

# APPENDIX XI.

## HINTS.

**Chattering Noise at Magneto. Overheating. Water Circulation. Water Pump. Frost Precautions. Lifting off Cylinders. Repairs. Importance of Careful Lubrication. Squeaks. Oil on Rubber. Back Axle Tie-rod. Exhaust Box. Licenses. Registration. Fire Insurance. Laying up of Cars.**

### “ CHATTERING ” OF MAGNETO.

Should an occasional chattering sound be heard to come from the magneto at certain speeds, it is probably caused by the small “ brake ” on the drive of the magneto requiring adjustment by means of the small thumb nut which controls the pressure on the shoes, or it may perhaps require lubrication.

### OVERHEATING.

If water or much steam should be emitted from the radiator, the engine is becoming unduly hot, and should be stopped. The cause will probably be one of the following :-

- (a) Fan belt too loose or broken. If the fan belt is too slack, it should be tightened. See operation 8 Appendix II.
- (b) Insufficient water in the radiator.
- (c) The water is not circulating properly through an obstruction, or the pump being jammed.
- (d) The lubrication of the engine has ceased, allowing the hot gases to pass the pistons.
- (e) The car is being driven with the ignition too much retarded. The ignition should be “ advanced ” as far as possible without causing a knock or loss of power.
- (f) The engine is drawing in and firing too “ rich ” a mixture. The jet or jets should be reduced.
- (g) Pre-ignitions are taking place.
- (h) Water will be driven out of the radiator and will give the appearance of overheating, if the radiator be filled above the mark shown in Fig. 37.
- (i) Too much “ rust preventive ” or other compound has been added to the water.

**WATER CIRCULATION.**

If there is any apparent failure of water circulation, which can be judged by the emission of steam and by a great difference in temperature between the upper and lower portions of the radiator, or by looking into the top of the radiator to see if the water is moving when the engine is running, the pump should be examined to see that the spindle of it is really revolving - that is the driving shaft may be revolving and the pump may not be ; if this is so, tighten the bolts which clip the coupling to the shaft.

In the event of the *pump* failing, the water will continue to circulate (though not so well) by "thermo-syphon" action, so that the journey may be continued if it is necessary, so long as the engine is not allowed to overheat.

**WATER PUMP.**

In case of any obstruction (ice, pieces of metal etc.) entering the pump so as to cause it to jam, the driving shaft is so designed that the driving portion can slip on the circular portion of the pump-shaft instead of breaking it.

The gland of the pump should be screwed up when it shows signs of leaking.

**FROST.**

In very cold weather the general rule should be to empty all the water out of the car when it is not in use, if it is to stand in a place where water may freeze. When the car is again required, *hot* water should be poured in to melt any ice there may be in the system, and *hot water should also be poured over the pump*, to melt the ice which may have "cemented" the interior blades. Be sure all is thawed *before turning the starting-handle*.

The most suitable anti-freezing mixture consists of one part distilled glycerine (not crude glycerine) known as "dynamite quality" which should have a specific gravity of 1.250, mixed with two parts water. This mixture will not freeze at less than 25 degrees (Fahr.) of frost. Supplies of the special brand of glycerine can be obtained from Joseph Crosfield & Sons, Ltd., Warrington (mention for ROLLS-ROYCE car). If plain water only is used, and the climate is extremely cold, it is best to keep the engine running when exposed standing out of doors ; it is also good practice to throw a rug over the radiator when the car is at rest. The fan belt may be dispensed with provided the water does not boil.

No water should be carried in Acetylene Generators until required, as the freezing of water would probably burst

the vessel. If the generator is combined with the lamp, it is safest to carry a tin of water inside the body for use when required.

If separate generators are used, the difficulty may be overcome by covering same with a rug, or fitting them into a box lined with felt or other suitable material.

**CYLINDERS, LIFTING OFF.**

It should be noted that if it is required to lift off the cylinders at any time, it is important that this should only be done by a skilled fitter, and the car should preferably be sent to the ROLLS-ROYCE Works for the purpose.

**OTHER REPAIRERS.**

Should any repair be required at any time, and it is not possible to send the car to the ROLLS-ROYCE Works, you should (after receiving the Company's consent to get the repair done elsewhere) see that it is thoroughly well done by competent people, who have the necessary skilled labour, proper appliances and special steels. (See Terms of Guarantee).

It is economical that a car should be sent to its makers for dismantlement and report at least once every 20,000 miles.

