

GENERAL INFORMATION



SERVICE INSTRUCTION LEAFLET

ISSUED BY
ROLLS-ROYCE LIMITED

RR/A2.

SB. 1/IP.

Subject :

Chassis Series Data.
All Models.

Date
of
Issue

25th March, 1946.

The Rolls-Royce system of numbering Chassis does not lend itself readily to recognising any particular sequence, and it may therefore be impossible to differentiate between different series, or to recognise where any important design change has taken place, without a key to the system of numbering.

In order to deal adequately and intelligently with the various problems in servicing these cars, which will crop up from time to time, it is necessary to publish this key. The sequence of Chassis numbers on all Rolls-Royce models is given in the following pages together with details of any important design change which took place within these series.

This information is strictly confidential.

20 HP

Serial Letters.	Series.	New Features Incorporated.
G. S. H. A. K. CA. GP. GH. GAK. GMK. GRK. GDK. GLK. GNK.	A. B. C. D & E.	
GPK. GSK	F	Front Wheel Brakes.
GCK GOK GZK(1-41)	G	
GZK GUK GYK	H	
GMJ GHJ GAJ(1-41)	J	Front Hydris; W.B. Wheels; Two Terminal Condenser-GAJ-1.
GAJ GRJ GUJ	K	F.W.B. Squeak Damper-GRJ-73.
GXL GYL CWL	L	Rear Hydraulics.
GEM GKM GTM	M	Semi-Rigid Distr. Contacts.
GFN GLN(1-21)	NA	Mixture Control on Column; Vertical Radiator Shutters. 32" x 6" Tyres-GFN-71.
GLN GEN(1-41)	NB	
GEN GVO(1-10)	OA (1-50)	
GVO GXO(1-10)	O (51-130)	Centralised Lubn; Enots Pet- rol Filter; K. S. Petrol Gauge.

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continued:

20/25 H.P.

Serial Letters.	Series.	New Features Incorporated.	Serial Letters.	Series.	New Features Incorporated.
GXO	O	20/25 h.p. 3 1/4" Bore Engine.	GLZ		Luvax-Bijur Lubn; Air Silencer-GLZ-1.
GGP			GTZ	Z	Front Axle Control;
GDP	P	Narrow Hubs; 600-19 Tyres; Large Dia. Crankshaft.	GYZ		Cast Iron Front Brake Drums-GLZ-52.
GWP			GGA	A2	
GIR(1-25)	R (1-25)		GHA		
GLR			GXB	B2	Spring Drive in Clutch;
GSR	R	5.25:1 Comp; Flexible Engine Suspension.	GUB		Stiffer Crankshaft-
GTR			GLB		GXB-27; Cam Balancer-GXB-62.
GNS			GNC		
GOS	S		GRC	C2	D.W.S. Jacks; Needle Brg. Prop. Shaft-GXC-22.
GPS			GKC		
GFT	TA	Reserve Petrol Supply.	GED		New Type Carb; Con-
GBT(1-21)			GMD	D2	trollable Dampers-
			GYD		GYD-25.
			GAE		
GBT	TB	Diamond Engine Mounting; Thermostatic Shuttters; Split Piston Shock Abs; One Shot Lubn. Scheme; Two Rate Charging Scheme.	GWE	E2	
GKT(1-21)(101-180)			GFE		
			GAF		Easy Brake Adj; Volt-
			GSF	F2	age Controlled Dyno;
			GRF		Flexible Engine and Exhaust Mounting-GAF-52;
GKT	TB	Synchro-mesh Gearbox; 5.75:1 Comp; High Lift Cams; Low Inertia Spring Drive; Balanced Crankshaft; New Exhaust System; 3" Prop Shaft; Pivoted Front Brake Shoes.	GLG		Clutch Spring Drive
			GPG	G2	deleted; Prop. Shaft
			GHC		Damper; External Clutch Adjustment.
			GYH		
GAU	U	18 Gall. Petrol Tank; Electric Petrol Gauge; Provision for Dynamo Brake-GAU-76.	GOH	H2	Pivt. Rear Brake Shoes.
GMU(1-21)			GEH		
GMU	V		GBJ		Torque Reaction Damp-
GZU			GLJ	J2	ers.
GHW			GCJ		
GRW	W	Dynamo Drive Brakes.	GXX		
GAW			GBK	K2	Fully Floating Servo.
			GTK(1-41)		
			GTX		
GEX	X	Relay Starter Switch; Cast Iron Rear Brake Drums-GEX-1. Three Rate Charge Scheme; Resonant Type Silencer GXX-22.	GTK	K2	Additional 20/25 h.p. Chassis with E.B. Clutch, Marles Steering and Hypoid Axle.
GWX					
GDX					
GSY	Y				

continued:

25/30HP

Serial Letters.	Series.	New Features Incorporated.
GUL GTL GHL	L2	3.5" Bore Engine; Stromberb Carb; S.U. Petrol Pumps; Air Cooled Dynamo; Borg & Beck Clutch; Marles Steering; 9 x 41 Hypoid Axle; Geared Starter; Petrol Filter on Rear cross-member.
GRM GXM GGM	M2	P.S. Damper Reinstated-GXM-72.
GAN GWN GUN	N2	New Type Steering Controls.
GRO GHO GMO	O2	
GRP GMP GLP	P2	De-turbulated Cylinder Head.
GAR GGR GZR	R2	

WRAITH

Serial Letters.	Series.	New Features Incorporated.
WXA	A	
WRB WMB WLB	B	
WHC WEC	C	

continued:

PHANTOM I

Serial Letters.	Series.	New Features Incorporated.
MC RC HC(1-109)	V	
HC LC SC(1-7)	W	
SC DC(1-87)	X	
DC TC(1-70)	Y	
TC YC(1-50)	A2A	
YC NC(1-30)	A2B	
NC	B2	Light Clutch; Front Hydraulics.
EF	C2A	Light Front Axle; W.B. Wheels.
LF	C2B	
RF	D2A	Rear Hydraulics.
UF	D2B	
EH	E2A	
FH	E2B	
AL	F2A	Axle Control Dampers, Semi-rigid Dist. Cont.
CL	F2B	Aluminium Cylinder Head.
WR(1-101)	G2A	Flexible Engine Suspension.
WR KR(1-71)	G2B	Side by Side Brakes.
KR OR(1-90)	H2	

continued:

PHANTOM II

Serial Letters.	Series.	New Features Incorporated.	Serial Letters.	Series.	New Features Incorporated.
WJ XJ(1-71)	J2		MY(1-100)	O2 (1-50)	7.00-19 Tyres; Cast Iron Brake Drums.
XJ GN(1-68)	K2	Low Inertia Dampers- 173-XJ.	MY MW	O2	5.25:1 Comp; High Lift Cams; Semi-expanding Carb; Carb. Air Silencer.
GN GY(1-68)	L2	Exhaust Heated Throttle-120-GN. 20x7 Tyres-169-GN.			
GY GX	M2		PY	P2	Large Engine Coupling; Electric Petrol Gauge; Luvax-Bijur Lubn; Resonant Type Silencer; Controlled Shock Dampers-160-PY.
JJS(1-61) AJS(1-276)	N2 (1-50)	Thermostatic Shutters; Single Point Rad. Susp; One Shot Chassis Lubn; Pivt. Front Brake Shoes; Wider Foot Brake Shoes; $\frac{3}{8}$ " Brake Liners; Two Rate Charge Schems.	RY	R2	Voltage Controlled Dynamo.
JS MS(1-44) AJS AMS	N2 (51-58)	Pivt. Rear Brake Shoes; Auto-Klean Oil Filter; Carb. Air Cleaner; Split Piston Shock Abs.	SK	S2	Needle Brg. Prop. Shaft-96-SK; 12x4 Rear Axle-136-SK.
MS	N2	Synchro-mesh Gearbox.	TA	T2	Fully Floating Servo; Easy Brake Adj; External Clutch Adj; Large Choke Carb; Low Lift Camshaft; Flexible Engine Mounting; Synchro-mesh 2nd Gear.
			UK	U2	

PHANTOM III

Serial Letters.	Series.	New Features Incorporated.
3-AZ 3-AX	A	Petrol Filter on 2nd cross-member- 3-AX-35.
3-BU 3-BT	B	Rubber Mounted Rear Axle.
3-CP 3-CM	C	Petrol Pump in Frame-3.CM-35.
3-DL 3-DH	D	4-Port Cyl. Head; Solid Tappets; Single Valve Springs; Open Type Fuses; 5 x 18 Road Wheels-3.DL-78. Overdrive Gearbox-3.DL-172. Hall's Metal Big Ends; 3.DL-4. Oil Cooler deleted.

