# JAGUAR

## 3·4 LITRE MODEL

# OPERATING, MAINTENANCE AND SERVICE HANDBOOK

*ISSUED BY*

**JAGUAR CARS LIMITED, COVENTRY, ENGLAND**

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| --- | --- | --- |
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# FOREWORD

This Handbook gives the information necessary for the satisfactory operation and maintenance of the Jaguar 3·4 Litre Model.

Major service operations and repairs are not described and the owner is recommended to have operations not covered in this handbook executed by the local Jaguar Distributor or Dealer, who is in a position to give authoritative advice and service. The satisfactory running and fine performance of which the car is capable, depends to a great extent upon the care and attention which it receives from the owner. We, therefore, earnestly recommend that careful attention is paid to the following instructions and that the servicing detailed in the 'Routine Maintenance' section is carried out at the suggested periods. The text of the handbook is divided into three main sections :—

## Operating Instructions

deals with the operation of the controls and equipment.

## Routine Maintenance

deals with the maintenance of the various components of the car at certain mileage intervals. In addition a comprehensive maintenance chart is included at the end of the handbook.

## Service Instructions

deals with certain operations which should normally be undertaken by a Jaguar Distributor or Dealer, but which are included as a guide for the enthusiast or the owner living in a remote district.

## Note

All references in this handbook to 'right-hand side' and 'left-hand side' are made assuming the person to be looking from the rear of the car or unit.

**The 3·4 Litre Model**

# INDEX



* See also Maintenance Chart at end of handbook.

* See also Maintenance Chart at end of handbook.

# CAR IDENTIFICATION

**It is imperative that the Car and Engine numbers, together with any prefix or suffix letters, are quoted in any correspondence concerning this vehicle. If the unit in question is the Gearbox or Overdrive the Gearbox number and any prefix or suffix letters must also be quoted. This also applies when ordering spare parts.**

**Car Number** ... ... ... ... ...

Stamped in the bonnet catch channel, forward of the radiator header tank.

*Suffix 'DN' to the car number indicates that an overdrive unit is fitted.*

**Engine Number** ... ... ... ...

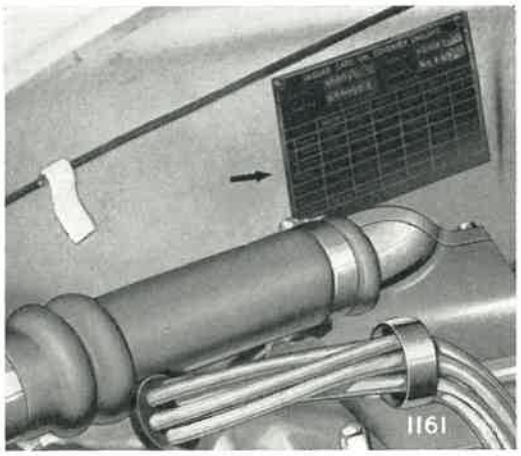
Stamped on the right-hand side of the cylinder block above the oil filter and at the front of the cylinder head casting.

*/7, /8 or /9 following the engine number denotes the compression ratio.*

**Gearbox Number** ... ... ... ...

Stamped on a shoulder at the left-hand rear corner of the gearbox casing and on the top cover.

*Letter 'N' at the end of the prefix letters indicates that an overdrive unit is fitted.*




*The identification numbers are also stamped on a plate which is attached to the right-hand wing valance.*

**Body Number** ... ... ... ... ...

Stamped on a plate attached to the right-hand side of the scuttle.

**Key Numbers** **(i)** ... ... ... ... **(ii)** ... ... ... ... ...

Two different types of key are provided to enable the car to be left with the luggage boot and cubby locker locked, on the occasions when it is required to leave the ignition key with the car.

(a) The round headed key operates the ignition switch, and door locks.

(b) The rectangular headed key operates the locks for the luggage boot lid and the cubby locker.

# GENERAL DATA

## Engine

| | |
|---|---|
| Number of cylinders | 6 |
| Bore | 3·2677″ (83 mm.) |
| Stroke | 4·1732″ (106 mm.) |
| Cubic capacity | 3442 c.c. (210 cu. ins.) |
| R.A.C. rating | 25·6 H.P. |
| Compression ratio | 8 to 1 (7 to 1 or 9 to 1 alternative) |
| Brake horse power (max.) | 210 at 5,500 r.p.m. |
| Distributor contact breaker gap | ·014″ – ·016″ (·36 – ·41 mm.) |
| Sparking Plug Type | |
| 7 to 1 comp. ratio | Champion L.7 (or L.10.S.) |
| 8 to 1 comp. ratio | Champion N.5. (or N.A.8) |
| 9 to 1 comp. ratio | Champion N.5. (or N.A.8) |
| Sparking plug gap | ·025″ (·64 mm.) |
| Ignition Timing | |
| 7 to 1 comp. ratio | T.D.C. |
| 8 to 1 comp. ratio | 2° B.T.D.C. |
| 9 to 1 comp. ratio | T.D.C. |
| Valve Clearances (cold) | |
| Inlet | ·004″ (·10 mm.) |
| Exhaust | ·006″ (·15 mm.) |
| Tightening Torque Figures | |
| Flywheel | 67 lbs./ft. (9·2 kg./m.) |
| Connecting rod | 37 lbs./ft. (5·1 kg./m.) |
| Main bearings | 83 lbs./ft. (11·5 kg./m.) |
| Cylinder head | 54 lbs./ft. (7·5 kg./m.) |
| Camshaft bearings | 15 lbs./ft. (2·0 kg./m.) |

## Carburetters

Type : S.U. H.D.6

## Gearbox

Type : Four speed – synchromesh on 2nd, 3rd and top.

## Front Suspension and Steering

| | |
|---|---|
| Castor angle ... ... ... ... ... ... ... ... ... | $\frac{1}{2}°$ – 1° negative |
| Camber angle ... ... ... ... ... ... ... ... ... | $\frac{1}{2}°$ – 1° positive |
| Front wheel alignment ... ... ... ... ... | Parallel to $\frac{1}{16}''$ (1·59 mm.) toe-in |

## Rear Axle

Type : Hypoid, semi-floating.

Ratio

| | |
|---|---|
| Cars fitted with a synchromesh gearbox only ... ... ... ... | 3·54 : 1 |
| Cars fitted with an overdrive... ... ... ... ... ... ... | 3·77 : 1 |
| Cars fitted with automatic transmission ... ... ... ... ... | 3·54 : 1 |

## Tyres

Type : 6·40 × 15 Road Speed.

| Pressures | Front | Rear |
|---|---|---|
| Normal driving ... ... ... ... | 25 lbs. per sq. in. (1·76 kg./cm.²) | 22 lbs. per sq. in. (1·55 kg./cm.²) |
| Fast touring ... ... ... ... (that is, long distances at sustained speeds of over 100 m.p.h. (160 k.p.h.) with short bursts at maximum speed) | 31 lbs. per sq. in. (2·18 kg./cm.²) | 28 lbs. per sq. in. (1·97 kg./cm.²) |
| For when maximum speed capabilities are likely to be exploited to the full ... | 34 lbs. per sq. in. (2·39 kg./cm.²) | 31 lbs. per sq. in. (2·18 kg./cm.²) |

# Capacities

| | Imperial | U.S. | Litres |
|---|---|---|---|
| Engine (refill) | 11 pints | 13¼ pints | 6¼ |
| Engine (total) | 13 „ | 15½ „ | 7½ |
| Gearbox (without overdrive) | 2½ „ | 3 „ | 1½ |
| Gearbox (with overdrive) | 4 „ | 4¾ „ | 2¼ |
| Automatic transmission unit | 15 „ | 18 „ | 8½ |
| Rear axle | 2¾ „ | 3¼ „ | 1½ |
| Cooling system (including heater) | 22 „ | 26½ „ | 12½ |
| Petrol tank | 12 galls. | 14½ galls. | 54½ |

# Dimensions and Weights

| | | |
|---|---|---|
| Wheel base | | 8′ 11⅜″ (2·727 m.) |
| Track | Front | Rear |
| Cars with drum brakes | 4′ 6⅛″ | 4′ 2⅛″ |
| Cars with disc brakes | 4′ 7⅝″ | disc wheels 4′ 2⅜″ |
| | | wire wheels 4′ 2⅞″ |
| Length (overall) | | 15′ 0¾″ (4·591 m.) |
| Width | | 5′ 6¾″ (1·695 m.) |
| Height | | 4′ 9½″ (1·460 m.) |
| Weight (dry) approximate | | 27 cwts. (1376 kg.) |
| Turning circle | | 33′ 6″ (10·21 m.) |
| Ground clearance | | 7″ (178 mm.) |

# Lamp Bulbs

| LAMP | LUCAS BULB No. | VOLTS | WATTS. | APPLICATION |
|---|---|---|---|---|
| Head ... ... ... | 404 | 12 | 60/36 | Home and R.H.D. Export |
| | 406 | 12 | 60/36 | L.H.D. Export ... |
| | 370 | 12 | 45/40 | Continental |
| | 372 Yellow | 12 | 45/36 | France |
| | 350 | 12 | 35/35 | Germany, Norway and Sweden |
| | Sealed beam units | | | U.S.A and Canada |
| Side/Flasher ... ... | 380 | 12 | 6/21 | — |
| Rear/Stop/Flasher ... ... | 380 | 12 | 6/21 | — |
| Number plate and boot ... | 222 | 12 | 4 | — |
| Reverse ... ... ... | 382 | 12 | 21 | — |
| Fog ... ... ... ... | 323 | 12 | 48 | — |
| Interior light ... ... | 256 | 12 | 3 | — |
| Panel ... ... ... Warning Lights— Ignition, Headlamp, Petrol Level, Carburetter Mixture | 987 | 12 | 2·2 | — |
| Flasher Warning Light ... | 280 | 12 | ·75 | — |

# PERFORMANCE DATA

The following table gives the relationship between engine revolutions per minute and road speed in miles and kilometres per hour for top gear.

It is recommended that engine revolutions **in excess of 5,000 per minute** should not be exceeded for long periods.

**AXLE RATIO 3·54 : 1**

| ROAD SPEED | | ENGINE REVOLUTIONS PER MINUTE | | | |
|---|---|---|---|---|---|
| Kilometres per hour | Miles per hour | | | | Top Gear 3·54 |
| 16 | 10 | — | — | — | 457 |
| 32 | 20 | — | — | — | 914 |
| 48 | 30 | — | — | — | 1371 |
| 64 | 40 | — | — | — | 1828 |
| 80 | 50 | — | — | — | 2285 |
| 96 | 60 | — | — | — | 2742 |
| 112 | 70 | — | — | — | 3199 |
| 128 | 80 | — | — | — | 3656 |
| 144 | 90 | — | — | — | 4113 |
| 160 | 100 | — | — | — | 4570 |
| 176 | 110 | — | — | — | 5027 |
| 192 | 120 | — | — | — | 5484 |

**Note :** The figures in the above table are theoretical and make no allowance for changes in tyre radius due to the effect of centrifugal force.

## PERFORMANCE DATA

The following table gives the relationship between engine revolutions per minute and road speed in miles and kilometres per hour for top gear and overdrive.

It is recommended that engine revolutions **in excess of 5,000 per minute** should not be exceeded for long periods.

### AXLE RATIO 3·77 : 1

(Ratio for cars fitted with an overdrive)

| ROAD SPEED | | ENGINE REVOLUTIONS PER MINUTE | | | | |
|---|---|---|---|---|---|---|
| Kilometres per hour | Miles per hour | | | | Top Gear 3·77 | Overdrive 2·93 |
| 16 | 10 | — | — | — | 487 | 378 |
| 32 | 20 | — | — | — | 974 | 756 |
| 48 | 30 | — | — | — | 1461 | 1134 |
| 64 | 40 | — | — | — | 1948 | 1512 |
| 80 | 50 | — | — | — | 2435 | 1890 |
| 96 | 60 | — | — | — | 2922 | 2268 |
| 112 | 70 | — | — | — | 3409 | 2646 |
| 128 | 80 | — | — | — | 3896 | 3024 |
| 144 | 90 | — | — | — | 4383 | 3402 |
| 160 | 100 | — | — | — | 4870 | 3780 |
| 176 | 110 | — | — | — | 5357 | 4158 |
| 192 | 120 | — | — | — | — | 4536 |

**Note :** The figures in the above table are theoretical and make no allowance for changes in tyre radius due to the effect of centrifugal force.

# OPERATING INSTRUCTIONS

## INSTRUMENTS

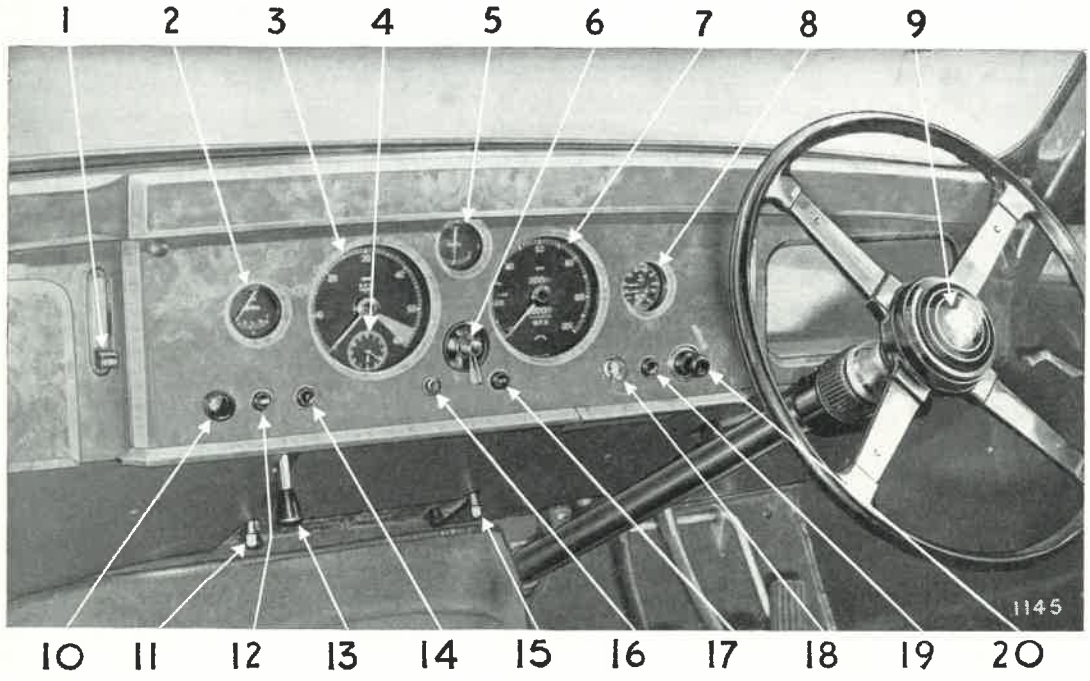



Fig. 1. **Instruments and Controls**

1. *Heater temperature control.*
2. *Petrol gauge.*
3. *Revolution counter.*
4. *Electric clock.*
5. *Ammeter.*
6. *Lighting switch.*
7. *Speedometer.*
8. *Oil pressure and water temperature gauge.*
9. *Horn push.*
10. *Windscreen wiper switch.*
11. *Clock adjuster.*
12. *Heater fan switch.*
13. *Scuttle ventilator control.*
14. *Panel light switch.*
15. *Speedometer trip control.*
16. *Windscreen washer button.*
17. *Interior light switch.*
18. *Ignition switch.*
19. *Starter switch.*
20. *Cigar lighter.*

## OPERATING INSTRUCTIONS

### Ammeter

Records the flow of current into or out of the battery. Since compensated voltage control is incorporated, the flow of current is adjusted to the state of charge of the battery; thus when the battery is fully charged the dynamo provides only a small output and therefore little charge is registered on the ammeter, whereas when the battery is low a continuous high charge is shown.

### Oil Pressure and Water Temperature Gauge

The oil pressure gauge records the oil pressure being delivered by the oil pump to the engine ; it does not record the quantity of oil in the sump. The minimum pressure at maintained high r.p.m. when hot should not be less than 40 lbs. per square inch.

The water temperature gauge records the temperature of the coolant by means of a bulb screwed into the inlet manifold water jacket which is connected to the gauge by a capillary tube.

### Petrol Level Gauge

Records the quantity of petrol in the supply tank. Readings will only be obtained when the ignition is switched 'on'. A red light situated in the petrol gauge lights up intermittently when the petrol level in the tank becomes low. When the petrol is almost exhausted the warning light operates continuously.

### Electric Clock

The clock is built in the revolution counter instrument and is powered by the battery. The clock hands may be adjusted by pushing up the winder and rotating. Starting is accomplished in the same manner. The winder is situated below the instrument panel to the left of the heater doors.

### Revolution Counter

Records the speed of the engine in revolutions per minute.

### Speedometer

Records the vehicle speed in miles per hour, total mileage and trip mileage (kilometres on certain export models). The trip figures can be set to zero by pushing the winder upwards and rotating anti-clockwise. The winder is situated below the instrument panel to the right of the heater doors.

### Headlamp Warning Light

A red warning light marked "Headlamps" situated in the speedometer, lights up when the headlamps are in full beam position and is automatically extinguished when the lamps are in the dipped beam position.

### Ignition Warning Light

A red warning light marked "Ign" situated in the speedometer lights up when the ignition is switched 'on' and the engine is not running, or when the engine is running at a speed insufficient to charge the battery. The latter condition is not harmful, but always switch 'off' when the engine is not running.

### Petrol Level Warning Light

A red light situated in the petrol gauge lights up intermittently when the petrol level in the tank becomes low. When the petrol is almost exhausted the warning light operates continuously.

**Flashing Direction Indicators—**
**Warning Light**

A green light adjacent to the operating lever lights up intermittently when the flashing direction indicator lights are in operation. Flashing indicators only operate when the ignition is switched 'on'.

# CONTROLS AND ACCESSORIES

**Accelerator**

The pedal on the right. Controls the speed of the engine.

**Brake**

The centre pedal. Operates the vacuum servo assisted brakes on all four wheels.

**Clutch**

The pedal on the left. Connects and disconnects the engine and the transmission. Never drive with the foot resting on the pedal and do not keep the pedal depressed for long periods in traffic. Never coast the car with a gear engaged and clutch depressed.

**Headlamp Dipper**

Situated on the toe boards to the left of the clutch pedal. The switch is of the change over type and if the headlamps are in the full beam position a single pressure on the control will switch the lamps to the dipped beam position and they will remain so until another single pressure switches them to the full beam position again.

**Gear Lever**

Centrally situated and with gear positions indicated on the control knob. To engage reverse gear first press the gear lever against the spring pressure before pushing the lever forward. Always engage neutral and release the clutch when the car is at rest.

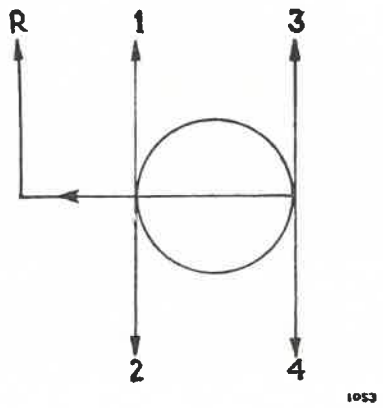



Fig. 2. *Gear positions.*

**Handbrake Lever**

Positioned at the outside of the driver's seat. The handbrake operates mechanically on the rear wheels only and is provided for parking, driving away on a hill and when at a standstill in traffic. To apply the brake, pull the lever upward and the trigger will automatically engage with the ratchet. The handbrake is released by pressing in the knob, and pushing the lever downward.

## OPERATING INSTRUCTIONS

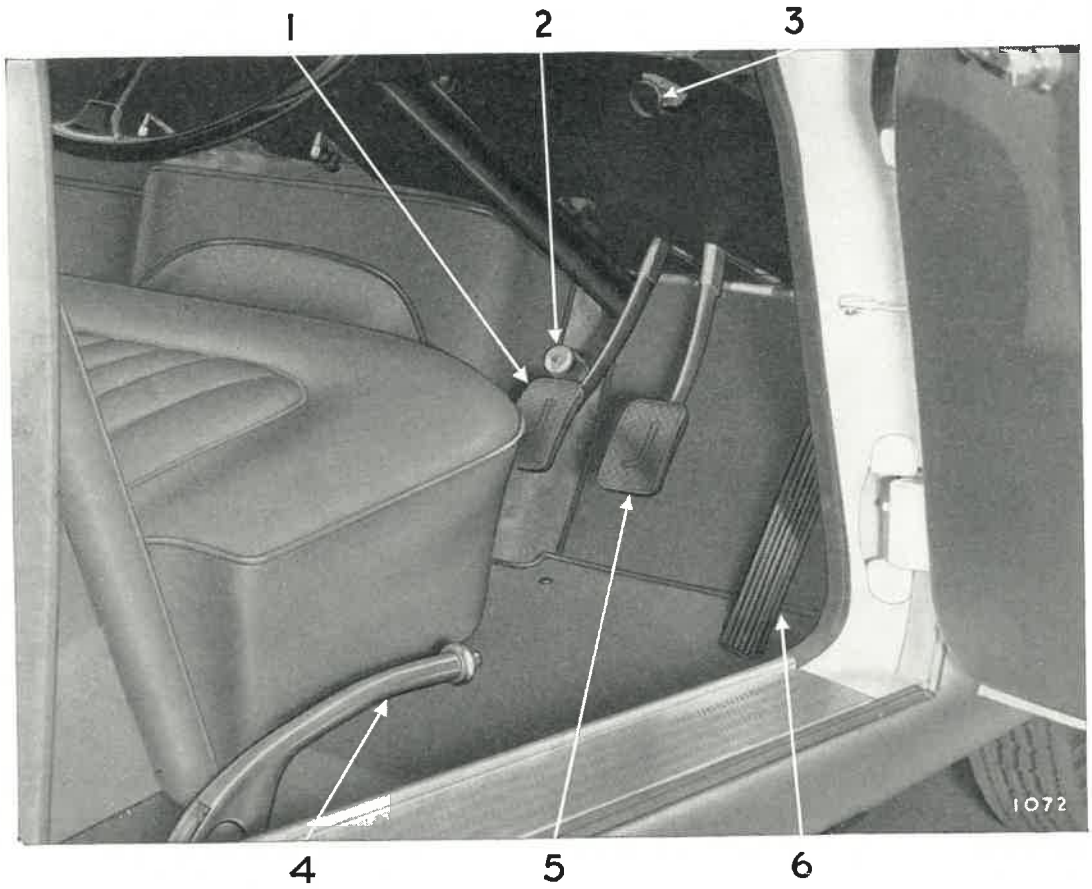



Fig. 3. **Foot and Hand Controls.**

1. *Clutch pedal.*
2. *Headlamp dipper.*
3. *Bonnet lock control.*
4. *Handbrake.*
5. *Brake pedal.*
6. *Accelerator pedal.*

### Seat Adjustment

Both front seats are adjustable for reach. Push the lock bar, situated beside the inside runner, towards the inside of the car and slide into the required position. Release the lock bar and slide until the mechanism engages with a click.

