

Fig. 42.—THE STARTER MOTOR.

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| 1. Starter motor. | 3. Timing cover. |
| 2. Brush gear cover. | 4. Oil level plug. |

When replacing the starter motor in the chassis, it is important to be sure that a clean and sound electrical connection of cable to motor is re-obtained, owing to the heavy current which this has to carry.

Starter Motor Switch.

The main starter switch is mounted on the front of the dashboard, and is relay-operated. Closing of the push-button switch on the instrument panel energises an electric magnet, which closes the main contacts.

No attention should be necessary to the switch between general overhauls of the chassis.

Use of Starter Motor.

Careless use of the starter will reduce the life of the battery, whereas careful use will make very little difference to that life. That is to say, the heavy motor current is not detrimental to a healthy, charged battery—it only becomes detrimental to a cell which for any reason is low in charge, density or voltage. Several dozen starts may be made on a fully-charged battery without detriment. On the contrary, it is very important, if the engine does not start reasonably quickly,

to look for the cause rather than to continue to use up the battery output, with the risk of damage to one or more cells, remembering that the battery may not always be fully charged at the time.

If the starter appears to be sluggish in its action, and such sluggishness is traceable to the battery, no further attempt should be made to use the starter until the battery has been duly inspected and fully charged from an external source.

Electric Fuel Pumps and Gauge.

The electric fuel pumps should not need any attention over long periods of running, except, perhaps, the cleaning of the suction or delivery valves (see page 44); if an electrical fault is suspected, it is recommended that the necessary inspection and any work in connection with repairs should be carried out by Messrs. Bentley Motors (1931) Ltd., or one of their "Special Retailers".

Reference to the wiring diagram (Fig. 36), will show that they are supplied with current through the ignition switch, and, consequently, are only operative when the ignition switch is closed.

The fuel gauge is divided into two parts:—

- (a) An indicating instrument, mounted on the instrument panel, and marked "0, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, and F".
- (b) A petrol tank unit, with a float for measuring the amount of petrol in the tank.

The indicating instrument has two actuating coils:—

1. A control coil, which is connected across the battery and so provides a constant torque on the pointer, tending to swing it over to the "Full" side of the scale.
2. A deflecting coil, which is connected in series with the battery and the tank unit rheostat, and so arranged to act in opposition to the control coil.

The tank unit consists of a variable rheostat, the sliding arms of which are operated by the up-and-down movement of the float, thus varying the circuit resistance from a minimum in the empty position to a maximum in the full position. With the float in the "empty" position the current in the deflecting coil is at a maximum, and its turning effort is of sufficient strength to move the pointer, against the opposing force of the control coil, back to the "O" position on the indicating instrument. Thus as the resistance is varied by the position of the float, the pointer indicates the petrol level in the tank.

A warning light is provided on the instrument panel, which is automatically illuminated when there is approximately three gallons or less of petrol in the tank.

Electric Horns.

Two tuned, wind-tone horns are provided, operated through a sealed relay mounted on the front of the dashboard.

No adjustments should be attempted. In the event of derangement, or deterioration of the tone, Messrs. Bentley Motors (1931) Ltd., or one of their "Special Retailers" should be consulted.

De-Mister and De-Froster.

An electrically operated de-mister and de-froster is fitted under the scuttle (see Fig. 43).

