



Service Bulletins

Rolls-Royce Silver Cloud Bentley 'S' Type

**Printed and Published by
Rolls-Royce Motor Cars Limited
Crewe Cheshire
CW1 3PL England**

This publication is a reprint of the original. Whilst the information is given in good faith Rolls-Royce Motor Cars Limited gives no warranty or representation concerning the information and such information must not be taken as forming part of or establishing any contractual or other commitment by Rolls-Royce Motor Cars Limited

© Rolls-Royce Motors Limited 1959

Reprinted by Rolls-Royce Motor Cars Limited 1991

CONTENTS

SECTION

A	GENERAL INFORMATION
B	SPECIAL PROCESSES
C	WORKSHOP TOOLS
D	LUBRICATION AND MAINTENANCE
E	ENGINE
F	PROPELLER SHAFT AND UNIVERSAL JOINTS
G	BRAKES
H	SUSPENSION, SHOCK DAMPERS, PIVOT PINS AND STUB AXLES
J	REAR AXLE
K	FUEL SYSTEM AND CARBURETTORS
L	COOLING SYSTEM, CAR HEATING AND DE-MISTING
M	ELECTRICAL, IGNITION AND RADIO
N	STEERING
P	CHASSIS FRAME
Q	EXHAUST SYSTEM
R	WHEELS AND TYRES
S	BODY

**A
B
C
D
E
F
G
H
J
K
L
M
N
P
Q
R
S**

**GENERAL
INFORMATION**

This Bulletin Cancels
CB-35 dated 6.2.59.

FOR INFORMATION (Strictly Confidential).

CHASSIS SERIES AND NUMBERS

To facilitate the identification of chassis numbers in relation to modifications, the chassis series, in sequence and numbers of chassis in each series, is set out below.

No. 13 is omitted from all chassis numbers.

Where the letter 'L' precedes the chassis series letters, this denotes that it is a left-hand drive chassis.

ROLLS-ROYCE SILVER CLOUD:

<u>SERIES</u>	<u>CHASSIS NUMBERS</u>	<u>REMARKS</u>
A.	SWA-2 to SWA-250 SXA-1 to SXA-251	Even numbers only Odd numbers only
B.	SYB-2 to SYB-250 SZB-1 to SZB-251	Even numbers only Odd numbers only
C.	SBC-2 to SBC-150 SCC-1 to SCC-151	Even numbers only Odd numbers only
D.	SDD-2 to SDD-450 SED-1 to SED-451	Even numbers only Odd numbers only
E.	SGE-2 to SGE-500 SFE-1 to SFE-501	Even numbers only Odd numbers only
F.	SHF-1 to SHF-251 SJF-2 to SJF-250	Odd numbers only Even numbers only

- 2 -

<u>SERIES</u>	<u>CHASSIS NUMBERS</u>	<u>REMARKS</u>
G.	SKG-1 to SKG-125 SLG-2 to SLG-126	Odd numbers only Even numbers only
H.	SMH-1 to SMH-265 SMH-2 to SMH-266	Odd numbers only Even numbers only

BENTLEY 'S' TYPE:

A.	B-2-AN to B-500-AN B-1-AP to B-501-AP	Even numbers only Odd numbers only
B.	B-2-BA to B-250-BA B-1-BC to B-251-BC	Even numbers only Odd numbers only
C.	B-2-CK to B-500-CK B-1-CM to B-501-CM	Even numbers only Odd numbers only
D.	B-2-DB to B-350-DB B-1-DE to B-351-DE	Even numbers only Odd numbers only
E.	B-2-EG to B-650-EG B-1-EK to B-651-EK	Even numbers only Odd numbers only
F.	B-2-FA to B-650-FA B-1-FD to B-651-FD	Even numbers only Odd numbers only
G.	B-1-GD to B-125-GD B-2-GC to B-126-GC	Odd numbers only Even numbers only
H.	B-1-HB to B-45-HB B-2-HA to B-46-HA	Odd numbers only Even numbers only

BENTLEY 'S' TYPE CONTINENTAL:

A.	BC-1-AF to BC-101-AF	Odd and even numbers
----	----------------------	----------------------

- 3 -

<u>SERIES</u>	<u>CHASSIS NUMBERS</u>	<u>REMARKS</u>
B.	BC-1-BG to BC-101-BG	Odd and even numbers
C.	BC-1-CH to BC-51-CH	Odd and even numbers
D.	BC-1-DJ to BC-51-DJ	Odd and even numbers
E.	BC-1-EL to BC-51-EL	Odd and even numbers
F.	BC-1-FM to BC-51-FM	Odd and even numbers
G.	BC-1-GN to BC-31-GN	Odd and even numbers
<u>ROLLS-ROYCE SILVER CLOUD LONG WHEELBASE:</u>		
A.	ALC-1 to 26	Odd and even numbers
B.	BLC-1 to 57	Odd and even numbers
C.	CLC-1 to 47	Odd and even numbers
<u>BENTLEY 'S' TYPE LONG WHEELBASE:</u>		
A.	ALB-1 to 36	Odd and even numbers

FOR INFORMATION (STRICTLY CONFIDENTIAL)

MODIFICATION DATA

To provide Retailers with a summary of the inclusion of the more important modifications on production, the following data, chassis numbers and series are set out below.

In some cases a number of chassis were modified prior to those stated below.

The chassis numbers quoted refer to the commencement of the continuous embodiment of these modifications on production.

Additional information will be supplied periodically.

BENTLEY 'S' TYPE

A	}	Increased Diameter Rear Engine Mounting Bolts and modified Bracket	B-268-AN	B	}	Increased Number of Fixing Holes in Rear Axle Tube	B-198-BA		
		Modified Butterfly Valve and Countersunk Screws, SU Carburettor	B-270-AN			Folding Arm Rests in Front Seats	B-210-BA		
		Introduction of Thick Washer under Fulcrum Bracket Bolt Lock Plate to compensate for distortion of Lugs on Front Pan	B-296-AN			Steering Lever with Taper Roller Bearings in Place of Bushes	B-51-BC		
		Steering Ball Joint Castle Nuts with increased bearing surface	B-340-AN			Strengthened Front Suspension Fulcrum Bracket	B-109-BC		
		Front Spring Support Plate with welded on Stabilizer Bracket Attachment	B-400-AN			Modified Shakeback Stop on Front and Rear Brake Assemblies	B-115-BC		
		Modified Bosses to increase strength of Rear Axle Tube	B-476-AN			Dual Brake Master Cylinders	B-245-BC		
		Increased Friction on Brake Shakeback Stops and increased load on Servo Return Spring	B-492-AN			C	}	Radiator and drain tap suitable for revised frame	B-60-CK
		Improved Sealing between Windscreen Washer and Wiper Mounting and Body	B-492-AN					Modified sealing ring, centre steering operating lever (P.A.S.)	B-178-CK
		Setscrews in place of Studs for Main Bearing Caps	B-39-AP					Modified Dynamo and Voltage Regulator	B-188-CK
		Improved Water and Oil Mist Sealing on Servo	B-41-AP					Welded frame stiffeners on each side of jacking bracket	B-218-CK
		Strengthened Spring Support Plates on Front Suspension	B-87-AP					Introduction of copper petrol pipes	B-326-CK
		Modified Rear Loom to Cut Out Brake Light on side on which Flasher is in operation	B-155-AP					Reach nut and washer to suit new spot facing of ball and trunnion joint body, output shaft to prop shaft	B-352-CK
		Modified Flanges on Exhaust Fittings	B-257-AP					Uphill run pipes from twin master cylinders to supply tank	B-376-CK
		Brake Wheel Cylinder material changed from Aluminium to Cast Iron	B-273-AP					Revised frame (splayed ends)	B-27-CM
		Filter in Brake Fluid Supply Tank	B-287-AP					Reversal of Power Cylinder Mounting Bolt (P.A.S.)	B-263-CM
		Stronger Clamps for Rear Anti-Roll Bar	B-341-AP					D	}	Introduction of 18.7 steering ratio on left hand drive cars	B-46-LDB
Provision of Drag Links with greater resistance to kinking under compression	B-383-AP	Increased number of fixing holes in rear axle centre casing	B-122-DB						
Modified Type of Rear Engine Mounting	B-411-AP	Voltage regulator with Swamp resistance (H type)	B-25-DE						
B	}	Introduction of Aluminium Brake Master Cylinder	B-20-BA	Introduction of oil deflector plate in rear shock damper	B-249-DE				
		Modified Push Button and Door Handle	B-158-BA	E	}					Strengthened front shock damper body (Introduction of sleeve in mounting bolt bore)	B-170-EG
		Stronger front shock damper casing	B-316-EG						
		Combined inertia and starter ring, modified starter drive and stiffened clutch casing	B-530-EG						
		Stronger fulcrum pin, axle yoke	B-542-EG						

SILVER CLOUD

A	Modified Butterfly Valve and Countersunk Screws, SU Carburettor	} SWA.14	A	Folding Arm Rest in Front Seats	SXA.137	
					Steering Lever with Taper Roller Bearings in place of Bushes	SXA.151
	Introduction of Thick Washer under Fulcrum Bracket Bolt Lock Plate to compensate for distortion of Lugs on Front Pan	}	}	Modified Shakeback Stop-front and Rear Brake Assemblies	} SXA.187	
						Strengthening Front Suspension Fulcrum Bracket
	Setscrews instead of Studs for main Bearing Caps	SWA.24				
	Improved Sealing between Wind- screen Washer and Wiper Mounting and Body	SWA.40		B	Modified sealing ring, centre steering operated lever (P.A.S.)	SYB.2
	Steering Ball Joint Castle Nuts with increased bearing surface	} SWA.56	Dual Brake Master Cylinders		SYB.50	
	Increased Friction on Brake Shakeback Stops and increased Load on Servo Return Spring		}	Modified Dynamo and Voltage Regulator	SYB.90	
	Increased Diameter Rear Engine Mounting Bolt and modified Bracket	} SWA.62		Radiator and drain tap suitable for modified frame	SYB.116	
	Modified Bosses to increase strength of rear Axle Tube		}	Introduction of copper petrol pipes	SZB.29	
	Improved Water and Oil Mist Sealing on Servo	}		Reach nut and washer to suit new spot facing of ball and trunnion joint body, output shaft to propeller shaft	SZB.35	
	Strengthening Spring Support Plate, Front Suspension		SWA.70	Uphill run pipes from twin master cylinders	SZB.69	
	Modified Rear Loom to cut out Brake Light on side on which Flasher is in operation	SWA.72	Welded frame stiffeners on each side of jacking bracket	SZB.113		
	Modified Flanges on Exhaust Fittings	SWA.126	Revised frame (applied ends)	SZB.139		
	Wheel Cylinder Material changed from Aluminium to Cast Iron	SWA.136	Reversal of power cylinder mounting bolt (P.A.S.)	SZB.183		
	Stronger Clamp for Rear Anti-Roll Bar	SWA.146	C	Increased number of fixing holes in rear axle centre casing	SBC.112	
	Filter in Brake Fluid Supply Tank	SWA.152		Voltage regulator with Swamp resistance (H type)	SCC.33	
	Introduction of Aluminium Brake Master Cylinder	SWA.162	Introduction of 18.7 steering ratio on left hand drive cars	SCC.69		
	Provision of Drag Links with greater resistance to kinking under compression	SWA.168	Introduction of oil deflector plate for rear shock damper	SCC.119		
	Revised type of Rear Engine Mounting	SWA.206	D	Strengthened front shock damper body—Introduction of sleeve in mounting bolt base	SDD.98	
Modified Push Button and Door Handle	SXA.51	Stronger front shock damper casing		SDD.350		
Increased Number of Fixing Holes in Rear Axle Tube	SXA.67	Combined Inertia and Starter ring, modified starter drive and stiffened clutch casing		SED.131		

BENTLEY 'S' CONTINENTAL

A	Spreading the load of the Fulcrum Bracket Bolt over a larger area to compensate for distortion of the Lugs on the Front Pan	BC-11-AF	B	Strengthened Front Suspension Fulcrum Bracket	BC-3-BG
	Modified Butterfly Valve and Countersunk Screws, SU Carburetter	BC-11-AF		Modified Shakeback Stop Front and Rear Brake Assemblies	BC-8-BG
	Modified Bosses to increase strength of Rear Axle Tube	BC-12-AF		Dual Brake Master Cylinders	BC-18-BG
	Setcrews in place of Studs for Main Bearing Caps	BC-16-AF		Modified Dynamo and Regulator	BC-21-BG
	Improved Water and Oil Mist Sealing on Servo	BC-16-AF		8:1 Compression Ratio Cylinder Head with larger Inlet Valve	BC-21-BG
	Steering Ball Joint Castle Nuts with increased bearing surface	BC-19-AF		Modified sealing ring on centre steering operating lever (P.A.S.)	BC-23-BG
	Increased Friction on Brake Shakeback Stops and increased load on Servo Return Spring	BC-21-AF		Welded Stiffeners on each side of jacking bracket	BC-27-BG
	Brake Wheel Cylinder material changed from Aluminium to Cast Iron	BC-69-AF		Introduction of copper petrol pipes	BC-28-BG
	Stronger Clamps for Rear Anti-Roll Bar	BC-69-AF		Uphill run pipes from twin master cylinders to supply tank	BC-28-BG
	Filter in Brake Fluid Supply Tank	BC-70-AF		Reach nut and washer to suit spot facing of ball joint and trunnion body, output shaft to propeller shaft	BC-28-BG
	Revised Type of Rear Engine Mounting	BC-79-AF		Radiator and drain tap suitable for modified frame	BC-30-BG
	Provision of Drag Links with greater resistance to kinking under compression	BC-81-AF		Revised frame (splayed ends)	BC-37-BG
	Introduction of Aluminium Brake Master Cylinder	BC-88-AF		Increased number of fixing holes in rear axle centre casing	BC-82-BG
	Increased Diameter Rear Engine Mounting Bolts and modified Bracket	BC-96-AF		Reversal of power cylinder mounting bolt (P.A.S.)	BC-70-BG
	Strengthened Spring Support Plates, Front Suspension	BC-96-AF		Introduction of oil deflector plate for rear shock damper	BC-92-BG
B	Increased Number of Fixing Holes in Rear Axle Tube	BC-1-BG	C	Voltage regulator with Swamp resistance	BC-96-BG
	Steering Lever with Taper Roller Bearings in place of Bushes	BC-2-BG		Strengthened front shock damper body (Introduction of sleeve in mounting bolt bore)	BC-1-CH
				Stronger front shock damper casing	BC-7-CH
				Combined inertia and starter ring, modified starter drive and stiffened clutch casing	BC-31-CH
				Stronger fulcrum pin, axle yoke	BC-41-CH

FOR INFORMATION

S1 MODIFICATIONS

Since the introduction of S1 cars, a number of modifications have been introduced by means of Service Bulletins. The majority of these modifications have now been completed and it has therefore been decided to discontinue modification action on S1 cars.

Service Personnel are requested not to carry out further modifications to S1 cars.

SPECIAL PROCESSES

FOR INFORMATION.

This Bulletin Cancels Bulletin CB,31.
dated 11.12.56.

STORAGE.

PREPARATION FOR STORAGE.

The following recommendations are given for storage for periods of six months or longer. Success depends upon correct initial preparation and regular inspection and maintenance. The storage building should be dry, well ventilated and preferably heated.

ENGINE AND CHASSIS.

Preparation.

- (i) Run the vehicle for a sufficient mileage to warm up the oil in the engine sump, gearbox and back axle.
- (ii) If the coolant contains anti-freeze DO NOT DRAIN. If not, and there is a danger of freezing, drain and refill with a recommended anti-freeze solution. Run the engine to ensure uniform distribution of the anti-freeze throughout the system.
- (iii) Jack up the car on blocks under the lower triangle levers in line with the coil springs at the front end and under the centre of the rear springs. Drain the engine sump and rear axle completely and refill to the correct level with one of the following recommended anti-oxident oils. As a reminder, attach a label to each unit. Run engine gently for a few minutes with a gear engaged. Discard the oil filter element.

DO NOT DRAIN THE OIL from the automatic gearbox. Top up with the recommended running oil and leave the gear range selector lever in neutral.

- (iv) Drain the fuel tank. Run the engine to empty the fuel system. Remove covers from float chambers of carburetters, lift out floats and wipe out chambers.

Refit floats and covers. Remove petrol pump filters to drain pumps and refit. Add two gallons of paraffin to the petrol tank. Switch on ignition to operate petrol pumps to fill system with paraffin.

- (v) Cover the tyres to exclude light but do not deflate.

RECOMMENDED STORAGE LUBRICANTS.

Manufacturer.

B.P.	...	...	...	Energol Protective Oil 20.
Wakefields	...	...	...	Castrol Storage Oil.
Shell	...	...	...	Shell Ensis Oil 452.
Mobil	...	...	...	Infilrex 109 SAE 30.

Equivalent oils are Esso Rust Ban 603,
Speedolene BKX and Duckham's No.20.

- (vi) When the engine is cold, remove the sparking plugs and inject two tablepoonsful of anti-oxident oil into each cylinder. Turn the engine on the starter motor to distribute the oil on the piston walls. Replace the sparking plugs, screwing down lightly.
- (vii) Liberally oil the rocker gear with anti-oxident oil.
- (viii) Leave the handbrake in the off position.
- (ix) Remove the battery, clean, top up with distilled water and charge fully at the normal rate recommended by the Manufacturers.

PERIODIC MAINTENANCE.

- (i) Inspect the rubber connections of the cooling system and replace if unsound.
- (ii) Maintain reasonable pressure in the tyres.
- (iii) Every four to six weeks give the battery a freshening charge, continuing the charge until the specific gravity of the acid has remained constant for about 10-12 hours on each occasion.

- 3 -

BODY.

Preparation.

- (i) Wash down thoroughly and make good any paint blisters or rust patches to prevent further deterioration. Apply a good quality polish such as Lifeguard Car Wax, and polish well. In no circumstances use any polishing compound containing ammonia.
- (ii) Thoroughly brush and clean all carpets, upholstery and cushions. Sprinkle with anti-moth powder and store in a dry place. Treat leather upholstery with an application of "Connolly's Hide Food".
- (iii) If the place for storage is dry, leave the car windows slightly open. If there is any tendency to dampness shut the car doors and windows and leave some form of anti-moisture preparation such as Calcium Chloride Crystals in a metal container inside the car.
- (iv) Cover the car with a dust sheet.

PERIODIC MAINTENANCE.

- (i) Repolish the paintwork at regular intervals.
- (ii) Regularly inspect the upholstery, carpets and cushions for moth and treat accordingly.
- (iii) Renew the anti-moisture compound as necessary.

RECOMMISSIONING AFTER STORAGE.

Provided the car has been stored in accordance with the recommended procedure, the following points only should require attention before recommissioning for use on the road:-

- (i) Check the tyre pressures.
- (ii) Fully charge the battery and replace it on the car.
- (iii) Drain the engine sump and rear axle and refill with the recommended oils. Prime the cylinders with engine oil. Replace new filter element.

- 4 -

- (iv) Check the tappet clearances, plug gaps and contact breaker points. Lightly grease the distributor cam and lubricate the contact breaker pivots. Recharge the distributor grease lubricator and screw down a turn or two.
- (v) Drain paraffin from fuel tank. Disconnect inlet pipes to carburettors, switch on ignition to operate petrol pumps to empty paraffin from system. Remove covers from float chambers of carburettors, lift out floats and mop out paraffin. Replace floats, float chamber covers and inlet pipes. Remove petrol pump filters to drain pumps and replace.
- (vi) Check the dynamo brushes for freedom of movement in their holders and clean the commutator.
- (vii) Check the oil level in the oil reservoir for the one shot lubrication system. Pump the pedal and check that oil is reaching the lubrication points. Grease the universal joints and sliding joint of the propeller shaft.
- (viii) Check the oil levels in the steering box, shock dampers, starter motor reduction gear and brake master cylinder reservoirs.
- (ix) Adjust the brakes and oil the jaws and pins of the linkage.
- (x) Fill up the fuel tank and start the engine. Check the oil pressure and check for petrol, oil and coolant leaks.
- (xi) Check the operation of all instruments, lights and accessories.

WORKSHOP TOOLS

FOR INFORMATION.

"S" SERIES TOOLS.

In view of the rather heavy outlay involved and the fact that certain tools are seldom required for repair work, the following are now available to all Retailers in the U.K. on a loan basis.

Retailers will be invoiced at the full tool value, this amount being credited when the tool is returned undamaged, less 5% of the retail price, which constitutes a loan fee.

Rear Springs.

- RH. 344 Hydraulic Jack for removing Silentbloc bushes.
- RH. 196 Compressing Tool.

Body.

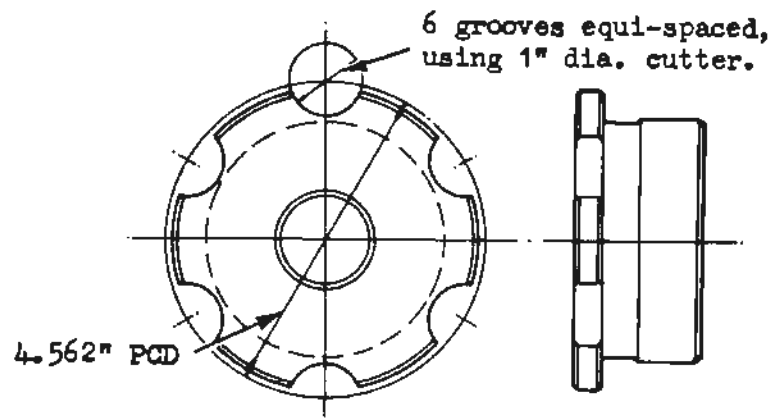
- RH. 343 Jig, Windscreen Glazing.
- RH. 341 Jig, Rear Window Glazing.
- RH. 580 Body Floating Equipment.

FOR INFORMATION.

AXLE PINION SETTING TOOL.

In order to carry out the pinion adjustment when overhauling the rear axle, it is necessary to use a setting tool, (RH 366), similar to that used for earlier models.

Retailers possessing the tool used for earlier Post-War cars may adapt this to suit the Silver Cloud and 'S' Type axle by machining grooves in one bush to clear the differential housing studs, as illustrated below.



MODIFICATION TO BUSH - PINION SETTING TOOL.

The depth gauge is replaced by the later pattern, RH 361, after which the modified tool is suitable for all Post-War cars.

**LUBRICATION AND
MAINTENANCE**

This Bulletin cancels CB.11
dated 8.5.56.

FOR INFORMATION.

PERIODIC LUBRICATION AND ADJUSTMENT.

SCHEDULES "A", "B" & "C".

GENERAL:

For the purpose of assisting Retailers with the maintenance of Rolls-Royce Silver Cloud and Bentley 'S' Type cars in their areas, a system of periodic lubrication and adjustment on a fixed mileage basis has been evolved.

It is recommended that Retailers institute this as a normal maintenance routine and that appropriate arrangements be made with any owners wishing to avail themselves of this service.

It will be noticed that this system is a consolidation of the various maintenance routines into three sections or schedules, and as such, does not in any way supersede the instructions given in the handbook to owners desirous of carrying out their own maintenance inspections.

The three Schedules "A", "B" and "C" cover the whole vehicle and operate in the following manner:-

SCHEDULE "A":- To be carried out at the conclusion of every 5,000 miles, covers all the items associated with engine, chassis and coachwork requiring lubrication, cleaning and adjustment.

SCHEDULE "B":- To be carried out at the conclusion of every 10,000 miles. In addition to the repetition of the whole of Schedule "A", it covers the complete change of lubricant of all the main components, together with the inspection and rectification of those items not included at the lower mileage.

SCHEDULE "C":- To be carried out at the conclusion of every 20,000 miles. This Schedule repeats Schedule "B" and principally covers change of lubricant for the automatic gearbox, rear axle and propeller shaft ball and trunnion joint.

- 2 -

SCHEDULE "A".

EVERY 5,000 MILES.

LUBRICATION:

1. Ignition distributor shaft, contact breaker pivots and cam.
2. Gear range selector controls and accelerator linkage.
3. Brake system pivot pins and bearings.

OIL LEVEL CHECKS:

1. Steering box.
2. Chassis lubrication tank.
3. Clean carburettor air valves and check oil level in hydraulic damper chambers.
4. Brake master cylinder reservoir.
5. Automatic gearbox.
6. Rear axle.
7. Drain and refill crankcase. Renew oil filter element.
8. Power steering pump. Check oil level (when fitted).

ENGINE AND CHASSIS ADJUSTMENTS:

1. Check coolant level and top up if required. (when climatic conditions warrant, check specific gravity of coolant and advise owner if additional anti-freeze is required).
2. Check fan belt tension. Adjust if necessary.
3. Check and reset inlet tappet clearances.
4. Clean sparking plugs. Check and reset gaps.
5. Clean contact breaker points. Reset gaps, check and reset ignition timing.
6. Check functioning of fuel pumps (disconnect electrical leads and check each pump independently).
7. Adjust rear brakes and servo.
8. Check for excessive leakage at any point in the central chassis lubrication system.
9. Check and adjust tyre pressures.
10. Clean oil bath air filter element, if fitted, and refill with oil.
11. Clean 'Vokes' air filter element (Continental models).

ELECTRICAL SYSTEM:

1. Check battery acid level. Top up with distilled water if required. Clean, re-vaseline and tighten battery terminals.
2. Check complete electrical system for correct functioning.

ROAD TEST:

1. Test the car on the road.

- 3 -

SCHEDULE "B".

EVERY 10,000 MILES.

1. Repeat Schedule "A".
2. Grease propeller shaft universal joints (2 points) and sliding joint (1 point).
3. Check starter motor reduction gear oil level and refill if required.
4. Check oil level in front and rear shock dampers.
5. Clean carburetter air filter element.
6. Clean the fuel strainers.
 - (i) The main fuel filter on the chassis cross member just forward of the petrol tank.
 - (ii) The filter gauzes in each carburetter float chamber feed connection.
 - (iii) The filter gauzes in the petrol pumps.
7. Change filter in power steering pump reservoir (where fitted).

SCHEDULE "C".

EVERY 20,000 MILES.

1. Repeat Schedule "B".
2. Drain and refill the automatic gearbox. Clean oil breather in top of dipstick.
3. Drain and refill rear axle.
4. Clean and re-pack front propeller shaft ball and trunnion joint with $1\frac{1}{2}$ ozs. of Mobilgrease No.2.
5. Remove front drum and inspect brake linings for wear. (Lining face should not be less than $1/32$ " (.8 mm) above rivets.)
6. Renew oil filter pad in chassis lubrication pump.
7. Renew 'Vokes' air filter element (Continental models).

FOR INFORMATION.

ENGINE LUBRICATION OILS.

For some time now a type of oil possessing advantageous viscosity/temperature characteristics has been offered to the public.

The benefits to be obtained by the use of this engine oil have been widely publicised, and it is not necessary to make any further comment in this Bulletin. However, in line with general practice, we were not prepared to approve the use of this type of oil in our engines until extensive testing had been carried out.

As a result of these tests, following close liaison with the Oil Company concerned and in the light of our experience, Rolls-Royce Limited have now given approval to the use of:

B.P. ENERCOL VISCOSTATIC ENGINE OIL

as an alternative to the officially Recommended Oils.

FOR INFORMATION

CHASSIS LUBRICATION

To improve lubrication of the steering joints and front suspension, it has been decided to change to a Hypoid type oil and to discontinue the use of engine oil in the Chassis Lubrication System.

Hypoid oils provide more effective lubrication in this application and so increase the life of effected parts.

When carrying out the next Schedule 'A' on any car, Retailers should empty the oil from the chassis lubrication pump and replace with one of the oils as listed below. A suitable hand type syringe will assist removal of the existing oil. Thereafter the Hypoid type oil should be used.

Will Retailers please advise owners and chauffeurs of the necessity to depress the oil pump pedal four times every 200 miles. The first stroke of the pump may be not be effective, due to the presence of air in the system, and the subsequent necessity of priming to ensure adequate lubrication of all points.

It is suggested that the pedal be depressed four times every even 200 miles as registered on the speedometer.

The following oils only are recommended :-

Castrol Hypoy SAE 90

Energol EP SAE 90

Spirax EP SAE 90

Mobilube GX SAE 90

FOR INFORMATION

LUBRICANTS: SI CARS

The following Esso Engine Oil has now been officially approved for use in Rolls-Royce and Bentley motor cars:-

Esso Extra Motor Oil, 20W/30 grade

Will all Retailers and Service Personnel please make this addition to The Lubricants Chart until such time as the chart is reprinted.

No. CB137
Circulation - All Distributors
and Retailers

CATEGORY C

AUTOMATIC TRANSMISSION FLUIDS

APPLICABLE TO:

All Rolls-Royce Silver Cloud, Bentley S Series and Rolls-Royce Phantom IV Cars fitted with the Four Speed Automatic Gearbox.

DESCRIPTION

Automatic transmission fluids made to the Dexron specification are now available. The purpose of this Service Bulletin is to advise Distributors, Retailers and Service personnel that fluids made to the Dexron specification and shown in the following chart are approved for topping-up or refilling the Automatic Gearbox fitted to the above cars.

It is most important however that a new or reconditioned automatic gearbox should initially be filled with a Type A Suffix A fluid shown in the following chart. On completion of the first 12,000 miles (20000 km.), or 12 months Service life, the automatic gearbox should be drained and refilled with any fluid shown on the chart.

Type A Suffix A fluids and Dexron fluids are miscible and therefore either can be used for topping-up purposes.

Continued...

APPROVED FLUIDS - Four Speed Automatic Gearbox

	Type A Suffix A Fluids	Dexron Fluids- U.S.A. and Canada only	Dexron Fluids- All countries other than U.S.A. and Canada
B.P.	B.P. Automatic Transmission Fluid	B.P. Autran DX (Dexron)	B.P. Autran DX (Dexron)
CASTROL	Castrol TQ	Castrol TQ Dexron (®)	Castrol TQ Dexron (®)
ESSO	Esso Automatic Transmission Fluid	Esso Automatic Transmission Fluid (Dexron)	Esso Automatic Transmission Fluid (Dexron)
MOBIL	Mobilfluid 200 AQ/ATF 752 A OR AQ/ATF 2320 A	Mobil ATF 220 Dexron	Mobil ATF 220 (Dexron)
REGENT	-	Regent Texamatic Dexron	Regent Texmatic Dexron
SHELL	Donax T6	Shell Donax T6 (Dexron (®))	Shell Automatic Transmission Fluid (Dexron (®))

Note:- Dexron is a registered trade name.

ENGINE

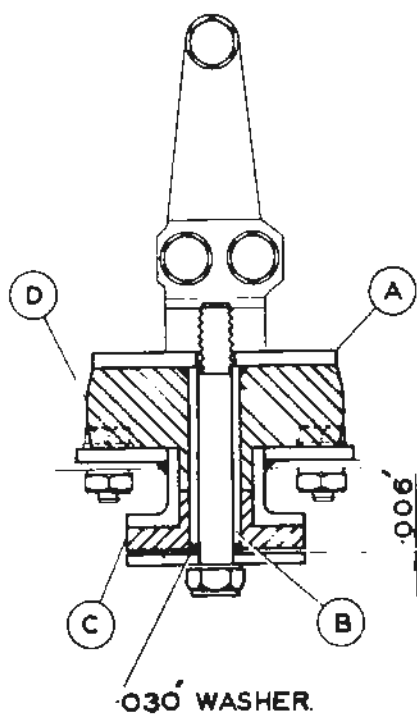
E

CATEGORY 2.

ENGINE REAR MOUNTING AND REAR EXTENSION BRACKET.

On certain vehicles it has been found that when the engine rear mounting bolt is fully tightened, the upper washer of the rear mounting distorts slightly to conical form, so that it seats only over an area close around the bolt hole in the undersurface of the bracket. This permits relative movement between the upper washer and the bracket, which may eventually cause fatigue failure of the engine mounting bolt at that point.

This is overcome by machining a counterbore in the undersurface of the rear extension bracket .750" in diameter and .005" - .010" deep, so that should the upper washer distort, the effective seating will not be confined close to the bolt hole, but to the diameter of the counterbore.



Engine Rear Mounting.

- A. Rear Mounting Upper Washer.
- B. Distance Tube (Welded to upper washer).
- C. Rebound Rubber.
- D. Upper Mounting Rubber.

The rear engine mounting is also to be checked to ensure that the lower rebound rubber is not held tight but has .006" vertical clearance, when the assembly is tightened in position with the engine load on. If there is insufficient clearance a .030" thick steel washer is to be placed between the lower steel washer of the assembly, and the distance tube, taking care to ensure that the washer seats directly on the base of the distance tube, and does not foul the inside of the hole in the rebound rubber. Alternatively the distance tube can be lengthened .030" by welding and machining to a length of 2.045".

To remove the engine rear mounting rear extension bracket, the gearbox is supported with the correct cradle and the $\frac{3}{8}$ " UNF engine mounting bolt, the lower steel washer and the rebound rubber removed. The gearbox is then raised slightly to relieve the mounting upper rubber of load, so that the three setscrews retaining the rear extension bracket can be removed and the bracket demounted. If required, it will then be quite simple to remove the assembly of upper steel washer and distance tube.

- 2 -

Some cars may have spacing washers fitted between the foot of the rear extension bracket and the top washer of the rear mounting assembly; the number and position of these are to be noted and the washers replaced in the same position on re-assembly.

The modification to the rear extension bracket and to the assembly of upper washer and distance tube are as illustrated.

Refitting instructions are a precise reversal to those of demounting.

To identify that this work has been done a spot of yellow paint is to be marked on the engine rear mounting bracket.

When the engine mounting bolt has been finally tightened, the rebound rubber should have a .006" minimum vertical clearance.

The time permitted for this work is three hours.

Chassis Numbers Affected.

Silver Cloud.

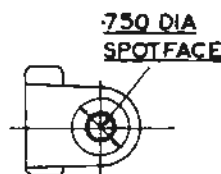
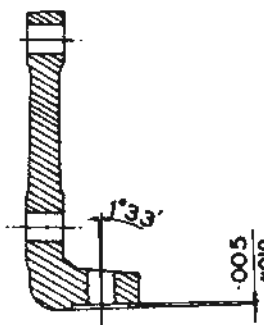
- Standard Saloons - All chassis up to LSWA-34.
- Coachbuilt Models - All chassis up to SWA-60.

Bentley "S" Type.

- Standard Saloons - All chassis up to B-430-AN.
except B-172-AN.
- Coachbuilt Models - All chassis up to B-17-AP.

Bentley Continental.

All chassis up to BC-28-AF.



Rear Mounting Rear
Extension Bracket.

FOR INFORMATION

SPARKING PLUGS

The Champion Sparking Plug Co. is amending the designation of their plugs, as follows:

<u>R.R. Part No.</u>	<u>Champion Designation</u>
RE.20608	NAB now becomes N5
RE.19735	N8B " " N8
UE.2831	N8ER " " RN8

The designation of the recommended Lodge plug (CLNP) is unaltered.

FOR INFORMATION.

EXHAUST VALVES

Instances of burnt exhaust valves have occurred owing to lack of tappet clearance. Under sustained high speed conditions the recommended .012" setting is insufficient to maintain adequate clearance for large mileages, and unless tappet adjustment is carried out frequently, this will result in burning of the valves.

In view of the difficulties and inconvenience involved in frequent tappet adjustment, it is recommended that exhaust tappet clearance should be increased to .015" (cold) when resetting tappets on cars known to be subjected regularly to sustained high speed driving.

It is not recommended that the .015" setting be employed in general, owing to the increase in engine noise level. For all normal driving conditions, the .012" clearance will be found to be adequate.

**PROPELLER SHAFT
AND UNIVERSAL
JOINTS**

CANCELS SERVICE BULLETIN NO.
CB-81. REF. SB/TJ.2/ET. 13.12.57.

PROPELLER SHAFT FRONT JOINT OIL SEAL UG.2995.

The propeller shaft front joint has recently been modified to improve the lubrication and reduce wear. This involves a modified propshaft and seal to permit the use of Wakefield Castrol Hi-press S/C oil as a lubricant in lieu of the grease used in the earlier design.

The components are not interchangeable except as a complete joint and front shaft assembly, and no attempt must be made to fit an oil seal to an assembly of the grease lubricated pattern. Components of the original pattern are still available for replacement purposes.

Shafts are stored with a slave face plate bolted on the joint end face. This maintains a clamping load on the end cover and Klingerite joint, thus ensuring that no loss of lubricant can occur. This should not be removed until immediately prior to fitting. When removing a shaft from the chassis for any reason, the same precaution should be observed, and a plate fitted unless the shaft is to be replaced immediately, when it may be stood upright to prevent oil leakage.

The shafts are balanced after filling with 100 c.c. of Hi-press S/C oil, and when fitting on a car it is necessary to readjust the oil seal to suit the propshaft length on the particular car. The importance of this has been stressed by failures due to incorrect installation.

On fitting the propshaft, it is essential to adjust the rear end of the boot to give an overall length of 1.450" in order to prevent folding of the seal, piercing of the rubber by retaining clips, or undue stretching. The clips must be positioned close to the seal lips. This applies particularly to the rear clip which would otherwise chafe and pierce the rubber seal.

When adjusting the boot, the rear clip should be slackened only enough to permit sliding on the shaft, or loss of oil will result.

FOR INFORMATION

PROPELLOR SHAFT FRONT UNIVERSAL COUPLING

Significant engineering refinements have been introduced from time to time on the front universal coupling with the two-fold objective of increasing its service life and improving balance retention of the propellor-shaft.

Fig.1 shows at a glance the modifications incorporated on the front universal coupling used on 'S' Type cars in current production

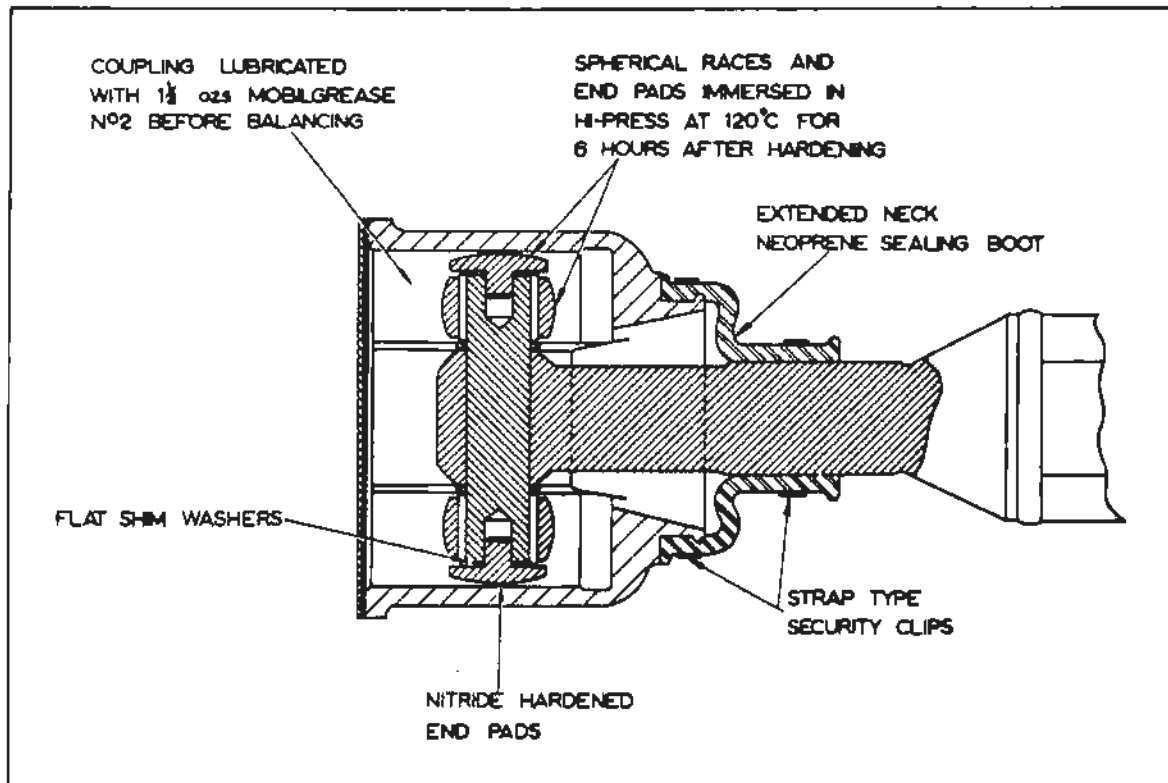


Fig.1

Early History

Complaints of propellor-shaft vibration investigated on early 'S' Type cars, revealed that premature wear of the mechanical elements of the coupling could often be attributed to splitting of the rubber sealing boot, with consequent loss of grease and ingress of foreign matter

Early development work was, therefore, directed towards increasing the mechanical strength of the sealing boot. This was achieved by altering the elastomer specification from rubber to neoprene together with detail dimensional changes. The dimpled band security clips Part Nos UG 1653/4 remain unchanged.

Satisfactory results have been obtained in service with this stronger sealing boot, Part No. UG. 3162, and it is therefore supplied as a service replacement item.

Further Development

For a limited period of time, Hi-Press Oil was specified as a lubricant for the coupling in order to gain service experience and assess the potential advantages of using an extreme pressure lubricant in this type of application.

A redesigned sealing boot of non-Convolute form was produced to accommodate the change of lubricant and to ensure that it is confined within the outer lobes of the coupling body. An early alteration in the synthetic rubber specification of the redesigned boot to neoprene was found necessary to overcome initial manufacturing difficulties. At the same time, the dimpled band clip Part No. UG 1653 originally retained for use with this boot together with the reduced diameter dimpled band clip Part No. UG 3021, were superseded by 14 S.W.G. wire type security clips Part Nos UG 3522/3.

The Part No. of the Neoprene sealing boot is UG 3543, and this also is supplied as a service replacement item.

Since the redesigned boot seals on the stem of the knuckle end of the shaft, a machined sealing land of reduced diameter is provided. As it is not possible to fit this boot without dismantling the coupling from the shaft, the width of undercut behind the sealing land is sufficient to enable the coupling body to be pushed along far enough to allow the cross-pin and spherical races to be assembled.

Concurrent with these changes, the opportunity was taken of introducing further engineering refinements into the ball and trunnion coupling.

The possibility of variation in dynamic balance occurring due to compression of the wavy washers fitted between the end pads and the cross-pin, has been countered by deleting the wavy washers and substituting flat shim washers. These are selected to give zero clearance of the cross-pin and end pads in the coupling lobes.

As heat is necessary to obtain the full benefit of using an Extreme Pressure lubricant, the spherical races and end pads are now immersed in Hi-Press Oil at 120 C for 6 hours after hardening. This pre-treatment is considered preferable to relying on local heat generation in service and should prevent any fretting occurring at the contact areas of the spherical races and end pads. In addition, a change in the material specification from a case hardening to a nitriding steel has been made for the end pads

Recent Modifications

Following an extensive trial period during which Hi-Press Oil has been used for coupling lubrication, it has recently been decided to revert to grease lubrication on Production and in Service, but retain the beneficial Hi-Press pre-treatment for the spherical races and end-pads. Factors which have influenced this decision include reduced leak consciousness, freedom from coagulation and easier servicing of the coupling.

Consideration has also been given to the possibility that a foul can occur between the clamping screw and nut of the small diameter wire clip and the annular face of the sealing boot (UG. 3543).

As an insurance against the boot being damaged in this manner, the clip has been repositioned further away from the seal face by extending the neck of the boot 0.575 ins together with a corresponding increase in width of the sealing land on the shaft stem. The Part No. of this long neck sealing boot is UG. 3553, and it is permissible to use this latest seal as a service replacement when overhauling shaft assemblies originally fitted with the short neck sealing boot.

Strap type security clips Part Nos. UG. 3554/5 have been adopted with this long neck seal, the shorter clip being positioned as near as possible to the rear of the neck. These clips are of a more compact design and by the nature of their constructions exert an evenly distributed radial clamping pressure.

Fig. 2. shows a comparison between the convoluted, short and long neck grease sealing boots and their associated clips. After installing a propellor-shaft fitted with either a short or long neck sealing boot, it is essential that the annular face of the seal is not restrained from assuming its free state.

The rear clip should therefore be slackened sufficiently to allow the neck to slide and relieve any strain from the seal, and finally re-tightened

Service Bulletin CB-81, Section F specified that the fitted overall length of the short neck boot should be 1.450"; this dimension should be increased to 1.950-2.000" in the case of the long neck sealing boot



Fig. 2

FOR INFORMATIONPROPELLER SHAFT UNIVERSAL JOINT -
FRONT COUPLING.

The bolts securing the front coupling of the propeller shaft to the gearbox flange should be checked for tightness at the 5,000 miles Scheduled Maintenance Service.

If, for any reason, this joint has to be disturbed, the securing bolts must be re-tightened after a run of approximately 10 miles. This is due to the fact that a slackening of these bolts can occur due to settling of the gasket between the joint faces.

The correct torque value is 42 - 45 lb. ft.

It has now been established that if this joint appears externally dry, grease replenishment at the 20,000 miles service IS NOW NO LONGER NECESSARY. No further maintenance is required, apart from the torque tightness check as already described.

BRAKES

CATEGORY 2.

BRAKE FLUID SUPPLY TANK.

To prevent any possibility of foreign matter entering the hydraulic Brake Fluid supply tank, which would endanger the efficient working of the braking system, a gauze filter should be fitted in the top of the tank.

The following cars require the incorporation of this filter, and Retailers are requested to deal with those in their respective areas.

Bentley "S" Type.

B-2-AN to B-400-AN, B-1-AP to B-285-AP.
B-289-AP and B-327-AP.

Bentley "S" Continental.

BC-1-AF to BC-54-AF, BC-56-AF to BC-69-AF,
and BC-74-AF.

Silver Cloud.

SWA-2 to SWA-86, SWA-90, SWA-112 to SWA-130.
and SWA-150.

Remove the supply tank cover and install the 80 mesh gauze filter with one gasket either side of the filter rim. Replace supply tank cover.

The necessary Part Numbers are given below, and Retailers should order these from The London Service Station as required:

UR.2837	Gauze Filter	1 off.
UR.2842	Gasket	2 off.

FOR INFORMATION.

DUAL MASTER CYLINDER BRAKING SYSTEM.

From Rolls-Royce Silver Cloud SYB-50, Bentley 'S' Type saloon B-245-BC, Bentley 'S' Type Continental BC-21-BG, all models subsequently produced and a small number previously produced, a dual hydraulic master cylinder braking system is fitted.

The dual system is, in principle, similar to the single system except that two master cylinders are fitted, each with a separate replenishing reservoir. One cylinder actuates one brake shoe in each front brake, the other operates the second shoe in the front brake and both rear shoes. The safety factor is therefore greatly increased in the event of a defect in either cylinder.

The assembly of master cylinder operating levers (Fig.1) is arranged to provide equal pressures in each master cylinder hydraulic system by means of the balance lever pivoted above a needle roller bearing. The bearing is to be greased with Shell "Retinax" every 10,000 miles at the greasing nipple provided on the outside of the operating lever assembly.

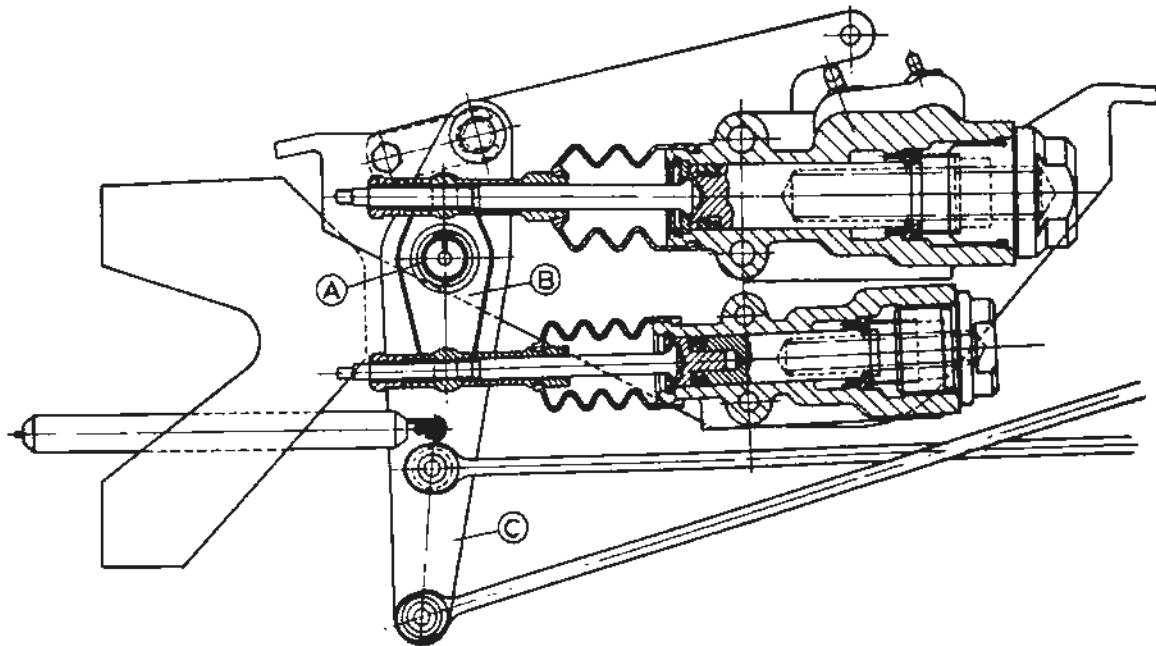


Fig.1.

- A. Balance Lever Pivot Needle Roller Bearing.
- B. Master Cylinder Balance Lever.
- C. Assembly of Master Cylinder Operating Levers.

- 2 -

A check valve has been included in the hydraulic pressure line from each master cylinder to reduce the depression in the hydraulic lines during release of brakes.

As acceleration of the brake fluid on release of the brakes is greater than the acceleration during application of the brakes, there is a momentary depression during release of quite a high value, and if one of the wheel cylinder rubbers will not hold as great a depression as the master cylinder seal, air will be induced into the system through the wheel cylinder. The check valve in the pressure line from the master cylinder will prevent this momentary depression being generated forward of the check valve, and therefore air will not be induced into the system.

The check valve operates both ways at a pressure of 8 lbs sq/in. and does not maintain a permanent pressure difference in the pressure line either side of it, but permits leakage at the valve seat so that the pressure is equal after a short period of time.

All brake shoe expanders are made from cast iron but differ from the latest fitted to the single master cylinder system in that they are not fitted with air excluders but incorporate mechanical seal spreaders to prevent the possibility of fluid leaking, or air entering the system via the seals. Brake shoe expanders fitted with this seal spreader are stamped with the letter 'S' on the machined external faces. These expanders are not interchangeable with those of the single master cylinder system at present.

The brake shoes of the dual system are made from stronger material and have additional strengthening pieces on the operating end of the shoe, and are not interchangeable with brake shoes of the single master cylinder system unless the operating fork is also changed.

BRAKE ADJUSTMENT, BLEEDING AND CHECKING INSTRUCTIONS (Fig.2).

The following should first be disconnected:-

1. Spring S (Pedal Lever).
2. Spring M (Hand Brake Lever).
3. Pin E (Rod B).

- 3 -

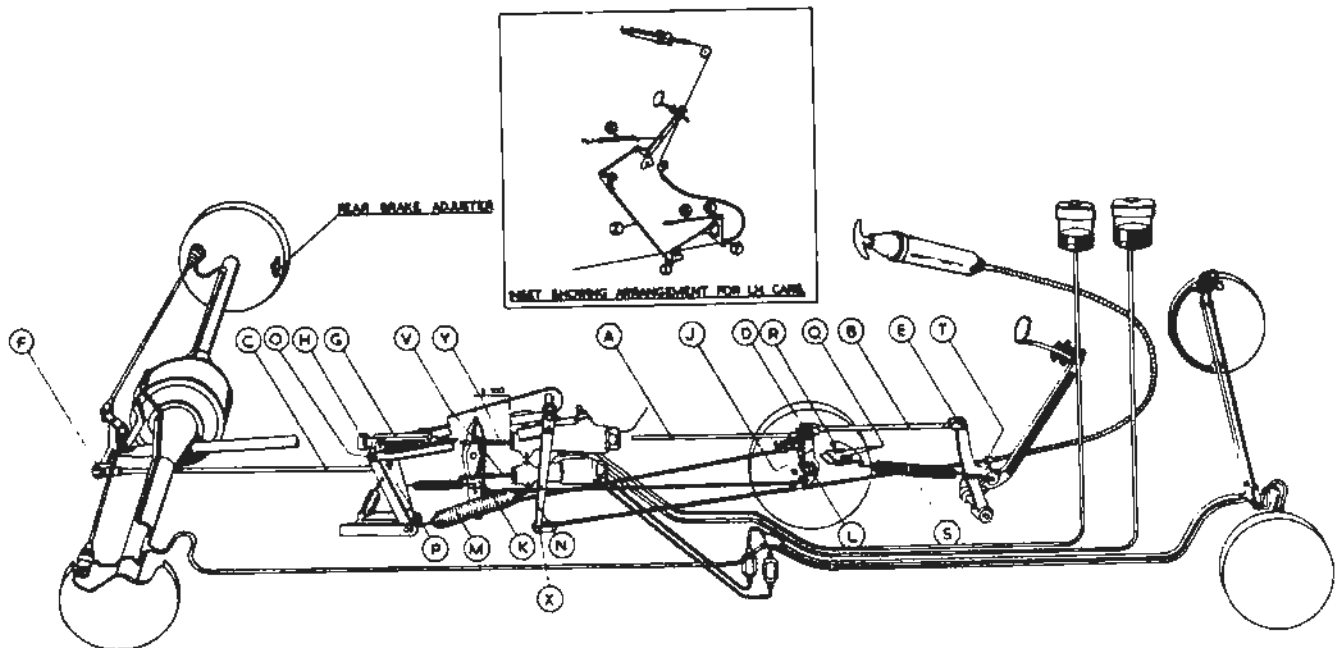


Fig.2.

4. Pin D (Outer Servo Cam Lever).
5. Split pin O. The outer connecting link should then be removed from the pin, lowered and the split pin replaced temporarily. (This is to facilitate spanning of the locknut on rod A.)
6. Pin F (Rear Equaliser).
7. Pin X (Hand Brake Lever).
8. Pin I (Rod Z) L.H. cars only.

In addition the bolts Q retaining on-stop R to the frame should be slackened, and the rear brake adjusters tightened to lock the brake drums.

The linkage can now be adjusted as follows:-

1. Adjustment of Rod A.

Adjust rod A so that when slotted link G is in contact with off-stop H, the clearance between servo cam lever J and the frame is between .200" and .300".

