol.

Starter with extended shafts having square ends, as shown, can be rotated by means of a spanner in the remote possibility of the pinion becoming jammed in mesh with the flywheel for any reason. Access to the squared end is obtained by pulling off the metal cap which is secured by two screws.

Adjustment

None is required.



Fig. 45
Freeing Starter

Part 3

CHARGING

I. The Dynamo.

General Description

The dynamo is of the compensated voltage control type and works in conjunction with a regulator housed along with cut-out.

The regulator causes the dynamo to give an output which varies according to the lamp load and the state of charge of the battery. When the battery is discharged the dynamo gives a high output so that the battery receives a quick recharge which brings it back to its normal state of charge in the minimum possible time.

On the other hand, when the battery is fully charged, the dynamo is arranged to give only a trickle charge which is sufficient to keep it in good condition without any possibility of causing damage to the battery by over-charging.

In addition to controlling the output of the dynamo according to the condition of the battery, the regulator provides for an increase of output to balance the current taken by the lamps or other accessories whenever they are switched on.

The regulator incorporates a temperature compensation which causes the dynamo to give an increased output in cold weather when the load on the battery is greater and it also provides an increased charge at the beginning of a run so quickly replacing the energy used for starting.

Maintenance

The dynamo bearings are supplied, during manufacture, with lubricant sufficient to last under normal conditions until the engine is taken down for a major overhaul. When this occurs, the dynamo should be taken to a Lucas Service Depot for cleaning, adjustment and replenishment of bearing lubricant.

About every 12,000 miles, remove the cover band to inspect the brushes and commutator. Check that the brushes move freely in their holders by holding back the brush springs and pulling gently on the flexible connectors. If a brush is inclined to stick, remove it from its holder and clean its sides with a petrol-moistened cloth. Be careful to replace brushes in their original positions in order to retain the "bedding." Brushes which have worn so that they will not bear correctly on the commutator must be replaced and properly bedded at a Lucas Agent or Service Depot.

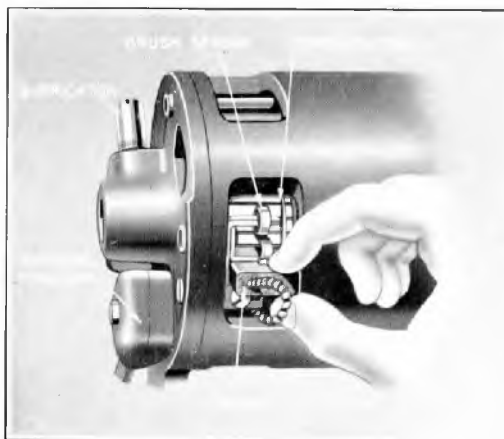


Fig. 46

Examining Brushes

The commutator should be clean, free from oil or dirt and should have a polished appearance. If it is dirty, clean it by pressing against it, a fine dry duster while the engine is slowly turned over by hand. If the commutator is very dirty, moisten the cloth with petrol.

Adjustment

Inspect the driving belt and see that it is not too slack. A loose belt may prevent the dynamo giving its full output. The belt must not be over-tightened, and care must be taken to ensure that the dynamo is correctly aligned, otherwise undue strain may be thrown on the dynamo bearings. When correctly tensioned it should be possible to lift the belt up and down for a distance of about $\frac{3}{4}$ " at a point midway between two of the "V" pulleys.

2. Control Box.

The control box is mounted on the engine side of the dash and houses the cut-out, voltage regulator and fuses.

The cutout and regulator units are carefully and accurately set before leaving the Works and must not be tampered with.

The fuses are of the cartridge type, consisting of a length of very fine wire enclosed in a glass tube with brass end caps to which are soldered the ends of the wire. To replace a fuse it is necessary only to withdraw it from the spring clip in which it fits and then insert the replacement fuse in its place.

Spare fuses are provided and it is important to use only the correct replacement fuse—the fusing value is marked on a coloured paper slip inside the fuse.

A blown fuse will be indicated by the failure of all the units protected by it, and is confirmed by examination of the fuse. If it has blown, the broken ends of the wire will be visible inside the glass tube. Before replacing a blown fuse, inspect the wiring of the units that have failed for evidence of short circuits or other faults that may have caused the fuse to blow and remedy the cause of the trouble.