ALL COMMUNICATIONS SHOULD BE ADDRESSED TO

ROLLS-ROYCE LIMITED, SERVICE STATION, HYTHE ROAD, WILLESDEN, LONDON, N.W.10



SERVICE INSTRUCTION LEAFLET

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ROLLS-ROYCE LIMITED

RR/A1.

APPENDIX 3.
25/30 H.P.

SB/GS.1/IP.

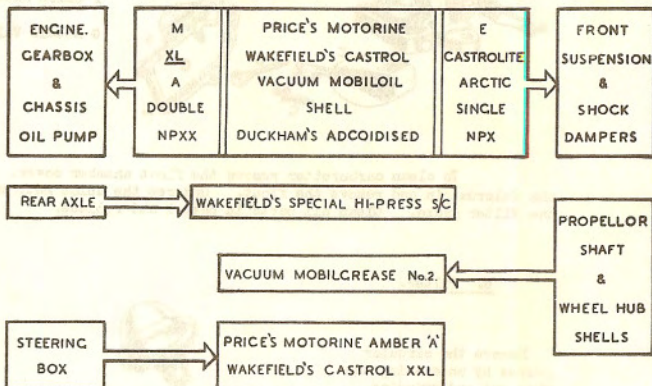
Subject: Recommissioning of Cars after Period of Storage.
Data Sheet. 25/30 HP.

Date of Issue 10th February, 1946.

ALTERNATIVE LUBRICANTS

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TYRE PRESSURES

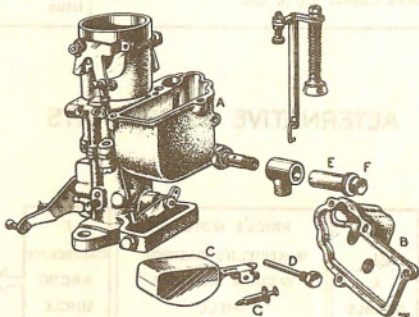
600x19	FRONT	35 LBS/SQ. IN.*
	REAR	35 LBS/SQ. IN.

★ This figure is higher than quoted in the Instruction Book but is better for synthetic rubber tyres.

continued:

PETROL SYSTEM.

a. Carburetter.

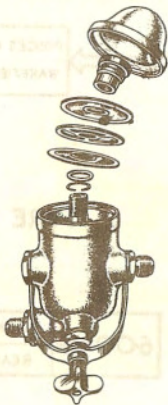


- A Float Chamber.
- B Float Chamber Cover.
- C Float.
- D Float Fulcrum Pin.
- E Filter Gauze.
- F Union Nut.
- G Needle Valve.

To clean carburetter remove the float chamber cover. Pull out the fulcrum pin and remove the float. Unscrew the union nut, and remove the filter gauze. Clean all parts in petrol and replace.

b. Filter.

Remove the circular gauzes by unscrewing the wing nut and swinging stirrup forward. Take off the cover and unscrew the knurled nut. Withdraw gauzes and remove spring clip to separate the parts.

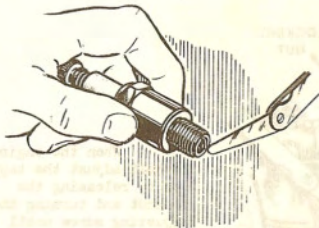


Unscrew the drain plug and clean out the sump. Replace the gauzes after cleaning in petrol.

continued:

ELECTRICAL SYSTEM.

(a) Sparking Plugs.



Clean the points
and adjust the gap to .020".

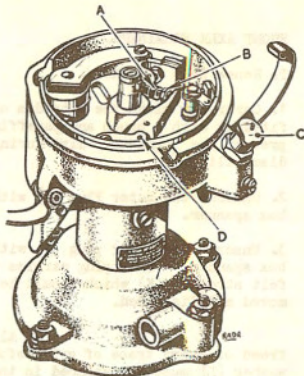
(b) Distributor.

Adjustment.

Set gap to .015"-.018"
by releasing the locknut
(A) and turning adjusting
screw (B).

Lubrication.

Smear the cam with a
little grease and inject
a few drops of oil into
the lubricator (C).
The pivot pin, (D) of the
rocker arm should be
lubricated by moving aside
the retaining spring and
putting a drop of oil on
the exposed end.

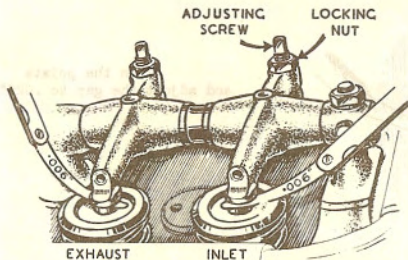


(c) Coils and Ballast Resistance.

Clean and remake all connections between the ballast resistance and coils. Wipe the top of the coils with a dry rag to remove any moisture that may be present.

continued:

TAPPET ADJUSTMENT.

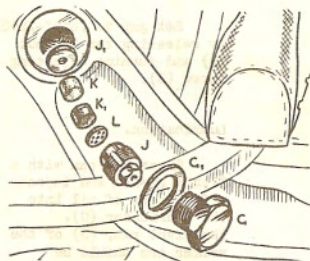


When the engine is cold adjust the tappets by releasing the locknut and turning the adjusting screw until the clearance is .006" for both inlet and exhaust valves.

FRONT AXLE STRAINERS.

To Renew Felt Strainers.

1. Carefully clean the outsides of the fittings with a brush and paraffin to prevent the ingress of dirt during dismantling.
2. Unscrew the outer Plug (G) with a box spanner.
3. Unscrew the inner plug (J) with a box spanner. This plug carries the felt strainer (K) which should be removed and discarded.



All parts should be carefully cleaned and freed of every trace of grit before replacing. The perforated backing washer (L) must be replaced in the inner plug (J) before fitting the new felt strainer (K) with its gauze-covered side (K) towards this washer.

Two aluminium packing washers are provided, one, (J) between the inner plug (J) and the bottom of the recess in the axle, and the other, (C) under the shoulder of the outer plug (G). Care must be taken to replace these.



SERVICE INSTRUCTION LEAFLET

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RR/A1.
APPENDIX 2.
PHANTOM III

SB/RS.1/DJ.

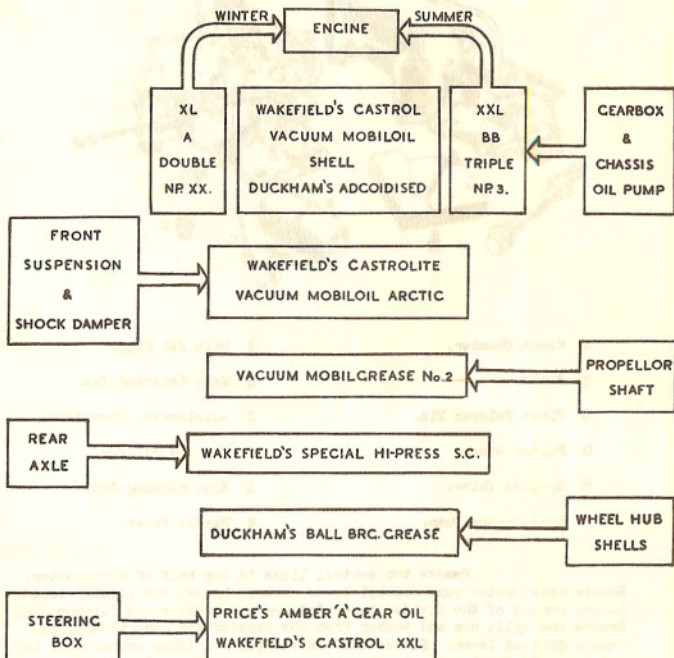
Subject :
Recommissioning of Cars after Period of Storage.
Data Sheet. Phantom III.