Should any of the pistons, piston pins, or connecting rods be taken apart at any time, care should be taken, when putting them together, to see that the oil hole in the bronze bush of the small end of the connecting rod is on the *opposite* side to the hole in the piston pin, otherwise the oil will be forced straight through and will flood the cylinders (causing excessive smoking) even with the oil pressure set to its lowest.

**LUBRICATION.**

We wish to emphasise the importance of the proper and thorough lubrication of the whole car ; it is disastrous if any parts are neglected altogether, and what is required is a careful man who will "get into his overalls" and study every moving part of the car.

Oil should be used liberally, but not in such a manner as to cause undue waste.

Use Price's Battersea Gear Oil B (thick) in the summer, and Price's Battersea Oil A (thin) in the winter.

For the engine, use Price's Motorine B in the summer and Price's Motorine C in the winter.

**SQUEAKS.**

If a squeak develops which you have trouble in locating, look to the universal joints of the propeller shaft, the starting handle, the springs and shackles and the radius rod ends.

**OIL ON RUBBER**

Oil must be kept off all rubber goods, such as tyres, insulated wires, and rubber mats. Should any get on by accident, it should be thoroughly wiped off at once, and the part washed with soap and water.

**BACK AXLE TIE-ROD.**

Special care should be taken that the tie-rod now fixed on the back axle is not interfered with. The adjustment of this tie-rod is a very delicate matter, and if not properly set is disastrous to the construction of the axle. A correct setting can be obtained by taking off both rear hub caps, the jaw clutch and drivers, and noting that the driving shafts are central in the axle tube, and it should be possible to be able to move the shaft from the central position an equal amount in all directions.

**EXHAUST BOX.**

Care should be taken to see that the outlet on the silencer does not gradually become partially choked with mud, etc.

**CAR LICENSES.**

The inland Revenue License payable in respect of a private motor-car is as under:-

	£	s.	d.
Not exceeding 6 ½ h.p. ... ..	2	2	0
Exceeding 6 ½ h.p. but not exceeding 12 h.p.	3	3	0
“ 16 “ “ “ 16 “	4	4	0
“ 26 “ “ “ 26 “	6	6	0
“ 33 “ “ “ 33 “	8	4	0
“ 12 “ “ “ 40 “	10	10	0
“ 40 “ “ “ 60 “	21	0	0
“ 60 “ .. ..	42	0	0

Horse-power to be determined by R.A.C. formula:-

$$\text{H.P.} = \frac{D^2 N}{2.5}$$

Where D is diameter of cylinders in inches and N the number of cylinders.

The 40.50 h.p. Rolls-Royce Car is rated at 48.6 h.p. and consequently the tax is £21.

**FIRE.**

Employees should frequently be warned of the great danger of fire from lighted matches or lamps which are brought near exposed petrol. It is most surprising to note how smoking, striking and throwing down matches, is permitted in garages etc.

Owing to the extremely inflammable nature of petrol, the main petrol tap (situated outside the chassis frame on the right-hand side) should always be turned off when the car is left standing or is brought into a building, as in the event of the automatic float feed becoming jammed from any cause, the carburettor would flood and the petrol would flow out on to the floor or road. This is especially important when putting a car into a garage for the night ; a number of fires have occurred through neglect of this simple precaution.

After taking over a new car, always familiarise yourself with the exact situation of the main petrol tap and with its “ on ” and “ off ” positions, so that in the event of fire the tap can be immediately closed without a moment’s hesitation.

**INSURANCE.**

We strongly recommend car owners to insure themselves against accidents ; heavy claims are often obtained against motorists for accidental damage to a pedestrian or other road user caused in some cases through no fault of the motorist.

Particulars of good policies can be obtained from us.

**LAYING UP OF CARS.**

Before storing a car for any period, the following work should be carried out :-

- (1) All water carefully drained from the cooling system.
- (2) All petrol withdrawn from tank, filter and carburettor.
- (3) All tyres should be removed from the rims and placed together with all other rubber articles (horn bulbs, mats, etc.), in a cool place away from the light.
- (4) All accumulators should be charged once a month or the acid should be replaced with distilled water (see Appendix VIII).
- (5) All lamps should be thoroughly cleaned and the oil, water, carbide, etc., removed.
- (6) All bright parts should be cleaned and lightly smeared with oil.
- (7) The body only requires to be covered over with a large sheet. If a hood or cover is fitted, this should be left open and extended to avoid creasing or cracking the fabric (See Appendix XIII.)