However, if the new fuse blows immediately and the cause of the trouble cannot be found, have the equipment examined by a Lucas Service Depot.

Fuse Marked "AUX" protects the accessories which are connected so that they operate irrespective of whether the ignition is on or off. Fuse marked "AUX. IGN" protects these accessories which are connected so that they only operate when the ignition is switched on.



Fig. 47
Blown Fuse

ELECTRICAL EQUIPMENT

Part 4

THE BATTERY

About once every month, top up each cell with distilled water to bring the acid solution (electrolyte) level with the tops of the separators. Do not use tap water and do not use a naked light when examining the condition of the cells.

Keep the terminals clean. If they are corroded, scrape them clean and smear with vaseline. Wipe away all dirt and moisture from the top of the battery and make sure that the connections and fixing bolts are clean and tight.

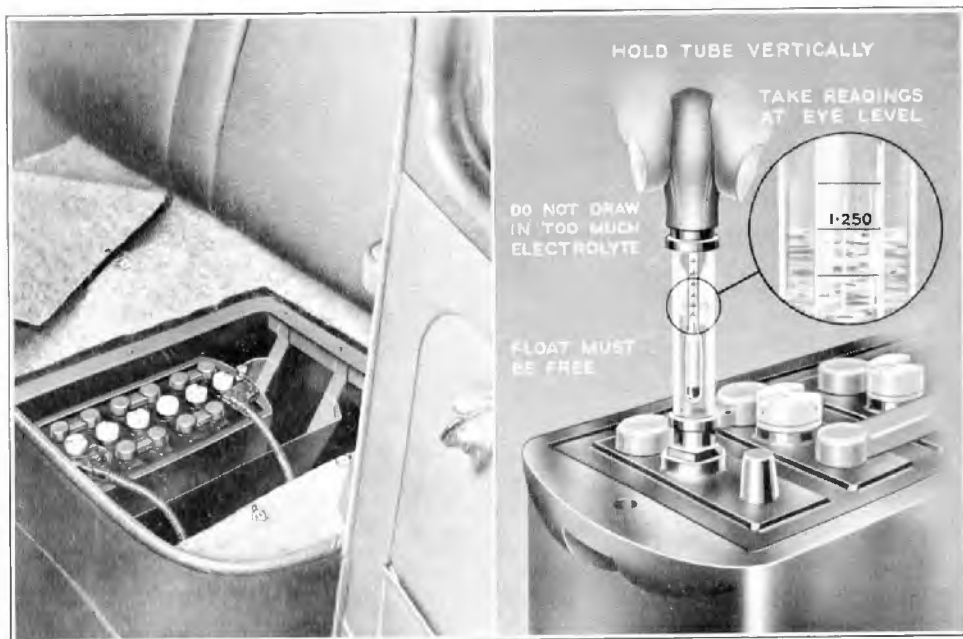


Fig. 48

Location of the Battery beneath rear seat and correct reading of hydrometer

Occasionally check the battery's condition by taking hydrometer readings of the specific gravity of the electrolyte in each of the cells. Specific gravity readings and their indications are as follows:—

1.280—1.300	...	...	...	Battery fully charged.
About 1.210	...	...	...	Battery about half discharged.
Below 1.150	...	...	...	Battery fully discharged.

The readings of all cells should be approximately the same. If one cell gives a very different reading from the rest, it may be that acid has been spilled or has leaked from this particular cell or there may be a short circuit between the plates. In this case the battery should be examined by a Lucas Service Agent or Depot.

Never leave the battery in a discharged condition for any length of time. Have it fully charged and every fortnight give it a short refreshing charge.

Part 5

ACCESSORIES

I. "Trafficators."

If the movement of the arms becomes stiff, raise each arm and apply by means of a brush or other suitable article, a drop of thin machine oil, such as sewing machine oil, to the catch pin between the arm and the operating mechanism. Use only the merest trace of oil as any excess may affect the operating mechanism.

If any difficulty is experienced in raising the arms by hand, switch the "Trafficator" on and then supporting the arm in the raised position, move the switch to the off position.

