BY APPOINTMENT
TO HER MAJESTY THE QUEEN
MOTOR CAR MANUFACTURERS
THE DAIMLER CO. LTD.

Daimler

SPORTS CAR

TYPE SP.250 R.H.D. & L.H.D.

OWNER'S HANDBOOK

BY APPOINTMENT
TO HER MAJESTY THE QUEEN
MOTOR CAR MANUFACTURERS
THE DAIMLER CO. LTD

Handbook for

THE DAIMLER

2½ LITRE V.8 SPORTS CAR

SP.250 R.H.D. & L.H.D.

Price 15/- nett

THE DAIMLER COMPANY LTD
COVENTRY, ENGLAND

Owners are particularly invited to make full use of the service organisation of the Company and of its officially appointed Distributors' and Dealers' Repair Depots. Daimler Cars are thus serviced by mechanics who are in constant contact with the Company's works and with each development of progress.

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FOREWORD

This Instruction Handbook has been compiled to provide the essential information required for the satisfactory operation of the Daimler SP.250 V.8 2·5 litre Sports Car.

Particular attention should be given to the first chapter dealing with the operation and maintenance of the Daimler SP.250 and the Daimler Four-speed Synchro-mesh Transmission.

The all important items for attention, so essential in maintaining the car in good condition to ensure trouble free and economical motoring, are detailed in the "Maintenance Schedule" on page 10.

THE DAIMLER COMPANY LIMITED

COVENTRY

ENGLAND

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THE DAIMLER V.8 2½ LITRE SPORTS CAR

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THE CHASSIS LUBRICATION CHART IS ATTACHED TO THE INSIDE OF THE BACK COVER

IGNITION KEY NUMBER

Prefix	Numbers

THIS HANDBOOK IS APPLICABLE TO THE FOLLOWING CAR NUMBERS

Commencing at Chassis No.
100,010

LOCATION OF CHASSIS AND ENGINE NUMBERS

This Handbook contains references to the R.H. and L.H. side of the car or individual units as viewed from the driver's seat, unless the contrary is specifically stated

Fig. 1. Location of Chassis Number.

THE CHASSIS NUMBER

The Type No. and Chassis Identification No. will be found on the R.H. of the chassis frame front crossmember.

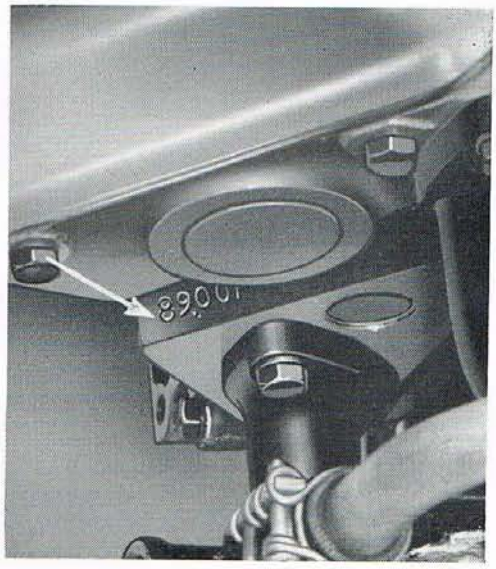

Fig. 2. Location of Engine Number.

THE ENGINE NUMBER

The Engine Identification No. is stamped on the front R.H. bank of cylinder bores adjacent to the R.H. cylinder head fitting face.

Both these numbers must be quoted on all correspondence and service replacement orders.

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Operation and Maintenance

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Specification and Data

V.8 2·5 Litre Sports Car

Type SP.250 R.H.D. & L.H.D.

ENGINE DATA

Number of cylinders	8.
Disposition of cylinders	90° Vee.
Valve gear operation	O.H.V. push rod operated.
Bore	3·000″ 76·200 mm.
Stroke	2·750″ 69·850 mm.
Cubic capacity	152·56 cu. ins. 2·5 litres.
H.P.—R.A.C. rating	28.8.
Compression ratio	8·2 : 1.
Firing order	1L, 4R, 2R, 2L, 3R, 3L, 4L, 1R.
Valve rocker clearance (cold)	inlet 0·011″ (0·28 mm.) exhaust 0·014″ (0·36 mm.)
Spark plug make and type	Champion N.8. Autolight 404
Spark plug gap	0·025″ 0·635 mm.
Contact breaker gaps	0·016″—0·014″ (0·406-0·356 mm.).
Ignition timing	10° B.T.D.C.
Maximum B.H.P.	140 at 5,800 r.p.m.
Maximum torque	155 lbs. ft. at 3,600 r.p.m. (21·437 kg.m. at 3,600 r.p.m.).
Maximum B.M.E.P.	150 p.s.i. at 3,600 r.p.m. (10·550 K.s.cm. at 3,600 r.p.m.).
Carburettor type	Twin S.U. HD.6.
Jet and jet needle	0·10. T.S.
Petrol pump pressure	2·5 p.s.i. (0·176 K.s.cm.).

TRANSMISSION DATA

Clutch	Borg & Beck 9″ (228·6 mm.) Dry Plate.
Free movement of foot pedal pad	Not more than 0·250″ (6·350 mm.).
Gearbox Ratios	1st 2·933 : 1. 2nd 1·742 : 1. 3rd 1·232 : 1. Top 1 : 1. Reverse 3·771 : 1.
Rear axle ratio	3·58 : 1.
Overall ratios	1st 10·500 : 1. 2nd 6·236 : 1. 3rd 4·410 : 1. Top 3·58 : 1. Reverse 13·500 : 1.
Propellor shaft	Hardy Spicer open type flange attachment.
Tyre size	5·90—15 "Roadspeed".
Tyre pressures—Normal motoring	Front 22 p.s.i. Rear 24 p.s.i. (F.1·547K.s.cm. R.1·687K.s.cm.).
High speed motoring	Increase by 6 p.s.i. (0·422 K.s.cm.).
Sporting events	The Tyre Manufacturer should be consulted.

BRAKE DATA

Brakes	Girling Disc Type. Hydraulic.
Front disc diameter	10·625″ 269·875 mm.
Rear disc diameter	10·000″ 254·000 mm.
Type of brake disc pad—Front	Girling 64325013CV.
Rear	Girling 64325056CV.
Hand	Girling 64325202/3EE.
Free movement of foot pedal pad	Not more than 0·250″ (6·350 mm.).
Clearance between handbrake pad and disc	0·003″ (each side) 0·076 mm.

DIMENSIONS

Wheelbase	7′ 8″	2336·800 mm.
Track—Front	4′ 2″	1270·000 mm.
Rear	4′ 0″	1219·200 mm.
Length	13′ 4½″	4076·700 mm.
Height to hood	4′ 2¼″	1276·350 mm.
Width	5′ 0½″	1536·700 mm.
Ground clearance	6″	152·400 mm.
Frontal area	16 sq. ft.	1·4865 sq. metres.
Front overhang	2′ 3″	685·80 mm.
Rear overhang	3′ 5½″	1054·1 mm.
Turning circle	33′ 6″	10·210 metres.

CAPACITIES AND WEIGHTS

	Imperial	American	Metric
Petrol tank (including reserve)	12 galls.	14 galls.	54·551 litres.
Cooling system	22 pints	26½ pints	12·496 litres.
Engine sump	12 pints	14½ pints	6·820 litres.
Steering unit	1½ pints	1¾ pints	0·852 litres.
Gearbox unit	1½ pints	1¾ pints	0·852 litres.
Rear axle differential unit	1½ pints	1¾ pints	0·852 litres.
Weight at kerb	2,218 lbs		1,006 kgs.
Weight for shipping	2,090 lbs.		948 kgs.

LAMP BULBS

Headlamp Bulb	R.H.D. 414 L.H.D. Europe except France 410 L.H.D. France only 411
	L.H.D. U.S.A. Sealed unit
Side lamp bulb	989
Front flasher indicator bulbs	382
Rear flasher indicator bulbs	382
Stop/tail lamp bulbs	380
Number plate illumination lamp bulbs	989
Ignition, high beam, flasher warning and panel illumination bulbs	987

Taking over a new Daimler 2·5 Litre Sports Car

ITEMS TO BE CHECKED

The following items will normally have been checked by the supplier, but his assurance should be obtained that such is the case. When taking over the car, the following items should be checked.

The contents of :

The Radiator	See page 38.
The Engine Sump	,, ,, 20.
The Hydraulic Fluid Reservoirs ..	,, ,, 43 and 65.
The Gearbox Unit	,, ,, 44.
The Rear Axle Differential Unit ..	,, ,, 46.
The Petrol Tank	,, ,, 23.

Running-in

The engine, gearbox and rear axle are bench tested before installation and the completed car is road tested ; consequently, running-in at a fixed low speed is neither necessary nor desirable.

Nevertheless, care should be taken to ensure that, during the first 100 miles (161 km.) prolonged running at light throttle must not exceed 50 m.p.h. (80 k.p.h.).

Furthermore, when hill climbing or accelerating, full throttle must not be used continuously for more than ten seconds, and not for more than a total of one minute in any ten minute period.

After the first 100 miles (161 km.) and up to 500 miles (805 km.) the engine must not be run at full throttle for long periods.

For the first 500 miles (805 km.) the oil level in the engine sump should be checked frequently and topped up when necessary to ensure adequate engine lubrication.

Maintenance Schedule

Maintenance operations should be carried out at the time or distance specified, and adherence to these times is essential for the enjoyment of trouble free and economical motoring.

The maintenance operations are given below, together with the page reference on which will be found the recommended sequence of the operations to be effected.

	Page
DAILY	
Check coolant level in radiator	38
Check oil level in engine sump	20
Check contents of petrol tank	23
WEEKLY	
Check electrolyte level in battery	75
Check tyre pressure	47
Check security of roadwheels	49

FIRST 500 MILES (805 Km.)

	Page
Drain and refill engine sump and renew engine oil filter	20
Tighten cylinder head, inlet and exhaust manifold nuts	26
Check oil level in steering unit	52
Check hydraulic fluid level in master cylinder reservoirs	43 and 65
Drain and refill gearbox unit	44
Drain and refill rear axle differential unit	46
Check tension of coolant pump and dynamo drive belt	38
Check engine valve rocker clearances	22
Check spark plug gaps	31
Check ignition distributor contact breaker gaps	33
Clean sediment bowl of petrol filter	24
Check synchronisation of carburettors	29
Check handbrake adjustment	63
Check alignment of front roadwheels	54
Lubricate all items as detailed in each mileage interval listed hereafter	11

The above items, together with any other adjustments and lubrication, will be carried out by the Distributor or Dealer from whom the car was purchased. No charge, other than for materials will be made.

EVERY 1,000 MILES (1,610 Km.)

Lubricate all steering joints	52
Lubricate front suspension joints	58
Lubricate propellor shaft	45

EVERY 5,000 MILES (8,050 Km.)

Drain and refill engine sump and renew engine oil filter	20
Check oil level in steering unit	52
Check hydraulic fluid level in master cylinder reservoirs	43 and 65
Check handbrake adjustment and thickness of all brake pads	63 and 64
Change station of roadwheels and tyres	49
Check tension of coolant pump and dynamo drive belt	38
Check oil level in carburettor dash-pots	27
Clean carburettor air cleaners	26
Clean sediment bowl of petrol filter	24
Check oil level in gearbox unit	44
Check oil level in rear axle differential unit	46
Check spark plug gaps	31
Lubricate ignition distributor	33
Lubricate clutch operating shaft bearings	42
Lubricate rear road springs. (Take care to prevent oil getting on to brake discs)	58
Lubricate handbrake cable and clevis pin joints	62
Lubricate front and rear hubs	47
Lubricate accelerator pedal linkage	26
Lubricate clutch and brake pedals	42
Lubrication of body parts	93

EVERY 10,000 MILES (16,100 Km.)

Check free movement of clutch foot pedal	42
Check free movement of brake foot pedal	63
Drain and refill gearbox unit	44
Drain and refill rear axle differential unit	46
Check engine valve rocker clearance	22
Renew spark plugs	31
Clean and reset ignition distributor contact breaker gaps	33
Check synchronisation of carburettors	29
Clean electric starter motor commutator and brush gear	79
Clean dynamo commutator and brush gear	76
Lubricate dynamo	76
Check level of oil in rear road spring dampers	60

EVERY 20,000 MILES (32,200 Km.)

Renew ignition distributor contact breakers	34
Fit new carburettor needle valve assembly	30
Drain petrol tank of any sediment	23
Clean petrol pump filter	24
Lubricate engine speed indicator flexible drive	83
Lubricate speedometer flexible drive	83

Lubrication

Lubrication is Important

Lubrication is important and only the best is suitable for the Daimler, and a choice of one of those recommended must be made. Choose a brand that is readily available in your neighbourhood and carry a small quantity in a suitable container when touring. When "topping up" the engine sump, gearbox or rear axle, make certain that not only the viscosity is correct, but also the brand.

Foreign matter must never be allowed to enter any of the internal parts, so clean away the road dirt in the immediate vicinity of, and before withdrawing, the dipstick, the oil filler cap, oil filter, or drain plugs and grease nipples.

A high viscosity index engine oil is recommended for use in the engine sump, as it has the correct viscosity and character to afford complete engine lubrication. After many thousands of miles of motoring, oil consumption may increase to 1 gallon per 1,000 miles (1 litre per 400 km.), when it will be advisable to change to the next viscosity of engine oil, pending a complete engine overhaul.

When changing the engine, gearbox or rear axle oil, effect the draining after a long run when the oil is hot and at its thinnest. It will then have much of the impurities and sludge in suspension and so will assist in flushing out the unit. After changing the engine oil it is advisable to turn the engine over for a few moments by the electric starter motor before starting, so that the oil filter will fill with oil. This is effected by pressing the rubber covered button on the engine starter solenoid switch and not by turning the key of the ignition lock.

If it is decided to flush out any unit, the use of paraffin must be avoided. Not only is it a poor lubricant, it also reduces the quality of the oil refill when any paraffin has not been completely drained off. Use a good quality flushing oil.

Engine Oil Draining Period

The frequency of the draining and refilling the engine sump should be relative to the journeys, driving and climatic conditions to which the car is subjected. The period specified is recommended for average driving conditions and should be increased or reduced when the driving conditions improve or deteriorate.

Favourable	Long journeys with very little engine idling, on well surfaced roads, free from dust.
Average	Medium length journeys, with small proportion of idling, stop and starts, on good surfaced roads, reasonably free from dust.
Unfavourable	Short journeys, with much idling, many stops and starts, on dusty roads, or in a cold climate necessitating excessive use of the carburettor mixture control.

A DETACHABLE LUBRICATION CHART IS AFFIXED TO THE INSIDE OF THE BACK COVER.

Location of Instruments, Switches and Controls

The position of the instruments, switches and controls will be more readily appreciated by reference to the illustration while their function is discussed on the page references mentioned below (*Fig. 3*).

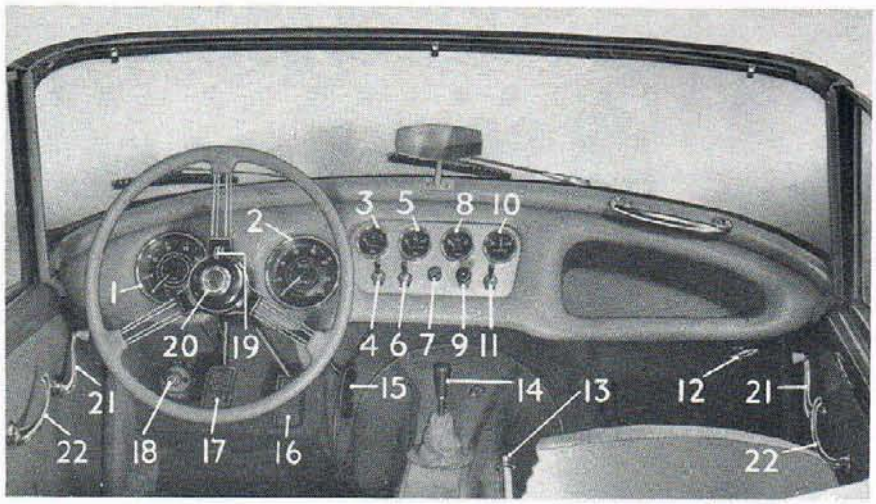

Fig. 3. Location of Instruments, Switches and Controls for LHD Car.

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	12	Bonnet Lock Release	96
FLOOR	13	Handbrake Lever	62
	14	Gear Selection Lever	44
	15	Accelerator Pedal	14
	16	Brake Operating Pedal	14
	17	Clutch Operating Pedal	14
	18	Headlamp Dipper Switch	70
STEERING COLUMN	19	Direction Indicator Switch	73
	20	Warning Horn Button Switch	81
DOORS	21	Window Regulators	93
	22	Door Remote Control Levers	93

Driving the Car

Driver's Controls—R.H. and L.H. Drive (*Fig.* 3)

15	Accelerator pedal	Operated by driver's right foot.
16	Brake pedal	
17	Clutch pedal	Operated by driver's left foot.
18	Headlamp dipper switch	

The foot operated controls, together with the steering unit, are transferred en bloc to either side of the car to suit R.H. or L.H. drive.

1 Engine speed indicator.
2 Speedometer and odometer.

These two instruments are moved with the foregoing driver's controls to suit the drive of the car, but in this instance the speedometer is always nearer the centre of the car.

9 Carburettor mixture control.

This control is mounted in the centre instrument panel and has the letter "M" thereon. Its purpose is to enrich the mixture to facilitate engine starting in cold conditions, effected by pulling it outward and turning it clockwise to lock in position. When the engine has started it is returned to its rest position as early as possible.

Starting a Cold Engine

Ensure that the garage doors are wide open, the handbrake is hard on, the carburettor mixture control is fully pulled out and locked. Depress the clutch pedal, engage neutral gear and keep the clutch pedal depressed until the engine has started. Insert the key into the ignition lock and turn clockwise against its spring loading ; release the key immediately the engine starts, when it will spring back and adopt a two o'clock position.

Should the engine fail to start, switch off the ignition, pause for a few seconds before attempting a second start. When starting failure persists, switch off the ignition and ascertain the cause of the failure before the battery loses its power.

The mixture control should be returned to its free position as soon as possible after the engine has been started, and as the cooling system is thermostatically controlled the car may be driven away immediately the oil pressure has built up.

Starting a Warm Engine

The procedure for starting a warm engine is similar to that for a cold engine, but the depression of the clutch pedal and the use of the mixture control is not so necessary.

Driving Away, Forward Gears

The engine will be running at idling speed, with neutral gear engaged and with the handbrake hard on.

Depress the clutch pedal, select first gear by moving the gear lever to the left and toward the front of the car. Release the handbrake while depressing the accelerator pedal to give the desired acceleration.

To effect upward gear changes, the accelerator pedal is released, then the clutch pedal depressed and the gear lever moved to select the higher gear. The clutch pedal is released smoothly and the accelerator depressed to give the desired acceleration.

In the interests of road safety, foot brake operation should be checked before any high road speeds are reached.

To effect downward gear changes, the accelerator pedal is released, then the clutch pedal depressed and the gear lever moved to select the lower gear while depressing the accelerator pedal slightly to increase the engine speed and the clutch pedal is released smoothly.

Use of Clutch

The left foot must never be rested on the Clutch Pedal.

Owing to the high torque output of the engine unit, the clutch operation should not be abused by too frequent starting at high engine speeds ; this will avoid unnecessary overheating and ensure longer life of the clutch unit.

During long traffic delays, the clutch should not be held disengaged indefinitely by continuous foot pressure on the pedal ; engage neutral gear and remove the foot from the clutch pedal completely. When traffic conditions permit, depress the clutch pedal, engage first gear and drive away by depressing the accelerator pedal to give the desired roadspeed.

Stopping the Car

Release the accelerator pedal, depress the foot brake pedal progressively and as the road speed diminishes depress the clutch pedal. Apply the handbrake, select neutral gear and release the clutch pedal.

Reversing the Car

Depress the clutch pedal, select reverse gear, ensuring that the lever is "lifted over the step". Release the handbrake and depress the accelerator ; only a slight depression will be required.

After reversing the car, toward higher and softer ground, a loss of power or complete engine failure may be experienced. Inspect the open ends of the exhaust tail pipes before examining the engine unit or braking system for faults. The low exhaust tail pipes may have been forced into the soft ground and become blocked by the rearward movement of the car, causing a temporary inconvenience until the blockage is cleared.

Towing the Car

The type, the body styling and the reduced ground clearance of the car does not lend itself readily to be towed or as a towing vehicle. When, in extreme circumstances, the car must be towed, the following points should be observed.

The rear section of the front chassis cross member assembly must be positioned in a padded cradle of an ambulance and the rear end of the propellor shaft detached from the rear axle if distance is more than 10 miles (16·093 km.).

Gear Change Engine and Road Speeds

Owing to the efficiency of the 2·5 Litre V.8 engine and the performance of the car, no rigid gear change engine or road speeds are laid down. However, gear changes should not be effected when the engine speed exceeds 6,000 r.p.m.

Use parts of genuine Daimler manufacture **only** when making a replacement.

Genuine Daimler spare parts are stocked by Daimler distributors and dealers in most important centres.

Names and addresses of distributors and dealers will be supplied on request.

II

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THE ENGINE UNIT

The Engine Lubrication

The engine lubrication is of the pressure, full flow filtered type effected by a gear type oil pump submerged in a wet sump, which is baffled to minimise oil surge when the car is cornering at high speed. The oil pump is driven by the tongued end of the ignition distributor shaft from the camshaft skew gear, and all oil passes through a replaceable full flow oil filter. Oil at full pressure lubricates the main bearings, the connecting rod big ends, fills the camshaft oil bath, supplies the oil pressure for the hydraulic chain tensioner and returns to the engine sump by gravity or through the oil transfer holes adjacent to the ignition distributor/oil pump drive. An intermittent supply of oil at a lower pressure lubricates the valve operating gear through hollow rocker shafts and returns to the engine sump through transfer holes in the outside corners of the cylinder heads and block. The cylinder bores, gudgeon pins and timing chain are lubricated by splash and mist given off by the main, connecting rod big end and front camshaft bearings.

Crankcase ventilation is effected by venting the two rocker covers to the carburettor air cleaners so that the contaminated gases are consumed by the engine.

The engine sump is filled through a filler neck in the front R.H. corner of the tappet block and cover, the oil level is checked by a dipstick situated in the front L.H. corner of the engine sump and drained through a plug in its L.H. side.

Oil Pressure Relief Valve

The oil pressure relief valve is incorporated in the oil pump body situated in the oil sump, no adjustment is provided nor required.

Oil Pressure

RUNNING OIL PRESSURE	35-45 p.s.i. (2·461—3·164 K.s.cm.)
IDLING OIL PRESSURE	20 p.s.i. (1·406 K.s.cm.)

The oil pressure is set during initial assembly to give adequate engine lubrication and pressure for the hydraulic chain adjuster at all times. When any abnormal oil pressure reading is indicated on the oil pressure gauge, the engine should be switched off and the following points should be checked :

(i) Check the oil level in the engine sump.

(ii) Ascertain that the engine oil is of the recommended grade and brand.

(iii) Examine the exterior of the engine for oil leaks.

The Hydraulic Timing Chain Tensioner

The hydraulic timing chain tensioner is positioned on the R.H. side of the timing chain and operated by high pressure oil from the oil gallery to the front main bearing drilling. It is fully automatic in use and will require no adjustment. Incorporated in its design is a restraint mechanism which keeps the slipper head from retracting as the timing chain straightens during an over-run.

A timing chain anti-vibration plate, having a nylon face, is fitted adjacent to the driving side of the timing chain to ensure its smooth running and long life.

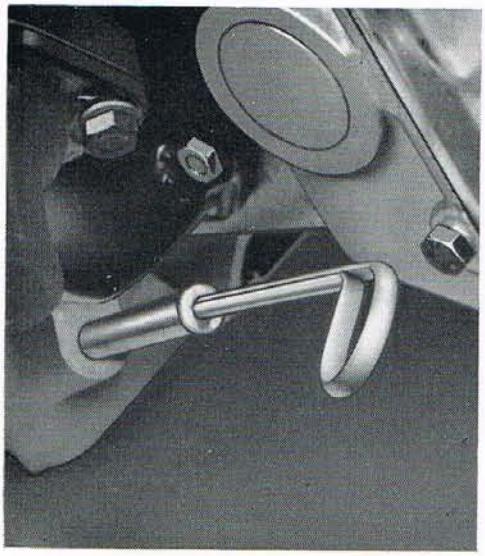


Fig. 4. Location of engine dipstick.

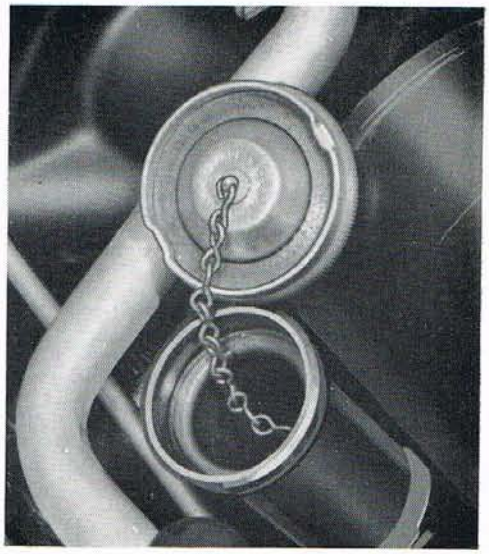


Fig. 5. Location of engine sump filler cap.