Date
of
Issue
8th Jan. 1946.

ALTERNATIVE LUBRICANTS

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TYRE PRESSURES

7.00 x 18	FRONT	35 LBS/SQ. IN.
	REAR	35 LBS/SQ. IN.

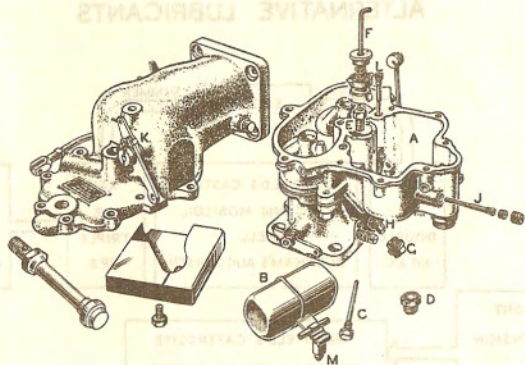
ALL COMMUNICATIONS SHOULD BE ADDRESSED TO

ROLLS-ROYCE LIMITED, SERVICE STATION, HYTHE ROAD, WILLESDEN, LONDON, N.W.10

- 2 -

continued:

PETROL SYSTEM.



A Float Chamber.	G Main Jet Plug.
B Float.	H Main Metering Jet.
C Float Fulcrum Pin.	J Accelerator Pump Jets.
D Filter Gauze.	K Divided Fulcrum.
E By-pass Valve.	L Slow running Jet.
F Accelerator Pump.	M Needle Valve.

Remove two control links to top half of carburettor. Remove accelerator pump control lever cover. Loosen the locking screw in the centre of the divided lever fulcrum and unscrew the fulcrum pin. Remove the split pin and washer from the accelerator pump plunger and remove divided lever. Remove the ten set bolts holding carburettor top and take off the top, leaving the plunger in position. Remove the joint washer and the pump plunger. Unscrew the float fulcrum pin and remove the float and needle valve. Remove the filter gauze and disc valve in the bottom of the float chamber. Clean and check that the disc valve is operating. Clean all the other parts in petrol and replace. In the event of petrol having been left in the carburettor float chamber, use any of the three solvents mentioned in the Instruction Leaflet for cleaning out gum deposit in the fuel system; also dismantle the following parts for cleaning:

1. Spring loaded by-pass mushroom valve in the bottom of the accelerator pump cylinder.
2. The main metering jets, by removing with special box spanner provided in tool kit, after removing the screwed plugs, G. Check that main jet tubes are clear.

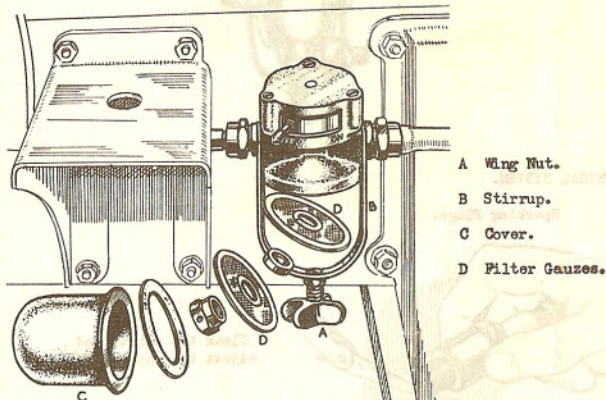
continued:

3. The two small plugs on outside of float chamber and pass a slender screwdriver through the holes across the float chamber and remove two similar plugs. The two accelerator pump metering jets can now be removed with a screwdriver.
4. The two slow running jets on either side of the accelerator pump cylinder, with a screwdriver.

Replace all parts in their correct positions and take special care to see that all aluminium and fibre washers are in place. When replacing the plunger, make sure that the leather cup on the plunger is properly in place, as damage to the leather will result in improper functioning of the accelerator pump and economiser jet. Renew the joint washer between the carburettor top and bottom, if at all damaged.

Filter.

This filter is situated on the off side frame member, but in later models the filter is fitted on the cross member forward of the petrol tank.



- A Wing Nut.
- B Stirrup.
- C Cover.
- D Filter Gauzes.

Turn off the tap. Release the wing nut and swing the stirrup forward. Remove the cover and unscrew the nut. The filter elements and cover should be cleaned in petrol and replaced.

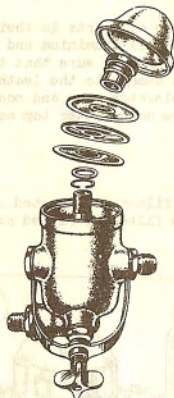
Delivery Filter.

This small gauze filter is fitted on the delivery side of the pumps and is located at the rear end of the engine situated on the tappet cover in the vee. Before dismantling be certain the ignition is switched OFF. Unscrew the top plug and remove the retaining spring and lift out the filter element. Remove the gauze and clean in petrol. Clean the pillar and sludge container before replacing the gauze. Finally replace the spring and plug.

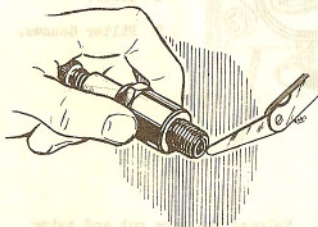
- 4 -

Filter.

This filter is fitted on the cross member, forward of the petrol tank. Remove the circular gauges by unscrewing the wing nut and swinging the stirrup forward. Take off the cover and unscrew the knurled nut. Withdraw the gauges and remove the spring clip to separate the parts.



Unscrew the drain plug and clean out the sump. Replace the gauges after cleaning in petrol.

ELECTRICAL SYSTEM.**Sparking Plugs.**

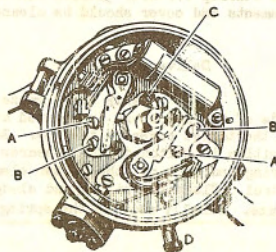
Clean the points and adjust the gap to .020".

Distributors.**Adjustment.**

Set the gaps to .028"-.030" by releasing the locking screw, A and turning the eccentric screw, B.

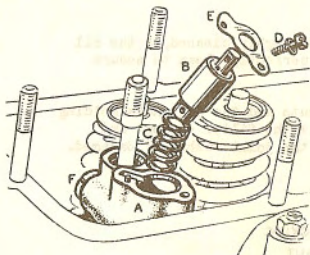
Lubrication.

Place a drop or two of oil on the cam lubricating wicks, C, on the exposed ends of the rocker arm pivot pins, and into the lubricator, D.



continued:

TAPPET ADJUSTMENT. Hydraulic.



- A. Plunger casing.
- B. Plunger.
- C. Coil spring.
- D. Setscrew.
- E. Cover.
- F. Metering screw

Remove valve rocker covers. Check tappet clearances by inserting the valve needle, supplied in the tool kit, into the hole in the plunger cap and depress the valve. Apply pressure on the eccentric arm pin pressing the plunger down to its stop, making quite sure that the needle is keeping the valve open. Release the valve, but keep the eccentric arm pressed down, and with the spanner provided in the tool kit, screw down the rocker ball end on the push rod so that the rocker has a clearance of .015" from the valve stem. Tighten the locknut and release the pressure on the eccentric arm. The valves should now seat effectively with a minimum clearance when the engine is running.

In the case of one or more tappets being noisy due to the presence of foreign matter in the system, the trouble may be cured as follows:

With the engine running, insert the valve needle into the hole in the plunger cap and depress the valve of the faulty plunger. This should cause the oil to flood through and clear the stoppage. If this does not happen, then the plunger casing will have to be removed and thoroughly cleaned.