Failure of the arm to light up usually indicates a blown fuse. The bulb can be replaced as follows:—

Withdraw the screw on the underside of the arm and slide off the metal cover plate; the burnt out bulb is then accessible. To replace the cover plate, slide it on in an upwards direction so that the side plates engage with the slots on the underside of the spindle bearing. Finally, secure the plate by means of its fixing screw. (See Fig. 50).

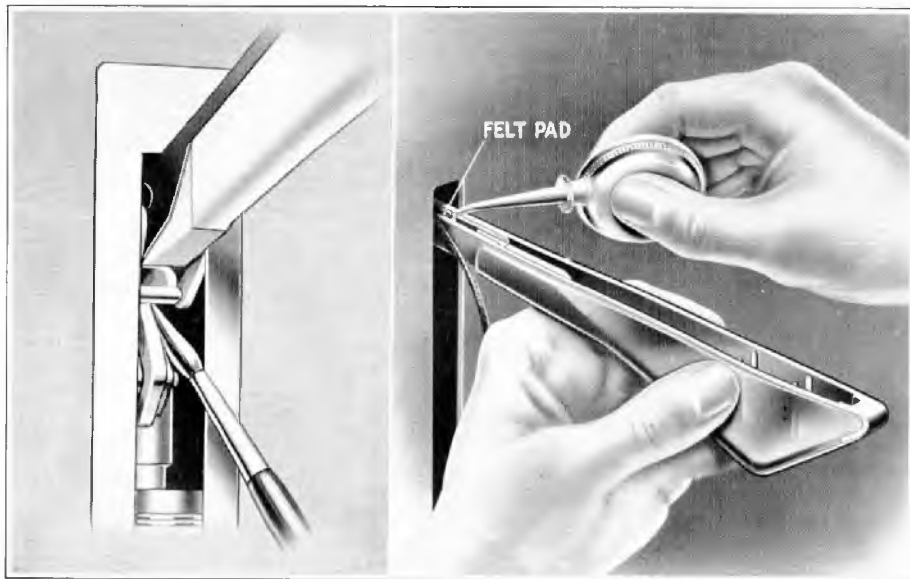


Fig. 49

Lubrication of the Trafficator Arms

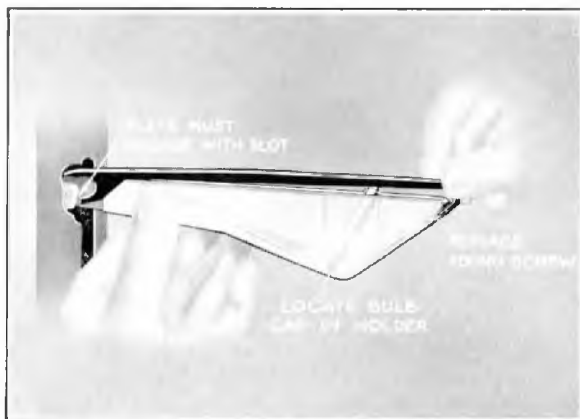


Fig. 50
Dismantling a Trafficator Arm

2. Electric Horns.

All horns before being passed out of the Works are adjusted to give their best performance and will give a long period of service without any attention ; no subsequent adjustment is required.

If one of the horns fails or becomes uncertain in its action, it does not follow that the horn has broken down. First ascertain that the trouble is not due to some outside source, e.g. a discharged battery, or loose connection or short circuit in the wiring of the horn : a short circuit in the horn will cause the fuse to blow. If both horns fail or become uncertain in action, the trouble is probably due to a discharged battery or blown fuse. If the fuse has blown, examine the wiring for the fault and replace with the spare fuse provided.

It is also possible that the performance of a horn may be upset by the fixing bolt working loose. If after carrying out the above examination, the trouble is not rectified, the horn may need adjustment, but this should not be necessary until the horns have been in service for a long period.

Adjustment does not alter the pitch of the note, it merely takes up wear of moving parts. When adjusting the horns, short circuit the fuse, otherwise it is liable to blow. Again, if the horns do not sound on adjustment, release the push instantly.