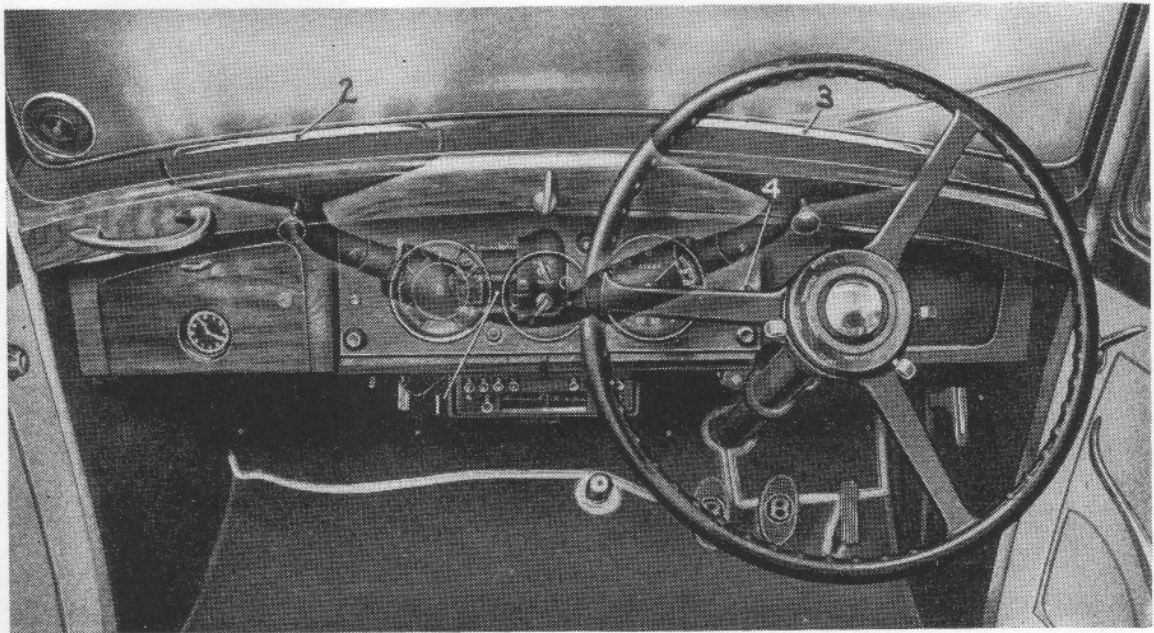


Fig. 43.—DE-MISTER AND DE-FROSTER.

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| 1. Blower motor. | 3. Air vent cover. |
| 2. Air vent cover. | 4. Motor switch. |

Warmed air, after passing through the radiator, is collected and taken via the large pipe (1, Fig. 44), to a blower motor mounted in front of the dashboard.

Vents are so arranged in the top of the fascia board to allow streams of warmed air to be forced onto the wind-screen.

The vents are fitted with metal covers, these should normally remain open, but they may be closed if it is found that warmed air is being drawn into the car at unseasonable times.

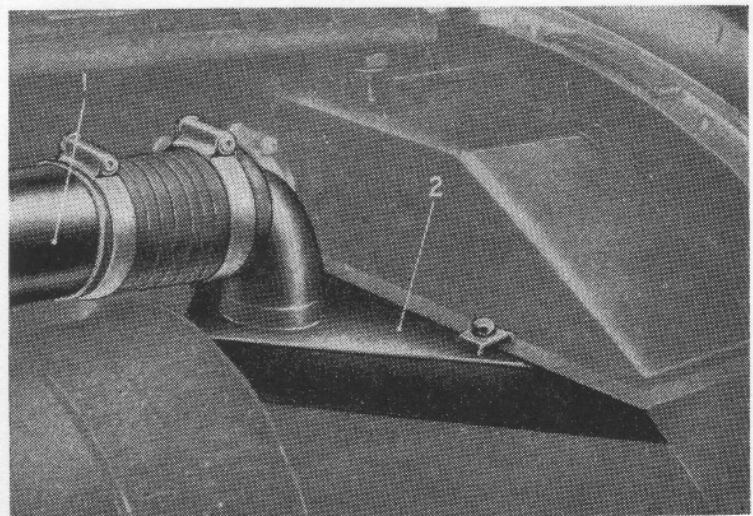


Fig. 44.—AIR COLLECTOR—DE-MISTER.

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| 1. Pipe to blower motor. | 2. Air collector |
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To operate, ensure vent covers are open by gently pulling same rearwards, and switch on motor (4, Fig. 43).