### Steering Wheel Adjustment

Rotate the knurled ring at the base of the steering wheel hub in an anti-clockwise direction when the steering wheel may be slid into the desired position. Turn the knurled ring clockwise to lock the steering wheel.

### Front Door Locks

The front doors may be opened from the outside by pressing the button incorporated in the door handle. The doors are opened from the inside by pulling the interior handles rearward.

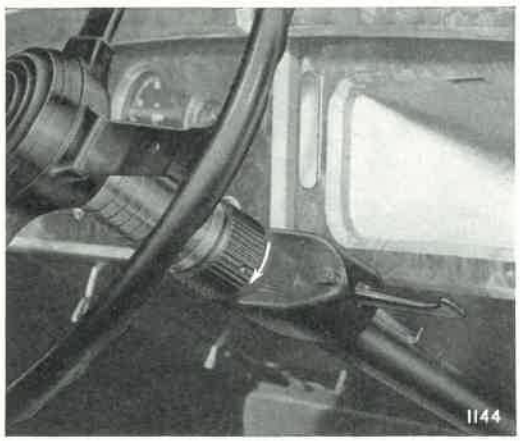



Fig. 4. *Steering wheel adjustment. Rotate the knurled ring in the direction of the arrow to lock the wheel in the desired position.*

Both front doors can be locked from the inside by pushing the interior handles forward and allowing them to return to their original position ; this feature only applies if the doors are fully closed before operating the interior handles.

Both front doors can be locked from the outside by means of the ignition key ; the locks are incorporated in the push buttons of the door handles.

To lock the right-hand door insert the key in the lock, rotate anti-clockwise as far as possible and allow the lock to return to its original position—the door is now locked. To unlock the right-hand door turn key clockwise as far as possible and allow the lock to return to its original position.

To lock the left-hand door rotate key clockwise ; to unlock, rotate key anti-clockwise.

KEYLESS LOCKING is obtainable by first pushing the interior door handle fully forward and allowing it to return to its original position. If the door is now closed from the outside with the push button of the handle **fully depressed** the door will become locked.

**Warning.**—If the doors are to be locked by this method the ignition key should be removed beforehand (or the spare key kept on the driver's person) as the only means of unlocking the front doors is with this key.

### Rear Door Locks

The rear doors may be opened from the outside by pressing the button incorporated

in the door handle. The doors are opened from the inside by pushing the interior door handle forward.

The rear doors are locked by pulling the interior door handles rearward.

**Horn Switch**

Situated in the centre of the steering wheel, the push switch operates the twin horns when depressed.

**Ignition Switch**

Inserting the key provided in the switch and turning clockwise will switch on the ignition.

Never leave the ignition on when the engine has stopped, a reminder of such circumstances is provided by the ignition warning light situated in the speedometer.

**Interior Light Switch**

Press the switch button marked "Int" to illuminate the car interior. Pressing the switch button a further time will switch off the lights. The interior lights are automatically switched on when either of the front doors are opened and are extinguished when the doors are closed.

**Lighting Switch**

From "Off" can be rotated clockwise into three positions, giving in the first location, side and tail, in the second location, head, side, and tail, and in the third position, fog, side and tail lamps.
(*Fog lamps are not fitted on cars for U.S.A.*)

**Panel Light Switch**

Press the switch button marked "P" when it is desired to read the instruments at night. Pressing the switch button a further time will switch off the lights. The panel lights only operate when the side lamps are switched on.

**Starter Switch**

Press the switch adjacent to the ignition switch, with the ignition switched on, to start the engine. Release the switch immediately the engine fires and never operate the starter when the engine is running.

**Flashing Direction Indicators**

The 'flashers' are operated by a lever behind the steering wheel. To operate the flashing direction indicators on the right-hand side of the car move the lever clockwise; to operate the left-hand side indicators move the lever anti-clockwise. A green warning light in the indicator control box lights up intermittently when the 'flashers' are in operation.

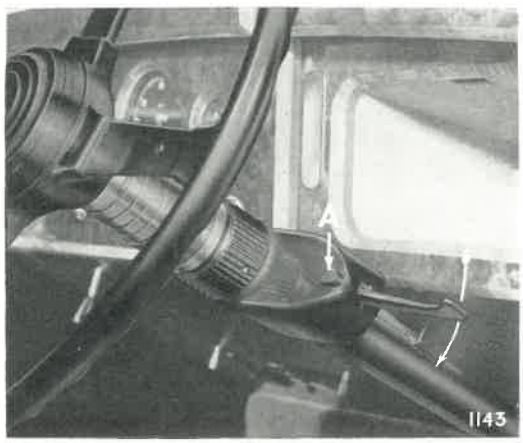



Fig. 5. *Flashing direction indicator control. The warning light 'A' lights up intermittently when the indicators are in operation.*

**Braking Lights**

Twin combined tail/flasher and brake lights are situated at the rear of the car. The latter automatically light up when the foot-brake is applied.

**Reversing Light**

The reversing light is automatically brought into operation when reverse gear is engaged and the ignition is switched on.

**Luggage Compartment Illumination**

The luggage compartment is automatically illuminated by a lamp when the lid is opened. The lamp operates only when the side lights are switched on.

**Cigar Lighter**

Fitted to the instrument panel ; thermostatically controlled. To operate, press holder into the socket and remove the hand. On reaching the required temperature, the holder will return to the extended position. Do not hold lighter in the 'pressed in' position.

**Windscreen Wipers**

The wipers are controlled by a three-position rotary switch situated at the left of the instrument panel. The markings 'O', 'N' and 'H' represent Off, Normal Speed and High Speed respectively.

The 'N' (Normal) speed position is recommended for all normal adverse weather conditions and snow.

The 'H' (High) speed position is recommended for conditions of very heavy rain and for fast driving in rain. This position should not be used in heavy snow or with a drying windscreen, that is, when the load on the motor is in excess of normal ; the motor incorporates a protective cut-out switch which under conditions of excessive load cuts off the current supply until normal conditions are restored.

When the control switch is placed in the 'O' (Off) position the wipers will automatically return to a position along the lower edge of the screen.

**Windscreen Washer**

The windscreen washer should be used in conjunction with the windscreen wipers to remove foreign matter that settles on the windscreen.

Press the chromium-plated control button, to the left of the lighting switch, for a few seconds. Release button, when two fine jets of water will strike the windscreen at points one or two inches below the upper edge and in the centre of the arc of wipe provided by each windscreen wiper.

In summer the washer should be used freely to remove insects before they dry and harden on the screen.

The washer should not be used in sub-zero conditions as obviously the fine jets of water spread over the screen by the blades will tend to freeze up. Do not add radiator anti-freeze solution to the water as this is detrimental to the washer mechanism.

For full instructions on the Windscreen Washing Equipment see page 16.

**Car Heating Temperature Control**

The lever controlling the flow of water from the engine cooling system to the heating element is situated at the left-hand side of the instrument panel.

## OPERATING INSTRUCTIONS

When the lever knob is placed in the fully upward (Cold) position, the supply of hot water from the engine is completely cut off ; placed in the fully downward (Hot) position the maximum possible amount of hot water from the engine is allowed to pass through the heater element. By placing the lever knob in intermediate positions the temperature of the air from the heater can be varied between these two extremes.

### Car Heating Fan Switch

The switch for the heater fan (marked Fan) is situated at the left of the instrument panel and is of the "push—push" type. If the fan is off, pressing the button will switch on the fan ; pressing the button a further time will switch off the fan.

For full instructions on the use of the car heating and ventilating equipment see page 15.

### Bonnet Lock Control

The bonnet lock is controlled from the driving compartment. To open the bonnet pull the control knob, situated under the fascia on the right-hand side. This will release the bonnet which will now be retained by the safety catch. Insert the fingers under the nose of the bonnet and lift the safety catch upwards when the bonnet may be raised. The bonnet is automatically retained in the fully open position by the action of the hinge springs. The bonnet is self-locking when pushed down firmly into the closed position.

### Scuttle Ventilator

Additional fresh air ventilation of the car interior can be obtained by opening the scuttle ventilator and the heater duct doors.

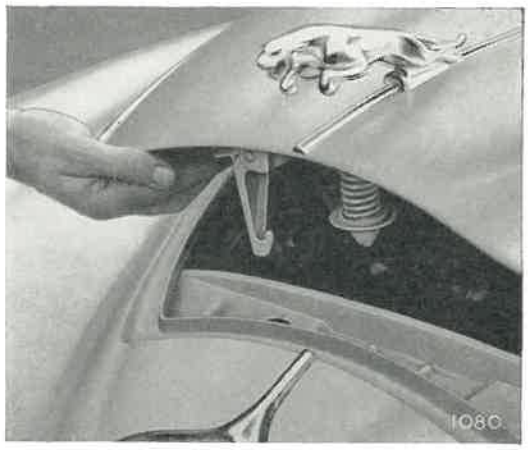



Fig. 6. *Bonnet safety catch.*

To open the scuttle ventilator pull the lever, situated below the left-hand side of the instrument panel, rearward.

### Petrol Filler

The petrol filler is situated in a recess in the left-hand rear wing, and is provided with a hinged cover.

### No-Draught Ventilation

No-draught ventilator windows incorporating quick locking catches are fitted to both front and rear windows.

To open the window, release the locking catch and set the window to the desired position. The initial opening of the window gives extraction of air from the body, when the window is opened further, air is forced into the body due to the angle of the ventilator and forward motion of the car. Using the no-draught ventilator windows as extractors (that is partly open) has, to a minor degree, the effect of demisting the windscreen.

**Spare Wheel and Jacking Equipment**

The spare wheel is housed in a compartment underneath the luggage boot floor and is accessible after removal of the circular lid.

The wheel brace and jack are retained in clips at the front and top of the luggage compartment. The jack handle is stored in the tool container.

**Tools**

The container for the hand tools and jack handle is housed in the spare wheel compartment. This compartment is accessible after removal of the circular lid which forms part of the luggage boot floor.

**Luggage Compartment**

The luggage compartment is unlocked by inserting the key in the lock immediately below the lid, and rotating clockwise through half a turn. Press the lock to release the catch when the lid can be raised ; the boot lid is automatically retained in the fully open position by the action of the hinge springs.

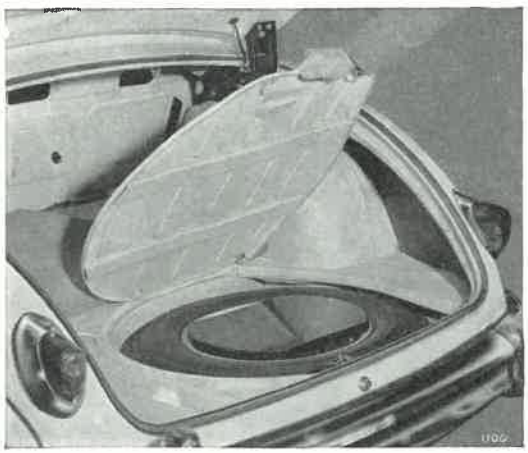


Fig. 7. *The spare wheel is housed in a compartment underneath the luggage boot floor. The container for the hand tools and jack handle is also stored in this compartment.*

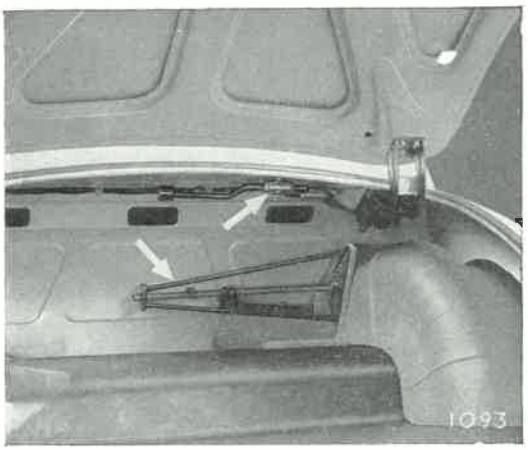



Fig. 8. *The wheel brace and jack are retained in clips at the front of the luggage compartment. The jack handle is stored in the tool container.*

# STARTING AND DRIVING

**Prior to Starting**

Before starting the engine the new owner should be familiar with the location and function of the instruments and controls.

Ensure that the water level in the radiator and the oil level in the sump are correct. Check for sufficient petrol in the tank.

Place the gear lever in the neutral position and check that the handbrake is applied.

**Starting from Cold**

It is not necessary to use any manual choke control when starting from cold, since the auxiliary starting carburetter is entirely automatic and controls the mixture strength without assistance from the driver. The starting carburetter automatically cuts out when the temperature of the water in the cylinder head reaches 35°C.

**Warming up**

Do not operate the engine at a fast speed when first started but allow time for the engine to warm up and the oil to circulate. A thermostat is incorporated in the cooling system to assist rapid warming up. In very cold weather run the engine at 1,500 r.p.m. with the car stationary until a rise in temperature is indicated on the temperature gauge.

**Driving**

(a) Careful adherence to the 'Running-in Instructions' given on the next page, will be amply repaid by obtaining the best performance and utmost satisfaction from the car.

(b) The habit should be formed of reading the oil pressure gauge, water temperature gauge and ammeter occasionally as a check on the correct functioning of the car. Should an abnormal reading be obtained an investigation should be made immediately.

(c) Always start from rest in first or second gear ; on a hill always use first gear. To start in a higher gear will cause excessive clutch slip and premature wear. Never drive with a foot resting on the clutch pedal and do not keep the clutch depressed for long periods in traffic.

(d) The synchromesh gearbox provides a synchronized change into second, third and top. When changing gear the movement should be slow and deliberate.

When changing down a smoother gear change will be obtained if the accelerator is left depressed to provide the higher engine speed suitable to the lower gear. Always fully depress the clutch pedal when changing gear.

(e) Gear changing may be slightly stiff on a new car but this will disappear as the gearbox becomes 'run-in'.

(f) Always apply the footbrake progressively ; fierce and sudden application is bad for the car and tyres. The handbrake is for use when parking the car, when driving away on a hill and when at a standstill in traffic.

**'Running-in' Instructions**

Only if the following important recommendations are observed will the high performance and continued good, running of which the Jaguar is capable be obtained.

During the 'running-in' period do not allow the engine to exceed the following speeds :—

First 1,000 miles (1,600 km.) ... 2,500 r.p.m.
From 1,000–2,000 miles (1,600-3,200 km.) ... ... ... 3,000 r.p.m.

Continue to drive without overstressing the engine.

Have the engine sump drained and refilled and the oil filter attended to as recommended at the free service, that is, after the first 500 miles (800 km.).

# OVERDRIVE OPERATION

The Laycock de Normanville overdrive unit (fitted as an optional extra) comprises a hydraulically controlled epicyclic gear housed in a casing which is directly attached to an extension at the rear of the gearbox.

When brought into operation, the overdrive reduces the engine speed in relation to the road speed. This permits high road speeds with low engine revolutions resulting in fuel economy and reduced engine wear.

**Operation**

The overdrive will operate in top gear only and is brought into action by means of the switch mounted on the fascia.

Use of the clutch pedal when changing into or out of overdrive is unnecessary but to ensure maximum smoothness of operation, particularly when changing down from overdrive to top gear, the accelerator pedal should be slightly depressed.

For driving in towns, heavy traffic, or hilly country when the maximum flexibility and low speed performance is required the overdrive manual switch should be placed in the 'OUT' position which will bring the drive into the normal top gear ratio.

For normal driving in open country the overdrive should be brought into operation when the required cruising speed has been obtained.


Fig. 9. *Overdrive control switch.*

# WHEEL CHANGING

## (Disc Wheels)

Whenever possible, the wheel changing should be carried out with the car standing on level ground and in all cases with the handbrake fully applied.

The spare wheel is housed in a compartment underneath the luggage boot floor; the wheel changing equipment is retained in clips attached to the front and top of the luggage compartment.

Unlock the luggage compartment by turning the key in the lock, situated immediately below the lid, through half a turn. Press the lock, when the lid will be released. Raise the lid as far as possible where it will be retained by the action of the hinge springs.

Lift out the circular lid which forms part of the luggage boot floor. Unscrew the spare wheel clamping handle and lift out the wheel. Remove the jack and wheel brace from the clips at the top of the luggage compartment, and the jack handle from the tool kit.

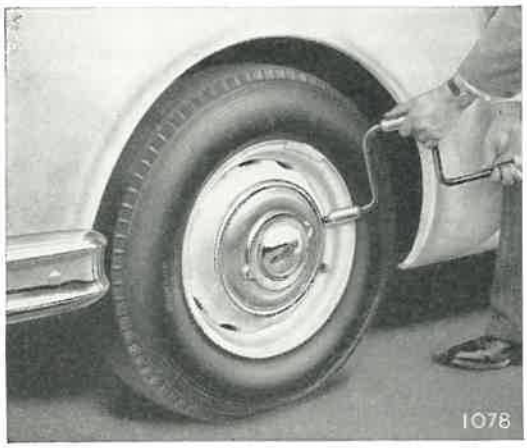



Fig. 10. *Removal of the wheel nave plate. To avoid damaging the nave plate do not allow it to fall on to the ground.*

**Changing a Front Wheel**

Remove the wheel nave plate by levering off with the blade end of the wheel brace. Using the wheel brace loosen, but do not remove, the five wheel nuts ; all wheel nuts have right-hand threads, that is, they are unscrewed anti-clockwise.

Remove the rubber plug from the front jacking socket on the side to be raised. Insert the square portion of the jack well home in socket and elevate the jack with the ratchet handle fitted side marked 'LIFT' upwards, until the wheel is clear of the ground. Remove the wheel nuts and withdraw the road wheel.

Mount the spare wheel on the fixing studs and start all five nuts on the threads by rotating clockwise. Apply the wheel brace and run up all the nuts until they are tight. Lower the jack, using the jack ratchet handle side marked 'LOWER' upwards, until the weight of the car is on the wheel and finally tighten all wheel nuts.

Fit the nave plate over two of the three mounting posts and secure by a sharp tap from the hand at a point in line with the third mounting post.

**Changing a Rear Wheel**

First remove the rear wheel valance as follows : Open the rear door and with the blade end of the wheel brace or a coin turn the two screws, which secure the front end of the valance, through half a turn in an anti-clockwise direction. Remove the valance by withdrawing downwards and forward.

Remove the wheel nave plate by levering off with the blade end of the wheel brace.

Using the wheel brace, loosen, but do not remove, the five wheel nuts ; all wheel nuts have right-hand threads, that is, they are unscrewed anti-clockwise.

Remove the rubber plug from the rear jacking socket on the side to be raised. Insert the square portion of the jack well home in the socket and elevate the jack with the ratchet handle fitted side marked 'LIFT' upwards, until the wheel is clear of the ground. Remove the wheel nuts and withdraw the road wheel.

Mount the spare wheel on the fixing studs and start all five nuts on the threads by rotating clockwise. Apply the wheel brace and run up all the nuts until they are tight. Lower the jack, using the jack ratchet handle side marked 'LOWER' upwards, until the weight of the car is on the wheel and finally tighten all wheel nuts.

Fit the nave plate over two of the three mounting posts and secure by a sharp tap from the hand at a point in line with the third mounting post.

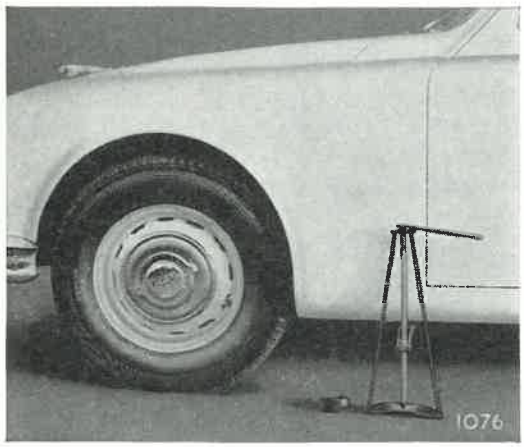



Fig. 11. *The jack in position for raising the left-hand front wheel.*


Fig. 12. *The jack in position for raising the left-hand rear wheel.*

# WHEEL CHANGING

## (Wire Spoke Wheels)

Remove the copper and hide mallet from the tool kit. Using the mallet, slacken but do not remove the hub cap; the hub caps are marked 'Right (off) side' or 'Left (near) side' and the direction of rotation to remove, that is, clockwise for the right-hand side and anti-clockwise for the left-hand side.

Remove the rubber plug from the front or rear jacking socket on the side to be raised.

Insert the square portion of the jack well home in socket and elevate the jack with the ratchet handle fitted side marked 'LIFT' upwards, until the wheel is clear of the ground. Remove the hub cap and withdraw the road wheel.

Mount the spare wheel on the splined hub. Refit the hub and tighten as much as possible by rotating the hub cap in the required direction, that is, anti-clockwise for the right-hand side and clockwise for the left-hand side.

Lower the jack by using the ratchet handle with the side marked 'LOWER' uppermost, until the weight of the car is on the wheels.

Finally, tighten the hub cap fully with the copper and hide mallet.

# FROST PRECAUTIONS

**Anti-Freeze—Important**

During the winter months it is strongly recommended that an anti-freeze compound with an inhibited Ethylene Glycol base is used in the proportions laid down by the anti-freeze manufacturers. It should be remembered that if anti-freeze is not used it is possible, owing to the action of the thermostat, for the radiator to "freeze-up" whilst the car is being driven even though the water in the radiator was not frozen when the engine was started.