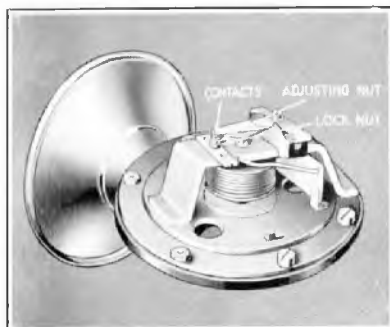


Fig. 51
Horn with cover removed

Adjustment

Remove the horn cover after withdrawing the fixing screw and detach the cover securing bracket by springing it from its fixing.

Slacken the locknut on the fixed contact and rotate the adjusting nut until the contacts are just separated (indicated by horns failing to sound). Turn the adjusting nut half a turn in the opposite direction and secure in this position by tightening the lock nut. Finally if the note is still unsatisfactory, do not dismantle the horn but return it for examination.

3. **Windscreen Wiper.**

The switch is combined with the knobs on the driver's side. To start, push in the knob, and turn it to disengage from the parking stop. Release the knob and then rotate it until the driving dogs engage.

Engage the drive to the arm on the passenger's side in a similar manner.

To switch off, push in the knob and turn it until the arm lies on the scuttle.

Chapter VIII

THE COACHWORK

THE LANCHESTER TEN

THE COACHWORK

Care of the Paintwork.

To avoid damage to the paintwork and the finish, always use plenty of water when washing. Swill freely with water and work off the dirt with a sponge or soft cloth. Dry off with a chamois leather.

The Body may be polished and for this it will be found that a wax polish will last longer and give a better finish, although perhaps harder to apply.

Care of the Chromium Plating.

Water is the best medium for cleaning this plating, finishing off with a soft cloth. If the plating has become tarnished or dull, it can usually be revived by careful use of one or other of the special chromium cleaners marketed by reputable firms. Be careful not to use ordinary metal polish as this will damage the chromium.

Doors.

An occasional drop of oil on the hinges and catches will assist the easy operation of the doors. This will be needed more frequently in winter weather or if the car has to be left out in bad weather.

Rear Boot and Spare Wheel Locker.

Occasional lubrication of the catches and the hinge of the boot door is recommended. Apply just a smear of oil, more frequently in wet weather.

Care of Interior Upholstery.

The leather upholstery of the seats can be kept clean and soft if given a slight dressing with a good quality furniture polish. The frequency with which this is done will, of course, depend on the use to which it is put, but generally about every two months will be ample to keep it in good condition.

Chapter IX

THE CHASSIS

Part 1 ... Jacking System Page 92

Part 2 ... Chassis Identification ,, 94

Part 1

JACKING SYSTEM

General Description.

The "Bevelift" type jack is carried in the boot in a canvas case.

All that is necessary, when it is required to jack up any one of the four wheels, is to insert the hinged spigot into the appropriate jacking bracket (See Fig. 52) and wind the jack handle.

Maintenance.

Oil the jack periodically to ensure ease of operation.