Lubrication is effected by oil spray from the slipper head of the chain tensioner and the overflow from the camshaft oil trough.

Checking and Topping up Engine Sump (*Figs. 4 and 5*)

A truer indication of the oil level will be determined when the engine has been stationary for some considerable time, for instance overnight, when the engine oil will have drained into the sump and become less aerated.

Have the car standing on level ground, withdraw the sump dipstick and wipe it clean. Return it to the engine sump, ensuring that it goes right home, and then withdraw it for a second time ; observe the "oil wet mark" and return the dipstick to the sump.

Remove the filler cap and top up with the recommended brand and grade of oil ; it should be noted that a little time will elapse before the new engine oil reaches the engine sump.

Draining and Refilling Engine Sump and Renewing Engine Oil Filter (*Figs. 7 and 8*)

Position the car on level ground, remove the oil filler cap and the engine sump drain plug, allowing the oil to run into a suitable receptacle ; ensure the sound condition of the drain plug sealing washer and replace the drain plug.

Detach the oil filter from the R.H. corner of the cylinder block by removing the top centre bolt. Withdraw and discard the soiled oil filter, wash and dry the oil filter body ; insert the new oil filter and fill with clean engine oil. Refit the oil filter body and filter to the cylinder block, tighten the top centre bolt.

Fill the engine sump with the recommended brand and grade of oil. After a short journey, check the oil level and top up if necessary.

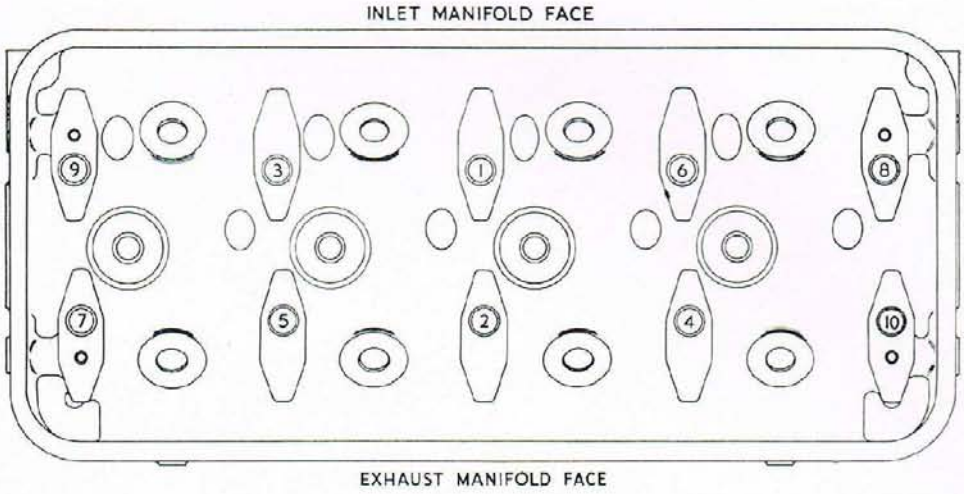


Fig. 6. Cylinder head nut tightening sequence.

The Cylinder Heads

Cylinder Head Nuts (*Fig. 6*)

TIGHTENING TORQUE : 45-50 lbs. ft. (6·221—6·913 kg.m.).

Exercise care not to overtighten the cylinder head nuts, as this only places excessive strain on the nuts and studs. The use of a torque spanner is highly recommended.

The cylinder head nuts should be tightened down in the sequence illustrated after the first 500 miles (805 km.), whenever replacement gaskets have been fitted and before the cooling system is filled with a coolant containing an anti-freeze additive.

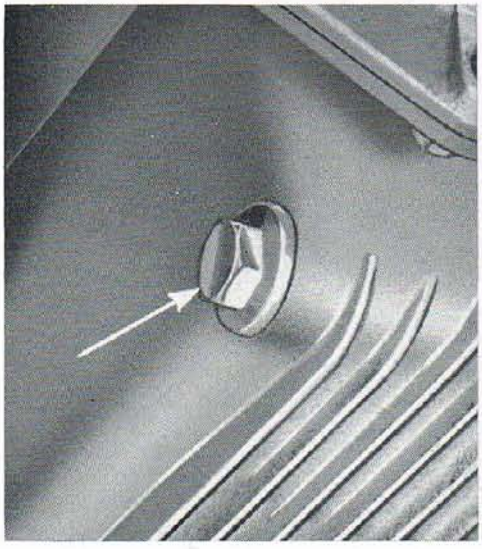


Fig. 7. Location of engine sump drain plug.

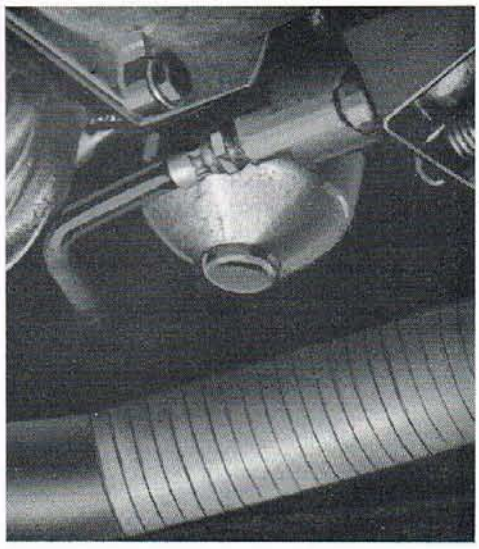


Fig. 8. Location of engine oil filter.

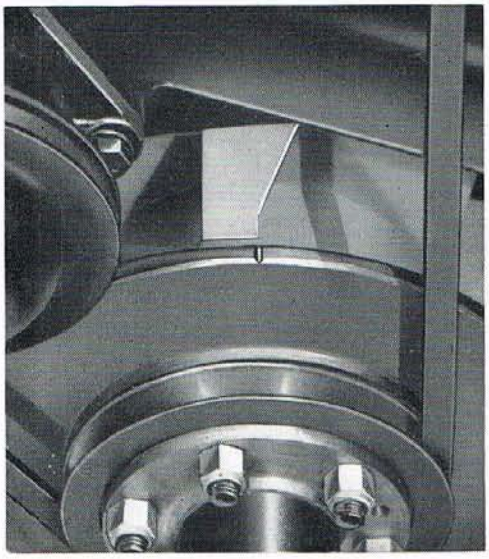
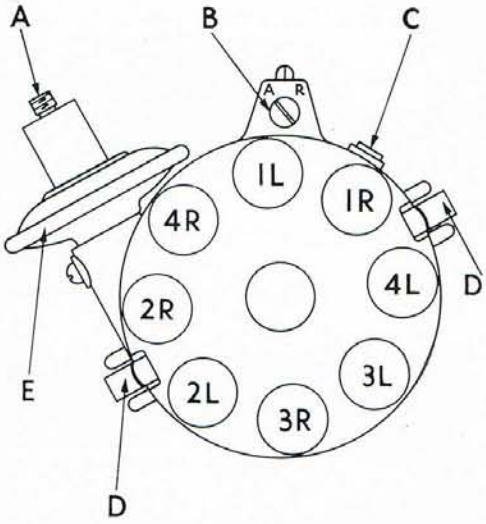


Fig. 9. The crankshaft damper mark indicating No. 1.L or 3.R. piston at T.D.C.



A. Vacuum pipe union. B. Micro-adjuster screw. C. L.T. terminal. D. Spring clips. E. Vacuum chamber.

Fig. 10. Location of H.T. leads in ignition distributor cap.

Checking and Adjusting Valve Rocker Clearance (*Figs. 9 and 10*)

Remove the eight spark plugs, the distributor cap, detach the carburettor air cleaners and remove the rocker covers.

Turn the crankshaft so that No. 1.L cylinder is at T.D.C. on its compression stroke, ascertained by aligning the mark on the crankshaft damper with the left-hand side of the timing cover indicator and the ignition distributor rotor arm pointing to the front of the engine.

Utilizing feeler gauges, ascertain the valve rocker clearance, adjust the clearance as necessary by slackening the ball pin lock nut, turning the ball pin, re-tightening the lock nut and then re-checking the clearance.

Repeat the previous operations with the remaining cylinders in their firing order by turning the crankshaft 90° each time and checking the position of the ignition distributor rotor arm.

Replace the components by reversing the removal sequence.

THE FUEL SYSTEM

The Petrol Supply

The petrol tank is situated transversely behind the cockpit of the car, and the S.U. electric petrol pump is positioned in the front left-hand corner of the luggage boot. A pipe line, alongside the left-hand side chassis frame side member, conveys the petrol to the sediment bowl type petrol filter in the engine compartment. An on and off tap is incorporated in the design of the petrol filter and before any carburettor pipes are disconnected the petrol should be turned off.

Petrol Tank Contents

The contents of the petrol tank can be ascertained by switching on the ignition and observing the recording on the petrol gauge. This reading should be taken before the engine is started.

When it is observed that the gauge reads "E" it can be assumed that 1½ Imp. galls. (1¾ U.S. galls.) (6·819 litres) of petrol still remain in the tank.

Draining the Petrol Tank (*Fig. 11*)

A drain plug is situated in the left-hand underside of the petrol tank to facilitate the draining of any sediment that may accumulate in the bottom of the petrol tank.

Fig. 11. Location of petrol tank drain plug.

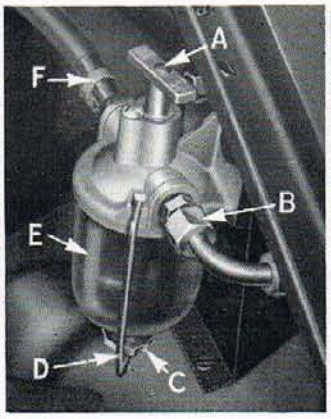


Fig. 12. The petrol tap and filter.

A. On and off tap. B. Inlet union.
C. Thumb nut. D. Wire cage.
E. Glass sediment bowl. F. Outlet union.

Fig. 13. The petrol filler cap.

The Petrol Filler Cap

The petrol filler cap, which incorporates a spring type anti-air lock valve, is situated on the body centre line between the rear of the cockpit and the front of the luggage boot hood. It is hinged for safe keeping toward the cockpit. There must be a clearance between the outside lip of the petrol filler cap and the rubber grommet to allow a free passage of air to the underside of the cap, otherwise an air lock may form in the petrol tank resulting in petrol starvation.

A restraint mechanism is incorporated between the fixed and free moving parts of the petrol filler cap to ensure that the cap does not become mis-aligned with the petrol tank filler neck and make closing of the cap difficult.

Opening and Closing, Petrol Filler Cap (*Fig. 13*)

To open, grip the rim of the petrol filler cap and turn anti-clockwise to its fullest extent, hinge the cap upward toward the cockpit.

To close the petrol filler cap, hinge it rearward, apply slight downward pressure and turn the cap clockwise until secure. Overtightening the petrol filler cap tends to destroy the seal and distort the internal components of the assembly.

When difficulty is experienced in closing the petrol filler cap, check that the lugs incorporated on the inside of the cap are not mis-aligned with the slots in the petrol tank filler neck ; the cap may need turning a short distance, while open, to correct this inconvenience.

The Petrol Filter and Tap

The petrol filter is of the sediment bowl type and is situated in the petrol pipe line at the left-hand front corner of the engine compartment. The glass sediment bowl can easily be viewed to ascertain any water or dirt that may have settled when the sediment bowl should be detached and cleaned. A tap is incorporated in the top of the petrol filter and is turned anti-clockwise to turn the petrol "ON" and clockwise to turn the petrol "OFF".

Cleaning the Sediment Bowl (*Fig. 12*)

Turn off the petrol tap, remove the sediment bowl from the underside of the petrol filter by slackening the thumb nut and swinging the wire cage clear. Empty and dry out the sediment bowl and replace by reversing the removal sequence. switch on the ignition and fill the sediment bowl with petrol.

The S.U. Electric Petrol Pump

The S.U. electric petrol pump is fitted to a bracket in the front left-hand corner of the luggage boot, and is protected by a cover plate ; the bottom union is the inlet and the top union is the outlet port. Situated in the base of the petrol pump is a fine gauze filter through which all petrol must pass ; this is withdrawn periodically and cleaned. Immediately the ignition system is switched on the petrol pump will give off a "beating" noise indicating that the pump is working and filling the carburettor float chambers. When the engine is running and the car is moving, the "beating" noise becomes inaudible, partly due to the car's insulation, and the slow operation of the pump. It should be noted that the removal of the base plate for filter cleaning should not be attempted unless the petrol tank is less than half full, otherwise petrol may syphon out.

Cleaning the Petrol Pump Contacts

Remove the cover trim from the left-hand front corner of the luggage boot, detach the electric cable from the terminal post in the bakelite cover and then remove the cover by detaching a nut. Lift the spring leaf carrying the contacts, insert a piece of thin cardboard, and agitate the cardboard to and fro while applying slight pressure to the spring leaf. The removal of the condenser from its spring clip facilitates the cleaning operation. Withdraw the card and replace condenser, cover, electric cable and cover trim by reversing the removal sequence.

Cleaning the Petrol Pump Filter

This operation must only be effected when the petrol tank is less than half full, as petrol may syphon itself off when the petrol pump bottom cover is removed.

Disconnect the battery, remove the cover trim from the left-hand corner of the luggage boot, place a suitable receptacle under the petrol pump to trap any escaping petrol ; detach the bottom cover and filter by withdrawing six screws. Clean the gauze filter in petrol and dry off in clean, dry air.

Replace the components by reversing the removal sequence.

Removal and Replacement of Petrol Pump

This operation must only be effected when the petrol tank is less than half full, as petrol may syphon itself off when the petrol unions are detached.

Disconnect the battery, remove the cover trim from the left-hand corner of the luggage boot, place a suitable receptacle under the petrol pump to trap any escaping petrol, detach the electrical lead from the terminal post on the pump cover. Remove the inlet and outlet pipes by slackening the union nuts and detach the petrol pump from the bracket by withdrawing two bolts.

The replacement of the petrol pump is the reversal of the removal sequence.

Cleaning Petrol Pump Disc Valves

Disconnect the battery lead and remove the petrol pump from its bracket.

Detach the top cover from the petrol pump by withdrawing six screws, unscrew the outlet valve cage and remove the inlet valve disc from inside the pump, withdraw the outlet valve disc from the cage by removing the circlip.

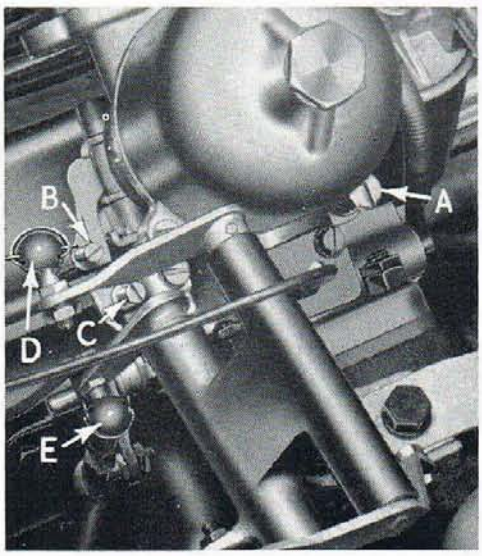
The replacement of the petrol pump discs is the reversal of the removal sequence, but their smooth side must be positioned downward.

The S.U. Diaphragm Carburettors

The twin S.U. diaphragm carburettors are of the semi down-draught type incorporating a leakproof diaphragm mounted jet assembly and they will require little attention in normal service.

The operation of the two carburettors is simultaneous by an interconnection linkage operated by the driver's mixture control and accelerator pedal. In isolated instances it may be necessary to re-synchronise the carburettors to ensure that each unit delivers the same amount and strength of mixture.

The operation of synchronisation is effected by listening to the "hiss" of ingoing air independently and setting two screws on each carburettor (Fig. 14).



"A"

The slow running adjusting screw, which regulates the amount of mixture by-passing the fully closed butterfly valve. This is a large spring-loaded screw situated at the front of the L.H. carburettor and at the rear of the R.H. carburettor between the butterfly valve spindles and a suction chamber attachment screw.

Fig. 14. Location of carburettor adjusting screws and the linkage ball joints.

A. Slow running screw.
B. Mixture screw.
C. Cold starting throttle screw.
D. Ball socket in released position, metal clips open.
E. Ball socket in fitted position, metal clips closed.

"B"

The mixture or jet adjusting screw, which determines the strength of the mixture by setting the height of the tubular jet. This is a small spring-loaded screw situated low down and at the end of the diaphragm dog lever behind both carburettors.

"C"

The cold starting throttle adjustment screw, which determines the amount of throttle opening when the driver's mixture control is fully operated. This is a small spring-loaded screw situated high up behind the carburettors adjacent to the butterfly valve spindles ; this screw must not be confused with a flat headed screw mounted on top of the mixture control push rod assembly.

The Inlet Manifold

The inlet manifold is an aluminium casting and it incorporates the contact faces for the two cylinder heads and the water jacketed mounting for the twin carburettors. Cast in the top of the manifold are the cylinder identification numbers, the lesser numbers are at the front and the two banks are handed as the driver sits in his seat.

Inlet Manifold Bolts

The inlet manifold bolts and the carburettor attachment nuts must be tightened after the first 500 miles (805 km.) of running and whenever replacement gaskets have been fitted. Each carburettor flange nut is locked by a "Palnut" which must be first removed and afterwards replaced and "nipped up".

Servicing the Carburettor Air Cleaners

Detach the air cleaners from the carburettors by withdrawing two bolts each and remove them from the rocker cover breather pipes. Wash the air cleaners in petrol, dry in clean dry air and wet with clean engine oil, allowing the excess oil to drain off. Replace the air cleaners by reversing the removal sequence.

Carburettor Operating Linkage

No attempt must be made to effect tuning or any other apparent carburation improvement by resetting the carburettor operating linkage. The length of the connecting rods are set during initial assembly and must not be altered.

A control rod of the carburettor linkage can be detached from the ball end by lifting the two metal clips, situated one each side of the ball socket body, away from the open end of the ball socket and moving the control rod assembly clear of the ball end. The two metal clips can now be closed to avoid straining the metal band around the ball socket body.

The replacement of the control rod to the ball end of the lever is the reversal of the removal sequence, but ensure that the joint is first lubricated and that the metal clips are fully closed and point to the ball end when it is attached.

Lubricating Accelerator Pedal and Carburettor Operating Linkage

Utilizing an oil can, lubricate the bearings of the accelerator pedal linkage, one bearing inside the car and a second in a bracket mounted on the rear engine bulkhead ; together with the carburettor operating linkage situated on top of the inlet manifold and consisting of two shafts and ten ball joints.

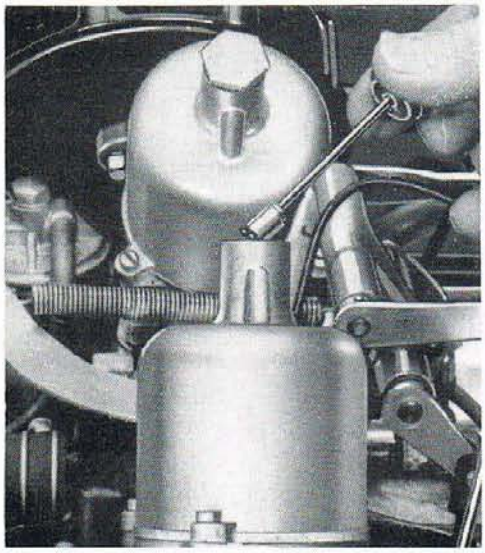


Fig. 15. The oil cap/damper assembly removed from carburettor suction chamber.

Filling Carburettor Dash Pots
(*Fig. 15*)

Remove the oil cap/damper assembly from the top of each carburettor suction chamber and feed in sufficient engine oil to raise the oil level to the shoulder observed through the open top ; replace the oil cap/damper assembly.

Setting the Petrol Level in Carburettor Float Chamber and Jet

The petrol level in the float chamber and jet is controlled by the height at which the carburettor float will rise and close the needle valve. It is set by adjusting the forked lever situated in the underside of the float chamber cover.

The set of the forked lever is correct when the cover of the float chamber is inverted with the shank of the forked lever resting on the base of the needle valve assembly ; it is possible to pass a $\frac{7}{16}$" (11·1125 mm.) diameter rod between the inside radius of the forked lever and rest on both sides of the flanged underside of the carburettor float chamber cover.

The removal of the carburettor float chamber cover is described later under "Removal and Replacement, Carburettor Needle Valve".

The Cold Starting Throttle Adjustment

Normally, adjustment to this linkage is unnecessary, but a change of engine oil viscosity or sustained usage in a different climate may warrant a small adjustment to maintain a satisfactory engine speed under cold starting conditions.

The cold starting throttle adjustment can be checked when the carburettors are being synchronised and the most opportune time is while the engine is warming up.

When the engine is stone cold, fully engage the driver's mixture control, slacken off the two cold starting throttle adjusting screws until they just touch the lever below, then turn each two turns clockwise and start the engine. Before the engine gets too warm, adjust the two screws to set the engine speed as desired. It is a wise plan to listen to the "hiss" and then reset one screw only to equalise the volume.

The Concentricity of Jet and Jet Needle

The carburettors employ a single tubular jet and the petrol output is controlled by a jet needle penetrating the bore of the jet to a depth dependent on the engine speed, positioning the sliding piston to which the jet needle is attached.

When the engine is running at idling speed the piston and needle assembly is at its lowest position and the circumference of the jet needle almost equals the jet bore. When the jet needle, in the tubular jet, is not accurately centred, the needle may stick or jam in the bore, enriching the mixture, causing rough running and possibly destroying the synchronisation of the two carburettors. It may

produce a sluggish engine speed pick up when the butterfly valves are opened due to the delay in the lifting of the piston and jet needle assembly and in extreme cases the piston and needle assembly may fail to rise at all, causing a considerable loss of power and uneven running at all speeds.

The tubular jet is a sliding fit in a bush bearing and during initial assembly when the jet has been centred to the jet needle the bush bearing is rigidly secured to the carburettor body. Due to the design of the carburettor body the jet is unlikely to become accidentally misplaced.

The tubular jet may need centring when a replacement jet needle has been fitted, and although these operations are described hereafter, unless the owner is a capable engineer, the work is best entrusted to a Daimler Distributor or Dealer.

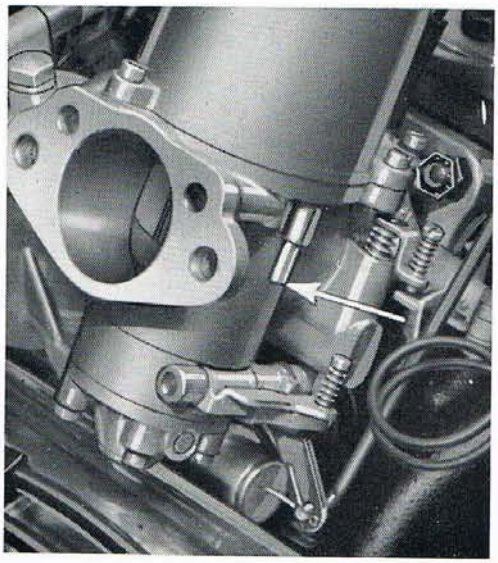


Fig. 16. Location of the carburettor piston lift pin.

Checking for Jet or Needle Concentricity (*Fig. 16*)

Utilizing the lift pin at the rear of the left-hand carburettor body or that at the front of the right-hand carburettor, lift the piston and needle assembly from the bridge of the carburettor and release the lift pin. When the needle and jet are concentric, the piston and needle assembly will fall, emitting a sharp "click" as the piston contacts the bridge of the carburettor. When the piston and needle assembly fail to return as previously described it may be due to a misplaced jet, a damaged needle or the piston sticking in the suction chamber.

Remove the oil cap/damper assembly from the top of the suction chamber and the suction chamber from the carburettor body by withdrawing three screws ; it is worth while noting the torque required to withdraw the screws, for if one is slacker than the others it may be the cause of the sticking piston. Withdraw the piston and needle assembly from the carburettor, empty the damper oil and examine the piston for high spots before replacing it in the suction chamber to determine its freedom of movement. When any obstruction is felt the piston and suction chamber must be cleaned, retested and possibly refitted to the carburettor body when the sluggishness may have disappeared.

When no high spots are observed on the piston, remove the jet needle from the base of the piston by slackening the jet screw, examine it for damage and misalignment ; when any doubt exists as to its condition a replacement must be fitted. The piston and suction chamber are cleaned and together with the new needle returned to the carburettor omitting the oil in the dash pot and re-checked for a sticking needle.