Before adding anti-freeze solution the cooling system should be cleaned by flushing. To do this, open the radiator block and cylinder block drain taps and insert a water hose into the radiator filler neck. Allow the water to flow through the system, with the engine running at 1,000 r.p.m. to cause circulation, until the water runs clear. The cylinder head gasket must be in good condition and the cylinder head nuts pulled down correctly, since if the solution leaks into the crankcase a mixture will be formed with the engine oil which is likely to cause blockage of the oil ways with consequent damage to working parts. Check tightness of all water hose connections, water pump and manifold joints. To ensure satisfactory mixing, measure the recommended proportion of water and anti-freeze solution in a separate container and fill the system from this container, rather than add the solution direct to the cooling system. When filling the cooling system, open the heater control tap by placing the temperature control on the fascia in the HOT position. Check the radiator water level after running the engine and top up if necessary. If topping up is necessary during the period in which anti-freeze solution is in use, this topping up must be carried out using anti-freeze solution or the degree of protection provided may be lost. Topping up with water will dilute the mixture possibly to an extent where damage by frost will occur.

**Engine Heater**

Provision is made on the left-hand side of the cylinder block slightly forward of the engine dipstick, for the fitment of an American standard engine heater element No. 7, manufactured by "James B. Carter Ltd., Electrical Heating and Manufacturing Division, Winnipeg, Manitoba, Canada" or "George Bray & Co. Ltd., Leicester Place, Blackman Lane, Leeds, 2, England".

# CAR HEATING AND VENTILATING EQUIPMENT

The car heating and ventilating equipment consists of a heating element and an electrically driven fan mounted on the engine side of the scuttle. Air from the heater unit is conducted :—

(a) To a built-in duct fitted with two doors situated under the instrument panel.

(b) To vents at the bottom of the windscreen to provide demisting and defrosting.

Either fresh air or the air from the interior of the car can be introduced into the system at the will of the driver.

FRESH AIR is introduced into the system by opening the scuttle ventilator and switching on the fan. Air from the interior of the car can be RE-CIRCULATED by closing the scuttle ventilator, and switching on the fan.

**Temperature Control**

The lever controlling the flow of water from the engine cooling system to the heating element is situated at the left-hand side of the instrument panel.

When the lever knob is placed in the fully upward (Cold) position, the supply of hot water from the engine is completely cut off ; placed in the fully downward (Hot) position the maximum possible amount of hot water from the engine is allowed to pass through the heater element. By placing the lever knob in intermediate positions the temperature of the air from the heater can be varied between these two extremes.

**Fan Switch**

The switch for the heater fan (marked Fan) is situated at the left of the instrument panel and is of the "push—push" type. If the fan is off, pressing the button will switch on the fan ; pressing the button a further time will switch off the fan.

The following directions for heating the car interior in cold weather and cooling the car interior in hot weather are given as a guide. To obtain rapid heating of the car interior and/or demisting and de-frosting of the windscreen the re-circulation system should be used.

## Cold Weather

**To obtain re-circulated air heating, demisting and de-frosting.**

(a) CLOSE scuttle ventilator.
(b) Set temperature control to the DESIRED POSITION.
(c) Switch ON fan.
(d) OPEN heater doors.

**To obtain fresh air heating, demisting and de-frosting.**

(a) OPEN scuttle ventilator.
(b) Set temperature control to the DESIRED POSITION.
(c) Switch ON fan.
(d) OPEN heater doors.

**To obtain rapid demisting or de-frosting.**

(a) CLOSE scuttle ventilator.
(b) Set temperature control to HOT.
(c) Switch ON fan.
(d) CLOSE heater doors.

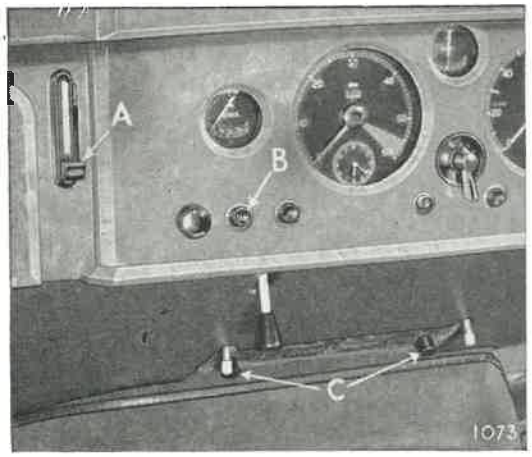



Fig. 13. *The knob 'A' controls the temperature of air from the heater. The switch 'B' controls the heater fan. Opening the doors 'C' allows air to be admitted into the car.*

## Hot Weather

**To obtain ventilation and demisting.**

(a) OPEN scuttle ventilator.
(b) Set temperature control to COLD.
(c) Switch ON fan.
(d) OPEN heater doors.

**To obtain rapid demisting.**

(a) OPEN scuttle ventilator.
(b) Set temperature control to COLD.
(c) Switch ON fan.
(d) CLOSE heater doors.

# WINDSCREEN WASHING EQUIPMENT

The windscreen washer is vacuum-operated and comprises a glass water container mounted in the engine compartment which is connected to jets at the base of the windscreen. Water is delivered to the jets by a vacuum operated pump incorporated in the water container cap. One pipe is connected to the inlet manifold via a control button on the instrument panel; the other pipe is connected to the two jets at the base of the windscreen.

**Operation**

The windscreen washer should be used in conjunction with the windscreen wipers to remove foreign matter that settles on the windscreen.

Press the chromium-plated control button, to the left of the lighting switch, for a few seconds. Release button, when two fine jets of water will strike the windscreen at points one or two inches below the upper edge and in the centre of the arc of wipe provided by each windscreen wiper.

In the summer the washer should be used freely to remove insects before they dry and harden on the screen.

The washer should not be used in sub-zero conditions as the fine jets of water spread over the screen by the blades will tend to freeze up. Do not add radiator anti-freeze solution to the water as this is detrimental to the washer mechanism.

**Charging the Water Container**

Push the cover plate, covering the filler hole in the water container cap, to one side. Fill container three quarters full with clean water. Refit cover plate.

**Windscreen Washer Solvent**

It is recommended that "Trico Windscreen Washer Solvent" No. XAW.30 is used throughout the year. In summer 1 ounce of the solvent should be added to each charge of water and during extremely cold conditions this should be increased to 2 ounces. The main purpose of the solvent is to improve windscreen wiping performance, particularly in dry weather when insects and other foreign matter settle on the screen, and in winter weather when the screen becomes spattered with mud thrown up by other vehicles.

The solvent is also designed to prevent breakage of the glass jar in sub-zero conditions, in that it does not permit solid freezing of the liquid in the jar. This obviates the trouble of having to empty the jar in extreme low temperature conditions.

Do **not** add anti-freeze solution to the water as this is detrimental to the washer mechanism.

**Cleaning the Jets**

Clean one jet at a time only. Unscrew the knurled cap at the end of the jet not more than one turn; do not remove the cap completely. Operate the washer to allow the water to flow freely through the jet assembly, thus removing particles of dirt (with the knurled cap unscrewed, it will not squirt).

Tighten the knurled cap, finger tight, taking care not to damage the plastic washer. Repeat the operation for the other jet if necessary.

**Adjustment of the Jets**

The main body and jet assembly is secured to the scuttle with a wing nut at the underside and adjustment in relation to the axis of the car should not be required. The angle at which the jet of water strikes the windscreen can be adjusted by turning the jet which has a tapered thread fitting in the side of the main body assembly. The jets of water should strike the windscreen one or two inches below the upper edge.

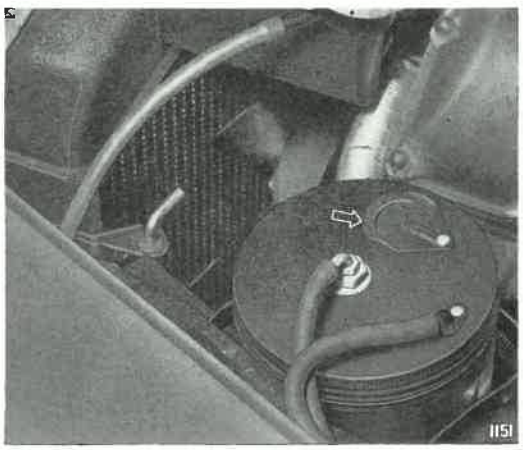



Fig. 14. *The windscreen washer water container is replenished through a hole in the cap.*

# ROUTINE MAINTENANCE

This section deals with the lubrication and maintenance operations which require attention at regular intervals ; the section is divided into the main components of the car and is sub-divided into the mileage intervals at which the various maintenance operations should receive attention. In addition a comprehensive maintenance chart is included at the end of the handbook.

The importance of regular maintenance cannot be overstressed ; the satisfactory running and high performance of which the car is capable is to a large extent dependent on the attention it receives. It is, therefore, recommended that careful attention is paid to the instructions detailed in this section and that servicing is carried out at the suggested periods.

## The 500 mile (800 km.) Free Service

After the car has completed the first 500 miles (800 km.) a general check over should be carried out.

A Service Voucher is included in the literature wallet provided with the car and entitles the original owner to have the following servicing carried out by a Jaguar dealer free of charge, except for the cost of the lubricants used.

1. General test of car and making of any necessary minor adjustments.
2. Drain sump, clean oil filter and refill with new oil. Drain gearbox and refill with new oil. Drain rear axle and refill with new oil.
3. Lubricate chassis throughout, covering steering joints (9 nipples), propeller shaft (2, 3 or 4 nipples), handbrake cable (1 nipple) and rear road wheel bearings (2 nipples). Top up steering box.
4. Check all hydraulic brake pipe unions, level of fluid in brake master cylinder reservoir.
5. Tighten rear axle bolts, front suspension mounting bolts and bumper mounting bolts.
6. Check tyre pressures, check steering track, check wheel bearing adjustment. Check tightness of steering column universal joint bolts.
7. Check and adjust clutch pedal free travel, pipe unions and level of fluid in clutch master cylinder reservoir.
8. Tune up engine. Remove and clean carburetter filters. Clean and set sparking plugs and distributor points. Top up carburetter hydraulic piston dampers. Set carburetters.
9. Test and top up battery. Check operation of electrical units.
10. Generally check over body for squeaks and rattles and tighten up where necessary.

The Service Voucher is valid only if presented to the Jaguar Dealer by whom the car was supplied. Should the owner not reside in the vicinity of the original supplier or is temporarily absent when the service is required, the Voucher will be accepted by the nearest authorised Jaguar Dealer.

# ENGINE

## Daily

### Checking the Engine Oil Level

Check the oil level with the car standing on level ground otherwise a false reading will be obtained.

Remove the dipstick and wipe it dry. Replace and withdraw the dipstick ; if the oil level is on the knurled patch, with the engine hot or cold, no additional oil is required. If the engine has been run immediately prior to making an oil level check, wait one minute after switching off before checking the oil level.

**Note.** Almost all modern engine oils contain special additives, and whilst it is permissible to mix the recommended brands it is undesirable.

If it is desired to change from one brand to another this should be done when the sump is drained, and the Oil Company's recommendation in regard to flushing procedure should be followed.

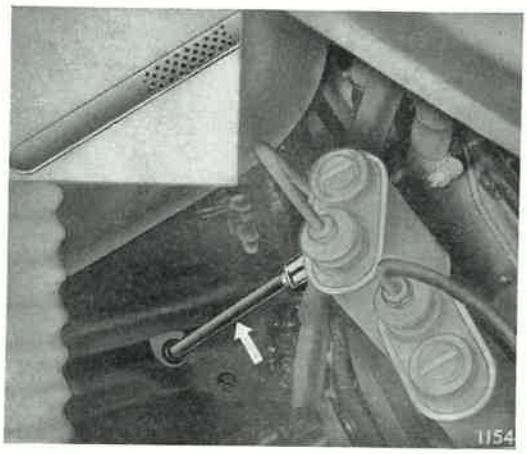



Fig. 15. *Engine dipstick.*

## Every 2,500 miles (4,000 km.)

### Changing the Engine Oil

**Note.** Under certain adverse operating conditions, conducive to oil dilution and sludge formation, more frequent oil changing than the normal 2,500 mile (4,000 km.) period is advised. Where the car is used mainly for low-speed city driving, stop-start driving particularly in cold weather or in dusty territory the oil should be changed at least every 1,000 miles (1,600 km.).

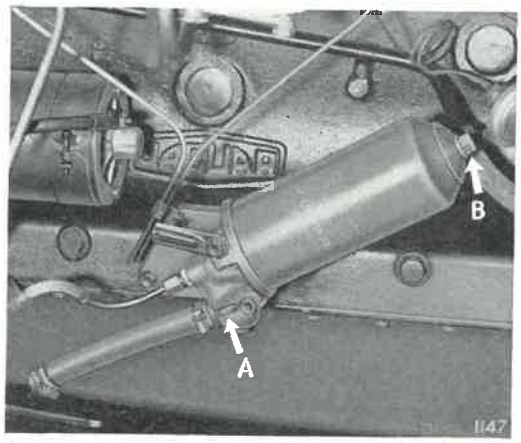



Fig. 16. *The engine oil filter is drained by removing the flat headed plug 'A'. Removal of the bolt 'B' will allow the canister and element to be withdrawn.*

The draining of the sump should be carried out at the end of a run when the oil is hot and therefore will flow more freely. The drain plug is situated at the right-hand rear corner of the sump. When the engine oil is changed, the oil filter which is situated on the right hand side of the engine, must also receive attention. First, drain the oil from the filter by removing the flat-headed drain plug situated at the bottom of the filter head ; do not disturb the banjo connection as this retains the oil pressure relief valve. Unscrew the central bolt and remove the canister and element. Thoroughly wash these parts in petrol and allow to dry out. When replacing the canister ensure that the circular rubber seal in the filter head has not become displaced. (Attention is drawn to the importance of renewing the filter element at 5,000 mile (8,000 km.) intervals).

**Note.** Almost all modern engine oils contain special additives, and whilst it is permissible to mix the recommended brands it is undesirable.

If it is desired to change from one brand to another this should be done when the sump is drained, and the Oil Company's recommendation in regard to flushing procedure should be followed.

**Distributor—Lubrication**

Take great care to prevent oil or grease from getting on or near the contact breaker points.

Remove the moulded cap at the top of the distributor by springing back the two clips. Lift off the rotor arm and apply a few drops of engine oil around the screw (A) now exposed. It is not necessary to remove the screw as it has clearance to permit the passage of oil.

Apply **one** drop of oil to the post (B) on which the contact breaker pivots. Lightly smear the cam (C) with grease. Lubricate

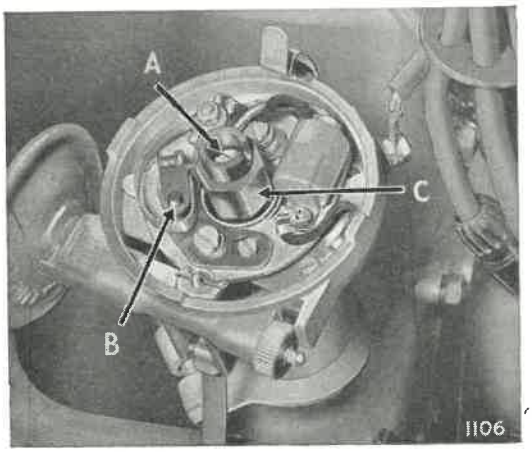



Fig. 17. *Distributor lubrication points.*

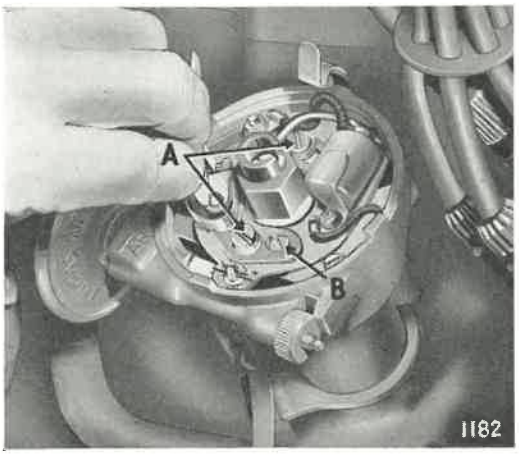



Fig. 18. *Checking the gap between the distributor contact points. The two screws 'A' secure the fixed contact plate; the contact gap is adjusted by means of the eccentric headed screw 'B'.*

the centrifugal advance mechanism by injecting a few drops of engine oil through the aperture at the edge of the contact breaker base plate.

**Distributor Contact Breaker Points**

Check the gap between the contact points with feeler gauges when the points are fully opened by one of the cams on the distributor shaft. A combined screwdriver and feeler gauge is provided in the tool kit.

The correct gap is ·014″—·016″ (·36—·41 mm.).

If the gap is incorrect, slacken the two screws (A) securing the fixed contact plate and turn the eccentric-headed adjustment screw (B) in its slot until the required gap is obtained. Tighten the securing screws and recheck the gap.

Examine the contact breaker points. If the contacts are burned or blackened, clean them with a fine carborundum stone or very fine emery cloth. Afterwards wipe away any trace of grease or metal dust with a petrol-moistened cloth.

Cleaning of the contacts is made easier if the contact breaker lever carrying the moving contact is removed. To do this, remove the nut, insulating piece and connections from the post to which the end of the contact breaker spring is anchored. The contact breaker lever can now be lifted off its pivot post.

**Air Cleaner**

The oil bath air cleaner is situated underneath the left-hand front wing and should be completely removed from the car for attention.

The periods at which maintenance should be carried out will vary according to conditions under which the car is operated. For normal conditions every 2,500 miles (4,000 km.) can be taken as the proper cleaning periods, but in dusty territories more frequent cleaning, as often as 1,000 miles (1,600 km.) or less, may be necessary.

Slacken the clip and disconnect the large diameter hose from the cleaner. Slacken the pinch bolt securing the cleaner in the circular retainer and lift out the cleaner complete. Remove the rubber band, unscrew the central screw and withdraw the shell and top cover from the oil base. Lift out the filter element, and wash the element by swishing up and down in a bowl of paraffin and allow to drain thoroughly. Empty the oil from the oil base and clean out the accumulated sludge. Fill the oil base with engine oil to the level indicated by the arrow. It is unnecessary to re-oil the filter element as this is done automatically when the car is driven. Ensure that the top cover gasket is in good condition.

Re-insert the centre screw through the shell and top cover and assemble to oil base. Refit the rubber band to cover the joint between shell and oil base.

## Every 5,000 miles (8,000 km.)

**Sparking Plugs**

It is advisable to have sparking plugs cleaned on special plug cleaning and testing equipment which is possessed by most Service Stations. If, however, this service is not available, the sparking plugs can be cleaned by means of a stiff wire brush.

After cleaning, check the gap between the electrodes.

The correct gap is ·025″ (·64 mm.).

If adjustment is required, do this by setting the side electrode. Do not attempt to bend or lever against the centre electrode or the insulator may crack.

When replacing the sparking plugs ensure that the threads are clean and that the copper washers are in good condition.

**Fan Belt Tension**

When the fan belt is correctly tensioned it should be possible to depress the belt about half an inch (12 mm.) midway between the fan and dynamo pulleys.

Adjustment is effected by slackening the three dynamo mounting bolts, moving the dynamo until the correct tension is obtained and tightening the bolts.

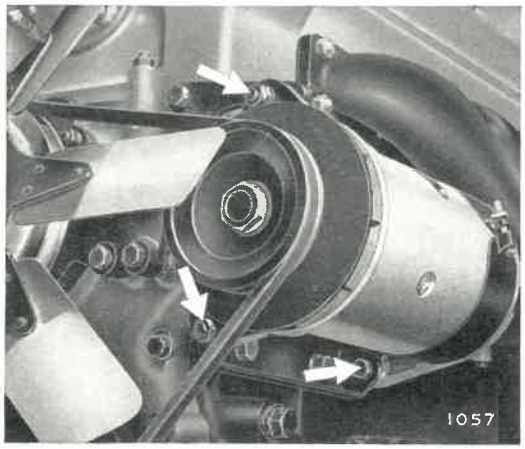



Fig. 19. *To adjust the fan belt tension slacken the three dynamo mounting bolts and move the dynamo into the desired position.*

Do not overtighten the fan belt or this will cause undue wear of the belt and the water pump and dynamo bearings. Slackness of the belt may cause slippage with the possible result of a squealing noise from the belt, a reduced charging rate from the dynamo or overheating of the engine.

**Oil Filter Element**

It is most important to renew the oil filter element every 5,000 miles (8,000 km.) as after this mileage it will have become choked with impurities.

To guard against the possibility of the filter being neglected to the extent where the element becomes completely choked, a balance valve is incorporated in the filter head which allows **unfiltered** oil to by-pass the element and reach the bearings. This will be accompanied by a drop in the normal oil pressure of some 10 lb. per sq. in. and if this occurs the filter element should be renewed as soon as possible.

The oil filter is situated on the right-hand side of the engine and before removing the canister it will be necessary to drain the filter by removing the flat-headed drain plug situated at the bottom of the filter head ; do not disturb the banjo connection as this retains the oil pressure relief valve. To gain access to the element, unscrew the central bolt when the canister complete with the element can be removed. Thoroughly wash out the canister with petrol and allow to dry before inserting the new element.

When replacing the canister ensure that the circular rubber seal in the filter head has not become displaced.

## Every 10,000 miles (16,000 km.)

**Engine Sump Strainer**

A gauze bowl-type strainer fitted in the bottom of the engine sump is accessible after removal of the circular cover plate.

After draining the sump during the normal changing of the engine oil, remove the setscrews securing the circular plate and withdraw the plate and strainer, noting the positions of the gaskets. Thoroughly wash the gauze in petrol and allow to dry out. Refit the strainer and cover plate using new gaskets.