It is advisable, while so doing, to remove and clean all the plunger casings as a precaution against further similar trouble. Proceed as follows:

Remove the four rocker shafts by unscrewing the nuts on top of each plunger casing. It is very important that these rocker assemblies be arranged in such a position that no doubt is left as to their correct position on the heads when reassembling. The plunger casings can now be removed. If each is removed and replaced in turn it will ensure that each casing is replaced in its correct position and that each plunger is in its respective casing. Remove the plunger, B and coil spring, C from casing, A by unscrewing the set screw, D and removing the cover, E. The metering screw, F should also be removed by bending back the tab washer. Care must be taken not to bend the washer too much as it will have to be used again unless replacements are at hand. Wash all parts in clean paraffin and check that all oil holes are free from dirt. Submerge in engine oil before replacing. The valve in the plunger will have to be depressed, while fitting the plunger back in its casing, to allow the air to escape.

Assemble the rocker shafts back on their plunger casings seeing that the spigots on the pedestals fit square in the recess provided in the plunger casings. Set tappet clearances as before.

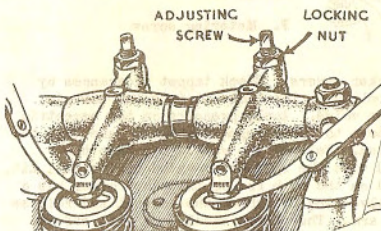
continued:

Oil Filter to Rocker Mechanism.

This filter must be thoroughly cleaned, as the oil fed to the hydraulic tappets must be perfectly clean to ensure correct operation.

Remove the two union nuts and the four nuts holding the filter in the crankcase. Withdraw the filter element and thoroughly clean in paraffin. Renew the joint washer if damaged.

Solid Tappets.

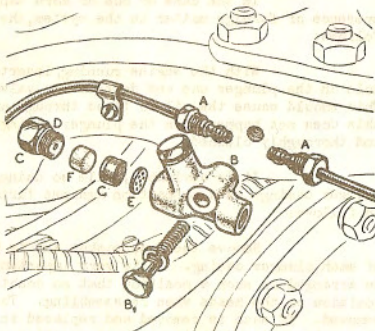


Set tappet clearance at .010"-.012" when cold by releasing the locknut and turning the ball ended adjusted screw.

FRONT AXLE STRAINERS.

To renew Felt Strainers:-

1. Jack up the front of the car.
2. Clean the casing of the strainer, with a brush and paraffin, to prevent the ingress of dirt.
3. Disconnect the two union nuts, A.
4. Remove the setscrew, B, and remove connection, B.
5. Unscrew plug, C, take care of washer, D.



The felt strainer and perforated backing washer may now be removed. All parts should be carefully cleaned before replacing. The perforated backing washer, E must be replaced in the connection, B before fitting the new felt strainer, F with its gauze cover, G towards the washer.



SERVICE INSTRUCTION LEAFLET

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RR/A1.
APPENDIX 1.
WRAITH

SB/NM.1/DJ.

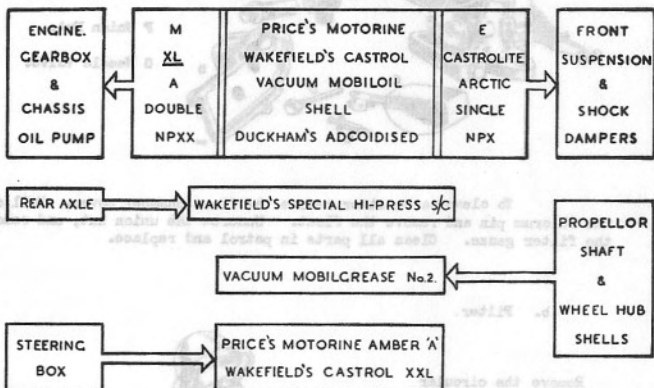
Subject: Recommissioning of Cars after Period of Storage
Data Sheet. Wraith.

Date of Issue 26th Nov. 1945.

ALTERNATIVE LUBRICANTS

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TYRE PRESSURES

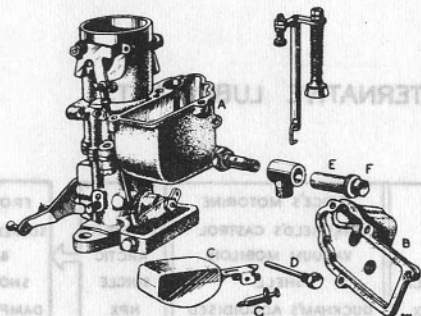
6.50x17	FRONT	30 LBS/SQ. IN.*
	REAR	30 LBS/SQ. IN.

* This figure is higher than quoted in the Instruction Book but is better for synthetic rubber tyres.

continued;

FUEL SYSTEM

a. Carburettor.



- A Float Chamber.
- B Float Chamber Cover.
- C Float.
- D Float Fulcrum Pin.
- E Filter Gauze.
- F Union Nut.
- G Needle Valve.

To clean carburettor remove the float chamber cover. Pull out the fulcrum pin and remove the float. Unscrew the union nut, and remove the filter gauze. Clean all parts in petrol and replace.

b. Filter.

Remove the circular gauzes by unscrewing the wing nut and swinging the stirrup forward. Take off the cover and unscrew the knurled nut. Withdraw gauzes and remove spring clip to separate the parts.

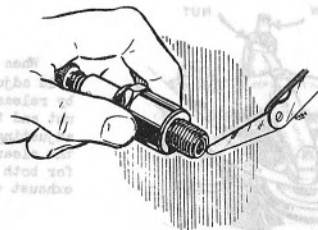


Unscrew the drain plug and clean out the sump. Replace the gauzes after cleaning in petrol.

continued;

ELECTRICAL SYSTEM

a. Sparking Plugs.



Clean the points and adjust the gap to .020".

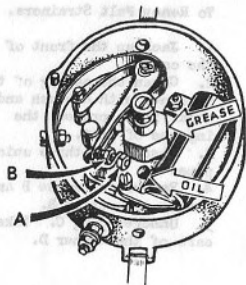
b. Distributor.

Adjustment.

Set gap to .015"-.018" by releasing the locknut A and turning adjusting screw B

Lubrication.

Smear the cam with a little grease and inject a few drops of oil into the hole indicated.



Coils and Ballast Resistance.

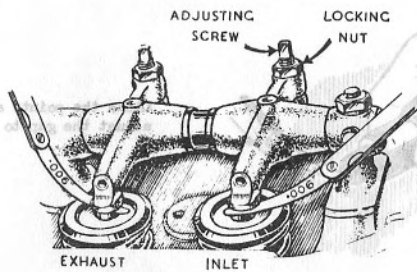
Clean and remake all connections between the ballast resistance and coils. Wipe the top of the coils with a dry rag to remove any moisture that may be present.

continued:

MECHANICAL SYSTEM

TAPPET ADJUSTMENT.

Spark Plug

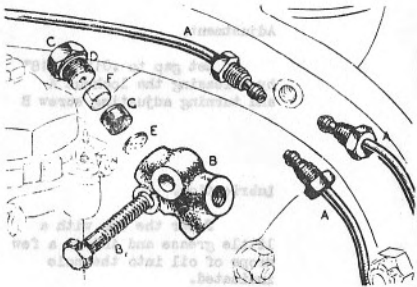


When the engine is cold adjust the tappets by releasing the locking nut and turning the adjusting screw until the clearance is .006" for both inlet and exhaust valves.

FRONT AXLE STRAINERS.

To Renew Felt Strainers.

1. Jack up the front of the car.
2. Clean the casing of the strainer with a brush and paraffin to prevent the ingress of dirt.
3. Disconnect three union pipes A.
4. Remove set screw B and remove connection B.
5. Unscrew plug C. Take care of the washer D.