If the piston still fails to return smartly, the jet and diaphragm assembly must be re-centred ; remove the carburettor from the inlet manifold, invert and mount in a bench vice. Note the position of the float chamber and diaphragm housing and detach by withdrawing four screws ; identify the diaphragm circumferentially

to the *carburettor body*. Remove the jet and diaphragm assembly together with the diaphragm housing and slacken off the jet bearing lock nut.

Replace the jet and diaphragm assembly into the jet bearing, aligning the two sets of diaphragm identification marks. Press the jet and diaphragm assembly hard into the carburettor when the thicker portion of the jet needle will move the jet and jet bearing to a more central position. Carefully withdraw the jet and diaphragm assembly and "nip up" the jet bearing locking nut to hold the jet bearing in position ; replace the jet and diaphragm assembly and press hard home for a second time, withdraw the jet and diaphragm assembly and fully tighten the jet bearing lock nut.

Fit the jet and diaphragm assembly, aligning the two diaphragm identification marks. Secure the float chamber and diaphragm housing to the correct side of the carburettor with four screws. Fit the carburettor to the air manifold, synchronise both carburettors and fill the dash pot with oil as previously described.

Carburettor Synchronisation

The two carburettors are synchronised during initial assembly and should require little attention in service. However, to ensure the utmost engine efficiency the correct synchronisation is essential and the synchronisation operation must be carried out in an efficient and unhurried manner with the car in the open air.

The symptoms of the necessity for synchronisation are readily detected by the observation of the exhaust beat when the engine is idling at its full working temperature with the mixture control fully inoperative.

(i) An irregular exhaust beat with a "splashy" type of misfire indicates a weak mixture.

(ii) A regular or rhythmic misfiring exhaust beat with a blackish exhaust discharge indicates a rich mixture.

Before making any carburettor adjustments with the view to improve engine performance, it is best to ascertain that the deterioration is not due to any one or a combination of the following points :—

(i) The use of a petroleum spirit having an unsuitable octane value.

(ii) Incorrect petrol pump pressure or float chamber level.

(iii) Incorrect spark-plug gap setting or faulty spark plugs.

(iv) The deterioration of the ignition distributor contact breakers or their gap setting.

(v) Incorrect engine valve rocker clearances or leaky valves.

(vi) Unsuitable ignition timing.

To Synchronise the Carburettors

Remove the two carburettor air cleaners, the oil cap/damper assemblies, test for sluggish piston operation and sticking jet needle. Check the fuel level in the float chambers and reset if necessary, ensure that the driver's mixture control is inoperative and that the two butterfly valves close simultaneously and are in the closed position.

Turn the two slow running screws "A" fully clockwise and then slacken off 1½ turns anti-clockwise, turn the two mixture adjusting screws "B" anti-clockwise

until they are just in contact with the diaphragm dog levers and then turn two turns clockwise. Start the engine and allow it to warm up to its working temperature, the cold starting throttle adjustment can be set now.

When the engine reaches its normal working temperature, set the engine speed to 800 r.p.m. by turning the two slow running screws "A" an equal amount.

Utilizing a suitable length of rubber tubing, hold one end to the ear and position the second end in the carburettor air intake, listen to the "air hiss" of both carburettors individually by placing the rubber tube in the same relative position in each air intake. Turn the slow running screws "A" so that the intensity of each "air hiss" is identical for both carburettors, this may increase the engine r.p.m. which can be reduced by slackening both slow running screws "A" an equal amount. Check and adjust the "air hiss" and engine speed until perfection is attained.

Elevate the piston and needle assembly of one carburettor $\frac{1}{32}$" to $\frac{1}{16}$" (0·031 to 0·062 mm.).

When the engine speed falls it indicates that the mixture of that carburettor is too weak.

When the engine speed increases, it indicates that the mixture of that carburettor is too rich.

Elevate the piston and needle assembly of the second carburettor $\frac{1}{32}$" to $\frac{1}{16}$" (0·031 to 0·062 mm.) and ascertain if that carburettor is giving a rich or weak mixture.

Adjust the mixture by turning the mixture adjusting screw "B", situated at the extreme end of the diaphragm dog lever, as follows :

Turn the screw "B" clockwise to enrichen the mixture.

Turn the screw "B" anti-clockwise to weaken the mixture.

The piston and needle assemblies are again elevated to check the mixture strength, further mixture strength adjustment may be necessary to attain perfection.

The engine speed is reduced to 500 r.p.m. by turning the slow running screws "A" an equal amount and the "air hiss" checked as previously described. The engine is then switched off and the carburettor air cleaners fitted.

Removal and Replacement, Carburettor Needle Valve

Turn off the petrol, detach the petrol feed and over-flow pipes from the carburettor float chamber cover and remove the cover by withdrawing the cap nut.

Remove the forked lever by ejecting the fulcrum pin toward its serrated end and unscrew the needle valve assembly.

Fit the replacement needle valve assembly, set the float chamber petrol level as previously described, and replace the float chamber cover, the petrol feed and overflow pipes by reversing the removal sequence.

Removal and Replacement, Carburettors

Turn off the petrol, detach the petrol feed and over-flow pipes from the carburettor float chamber cover and when removing the left-hand carburettor detach the ignition advance tube.

Remove the control rod ball joints of the mechanical linkage from the carburettor as previously described under "Carburettor Operating Linkage".

Remove the carburettor and distance piece from the inlet manifold by detaching four nuts each.

The replacement of the carburettor is the reversal of the removal procedure, but they must be checked for synchronisation.

THE IGNITION SYSTEM

The Spark Plugs

Setting the Gap

GAP SETTING 0·025″ (0·635 mm.).

The spark plugs on their removal from the engine should be identified to their respective cylinders, for an analysis of their condition will indicate to some extent the efficiency of the cylinder from which they were removed. They must be cleaned, the electrodes reset and tested on a Champion Spark Plug Tester ; any found to be inefficient must be replaced in order to maintain maximum engine efficiency. To reset the spark plug gap, only the outer electrode must be adjusted. The spark plugs must be replaced every 10,000 miles (16,000 km.) and to ensure a gas tight fit, a new copper and asbestos washer should be used after each removal.

Removing and Replacing Spark Plug

When removing or replacing spark plugs, it is most important to utilize the special box spanner supplied with the car. This spanner is designed to grip the terminal end of the spark plug, thus retaining it inside the body of the spanner with complete security. Failure to observe this instruction may result in the spark plug falling onto its earthing electrode causing the latter to bend and consequently reduce the spark plug gap.

The High Tension Cables

The High Tension Cables (United Kingdom)

The high tension cables are the thicker cables between the ignition coil, the ignition distributor and the spark plug. They are of the ignition suppressor type, which incorporates a special resister element to eliminate ignition interference, and can be identified by the words "SUPPRESSOR CABLE" on its outer case. This type of high tension cable is fitted to all cars marketed in the United Kingdom.

It is imperative that the end terminals of these cables are never removed and no additional ignition interference suppressor is incorporated in the cable's length. The removal of the end terminals will damage the insulation and the continuity between the resister element and end terminal, while the addition of an ignition suppressor can increase the resistance in the high tension ignition circuit, and may adversely affect engine performance.

On no account must the high tension cables be replaced by any other than the original type. Failure to observe this instruction will result in ignition interference rendering the car's owner liable to prosecution in the United Kingdom.

When in doubt concerning the efficiency of the high tension cables, consult your Daimler Distributor or Dealer.

The High Tension Cables (Export Only)

When the H.T. cables show signs of deterioration they should be replaced with 7 mm. H.T. cable and the terminal ends fitted by observing the following procedure :—

The Ignition Coil or Distributor Terminals

Bare the cable end 0·250″ (6·350 mm.), feed on the insulated knurled nut, knurls first, fold the strands of wire back over the insulated casing and grip on the end terminal. Feed the cable end into the component and secure the knurled nut.

The Spark Plug Ends (*Fig. 18*)

Bare the cable end as previously described, feed on the rubber ring followed by the plug lead holder, large end first, fold the strands of wire back over the insulated casing and grip on the end terminal. Withdraw the cable to abut the plug lead holder to the end terminal and slide the rubber ring along the cable to hold it in position. Feed the cable, so assembled, into the spark plug tube of the rocker cover, and clip onto the terminal of spark plug.

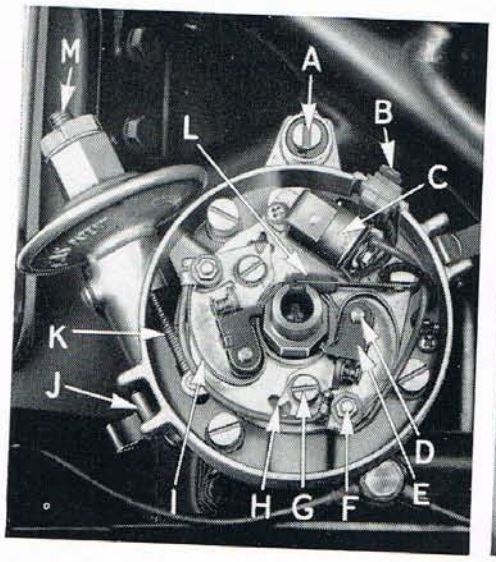


Fig. 17. The ignition distributor with cap removed.

A. Micro adjuster screw. B. L.T. "Lucar" connection. C. Condenser. D. Free contact pivot post. E. Free contact. F. Base plate post. G. Fixed contact clamp screw. H. Adjusting aperture. I. Fixed contact. J. Spring clip. K. Vacuum chamber rod. L. Lubricating pad. M. Vacuum pipe connection.

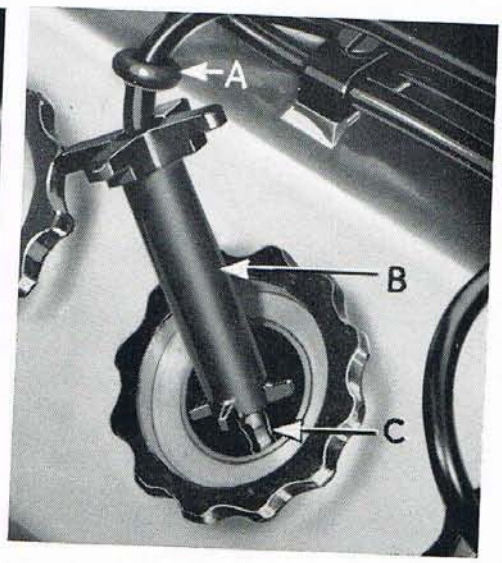


Fig. 18. The H.T. cable and fittings.

A. Rubber ring. B. Plug leadholder. C. End terminal.

The Ignition Distributor

To ensure utmost engine efficiency at high revolutions, the engine is equipped with an ignition distributor having two sets of contact breakers. The opening and closing of the contact breakers is, by design, staggered so that one set will open or close before the second.

As the distributor cam rotates, the first set of contact breakers will close, leaving the second set open ; further rotation of the distributor cam will leave the first set closed and close the second set. Continued rotation of the cam will open the first set but leave the second set closed.

And the cam rotating still further will leave the first set open and open the second set, although at this moment the first set of contact breakers are in fact beginning to close to repeat the aforementioned cycle, so permitting a longer primary circuit build up period.

Two devices are incorporated in the ignition distributor to automatically advance the ignition timing from its static setting, according to the speed and load placed on the engine. The first is a centrifugal governor driven by the distributor shaft

and connected to the distributor base plate, and will move the latter to advance or retard the ignition timing when the engine speed increases or decreases. The second is a vacuum chamber connected by a small bore pipe to the inlet manifold and by the second end to the distributor base plate, and will move the latter to advance or retard the ignition according to the load placed on the engine by movement of the accelerator pedal.

The micro-adjuster, a manually set advance or retard screw, incorporated in the ignition distributor body, is best set to nearly its fully advanced position. It can then be retarded when a lower octane petrol must be used, or when the engine becomes less efficient due to the build-up of carbon deposits and yet leave sufficient advance for when a higher octane petrol is used.

Lubrication of the Distributor (*Fig. 17*)

The distributor cap and rotor arm should be removed from the top and driven shaft of the distributor and the cam lubricating pad moistened with two or three drops of clean engine oil.

The centrifugal governor is lubricated by allowing two or three drops of clean engine oil to run around the screw head in the centre of the distributor shaft. where a clearance will let it pass downward into the body of the distributor.

ON NO ACCOUNT MUST ANY LUBRICANT BE ALLOWED TO FOUL THE CONTACT FACES OF THE CONTACT BREAKERS.

Cleaning the Distributor Cap

The distributor cap should be removed periodically by releasing the two spring clips, and cleaned with a soft dry cloth, paying particular attention to the space between the terminals.

Ensure that the spring-loaded carbon brush moves freely in its holder, the efficiency of the ignition depends on the contact between the carbon brush and the rotor arm electrode.

It is essential when replacing the distributor cap that the recess of the distributor body, adjacent to the low tension cable, locates the tongue of the distributor cap.

Setting Contact Breaker Gaps (*Fig. 17*)

NEW CONTACT BREAKER GAP 0·016″ (0·406 mm.)
GAP SETTING AFTER 500 MILES (805 km.) 0·014″ (0·356 mm.)

To preserve the efficiency of the engine the contact breakers must be free from dust, grease and make perfectly flat contact with one another. Their appearance must be a clean frosty grey colour and when observed to be very dark or "blued" it indicates that they are oily or that the condenser is at fault.

The circular contact surfaces must be perfectly flat and when in a closed position make contact all over. During normal use it may be observed that one contact face has "built up" while the second has become "pitted". The "build up" can be cleaned off and the "pit" reduced by the use of a dry fine grade carborundum stone ; after stoning they must be washed to remove all traces of dust and grease.

The life of the contact breakers is considerable and they will withstand many stonings, but when the thickness of the platinum faces is observed to be thinning replacement sets must be fitted.

Before fitting replacement contact breakers, they must be washed to remove their protective grease coating, and when first fitted, the gap is set to the top limit, thus allowing the heel of the moving contact breaker to bed in. The gap must be checked after the first 500 miles (805 km.).

Withdraw, clean, test and renew any spark plug that is inefficient.

Remove and clean the distributor cap, detach and clean the distributor rotor arm. Turn the crankshaft so that the heel of one contact breaker is at the apex of a cam lobe.

Release the fixed contact breaker by slackening the clamp screw and utilizing feeler gauges, set the specified gap. A mushroom shaped aperture in the distributor base plate and a "nick" in the fixed contact breaker facilitates this operation ; tighten clamp screw.

Turn the crankshaft so that the heel of the second contact breaker is at the apex of a cam lobe, and repeat the gap setting operation.

Fit the distributor rotor arm, locating its key in the distributor driven shaft groove, replace distributor cap and spark plugs.

Removal and Replacement, Contact Breakers

Remove and clean the distributor cap, detach and clean the distributor rotor arm ; withdraw the condenser leads and insulating thimbles from the top ends of the two base plate posts by removing one nut each.

Remove the two free contact breaker points and insulating washers from the four posts by lifting them vertically upward. Detach the two fixed contact breakers from the distributor base plate by withdrawing one screw each.

Clean the replacement contact breakers of all grease and fit by reversing the removal sequence, ensuring that the insulating washers on the pivot posts are not omitted and the smaller insulated washers under the spring of the free contact breaker and the insulating thimbles through the loop of the spring are also not omitted. The contact breaker gap is then set to the upper limit and rechecked after the first 500 miles (805 km.) as previously described.

The Ignition Timing

10° B.T.D.C. (Compression Stroke)

The ignition timing is the instant when the high voltage induced in the secondary circuit of the ignition circuit passes across the electrodes of the spark plug. This must occur when the piston is rising on the compression stroke and is usually a number of degrees before top dead centre is reached. The ignition timing specified is for premium grade petrols (87 to 93 octane value) and for an engine in the peak of condition ; however, during its normal life carbon deposits will form inside the engine, lessening its efficiency, and the ignition timing must be retarded slightly to regain some of its lost efficiency and to eliminate pinking. This is effected by retarding the micro-adjuster.

To Check (*Figs. 19 and 20*)

Withdraw, clean, test and renew any spark plugs that are inefficient. Detach and clean the ignition distributor cap and rotor arm, replacing the latter. Inspect and replace any H.T. or L.T. leads that are seen to have hardened or have cracked insulation.

Turn the crankshaft so that No. 1.R. piston is at T.D.C. on its compression stroke, ascertained by the crankshaft damper mark aligning with the R.H. side of the engine unit and the distributor rotor arm pointing to the R.H. H.T. terminal.

Rotate the crankshaft a further one eighth turn when the piston of No. 1.L. cylinder is rising on its compression stroke, at the end of which occurs the ignition arc.

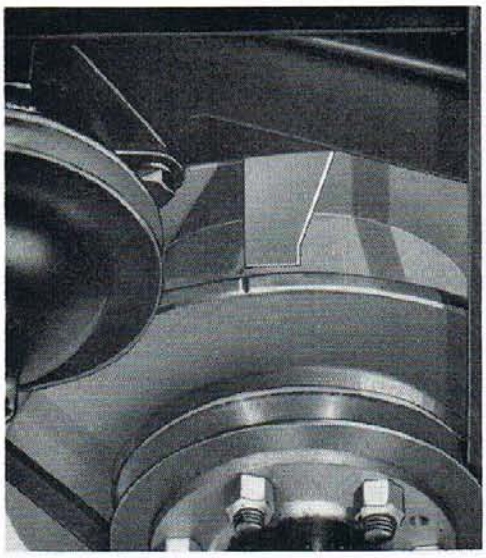


Fig. 19. The crankshaft damper mark indicating No. 1.L. piston at 10° B.T.D.C. when distributor rotor arm is pointing to the front of the engine. See Fig. 20.

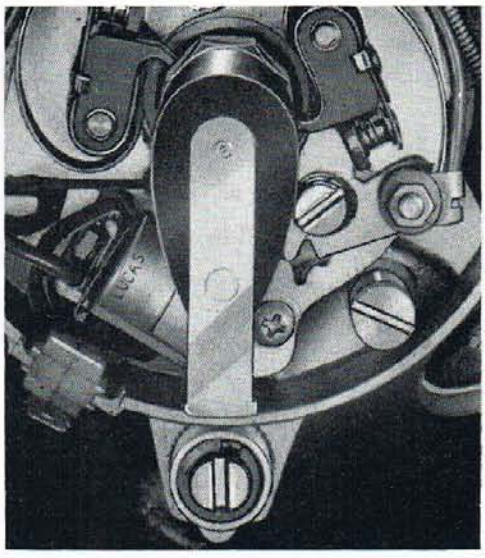


Fig. 20. The ignition distributor rotor arm at No. 1.L. H.T. segment.

Connect a 12V lamp between the L.T. terminal and the body of the distributor, switch on the ignition. Turn the crankshaft slowly and STOP IMMEDIATELY the lamp glows ; this is the point of ignition when both sets of contact breakers are open.

Switch off the ignition and observe the relationship of the crankshaft damper mark and the R.H. side of the timing case indicator ; these two, when the ignition is correct, are co-incident.

To Reset

This should only be reset when the contact breakers have been cleaned and their gaps accurately set.

Turn the crankshaft a quarter turn anti-clockwise and then slowly clockwise until the crankshaft damper mark aligns with the R.H. side of the timing case indicator.

Set the micro-adjuster on the ignition distributor body so that the single line on the bottom body aligns with the third line from the "A" mark on the top body. Slacken the distributor clamp bolt and turn the distributor body slightly anti-clockwise until one set of contact breakers close.

Ensure that the lamp is in circuit, switch on the ignition and turn the distributor slowly clockwise and STOP IMMEDIATELY the lamp glows, as this is the point of ignition and tighten the clamp bolt.

Switch off the ignition, remove the lamp, replace the distributor cap and spark plugs.

Road test the car on a suitable hill which will make the car pull hard in top gear at full throttle. Retard or advance the ignition timing by the use of the micro-adjuster until the engine "pinks", then retard to eliminate all pinking.

Pinking

This is a mechanical metallic noise which emits from the engine when the ignition is too far advanced. It can, however, be caused by excessive carbon deposits, too weak a mixture, low octane value petrol, faulty or unsuitable spark plugs.

The Ignition Coil

The ignition coil requires little attention beyond keeping the terminals and the outside clean. The terminals are best coated with a smear of petroleum jelly.

If the ignition is left switched on without the engine running, for long periods, the ignition coil may overheat, destroying or partially destroying the internal insulation and so impairing the efficiency of the ignition system.

THE COOLING SYSTEM

The Radiator

The engine cooling system is pressurized and consists of a cross flow type radiator block, a pressure valve type filler cap, a thermostat, a four bladed cooling fan attached to the front end of the crankshaft and a belt-driven centrifugal coolant pump ; the latter has prepacked bearings and will require no lubrication.

When the engine is started from cold, the thermostat is closed and the coolant from the cylinder block and heads will by-pass the radiator block. It will pass through pipes around the carburettor mounting on the inlet manifold, forming a hot spot to reduce stalling, and return to the coolant pump housing and then into the lower regions of the cylinder block by the action of the centrifugal type pump. It is only when the engine has reached its normal working temperature that the thermostat opens and allows the coolant to pass into the radiator block, but will partially close or fully close when the coolant becomes over-cooled.

Radiator Filler Cap Removal

The radiator filler cap is of the pressure type incorporating pressure and relief valves. The use of this type of cap permits a wider temperature range and completely seals the system against the loss of coolant due to evaporation. The relief valve admits atmospheric pressure as the system cools down. Care must be exercised when removing the filler cap from a hot system, as the escaping vapour may scald the fingers.

Remove the radiator filler cap only when the engine is stationary and, if the system is hot, with a gloved hand. Turn the filler cap slowly anti-clockwise to the stop and pause for a few moments ; this will allow the pressure to escape through the overflow pipe. Press the filler cap downward, turn further anti-clockwise and lift.

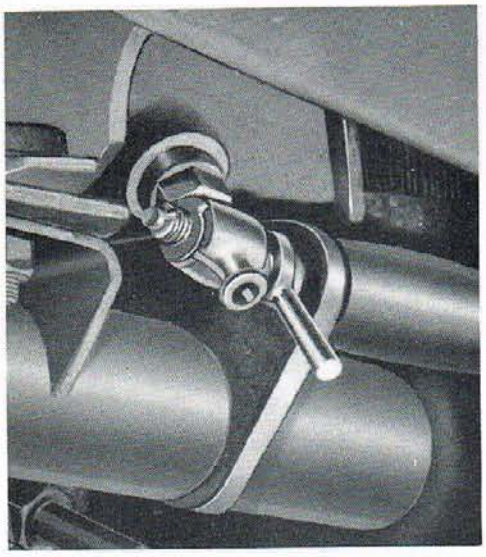


Fig. 21. Location of radiator drain tap, shown in closed position.

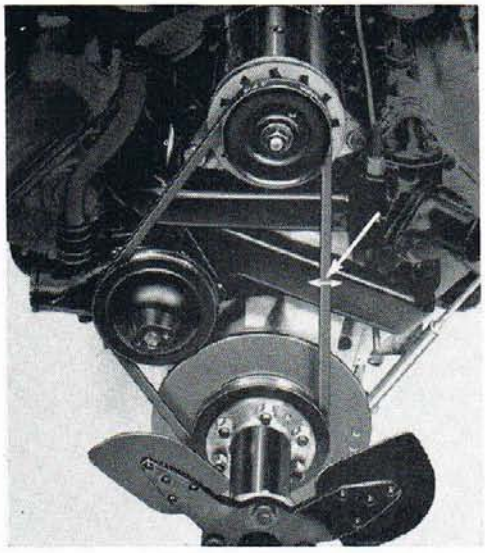


Fig. 22. The "Vee" drive belt tension. ½" (12·7 mm.) at arrow head.

Radiator Coolant Level

1·500″ (38·100 mm.) BELOW FILLER NECK (COLD).

As the cooling system is pressurized, the coolant will expand with heating to a point just below the filler neck. When the cooling system is cold the coolant level will be 1·500″ (38·100 mm.) below the filler neck ; no useful purpose is served by filling the system beyond this point.

Draining the Cooling System (*Fig. 21*)

During frosty weather an anti-freeze additive should be used and no reliance placed on draining the system.

To effect draining of the radiator block and thermostat housing, the drain tap situated in the R.H. bottom corner of the radiator block must be opened and the radiator filler cap removed.

After draining the radiator some of the coolant remains lodged in the lower regions of the cylinder block. This can be drained off by withdrawing two bolts in the sides of the cylinder block adjacent to the engine/gearbox mounting plate.

Air Locks when Filling the Cooling System

To obviate the inconvenience of air locks forming when the cooling system is being filled, it is advisable to fill the system slowly. Check the coolant level after the engine has been run for a short time as the coolant pump will assist in clearing the air locks.

It must be remembered that the radiator cap must not be removed while the engine is running and caution must be exercised while effecting its removal when the system is hot.

Adjusting Vee Belt Tension

0·500″ (12·700 mm.) SLACKNESS IN THE L.H. RUN (*Fig.* 22)

Slacken the two dynamo fulcrum details on the L.H. side of the mounting bracket, slacken the single clamp bolt at the R.H. side of the dynamo and raise or lower the dynamo to increase or decrease the tension of the vee belt.

Tighten the clamp bolt when there is ½″ (12·700 mm.) slackness in the L.H. side of the belt ; tighten the two fulcrum details.

