

HANDBOOK
FOR
20-25 H.P.
ROLLS-ROYCE CAR

CHASSIS SERIES
(In order of Issue)

GXO	GOS	GHW	GTZ	GNC	GFE	GOH
GGP	GPS	GRW	GYZ	GRC	GAF	GEH
GDP	GFT	GAW	GBA	GKC	GSF	GBJ
GWP	GBT	GEX	GGA	GED	GRF	GLJ
GLR	GKT	GWX	GHA	GMD	GLG	GCJ
GSR	GAU	GDX	GXB	GYD	GPG	GXK
GTR	GMU	GSY	GUB	GAE	GHG	GBK
GNS	GZU	GLZ	GLB	GWE	GYH	GTK

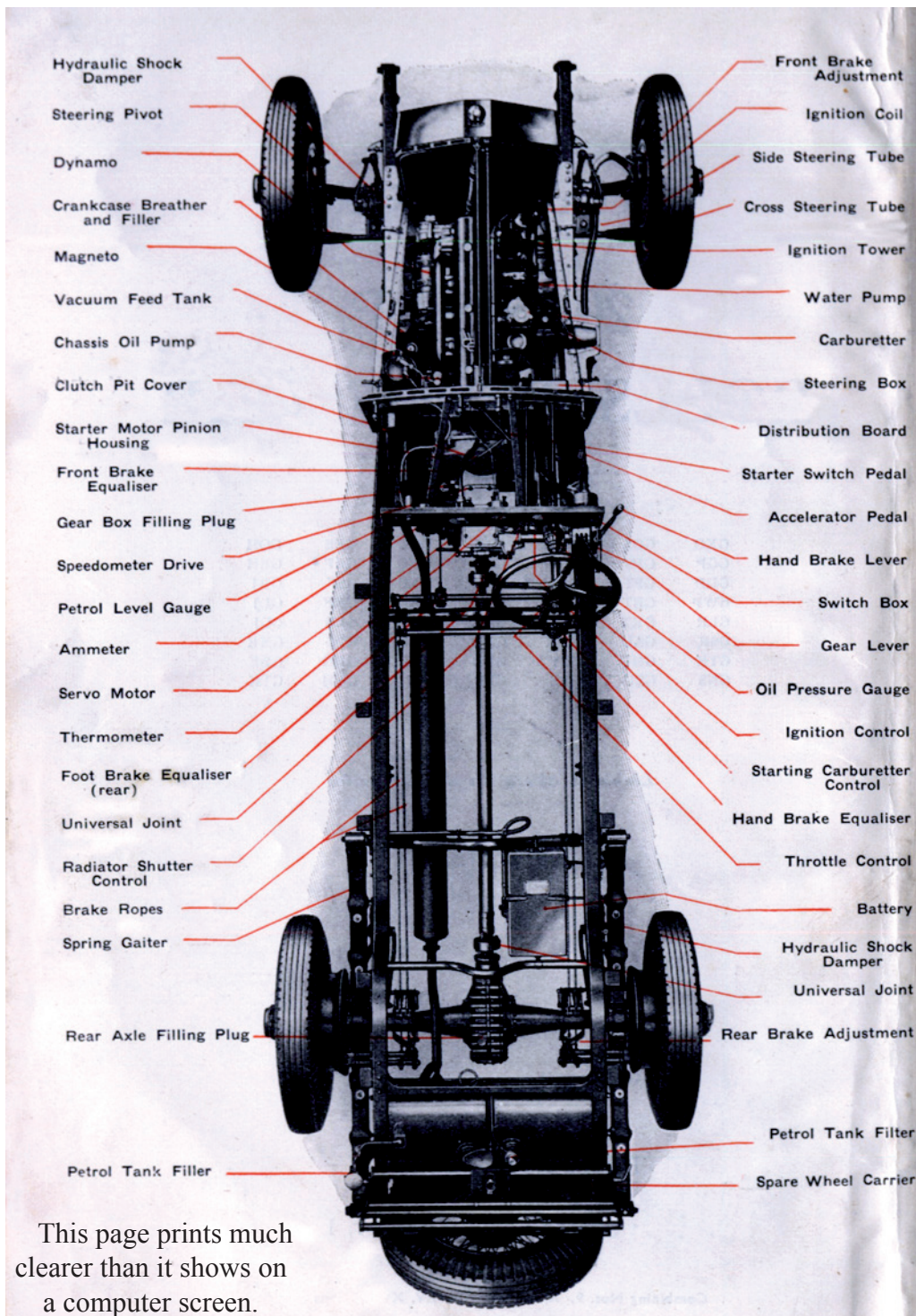
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This page prints much clearer than it shows on a computer screen.