Felt strainer and perforated backing washer may now be removed. All parts should be carefully cleaned before replacing. The perforated backing washer E must be replaced in the connection B before fitting the new felt strainer F with its gauze cover G towards the washer.

Disconnect the hoses and remove all connections before the engine is started. The top of the coils with a dry rag to remove any moisture that may be present.



SERVICE INSTRUCTION LEAFLET

ISSUED BY
ROLLS-ROYCE LIMITED

RR/A1.

SB. 4/DJ.

Subject :
Recommissioning of Cars after Period of Storage
All Models

Date
of Issue
8th Nov. 45.

This Instruction Leaflet refers to Rolls-Royce cars generally, and includes such information as is common to all types. Separate appendices will be issued from time to time giving the relevant data for each model.

Conditions have arisen now where many cars are being brought into use again after a period of storage, and recognising the fact that the demand for service or assistance will, during the present phase, far exceed that which Rolls-Royce Ltd., are able to offer, this leaflet has been compiled to afford guidance in preparing and recommissioning cars for the road, and to ensure that attention is directed to the essential points which affect the reliability and roadworthiness of the car. Obviously, a number of additional matters may require attention depending on the mechanical condition of the car before storage, and the work described herein represents the minimum attention necessary to ensure satisfactory operation.

It is assumed that at the time of storage, the car was treated in accordance with the recommended procedure issued by Rolls-Royce Ltd., but it is recognised that the actual conditions of storage in regard to heating and ventilation etc., and the amount of attention subsequently received by the car during storage will have varied considerably with individual cars. Hence it may be useful first to indicate briefly the disabilities which may result from unsuitable conditions of storage.

(a) Cylinder Bores.

Inadequate initial protection or failure to turn the engine at intervals during storage will result in corrosion in varying degrees. A small amount of corrosion provided the engine can be turned fairly easily by hand, is not usually serious and will probably wear off very quickly. On the other hand, if the corrosion has been allowed to proceed to the extent that the engine can be turned only with great effort, the condition is serious and a rebore is usually necessary.

(b) Carburetters and Petrol System.

Without, doubt the most likely cause of trouble and unreliability is the presence of a gummy residue resulting from evaporation of any petrol which may have been left in the system. This sets solid and prevents the working of fuel valves or other mechanism. Even if the engine has been made to run satisfactorily, there is a danger that portions of the deposit will subsequently become dislodged and cause stoppage of the car through choking of the petrol passages; therefore, very careful attention must be paid to cleaning out the entire petrol system. Failure to do so may lead to trouble later. A further difficulty arises due to the presence of water, which may have been left in with the petrol, and this causes corrosion and perforation of the petrol tank.

- continued -

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Continued :-

(c) Gearbox and Axle Gears.

If the transmission has not been turned over at intervals during storage, it is possible that those portions of the gears or ball bearings which are exposed above the oil level will have suffered some corrosion due to condensation of moisture on the polished and case-hardened steel, which is more susceptible to corrosion than unhardened materials. The extent of any such corrosion is very indeterminate and, in the event of any appreciable corrosion having taken place, it is questionable whether any corrective treatment short of dismantling the unit and replacing the parts concerned is of any value. It is probable, however, that in many cases the effects of slight corrosion will wear off, and having regard to the shortage of spares at the present time and in the immediate future, it is not recommended that any action should be taken to anticipate trouble from this source. Therefore, no instructions are included in this leaflet in respect of examination of gearbox or axle gears. If the gears or ball bearings have suffered damage to the extent of requiring replacement, there will be ample warning by way of noise when the car is put into commission.

(d) Clutches.

Failure to have jacked out the clutch before storage, may have resulted in the fabrics adhering to the pressure plates, and it may be found impossible to disengage the clutch. This condition, if severe may render necessary the complete dismantling of the clutch, but before this action is taken, certain procedure suggested later in this leaflet should be observed.

With the foregoing points in mind, it is probable that most cars will respond satisfactorily to the following recommended procedure and will give reliable period of service before further attention becomes necessary.

1. Tyres.

While the car is on blocks the wheels should be removed in order to clean and grease the serrations and screw threads of the hub, wheel and cap. Before removing the car from the blocks inflate the tyres to their correct pressure.

2. Battery.

Unless the battery has been correctly stored and received a refreshing charge at least once every two months a replacement must be obtained. If, however, it received the correct treatment a final thorough charge should be all that is necessary before being replaced in the chassis.

3. Cylinder Bores.

Where any doubt exists as to the condition of the cylinder bores through lack of attention during storage, remove the sparking plugs and into each cylinder inject two eggcupfuls of a mixture comprising 5 parts engine oil and 1 part colloidal graphite. This mixture should be allowed to stand in the bores several hours or overnight.

4. Valve Mechanism.

Remove rocker cover and inspect valve mechanism for sweating and rust marks. Thoroughly clean mechanism and pour a liberal quantity of fresh oil over all the parts. On the 20/25 h.p. model remove the tappet covers and see that tappets are well lubricated by oil running down the push rods. In the case of the Phantom III refer to separate Appendix.

5. Petrol System.

The carburetter float chamber will require cleaning out and any gum deposit removed. Any of the following solvents may be used:-

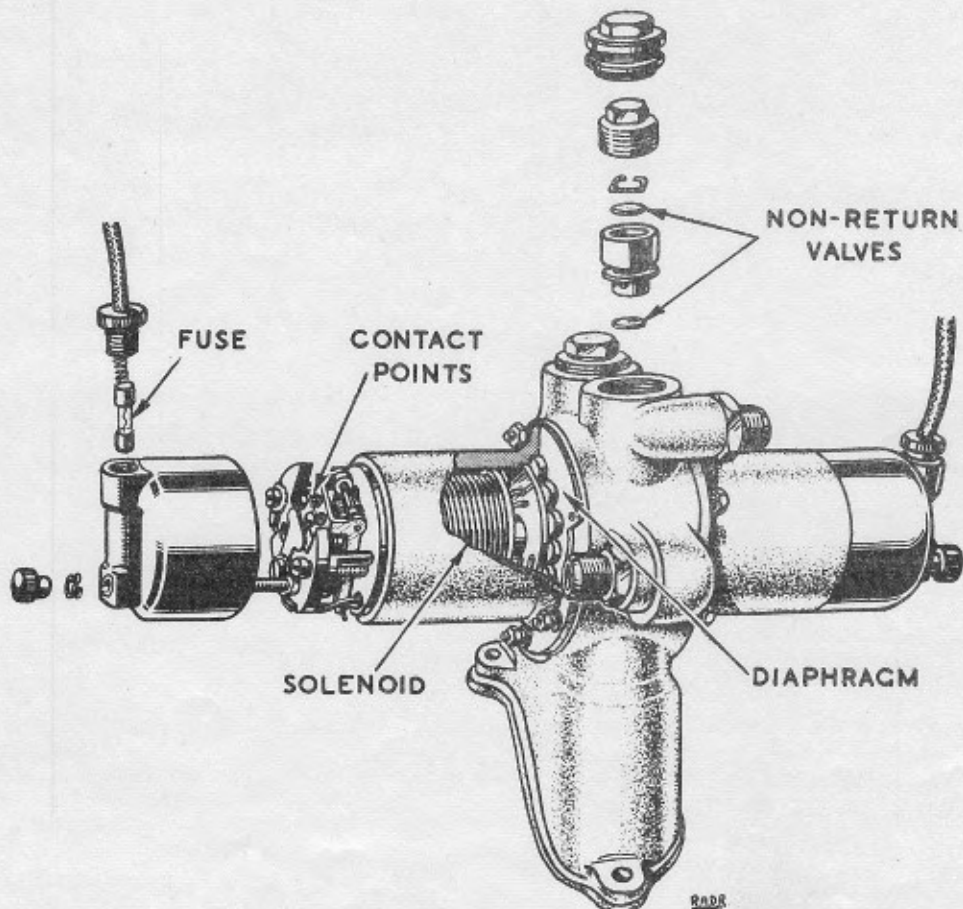
Methanol (Methyl Alcohol)
Cellulose Thinners
Cresylic Acid (Cresol)

If gum is present in the carburetter it is probable that the remainder of the fuel system is similarly affected and special care will have to be taken to remove all traces before attempting to use the car.