Frost Precautions

Anti-freeze Additives

An anti-freeze additive must be used during frosty weather and the following table indicates the amount of anti-freeze additive necessary for the protection against various degrees of frost.

To protect for			20° F	of frost	add	3	pints	(1·705	litres)	of	anti-freeze	additive.
,,	,,	,,	30° F	,,	,,	4	,,	(2·275	,,)	,,	,,	,,
,,	,,	,,	40° F	,,	,,	5	,,	(2·841	,,)	,,	,,	,,
,,	,,	,,	50° F	,,	,,	6	,,	(3·410	,,)	,,	,,	,,
,,	,,	,,	60° F	,,	,,	7	,,	(3·978	,,)	,,	,,	,,

Before adding the anti-freeze additive to the cooling system read the directions supplied by its manufacturer and ensure that :

(i) All cylinder head, coolant pump and thermostat nuts are fully tightened.

(ii) All rubber hoses and pipes are in a good condition and all clips are effecting leak-proof seals.

Maintenance of Correct Working Temperature in Cold Weather

In exceptionally cold weather it may be found that the engine does not warm up quickly and some difficulty may be experienced in holding its normal working temperature. While the use of radiator blinds and muffs are not recommended, as the cooling system is thermostatically controlled, some owners may feel their fitting a necessity. When these extras are fitted, the engine temperature should be observed more frequently than is normal in order to avoid overheating.

The Thermostat

Although a thermostat is an asset for engine performance it can sometimes prove to be a hindrance by forming an air lock in the cooling system when it is filled too quickly.

A small bleed hole is drilled in the thermostat valve plate to facilitate the passage of air when the thermostat is closed and the system is being filled with coolant. The air bleed hole must always remain unobstructed.

Providing that the coolant is poured into the cooling system slowly no inconvenience will be experienced.

Testing the Thermostat

When it is suspected that the thermostat is not functioning correctly, the following test can be effected :—

Remove the thermostat from its housing by withdrawing two bolts and displacing the housing cover.

Place the thermostat in vessel of water and heat, observing the thermostat as it opens, remove the vessel from the heat and observe the thermostat as it closes.

When "bind" marks are observed on the centre shaft they can be relieved by the judicious use of a Swiss file ; any other fault can only be rectified by fitting a replacement.

Replace the thermostat by reversing the removal sequence but ensure that the air bleed hole is unobstructed.

THE EXHAUST SYSTEM

Front Pipe

The exhaust system consists of two cast iron manifolds attached to the side faces of the cylinder heads, with short branch pipes connecting the manifolds to the two sets of pipes and silencers attached beneath the car between the transmission and the chassis frame side members. A balance pipe assembly is fitted between the two pipe systems adjacent to the gearbox.

Little maintenance will be required apart from tightening the attachment nuts after the first 500 miles (805 km.), inspecting the gaskets for signs of "blowing" and the resilient mountings for deterioration.

Removal and Replacement, Front Pipe

Detach the front exhaust pipe flange and gasket from the exhaust manifold by removing three nuts and bolts. Withdraw the second end from the rear pipe assembly by slackening the clamp bolt.

The replacement is the reversal of the removal sequence, but after the front flange nuts have been tightened the "Palnuts" must be fitted.

Blown Gaskets

In isolated instances a "blown" exhaust gasket may occur. This can be detected by sound or vision, when a replacement must be fitted. The best preventative is to ensure the security of all manifold and flange attachment nuts.

Exhaust Manifold Nuts

The exhaust manifold nuts must be tightened after the first 500 miles (805 kms.) of running and whenever replacement gaskets have been fitted. Each nut is locked by a "Palnut" which must first be removed, afterwards replaced and "nipped" up.

Exhaust Tail Pipes

Owing to the low slung position of the exhaust tail pipes, it will not be difficult to block one or both pipes when reversing the car more hurriedly than usual, toward higher and soft ground.

When one pipe has become blocked, the inefficiency of the car's performance will drop slightly but may not be readily recognised due to the balance pipe fitted between the two exhaust systems.

However, when both tail pipes become blocked, the engine will stall and fail to restart. The exhaust tail pipes should be examined for blockages and cleaned out before any examination is effected on the engine unit or braking system.

III

The Transmission

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The Clutch Unit

The clutch unit is of the single dry plate type consisting of a spring cushioned driven plate assembly, a spring loaded pressure plate assembly and a release bearing attached to the forked lever of the clutch operating shaft assembly.

The operation is hydraulic and the clutch master cylinder has a separate fluid reservoir. The movement is hydro-static as there is no clearance between the release bearing and the clutch release plate.

Lubrication of the Clutch Operating Linkage (*Fig. 23*)

The lubrication of the clutch operating shaft is effected by pressure or hand grease gun through two nipples, one situated at each end of the shaft.

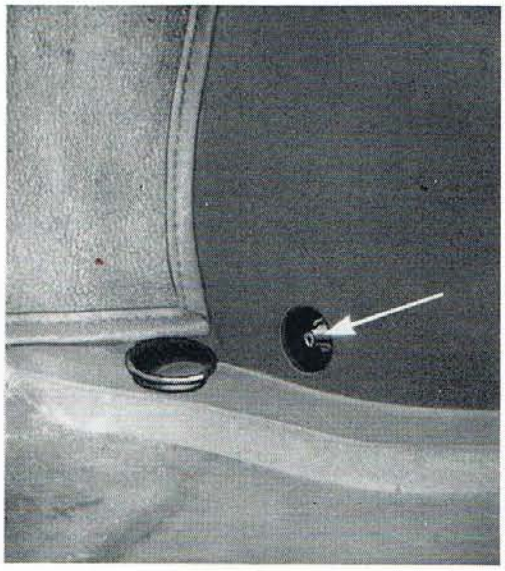

Fig. 23. Location of clutch shaft lubricators.

This is effected by withdrawing two rubber plugs, one from each side in the front end of the transmission cover adjacent to the toe boards and inserting the grease gun nozzle.

The lubrication of the clutch foot pedal and the forkend situated at the end of the slave cylinder push rod is effected by an oil can.

Checking Free Travel of Clutch Foot Pedal (*Fig. 24*)

MASTER CYLINDER PUSH ROD CLEARANCE 0·030-0·065″ (0·762—1·651 mm.).

CLUTCH FOOT PEDAL FREE TRAVEL. NOT MORE THAN 0·250″ (6·350 mm.).

It is important to provide the specified clearance of the clutch master cylinder push rod before it contacts the master cylinder piston which becomes the aforementioned free travel of the clutch foot pedal measured at the pedal pad.

This clearance is to ensure that the clutch master cylinder piston will return to its stop at the outward end of the cylinder bore. The adjustment can be effected in the following manner.

Press the clutch foot pedal down lightly until the push rod just contacts the master cylinder piston and, utilizing a rule, measure the distance between this point and the released position of the pedal pad.

The free travel can be adjusted by resetting the stop bolt, after slackening the lock nut, situated on the foot pedal mounting bracket inside the car. When the free travel is correctly adjusted, the lock nut is tightened.

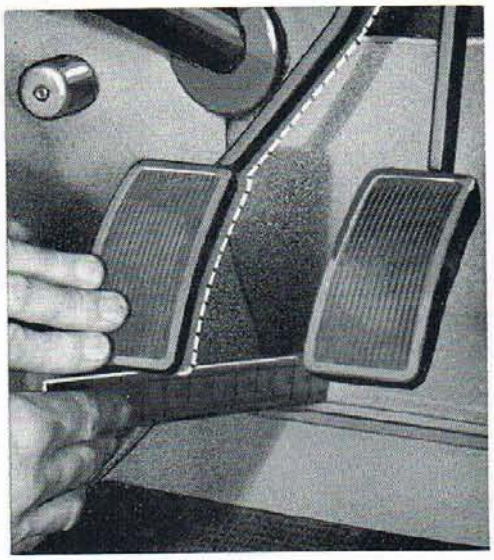

Fig. 24. Measuring free travel of clutch pedal.

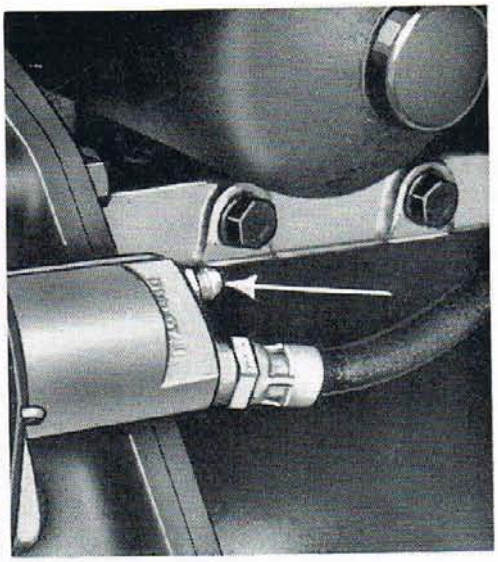

Fig. 25. Location of clutch slave cylinder bleed screw.

Filling the Hydraulic Fluid Reservoir

FLUID LEVEL 0·250″ (6·350 mm.) FROM TOP OF FILLER ORIFICE.

The hydraulic fluid reservoir is integral with the clutch master cylinder and the level of hydraulic fluid in the reservoir must be to that specified and always topped up from a fresh supply. When the hydraulic system is being bled it is a wise plan to fill above this level.

Clean the cap and surrounding area before removing the cap, and ensure that the breather holes are unobstructed before the cap is replaced.

Bleeding the Clutch Hydraulic System (*Fig. 25*)

Bleed the clutch hydraulic system in a similar manner to that of the Brake Hydraulic System, but the bleed screw must be tightened before the pedal reaches the limit of its downward stroke.

The clutch hydraulic system has no restrictor valve and if the bleed screw is not closed hydraulic fluid is merely pumped in and out of the slave cylinder without expelling the air from the system.

The Gearbox Unit

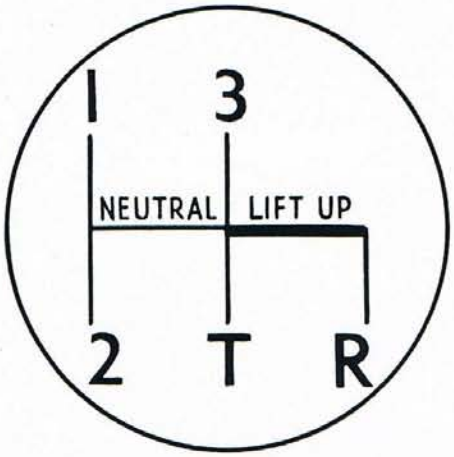

Fig. 26. Location of gear positions on gear knob.

The gearbox unit is of the sliding gear type having four forward gears and one reverse gear, with a synchromesh engagement on the second, third and top gears. Gear selection is effected by a short lever situated in the centre of the car to the positions shown in the illustration (Fig. 26).

To select reverse gear, the selector lever must be moved to the R.H. side and lifted upward over a "step" when it will move further to the right and rearward.

Checking the Oil Level (*Fig.* 27)

Withdraw the large rubber plug from the top side of the transmission cover.

Remove the dipstick, wipe it dry, return it to the gearbox pressing it right home ; withdraw it for a second time and observe the "oil wet mark".

Top up the gearbox with the recommended brand and grade of oil through the dipstick aperture. Replace the dipstick and rubber plug.

Draining and Filling Gearbox Unit (*Fig. 28*)

Proceed as for checking oil level and withdraw the dipstick. Remove the taper drain plug in the underside of the gearbox and allow the oil to drain into a suitable receptacle. Replace the drain plug and refill with oil.

Fig. 27. Location of gearbox dipstick.

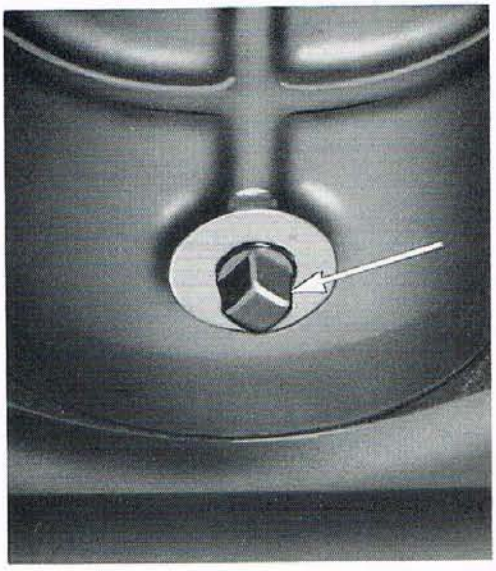

Fig. 28. Location of gearbox drain plug.

Fill the gearbox with the recommended brand and grade of oil as described in "CHECKING THE OIL LEVEL".

Gearbox Breather

The gearbox breather situated in the top side of the gearbox rear extension must be kept clear. This relieves any pressure that may build up inside the gearbox and avoid oil blowing past the front and rear oil seals.

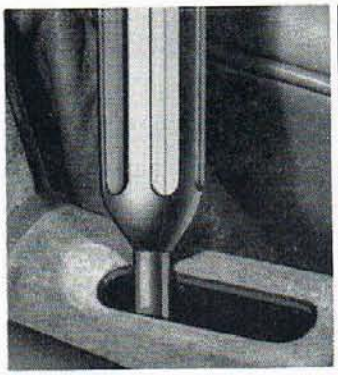

Fig. 29. Lubricating front universal joint of propeller shaft with oil gun.

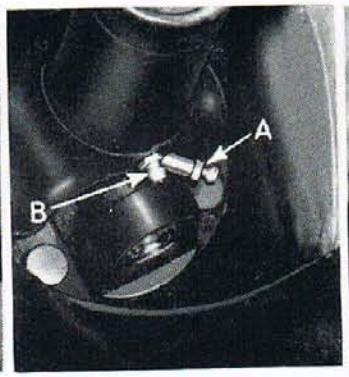

Fig. 30. Location of propeller shaft front end lubricators.
A. Front universal joint.
B. Sliding spline.

Fig. 31. Location of propeller shaft rear end lubricator.

The Propeller Shaft

The propeller shaft is of the open type having a universal joint at each end and it is attached to the gearbox and rear axle by flanges.

To accommodate the varying length of the propeller shaft due to the flexing of the rear road springs lifting and lowering the rear axle, a sliding spline is incorporated in the front end of the propeller shaft which must be kept well lubricated.

Lubrication of the Propeller Shaft (*Figs. 29, 30 and 31*)

The lubrication of the propeller shaft is confined to three points and is effected through nipples with a pressure or hand operated oil gun.

One nipple is situated in each spider journal of the two universal joints and one nipple in the sliding spline assembly.

Sufficient oil should be injected into all three nipples until it exudes through the oil seals, which should be cleaned off.

The front universal joint is lubricated through the aperture closed by the rubber plug in the rear end of the transmission cover. The sliding spline assembly and rear universal joint is lubricated from beneath the car.

The Rear Axle Unit

The rear axle unit is of the hypoid bevel type, incorporating the differential unit in a central housing. Only an "extreme pressure" gear oil is suitable for the differential unit.

Checking the Oil Level (*Fig. 32*)

A combined filler and level plug is situated in the rear cover of the differential unit, which must be removed and filled to overflowing with the recommended brand and grade of oil. Replace the filler/level plug.

Draining and Refilling the Differential Unit

Position a suitable receptacle beneath the differential unit and remove the drain plug situated in the underside of the differential casing. Replace the drain plug, fill to overflowing with the recommended brand and grade of oil. Fit the filler/level plug.

Rear Axle Breather

The rear axle breather is situated in the R.H. tube of the rear axle casing at the rear approximately 12·000″ (308·4 mm.) from the end flange, and it must be kept clear at all times. This relieves any pressure that may build up inside the axle and avoid oil blowing past the oil seals.

Jacking the Rear Axle

Extreme care must be exercised, when using a trolley jack to jack up the rear of the car, to ensure that the pan does not disturb the rear cover of the differential unit and cause an oil leak.

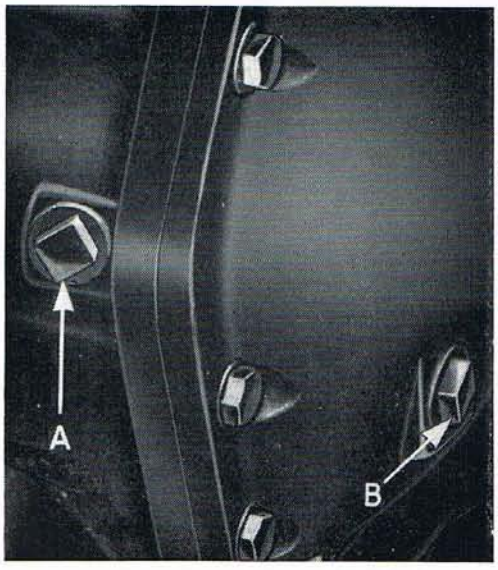

Fig. 32. Location of plugs.
A. Drain plug. B. Filler/level plug.

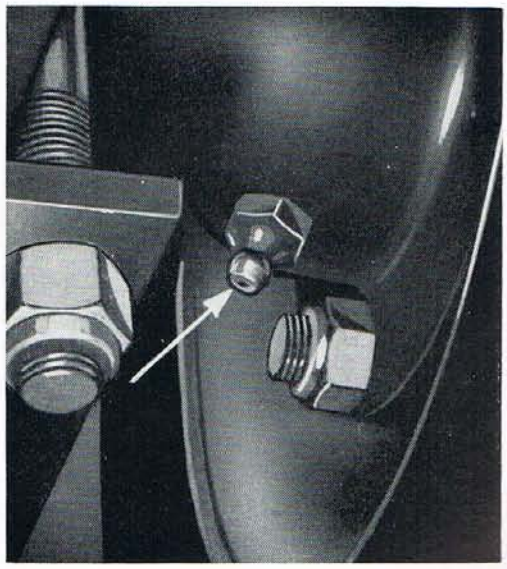

Fig. 33. Location of rear hub lubricator.

The Front and Rear Hub Assemblies

The Front Hubs

The front hub is mounted on two opposed taper roller bearings, the centre races of which are carried on a short stub axle fitted to the vertical link of the top and bottom wishbone assemblies. No preload must be placed on these bearings and they are lubricated by packing the hub end cap with grease.

Lubricating Front Hubs

Remove the hub cap and prise off the hub end cover, pack the end cover with grease, leaving sufficient room for the nut ; press it onto the hub and fit the hub cap. Overpacking should be avoided.

Adjusting Front Hub Bearings

The front hub adjustment has been set during the initial assembly of the car and will not normally require further adjustment, but when the occasion arises it can be effected by observing the following procedure.

Ensure the handbrake is hard on, jack up the front of the car and detach the hub end cover as described in "Lubricating Front Hubs" above.

Withdraw and discard the split pin in the end of the stub axle and castellated nut, tighten the castellated nut until it just retards the spinning of the roadwheel and slacken off the castellated nut 1 to 1½ flats, according to the position of the split pin hole, and fit a new split pin.

Fill and fit the hub end cover and hub cap ; lower the car to the ground.

The Rear Hubs

The rear hubs are keyed to the tapered ends of the axle half shafts mounted on taper bearings, the only attention that is necessary is the lubrication of the hub bearing on the axle half shaft.

Lubricating Rear Hubs (*Fig. 33*)

Securely chock the front roadwheels and jack up the rear of the car. Inject grease from a pressure or hand gun into the nipple on the inside of each axle flange. Inject grease until it is observed that it is exuding from the relief hole on top of the axle tube. Lower the car to the ground and remove the front roadwheel chocks.

The Roadwheel and Tyres

Owing to the high performance of the car, Dunlop Road Speed tyres are fitted as standard equipment. No change of type should be made when replacements are being chosen.

Tyre Running Pressure (Cold)

NORMAL MOTORING : 22 p.s.i. Front ; 24 p.s.i. Rear (1·547 Front ; 1·687 Rear K.s.cm.).

HIGH SPEED MOTORING : Increase by 6 p.s.i. (0·422 K.s.cm.).

The tyre manufacturers should be consulted for sporting events.

The importance of maintaining the correct tyre running pressure cannot be over emphasised and the check must be effected when the tyres are COLD, the deficiency of pressure noted and the tyre pressure increased by that amount if they are inflated at a Service Station. The pressure reading of the tyre gauge at the Service Station can be ignored as the tyres are beginning to warm up and so pressure will increase.

It will be observed from the pressures specified that a variance of 3 p.s.i. (0·211 K.s.cm.) which perhaps does not seem a great amount, is in fact greater than 10% and may mean faster tyre wear, indifferent road holding or steering and discomfort to the occupants of the car.

When checking the tyre pressures, remember the spare wheel should always be topped up to the specified pressure.

Care of the Tyres

The following precautions should always be observed :—

(i) Avoid over or under inflation.

(ii) Avoid striking kerbs or any similarly defined obstructions.

(iii) Remove any object embedded in the tyre.

(iv) Have tyre damage repaired immediately.

(v) Change the stations of roadwheels and tyres.

(vi) Check the steering and hubs for mechanical irregularities.

Removal and Replacement Hub Cap (*Fig. 34*)

The hub cap is attached to the roadwheel by springing the rim over the three studs in the roadwheel disc and can easily be detached by utilizing the "L" shaped lever provided.

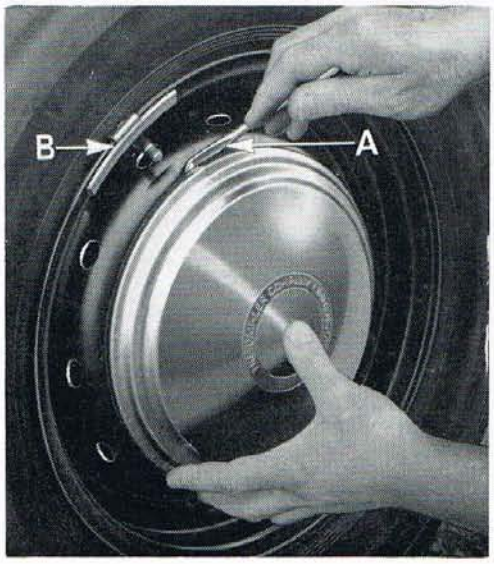

Fig. 34. Hub cap being removed.
A. Hub cap removal lever.
B. Roadwheel balance weight.

Fig. 35. Roadwheel nut tightening sequence.

Insert the short end of the lever under the hub cap rim at a point adjacent to the tyre valve and, utilizing the longer end of the lever, prise off the hub cap.

Replace the hub cap by positioning the rim over two of the three studs. Give the hub cap, adjacent to the third stud, a punch with the clenched fist to spring it over the third stud.

A smear of grease around the inside edge and on top of the three studs greatly facilitates the fitting of the hub cap.

Removal and Replacement, Spare Wheel

To facilitate the checking of the tyre pressure it is an advantage to position the valve toward the rear of the compartment.

Open the luggage boot and detach the false floor by releasing the turn buckle locks. Lift out the roadwheel by withdrawing the bolts and cup washer.

The replacement of the roadwheel is the reversal of the removal sequence.

Roadwheel Nut Tightening Torque

60-65 lbs ft (8·295-8·987 kg.m.)

ALL R.H. THREADS

Security of Roadwheels

The security of the roadwheels should be checked periodically. Ensure that the handbrake is hard on and tightened if necessary. All the roadwheel nuts have R.H. threads.

Changing a Roadwheel (*Fig. 35*)

Fit the jack to the chassis frame and take the weight of the car without lifting the roadwheel from the ground, remove the hub cap and slacken the wheel nuts half a turn. Raise the car so that the roadwheel is clear of the ground, remove the roadwheel by detaching the wheel nuts.

Fit the replacement roadwheel and tighten the wheel nuts ; lower the car to the ground and then tighten the wheel nuts for a second time by diagonal selection ; replace the hub cap.

Changing the Station of the Roadwheels

Changing the station of the roadwheels will avoid undue wear falling on any one tyre and it is suggested that the roadwheels and tyres are interchanged in the following sequence.

(i) Fit the spare wheel to the R.H. rear station.

(ii) Fit the R.H. rear wheel to the L.H. front station.

(iii) Fit the L.H. front wheel to the R.H. front station.

(iv) Fit the R.H. front wheel to the L.H. rear station.

(v) Place the L.H. rear wheel in the spare wheel compartment.

It will be noted that not only are the stations of the wheels and tyres interchanged but also their direction of rotation is reversed.

Roadwheel Balance

In the interests of precision steering, the avoidance of "wheel tramp" at high road speed, steering wheel wobble and smooth riding, all five roadwheels and tyres are balanced during initial assembly to the car. They will remain in balance for thousands of miles but when any unbalance is determined, the roadwheels and tyres should be balanced by a Daimler Distributor or Dealer.

Balance Weights (*Fig. 34*)

The fitting of one or more balance weights to the roadwheel is quite normal and to effect good balancing they may be fitted to either or both sides of the wheel rim. They should not be removed, as the balance of the roadwheel will be destroyed. The balance of the roadwheel can be largely preserved after a puncture repair by identifying the positions of the tyre, rim and balance weights and refitting all these components to their original positions.