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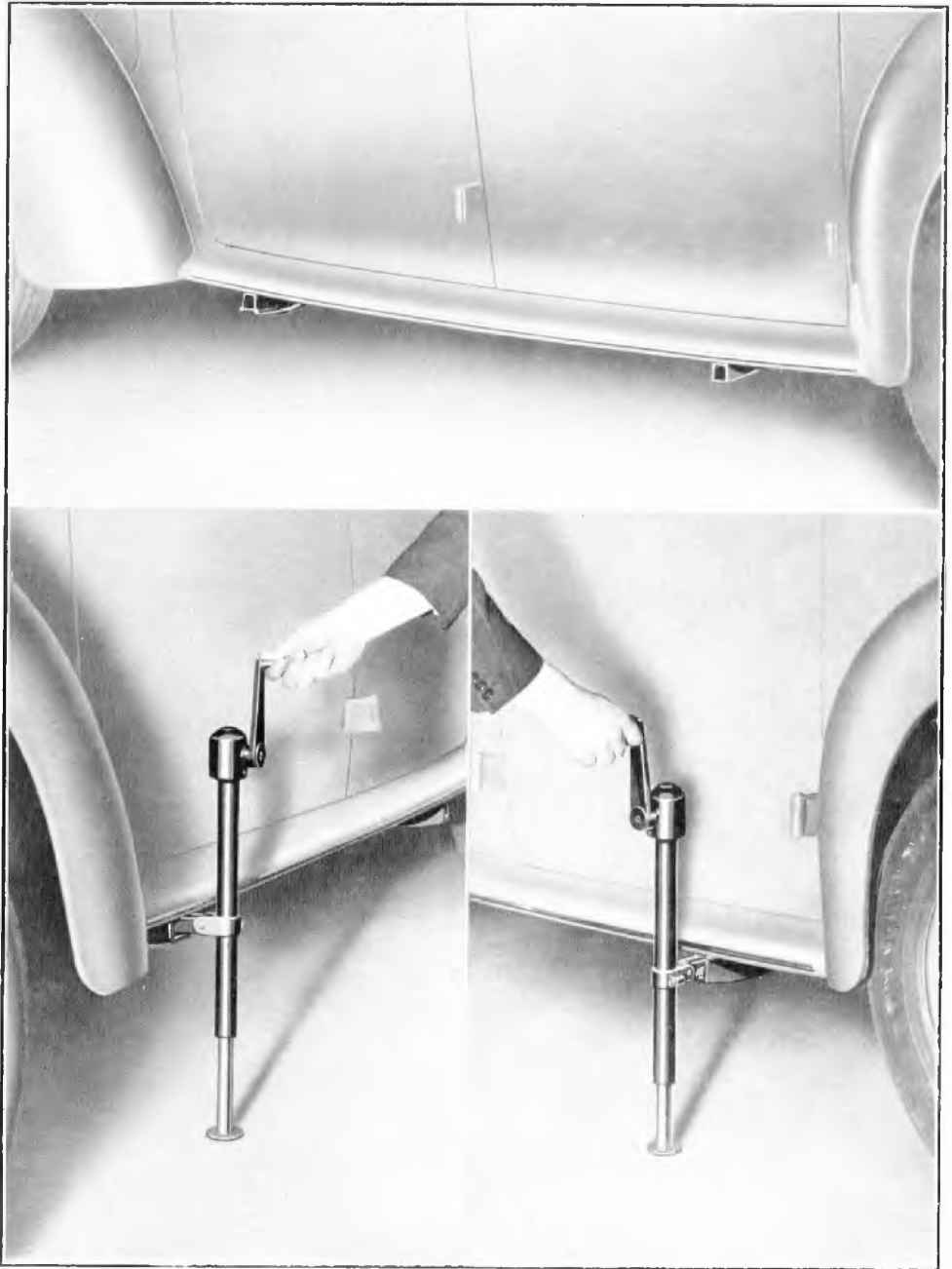


Fig. 52

The location of jacking brackets and operation of Bevelift jack

THE LANCHESTER TEN

Part 2

CHASSIS IDENTIFICATION

If information is required or when ordering spare parts it is necessary to quote the chassis number. This will be found on a plate which is fastened to the chassis just below the steering column. (See Fig. 53 below).