- 4 -

Replace pin D and lock up nut on rod A.

Replace connecting link and renew split pin O.

2. Adjustment of on-stop R.

Place a 1.600" distance piece between slotted link G and off-stop H.

Position on-stop R in contact with the outer servo cam lever J.
Lockup bolts Q.

3. Adjustment of Rod Z.

L.H. cars only. Adjust rod Z to the nearest turn of the jaw to give 9.875" centre distance between the two pins.

Replace pin I and lock up nut on rod Z.

4. Adjustment of Rod B.

This rod can only be finally set after the body is in position.

With rod A held rearwards on the off-stop, adjust rod B so that the seal on the pedal stem is compressed approximately .200" by contact with the pedal gap plate.

Replace pin E and spring S and lock up the nut on rod B.

5. Adjustment of Rod C.

Adjust rod C so that there is just sufficient tension in the rod, from rear brakes to equaliser to ensure freedom from rattles.

Replace pin F and lock up nut on rod C.

Re-adjust the rear brakes by slackening the adjuster two "clicks".

6. Adjustment of Handbrake.

Replace pin X, and spring M.

Adjust the handbrake cable at the abutment T, to give approximately .250" free movement of the lower end of lever N before lever P is picked up and rod C moves. Lock up the nut on the cable adjuster.

- 5 -

7. Adjustment of Master Cylinders.

Set the push rod Y to give 3.7" between the master cylinder and face and the trunnion U as shown. (NB. In the case of a complete car it must be set before assembling the master cylinder on the car).

Set the push rod V to give just no free movement of lever K before the push rods contact the master cylinder pistons, shorten the push rod V $\frac{1}{4}$ turn and lock up nut.

No on-stop adjustment is necessary.

8. Adjustment of Servo.

Adjust locknuts L until drag between the plates can just be felt on rocking the servo. Undo the locknuts two flats to free the servo applying the pedal once to ensure that the outer cam lever has followed back the locknuts.

Tighten the locknuts L.

NOTE: All split pins removed must be renewed and not replaced.

BLEEDING THE HYDRAULIC SYSTEM.

Make certain that both Brake Fluid Reservoirs are full.

Fix a rubber tube to one of the brake bleed screws and immerse the other end in about 1" of brake fluid in a clean bottle.

Fit the lever (Tool No.RH.417 Fig.3) to the lever K and operate the master cylinders with a firm movement, opening the bleed screw at the same time.

At the end of the forward stroke close the bleed screw and allow the master cylinder pistons to return fully.

Pull the lever K right back and wait five seconds before making a further movement forward with lever and opening the bleed screw.

Continue this cycle ten times or longer if air bubbles still appear in the bottle.

Repeat for the other brakes noting that there are two bleed screws for each front brake and one for each rear brake.

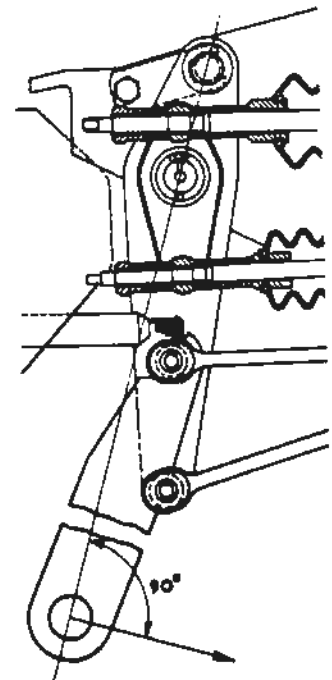


Fig.3.

The 100 lb effort is applied to the lever (Tool No.RH.417) in the direction of the arrow.

- 6 -

During bleeding after two or three cycles, pull the lever K fully forward and then return it fully rearward and note the time taken for the master cylinder pistons to return. This will be evident by the pistons striking the push rod retaining washers on returning. The time permitted is between one and four seconds; if less or more time is taken, the relevant master cylinder or master cylinders must be replaced.

TO CHECK THAT THE HYDRAULIC SYSTEM IS FREE FROM AIR.

Fit the lever (Tool No.RH.417) to the lever K and pull forward pressing the brake shoes hard against the drums, examine the whole hydraulic system for leaks while it is under pressure, then allow the master cylinder pistons to return fully to recuperate.

Fit a spring balance to the lever and exert an effort of 100 lbs forward. Note the distance the bottom clevis pin in the lever K has moved from rest, if this exceeds 2.250" the hydraulic system must be bled and re-checked. This distance is known as the "BRAKE SPONGE FIGURE".

CATEGORY 2 MODIFICATION.MODIFICATION TO THE DUAL MASTER CYLINDER BRAKE
FLUID RESERVOIR PIPING.

To overcome any possibility of air being trapped in the master cylinder recuperation pipes and being drawn into the master cylinders on recuperation, larger diameter pipes, rising throughout their length from the master cylinders to the brake fluid reservoirs are to be fitted.

Certain vehicles already have the lower master cylinder recuperation pipe modified and consequently modification is necessary on the upper master cylinder pipe only.

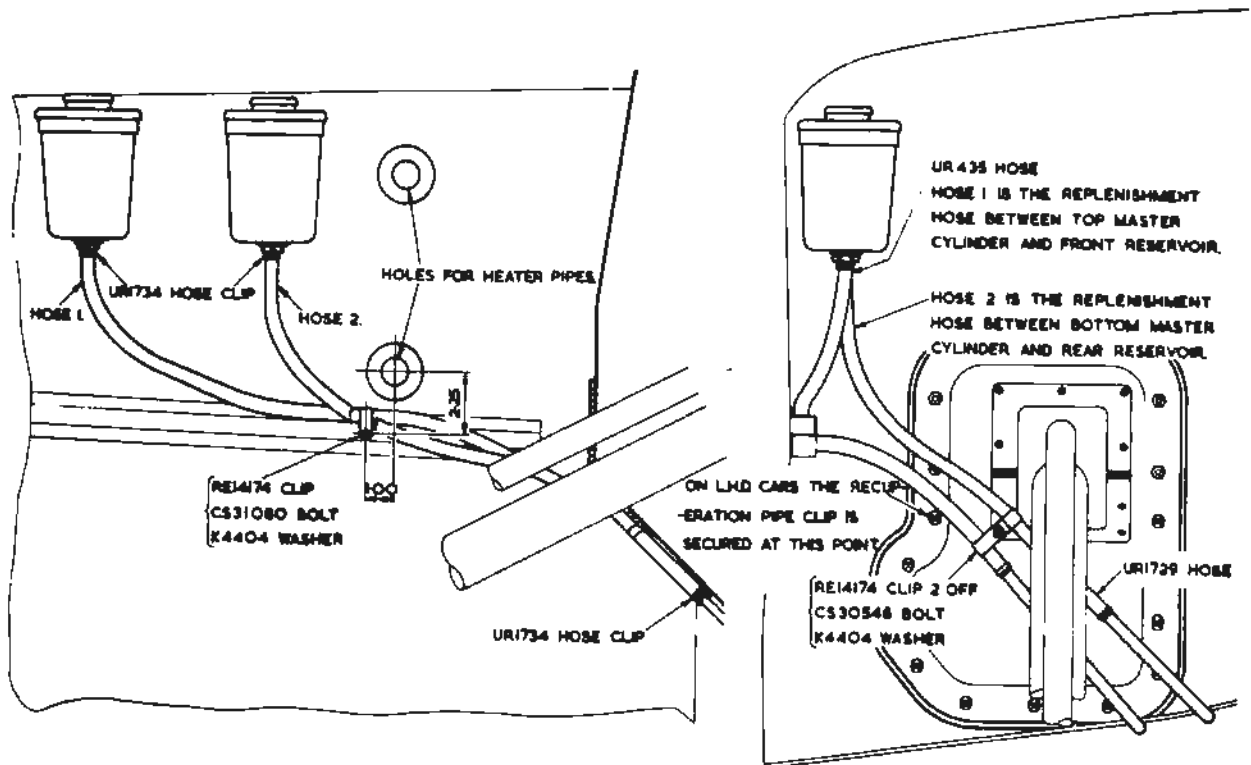
PROCEDURE.General.

Inspect the car from below and ascertain the extent of modification necessary if any.

Adjust the rear brakes and check and record the Brake Sponge Figure as indicated in the Brake Adjustment and Bleeding Instructions. If the figure is above the limit, any defective master cylinder which can be detected by observing the movement of the master cylinder balance lever, must be replaced. Remove the front carpets, and if only the upper master cylinder requires modification, drain the front brake fluid reservoir, if both master cylinders require modification, drain both reservoirs and keep the brake fluid in a scrupulously clean sealed container until it can be returned to the braking system. The wiring loom fitted along the right hand undersurface of the floor is then to be removed from its clips and eased towards the side of the car to avoid possible damage when drilling the pipe clip fixing holes through the floor as indicated below.

Marking out and drilling the floor to take the hose securing clip setscrews has to be extremely accurate, and it is recommended that the fore and aft centre line of the car be marked on the floor in chalk by measuring the floor width at the front door post, and at the front of the seat which will then indicate the vehicle's centre line, bisecting these dimensions to obtain the centre of the car, and joining the two points. Another line is then drawn parallel to it rearwards from the centre of the gearbox filler; this will provide an accurate position line for the clip fixing holes to be marked from.

-2-

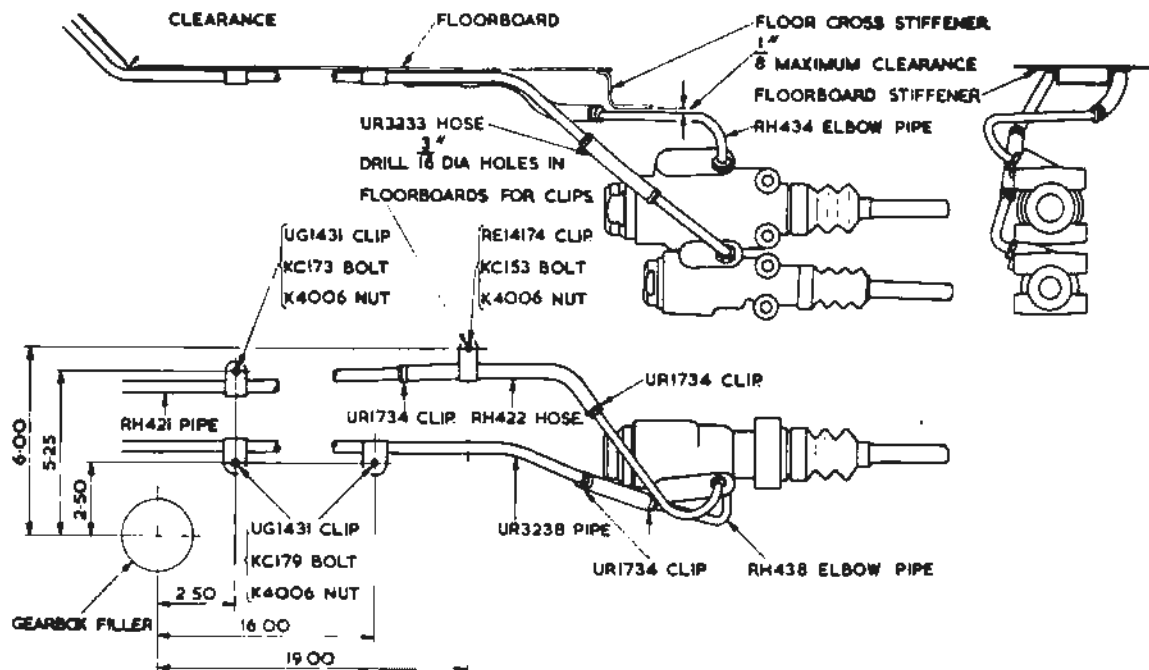


MODIFICATION TO THE RECUPERATION PIPE TO THE UPPER MASTER CYLINDER.

Mark and drill the two 3/16" dia. holes in the floor and 1/8" dia. hole through the valance as indicated for the upper master cylinder only.

Take the component pipes and assemble them loosely. The rubber hoses are to be eased over the metal pipes with brake fluid as lubricant, for a distance of one inch. The hose clips and pipe securing clips are then slipped on, and the assembly offered in position, screwing the master cylinder elbow union finger tight only. Adjust the pipe assembly for an even and smooth rise from the master cylinder and adjust the position of the elbow pipe as indicated, so that there is no more than 1/8" clearance between the pipe and the floor panel cross stiffener. The rubber hose at that point is not to be fitted close under the stiffener but clear of it, as indicated. Note that the elbow piece passes over the apex formed by the chassis cruciform member and left hand master cylinder support plate and is above the recuperation pipe from the lower master cylinder at that point.

-3-



Allow clearance for the pipe as it passes upwards, at the toe board. When the arrangement of the pipe is satisfactory, tighten the hose clips first, then the master cylinder elbow union and finally the pipe securing clips to the floor; the longer setscrew fits the front clip. Connect the front reservoir to the recuperation pipe with the longer hose provided, tighten the hose clips and then secure the hose to the valance and the steering column seal.

MODIFICATION TO THE RECUPERATION PIPE TO THE LOWER MASTER CYLINDER.

Fitting the lower master cylinder recuperation pipe is carried out in a similar manner to that for the upper system, care being taken to ensure a smooth and continuous rise from the master cylinder. The existing hose from the brake fluid reservoir is to connect the rear reservoir to the lower master cylinder recuperation pipe, contrary to the standard un-modified arrangement.

Refill the brake fluid reservoirs, filtering the fluid previously drained from the system or employing new fluid if satisfactory filtration is

-4-

not possible, bleed the braking system, and once more check and record the brake sponge figure after road test.

It is requested that the two brake sponge figures, one obtained before modification and one after, be recorded on the Guarantee Claim Form which is then to be dealt with in the usual manner.

The time permitted for modifying the upper master cylinder is five hours and a further two hours are permitted for modifying the lower master cylinder.

CHASSIS NOS.

Silver Cloud - (SXA. 247, 249, 251.
(SYB. 2, 4, 6, 10, 12, 30, 36, 38, 50, onwards to
(SZB. 67 and LSZB. 19.

Bentley 'S' Type B-BC. 75, 237, 247 onwards to
B.378-CK.

Bentley
Continental BC-BG. 16, 17, 18, 19, 21 to
BC.28-BG.

PARTS REQUIRED.

For Modification to the Upper Master Cylinder.

RH.421.	Pipe - Recuperation.	1 off.
RH.422.	Connector - Hose - Rubber.	1 off.
RH.434.	Piece - Elbow - Upper Cylinder.	1 off.
UR.1734.	Clips - Hose - Connector.	4 off.
RE.14174.	Clip - Valance - Wing.	1 off.
RE.14174.	Clip - Seal - Column.	1 off.
UG.1431.	Clip - Floor Panel - Front.	1 off.
RE.14174.	Clip - Floor Panel - Rear.	1 off.
KC.173.	Screw - 2BA.	1 off.
KC.153.	Screw - 2BA.	1 off.
K.4006/Z.	Nut - 2BA.	2 off.
* CS.30544/Z.	Screw - 2BA.	1 off.
† CS.30546/Z.	Screw - 2BA.	1 off.
† K.4006/Z.	Nut - 2BA.	1 off.
† K.4404/Z.	Washer - 2BA.	1 off.
CS.31080.	Screw - Self Tapping.	1 off.
K.4404/Z.	Washer - 2BA.	4 off.

-5-

RH.435. Pipe - Flexible - Reservoir. 1 off.

* Not required on L.H. drive cars.

∕ To be used for the toe-board clip on L.H. drive cars only.

For modification to the Lower Master Cylinder.

UR.3238.	Pipe - Recuperation.	1 off.
UP.3233.	Connector - Hose - Rubber.	1 off.
FH.438.	Piece - Elbow - Lower Cylinder.	1 off.
UR.1734.	Clips - Hose - Connector.	3 off.
RE.14174.	Clip - Seal - Column.	1 off.
UG.1431.	Clip - Floor Panel - Front.	1 off.
UG.1431.	Clip - Floor Panel - Rear.	1 off.
KC.179.	Screw - 2BA.	2 off.
K.4006/Z.	Nut - 2BA.	2 off.
K.4404/Z.	Washers - 2BA.	2 off.

CATEGORY 2 MODIFICATION.MODIFICATION TO THE SINGLE MASTER CYLINDER
BRAKE FLUID RESERVOIR PIPING.

To prevent any possibility of air being trapped in the master cylinder recuperation pipe, which may be drawn into the master cylinder on recuperation, a larger diameter pipe rising throughout its length from the master cylinder to the brake fluid reservoir is to be fitted.

PROCEDURE.

Firstly adjust the rear brakes and check and record the BRAKE SPONGE FIGURE (see below). If the sponge figure is excessive the master cylinder must be changed for one of the latest type.

Remove the front carpets. The flexible pipe from the brake fluid reservoir is then to be removed from the recuperation pipe, draining as much fluid as possible into a scrupulously clean container which is then sealed until the fluid can be returned to the reservoir. Disconnect the other end of the pipe from the master cylinder (on cast iron master cylinders the union is unscrewed from the cylinder itself, whereas on aluminium master cylinders the union is unscrewed from the "banjo" union and not the master cylinder). Remove the pipe securing clips and demount the pipe; the pipe may be cut a short distance from the master cylinder to make removal simpler.

Remove the wiring loom fitted along the right hand undersurface of the floor from its clips and ease it towards the side of the car to avoid damage when drilling the two 3/16" dia. holes in the floor which are to be marked and drilled as indicated to take the new hose clip securing setscrews (Fig.1). Drill the 1/8" dia. hole in the right hand valance as indicated (Fig.2).

The two clip holes through the floor must be drilled with great accuracy which will be facilitated if the fore and aft centre line of the car is marked on the floor in chalk and a line drawn rearwards from the centre of the gearbox filler parallel to it to provide an accurate position line for the holes to be marked from.

Take the master cylinder elbow pipe and immerse the end of it in brake fluid so that the short rubber hose can be simply eased over it until the end of the hose coincides with the edge of the large diameter of the elbow pipe where it joins the smaller diameter section, next immerse the straight end of the long pipe in brake fluid and insert it into the other

-2-

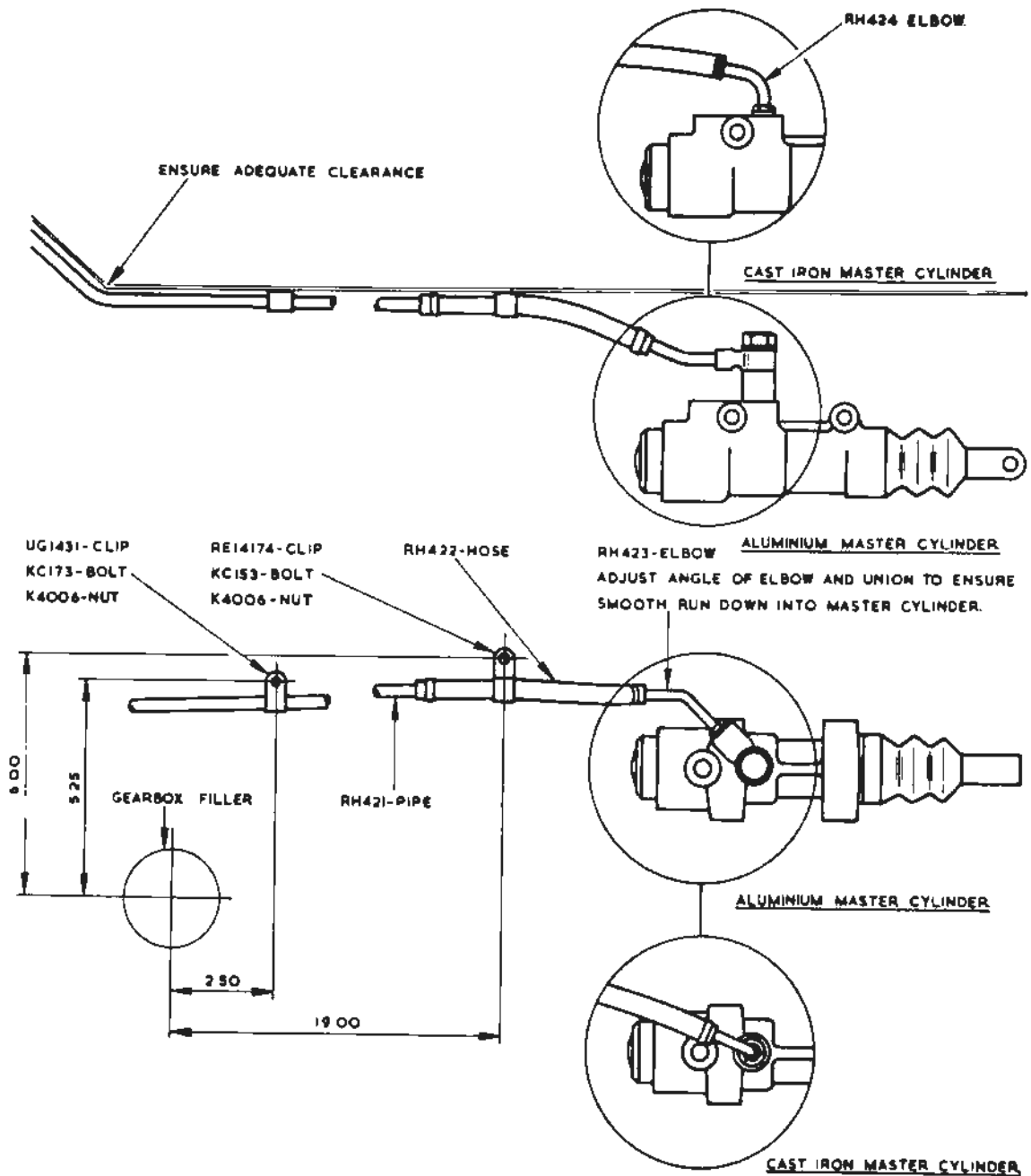


Fig.1.

-3-

end of the short rubber hose. Any adjustments to the length of the pipe assembly, and to the angular position are to be made at this point and not where the master cylinder elbow pipe is fitted into the rubber hose.

Fit loosely the two rubber hose clips and the two clips which will secure the pipe to the floor and offer the assembly in position.

Screw the master cylinder union nut finger tight and adjust the pipe for length to provide adequate clearance at the toe-board as indicated (Fig. 1) and for angular displacement so that the pipe will align correctly at the master cylinder elbow and also at the steering column seal clip fixing (Fig. 2). All adjustments for length and angle are to be made at the point previously described.

Inspect the pipe assembly to ensure that there is a smooth and continuous rise from the master cylinder to the toe-board. The master cylinder elbow union nut for the cast iron master cylinder is left slack and the "banjo" union on the aluminium master cylinder is slackened to permit this final adjustment.

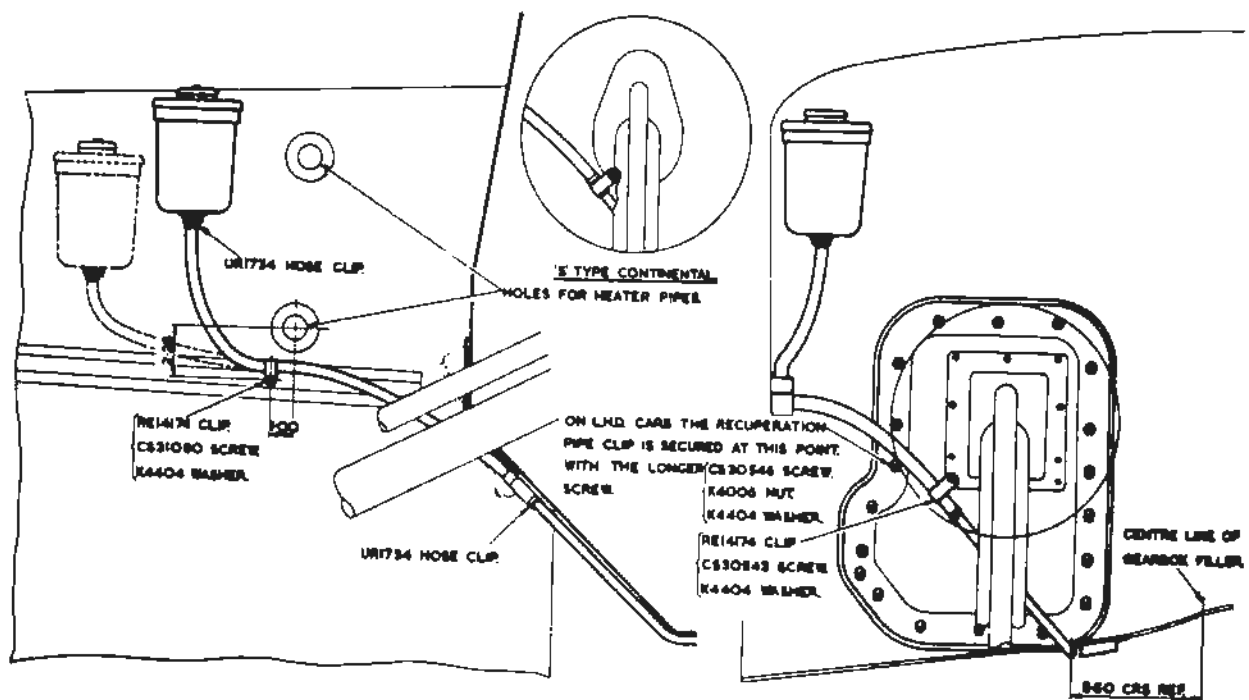


Fig. 2.

- 4 -

When satisfactory, tighten the clips on the short rubber hose, the master cylinder elbow union nut and where applicable, the master cylinder banjo union. Fit the longer of the two 2BA setscrews to the front clip and the shorter to the rear and fit the pipe securely to the undersurface of the floor. Note that the larger diameter clip is fitted to the rear and circumscribes the rubber hose and not the metal pipe as the front clip does. Connect the rubber hose from the reservoir to the metal recuperation pipe, tighten the hose clip and secure the hose to the valance with the self tapping screw in the hole drilled in the valance, and also to the floor board at the steering column seal with the longer screw provided, (Fig.2). On LHD cars, the clip is secured to one of the rivet nuts in the pedal gap plate as indicated, by replacing the existing setscrew with a longer one and securing the clip with a spring washer and nut. The reservoir hose should lie along the top edge of the valance stiffener for a short distance before running down to the recuperation pipe.

Replace the wiring loom under the floor into its clips, refill the brake fluid reservoir, bleed the hydraulic system and check and record the BRAKE SPONGE FIGURE once more.

The two BRAKE SPONGE FIGURES obtained, the first before any work has been done, and the second when everything has been completed, are to be noted on the Guarantee Claim Form and sent to Rolls-Royce Limited, in the usual way.

NOTE: The Continental Bentley will require a longer flexible hose from the reservoir to the recuperation pipe and consequently new hoses are provided. (The reservoir and part of the recuperation pipe for the Continental Bentley are shown dotted in Fig.2).

The time permitted for this work is 4 hours.

BLEEDING THE HYDRAULIC SYSTEM

Make certain that the Brake Fluid Reservoir is full.

Fix a rubber tube to one of the brake bleed screws and immerse the other end in about 1" of brake fluid in a clean bottle.

Fit the lever (Tool No.RH.322 or RH.312) to the lever K and operate the master cylinder with a firm movement, opening the bleed screw at the same time.

-5-

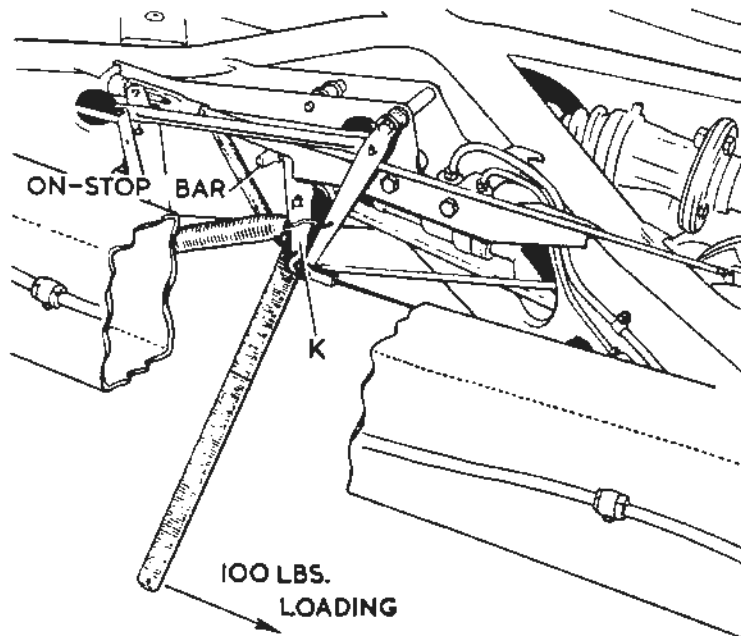
At the end of the forward stroke close the bleed screw and allow the master cylinder piston to return fully.

Pull the lever K right back and wait five seconds before making a further movement forward with lever and opening the bleed screw.

Continue this cycle ten times or longer if air bubbles still appear in the bottle.

Repeat for the other brakes.

During bleeding, after two or three cycles, pull the lever K fully forward and then return it fully rearward and note the time taken for the master cylinder piston to return. This will be evident by the piston striking the push rod retaining washer on returning. The time permitted is between one and four seconds; if less or more time is taken, the master cylinder must be replaced.



-6-

CHECKING AND RECORDING "BRAKE SPONGE FIGURE".

Fit the lever (Tool No. RH.312 or RH.322) to the lever K and pull forward, pressing the brake shoes hard against the drums, examine the whole hydraulic system for fluid leaks while it is under pressure then allow the master cylinder piston to return fully to recuperate.

Fit a spring balance to the lever and exert an effort of 100 lbs forward. Note the distance the master cylinder on-stop bar has moved from rest, if this exceeds 0.85" the hydraulic system must be re-bled and re-checked.

This distance is known as the "BRAKE SPONGE FIGURE" and gives indication of the presence of air in the braking system.

CHASSIS NOS:

Rolls-Royce Silver Cloud.

Up to SYB-50.

Where fitted with the single master cylinder.

Bentley "S" Type.

Up to B-245-EC.

" " " "

Bentley "S" Type Continental.

Up to EC-21-EC.

" " " "

MATERIALS.

		<u>No.Off.</u>
RH.421.	Pipe - Replenishment.	1.
RH.422.	Connector - Hose - Rubber.	1.
RH.423.	Piece-Elbow (Aluminium Master Cylinder)	1.
RH.424.	Piece-Elbow (Cast Iron Master Cylinder)	1.
UR.1734.	Clips - Hose - Connector	3.
RE.14174.	Clip - Valance - Wing.	1.
RE.14174.	Clip - Seal - Column.	1.
UG.1431.	Clip - Floor Panel - Front.	1.
RE.14174.	Clip - Floor Panel - Rear.	1.
KC.173.	Screw - 2BA.	1.
KC.153.	Screw - 2BA.	1.
K.4006/2.	Nut - 2BA.	2.
CS.30543/2.	Screw - Binding Head - 2BA.	1.
CS.31080.	Screw - Self Tapping.	1.
K.4404/2.	Washer - 2BA.	4.

-7-

Additional Parts Required for the Bentley Continental.

UR.3232.	Pipe - Flexible - Reservoir.	1.
JR.1734.	Clip - Hose - Connector.	1.

Additional Parts Required for Left Control Cars.

CS.3-546/Z.	Screw.	1.
K.4006/Z.	Nut.	1.
K.4404/Z.	Washer.	1.

CANCELS SERVICE BULLETIN CB,28
Issued 18.9.56 Ref: SB/VY/TRY.1/PR.

CATEGORY 2 MODIFICATION.

BRAKE PIPE FOULING AGAINST THE VALANCE
ON CARS FITTED WITH DUAL MASTER CYLINDERS.

On a small number of cars fitted with dual master cylinders, it is possible for the rearmost brake pipe on the front brake assembly to chafe against the wing valance adjacent to the front suspension damper.

In order that this might be overcome bend the mounting bracket, which secures the two brake pipes to the front damper, outwards, so that a minimum clearance of 0.375" is maintained between the rearmost of the two front brake pipes and the valance. If there is still insufficient clearance after bending the bracket, further clearance may be obtained by bending the edge of the valance plate away from the brake pipes.

It is necessary to remove the front wheels to carry out inspection and modification. Fit new pipes if their condition warrants replacement.

The following chassis have had the flanges of the valance plates turned back on production to clear the brake pipes.

Crewe built body.	Bentley 'S' Type Silver Cloud	B-470-FA and on SGE-280 and on
Coach built body.	Bentley 'S' Type Continental Silver Cloud	BC-30-EL BC-31-EL BC-35-EL BC-37-EL and on SCE-270 and on.

All cars, fitted with dual master cylinders, produced before the above mentioned chassis numbers must be checked for brake pipe/valance clearance and modified if necessary.

CATEGORY 3A MODIFICATION

SINGLE MASTER CYLINDER BRAKING SYSTEM

To fit an improved hydraulic master cylinder with aluminium body as a replacement on all cars fitted with a single cast iron unit.

Although the external finish of both types of master cylinders are similar in appearance, the cast iron type can be identified by reference to the end cap which has six spannering flats whereas the aluminium type has two flats.

If the modification to the single master cylinder brake fluid reservoir piping as described in Service Bulletin No. CB.26 has not been carried out then opportunity must be taken to incorporate this scheme. Where this modification has already been carried out it will be found that the replenishment piping from the reservoir is attached to the underside of the floor panel whereas previously it was attached to the right-hand side frame member.

TO REMOVE THE MASTER CYLINDER

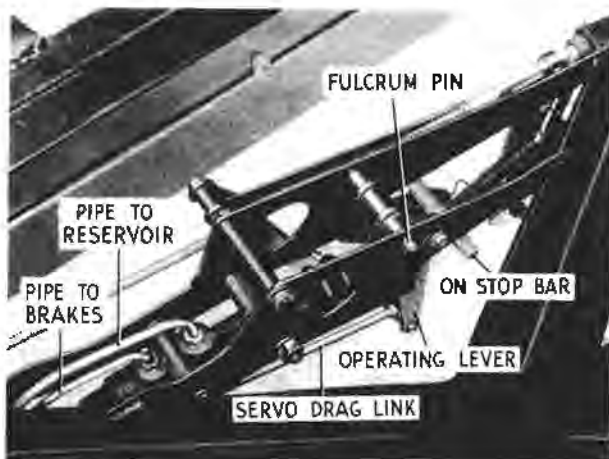


FIG.1. MASTER CYLINDER IN POSITION.
fluid can be returned to the reservoir.

For the sake of clarity the master cylinder is shown in position on the chassis in Fig.1, but ready access to all disconnection points is possible from under the car with the body in position.

Remove the clip from the lower end of the flexible pipe leading from the reservoir, disconnect the pipe simultaneously allowing the fluid from the reservoir to drain into a scrupulously clean container which should then be sealed until the

Thoroughly wipe away any grit from around the two pipes near the unions of the master cylinder and disconnect the outlet and inlet pipes. On cast iron master cylinders the outlet and inlet pipe union nuts are screwed into the master cylinder itself, whereas on aluminium master cylinders the union nuts are unscrewed from the banjos and not the master cylinder.

Disconnect the servo motor drag links from the master cylinder operating lever by removing the split pins and pins. Disconnect the return spring from the lever.

- 2 -

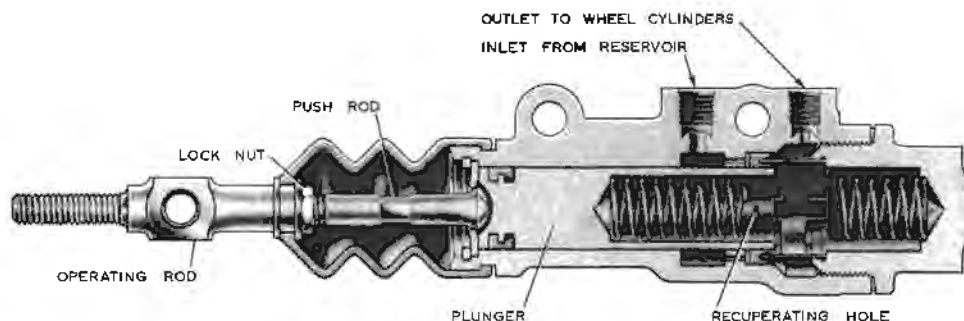


FIG.2. MASTER CYLINDER - SECTIONAL VIEW

Push the rear end of the rubber boot forward and release the lock nut situated on the push rod (see Fig.2). Ease the front end of the boot away from the master cylinder, place a spanner on the spannering flats of the push rod and rotate this rod to release it from the operating rod.

Remove the two through bolts securing the master cylinder to its bracket and remove the master cylinder; leaving the operating rod and on-stop bar in position.

TO FIT THE NEW CONNECTIONS TO THE ALUMINIUM MASTER CYLINDER

NOTE: It is of the utmost importance that no foreign matter whatsoever is allowed to enter the replacement master cylinder or the inlet and outlet pipes. All parts must be free from grease, grit and lint from cleaning rags.

Remove the two hexagon headed blanking plugs from the adaptors of the aluminium master cylinder.

The banjo connections and copper gaskets (see "Materials Required"), should be positioned as follows :-

- (a) The outlet banjo (UG.2490) is positioned towards the front of the master cylinder i.e. nearest to the end cap. This banjo has a smaller diameter threaded hole than the inlet banjo (UG.2489).
- (b) A copper gasket must be fitted to the top and bottom of the banjos. The gasket (UG.2492) which has a larger external diameter than the gasket UG.2491 is fitted beneath the banjos.

- 3 -

- (c) The banjos should be positioned on the adaptors so that their threaded portions point approximately to the right hand side front of the car and the banjo bolts then tightened just sufficiently at this stage to allow the banjos to be rotated for alignment with the pipes.
- (d) Temporarily seal the orifice of each banjo to prevent ingress of foreign matter.

TO REFIT THE REPLACEMENT MASTER CYLINDER TO THE FRAME.

The sequence for re-fitting is the reversal of that for removing.

If a thread protecting sleeve is found on the push rod of the new master cylinder it should of course be discarded.

After screwing the original lock nut onto the push rod of the new master cylinder as far as it will go, the push rod should then be screwed into the operating rod but it is not necessary to tighten the lock nut at this stage.

MODIFICATION TO THE SINGLE MASTER CYLINDER BRAKE FLUID RESERVOIR PIPING.

Where this modification, as mentioned on Page 1 has not been incorporated then it should be carried out at this stage and as detailed in Service Bulletin No. CB.26. It should be noted that if this modification has already been carried out in conjunction with a cast iron master cylinder it will therefore be necessary to replace the existing elbow piece, RH.424 by the elbow piece RH.423 together with a new hose clip UR.1734. Both these elbows are illustrated in position on Page 2 of Service Bulletin No. CB.26.

Disconnect the existing outlet pipe from the 3-way junction and fit the new pipe (UR.2901).

Connect the pipes to the master cylinder and tighten down the bolts of the two banjos.

Replenish the reservoir and bleed the hydraulic system as described in Service Bulletin No. CB.26. and top up the reservoir.

- 4 -

TO ADJUST THE MASTER CYLINDER PUSH ROD

Correct adjustment is essential to ensure that the plunger can return to its fully off position when the holes in its inner end are behind the lip of the main seal and recuperation can take place.

With the lock nut (see Fig.2) screwed back as far as it will go and the push rod screwed into the operating rod up to the lock nut so that there is slack between the end of the push rod and plunger; this slack can be felt by moving the lower end of the operating lever (this lever is shown in Fig.1) gently backwards and forwards. Do not pull hard on the operating lever or the plunger will be forced along the cylinder and as it returns slowly the subsequent adjustment may be false.

Lengthen the push rod until free movement at the lower end of the operating lever is just lost. Shorten the push rod one flat (1/4 turn) and tighten the lock nut.

TO ADJUST THE ON-STOP BAR

Adjust the on-stop bar (this bar is shown in Fig.1) to travel 1.600" before it contacts the edges of the master cylinder support bracket by slackening off the lock nut on either side of the bar and adjusting as necessary until the required travel is obtained. When tightening the lock nuts make sure that the on-stop bar is horizontal.

FINAL OPERATIONS

Check and record the "Brake Sponge Figure" as described in Service Bulletin No. CB.26. This operation should be carried out prior to and after the road test. The "Brake Sponge Figure" must be noted on the Guarantee Claim Form and sent to Rolls-Royce Ltd., in the usual way.

Prior to and after road testing the car check that there are no fluid leakages from the inlet or outlet side of the system. This can be ascertained on the outlet side by fitting the lever (Tool No. RH.322 or RH.312) as described beneath "Bleeding the Hydraulic System" and operating the master cylinder so as to induce pressure in the system.

- 5 -

MATERIAL REQUIRED

<u>Part No.</u>	<u>Description.</u>	<u>No.Off.</u>
UG.2495	Hydraulic Master Cylinder (aluminium)	1
UG.2489	Banjo-inlet-Master Cylinder	1
UG.2490	Banjo-outlet-Master Cylinder	1
UG.2491	Copper Gasket-Banjo Bolt to Banjo	2
UG.2492	Copper Gasket-Banjo to Adaptor	2
UG.2488	Bolt-Banjo Connection	2
UR.2901	Pipe-Master Cylinder to 3-way junction	1
UR.1734	Clip-Hose-Connector	1
RH.423	Elbow Piece-Master Cylinder	1

Will all Retailers please notify the London Service Station of the chassis numbers of cars on which this modification is carried out and also quote the serial number of the aluminium master cylinder fitted which will be found to be stamped on the body near to the end cap.

Retailers in the United Kingdom only should return the original cast iron master cylinder to the London Service Station.

The time permitted is :-

Fitting an aluminium master cylinder 4 hours, or 7½ hours if the modification to the brake fluid reservoir piping as per Service Bulletin No. CB.26 has to be carried out at the same time.

CATEGORY 2 MODIFICATION.BRAKES.

A check valve is to be incorporated in the hydraulic system of all cars fitted with the single cylinder brake installation.

This valve is designed to pass fluid in both directions when the pressure differential exceeds approximately 6 lbs. per square inch. Incorporated in the design is the facility for the pressure differential to return to zero as soon as flow ceases, and this is provided for by allowing the valve to leak internally.

On release of the brake pedal, after a brake application, a depression is caused in the hydraulic system by the master cylinder plunger returning to the rest position. The depression has been measured and is in the order of 12" of mercury. Under these conditions air could be drawn into the system past the lips of the rubber cups in the wheel cylinders.

The fitment of a check valve in the system adjacent to the master cylinder has the effect of eliminating the possibility of a depression occurring in the wheel cylinders and thus prevents the possibility of air obtaining ingress into the hydraulic system.

The following cars require the incorporation of this modification and Retailers are asked to deal with those in their respective areas.

Bentley 'S' Type.

B-2-AN to B-73-BC. B-77-BC to B-235-BC. B-239-BC to B-243-BC.

Bentley 'S' Continental.

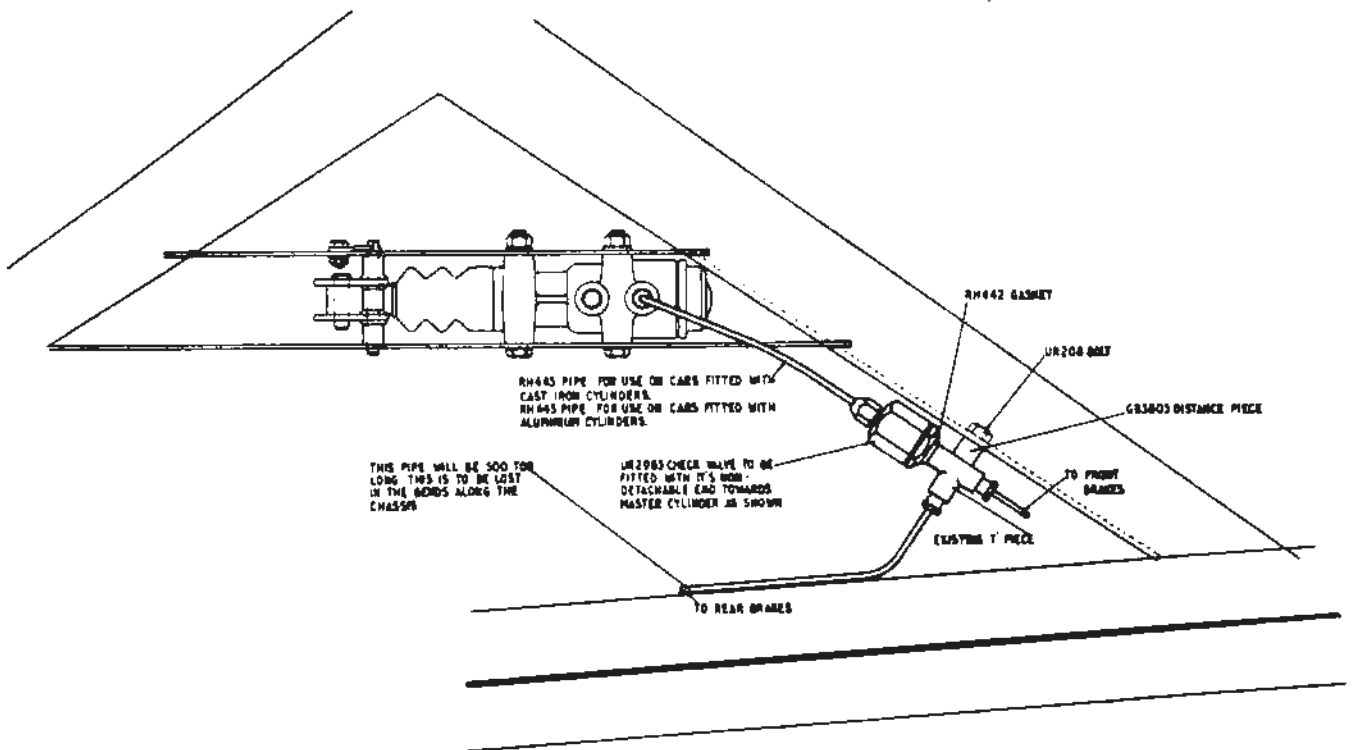
BC-1-AF to BC-15-BG. BC-20-BG.

Silver Cloud.

SWA-2 to SXA-245. SYB-8. SYB-14 to SYB-28. SYB-32 to SYB-34.
SYB-40 to SYB-48.

- 2 -

The drawing below illustrates the method of installation. The existing pipe from the master cylinder to the junction on the "X" frame member should be removed.



Check Valve in Position.

Depending on whether a cast-iron or aluminium master cylinder is installed, Pipe RH.443 or Pipe RH.445 should be fitted.

The check valve should be screwed onto the existing 'T' piece with RH.442 gasket interposed between the valve and the 'T' piece. It is important that the check valve is installed with its non-detachable end towards the master cylinder as shown.

Refit the 'T' piece to the 'X' member using a new bolt UA.208/Z and the distance piece GB.3803 and the existing nut and washer.

- 3 -

Connect up the pipe and bleed the system.

The time allowed for this modification is four hours.

The necessary material Part Numbers are given below and Retailers should order these from The London Service Station as required:

RH.443	- Pipe (Cast-iron master cylinder only)	1 off	} Alternative.
RH.445	- Pipe (Aluminium master cylinder only)	1 off	
UR.2583	- Check Valve	1 off	
RH.442	- Gasket, Check Valve	1 off	
GB.3603	- Distance Piece, 'T' Junction	1 off	
UA.206/Z	- Bolt, 'T' Junction	1 off	

No. CB.50

CATEGORY 3.

This Service Bulletin Cancels
Previous Service Bulletin CB.50
dated 16.5.57.

SERVO MOTOR SEALING.

The standard of servo sealing has been improved on current production cars, and when disturbing the servo for any reason, it will be necessary to carry out the following re-sealing procedure.

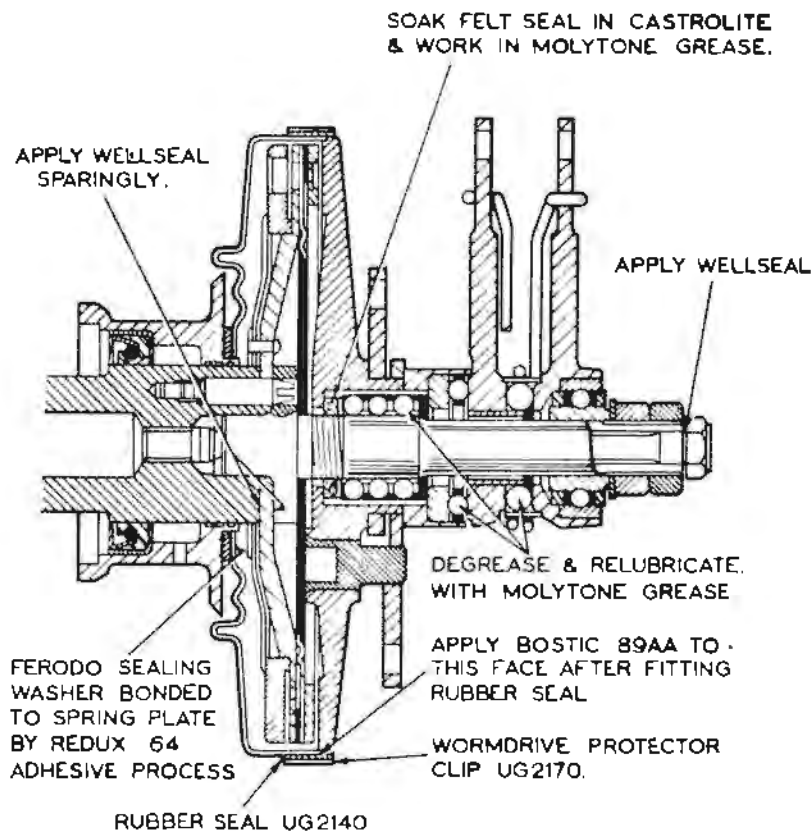


FIG.1.

1. Pack and lubricate thrust race, operating lever cams and pressure plate ball race with Molytone grease.
2. Soak felt washer (located in pressure plate) in engine oil and lightly coat with Milytone grease.

Cont'd.....

- 2 -

3. Apply Wellseal sparingly to the end face of the servo drive shaft, both sides of the centre of the inertia plate, to the end face and driving pins of the servo driven shaft and under the head of the servo retaining setscrew, after ensuring that all surfaces are free from oil or grease.

A pencil brush may be used for the application of the Wellseal.

Allow at least five minutes for air drying before assembling the joints.

4. The Ferobestos seal washer (V.G.100) is adhered to the spring plate by a special process. In the event of it becoming severed a replacement spring plate and washer assembly should be obtained and fitted. Under no circumstances should the seal washer be refitted with Bostik.
5. Apply Bostik sparingly to the circumferential joint between the spring plate and pressure plate after assembly, also to the inside of the rubber seal.

With the pressure plate uppermost, place the rubber seal on top and ease the seal over the rim edge, without stretching. Hold there easing the opposite side and remainder into position.

6. Position the protector ring with the worm drive towards the rear of the car.

NOTE: (a) It is NOT possible to use the rubber seal more than once, nor is it possible to use the seal if it has been stretched in an unsuccessful attempt to fit it.

(b) Trichlorethylene applied to the Bostik will assist easy separation when required.

PARTS AND MATERIAL REQUIRED.

<u>Description.</u>	<u>No. Off.</u>
Bostik, Adhesive (89AA)	
Molytone 265 Grease (RH.566) 2 oz.tube.	1.
Wellseal	
Rubber Seal (UG.2140)	1.
Spring Plated Ferodo Washer Assembly, (As required) (UG.3528)	1.

Cont'd.....

- 3 -

CHASSIS NOS:

Applicable to cars produced after

Rolls-Royce Silver Cloud	SDD-316
Bentley 'S' Type	B-278-EG
Bentley 'S' Type Continental	BC-4-CH

Attention to cars produced without the production method of sealing.

Where inspection of the liner shows presence of oil, the source of oil leakage must first be ascertained and rectified.

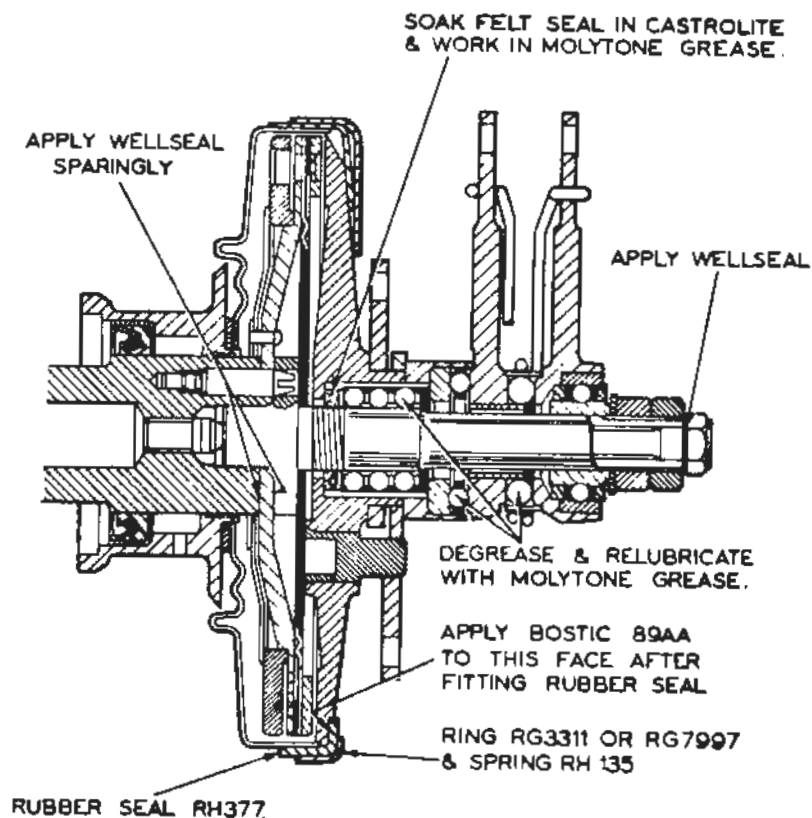


FIG.2.

Cont'd.....

- 4 -

Before re-assembling the following modifications are required, if not already incorporated.

1. Remove the water drain on the servo spring plate, this is simply done by unsweating.

Blank off the spring plate drain holes located in the rim, by filling with solder. This is best done by tinning the inside of the rim, resting the spring plate holes downwards on a sheet of asbestos, so that the solder is prevented from running through and building up on the outside of the rim. The solder is then smoothed over and the spring plate repainted with a good quality air drying chassis black.