Fig.1. - Plan View of Chassis.

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THE SECRET OF SUCCESSFUL RUNNING.

Before a Rolls-Royce chassis is sold it is very carefully tested and adjusted by experts. It will run best if no attempt be made to unnecessarily interfere with adjustments.

An owner would do well to instruct his driver as follows:-

Lubricate effectively, in strict accordance with the advice given in this Handbook, and do not neglect *any* part.

Use only those oils which are recommended by Rolls-Royce Limited, who have made prolonged and searching tests on oils. Considerable harm and expense may result from the use of unsuitable oils.

Inspect all parts regularly, but take care not to alter any adjustments unless really necessary.

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SERVICE FACILITIES FOR ROLLS-ROYCE CARS

Our interest in your Rolls-Royce car does not cease when you take delivery of the car. It is our ambition that every purchaser of a Rolls-Royce car shall continue to be more than satisfied.

With this end in view, we have appointed Special Retailers throughout the world, who have established properly equipped Service Stations, staffed by men who have been specially trained in servicing Rolls-Royce cars.

In addition, on the staff of Rolls-Royce Limited, there are experts whose sole duty it is to maintain contact with the Special Retailers, and they are available at all times to be called in for consultation on any matters affecting your car.

If, therefore, you should require any assistance, we ask that you should immediately contact our nearest Special Retailer, who will only be too pleased to place his facilities at your disposal. If necessary he will call in for consultation our expert in that area. It is earnestly hoped that this arrangement will prove of mutual benefit, as we will thus be kept in constant touch with our Customers, who may be spared the trouble of a long journey to one of our Company's Service Stations.

In the event of it being more convenient to call on us direct for assistance, our Main Service Station at Hythe Road, Willesden, London N.W.10, and the one at our factory at Crewe, will be ready at all times to help. (See maps at end of Handbook.)

LEADING PARTICULARS OF CHASSIS.

Engine.

Six cylinders, 3½" (82m/m.) bore, 4½" (114 m/m.) stroke, 3,669 c.c., cubic capacity.

Monobloc with detachable cylinder head, overhead valves operated by pushrods,

Engine Lubrication

Pressure feed to all crankshaft and connecting rod bearings. External oil pump with relief valve, giving a positive low pressure supply to the valve rockers and timing gears.

Carburetter

Rolls-Royce automatic expanding type, controlled by a lever on the steering wheel. Early models are provided with an auxilliary starting carburetter.

Fuel System

Fourteen-gallon or eighteen-gallon tank at rear, depending on date of chassis.

Supply by vacuum feed system with vacuum service tank mounted on the dash-board. Fuel level gauge mounted on the instrument board

Cooling System

By centrifugal pump circulation and fan, with thermostatically-controlled shutters in front of radiator. Hand control for early models.

Coolant temperature thermometer, with warning light mounted on the instrument board on early models.

Electrical Equipment.

Twelve-volt system with automatic regulation of dynamo output. Separate starter motor with Bijur coupling, providing gentle engagement.

Battery of 50 ampere-hour capacity approximately. Twin ignition systems, battery and magneto.

Clutch.

Single dry plate.

Gearbox.

Four forward speeds and reverse, synchromesh or non-synchromesh depending on date of chassis. Right-hand control lever.

Rear Axle.

Full floating type. Spiral bevel drive

Road Springs.

Semi-elliptic front and rear.

Brakes.

Internal expanding, servo operated, on all four wheels.
Independent hand brake operating on rear wheels.

Road Wheels.

Dunlop detachable well-base wire wheels, with Dunlop cord, wired type tyres, 6" for 19" rim.