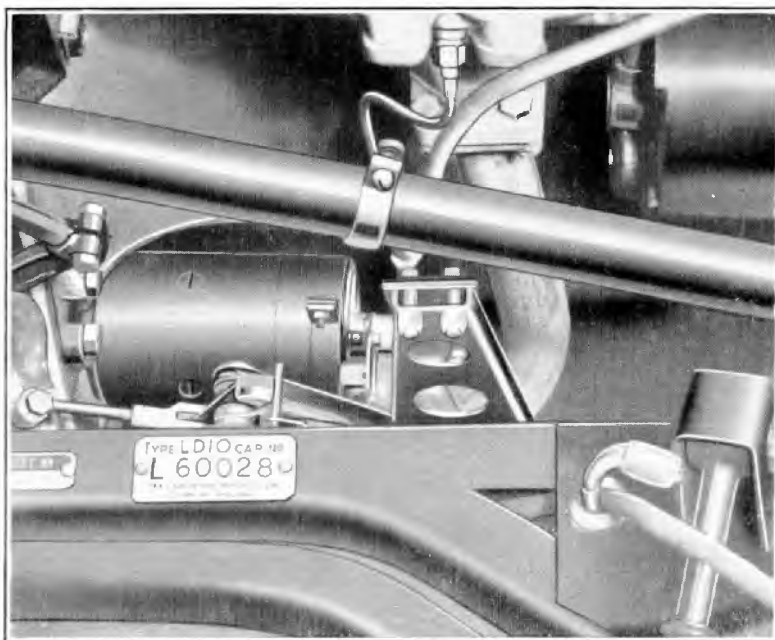


Fig. 53

Location of Chassis Number Plate

Chapter X

SUMMARY OF MAINTENANCE

THE LANCHESTER TEN

SUMMARY OF MAINTENANCE

Daily

1. Check water level in radiator.
2. Check oil level in engine, (see page 38).
3. Check amount of petrol in tank.

Weekly

1. Check tyre pressures. (See page 62).
Recommended pressures : Front : 26 lbs. per sq. in.
Rear : 28 lbs per sq. in.
When normally loaded.
Increase pressure slightly when heavily loaded.

Monthly

- Examine level of electrolyte in battery. (See page 85).
- Use ONLY distilled water for topping up.

After the first 500 miles

1. Drain and refill engine oil sump. (See page 39).
Recommended lubricant—Daimler Solvent Process Engine Oil.
2. Clean engine oil filter. (See page 39).
3. Drain and refill the Gearbox. (See page 52).
4. Recommended lubricant—Daimler Solvent Process Engine Oil.
5. Drain and refill the Rear Axle. (See page 59).
Recommended lubricant : Shell E.P. Spirax Heavy Gear Oil.
5. Check tappet clearance. (See page 29).

Every 3,000 miles

1. Drain and refill engine oil sump. (See page 39).
Recommended lubricant : Daimler Solvent Process Engine Oil.
2. Clean oil filter. (See page 39).
3. Grease water pump grease nipple. (See Fig. 54 No. 6).
Recommended lubricant : Daimler R.B. Grease.
4. Check oil level in Fluid Flywheel. (See page 50).
Recommended lubricant : Daimler Solvent Process Engine Oil.
5. Check oil level in Gearbox. (See page 52).
Recommended lubricant : Daimler Solvent Process Engine Oil.
6. Grease nipple on the front end of the Propellor Shaft. (See page 57 and Fig. 54 No. 9). Recommended lubricant : Daimler R.B. Grease.
7. Check the oil level in the Rear Axle. (See page 58)
Recommended lubricant : Shell E.P. Spirax Heavy Gear Oil.
8. Grease Front Suspension (2 Grease Nipples). (See Fig. 54 No. 4 and 13).
Recommended lubricant : Daimler R.B. Grease.
9. Spray or paint rear spring with penetrating oil.
10. Check the oil level in the Steering Box. (See page 68).
Recommended lubricant : Shell E.P. Spirax Heavy Gear Oil.