2. Degrease thrust race, operating lever cams and pressure plate ball race ensuring that they are thoroughly clean and free from grease.

Re-lubricate with Molytone grease.

3. Renew and soak felt washer (located in pressure plate) in engine oil and lightly coat with Molytone grease.

4. Apply Wellseal sparingly to the end face of the servo drive shaft, both sides of the centre of the inertia plate, to the end face and driving pins of the servo driven shaft and under the head of the servo retaining setscrew, after ensuring that all surfaces are free from oil or grease.

A pencil brush may be used for the application of the Wellseal.

Allow at least five minutes for air drying before assembling the joints.

5. The Ferobestos seal washer (V.G.100) should be assembled completely dry, free from any adhesive or lubricant.
6. With the pressure plate uppermost, place the rubber seal on top with the flap covering the ventilating slots and ease the seal over the rim edge without stretching. Hold there, easing the opposite side over the plate edge.

It is essential that the pulling is limited to the inner diameter only, thereby preventing distortion of the outer periphery. Ease the remainder of the seal into position until the inner periphery fits closely against the machined surface.

Cont'd.....

- 5 -

By carefully lifting the rubber seal which overlaps the ventilating slots and machined surface, apply Bostik to the inner face of the seal, a small area at a time, until the complete circumference of the inner face has been treated in this manner.

Allow Bostik to set for approximately one hour before using the car.

7. Discard the existing worm drive protector ring and replace with the spring type ring (RG.7997 or RG.3311).

Position the spring towards the rear of the car and not to the lowermost position as was customary with earlier cars. The position of the baffle plate is immaterial if using the earlier type protector ring (RG.7997).

The servo can then be fitted to the car, the seal being finally checked after road testing.

- NOTE: (a) It is NOT possible to use the rubber seal more than once, nor is it possible to use the seal if it has been stretched in an unsuccessful attempt to fit it.
- (b) Trichlorethylene applied to the Bostik will assist easy separation when required.

PARTS AND MATERIAL REQUIRED.

<u>Description.</u>	<u>No. Off.</u>
Bostik Adhesive (89AA)	
Molytone 265 Grease 2 oz.tube (RH.566)	1
Wellseal	
Rubber Seal (RH.377)	1
Felt Seal (D.54399)	1
Protector Ring retaining spring (RH.135)	1
Protector Ring (RG.7997 or RG.3311)	1
Ferobestos Seal (V.G.100)	1

CHASSIS NOS:

Up to:-

Rolls-Royce Silver Cloud	SDD-134
Bentley 'S' Type	B-276-EG
Bentley 'S' Type Continental	BC-6-CH

The time allowed for each modification $4\frac{1}{2}$ hours.

FOR INFORMATION

HANDBRAKE CABLES

Investigation has shown that there is a possibility of the handbrake cable being placed over the hexagon adjustment nuts on the Servo Shaft, following either the replacement of the Servo Motor from underneath the car, or, when the handbrake cable has been disturbed for any reason.

The incorrect positioning of the cable in this manner, will cause fraying with consequent breakage of the cable, also damage to the hexagon nut where frictional contact is made.

To prevent the possibility of this trouble occurring, will Retailers check the run of the cable on all cars following the displacement of either the Servo Motor or handbrake cable.

CATEGORY 2.

CANCELS SERVICE BULLETIN CB.80.
Issued 13.12.57 ref.SB/TJ.3/ET.

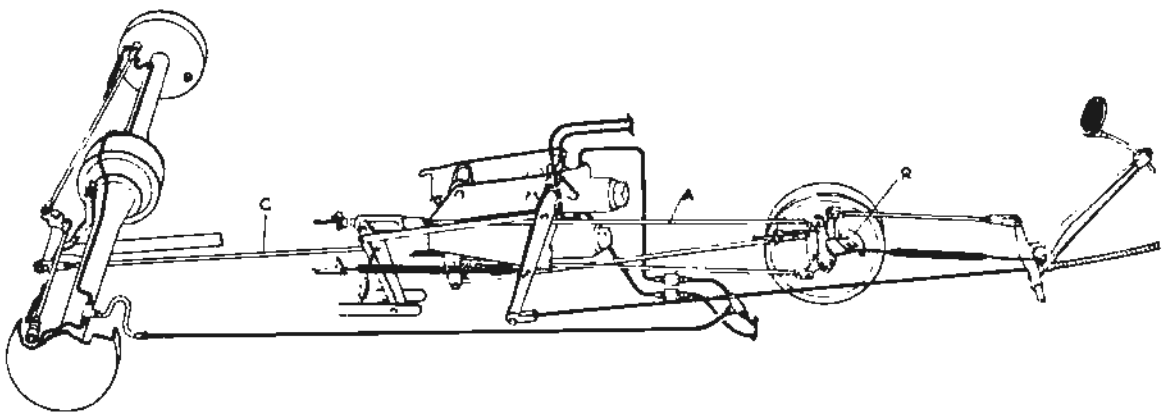
SERVO ON-STOP ADJUSTMENT.

Complete brake failure can occur, in the event of failure or maladjustment of the mechanical rear brakes if the servo on-stop adjustment is incorrect, on cars fitted with either single or twin master cylinder brake systems.

There have been instances of owners driving for long periods without having the rear brakes adjusted. In extreme cases the draw link wedge can pull past the tappets in the wheel cylinders, rendering the mechanical brakes ineffective. In these cases the servo relies entirely upon the on-stop bracket to operate the cams and apply the hydraulic brakes in the normal way.

It is therefore essential that the on-stop bracket R is adjusted correctly (see illustration below). Remove the clevis pin from the rear equaliser to disconnect the actuating rod C. Place a 1.25" distance piece between the rear end of the operating rod A and its off-stop. Position the on-stop bracket in contact with the outer servo cam lever and tighten the clamping bolts to locate in this position.

With this adjustment correctly carried out the cam lever will bear against the on-stop bracket and create normal cam reaction on brake application should the mechanical brakes fail to function.



If an additional carpet has been fitted to the front compartment the brake pedal must be removed and an additional clamping bolt groove filed between the last groove and the end of the curved pedal rod in order to maintain adequate brake pedal clearance.

FOR INFORMATION.

MASTER CYLINDER AND WHEEL CYLINDER OVERHAUL.

In the past, wheel cylinders and master cylinders, requiring reconditioning have always been returned for replacement. With the co-operation of the manufacturers it has now been made possible to release complete overhaul kits, as and when required to Retailers who are desirous of carrying out their own repair service on these units. It must be emphasised that the individual kits contain the necessary parts for overhauling only aluminium master cylinders and cast iron wheel cylinders.

No attempt must be made to overhaul cylinders of any materials other than those respectively mentioned above. The following points should be observed in connection with cylinder overhaul.

PROCEDURE.

Master Cylinders.

All single cast iron cylinders should be scrapped and single aluminium cylinders refitted in replacement.

Both single and dual aluminium cylinders may be overhauled when the condition of the cylinders permits further service. The kits contain all the necessary parts and an instruction leaflet on assembly. The overhaul simply consists of discarding all parts duplicated in the kit and assembling the new parts as instructed.

Wheel Cylinders.

All aluminium cylinders should be scrapped and spreader type cast iron cylinders fitted in replacement.

Cast iron cylinders fitted with air excluders should be converted to comply with the latest specification, which would entail a systematic replacement of used parts and the installation of spreaders. All the applicable parts required to introduce this conversion are contained in the wheel cylinder overhaul kits.

On each front cylinder simply discard the dust cover, seal, abutment, spring and air excluder, also the dust cover and ball of the bleed valve and refit all the new parts as instructed in the leaflet enclosed in the kit.

On each rear cylinder discard the dust covers seals, air excluders and the spring, also the dust cap and ball of the bleed valve and refit new parts as instructed.

Cont'd.....

- 2 -

Cast iron cylinders already fitted with spreaders should be overhauled. Again a straight forward replacement of used parts by those supplied in the overhaul kits.

It should be noted that if necessity arises any one or more wheel cylinders in the system may be modified to spreader type or have a new spreader type cylinder fitted without replacing or modifying the other remaining cylinders providing that a check valve is installed in the system.

Check valves.

Check valves were standardised at the introduction of the dual aluminium master cylinder system which incorporated all spreader type cast iron wheel cylinders. All single aluminium master cylinder systems should have check valves fitted as instructed in Service Bulletin CB.34.

Consequently the braking system of all cars undergoing an extensive overhaul should ultimately result in either a single or dual aluminium master cylinder unit, one or two check valves respectively, and all cast iron wheel cylinders incorporating spreaders.

For this reason great care must be taken when ordering complete brake overhaul kits to state whether parts for earlier modifications which have not already been executed, are also required. This should be checked with reference to Service Bulletins in the Brake section G.

In all cases discretion must be used by the Retailer in deciding whether a master or wheel cylinder is suitable for further service and consequently overhauled, or whether it should be discarded and replaced by a new unit.

Materials.

Separate overhaul kits are issued containing the necessary parts for overhauling cylinders under the following part numbers.

Cast iron front wheel cylinder	(1 off)	Part No.	CD1203
Cast iron rear wheel cylinder	(1 off)	Part No.	CD1204
1" dia. aluminium master cylinder	(Single)	Part No.	CD1205
1" dia. aluminium master cylinder	(Dual)	Part No.	CD1206
3/4" dia. aluminium master cylinder	(Dual)	Part No.	CD1207

FOR INFORMATION.

SERVICE REPLACEMENT BRAKE DRUMS.

A service replacement brake drum scheme has been inaugurated. There are now two sizes of drums available, namely 'Standard' and 'Oversize'. These will be supplied to Retailers against worn drums returned for reconditioning.

The cost of the 'Oversize' replacement drum will be 66.2/3% of the price of the 'Standard' drum.

Credit at the above mentioned percentage, less the cost of reconditioning, will be allowed on worn drums returned, providing they can be reground within the prescribed limits.

Drums which do not conform to these limits have no salvage value and consequently will be scrapped.

Part numbers.

Standard replacement brake drum part Nos.	Oversize replacement brake drum part Nos.
UG.264	RH.693
UG.2287	RH.694

FOR INFORMATION.

MECHANICAL REAR BRAKE EXPANDERS.

Instances have been reported of seizure of the tappets in the guide resulting in failure of the rod operated expander with consequent failure to release the rear brakes.

It has been shown that the seizure is caused by the accumulation of packed brake lining dust and that this condition can be alleviated by increasing the clearance of the tappets in the guide plate.

The four distance pieces have been lengthened by 0.020" to 0.274" and this gives a clearance of 0.025" between the tappet and the guide plate.

An indication that seizure of the tappets has occurred can be gained from the feel of the operation of the foot brake pedal. If two distinct pressures can be felt, the first movement taking up the slack in the rods and the second operating the servo, it is advisable to check the condition of the tappets. Of course, overheating of the rear brakes may also be experienced.

Should trouble of this nature be experienced, the units should be dismantled, cleaned, washed free of any lubricant and reassembled with the new longer distance pieces.

Whilst carrying out this work, the opportunity should be taken to inspect the pistons in the hydraulic wheel cylinders. These should be cleaned, as should the bores of the cylinder and should then be refitted using a trace of Molytone C as a lubricant.

To indicate that this modification has been carried out, mark the offside chassis side member at the extreme rear end with a spot of white paint on the angular surface.

Material.

UG.3462 - Distance Piece - 8 off.

It is recommended that these new parts are ordered and stocked for use as necessary. All stocks of the old part (No. UG.862) should be scrapped.

FOR INFORMATION.

HANDBRAKE CABLE.

If the handbrake handle is released and pushed rapidly to the 'off' position so fast that its movement exceeds the retractive speed of the return spring on the handbrake lever, there is the possibility that the cable nipple will spring out of the cable connector on the end of the handle shaft.

Under these circumstances, remove the handbrake lever clevis pin adjacent to the master cylinders and the four handle assembly mounting bolts from under the dashboard. Withdraw the assembly and cable. If the condition of the cable warrants replacement, fit a new cable assembly; locate the cable nipple in the connector on the handle.

A small securing plate has been designed to fit over the entrance slot to retain the nipple and prevent further dislocation. The plate is held in position by the 2 BA cable connector bolt. Fit the plate as shown in either figure 1 or 2, depending upon the design of the connector. Refit the complete assembly to the dashboard; replace the clevis pin and check for correct $\frac{1}{4}$ " free travel on the end of the handbrake lever, adjust as necessary.

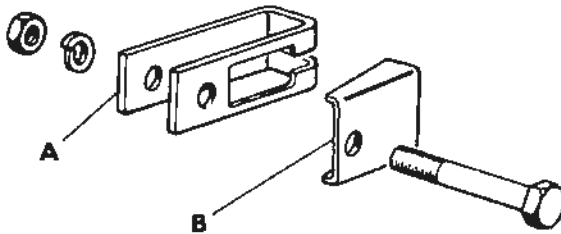


Fig.1
A Cable connector UG.2350
B Securing plate RH.701

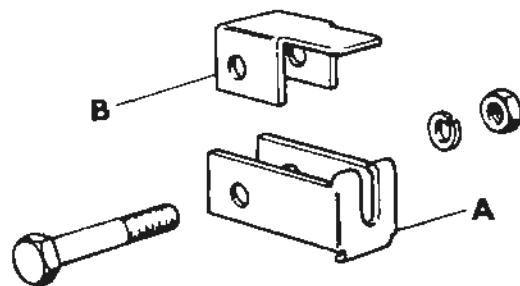


Fig.2
A Cable connector UG.1831
B Securing plate RH.702

Material required.

Securing plate:-	either	RH.701
	or	RH.702
Handbrake assembly	Left hand	UG.1214
may be required	Right hand	UG.1201

FOR INFORMATION.

BRAKE SHOE SHAKE-BACK STOP.

A modification has been introduced to the shake-back stop collar fitted to the front and rear brake shoes on Rolls-Royce Silver Cloud and Bentley 'S' type cars.

The modified collar has an external $\frac{1}{4}$ in. diameter thread and a plain nut is used to clamp the friction washers and spring, whereas the existing collar is threaded internally and a bolt is used to clamp the friction washers and spring; the existing and modified types of collars are illustrated in Figures 1 and 2.

The reason for the introduction of a modified collar is primarily one of economy and it is therefore intended that supplies of the existing type collar and bolt should be used until stocks are exhausted, after which requests for this collar and bolt will be dealt with by supplying the modified type collar together with the nut.

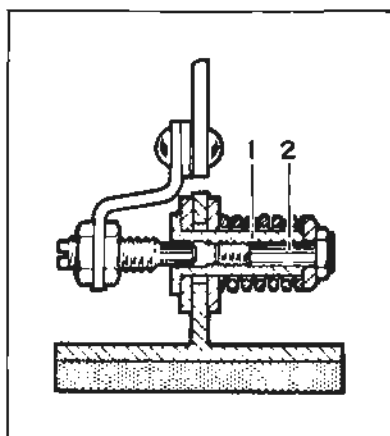


Fig.1. Existing type shake-back collar and bolt.

1. Shake-back collar. (UG.2324).
2. Special clamping bolt. (UG.2326).

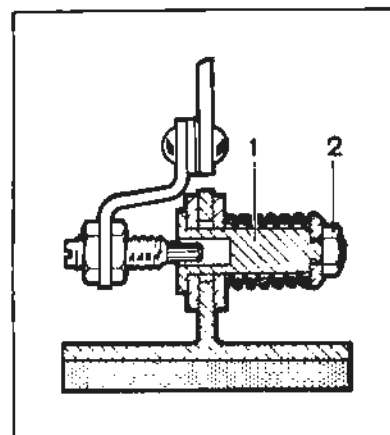


Fig.2. Modified type shake-back collar and nut.

1. Shake-back collar. (UG.3658).
2. Nut. (UG.3659).

FOR INFORMATION

'S' TYPE BRAKES - RUBBER COMPONENTS

In the interests of safety it has been decided to specify mileages at which the rubber components on the brake system should be renewed. This Bulletin gives mileages and details of the replacement action necessary.

40,000 miles

Renew. High and low pressure hoses and wheel cylinder cups.

80,000 miles

Renew. Brake master cylinder cups.

The above components should be changed at a brake reline nearest to the mileage quoted. Dust and water excluders should be changed as and when necessary, that is, after examination at a brake reline or if the shoes are removed for any reason.

The cost of replacing all rubber components is chargeable to the customer. However, it must be emphasised that it should not be a normal function to replace such components unless other work is being undertaken at the same time and the approval of the customer obtained as to the charges to be incurred.

FOR INFORMATION:

Deletion of Check Valves from the Dual Master Cylinder
Braking System on 'S' Type Cars.

In 1956 check valves together with spreaders in the wheel cylinder cups were added to the hydraulic circuits as part of a series of modifications to the brakes to prevent the possible ingress of air. Details of the incorporation of a check valve as a service modification on single master cylinder systems was given in Service Bulletin CB-34 Section G.

The specific purpose of the check valves was to prevent a vacuum being created behind the wheel cylinder cup seals during the return stroke of the master cylinder piston, if the cup seal failed to move back with the fluid because of any increase in friction due to spreader load.

Engineering wise, it has now been established that the spreaders are fully capable of maintaining an adequate interference between the lips of the cup seals and wheel cylinder bores without the assistance of check valves and effectively prevent air from being induced into the system as the line pressure is released, and the brake shoes resume their normal shake-back clearance.

Check valves are therefore considered redundant in the presence of spreaders, which should ensure that the cup seals remain free from air or fluid leaks during their normal life cycle of 40,000 miles.

It is not intended that any retrospective action should be taken in service to remove check valves fitted as original equipment on dual master cylinder systems, or as a modification on single master cylinder systems, which will now of course cease.

The instructions contained in Service Bulletin CB-34 are therefore cancelled.

The Chassis numbers at which the check valves were deleted on Production are as follows.-

R. R. Silver Cloud	LSJF.212 and onwards
LWB. Silver Cloud	CLC.9 " "
Bentley 'S' Type	B. 513 LFD " "

FOR INFORMATION'S' TYPE BRAKE SERVO MOTOR

Our attention has recently been drawn to the fact that the Corrugated Washer Part No. R. 5037, which is fitted to pre 'S' Type servo motors to overcome complaints of judder, is also being fitted by some Retailers to 'S' Type servo motors.

We cannot emphasize too strongly that the Corrugated Washer must NOT be fitted to 'S' Type servo motors, as some considerable danger may result from following this practice.

The incorporation of the Corrugated Washer on pre 'S' Type servo motors has, of necessity, been associated with an increase in pedal travel. This increase cannot be accommodated on 'S' Type with the standard servo on-stop setting, without reducing the safety factor of the system should the direct mechanical linkage between the pedal and the rear brakes fail.

Additional dangers are that the servo operating rods would be subjected to compressive loads, which they are not designed to withstand; also the forward braking off-take rod and linkage may be damaged as a result of toggling upwards and fouling the chassis frame during reverse braking.

Servo judder has been notably absent from 'S' Type cars, mainly because of the substitution of mechanical actuation by hydraulic between the servo and the rear brakes, which renders 'feed-back' of the servo output on to the cam levers virtually impossible. There is therefore no justification for introducing any additional damping on the 'S' Type servo motor.

It is essential that any 'S' Type car known or found to have been fitted with a Corrugated Washer should have it replaced by the standard washer Part No. GB. 5083 without delay.

**SUSPENSION,
SHOCK DAMPERS,
PIVOT PINS
AND STUB AXLES**

Category 2.

FRONT SUSPENSION.

The fulcrum brackets are fitted to the lower side of the front pan by eight .500" bolts and nuts.

After a certain number of cars were produced it was decided to increase the length of these bolts to accommodate a flat washer under the nut to permit the bolt to spread the load over a greater area. This washer to be fitted under the lock-plate.

The following cars require modification, and Retailers are requested to deal with those in their respective areas.

Bentley "S" Series AN.

B.34, 40, 58, 64, 70, 84, 96, 116, 118, 136, 138, 152,
154, 158, 166, 170, 172, 180, 182, 186 to 192 inclusive.
198, 218, 222, 226, 234 to 240 inclusive, 246 to 256
inclusive, 262 to 276 inclusive, 280, 284, 288 and 294.

The recommended procedure is:-

Unlock and remove the existing bolts as a pair.

Install the new longer bolts (UR.2477), placing the flat washer (UR.2478), between the upper side of the front pan lug and the lock-plate under the nut.

New lock-plates are to be used under the head of the bolts and the nuts.

The necessary Part Numbers are listed below, and Retailers are requested to order these from the London Service Station as required:-

UR.2477	Bolt	- 8 off.
UR.2478	Washer	- 8 off.
UR.1976	Lock-plate	- 8 off.

Time allowance - 2 hours.

CATEGORY 2.

MODIFICATION TO THE "Z" BAR ON THE
REAR AXLE OF THE BENTLEY CONTINENTAL.

The directional stability of the Bentley Continental is improved, particularly on the curving and undulating roads, if the "Z" bar is modified to act purely as a rear axle torque arm and give no anti roll action, thus inducing an increase in understeer.

The "Z" bar is to be cut 1" inboard of the outer Silentbloc bush on the axle (A, Fig.1.) and the inner bush mounting discarded. The end of the "Z" bar is to be filed smooth, the edges rounded and finally painted with a first quality air drying chassis black.

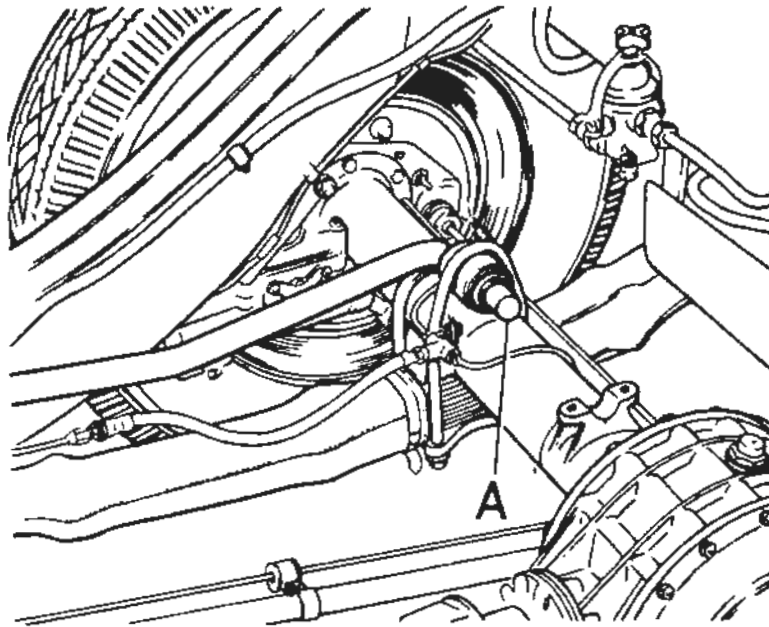


Fig.1. Rear Axle Torque Arm.

Care must be taken not to damage adjacent parts to the "Z" bar when cutting, especially on Mulliner bodied cars which have hydraulic brake piping fixed to the front of the axle.

The time allowance is 1 hour.

Chassis Number.

All chassis up to Bentley Continental.

BC-101-BG.

FOR INFORMATION.

FRONT SUSPENSION SETTINGS.

The following information as quoted below, is in addition and in lieu of that given in the Service Data handbook for Silver Cloud and Bentley "S" Type cars.

	<u>POWER ASSISTED</u>	<u>UN-ASSISTED STEERING</u>
Camber	Zero.	Zero.
Castor	0° - ½° Positive. Difference between the two sides not to exceed .25°.	½° - 1° Negative. Difference between the two sides not to exceed .25°.
Toe-In	1/16" - 5/32".	1/16" - 5/32".
Pivot Pin Inclination	4½° at zero (Camber setting)	4½° at zero (Camber setting.)

CATEGORY 3A

Cancels Bulletin CB.51
dated 16.5.57 Section R
Re-issued to correct Section (H).

REAR SUSPENSION DAMPER MOUNTING TO THE FRAME

Complaints may arise after continued arduous service of the rear suspension damper working loose due to slackening of the fixing bolts to the frame brackets. This is rectified by fitting plain washers and full nuts in place of the original half nuts, with longer bolts to accommodate the extra length.

Before fitting the new nuts, bolts and washers ensure that no trace of paint whatever exists around the original bolt holes in the brackets to prevent full clamping of the components.

<u>MATERIALS.</u>	<u>PART NO.</u>	<u>NO.OFF.</u>
Bolt (.500" dia.)	UR.4073	2
Nut	UA.305/Z	2
Bolt (.375" dia.)	UR.4055 ,	2
Nut	RE.22428	2

APPLICABLE TO:

Rolls-Royce Silver Cloud
Bentley 'S' Type
Bentley 'S' Continental

CATEGORY 3A

MODIFICATION TO THE FRONT SUSPENSION FULCRUM PIN
OIL SEALING AND PIVOT PIN RESTRICTORS.

Extensive servicing experience and continued development have brought about the following improvements in production, which include:- more effective sealing of the "ONE-SHOT" lubricating system by the inclusion of aluminium retaining rings to the fulcrum pin, and bracket, sealing washers. Increased lubrication to the upper pivot pin bearing by increasing the travel of the restrictor pin.

In cases of complaint these should be incorporated in service as detailed below.

1. Increasing the pivot pin restrictor travel by reducing the height of protrusion above the pivot pin face.
2. Fitting aluminium retaining rings centrally to the outer periphery of the fulcrum pin sealing washers, and so preventing any possible displacement of the sealing washer.

Pivot Pin Restrictor Dimensions

(a) Procedure:-

Raise the front end of the car, check to see that there is no excessive wear in the pivot pins and bearings, and that any sign of "heavy steering" can be overcome by increased lubrication to the upper pivot bearing.

Before removal of the Domed Cap located at the axle pivot head, any loose dirt must be cleaned off. The restrictor pin protrusion above the pivot pin top face should not exceed .015". If this dimension is in excess, the restrictor pin should be removed and ground to the correct length.

NB Any sign of restrictor pin tightness in the pivot pin drilling should be rectified.

If the restrictor pin dimensions are correct it is possible that inadequate lubrication to the pivot pin upper bearing is due to ineffective sealing washers.

(b) Fitting Sealing Washers and Retaining Rings

With the front end raised, remove the front wheels, brake

-2-

drums, back-plate assemblies and disconnect the "one-shot" lubricating hose, feeding the upper yoke of the axle pivot assembly. Do not disconnect the hydraulic brake hoses.

Fit the suspension coil spring compressor, compressing the spring to remove the load from the fulcrum pins. Disconnect the lower triangle lever and the front lever of the upper triangle to allow removal of the axle pivot assembly.

Fit new rubber sealing rings complete with the aluminium retaining rings to the upper and lower fulcrum pins and to the lower triangle fulcrum brackets, ensuring central positioning of the aluminium retaining rings to the outer periphery of the sealing washers. (A grooved sealing washer and stainless steel retaining ring are awaiting production and these will supersede the aluminium ring and plain sealing washer when available.

Re-assemble, fitting new lockwashers to the (bearing-block-triangle lever) bolts, lockwashers must similarly be fitted to both the front and rear upper shock damper lever securing bolts if not already fitted.

Before tightening the (fulcrum pin-bearing block) nuts it is essential that the sealing washer seating protrusion is equidistance on either side of the yoke, and that with the bearing blocks in their normal mid-way position, equal pressure is applied to the sealing washers. Re-position the fulcrum pin until this is correct.

Tighten the fulcrum pin nuts (ensuring that the bearing block faces are in line with each other) followed by the front and rear lever securing bolts and finally the bearing block bolts.

NB It is of the utmost importance that the tightening of the fulcrum pin nuts followed by the securing bolts be in the correct sequence as stated above. Replace upper yoke lubricating hose, back-plate assemblies, brake drums and wheels.

Adjust Castor and Camber angles.

Finally test the brakes to ensure satisfactory performance.

-3-

- (a) Time allowable for Restrictor Pin Modification only, 45 mins.
- (b) Time allowable for Sealing Washer and Retaining Ring Renewal, 20 Hrs.
- (b) Materials

<u>Part</u>	<u>Part No.</u>	<u>No.Off.</u>
Ring, sealing, bearing block upper	UR.541	4
Ring, sealing, bearing block lower	RF.7661 (.175"thick)	8
Ring, sealing, bearing block lower	UR.2207 (.200"thick)	8
Ring, sealing, bearing block lower (select thickness as required)	UR.2823 (.150"thick)	8
Ring, Aluminium Retaining	UR.4018	12
Lockwasher	RF.7608	8
Lockwasher	RF.7609	6

The following grooved sealing washers and stainless steel retaining rings are awaiting production and these will supersede the aluminium ring and plain sealing washers when stocks become available.

Ring, sealing, bearing block upper	UR.4003	4
Ring, sealing, lower triangle and bearing block. (Select thickness as required)	UR.4000 (.150"thick)	8
	UR.4001 (.175"thick)	8
	UR.4002 (.200"thick)	8
Ring, Stainless Steel	UR.3999	12

Applicable to:

Rolls-Royce Silver Cloud
Bentley 'S' Type
Bentley 'S' Type Continental

FOR INFORMATION.

REAR SHOCK DAMPER SILENTBLOC BUSHES.

The silentbloc bushes retained in the end of the rear damper arms and in the brackets welded to both axle tubes have occasionally collapsed due to excessive torque tightening of the two clamping bolts. New silentbloc bushes with thicker section centre tubes have been produced for fitment in replacement of any failures.

Parts for the old bush assembly are no longer available for this reason; therefore any single part of an old type assembly requiring replacement necessitates complete modification to the new specifications.

The modification entails removal of the thin section centre tubed bushes and fitment of the new thicker section bushes, side links and clamping bolts.

Material required:-

New parts for one damper linkage assembly.

2 Silentbloc bushes.	Part No. UR.3673
2 Side links.	Part No. UR.3767
2 Clamping bolts.	Part No. UR.3674
2 Nuts.	Part No. UA.1104/Z
2 Split pins.	Part No. YB.6860

CATEGORY 1.

STUB AXLES.

The current production stub axle has been redesigned, involving a change in radius behind the inner hub bearing. We wish to incorporate this change of design in all Rolls-Royce Silver Cloud and Bentley 'S' series cars now in Service. On cars which have covered less than 50,000 miles the new radius can be cut into the existing stub axle. A replacement stub axle should be fitted on cars which have covered a greater mileage.

The redesigned stub axle is now fitted to cars being despatched from the factory and we would request retailers to take immediate action on cars in Service.

Arrangements have been made that as parts and tools become available for service action, they will be despatched to the retailers directly in quantities which relate to the total number of cars which our records show to be in existence in each territory. It is quite possible that our records may not be completely accurate for each territory, we are therefore despatching with each consignment of material the chassis numbers and owners name and address of every car with which we consider the retailer will be concerned and we would be pleased if the retailer would advise us immediately of any discrepancy, so that the quantity can be raised according to actual requirements.

The detailed instructions for carrying out the modification are as follows.

MODIFICATION ACTION.

Modification Action is required on the following chassis numbers:-

- All Rolls-Royce Silver Cloud up to chassis SGE 66.
- All Bentley 'S' Type chassis up to chassis B214 FA.
- All Bentley 'S' Type Continental chassis up to chassis BC 20 EL.
- All Rolls-Royce Silver Cloud long wheelbase chassis up to chassis ALC 25.
- All Bentley 'S' Type long wheelbase chassis up to chassis ALB 4.

Cont'd.....

- 2 -

Material required.

For cars under 50,000 miles.

Tools required.

Radius cutting kit TRS.35.

Parts required (per car).

2 Distance washers Part No. UR.4550.
2 Split pins Part No. K.4628/2.
4 Locking plates Part No. UG.657.

For cars over 50,000 miles.

Tools required.

Pivot pin extractor RH.568.

Parts required (per car).

1 Stub axle (L.H.)	Part No. RH.296	'MS'	(These may be supplied as alternatives to the above.)
1 Stub axle (R.H.)	Part No. RH.297		
1 Stub axle (L.H.)	Part No. RH.295	'M'	
1 Stub axle (R.H.)	Part No. RH.294		
4 Locking plates	Part No. UG.657		
2 Locking plates	Part No. UR.348		
2 Lockwashers	Part No. RF.5376		
2 Felt washers (lower)	Part No. GB.2329		
2 Felt washers (upper)	Part No. RF.5378		
2 Thrust washers	Part No. GW.399		
2 Split pins	Part No. K.4628/Z		

'MS' signifies modified solid type stub axle.

'M' signifies modified hollow type stub axle.

Cont'd.....

- 3 -

OPERATION 1.

To modify an existing stub axle (cars under 50,000 miles).

Preparation.

Before commencing cutting operations, it will be necessary to carry out the following procedure.

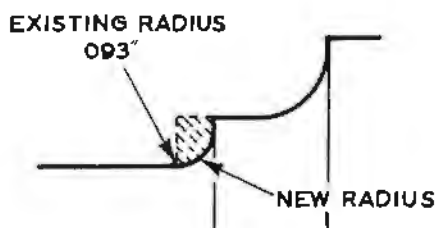
Remove the front wheel discs and slacken the wheel nuts.

Jack up the front of the car and place suitable supports under the lower front triangle levers, then ensure that the handbrake is firmly applied.

Prise off the hub dust covers by inserting a screwdriver between the dust cover and the shallow flange on the hub; the dust cover contains an earth contact which must not be damaged.

Unscrew the three countersunk headed screws, securing each brake drum, then withdraw the drums.

Remove the split pin and castellated hub nut from each stub axle; it will be necessary to break the seal before the split pin can be removed.
Note:- The right-hand stub axle has a right-hand thread and the left hand axle has a left hand thread.



Scrap view of stub axle showing old radius and new radius.



Fig. 1. Sequence of assembling cutting tool on stub axle.

Withdraw the hubs, complete with bearings, from the stub axles.

Turn down the tabs of the locking plates and unscrew the six setscrews securing each brake shoe carrier back plate, then remove the assemblies from the axles; discard the old locking plates. Do NOT disconnect the brake fluid pipes.

Cont'd.....

- 4 -

Secure the back plate assemblies to the bumper brackets so that no weight is taken by the brake fluid pipes (see fig. 2); cover the brake shoe assemblies with clean rag to prevent any cutting solution or other foreign matter coming in contact with the brake linings.

Clean off all traces of grease from the stub axles.

Procedure for cutting the stub axle.

Lubricate the stub axle with oil and fit the special hardened depth gauge washer to the back plate register on the stub axle (the washer is supplied with the cutting tool TRS.35).



Fig. 2. Cutting tool assembled in readiness for cutting radius.

Ensure that the hub nut can be screwed by hand, the full length of the thread.

Slide the cutting tool on to the stub axle followed by a thrust washer, the thrust bearing and a second thrust washer.

The hub nut is utilised for adjusting the preload on the cutters; screw the nut on to the stub axle in the reverse manner to normal fitting (see fig. 1). This will permit the castellated portion of the nut to enter the bore of the spring housing, thus allowing the preloading spring in the tool to be fully compressed.

Hand-tighten the nut to its fullest extent to preload the cutters in preparation for cutting the radius.

It is important not to overtighten the hub nut and for this reason a spanner should NOT be used.

Whilst operating the cutting tool, it is essential that a constant supply of cutting solution is applied to the cutters.

This solution should be a mixture of one part cutting oil to two parts paraffin. If cutting oil is not available, paraffin only may be used.

Cont'd.....

- 5 -

Rotate the tool, by means of the handle, at a constant speed of 20 r.p.m. This is very important.

To maintain a preload on the cutters and to ensure that an even cut is obtained without "chatter", it will be necessary to tighten the hub nut after every revolution of the tool.

If "chatter" is experienced, resulting in a "stepped" uneven surface on the new radius, it may be caused by insufficient spring loading on the cutters. If this is the case, tighten the hub nut to increase the loading on the cutters.

When it becomes necessary to clear the swarf from the cutting tool, gradually slacken the hub nut whilst continuing to turn the handle of the tool, until the tool ceases to cut.

Clear the swarf from the cutters and apply a liberal amount of cutting solution to the stub axle before proceeding with the cutting operation.

The depth of the radius is determined by the hardened depth gauge washer; when the tool abutts this washer and the handle can be turned without effort, remove the tool in the manner mentioned earlier.

Remove all burrs and sharp edges from the stub axle then wash it with clean paraffin.

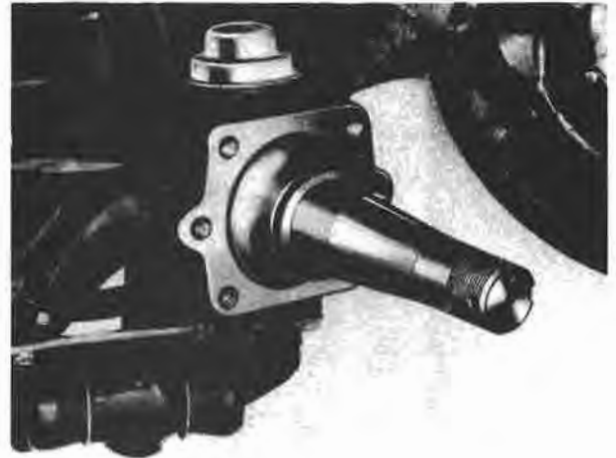


Fig. 3. View of stub axle showing distance washer (Part No. UR.4550) in position, also stamping on end of stub axle.

Cont'd.....

- 6 -

Carry out the cutting operation on the other stub axle.

Note:- After the increased radius has been cut on thirty stub axles the cutters may become 'dull', in this case sharpen the cutters as shown in figure 4 (use a No. 9 Medium "India" carborundum stone). Subsequently sharpen the cutters after use on every ten stub axles.

Apart from sharpening the cutters the tool should not be interfered with in any other way; it is important that the cutters should NOT be removed from the tool.

Before reassembling the stub axles, the ends of the shaft must be stamped as follows (see fig. 3).

Solid type to be stamped with the letters 'MS' (see figs. 3 and 5).
Hollow type to be stamped with the letter 'M' (see figs. 3 and 5).

Refit the back plate and brake shoe assemblies and secure them to the stub axles with the setscrews and new locking plates (Part No.UG.657); turn up the corners of the locking plates.

Fit the special washer (Part No. UR.4550) to the stub axle with the chamfer towards the radius (see fig. 3).



Fig. 4. Method of sharpening cutters.

Cont'd.....

- 7 -

Ensure that the hub is packed with approximately $2\frac{1}{2}$ ozs. of recommended grease, then fit the hub and bearings to the axle.

Fit the plain washer and screw on the hub nut. Insert a 0.002 in. feeler gauge between the bearing and the plain washer then tighten the nut, whilst slowly rotating the hub, until resistance is felt; remove the feeler gauge.

If it is not possible to insert the split pin, slacken the nut to locate the nearest split pin hole and fit the split pin.

To enable a finer adjustment of the hub bearings to be obtained, two split pin holes are provided, at right angles to each other.

Fit the brake drums, road wheels and wheel discs, reversing the procedure for dismantling.

Lower the car off the supports.

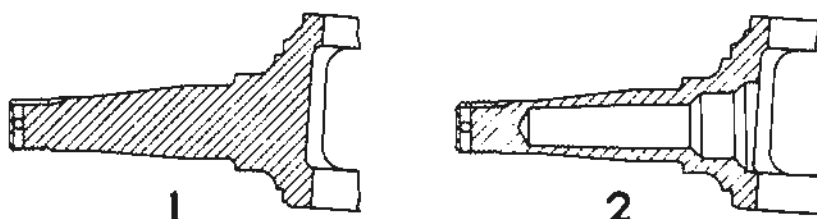


Fig. 5. Stamping stub axles:-

1. Solid type - stamp "MS".
2. Hollow type - stamp "M".

Cont'd.....

OPERATION 2.

To fit a new stub axle (car over 50,000 miles).
(See fig. 6).

Carry out the instructions given in "Preparation" for cars under 50,000 miles, then continue as follows.

Disconnect the lubrication pipe from the stub axle and the track rod ball joint.

Turn down the tabs on the locking plate, unscrew the setscrews and remove the steering lever from the stub axle; discard the used locking plate.

Prise off the cover from the top of the pivot pin.

Turn down the tabs of the lockwasher, unscrew the nut and remove the lockwasher and plain washer (discard the used lockwasher).

Remove the four setscrews and plain washers, securing the bottom flange, then remove the flange together with the thrust washer and packing plate.

Attach the extractor (RH568) and withdraw the pivot pin.

Remove the stub axle from the yoke; remove and discard the felt washers.

Withdraw the inner race from the top bearing and remove the needle rollers from both bearings.

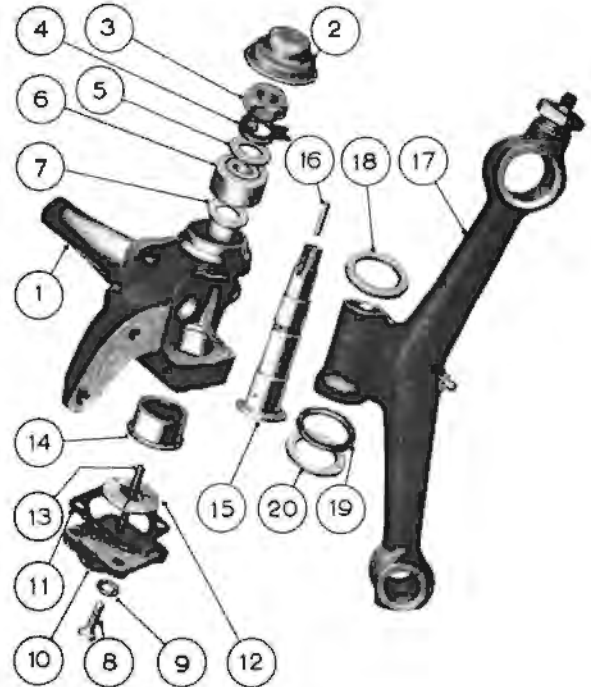


Fig. 6. Exploded view of stub axle.

- | | |
|----------------------------|---------------------|
| 1. Stub axle. | 11. Packing plate. |
| 2. Top Cover. | 12. Thrust washer. |
| 3. Nut-pivot pin. | 13. Oil tube. |
| 4. Lockwasher. | 14. Lower bearing. |
| 5. Plain washer. | 15. Pivot pin. |
| 6. Upper bearing. | 16. Restrictor pin. |
| 7. Distance washer. | 17. Yoke. |
| 8. Setscrew-bottom flange. | 18. Felt washer. |
| 9. Plain washer. | 19. Retainer. |
| 10. Bottom flange. | 20. Felt washer. |

Cont'd.....

- 9 -

Drive out the lower bearing race using a suitable drift.

Fitting bearing assemblies to a new stub axle.

Wash all parts before commencing assembly.

Press the lower race into the stub axle; the top outer race is supplied as an assembly with the stub axle and will have been pressed in.

Ensure that both races are pressed hard against the shoulders in the stub axle.

Apply a thick coating of grease to the outer races and fit the needle rollers.

Fitting stub axle to yoke.

Fit the upper felt sealing washer, together with the distance washer, under the top bearing in the stub axle; the stepped side of the distance washer must face towards the top.

Fit the lower retainer and felt washer, in that order, into the recess provided in the bottom of the yoke bore.

Fit the stub axle to the yoke ensuring that the felt washers are not displaced in the process.

Enter the pivot pin into the stub axle and push it as far as possible by hand; care should be taken not to displace the needle rollers. Also ensure that the slot for the lockwasher tab faces toward the centre line of the car.

Using an aluminium drift, drive in the pivot pin until it is hard against the shoulder in the yoke.

If the oil restrictor pin has been removed, refit it to the pivot pin.

Fit the plain washer, lockwasher and nut to the top of the pivot pin, tighten the nut whilst continually checking the stub axle for freedom of movement; do not lock the nut at this stage.

Cont'd.....

- 10 -

Lubricate the thrust washer, place it in the bottom flange, then fit the flange together with the packing plate to the stub axle and secure it with the four setscrews and plain washers. The packing plate and flange should be lightly smeared with jointing compound.

Check the stub axle for freedom of movement and for end lift; the permissible end lift is .007" to .017".

Should the lift be outside these limits, fit a new thrust washer, the thickness of which is .098" - .001".

Any tightness experienced when moving the stub axle from lock to lock, may be relieved by a few sharp blows on the bottom flange with a hide mallet.

Ensure that the pivot pin nut is tight then turn up the tabs of the lockwasher.

Smear the edge of the top cover with jointing compound and fit it to the stub axle.

Connect the lubrication pipe to the bottom flange and to the track rod ball joint; check the lubrication flow to all points.

Fit the steering lever to the stub axle and secure it with the setscrews and a new locking plate; turn up the tabs of the locking plate.

Refit the hub and brake shoe assemblies etc., following the instructions given for 'Operation 1' for cars under 50,000 miles.

Note:- On completion of Operation 2, the steering stops should be checked following the instructions given in Service Bulletin CB.20.

It is essential to also check the front wheel toe-in following the instructions given in the Workshop Manual, Section H.

Time allowance.

Cars under 50,000 miles	<u>5 hours.</u>
Cars over 50,000 miles	<u>8 hours.</u>

Cont'd.....

- 11 -

We would particularly request retailers to notify us when cars have been modified. Where considerable numbers of cars are involved we would appreciate this information at short intervals, so that we can keep in touch with progress.

Return of material and tools.

Displaced stub axles should be returned to the London Service Department where they can be reclaimed for further use. It is important that the cutters and pivot pin extractor should be returned as soon as possible so that these tools can be used in other territories where the modification action is still in progress.

FOR INFORMATION.

IMPROVED ONE-SHOT LUBRICATION INCORPORATING
MODIFIED RUBBER SEALS IN FRONT SUSPENSION
FULCRUM PIN AND BRACKET.

In order to provide improved one-shot lubrication of the front suspension fulcrum pins and bearing brackets, current production cars are being fitted with solid stub axle yokes.

These are provided with an external lubricating pipe through which lubricant is fed to the upper and lower fulcrum pins and to the pivot pins, whereas on early cars lubricant was fed through a hollow yoke.

The amount of lubricant fed to the bearing faces is controlled by restrictors which are fitted at the top and bottom of the yoke and to the bearing bracket.

A modified type of rubber seal is now fitted to the fulcrum pins and bearing brackets but unlike those fitted to cars with hollow stub axle yokes, the new seals have no retaining rings (see Fig. 1).

The new type seal is designed not only to enable the one-shot lubricant to reach the bearing faces, but also to prevent the ingress of dirt and water.

On earlier cars, where no restrictors were fitted to control the one-shot lubricant pressure, a retaining ring was provided to assist the seal in preventing the escape of lubricant and the ingress of dirt and water.

In certain conditions however, it has been reported that air, trapped between the bearing face and the rubber seal, was unable to escape owing to the resistance of the retaining ring; thus preventing lubricant reaching the bearing face.

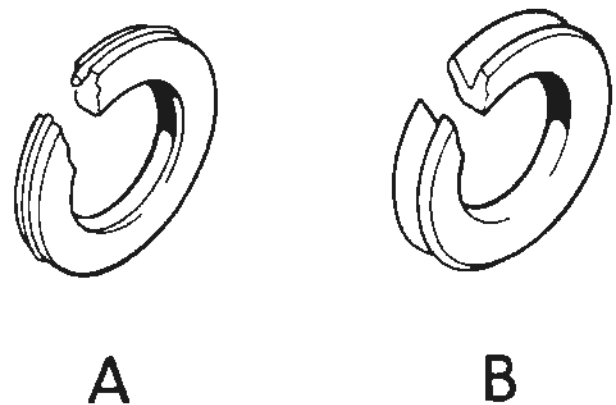


Fig. 1. A - Rubber sealing ring
with retaining ring.

B - Modified sealing ring
without retaining ring.

Cont'd.....

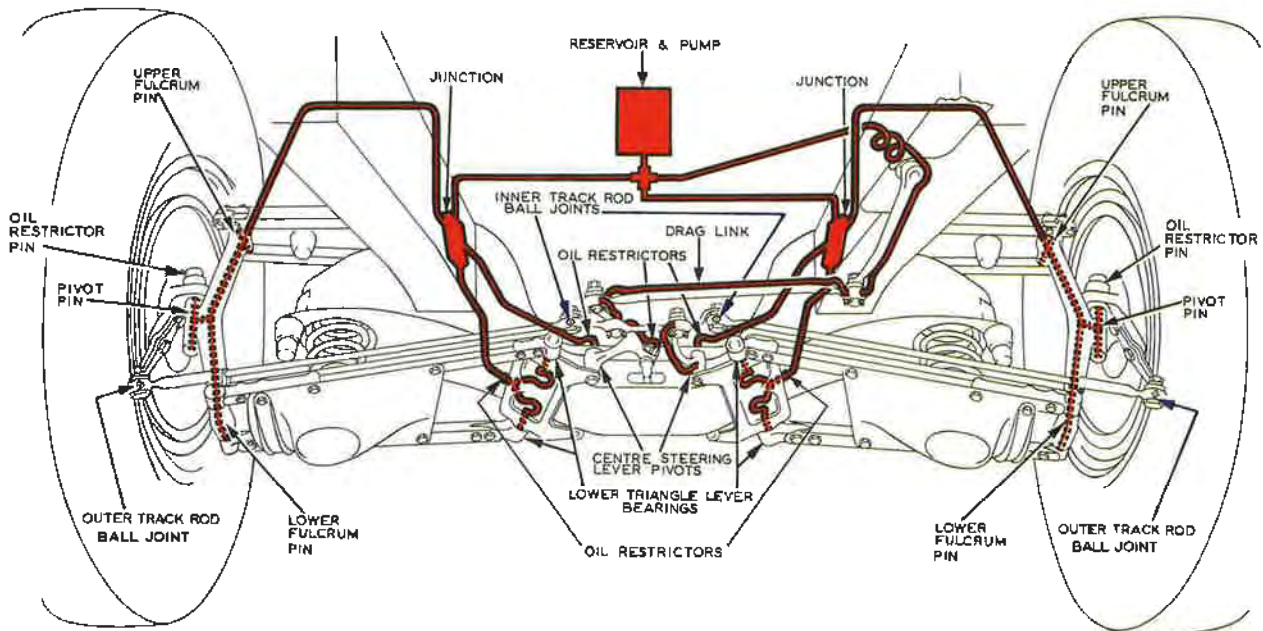


Fig.2. Diagram showing early type one-shot lubrication system and grease lubricated track rods only - HOLLOW stub axle yokes.

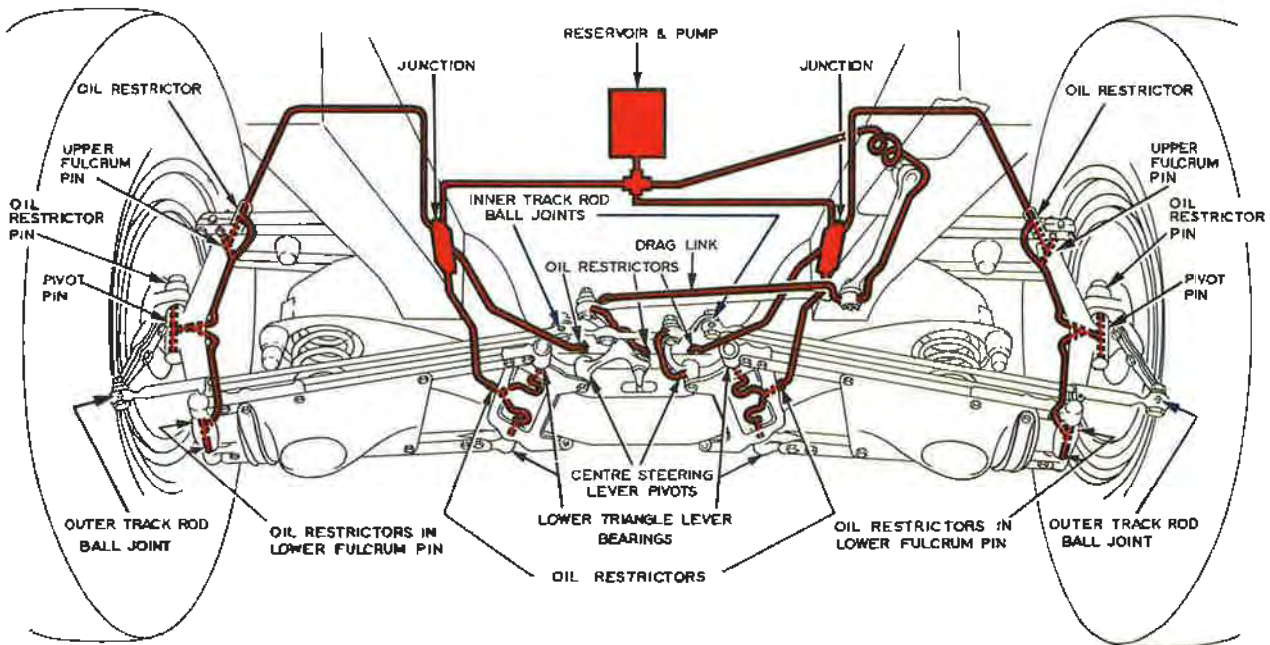


Fig.3. Diagram showing late type one-shot lubrication system and grease lubricated track rods only - SOLID stub axle yokes.

Cont'd.....

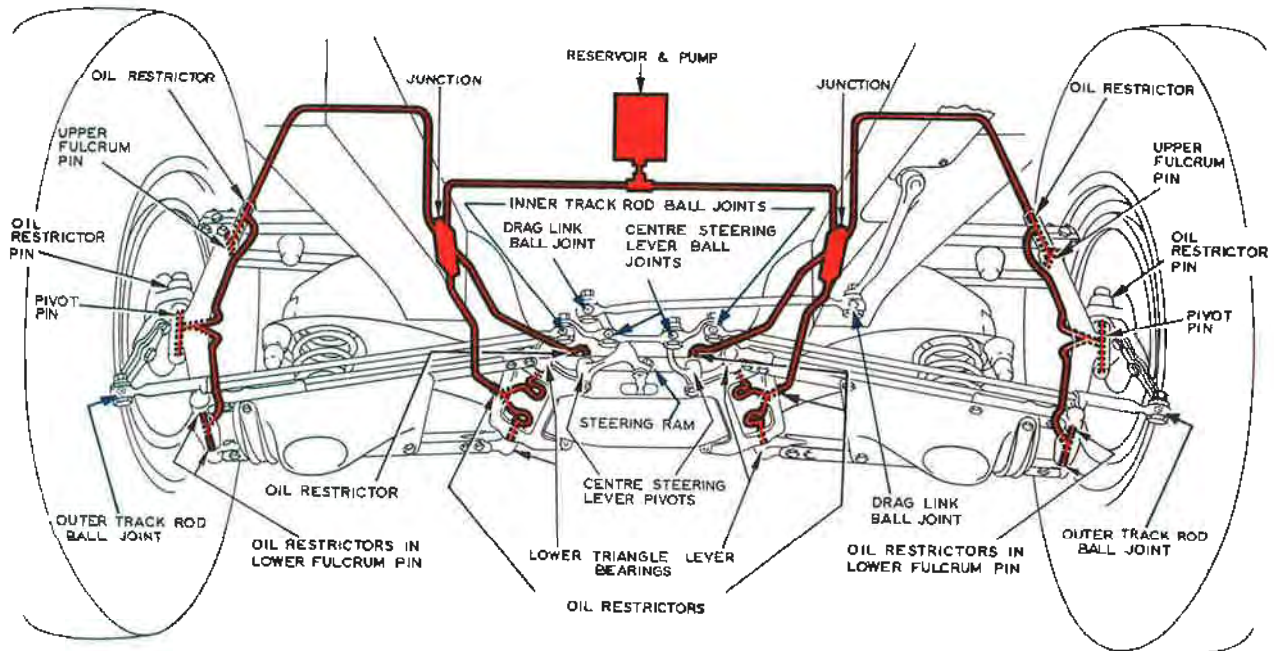


Fig.4. Diagram showing late type one-shot lubrication system and grease lubricated track rods, steering cross beam, drag link and power steering ram yoke - SOLID stub axle yoke.