Electrical Fault Location.

In case of faulty operation, proceed to investigate as follows:—

1. Failure of any part of the system separately, may be due to a blown fuse in the fuse box (Fig. 38).
2. Failure or incorrect operation of the system, may be due to the fusing of the main fuse (Fig. 38), due to an earth.

If the dynamo does not charge:—

1. Check correctness of ammeter by switching on headlamps, this should show a "discharge" reading.

NOTE:—See that the main switch is in the "OFF" position, before making any change to the wiring connections.

2. Ascertain whether the dynamo or regulator unit is at fault by connecting together the regulator terminals F and D, this will short circuit the regulator. Start engine gently and increase speed slowly, engine speed should not exceed a fast idle. Observe ammeter; if dynamo is in order the ammeter will show a "charge" reading and the defect will be in the regulator unit.
3. To test dynamo, disconnect the wiring from both main terminals and connect these terminals together. Connect a lamp between one terminal and earth, and gently speed up engine as before. If the dynamo is in order the lamp will light.
4. Dynamo brushes may be sticking, due probably to oiliness. Clean brushes and holders with rag moistened in petrol.
5. Cut-out contacts may be burnt out or sticking.

If dynamo output is low, this may be due to the battery being fully charged, but if low with lights on, i.e., ammeter indicates an abnormal discharge, the regulator may be sticking in such a manner as permanently to insert the field resistance. Low output may also be caused by a slack driving belt.

If dynamo gives an excessive charge when speeded up, this may be due to the regulator sticking or to a break in the regulator shunt coil circuit. Check regulator wiring conditions.

In the case of defective operation which is traceable to the regulator, the unit must be removed and returned for rectification to Messrs. Bentley Motors (1931) Ltd., or one of their "Special Retailers".

If, with the fuses intact, and the lights in order, the ignition:—

(a) Misses.

1. First confirm right condition of sparking plugs.
2. Assure correct condition of contact breaker points, and adjust gap .019" to .021", if necessary.
3. Check condition of ignition coil casing. (See page 92.)

(b) Fails.

1. With ignition switched on, see by ammeter, while engine is cranked, that coil is taking current intermittently. If no current, test availability of battery voltage at coil terminals.

If, with battery in order, starter motor is sluggish or does not turn, examine commutator and brushes. Clean oily brushes and holders with a rag moistened with petrol. If motor turns without turning engine, check freedom of engine with starting handle. If found in order, the trouble lies in starter drive, and Messrs. Bentley Motors (1931) Ltd., or one of their "Special Retailers" should be consulted.

If battery will not retain charge:—

1. Ascertain that no circuit is left switched on.
2. See that no cell of the battery leaks acid.

Recommended Lamp Bulbs.

R.H. Headlamp—12 volt, 48 watt—Single Centre Contact. (Lucas, prefocus axial filament No. 185.)

L.H. Headlamp—12 volt, 48/48 watt—Double Contact. (Lucas prefocus transverse filaments No. 191.)

Centre Lamp—12 volt, 48 watt, Centre Contact. (Lucas, prefocus axial filament, No. 185.)

Front Wing Lamps—12 volt, 3 watt—Single Centre Contact, S.B.C. Cap.