IV

The Steering

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The Steering Unit

A cam and lever type steering unit is fitted and the steering tie rod is divided into three. A fixed length centre tie rod to which the drop arms of the steering and idler units are attached and two outer tie rods; the outer ends of which are attached to the steering levers attached to the vertical links.

Checking Steering Unit Oil Level (*Fig. 36*)

Withdraw the rubber plug from the steering column situated in the engine compartment and top up with the recommended brand and grade of oil until it overflows ; the excess oil is wiped away. Replace the rubber plug.

Steering Unit Rocker Shaft Adjustment (*Fig. 37*)

The adjustment governs the engagement of the rocker shaft in the cam worm and will require no attention until a considerable mileage has been covered. It is effected by turning the adjusting screw clockwise or anti-clockwise to increase or decrease the depth of engagement and is said to be correct when slight resistance is felt when the rocker shaft is in the straight ahead position. The screw can be identified in the underside cover plate of the steering unit as the one having a locknut ; it will only require turning approximately a quarter turn.

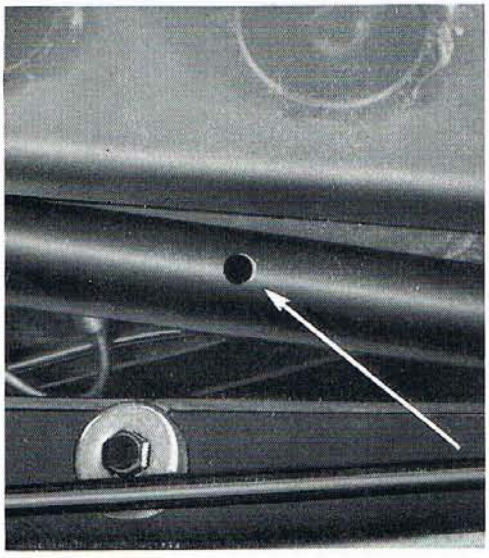

Fig. 36. Location of steering unit lubricator.

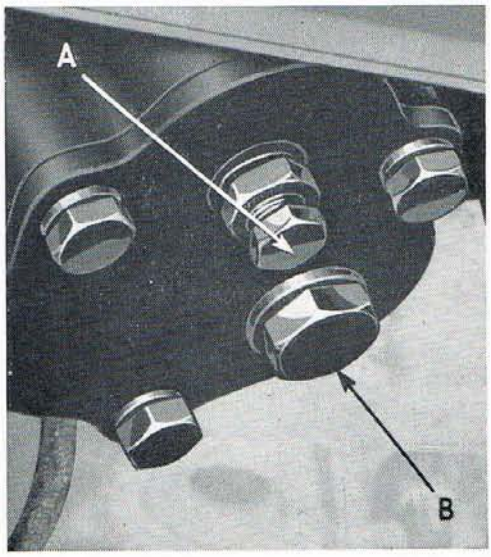

Fig. 37. Location of rocker shaft adjuster screw and drain plug.

A. Rocker shaft adjuster screw.
B. Drain plug.

Lubricating Steering Linkage (*Figs. 38, 39, 40 and 41*)

The lubrication of the steering linkage is confined to nine joints and is effected through nipples with a pressure or hand operated grease gun. It is best carried out with the weight of the car off the road wheels so that the steering can be turned from lock to lock. The nipples are in the following positions :—

(i) One at each end of each outer track rod.

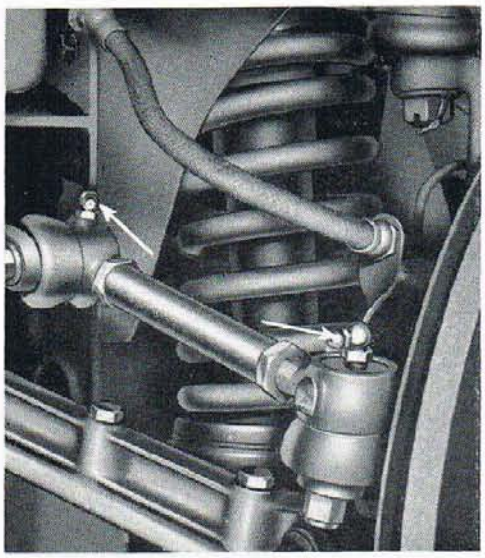

Fig. 38. Location of L.H. outer tie rod lubricators. R.H. lubricators symmetrically opposite.

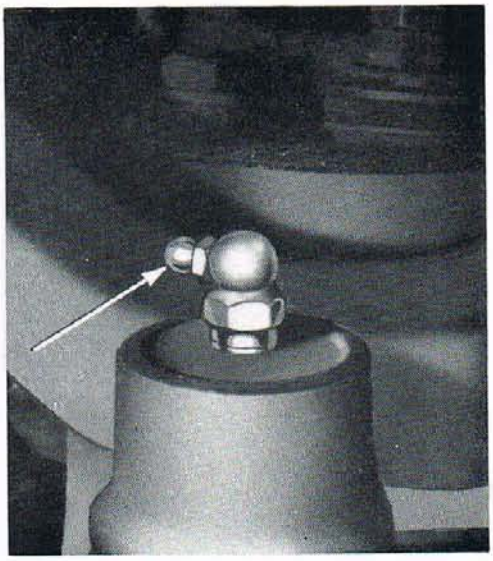

Fig. 39. Location of top steering swivel lubricator.

(ii) One at the bottom end of the steering idler bracket, situated on the opposite side of the chassis frame to the steering unit.

(iii) One at each end of the two vertical links, situated at the outer ends of the wishbones.

Sufficient grease should be injected into the joint until that which exudes is observed to be clean ; the excess grease is then wiped away.

Fig. 40. Location of idler bracket lubricator.

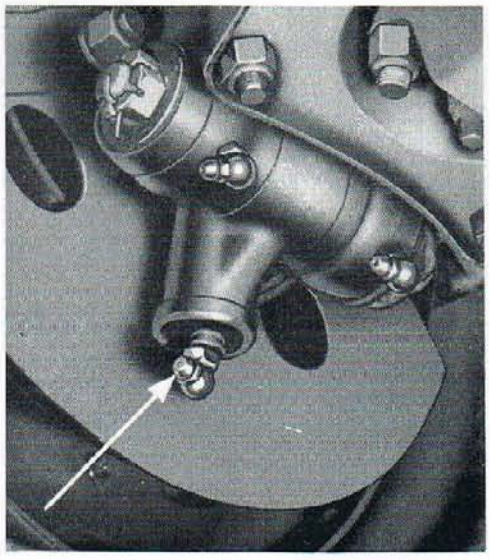

Fig. 41. Location of bottom steering swivel lubricator.

Front Roadwheel Alignment

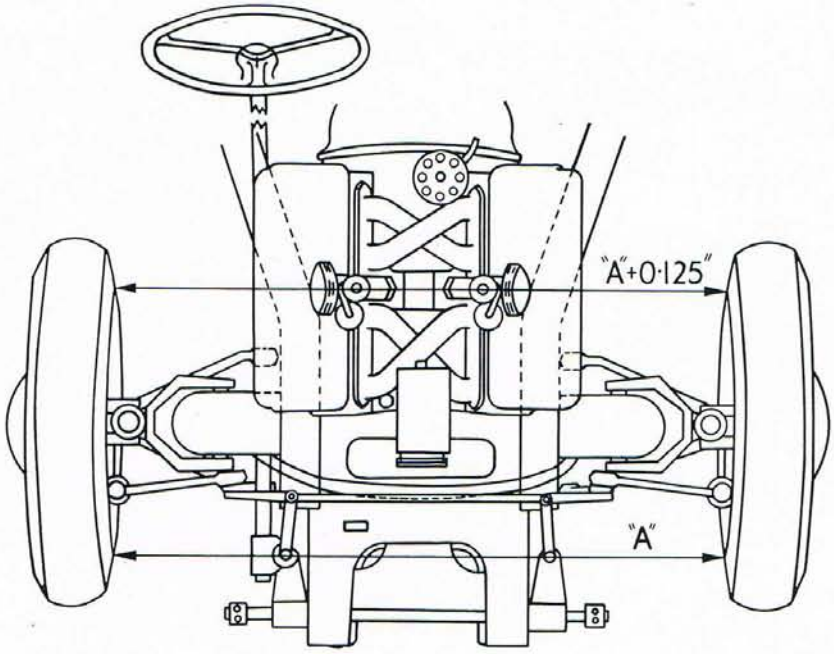

Fig. 42. Front roadwheel alignment.
R.H. drive is illustrated but L.H. drive is symmetrically opposite.

Front Roadwheel Alignment (*Fig. 42*) 0·125" (3·175 mm.) TOE-IN.

Front wheel "toe-in" is the attitude by which the front section of the front roadwheels are set inward, towards the chassis centre line. The distance, measured at hub height, between the two rims in front of the hub, is a fraction less than that measured at the rear of the hub.

It is accurately set during initial assembly and is checked again after the first 500 miles (805 km.). There is no reason why it should become altered unless by accidental damage.

To effect a check the car must satisfy certain basic requirements which are as follows :—

(i) Tyre pressures must be correct for all four tyres and the amount of wear on the two front tyres must be near to identical as possible.

(ii) The car must be loaded so that it attains its datum height and the front roadwheels set in the straight ahead position (Page 87).

(iii) The front rims are known to be true, the front hub bearings correctly adjusted and there is no perceptible amount of wear in any of the components of the independent front suspension or steering linkage.

(iv) The rear road springs and rear axle are secure with one another and to the chassis frame.

(v) The wheelbase measured on both sides of the car, between the hub centres, is identical.

The owner of the car, when suspecting the misalignment of the front roadwheels, is advised to entrust the checking and any subsequent adjustment to a Daimler Distributor or Dealer.

To Set Front Roadwheel Alignment

When the car satisfies the foregoing requirements roll it forward onto a stretch of level floor. Check the front roadwheel alignment with a proprietary checking gauge, carefully following its manufacturer's instructions.

When only a fractional correction is necessary it can be made to the outer tie rod on the opposite side of the steering unit. Slacken the two nuts and lengthen or shorten the outer tie rod by turning the centre rod and then tighten the nuts. Move the car half a wheel revolution forward, recheck, and make any further adjustment.

If any appreciable amount of maladjustment is determined, check the length of the two outer tie rods. Should these be of equal length make the necessary correction to both. When they are found to be of unequal length, correct the outer tie-rod nearer to the steering unit to 9·062″ (230·187 mm.) and make any further adjustments to the remaining outer tie rod. After making such adjustments it is wise to measure the length of the outer tie rods and when found to differ from the dimension specified, the front suspension and steering should be checked thoroughly to assess accidental damage.

Use parts of genuine Daimler manufacture **only** when making a replacement.

Genuine Daimler spare parts are stocked by Daimler distributors and dealers in most important centres.

Names and addresses of distributors and dealers will be supplied on request.

V

The Front and Rear Suspension

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The Independent Front Suspension

The two independent front suspension units are of the wishbone construction, the road shocks being absorbed by low periodicity coil springs assisted by telescopic hydraulic dampers. The inner ends of the wishbones are rubber bushed, while the outer ends of the top wishbones hold a steering ball joint and the outer ends of the bottom wishbones are attached to the trunnion block of the vertical link. The only attention that is necessary is the lubrication of the four outer ends of the bottom wishbones.

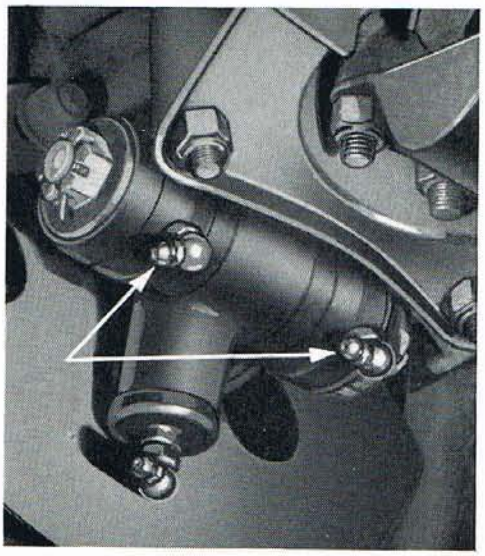

Fig. 43. Location of outer lower wishbone lubricators.

Lubrication, Front Suspension
(*Fig. 43*)

Lubrication of the front suspension is confined to four points and is effected through nipples with a pressure or hand grease gun and it is best carried out with the weight of the car off the roadwheels.

The four nipples are situated in the outer ends of the four wishbones, each being to the front of or to the rear of the steering trunnion block.

Sufficient grease should be injected until it exudes from both sides of each wishbone ; the excess grease is then cleaned away.

The Rear Suspension

Half-elliptical laminated leaf springs are used which have their location point with the axle above and forward of the centre, so that the longer portion is fitted toward the rear of the car. The forward fulcrum point of the rear road springs has a metal and rubber bonded bush while the rear fulcrum point is a shackle assembly, again incorporating metal and rubber bonded bushes. A piston type hydraulic damper is fitted between the chassis frame and the point of contact between axle and road spring.

The only attention that is necessary is the cleaning and lubrication of the spring leaves and to ensure the security of all attachment details.

Servicing, Rear Road Springs

The road spring should be brushed clean of all road dirt and the security of the front eye nuts, rear shackle and "U" bolt nuts should be checked and tightened if necessary.

The spring leaves should be painted with penetrating oil, exercising care that none contaminates the rubber bushes. When the road springs are sprayed rather

than painted, the contact surfaces of the BRAKE DISCS must be shielded and if they become contaminated with oil they MUST BE IMMEDIATELY DE-GREASED.

The Hydraulic Dampers

Front Suspension Dampers

A telescopic damper, positioned inside each coil spring of the front suspension, is fitted. The unit is sealed and requires no topping up, the only attention that is necessary is to check the security and the condition of the rubber mountings to ensure that they have not become contaminated with oil or grease.

When the dampers are found to be unserviceable they must be removed and a service replacement fitted.

Removal and Replacement, Front Damper (*Figs. 44 and 45*)

Ensure that the handbrake is hard on, jack up the front of the car and remove the front roadwheel. Detach the top end of the damper from the top of the spring housing by removing two nuts, a thick cup washer, a rubber bush and a thin cup washer.

Remove the rebound rubber and bracket from the chassis frame below the bottom wishbone by withdrawing three bolts.

Remove the damper downward through the bottom wishbone by detaching four nuts and the rebound plate.

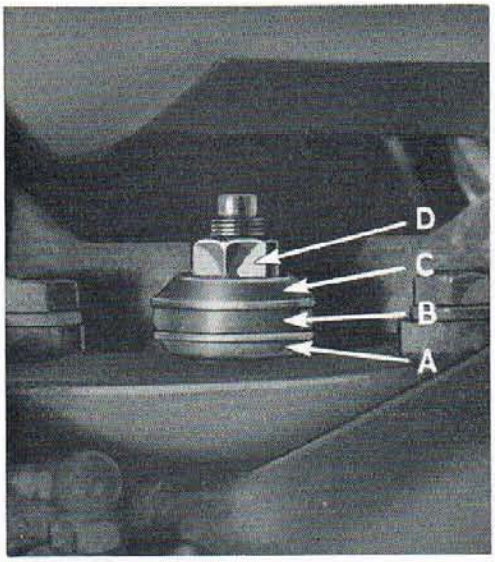

Fig. 44. The front damper top attachment.

A. Thin cup washer.
B. Rubber bush.
C. Thick cup washer.
D. Securing nut.

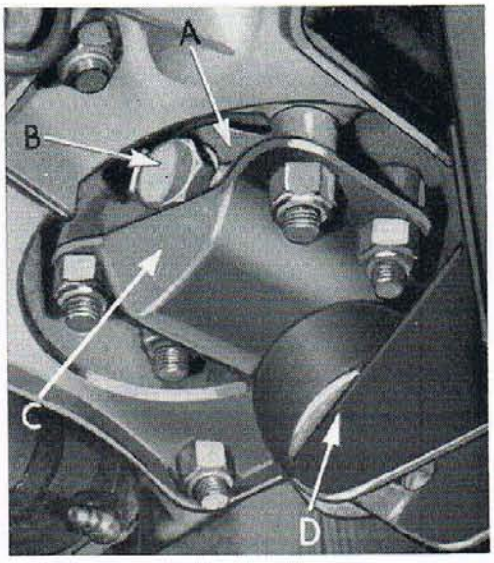

Fig. 45. The front damper bottom attachment.

A. Bottom plate.
B. Securing bolt and tab washer.
C. Rebound plate.
D. Rebound rubber.

Remove the second rubber bush, metal sleeve and a thick cup washer from the top of the damper and the two bottom rubbers and plates by releasing a tab washer and withdrawing a bolt.

To replace the front damper, fit one of the two thick cup washers to the top of the damper, lip upward, followed by the metal sleeve and a rubber bush, spigot upward ; the bottom mounting is the reversal of the removal sequence. Feed the damper upward through the bottom wishbone, so that the threaded shank protrudes through the top of the spring housing and secure the bottom with the rebound plate, thick end of wedge outward and four nuts. Fit the rebound rubber and bracket. Locate the thin cup washer on the top of the spring housing, lip upward, followed by the rubber bush, spigot downward, the thick cup washer, and secure with the nuts. Fit the roadwheel and lower the car to the ground.

Rear Suspension Dampers

The rear suspension damper is of the reciprocating piston type with the body attached to a bracket welded on the chassis frame side members and the connecting link attached to the spring securing plate. The only attention that is necessary is regular inspection of the hydraulic fluid level and topping with the recommended fluid when observed to be lower than the bottom of the filler orifice.

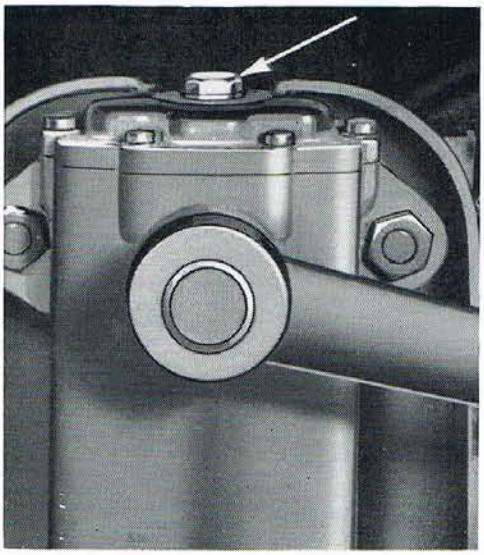

Fig. 46. Location of rear damper filler plug.

Checking Damper Fluid Level
(*Fig. 46*)

Securely chock the front roadwheels, jack up the rear of the car and remove the roadwheels. Clean the top of the damper, remove the filler plug and top up with the recommended fluid to a level just below the bottom of the filler orifice. Replace filler plugs, roadwheels, lower the car to the ground and remove front roadwheel chocks.

Removal and Replacement, Rear Damper

Securely chock the front roadwheels, jack up the rear of the car and remove the roadwheels. Detach the bottom end of the damper connecting link from the bottom spring plate by removing a nut. Remove the damper from the chassis bracket by withdrawing two nuts and bolts.

VI

The Braking System

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The Braking System

The Girling Hydraulically Operated Disc Braking System consists of four caliper type disc brakes hydraulically controlled by a foot operated master cylinder having an individual fluid reservoir.

The front and rear calipers are similar but the front brake disc is larger in diameter than the rear and has a greater braking surface. The brake pads are self adjusting and the only attention the foot operated brakes will require is for the pads to be renewed when their thickness has become reduced to 0·250″ (6·350 mm.).

The handbrake operates on the rear wheels only and consists of two sets of pressed steel calipers mounted below the hydraulic calipers and actuated by a flexible cable from the driver's handbrake lever to the compensating lever on the R.H. side of the rear axle and then by rods to the calipers. The handbrake is adjusted periodically by turning a nut inboard of the inside caliper arm adjacent to the road spring.

A stop light switch is fitted in the five way connection attached to the R.H. chassis frame side member situated in the engine compartment. The two stop lights will glow each time the foot pedal is depressed but only when the ignition is switched on.

The Handbrake

The handbrake is of the quick release type, situated on the R.H. side of the transmission cover. It is operated in the following manner.

TO APPLY—pull the handbrake lever rearward to the full extent of its travel, depress the button in the top of the lever with the thumb ; the fingers are removed from the grip of the lever which will travel forward a short distance and stop ; the thumb is then removed from the button.

TO RELEASE—the handbrake lever is pulled rearward with the fingers a short distance, when the ratchet pawl will be released ; the fingers are then removed from the lever, which will fly forward and release the brakes. *The button must not be depressed when releasing the handbrake.*

The only attention that is necessary is periodical adjustment of the brake pads and lubrication.

Lubricating the Handbrake Linkage

The lubrication of the handbrake linkage is confined to one point effected with a pressure or hand operated grease gun, through a nipple. The compensating lever and six clevis pin joints are lubricated with an oil can. The nipple is situated approximately midway in the handbrake cable.

The compensating lever assembly, attached to the rear of the rear axle, has oil impregnated bushes ; the road dirt should be cleaned off and the bushes soaked with oil.

Handbrake Adjustment (*Fig. 47*)

PAD TO BRAKE DISC CLEARANCE 0·003″ (0·076 mm.) EACH SIDE.

Securely chock the front roadwheels, release the handbrake and jack up the rear of the car, remove the two rear roadwheels. Check the operation of the handbrake and lubricate the flexible cable and compensator lever if necessary.

Utilizing feeler gauges each side of the handbrake pads, ascertain the clearance between the handbrake pads and the brake disc.

Reset the clearance by turning the adjuster nuts situated at the bottom end of the inboard caliper arms ; clockwise to reduce the clearance and anti-clockwise to increase the clearance.

Fit the roadwheels, lower the car to the ground, apply the handbrake and remove the front roadwheel chocks.

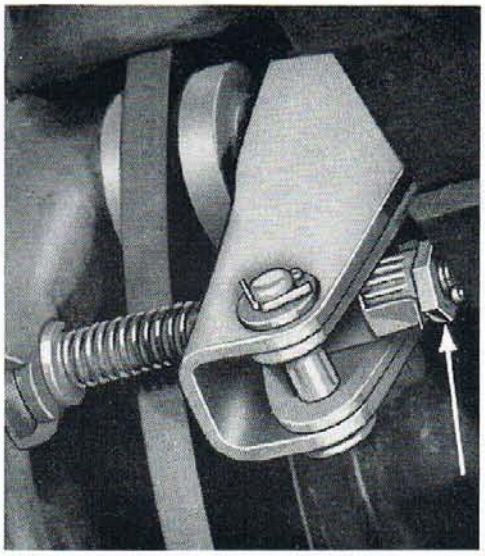

Fig. 47. Location of handbrake adjuster nut.

Removal and Replacement, Handbrake Pads

Securely chock the front roadwheels, release the handbrake, jack up the rear of the car and remove the roadwheels.

Remove the handbrake adjusting nuts situated at the bottom end of the inboard caliper arms by withdrawing a split pin each.

Open the handbrake calipers and remove one handbrake pad from each by withdrawing the nut, clean the calipers of road dirt.

Lubricate the handbrake pad locating tongues, the heads and nuts of the adjusting bolt sparingly with the recommended grease. Fit the handbrake pads to the calipers and close the calipers to the brake discs, fit the pad securing nuts. Feed the adjusting bolt through the bottom ends of the calipers with the spring between, followed by the adjusting nuts and new split pins.

Adjust the handbrake as previously described.

The Foot Operated Brakes

Checking Free Travel of Brake Foot Pedal

CLEARANCE BETWEEN MASTER CYLINDER PUSH ROD AND PISTON 0·030″—0·065″ (0·762—1·651 mm.).

FREE TRAVEL OF BRAKE FOOT PEDAL PAD—NOT MORE THAN 0·250″ (6·350 mm.).

It is important to provide the specified clearance of the brake master cylinder push rod before it contacts the master cylinder piston which becomes the aforementioned free travel of the clutch foot pedal measured at the pedal pad.

The clearance is to ensure that the brake master cylinder piston will return to its stop at the outward end of the cylinder bore. The adjustment can be effected in the following manner.

Press the brake foot pedal down lightly until the push rod just contacts the master cylinder piston and, utilizing a rule, measure the distance between this point and the fully released position of the pedal pad.

The free travel can be adjusted by resetting the stop bolt, after slackening the lock nut, situated on the foot pedal mounting bracket inside the car. When the free travel is correctly adjusted it will be possible to rotate the push rod clevis pin freely in its bore. The lock nut is then fully tightened.

Removal and Replacement, Rear Brake Pads (*Fig. 49*)

Securely chock the front roadwheels, release the handbrake, jack up the rear of the car and remove the rear roadwheels.

Remove the brake pads from the calipers by withdrawing two bolts and retaining plates, or by withdrawing two wire clips and two brake pad retaining pins. Press the brake pad operating pistons away from the brake disc, insert the replacement brake pads, ensuring that they have freedom of movement, and fit the retaining plates and bolts or retaining pins and wire clips.

Fit the roadwheels, lower the car to the ground, apply the handbrake and remove the front roadwheel chocks. Pump the foot pedal until solid.