It is therefore important that under no circumstances must rubber seals (UR.4000, UR.4001, UR.4002, UR.4003) with retaining rings, be fitted to cars with solid stub axle yokes, or that modified rubber seals (UR.3425, UR.3426) without retaining rings, be fitted to cars with hollow yokes.

There are four types of stub axle yokes in service, they are as follows:-

- (i) Solid type with 1° castor angle for power assisted steering.
- (ii) Solid type with $\frac{1}{2} - 1^{\circ}$ castor angle for manual steering.
- (iii) Hollow type with 1° castor angle for power assisted steering.
- (iv) Hollow type with $\frac{1}{2} - 1^{\circ}$ castor angle for manual steering.

If for any reason it is necessary to renew a stub axle yoke, a solid type (i) as for power assisted steering must be fitted owing to other types now being out of production.

Note:- In Figures 2, 3 and 4, the arrows shown in black indicate the points which are lubricated by means of the one-shot system and the arrows shown in blue, indicate the points which are lubricated by grease.

When a solid type stub axle yoke has been fitted to a car, care should be taken to ensure that an oil restrictor is fitted in the adaptor situated at the top of the yoke (see Fig.6).

It is essential also that the correct fulcrum pin, together with two oil restrictors, are fitted in the lower end of the yoke (see Fig. 5).

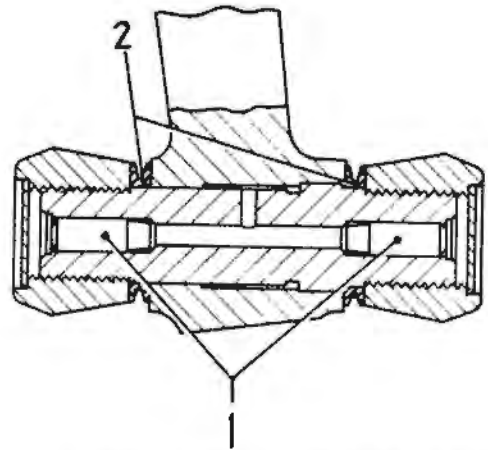


Fig.5. Scrap view of stub axle yoke showing lower fulcrum pin.
1. Oil restrictor.
2. Rubber sealing ring.

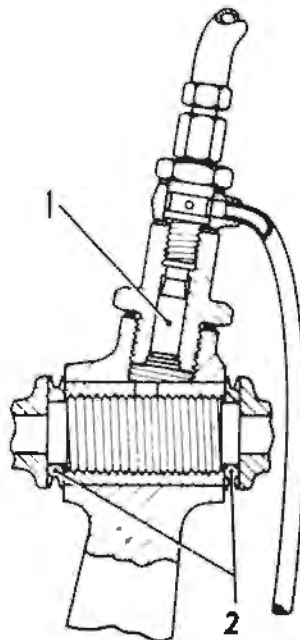


Fig.6. Scrap view of top of stub axle yoke.
1. Oil restrictor.
2. Rubber sealing ring.

FOR INFORMATION.

STANDING HEIGHT.

Information contained in the Workshop Manual concerning standing height dimensions is now obsolete and is superseded by the information given in this Bulletin.

There are two sets of dimensions to which a Silver Cloud or Bentley 'S' Type can conform, these come under the headings of "Standard" or "Colonial".

A new car will at first tend to stand higher than the dimensions quoted, but will "settle" after approximately 100 miles. This is due to the various rubber components in the rear suspension taking up their positions.

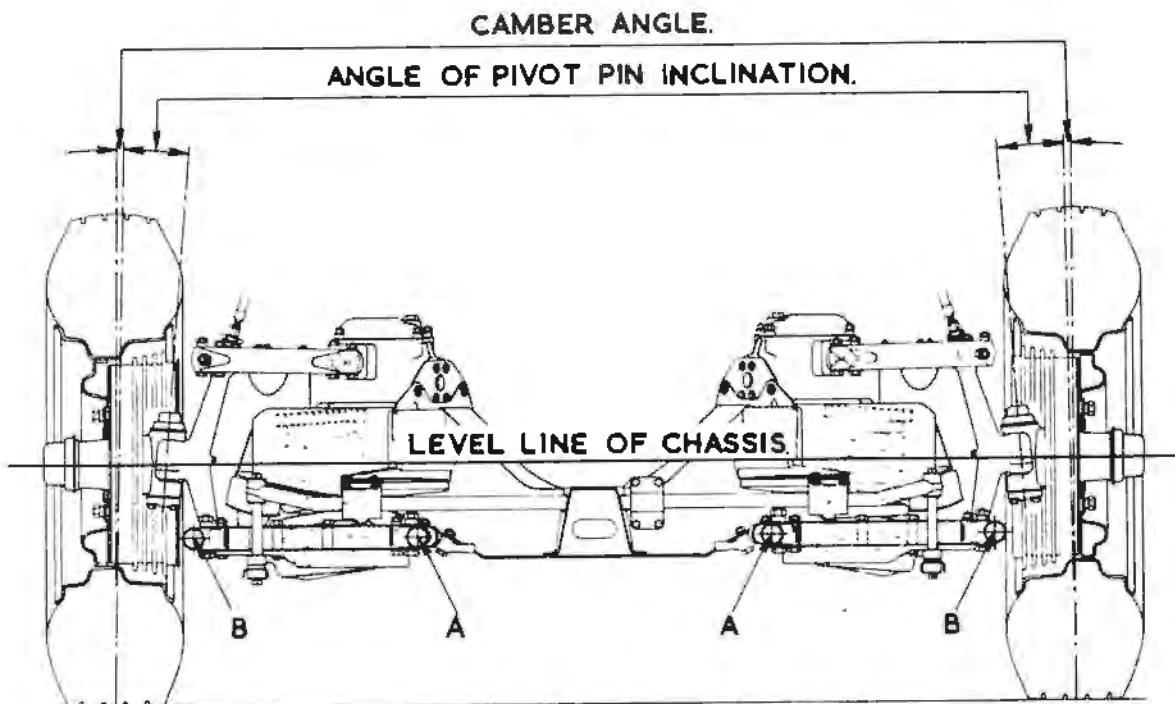


Fig. 1. Front standing height.

- 2 -

To Check Front Suspension Standing Height.

To check front suspension standing height, the car should be standing on a level floor with the tyres inflated to the correct pressures.

The car should also be in an unladen condition, i.e. without driver, passengers and luggage but with five gallons of petrol in the tank.

With the car prepared as stated above, check as follows:-

Standard Car.

Point 'A' should be 0.600" - 1.200" above point 'B' (see fig.1.)

Colonial Car.

Point 'A' should be 1.100" - 1.700" above point 'B' (see fig.1.)

When measuring standing height, the front of the car should be pressed down, then gently released and readings taken.

Raise the front of the car by hand and gently release it, then take a second reading.

The average of these two readings should be compared with the figures quoted above.

To Adjust Front Suspension Standing Height.

Adjustment for standing height is provided by means of special washers (UR.510) fitted between the rubber seat on the spring top spigot and the flat end of the spring.

No adjusting washers are provided on the bottom of this type of spring as was the case on previous models.

To Check Rear Standing Height.

The point for measuring rear spring standing height is shown in figure 2.

Cont'd.....

- 3 -

The clearances between the rear spring bump stop and the axle tube should be checked when the car is in a kerbside condition with no passengers or luggage, but with five gallons of petrol in the tank.

For each gallon over five subtract 0.025" from, or for each gallon under five add 0.025" to the dimension quoted below. The permitted variation from side to side is 0.375".

Standard Car.

Rear standing height. $6.000'' + 0.600''$
 $- 0.300''$

Colonial Car.

Rear standing height. $6.500'' + 0.600''$
 $- 0.300''$

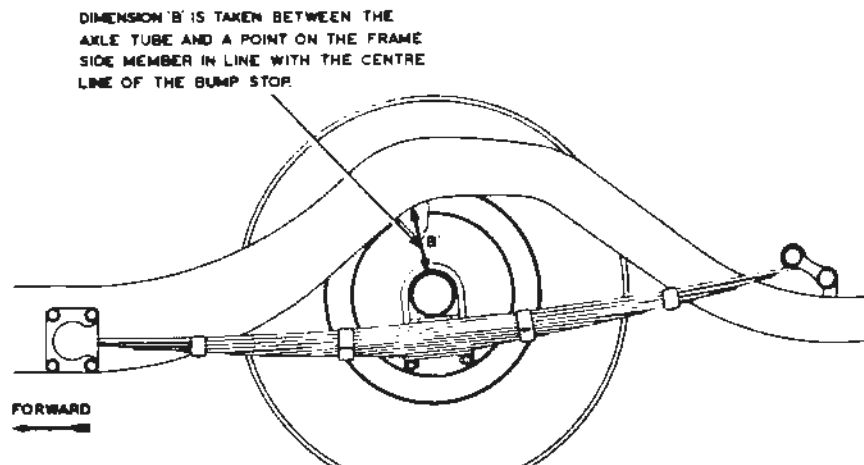


Fig.2. Rear standing height.

In the event of a car being jacked up for any length of time, so that the rear springs are allowed to hang, do not check the standing height until the car has been driven on the road for approximately thirty miles, otherwise an incorrect reading will be obtained.

Circulation - All Rolls-Royce
Franchise Holders

Category C

DELETION OF RIDE CONTROL

APPLICABLE TO:

All Rolls-Royce Silver Cloud 1 cars and all Bentley S1 cars.

INTRODUCTION:

The two-way ride control suspension damping system used on the above cars has been replaced by a fixed ride system.

This bulletin outlines the procedure which should be followed in the event of it being necessary to replace a damper or its associated parts on cars fitted with the two-way ride control system.

DESCRIPTION:

The rear damper solenoid, slow leak push rod and spring, have been discontinued. A new spring is fitted in place of the push rod and a blanking plate is fitted in place of the solenoid.

In the event of a ride control solenoid or rear damper requiring replacement on cars fitted with the two-way system, it will be necessary to modify the remaining damper and associated ride control wiring. The same procedure should also be followed in the event of a ride control malfunction.

PROCEDURE:

- 1 Disconnect the battery.
- 2 Disconnect the feed wire to the ride control switch and tape back into the loom.

- 3 Disconnect both the wires to each rear damper solenoid and tape them back into the loom.
- 4 Remove the ride control solenoid (see Fig 1)
- 5 Remove the solenoid spring (see Fig 1)
- 6 Remove the slow leak push rod (see Fig 1)
- 7 Fit the new spring in place of the slow leak push rod (see Fig 2)
- 8 Fit the blanking plate in place of the solenoid (see Fig 2)

PARTS REQUIRED:

Part No	Description
UR 1509	Blanking Plate
UB 15301	Spring

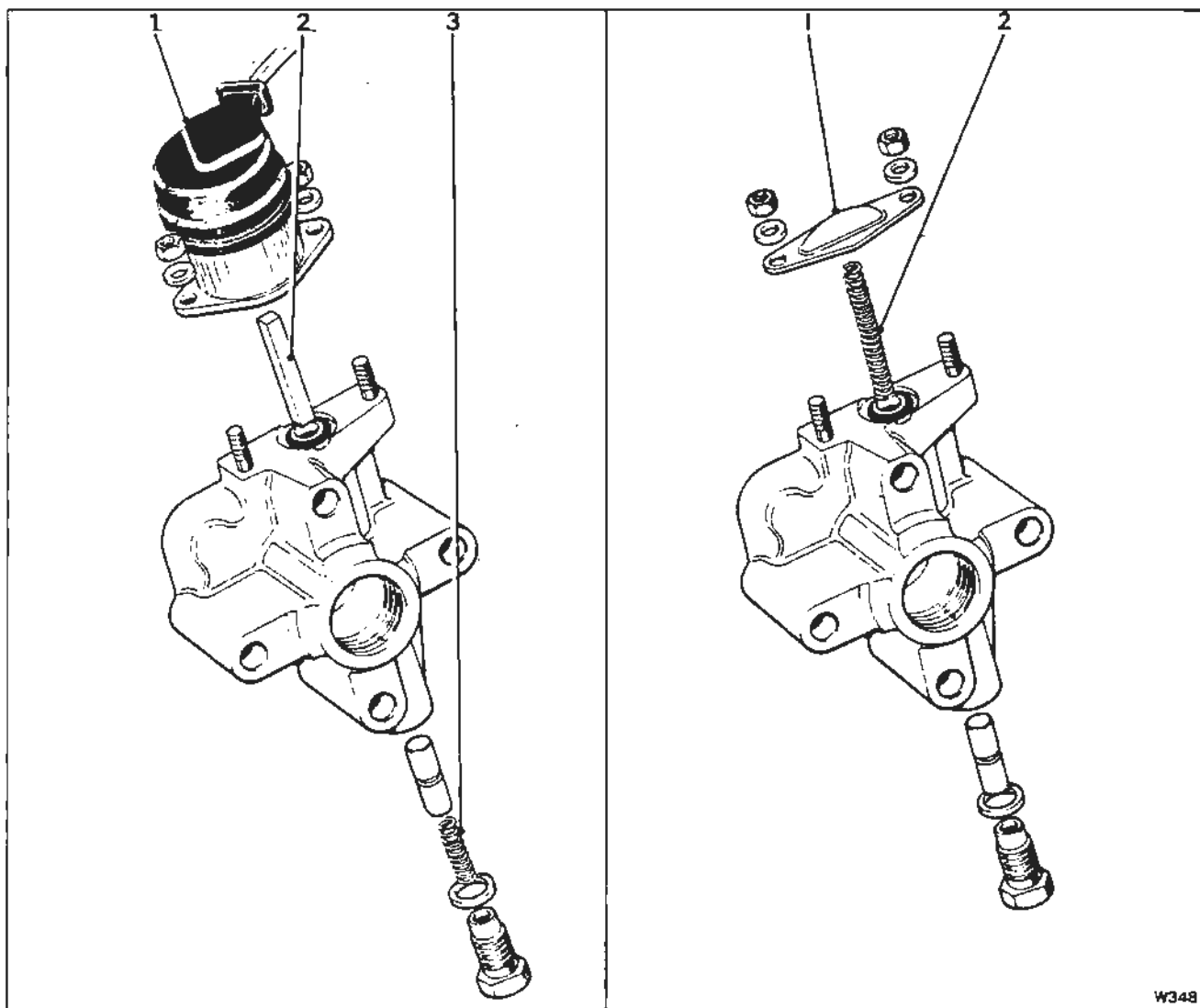


FIG. 1 EARLIER ASSEMBLY

FIG. 2 LATER ASSEMBLY

- 1 Solenoid
- 2 Push Rod
- 3 Spring

- 1 Blanking Plate
- 2 Spring

ROLLS-ROYCE MOTORS LIMITED, CREWE, ENGLAND

REAR AXLE

!

CATEGORY 3A

REAR AXLE OIL LEAKS

Complaints of oil leaks from the rear axle casing, which may be attributed to an ineffective oil seal, may in actual fact be caused by oil leaking past the L/H oil seal housing flange and adjusting washer mating face.

Discolouring of the L/H axle tube just below the oil drain hole will give an indication of oil leakage caused by either incomplete mating of these surfaces, or an ineffective seal.

Oil seal housings are now available with a rotary ground finished surface, which ensures a more complete area of contact between the mating faces. Previous housings were radial ground and may be identified by a series of radial markings around the flange outer face.

The oil seal housings are readily available, and only when delay in obtaining this part is inevitable due to transport difficulties, is it advised that to ensure a good mating surface, the radial markings are polished out. Where rotary grinding facilities are not available, the housing flange may be either stone ground, or rubbed down on a fine sheet of emery cloth placed on a surface plate. Before proceeding, measure the flange thickness to ascertain whether the housing will still be within the required limits (.060"-.070") after re-facing.

To facilitate easy removal of the serrated locking ring which holds the oil seal housing in position, the car should be run over a pit or ramp so that with the L/H axle shaft and axle tube removed, longer leverage to the serrated locking ring spanner may be applied if required.

It is essential that the oil seal is renewed whenever the oil seal housing is removed.

Time allowance 12 hours.

<u>Material</u>	<u>Part Number</u>	<u>No.Off</u>
Oil Seal Housing	UG.518	1
Oil Seal	RG.4264	1

-2-

Applicable to:

Rolls-Royce Silver Cloud

Bentley 'S' Type

Bentley 'S' Type Continental

FUEL SYSTEM AND CARBURETTORS

Modification Category 3A.

NOISE FROM PETROL PUMPS.

It is possible for the noise of the petrol pumps to be transmitted to the interior of the car, via the pipe line and frame, due to the rigid mounting of the petrol pipe to the support bracket, which is welded to the right-hand side of the frame ahead of the dash.

When a complaint is received, a modification should be carried out to isolate the union from the support bracket by inserting a rubber grommet.

The supply pipe from the pumps and the flexible pipe to the carburettors should be disconnected from the union, and the existing union removed from the bracket.

Open out the existing hole in the bracket to 15/16" diameter, and install the rubber grommet UR.2657.

Insert the distance piece, UR.2660, in the grommet, and mount the new union, UR.2977, through the distance piece sandwiched between the two flat washers, UR.2658, and using the original lock-nut for retention.

Reconnect the petrol pipes, and check that no metal to metal contact now exists between the new union and the mounting bracket.

The necessary Part Numbers are listed below, and Retailers are requested to order them from The London Service Station as required:-

UR.2977	Union	-	Petrol Pipe Coupling	1 off.
UR.2657	Grommet	-	Petrol Pipe Coupling	1 off.
UR.2658	Washer	-	Union Mounting	2 off.
UR.2660	Distance Piece	-	Grommet	1 off.

Time allowance - 1½ hours.

CATEGORY 3

FOR INFORMATION.

COPPER FUEL PIPES

Copper fuel pipes have superseded those of aluminium on production of later Rolls-Royce and Bentley cars. This action has been taken to obviate the danger of corrosion, resulting from travel over icy roads which have been sprayed with salt.

If the Retailer decides to change the pipes on a car which is used in these conditions, fit new pipes as follows.

PROCEDURE FOR FITTING.

Should any doubts arise, as to whether aluminium pipes are fitted, it is permissible to bare a small area on one of the pipes in order to ascertain this.

Ensure that the fuel pipe support, situated on the right-hand side ahead of the bulkhead, has been modified to eliminate fuel pump noise, as detailed in Service Bulletin No. CB. 5.

Also ensure that the level in the fuel tank is sufficiently low to prevent leakage when removing the pipe between the fuel pump and the fuel filter.

Remove the aluminium pipes and fit new copper ones. When the pipes have been fitted, switch on the ignition and inspect all pipe connections for leakage.

The time allowance for the complete operation is three hours.

MATERIAL REQUIRED.

Petrol pipe - Fuel tank to fuel filter. (Silver Cloud and Bentley 'S' Type only)	UR. 3253 - 1 off.
Petrol pipe - Fuel tank to fuel filter. (Bentley Continental 'S' Type only)	UR. 3256 - 1 off.
Petrol pipe - Fuel filter to fuel pump.	UR. 3254 - 1 off.
Petrol pipe - Fuel pump to mounting bracket.	UR. 3255 - 1 off.
Locknut - union.	UR. 3259 - 1 off.
Tubing nut.	UR. 3262 - 5 off.
Union - petrol pipes.	UR. 3257 - 5 off.
Tubing sleeve.	KB. 3004 - 5 off.
	Cont'd . . .

Cont'd.

APPLICABLE TO

Rolls-Royce Silver Cloud chassis up to SZB - 29.

Bentley 'S' Type chassis up to . . . B-326-CK.

Bentley Continental 'S' Type chassis up to BC-28-BG.

NOTE: In the case of a few cars (early 'A' series chassis), 4 off only of

Union - Petrol pipes UR. 3257 and

Tubing nut UR. 3262

will be required, the following parts being fitted at the petrol tank connection.

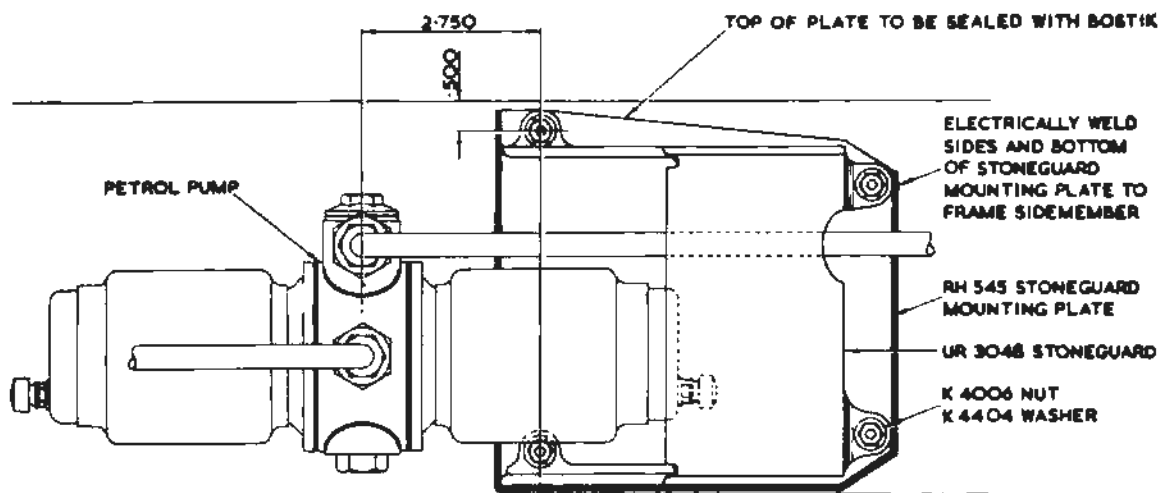
Adaptor . . .	KB. 3044 . . .	1 off.
Nut . . .	KB. 3024 . . .	1 off.
Washer . . .	KB. 1087 . . .	1 off.

CATEGORY 3A

IMPROVED FUEL PUMP STONEGUARD

A more substantial fuel pump stoneguard can be fitted to cars which are obliged to travel over stony terrain and require more protection than the standard stoneguard provides.

The fuel pump and existing stoneguard should be removed and the cap on the fuel tank filter released so that fuel cannot siphon out of the fuel pipe at the pump. The stoneguard mounting plate is then electrically welded in position where illustrated, but sealed with Bostik sealing compound at the top where it cannot be welded owing to the proximity of the coachwork.



STONEGUARD ASSEMBLY

The fuel pump is then replaced, and the stoneguard bolted in position to the mounting plate.

It may be necessary to bend the fuel pipe slightly so that it passes through the stoneguard without fouling.

The time allowance is two hours.

- 2 -

MATERIALS

UR. 3048 - Stoneguard - Petrol Pump	1 off.
RH. 545 - Assembly, Mounting Plate, Stoneguard	1 off.
K.4404 - Plain Washer	4 off.
K.4406 - Nut	4 off.
Bostik Sealing Compound - As required.	

CHASSIS NOS:

This modification is fitted to:-

Silver Cloud SZB-27 and onwards.

Bentley "S" Type B-312-CK and onwards.

Bentley Continental "S" Type BC-29-BG and onwards.

CATEGORY 3.

WATERPROOFING S.U. FUEL PUMPS.

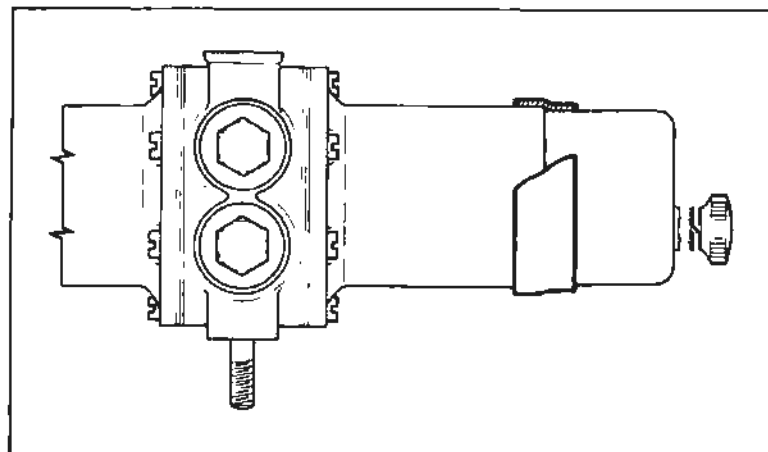
Exhaustive testing of the S.U. Fuel Pump for waterproofing under the most severe conditions of "water splashing", has shown that it is possible for water to enter the pump and subsequently cause failure due to corrosion of the contact breaker mechanism.

The existing rubber waterproofing gaiter does not make a satisfactory water seal under these conditions and does in fact hold any water which may collect.

A more efficient means of sealing is achieved by fitting a rubber band (Part number RH.770) over the joint between the pump body and the end cover.

It is recommended that this new seal is fitted when the pump has failed due to the ingress of water or when the pump has been removed for servicing.

The method of fitting this rubber seal is simple and in addition to being more efficient is less costly than the gaiter; the illustration below shows how the new seal should be fitted.



S.U. Fuel Pump showing new rubber waterproofing seal in position.

**COOLING SYSTEM,
CAR HEATING AND
DE-MISTING**

ENGINE COOLANT INHIBITOR.

New cars are now being despatched from the factory with a small sachet of inhibitor placed in the glove box.

The instructions on the box containing the sachet ask the owner to place the contents into the coolant system after the initial 1,500 miles running.

The Owner's Handbook states that the coolant should be flushed out yearly, and refilled with a fresh anti-freeze solution of the recommended make and strength.

As previously circulated, the recommended anti-freezes now contain a special chemical inhibitor to combat corrosion; however, it has been found that this inhibitor is initially, in a new coolant system, more rapidly consumed than was at first anticipated.

Naturally, there is a considerable variation between cars, but generally it appears that the inhibitor content reaches the minimum of .01% after about 1,500 miles.

This condition, of course, is likely to be reached much sooner than in 12 months, which is the recommended period for coolant change (and consequent inhibitor replenishment). Therefore, it is necessary for a concentrate to be added in reasonable time.

The sachet contains 0.175 pints of DTD.830, which is a combination of various salts designed to neutralise any acidity as well as replenish the inhibitor.

It should be emphasized that the addition of DTD.830 is only necessary during the initial 1,500 miles of a new car, and is not a routine service procedure.

For Information.VACUUM NOISE AUDIBLE IN BODY.

The Air Conditioning, Temperature and Demister Controls operate their respective taps and flaps by vacuum supplied from the induction manifold.

It has been found that a suction noise can be audible in the body when the Controls are in use. Changes in throttle opening create changes of depression in the manifold, vacuum pipes, and vacuum bowls. It is the change of depression in the vacuum pipes that causes the audible suction noise.

This noise can be eliminated by the fitting of a vacuum pipe having a restricted diameter.

A new pipe having an internal diameter of 0.060 inches replaces the short vacuum feed pipe at the rear end of the induction manifold.

The rubber tubes should be reconnected so that the windscreen washer vacuum tube connects to the long pipe which runs along the top of the manifold to the union at the front.

The lower tube protruding through the centre of the bulkhead, connects to the Air Conditioning and Demister Controls on the fascia, and this tube should be connected by its rubber tubing to the new tube fitted at the end of the manifold.

Parts Required:

UE.2954 - Pipe - Vacuum Tap 1 off.

This cancels all previous
CB. 32 Service Bulletins.

Circulated to all countries
except America.

ANTI-FREEZE MIXTURES - SI CARS.

On leaving the factory car radiators are filled with a 25% mixture of anti-freeze to British Standards Specification 3150 : 1959 (previously known as British Ministry of Supply Specification D.T.D. 779). Anti-freeze Mixtures to this specification can be identified by the specification number which will be marked on the container.

Only anti-freeze mixtures conforming to the above specification are approved by Rolls-Royce Ltd., and should the cooling system require replenishment an anti-freeze mixture to this specification should be used.

IMPORTANT: Under no circumstances should different brands of anti-freeze be mixed.

In addition to providing protection against frost, anti-freeze mixtures contain inhibitors to prevent corrosion in the cooling system; it is therefore essential to use an anti-freeze mixture all the year round in all parts of the world; water only must never be used. In hot climates, the anti-freeze mixture acts as a corrosion inhibitor and has the advantage of raising the boiling point of the coolant.

Continued.....

A sachet of 'NaMBT' inhibitor is supplied with each new car: this should be added to the coolant when the car has completed 1,500 miles, or as soon after as possible. If any part of the cooling system is changed, a fresh sachet of 'NaMBT' should be added to the coolant.

The coolant should be renewed annually, and the cooling system flushed out, in accordance with the Service Bulletin No. S2/L1: use plain water only for flushing. Do not use detergents.

Anti-freeze mixture to the above specification can be obtained from:-

Rolls-Royce Limited,
Spares Department,
Pym's Lane,
Crewe.

Rolls-Royce Limited,
Repair Department,
Hythe Road,
Willesden,
London. N. W. 10.
(Counter Service only)

No. CB-33

Cancels Service Bulletin No.CB-33 dated 27.11.56.
and Service Bulletin No.CB- 3 dated 16. 4.56.

FOR INFORMATION

REPLENISHMENT OF NaMBT INHIBITOR

The recommended anti-freeze (to Specification DTD.779) contains two corrosion inhibitors. One of these, NaMBT (Sodium-mercapto-benzothiazole), may be consumed rapidly on initial filling, even in a new cooling system, with consequent loss of protection against corrosion.

All new cars delivered are provided with a small satchet to replenish this inhibitor after 1500 miles running, this replenishment being extended to all post-war cars when the engine or radiator is changed, or, if the cylinder block has been thoroughly descaled by either a mechanical or chemical process.

It is emphasized that the addition of the satchet (DTD.830) is only necessary under these circumstances and is NOT a routine service procedure.

It is essential that the contents of the NaMBT satchet are not added to any coolant other than one containing anti-freeze to Specification DTD.779.

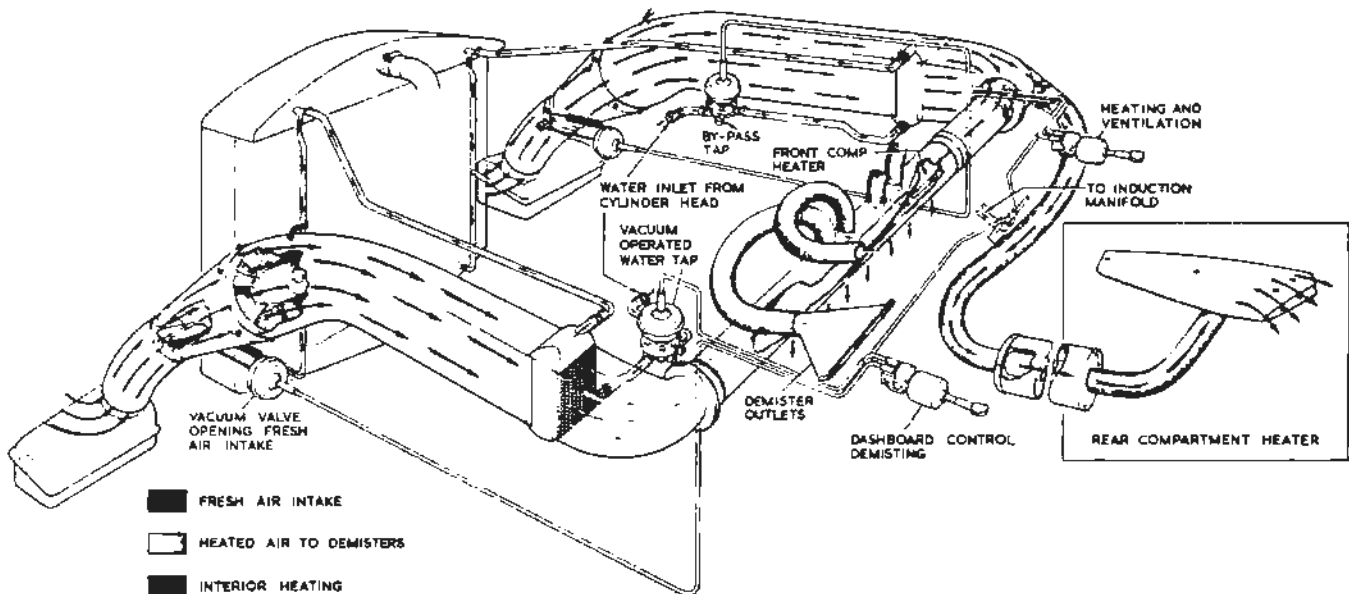
Satchets of Inhibitor (Part No. Y.9111) are available from Rolls-Royce, London, N.W.10.

To ensure maximum protection against corrosion and overheating, it is essential that cooling systems be flushed out annually and replenished with fresh anti-freeze solution (DTD.779).

FOR INFORMATION.

DEMISTING, HEATING AND VENTILATION SYSTEM.

Greater passenger comfort can be achieved if the car is run with the windows closed. In this condition, an efficient heating and ventilation system is essential, and the system fitted to the 'S' Type Bentley and Rolls-Royce Silver Cloud cars has been developed to further improve the comfort of the passengers under all weather conditions.



DEMISTING HEATING AND VENTILATION SYSTEMS

Demisting, Heating and Ventilation System.

Fresh air is ducted via a heat exchanger fitted under each front wing, the one on the left hand side feeding the demister system, and the one on the right hand side the heating and ventilation duct, which lies laterally under the facia and also has an extension which protrudes through an aperture in the floor behind the right hand front seat, to ventilate the rear seat compartment.

The stale air finds its way out of the body via the rear parcel shelf and thence through filter covered holes in the boot floor, and also through the filter covered water drain holes in the door cavities.

- 2 -

In order for the owner to achieve the maximum comfort from the system it is essential that the correct operation and functioning of both the demister and heating and ventilation controls are fully understood.

The heating and ventilation, and demister systems are each controlled by a multi-position switch fitted in the dashboard. These switches are connected to vacuum valves which operate the butterfly valve in the air intakes, and the vacuum operated water taps which control the flow of hot coolant which is passed from the cylinder head to each heat exchanger. The dashboard control also comprises a two position electric switch to operate a booster fan in each system.

A slight degree of air circulation over the interior of the windscreen is desirable to ensure freedom from mist, even with all the controls in the off position. A $\frac{3}{8}$ " diameter hole in the butterfly valve of the demister air intake allows this to occur. Thus, with the controls in the off position no air enters the body via the heating and ventilation ducting, although a small quantity of demist air circulates over the windscreen and also ensures a slow change of the air in the body of the car.

When the dashboard control knob is pulled out to its first position, the vacuum valve opens the butterfly in the air intake; further extension to the second position, whilst still retaining the butterfly valve in the open position, then operates the water tap in order that hot coolant may be fed through the heat exchanger.

Twisting the control knob in a clockwise direction will cause the boost fans to run at half speed for the first movement, and full speed for the second movement, and this control of the boost fans is available in both of the previous two mentioned positions controlling the vacuum valves.

The position of the air intakes has been arranged so that forward motion of the car will cause a ram effect, and thus it is possible for fresh air to pass into the body of the car without the necessity for any assistance from the boost fans. It will generally be found that at speeds in excess of approximately 40 m.p.h. the boost fan assistance will not be required, but this will be found a matter of individual taste.

It will be noted that, in the absence of any other provision, even after the engine has attained normal running temperature, it would still take some time before hot air becomes available through the demister and heating and ventilation ducts, due to the fact that until the dashboard knob

- 3 -

is pulled out to the second position, no hot coolant circulates through the heat exchangers; this means that a considerable volume of air would pass into the body before the heat exchanger could reach its operating temperature. If the ambient temperature is below approximately 45° F, the occupants would suffer discomfort for a short while before the incoming air becomes sufficiently raised in temperature.

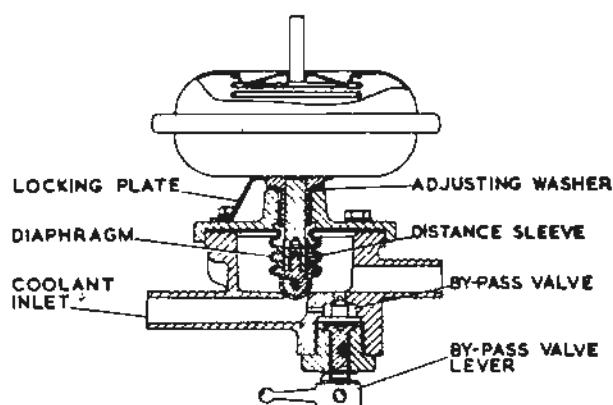
If a bleed of hot water is allowed to pass through the heat exchangers when the controls are off, then not so great a volume of cold air would pass before the normal operating temperature is reached. In order to improve the comfort in this manner, and to give a greater degree of control, a hand operated by-pass bleed tap has been fitted to the vacuum operated water valve, under the bonnet on both the heating and ventilation and demister heat exchanger circuits. These new valves were fitted to all cars produced after May 1956, and the Part No. of the two assemblies is UD.2081, Heating and Ventilation valve assembly, and UD.2762, Demister valve assembly.

The heating and ventilation valve is fitted with a by-pass bleed of .120" diameter and the demister unit is fitted with a bleed hole of .055" diameter.

These taps are designed to be left permanently open during the winter months and permanently closed during the summer months of the year. Thus, in winter, even with the dashboard control knobs fully off, a small flow of hot water from the cylinder head passes through both heat exchangers, due to the by-pass bleed taps being open.

This means that when the engine has reached its operating temperature the heating and ventilation and demister heat exchangers will also be warm, and that in this condition, a small flow of air, due to the forward motion of the car, will pass through the $\frac{3}{8}$ " diameter hole in the demister butterfly, and when it finally emerges from the demister ducts, this air will be very slightly raised in temperature.

Under these conditions, the first movement of the dashboard knobs will immediately give a flow of warm air, and that emerging from the



Vacuum Operated Tap.

- 4 -

heating and ventilation ducting will be slightly warmer than that emerging from the demister ducting.

Of course, movement to the second position of the dashboard knob will immediately give maximum heat, equivalent to the final stage when used in the summer condition mentioned above.

It should be remembered that the vacuum taps will not operate unless the engine is running, because they depend upon inlet manifold depression.

Another point is that the cross duct under the fascia is the means of distributing both the heating and ventilation and demister air, and the construction of this tube is such that only a thin aluminium shield divides the two. This is arranged in this manner to give yet a further degree of heat control, which is achieved in the following manner.

If the air on the heating and ventilation side is at a different temperature to that on the demister side of the dividing shield, then heat transference from one side to the other will take place, mainly by conduction. Thus, if it is desired to have the heating and ventilation fully on, it is possible for the demister air to be slightly increased in temperature by this means and vice versa.

It is essential that all Service and Sales personnel are completely familiar with the operation of this system, which has been designed to give maximum comfort to the occupants of the car with the minimum of manual control.

The following summary is included in order to give a simple means of understanding the system.

DEMISTER SYSTEM.

DASHBOARD CONTROL KNOB POSITION	BY-PASS BLEED TAP	
	CLOSED	OPEN
OFF	Bleed of COLD air	Bleed of WARM air
1 OUT	Ram flow of COLD air	Ram flow of WARM air
2 OUT	Ram flow of HOT air	Ram flow of HOT air

- 5 -

HEATING AND VENTILATION

DASHBOARD CONTROL KNOB POSITION	BY-PASS BLEED TAP	
	CLOSED	OPEN
OFF	No flow of air	No flow of air
1 OUT	Ram flow of COLD air	Ram flow of WARM air
2 OUT	Ram flow of Hot air	Ram flow of HOT air

The fans, at half or full speed, may be used to increase the flow of air as desired.

FOR INFORMATION.

HISSING NOISE FROM HEATER AND DEMISTER CONTROLS.

On 8:1 Compression ratio engines a hissing noise may be audible in the car when the Heater or Demister controls are in use, due to increased fluctuations and air velocity in the manifold and vacuum pipes created with varying throttle openings.

This has been eliminated in production by fitting pipes of reduced bore to Heater and Demister controls.

Cases of complaint on cars in service should be dealt with by fitting the .059" bore tubes in lieu of the earlier pattern .115" bore diameter tubes.

The Heater and Demister pipe dash-board transfer adaptors located near the L/H and R/H sides of the dash-board should be replaced by assemblies of the smaller internal diameter.

The part number (UD.1378) remains unaltered but these can be identified visually by the bore diameter.

Pipe assemblies can be changed without disturbing the Heater and Demister Duct.

FOR INFORMATION.

HEATER AND DEMISTER VACUUM OPERATED WATER TAPS.

With the introduction of pressurised cooling systems on cars fitted with Refrigeration, a reduction in the diameter of the valve seat in the water tap body has been necessary. This is to prevent the increased coolant pressure from lifting the valve off its seat.

The letters H or D (as applicable) stamped on the Heater and Demister water tap casing for identification purposes, will now be replaced by the appropriate body part number only.

Assembly part numbers together with their respective body part numbers are as listed below :-

<u>Body No.</u>	<u>Assembly No.</u>	<u>Valve Seat Dia.</u>		<u>Applicable To</u>
UD.2057	UD.2081	.350"	(Heater Tap)	L/RH 'S' Types Non-Refrigeration
UD.2761	UD.2762	.350"	(Demister Tap)	L/RH 'S' Types Non-Refrigeration
UD.3387	RH.247	.250"	(Heater Tap)	L/RH B/S and S/Cloud fitted with Refrigeration
UD.3388	RH.248	.250"	(Demister Tap)	L/RH B/S and S/Cloud fitted with Refrigeration

FOR INFORMATION.

THERMOSTATS.

A number of thermostats have been supplied with 2.BA. extraction holes instead of the standard 3.BA. size.

Whenever a thermostat is to be removed for any reason, first ascertain the size of withdrawal bolts required before attempting removal and so prevent damage to the extraction hole threads.

On no account must leverage be applied to the thermostat valve.

FOR INFORMATION.

"HEATER MATRIX"

Although the present interior heating system in all 'S' series cars is quite adequate in a temperate climate, it is possible that more heat may be desired when the car is subjected to extreme cold. For this reason a new heat exchanger, which is 11% more efficient, has been developed and is recommended for fitting under these conditions.

The new matrix, which will be identified by a prominent mark of red paint, is identical in appearance to the present matrix except for the shape of the secondary airway fins, and is consequently interchangeable.

The new part number is U.D.3857; the standard heater matrix part number (U.D.1162.) is unchanged.

Category 3A.

Heater Ducting.

Several instances have occurred of damage to the rear passenger compartment heater duct by stones and grit thrown from the front road wheel.

In such complaints, the Kopex tube which is liable to be damaged should be protected by a 15" length of rubber sleeve, fitted between the side of the dashboard and the wing valance.

Renew the Kopex tube, if necessary. Fit the protective sleeve with its lower end adjacent to the rubber diaphragm on the valance plate. Owing to the curvature of the Kopex tube, the upper end of the protective sleeve will open, and it will be necessary to seal this by fitting a short tight-fitting rubber sleeve over the end of the protective sleeve.

Material:

15" of rubber sleeve, 2 13/16" internal diameter
1/16" wall thickness, Part No.UD.1662.

2 1/2" of rubber sleeve, 2 1/2" internal diameter,
1/32" wall thickness, Part No. UD.4056.

Time Allowance:

1 hour.

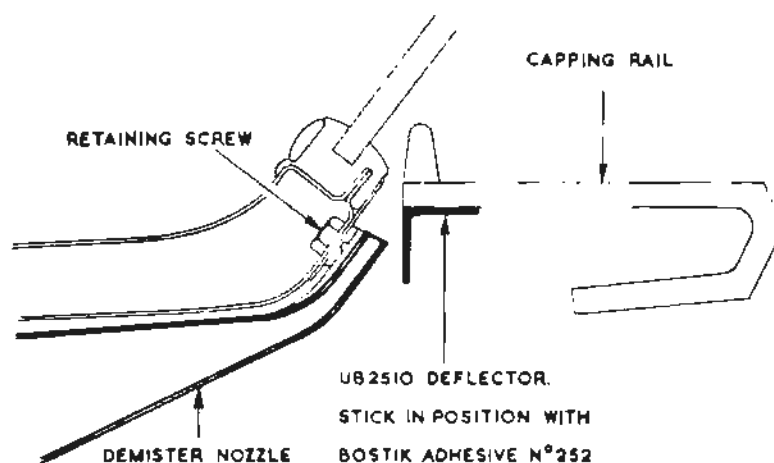
FOR INFORMATION.

DEMISTING WINDSCREEN.

A possible cause of complaint regarding inadequate demisting of the windscreen may be found in the misplaced position of the demister nozzles under the capping rail. The nozzles may be directing a percentage of the air flow, or in extreme cases all air flow, under the capping rail rather than between the rail and screen.

In either case, a length of P.V.C. right angle section should be stuck along the underside front edge of the capping rail to deflect the otherwise escaping air back onto the windscreen. Use Bostik adhesive No.252 (see diagram for location). It will be found that several small cut-outs will be required in the P.V.C. to avoid mounting webs etc. on the scuttle. This operation will be left for the fitter to carry out as the section is stuck in place.

In addition to fitting the length of P.V.C., slacken the two top nozzle retaining screws and bend the lips of the effected nozzles as close as possible to the scuttle to obtain a more directional air flow. Care should be taken not to decrease the size of the nozzle apertures.



Material.

Length of P.V.C. Part No. UB.2510

FOR INFORMATION:THE HEATING AND VENTILATION SYSTEM FOR THE 127"
WHEELBASE ROLLS-ROYCE SILVER CLOUD AND BENTLEY
'S' TYPE LIMOUSINES.

The heating and ventilation systems installed in these two Limousines have been slightly altered from the standard layout. This is to accommodate an accurate means of controlling the internal temperature of both the front and rear compartments of the car.

The air temperature of the entire interior is basically governed by the heating and ventilation multi-position master-switch, which is now situated on the extreme right of the division centre control panel in the rear compartment. Its operation is identical to that of the master-switch mounted in the instrument fascia board of the Standard 'S' Series.

The master-switch controls not only the temperature, but the amount of air flowing from the underwing heat exchanger units. The air ducting from the heat exchanger to the rear compartment is uninterrupted; in consequence, the air condition of this latter compartment is directly controlled by the setting of the master-switch.

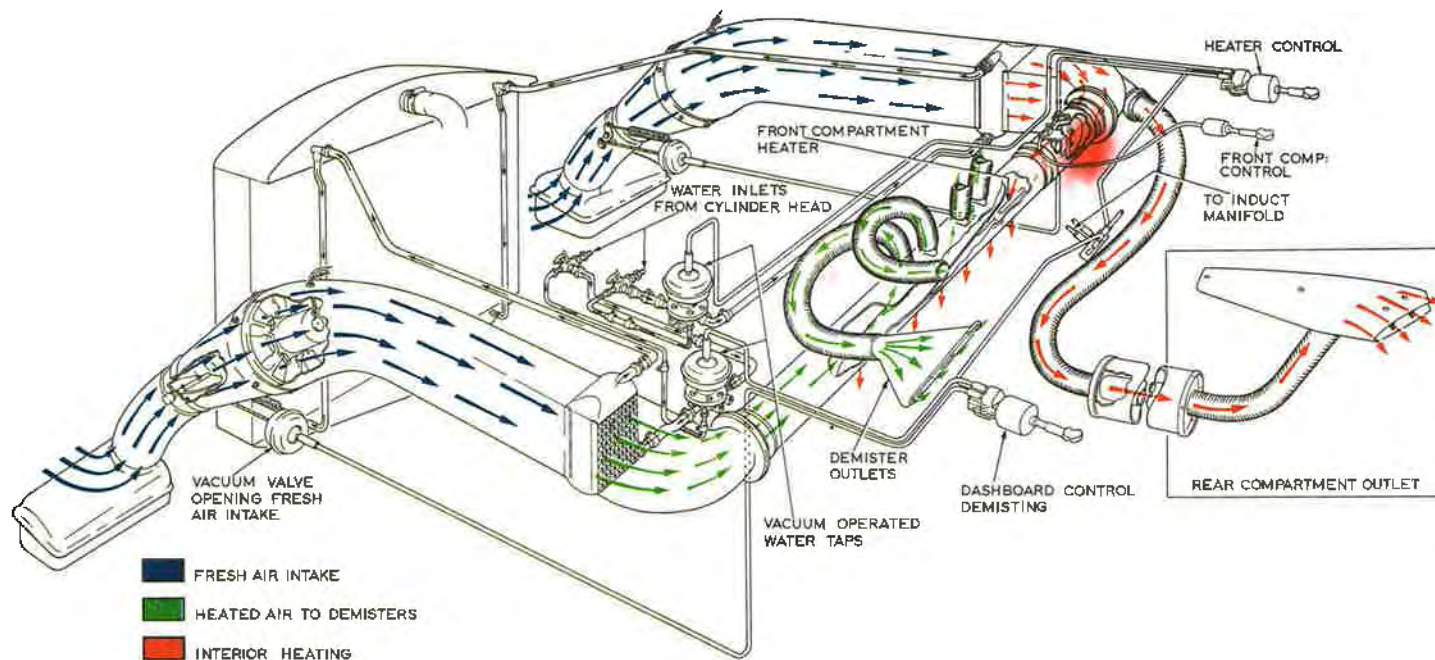
There is an additional variable position pull/push switch in the main instrument fascia of the front compartment in place of the standard master-switch. This pull/push switch operates a butterfly plate in the extreme right end of the transverse heater ducting and separately controls the amount of air entering the front compartment.

By opening or closing the butterfly plate, the driver may control the amount of air emitted from the ducting and so regulate the temperature of his compartment. Although this can be controlled to a variable degree, it is basically dependant upon the setting of the master-switch.

The temperature of the front compartment can be controlled by the conjunctive use of the master-switch and the pull/push switch; the rear compartment temperature being controlled solely by the master-switch.

Through correct and careful adjustment, both switches can be used to control the temperature of the whole car to suit the varying conditions required by the occupants of both the front and rear compartments.

Cont'd.....



DEMISTING, HEATING AND VENTILATING SYSTEMS

FOR INFORMATION:"THE REVISED HEATING AND VENTILATION SYSTEM".

The layout of the heating and ventilation systems installed in the current production Rolls-Royce Silver Cloud, Bentley 'S' type and Continental, have been revised to provide a more efficient means of interior temperature control.

This has been achieved by introducing two manually operated water taps and two modified vacuum controlled water valves. The taps, fitted into the cylinder head adjacent to number two and three sparking plugs, control the amount of hot water flowing to the vacuum operated water valves; the front tap for demisting and rear for heating. They have a 'winter' and 'summer' position, marked on a dial beneath the tap lever, which should be selected under the relevant climatic condition.

The 'winter' position opens both the full-flow and capillary flow of hot water to the vacuum operated water valves. The capillary flow by-passes the valves and continues straight on to warm the heat exchangers under the front wings to provide a circulation of warm air immediately the heater or demister is switched on.

The 'summer' position shuts off the capillary by-pass flow altogether and only permits a flow to the vacuum valves equivalent to the capillary feed. This eliminates overheating of the interior of the car during hot weather, when the underwing heat exchanger butterfly valves are opened.

The construction of the modified vacuum controlled water valves, situated between the engine and the rear of the nearside valance plate, is similar to that of its predecessors except for the omission of the capillary feed manual control taps: There is now a by-pass connection straight through the valve assemblies to link up with the main pipes to the underwing heat exchanger units. The capillary by-pass flow is controlled by the 'winter/summer' taps.

The demisting, heating and ventilation multi-position control switches inside the car are unaltered and are operated in the usual manner.

Contd.

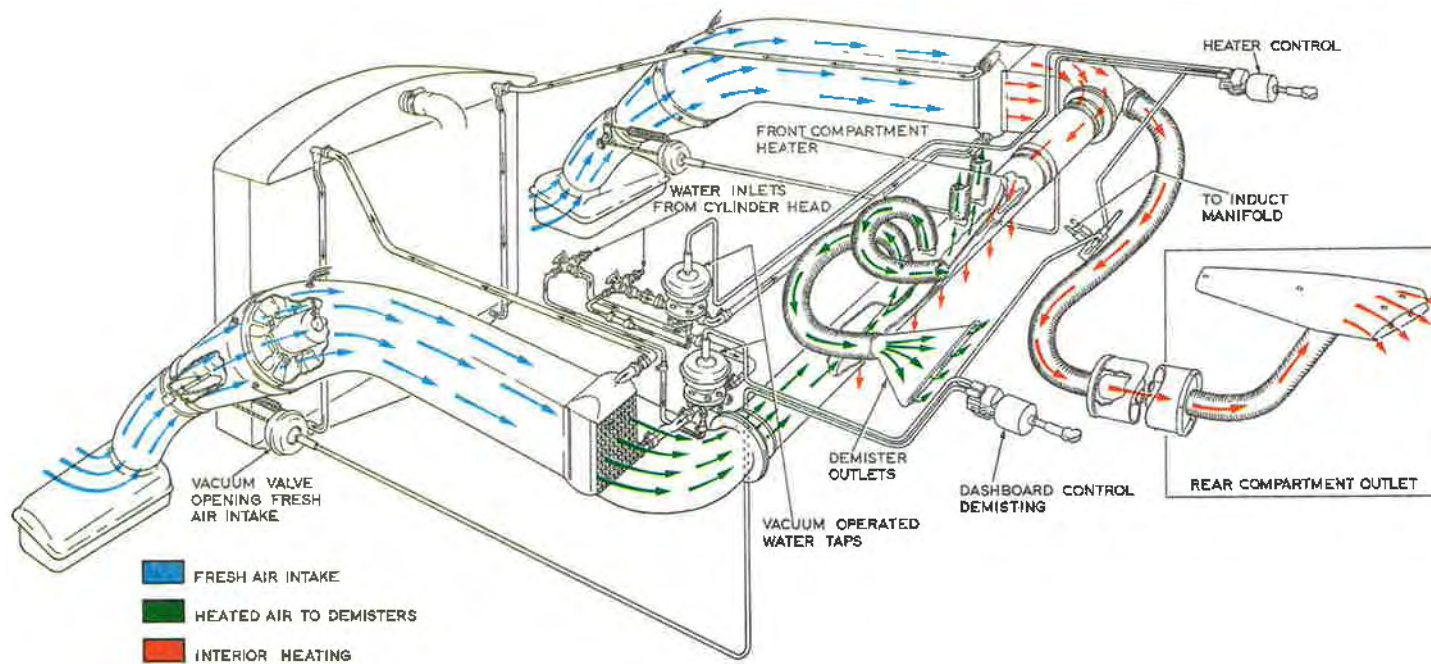
- 2 -

Perfect control of the car interior temperature can be easily maintained with the conjunctive use of both the master switches and the manually operated 'winter/summer' water taps.