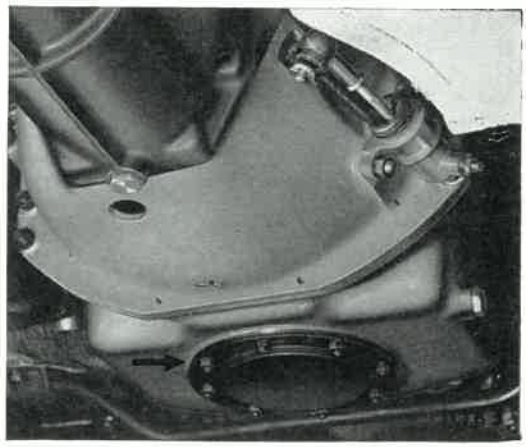


Fig. 20. *The engine sump strainer is accessible after removal of the circular plate.*

# CARBURETTERS AND FUEL SYSTEM

## Every 2,500 miles (4,000 km.)

**Lubricate Carburetter Piston Damper**

Each carburetter is fitted with a hydraulic piston damper which unless periodically replenished with oil, will cause poor acceleration and spitting back through the carburetter on rapid opening of the throttle.

To replenish with oil, unscrew the cap on top of suction chambers and lift out the damper valve which is attached to the cap. Fill the hollow piston spindle, which can be seen down inside the bore of the suction chamber, with engine oil.

**Checking Carburetter Slow Running**

The idling speed of the engine should be 500 r.p.m. when the engine is at its normal working temperature.

If adjustment is required turn the two slow running volume screws (see Fig. 36) **by exactly equal amounts** until the idling speed, observed on the revolution counter instrument, is correct.

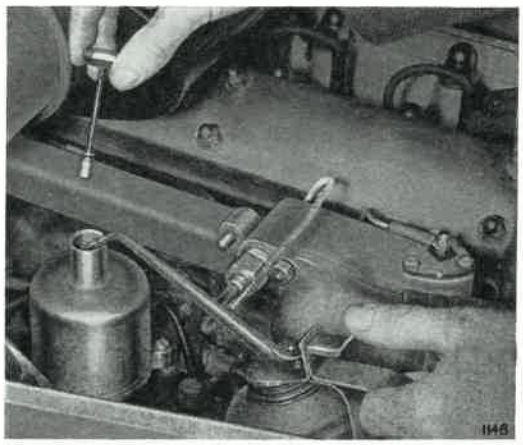


Fig. 21. *Topping up a carburetter hydraulic piston damper.*

## Every 5,000 miles (8,000 km.)

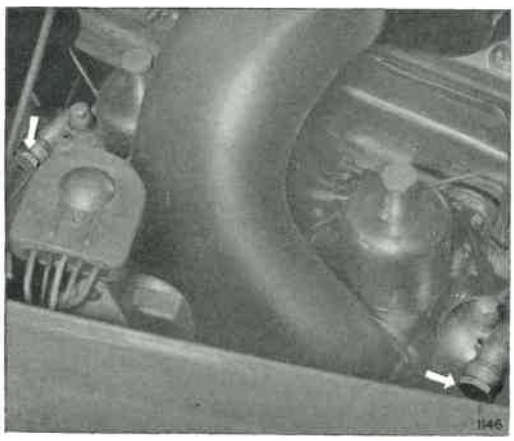


Fig. 22. *The carburetter filters are accessible after removal of the two banjo bolts.*

**Cleaning Carburetter Filters**

Removal of the bolt securing the petrol pipe banjo union to each float chamber will expose the filters. Remove the filters and clean in petrol; do not use a cloth as particles will stick to the gauze.

When refitting, insert the filter with the spring first and ensure that the fibre washers are replaced one to each side of the banjo union.

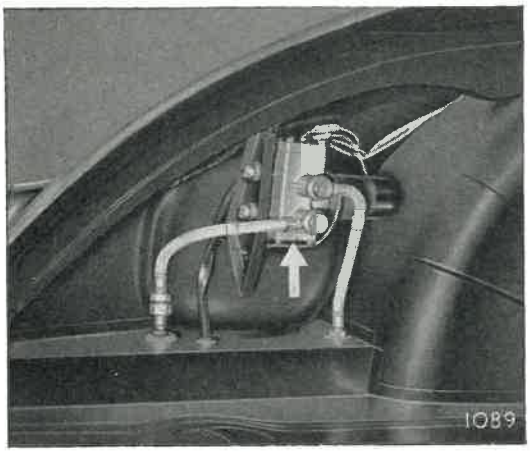
**Petrol Feed Line Filter**

The filter is attached to the right-hand wing valance and is of the glass bowl type with a flat filter gauze.

Every 5,000 miles (8,000 kilometres) or more frequently if the glass bowl shows signs of becoming full of sediment, slacken the locking nut, swing the retaining clip to one side and remove the bowl, sealing washer and filter gauze.

Clean the filter gauze and bowl by washing in petrol. Examine the sealing washer and if necessary fit a new one.

## Every 10,000 miles (16,000 km.)



**Petrol Pump Filter**

The petrol pump is situated behind the trim panel on the left-hand side of the luggage compartment.

To gain access to the filter remove the base plate by unscrewing the six cheese-headed screws. Thoroughly clean the filter in petrol ; do not use cloth as particles will stick to the gauze.

Fig. 23. *The petrol pump filter is accessible after removal of the base plate.*

# COOLING SYSTEM

## Daily

**Checking Radiator Water Level**

Every day, check the level of the water in the radiator and, if necessary, top up to the bottom of the filler neck.

Use water that is as soft as is procurable ; hard water produces scale which in time will affect the cooling efficiency of the system.

## Periodically

**Care of the Cooling System**

The entire cooling system should occasionally be flushed out to remove sediment. To do this, open the radiator block and cylinder block drain taps and insert a water hose into the radiator filler neck. Allow the water to flow through the system, with the engine running at a fast idle speed (1,000 r.p.m.) to cause circulation, until the water runs clear.

Since deposits in the water will in time cause fouling of the surfaces of the cooling system with consequent impaired efficiency it is desirable to retard this tendency as much as possible by using water as nearly neutral (soft) as is available. One of the approved brands of water inhibitor may be used with advantage to obviate the creation of deposits in the system.

When **refilling the cooling system** open the heater control tap by placing the temperature control on the facia in the **hot** position. Check the radiator water level after running the engine and top up if necessary.

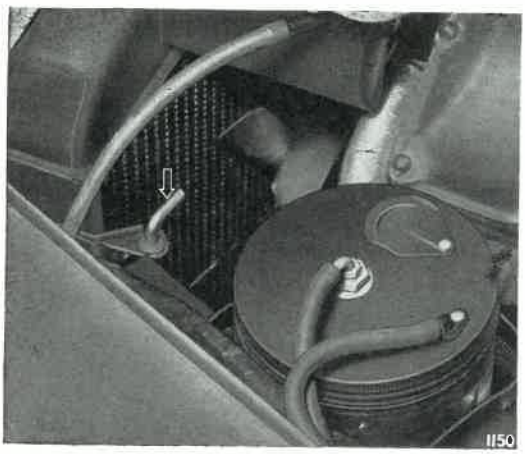



Fig. 24. *Radiator drain tap remote control.*

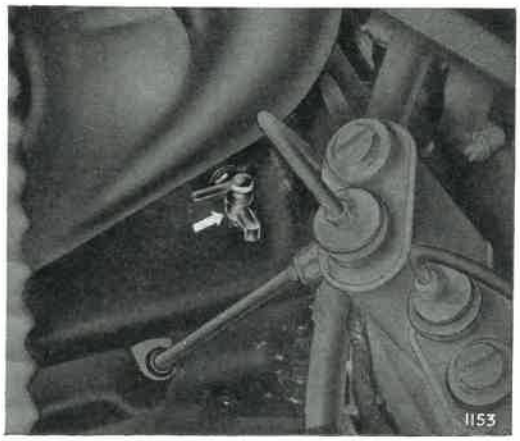



Fig. 25. *Cylinder block drain tap.*

# CLUTCH

## Weekly

### Clutch Fluid Level

The clutch is operated hydraulically from a master cylinder situated at the rear of the engine compartment on the driver's side of the car. The hydraulic fluid is stored in a reservoir combined with the master cylinder and it is important that the level does not fall below the bottom of the filler neck.

## Every 2,500 miles (4,000 km.)

### Clutch Pedal Free Travel

There should be $\frac{3}{4}$" (19 mm.) free travel or unloaded movement at the pedal pad before feeling the resistance of the clutch thrust springs.

This free travel is most easily felt by depressing the pedal pad by hand until a marked resistance is felt. If the adjustment is incorrect, rapid wear of the clutch withdrawal mechanism or other troubles may result.

Adjustment is effected by slackening the locknut and turning the operating rod between the slave cylinder and the clutch withdrawal lever. Screwing the rod into the knuckle joint will increase the pedal free travel ; screwing the rod out will decrease the free travel.

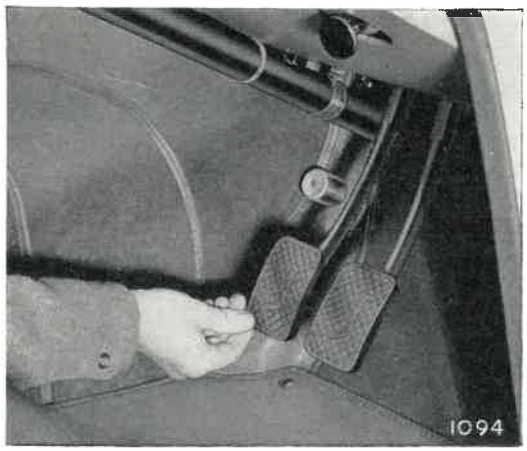



Fig. 26. *Checking the free travel of the clutch pedal.*

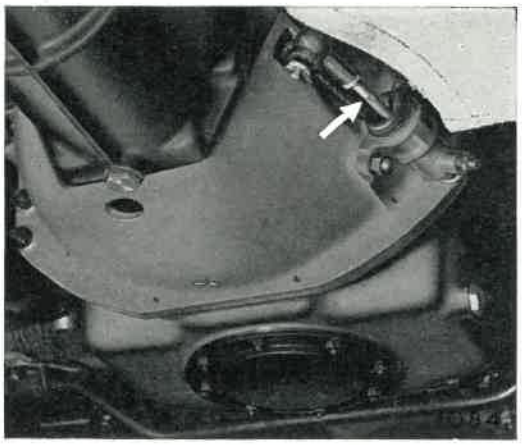


Fig. 27. *Adjustment of the clutch pedal free travel is effected at the rod between the clutch slave cylinder and withdrawal lever.*

# GEARBOX

**(and Overdrive if fitted)**

## Every 2,500 miles (4,000 km.)

**Gearbox Oil Level**

Check the level of the oil in the gearbox with the car standing on level ground.

A combined level and filler plug is fitted on the left-hand side of the gearbox. Clean off any dirt from around the plug before removing it.

The level of the oil should be to the bottom of the filler and level plug hole.

**Overdrive Oil Level—Important**

The oil for the lubrication and operation of the overdrive unit is fed from the gearbox casing and therefore checking the gearbox oil level will also check the level of oil in the overdrive unit, but as this unit is hydraulically controlled extra attention should be paid to exercising absolute cleanliness when replenishing with oil. It is also important that the oil level is not allowed to fall appreciably otherwise the operation of the overdrive may be affected.

## Every 10,000 miles (16,000 km.)

**Changing the Gearbox Oil**

The draining of the gearbox should be carried out at the end of a run when the oil is hot and therefore will flow more freely. The drain plug is situated at the front end of the gearbox casing.

After all the oil has drained replace the drain plug and refill the gearbox with the recommended grade of oil through the combined filler and level plug hole situated on the left-hand side of the gearbox casing ; the level should be to the bottom of the hole.

**Overdrive—Oil Changing**

The oil for the overdrive unit is common with that in the gearbox but draining the gearbox casing will not drain the oil from the overdrive unit. A large brass drain plug is provided in the base of the overdrive unit and when draining the gearbox this plug should also be removed.

Whilst this drain plug is removed the overdrive oil pump filter should be cleaned. This filter is accessible through the drain plug hole and is secured by a central screw.

Thoroughly wash the filter gauze and allow to dry ; when refitting do not omit to replace the tubular distance piece and washers on the securing screw.

Refill the gearbox and overdrive with oil through the gearbox filler and level plug hole. **Recheck the level after the car has been run** as a certain amount of oil will be retained in the hydraulic system of the overdrive.

Particular attention should be paid to maintaining absolute cleanliness when filling the gearbox and overdrive with oil as any foreign matter that enters may seriously affect the operation of the overdrive.

# PROPELLER SHAFT

## Every 2,500 miles (4,000 km.)

**Universal Joints**

The propeller shaft is fitted with two needle roller bearing universal joints (three joints on Automatic Transmission models) which should be lubricated with the recommended grade of oil. Do not use grease at these points.

The nipples are accessible from underneath the car but it may be necessary to move the car slightly to bring the nipples to the required position.

**Sliding Splines**

On cars fitted with automatic transmission or an overdrive the front end of the propeller shaft is fitted with a sliding joint which should be lubricated, with the recommended grade of grease, through the nipple situated at the rear of the universal joint yoke.

# REAR AXLE

## Every 2,500 miles (4,000 km.)

**Checking Rear Axle Oil Level**

Check the level of the oil in the rear axle with the car standing on level ground.

A combined filler and level plug is fitted in the rear cover of the axle casing accessible from underneath the car. Clean off any dirt from around the plug before removing it.

The level of the oil should be to the bottom of the filler and level plug hole ; use only HYPOID oil of the correct grade and since different brands may not mix satisfactory, draining and refilling is preferable to replenishing if the brand of oil in the axle is unknown.

## Every 10,000 miles (16,000 km.)

**Changing the Rear Axle Oil**

The draining of the rear axle should be carried out at the end of a run when the oil is hot and will therefore flow more freely. The drain plug is situated in the base of the differential casing.

After the oil has drained, replace the drain plug and refill the rear axle with the recommended grade of oil after removal of the combined filler and level plug situated in rear cover.

The level of the oil should be to the bottom of the filler and level plug hole when the car is standing on level ground.

Use only HYPOID oil of the correct grade.

# FRONT SUSPENSION AND STEERING

## Every 2,500 miles (4,000 km.)

**Front Suspension**

The front suspension wishbone levers and anti-roll bar are supported in rubber bushes which do not require any attention ; the suspension coil springs also do not require maintenance attention.

**Front Shock Absorbers**

The front shock absorbers are of the telescopic type and no replenishment with fluid is necessary or provided for.

**Steering Box**

The steering box is attached to the front suspension cross member ; the filler plug is situated in the top cover and is accessible from the engine compartment on the driver's side of the car. The filler plug has a plain head and should not be confused with the rocker shaft adjustment screw which is threaded externally. Top up the steering box with the recommended grade of lubricant until no more oil will enter.

**Steering Idle Lever Housing**

The steering idle lever housing is attached to the front suspension cross member ; a nipple is provided in the top of the housing and is accessible from underneath the car.

**Steering Tie-Rods**

Lubricate the ball joints at the ends of the two steering tie-rods with the recommended lubricant. The tie-rods are situated at the rear of the front suspension cross member. When carrying out this operation examine the rubber seals at the ends of the ball housings to see if they have become displaced or split. In this event they should be repositioned or replaced as any dirt or water that enters the ball joint will cause premature wear.

Do not over-lubricate the ball joints to the extent where grease escapes from the rubber seals.

**Wheel Swivels**

Lubricate the nipples (four per car) fitted to the top and bottom of the wheel swivels.

The nipples are accessible from underneath the front of the car.

Lack of lubrication at these points may cause stiff steering.

# WHEEL BEARINGS (Cars fitted with drum brakes)

## Every 5,000 miles (8,000 km.)

**Rear Wheel Bearings**

Lubricate the rear wheel bearings sparingly with the recommended grade of lubricant.

The grease nipples (one per wheel) are situated at the front of the rear axle casing tubes adjacent to the brake backplates.

A bleed hole is provided in the rear of the tube opposite each grease nipple to indicate when sufficient lubricant has been applied.

## Every 10,000 miles (16,000 km.)

**Front Wheel Bearings**

No grease nipples are fitted to the front wheel bearing hubs and therefore it is necessary, at the recommended intervals, to dismantle the front wheel hubs, thoroughly clean out and repack the taper roller bearings with one of the recommended high melting point greases.

Do NOT pack the hub with grease but apply a coating to the inside of the hub between the outer races of bearings. Apply a light coat of grease to the stub axle shaft ; do not fill the hub end cap.

**Re-assembling the Front Wheel Bearings**

Re-assemble the bearings and hub and tighten the slotted nut until there is no end-float or "rock" in the hub. Back off the nut either one or two flats until the end-float can be just felt by hand (the desired end-float is ·005"—·13 mm.). Secure with a new split pin and refit end cap.

# WHEEL BEARINGS (Cars fitted with disc brakes)

## Every 5,000 miles (8,000 km.)

**Front Wheel Bearings—Lubrication**

To gain access to the front wheel bearing grease nipples (one per wheel) it is necessary to remove the road wheels.

Lubricate the wheel bearings sparingly with the recommended lubricant; if over-lubricated, grease may find its way on to the brake linings. On cars with disc wheels a bleed hole is provided in the end cap of the hub to indicate when sufficient lubricant has been applied. On cars with wire spoked wheels an indication that sufficient lubricant has been applied is by the escape of grease past the outer hub bearing which can be observed through the bore of the splined hub.

**Lubricate Rear Wheel Bearings**

Lubricate the rear wheel bearings sparingly with the recommended grade of lubricant.

The grease nipples (one per wheel) are situated on the bottom of the rear axle casing tubes adjacent to the brakes. A bleed hole is provided in the top of the tube above each grease nipple to indicate when an excess of lubricant has been applied.

# REAR SUSPENSION

## Every 5,000 miles (8,000 km.)

### Rear Springs

Spray the rear spring leaves sparingly with penetrating oil keeping the oil away from the rubber mountings at the ends and centre of each spring.

### Rear Shock Absorbers

The rear shock absorbers are of the telescopic type and no replenishment with fluid is necessary or provided for.

# BRAKING SYSTEM (Cars fitted with drum brakes)

## Weekly

### Brake Fluid Level

The brakes are operated hydraulically from a master cylinder situated at the rear of the engine compartment on the driver's side of the car. The hydraulic fluid is stored in a reservoir combined with the master cylinder and it is **important** that the level does not fall below the bottom of the filler neck.

## Every 2,500 miles (4,000 km.)

### Handbrake Cables

Lubricate the grease nipple on the hand-brake cable with the recommended grade of lubricant. The nipple is accessible from underneath the car and is adjacent to the rear axle.

### Brake Shoe Adjustment

Both the front wheel and rear wheel brakes are so designed that no manual adjustment for brake shoe lining wear is necessary as this automatically takes place when the footbrake is applied.

**Handbrake Adjustment**

The automatic adjustment of the rear brakes will keep the handbrake in correct adjustment and no attention should be necessary. If however, an excessive amount of handbrake lever travel is obtained a means of adjustment is provided at the front end of the handbrake cable. To adjust, first release the handbrake fully ; remove the clevis pin securing the fork end to the operating link. Slacken the locknut and rotate the fork end in the desired direction so that with the clevis pin refitted there is no slack in any of the three cables but ensuring that they are not under tension.

Finally, jack up each rear wheel in turn, rotate the wheel with the handbrake off and ensure that the brakes are not binding.

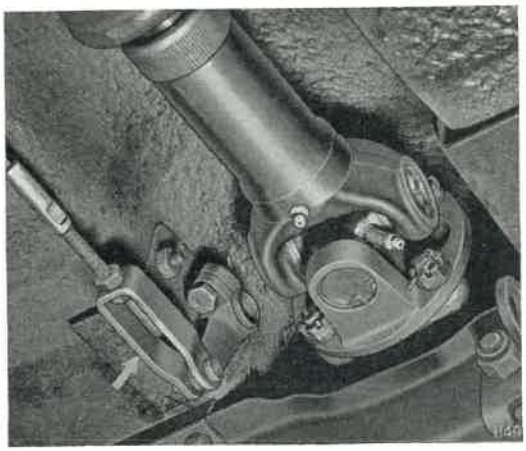


Fig. 28. *Handbrake cable adjustment.*

## Every 5,000 miles (8,000 km.)

**Brake Linings**

At the recommended intervals remove the road wheels and brake drum and clean out any dust or dirt from the drums and brake assemblies.

At the same time examine the linings for the amount of wear ; if the rivet heads are close to the friction face of the linings, replacement brake shoe assemblies or new linings should be fitted.

**Brake Servo Air Cleaner**

At the recommended intervals the brake servo air cleaner, which is attached to the right-hand wing valance, should be removed and washed in **methylated spirits.** After drying out re-lubricate the wire mesh with **brake fluid.**

# WHEELS AND TYRES

## Weekly

### Tyre Pressures

It is important to maintain the tyre pressures at the correct figures ; incorrect pressures will affect the steering, riding comfort and tyre wear.

Check the inflation pressures when the tyres are cold and not when they have attained their normal running temperature ; tyre pressures increase with driving and any such increase should be ignored. Always ensure that the caps are fitted to the ends of the valves as they prevent the ingress of dirt and form a secondary seal to the valve core.

Tyre Pressures

Front ... 25 lbs. per sq. in. (1·76 kg./cm.²)
Rear ... 22 lbs. per sq. in. (1·55 kg./cm.²)

For fast touring, that is, long distances at sustained speeds of over 100 m.p.h. (160 k.p.h.) with short bursts at maximum speed, inflate tyres to :—

Front ... 31 lbs. per sq. in. (2·18 kg./cm.²)
Rear ... 28 lbs. per sq. in. (1·97 kg./cm.²)

When maximum speed capabilities are likely to be exploited to the full, inflate tyres to :—

Front ... 34 lbs. per sq. in. (2·39 kg./cm.²)
Rear ... 31 lbs. per sq. in. (2·18 kg./cm.²)

## Every 2,500 miles (4,000 km.)

### Road Wheel Interchanging

In order to obtain maximum mileage from the tyres and to prevent irregular wear on the front tyres it is advisable to interchange the wheels at regular intervals, by one of the methods shown in the illustration.

### Tyre Examination

Examine tyres periodically for flints, nails, etc., which may have become embedded in the tread. These should be removed with a blunt screwdriver or similar instrument.