Chassis Lubrication.

Centralised chassis system. Separate axle systems on early models.

Dimensions.

Wheelbase	...	...	...	...	...	...132" or 129"
Track - Front	...	...	...	...	...	56 5/16" or 56"
Rear	...	...	...	...	...	56 5/16" or 56"

CHAPTER I

Starting the Engine and Driving the Car

Starting the Engine - Hand Starting - Ignition Control-Throttle Control - Gear Changing - Battery Charging - Lighting Control and Switch - Radiator Shutters - Controllable Shock Dampers- Overheating - Fitting of Snow Chains.

Starting the Engine.

For chassis series previous to GYD-25, first check that the change gear lever is in neutral, turn fuel tap on dashboard **On**, and close the radiator shutters by moving the control lever on the instrument board: this control is deleted on chassis after GBT-22, as the shutters are thermostatically operated. Next, switch on the ignition by moving the right hand thumb lever on the switchbox to position marked I (Ignition); retard the ignition and close the throttle by bringing both the levers on the steering column to their bottom positions; next open the starting carburetter by pushing the lever on the instrument board to the position marked **Starting** or **On** and set the mixture control lever over to **Strong**. Now depress the small pedal situated low down in the centre of the dashboard; this closes the main switch of the starter motor, and the latter will start up the engine. As soon as the engine commences to run regularly, move the throttle control lever on the steering column about half-way up its quadrant and turn back the starting carburetter control lever to the position marked **Running** or **Off**.

The starting carburetter should not be used for more than half a minute before changing over to the main carburetter, and it should only be used when the engine is cold.

Excessive use may lead to failure of the cylinder lubrication owing to dilution of the oil by petrol.

When the engine has been warmed slightly, the mixture control should be set half-way between **Strong** and **Weak**.

For chassis GYD-25 and onwards, first check that the gear lever is in neutral and turn fuel tap on dashboard to M (Main); then switch on the ignition by moving the right-hand thumb lever on the switchbox to position marked I & C, set mixture control thumb lever on dashboard to **Start**, fully retard the ignition and move the hand throttle lever half-way up its quadrant.

Depress the starter button firmly, and to its fullest extent.

As soon as possible after the engine starts, move the mixture control thumb lever to **Normal** or **Run**, and leave it there, and advance the ignition. Normally the ignition lever should stand about three-quarters along its quadrant.

The mixture control lever is only intended for use when starting from cold; when making a start with a warm engine, leave the thumb lever at **Normal** or **Run**. It is not intended for varying the mixture strength under running conditions.

Difficult starting may be due to dampness in the H.T. distributor caused by condensation. The distributor should be removed under such circumstances and wiped out with a clean dry rag. The rotor should also be wiped dry. The trouble is only likely to arise when the car has been standing. The warmth of the engine will prevent such condensation normally.

When the engine is cold a high oil pressure will be shown on the gauge, due to the greater viscosity of oil at low temperatures. The pressure will fall to the normal 15 to 20 lbs., as soon as the oil becomes warmer.

Hand Starting.

A starting handle is carried in the tool kit. In the event of it being used, it should be removed afterwards from the bracket and returned to the tool kit.

The ignition must be fully retarded when starting by hand.

Ignition Control.

Under normal circumstances, the ignition lever should be advanced about three-quarters along its quadrant. The actual amount of advance is controlled partly by hand, and partly automatically by means of a centrifugal governor operating on the distributor drive. This is capable of meeting 90 per cent. of the conditions due to varying road speeds, leaving only extreme conditions to be met by moving the hand control on the steering wheel.

Throttle Control.

Under normal running conditions, the hand throttle control should be carried right back in the closed position. An adjustable stop is provided on the carburettor for the throttle lever, which is so adjusted that the engine will idle reliably in these circumstances when the accelerator pedal is released.

On the earlier models, the throttle lever should be set to a position on the quadrant at which the engine will run as slowly as possible without risk of stopping when the clutch is withdrawn.

Gear Changing

The position of the gear lever for each of the four forward speeds and the reverse is shown in Fig. 2.