Multi-position control switch	CONTROL TAPS	
	Summer position	Winter position
OFF	COLD	WARM
1st position OUT	COLD	WARM
2nd position OUT	WARM	HOT

The above chart indicates the temperature of the heat exchanger units throughout the range of the dashboard control switch in both the winter and summer positions of the water taps.

Contd.....



DEMISTING, HEATING AND VENTILATING SYSTEMS

FOR INFORMATION

APPROVED LUBRICANTS FOR REFRIGERATION COMPRESSOR

The following lubricants are approved for use in the Rolls-Royce and Bentley refrigeration compressor: -

Regent	-	Capella D
Shell	-	Clavus 33
Sunisco	-	4-G (for use in America)

The compressor sump is filled with Regent Capella D oil when it leaves the factory, but should topping-up be necessary, care must be taken to ensure that the instructions laid down in the booklet entitled Rolls-Royce Car Interior Cooling System should be strictly adhered to.

CATEGORY 3A
FOR INFORMATIONLIMITED CIRCULATIONCancels Previous Service
Bulletin dated 6.7.59.REFRIGERATION - BOOT UNIT

In certain climates where the temperature rise and fall is considerable, it is impossible to adjust the present refrigeration control system to meet the requirements of the complete range, without some loss of cooling efficiency at higher ambient temperatures. Such conditions are prevalent in the U.S. A. especially in Texas, or can be encountered on a long journey with varying climatic conditions. It has therefore, been decided to provide an Electro-Thermostatic control system which can be installed retrospectively in cases of complaint. Fitting instructions are given later in this bulletin.

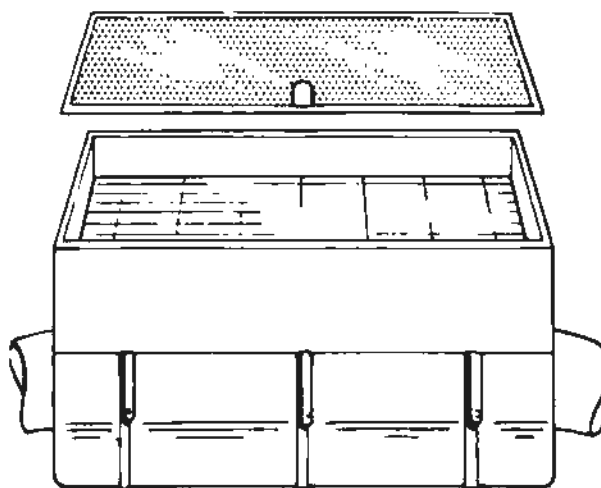


Fig. 1. Method of fitting nylon air filter.

The boot unit incorporates two high capacity blower motors and on certain cars a distinct 'Wind-whistle' can be heard when the unit is operating at its maximum. A nylon filter screen has been designed which eliminates 'Wind-whistle' and can be fitted in cases of complaint as described later.

ELECTRO-THERMOSTATIC CONTROL SYSTEMDescription.

The system incorporates an electro thermostat which is fitted to the lower half of the evaporator casing, a solenoid valve and a filter drier, which should be fitted and positioned between the service valves shown diagrammatically in Fig. 2. The filter drier has been incorporated to protect the system against moisture or dirt.

- 2 -

The electro-thermostat should be set to operate at 34 to 36°F. and if the temperature over the evaporator falls below this figure, the thermostat contacts will open, causing the solenoid valve to shut off the flow of liquid refrigerant to the expansion valve. Refrigerant vapour is then by-passed through the pressure control valve until the air flow temperature over the evaporator rises. The thermostat contacts will then close and the solenoid valve again allows liquid refrigerant to pass to the expansion valve.

The operating temperatures of the thermostat are set before leaving the factory but should be checked after installation and can be adjusted, if necessary. Adjustment is provided by a conveniently situated setscrew and locknut. In order to ascertain the temperature at which the thermostat is operating, it will be necessary to drill a small hole in the casing adjacent to the thermostat housing to insert a thermometer. The air temperature at this point can best be measured with the system operating at low speed and the engine on a fast idle. After completion of tests, the thermometer hole should be plugged.

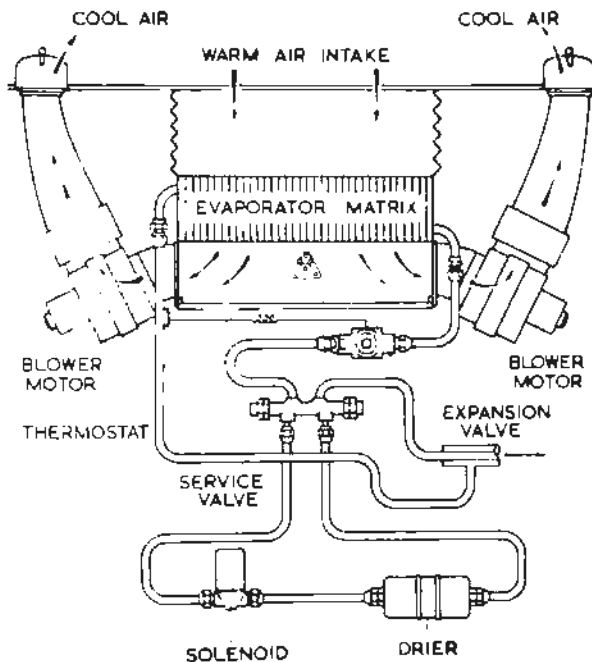


Fig. 2. Scrap view of diagram showing thermostat, solenoid valve and filter drier.

Pressure Control Valve.

When the electro-thermostatic control system is in operation, the pressure control valve acts essentially as a safety device in order to prevent the compressor working on a vacuum, should the system be operated in low ambient temperature.

The pressure control valve should be set to 0.5 lb. per sq. in. with the engine running at a fast idle speed.

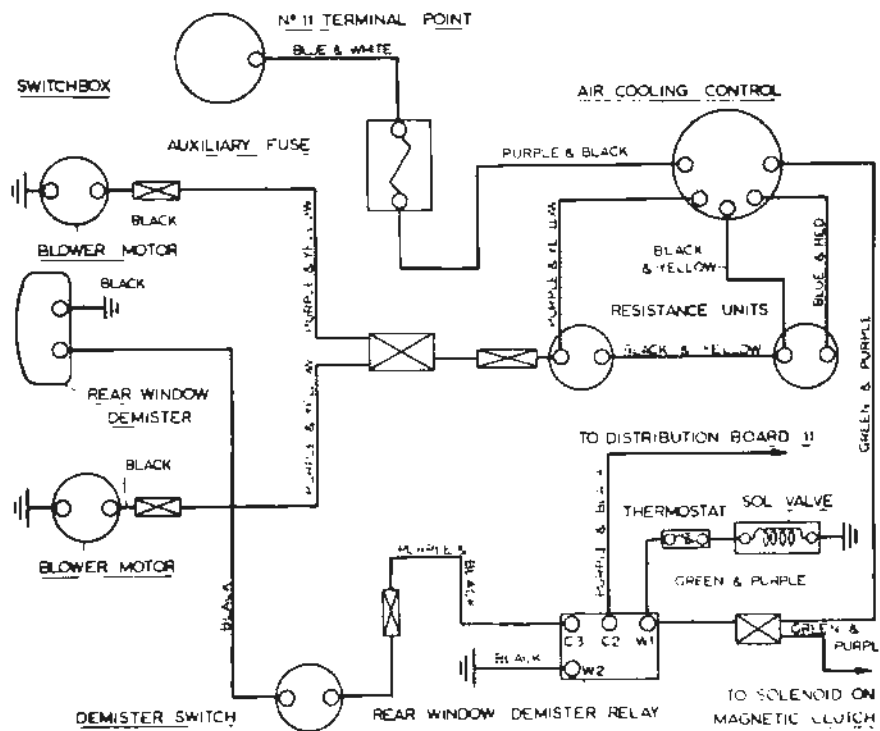


Fig. 3. Wiring diagram showing connections for thermostat and solenoid valve.

- 4 -

FITTING INSTRUCTIONS

When fitting the electro-thermostatic control system, refrigerant should be bled through the filter drier and solenoid valve to prevent any air being left in these units, the connections should then be tightened and both service valves fully forward seated instead of back seated as at present.

To accommodate the thermostat it will be necessary to drill a hole 5/8 in. diameter in the lower half of the evaporator casing and 3 holes 7/64 in. diameter for the No. 6 1/2 in. long self-tapping screws.

Before fitting the thermostat, apply sealing compound to the face of the flange which is to contact the evaporator casing.

The electrical connections from the thermostat and the solenoid should be connected as shown in the wiring diagram in Figure 3.

'WIND-WHISTLE'

Fit the nylon air filter over the evaporator matrix situated in the boot; this filter consists of nylon gauze stretched over a wire frame.

To fit the filter, unclip the three straps which secure the leather dust cover to the evaporator, place the filter on top of the matrix with the lifting loop to the top rear. Ensure that the filter is resting on the matrix honey-comb, then refit the leather dust cover (see Fig.1).

MATERIAL REQUIRED

Nylon Air Filter	-	UD.5123	-	1 off
Filter Drier	-	UD.4989	-	1 off
Solenoid Valve	-	UD.6175	-	1 off
Thermostat	-	UD.4978	-	1 off
Self-tapping Screw	-	CS.31042	-	3 off

CATEGORY C

AIR CONDITIONING CONTROLS

APPLICABLE TO:

All Rolls-Royce Silver Cloud I and II motor cars and all Bentley SI and SII motor cars.

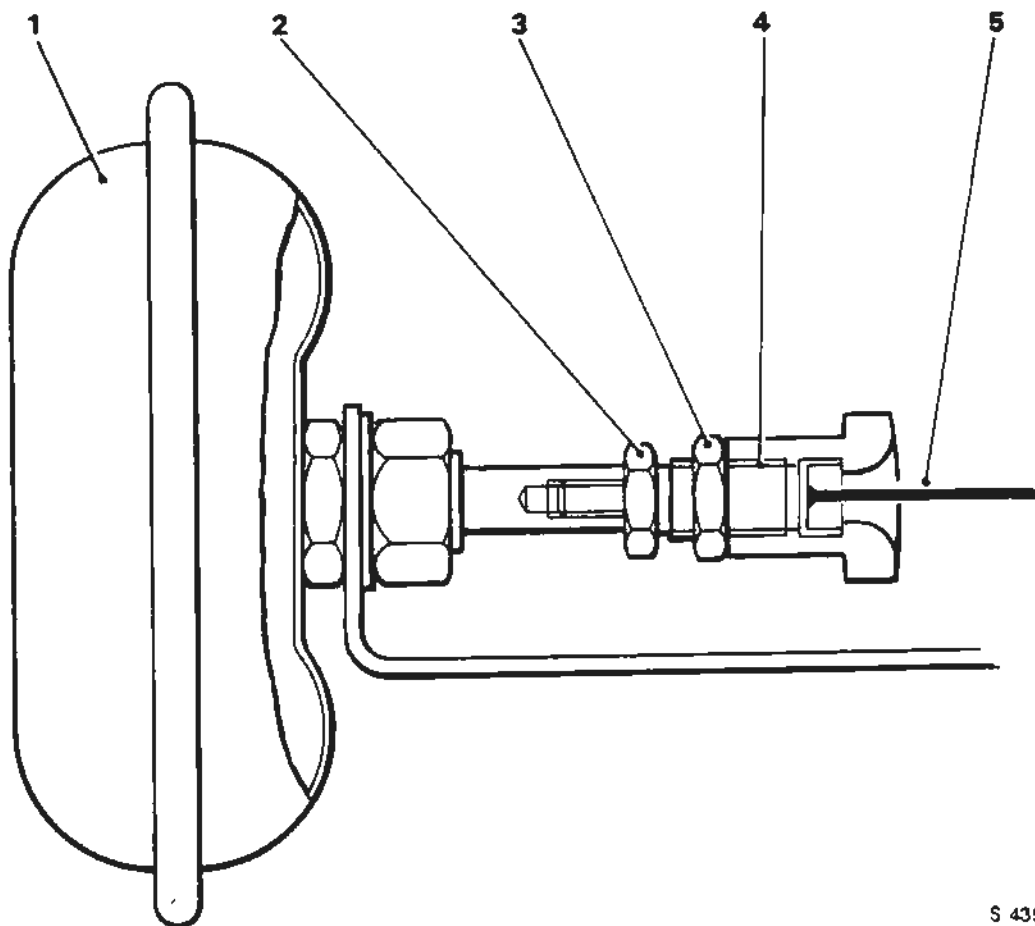
INTRODUCTION:

The existing vacuum valve unit is no longer available. Future replacements are a different type which require additional parts.

DESCRIPTION:

A screwed adapter (RH 9098) is fitted to the existing push rod on the vacuum valve unit. A new cable and nipple (RH 9100) is fitted, this being attached by means of a retainer (RH 9099) and retaining lock-nut (RE 22430). These are screwed and locked to the adapter (refer, Fig. 1).

2



S 435

Figure 1 - Vacuum valve assembly

1. RH 9103 - Assy - Vacuum Valve Unit
2. RH 9098 - Screwed Adapter
3. RE 22430 - Nut - Lock
4. RH 9099 - Retainer - Cable
5. RH 9100 - Assy - Cable and Nipple

**ELECTRICAL,
IGNITION AND RADIO**

CATEGORY 1 MODIFICATION.DYNAMO AND CURRENT VOLTAGE REGULATOR.

Complaints have been received of failure of the dynamo to charge the battery on these cars.

The brushes of the dynamo were impregnated with a lubricant to prevent squeaking, and in some cases this lubricant has been exuded, thus causing the brushes to stick in the brush boxes. This has resulted in excessive arcing giving rise to burnt brushes, and also burnt commutator surface. In consequence, the dynamo either failed to charge or gave intermittent charging.

The regulator incorporated a bi-metal strip, which was found to over compensate the voltage control unit, thus causing the charge rate to fall off much too quickly. This could give rise to a condition in which the battery was only half charged, and the regulator was only passing a trickle charge from the dynamo.

Any one of the above faults could give rise to a flat battery condition, without any obvious indication from the instruments that anything was amiss.

The fault in the dynamo has been corrected by the fitment of a non-impregnated softer brush and a general attention to detail finish. The modified dynamo is identified by the letter 'E' stamped on the carcass immediately following the Lucas Part Number.

The regulator has been corrected by special annealing treatment of the armature cores, and by the fitment of a thinner bi-metal strip for better temperature correction. The modified regulator is identified by the letter 'M' stamped on the base and in a position to be visible when affixed to the bulkhead of the car.

Corrective action is required as soon as possible, consistent with supplies of the modified dynamo and new regulator being available.

When the dynamo and/or regulator is changed, the condition of the battery should be checked, and if necessary, the battery should be charged.

Continued/-...

- 2 -

The new Regulator (Part No. UD.2583) is in use on production, but action is required on the following chassis:-

Bentley 'S' Type.

B.AN; B.AP; B.BA Series	Chassis Nos.	All cars.
B.BC Series	Chassis Nos. up to	B-53-BC.
	but excluding:	B-29-BC.
		B-41-BC.
		B-43-BC.

Bentley 'S' Type Continental.

BC.AF Series	Chassis Nos.	All cars.
BC.BG Series	Chassis Nos. up to	BC-20-BG.
	but excluding:	BC-3-BG.
		BC-6-BG.
		BC-15-BG.

Rolls-Royce 'Silver Cloud'.

SWA Series	Chassis Nos.	All cars.
SXA Series	Chassis Nos. up to	SXA-185.
	but excluding:	
	SXA-87.	SXA-163.
	SXA-131.	SXA-167.
	SXA-135.	SXA-169.
	SXA-137.	SXA-171.
	SXA-139.	SXA-173.
	SXA-149.	SXA-177.
	SXA-159.	SXA-179.
	SXA-161.	SXA-181.

The new Dynamo (Part No.UD.2584) is in use on production, but action is required on the following chassis:-

Bentley 'S' Type.

B.AN; B.AP; B.BA; B.BC Series	Chassis Nos.	All cars.
-------------------------------	--------------	-----------

Continued/-...

- 3 -

Bentley 'S' Type (Continued)

B.CK Series

Chassis Nos. up to	B-90-CK.
but excluding:	B-68-CK.
	B-56-CK. B-70-CK.
	B-58-CK. B-72-CK.
	B-60-CK. B-74-CK.
	B-62-CK. B-76-CK.
	B-64-CK. B-84-CK.
	B-66-CK. B-88-CK.

Rolls-Royce 'Silver Cloud'.

SWA; SXA Series

Chassis Nos. All cars.

SYB Series

Chassis Nos. up to	SYB-118.
but excluding:	
	SYB-90. SYB-102.
	SYB-92. SYB-106.
	SYB-96. LSYB-112.
	SYB-98. SYB-114.
	SYB-100. SYB-116.

Immediate retrospective action is requested, and Retailers are asked to modify all cars in their areas.

Retailers in the United Kingdom will receive from the London Service Station small supplies of the dynamo and regulator in pairs, for fitment to cars in their areas. It is essential that the displaced units be returned expeditiously in order that continuous supplies of modified units will be available.

The Overseas areas are being dealt with by Messrs Joseph Lucas Limited, and our Overseas Retailers have been contacted by letter from the London Technical Service Department, detailing the arrangements which have been made, in order to bring this modification campaign to a successful conclusion.

It is essential that these modified units be fitted at the earliest opportunity, and that the displaced units be returned to the London Service Station as rapidly as possible.

Retailers are requested to inform this Depot of all chassis numbers on which this modification is incorporated.

Continued/-...

- 4 -

ON NO ACCOUNT MAY UNMODIFIED UNITS BE USED IN THE FUTURE, AND ANY SUCH UNITS THAT MAY BE HELD IN STOCK, MUST BE RETURNED TO LONDON FOR CREDIT.

Modified stock units will be available at the conclusion of this campaign.

Time allowance..... 4 hours.

CATEGORY 1 MODIFICATION.

DYNAMO AND CURRENT VOLTAGE REGULATOR.

ADDENDUM.

At the time of going to press with the original Bulletin the information regarding chassis numbers affected concerning the Bentley "S" Type Continental was not complete. These are now given below and applies to both Regulator and Dynamo.

Bentley "S" Type Continental.

BC-AF Series	Chassis Nos.	All cars.
BC-BG Series	Chassis Nos.	BC-1-BG to BC-8-BG. BC-11-BG to BC-20-BG.

CATEGORY 2 MODIFICATION.

Supersedes Addendum to
CB-4 Dated 18.9.56.

DYNAMO AND CURRENT VOLTAGE REGULATOR.

This addendum is issued to alter the instructions contained in the original Bulletin CB-4, and since it is desirable that confusion should be avoided on the subject of dynamos and regulators, it is considered that a brief explanation of the sequence of events should make the position clear.

There were instances on early "S" type cars of flat batteries without any corresponding evidence of failure either of the dynamo or regulator to explain the condition of the battery. It was subsequently found that the temperature control characteristics of the regulator were such that the dynamo output was reduced before the battery was fully charged.

In conditions where the starter is frequently used as well as other heavy consumers, the effect was that the input to the battery was not sufficient to balance the output, with the result that the battery became gradually discharged over a period of time. The original Bulletin CB-4. provided for a new regulator with changed temperature control characteristics enabling a high dynamo output to be maintained for a very much longer period. This regulator was stamped with an "M" on the base. At the same time blackened commutators and burnt brushes were being experienced on the dynamos, these were attributed to an insufficiently high degree of finish of the commutator and, therefore, new dynamos with an improved commutator finish and "Link B" brushes were provided as part of the modification.

In spite of these modifications there were further instances of cars with fully discharged batteries, but, in these cases, there was evidence of incipient failure because the ignition warning light came on showing that the dynamo or regulator had ceased to function. It will be observed that these cases were slightly different to the earlier examples in which there was no such evidence.

A further investigation has shown that considerable arcing of the regulator points takes place at certain engine speeds, and over a period of time, the regulator points surface becomes coated with an insulating layer of oxide, and the regulator ceases to function. This arcing at the regulator points, is also largely responsible for commutator blackening and brush burning.

- 2 -

To correct these conditions a further modification has been made to the regulator and to the dynamo. In the regulator the 150 Ohm resistor has been changed to a 63 Ohm resistor, an additional 40 Ohm "swamp" resistor has been fitted and the palette resistor deleted.

The changes in the dynamo require a brief explanation. As soon as it became apparent that "Link B" brushes were unsatisfactory it was decided to change to FM.50.P material, but since it was not entirely certain that even this material would be trouble free the final decision was that brushes of FM.50 material would be used. In addition to this it was necessary to introduce two or three minor modifications not connected with the electrical problem. In consequence there have been three types of dynamo subsequent to those which were stamped with the letter "E".

These are:-

- (1) The initial change from "Link B" brushes to FM.50.P or FM.50 was indicated by the suffix "H".
- (2) Dynamos fitted with FM.50 brushes and embodying in addition one or more of the minor modifications are marked with the suffix J or K.

All these dynamos are satisfactory.

ACTION.

All cars, whether they have been modified with "M" type regulators and "E" type dynamos or whether they are still in their original unmodified condition, are to have "H" type regulators and H, J or K type dynamos fitted on a Category 2 basis. Certain Lucas Overseas Agents will be in a position to supply Rolls-Royce Retailers with the new material on an exchange basis as was arranged when the original Service Bulletin CB-4 dated 18.9.56. was issued. If the Lucas Agent is unable to supply, the parts should be ordered from the Rolls-Royce Service Department in London.

<u>MATERIALS.</u>	<u>PART NO.</u>	<u>NO.OFF.</u>
"H" Type Regulator	UD.2583.	1
"H", "J" or "K" Type Dynamo	UD.2584.	1

- 3 -

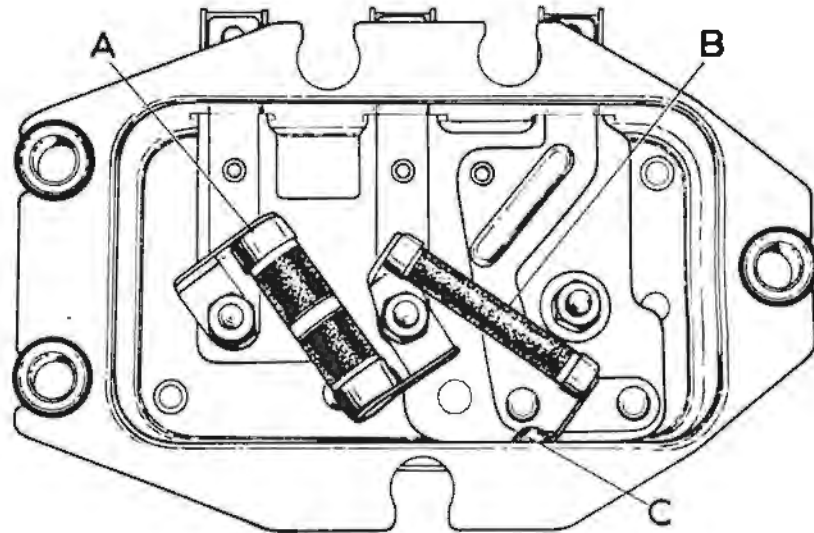


FIG. 1.

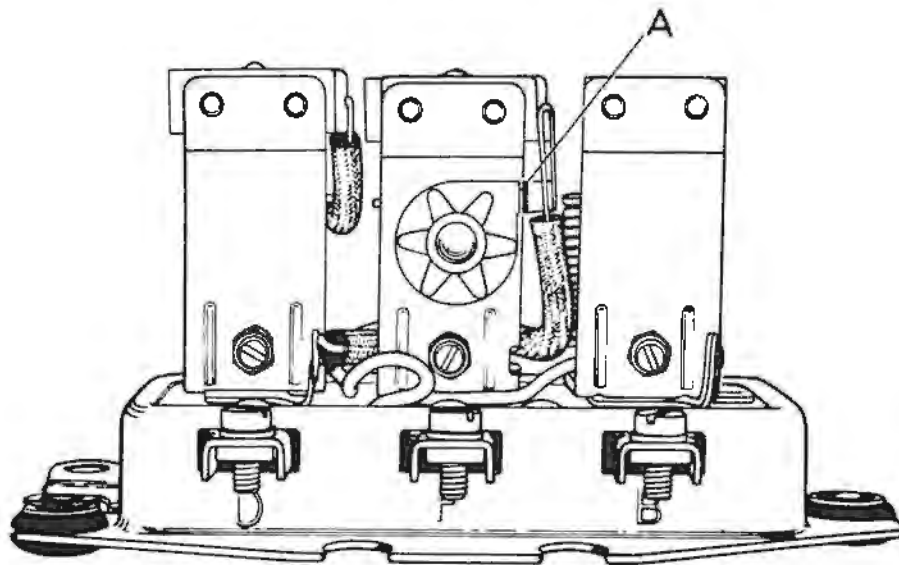


FIG. 2.

- 4 -

THE FOLLOWING CARS REQUIRE MODIFICATION.

"S" Type Bentley Chassis Nos.

B-2-AN	-	B-500-AN	
B-1-AP	-	B-501-AP	
B-2-BA	-	B-250-BA	
B-1-BC	-	B-251-BC	
B-2-CK	-	B-500-CK	
B-1-CM	-	B-501-CM	
B-2-DB	-	B-500-DB	
B-1-DE	-	B-77-DE	inclusive.

Rolls-Royce Silver Cloud Chassis Nos.

SWA-2	-	SWA-250	
SXA-1	-	SXA-251	
SYB-2	-	SYB-250	
SZB-1	-	SZB-251	
SBC-2	-	SBC-250	
SCC-1	-	SCC-59	inclusive.

"S" Type Bentley Continental Chassis Nos.

BC-1-AF	-	BC-101-AF	
BC-1-BG	-	BC-78-BG	inclusive.

Generally speaking, it is preferable to obtain the dynamo and regulator already modified, but in certain cases where for one reason or another supplies may not be readily available instructions are given in this Bulletin on the method of modifying the dynamo and regulator already fitted to the car. These instructions apply to all dynamos but are not applicable to the original regulator prior to the "M" type.

MODIFICATION TO REGULATOR.

To modify a regulator stamped "M" to the "H" specification, the existing 150 Ohm resistor in the base is to be replaced with one of identical appearance but with a resistance of 63 Ohms. (A. Fig.1). Great care must obviously be taken not to confuse the two together. An additional "swamp" resistor (B. Fig.1) is to be fitted to the 2 BA terminal on the base of the centre coil assembly and soldered to earth

- 5 -

on the casing (C.Fig.1).

Care must be exercised when removing the 2 BA nuts on the base of the coil assemblies as this leaves the assemblies free to move out of position and possibly become damaged. Ensure that on re-tightening the nuts again that the coil assemblies are fitting square.

The palette resistor on the centre coil assembly is to be disconnected by cutting the connecting bridge to the coil terminal where indicated (A.Fig.2).

Regulators thus modified are to be marked with a yellow spot next to the letter "M" or, preferably, the letter "M" should be deleted and replaced with an "H".

MODIFICATION TO DYNAMO.

1. Remove the dynamo from the car, and discard the existing brushes. Note the order of dismantling the 2 EA field terminal and demount the end casing by removing the two long screws.
2. Clean off any discolouration of the commutator with a clean lint-free cloth soaked in methylated spirit.
3. If this is inadequate, insert a strip of aluminium oxide abrasive cloth (grit 320) through one of the brush apertures in the dynamo casing, around the commutator and back through the same aperture. Grip the cloth with one hand and rotate the pulley with the other in a clockwise direction, until all the blackening has been removed. Never rub black patches locally, as it deforms the commutator contour and will give rise to subsequent failure.

NOTE:

If the commutator is too badly burned for it to respond to this treatment, the dynamo is to be replaced as it is considered not possible for adequate attention to be given without specialised factory equipment.

4. When the commutator is clean, wrap a 1.125" wide strip of aluminium oxide abrasive cloth around it, abrasive

- 6 -

side outermost, allowing a slight overlap. One end of the cloth is to be fixed to the commutator with a small tab of "Sellotape" or similar adhesive strip and the other fixed also with "Sellotape" over the full width of the joint so that the commutator is completely circumscribed with adhesive cloth.

5. Take care to re-fit the fibre washer to take up end float between the commutator and end cover and temporarily secure the end cover with the two long screws.
6. Fit the new FM.50 brushes.
7. Rotate the dynamo pulley clockwise for about twenty revolutions.
8. Carefully remove the brushes and inspect for bedding - continue this treatment until the bedding is 100%.
9. When the bedding appears satisfactory remove the brushes from the brush boxes, and allow them to come through the brush apertures in the dynamo casing.
10. Remove the end casing once more, taking care not to damage the brushes.
11. Remove the abrasive tape and blow out all traces of carbon and copper dust.
12. When thoroughly clean, refit the end plate and secure finally.
13. Carefully refit the brushes.
14. The dynamo is then to be "motored" by connecting the positive terminal of a 12 volt battery to the brush terminal, the negative battery terminal to earth on the dynamo casing and the field terminal to the 6 volt section of the battery. This must be continued for eight hours or until the brushes are 75% bedded overall but with 100% bedding at the trailing edges.

NOTE: This "motoring" is regarded as essential to prevent any further brush and commutator burning.

- 7 -

15. Slide the dust cover in position and refit the dynamo to the car.

The time considered adequate for this work is:

To change a dynamo and regulator - 4 hours.
 To modify a regulator - $\frac{1}{2}$ an hour.
 To overhaul a dynamo - 2 hours.
 (This includes 1 hour labour allowance for 8 hours "motoring").

<u>MATERIALS.</u>	<u>Rolls-Royce Part No.</u>	<u>No.Off.</u>
63 Ohm Resistor	CD.712	1
40 Ohm Swamp Resistor	CD.713	1
PM.50 Dynamo Brushes		2

ADDENDUM 2

FOR INFORMATION

CHANGE IN CATEGORY OF BULLETIN CB-4

The category of Bulletin CB-4 has been changed from category 2 to category 3A as the numbers of charging circuit complaints are so few that category 2 action is no longer warranted.

The modified regulator and dynamo, therefore are to be fitted only in instances of actual complaint.

FOR INFORMATION.

WINDSCREEN WIPER ASSEMBLIES.

There is, at present, a number of windscreen wiper motor assemblies which differ only in respect of the length of rack attached to the motor.

In order to simplify the ordering of spares, and to reduce the number of assemblies stocked, it has been decided to list the motors and racks separately.

The part numbers of the motors and racks are as follows:-

<u>Description.</u>	<u>Lucas Part No.</u>	<u>Rolls-Royce Part No.</u>
Motor	75166, 75249 (used where both wiper blades operate in unison).	CD. 572.
Motor	75181, 75250 (used where wiper blades operate counter-phase).	CD. 573.
Rack (length 51.25")	-	CD. 574 ⁵⁷⁴
Rack (length 55.25")	-	CD. 574.
Rack (length 47.9")	-	CD. 575.
Rack (length 61.00")	-	CD. 576.

The rack length is measured from the eye of the rack crosshead to the extreme end.

These parts, which can be identified by examination, should in future be ordered separately.

CATEGORY 3.IMPROVED HORN CABLE AND BUSH TO OVERCOME THE
POSSIBILITY OF HORN CABLE FATIGUE FAILURE.

The movement of the steering wheel twists and untwists the horn cable, which runs from the horn button assembly, through the centre of the steering column, and out at the base to a snap connector.

At the top of the steering column the horn cable terminal screw, into which the horn cable is soldered, moves with the steering wheel, whereas the horn cable tends to remain stationary; this action places a torsional load on the cable close to the terminal screw and may cause fatigue failure of the cable at that point.

To overcome this possibility the horn cable assembly is to be replaced with one having a cable more resistant to fatigue failure, and a horn cable bush (which fits next to the terminal screw), that will clamp the cable within the horn contact housing so that rotation of the steering wheel does not tend to twist the terminal screw relative to the cable but twists the whole cable.

The modified assembly was introduced on production as follows:-

Silver Cloud	-	SWA-200.
Bentley "S" Type	-	B-375-AP.
Bentley "S" Type Continental	-	BC-1-BG.

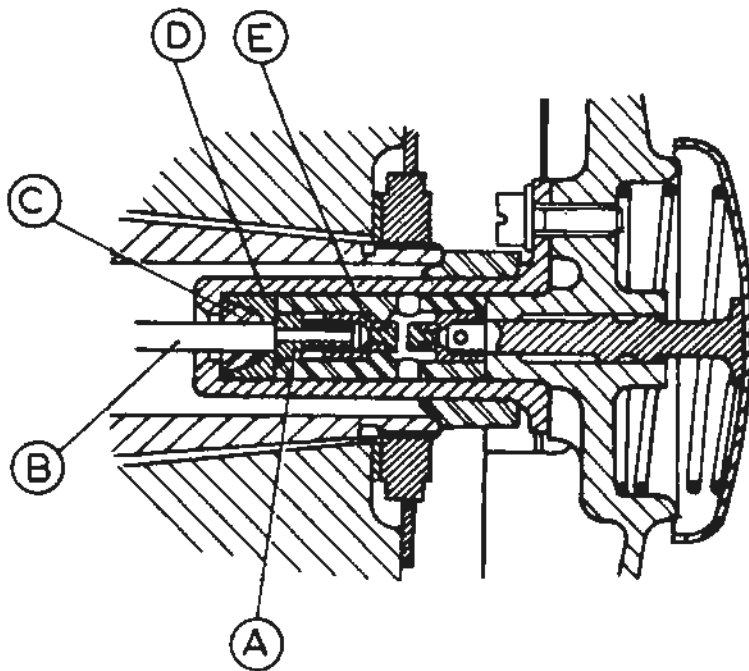
PROCEDURE.

Disconnect the cable from the snap connector at the base of the steering column and demount the horn button housing by removing the three retaining setscrews in the underside of the steering wheel boss. This will allow the horn button housing and the contact housing to be removed complete with cable. Remove the insulator bush and unscrew the horn cable contact point noting the number of turns taken to unscrew it, so that on re-assembly the horn contact can be screwed onto the new cable the same number of turns which will approximately give the correct horn contact gap.

Discard the existing horn cable assembly and fit the modified one, re-screwing the horn contact as mentioned previously.

Remount the whole assembly and check the horn button movement before the horn operates; this should be approximately .040" and is measured by placing feeler gauges under the rim of the horn button and noting the clearance between the under surface of the horn button and the horn button housing, then reducing the feeler gauge thickness to .040" and pressing the horn button; the horn should sound just as the feeler gauges are gripped.

- 2 -



- A. Horn Cable Terminal Screw.
- B. Horn Cable.
- C. Rubber Gland Washer.
- D. "Tufnol" Bush.
- E. Horn Contact.

Horn Button and Horn Contact Assembly.

If the clearance is incorrect the necessary adjustment is made by demounting the complete assembly and screwing or unscrewing the horn cable terminal screw, a turn at a time.

The part number of the new assembly is given below, and Retailers are asked to order from The London Service Station as required:-

F.58688 S/A - Horn cable assembly.

The time allowed for this work is two hours.

FOR INFORMATION.

SPEEDOMETER AND TACHOMETER CABLES.

Noise from speedometer and tachometer cables is frequently due to their being kinked after being wound too tightly during storage.

All cables are hung vertically in store, but are despatched to Special Retailers and Agents rolled. The radius at which they are rolled is the absolute minimum permissible, and they are not to be wound tighter under any circumstances.

Special Retailers and Agents are urgently requested that whenever possible all speedometer and tachometer cables are to be stored by hanging vertically. This may be done simply by tying a piece of cord around the adaptor at one end and suspending the cable on a hook.

FOR INFORMATION.THE LUCAS IGNITION COIL AS AN ALTERNATIVE REPLACEMENT.

It has been decided to introduce a Lucas ignition coil as an alternative to the Delco-Remy coil. It is important that this is correctly connected, as otherwise, due to the fixed polarity of the coil, loss of efficiency and consequent misfiring will occur. It is also essential that the cable eye is locked to the terminal block to obviate the "spannering" effect of the stiff cable, which will otherwise result in the nut loosening and eventually falling off.

CONNECTING THE LUCAS COIL.

The blue cable from the loom on the wing valance is connected to the "SW" terminal, and the brown cable, which comes through the ignition harness tube, is connected to the "CB" terminal. As both of these cables are covered with a protective P.V.C. sleeving, it will be necessary to displace the rubber insulating sleeve on the cable eye to ascertain the correct colour. The suppressor condenser is to be connected to the "SW" terminal.

With the coil inverted (as fitted), the CB terminal is situated on the left hand side of the coil, i.e. to the front of the vehicle. This will necessitate drawing the slack cable situated behind the distributor tower, through the harness tube, to allow for the transposition of the cable eye to that side of the coil.

CORRECT SEQUENCE OF ASSEMBLY AT THE TERMINAL.

To ensure that the cables do not work loose, the cable eyes are to be locked to the body of the coil by assembling on the terminal first the shakproof washer, next the cable eye, and where pertinent, the suppressor condenser cable eye, followed by the plain washer and finally the knurled nut.

IDENTIFICATION.

The Lucas Ignition Coil Part No. UD.1983, can be identified by a transfer which states "For use with NEGATIVE Earth System only".

Lucas coils other than the ones bearing this transfer should not be used.

CHASSIS NOS:

Rolls-Royce Silver Cloud.
Bentley "S" Type.
Rolls-Royce Silver Wraith "E" Series.

FOR INFORMATION.

DISCHARGED BATTERIES.

The very small mileage which petrol rationing permits will probably give rise to complaints of flat batteries, particularly in urban areas where cars will be running at low speeds and the dynamo output will, in consequence, be low.

The consequences of periods of partial storage, frequent use of the starter and other consumers, and low charge rate, can be to some extent offset by precautions which it is reasonable that owners should take in the circumstances. Where necessary Retailers should advise owners as follows:-

- 1) Heavy consumers such as headlights, heater and demister blowers, radio and the rear window demister should be used as little as possible. The rear window demister which takes 7 amps is normally left switched on. This should be switched off and only used when really required.
- 2) A trickle charger can be used when the car cannot be run sufficiently to keep the battery charged and the owner cannot effectively reduce the use of consumers.

The charging circuit has recently been subject to modification action and it is understandable that discharged batteries which are, in fact, due solely to insufficient car mileage should be attributed to defective components. It is, therefore, important to make a careful diagnosis of the real cause if the removal of entirely satisfactory dynamos and regulators is to be avoided.

The dynamo and regulator, particularly the open circuit voltage, can be checked in position, and if these are operating normally and the owner does not report the ignition warning light showing intermittently when the car is in motion or any other symptoms, then it is reasonable to assume that the cause may be insufficient running and the owner should be advised accordingly.

INFORMATION

REGULATOR ADJUSTMENT OF CLOCKS

Clocks have been returned to Rolls-Royce Ltd for the complaint of poor timekeeping which has not been substantiated when the clock has been correctly regulated on inspection.

There are two types of clocks fitted to Rolls-Royce and Bentley motor cars, one which is regulated from the rear (Fig.1) and is fitted to standard steel cars, and the other (Fig.2) which can be regulated from the front and is fitted to coachbuilt cars.

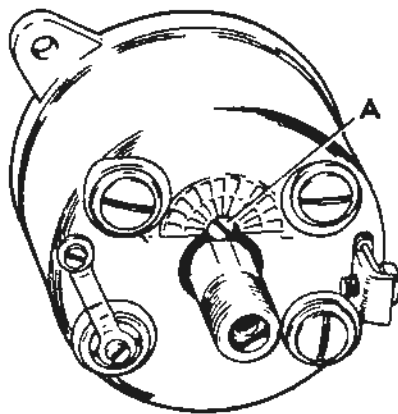


FIG.1.
A - REGULATING SCREW

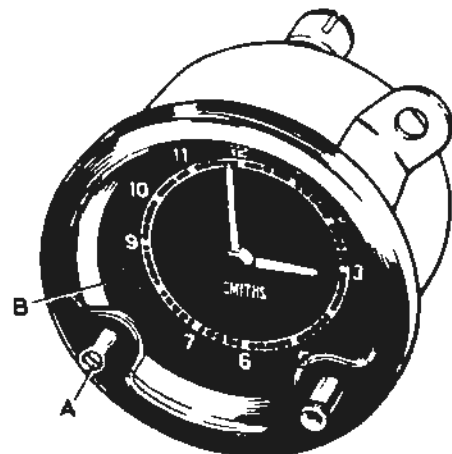


FIG.2.
A- REGULATING SCREW
B- INDICATOR DIAL

The standard clock is regulated by turning the adjustment screw at the rear to the right to lose time and left to gain time (A Fig.1). The other clock is regulated by turning the screw (A Fig.2) so that the indicator dial moves in the correct direction (B Fig.2). Clockwise rotation of the adjusting screw rotates the indicator face towards the "S" thus slowing the clock, and vice versa.

Movements of the adjusting screw must be very limited otherwise over regulation will result.

No. CB.72

Cancels Service Bulletin No.
CB.72. Issued: 18.10.57 ref. SB/TJ.

CATEGORY 3A

DISCHARGED BATTERIES.

On cars used primarily in town areas, it may be found in certain instances that the average engine speed is too low to permit adequate charging of the battery. In order to increase the charge rate under such circumstances, the speed ratio of dynamo : engine may be increased from the standard 1.451 : 1, by replacing the dynamo pulley with one giving a 2 : 1 ratio.

This modification results in high dynamo speed at the upper end of the engine speed range, and it is essential that the 2 : 1 pulley is fitted only to machines on which the four securing screws of the drive end bearing plate have been peened over. To prevent loosening at high speed, longer screws were fitted and locked in this manner on all dynamos identified by the suffix "L", "M", and onwards.

The increase in speed of the dynamo will result in an increase in maximum output up to an engine speed of approximately 1200 r.p.m., but above this it will have no effect. The pulley should not be changed until it has been shown that the complaint is attributable to low speed operation and not to a defect in the charging system or battery.

When fitting the new pulley, a modified swivel arm will also be required. The dynamo must be changed if of pre- "L" pattern.

MATERIAL.

UE.4706	Swivel Arm.
UD.3243	Pulley (for cars with Manual Steering only).
UD.3244	Pulley (for cars with Power Assisted Steering only).

TIME ALLOWANCE. 2½ hours.

CHASSIS NOS.

Rolls-Royce Silver Cloud	SWA.2 - SED.213
Bentley 'S' Type.	B.2.AN - B.632.EG
Bentley 'S' Continental	BC. 1.AF - BC.40.CH

FOR INFORMATION.

SPARKING PLUGS

The recommended sparking plugs are tabulated below to eliminate any possible confusion regarding the selection of the correct plug for a specific engine.

Rolls-Royce Silver Cloud.

6.6 : 1 c.r.	Lodge CLNP Champion RN8
--------------	----------------------------

8.0 : 1 c.r.	Lodge HLNP Champion N5 *
--------------	-----------------------------

Bentley 'S' Type.

6.6 : 1	Lodge CLNP Champion RN8
---------	----------------------------

8.0 : 1 (F Series onwards)	Lodge HLNP Champion N5 *
-------------------------------	-----------------------------

Bentley 'S' Continental.

7.25 :1	Lodge CLNP Champion RN8
---------	----------------------------

8.0 : 1 (BC-21-BG onwards)	Lodge HLNP Champion N5 *
-------------------------------	-----------------------------

* Not for use on cars with wing mounted aerials.

With the exception of the Champion N5 these plugs all embody an internal suppression resistor. In addition platinum tipped electrodes are incorporated in the Lodge CLNP and HLNP.

Continued/-...

- 2 -

Electrodes of this material have an increased erosion resistance.

Radio interference has been a subject of complaint on cars fitted with wing mounted aerials. These are naturally more susceptible to interference than the standard roof type aerial on account of their relative proximity to the engine. For this reason additional suppression is required, and is achieved by the use of the appropriate suppressed plug. The use of the Champion N5 should be limited to cars with roof mounted aerials where radio interference is negligible and additional suppression is not required.

FOR INFORMATION.INSTRUMENT PANEL LIGHTS.

The instrument panel lights are preset to a standard considered most suitable for night vision. However, complaints have been received stating that the instruments are insufficiently illuminated. Should this complaint arise, check by comparison with similar cars, whether the intensity of lights is below the standard setting.

In such cases it may be found that the reflecting surface of the inner bezel rim has been oversprayed black. Remove the facia panel and the glass of the defective instrument unit and repaint the oversprayed surface white to increase light reflection.

The following alterations may be made in the wiring circuit, at the customer's request, to increase the light above the standard setting.

There are two dimming resistors in the circuit. The main resistor controlling the strength of all instrument lights is located on the back of the panel light switch. To reduce the resistance and so increase the intensity of the lights, disconnect the three wires from No.5 terminal on the switch and reconnect direct to No.2 terminal.

The second resistor is attached to the back of the five in one unit and only controls the lights on this instrument. These may be intensified separately by moving the resistor clamping bands closer together.

Cancel Service Bulletin CB.78 dated 8.11.57

FOR INFORMATION.

DYNAMO FAILURE.

Investigation into the causes of electrical failure of the dynamo, has shown that the majority of this trouble on equipment modified as detailed in Bulletin CB.4, is due to sticking of the brushes.

Slight tilting of the brush in its carrier is permitted by the spring, and in order to accommodate this, it has been found necessary to increase the brush end clearance to .018" - .024" by reducing the brush width. The existing face clearance of .004" - .006" was found to be satisfactory (See Fig.1).

DYNAMO BRUSH CLEARANCES.

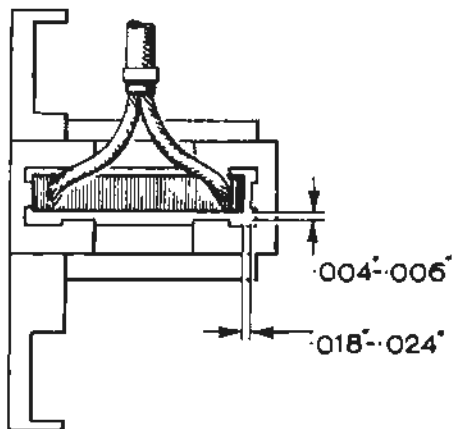


Fig.1. Die-cast brush carrier (pre- "Q" type)

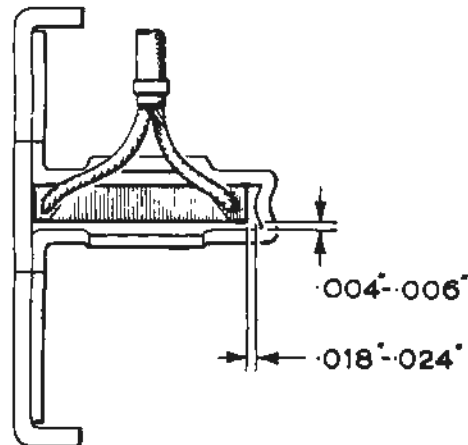


Fig.2. Pressed strip brush carrier (Type "Q")

This modification has been incorporated on replacement machines supplied recently, but where trouble is encountered with any dynamo up to and inclusive of type "M", the brush dimensions

-2-

should be reduced, with a smooth file as necessary to obtain the clearance shown. Renew the brushes and clean the commutator if necessary, as detailed in Bulletin CB.4. Should excessive burning have occurred, a replacement dynamo must be fitted. Messrs. J. Lucas Ltd., are issuing instructions to their agents abroad, in order that this modification may be incorporated overseas.

Some machines identified as type "Q" have been fitted. These incorporate pressed brass strip brush carriers in lieu of the standard die-cast boxes (see Fig.2). On these machines the brush end clearance was not increased above the existing value of .006" - .008" because of the danger of pronounced brush noise, with this type of carrier. It has now been found that increasing the end clearance to .018" - .024" does not increase the noise to an objectionable level, and these machines are being produced with the clearance amended accordingly.

In service, complaints of failure should be dealt with in similar manner to that detailed for the die-cast brush carrier machines.

FOR INFORMATION.

DYNAMO FAILURE.

Dynamo charging failure has sometimes been caused by a short circuit between the brush flexible leads and the band cover. This will only occur if the insulation sleeves have been pulled back from their normal position, exposing the bare wires (see Fig. 1.). Rectify by stretching sleeves into their original position (see Fig.2).

If the band or brushes are removed for any reason, ensure that the insulation sleeves fully cover the brush leads and are in the correct position before finally assembling.

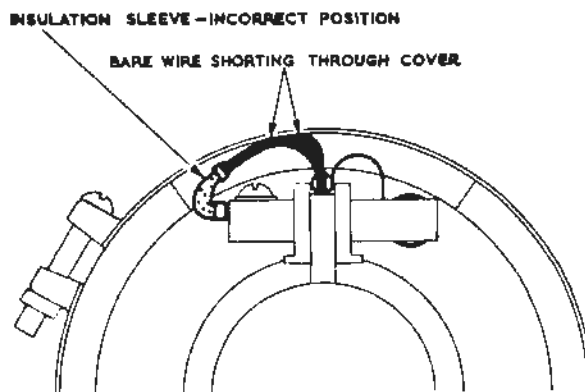


Fig. 1.

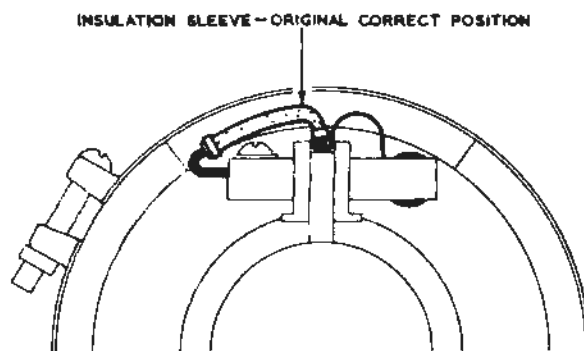


Fig. 2.

FOR INFORMATION.

INCREASED SETTING FOR VOLTAGE REGULATOR.

Instances have been reported of flat batteries during periods when cars were being driven at low speeds through towns or congested areas. This is due to prolonged operation whilst the battery is in a low state of charge.

Such a condition may result in sulphation and early deterioration of the battery.

The standard open circuit setting on the existing voltage regulator is between 14.2 and 14.8; investigation has proved that by increasing the setting to between 14.8 and 15.1 would improve the situation considerably.

It is recommended, therefore, that in the case of complaints, a voltage regulator which has a higher open circuit setting, should replace the unit at present fitted to the car.

A regulator with the increased setting can be identified by means of a letter "J" or "K" which is stamped on the base of the unit adjacent to the series letter.

FOR INFORMATION.

This Bulletin cancels CB.99.
dated 23.6.58.

WINDSCREEN WIPER MOTORS.

A new wiper motor (DR.3. type) is now being fitted to current production cars and by reason of its greater torque output and modified design, is an improvement on the DR.1. type motor which was fitted previously.

A normal wiping speed of 35 - 40 cycles and a fast speed of 50 - 55 cycles is available with the new motor.

Installation on current production cars has been altered necessitating a reduction in the length of the first run of bundy tubing and also the use of a shorter rack.

A special mounting plate has been designed to enable the DR.3. type motor to be fitted for replacement purposes on cars previously equipped with the DR.1. type, without any alteration to the bundy tubing or rack being necessary.

To fit a DR.3. motor in place of DR.1. type, follow the procedure given in this Bulletin.

The DR.3. wiper motor was fitted as standard equipment on the following chassis numbers and onwards.

Bentley 'S' type chassis No. B595 EK
Bentley 'S' type Continental chassis No. BC1EL
Rolls-Royce Silver Cloud chassis No. SFE 303

For cars previous to these chassis numbers the following parts are used.

Material required.

1 Wiper motor assembly	Part No. RH.712.
1 Connector	Part No. RD.6932.
1 Connector	Part No. RD.7050.
6 Terminals	Part No. RD.3425.
1 Cable eye	Part No. RD.3690.
1 Sleeve	Part No. RD.7589.
3 Straps	Part No. F59140.
5 Feet cable (pink)	3L/10606.
5 Feet P.V.C. tube (5 m.m. dia.).	

Disposal of material.

When a DR.3. type wiper motor is fitted to replace a DR.1. type, return the DR.1. to Hythe Road for credit.

Cont'd.....

- 2 -

OPERATION.

INSTRUCTIONS FOR FITTING DR 3. TYPE WIPER MOTOR IN PLACE OF DR 1. TYPE.

To remove DR 1. wiper motor.

Unscrew the four screws and remove the cover from the wiper motor.

Remove the circlip, which retains the connecting rod, followed by the plain washer, conical spring and shaped washer (see fig. 1.); care should be taken when removing the conical spring as it is under compression.

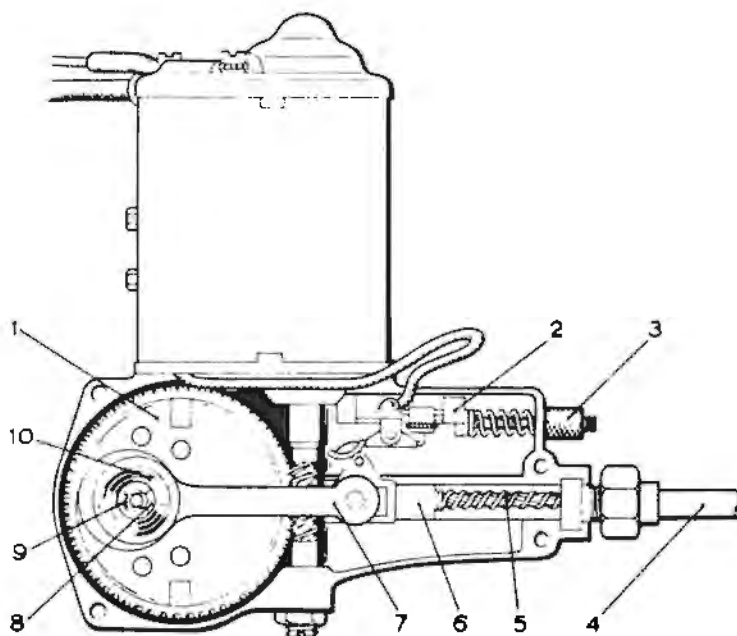


Fig.1. DR 3. Type windscreen wiper motor.