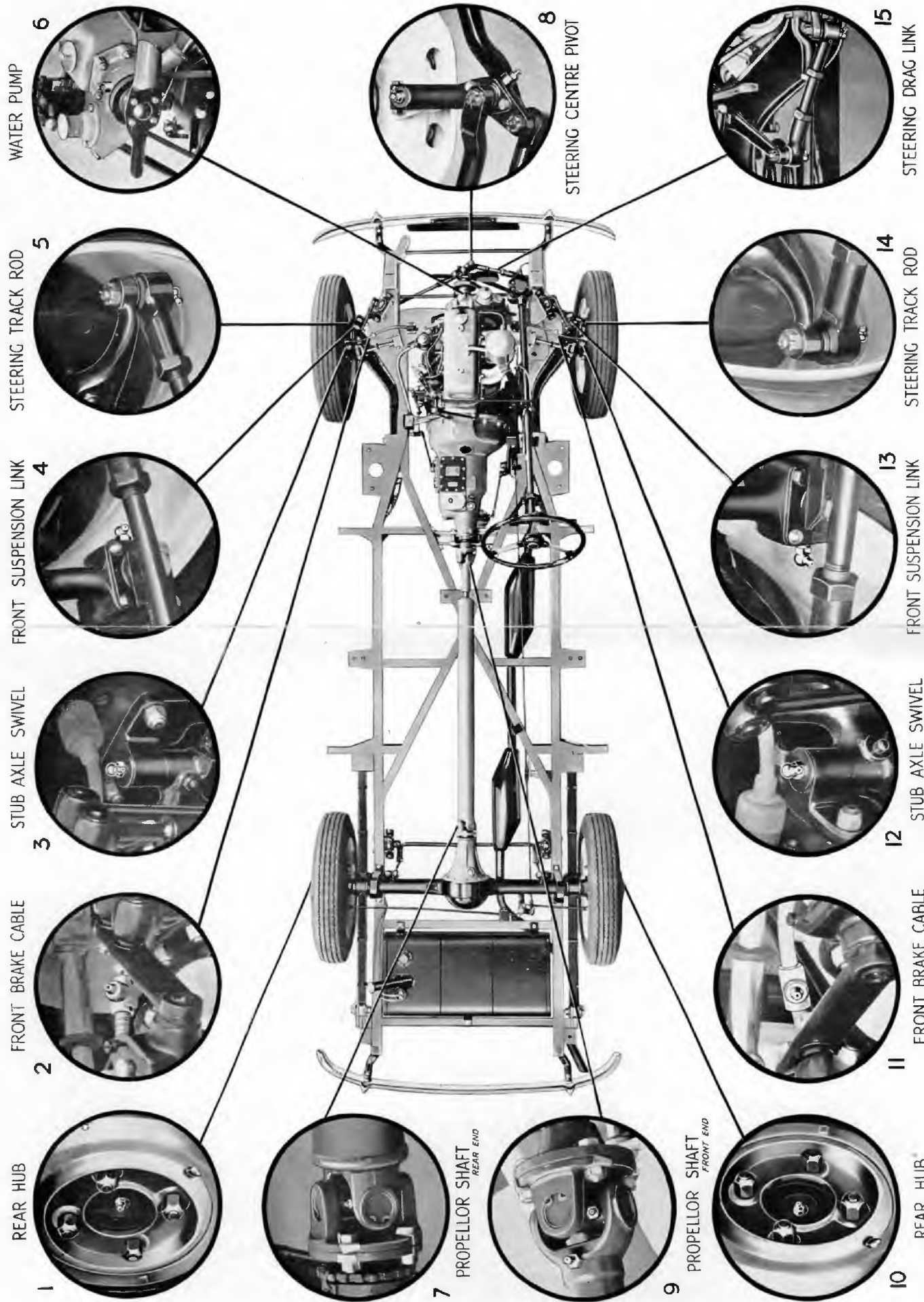


Fig. 54
Diagrammatic Arrangement of Grease Nipples

11. Lubricate Distributor. (See page 45.)
12. Grease steering linkage grease nipples (8). (See page 68 and Fig. 54 Nos. 3, 5, 8, 12, 14, 15.)
Recommended lubricant : Daimler R.B. Grease.
13. Grease Front Brake Cables. (See page 72 and Fig. 54. Nos. 2 and 11.)
Recommended Lubricant : Daimler R.B. Grease.

Every 6,000 miles

1. Check tappet clearance. (See page 29.)
2. Clean out carburettor float chamber and jets. (See page 33.)
3. Oil carburettor control rod joints.
4. Clean Petrol Pump filter and pump body.
5. Clean sparking plugs and reset the gaps. (See page 48.)
6. Change oil in gearbox. (See page 52.)
Recommended lubricant : Daimler Solvent Process Engine Oil.
7. Change oil in rear axle (See page 59.)
Recommended lubricant : Shell E.P. Spirax Heavy Gear Oil.
8. Lubricate front wheel hubs. (See page 60.)
Recommended lubricant : Daimler R.B. Grease.
9. Grease Rear Wheel Hub Grease Nipples. (See page 60—see also Fig. 54 Nos. 9 and 10.)
Recommended lubricant : Daimler R.B. Grease.

Every 12,000 miles

1. Grease the two universal joint grease nipples. (See page 57 and Fig. 54 Nos. 7 and 9.)
2. Check level in shock absorbers. (See page 65.)
Recommended lubricant : Luvax Piston Type Shock Absorber Oil.
NO ALTERNATIVES should be used.
3. Examine starter motor brushes. (See page 82.)
4. Examine dynamo brushes. (See page 83.)

Every 18,000 miles

1. Fit new oil filter element. (See page 39.)

PAGE
98

NOTES



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