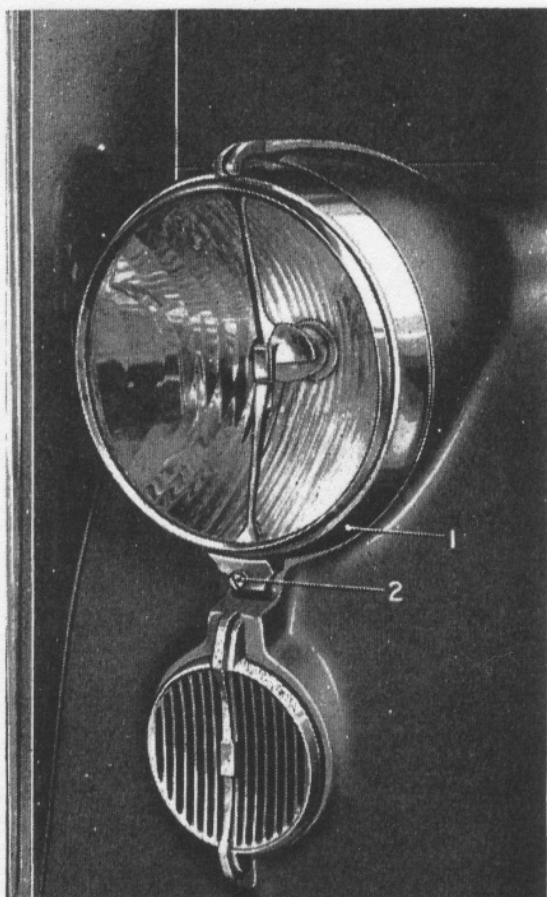


Fig. 45.—THE HEADLAMP.

1. Rim.
2. Rim securing screw.

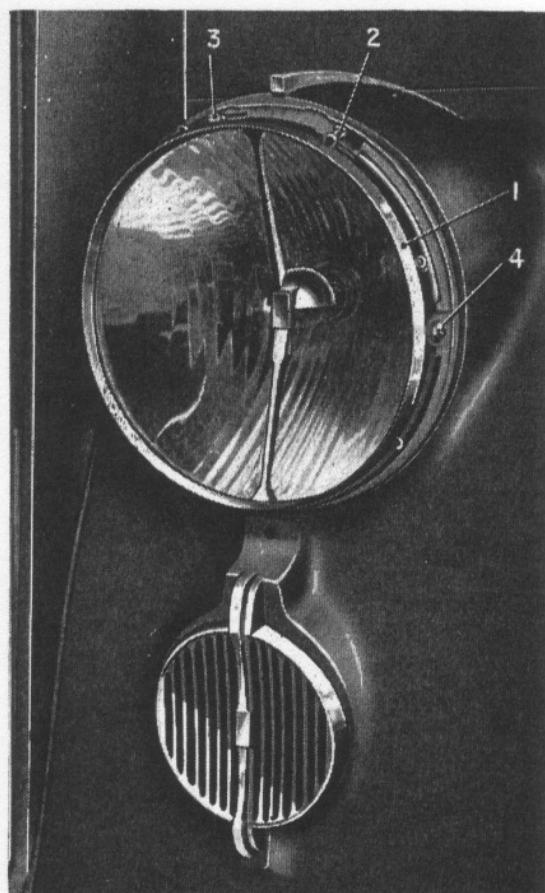


Fig. 46.—HEADLAMP—WITH RIM REMOVED.

1. Light unit.
2. Flange securing screw.
3. Vertical adjusting screw.
4. Horizontal adjustment.

Stop/Tail Lamps—12 volt, 24/6 watt—Double Contact—S.B.C. Cap. (Lucas No. 189.)

Number Plate Illumination—12 volt, 3 watt—Single Centre Contact—S.B.C. Cap.

Reverse Lamps—12 volt, 6 watt—Single Centre Contact—S.B.C. Cap. (Lucas No. 207.)

Instrument Lights—12 volt, 2.4 watt—M.E.S. Cap.

Warning Lights, Map Lamp and Boot Lamp—16 volt, 3 watt—M.E.S. Cap—15 m/m. bulb.

Interior Roof Light—12 volt, 6 watt—Single Centre Contact—S.B.C. Cap. (Lucas No. 207.)

Trafficators—12 volt, 3 watt—Festoon. (Lucas No. 256.)