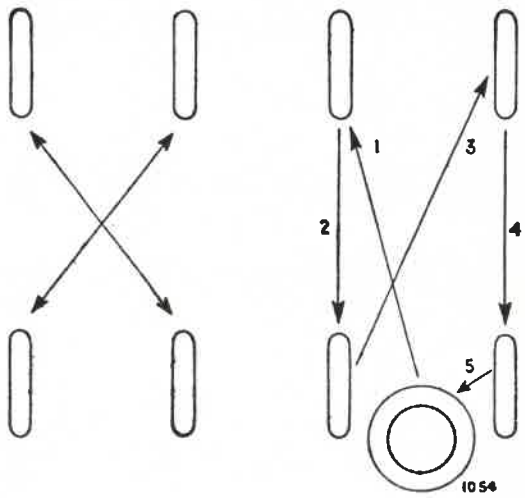



Fig. 29. *Two methods of interchanging the road wheels. The second method introduces the spare wheel into the sequence.*

# COACHWORK

## Every 5,000 miles (8,000 km.)

**Door Hinges**

A grease nipple is fitted to each of the door hinges. Lubricate the nipples sparingly with grease and wipe off any surplus from the door hinges.

## Periodically

**Carpets**

These may be cleaned by brushing or with a vacuum cleaner. Grease or oil stains can be removed with petrol.

**Chromium Plate**

It is desirable to clean the chromium plate occasionally to remove deposits which in time, if left undisturbed, will discolour the bright finish. It is, however, necessary to ensure that an abrasive cleaner is not employed as this will scratch and destroy the chrome.

Use an approved brand of chrome cleaner and apply this with a soft cloth.

**Head Lining**

Dirt may be removed from the lining by the use of a vacuum cleaner. Stains may be removed by means of a white cloth moistened with carbon tetrachloride or methylated spirit applied briskly but without pressure.

**Paintwork**

Never clean the paintwork other than by washing with a soft sponge and hose pipe. Use a steady flow of water and sponge lightly. Dry and polish the paintwork with a good quality wash leather.

Tar may be removed with a clean soft cloth moistened in petrol or with a proprietary brand of tar remover.

The paintwork may be polished from time to time with a good quality proprietary polish, either wax or emulsion type.

**Upholstery**

The leather should be wiped over occasionally with a cloth damped in warm soapy water. Repeat operation using fresh cloth and water alone (avoid flooding the leather) and finish by drying and polishing with a soft dry cloth. It is important to use a mild, non-caustic soap of the toilet kind and to avoid the use of petrol and detergents.

# OIL CAN LUBRICATION

## Every 5,000 miles (8,000 km.)

At the recommended intervals carry out oil can lubrication of the following points :

Seat runners and adjusting mechanism.
Handbrake lever ratchet.
Handbrake cable compensator linkage (on rear axle).
Door locks.
Luggage boot hinges and lock.
Bonnet hinges and catches.
Windscreen wiper arms.
Accelerator linkage.
Petrol filler cover hinge.

# ELECTRICAL EQUIPMENT

## Monthly

**Battery Electrolyte Level**

At the recommended intervals examine the electrolyte level in the battery cells, and top up if necessary with distilled water until the separators are just covered. Under no circumstances overfill above this level. Never use tap water to 'top up' the battery as the impurities in the water will be harmful to the plates.

**Battery Connections**

At the time of checking the electrolyte level ensure that battery terminals are clean and tight ; if corroded, scrape the insides of the terminals clean and smear with petroleum jelly.

## MULTI-GRADE ENGINE OILS

(These oils should NOT be used in worn engines requiring overhaul)

| Mobil | Wakefield | Shell | B.P. | Duckham |
|---|---|---|---|---|
| Mobiloil Special 10W/30 | Castrolite 20/20W-30 | X-100 Multi-grade (10W/30) | Energol Visco-Static | Q5500 |

**Note.** 1. If an SAE 30 or 40 oil has previously been used in the engine a slight increase in oil consumption may be noticed but this will be compensated by the advantages gained.

2. **Do not** use multi-grade oil in the gearbox; use one of the recommended SAE 30 oils.

## RECOMMENDED HYDRAULIC FLUIDS FOR DRUM BRAKES AND CLUTCH OPERATION

| Preferred Fluid | Alternative Fluids |
|---|---|
| Lockheed No. 102 Heavy Duty Brake Fluid. | Wakefield Crimson Hydraulic Brake Fluid.<br>Delco Special No. 11 Brake Fluid.<br>Chrysler MS 3511 Brake Fluid.<br>Wagner 21B Brake Fluid. |

**Note.**—In countries where the above fluids are unobtainable use only a recognised brake fluid guaranteed to conform to the S.A.E. Specification 70 R.1.

# SUMMARY OF MAINTENANCE

## Daily

Check radiator water level.
Check engine oil level.

## Weekly

Check tyre pressures.
Check fluid level in brake and clutch master cylinder reservoirs.

## Monthly

Check battery electrolyte level and connections.

## Every 2,500 miles (4,000 km.)

Drain engine sump and refill.
Clean oil filter element.
Check gearbox oil level and top up if necessary.
Check rear axle oil level and top up if necessary.
Lubricate steering box.
Lubricate steering idler housing.
Lubricate steering tie-rod ball joints.
Lubricate wheel swivels.
Lubricate propeller shaft universal joints.
Lubricate propeller shaft splines (Automatic Transmission and Overdrive models only).
Lubricate handbrake cable.
Lubricate carburetter hydraulic piston dampers.
Clean and re-oil air cleaner.
Lubricate distributor and check contact points.
Check clutch pedal free travel and adjust if necessary.
Check handbrake adjustment.
Check carburetter slow running.
Change over road wheels.

## Every 5,000 miles (8,000 km.)

**Carry out 2,500 miles service.**
Clean, adjust and test sparking plugs.
Clean carburetter filters.
Clean petrol line filter.
Lubricate front wheel bearings (cars with disc brakes only).
Lubricate door hinges.
Lubricate rear wheel bearings.
Spray rear springs (avoid rubber mountings).
Check fan belt and adjust if necessary.
Clean and lubricate brake servo air cleaner.
Renew oil filter element.
Carry out oil can lubrication of (a) seat runners and adjusting mechanism, (b) handbrake lever ratchet, (c) door locks, (d) boot hinges and lock, (e) bonnet hinges and catches, (f) windscreen wiper arms, (g) accelerator linkage, (h) petrol filler cover hinge, (i) handbrake cable compensator.
Examine brake linings for wear.

## Every 10,000 miles (16,000 km.)

**Carry out 2,500 miles and 5,000 miles service.**
Drain and refill gearbox (and overdrive if fitted).
Clean overdrive oil pump filter (if overdrive fitted).
Clean engine sump strainer.
Drain and refill rear axle.
Dismantle front wheel bearing hubs, clean out and repack with h.m.p. grease. (Cars with drum brakes only).
Clean petrol pump filter.
Check and tighten all chassis and body nuts, screws and bolts.

# RECOMMENDED LUBRICANTS

| Component | Mobil | Wakefield | Shell | Esso | B.P. | Duckham | S.A.E. Viscosity |
|---|---|---|---|---|---|---|---|
| Engine—Summer, 32°F.-90°F. | Mobiloil A | Castrol XL | Shell X-100 30 | Esso Extra Motor Oil 20W/30 | Energol 30 | NOL 30 | 30 |
| Winter, below 32°F. | Mobiloil Arctic | Castrolite | Shell X-100 20/20W | Esso Extra Motor Oil 20W/30 | Energol 20 | NOL 20 | 20 |
| Tropical, above 90°F. | Mobiloil AF | Castrol XXL | Shell X-100 40 | Esso Extra Motor Oil 40/50 | Energol 40 | NOL 40 | 40 |
| Upper cylinder lubrication ... | Mobil Upperlube | Castrollo | Shell U.C.L. or Donax U. | Esso U.C.L. | Energol U.C.L. | Adcoid Liquid | |
| Gearbox ... ... ...<br>Carburetter hydraulic piston dampers ... ... ...<br>Distributor oil can points ...<br>Oil can lubrication ... ... | Mobiloil A | Castrol XL | X-100 30 | Esso Extra Motor Oil 20W/30 | Energol 30 | NOL 30 | 30 |
| Rear axle ... ... ... | Mobilube GX 90 | Castrol Hypoy | Spirax 90 E.P. | Expee Compound 90 | Energol E.P. 90 | Hypoid 90 | Hypoid 90 |
| Propeller shaft—Universal joints ... ... ...<br>Steering box ... ... ... | Mobilube C 140 | Castrol D | Spirax 140 E.P. | Gear Oil 140 | Energol 140 | NOL EP 140 | 140 |
| Front wheel bearings ...<br>Rear wheel bearings ...<br>Distributor cam ... ... | Mobilgrease MP | Castrolease WB | Retinax A | Esso High Temp. Grease | Energrease N.3 | LB 10 | |
| Propeller shaft—Spline ...<br>Steering idler housing ...<br>Steering tie-rods ... ...<br>Wheel swivels ... ...<br>Handbrake cable ... ...<br>Door hinges ... ... ... | Mobilgrease MP | Castrolease Medium or WB | Retinax A or RB | Esso Grease or Esso High Temp. Grease | Energrease C.3 or N.3 | LB 10 or HPG | |

# SERVICE INSTRUCTIONS

This section deals with certain operations which although not requiring attention at regular intervals, may be found necessary either due to the mileage covered or to the replacement of parts.

Normally these operations should be undertaken by a Jaguar Distributor or Dealer but the instructions are included as a guide for the enthusiast or the owner living in a remote district.

## DECARBONISING AND GRINDING VALVES

**Important**

Before carrying out any work on the cylinder head the following points should be observed to avoid possible fouling between (a) the inlet and exhaust valves, and (b) the valves and pistons.

1. Do NOT rotate the engine or the camshafts with the camshafts sprockets disconnected.
   If, with the cylinder head removed from the engine, it is required to rotate a camshaft, the other camshaft must either be removed or the bearing cap nuts slackened to their fullest extent to allow the valves to be released.
2. When fitting the camshafts to the cylinder head ensure that keyway in the front bearing flange of each camshaft is perpendicular (at 90°) to the adjacent camshaft cover face before tightening down the camshaft bearing cap nuts.
   If this operation is being carried out with the cylinder head fitted to the engine, rotate the engine until No. 6 (Front) piston is on Top Dead Centre in the firing position, that is with the distributor rotor opposite No. 6 cylinder segment, before fitting the camshafts.

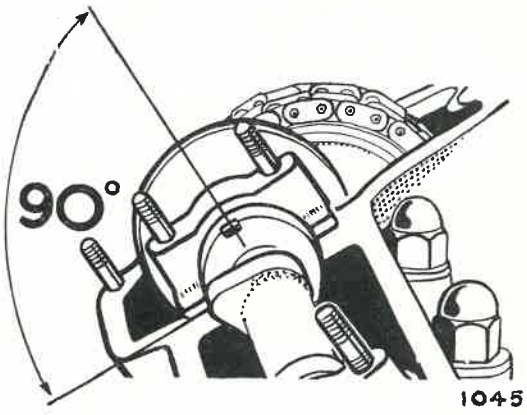



Fig. 30. *The keyway in the front bearing flange of the camshaft must be perpendicular (at 90°) to the cover face before tightening down the camshaft bearing caps.*

**Note.**—As the valve in the fully open position protrude below the cylinder head joint face, the cylinder head must not be placed joint face downwards directly on a flat surface.

**Disconnect Engine Connections**

Drain the cooling system by turning the radiator drain tap remote control and opening the cylinder block drain tap. Conserve water if anti-freeze is in use.

Remove the bonnet by unscrewing the four setscrews, having previously marked the position of the hinges to facilitate adjustment on re-assembly. Remove the battery and battery platform. Remove the air cleaner and air intake pipe. Disconnect the accelerator linkage at the throttle spindle and at the attachment to inlet manifold. Disconnect the distributor vacuum advance pipe from front carburetter. Disconnect the petrol feed pipe at float chamber unions. Disconnect leads from auxiliary starting carburetter solenoid.

Remove the pipe between the auxiliary starting carburetter and the inlet manifold.

Disconnect the revolution counter cable at union nut. Disconnect the top water hose and by-pass hose from the front of the inlet manifold water jacket.

Remove the high tension leads from the sparking plugs and the lead carrier from the cylinder head studs. Disconnect the wires from the ignition coil and remove the coil. Remove the sparking plugs.

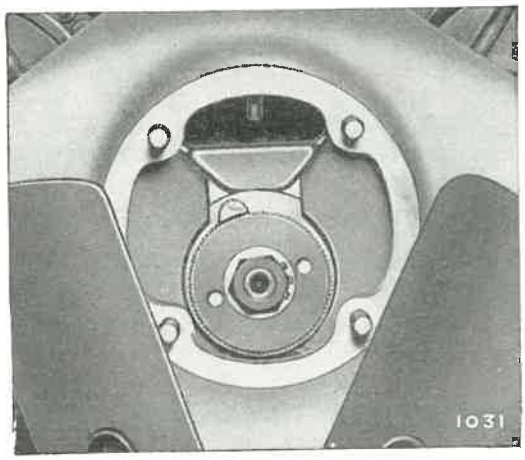



Fig. 31. *The serrated plate for adjustment of the top timing chain is accessible after removal of the engine breather housing.*

Disconnect the engine breather pipe from the front of the cylinder head. Disconnect the exhaust manifolds from the engine. Disconnect the two camshaft oil feed pipe unions from rear of cylinder head.

Disconnect the heater hose from the rear of the inlet manifold water jacket. Disconnect the heater pipe clips from the inlet manifold lower securing nuts. Unscrew the water temperature gauge bulb from the inlet manifold water jacket. Slacken the clip and disconnect the metal vacuum servo pipe from the rubber hose connection to inlet manifold.

**Remove Cylinder Head**

Remove the dome nuts from each camshaft cover and lift off covers.

Remove four nuts securing breather housing to front of cylinder head and withdraw housing, observing position of baffle plate with the two holes vertical. Release tension on camshaft chain by slackening nut on eccentric idler sprocket shaft, depressing spring-loaded stop peg and rotating serrated adjuster plate clockwise. Anti-clockwise rotation of the serrated adjuster, viewed from the front of the engine, tightens the chain.

Break the locking wire on the two setscrews, securing camshaft sprockets to respective camshafts. Remove one setscrew only from each of the camshaft sprockets ; rotate the engine until the two remaining setscrews are accessible and remove these screws. Do NOT rotate the engine or the camshaft after having disconnected the sprockets. The two camshaft sprockets may now be slid up the support brackets.

Remove the fourteen cylinder head dome nuts and six nuts securing the front of the cylinder head, working diagonally out from the centre. Slacken the nuts a part at a time until they become free. Lift off cylinder head complete with inlet manifold. Remove and scrap the cylinder head gasket.

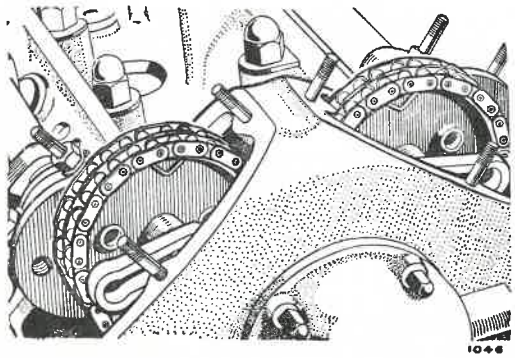



Fig. 32. *Showing the camshaft sprockets disconnected from the camshafts and slid up the support brackets.*

**Remove Valves**

With the cylinder head on the bench remove the inlet manifold, and the revolution cable adaptor.

Remove the four bearing caps from each camshaft and lift out camshafts (note mating marks on each bearing cap).

Remove the twelve floating tappets and adjusting pads situated between tappets and valve stems. Lay out the tappets and pads in order, to ensure that they can be replaced in their original guides.

Obtain a block of wood the approximate size of the combustion chambers and place this under the valve heads in No. 1 cylinder combustion chamber. Press down the valve collars and extract the split cotters. Remove collars, valve springs and spring seats. Repeat for the remaining five cylinders. Valves are numbered and must be replaced in the original locations, No. 1 cylinder being at the rear, that is the flywheel end.

**Decarbonise and Grind Valves**

Remove all traces of carbon from the combustion chambers and deposits from the induction and exhaust ports. The cylinder head is of aluminium alloy and great care should be exercised not to damage this with scrapers or sharp pointed tools. Use worn emery cloth and paraffin only. Thoroughly clean the water passages in the cylinder head. Clean the carbon deposits from the piston crowns and ensure that the top face of the cylinder block is quite clean particularly round the cylinder head studs. Remove any pitting in the valve seats, using valve seat grinding equipment. Reface the valves if necessary using valve grinding equipment ; grind the valves to the seats, using a suction valve grinding tool.

Valve seat angle : Inlet 45°, Exhaust 45°.

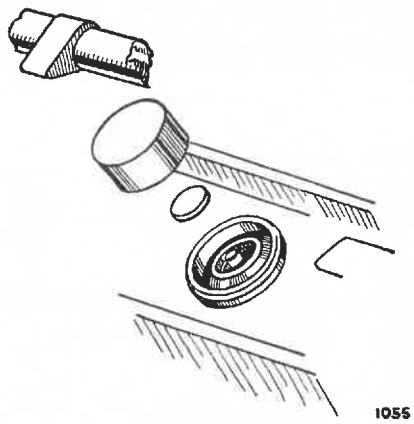



Fig. 33. *The pad for adjustment of the valve clearance is situated between the tappet and the top of the valve stem.*

Clean the sparking plugs and set gaps ; if possible use approved plug cleaning and testing equipment. Clean and adjust distributor contact breaker points.

**Adjusting Valve Clearances**

Thoroughly clean all traces of valve grinding compound from cylinder head and valve gear. Assemble valves in head. For checking the valve clearances the camshafts must be fitted one at a time as if one camshaft is rotated when the other camshaft is in position, fouling is likely to take place between the inlet and exhaust valves. Obtain and record all valve clearances by using a feeler gauge between the back of each cam and the appropriate valve tappet.

Correct valve clearances are :—

| | |
|---|---|
| Inlet ... ... ... | ·004″ (·10 mm.) |
| Exhaust ... ... | ·006″ (·15 mm.) |

Adjusting pads are available rising in ·001″ (·03 mm.) sizes from ·085″ to ·110″ (2·16 to 2·79 mm.) and are acid etched on the surface with the letter 'A' to 'Z', each letter indicating an increase in size of ·001″ (·03 mm.). Should any valve clearance require correction, remove the camshaft, valve tappet and adjusting pad. Observe the letter etched on the existing adjusting pad and should the recorded clearance for this valve, obtained previously, have shown say ·002″ (·05 mm.) excessive clearance select a new adjusting pad bearing a letter two lower than the original pad.

As an example, assume that No. 1 inlet valve clearance is tested and recorded as ·009″ (·23 mm.). On removal of the adjusting pad, if this is etched with the letter 'D' then substitution with a pad bearing the letter 'I' will correct the clearance for No. 1 inlet valve.

When fitting the camshafts prior to fitting the cylinder head to the engine it is most important that the keyway in the front bearing flange of each camshaft is perpendicular (at 90°) to the adjacent camshaft cover face before tightening down the camshaft bearing cap nuts.

Tighten the camshaft bearing cap nuts to a torque of 15 lbs./ft. (2·0 kg./m.).

**Refit Cylinder Head**

When all valve clearances have been correctly set, refit the inlet manifold.

Before refitting the cylinder head it is **important** to observe that, if the camshafts are out of phase with the piston position, fouling may take place between the valves and pistons. It is, therefore, essential to adhere to the following procedure before fitting the cylinder head :—

Accurately position camshafts by engaging the valve timing gauge (provided in tool kit) : the key of gauge locates in keyway of camshaft and bottom face of gauge with camshaft cover face on cylinder head.

Turn No. 6 (front) piston to firing position on top dead centre. A timing hole (covered by a circular plate) is provided in the bottom of the clutch housing (see Fig. 34). Top Dead Centre on numbers 1 and 6 pistons is obtained by aligning the arrow stamped on the flywheel with the mark embossed on the clutch housing. Remove distributor cover and check that the rotor arm is opposite No. 6 cylinder segment.

Refit the cylinder head, using a new cylinder head gasket fitted side marked 'TOP' upwards. When tightening cylinder head nuts it is recommended that a torque spanner should be used and the fourteen large dome nuts tightened a part of a turn at

a time to a torque of 54 lbs./ft. (7·5 kg./m.) working diagonally outwards from the centre.

It is important to tension the timing chain before attempting to set the valve timing. Proceed as follows :—

Through the breather aperture in the front of the cylinder head slacken the locknut securing the serrated plate.

With the camshaft sprocket on the flanges of the camshafts, tension chain by pressing locking plunger inwards and rotating serrated plate by the two holes in an anti-clockwise direction.

With the correct tension there should be slight flexibility on both outer sides of the chain below the camshaft sprockets, that is, the chain must not be dead tight. Release locking plunger, and securely tighten locknut. Tap the camshaft sprockets off the flanges of the camshafts. Accurately position the camshaft with the valve timing gauge and, check that T.D.C. marks are in exact alignment. Offer up the camshaft sprockets to the camshaft flanges and check if the setscrew holes in the adjuster plates are in exact alignment with the tapped holes in the camshaft flanges, if so, the securing setscrews can be fitted. If the holes are not in exact alignment it will be necessary to remove the circlip retaining the adjuster plate in the sprocket and withdraw adjuster plate forward until serrations disengage. Re-position the adjuster plate until the holes are in alignment, with the serrations engaged ; if exact alignment cannot be obtained turn the plate through 180° which due to its construction will facilitate alignment. Finally secure the camshaft sprocket setscrews with new locking wire.