On chassis previous to GKT-22, the gearbox does not incorporate synchronous gear meshing devices, therefore it is imperative that on these cars, when making any change of gear, either up or down, that **the double de-clutching method must be used.**

Battery Charging.

For the switchbox with the ignition switch positions marked **I** and **I & C**, the following will apply:-

The position marked **I & C** (Ignition and Charging) on the switch-box for the thumb lever indicates that the ignition is on, and that the dynamo is charging the battery. This is the position recommended for most running conditions. When, however, the battery is known to be fully charged and the car is running at a moderate speed only, in the daytime, the charge may be switched off by turning the lever to the position marked **I** (ignition only).

Whenever the lamps are in use, and the engine is running, always have the switch in the **I & C** position.

Where the ignition switch positions are marked **I & C** (Summer) and **I & C** (Winter) the following will apply:-

With the switch in the **I & C** (Summer) position the dynamo output is reduced in order to avoid over-charging the battery, as the demands made upon it in Summer running conditions are usually less than in Winter. In the **I & C** (Winter) position the output is increased.

If the battery is known to be in a well-charged condition it is inadvisable to keep the switch a **I & C** (Winter) for a long period.

When the head and side lamps are switched on, the dynamo output becomes increased, irrespective of the position of the ignition and charge switch.

On chassis GAF-52 and onwards, there is no independent hand control of the battery charge; the provision of an automatic regulator, in combination with a shunt wound dynamo, adjusts the charge rate to suit the state of charge of the battery. When the latter is low, the ammeter on the instrument board will show a higher reading towards **Charge** than it will when the battery is well charged up.

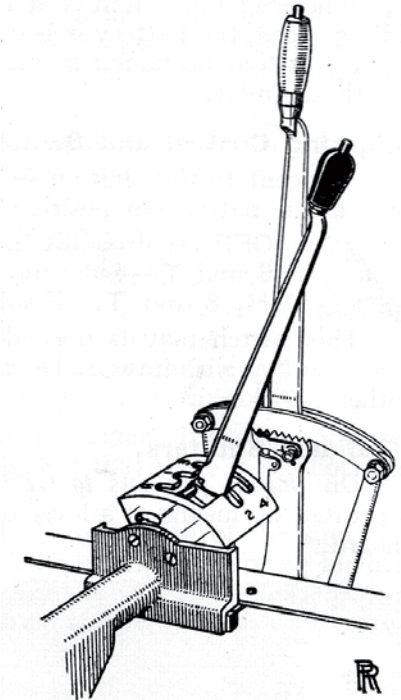


Fig. 2.—PERSPECTIVE VIEW OF GEAR LEVER GATE.

Whenever the switch is at **I & C** and the engine is running above idling speed, the battery is being charged at a rate to suit its state of charge at that particular moment. This can be checked by reference to the ammeter.

Lighting Control and Switch

Adjacent to the ignition is the lighting control switch, for which alternative **On** positions are provided, viz.:-

OFF No circuit in action.

S and T ... Side and tail lamps on.

H, S and T ... Head, side and tail lamps on.

This switch may be locked in either the or position, and the key withdrawn. Do not attempt to lock the switch in any other position.

Radiator Shutters.

On chassis previous to GBT-22, the radiator shutters are hand-operated by means of a lever on the left-hand side of the instrument board.