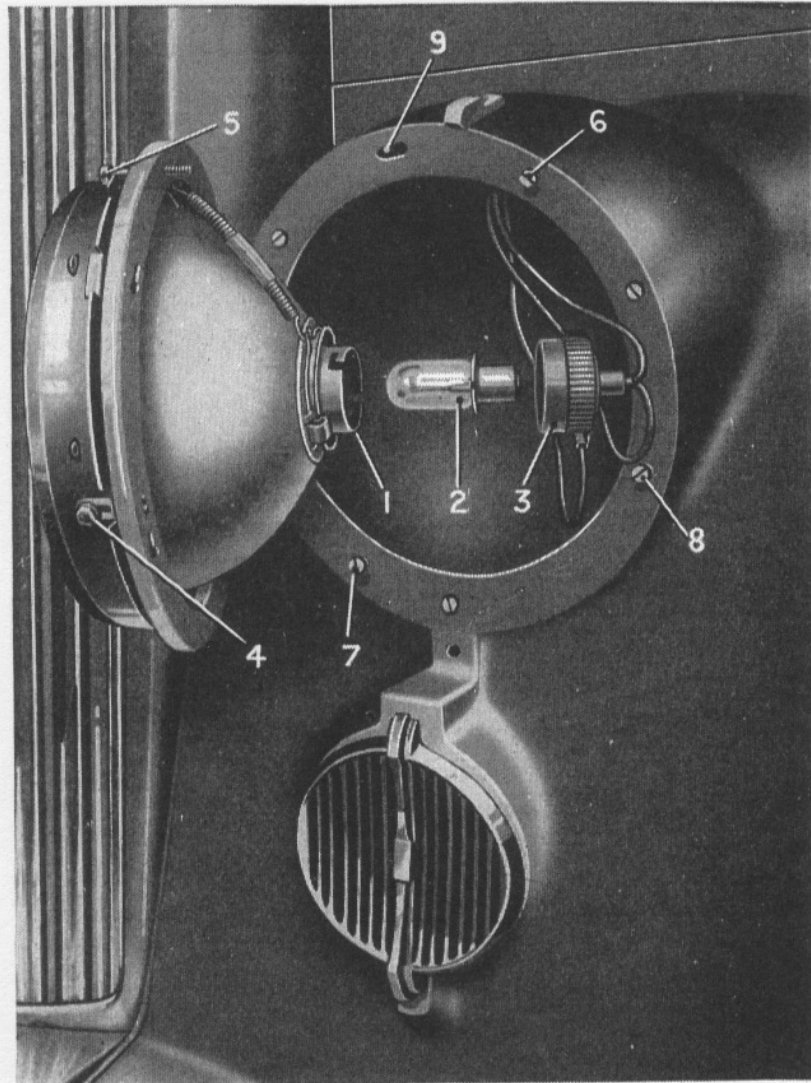


Fig. 47.—HEADLAMP—CHANGING THE BULB.

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| 1. Bulb Holder. | 5. Vertical Trim Adjustment. |
| 2. Bulb. | 6, 7 and 8. Light Unit Securing Screws. |
| 3. Backshell. | 9. Slot for Vertical Trim Adjusting Screw. |
| 4. Horizontal Adjustment. | |

Headlamps.

The headlamps are controlled by two switches, the master switch on the switchbox and a foot-switch for "beam" selection.

A small red warning light, mounted in the speedometer, is illuminated whenever the headlamps are on the "Driving Beam" (full on).

The operation of the foot-switch, changing the "driving beam" to the "passing beam", extinguishes the warning light. Thus, when driving on a lighted road, this warning light serves as a ready indication of the selected headlamp "beam".

Each headlamp incorporates a Light Unit, which consists essentially of a reflector and front glass assembly provided with a mounting flange, by means of which it is secured in the body housing.

The bulb, which has a pre-focus cap, is located accurately in the reflector, and is secured by a bayonet-fixed backshell which also provides the contacts to the bulb.

The design of the bulb and of its holder is such that the bulb is correctly positioned in relation to the reflector, and no focusing is required when a replacement bulb is fitted.

Replacing a Headlamp Bulb.