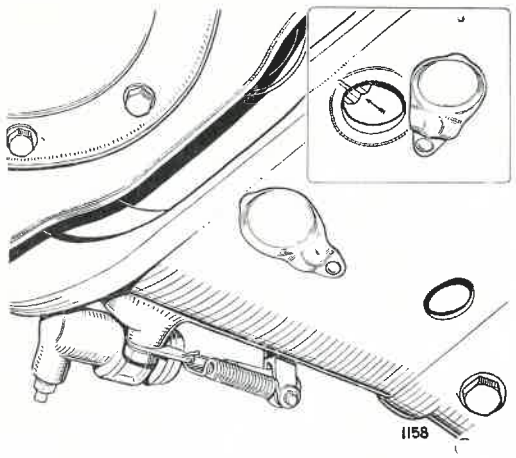



Fig. 34. *Top dead centre on numbers* 1 *and* 6 *pistons is obtained by aligning the arrow stamped on the flywheel with the mark embossed on the clutch housing.*

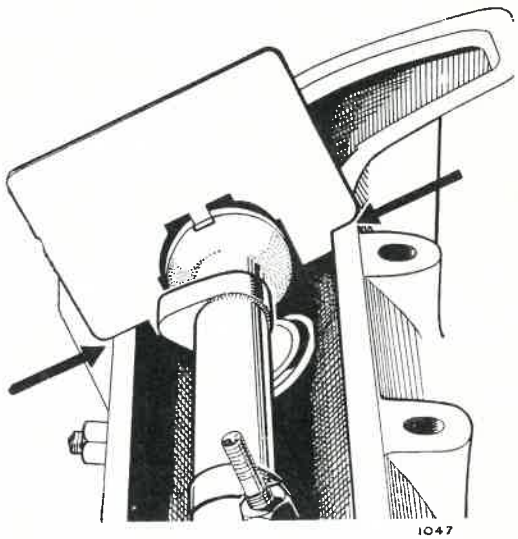



Fig. 35. *The valve timing gauge in position. Ensure that the gauge is seated at the points indicated by arrows.*

# CARBURETTER TUNING

It is useless to attempt carburetter tuning until the cylinder compressions, valve clearances, sparking plug gaps and contact breaker point gaps have been tested, checked and adjusted, if necessary. The distributor centrifugal advance mechanism and vacuum advance operation should be checked and ignition timing set to the figure given under "General Data" with the centrifugal advance and vacuum advance mechanisms in the static position. For final road test, adjustment of not more than six clicks of the micrometer adjustment at the distributor to either advance or retard is permitted. The ignition setting is important since if retarded or advanced too far the setting of the carburetters will be affected.

**Tuning**

Only two adjustments are provided at the carburetters and these are most easily carried out with the air pipe and cleaner removed. (i) The slow running volume screws governing idling speed and (ii) the mixture adjusting screws governing mixture strength. Correct setting of the mixture strength at idling speed ensures that the carburetters are correctly adjusted throughout their entire range.

Ensure that both needles are correctly located in the pistons, that is, with the shoulder of the needles flush with the base of the pistons. Check over the carburetters and ensure that pistons are free in the suction chambers, petrol filters clean and hydraulic

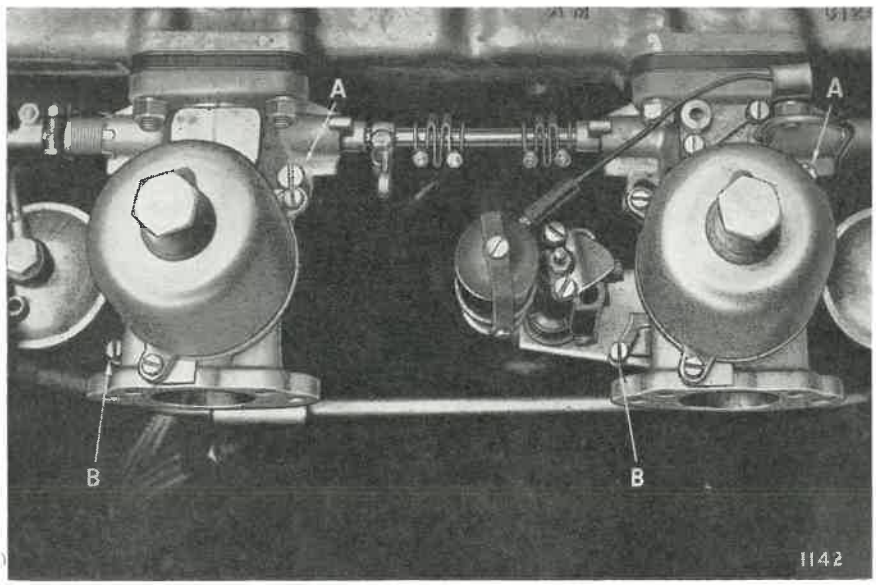



Fig. 36. *Carburetter adjustment.*
*A—Slow running volume screws. B—Mixture adjusting screws.*

piston dampers topped up with the recommended grade of engine oil. Lubricate throttle controls and check free operation and full travel.

Before carrying out the instructions which follow it is desirable to ensure that the mixture strength of both carburetters is correct. To do this, screw out both mixture screws until the jets are in the highest possible position in their holders; this can be observed through the piston chamber after removal of the suction chamber and piston. Screw in the mixture screws until the jets start to move and then rotate screws a further $3\frac{1}{2}$ turns.

Slacken one clamp bolt on the coupling between the throttle spindles. Check that both butterfly valves are fully closed by rotating both throttle spindles clockwise when viewed from the front. Tighten the coupling clamp bolt. Screw in (rotate clockwise) the slow running volume screws until they are down fully on their seatings. Unscrew each screw $2\frac{1}{2}$ turns.

Run the engine until the normal operating temperature is reached and check that both carburetters are sucking equally by placing one end of a length of rubber tube in one ear and the other end in the inside of each carburetter intake in turn. Rotate the slow running volume screws until the carburetters are synchronised, that is, are sucking equally and the engine is idling at approximately 500 r.p.m.

Recheck that both butterfly valves are fully closed by rotating the throttle spindles (in a clockwise direction looking from the front) and noting if any change in engine speed results ; no change in engine speed or note should result if the butterfly valves are fully closed.

Next check the mixture strength by lifting the piston of the front carburetter by approximately $\frac{1}{32}$" (·8 mm.) when, if

(a) the engine speed increases, this indicates that the mixture strength of the front carburetter is too rich.

(b) the engine speed immediately decreases, this indicates that the mixture strength of the front carburetter is too weak.

(c) the engine continues to run without change of speed, then the mixture strength of the front carburetter is correct.

Repeat the operation at the rear carburetter to test its mixture strength and after adjustment recheck the front carburetter since the two carburetters are interdependent.

To enrich the mixture, screw in the adjustment screw, that is, rotate clockwise ; to weaken the mixture unscrew the adjustment screw, that is, rotate anti-clockwise.

Some slight adjustment of the slow running to maintain this at 500 r.p.m. may now be necessary following alteration of the mixture strength, in which case ensure that the two slow running screws are rotated by an exactly equal amount or the adjustment previously made will be upset.

# CAMBER ANGLE—ADJUSTMENT

Check that the car is full of petrol, oil and water. If not, additional weight must be added to compensate for, say, a low level of petrol (the weight of 10 gallons of petrol is approximately 80 lbs.—36·0 kg.).

Ensure that the tyre pressures are correct and that the car is standing on a level surface.

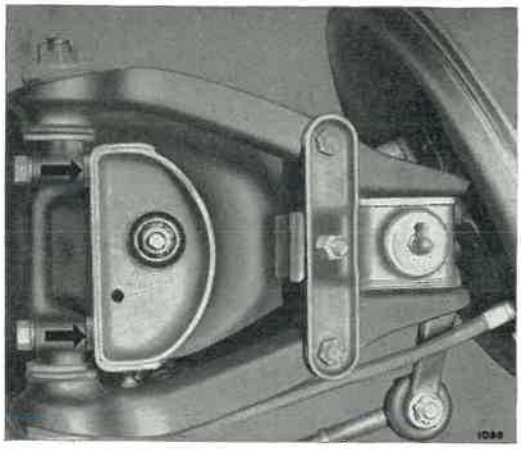


Fig. 37. *The camber angle is adjusted by means of the shims indicated by arrows. Remove or add an equal thickness of shims from each position.*

Line up the front wheel being checked parallel to the centre line of the car. Using an approved gauge, check the camber angle. Rotate the wheel being checked through 180° and re-check.

Camber Angle ... $\frac{1}{2}°$—1° positive

Adjustment is effected by removing or adding shims at the front suspension top wishbone bracket ; the holes in the shims are slotted and it is therefore only necessary to slacken the setscrews securing the bracket. Inserting shims decreases positive camber ; removing shims decreases negative camber or increases positive camber. Remove or add an equal number of shims from each position, otherwise the castor angle will be affected. It should be noted that $\frac{1}{16}$" (1·6 mm.) of shimming will alter the camber angle by approximately $\frac{1}{4}°$.

Check the other front wheel in a similar manner. If any adjustment is made to the camber angle, the front wheel alignment should be checked and if necessary be reset (see page 48).

# CASTOR ANGLE—ADJUSTMENT

Check that the car is full of petrol, oil and water. If not, additional weight must be added to compensate for, say, a low level of petrol (the weight of 10 gallons of petrol is approximately 80 lbs.—36·0 kg.).

Ensure that the tyre pressures are correct and that the car is standing on a level surface.

Using an approved gauge check the castor angle.

Castor Angle ... $\frac{1}{2}°$—1° negative.

Adjustment is effected by either transposing the shims from the rear of the upper wishbone ball joint to the front or transposing the packing piece and shim(s).

To decrease negative castor transpose shim(s) from the rear to the front ; the holes in the shims are slotted and therefore it will only be necessary to slacken the two bolts securing the upper wishbone members to enable the shims to be removed.

To increase negative castor or decrease positive castor transpose the packing piece and shim(s) as necessary. As the holes in the packing piece are not slotted it will be necessary to remove the two bolts after first having supported the brake drum and the stub axle carrier.

It should be noted that $\frac{1}{16}$" (1·6 mm.) of shimming will alter the castor angle by approximately $\frac{1}{4}°$.

The front of the car should be jacked up when turning the wheels from lock to lock during checking.

If any adjustment is made to the castor angle, the front wheel alignment should be checked, and if necessary, re-set (see page 48).

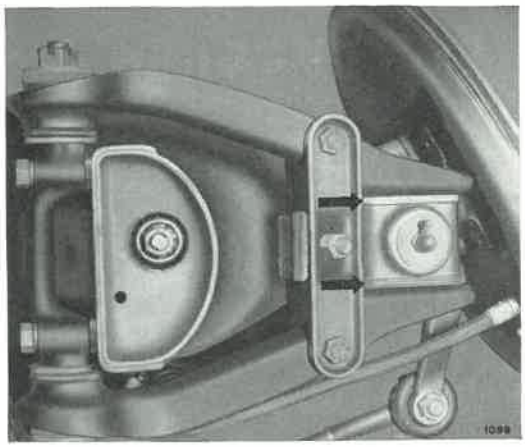


Fig. 38. *The castor angle is adjusted by means of the shims and packing piece indicated by arrows.*

# FRONT WHEEL ALIGNMENT

Check that the car is full of petrol, oil and water. If not, additional weight must be added to compensate for, say, a low level of petrol (the weight of 10 gallons of petrol is approximately 80 lbs.—36·0 kg.).

Ensure that the tyre pressures are correct and that the car is standing on a level surface.

With the wheels in the straight ahead position check the alignment of the front wheels with an approved track setting gauge.

The front wheel alignment should be:—

Parallel to $\frac{1}{16}$″ (1·59 mm.) 'toe in'
(measured at the wheel rim).

Recheck the alignment after pushing the car forward until the wheels have turned half a revolution (180°).

If adjustment is required slacken the clamp bolt at each end of the central track rod and rotate the rod in the required direction until the alignment of the front wheels is correct. Tighten the clamp bolts and re-check the alignment.

# WHEEL BEARINGS—ADJUSTMENT
## (Cars fitted with drum brakes)

**Front Wheel Bearings—Adjustment**

The bearings fitted to the front wheel hubs are of the taper roller type and are adjustable to take up normal wear.

To adjust, first jack up the car and remove the road wheel. Prise out the dust cap and remove the split pin from the slotted nut which secures the hub.

Rotate the slotted nut clockwise until there is no end float or 'rock' in the hub. Turn the nut anti-clockwise either one or two flats until the end-float can be just felt by hand (the desired end-float is ·005″—·13 mm.) and secure with a new split pin.

**Rear Wheel Bearings—Adjustment**

The rear wheel bearings are of the single taper roller type the inner races of which are located on the axle shafts.

As both axle shafts butt against a sliding spacer block, adjustment of one race will affect the clearance of the other. Adjustment is by means of shims located between the race housing and the brake backplate. The combined end float (bearing clearance) should be ·006″—·008″ (·15 mm.—·20 mm.) and it is essential that an equal thickness of shims is fitted to either side in order to maintain centralisation of the half shafts.

Jack up the rear axle and remove wheels brake drum and hubs. Remove the split pins and nuts securing the brake backplate to axle casing and ease axle shaft away from casing, thus exposing the adjusting shims. Remove or add shims until the limits of ·006″—·008″ (·15 mm.—·20 mm.) are obtained.

When the correct clearance has been obtained, replace the nuts and bolts, tighten, and replace cotter pins. Check clearance again after final tightening. Replace the hubs, brake drums and wheels.

# BLEEDING THE BRAKE HYDRAULIC SYSTEM
## (Cars fitted with drum brakes)

'Bleeding' (expelling air) the brake hydraulic system is not a routine maintenance operation and should be only necessary when a portion of the hydraulic system has been disconnected or if the level of the brake fluid has been allowed to fall. The presence of air in the hydraulic system will cause the brakes to feel "spongy".

Proceed as follows :—

Fill up the master cylinder reservoir with brake fluid, exercising great care to prevent entry of dirt. Taking one brake at a time, remove the rubber cover from the bleed nipple and fit a rubber bleed tube, allowing this to hang in a clean glass jar partly filled with brake fluid. Unscrew the nipple about three quarters of a turn and depress the brake pedal slowly, allowing it to return unassisted and with two or three seconds between each stroke. Pumping must be continued until the fluid issuing from the tube is entirely free of air, care being taken to see that the reservoir is replenished **frequently** during this operation, for should it be allowed to empty, more air will enter. After expelling all traces of air, hold the brake pedal down firmly, tighten nipple and replace dust excluder. Repeat procedure at the other brakes. On completion, top up the reservoir to the bottom of the filler neck.

Do not on any account use the fluid which has been bled through the system to replenish the reservoir as it will have become aerated. Always use fresh fluid straight from the tin.

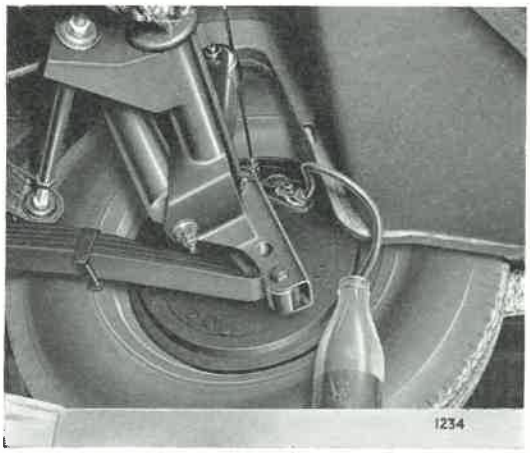



Fig. 39. *Bleeding the right-hand rear brake.*

# BLEEDING THE CLUTCH HYDRAULIC SYSTEM

'Bleeding' (expelling air) the clutch hydraulic system is not a routine maintenance operation and should only be necessary when a portion of the hydraulic system has been disconnected or if the level of the fluid in the reservoir has been allowed to fall. The presence of air in the hydraulic system may result in difficulty in engaging gear owing to the clutch not disengaging fully.

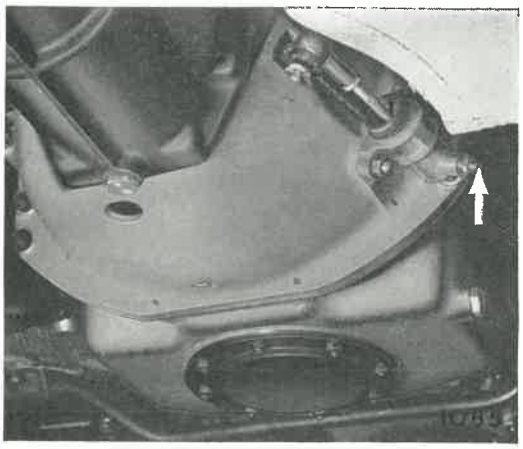


Fig. 40. *Clutch slave cylinder bleed nipple.*

The procedure is as follows :—

Fill up the master cylinder reservoir with brake fluid exercising great care to prevent the entry of dirt. Attach a rubber bleed tube to the nipple on the slave cylinder on the right-hand side of the clutch housing and allow the tube to hang in a clean glass jar partly filled with brake fluid. Unscrew the nipple one complete turn. Depress the clutch pedal slowly, tighten the bleeder nipple before the pedal reaches the end of its travel and allow the pedal to return unassisted.

Repeat the above procedure, closing the bleed nipple at each stroke, until the fluid issuing from the tube is entirely free of air, care being taken that the reservoir is replenished **frequently** during this operation, for should it be allowed to become empty more air will enter.

On completion, top up the master cylinder reservoir to the bottom of the filler neck.

Do not on any account use the fluid which has been bled through the system to replenish the reservoir as it will have become aerated. Always use fresh fluid straight from the tin.

# HEADLAMP BEAM SETTING

The alignment of the headlamp beams is set correctly before the car leaves the factory but if for any reason adjustment becomes necessary the following instructions should be carried out.

Place the car on a level surface in front of a garage door or wall ; the car should be at least 25 feet (7·6 m.) away and square to the door or wall. Carry out the work with conditions as dark as possible so that the oval shaped light areas can be clearly seen.

With the headlamps in the full beam position, that is, not dipped, the beams from the two headlamps should be parallel with the ground and with each other ; measurements should be taken from the centres of the headlamps and the horizontal and vertical axes of the oval light areas.

If adjustment is required, remove the headlamp rim by unscrewing the retaining screw. Switch on the headlamps and check that the beams are not in the dipped position.

The setting of the beams are adjusted by the three spring-loaded screws which retain the reflector unit.

The top screw 'A' is for vertical adjustment, that is, to raise or lower the beam; turn the screw clockwise to raise the beam and anti-clockwise to lower the beam.

The two screws 'B' are for horizontal adjustment, that is, to turn the beam to the left or right. To move the beam to the left, turn the left-hand screw clockwise and the right-hand screw anti-clockwise. To move the beam to the right, turn the left-hand screw anti-clockwise and the right-hand screw clockwise.

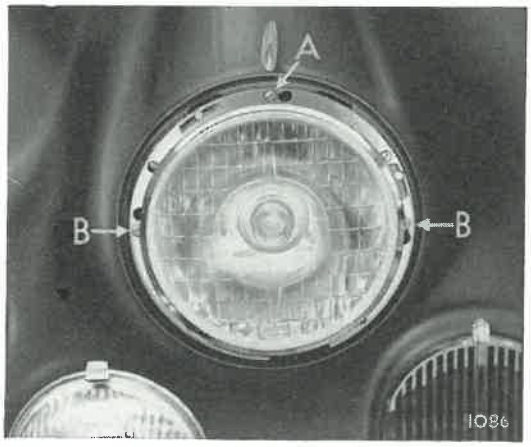



Fig. 41. *Adjustment of the screw 'A' will alter the headlamp beam in the vertical plane; adjustment of the screws 'B' will alter the beam in the horizontal plane.*

# FUSES

**Fuses**

Should any component in the electrical system fail to function it is possible that the fuse protecting that component has blown. Should a replacement fuse of the correct type also blow, this indicates a fault in the circuit serving the affected component and the car should therefore be taken to the nearest Jaguar dealer for examination.

The fuse block is attached to the left-hand wing valance and contains two spare fuses. Both fuses are of 50 ampere capacity.

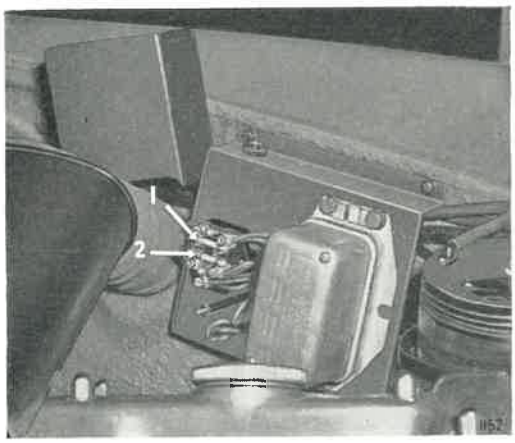



Fig. 42. **Fuses.**

*No.* 1. (*"Aux"*) *Interior lights ; Cigar lighter.*
*No.* 2. (*"Aux Ign"*) *Heater fan ; Flashing direction indicators ; Braking lights ; Horns ; Petrol gauge ; Reversing light ; Windscreen wipers.*

# LAMP BULBS—REPLACEMENTS

**Headlamp Bulb—Replacement**

Remove the retaining screw at the bottom of the headlamp rim and carefully prise off rim. Remove the rubber sealing ring noting the position of the cutaway portion and that the rear side is marked "Back". Remove the glass and reflector assembly by pressing inwards against the three spring loaded screws and rotating anti-clockwise. Do NOT turn these three screws or the setting of the headlamp beam will be upset.

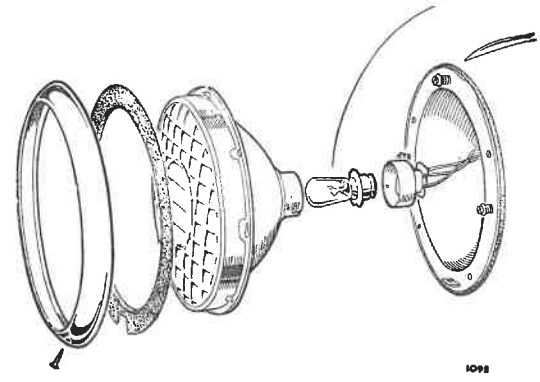


Fig. 43. *Headlamp bulb removal.*

Press the adaptor inwards and rotate anti-clockwise ; the adaptor can then be withdrawn and the bulb taken out.

When re-assembling, note that a groove in the bulb plate must register with a raised portion in the bulb retainer and that the pins in the adaptor are offset; arrows are stamped on the bulb retainer and adaptor to facilitate correct assembly.