Removal and Replacement, Front Brake Pads (*Fig. 48*)

The removal and replacement of the front brake pads is very similar to the rear brake pads, but in this instance the handbrake is applied obviating the use of the front roadwheel chocks. Pump the foot pedal until solid.

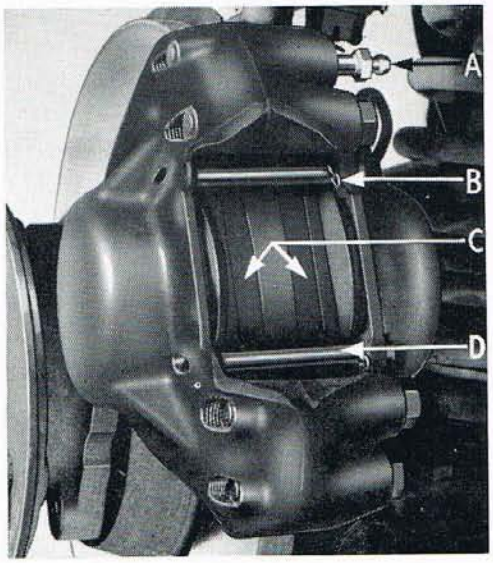

Fig. 48. Location of front brake bleed screw and brake pad retaining details.

A. Bleed screw. B. Wire clip.
C. Brake pads. D. Brake pad retaining pin.

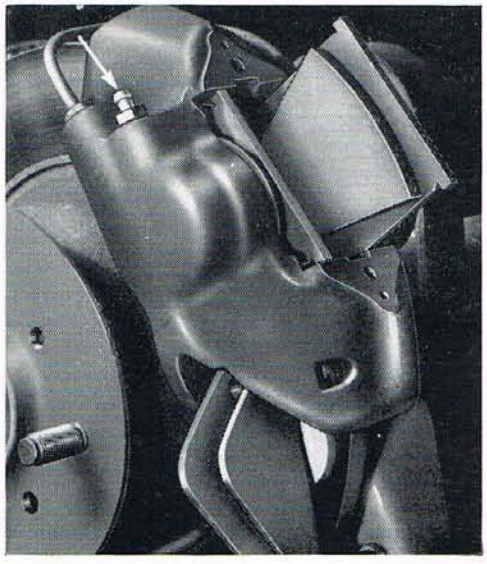

Fig. 49. Location of rear brake bleed screw.

The inner brake pad is partially removed.

The Hydraulic System

The Hydraulic Fluid Reservoir

FLUID LEVEL 0·250″ (6·350 mm.) FROM TIP OF FILLER ORIFICE.

The level of hydraulic fluid in the reservoir must be to that specified and always topped up from a fresh supply. When the hydraulic system is being bled it is a wise plan to fill above this level.

Clean the cap and surrounding area before removing the cap and ensure that the breather holes are unobstructed before replacing.

Bleeding the Hydraulic System (*Figs. 48 and 49*)

The process of "bleeding" is needed to expel the air from the hydraulic system and must be carried out at all four points of the braking system, no matter where the disconnection has been made. While effecting the operation, every precaution must be exercised to ensure that the hydraulic fluid reservoir does not become inadvertently emptied and so admit air into the hydraulic system necessitating the recommencement of the whole operation.

Clean and remove the hydraulic reservoir filler cap and top up from a fresh supply of hydraulic fluid and top up periodically during the whole operation ; three depressions of the pedal will reduce the reservoir from full to half full.

Detach the rubber cap from the bleed screw of the rear brake caliper situated furthest from the master cylinder, clean off any road dirt and attach the bleed tube, submerging the second end in a small quantity of hydraulic fluid contained in a clean glass jar.

Having the assistance of another, slacken the bleed screw one full turn, press down the foot pedal to the full extent of its travel, pause for two or three seconds, and allow the pedal to return under the influence of its own return spring. Continue unhurriedly until the hydraulic fluid issuing from the submerged end of the rubber tubing is free from air bubbles and while the pedal is travelling downward tighten the bleed screw. Detach the bleed tube and fit the bleed screw rubber cap.

Repeat the operation with the second rear brake caliper and continue with the front brake caliper farthest away from the master cylinder and complete the operation with the remaining front brake caliper. Top up the hydraulic fluid reservoir and replace the cap.

Use parts of genuine Daimler manufacture **only** when making a replacement.

Genuine Daimler spare parts are stocked by Daimler distributors and dealers in most important centres.

Names and addresses of distributors and dealers will be supplied on request.

VII

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The Lighting

Headlamps

Each headlamp incorporates a Lucas "Light Unit" consisting of a combined front glass and reflector assembly provided with a seating rim by which means it is attached to the back shell by three spring-loaded screws, these are also used for setting the headlamp beam.

The bulbs fitted are of the double filament pre-focus type, one filament being off-set from the first which can be brought into use by operating the foot dipper switch. When it is so desired to use single light dipping, one filament can be extinguished, an electrical cable being withdrawn from the snap connector in the front of the engine compartment adjacent to the top R.H. corner of the radiator, the live end insulated and then taped to the other cables.

The front glass of the "Light Unit" is air cooled by the car's slipstream and because of the heat generated by the bulb when "alight", there is a danger of the lamp glass overheating and cracking when the car is stationary with the headlamps "on". It should be noted that if a lamp glass cracks the whole "Light Unit" must be replaced.

Setting the Headlamp Beams (United Kingdom) (*Fig. 50*)

The headlamp beams must be set in accordance with instructions laid down by the Ministry of Transport Lighting Regulations which may be interpreted as follows :—

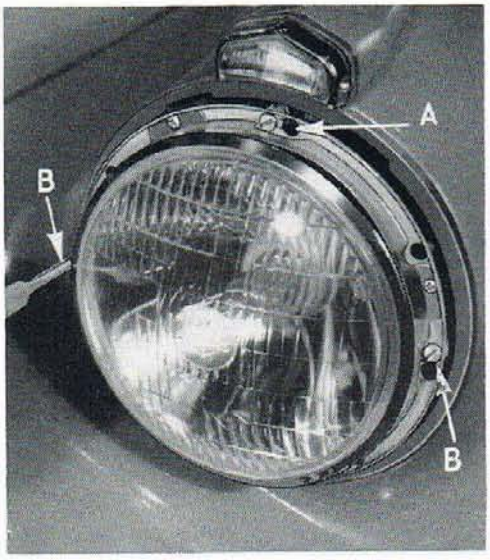


Fig. 50. Location of headlamp "light unit" securing and beam setting screws.
A. Vertical. B. Horizontal.

The car's lighting system must be arranged so that it can give a light which is incapable of dazzling any person standing on the same horizontal plane as the car at a greater distance than twenty-five feet from the headlamps, whose eye level is not less than three feet six inches above that plane.

The headlamps must, therefore, be set so that the main beams of light are parallel with the road and with each other, and the following procedure should be observed :—

Remove the front rim and dust excluder from the headlamp by springing off the rim.

To adjust the vertical setting, turn the spring-loaded screw at the top of the "Light Unit" clockwise to raise the main headlamp beam and anti-clockwise to lower the main headlamp beam.

To adjust the horizontal setting, turn the spring-loaded screw at the two sides of the "Light Unit" clockwise to swing the main headlamp beam toward that screw and anti-clockwise to swing the main headlamp beam away from the screw.

The dust excluder and front rim is then replaced and secured with the screw.

Removal and Replacement Headlamp Bulb (*Fig. 51*)

Remove the front rim and dust excluder from the headlamp by springing off the rim.

Detach the "Light Unit" from the back shell by applying slight pressure and turning it anti-clockwise so that the holes in the seating rim align with the three spring-loaded screws.

Withdraw the bulb from inside the reflector by detaching the adaptor and fit the replacement bulb so that the "nick" in its flange aligns with the "spline" in the reflector.

Replace the light unit to the back shell and check the beam alignment as previously described, fit the rubber dust excluder and front rim.

Fig. 51. Replacing the headlamp bulb.

Fig. 52. The side lamp with glass and rim removed.

Headlamp Settings—U.S.A.

Headlamp units are fitted to the cars on their arrival in the United States of America. While there are small differences in their design, the foregoing instructions, in many respects, are still applicable. When more explicit instructions are desired, they can be obtained from the Daimler Distributor or Dealer.

The Foot Operated Dipper Switch

The foot operated dipper switch, situated in the left-hand side of the driver's foot well, is operated by pressure from the driver's left foot. When the "main" headlamp beam is in use, a warning lamp incorporated in the face of the speedometer face will glow.

Press switch down to change from "main" to "dipped" headlamp beams or vice versa.

Removal and Replacement, Side Lamp Bulb (*Fig.* 52)

Remove the lamp glass and front rim from the side lamp by withdrawing two side screws, exercising care not to allow the lamp glass to fall on hard ground.

Withdraw the spent bulb and fit the replacement. The lamp glass and front rim are replaced by reversing the removal sequence.

The Side and Headlamp Switch

The side and headlamp switch, situated on the left-hand side of the centre instrument panel, is of the three-position type :—

(i)	UPWARD	Side and headlamps	OFF
(ii)	VERTICAL	Sidelamps	ON
(iii)	DOWNWARD	Side and headlamps	ON

The Instrument Panel Illumination and Warning Lamps

The engine speed indicator, the speedometer and the four small instruments mounted in the centre panel are each illuminated by an individual lamp which is positioned in the rear face of the instrument body at approximately twelve o'clock.

In each instance, the lamp is mounted in a holder at the end of a single cable and the instrument body into which it fits completes the return to earth.

Incorporated in the dial face of the engine speed indicator are the flasher direction indicator warning lamps and in that of the speedometer are the headlamp main beam and ignition warning lamps.

Removal and Replacement, Instrument Panel Illumination or Warning Lamp Bulb

Spring the bulb holder from the instrument body, access to which is gained from the hidden side of the instrument facia, and remove the spent bulb.

Fit the replacement bulb and replace the bulb holder assembly by springing it into the instrument body.

The Instrument Panel Illumination Switch

The instrument panel illumination switch, situated second from the left-hand side of the centre instrument panel, is of the two position type :—

(i)	UPWARD	Instrument panel illumination lamps	OFF
(ii)	DOWNWARD	Instrument panel illumination lamps	ON

The instrument panel illumination lamps will only operate when the side or headlamps are in use ; but the operation of the warning lamps is effected by special circumstances or the use of various equipment.

Removal and Replacement, Stop/Tail Lamp Bulb

Remove the rear lamp mounting finisher by slackening four screws ; these screws are washer retained in the mounting finisher. Detach the lamp glass by turning it approximately 30°, withdraw the spent bulb and fit the replacement. The lamp glass and mounting finisher are replaced by reversing the removal sequence.

Removal and Replacement, Number Plate Illumination Lamp Bulb

Remove the lamp glass and hood from the number plate illumination lamp by withdrawing the centre bolt, exercising care not to allow the lamp glass to fall on hard ground. Withdraw the spent bulb and fit the replacement, the lamp glass and hood are replaced by reversing the removal sequence.

The "Lucar" and "Snap" Connectors

The "Lucar" or "Snap" connectors are fitted to the majority of the cable ends and components as the need arises.

The "LUCAR" connector consists of a metal clip, sometimes having an insulated cover, on the cable end and a metal tag attached or incorporated in the electrical component.

To make or break a "LUCAR" connection, the cable is pushed on or pulled off the component respectively ; a small "click" will be felt when it is fully connected. A smear of petroleum jelly not only discourages corrosion, it also facilitates the operation.

The "SNAP" connector consists of an insulated metal sleeve connecting two metal ended cables ; in some instances the insulated metal sleeve assembly is constructed to accommodate more than one pair of cables.

To disconnect or connect the cables from the insulated metal sleeve assembly, the latter is held firm and the cables pulled out or in ; a small "click" will be felt when it is fully connected. A smear of petroleum jelly not only discourages corrosion, it also facilitates the operation.

Note : The metal sleeve with the metal ends inserted must be completely shielded by the insulating material at all times.

The Flasher Direction Indicators

Removal and Replacement, Front Flasher Bulb

Utilizing the thumb nail, push back the rubber overlap of the front flasher lamp and remove the metal rim, remove the lamp glass from the rubber surround. Withdraw the spent bulb and fit the replacement, fit the lamp glass and metal rim by lifting up the rubber surround in both instances.

Removal and Replacement, Rear Flasher Bulb

See under "Removal and replacement, stop/tail lamp bulb" previously described.

The Flasher Direction Indicator Warning Lamps

The flasher direction indicator warning lamps not only indicate the correct function of the direction indicator, but also gives warning of bulb failure in any of the direction indicator lamps. Hence, when the warning lamp ceases to flash, the direction indicator lamps are also extinguished.

The Flasher Unit

The flasher unit, mounted on the rear engine bulkhead, is a make and break instrument to facilitate the operation of the intermittent signal.

It is essential that the correct wattage bulbs are used in the flasher lamps, failure to observe this instruction may result in the speed-up or slow-down of the intermittent signal or, in some cases, no signal at all.

Removal and Replacement, Flasher Unit

Remove the flasher unit from the R.H. wing valance inside the engine compartment by withdrawing the nut and bolt and detaching the cables from the three flasher terminals. The replacement of the flasher unit is the reversal of the removal sequence and reference is made to the wiring diagram with the earthing wire between the bolt head and the flasher mounting bracket.

IMPORTANT—DO NOT DROP THE FLASHER UNIT.

Checking Faulty Operation

In the event of flasher direction indicator failure, the following procedure should be observed :—

(i) Check the bulbs for broken filaments.

(ii) Check that there are no disconnections in the wiring.

(iii) Switch on the ignition and connect a 12 volt lamp between the flasher unit terminal "B" and earth ; the lamp should glow, indicating that power is available ; when the lamp remains extinguished check the wiring for a disconnection.

(iv) Leaving the ignition switch on, short the terminals "B" and "L" and operate the flasher direction indicator switch. If the indicator lamps emit a steady glow the flasher unit is defective and must be replaced ; when one or more lamps remain extinguished check the wiring for disconnections.

The Flasher Direction Indicator Switch

The flasher direction indicator switch is the lever protruding upward through the top edge of the control head mounted in the centre of the steering wheel. Providing the steering wheel traverses more than 30° the switch is self-cancelling, otherwise the lever must be returned to its mid-point of travel by hand. The direction indicator system is only operative when the ignition is switched on and warning lamps, situated in the face of the engine speed indicator, will give an intermittent glow when both front and rear flasher direction indicator lamps are operating.

No attention is required, apart from ensuring that the nut on the stator tube protruding through the bottom of the steering unit beneath the car, is tight.

Setting the Flasher Direction Indicator Switch (*Figs. 53 and 54*)

In isolated instances it may be found that the flasher direction indicator switch in the centre of the steering wheel has become misplaced, inasmuch that it will not cancel correctly or, in extreme cases it does not cancel at all, or that the control head is slack and turns with the steering wheel.

Although these irregularities are best corrected by a Daimler Distributor or Dealer, the switch can be set by adopting the following procedure :—

Position the car on level ground so that the front roadwheels are in the straight ahead attitude with the steering wheel spoke visible between the speedometer and

engine speed indicator. Set the lever of the flasher direction indicator switch at the mid-point of its travel.

Remove the nut and olive from the bottom end of the stator tube protruding through the bottom of the steering unit beneath the car, trapping the escaping oil in a suitable receptacle. Pull the flasher direction indicator switch out of the steering wheel hub and observe the position of the trip lever trapped beneath the steering wheel securing nut ; this lever must be in the six o'clock position, and can be re-positioned by slackening the steering wheel nut.

Replace the flasher direction indicator switch in the steering wheel hub, ensuring that the groove in the moveable cylindrical body is in the six o'clock position and locates the steering wheel trip lever. Ensure that the switch lever is in the mid-point of its travel but in the twelve o'clock position.

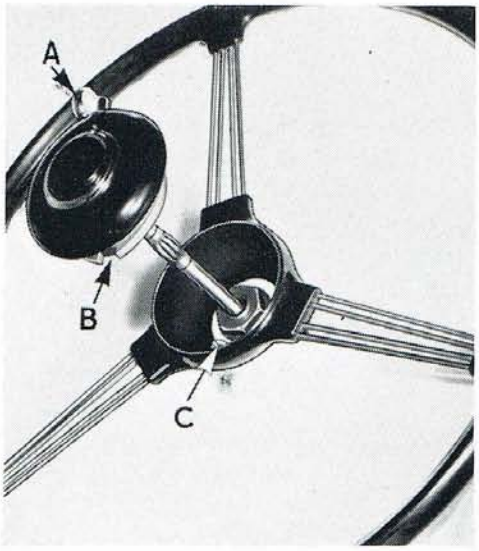


Fig. 53. The flasher direction indicator switch withdrawn from steering wheel.

A. Flasher direction indicator lever.
B. Groove in cylindrical body.
C. Trip lever.

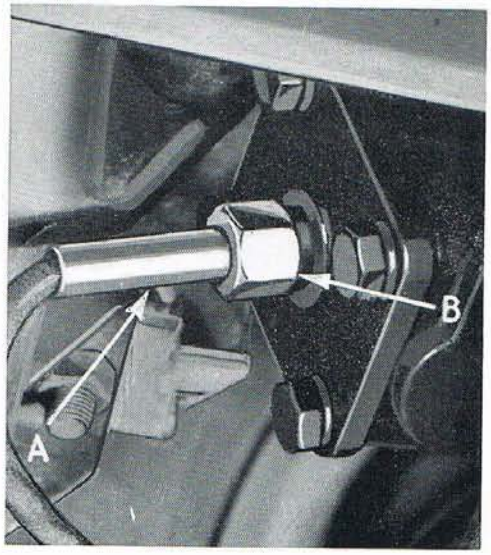


Fig. 54. The bottom end of stator tube.

A. Stator tube. B. Gland nut.

Fit the olive and nut to the bottom end of the stator tube protruding through the bottom end of the steering unit beneath the car, and fully tighten. Top up the steering unit with the recommended brand and grade of oil as previously described.

The Battery

The twelve volt, positive earth, battery is fitted on the rear engine bulkhead in the engine compartment.

It is a wise plan to check the specific gravity of the electrolyte with a hydrometer, but this must NOT be taken immediately after adding distilled water, otherwise a

false reading will be indicated. The readings of each cell should be noted and then compared with one another, when the battery is in good condition the readings should almost be the same. When one cell or more are distinctive from the others, the battery should be examined by the Daimler Distributor or Dealer.

Specific gravity readings and their indications are as follows :—

1·280—1·300	Battery fully charged.
Approximately 1·210 ..	Battery half charged.
Below 1·150	Battery fully discharged.

When the battery of the car is found to be in one of the two latter conditions the cause of the low state of charge must be determined and the battery put on charge.

Never leave the battery in a discharged condition for any length of time, and if the car is going to be stored, the battery should be fully charged and given a refresher charge every fortnight.

Removal and Replacement, Battery (*Fig. 55*)

Remove the battery from the rear engine bulkhead by detaching the terminals and securing strap. On replacement make certain that the battery is very firmly held but without crushing the case.

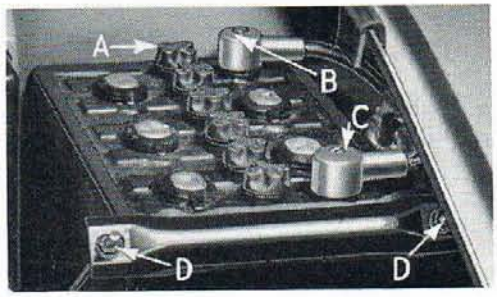


Fig. 55. The battery stowage.

A. Topping up plug.
B. Negative terminal.
C. Positive terminal.
D. Battery securing details.

Servicing the Battery (*Fig. 55*)

Withdraw the six screwed filler plugs from the top face and add sufficient distilled water to bring the electrolyte level 0·125″ (3·175 mm.) above the plates and separators.

Detach both terminals by withdrawing the centre screw, scrape the terminals and battery posts clean and coat with petroleum jelly. Clean the top of the battery with household ammonia.

DO NOT USE A METAL CONTAINER FOR THE DISTILLED WATER.

The Dynamo

The dynamo, mounted on top of the engine and driven by a Vee belt from the front end of the crankshaft, is of the compensating voltage type and works in conjunction with a regulator housed in the control box.

The dynamo will give an output according to the state of charge of the battery and the load placed upon it demanded by the regulator maintains it at a definite level. It must be realised, however, that the persistent use of too much electrical equipment all at one time may cause the dynamo to overheat, resulting in premature failure.

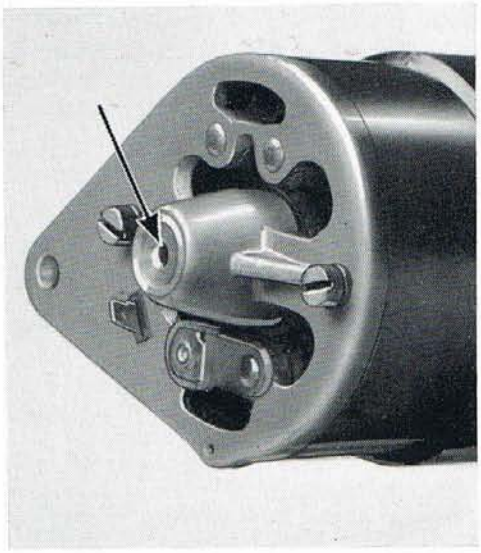


Fig. 56. The Dynamo Lubricator.

Lubricating the Dynamo (*Fig. 56*)

The front dynamo bearing is prepacked during assembly and will require no further lubrication. The rear bearing is an oil treated bronze bush and will require periodical lubrication.

Inject a few drops, from an oil can, into the circular aperture in the rear bearing housing, where it will soak into a felt pad.

Removal and Replacement, Dynamo

Detach the electrical harness from the two dynamo terminals and remove the vee drive belt as described in the Cooling System. Remove the dynamo from the top of the engine by withdrawing the clamp bolt and two pivot nuts and bolts.

The replacement of the dynamo is the reversal of the removal sequence, but it will be necessary to tension the vee driving belt as described in the Cooling System and to fit the large and small tags of the electrical harness to the correct sized terminals.

Cleaning Dynamo Brush Gear, Commutator
Removal and Replacement of Dynamo Brushes

Remove the brush springs from the top of the brushes inside the rear of the dynamo, utilizing a thin rod fed through the windows in the rear bearing housing, resting the springs on the brush frame. Remove the rear bearing housing by withdrawing the two long bolts.

Examine the brushes for freedom of movement by holding the brush springs clear and pulling gently on the flexible connecting wires. Remove the brushes from the end cover by withdrawing one screw each if the brushes are to be changed.

When a brush is inclined to stick, remove it from its holder, clean both with petrol and rub the high spot from the brush.

The commutator should be clean and have a polished appearance ; when it is dirty, clean with a petrol soaked cloth while turning the armature by hand. If this fails to clean completely, use a piece of fine glass paper and finish with a petrol soaked cloth.

Replace the used brushes to their original positions or fit replacements, after ensuring freedom of movement in the holders, by securing the ends of the flexible connectors with screws. Bedding in is unnecessary as the brushes are pre-shaped.

Fitting the rear bearing housing is the reversal of the removal sequence and the housing is located by a dowel in its fitting face.

The Control Box

The control box is attached to the wing valance at the right-hand side of the engine compartment, and it contains the regulator and cut-out units, the settings of which are accurately made during the initial assembly and should not be altered.

The regulator controls the output of the dynamo according to the condition and load placed on the battery by the use of the various electrical equipment. Incorporated in the regulator is a temperature compensator which allows an increased charge to pass to the battery in cold weather.

The control box will require little attention apart from seeing it is securely mounted, that all the connections are tight, and occasional cleaning of the three sets of contacts.

Cleaning Control Box Contacts

Clean the voltage regulator and current contact points, situated on top of the two bobbins, utilizing a sheet of fine glass paper and pressing the armature downward.

Clean the cut-out contact points, situated in front of the remaining bobbin, by applying slight pressure to the armature and utilizing a sheet of fine glass paper.

The Fuse Unit

The fuse unit is situated on the right-hand side of the engine compartment, at a point in front of the control box. It contains two fuses in circuit.

The front fuse is in circuit with the directional flasher indicator lamps, the petrol gauge, windscreen wiper and the ignition circuit ; failure of all these components will indicate a spent front fuse.

The rear fuse is in circuit with the horns, and the failure of the horns will indicate a spent rear fuse.

Removal and Replacement, Fuses

The spent fuse can be recognised by the failure of the electrical components and by its burnt appearance. Before fitting the replacement, which must be of the same value as the original, inspect the wiring of the units that have failed for evidence of a short circuit and remedy the trouble. In many cases the failure will be due to fuse fatigue.

Withdraw the "spent" fuse from its spring clips. After inspecting the wiring, remove a spare fuse from the storage and press into its spring clips. Procure a new fuse at the earliest opportunity.

The Windscreen Wiper

The windscreen wiper is of the self stopping type, and it is controlled by the right-hand switch in the centre instrument panel, after the ignition has been switched on. The only maintenance that is necessary is the occasional replacement of the windscreen wiper blade assemblies.