- | | |
|-------------------------|---------------------|
| 1. Gear wheel. | 6. Crosshead. |
| 2. Self-parking switch. | 7. Connecting rod. |
| 3. Adjusting nut. | 8. Plain washer. |
| 4. Bundy tubing. | 9. Circlip. |
| 5. Cable rack. | 10. Conical spring. |

Cont'd.....

- 3 -

Lift the connecting rod to disconnect it from the crosshead, then withdraw the crosshead and bundy tubing from the motor.

Refit the connecting rod to the gear wheel followed by the shaped washer, conical spring, plain washer and circlip.

Refit the cover and secure it to the motor with the four screws.

Unscrew the three nuts securing the motor to the mounting bracket on the dash and detach the motor.

Disconnect the bonding braid and the five cables from the motor, cut off the terminals from the five cables and in their place fit a ferrule for a snap connector.

Detach the triangular mounting bracket from the wiper motor by removing the two 2 BA screws.

To fit DR 3. Wiper Motor.

Attach the triangular bracket to the mounting plate, supplied with the new wiper motor, by means of two 2 BA screws.

Fit the new motor (DR 3) to the mounting plate and secure it with the three 2 BA screws; secure the black earth wire from the motor and the bonded braid to the mounting bracket by means of one of the fixing bolts.

Fit the assembly to the bracket on the dash and secure the mounting plate with the three nuts.

Note:- When the new wiper motor is fitted to the car it should be in the same position (approximately) as was the old one, but should the motor foul the pipe to the demister valve, carefully bend the pipe to clear.

Fit the crosshead to the motor by reversing the procedure adopted when removing it from the old motor.

Connect the five cables to those on the dash (see table).

Cont'd.....

- 4 -

Connect the cables on the new motor
to the cables on the loom as follows:-

Cable on motor colour		Cable on loom colour
Brown	to	Green and White
White	to	Red and White
Orange	to	Purple
Red	to	White
Blue	to	Brown
New feed:-		
Green	to	Pink

To fit new feed cable.

Remove the cover from the distribution box; attached to the inside of the cover is a diagram showing the position of the terminals.

Locate the terminal marked "Wiper and Fuel Door", then remove from this terminal the feed cable to the wiper switch.

Ascertain that the correct cable has been removed, by switching on both the wiper motor and the fuel door, to see which operates.

Insulate this cable and secure it at the distribution box with insulating tape.

Attach the eye (RD.3690) to the new feed cable (pink) and connect the cable to No. 2 terminal in the distribution box.

Cover the cable with the 5 m.m. P.V.C. tube provided and secure the cable to the loom on the dash with the straps (F59140).

Fit a terminal for a snap connector to the cable and connect to the motor (see table).

FOR INFORMATION

MICRO SWITCHES

There have been instances of Retailers returning microswitches on the grounds of being faulty, but subsequent re-inspection has proved the switches to be serviceable in all respects.

Retailers are reminded that the microswitches which are mounted on the lower end of the steering column are adjustable and if it is found necessary the switch should be repositioned to obtain correct operation

It should also be ascertained that the microswitch operating lever is not bent or damaged, and that the cable from the switch is not fouling the operating mechanism

FOR INFORMATION

INITIAL CHARGING OF BATTERIES DISPATCHED UNFILLED

Certain instances have occurred of batteries which have been shipped uncharged not receiving the correct preparation for service.

Normally, instruction leaflets are dispatched with the batteries, but in the event of their loss and a battery being delivered unaccompanied by the necessary leaflet, the following information and description will be of assistance:-

FILLING

Specific Gravity of Acid

Climatic Conditions -	Air temp generally below 90°F. (32°C).	Air Temp. frequently above 90°F. (32°C).
Specific Gravity of acid for filling new cells	1.260	1.230
Specific Gravity of acid at end of charge period.	1.270 to 1.285	1.240 to 1.255
Maximum permissible acid temperature during charge.	110°F. (43½°C.)	125°F. (52°C.)

Fill each cell with cool "accumulator" acid of the correct specific gravity as indicated in the above table, until the level is $\frac{1}{4}$ in. above the tops of the separators.

The level will fall soon after filling and should be restored by the addition of the correct acid after which the battery must be allowed to stand for 12 hours.

At the end of this period topping-up will again be necessary to assume the correct level before replacing the vent plugs.

- 2 -

INITIAL CHARGE

The recommended charge rate for the initial charge is $3\frac{1}{2}$ amps. for 96 hours, but in cases of extreme urgency a charge current of 5 amps for a 70 hour period is permissible.

The charge may be interrupted provided that the charge periods are of at least 8 hours and the rest periods do not exceed 16 hours.

WARNING

If the acid temperature reaches the maximum stated in the above table the charge current should be reduced and the time increased proportionately, or the charge suspended.

The charge will not be completed until: -

- (a) The total charging time as specified for the rate of charge employed, has been given.
- (b) The voltage and specific gravity of each cell remain constant throughout five successive hourly readings.
- (c) Gas is freely evolved from each cell.

On completion of the charge, the specific gravity of the acid in each cell should not exceed the figure stated in the table; if it does, acid must be withdrawn from the cell and replaced by an equal volume of approved water (preferably distilled). The battery should then be charged for a further hour and the specific gravity retested.

The acid level must be adjusted to $\frac{1}{4}$ in. above the tops of the separators by withdrawing excess acid or topping-up with acid of 1.280 specific gravity (with "low" specific gravity acid 1.250) as required.

CATEGORY C

RECOMMENDED SPARKING PLUGS

APPLICABLE TO:

Rolls-Royce Silver Cloud I cars.
Bentley S1 cars.
Bentley S1 Continental cars.
Rolls-Royce Phantom IV cars.

DESCRIPTION

The list of sparking plugs approved for use in the above cars has been revised and is now as follows:-

<u>ROLLS-ROYCE PART NUMBER</u>	<u>CHAMPION PLUG TYPE</u>	<u>APPLICATION</u>	<u>GAP SETTING</u>
RE.19755	N8	Rolls-Royce Silver Cloud I and Bentley S1 cars fitted with 6.6:1 compression ratio engine. Rolls-Royce Phantom IV	0.025 in. (0,635 mm.)
RE.20608	N5	Rolls-Royce Silver Cloud I and Bentley S1 cars fitted with 8:1 compression ratio engine. Bentley S1 Continental	0.025 in. (0,635 mm.)

STEERING

CATEGORY 2.

GEAR RANGE LEVER.

AUTOMATIC GEARBOX.

The original split-pin used to retain the pivot pin in the gear range lever fork was found to be of insufficient diameter, thus allowing the pivot pin to become detached, and a stouter pin of .044" diameter and .832" approximate length was substituted on production.

The following cars require the changing of this split-pin, and Retailers are requested to deal with those in their respective areas:-

Bentley 'S' Type.

B-2-AN to B-500-AN. B-1-AP to B-501-AP. B-2-BA to B-98-BA.

Silver Cloud.

SWA-2 to SWA-250. SXA-1 to SXA-99.

Bentley 'S' Continental.

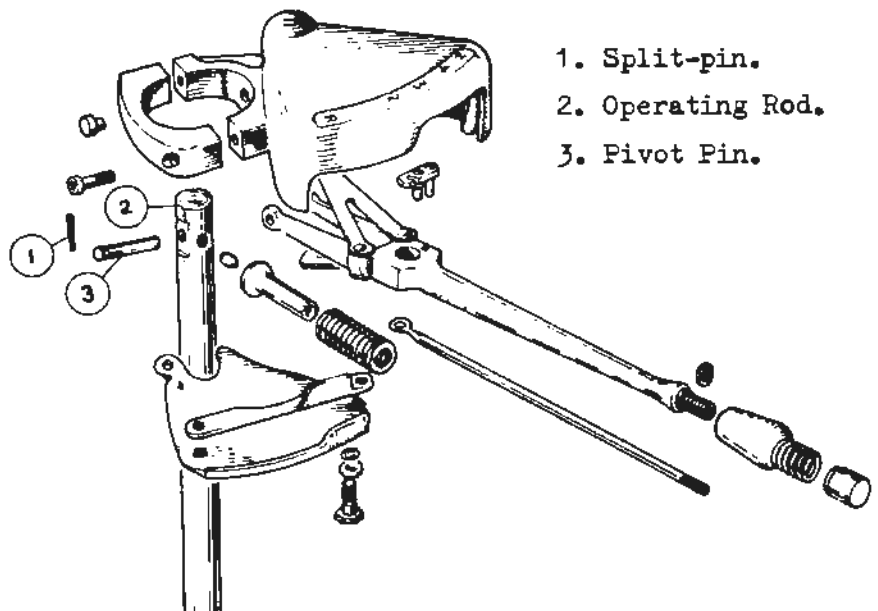
BC-1-AF to BC-101-AF. BC-2-BG to BC-9-BG.

The illustration below shows the split pin in question, and the procedure is as follows:-

Slacken the two screws on the collar retaining the Ride Control Switch, and slide switch clear of gear range quadrant.

Remove the three securing screws from the bottom of the quadrant cover together with washers and rubber grommet. Also, remove the two "Allen" screws securing the retaining collar. Lift off cover to expose gear lever fork and spring.

Withdraw existing split-pin and replace with new one.



- 2 -

The Part Number of the new split-pin is UR.2822, and Retailers should order these from the London Service Station as required.

Time allowance.....1 hour.

CATEGORY 2.FOULING OF THE STEERING DRAG LINK AGAINST
THE END OF THE TRACK RODS.

On certain right hand drive vehicles, when on full right lock, and on left hand drive vehicles, when on full left lock, the steering drag link fouls the adjustable end of the track rod.

This is to be rectified by removing both track rods and re-fitting them with the adjustable ends outboard similar to current production practice.

Demount the track rods by first disconnecting the chassis lubrication unions to the outer ball pins, removing the split pins in the inner ball pins, and then the ball pin securing nuts. The ball pins are then removed with the Special Extractor RH.320.

As the outer ball pins have extensions for connection to the chassis lubrication system, they are to be removed and refitted in the sockets of the adjustable ends of the track rods so that they remain in the outer position. As the ball pin heights may vary, particular note must be made to keep any oil seal rubber washers with the relevant ball pins. If the washers, which are made in two thicknesses .100" and .200", are not replaced, the oil seal will not function.

The ball pins are removed simply by slackening evenly the two 2BA setscrews securing the socket end cover which will leave the cover and ball pin assemblies free to be withdrawn.

The ball pins are re-assembled with Shell "Retinax" or similar grease, taking care that the ball, which seats between the bottom of the ball pin and the spring seat, is in position. The socket end covers are to be sealed with "Wellseal" on re-assembly. Refit the track rods with new oil seals and reconnect the chassis lubrication system unions and split pins where pertinent.

To identify that this modification has been incorporated, a yellow spot is to be marked on the left hand inner anti-roll bar bracket.

The time permitted for this work to be carried out is one hour.

Parts Required.

<u>1. For Reversal of Track Rod Ends.</u>	<u>Part No.</u>	<u>No.Off.</u>
Split pin	K.4603/Z.	2
Oil Seal Rubber	RF. 7553.	4
Oil Seal Rubber Spring	UR. 1930.	4
If (.100" thick rubber seal washer	UR. 2443.	2
Required. (.200" thick rubber seal washer	UR. 2444.	2

Special Tool Required.

Ball Pin Extractor RH. 320.

Chassis Numbers.

Rolls-Royce Silver Cloud.

SWA-2 to SWA-250.

Bentley "S" Type.

B-2-AN to B-500-AN. B-1-AF to B-501-AF.

Continental.

BC-1-AF to BC-101-AF.

CATEGORY 2.

ADJUSTMENT OF WHEEL LOCK STOPS.

It may be possible on certain motor cars for the steering box lock stops to contact before the wheel lock stops, making it possible for the steering rods and levers to be distorted should the wheels be struck when on extreme locks.

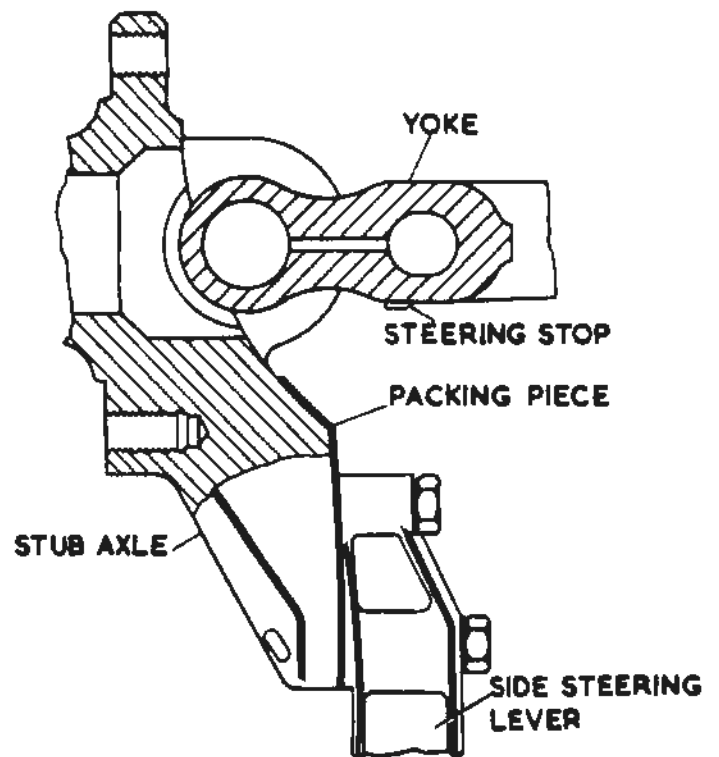
Where necessary, to prevent this and also to ensure the correct turning circle on extreme locks, a packing piece is to be inserted between each side steering lever and stub axle so that the extension on the packing piece interposes between the yoke stop and the stub axle as illustrated.

PROCEDURE.

Disconnect the steering drag link from the steering pendulum lever which will allow the wheels to be turned independently of the steering column.

The front wheels are then placed on two Weaver turntables in the straight ahead position. The wheels are then moved to extreme left lock by hand and the angle the left wheel has traversed is to be noted; repeat for the right wheel on extreme right lock.

The correct angle, corresponding to a turning circle of 41 feet 8 inches is 41 degrees plus or minus .5 degree. If the angle exceeds this value, packing pieces are available with extensions of selective thicknesses to interpose between the yoke stop and stub axle to restrict the lock. If the angle traversed from straight ahead to extreme lock is between 41.5 degrees and 43.5 degrees, the .062" packing pieces are to be selected, but if the angle is between 43.5 degrees and 45.5 degrees, the .125" packing pieces are to be used.



Right-hand Stub Axle.
(Viewed from below).

- 2 -

The packing piece is fitted between the side steering lever and the stub axle so that the extension on the packing piece interposes between the yoke stop and stub axle.

All exposed surfaces of the packing pieces are to be painted with first quality chassis black after assembly, and the steering drag link is to be re-connected to the steering pendulum lever.

The "Toe-in" is then to be checked after this modification, ensuring that after adjustment the central spoke of the steering wheel is between central at the top and 30° to the left, with the road wheels straight ahead.

To identify that this work has been carried out, the yellow spot on the left hand inner anti-roll bar bracket, showing that the modifications indicated in the Bulletin CB.17. have been incorporated, is to be over painted with a red spot when the steering lock has been checked whether packing pieces were found necessary or not.

The time permitted for this work is two hours.

MATERIAL:

.062" Packing Piece LH.	RH.408.	1 off.
.062" Packing Piece RH.	RH.409.	1 off.
.125" Packing Piece LH.	RH.419.	1 off.
.125" Packing Piece RH.	RH.420.	1 off.

CHASSIS NOS:

SWA-2 to SWA-250.
B-2-AN to B-500-AN.
E-1-AP to B-501-AP.
BC-1-AF to DC-101-AF.

Addendum.

FOR INFORMATION.

ADJUSTMENT OF WHEEL LOCK STOPS.

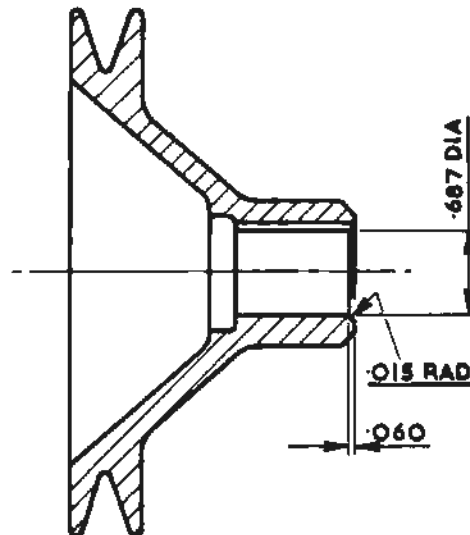
It should be noted that the procedure given in Bulletin CB-20 dated 17.7.56, which details the wheel lock stop adjustment to be carried out as a Category 2 modification on certain chassis, is also applicable to all cars on a Category 3A basis.

This adjustment should be checked whenever a complaint is received of the steering sticking, whilst in the full lock position.

CATEGORY 2 MODIFICATION.

MACHINING COUNTERBORE TO STEERING
PUMP DRIVING PULLEY.

To ensure that the steering pump driving pulley is clear of the shoulder on the steering pump shaft and that the rear face tightens against the ball race, it is necessary on a certain number of vehicles, to machine a counterbore in the rear of the pulley shaft bore.



PROCEDURE.

Slacken the steering pump belt adjusting screws and remove the driving belt. Demount the pulley by removing the central bolt securing it to the steering pump shaft. If the rear of the pulley bore is chamfered it is permissible to replace it, if not, modify the pulley as illustrated and refit it to the steering pump shaft taking care to replace the shaft/pulley key.

- 2 -

Refit and adjust the driving belt and tighten until a 6 lb load applied vertically upwards to the top length midway between the centres of the steering pump pulley and coolant pump pulley deflects the driving belt a distance equal to the thickness of the belt. Tighten all bolts fully.

To identify that this modification has been incorporated, or that the pulley is chamfered, a spot of yellow paint is to be marked on the front face of the pulley.

Time allowance 2 hours.

CHASSIS NUMBERS.

All chassis with power steering to

Rolls Royce Silver Cloud	-	SCC-20
Bentley 'S' Type Saloon	-	B-340-DB
Bentley 'S' Type Continental	--	BC-91-BG

INFORMATION.

POWER ASSISTED STEERING RAM.

The steering ram has been damaged on certain cars as a result of the car being raised with an ordinary jack positioned under the front suspension pan without due care

Owing to the vulnerability of the ram, care must be exercised when using a jack, to position it accurately and to avoid contact with the steering ram.

FOR INFORMATION.

STEERING COLUMN RATTLES.

It is possible that in a complaint of a rattle from the steering column, that this may be due to metallic contact where the Luvax-Bijur lubrication pipe is coiled around the steering rocker shaft.

Insulation at this point is now provided on production by the fitting of an oil resisting rubber sleeve on the rocker shaft. This, however, is not recommended for a Service fitting, as it means removing the pendulum lever.

A satisfactory insulation can be obtained by inserting a strip of oil resisting rubber sheet or felt, of approximately three to four inches long by three inches wide, between the coils of the pipe, and wrapping this around the exposed portion of the rocker shaft, and securing same with Bostik.

Care should be taken to ensure that the pipe is not bent during this procedure, as if disturbed, it will not return to its normal coiled position. Before commencing this operation it is advisable to remove the undertray.

FOR INFORMATION

POWER ASSISTED STEERING.

It is particularly important that in discussing this feature with prospective customers, existing owners, members of the Press or in any form of correspondence, that it should always be referred to as Power Assisted Steering and not just Power Steering.

The reason for this is that many people, particularly from the United States and other places Overseas, have experienced Power Steering and have not been impressed due to the lack of "road feel", and we want them to understand clearly that Power Assisted Steering is not the same thing, and that in designing it we have introduced a very large measure of "road feel".

FOR INFORMATION.

HYDRAULIC STEERING POWER CYLINDERS.

Investigation has shown that complaints of leakage from the Power Cylinder are largely attributable to incorrect assembly of the sealing washer, and to eliminate any possibility of leakage the recommended method of assembly must be followed.

Damage to the sealing washer lip will occur if the sealing washer is pushed over the sharp edge of the piston rod spanner flats.

Smoothing the spanner flat edges by filing or grinding will cause peeling of the chrome plated piston rod and the use of metal shims in fitting the sealing washer over the spanner flats is NOT advised, due to the possibility of the sealing washer stretching or the sealing lips being cut by the metal shims.

PROCEDURE.

The following recommended method when assembling the Power Cylinder will ensure satisfactory sealing.

Thoroughly clean all parts before assembly. Lubricate the sealing washer and slide onto the rod from the piston end, followed by the bush assembly. Replace piston complete with rings, flat washer and castellated nut. Split-pin nut after tightening.

Lubricate piston assembly and with the ring gaps staggered fit into the cylinder. Replace hydraulic oil union after ensuring correct positioning of the bush assembly. Replace circlip.

Slide the sealing washer into position followed by the composite washer, plain aluminium washer and split brass ring. Replace end plate and securing screws.

FOR INFORMATION

POWER STEERING PUMP - DIPSTICKS

Dipsticks have been supplied incorrectly marked "Use 10W oil". This should be disregarded, and only the specified Automatic Transmission Fluids of type AQ/ATF, as listed in the Workshop Manual and Owners' Handbook, must be used when replenishing the hydraulic pump reservoir, i.e.:-

General Motors	Hydramatic Fluid	Type AQ/ATF
B.P.	Energol A.T.F.	Type AQ/ATF-261
Wakefield's	Castrol T.Q.	Type AQ/ATF-156
Shell	Donax T.6.	Type AQ/ATF-257
Mobil	Mobilfluid 200	Type AQ/ATF-101

Dipsticks with the correct markings "Use AQ/ATF oil" are now on production.

FOR INFORMATION

POWER STEERING PUMP - FILLER CAP SEAL

Rubber filler cap seals are now available, and replace the cork washers previously used on production. A cork washer, fitted during assembly of the filler cap components, could not be replaced without disturbing the centre cone.

Visible external seepage from the filler cap will indicate that replacement of the washer is necessary. All traces of the old washer should be removed, and the replacement rubber seal eased into position over the cone and engagement tongues, care being taken to avoid stretching the seal.

The seal part number remains unaltered, i.e. CD.972.

FOR INFORMATION.

HORN EARTH-RETURN BRUSH

An occasional squeak when rotating the steering wheel has been attributed to the lack of lubrication of the horn earth-return brush and slip ring on power assisted steering columns.

It is recommended that the brush should be periodically lubricated with a good quality electrical contact grease. Gulf Oil Ltd. manufactures one under the trade name of "Elvolube".

If the brush cannot be extracted with the terminal it will be necessary to remove the complete brush housing assembly. Apply a thin film of grease to the contact surface of the slip ring, and refit the assembly. If the squeak persists it is permissible to chamfer the edge of the brush to avoid the possibility of pick up on the leading edge.

CATEGORY 1.

TRACK RODS

The 'S' Type cars have improved ride characteristics as compared with the 'R' Type. This is achieved by increased wheel movement, but of course this involves greater angular movement of the track rods which makes it more difficult to provide adequate lubrication of the ball joints from the One Shot System, also the angularity of the joints on maximum rebound can expose the joints to ingress of water and dust with the present design of seal.

The track rod has been re-designed using a steel seat in place of phosphor bronze. A re-designed rubber seal has been fitted, providing better protection.

The joints are now lubricated by Molybdenum disulphide grease, which, as well as being a more efficient lubricant, provides a strong barrier against the ingress of water should any part of the joint become exposed when the car is driven in exceptionally bad road conditions.

The recommended lubricant is Molyspring Lubricant 204G, manufactured by Rocol Limited. In the event of this not being obtainable any good quality grease containing for preference 20% Molybdenum disulphide may be used.

This modification is relatively simple in so far as it consists in fitting pre-assembled track rods carrying grease lubricators in place of the existing track rods and blanking off that part of the one shot system which is no longer required.

Arrangements have been made that as parts and tools become available for service action, they will be despatched to the Retailers directly in quantities which relate to the total number of cars which our records show to be in existence in each territory. It is quite possible that our records may not be completely accurate for each territory, we are therefore despatching with each consignment of material the chassis numbers and owners name and address of every car with which we consider the Retailer will be concerned and we would be pleased if the Retailer would advise us immediately of any discrepancy, so that the quantity can be raised according to actual requirements.

The detailed instructions for carrying out the modification are as follows:-

MODIFICATION ACTION

Modification action is required on the following chassis numbers:-

All Rolls-Royce Silver Cloud chassis up to chassis SGE-368.

Continued/-...

- 2 -

All Bentley 'S' Type chassis up to chassis B-560-FA.
All Bentley 'S' Type chassis Continental up to chassis BC-41-EL.
All Rolls-Royce Silver Cloud Long Wheelbase chassis up to chassis
ALC-20.
All Bentley 'S' Type Long Wheelbase chassis up to chassis ALB-15.

Material Required.

Tools required.

1 Ball pin extractor. Part No. RH.320.

Parts required (per car)

2 - $\frac{1}{4}$ " steel balls. Part No. RF.3176.
1 - Left hand track rod assembly. Part No. RH.289.
1 - Right hand track rod assembly. Part No. RH.290.

These track rods are assembled with the standard length ball pins.

Parts required for fitting longer ball pins.

+ 0.100" Ball pin. Part No. UR.4083.
+ 0.100" Rubber oil seal. Part No. UR.4306.
+ 0.200" Ball pin. Part No. UR.4084.
+ 0.200" Rubber oil seal. Part No. UR.4307.

These longer ball pins and oil seals are assembled in the same order as for standard pins.

Rocol Molyspring grease, or an alternative, is required for lubricating the joints by means of a Tecalemit grease gun (Part No. RH.709), immediately after assembly and subsequent service maintenance of the cars. A Tecalemit hexagonal grease nipple is fitted to each joint. This type of nipple has been used in place of the more common push on type, to ensure that a separate grease gun is used charged with the correct grease.

Continued/-...

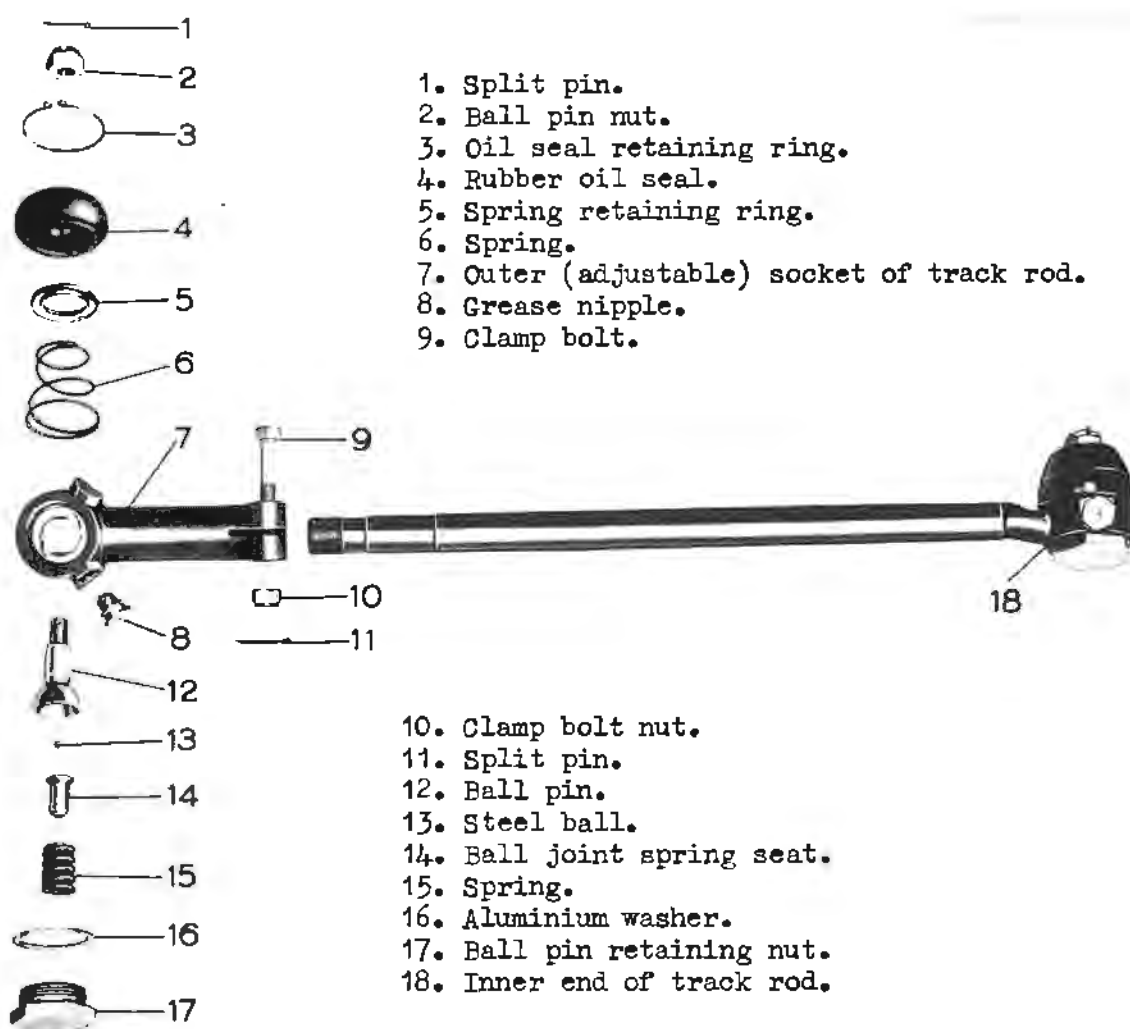


Fig.1. Exploded view of grease lubricated track rod ball joint.

Cont'd.....

OPERATION.

To change track rods.

Disconnect the lubrication pipe from the track rod and the bottom flange on the stub axle.

Cut the pipe and remove the union; the pipe should then be discarded.

Blank off the oil hole in the bottom flange of the stub axle, by fitting a steel ball ($\frac{1}{4}$ " - 6.35 m.m. diameter) and securing it with the union.

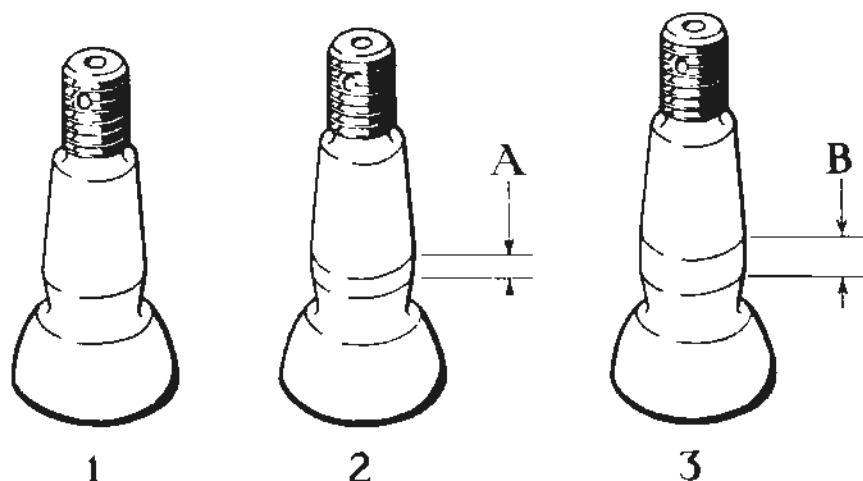


Fig.2. Method of measuring ball pin land.

1. Standard length ball pin.
2. Ball pin + 0.100 in. - measure at 'A'.
3. Ball pin + 0.200 in. - measure at 'B'.

Remove both left and right hand track rods, using the special extractor (RH.320) to withdraw the ball pins.

Note:- Three lengths of ball pins are available i.e. Standard, + 0.100" (2.54 m.m.) or + 0.200" (5.08 m.m.). Grease lubricated track rods supplied as replacements are assembled with Standard length ball pins.

Cont'd....

Should it be necessary to change any of the ball pins, it is essential that pins of the same length as those removed must be fitted to the new track rod.

Therefore to ascertain which length pin is to be fitted, measure the length of land on the old pin, between the neck taper and the location taper (see fig.2). If found to be other than Standard, the pins in the new track rod must be replaced by pins of the appropriate length.

To suit the various lengths of pins, three sizes of rubber oil seals are available i.e. Standard, + 0.100" or + 0.200".

Sharp edges or burrs on the contact faces of the side steering levers and idler cross beams, must be filed off to prevent damaging the rubber oil seals and to ensure that the seals are effective (see figs. 3 and 4).



Fig.3. Side steering lever showing 'A' before and 'B' after burrs have been removed.



Fig.4. Idler cross beam - arrows show where burrs should be removed.

Cont'd.....

- 6 -

Ascertain the correct length ball pins to be fitted and if different from standard, remove the existing pins and fit the selected ones to the track rods. Care must be taken when removing the ball pin, to ensure that the small steel ball is not lost (see fig. 1).

Fit the springs, spring retaining washers and rubber oil seals and secure the seals to the track rods by means of the circlips (see fig. 1).

Lubricate the rubber oil seals and the contact faces of the side steering levers with Rocol Molystring grease, then locate the ball pins, (on the outer, adjustable, ends of the track rods) in their respective side steering levers.

The flat steel washer previously fitted under the castellated nut should be discarded, unless the split pin hole is proud of the castellations when the nut is tightened; in this case it is permissible to fit the washer. Tighten the castellated nut and fit the split pin.

If the track rods are correctly fitted, the grease nipples on the inner ends should point towards the rear of the car and the nipples on the outer ends should point towards the front of the car. This is important.

Fit both inner ball pins in the idler cross beam; do not fit the oil seals, springs or retaining washers at this stage. Tighten the castellated nut but do not fit the split pin.

Adjust the track to the required limits as quoted in the Workshop Manual, Section H.

Raise the front of the car until the wheels are clear of the ground, then turn the steering wheel to locate the tight spot on the cam and roller assembly.

With the steering wheel in this position, mark with strips of masking tape, the capping rail and one spoke of the steering wheel so that the marks correspond, then check that the front wheels are in the straight ahead position (allowing for the toe-in track adjustment); lower the car to the ground.

To enable the suspension to settle into the normal standing height position, move the car back several feet at the same time "bouncing" the front suspension, then move the car to its original position.

Align the marks on the steering wheel and capping rail then check that the wheels are in the straight ahead position.

If the alignment is not correct and further adjustment is necessary remove the inner ball pins from the idler cross beam.

Cont'd.....

- 7 -

Rotate the track rods in opposite directions, an equal number of turns as necessary to obtain the correct track adjustment and bring the road wheels in the straight ahead position without disturbing the pre-set condition of the steering wheel.

Temporarily fit the ball pins and nuts to the idler cross beam and again check the alignment.

When the correct adjustment has been finally obtained, unscrew the castellated nuts from the inner ball pins and withdraw the pins from the idler cross beam.

Assemble the inner ball pins with their oil seals, springs and spring retaining washers.

Lubricate the rubber oil seals and the contact faces of the idler cross beam with Molyspring grease, ensure that the taper of the ball pin is free from grease, then locate the ball pin tapers in the idler cross beam; tighten the castellated nuts and fit the split pins.

Lock the outer adjustable ends by tightening the clamping bolts; fit the split pins.

Place the front road wheels on to turn-tables and turn the steering wheel from lock to lock; ensure that there is clearance between all steering links, on each lock.

Using the Tecalemit grease gun (RH.709), lubricate all ball joints with Rocol Molyspring grease, until it exudes from the rubber seals.

Time allowance.

2 hours.

Disposal of material.

Neither the tools or the displaced track rods must be returned to us. Retailers should take steps to ensure that the displaced track rods cannot be accidentally or wilfully refitted.

We would particularly request Retailers to notify us when cars have been modified. Where considerable numbers of cars are involved we would appreciate this information at short intervals, so that we can keep in touch with progress.

Periodic Maintenance.

The track rod should be lubricated at intervals of 10,000 miles in conjunction with Schedule 'B'.

Distribution for No. CB.97
U.K. Retailers only. U.K.

CATEGORY 2. (Cars over 15,000 miles).

TRACK RODS.

The 'S' Type cars have improved ride characteristics as compared with 'R' Type. This is achieved by increased wheel movement, but of course this involves greater angular movement of the track rods which makes it more difficult to provide adequate lubrication of the ball joints from the One-Shot System, also the angularity of the joints on maximum rebound can expose the joints to the ingress of water and dust with the present design of seal.

The track rod has been re-designed using a steel seat in place of phosphor bronze. A re-designed rubber seal has been fitted, providing better protection.

The joints are now lubricated by Molybdenum disulphide grease, which, as well as being a more efficient lubricant, provides a strong barrier against the ingress of water should any part of the joint become exposed when the car is driven in exceptionally bad road conditions.

Molyspring lubricant 204G. is recommended and is obtainable from Messrs. Rocol Ltd., Ibex House, Minories, London, E.C.3.

Should difficulty be experienced in obtaining supplies of this lubricant, please refer to Rolls-Royce Ltd., London Service Department, Hythe Road, Willesden, London, N.W.10.

This modification should be carried out after 15,000 miles service, or after the nearest convenient mileage to that quoted in Second Schedule 'A'.

It is a relatively simple modification as it consists only of fitting pre-assembled track rods carrying grease lubricators in place of the existing track rods, then blanking off that part of the One-shot system which is no longer required.

Arrangements have been made that as parts and tools become available for service action, they will be despatched to the Retailers directly, in quantities which relate to the total number of cars which our records show to be in existence in each Retailers territory.

The detailed instructions for carrying out the modification are as follows:-

MODIFICATION ACTION.

Modification action is required on the following chassis numbers:-

ROLLS-ROYCE SILVER CLOUD CHASSIS.

SWA-2 to SWA-250	SBC-2 to SBC-150	SED-1 to SED-451
SXA-1 to SXA-251	SCC-1 to SCC-151	SFE-1 to SFE-501
SYB-2 to SYB-250	SDD-2 to SDD-450	SGE-2 to SGE-368
SZB-1 to SZB-251		

Cont'd.....

BENTLEY 'S' TYPE CHASSIS.

B-2-AN to B-500-AN	B-2-CK to B-500-CK	B-2-EG to B-650-EG
B-1-AP to B-501-AP	B-1-CM to B-501-CM	B-1-EK to B-651-EK
B-2-BA to B-250-BA	B-2-DB to B-350-DB	B-2-FA to B-558-FA
B-1-BC to B-251-BC	B-1-DE to B-351-DE	

BENTLEY CONTINENTAL 'S' TYPE CHASSIS.

BC-1-AF to BC-101-AF	BC-1-DJ to BC-51-DJ
BC-1-BG to BC-101-BG	BC-1-EL to BC-40-EL
BC-1-CH to BC-51-CH	

ROLLS-ROYCE SILVER CLOUD LONG WHEELBASE CHASSIS.

ALC-1 to ALC-26	BLC-1 to BLC-19
-----------------	-----------------

BENTLEY 'S' TYPE LONG WHEELBASE CHASSIS.

ALB-1 to ALB-14

Material Required.

Tools required.

1 Ball pin extractor.	Part No. RH.320
-----------------------	-----------------

Parts required (per car).

2 - $\frac{1}{2}$ " steel balls.	Part No. RF.3176
1 - Left-hand track rod assembly.	Part No. RH.289
1 - Right-hand track rod assembly.	Part No. RH.290

These track rods are assembled with the standard length ball pins.

Parts required for fitting longer ball pins.

+ 0.100" Ball pin	Part No. UR.4083
+ 0.100" Rubber oil seal	Part No. UR.4506
+ 0.200" Ball pin	Part No. UR.4084
+ 0.200" Rubber oil seal	Part No. UR.4507

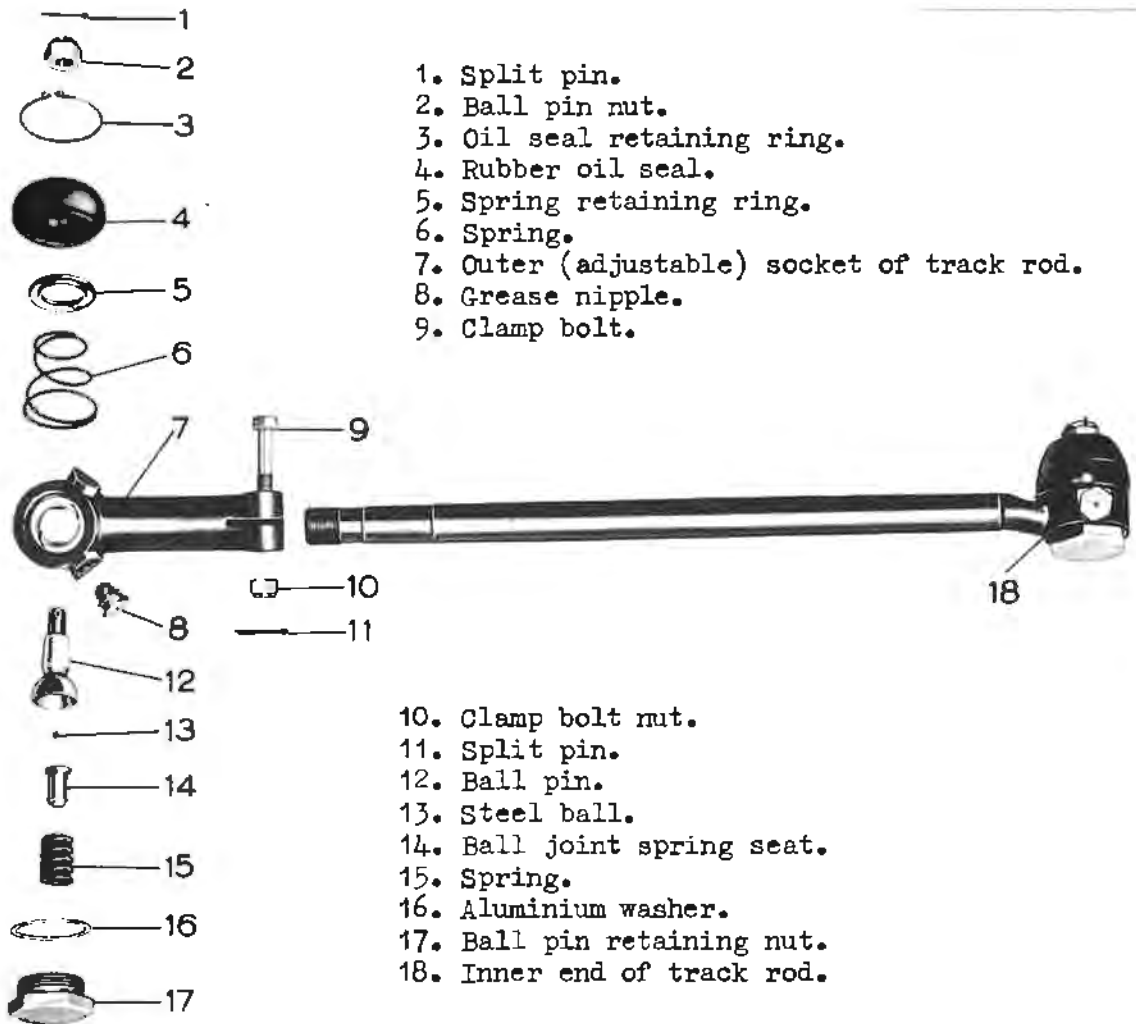
These longer ball pins and oil seals are assembled in the same order as for standard pins.

Rocol Molyspring Grease is required for lubricating the ball joints immediately after assembly and subsequent service maintenance of the cars.

A Tecaletit hexagonal grease nipple is fitted to each joint in place of the more conventional push-on type, to ensure that a separate grease gun is used and is charged with the correct grease.

Lubricate all ball joints until grease exudes from the rubber seals using a Tecaletit grease gun (RH.709) which may be obtained from Rolls-Royce Service Department, Hythe Road.

Cont'd.....



- 1. Split pin.
- 2. Ball pin nut.
- 3. Oil seal retaining ring.
- 4. Rubber oil seal.
- 5. Spring retaining ring.
- 6. Spring.
- 7. Outer (adjustable) socket of track rod.
- 8. Grease nipple.
- 9. Clamp bolt.

- 10. Clamp bolt nut.
- 11. Split pin.
- 12. Ball pin.
- 13. Steel ball.
- 14. Ball joint spring seat.
- 15. Spring.
- 16. Aluminium washer.
- 17. Ball pin retaining nut.
- 18. Inner end of track rod.

Fig.1. Exploded view of grease lubricated track rod ball joint.

Cont'd.....

OPERATION.

To change track rods.

Disconnect the lubrication pipe from the track rod and the bottom flange on the stub axle.

Cut the pipe and remove the union; the pipe should then be discarded.

Blank off the oil hole in the bottom flange of the stub axle, by fitting a steel ball ($\frac{1}{4}$ " - 6.35 m.m. diameter) and securing it with the union.

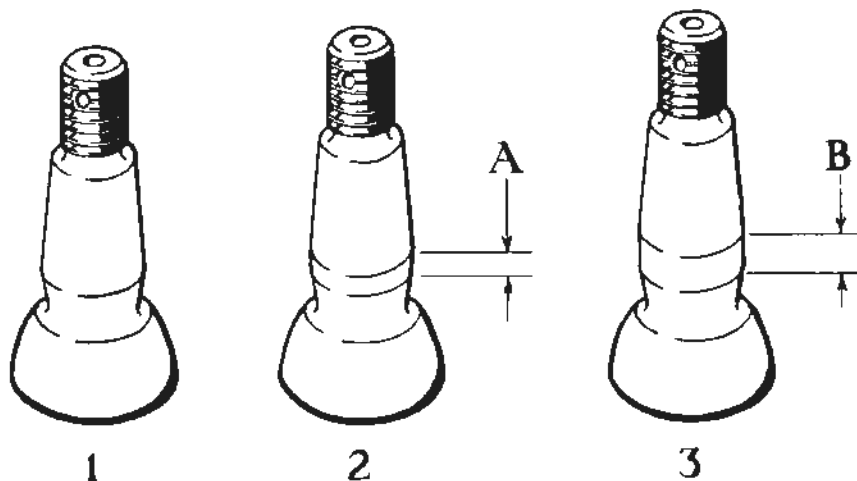


Fig.2. Method of measuring ball pin land.

1. Standard length ball pin.
2. Ball pin + 0.100 in. - measure at 'A'.
3. Ball pin + 0.200 in. - measure at 'B'.

Remove both left and right hand track rods, using the special extractor (RH.320) to withdraw the ball pins.

Note:- Three lengths of ball pins are available i.e. Standard, + 0.100" (2.54 m.m.) or + 0.200" (5.08 m.m.). Grease lubricated track rods supplied as replacements are assembled with Standard length ball pins.

Cont'd....

Should it be necessary to change any of the ball pins, it is essential that pins of the same length as those removed must be fitted to the new track rod.

Therefore to ascertain which length pin is to be fitted, measure the length of land on the old pin, between the neck taper and the location taper (see fig.2). If found to be other than Standard, the pins in the new track rod must be replaced by pins of the appropriate length.

To suit the various lengths of pins, three sizes of rubber oil seals are available i.e. Standard, + 0.100" or + 0.200".

Sharp edges or burrs on the contact faces of the side steering levers and idler cross beams, must be filed off to prevent damaging the rubber oil seals and to ensure that the seals are effective (see figs. 3 and 4).



Fig.3. Side steering lever showing 'A' before and 'B' after burrs have been removed.



Fig.4. Idler cross beam - arrows show where burrs should be removed.

Cont'd.....

Ascertain the correct length ball pins to be fitted and if different from standard, remove the existing pins and fit the selected ones to the track rods. Care must be taken when removing the ball pin, to ensure that the small steel ball is not lost (see fig. 1).

Fit the springs, spring retaining washers and rubber oil seals and secure the seals to the track rods by means of the circlips (see fig. 1).

Lubricate the rubber oil seals and the contact faces of the side steering levers with Rocol Molyspring grease, then locate the ball pins, (on the outer, adjustable, ends of the track rods) in their respective side steering levers.

The flat steel washer previously fitted under the castellated nut should be discarded, unless the split pin hole is proud of the castellations when the nut is tightened; in this case it is permissible to fit the washer. Tighten the castellated nut and fit the split pin.

If the track rods are correctly fitted, the grease nipples on the inner ends should point towards the rear of the car and the nipples on the outer ends should point towards the front of the car. This is important.

Fit both inner ball pins in the idler cross beam; do not fit the oil seals, springs or retaining washers at this stage. Tighten the castellated nut but do not fit the split pin.

Adjust the track to the required limits as quoted in the Workshop Manual, Section H.

Raise the front of the car until the wheels are clear of the ground, then turn the steering wheel to locate the tight spot on the cam and roller assembly.

With the steering wheel in this position, mark with strips of masking tape, the capping rail and one spoke of the steering wheel so that the marks correspond, then check that the front wheels are in the straight ahead position (allowing for the toe-in track adjustment); lower the car to the ground.

To enable the suspension to settle into the normal standing height position, move the car back several feet at the same time "bouncing" the front suspension, then move the car to its original position.

Align the marks on the steering wheel and capping rail then check that the wheels are in the straight ahead position.

If the alignment is not correct and further adjustment is necessary remove the inner ball pins from the idler cross beam.

Cont'd.....

THE ROAD, WILLESDEN, LONDON, N.W.

SECTION

- 7 -

Rotate the track rods in opposite directions, an equal number of turns as necessary to obtain the correct track adjustment and bring the road wheels in the straight ahead position without disturbing the pre-set condition of the steering wheel.

Temporarily fit the ball pins and nuts to the idler cross beam and again check the alignment.

When the correct adjustment has been finally obtained, unscrew the castellated nuts from the inner ball pins and withdraw the pins from the idler cross beam.

Assemble the inner ball pins with their oil seals, springs and spring retaining washers.

Lubricate the rubber oil seals and the contact faces of the idler cross beam with Molyspring grease, ensure that the taper of the ball pin is free from grease, then locate the ball pin tapers in the idler cross beam; tighten the castellated nuts and fit the split pins.

Lock the outer adjustable ends by tightening the clamping bolts; fit the split pins.

Place the front road wheels on to turn-tables and turn the steering wheel from lock to lock; ensure that there is clearance between all steering links, on each lock.

Using the Tecalemit grease gun (RH.709), lubricate all ball joints with Rocol Molyspring grease, until it exudes from the rubber seals.

Time allowance.

2 hours.

Disposal of material.

Neither the tools or the displaced track rods must be returned to us. Retailers should take steps to ensure that the displaced track rods cannot be accidentally or wilfully refitted.

We would particularly request Retailers to notify us when cars have been modified. Where considerable numbers of cars are involved we would appreciate this information at short intervals, so that we can keep in touch with progress.

Periodic Maintenance.

The track rod should be lubricated at intervals of 10,000 miles in conjunction with Schedule 'B'.

FOR INFORMATION.

STEERING JOINTS.

Recommended Lubricants.

Rolls-Royce Silver Cloud and Bentley 'S' type cars are now being delivered with all the steering ball joints to the latest grease lubricated specification.

Service Bulletin CB.97 calls for the retrospective fitting of these grease lubricated type ball joints to the track rods only of all cars already in service.

The normal pressure fed grease guns in Retailers' Lubrication Bays do not dispense the recommended lubricant and to ensure that these are not used on these joints, a Tecalemit hexagonal type grease nipple is fitted. A suitable Tecalemit grease gun is required, and this should be charged with one of the recommended lubricants.

Each joint requires approximately 2/3 oz. of the lubricant to fill it initially, although less than this quantity will be required at the routine services.

The following alternative recommended Molybdenum-di-Sulphide based lubricants only may be used:-

ROCOL MOLYSPRING LUBRICANT 204G.

SHELL GREASE S.5466.

The recommended interval of lubrication is 10,000 miles.

FOR INFORMATION.

FOULING OF INNER BALL JOINT SOCKET ON
STEERING TRACK ROD.

On cars fitted with grease lubricated track rods, it is possible under certain conditions for the inner ball joint socket on the track rod to foul the lower triangle lever, with the steering in the full lock position.

The reasons for a possible foul are

- a) Increased dimensions of the ball joint socket, necessary with grease lubrication.
- b) Variation of tolerances on components, which make it necessary for further adjustment of the track rods, after the track has been set in the straight ahead position, in order to bring the cam and roller in the steering box into the central position.

This could necessitate adjusting each track rod end as many as five turns in opposite directions; thus when adjustment is complete, one track rod would be shorter than the other. A possible foul could occur between the inner ball joint on the shorter track rod and the lower triangle lever, with the steering in the full lock position.

If fouling is evident, it should be overcome by fitting a packing piece between the side steering lever and the stub axle situated on the side of the car which has the longer track rod.

Note:- The maximum permissible thickness of packing piece which may be fitted to any one stub axle is 0.125 in.

Instructions for fitting grease lubricated track rods were issued in a previous Service Bulletin No. CB.97 Section 'N' and the method for fitting the packing pieces is described in Service Bulletin No. CB.20 Section 'N'.

Material Required.

0.062 in. Packing Piece LH.	RH.408.
0.062 in. Packing Piece RH.	RH.409.
0.125 in. Packing Piece LH.	RH.419.
0.125 in. Packing Piece RH.	RH.420.

CHASSIS FRAME

FOR INFORMATION.

CARAVAN OR TRAILER TOWING ATTACHMENT.

A Caravan or Trailer towing attachment approved by Rolls-Royce Limited and Bentley Motors (1931) Limited, is available for all cars fitted with standard steel saloon bodies.

Illustrations and details of price are obtainable from Messrs. B. Dixon-Bate Limited, of Bridge Works, Chester.

This attachment has been so designed that visible parts can be removed when not required, so that the appearance of the car can be restored to normal.

CATEGORY 3A MODIFICATION.