**Side/Flasher Bulb—Replacement**

Remove the two screws at the front of the lamp and detach the glass.

To remove the bulb from the holder, press inwards and rotate anti-clockwise. When replacing the bulb note that the pins are offset.

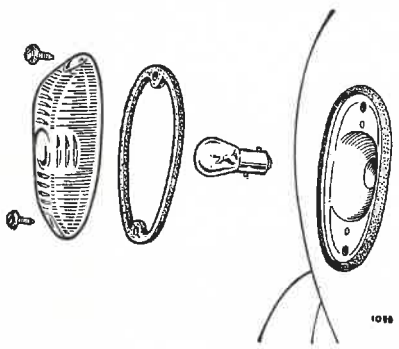


Fig. 44. *Side/Flasher bulb removal.*

**Rear/Stop/Flasher Bulb—Replacement**

Remove the two screws securing the glass. To remove the bulb, press upwards and rotate anti-clockwise. To ensure that the bulb filaments are correctly positioned in relation to the holder, the pins of the bulb are offset.

**Reverse, Number Plate, and Luggage Boot Bulbs—Replacement**

The reverse light bulb, the two number plate bulbs and the boot light bulb are retained in a holder accessible from the underside of the luggage boot lid. To remove the holder unscrew the two cheese-headed screws when the holder can be withdrawn ; all the bulbs are retained in the holder by bayonet fixings. The luggage boot light bulb is accessible without having to remove the holder.

**Fog Lamp Bulb—Replacement**

Remove the screw and clamp from the bottom of lamp, and withdraw the light unit. Remove the adaptor by rotating anti-clockwise and withdraw the bulb from the back of the reflector. When replacing the bulb note that the groove in the bulb plate must be aligned with its register in the rear of the reflector.

*(Fog lamps are not fitted on cars for U.S.A.)*

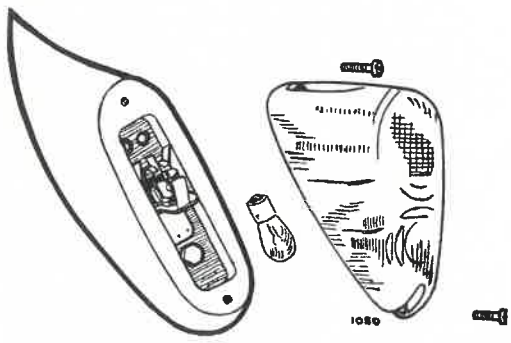


Fig. 45. *Rear/Stop/Flasher bulb removal.*

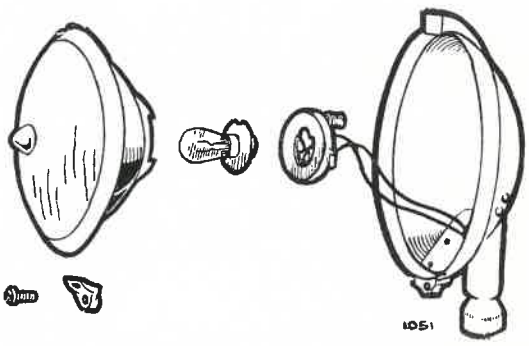


Fig. 46. *Fog lamp bulb removal.*

# OPERATING AND MAINTENANCE
# (Automatic Transmission)

## GENERAL DESCRIPTION

The transmission assembly consists of a three-element hydraulic torque converter followed by two planetary gear sets which permit the elimination of the clutch pedal and normal gear-shift lever. The planetary gear sets incorporate free-wheels and are controlled by hydraulically-operated band and disc clutches.

The manual control lever allows selection of the following conditions :—

P (Park). A pawl is mechanically engaged with teeth on the main shaft. A hydraulic interlock prevents engagement at speeds above 3 to 5 m.p.h. (5 to 8 k.p.h.).

N (Neutral). All clutches are disengaged and there is no drive beyond the torque converter.

D (Drive). Automatic changes between the low gear and intermediate gear and between the intermediate gear and direct drive.

Changes from low to intermediate gear and intermediate to direct drive depend upon the combination of road speed and throttle position ; the larger the throttle opening the higher the speed at which the change occurs. This is achieved by mechanically combining the motions of a mechanical centrifugal governor and the throttle linkage. The resultant motion operates a hydraulic valve.

Depression of the accelerator pedal beyond normal travel causes a "kick-down" change from direct to intermediate gear. Below 52 m.p.h. (84 k.p.h.) a downshift from direct to intermediate gear can be obtained by depressing the accelerator to the full throttle position short of "kick-down". No "kick-down" downshift is possible for intermediate to low gear.

The torque converter and a gear reduction are operative in the low intermediate gears. Direct drive is obtained by coupling the engine directly to the main shaft by a disc clutch. The relevant road speeds are given in "Transmission Data" on the following page.

Manual L (Low). A low gear train and the torque converter are operative and no automatic change can occur. Manual changes between L and D may be made while the car is in motion but changes into L should be avoided at speeds above 45 m.p.h. (72 k.p.h.).

R (Reverse). A reverse-gear train and the torque converter are operative. A hydraulic interlock prevents engagement of the reverse clutch at forward speeds above 10 m.p.h. (16 k.p.h.).

Electrical connection to the starter is made only when N and P are selected. An anti-creep device traps brake fluid pressure when the car is stationary after the brakes have been applied. Opening the throttle releases the fluid.

**Transmission Data**

| | | |
|---|---|---|
| Maximum torque ratio of converter | | 2·15 : 1 |
| Low gear reduction | | 2·308 : 1 |
| Intermediate gear reduction | | 1·435 : 1 |
| Direct drive—no converter | | 1 : 1 |
| Reverse gear reduction | | 2·009 : 1 |
| Forward speed control circuit pressure | 80 lb./sq. in. | 5·62 kg./cm.² |
| Reverse servo pressure | 200 lb./sq. in. | 14·06 kg./cm.² |
| Converter pressure—low and reverse | 60 lb./sq. in. | 4·22 kg./cm.² |
| Converter pressure—intermediate and direct | 30 lb./sq. in. | 2·11 kg./cm.² |

## Automatic Gear Changes

| **Upshifts** | m.p.h. | k.p.h. |
|---|---|---|
| Low to intermediate—light throttle | 11 | 18 |
| Low to intermediate—full throttle | 40 | 64 |
| Intermediate to direct—light throttle | 23 | 37 |
| Intermediate to direct—full throttle | 64 | 103 |
| Intermediate to direct—after "kick-down" | 78 | 126 |

| **Downshifts** | | m.p.h. | k.p.h. |
|---|---|---|---|
| Direct to intermediate—closed throttle | | 16 | 26 |
| Intermediate to low—closed throttle | | 4 | 6 |
| Direct to intermediate—"kick-down" | Up to | 68 | 109 |
| Parking pawl permitted to engage | Below | 3 to 5 | 5 to 8 |
| Reverse gear permitted to engage | Below | 10 | 16 |
| Manual change from drive to low to be **avoided** | Above | 45 | 72 |

**Transmission Serial Number**

0001 and onwards, stamped on a plate attached to left-hand side of transmission casing, and on the commission plate attached to the right-hand wing valance.

# DRIVING INSTRUCTIONS

The operation of the automatic transmission is controlled by the position of the selector lever in the quadrant marked P, N, D, L, R, situated at the bottom of the instrument panel.

**Selector**

The selector lever can be slid freely between the N and D positions and between the L and R positions.

To move between P and N and between D and L the lever must be depressed.

To select R from any other position other than L, depress the lever, move to L position and allow lever to spring upward before sliding along to the R position.

**To start the engine** the selector lever must be in the P or N positions.


Fig. 47. *Selector Control.*

**P or Park** provides a safe, positive lock on the rear wheels when the car is stopped. Movement of the selector lever to the P position actuates a mechanical locking device in the transmission which prevents the rear wheels from turning in either direction. For this reason, should the car be pushed from front or rear with sufficient force, the car will skid on the rear tyres. This condition is quite similar to that encountered when a car with conventional transmission is parked in gear or with the handbrake applied firmly. The fact that the engine may be started with the selector in P position is convenient when parked on an incline.

When the car is stopped on a hill and the P (Park) position is selected, the parking mechanism may become very firmly engaged due to the load on the pawl. To disengage the parking pawl under these conditions the following procedure should be adopted :—

**To release transmission from P (Park) when facing UP HILL.**

1. Start the engine.
2. Release the handbrake.
3. Select D and **hold** lever in this position (irrespective of the direction in which it is desired to move off).
4. Depress accelerator slowly until the car moves forward, indicating the release of the parking pawl.
5. The car is now "free" and can be driven away in the desired direction.

**To release transmission from P (Park) when facing DOWN HILL.**

1. Start the engine.
2. Release the handbrake.
3. Select R and **hold** lever in this position (irrespective of the direction in which it is desired to move off).
4. Depress accelerator slowly until the car moves backward, indicating the release of the parking pawl.
5. The car is now "free" and can be driven away in the desired direction.

**N or Neutral** position permits idling the engine without the possibility of setting the car into motion by pressure on the accelerator and may be used when starting the engine. It is inadvisable to engage neutral for coasting above a speed of 45 m.p.h. (72 k.p.h.)

**D or Drive** provides the normal forward driving range and includes automatic shifting between the low, intermediate and direct drive ranges. Virtually all forward driving, accelerating and stopping can be done with the lever in the D position. Once the engine is started and the lever is moved to D it can be left in this position for all normal driving. When accelerating, the transmission shifts automatically from low to intermediate between 11 and 40 m.p.h. (18 and 64 k.p.h.) and from intermediate to direct between 23 and 64 m.p.h. (37 and 103 k.p.h.) depending on the position of the accelerator pedal. On deceleration, it will shift automatically from direct drive to intermediate at approximately 16 m.p.h. (26 k.p.h.) and from intermediate to low at approximately 4 m.p.h. (6 k.p.h.).

**L or Low** is an emergency engine power range for use on unusually long and steep grades or for braking on descents, for extra heavy pulling, and for rocking the car out of mud, sand or snow.

**R or Reverse** position of the selector lever provides reverse driving range.

**Intermediate Speed Hold.** A switch mounted on the fascia (Fig. 48) provides a means for the driver to obtain a downshift from direct to intermediate without depressing the accelerator pedal (as advised under the heading "Additional Power and Acceleration") and to retain the drive in the intermediate range. This will be found convenient for overtaking or when hill climbing.

With the switch in the "IN" position no upshift will take place between intermediate and direct drive ; placing the switch lever in the "OUT" position will cause the transmission to shift to direct drive, provided the normal upshift speed has been obtained.

**Warning.** Do NOT allow the maximum permitted engine revolutions to be exceeded through allowing the "Intermediate Speed Hold" to remain in operation longer than necessary, or by switching in the "hold" at speeds in excess of 75 m.p.h. (121 k.p.h.).

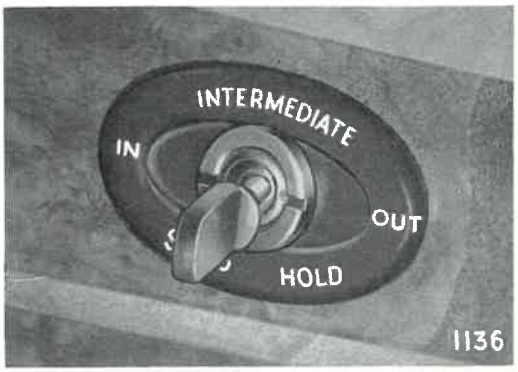



Fig. 48. *Intermediate speed hold switch.*

## OPERATING AND MAINTENANCE (Automatic Transmission)

**Additional Power and Acceleration** in D range can be obtained as follows :—

(a) Below 52 m.p.h. (84 k.p.h.) depress the accelerator pedal to the full throttle position to effect a change into the intermediate range ; the drive will continue in the intermediate range until the release of the accelerator or approximately 64 m.p.h. (103 k.p.h.) is reached.

(b) Between 52 m.p.h. and 68 m.p.h. (84 k.p.h. and 109 k.p.h.) depress the accelerator pedal all the way to the floorboard to effect a "kick-down" change into intermediate range ; the drive will continue in intermediate range until release of the accelerator or approximately 78 m.p.h. (126 k.p.h.) is reached.

**Hard Pulling,** such as encountered in deep snow, mud or other adverse driving conditions, is best accomplished in the L range.

**Rocking out of Mud, Sand or Snow** is accomplished with the accelerator pedal slightly depressed and held steady while making quick alternate selections of L and R ranges.

**Anti-Creep** is a special braking feature which prevents the car from creeping forward when stopped on level ground or slight grades, as long as the ignition key is turned on. Apply the footbrake to stop the car and then remove the foot from the brake pedal. The car will not creep forward or backward. Any movement of the accelerator pedal, or turning off the ignition key, releases the anti-creep action.

**Push Starting** may sometimes be necessary, as in the case of a flat battery. Turn ignition key ON, place selector lever in the N position. The car may now be pushed and when it has reached 15 to 20 m.p.h. (24 to 32 k.p.h.) move the selector lever to D or L position. **Do not tow the car to start the engine—it may overtake the tow car.**

**Engine Braking,** for descending long mountainous grades, is easily secured by bringing the car speed below 45 m.p.h. (72 k.p.h.) and momentarily depressing the accelerator while placing the selector lever in the L position.

**Prolonged Idling** is sometimes unavoidable. In such cases, as a safety precaution, move the selector lever to the P or N position.

**Towing** should be done with the selector lever in the N position. Car should not be towed in excess of 30 m.p.h. (48 k.p.h.).

# MAINTENANCE

The oil necessary for the operation of the torque converter is common with that used in the transmission. The total oil capacity of the transmission assembly is approximately 15 Imperial pints (18 U.S. pints ; 8·5 litres), but when draining the transmission a small quantity of oil will remain in the unit and the amount required to refill it will be that needed to bring the oil level to the FULL mark on the dipstick as described in "Draining and Refilling Transmission" below.

**Every 1,000 miles (1,600 km.)**
**Check Transmission Oil Level as follows:—**

1. With the car on a level floor, set the handbrake firmly, set the selector lever at L, and raise the transmission oil temperature by idling the engine to normal engine operating temperature.

2. Pull back the centre carpet and underfelt ; remove the rubber cover from the dipstick access aperture. Clean the area around the dipstick hole. Remove the dipstick and wipe it dry.

3. Stop the engine. **Immediately** insert and withdraw the dipstick and check the oil level. The space between the FULL and LOW on the dipstick represents approximately one pint.

4. If the addition of oil is required, repeat the above checking procedure after adding oil. DO NOT OVER-FILL.

**Every 15,000 miles (24,000 km.)**
**Drain and Refill Transmission as follows:—**

1. Set the handbrake firmly. Set selector lever at L and raise transmission oil temperature by idling engine to normal engine operating temperature.

2. Stop the engine and remove the cover plate located underneath the floor carpet to expose the dipstick. Clean the area around the dipstick hole and remove the dipstick.

3. Remove the transmission oil pan drain plug. (A, Fig. 50).

4. Remove the converter housing cover plate and rotate the converter until drain plug is in position for draining. Remove the converter drain plug (B).

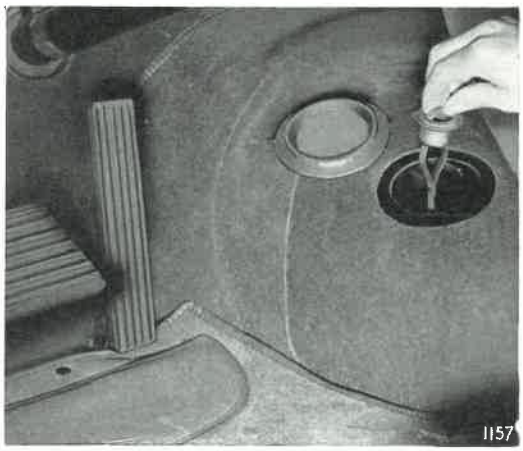



Fig. 49. *Dipstick removal.*

5. To facilitate draining, remove the square-headed converter pressure take-off plug from the bottom of the housing attached to the left-hand side of the transmission casing (C).

6. After oil has drained, refit and tighten the drain plugs in the transmission oil pan and converter. Refit the converter housing cover plate. Refit and tighten the converter pressure take-off plug.

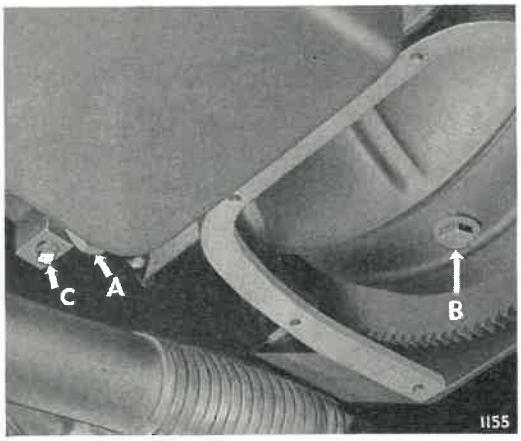



Fig. 50. *Drain plugs (converter housing cover plate removed).*

7. Pour 10 Imperial pints (12 U.S. pints ; 5·7 litres) of the recommended grade of oil into the transmission through the dipstick hole.

8. Start the engine and idle for approximately one minute with the selector lever set in the L position to transfer the oil to the converter from the transmission case.

9. With the engine still idling and the selector lever in the L position, add additional oil (approximately 5 Imperial pints, 6 U.S. pints or 2·8 litres) to bring the level to the FULL mark on the dipstick. DO NOT OVER-FILL. Finally, recheck the level of the oil as described in "Check Transmission Oil Level".

# RECOMMENDED LUBRICANTS

| Mobil | Wakefield | Shell | Esso | B.P. | Duckham |
|---|---|---|---|---|---|
| Mobil Fluid 200 | Castrol T.Q. Automatic Transmission Fluid, Grade "A" | Shell Donax T6 | Esso Automatic Fluid, Grade 55 | Energol Automatic Transmission Fluid Type "A" | Nolmatic |

**S.A.E.** Automatic Transmission Fluid, Type "A" (AQ-ATF).
Transmission and torque converter oil capacity : 15 Imperial pints (18 U.S. pints; 8·5 litres)

# MAINTENANCE INSTRUCTIONS FOR CARS FITTED WITH DISC BRAKES

## Weekly

**Brake Fluid Level**

The fluid reservoir for the hydraulic brake is attached to the wing valance on the driver's side and it is important that the level does not fall more than 1″ (25·0 mm.) below the filler neck.

The level of the fluid should, therefore, be checked at the recommended intervals. If it is found that the fluid level falls rapidly, indicating a leak from the system, the car should be taken immediately to the nearest Jaguar Dealer for examination.

## Every 2,500 miles (4,000 km.)

**Handbrake Cable**

Lubricate the grease nipple on the handbrake cable with the recommended grade of lubricant. The nipple is accessible from underneath the car and is adjacent to the rear axle.

**Footbrake Adjustment**

Both the front wheel and rear wheel brakes are so designed that no manual adjustment to compensate for brake friction pad wear is necessary as this automatically takes place when the footbrake is applied.

**Handbrake Adjustment**

The mechanically operated handbrakes are attached to the rear caliper bodies but form an independent mechanically actuated system carrying their own friction pads and individual adjustment.

To adjust the handbrakes to compensate for friction pad wear, which will be indicated by excessive handbrake lever travel, carry out the following procedure.

Unscrew the adjuster bolt and insert a ·004″ (·10 mm.) feeler gauge between the face of one handbrake pad and the disc. Screw in the adjuster bolt until the feeler gauge is just nipped. Withdraw feeler gauge and check disc for free rotation. Repeat for the other side.

If, after carrying out the above adjustment, satisfactory travel of the handbrake lever is not obtained, the handbrake cable should be adjusted as follows :—

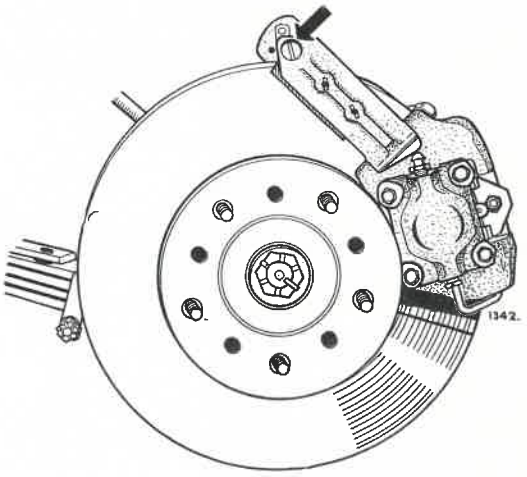



Fig. 51. *Handbrake adjuster bolt.*

Screw in the handbrake adjuster bolt at each rear brake until the handbrake pads are in hard contact with the brake discs.

Fully release the handbrake lever. Remove the clevis pin securing the fork end to the operating link at the front end of the main cable. Slacken the locknut and adjust the position of the fork end so that with the clevis pin refitted there is no slack in the main cable and the two cross cables. It is, however, important to ensure that the cables are not under tension.

Reset the handbrake clearance with a ·004″ (·10 mm.) feeler gauge as described above.

Fig. 52. *Handbrake cable adjustment.*

## Every 5,000 miles (8,000 km.)

**Friction Pads—Examination for Wear**

At the recommended intervals, or if a loss of braking efficiency is noticed, the brake friction pads (2 per brake) should be examined for wear; the ends of the pads can be easily observed through the apertures in the brake caliper. When the friction pads have worn down to a thickness of approximately $\frac{1}{4}$″ (7 mm.) they need renewing.

**Friction Pads—Renewal**

To remove the friction pads, unscrew the nut from the bolt attaching the friction pad retainer to the caliper and extract the bolt. Withdraw the pad retainer.

Insert a piece of strong cord (or wire) through the hole in the metal tag attached to the friction pad and withdraw the pad by pulling on the cord.

To enable the new friction pads to be fitted it will be necessary to force the pistons back into the cylinder blocks by means of suitably sized pieces of wood or two screwdrivers.

Before doing this, it is advisable to half empty the brake supply tank, otherwise forcing back the friction pads will eject fluid from the tank with possible damage to the paintwork. When all the new friction pads have been fitted, top up the supply tank to the recommended level.