Remove the screw (2, Fig. 45) at the bottom of the lamp and lift off the rim. Slacken the four screws which secure the flange of the Light Unit, one of which is shown in (2, Fig. 46), and turn it in an anti-clockwise direction to detach the flange from the securing screws. The Light Unit can then be lifted out of the lamp body.

Twist the backshell (3, Fig. 47) in an anti-clockwise direction and pull it off. The bulb can then be removed by inverting the Light Unit and holding one hand under the bulb holder so that the bulb slides into the hand.

Place the replacement bulb in the bulb holder (1, Fig. 47), taking care to locate it correctly. Engage the projections on the inside of the backshell with the slots in the holder, press on and secure by twisting it to the right.

Position the Light Unit in the lamp body so that the vertical trim adjusting screw (5, Fig. 47), locates in the slot in the body rim, and the heads of the four fixing screws (6, 7 and 8) protrude through the holes in the flange of the Light Unit. Twist the Light Unit in a clockwise direction and secure by tightening the two screws.

Engage the tongue on the inside of the front rim in the slot at the top of the flange of the Light Unit, press it on fully at the bottom and secure with the fixing screw (2, Fig. 45).

In connection with the replacement of a headlamp bulb, it will be noted that the spare bulb as supplied in the tool kit is of the double filament type.

This bulb may be used as a replacement for either headlamp; if used in the "off-side", where normally a single filament bulb is fitted, it will operate correctly, but it is recommended that a suitable single filament bulb is later replaced when convenient, and the spare double filament bulb returned to the tool kit.

Aligning the Headlamps.

The headlamps should be aligned so that they direct their beams straight ahead, i.e. parallel with the road and with each other.

The simplest way of checking the adjustment of the lamps is to take the car on a straight level stretch of road at night and examine the direction of the beams. If one appears to be out of adjustment, adjust as follows:—

Remove the screw (2, Fig. 45) at the bottom of the lamp and lift off the rim.

Vertical adjustment is made by operating the screw (5, Fig. 47); screwing in raises the beam and screwing out lowers the beam.

Horizontal adjustment is made by slackening the nuts (4, Fig. 47) and sliding the reflector unit forward or backward in the slots provided.

Having obtained the correct adjustment, the nuts (4, Fig. 47) must be securely re-tightened, and the rim replaced.

The Side Lamps.

The method of changing a lamp bulb is illustrated in Figs. 48 and 49.

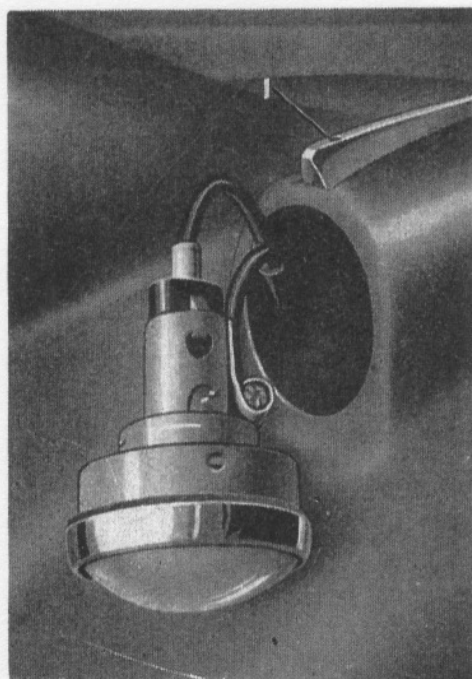


Fig. 48.—SIDE LAMP.
1. Locking screw.



Fig. 49.—SIDE LAMP
2. Spring catch.

The locking screw, (1) should be removed, and the lamp unit drawn bodily forward as in Fig. 48.

To obtain access to the bulb, detach the front portion by holding firmly, and rotating the rear portion a quarter of a turn to release the spring catch (2).

The bulb is of the standard bayonet fitting type.

To replace, reverse the above instructions.

Radio.