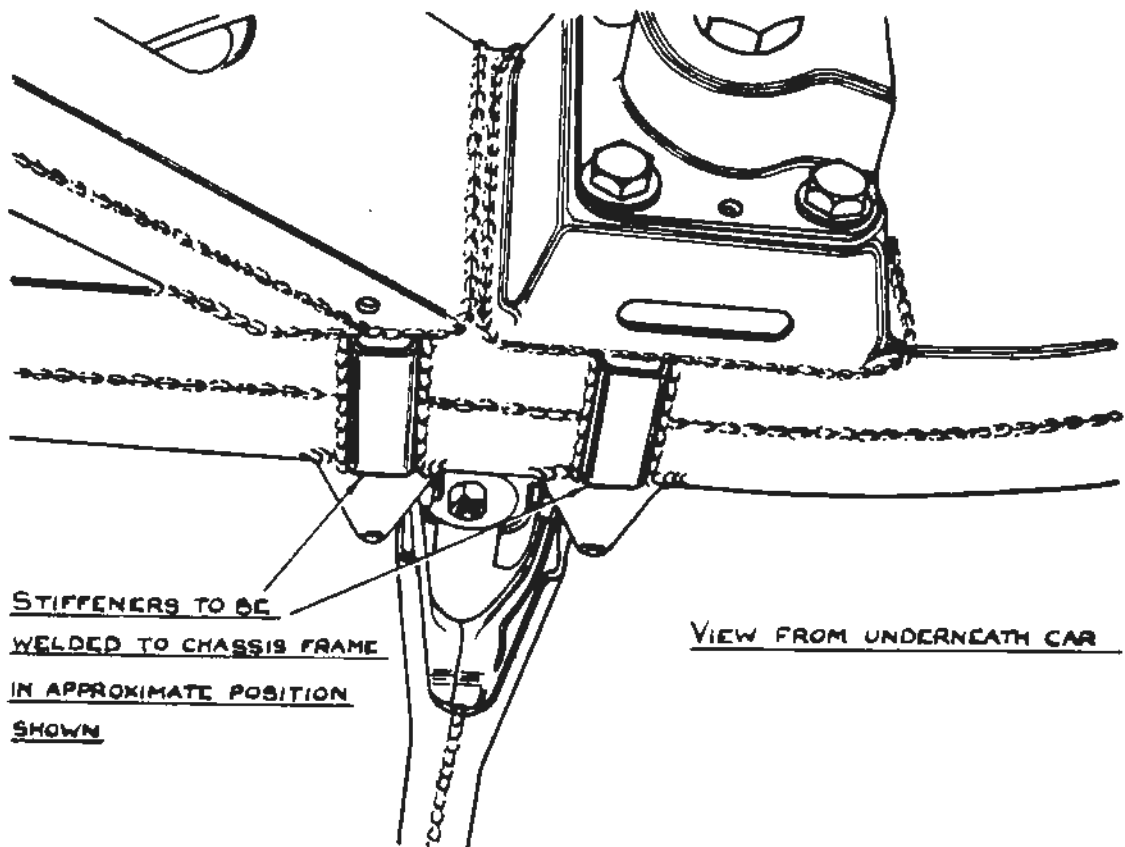
WELDED FRAME STIFFENERS.

On certain cars it may be found that when raising the car with the car jack provided, the jacking spigot "springs" relative to the frame, and it may even be possible in extreme cases for this to damage the frame.

To prevent any "springing" at the jacking point and to overcome any possibility of damage to the frame, stiffening pieces are to be electrically welded to the underside of the frame adjacent to the jacking points as illustrated.

In the unlikely event of damage to the frame, which will be evident in the form of a split in the welding along the underside of the frame, the frame is to be welded electrically. It is neither desirable nor practicable for these components to be gas welded.

The time considered adequate for this work is one hour.



- 2 -

MATERIALS:

	<u>Part No.</u>	<u>No.Off.</u>
Chassis Frame Stiffener	UR.3305.	4.

CHASSIS NOS:

- Rolls-Royce Silver Cloud - All chassis up to S4B-204.
- Bentley "S" Type Saloon - All chassis up to 456-CK.
- Bentley "S" Type Continental - All chassis up to BC-27-BG.

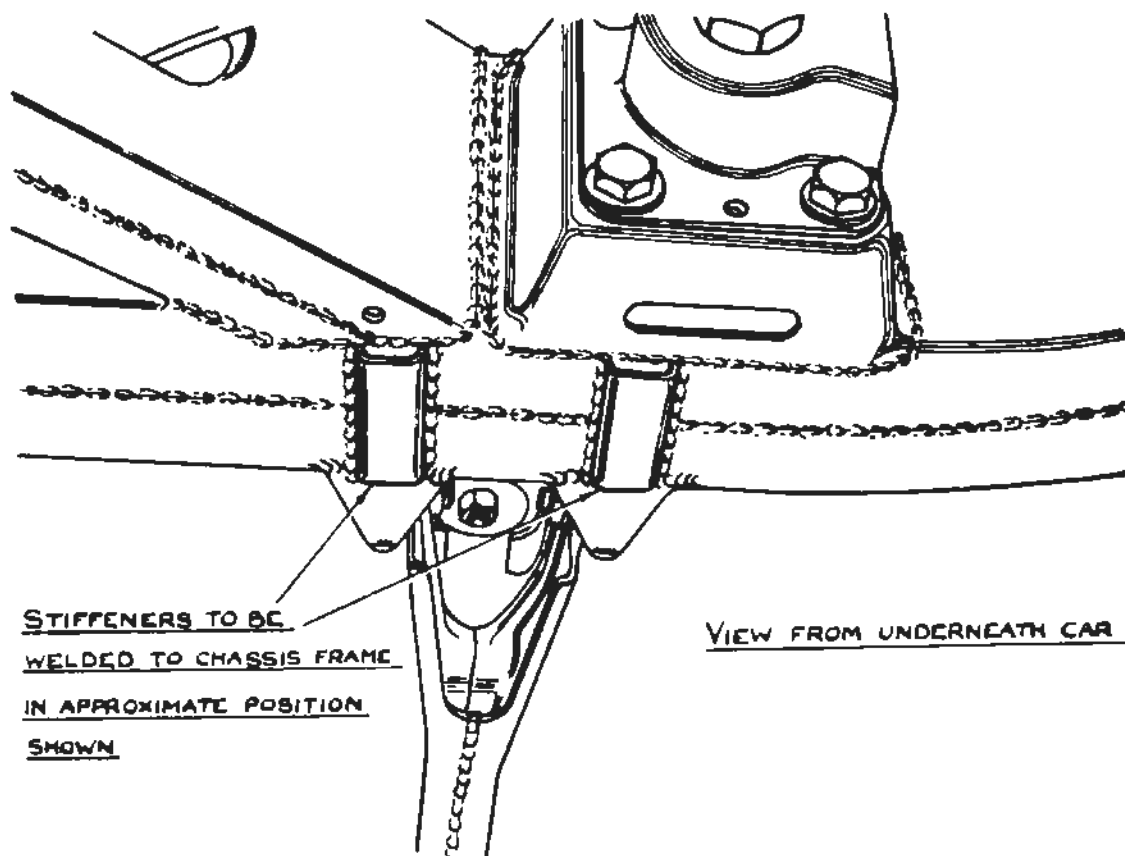
CATEGORY 1 MODIFICATION (North America and Australia).

WELDED FRAME STIFFENERS.

On certain cars it may be found that when raising the car with the car jack provided, the jacking spigot "springs" relative to the frame, and it may even be possible in extreme cases for this to damage the frame.

To prevent any "springing" at the jacking point and to overcome any possibility of damage to the frame, stiffening pieces are to be electrically welded to the underside of the frame adjacent to the jacking points as illustrated.

In the unlikely event of damage to the frame, which will be evident in the form of a split in the welding along the underside of the frame, the frame is to be welded electrically. It is neither desirable nor practicable for these components to be gas welded.



STIFFENERS TO BE
WELDED TO CHASSIS FRAME
IN APPROXIMATE POSITION
SHOWN

VIEW FROM UNDERNEATH CAR

- 2 -

The time considered adequate for this work is one hour.

MATERIALS:

	<u>Part No.</u>	<u>No. Off.</u>
Chassis Frame Stiffener	UR. 3305	4.

CHASSIS NOS:

Rolls-Royce Silver Cloud	- All chassis up to	S2B-204.
Bentle "S" Type Saloon	All chassis up to	456-CK.
Bentley "S" Type Continental	All chassis up to	BC-27-DG

CATEGORY 2 MODIFICATION.

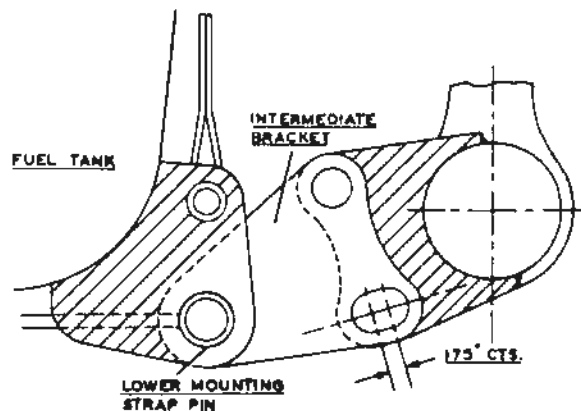
FUEL TANK MOUNTING STRAP INTERMEDIATE BRACKET.

It may be necessary on certain cars to lower the rear of the fuel tank so that the wiring loom fitted to the undersurface of the boot floor cannot be chafed between the top of the fuel tank and the undersurface of the boot floor.

PROCEDURE.

Raise the rear right hand road wheel and remove it to inspect whether sufficient clearance exists between the upper surface of the fuel tank and the undersurface of the boot floor. If the wiring loom shows signs of being chafed it must be replaced, or if the clearance is inadequate, the four rear mounting intermediate brackets are to be modified.

Support the fuel tank in such a manner that it cannot be damaged by its own weight and so that the load is removed from the mounting straps. Disconnect the mounting straps by removing the two lower-most strap pins, one each side, and withdrawing the lower straps from the strap pins by removing the two adjusting nuts. Remove the intermediate bracket securing nuts and bolts and elongate the lower bolt holes as indicated.



MODIFICATION TO THE FUEL TANK MOUNTING STRAP
INTERMEDIATE BRACKET.

Replace the brackets and strap pins leaving the intermediate bracket fixing bolts loose until the fuel tank mounting shoes have been positioned to allow the tank to assume the correct clearance from the undersurface of the boot floor. Inspect to ensure that the fuel tank does not foul elsewhere. It will be necessary to relieve the fuel tank support to facilitate this operation, but leaving it close in position for safety.

- 2 -

Refit the lower mounting straps in the strap pins and tighten the intermediate bracket fixing bolts, finally inspect to ensure that the clearance has not altered afterwards.

Refit the road wheel.

The time considered adequate for this work is three hours.

<u>MATERIALS.</u>	<u>Component.</u>	<u>Part No.</u>	<u>No.Off.</u>
	Split Pin	K.4608/Z	4.

CHASSIS NOS.

Rolls-Royce Silver Cloud all chassis up to SBC-136.

Bentley 'S' Type Saloon all chassis up to B-198-DB.

Bentley 'S' Type Continental all chassis up to BC-66-BG.

EXHAUST SYSTEM



WHEELS AND TYRES

FOR INFORMATION.

No. CB.1.

DUNLOP WHITE SIDEWALL TYRES.

It has been remarked that the white sidewall of the above tyres can appear to become discoloured and turn yellow.

This yellowing is the direct result of the effects of exposure to light, and the degree of yellowing is dependent on the length of time of exposure and the intensity of light.

The colour change is very superficial and can quite easily be removed by the use of any of the proprietary brands of whitewall tyre cleaner.

The condition is usually confined to showroom cars, since, once a car is prepared for the showroom, and whilst every other part of the car receives regular cleaning, the tyres receive no further attention other than the removal of the original protective blue paint.

In Service, the condition is not usually encountered, due to a regular cleaning and washing, which the whole car and wheels receive.

The following points should be noted:-

1. Initially, the protective blue paint must be removed by vigorous washing using soap powder and a brush having brass bristles.
2. When the car is standing in the Showroom, the tyres must be cleaned once a week with Simonize or some other proprietary whitewall cleaner.
3. For owner use, Brillo soap pads or other soap impregnated wire wool pads are convenient for quick whitewall cleansing whilst the car is being washed.

Adherence to the above points will obviate any discolouration of white sidewall tyres in the future.

FOR INFORMATION.

TYRE PRESSURES FOR ROLLS-ROYCE SILVER CLOUD
AND BENTLEY "S" TYPE COACHBUILT MOTOR CARS.

Certain coachbuilt cars appreciably exceed the weight of standard models, sufficiently to require higher tyre pressures in order that the required standard of handling and comfort can be maintained.

To determine the correct tyre pressure the vehicle should be in "kerbside" condition, i.e. without passengers or luggage, and not more than five gallons of fuel in the tank.

Both front wheels are run onto a weighbridge and the weight noted, then both rear wheels are weighed similarly.

When these two figures are obtained, refer to the table which gives the tyre pressure in pounds per square inch, for front and rear tyres, for weights either in pounds only, or hundredweights, quarters and pounds.

If a fifth passenger and between one and two hundred pounds of luggage are carried, the rear tyre pressures should be increased by three lbs per square inch to compensate for the additional weight.

- 2 -

Pressure lb/sq.in.	Kg/Sq.cm.	Front Wheels Load.						
		lb.	cwt. qtr. lb.			cwt. qtr. lb.		
18	1.27	- 2034	-	-	-	18	0	18
19	1.34	2035 - 2090	18	0	19	-	18	2 18
20	1.41	2091 - 2146	18	2	19	-	19	0 18
21	1.48	2147 - 2230	19	0	19	-	19	3 18
22	1.55.	2231 - 2312	19	3	19	-	20	2 16
23	1.62	2313 - 2396	20	2	17	-	21	1 16
24	1.69	2397 - 2480	21	1	17	-	22	0 16

Pressure lb/sq.in.	Kg/Sq.cm.	Rear Wheels Load.						
		lb.	cwt. qtr. lb.			cwt. qtr. lb.		
24	1.69	- 2050	-	-	-	18	1	6
25	1.76	2051 - 2134	18	1	7	-	19	0 6
26	1.83	2135 - 2218	19	0	7	-	19	3 6
27	1.90	2219 - 2302	19	3	7	-	20	2 6
28	1.97	2303 - 2358	20	2	7	-	21	0 6
29	2.04	2359 - 2442	21	0	7	-	21	3 6
30	2.11	2443 - 2526	21	3	7	-	22	2 6

CATEGORY 3A

Cancel Bulletin CB.51
dated 16.5.57 Section R
Re-issued to correct Section (H).

REAR SUSPENSION DAMPER MOUNTING TO THE FRAME

Complaints may arise after continued arduous service of the rear suspension damper working loose due to slackening of the fixing bolts to the frame brackets. This is rectified by fitting plain washers and full nuts in place of the original half nuts, with longer bolts to accommodate the extra length.

Before fitting the new nuts, bolts and washers ensure that no trace of paint whatever exists around the original bolt holes in the brackets to prevent full clamping of the components.

<u>MATERIALS.</u>	<u>PART NO.</u>	<u>NO.OFF.</u>
Bolt (.500" dia.)	UR.4073	2
Nut	UA.305/Z	2
Bolt (.375" dia.)	UR.4055	2
Nut	RE.22428	2

APPLICABLE TO:

Rolls-Royce Silver Cloud
Bentley 'S' Type
Bentley 'S' Continental

FOR INFORMATION

TYRE PRESSURES - POWER ASSISTED STEERING ONLY

With the additional weight increase involved where standard Bentley 'S' Type and Rolls-Royce Silver Cloud cars are fitted with Power Assisted Steering, it has become necessary to increase the front tyre pressures to obviate over-loading of the front tyres. These pressures also apply to cars fitted with refrigeration.

The following tyre pressures are applicable :-

Front 21 lbs/sq.in.

Rear 26 lbs/sq.in.

Owners should be notified, and the handbooks of cars amended where appropriate, as the opportunity occurs.

FOR INFORMATION.

FITTING AND REMOVING TUBELESS TYRES.

Road wheels are now in production with a modified contour on the outer portion of the rim. This has been evolved to improve characteristics on the more heavily loaded side of the wheel.

When fitting tubeless tyres, it is essential that the bead seats correctly and makes an efficient seal. In order to facilitate this, the Dunlop Tyre and Rubber Co., are marketing a special lubricant, known as the Dunlop Tyre Bead Lubricant, in 1 gallon tins and 5 gallon drums. (Dunlop codes TBL1 and TBL2 respectively.) These will also be available from The Service Department, Hythe Road, Willesden, London N.W.10. under part numbers RH.652 (1 gallon tin) and RH.653 (5 gallon drum).

This lubricant will be found to facilitate fitting and removal of all tyres whether tubeless or otherwise.

The procedure recommended for changing tubeless tyres is as follows:-

Mounting.

Remove any existing rivet burrs from the wheel rim centre and high spot from the rim butt, weld with a smooth file. Wire brush off any apparent scaling of the outer rim, particular attention being paid to the tyre bead seating.

Lightly smear valve seating with the lubricant and install. Lubricate tyre beads, rim flanges and bead ledge areas liberally.

Carry out the normal mounting procedure with the narrow edge of the rim upwards, fitting the tyre beads in the usual way.

Inflate the tyre to a maximum of 50 lbs/sq.inch.

N.B. IT IS IMPORTANT THAT THE INITIAL INFLATION PRESSURE OF 50 LBS. PER SQ. INCH IS NOT EXCEEDED.

- 2 -

If the beads do not seat correctly at this pressure, deflate, re-lubricate the beads and re-inflate, centralising the tyre beads before inflation.

After the beads are correctly seated, reduce inflation pressure to the required value.

Liberal application of the lubricant is essential in ensuring correct seating of the tyre beads.

Demounting.

Demount in the usual way, with the narrow bead seating (near side of the wheel) upwards. Use a liberal amount of lubricant on the tyre levers and tyre beads during demounting.

Lever beads over the flat contour and off the bead seating gradually an inch or two at a time.

It is advantageous to use one lever with the "spoon" upwards towards the flange pushing the bead slightly away from the flange, and so permitting entry for the second lever which should have the "spoon" downwards, pressure being extended on the bead. Alternate round the bead with the two levers in turn, and finally remove the tyre.

Push out valve from rim.

FOR INFORMATION.

WHEEL BALANCE WEIGHTS.

When carrying out road wheel balancing, it is essential that only balance weights obtained from the Rolls-Royce Service Depot be used.

The standard weights generally available are intended for use on 12 gauge rims and are not suitable for heavier gauge wheels. Insecurity at high speed may result in considerable damage, should these be used.

The recommended weights incorporate a strengthened securing clip of larger dimensions to accommodate the heavier gauge wheel, and may be identified by the letters "HG" on the left of the outer face. These are only available from the Service Depot, Hythe Road, Willesden, London, N.W.10., in the following range:-

UG 1460	$\frac{1}{2}$ ozs.
UG 1461	1 ozs.
UG 1462	$1\frac{1}{2}$ ozs.
UG 1463	2 ozs.
UG 1464	$2\frac{1}{2}$ ozs.
UG 1465	3 ozs.

CANCELS SERVICE BULLETIN NO.74
Issued: 18.10.57 ref. SB/TJ.

FOR INFORMATION.

TYRES.

The following TUBELESS tyres have been approved with black or white sidewall, for use on the Bentley 'S' Type and Rolls-Royce 'Silver Cloud' cars.

Avon "AIRSEAL".
NATURAL rubber
H.M. Ribbed.
Rayon 6-ply rating.
Size: 8.20" x 15".

Avon "AIRSEAL".
SYNTHETIC rubber
H.M. Ribbed.
Rayon 6-ply rating
Size: 8.20" x 15".

These two covers are similar in appearance. The 'Synthetic' rubber cover is identified by the letter 'S' moulded into the sidewall.

'S' TYPE CONTINENTAL TYRE PRESSURES.

Since the introduction of the 'S' Type Continental in June 1955, the kerbside weight of the car has increased. This is due to added refinements, Power Assisted Steering and other personal additions at the Owners instructions.

The standard tyre pressure recommendations in the Owner's Handbook for the 7.60" x 15" tyres are satisfactory for cars weighing less than 37 cwts. under kerbside conditions, i.e. with full petrol tank and complete ready to receive luggage, and occupants.

For cars weighing more than this figure the standard recommendations should be increased by 1 lb/sq.in. front and 3 lbs/sq.in. rear when cold.

Later, cars will be equipped with 8.00" x 15" tyres and the tyre pressures should then be set as follows cold:-

1. For all normal English running, with maximum speed for intermittant periods:- Front 22 Rear 26
2. For continuous high speed running on straight roads under light traffic conditions:- Front 27 Rear 32
3. For sustained maximum speeds: Front 30 Rear 37

The 8.00" x 15" tyre cannot be fitted retrospectively due to there being inadequate clearance in the wheel arches and valances on the early cars.

FOR INFORMATION.TYRES FOR THE CONTINENTAL

A new synthetic rubber tubeless tyre, named "High Drag Speed Special", has been developed and produced by the India Tyre Co., for use on the "Continental".

The most advantageous feature of the tyre is an appreciably improved adhesion to wet road surfaces. A longer tread life may also be expected.

This 7.60 x 15 tyre, recognised by a red India medalion on the sidewall, is recommended for general motoring where high speeds in excess of 105 m.p.h. are NOT sustained for long periods.

Spasmodic bursts of acceleration up to or approaching maximum m.p.h. are quite permissible. Although this characteristic is unlikely to cause any restriction of use in the United Kingdom, the tyre cannot be suggested as an alternative to the India "Super Speed Special" in all cases, on account of the top speed limitation.

The recommended tyre pressures are 23 lbs./sq. in. front and 27 rear. Some drivers may find these are too soft for their own personal comfort, in which case they may be increased to 28 front and 33 rear. All pressures are measured when the tyres are cold.

FOR INFORMATION.

TYRES.

The following tyre, in black or white-sidewall construction, has now been approved for use on Bentley 'S' Type and Rolls-Royce 'Silver Cloud' cars:-

Firestone tubeless P.300 CRB. 4-ply Rayon synthetic tread. Size: 8.20 x 15.

This cover is manufactured in the U.S.A. under the name:- Firestone Delux Champion P.300 4 ply.

FOR INFORMATION.

TYRES.

Dunlop "Weathermaster" tyres are approved for use in snow and inclement weather conditions; these are the equivalent of the earlier "Wintergrip" tyre mentioned in the Owners Handbook.

Tyres having this tread and construction must not be subjected to sustained speeds in excess of 80 m.p.h. Short periods up to maximum speed are, however, permissible.

FOR INFORMATION.

TYRE EQUIPMENT.

All Rolls-Royce and Bentley cars are delivered today on tubeless tyres unless the customer specifically asks for conventional (tubed equipment). It may be asked what are the special virtues of tubeless tyres to cause us to standardise them.

The primary aim is increased tyre reliability with reduced maintenance. How this is achieved by throwing away the inner tube will be apparent from the following facts.

About 75% of all roadside stops due to tyre trouble on conventional equipment are caused by loss of air owing to either:-

- (a) Perforation of the inner tube by a nail or similar sharp object

or

- (b) Chafing of the tube by the cover around the toe of the bead.

Either way, air escapes from the tube but there is no external seal to atmosphere since the valve stem is a clearance fit in the hole in the rim, and air escapes freely at that point. It is common experience to observe that in the case of an ordinary puncture by a nail, the sound of air escaping is never at the point of puncture but always at the valve hole. This is because the tyre casing at the point of penetration is usually sufficiently strong and resilient to form a good air seal round the nail.

It is a fact that largely by accident the design of the modern tyre bead and rim is ideally suited to forming an efficient air seal, therefore the tyre has only required detail development to form a complete air seal and to enable the tube to be thrown away.

Early attempts to make a self-sealing tyre by introducing a plastic substance as a lining for the cover failed due to problems of heat transference and to out of balance difficulties; in any case it was later shown to be unnecessary because as already mentioned the conventional cover is already reasonably self-sealing due to the tight fit of any nail in the hole which it has pierced.

Cont'd....

- 2 -

The conventional natural rubber inner tube is not airtight, as loss of air occurs due to porosity of the rubber and to the absorption of nitrogen. The same would occur to a lesser degree in a tubeless tyre, but it is prevented by the addition of a synthetic rubber lining vulcanised to the inside of the cover, also the construction of the bead is modified slightly to prevent the exposure of strands of cotton at the junction with the rim so as to seal off any capillary escape route.

The cover and rim being therefore virtually airtight, it is possible to assess what has been gained:-

- (1) The vulnerability of the tube to chafing or perforation does not exist.
- (2) The gradual loss of pressure usual with conventional equipment is eliminated.
- (3) Statistics over many millions of miles show that tubeless equipment is four times as reliable as conventional equipment, i.e. roadside stops are four times less frequent.
- (4) Tyre life is increased due to the more constant maintenance of recommended pressures.
- (5) There is less build up of temperature due to lower internal friction, and therefore less pressure rise on a long journey.

The foregoing does not mean that all tyre troubles or failures are eliminated. The tubeless tyre is still vulnerable to impact or concussion damage, i.e. failure of the casing due to breakdown of the canvas plies by severe damage or by penetration by a large irregular object. Such failures however are exceptional in ordinary motoring and do not detract from the other virtues of tubeless equipment.

In spite of the foregoing, some customers still have a preference for conventional tubed tyres, either due to ignorance of what is involved or by attraction to some particular piece of advertising. In such cases we will fit the tyres requested by the customer.

FOR INFORMATION.

TYRES.

The Avon Tyre Co. has produced a tyre, fitted with a tube, which is similar in character and construction to the Tubeless Avon Airseal. These new 8.20" x 15" tyres are approved for use on the Bentley 'S' Type and the Rolls-Royce 'Silver Cloud', when the demand is for a tyre fitted with a tube.

Avon 8.20" x 15" tyre (tubed)
NATURAL rubber.
H.M. ribbed.
Rayon. 6-ply rating.

TYRES.

Certain complaints have been made regarding the road holding of the 'S' Type car, particularly on wet or greasy roads, and suggestions have been made that a particular make of tyre is better or worse than others. It has even been suggested that adverse criticism is so prevalent as to affect sales. We do not believe this is so, but it would obviously be to the benefit of all concerned if the true facts could be set out and discussed.

1. What are the requirements of a tyre?

All tyre design is a compromise, therefore the order in which various requirements are set out is a matter of engineering policy or opinion; also the priority is affected by improvements in the performance of the car. Tyres approved by the Company are usually made specially to conform with a specification of requirements, and the Tyre Companies interpret these requirements in the way they think best. As most of the tyres made for us are hand made, it is very easy for a Tyre Company to switch over to a change in specification overnight, therefore at any given moment a recommendation that this or that tyre is better than another is valid only for as long as it takes another company to make a similar change in specification.

Until a few years ago, the highest requirements in a tyre were silence under straight ahead running conditions, comfort, and reliability. More recently, great efforts have been made to reduce the power absorption factor (it may not be out of place to mention that not long ago 40% of all the power developed by the engine was absorbed by the tyres, leaving only 60% of the power available to propel the car). Today, the performance of the 'S' Series car and its cornering capabilities have high-lighted the need for better wet hold characteristics than formerly, even possibly at the expense of other virtues, and consequently the list of priorities in a tyre specification have altered. The list may now be expressed as follows:

Good wet hold properties.

Reliability up to the maximum speed of the car.

Reduced drag, or power absorption.

Reduced squeal on cornering and braking.

Comfort (reduced knobbliness).

Increased tyre mileage.

Cont'd.....

Low slip angle (the difference in angle between the direction in which the tyre is pointing and the direction in which it travels).

Reasonable but not excessive self-centring torque.

Reduced "tram-line" consciousness (this is a factor of tread stiffness).

Some of these factors necessarily go together, others are in direct conflict, hence the necessity for compromise.

2. What can be done to meet these requirements?

Although, as mentioned, tyre design and manufacture is very flexible, the means whereby significant changes in performance can be made are limited. The manufacturer can juggle with the following variables:-

a) Rubber mix.

- (i) Natural rubber.
- (ii) Synthetic rubber.
- (iii) A mixture of both.

For a great many years, the leading tyre manufacturers stuck to the opinion that for maximum tyre safety (not the same thing as car safety), natural rubber was essential. Early attempts to bond synthetic rubber to cotton were not very successful, and it was not uncommon for treads to be thrown off at high speeds. Apart from the problem of bonding synthetic rubber to the casing, temperature problems arise as synthetic rubber runs hotter than natural rubber, and this causes 'chunking' or bits of the tread coming out after prolonged high speeds. Therefore one line of development in synthetic tyres is the use of alternatives to cotton in the construction of the casing.

Synthetic rubber has the property of better grip on wet roads than natural rubber, also squeal is less on braking or cornering. These virtues have to be balanced against the greater ability of natural rubber to withstand high temperatures, and the anomaly is created that the more one develops tyres to go faster, the more difficult it becomes to go round corners.

American manufacturers have had much greater experience of synthetic tyres than British manufacturers, and some of the problems of bonding and vulcanising have been overcome, with the result that today synthetic tyres can be made which are safe up to the maximum speed of the car, subject to certain limitations in respect of continuous high speeds.

Cont'd.....

- 3 -

Synthetic rubber mixes also wear better than natural rubber, and increased tyre mileages can be expected. Power absorption is greater, and there is therefore some sacrifice in the maximum speed attainable.

b) Tread design.

It is probably true to say that every conceivable tread pattern has, at some time, been experimented with, but little more is to be gained in this direction. The tendency is towards a ribbed pattern to get the best sideways control, with a zig-zag design to improve forward traction; the zig-zag pattern is always non-linear (not repeating itself at equal intervals), so as not to provoke noise. Knife cuts diagonally in the ribbed pattern are now popular and give a worthwhile improvement in the wet hold. The tread design tends to be more a recognisable trade mark than possessing special non-skid properties, although, of course, certain designs do have virtues in this direction.

The width of the tread pattern, also the width of the side ribs and buttressing to the sidewalls, has an affect on squeal on cornering. The contour of the tread affects lightness of steering and, to a small degree, the non-skid properties. The contour, of course, changes with wear.

c) Casing design and materials.

The casing consists of four or more plies of rubberised fabric each consisting of parallel strands of material which constitute the strength of the casing. The material may be either:

- (i) Cotton
- (ii) Rayon
- (iii) Nylon

The strands of each ply are arranged at an angle to the centre line of the tyres; this is the bias angle. Each ply is laid alternately at the opposite angle. A small bias angle gives the most comfort but the maximum power absorption, a larger angle reduces drag but increases harshness. A compromise has to be effected between various requirements.

The smaller the number of plies, the greater the comfort but the less the resistance to concussion damage. Six plies are usually chosen for strength if cotton is used, but by using rayon and making adjustments to the bias angle it is possible to make a tyre with four plies having the same rating (carrying capacity) as six plies.

Cont'd.....

- 4 -

Nylon offers certain advantages, chiefly greater strength and cooler running due to reduced temperature rise under continued flexing; therefore it is attractive for use with synthetic rubber in tyres intended for very high speeds. The disadvantages are increased cost, also a tendency to form a flat at the area of contact with the ground when the car has been left with hot tyres and then cooled down. This "flattening" disappears again when the tyre is warmed up, only to form again when the car is left standing. This disease is thought not to outweigh the other advantages for very high speed tyres.

3. What should be the attitude of Sales and Service to the foregoing.

Enough has been said to make it clear that all the variables discussed are capable of being manipulated by any Tyre Manufacturer at short notice to produce totally different characteristics, and it is misleading to say that such and such a make of tyre is better than another, seeing that most of them have access to the same materials and can manipulate the design and construction easily. The make of tyre is usually an indication of quality and reliability, not performance. The latter is dependent on the interpretation of technical research and testing, and on the success of the compromise achieved for certain purposes.

The tyre manufacturers we have been closely associated with in the past stuck for a long time to 100% natural rubber tyres for reasons of reliability. The increase in speed and cornering capabilities of our cars has made it desirable to offer synthetic tread tyres to improve the wet hold characteristics at the expense of certain other features. The chief penalty is a slight sacrifice in the maximum speed attainable, and a limitation on the sustained speed over long distances. It is recommended that 95 miles per hour should not be maintained for longer periods than 10 miles.

Several different makes of tyre have been tested and approved for production cars; the choice of these for any given car may be quite arbitrary or accidental, and the Company has complete liberty of action in regard to this choice.

4. Tyres now approved.

The tyres currently approved for use on the 'S' type in the 8.20-15 size are:-

Avon Airseal Rayon Synthetic
6-ply Rating H.M. Ribbed
8.20" x 15" White or Black Sidewall.

Cont'd.....

- 5 -

Dunlop Tubeless Rayon Synthetic
4-ply Mod. AA.
8.20" x 15" White or Black Sidewall.

Firestone Tubeless P.300 ORB.
4-ply Rayon Synthetic
8.20" x 15" White or Black Sidewall.

Dunlop Fort Nylon Synthetic
4-ply Mod AA.
8.20" x 15" White or Black Sidewall.

For winter use, there are many advantages in using a tyre designed to provide adequate traction in snow or mud. It is usual to fit such tyres at the beginning of the winter, and to leave them on until the Spring, thus ensuring preparedness for a sudden fall of snow. Such tyres, usually referred to as all-weather tyres, are a compromise between a conventional tyre and an out-and-out snow tyre. They enable one to motor normally in ordinary weather, subject to a limitation of 80 m.p.h. as a sustained speed, although short bursts up to the maximum speed may be indulged in, and they provide much better traction in soft snow or mud. No rubber tyre is of very much use on ice or frozen snow.

Tyres approved for the 'S' Type are:-

Firestone 'Town and Country'
Black or White Sidewall.

Dunlop 'Weathermaster'
Black or White Sidewall

The situation regarding the Continental Bentley is a little bit different, as greater sacrifices have to be made in regard to maximum sustained speeds if one wants to take advantage of the special properties of synthetic tread tyres. The special features of the tyres originally developed for the Continental are low tractive resistance (low drag) and a high speed at which the standing wave develops. The tyres developed to meet these requirements are:-

/ India Super Speed Special 7.60-15
Tubed or Tubeless
Black or White Sidewalls

Cont'd.....

Dunlop Road Speed RS.3. 7.60-15
Tubeless
Black or White Sidewalls.

✧ Identified by letter 'N' on sidewall.

To meet the increased weight of Continentals weighing more than 37 cwts. (kerbside weight), the following tyre has been approved:-

India Super Speed Special 8.00-15.
6-ply Tubeless
Black or White Sidewalls.

In order to improve the wet hold characteristics, the following synthetic tread tyres have been developed for the Continental cars.

The India Company have developed an equivalent to the natural rubber 7.60-15 Super Speed Special Cover.

It is designated:-

✧ India Speed Special 7.60-15
Tubeless
Black Sidewall.

✧ Identified by letter 'S' on Sidewall.

This is a cotton carcass construction cover and for the reasons already explained, the maximum speed has to be restricted. A sustained figure of 105 m.p.h. must not be exceeded, although short bursts are permissible up to the maximum.

The Firestone Company have developed a synthetic treaded speed tyre with a nylon carcass in the 8.00-15 size. It is designated:-

8.00-15 Firestone Super Sports 170. ORB.
Tubeless Nylon
Black or White Sidewall.

As already explained, this cover with its nylon cord carcass has no speed restriction, although the phenomenon described as "flatting" may possibly be experienced.

It should be realised that the maximum attainable speed will be slightly less with this tyre than with its natural rubber equivalent.

This Bulletin cancels previous
Service Bulletin No. CB.106
dated 6.6.58.

FOR INFORMATION.

TYRES.

The following tubeless tyres have been approved for use
on the 'S' Type Bentley and Rolls-Royce Silver Cloud cars.

8.20-15 Dunlop 'C' (4 ply Rayon Carcass/
Synthetic Tread)

8.20-15 Dunlop Fort 'C' (4 ply Nylon Carcass/
Synthetic Tread)

These covers are available in black or white sidewall
and have in the past been identified as synthetic rubber treads by
the Dunlop Medallion being painted red. It is now considered
unnecessary to continue this special identification practice as
stocks of natural rubber tyres are now exhausted. Future
supplies from the Manufacturer will not be marked, but of course,
the tyres will be to the latest specification.

The two covers are identical in external appearance, but
the Fort 'C' Cover will now have the word 'NYLON' included in
the sidewall engraving details

The rayon cover is for use on cars domiciled in the United
Kingdom, North America, Canada and Europe.

Outside these territories, it is considered that the general
road conditions are such that a heavier duty cover is required.
For this reason the 4 ply nylon cover has been approved for use
in countries other than those detailed above.

This Bulletin cancels
CB.110 dated 16.9.58.

FOR INFORMATION.

RECOMMENDED TYRE PRESSURES.

The tyre pressures quoted below are for tyres when cold.

Recommended tyre pressures are as follows:-

Silver Cloud and Bentley 'S' Type.
with Manual Steering.

Front	19 lbs/sq.in. (1.33 Kg/sq.cm.)
Rear	26 lbs/sq.in. (1.82 Kg/sq.cm.)

With Power-assisted Steering.

Front	21 lbs/sq.in. (1.47 Kg/sq.cm.)
Rear	26 lbs/sq.in. (1.82 Kg/sq.cm.)

Silver Cloud and Bentley 'S' Type.
Long Wheelbase.

Front	22 lbs/sq.in. (1.54 Kg/sq.cm.)
Rear	28 lbs/sq.in. (1.96 Kg/sq.cm.)

Note:- It is not necessary to alter the recommended tyre pressures on cars fitted with refrigeration.

FOR INFORMATION.

TYRES.

FOR BENTLEY 'S' TYPE CONTINENTAL CARS.

The following Tubeless tyre in natural rubber with black or white sidewall, has been approved for use on Bentley 'S' Type Continental Cars.

Dunlop "Road Speed".
Size 8.00" x 15".

The tread pattern of this tyre is identical to that on the previously approved India "Super Speed Special", 8.00 x 15", in natural rubber, which was quoted in Bulletin CB.105; therefore one is an alternative to the other.

FOR INFORMATION

DUNLOP SYNTHETIC TYRES FOR
BENTLEY 'S' TYPE CONTINENTAL CARS

In conjunction with the Manufacturers we are, for the first time, in a position to approve Dunlop Synthetic rubber tyres for use on Bentley 'S' Type Continental cars. In the past, we have not been able to approve synthetic tyres without imposing a speed restriction, this being due to the fact, that the internal friction on a synthetic rubber tyre creates so much more heat than natural rubber that it is difficult to ensure an adequate adhesion of the synthetic rubber tread to a cotton or rayon carcass. Thus it has been necessary to impose speed restrictions in order to prevent the possibility of the rubber parting from the carcass.

The Dunlop tyre which has now been approved has a nylon carcass, which is a thermoplastic with which it is possible to achieve an adequate adhesion of the synthetic rubber, we are therefore able to approve the following tyre without imposing a speed restriction.

8 00 x 15 in. Dunlop 'C' Road Speed Nylon WH. 2 Synthetic Tread.

This tyre is of tubeless construction and is available with black or white sidewall

The pressures for this tyre are as follows:-

For normal speed running as in the United Kingdom

Front	.	20 lb/sq in)
Rear	.	25 lb/sq in) cold

For maximum speed running as on the Continent

Front	...	25 lb/sq in)
Rear	...	30 lb/sq in) cold

FOR INFORMATION

FIRESTONE SYNTHETIC TYRES FOR
BENTLEY 'S' TYPE CONTINENTAL CARS

The following Firestone Tyre has now been approved for use on Bentley 'S' Type Continental Cars: -

8.00 x 15 in. Firestone Sports O.R.B. Nylon Synthetic Tread.

This tyre is of tubeless construction with a Nylon Carcass, and is available with black or white sidewall.

The pressures for this tyre are as follows: -

For normal speed running as in the United Kingdom

Front	...	20 lb/sq. in.) cold
Rear	...	25 lb/sq. in.	

For maximum speed running as on the Continent

Front	...	25 lb/sq. in.) cold
Rear	...	30 lb/sq. in.	

The 8.00 x 15 in. Firestone Sports O R B. tyre now supersedes the equivalent Firestone Super Sports 170 which is no longer obtainable.

C

ALL FRANCHISE HOLDERS

CURRENTLY APPROVED TYRES

APPLICABLE TO:

All Rolls-Royce and Bentley motor cars from 1945.

INTRODUCTION:

This bulletin details currently approved tyres available for fitment to Rolls-Royce and Bentley motor cars from 1945 and supersedes all other tyre availability bulletins.

Car Type	Manufacturer	Construction	Sidewall	Size	Tyre/Marking	Note
All Rolls-Royce and Bentley motor cars from and including the following car serial numbers Silver Shadow SRC 18269 Bentley T SBH 18265 Long Wheelbase LRH 19577 Corniche Convertible DRH 18563 Corniche Saloon CRH 18564 Camargue JAH 14674	Avon	Radial-ply rayon	Black/white	HR70 HR15	HR70/HR15 Radial T or 235/70 HR15 101H	Not for use in Kuwait, South Africa, USA or Canada
	Avon	Radial-ply steel	Black/white	235/70 HR15	RR Turbosteel 70 235/70 HR15 101H	
	Dunlop	Radial-ply steel	Black/white	235/70 HR15	SP Sport Dunlop Formula 70T/L 235/70 HR15 101H	
	Dunlop	Radial-ply rayon	Black/white	HR70 HR15	SP Sport Dunlop Formula 70T/L	
	Dunlop	Radial-ply rayon (Winter) *	Black	205R15	Weathermaster SP44TT/L	
	Firestone	Radial-ply rayon	Black/white	HR70 HR15	Cavallino wide oval	Not for use in Australia, New Zealand or West Germany
	Michelin	Radial-ply steel	White	HR70 15	Wide x HR70 15	Only for use in USA and Canada
All Rolls-Royce and Bentley motor cars from and including the following car serial numbers up to the serial numbers quoted above Silver Shadow and Bentley T SRH 13485 (including SRH 13066, SRH 12853, SRX 12687 and SRH 12586) Long Wheelbase LRX 13201 (including LRH 13084) Corniche Convertible DRX 12734 Corniche Saloon CRH 12735 All cars from these car serial numbers must always be fitted with radial-ply tyre equipment.	Avon	Radial-ply rayon	Black	205VR 15	Radial T rayon	Not for use in Kuwait, South Africa, USA or Canada
	Dunlop Dunlop	Radial-ply rayon Radial-ply rayon (Winter) *	Black/white Black	205HR15 205R15	SP68 Rayon T/L Weathermaster SP44TT/L	
	Firestone	Radial-ply rayon	Black	205SR15	F100 Rayon	Not for use in Australia or New Zealand
All Rolls-Royce and Bentley motor cars prior to the following car serial numbers Silver Shadow and Bentley T SRH 13485 (except SRH 13066, SRH 12853, SRX 12687 and SRH 12586) Long Wheelbase LRX 13201 (except LRH 13084) Corniche Convertible DRX 12734 Corniche Saloon CRX 12735 (see Note 2) Rolls-Royce Phantom V and Phantom VI	Avon	Cross-ply nylon	Black	8.15 V15	R/R-B Nylon 6PR	Not for use in Kuwait, South Africa, USA or Canada
	Avon Dunlop	Radial-ply rayon Cross-ply nylon	Black Black	205VR15 8.15 H15	Radial T Rayon	
	Dunlop Dunlop	Radial-ply rayon Radial-ply rayon (Winter)*	Black/white Black	205HR15 205R15	Roadspeed RS5 Nylon 4PR T/L SP68 Rayon T/L Weathermaster SP44TT/L	Not for use in Australia or New Zealand
	Firestone	Radial-ply rayon	Black	205SR15	F100 Rayon	
	Dunlop	Cross-ply nylon	Black	8.90S15	Fort nylon 8PR WH4T/L	

ROLLS-ROYCE MOTORS LIMITED, CREWE, ENGLAND

24 1 79

SECTION

R

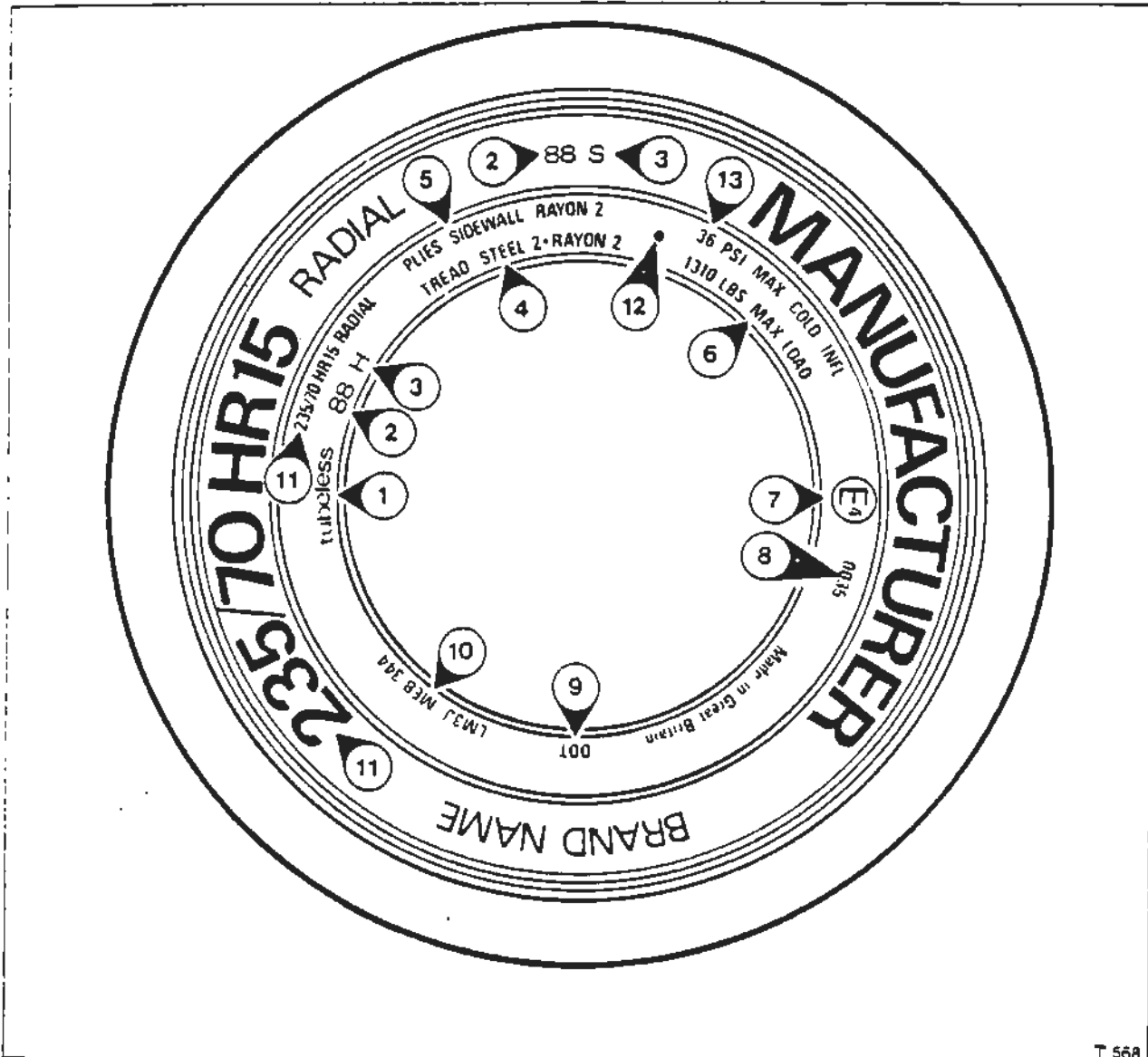
PRINTED IN ENGLAND

Car Type	Manufacturer	Construction	Sidewall	Size	Tyre/Marking	Note
Rolls-Royce Silver Cloud I, II, III and Bentley S1, S2 and S3	Avon	Cross-ply nylon	Black	8.20 V15	Avon Turbospeed R/R -B nylon 6PR T/L	Not for use in Kuwait, South Africa, USA or Canada
Standard (123" and 127" wheelbase) and HJ. Mulliner (drophead coupe (excluding Rolls-Royce coachbuilt Silver Cloud II and III and Bentley S1, S2 and S3 continental)	Dunlop	Cross-ply nylon	Black	8.20 H15	Fort 4PR WH4 T/L	
Bentley continentals S1 (December 1957 onwards) Bentley S2 and S3 continental. Rolls-Royce coachbuilt Silver Cloud II and III (excluding HJ. Mulliner drophead coupe)	Dunlop	Cross-ply nylon	Black	8 00 15	Roadspeed 6PR RS5 nylon	
Bentley S1 continental (up to December 1957)	Dunlop	Cross-ply			To be issued at a later date	
Rolls-Royce Silver Dawn Bentley MK VI Bentley R Type	Dunlop Dunlop	Cross-ply nylon Cross-ply rayon (Winter)	Black Black	6.50/6 70 16 6.50 16	Roadspeed 6PR RS5 nylon T/L RK 3A 6PR T/T	
Bentley R Type sports continental (dependant upon chassis numbers see note 3)	Dunlop Dunlop	Cross-ply nylon Cross-ply rayon (Winter)	Black Black	6.50/6 70 16 6.50 16	Roadspeed 6PR RS5 nylon T/L RK 3A 6PR T/T	
Rolls-Royce Phantom IV (see Note 4)	Dunlop	Cross-ply nylon	Black	8.00 17	Fort A 8PR Nylon B5T	
Rolls-Royce Silver Wraith (dependant upon chassis number see Note 5)	Dunlop	Cross-ply nylon	Black	6.00/6.50 17	Fort C 6PR F4T T/T	

Notes

1. Tyres marked * indicates tread pattern to accept ice studs
2. Prior to the following car serial numbers only tubed radial tyre equipment should be fitted.
Silver Shadow SRX 6752
Bentley T SBH 5572
Coachbuilt CRH 6760
Long Wheelbase LRX 6744 (except LRX 6712, LRX 6714 and LRX 6720).
3. Bentley R type sports continental motor cars. Certain cars fitted with 6 70 17 tyres.
4. 8.00 17 tyres - at least six months notice of any requirements is requested by the manufacturer.
5. 6.00/6.50 17 fitted to WTA1 to WME96.
6.00/6.50 17 or 7.50 16 fitted to WVH116.
All other series fitted with 7.50 16 Dunlop GPR Nylon T/L D2/103.

TYRE SIDEWALL MARKINGS



T 568

The above drawing identifies the codes or letters that appear on the sidewall of a tyre.

- 1 Tube or tubeless.
- 2 88 is the load indicator (as specified by the European standards) referring to the maximum load per wheel.
- 3 S refers to the speed rating. S max speed 113 mph
H max speed 130 mph V over 130 mph.
- 4 Material and number of casing and tread plies: tread two steel belts and two layers of rayon.

- 5 Sidewall plies: sidewall two layers of rayon.
- 6 1310 lbs maximum load: this is the maximum load in lbs per wheel.
- 7 This is the certificate of approval in accordance with
& Economic Commission for European Standards. The
8 figure identifies the country in which approval was given - 4 is Holland.
- 9 DOT stands for Department of Transportation (the United States Federal Transport Authority), certifying that the tyre conforms to US specifications.
- 10 Manufacturer's coding: LM is the factory, MEB is the type code, 3J is the size code and 344 is the date code.
- 11 Size designation 235 refers to the width of the tyre in millimeters. 70 refers to the tyre profile and means that the tyre side wall height is 70% of the tyre width. H is the speed rating - 130 mph. R is for radial and 15 is the rim diameter in inches. In addition the word 'Radial' follows, referring to the tyre design.
- 12 Force variation low spot (see note at the bottom of this section).
- 13 36 PSI Max cold Infl., this is the maximum inflation pressure when cold and expressed in lbs per square inch.

POINT OF FIRST HARMONIC OF RADIAL FORCE VARIATION -
SEE NO 12

AVON

Avon tyres supplied for service replacement are marked with a GREEN spot to indicate the force variation low spot. When fitting the tyre to a wheel rim the GREEN spot must be positioned adjacent to the letter 'H' stamped in the well of the wheel rim to ensure optimum harmonisation of the wheel and tyre assembly.

MICHELIN

To be fitted as above if supplied with a GREEN spot. If the tyre is supplied with a WHITE spot the tyre should be fitted to the wheel rim with the WHITE spot 180° opposite to the letter 'H' stamped in the well of the wheel rim.

DUNLOP

The radial force variation low spot colour has changed from RED to GREEN from November 1978. The same fitting procedure should be adopted as that instructed above for Avon tyres.

BODY

FOR INFORMATION.

VACUUM OPERATED WINDSCREEN WASHER.

The unit fitted to these cars has a capacity of approximately 60 ccs. of fluid for each operation.

The time taken for the expulsion of the fluid through the two jets and onto the screen is approximately 30 seconds.

It is not possible to alter this time.

Category 3A.

SUN VISORS.

Complaints of the sun visor being either too-stiff or too-loose, can be rectified by fitting a wave washer in place of the Belleville washer on the pivot pin. This modification allows the "friction loading" on the sun visor pivot to accurately set.

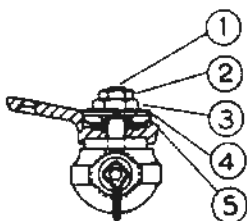
The sun visor should be removed and the pivot pin dismantled, the Belleville washer discarded, and replaced by the wave washer, and a plain washer as shown below.

The correct assembly and adjustment is most important.

Liberalily smear the pivot spindle and eyebolt with Retinax 'A' grease, also lightly smear the Ferodo friction pad with grease to prevent surface chafing, and assemble as shown.

With the sun visor bracket suitably held in a vice, hook a spring balance onto the edge of the blade, and measure the pull required for movement. The correct load on the spring balance should be $2\frac{1}{2}$ lbs. The adjusting nut should first be set so that the spring balance reads about 2 lbs., the action of tightening the locknut increases the loading.

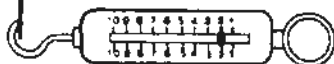
The necessary part numbers are listed below, and Retailers are requested to order these from the London Service Station as required:-



UB.1805 Wave Washer 1 off.

UB.1808 Plain Washer 1 off.

1. Pivot.
2. Locknut.
3. Adjusting Nut.
4. Plain Washer.
5. Wave Washer.



CATEGORY 3A.

DOOR SEALS FOR 'S' TYPE BENTLEY AND SILVER CLOUD.

Some instances have occurred where customers have complained of draughts coming from the joints between the rear door and fixed waist rail finishers.

These draughts are not normally noticeable but if all the windows are closed and one of the front door ventilators opened, thus causing a depression inside the body, they become objectionable.