Petrol Filter. Dismantle and clean the various fuel filters in the system. For location and description refer to the appendices.

Petrol Pumps. Test the petrol pumps in the following manner:-

Switch on the ignition and the pumps should start to purr. If they don't make sure current is getting to the pumps by checking with a 12 volt bulb connected between the brass terminal on the end covers of the pumps and earth. The bulb should light; if not, examine the fuse in the pump circuit. On some models the petrol pumps have end covers that contain a fuse. In this case remove the covers and connect the bulb between the brass terminals inside the covers and earth.



Continued:

Having ascertained that current is reaching the pumps and they are still not working, then they are stuck up. Fit the covers on the pumps upside down in order to leave the contact points exposed. With the ignition switched on, keep opening and closing the points with a pencil. It may take some time to get the pumps to work, but if there is no response it will be advisable to fit a pair of reconditioned pumps. Alternatively, new diaphragms may be fitted, but we do not advise this in the absence of expert knowledge.

Autovacs. On the Phantom I & II, and the 20/25 h.p. models, petrol is delivered to the carburetter from a vacuum feed tank mounted on the dash. The petrol is drawn from the main tank by suction from the induction manifold. The Phantom II, however, has a mechanical vacuum pump.

If the vacuum feed tank has been standing empty, the operating valves will probably be dry, and will not function. In this case the fuel supply pipe should be removed, and a little fuel syringed into the inner tank to wash away any sediment from the drop valve and moisten the valves. If the apparatus still does not function correctly, the inner tank must be removed and the drop valve inspected.

To do this the two unions should be disconnected, and the screws, which hold the inner chamber in position, removed. Care must be taken not to damage the joint washers when lifting out the inner chamber. To avoid doing so, a knife or similar instrument should be run round between the washer and outer tank facing.

The drop valve can now be cleaned. There may be a black deposit formed on the valve which prevents it closing properly. This should be carefully cleaned off. In the event of gum being present, use any of the three solvents mentioned for cleaning the carburetter.

Petrol Tank.

Remove the drain plug of the petrol tank and inspect for signs of gum deposit. Replace the plug and make sure it is tight. In the unhappy event of petrol having been left in the tank, it is probable that it will have to be taken off the car in order to be cleaned out effectively. If this is done hot caustic soda will be found to be more effective than the solvents mentioned for cleaning the carburetter. Do not use caustic soda for any other component in the fuel system. Wash out the tank thoroughly afterwards to remove any traces of caustic soda and corrosion deposit. Examine carefully for signs of perforation caused by corrosion.

6. Electrical System.

Distributor. The distributor requires careful adjustment of the contact breaker points after they have been cleaned with a carborundum strip. The cam should be smeared with a small quantity of grease and the pivot of the rocker arm lubricated with a drop of thin oil. The spindle and centrifugal ignition timing mechanism are lubricated from lubricators on the contact breaker casing.

The "Wraith" distributor, however, has a small oil hole inside the casing. Further details will be found in the appendices.

All electrical connections in the ignition circuit should be checked and cleaned, particularly those of the ballast resistance and coils.

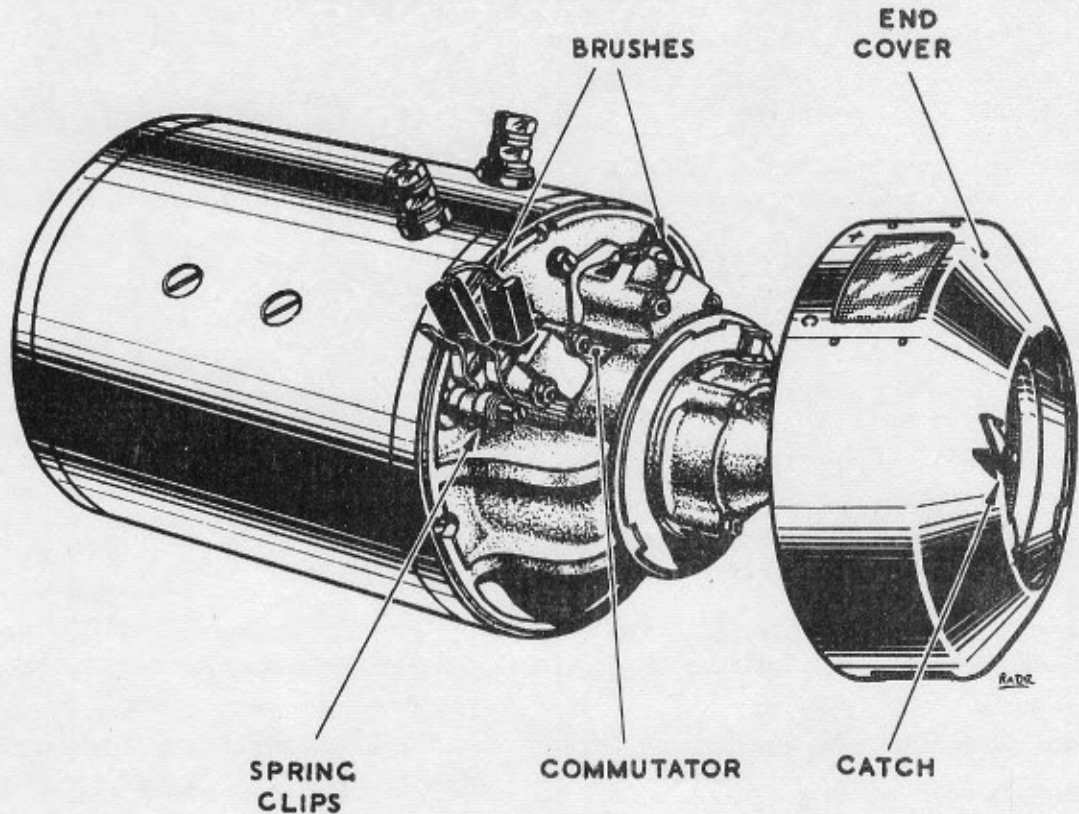
Starter. The starter requires no attention apart from routine

Continued:

lubrication of the bearings. If, however, it should prove sluggish in operation, remove the end cover and clean the brushes and commutator as for the dynamo.

Dynamo. In order to ensure reliable service from the dynamo, attention should be paid to the commutator and brushes. These are exposed when the end cover is removed. Some models have this cover secured by two knurled nuts. Others have a small catch which when lifted, allows the cover to be rotated a third of a turn away from the engine, and then be pulled back to expose the brushes.

Remove the brushes from their holders by lifting the spring clips. The commutator, brushes and holders should then be cleaned with a petrol soaked rag and replaced. A few drops of engine oil should be placed in the lubricators at each end of the dynamo.



7. Water Cooling System.

The water pump gland greaser should be screwed down three or four turns, and if necessary the gland nut tightened. After filling the radiator with clean, preferably soft water, check all the rubber connections and "Jubilee" hose clips; if unsound, replace them.

Correct tension of the fan belt should be checked by holding the belt at a point equidistant between the two pulleys; it should then be possible to move it transversely $\frac{3}{4}$ ".

The petrol, water and electrical systems having been checked, preparation may now be made to start the engine.

8. Engine.

Drain the sump and remove the oil strainer. Thoroughly clean in paraffin before replacing. If a high pressure filter is fitted, the element should be removed and a replacement fitted. The Phantom III

Continued:

high pressure filter element may be cleaned in paraffin and replaced. Do not replace a clean or new filter element, before the container has been cleaned out.

A filter is included in the oil feed to the rocker mechanism on the Phantom III, and should also be removed for cleaning. It is fitted on the off side at the forward end of the engine, and is secured by four nuts to the crankcase.