Removal and Replacement, Windscreen Wiper Blades (*Fig. 57*)

Hinge the windscreen wiper arm away from the windscreen and remove the blade assembly from its curved end by a circular movement. The replacement of the blade is the reversal of the removal sequence ; a small click will be heard when the blade is fully home.

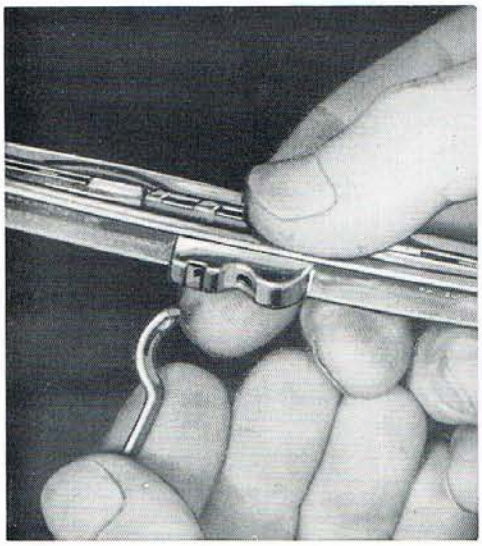


Fig. 57. The windscreen wiper blade and arm assembly.

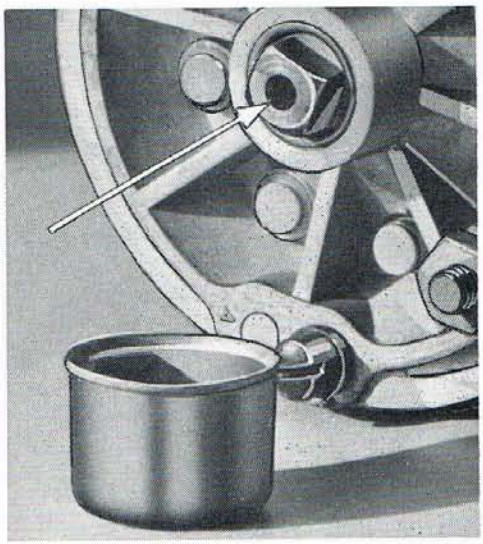


Fig. 58. The squared end of starter motor shaft.

The Windscreen Wiper Switch

The windscreen wiper switch situated on the right-hand side of the instrument panel, is of the two position type :—

(i)	UPWARD	Windscreen Wiper	OFF
(ii)	DOWNWARD	Windscreen Wiper	ON

The Starter Motor

The electric starter motor is a series parallel connected, four pole, four brush electric motor having an extended shaft which carries the starter ring drive on one end and a squared end on the second. It is controlled by a solenoid switch which is operated by turning the ignition key to the extreme right against its spring loading.

As it spends most of its life stationary it will require no attention apart from cleaning the commutator and brush gear. The latter may need replacing when the car is used for short journeys when the electric starter is used more than normal. The bearings will require no lubrication, as they are oil impregnated bronze bushes.

Releasing a Jammed Starter Motor (*Fig. 58*)

In the event of the starter motor drive becoming jammed in mesh with the flywheel starter ring, it can be released by adopting one of the two following procedures :

(i) By removing the protective cap at the forward end of the starter motor and turning the protruding squared end of the armature shaft in an anti-clockwise direction when looking toward the rear of the car.

(ii) By switching off the ignition, engaging top gear and rocking the car to and fro.

Removal and Replacement, Starter Motor

Detach one terminal from the battery and the electrical lead from the starter motor. Remove the front left-hand exhaust pipe.

Withdraw the starter motor from the left-hand side of the rear engine mounting plate by removing two nuts and bolts.

The replacement is the reversal of the removal sequence.

Cleaning Starter Motor Brush Gear, Commutator
Removal and Replacement Starter Motor Brushes

Remove the starter motor from the engine and detach the cover band by slackening the pinch bolt.

Examine the brushes for freedom of movement by holding the springs clear and pulling gently on the flexible connection wires. Remove the brushes from the holders in the end cover. When a brush is inclined to stick, remove it from its holder, clean both with petrol and rub the high spot from the brush.

The commutator should be clean and have a polished appearance ; when it is dirty, clean with a petrol soaked cloth while turning the armature by hand. If this fails to clean completely, use a piece of fine glass paper and finish with a petrol soaked cloth. Replace the brushes to their original positions if not worn shorter than 0·3125″ (7·938 mm.) and fit cover band.

Withdraw the worn brushes with the end cover by detaching the terminal nuts and washers from the field coil terminal post protruding through the end cover ; remove the cover, with the brushes attached, by withdrawing the two through bolts.

Replace the four brushes, two from the end cover and two from the ends of the field coils, by re-soldering on the flexible connection wires of the replacements.

Assemble the starter motor by reversing the dismantling sequence. Bedding-in is unnecessary as the brushes are pre-shaped.

The Starter Motor Solenoid Switch

The solenoid starter switch is attached to the left-hand wing valance in the engine compartment, and is earthed to the positive side of the battery and engine through the main earthing strip. Although the solenoid switch is in circuit with the combined ignition/starter switch and starter motor, the engine can be cranked by energising the starter motor while the ignition is switched off by depressing the rubber covered button on its top side. The solenoid switch will require no attention.

To Test the Solenoid Switch

Detach the starter lead from the solenoid switch and connect a 12 volt lamp across the starter terminal and the solenoid switch body.

Depress the rubber covered button while listening to the solenoid switch for a "click". When no "click" is heard, connect the 12 volts directly across the small terminal and the solenoid switch body ; press the button and if the switch fails to operate a replacement must be fitted. Should the switch operate but not complete the circuit to the lamp it indicates that the internal contacts are faulty and a replacement switch must be fitted.

The Ignition/Starter Switch

The ignition-starter switch, positioned second from the right-hand side of the instrument panel, is a combined instrument incorporating a lock, an ignition "on" position, and a spring loaded electric starter position. It operates in conjunction with the ignition warning lamp incorporated in the speedometer and this lamp will glow at all times when the ignition is switched on and the dynamo is not charging the battery.

The lock is lubricated in a similar manner to that of the door locks described in "THE BODY".

The Ignition Key

The ignition key, which also opens all other locks of the car, is identified by a number which coincides with a number stamped on the barrel of the ignition lock and two keys are supplied with each car. One key can be greased, wrapped up in stout paper and secured to the underside of the car in such a position that it can be readily retrieved in the event of being "locked out", but is concealed from a passer-by.

A further precaution can be taken by memorizing the ignition key number and covering the numerals, stamped on the face of the lock barrel, with a piece of adhesive plaster, in such a manner that they cannot be observed.

To Switch on Ignition and Start the Engine

Fit the key into the ignition lock and turn clockwise to the two o'clock position, the ignition is now switched on and the ignition warning lamp in the speedometer face will glow. Turn the key further clockwise against the tension of the spring to energise the starter motor. Immediately the engine starts, release the key, which will spring back and adopt the two o'clock position.

The Electric Horns

Each electric horn is adjusted and tested before it leaves the manufacturer's works, and tested again during the initial assembly of the car, and they will give long service without attention.

Should the horns fail or become uncertain in operation, ascertain that the trouble is not due to a loose mounting bolt or a loose connection in the wiring circuit before detaching the horn to clean the contacts.

The horns are not included in the ignition circuit.

Removal and Replacement, Electric Horns

Detach the earthing wire from the battery and the cable to the electric horns from the snap connectors situated at the right-hand side of the radiator block, or by removing the domed cover when the horn has been detached by withdrawing one screw and detaching the wires.

Access to the horns is best gained from beneath the front of the car ; detach the horns from their brackets situated at the extreme front ends of the chassis frame sidemembers in front of the radiator block by removing two bolts.

Cleaning the Contacts

Remove the horns from the chassis frame brackets and detach the dome cover by withdrawing a screw. Agitate a piece of fine glass paper between the two contacts and blow any dust clear. Replace the dome cover and secure with the screw.

Adjusting the Contacts

Clean the contacts as previously described. Grip the horn firmly in a vice, slacken off the locknut of the fixed contact and connect to a 12 volt battery with an ammeter in circuit. Rotate the adjusting nut until the horn just fails to sound and then switch off. Turn the adjusting nut half a turn anti-clockwise and then tighten the locknut. Sound the horn while observing the ammeter; when it indicates a greater discharge than 30 amps. close the contacts slightly.

The Horn Button

The horn button, positioned in the centre of the control head mounted in the centre of the steering wheel, is pressed to sound the horns.

The Instruments

The Ammeter

The ammeter, situated in the right-hand corner of the instrument panel, will indicate the charge or discharge of the battery caused by the running of the dynamo, or by the use of the lights, and ignition. When the engine fails to start it is possible to check the operation of the ignition by observing the "kicking" of the ammeter needle. Should this instrument fail no electric power will be available.

The Oil Pressure Gauge

The oil pressure gauge, situated second from the right-hand corner of the instrument panel, registers the pressure of oil pumped to the main oil gallery. The reading should normally read 35-45 p.s.i. (2·961-3·164 K.s.cm.) when the car is travelling at normal speeds and the oil is hot, although a lower pressure may be registered when the engine is running at idling speed.

The Engine Temperature Gauge

The engine temperature gauge, situated second from the left-hand corner of the instrument panel, registers the temperature of the coolant at the thermostat and when the engine has reached its normal running temperature it will indicate approximately 175°F. (79·4°C.). In exceptionally cold weather an abnormally high temperature may be recorded, indicating that the bottom of the radiator is beginning to freeze, restricting the flow of the coolant.

The Petrol Tank Contents Gauge

The petrol gauge is situated in the left-hand corner of the instrument panel and operates only when the ignition is switched on, and registers the contents of the petrol tank, apart from the last 1½ Imp. galls. (1¾ U.S. galls.) (6·819 litres), as E. — ½ — F.

The contents of the petrol tank is best ascertained before the engine is started, when a more accurate estimation can be observed. If the strength of the battery is low, with the engine running, the charging rate will be high and therefore a "high" reading will be shown on the petrol gauge indicating that it contains more petrol than is correct.

The Speedometer

The speedometer, situated immediately in front of the steering wheel, is a combined instrument indicating the car's road speed, the total distance the car has travelled, a trip distance the car has travelled, and two warning lights, the first indicating when the ignition has been switched on and the battery is not being charged ; the second, when the main headlamp beam is in use. The instrument is driven by a flexible drive from the rear extension of the gearbox.

The instrument will require little attention apart from periodical lubrication of the flexible drive inner cable, which is best effected with a graphite band grease.

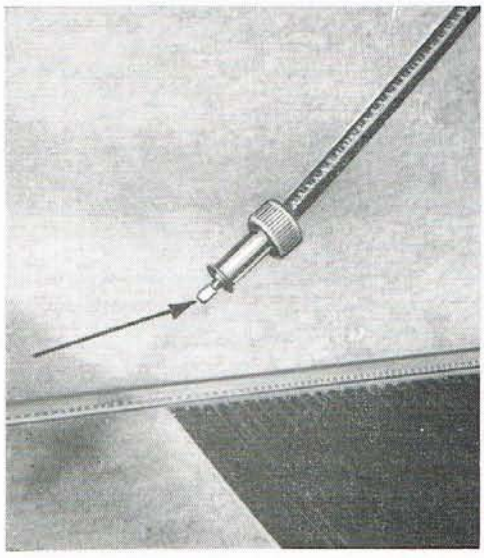


Fig. 59. Instrument end of flexible drive showing inner cable.

Fig. 60. Location of trip odometer resetting knob. R.H. drive

To Reset the Trip Odometer (*Fig. 60*)

Push in the serrated knob situated at the bottom rim of the instrument panel, and turn anti-clockwise ; pull out knob when zero is registered.

The Engine Speed Indicator

The engine speed indicator, situated immediately in front of the steering wheel, records the engine speed in numbered 100 r.p.m. divisions and then sub-divided into 10 r.p.m. divisions. The face incorporates two warning lamps in circuit with the L. and R.H. flasher direction indicator lamps. It is driven by a flexible drive from the ignition distributor/oil pump drive. The instrument will require little attention apart from periodical lubrication of the flexible drive inner cable, which is best effected with a graphite based grease.

Lubricating Speedometer and Engine Speed Indicator Flexible Drives (*Fig. 59*)

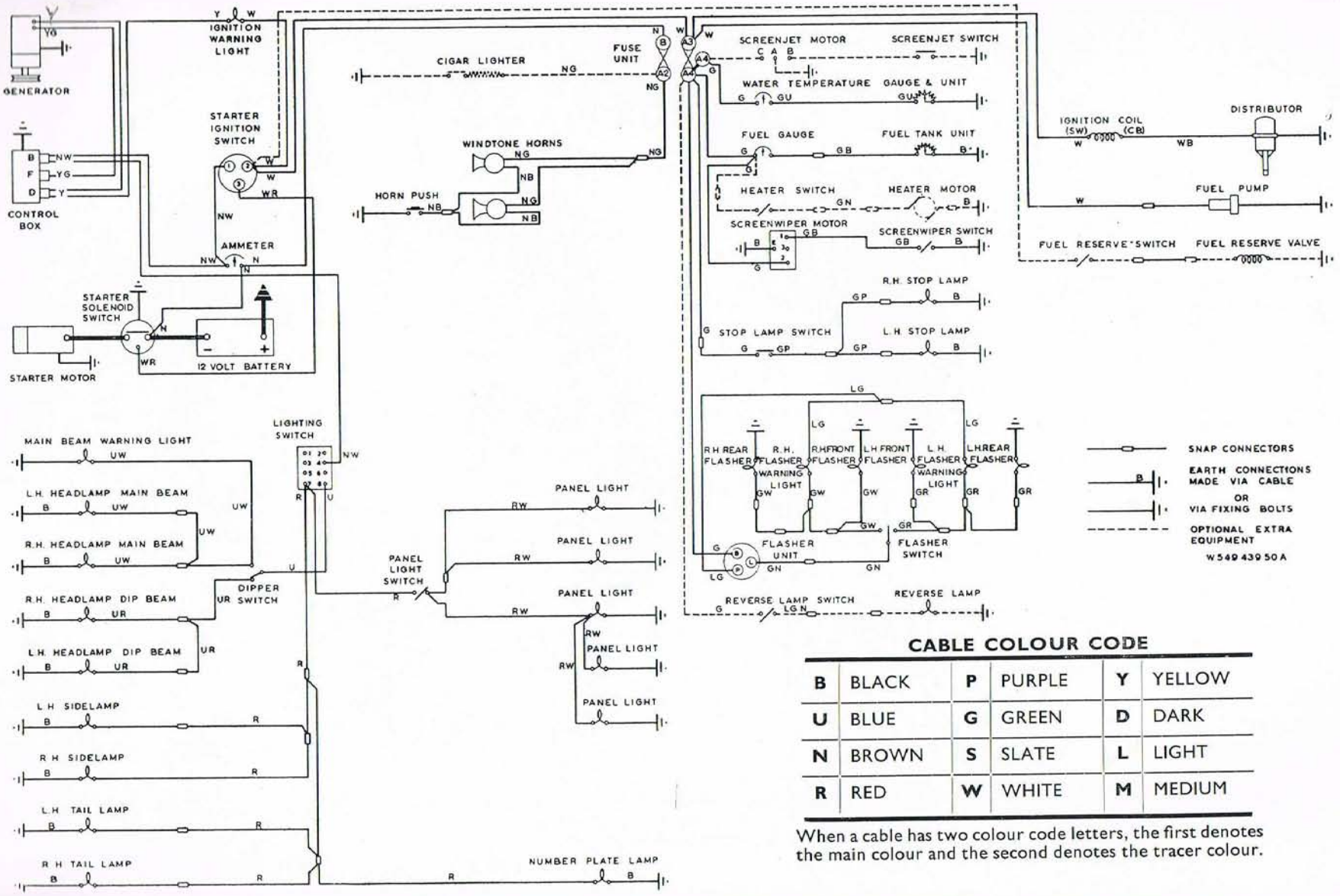
The lubrication of either of these drives need only be effected very occasionally, but when a "ticking" noise emits from the instrument panel it indicates that one or the other drive may need lubrication and the inner cable must be withdrawn. When the noise is heard while the car is stationary with the engine running, the engine speed indicator drive requires attention.

Detach the flexible drive assembly from the rear of the instrument panel by removing the knurled nut. Withdraw the inner cable, keeping it as straight as possible ; it must never be tightly coiled. Clean the cable in petrol and coat with a graphite based grease while feeding it into the inner cable. Feed the top end of the cable into the instrument and secure with a knurled nut.

Use parts of genuine Daimler manufacture **only** when making a replacement.

Genuine Daimler spare parts are stocked by Daimler distributors and dealers in most important centres.

Names and addresses of distributors and dealers will be supplied on request.



CABLE COLOUR CODE

B	BLACK	**P**	PURPLE	**Y**	YELLOW
U	BLUE	**G**	GREEN	**D**	DARK
N	BROWN	**S**	SLATE	**L**	LIGHT
R	RED	**W**	WHITE	**M**	MEDIUM

When a cable has two colour code letters, the first denotes the main colour and the second denotes the tracer colour.

VIII

The Chassis Frame

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The Chassis Frame

The chassis frame is a rigid construction of pressed steel channelling, the chassis side members being formed from two opposing steel pressings welded together, giving a structure of hollow section.

The front end of the chassis frame is built up to form the front road spring housings, top and bottom wishbone mountings. These structures are braced together by a detachable cross member and further strengthened from the rear by rectangular supports to the chassis frame side members.

The centre of the chassis frame is a cruciform structure of channelled steel pressings, these are again strengthened by heavy gauge plates which form the supporting members for the gearbox unit and hand brake lever.

The Jacking System

A jacking bracket is welded to the outer face of each chassis frame side member to accommodate the hook of the screw type lifting jack provided. The jack operating handle is stamped on its side faces to indicate the action required to raise or lower the car.

To raise the car, turn the jack handle clockwise.

To lower the car, turn the jack handle anti-clockwise.

The jacking system is designed to enable the driver to raise the car to effect a wheel change in the event of tyre failure. It is not intended that this jacking system shall be used for prolonged periods to effect lengthy underside overhauls.

Fig. 61 The jack inside the car.

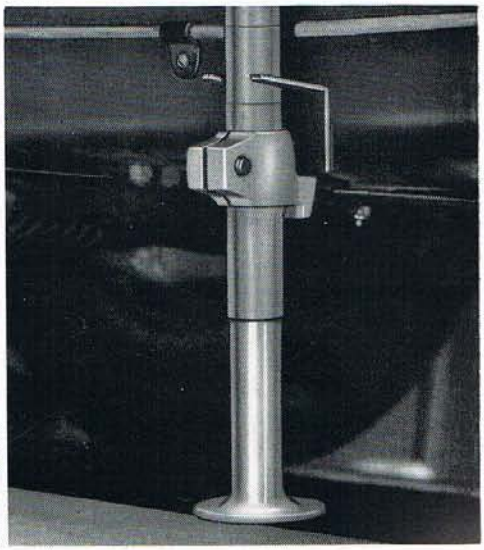

Fig. 62 The jack under the car.

Jacking the Car for Roadwheel Change (*Figs. 61 and 62*)

Ensure that the handbrake is hard on.

Roll the carpet aside and remove the rubber plug in the floor before the front seat and viewed through the hole is a bracket attached to the chassis side member. Pass the jack through the hole, engaging its hook with the chassis bracket. Hold the hook in this position with one hand and turn the jack handle clockwise until its base contacts solid ground or, failing this, position a stout piece of wood between the jack and ground.

Ensure that the jack is secure and does not foul the hydraulic or petrol pipe lines. Raise the car to the desired height by turning the jack handle clockwise. To lower, turn the jack handle over and turn anti-clockwise.

Jacking the Car for Overhaul

The car may be jacked up anywhere along its chassis frame provided that :—

(i) The head of the jack is cushioned by a thick piece of wood.

(ii) The front roadwheels are chocked when the rears are lifted from the ground.

(iii) The chassis frame is raised equally on both sides.

Datum Height of Chassis Frame

The datum height of the chassis frame is set by loading the cockpit of the car until the chassis frame, forward of the rear shock absorber brackets, is 6·250″ (152·750 mm.) above ground level. The length of chassis frame behind these shock absorber brackets rises upward and a false datum height would be obtained if this section of the chassis frame was used.

Use parts of genuine Daimler manufacture **only** when making a replacement.

Genuine Daimler spare parts are stocked by Daimler distributors and dealers in most important centres.

Names and addresses of distributors and dealers will be supplied on request.

IX

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The Cockpit Hood

In the erected position, the hood is braced by a metal hood frame pivoted from the sides of the cockpit, located and attached to the top of the windscreen frame by three toggle fasteners and the rear of the cockpit by nineteen externally positioned "Tenax" fasteners.

When the hood is in the stowed position, it is detached from the windscreen and the rear of the cockpit and folded into the recess at the back of the cockpit and a tonneau cover fitted.

Caution

The hood should never be stowed while wet, but when this action is inevitable it must be wiped as dry as possible before stowing. At the first opportunity the hood must be unstowed and dried ; a wash, at this stage, is beneficial.

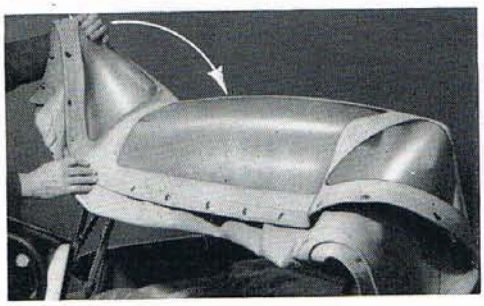


Fig. 63. Folding the transparent side panels.

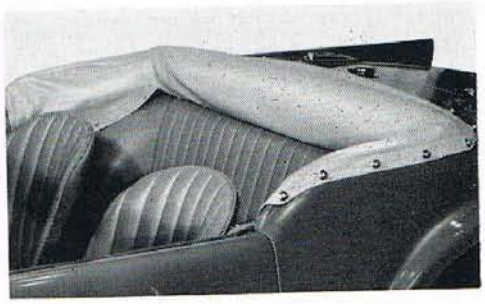


Fig. 64. The cockpit hood in the stowed position.

Lowering and Stowing the Cockpit Hood (*Figs. 63 and 64*)

Attach the tonneau hood cover to the two rear and four side fasteners situated in the rear of the cockpit. Detach the hood from the top of the windscreen and the rear of the cockpit by releasing three windscreen toggle clamps and twenty-one fasteners—one on top of each rear door post and nineteen externally positioned fasteners.

The hood and frame are folded, together with the side panels turned inward, down into the rear recess of the cockpit. The tonneau cover is then placed over the folded hood and frame and secured by the nineteen external fasteners.

Erecting the Cockpit Hood (*Figs. 65 and 66*)

Open both the car doors and detach the tonneau cover by releasing the twenty-five fasteners—nineteen positioned externally and six inside the cockpit. Store the tonneau cover in the luggage boot.

Lift the hood and frame from its recess and attach the rear portion of the hood to the rear of the cockpit with nineteen external fasteners. Space out the ribs of the frame and attach the front of the hood to the top of the windscreen with the three toggle clamps. Attach the hood sides to the top of each door post by one fastener each side. Close the doors ensuring the side windows are on the out-side of the hood.

Fig. 65. The "Tenax" car fastener.

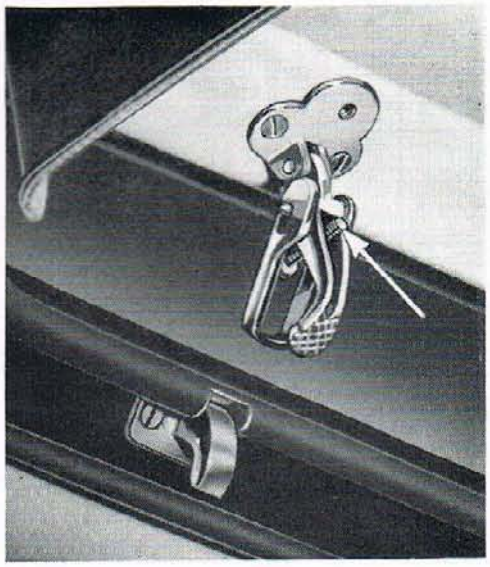


Fig. 66. The windscreen clamp.

The "Tenax" Car Fasteners

The "Tenax" Car Fastener is utilized to attach the hood or tonneau cover to the rear of the cockpit. It consists of two main parts—a peg, screwed into the body, and a button, fitted to the material ; the latter consists of two parts, a screw and nut. The screw, containing the fastener mechanism, is fed through the material and secured from the second side by the nut, utilizing a small forked spanner.

To Detach and Fit Fasteners (*Fig. 65*)

To detach the fastener from the peg, pull outward on the external projection and lift away.

To fit, press the fastener on to the peg.

To Renew

The peg is screwed in or out of the body as the need requires. The fastener is detached from the hood material by removing the nut on the inner side of the hood, utilizing a forked tool. The fitting is the reversal of the removal.

The Seats

The Front Seats

The front seats, which have folding backs to permit the entry of the rear passengers, are mounted in a sliding channel attached to the floor of the cockpit.

To adjust the position of either seat, forward or backward, first release the lever situated in front of the seat cushion at the R.H. side.