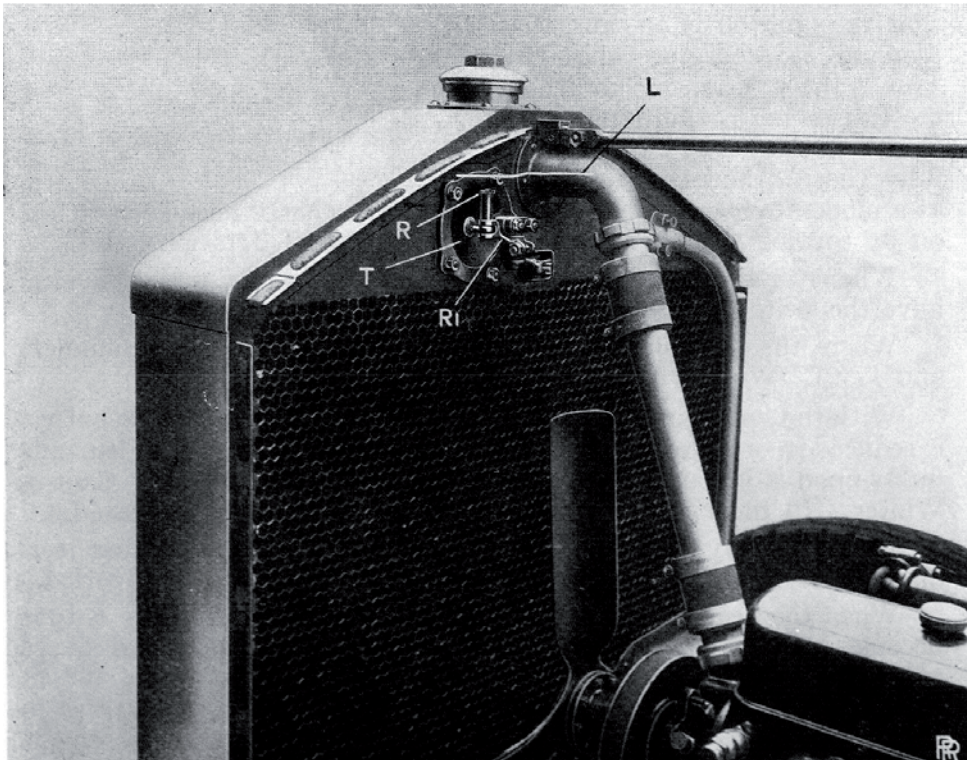


Fig. 3.- THERMOSTAT CONTROL OF RADIATOR SHUTTERS.

L. Coolant control

R. Spring-loaded Pin.

T. Thermostat

R1. Shutter Lever

A thermometer arranged on the instrument board indicates the coolant temperature of the engine, a small red lamp warns the driver when the temperature conditions of the engine require adjustment.

The normal working temperature should be between 70° C. and 90° C., and therefore, when starting the engine, the shutters should be closed. They should remain so until the water temperature reaches 70° C.

On chassis GBT-22 and onwards, the radiator shutters are controlled automatically by means of a thermostat in the upper radiator tank.

The thermostat commences to open the shutters when the coolant reaches a temperature of about 60° C., and they are fully open at about 90° C. Under normal running and atmospheric conditions the coolant temperature is maintained between 70° C and 75° C.

A thermostat is provided on the instrument board to indicate that the shutters are operating properly and that there is no shortage of coolant.

Provision has been made for quick disconnection of the shutters in case of defective operation of the thermostat. The spring loaded pin **R** (Fig. 3) should be raised, and the end of the lever **R1** disengaged from the thermostat rod. The shutters should then be left wide open.

Controllable Shock Dampers.

Fitted to chassis GYD-25 and onwards, these provide comfortable riding at all speeds, a centrifugally -controlled pump is incorporated which causes the damper loadings to increase with the road speed. In addition, there is a lever above the steering wheel, marked **Riding Control**, the effect of which is superimposed on that of the governor.

For ordinary town work or touring with moderate speeds, it will be found that the damper loadings as set by the governor are adequate when the hand lever is at either **Minimum** or mid-way. On the other hand, at high speeds or with heavy loads, improved riding comfort will be obtained by moving the lever to **Maximum**.

Overheating.

If on long ascents which call for full throttle, "boiling" should occur due to abnormal conditions of atmospheric temperature, and, or, following winds, etc., it is preferable to change into a lower gear and reduce the throttle opening.

Adjustment of the fan belt may be necessary, and this should receive attention.

Fitting of Snow Chains.

In the event of snow chains being necessary, they should be fitted to the rear wheels only.

A Parsons' chain, known as the "Special Rolls-Royce Type", is available. It is recommended that these be obtained through Messrs. Rolls-Royce Ltd., or one of their "Special Retailers", in order to ensure the supply of the correct type.

When fitting these special chains, it is *essential* to commence by fastening the one hook on the inside of the wheel and always to take up the adjustment on the outside, where two fastening clips are provided. The tensioning springs which are supplied to go on the outside of the wheel must always be fitted.