When reassembling a filter, make sure that the joint washer between the cover and the container is in place. If in the least damaged, fit a new one.

Refill the sump with any of the recommended oils shown in the appendices.

Tappets can be adjusted after removing the rocker covers.

The 20 h.p. models have the tappet adjustment at the bottom end of the push rods and are exposed on removal of two tappet covers under the exhaust manifold. Tappet clearances vary for each model, and are given in the appendices. They are set by releasing the locking nut and turning the adjusting screw until the feeler gauge will just pass between the rocker face and the valve stem.

Check each compression pressure by turning the engine over with the starting handle. They should be equal; if one is weak, a burnt or sticking valve is indicated.

Start the engine and note the oil pressure and charging rate. Run the engine at a fast idling speed until the thermometer registers 70°C. approximately, when the radiator shutters should begin to open. At 90°C. they should be fully open. Check the freedom of the shutters by lifting the spring-loaded pin, releasing the lever and working the shutters by hand. If stiff, lubricate the joints of the mechanism with an oil can.

Having got the engine running satisfactorily and checked that there are no leaks in the oil and petrol system, the following instructions should be carried out before taking the car on the road.

9. Centralised Chassis Lubrication System.

Fill the oil reservoir on the dash with engine oil to not less than an inch from the top of the filler cover. Give the foot operated pump a few strokes and check that oil is reaching the various lubrication points.

Clean, or if necessary renew the felt strainers in the non-return valves on the front axle. A sketch showing the parts in detail will be found in the appendices.

10. Gearbox and Transmission.

Drain the gearbox by removing the two drain plugs. Refill with fresh oil. The propellor shaft is fitted with a lubricator in each universal joint. Lubricate these with a grease gun but first remove the plug diametrically opposite the lubricator and inject grease until it is seen to flow from the plug hole. The "Wraith" has no plug fitted opposite the lubricator, but like the

Continued:

Phantom II has an additional lubricator on the sliding joint at the forward end of the propellor shaft. This should be lubricated with a grease gun. All other models have the sliding joints packed with grease on erection and need no attention between overhauls of the chassis.

The rear axle should be drained and refilled with the recommended oil to the level of the overflow plug.

11. Steering.

The oil level in the steering box should be inspected and refilled, if necessary, with any of the recommended oils to the mouth of the plug orifice. Check all nuts and bolts on the steering linkage for tightness.

12. Hydraulic Shock Dampers.

Remove the plug on the top of each shock damper casing and refill with any of the recommended oils. Where fitted, the pump and governor casing on the gearbox of the controlled shock damper system should be filled with the same type of oil. The Wraith and Phantom III independant front suspension units have an oil filler on each unit. These also should be filled with the same type of oil.

13. Brakes.

Lubrication. With the exception of a few joints of various rods and links, the brake system on all models is lubricated by the centralised chassis lubrication system. Thus no attention is necessary beyond lubrication of these points with an oil can.

14. Clutch.

Lubrication of the various links and joints of the clutch operating mechanism should be carried out, and in addition the Phantom II and 20/25 h.p. toggle lever fulcrum pins. These are accessible by removing the lower cover of the clutch housing. The clutch shaft spigot bearing on the 20/25 h.p. should also be lubricated with the oil can by means of a small hole through one side of the clutch shaft. To find this hole rotate the sleeve that bears on the end of the toggle levers until a slot is at the top and then crank the engine by hand until the hole is visible through this slot. Only a few drops of oil should be inserted, as excess oil may find its way to the clutch surfaces.

Test for correct freeing of the clutch by starting the engine and attempting to engage 1st gear.

In the unhappy event of the clutch having seized due to the pedal not having been jacked out during storage, it may require relining. Before carrying this out, however, the following method of freeing the clutch should be tried.

Remove the inspection cover. Start up the engine and run long enough to warm up the clutch. Stop the engine and inject a small quantity of acetone into the clutch housing, so that it gains access to the clutch liners. Altogether, as much as two eggcupfuls may be used. Allow a reasonable amount of time for it to soak in. Jack up the rear wheels; engage second gear and start the engine. Depress the clutch pedal and firmly apply the brakes, keeping the engine running. If this is not effective, repeat at intervals of a few days.

Continued:

If the clutch frees by this method, the car may be road tested and all controls checked.

* Note: If hydraulic jacks are fitted, it is advisable to jack up the rear wheels by means of a mechanical jack for this operation. Also the front wheels should be scotched.

ALL COMMUNICATIONS SHOULD BE ADDRESSED TO

ROLLS-ROYCE LIMITED, SERVICE STATION, HYTHE ROAD, WILLESDEN, LONDON, N.W.1



SERVICE INSTRUCTION LEAFLET

ISSUED BY

ROLLS-ROYCE LIMITED

RR/A3

SE/GF. 1/SF.

Subject :

THE STORAGE OF CARS
APPLICABLE TO ALL PRE-WAR CARS.

Date
of 14th Oct. 1947.
Issue

The information contained in this leaflet is for the assistance of Retailers in dealing with the storage of Rolls-Royce cars.

The additional experience gained during the war years has been included in this leaflet, which will therefore, if carried out fully, give a reasonable safeguard against storage deterioration. On the other hand, it is of course, obvious that much will depend upon conditions in the actual place of storage, and the regularity of inspection and attention to parts of the coachwork and chassis which may be attacked by mildew, rust and other causes of damage.

The maintenance of a satisfactory condition of paintwork and upholstery can only be assured if immediate action is taken against incipient deterioration. Paint blisters and small rust patches, if allowed to spread, will lead to more trouble than is visibly apparent, by creating a layer of corrosion between panels and primer. Similarly, mildew formation will occur under leather pleats and folds where its action may proceed unchecked until the leather and stitching rot. The chassis is also subject to the same form of gradual destruction, which can only be held in check by application of paint or lubricant.

It is, therefore, clear that it is not sufficient merely to carry out the instructions in this leaflet, and subsequently to assume that a car will retain its original condition without further attention. It is particularly emphasised that a continuous periodic inspection should be carried out throughout the period of storage.

With reference to particular items in the Storage Instructions, it will be noted that the petrol system should be completely drained and dried out. This is an important operation which will prevent the formation of the gum deposit which was the cause of so many difficulties after previous storage periods.

Under Item 3, we recommend that the cooling system should not be completely drained but should be filled with an anti-freeze solution. Provided that the solution strength is adequate to prevent freezing, the system will be protected against the corrosion which is liable to occur if it is empty. Aluminium castings are particularly susceptible, especially if the car is stored in a coastal district. On the other hand, anti-freeze solutions which contain Ethylene Glycol are more "searching" than plain water, so that the possibility of leakage is somewhat increased if corrosion has already taken place, as is likely on older cars. If, therefore, the cooling system is known to be doubtful and reconditioning is not practicable, it is preferable to leave it empty.

Item 8 - Hydraulic Jacks: This type of jack deteriorates if left inoperative for long periods. The sealing rubbers harden, causing leakage and unsatisfactory operation. The only way to keep them in good condition is by periodic operation.

Bodywork - Item 3: Calcium Chloride Crystals may be kept in a small open container on the floor of the car. They will absorb moisture fairly rapidly and will need replacement when saturation is reached. This method

will only be fully effective if the body can be sealed from the

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outside air, and as this cannot be done hermetically, it follows that efficiency will only be proportional to the degree of sealing attained. A heated garage, is of course, the best protection.

DETAILED INSTRUCTIONS FOR STORAGE:

CHASSIS.

1. In order to facilitate the draining of the engine crankcase, gearbox and rear axle, the car should be run for a sufficient mileage to ensure that the oil in these units has become thoroughly warmed and fluid.