"His Master's Voice" automobile radio equipment is fitted in the Bentley car. The receiver, known as the "Radiomobile" Model 4200, has a six valve superheterodyne circuit designed for medium and long wave reception.

Fig. 50 illustrates the controls.

The combined Volume Control and "On/Off" Switch is on the left of the five push-buttons. This control switches the receiver on when turned clockwise and progressive rotation of the control increases the volume. Turning the control fully anti-clockwise will switch off the receiver. Allow about 40 seconds for the receiver to "warm-up" after switching on.

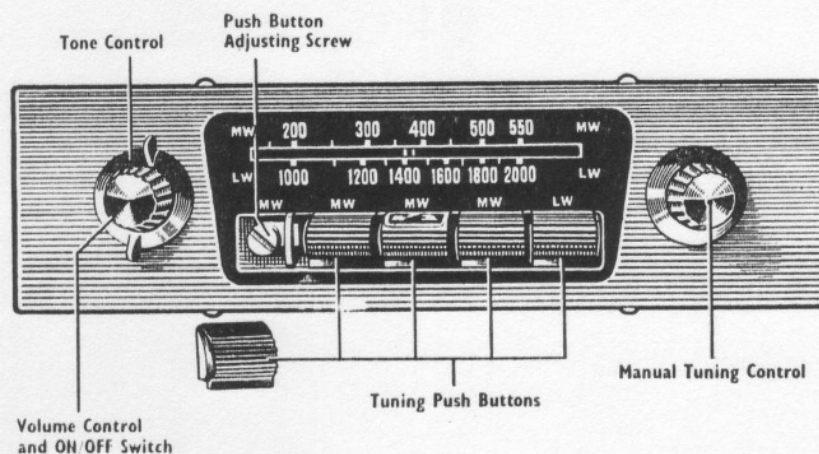


Fig. 50.—THE RADIOMOBILE CONTROLS.

The Tone Control is concentric with the Volume Control and "On/Off" Switch and provides selective tone correction for reproduction of either speech or music, by four separate tone settings. The control is turned fully anti-clockwise for speech and fully clockwise for music, the two intermediate settings being provided to suit individual taste.

The Manual Tuning Control is on the right of the push-buttons and provides completely variable station selection. A feature of this control is that the knob will not engage the tuning mechanism until it is pressed in; otherwise the knob will "idle". This prevents accidental disturbance of a station-setting previously selected by a push-button.

The five Tuning Push-buttons provide automatic tuning of five stations pre-selected from the Medium and Long wavebands. The right-hand button provides for one station on the Long waveband, the four remaining buttons being employed for Medium Wave pre-selection. The indication "MW" (Medium Wave) or "LW" (Long Wave) is marked on the Tuning Scale immediately above each push-button. Wave-change switching is automatically effected when a button is pressed for any pre-selected station.

The Tuning Scale is divided into two sections—"Medium Wave" and "Long Wave" and is calibrated in wavelengths. The tuning pointer has a horizontal traverse and is viewed through a narrow window between the two scale sections. Illumination of the Tuning Scale is by means of "edge-lighting".

TO SET UP THE TUNING PUSH BUTTONS.

1. Select the waveband required by pressing the appropriate push-button.
2. Tune-in the desired station by means of the Manual Tuning Control as described previously.
3. With the station accurately tuned-in, remove one of the push-buttons by simply pulling outwards. A lip is provided on the underside of each button to facilitate removal.
4. Insert edge of small coin in screw-slot of button plunger and unscrew (i.e., anti-clockwise) about half a turn.
5. Push the plunger as far as it will go, release and retighten by means of screw slot.
6. Replace the button which is now set to the desired station and independent of manual tuning. Proceed in the same manner for the remaining buttons.

The aerial is normally mounted above the windscreen on the outside of the car, and is operated from the inside by a bakelite knob. An engraved arrow indicates the position of the aerial, vertical being for normal use and horizontal for when parked and not in use.