Insert the new friction pads into the caliper ensuring that the slot in the metal plate attached to each pad engages with the button in the centre of the piston.

Finally, refit the friction pad retainer and secure with the bolt and nut. Apply the footbrake a few times to operate the self-adjusting

mechanism, so that normal travel of the pedal is obtained.

**Brake Servo Air Cleaner**

At the recommended intervals the brake servo air cleaner, which is attached to the right-hand wing valance, should be removed and washed in **methylated spirits.** After drying out re-lubricate the wire mesh with **brake fluid.**

## RECOMMENDED BRAKE FLUIDS

**Preferred Fluid**

Wakefield Crimson Hydraulic Brake Fluid.

**Alternative Fluids**

Lockheed No. 102 Heavy Duty Brake Fluid.
Delco Special No. 11 Brake Fluid.
Chrysler MS3511 Brake Fluid.
Wagner 21B Brake Fluid.

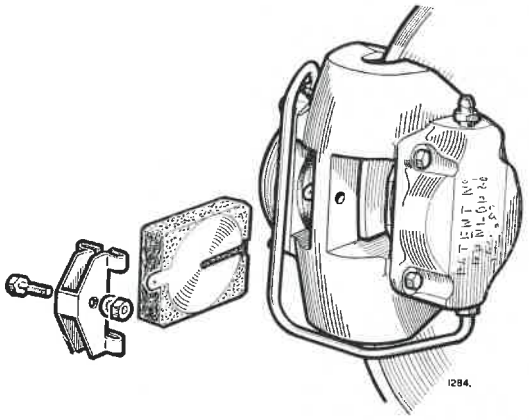



Fig. 53. *Friction pad removal.*

In countries where the recommended fluids are unobtainable use only a recognised brake fluid guaranteed to conform to the S.A.E. Specification 70 R.1.

# BLEEDING THE BRAKE HYDRAULIC SYSTEM

Bleeding (expelling air) the brake hydraulic system is not a routine maintenance operation and should only be necessary when a portion of the hydraulic system has been disconnected or if the level of the brake fluid has been allowed to fall. The presence of air in the hydraulic system will cause the brakes to feel "spongy".

During the bleeding operation it is important that the level in the reservoir is kept topped up to avoid drawing air into the system.

1. Check that all connections are tightened and all bleed screws closed.
2. Fill the reservoir with brake fluid of the correct specification.
3. Attach the bleeder tube to the bleed screw on the near side rear brake and immerse the open end of the tube in a small quantity of brake fluid contained in a clean glass jar. Slacken the bleed screw and operate the brake pedal slowly backwards and forwards through its full stroke until fluid pumped into the jar is reasonably free from air bubbles. Keep the pedal depressed and close the bleed screw. Release the pedal.
4. Repeat for each brake in turn.
5. Repeat the complete bleeding sequence until the brake fluid pumped into the jar is completely free from air bubbles.
6. Lock all bleed screws and finally regulate the fluid level in the reservoir.
7. Apply normal working load on the brake pedal for a period of two or three minutes and examine the entire system for leaks.

Do not use the fluid which has been bled through the system to replenish the reservoir as it will have become aerated. Always use fresh fluid straight from the tin.

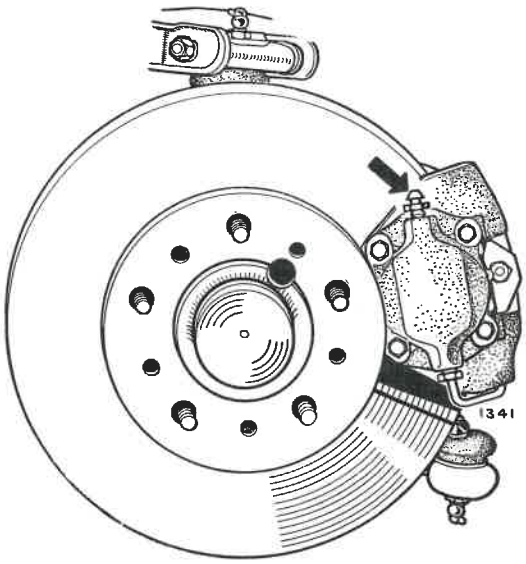



Fig. 54. *Brake bleed nipple.*

# SERVICE

Have your car serviced by the dealer from whom the car was purchased. If service is required when on tour go to the nearest Jaguar dealer (see Distributors and Dealers booklet supplied in the literature envelope).

Ensure that your owner's identification card is completed at the time of delivery—you will need this if guarantee service should be required from a Jaguar dealer when on tour.

If you should require advice which cannot be obtained from your dealer, address your enquiry to:—

## THE SERVICE DEPARTMENT
## JAGUAR CARS LIMITED, COVENTRY

Telephone No. Coventry 27677 (P.B.X.)

For American owners such enquiries should be addressed to:—

**The Technical Service Department**
**Jaguar Cars Inc.**
**42-50, 21st Street, Long Island City 1**
**New York, U.S.A.**

For Canadian owners such enquiries should be addressed to:—

**The Technical Service Department**
**Jaguar Cars (Canada) Ltd.**
**8505 Delmeade Road, Montreal 9**
**Quebec, Canada**

When writing always quote the chassis number of the car shown on the owner's identification card and on the commission plate under the bonnet.

### LONDON SERVICE DEPARTMENT

For the benefit of owners residing in or near London a special Jaguar Service Department is maintained by the sole London Distributors for Jaguar Cars:—

**Messrs. Henlys Ltd.**
**The Hyde**
**Hendon, London, N.W.9**
**Telephone No. Colindale 6565**

# SPARE PARTS

Direct issues of spare parts are not made from the factory. Requirements should be obtained or ordered through the nearest Jaguar Distributor or Dealer.

Should any difficulty be experienced in obtaining your spare part requirements please contact:—

**The Spares Department**
**Jaguar Cars Limited**
**Coventry**

in the U.S.A. contact:—

**The Parts Department**
**Jaguar Cars Inc.**
**42-50, 21st Street, Long Island City, 1**
**New York, U.S.A.**

in Canada contact:—

**The Parts Department**
**Jaguar Cars (Canada) Ltd.**
**8505 Delmeade Road, Montreal 9**
**Quebec, Canada**

# DISTRIBUTORS AND DEALERS BOOKLETS

Due to changes and additions in Dealer appointments the booklet supplied with your car will become out of date. Up-to-date editions can be obtained from the Service Department, Jaguar Cars Ltd., Coventry. In the case of the U.S.A. and Canada, copies of the latest booklet can be obtained from the addresses given above.

# COPY OF GUARANTEE

On the sale or supply of all motor cars and goods by Jaguar Cars Ltd. (called "the Company") and on the carrying out of all repairs and work by them, all guarantees, warranties or conditions (including any condition as to quality or fitness for any particular purpose) whether express, or implied by Statute, Common Law or otherwise, are excluded, and hereby expressly negatived.

In lieu of such express or implied conditions, warranties or guarantees the Company will give the following guarantee PROVIDED that the customer correctly fills up and signs the slip at the foot of this document and delivers this document with the attached slip so filled up and signed to the Company within seven days of the purchase by the customer of a Jaguar Car or goods. On receipt of this document so completed and signed the Company will return the top portion hereof to the customer.

*It must be clearly understood that if a customer fails to comply with this preliminary condition the Company will be under no liability whatsoever either upon the following guarantee or upon any express or implied condition, warranty or guarantee.*

## MANUFACTURERS' GUARANTEE

In case of defect, breakage or breakdown of any motor car or goods supplied by the Company being discovered or occurring within SIX CALENDAR MONTHS from the date of sale, caused by defective workmanship or material (proved to the satisfaction of the Company) the defective part will be repaired or the Company will supply free of charge a new part in place thereof. Such period of six months is from the date of the supply by the Company of the motor car or goods, but if the motor car or goods as sold by a motor dealer and have not been previously used, the period starts from the date of supply by such dealer to the customer.

The Company's responsibility is limited to the conditions of this guarantee and the Company will not be liable for any damages or contingent or resulting liability or other loss arising through any breakdown, breakage or defect. The Company does not acknowledge any claim in respect of labour expenses including labour expended in dismantling or fitting arising from repairs, nor does it accept any responsibility for repairs or the fitting of replacement parts executed by Dealers, or other repairers. The Company also will not be responsible for defect breakage or breakdown caused by wear or tear, misuse or neglect. The judgment of the Company in all cases of claims shall be final and conclusive and the customer agrees to accept its decision on all questions as to defects and to the exchange of part or parts. After the expiration of fourteen days from the despatch of notification of the Company's decision the part or parts submitted for inspection may be scrapped by the Company or returned to the customer carriage forward. The Company accepts no responsibility for any goods which have been altered after leaving the Company's works, or which have been used for motor racing or let out on hire or on or from which the Company's identification numbers or marks have been altered or removed. The Company accepts no responsibility for tyres, speedometers, electrical equipment, glass (or Safety Glass) or any other parts or accessories which are not the Company's own manufacture. All claims of alleged defect in such items must be referred to the respective manufacturers direct. The Company accepts no responsibility on the sale of second-hand motor cars.

This guarantee is subject to the following conditions:—

## CONDITIONS

1. This guarantee shall not be transferred to anyone unless the Company's consent in writing has been first obtained to such transfer.
2. The Company's guarantee shall not apply to any motor car or goods which have been purchased at any price other than the Company's current retail price at the time of sale.
3. Any motor car or goods alleged to be defective must be returned to the Guarantee Department of Jaguar Cars Ltd. at Coventry, carriage paid, and clearly labelled with the sender's name and address, within ten days of discovery of alleged defect. A letter under separate cover must at the same time be sent to the Guarantee Department giving the following details :
   (a) Chassis Number of the car.
   (b) The nature of the defect, breakage or breakdown which is alleged.
   (c) A brief description of all circumstances which will facilitate a quick and satisfactory settlement.
   (d) If there has been any correspondence or an invoice rendered the Company's reference number should be quoted.
4. Delivery of all goods supplied by the Company under this guarantee will be made at the Company's works.
5. The term "Dealer" where used is in a complimentary sense only and those persons or firms who are styled the Company's "Dealers" are not authorised to advertise, incur any debts, transact any business, or incur any liabilities whatsoever on the Company's behalf, nor are they authorised to give any guarantee or warranty nor make any representations on the Company's part other than those contained in this document.

## GUARANTEE AS TO REPAIRS AND OVERHAULS

The Guarantee and Conditions set forth above cover, and are applicable to, repairs executed by the Company with the exception that the period of Guarantee is for three calendar months from the date of completion of repairs.

Cars which are sent for repair will be driven by the Company's employees and/or Dealers at the risk and responsibility of the owners only. Repairs of cars are undertaken only on the assumption that the owners give the Company authority to drive the vehicles on their behalf.

**This is to Certify** that Car number.....has this day been registered as the property of..... of.....
and is covered by the guarantee above set forth.

Dated.....

For and on behalf of JAGUAR CARS LTD.,
COVENTRY, ENGLAND.

.....
*Director and Secretary.*

# CONVERSION TABLES

## METRIC INTO ENGLISH MEASURE

1 millimetre is approximately $\frac{1}{25}$″, and is exactly ·03937″.
1 centimetre is approximately $\frac{12}{32}$″, and is exactly ·3937″.
1 metre is approximately 39$\frac{3}{8}$″, and is exactly 39·37″ or 1·0936 yards.
1 kilometre is approximately $\frac{5}{8}$ mile, and is exactly ·6213 miles.
1 kilogramme is approximately 2$\frac{1}{4}$ lbs., and is exactly 2·21 lbs.
1 litre is approximately 1$\frac{3}{4}$ pints, and is exactly 1·76 pints.
To convert metres to yards, multiply by 70 and divide by 64.
To convert kilometres to miles, multiply by 5 and divide by 8 (approx.).
To convert litres to pints, multiply by 88 and divide by 50.
To convert grammes to ounces, multiply by 567 and divide by 20.
To find the cubical contents of a motor cylinder, square the diameter (or bore), multiply by 0·7854, and multiply the result by the stroke.
1 M.P.G.—0·3546 kilometres per litre or 2·84 litres per kilometre.

## MILES INTO KILOMETRES

| Kilo. | Miles | Kilo. | Miles | Kilo. | Miles | Kilo. | Miles | Kilo. | Miles |
|---|---|---|---|---|---|---|---|---|---|
| 1 | $\frac{5}{8}$ | 16 | 10 | 31 | 19$\frac{1}{4}$ | 46 | 28$\frac{5}{8}$ | 60 | 37$\frac{1}{4}$ |
| 2 | 1$\frac{1}{4}$ | 17 | 10$\frac{5}{8}$ | 32 | 19$\frac{7}{8}$ | 47 | 29$\frac{1}{4}$ | 70 | 43$\frac{1}{2}$ |
| 3 | 1$\frac{7}{8}$ | 18 | 11$\frac{1}{4}$ | 33 | 20$\frac{1}{2}$ | 48 | 29$\frac{7}{8}$ | 80 | 49$\frac{1}{4}$ |
| 4 | 2$\frac{1}{2}$ | 19 | 11$\frac{3}{4}$ | 34 | 21$\frac{1}{8}$ | 49 | 30$\frac{1}{2}$ | 90 | 55$\frac{7}{8}$ |
| 5 | 3$\frac{1}{8}$ | 20 | 12$\frac{3}{8}$ | 35 | 21$\frac{3}{4}$ | 50 | 31$\frac{1}{8}$ | 100 | 62$\frac{1}{8}$ |
| 6 | 3$\frac{3}{4}$ | 21 | 13 | 36 | 22$\frac{3}{8}$ | 51 | 31$\frac{3}{4}$ | 200 | 124$\frac{1}{4}$ |
| 7 | 4$\frac{3}{8}$ | 22 | 13$\frac{5}{8}$ | 37 | 23 | 52 | 32$\frac{1}{4}$ | 300 | 186$\frac{3}{8}$ |
| 8 | 5 | 23 | 14$\frac{1}{4}$ | 38 | 23$\frac{5}{8}$ | 53 | 32$\frac{7}{8}$ | 400 | 248$\frac{1}{2}$ |
| 9 | 5$\frac{5}{8}$ | 24 | 14$\frac{7}{8}$ | 39 | 24$\frac{1}{4}$ | 54 | 33$\frac{1}{2}$ | 500 | 310$\frac{3}{4}$ |
| 10 | 6$\frac{1}{4}$ | 25 | 15$\frac{1}{2}$ | 40 | 24$\frac{7}{8}$ | 55 | 34$\frac{1}{8}$ | 600 | 372$\frac{7}{8}$ |
| 11 | 6$\frac{7}{8}$ | 26 | 16$\frac{1}{8}$ | 41 | 25$\frac{1}{2}$ | 56 | 34$\frac{3}{4}$ | 700 | 435 |
| 12 | 7$\frac{1}{2}$ | 27 | 16$\frac{3}{4}$ | 42 | 26$\frac{1}{8}$ | 57 | 35$\frac{3}{8}$ | 800 | 497$\frac{1}{8}$ |
| 13 | 8$\frac{1}{8}$ | 28 | 17$\frac{3}{8}$ | 43 | 26$\frac{3}{4}$ | 58 | 36 | 900 | 559$\frac{1}{4}$ |
| 14 | 8$\frac{3}{4}$ | 29 | 18 | 44 | 27$\frac{3}{8}$ | 59 | 36$\frac{5}{8}$ | 1000 | 621$\frac{3}{8}$ |
| 15 | 9$\frac{3}{8}$ | 30 | 18$\frac{5}{8}$ | 45 | 28 | | | | |

## PINTS AND GALLONS TO LITRES

| Pints | Gallons | Litres Approx. | Litres Exact | Pints | Gallons | Litres Approx. | Litres Exact |
|---|---|---|---|---|---|---|---|
| 1 | $\frac{1}{8}$ | $\frac{1}{2}$ | ·57 | 40 | 5 | 23 | 22·75 |
| 2 | $\frac{1}{4}$ | 1 | 1·14 | 48 | 6 | 27 | 27·30 |
| 3 | $\frac{3}{8}$ | 1$\frac{1}{2}$ | 1·71 | 56 | 7 | 32 | 31·85 |
| 4 | $\frac{1}{2}$ | 2$\frac{1}{4}$ | 2·27 | 64 | 8 | 36$\frac{1}{2}$ | 36·40 |
| 8 | 1 | 4$\frac{1}{2}$ | 4·54 | 72 | 9 | 41 | 40·95 |
| 16 | 2 | 9 | 9·10 | 80 | 10 | 45$\frac{1}{2}$ | 45·50 |
| 24 | 3 | 13$\frac{1}{2}$ | 13·65 | 88 | 11 | 50 | 50·05 |
| 32 | 4 | 18 | 18·20 | 96 | 12 | 54$\frac{1}{2}$ | 54·60 |

# CONVERSION TABLES

## RELATIVE VALUE OF MILLIMETRES AND INCHES

| mm. | Inches | mm. | Inches | mm. | Inches | mm. | Inches |
|---|---|---|---|---|---|---|---|
| 1 | 0·0394 | 26 | 1·0236 | 51 | 2·0079 | 76 | 2·9922 |
| 2 | 0·0787 | 27 | 1·0630 | 52 | 2·0473 | 77 | 3·0315 |
| 3 | 0·1181 | 28 | 1·1024 | 53 | 2·0866 | 78 | 3·0709 |
| 4 | 0·1575 | 29 | 1·1417 | 54 | 2·1260 | 79 | 3·1103 |
| 5 | 0·1968 | 30 | 1·1811 | 55 | 2·1654 | 80 | 3·1496 |
| 6 | 0·2362 | 31 | 1·2205 | 56 | 2·2047 | 81 | 3·1890 |
| 7 | 0·2756 | 32 | 1·2598 | 57 | 2·2441 | 82 | 3·2284 |
| 8 | 0·3150 | 33 | 1·2992 | 58 | 2·2835 | 83 | 3·2677 |
| 9 | 0·3543 | 34 | 1·3386 | 59 | 2·3228 | 84 | 3·3071 |
| 10 | 0·3937 | 35 | 1·3780 | 60 | 2·3622 | 85 | 3·3465 |
| 11 | 0·4331 | 36 | 1·4173 | 61 | 2·4016 | 86 | 3·3859 |
| 12 | 0·4724 | 37 | 1·4567 | 62 | 2·4410 | 87 | 3·4252 |
| 13 | 0·5118 | 38 | 1·4961 | 63 | 2·4803 | 88 | 3·4646 |
| 14 | 0·5512 | 39 | 1·5354 | 64 | 2·5197 | 89 | 3·5040 |
| 15 | 0·5906 | 40 | 1·5748 | 65 | 2·5591 | 90 | 3·5433 |
| 16 | 0·6299 | 41 | 1·6142 | 66 | 2·5984 | 91 | 3·5827 |
| 17 | 0·6693 | 42 | 1·6536 | 67 | 2·6378 | 92 | 3·6221 |
| 18 | 0·7087 | 43 | 1·6929 | 68 | 2·6772 | 93 | 3·6614 |
| 19 | 0·7480 | 44 | 1·7323 | 69 | 2·7166 | 94 | 3·7008 |
| 20 | 0·7874 | 45 | 1·7717 | 70 | 2·7559 | 95 | 3·7402 |
| 21 | 0·8268 | 46 | 1·8110 | 71 | 2·7953 | 96 | 3·7796 |
| 22 | 0·8661 | 47 | 1·8504 | 72 | 2·8347 | 97 | 3·8189 |
| 23 | 0·9055 | 48 | 1·8898 | 73 | 2·8740 | 98 | 3·8583 |
| 24 | 0·9449 | 49 | 1·9291 | 74 | 2·9134 | 99 | 3·8977 |
| 25 | 0·9843 | 50 | 1·9685 | 75 | 2·9528 | 100 | 3·9370 |

## RELATIVE VALUE OF INCHES AND MILLIMETRES

| Inches | 0 | $\frac{1}{16}$ | $\frac{1}{8}$ | $\frac{3}{16}$ | $\frac{1}{4}$ | $\frac{5}{16}$ | $\frac{3}{8}$ | $\frac{7}{16}$ |
|---|---|---|---|---|---|---|---|---|
| 0 | 0·0 | 1·6 | 3·2 | 4·8 | 6·4 | 7·9 | 9·5 | 11·1 |
| 1 | 25·4 | 27·0 | 28·6 | 30·2 | 31·7 | 33·3 | 34·9 | 36·5 |
| 2 | 50·8 | 52·4 | 54·0 | 55·6 | 57·1 | 58·7 | 60·3 | 61·9 |
| 3 | 76·2 | 77·8 | 79·4 | 81·0 | 82·5 | 84·1 | 85·7 | 87·3 |
| 4 | 101·6 | 103·2 | 104·8 | 106·4 | 108·0 | 109·5 | 111·1 | 112·7 |
| 5 | 127·0 | 128·6 | 130·2 | 131·8 | 133·4 | 134·9 | 136·5 | 138·1 |
| 6 | 152·4 | 154·0 | 155·6 | 157·2 | 158·8 | 160·3 | 161·9 | 163·5 |
| Inches | $\frac{1}{2}$ | $\frac{9}{16}$ | $\frac{5}{8}$ | $\frac{11}{16}$ | $\frac{3}{4}$ | $\frac{13}{16}$ | $\frac{7}{8}$ | $\frac{15}{16}$ |
| 0 | 12·7 | 14·3 | 15·9 | 17·5 | 19·1 | 20·6 | 22·2 | 23·8 |
| 1 | 38·1 | 39·7 | 41·3 | 42·9 | 44·4 | 46·0 | 47·6 | 49·2 |
| 2 | 63·5 | 65·1 | 66·7 | 68·3 | 69·8 | 71·4 | 73·0 | 74·6 |
| 3 | 88·9 | 90·5 | 92·1 | 93·7 | 95·2 | 96·8 | 98·4 | 100·0 |
| 4 | 114·3 | 115·9 | 117·5 | 119·1 | 120·7 | 122·2 | 123·8 | 125·4 |
| 5 | 139·7 | 141·3 | 142·9 | 144·5 | 146·1 | 147·6 | 149·2 | 150·8 |
| 6 | 165·1 | 166·7 | 168·3 | 169·9 | 171·5 | 173·0 | 174·6 | 176·2 |

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