Downward to release.
Upward to lock.

The Rear Seat

The rear seat is of the bench type and it is rigidly attached to the rear of the cockpit.

The Care of the Body

The body is fabricated from a glass fibre material ; it is strong, readily resists corrosion, resilient to blows, accidental damage is speedily repaired and the whole body is lighter than if it was fabricated from metal. It has a cellulose finish which is treated in exactly the same way as if it were on metal.

The Paintwork

An abundance of water from a hose pipe directed at an angle toward the body, together with the use of a sponge, readily washes off road dirt and then the body dried off with an almost dry chamois leather.

The most protective finish is still obtained from a wax polish. Many "proprietary" polishes, now available, are undoubtedly easier to apply, but they may not last as long. When one of these polishes is to be used, first ensure that it is suitable for cellulose finishes.

Cleaning Chromium Plated Components

Chromium plated components should be cleaned with soapy water, wiped with an almost dry chamois leather and, when completely dry, polished with a soft cloth.

The use of a "proprietary" chromium plate cleaner is to be considered when soapy water is of little avail, but owing to some having degreasing qualities the component may afterward tarnish more quickly. Wax polishing of chromium plated components is beneficial.

Cleaning Windscreen and Glass

The windscreen and other glasses can be cleaned with clean water and a chamois leather, although a crystal clear and grease-free finish can best be obtained with a soft cloth and methylated spirit.

Some "proprietary" window cleaning preparations leave a greasy film over the glass which, although causes no inconvenience inside the car, makes it difficult for the windscreen wipers to give their best and most efficient results.

The Interior Upholstery

The interior of the car is best swept out with a suction cleaner or, failing that, with a stiff brush. The seats, door trims and instrument facia should be washed with soap and a damp cloth, thoroughly dried and polished with furniture polish.

Cleaning the Cockpit Hood

Erect the cockpit hood as previously described. Wash the inner and outer surfaces with soap and water. After drying off with a soft cloth, polish with a light coloured wax furniture polish.

Lubrication of Body Parts

The lubrication of door and hood hinges, door striker plates, door locks and window regulator mechanism is effected from an oil can. To lubricate the latter two, the door handles and trims must be removed.

The Doors

The Door Locks

The R.H. door is locked from the outside only, by the use of the ignition key. A small guard positioned in the mouth of the lock prevents water entering and moves sideways when the key is inserted. If the guard freezes during exceptionally cold weather it can be thawed out by placing an ungloved hand on the release button of the handle in which the lock is situated.

Operation of the Door Locks

The R.H. door is opened from the locked position by inserting the ignition key into the lock and turning it 90° anti-clockwise. Withdraw the key and depress the lock button with the thumb, whereupon the door will open on its forward edge. To open a door from inside the car, the remote control lever is moved upward. To lock the door, ensure that it is closed, insert and turn the ignition key 90° clockwise to a vertical downward position, and withdraw the key.

The L.H. door can be released from its locked position only from inside the car, by moving the remote control lever upward ; then, the door can be opened by depressing the external button or by continued movement of the remote control lever. This door can be locked when in its closed position from inside the car by moving the remote control lever downward ; or from its open position by, first, moving the remote control lever downward and then closing the door.

Lubricating the Lock Barrel

The lock barrel in the door handle is best lubricated by applying thin machine oil to the ignition key and inserting it into the lock barrel. Agitate the key in and out a number of times and withdraw and wipe the key dry. Re-insert the key without lubrication and repeat the previous sequence. This will clean but leave the lock barrel suitably lubricated.

The Window Regulators

The window regulator is the forward of the two handles on the inside face of each door, the internal mechanism of which incorporates a clutch whereby the window cannot be forced downward.

To lower windows—
Rotate R.H. handle anti-clockwise.
Rotate L.H. handle clockwise.

To raise windows—
Rotate R.H. handle clockwise.
Rotate L.H. handle anti-clockwise.

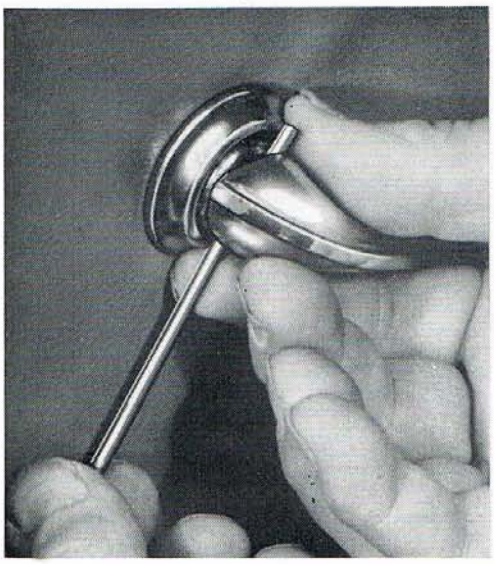


Fig. 67. Removing internal door handle.

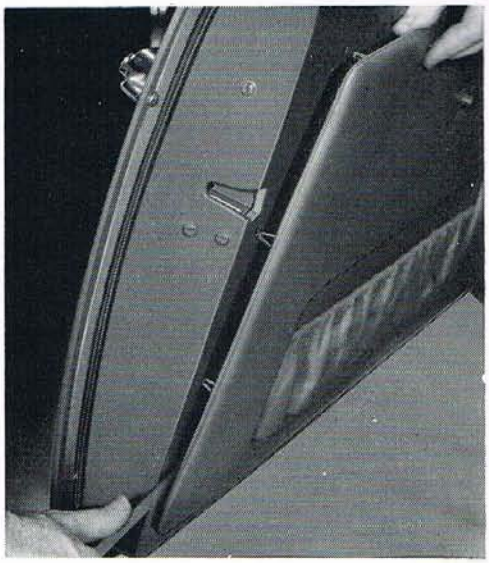


Fig. 68. Removing the door trim panel.

Removal and Replacement, Door Trim Panel (*Figs. 67 and 68*)

The door trim panel is attached to the inner face of the door with spring clips.

Detach the door lock remote control lever and window winder by pressing the escutcheon plates inward and ejecting the "hidden" pins in the handles. Remove the door trim by feeding a flat instrument between the trim and the door face adjacent to the spring clips.

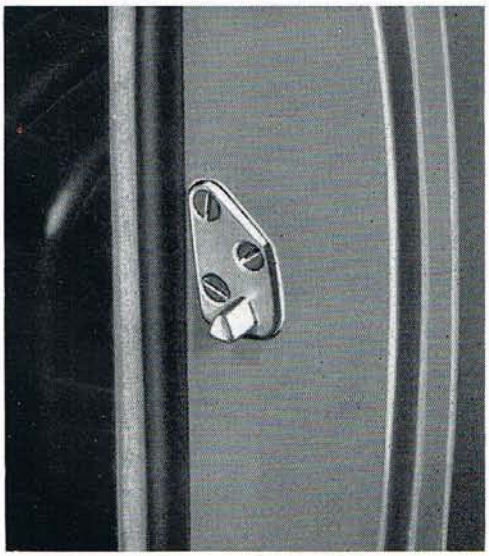


Fig. 69. The door lock striker plate.

Adjustment of Door Striker Plate (*Fig. 69*)

The door striker plate is secured to the door post by three screws which pass into an adjustable tapping plate on the inside of the door pillar. Apart from periodically ensuring that the screws are tight and the contact faces lubricated, no further attention is necessary. Care must be exercised not to over lubricate the striker plate for it may find its way on to the wearing apparel of the driver or passenger.

In the event of the striker plate being suspect, check first that the door fits accurately in its aperture. Unless this condition is attained little success will be met by moving the striker plate.

Before moving striker plate, identify its position to the door post either by tape or by scribing a line on the door post. From inside the car ascertain the high spot of the striker, slacken the screws and re-position the striker, re-tighten screws and re-test, adjusting as necessary.

It must be remembered that the rubber beading round the door and door aperture should compress slightly to prevent incoming draught but not to stop the door shutting.

Positioning the Door

The door is hung on two hinges mounted on its forward edge and to ensure satisfactory draught excluding, ease of closing and locking operation, it is essential that it fits centrally in its aperture. To effect this condition, the hinge assembly is attached to the front door post through vertically slotted holes and to the door through horizontally slotted holes.

Detach the trim panels from the inside face of the door and from the inside of the car just forward of the front door post. Ascertain, by closing the door, the amount and direction of movement required to position the door correctly.

Slacken one set of hinge fixing details at a time, move the door accordingly and then re-tighten ; close the door to see the effect before making any adjustment to the second set of details.

When the door positioning is correct, tighten all the details, lubricate all working parts and replace the trim panels and handles.

The Engine Hood

The engine hood is of the alligator type, being pivoted on its rear edge by two hinge assemblies, and its position can be set in the centre of its aperture by slackening the hinge attachment details, the holes in the hood being enlarged for this purpose. In the event of a troublesome hood lock, ensure that the hood is set centrally in its aperture before resetting the position of the lock striker assembly.

The engine hood is held closed by a main lock operated by a flexible cable and a toggle situated on the underside of the instrument panel. A secondary lock is also fitted which will hold the hood in an almost closed position in the event of main lock failure.

The striker unit of the main lock assembly is attached to the underside of the engine hood by four bolts through enlarged holes, which facilitates the correct alignment of the screwed striker with the lock unit. The screwed striker pierces the lock unit attached to the front rim of the engine compartment and the projection of the screwed striker is set by a nut adjacent to the hood, and should be adjusted so that the front contour of the hood blends with that of the body. The spring of the striker unit, while preventing hood rattle, partially opens the engine hood when the main lock ward is withdrawn and holds it against the secondary lock hook.

A threaded cable adjuster is fitted to the R.H. side of the main lock unit and it should be set so that there is no slackness in the flexible cable and this adjustment should be set with the hood in the raised position. Any perceptible slackness of the toggle when the engine hood is closed will indicate that the lock ward is not fully home.

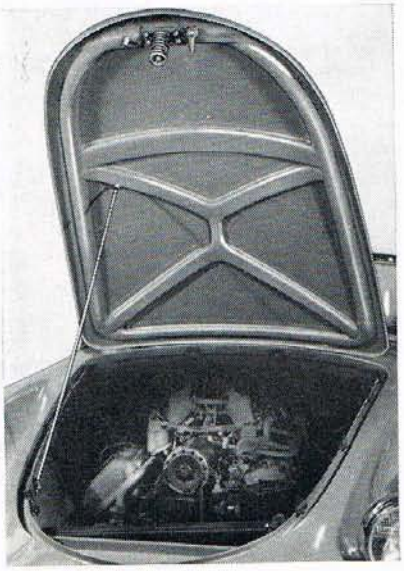


Fig. 70. The engine hood in the raised position.

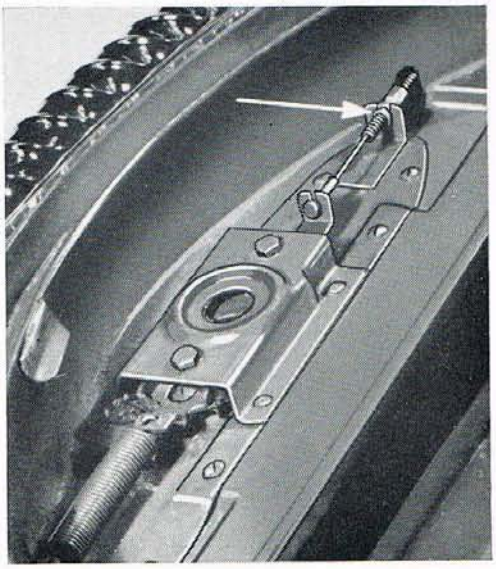


Fig. 71. The engine hood lock unit and cable adjuster.

To Open the Engine Hood (*Fig. 70*)

Open the engine hood by first pulling on the toggle situated under the instrument panel and with the fingers of the right hand, when looking toward the rear of the car, release the secondary lock. Lift the hood upward and hold it open with the prop situated in the R.H. side of the engine compartment.

To Close the Engine Hood (*Fig. 71*)

Close the engine hood by lifting it upward and stowing the prop in the R.H. side of the engine compartment. Lower the hood so that the secondary lock is engaged. Shut the hood with one hand laid flat on top and apply sufficient pressure to engage the main lock. Check that there is no free play in the toggle under the instrument panel.

Lubricating the Engine Hood Locks

Lubricate the flexible cable by running an oil can spout along its entire length. Apply a smear of grease to the pointed and flat side of the wedged shaped striker head.

Lubricate the fulcrum pin and spring of the secondary lock only and ensure complete freedom of movement. Ensure that the catch plate on the body and the inside of the hook is **without** any lubricant whatsoever.

The Luggage Boot Hood

The luggage boot hood is mounted in a similar manner to the engine hood, but in this instance the hood is opened by pressing the lock barrel and closed by lowering the hood and applying downward pressure. When necessary it can be locked by inserting the ignition key in the lock barrel and turning it 180°, the key is then withdrawn.

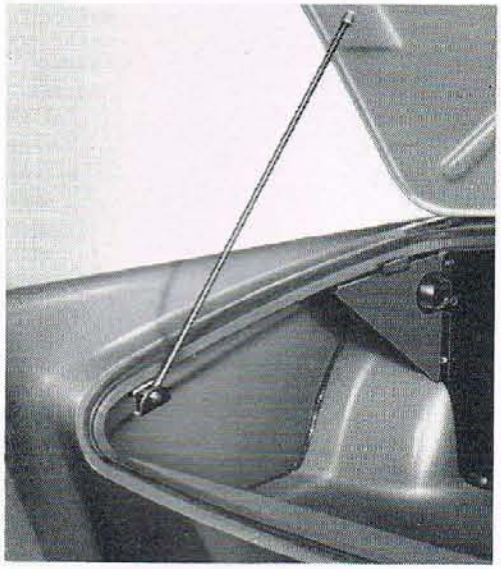


Fig. 72. Luggage boot hood in raised position.

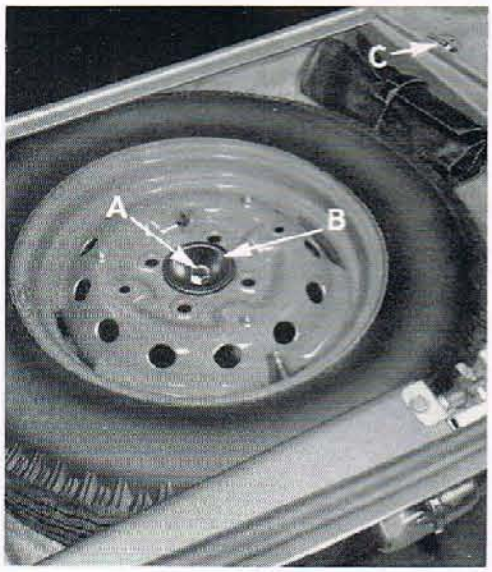


Fig.73. The spare wheel compartment.

A. Fixing bolt. B. Cup Washer. C. Turn buckle.

Lubricating the Luggage Boot Lock

Apply a smear of grease to the striker pin, lubricate the internal components of the lock with oil from the end of a feather and the lock barrel in a similar manner to the door lock.

Adjusting the Lock

In the event of a troublesome luggage boot hood lock, first ensure that the hood is centrally positioned in its aperture before resetting the position of the striker pin or lock assembly.

Raise the luggage boot hood, lower the striker pin attached to its rear inside edge, centralise it in the mouth of the lock assembly and tighten the two screws. Coat the striker pin with mechanics blue, lower the hood allowing the striker pin to contact the lock pawl but without operating the lock ; lift the hood and examine the marking on the lock pawl. The blue marking should have transferred to a position adjacent to the top of the lock pawl but on its indented edge it may be necessary to move the lock unit fore and aft by slackening the four screws to attain this condition. Close the luggage boot hood and check the fit of the hood lid ; it may be necessary to re-position the striker pin to effect a water and dust tight seal and that the hood lid locks with the minimum of effort.

The Spare Wheel Compartment

The spare wheel compartment is situated under the false floor of the luggage boot. When it is desired, the spare wheel can be removed to provide more luggage space.

Removal and Replacement, Spare Wheel (*Fig. 73*)

Open the luggage boot and detach the false floor by releasing the turn buckle locks. Lift out the roadwheel after withdrawing the bolt and cup washer.

Daimler

SPORTS CAR
TYPE SP.250

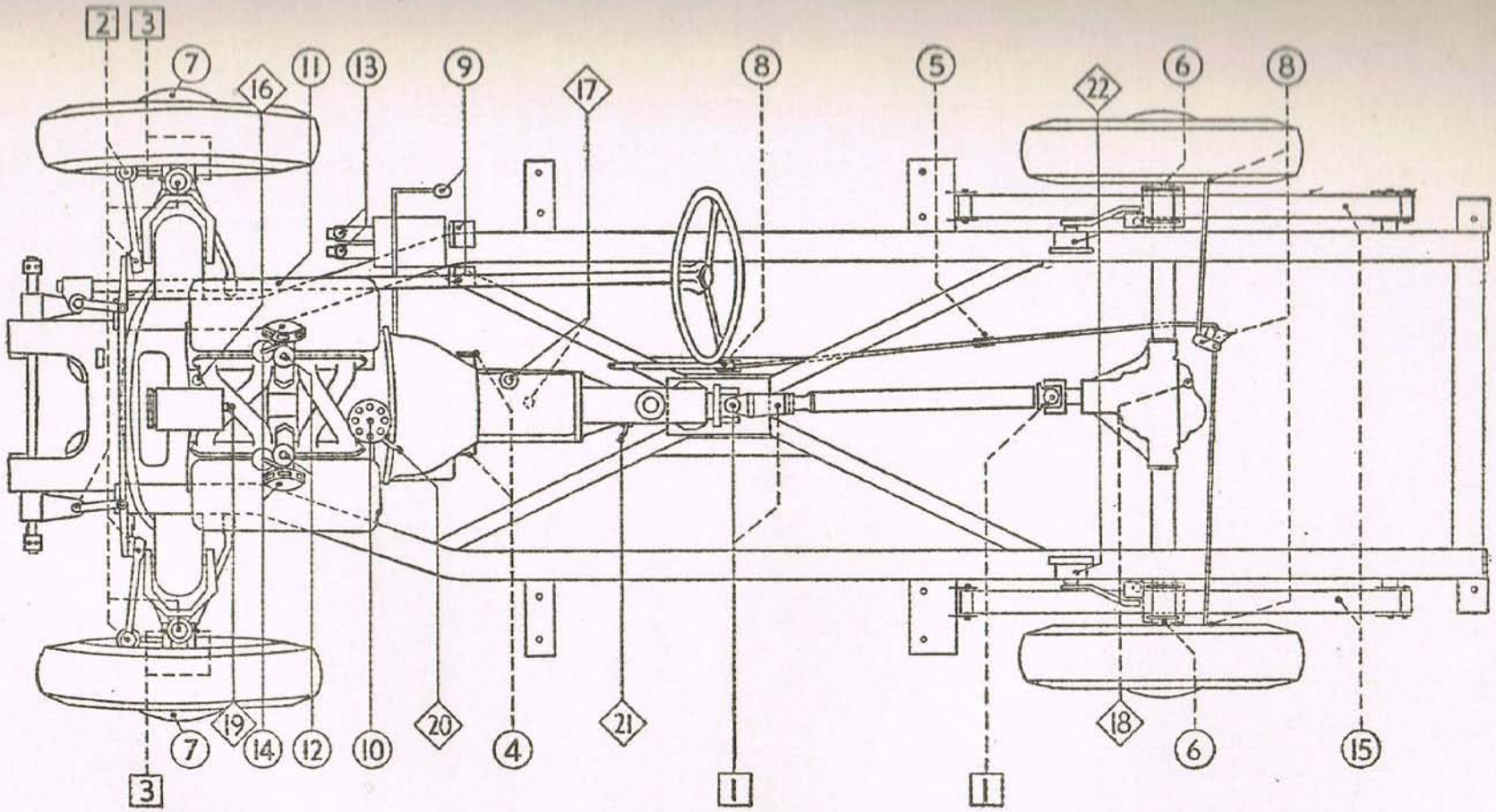
LUBRICATION CHART

Additional copies may be had on application to :

THE DAIMLER CO., LTD.
G.P.O. BOX 29
COVENTRY, ENGLAND

PRICE 1/- NETT.

THE DAIMLER SP.250 CHASSIS LUBRICATION DIAGRAM



The Chassis Lubrication Chart.

Points indicated by squares each 1,000 miles (1,610 Km.) *Points indicated by circles each 5,000 miles (8,050 Km.)*
Points indicated by diamonds each 10,000 miles (16,100 Km.) *Broken lines indicate points lubricated beneath the car.*
Full lines indicate points lubricated above the car.

See Period Service Chart below for full description

PERIOD SERVICE CHART

x	Details and Points	Method of Lubrication	Interval Miles	Interval Km.	Index	Details and Points	Method of Lubrication	Interval Miles	Interval Km.
	Propellor shaft—two universal joints and one sliding spline ..	Oil gun	1,000	1,610	11	Steering unit—rubber plug in column	Top up	5,000	8,050
	Steering joints — four ball joints, four steering swivels, one idler bracket	Grease gun	,,	,,	12	Carburettor dash pots—screw cap	Top up	,,	,,
	Front suspension—four lower wishbone outer bushes ..	Grease gun	,,	,,	13	Hydraulic fluid reservoirs—one screw cap each	Top up	,,	,,
	Clutch shaft bearings—two, one each end	Grease gun	5,000	8,050	14	Carburettor air cleaners ..	Wash & oil wet	,,	,,
	Handbrake cable—one midway	Grease gun	,,	,,	15	Rear road springs	Clean & paint	,,	,,
	Rear hubs—two, one inside each flange	Grease gun	,,	,,	16	Engine sump	Drain when hot and refill	,,	,,
	Front hubs	Pack hub cap	,,	,,	17	Gearbox unit	Drain when hot and refill	10,000	16,100
	Handbrake linkage	Oil can	,,	,,	18	Rear axle differential unit ..	Drain when hot and refill	,,	,,
	Accelerator, brake, clutch and carburettor linkage	Oil can	,,	,,	19	Dynamo	Moisten pad from oil can	,,	,,
	Distributor—cam pad ..	Oil can	,,	,,	20	Engine speed indicator drive..	withdrawinner cables, clean and grease	,,	,,
					21	Speedometer drive	withdrawinner cables, clean and grease	,,	,,
					22	Rear road spring dampers ..	Top up	,,	,,

Recommended Lubricants

	B.P.	CASTROL	DUCKHAM	ESSO	MOBIL	REGENT Caltex/Texaco	SHELL
32°F.— 90°F.	Energol 30	Castrol XL	NOL 30	Esso Extra 20W/30	Mobiloil A	Advanced Havoline 30	X-100 30
elow 32°F.	Energol 20	Castrolite	NOL 20	Esso Extra 20W/30	Mobiloil Arctic	Advanced Havoline 20	X-100 20/20W
above 90°F.	Energol 40	Castrol XXL	NOL 40	Esso Extra 40	Mobiloil AF	Advanced Havoline 40	X-100 40
)E ENGINE OILS is should NOT be used gines requiring overhaul)	Energol Visco-Static	Castrolite 20/20W-30 (U.S.A.— Castrol 10W/30)	Q.5500	Esso Extra 20W/30 Esso Extra 10W/30†	Mobil Special 10W/30	Advanced Havoline Special 10W30	Shell X-100 Multigrade 10W/30
LINDER LUBRICATION	Energol U.C.L.	Castrollo	Adcoid Liquid	Esso U.C.L.	Mobil Upperlube	Regent U.C.L.	Shell U.C.L. or Donax U
SYNCHROMESH)R OIL CAN POINTS UBRICATION	Energol 30	Castrol XL	NOL 30	Esso Extra 20W/30	Mobiloil A	Advanced Havoline 30	X-100 30
	Energol E.P.90	Castrol Hypoy	Hypoid 90	Gear Oil GP.90	Mobilube GX.90	Universal Thuban 90	Spirax 90 E.P.
)OX	Energol 140	Castrol D	NOL E.P.140	Gear Oil ST.140	Mobilube C.140	Universal 140 Thuban	Spirax 140 E.P.
SHAFT L HUB BEARINGS PENSION, STEERING NDBRAKE CABLE	Energrease L.2	Castrolease LM	LB.10	Esso Multi-purpose Grease H	Mobilgrease MP	Marfak Multi-purpose 2	Retinax A
TRANSMISSION	Energol Automatic Transmission Fluid Type "A" or Type "A" Suffix "A"	Castrol TQ Automatic Transmission Fluid Grade "A"	Nolmatic	Esso Automatic Transmission Fluid 55	Mobil Fluid 200	3528 Texamatic Fluid	Shell Donax T.6
) SPRINGS (Do not foul ts)	Energol Penetrating Oil	Castrol Penetrating Oil	P.P. Oil	Esso Penetrating Oil	Mobil Spring Oil	Cephus Oil D	Shell Donax P
CLUTCH HYDRAULIC	CASTROL/GIRLING BRAKE AND CLUTCH FLUID CRIMSON						
SPRING DAMPERS	ARMSTRONG DAMPER OIL No. 624						
	†According to the availability in country of operation						