In some cases an under car aerial may be fitted, and with these there is no inside aerial control knob.

It is unlikely that either of these types of aerial will need attention, but to ensure the best reception they should be kept clean.

If any further advice or assistance in connection with the radio equipment is required, Messrs. Bentley (1931) Ltd., or one of their "Special Retailers", should be communicated with, or, if more convenient, any of the Radiomobile Service Depots.

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CHAPTER XI

The Body and Coachwork

General—Windscreen Washing Equipment—Washing and Polishing—Doors—Seat Slides—Upholstery and Carpets—Sliding Roof—Luggage and Spare Wheel Compartments—Tools.

General.

The following instructions apply only to the body as manufactured and fitted by Messrs. Bentley Motors (1931) Ltd., owners of cars fitted with special bodies should be guided by the coachbuilders' instructions.

The standardised saloon body on the Mark VI chassis is constructed entirely of pressed steel, and, possessing great strength and rigidity with minimum weight, ensures the greatest stability of body and chassis combined with maximum resistance to accidental damage.

Large doors permit quick and easy access to the driver's and passengers' compartments, the interior upholstery being of fine quality hide.

For the car to look well and retain its beauty and smart appearance, the coachwork must receive its share of attention and should never be neglected.

Windscreen Washing Equipment.

A vacuum operated device has now been fitted which enables the driver to wash the windscreen whilst driving the car.

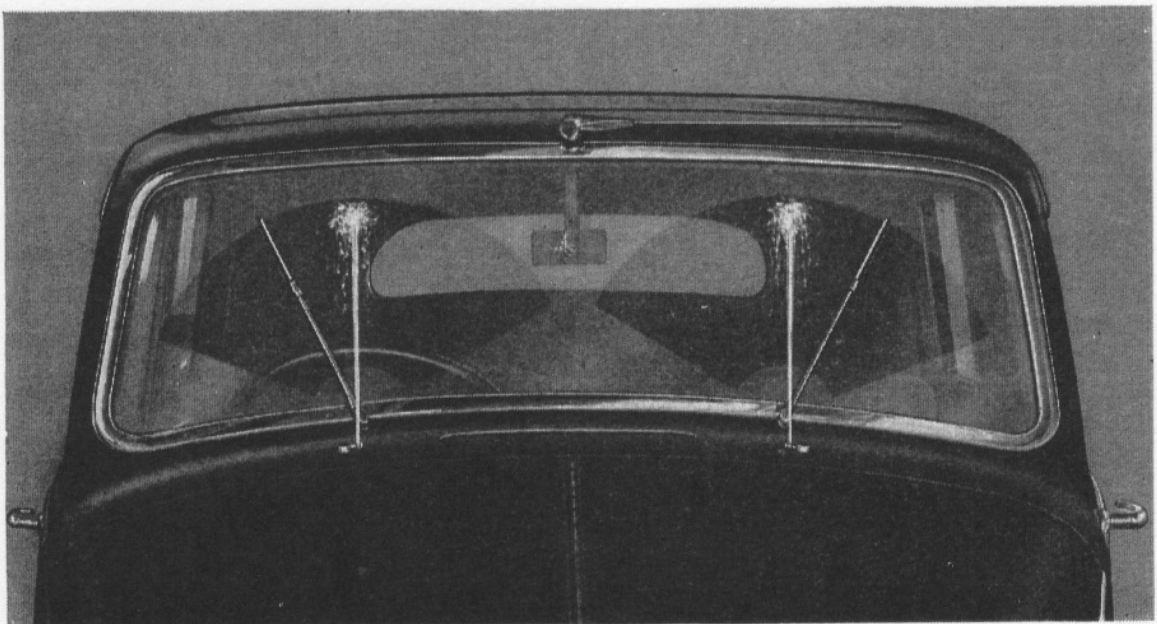


Fig. 51.—WINDSCREEN WASHING EQUIPMENT.