PETROL SYSTEM:

2. Completely drain all liquid petrol from main petrol tank, and, when fitted, the auto-vac. Run the engine until the petrol in the carburettor, petrol pump, fuel strainers and fuel pipes has been used up. Remove the petrol pump and fuel strainers, and, after ensuring that all liquid petrol has been cleared, refit. The use of a tyre inflating compressed air line to blow out the fuel feed pipes will ensure that no petrol remains in these units. The removal of the carburettor for purposes of cleaning is unnecessary, appropriate protection against chemical action during the storage period being obtained by removing the float chamber cover and float, and thoroughly cleaning out all remaining liquid petrol. After cleaning, all parts should be refitted. The main tank unit should be withdrawn, cleaned, lubricated, and, if means are available, it is advisable to spray the interior of the tank with a thin film of oil to act as a deterrent against the formation of rust. Refit the main tank unit.

COOLING SYSTEM:

3. If plain water is being used as the cooling agent, we recommend the complete draining of the system, and the substitution of an anti-freeze mixture. If, on the other hand, the water system already has anti-freeze mixture, do not drain, but if found to be of insufficient strength owing to dilution, the percentage of anti-freeze additive should be increased to a point which will ensure protection against the lowest temperature which may be expected. All rubber joints should be carefully examined, and if doubtful, renewed, and careful examination for leaks should be made at regular intervals during the storage period.

TYRES:

4. Jack up complete vehicle, taking all weight off the tyres, and place wooden blocks under the axles (for those cars having independent front suspension, place these blocks under the stub axles). Do not deflate the tyres, but maintain a reasonable pressure throughout the storage period, and keep covered up to exclude the light, which is injurious to rubber when not in actual use.

ENGINE, GEARBOX AND REAR AXLE:

5. The engine crankcase, gearbox and rear axle should be completely drained of all old oil, and refilled to the working levels with one of the recommended mineral oils as shown on the attached chart. In this manner, the effects of corrosion within these units during the storage period will be minimised, but it is essential that prior to the recommissioning of the car, this oil is completely drained off, and the units refilled with the recommended working grade of lubricant. A label bearing the statement that these units are filled with a pure mineral oil should be prominently displayed to serve as a reminder of that fact.

6. When the engine is cold, remove the sparking plugs, and inject two tablespoonsful of pure mineral oil through the plug holes into each cylinder. Using the starting handle, turn the crankshaft a few times to distribute the oil over the cylinder walls. Remove the valve rocker cover, and treat the rocker mechanism with the same mineral oil. Replace the sparking plugs, and screw them down lightly.

7. The engine, gearbox and rear axle should be revolved by hand at least once every seven to ten days. To accomplish this, remove the sparking plugs, and either by leaving the clutch jacked out, turning the engine by means of the starting handle, and then winding round one of the rear wheels with first gear engaged, or by letting in the clutch, engaging first gear, and winding the engine, gearbox and rear axle by means of the starting handle.

NOTE: Under no circumstances should the engine be permitted to run under its own power during the storage period.

JACKS:

8. The hydraulic jacks, where fitted, should be operated at least once a month to prevent deterioration of the oil seals.

CLUTCH:

9. The clutch should be jacked out by placing a length of wood between the clutch pedal and the steering column bracket. This will prevent the clutch fabrics from adhering to the face of the pressure plate.

BRAKES:

10. The handbrake lever should be left in the "OFF" position.

BODYWORK.

PAINTWORK:

1. Wash down the bodywork, using clean running water and dry thoroughly. All rust patches and blisters should receive immediate attention to prevent further deterioration to the paintwork during the storage period, and we recommend the application of a good class of polish, e.g. Belco No.7, in order to maintain the general condition of the paintwork. It is recommended that periodic applications at regular intervals of between 6/8 weeks be given, in this way the danger of the formation of "Bloom" on the paintwork during the period of storage will be minimised. All bright parts not having an untarnishable finish should, after being cleaned, be lightly smeared with vaseline. (The use of vaseline on parts having a chromiued finish is both unnecessary and undesirable).

UPHOLSTERY:

2. All carpets, cushions and interior upholstery should be thoroughly brushed out and cleaned and liberally sprinkled with one of the anti-moth preparations available. After this treatment, all carpets, cushions and other detachable items should be stored in such a manner as to prevent further attack by moth, where they should be examined at regular intervals, and if found necessary, retreatment should be carried out. All leather upholstery should be given an application of "Connolly's Hide Food" to enable it to retain its suppleness and freshness during the storage period.

STORAGE.

3. Providing the place of storage is dry, all windows on the car should be kept slightly open to assist in the circulation of fresh air within the body. If, however, the place of storage has a tendency towards dampness, and there is danger of moisture collecting within the body to the detriment of the upholstery, it is suggested that some form of anti-moisture preparation, e.g. Calcium Chloride Crystals, be utilised. It should, however, be noted that these preparations absorb moisture from the immediate atmosphere, and therefore, it will be necessary to keep all windows, doors and other means of ventilation on the vehicle firmly closed, to prevent rapid absorption of moisture, and subsequent saturation of these crystals. Periodical inspection of these crystals at regular intervals should, therefore, be given, and when seen to be near saturation point, a fresh supply should be furnished.

4. Where the car is an open model, the hood should be erected and extended.

5. Cover the complete vehicle with a light dust sheet.

NOTE: The place of storage should be DRY, DARK, WELL VENTILATED AND PREFERABLY HEATED.

ELECTRICAL.BATTERY:

1. Car batteries tend to deteriorate quickly when not in use unless provision is made for their maintenance. An unattended battery may become completely ruined in a few months, and even under the best conditions of storage, a fully charged battery will deteriorate slowly. Assuming that the battery is in a sufficiently good condition to make storage an economical proposition, a choice between the two well tried methods detailed below is recommended.

PERIODICAL FRESHENING CHARGE:

2. Remove the battery from the car, clean thoroughly, top-up with distilled water and give a thorough charge at the normal rate recommended by the makers. Administer a freshening charge at the same rate at regular intervals of $\frac{1}{6}$ weeks, continuing each of these charges until the specific gravity of the acid has remained constant for about 10/12 hours on each occasion.

WASHING OUT AND STORING FILLED WITH DISTILLED WATER:

3. Remove the battery from the car, clean thoroughly and top-up with distilled water, and give a thorough charge at the rate recommended by the makers. Empty out the free acid and refill cells with three successive changes of clean distilled water, allowing the water to remain in the cells for at least an hour before each change. Finally fill up the cells with distilled water, replace and tighten the vent plugs, ensuring that the outside of the battery is dry and clean. The battery may now be placed into storage for the whole of the storage period without further attention, but it is essential that it is not exposed to the risk of freezing during the winter months. The place of storage should be between the limits of 40°F. to 80°F.

NOTE: Continuous trickle charging is not recommended, and will, after a relatively short period, cause rapid deterioration of the battery.

RECOMMENDED STORAGE LUBRICANTS FOR ENGINE, GEARBOX AND REAR AXLE.RECOMMENDED LUBRICANTS.

UNIT	Duckham's Adcodised	Essolube	Mobiloil Vacuum	Price's Motorine	Shell	Silvertown Speedolene	Wakefields Castrol
ENGINE	NPX	Rust-Ban 603	Artic	E	RPL 2	Anti-Rust Oil	Storage Oil
GEAR- BOX	NPX	Rust-Ban 603	Artic	E	RPL 2	Anti-Rust Oil	Storage Oil
REAR- AXLE	NPX	Rust-Ban 603	Artic	E	RPL 2	Anti-Rust Oil	Storage Oil

Please note that these lubricants are not necessarily those used for running. For Recommended Running grades of Lubricants, refer to Chart RR/D2.

SERVICE INSTRUCTIONS FOR ROLLS ROYCE CARS



INTRODUCTION

The contents of this publication are compiled in loose leaf form, and additions will be issued from time to time on all subjects relating to the overhaul and maintenance of Rolls Royce Cars. The present issue (Vol. 1) will relate to any type of Rolls Royce Car produced prior to the outbreak of war, 1939.

The leaflets will be arranged in sections as shown in the index, and will bear suitable serial letters and numbers to denote the section for easy reference. The designation of the models affected by the leaflet will be shown below the subject heading.

A separate Index of contents will be issued at a later date.

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