To obviate the discomfort caused by these draughts, it has been decided, in complaint cases, to fit a rubber compression seal behind the fixed waist rail finisher as shown in Fig.1.

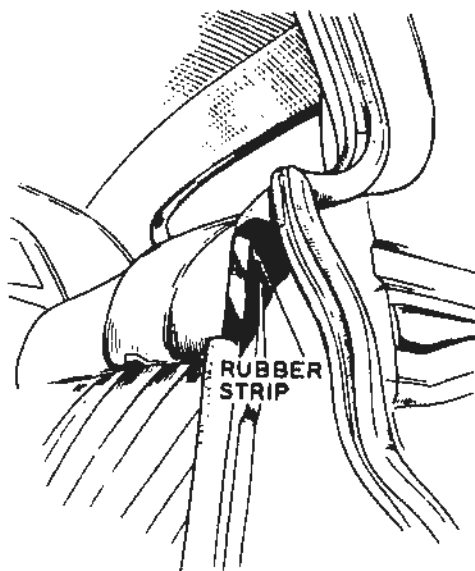


Fig.1. Rubber Seal in position.

PROCEDURE.

1. Pull back rubber door seal to expose finisher retaining screws, which can then be removed. The finisher is then only held by a spring clip.
2. Position a piece of 0.032" thick rubber (UW.1635), approximately 1" x 3" between the inner side of the waist finisher and the body pillar, so that it just seats against the waist finisher fitted to the door.
3. Mark with a pencil and apply Bostik 252 adhesive to the rubber and fixed finisher contact areas.
4. Allow Bostik to become tacky, then fit into position finally.
5. Clean off any excess Bostik.

The necessary materials can be obtained from the Rolls-Royce Service Station, Hythe Road, London, N.W.10.

<u>Part No.</u>	<u>Material.</u>
UW.1635.	7" Rubber Strip.

CATEGORY 3.

RATTLE FROM FRONT SEAT SLIDES.

A rattle from the seat runner assembly can be due either to the woodscrews and setscrews securing the seat slides to the seats becoming loose owing to shrinkage of the hardwood mounting, or, the setscrews securing the slides to the floor becoming loose due to the localised setting of the leather trim around the screw holes in the hardwood mounting blocks during service.

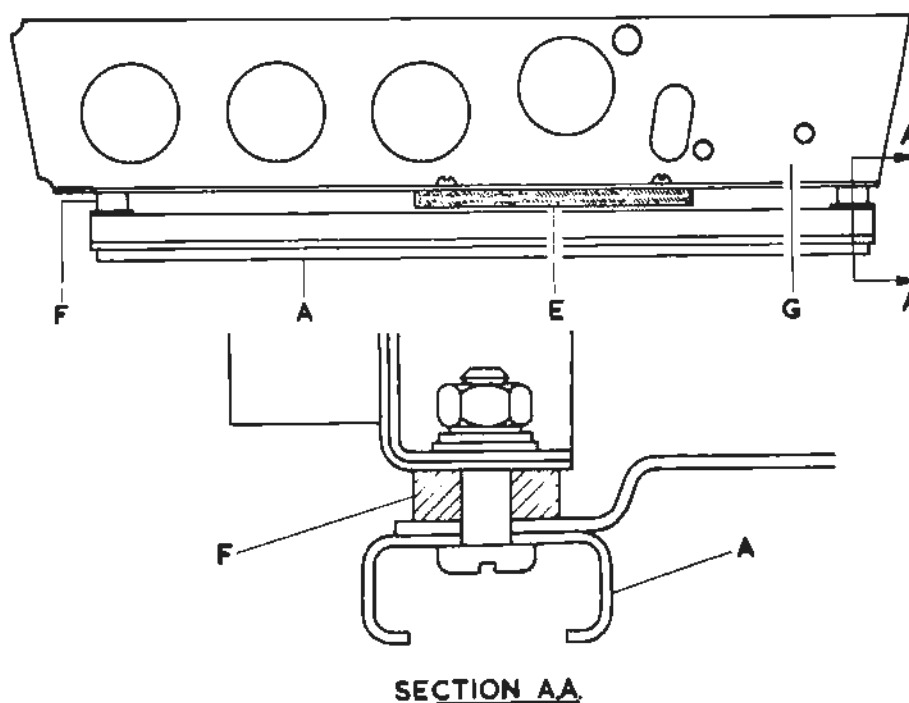


Fig.1.

- A. Seat Runner.
- E. Short Hardwood Mounting Block (UW.1634).
- F. Aluminium Distance Piece (UB.1934).
- G. Seat.

- 2 -

The former fault can be overcome by fitting a shorter hardwood mounting block in the centre (E, Fig.1), and aluminium distance pieces (F, Fig.1) at the ends of the slides between the seat slides and the seat. The latter fault is rectified by bushing the holes in the hardwood mounting blocks, so that the floor slides, when tightened down, are set on the ends of the bushes, (D, Fig.2) and not on the leather trimmed hardwood.

The seat should be demounted and the seat slides removed. Replace the existing hardwood mounting with the two aluminium distance pieces and the short hardwood block using the existing woodscrews and setscrews (Fig.1).

The floor seat slides are then removed, the holes in the existing hardwood mounting block widened out to .500" and the mild steel bushes pressed into position. The seat slides are then refitted using .250" UNF Allen screws (B, Fig.2) instead of the existing setscrews, which will provide greater security, (Fig.2).

The time allowed for this work is two hours.

Chassis Affected:

R.R.Silver Cloud - All Chassis.
Bentley "S" Type - All Chassis.

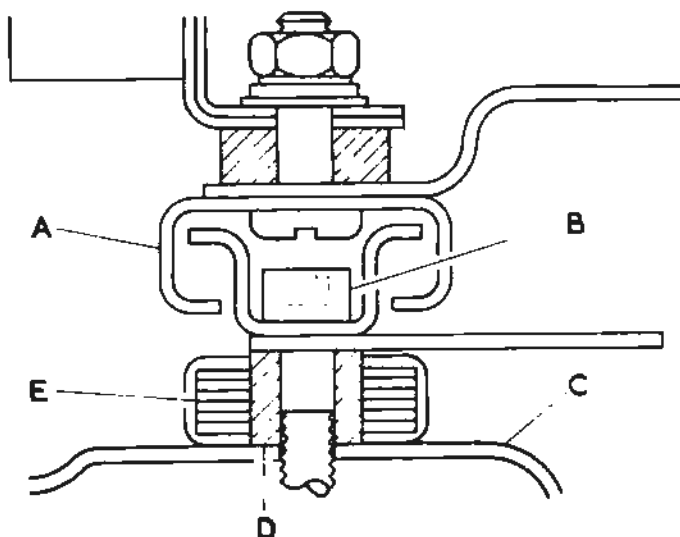


Fig.2.

- A. Seat Runner.
- B. Allen Screw (UG.1422).
- C. Car Floor.
- D. Mild Steel Bush (UB.1935).
- E. Hardwood Mounting Block.

The necessary part numbers are listed below and Retailers are requested to order from The London Service Station as required:

Seat Slides.

- Short Hardwood Mounting Block - UW.1634. 2 off.
- Aluminium Distance Pieces - UB.1934 or RF.3537. 4 off.

- 3 -

Floor Slides.

Mild Steel Bushes	-	UB.1935.	4 off.
.250" Allen Screws	-	UG.1422.	4 off.

FOR INFORMATION.

ROOF LUGGAGE RACK.

Should certain owners require even more luggage accommodation than that provided by the boot, luggage racks are available for attachment to the roof of the car.

The rack is despatched dis-assembled in components consisting of the rack itself, the mounting rails, the four rubber cushions and the four rack securing clips.

Assemble the rack by inserting the mounting rails into the front and rear tubes of the rack to the dimensions indicated, which are measured from the end of the tubes outwards to the centre line of the mounting rail at the cushion registers. When this has been done, lightly screw in the four mounting rail securing Allen screws with the key provided (Fig.1).

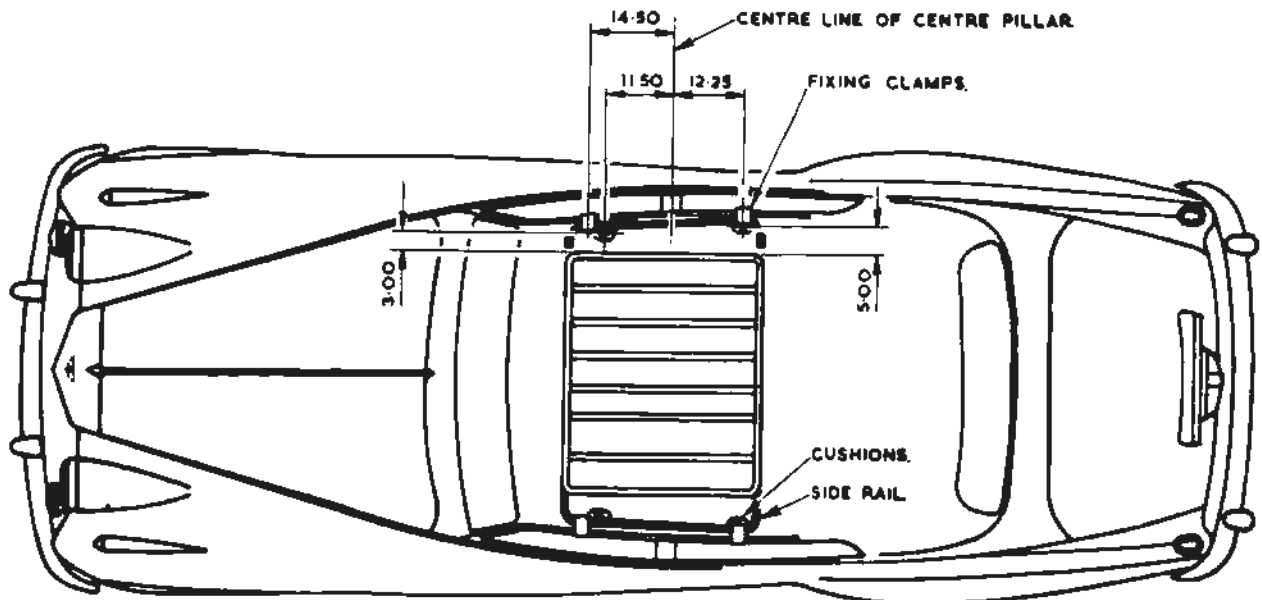


Fig.1.

Fit the assembly with the rubber cushions on the roof of the vehicle and adjust to obtain the correct position as indicated. Finally tighten the four Allen screws and attach and secure the four rack securing clips. These clips must be fitted and adjusted by moving the lower part in or out, so that

- 2 -

they do not foul the top of the doors.

If the rack is fitted properly no damage can occur to the finish of the car as the rack is entirely separated from the coachwork by rubber.

The rack is available finished in chromium plate and primer, or chromium plate and finished to match the coachwork, from Rolls-Royce Ltd., Hythe Road, Scrubs Lane, Willesden, London, N.W.10. If a matching finish is desired, delivery of the rack will be delayed a few days and it is required to be informed of the chassis number.

The price of the rack will be advised on request.

INFORMATION

YALE LOCKS FITTED TO ROLLS-ROYCE SILVER
CLOUD AND BENTLEY 'S' TYPE CARS

In the event of failure of either the Yale boot lock or the door lock, necessitating replacement, the new lock can be made to fit the original key so that an extra key with a different number is not necessary.

OPERATION OF THE YALE LOCK

The Yale lock consists simply of the body (A Fig.1), the barrel (B Fig.1), tumblers located in the barrel (E Fig.1) and plungers and springs located in the body (B and C Fig.2). The barrel is restrained from axial movement by the plungers in the annular groove (C Fig.2).

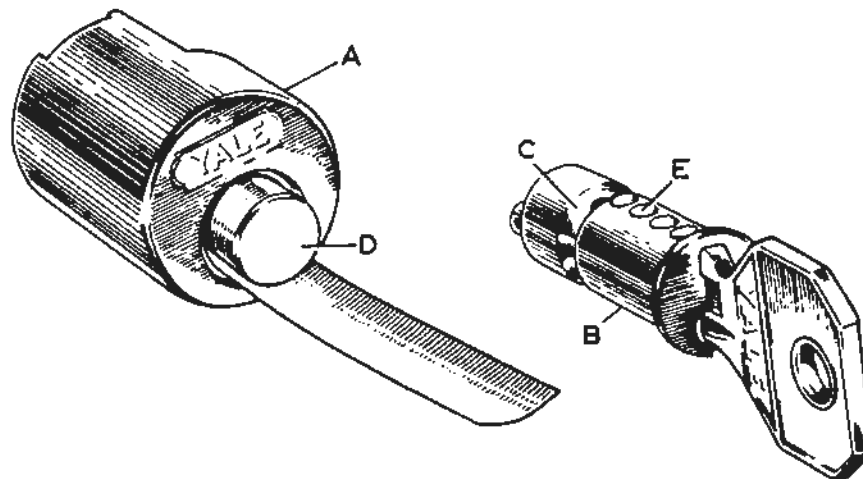


FIG. 1.

- | | |
|-------------------|--------------|
| A. Body | B. Barrel |
| C. Annular Groove | D. Metal Rod |
| E. Tumbler | |

When the key is inserted into the lock, the tumblers are pushed up so that they are flush with the circumference of the barrel, permitting the barrel to rotate and unlock the door (Fig.2). When the key is withdrawn the tumblers are forced

- 2 -

into the barrel by the plungers and springs and so prevent rotary movement. An incorrect key will not allow the tumblers to rise flush with the barrel and either the tumblers or plungers will prevent rotation of the barrel.

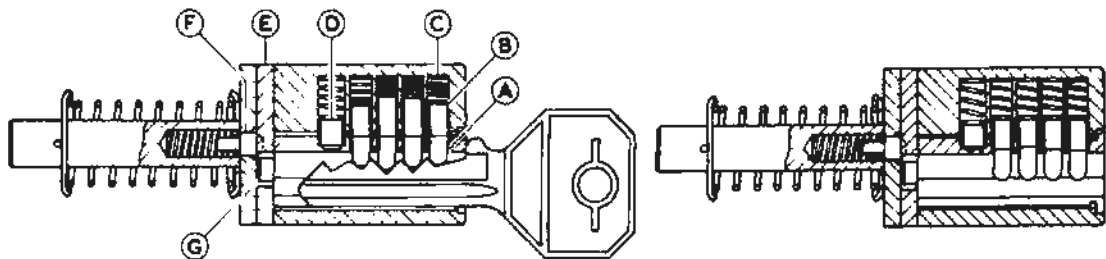


FIG. 2.

- A. Tumbler B. Plunger C. Spring
- D. Barrel Locating Plunger in Annular Groove
- E. Mortice F. Mortice Locating Plunger (See Fig.3)
- G. Mortice Operating Peg (See Fig.3)

It is possible for any lock to be made to fit any key of that type of lock, simply by fitting the original key into the barrel then inserting new and uncut tumblers into the holes in the barrel and filing them flush (Fig.1). Plungers are then made to correspond with the tumblers so that the combined length of the tumbler and corresponding plunger does not exceed $\frac{3}{8}$ ". The lock is re-assembled and will then operate with the original key.

DIS-ASSEMBLY

Dismantle the lock until it is in the state as shown in one of the illustrations in Fig.3 taking care to note the order of dis-assembly. Note that locks (ii and iii) are boot locks and lock (i) is a door lock. Obtain a 2" length of metal rod $\frac{23}{64}$ " in diameter, (D Fig.1) a .0015" feeler gauge and a length of stiff wire.

Insert the wire through the hole in the lock body (A iii Fig.3) and push against the plunger which retains the barrel in the lock, slip the feeler between the barrel and the body, easing it between the plunger and the groove: this will enable the barrel to move lengthwise. Insert the key and push

- 3 -

the feeler gauge the full length of the barrel to prevent the plungers from entering the barrel retaining groove, and withdraw the barrel complete with tumblers from the body.

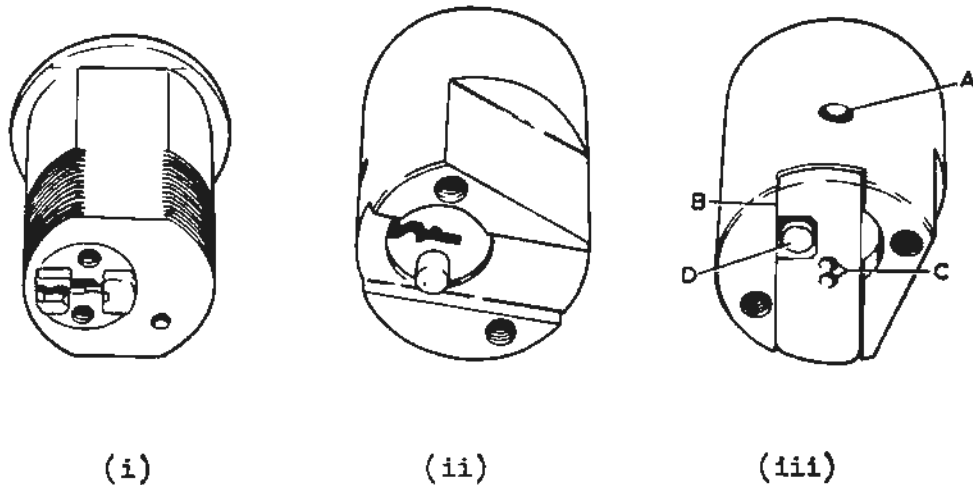


FIG. 3.

- A. Hole for Wire
- B. Mortice (Slides to engage and lock the door or boot)
- C. Indentations (See Fig.2)
- D. Mortice Operating Peg

The drivers lock is dismantled in a slightly different manner. Remove the spring clip and integral peg which retains the barrel axially in the lock body, insert the key and rotate the barrel through exactly 90° and pull. The barrel will then withdraw.

MODIFICATION TO THE LOCK

Discard the existing tumblers and plungers and fit the key from the original lock into the barrel. Place four new uncut tumblers into the holes in the barrel and file them until they are flush with the circumference. Remove them from the barrel, carefully noting their position and cut new plungers to match so that the total length of tumbler and plunger does not exceed 3/8". The new plungers must always go with their matched tumblers.

- 4 -

ASSEMBLY

Fit the key into the barrel and place the tumblers in position ensuring that they are all flush with the circumference. Try the barrel in the body for full and free rotation.

Boot Lock

Withdraw the barrel and fit the springs and plungers in the body. This is best done by arranging the body with the nameplate YALE uppermost, inserting the rod from below, placing the spring and correct plunger in position in the relevant hole and sliding the rod up to prevent them from coming out again until all the springs and plungers are in position. The .0015" feeler gauge is then inserted between the barrel and the body adjacent to the plungers. Gently push the rod out of the lock body with the barrel complete with key and tumblers, making certain that the feeler gauge is not pushed out at the same time, otherwise the plungers will fall into the annular groove which takes the barrel retaining plunger. When the barrel is finally in position, remove the feeler gauge and refit the remaining components of the lock ensuring that the mortice is fitted with the two indentations facing away from the lock.

Door Lock

The door lock on re-assembly does not require the feeler gauge, as the barrel can be inserted, but rotated so that the tumblers are at 90° to the plungers and then pushing the rod out. Note that the stiffer spring and spigotted plungers go the rearmost position and do not register with a tumbler in the barrel. The barrel is retained in the body by the large spring clip with integral peg.

NOTE: The plungers and tumblers should be made from 0.100" dia brass rod. Note that one end of the tumblers is rounded allowing the key to slide easily into the lock (A Fig.1).

FOR INFORMATION.

METHOD OF MOUNTING THE COACHWORK OF
STANDARD ROLLS ROYCE SILVER CLOUD
AND BENTLEY 'S' TYPE CARS

The coachwork of Rolls-Royce and Bentley cars is fitted to the chassis on sixteen rubber mountings with no metal contact between body and frame in order to ensure the minimum transference of sound and vibration from the chassis.

To provide satisfactory results, each rubber mounting must carry its designed proportion of body weight, and not be either under, or overloaded. An overloaded body mounting will behave similarly to a metal to metal contact depending on the degree of overloading, and an underloaded body mounting places extra load on the remaining mountings. Body noises will therefore be greatly amplified in the event of incorrect mounting.

Special mounting procedure and equipment are necessary to enable each mounting to take its correct share of the total load. The main body mounting (No.1) which fixes the datum of the body, is situated immediately below the scuttle (Fig.1).

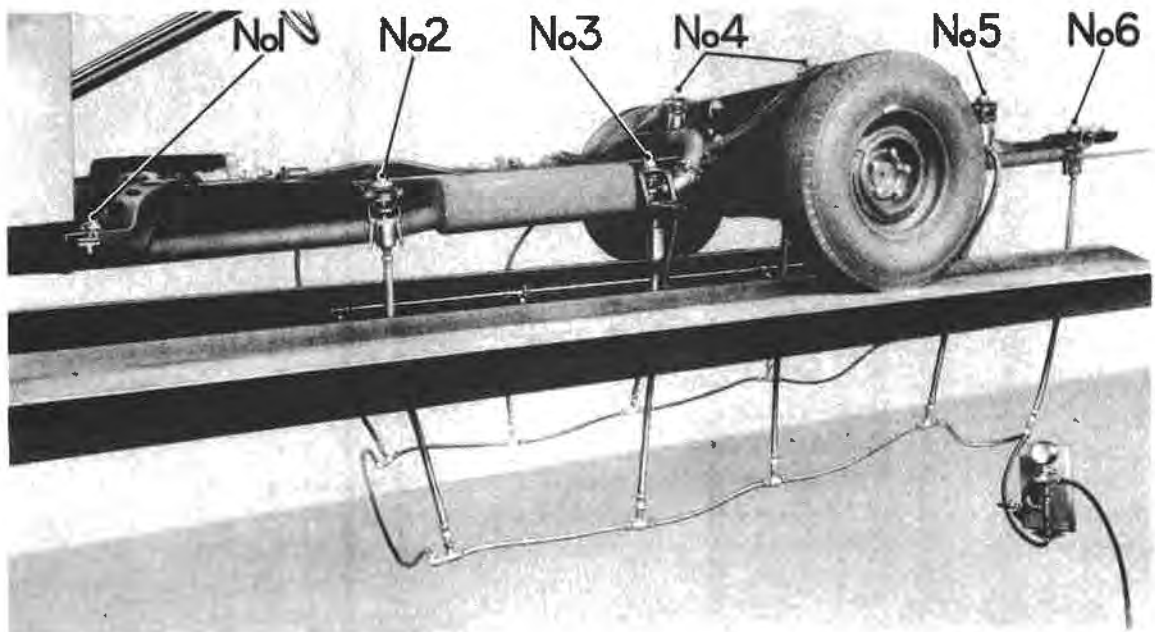


FIG. 1.

- 2 -

The remaining side mountings Nos.2, 3, 4, 5 and 6 (Fig.1 and 7) are fitted in cradles which are capable of vertical movement in the chassis brackets. The vertical movement is permitted by slotted holes in the chassis brackets which allow the body mounting cradles to assume the correct position before being secured in position (C Fig.2).

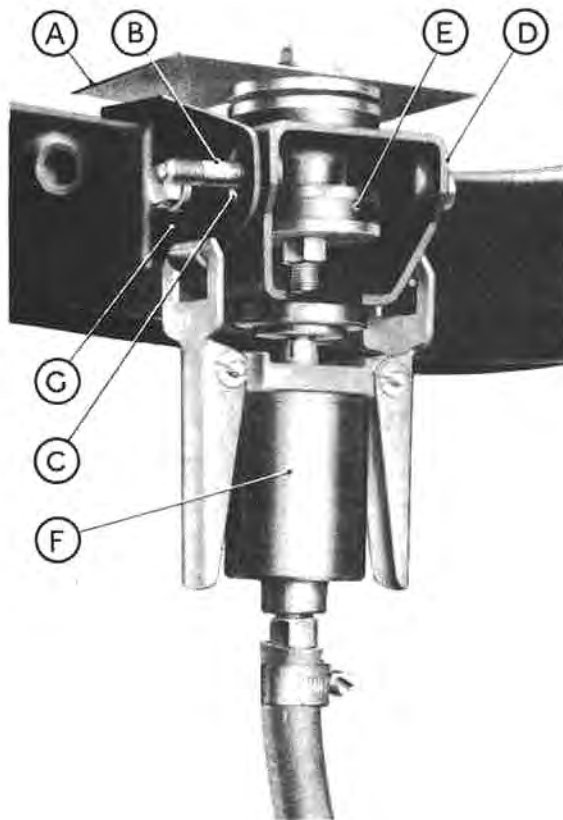


FIG. 2.
A. Body Floor
B. Indicator Stud
C. Elongated Slot
D. Cradle
E. Body Mounting Rubber
F. Pneumatic Ram
G. Frame mounting

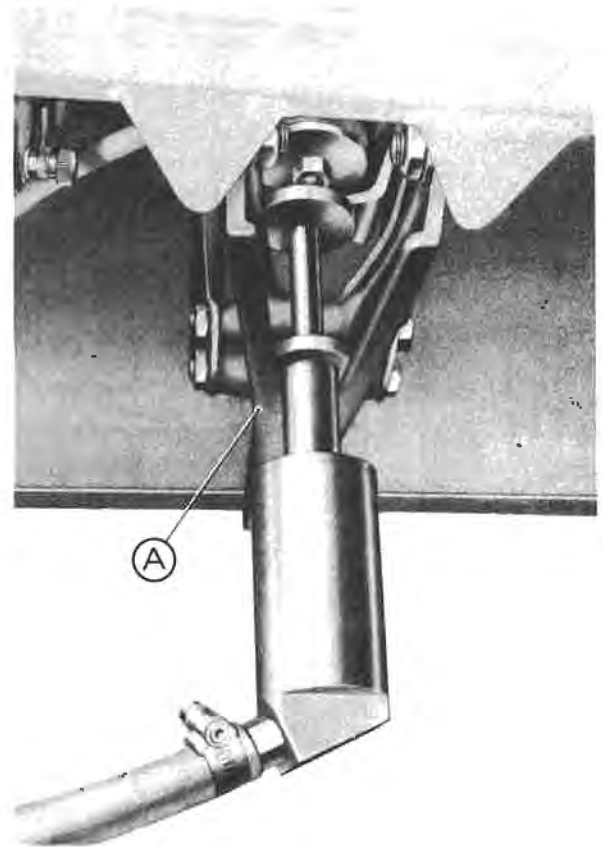


FIG. 3.
A. Jacking Slide

A centre mounting forward of the front pan carries the radiator, wings, valances, etc., and articulation at the scuttle is provided by slotted holes at the valance securing bolts for adjustment purposes whilst mounting the body.

- 3 -

The procedure for mounting consists of making the body free to pivot up and down about No.1 mounting, and attaching pneumatic rams to Nos.2, 3, 4, 5 and 6 mountings, (Figs.1, 2, and 3). The pneumatic rams are connected in series to a compressed air supply and therefore an equal load is placed on each body mounting enabling it to assume its correct position within the vertical limits of the slots in the chassis brackets. The mountings are locked in position with four setscrews each, the rams removed, and the body mounting centre bolts tightened with the lower rubbers on Nos.1, 2 and 4 mountings given the correct vertical clearance (Fig.4). The three centre body mountings (A and B Fig.7), are then fitted with the requisite number of packing washers in a

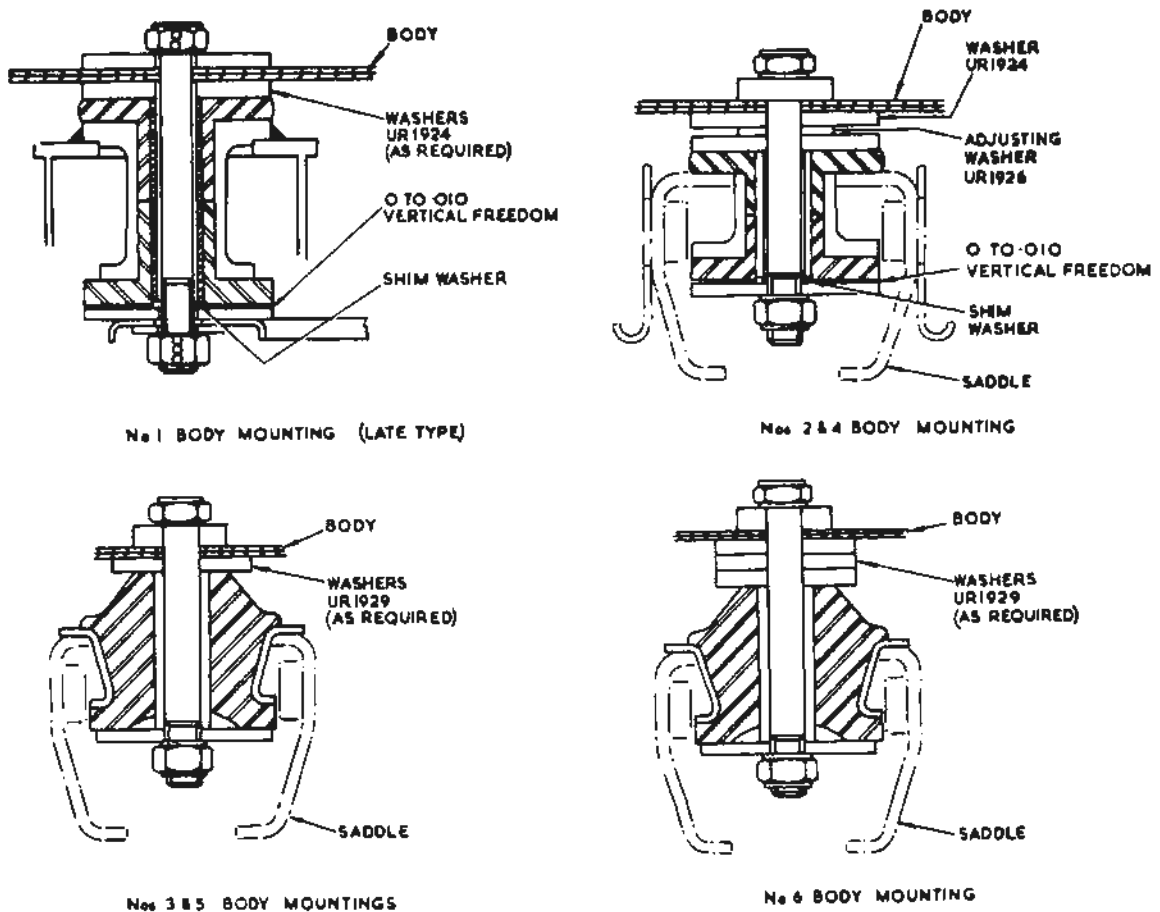


FIG. 4.

similar fashion to Nos.3, 5 and 6 body mountings, to leave the mountings unloaded. The centre bolts are then finally tightened leaving the body correctly mounted.

- 4 -

Previously, where doors have fitted poorly, adjustment to the body mounting beneath the door pillar has been the standard method of rectifying the fault; however, after the body mounting procedure detailed herein has been completed, the body mountings must not be disturbed in any way without the body being re-mounted again.

Retailers requiring to use this special equipment should refer to the London Service Depot.

PROCEDURE

Attach mounting assemblies to the frame ensuring the cradles are completely free to move within the chassis brackets. Use only three setscrews in each case, inserting a short stud in place of the fourth setscrew to serve as a float indicator (B Fig.2). Great care must be taken to ensure that no lubricant of any description comes in contact with the rubbers at any time.

Lower the body on to the frame. Ensure that the body is sufficiently central to allow the pedal gap plate to be moved until it is central with the steering column.

For untrimmed bodies, load the body with ballast to simulate its final unladen weight.

Example: For the standard saloon completely without trim, the weights required total 672 lbs. distributed as follows :-

- 2 - 56 lbs. weights on front floor as near as possible to the toeboard.
- 4 - 56 lbs. weights in a line between the two B & C posts.
- 4 - 56 lbs. weights on the rear seat pan lining its front edge.
- 2 - 56 lbs. weights on the boot floor, immediately forward of the battery and tool tray aperture.

NOTE: Bodies which are trimmed do not require ballast but if the car is complete and re-mounting is necessary, the body must be disconnected from the bonnet, front wings and valances of the car, by loosening the bolts securing it at the scuttle, disconnecting the steering column from the body and chassis frame, and removing the setscrews which retain the wings to the body at the front door post, requiring the front doors to be removed. This will allow the body to be raised, pivoted freely about No.1 mounting and not restrained by those components mounted to the front. The bonnet panels may require re-fitting by hand after the body mounting procedure has been completed.

- 5 -

Fit, but do not fasten the No.1 mounting centre bolts, inserting adjusting washers UR.1924 or RH.492 where necessary on later type No.1 mountings, and UR.1926 on earlier No.1 type mountings (Fig.5), to give approximately $\frac{3}{8}$ " clearance between the brackets on body and frame. If the body to frame clearance is greater on one side than the other, initial correction should be made at No.1 mounting.

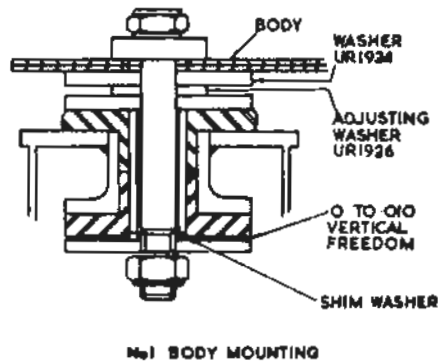


FIG. 5.

NOTE: It is not necessary to deflate all rams should attention to one body mounting only be necessary, as there are individual air valves in each air line to the rams, neither is it necessary to alter the controls after such an operation to compensate for loss of pressure, because the pressure regulator valve (B) which controls the pressure in the system makes up air losses automatically.

Position the pneumatic rams under their respective mountings, and with the air pressure at 80 lbs/sq.in. inflate and deflate the rams about three or four times and observe whether the body rises freely in the mounting brackets. Greater movement will be noted at the rear than the front. Set air pressure at 80 lbs.

Use of the Ram Pressure Control Unit (Fig.6)

With the rams in position, turn tap (C) to the "On" position (vertical) and adjust air pressure with the pressure regulator (B) to the required value (80 lbs/sq.in). To deflate system turn tap C off (horizontal) and bleed air from the rams by depressing the button D. Turning tap C on again will inflate the rams once more.

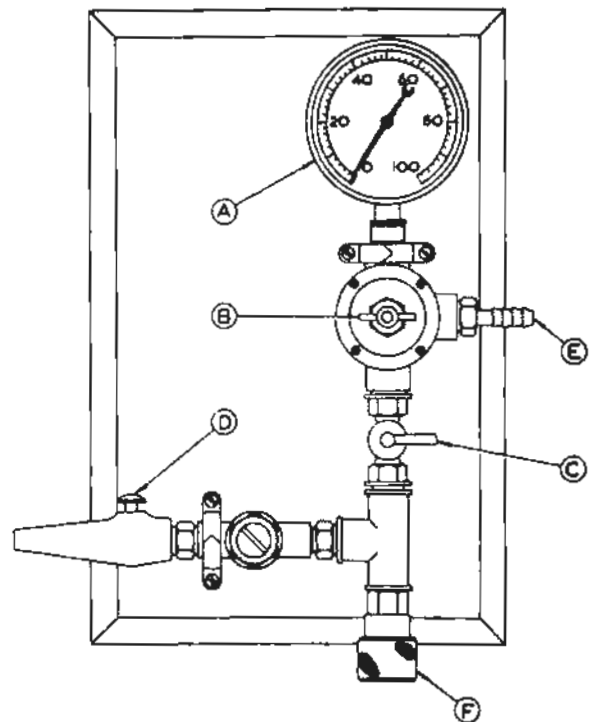


FIG.6.

- | | |
|--------------------|-----------------------|
| A. Pressure Gauge | B. Pressure Regulator |
| C. On/Off Tap | D. Air Release Button |
| E. From Air Supply | F. To Pneumatic Rams |

- 6 -

All adjustable mounting assemblies must be without vertical restraint from either the top or bottom of their adjustment slots. The stud acting as the "float" indicator must be approximately in the middle of the slot, which makes certain that the body mounting is not being restrained by the limits of the slot (Fig.2), but if restraint is evident, and the indicator stud bears at the top of the slot, adjusting washers are required between the mounting and the body, if the indicator stud bears at the bottom, fewer washers are required between the mounting and the body (Fig.4). If all washers are removed and the indicator stud still bears on the bottom of the slot, all other body mountings require washers fitted to them to increase the body to frame clearance, Check that body-to-chassis clearance generally is not less than $\frac{3}{8}$ " especially over the gearbox bell housing.

With the air pressure steady at 80 lbs/sq.in. tighten the three setscrews on each assembly then replace the stud with a setscrew and tighten.

Release the air pressure and remove the rams.

Tighten the centre bolts of all mountings and ensure by means of shim washers, (UR.2864-70) that the lower rubbers of Nos.1, 2 and 4 mountings have a vertical freedom of 0.000" to 0.010" as illustrated (Fig.4).

The early short No.1 mounting is shown in Fig.5 and the later type is shown in Fig.4.

Fasten the centre bolts on the three floor mountings (A and B Fig.7) fitting the requisite packing washers, where illustrated (Fig.4) to leave the mountings unloaded.

Remove ballast weights where applicable. The body is now mounted.

NOTE: Should damage, which is not sufficiently great to necessitate removal of the body, occur as a result of an accident, the body mounting brackets on the chassis and the body should be corrected to the dimensions as shown in Fig.7 and the body re-mounted as described in the foregoing.

- 7 -

No. CB-47.

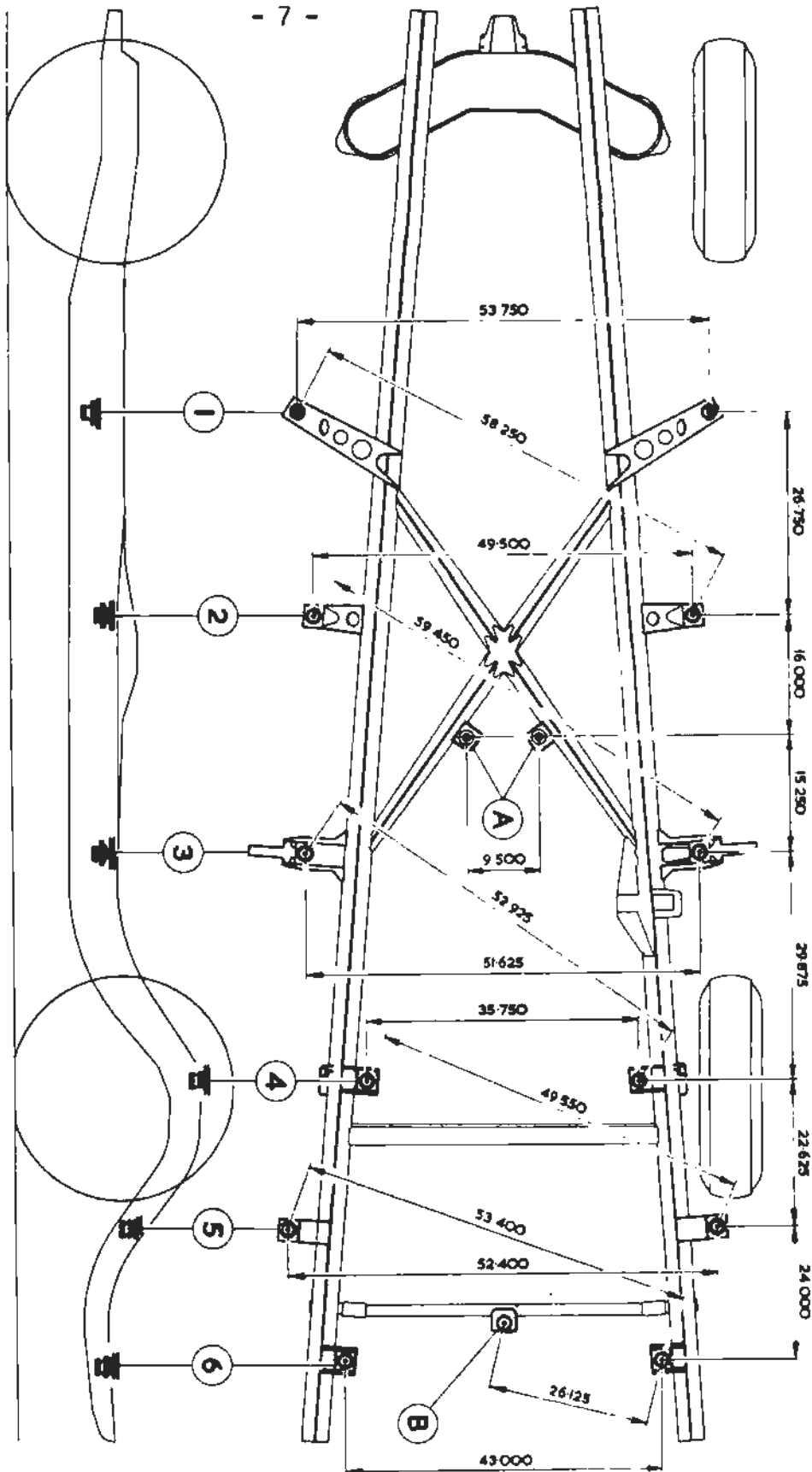


FIG. 7.

CATEGORY 3A

FRONT DOOR WINDOW CHANNELS

On production, the rigidity of the front lower glass channel brackets, has been increased to reduce flexing of the brackets, with consequent danger of fatigue and fracture, following extensive window winder operation.

The later type brackets are of channel section, provided with elongated holes to assist in lining up the assembly with the window frame. These brackets are easily identified by a Black Enamel finish. (Previously Zinc Coated).

In complaints, or, whenever channels are removed, the brackets should be inspected for distortion or fracture, and renewed if necessary.

In the event of new channel assemblies not being easily available, Retailers may manufacture new brackets in accordance with the following illustrations and dimensions.

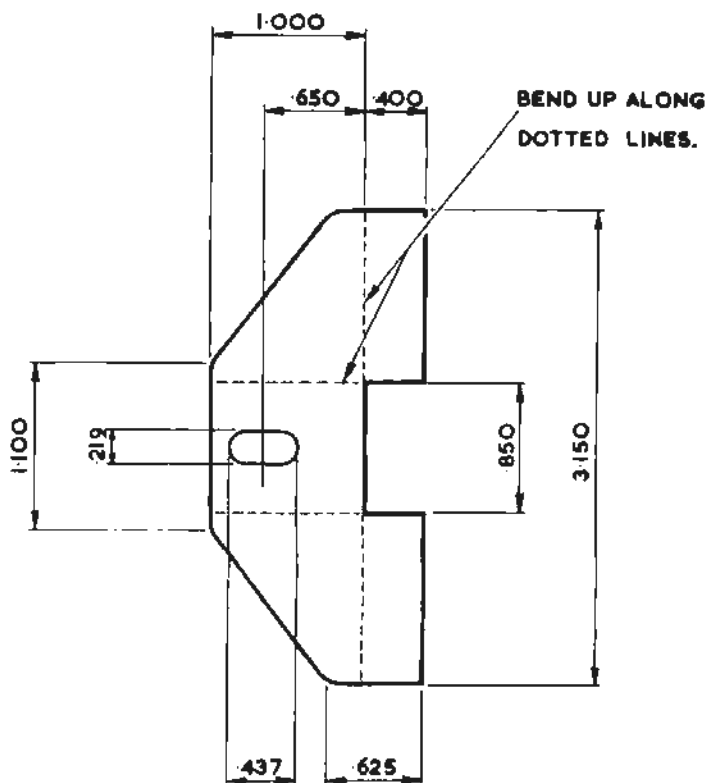


FIG. 1.

- 2 -

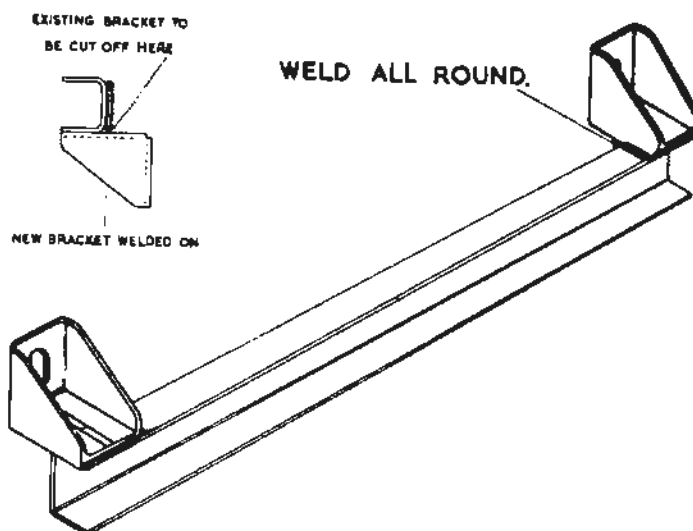


FIG. 2.

PROCEDURE

- (a) Cut off existing bracket as shown in the inset.
- (b) Make up new brackets as detailed in Fig.1 using 18 gauge sheet steel, and bend as indicated.
- (c) Position on channel and weld all round as shown in Fig.2.
- (d) Clean up assembly and paint with a high quality Black Enamel.

Time allowance for changing Channel Assembly - 1½ hours.

Time allowance for making up and welding brackets - 1½ hours..

MATERIAL

Front lower glass		
Channel Assembly	UB.2074	1 off.

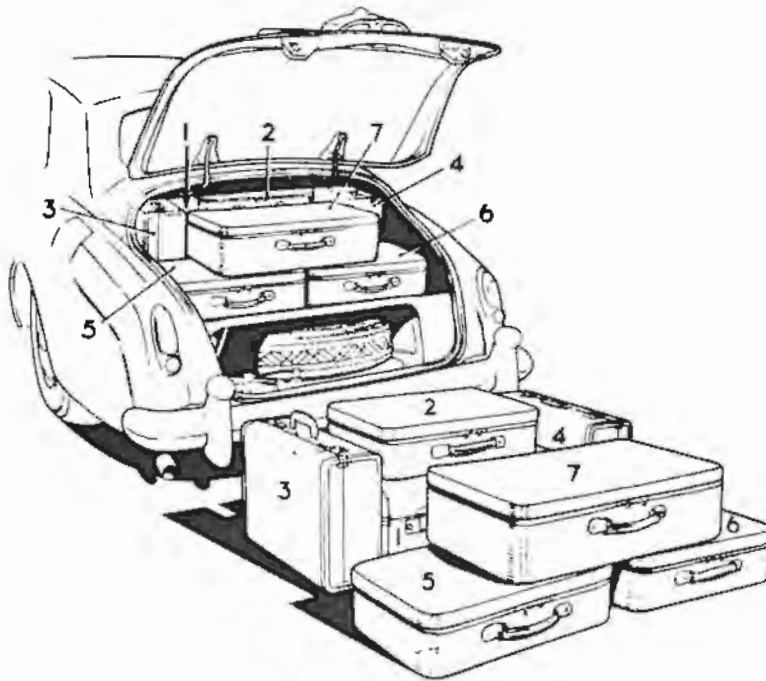
APPLICABLE TO:

Rolls-Royce Silver Cloud
Bentley 'S' Type.

FOR INFORMATION.

FITTED SUITCASES.

Instances have occurred of owners experiencing difficulty in stowing the set of seven special suitcases which are available for the standard saloon.



Suitcase Details.

<u>Hard Type.</u>	1	28" x 19½" x 9½".
	3 & 4	20" x 15" x 7".
<u>Soft Type.</u>	2, 5 & 6	22" x 14" x 6½".
	7	28" x 15½" x 8".

The cases are designed to be stowed in the manner illustrated above.

FOR INFORMATION.

ROOF RACKS.

The paintwork on both new and re-sprayed cars requires several weeks to properly harden under normal atmospheric conditions. For this reason it can be extremely detrimental to fit a roof rack onto new paint. The rubber mounting pads will invariably seal off a small section of paint from the air and consequently prevent the normal hardening reaction.

If a roof rack has to be fitted, all possible precautions should be taken to protect the paint. Both the surface of the mounting pads and the area on which each pad will rest should be liberally dusted with French chalk or smeared with a layer of "Rubberlude C.S. 2298" before being brought into contact with each other. This will prevent the pads adhering to the roof, so avoiding the possibility of lifting the paint when removing the rack.

Before fitting a roof rack, clean and polish all paint surfaces that come into contact with the rack; liberally coat with either of the two protective agents mentioned above and secure the rack in position.

It should be remembered to re-check the tightness of the clamping bolts after the luggage has been placed in position, for the additional weight may compress the mounting pads and so partially release the tension of the bolts.

FOR INFORMATION.FITTING WINDSCREEN GLASS.

"Bentley 'S' type Continental Saloon" and
4-door "Flying Spur" saloon with Coachwork
by H.J. Mulliner Ltd.

Preparation.

In order to facilitate removal of the old windscreen, it will be necessary to obtain access to the rubber lip which retains the windscreen in the body. Therefore to remove the instrument board, which is integral with the polished panel at the bottom of the screen, carry out the following procedure.

Cover the bonnet near the windscreen, with thick felt to protect the paintwork.

Remove the radio speaker grille from below the instrument board by removing one screw from each side close to the front of the picnic table, and two screws between the table slides at the front; these are accessible when the table is drawn out to its fullest extent.

The wood filling in the panels on each side and below the instrument board, can be removed by unscrewing the two screws at the bottom of each panel.

Disconnect the cables from the map lamp.

Remove the following control knobs from the instrument board, the one above the flashing indicator switch and the one immediately above the cigar lighter; these are the screw-on type. To remove the third knob, also above the cigar lighter, pull out the knob to reveal a retaining clip, then push in the clip and withdraw the knob.

Remove the operating lever from the flashing indicator switch.

To remove the polished face piece over the radio controls, withdraw the radio control knobs and unscrew the nuts then visible.

Remove the cubby hole box which is held in position by four screws at the top front on the inside and four screws below on the outside; unscrew these screws. In order to facilitate removal of the screws at the top, it may be necessary to remove the cubby hole door; to do this remove the screws securing the hinge fittings.

Cont'd.....

- 2 -

When disconnected, push the cubby hole box back a short way, this will reveal two M.T. screws which secure the grab handle at the top; remove these screws and withdraw the handle from the instrument board.

To free the instrument board, remove the three screws now visible along the top front face and the two screws which are visible through the two holes, one under each end of the board.

Whilst lifting the board, ease it very slightly towards the rear of the car, draw out the end on the opposite side to the steering wheel and at the same time tilt the top of the board towards the rear of the car; then carefully withdraw the board clear of the instruments and steering column.

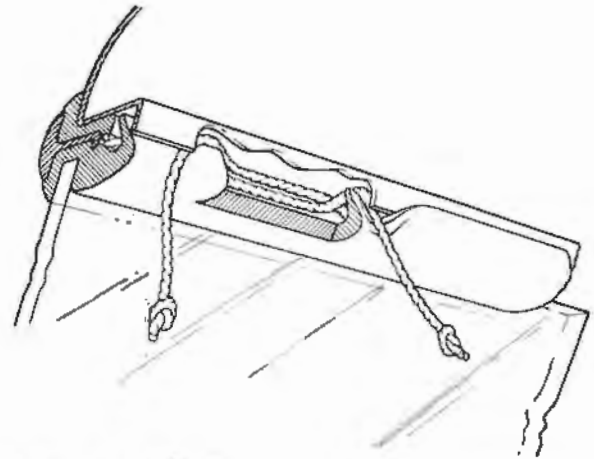


Fig. 1. Method of attaching cord for drawing seal over angle.

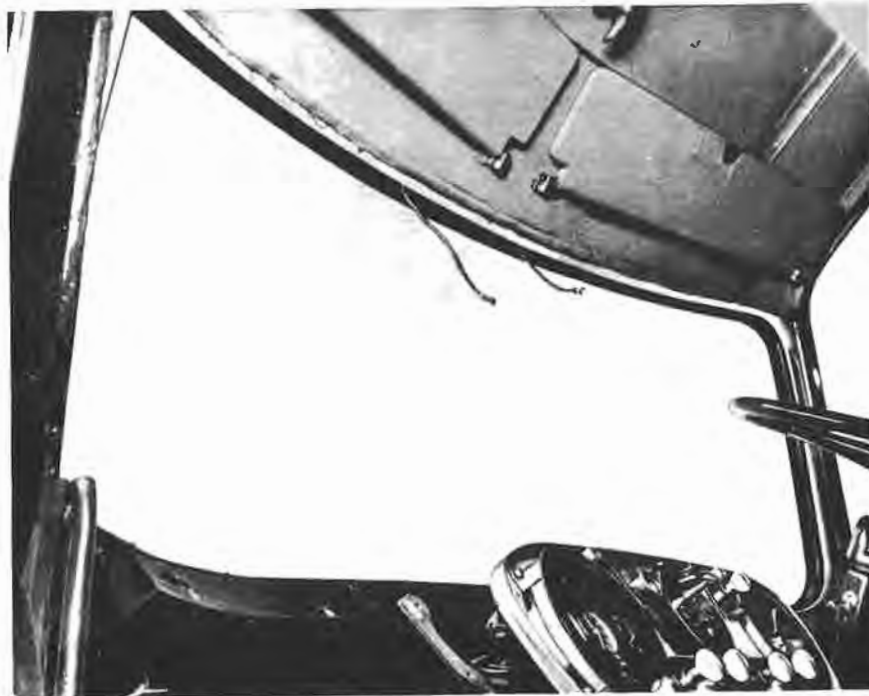


Fig. 2. View of windscreen showing cord in position in preparation for drawing seal over angle.

Cont'd.....

- 3 -

Remove the interior driving mirror.

Unscrew the three screws securing each metal fillet at the top of the windscreen and remove the fillets.

Remove the polished wood fillets from the backs of the windscreen pillars and below the cantrails in both door openings.

Detach the trimmed piping from the insides of the wood fillets; the piping is secured with Bostik adhesive.

When the wood fillets are removed, five 4 B.A. screws are revealed, these secure the metal finishers on each side of the windscreen. Unscrew these screws and remove the metal finishers.

To Remove the Windscreen.

The rubber lip on the inside of the windscreen sealing rubber must be lifted over the retaining angle in the screen opening by means of a thin screwdriver or similar tool.

Commence this operation at the two top corners of the windscreen, at the same time the glass should be firmly pressed outwards from the body.



Fig. 3. View of windscreen showing process of drawing seal over retaining angle.

Cont'd.....

- 4 -

When the rubber lip commences to separate from the angle, the windscreen glass should be supported whilst the rubber lip is manipulated to clear the remainder of the windscreen opening. At this stage the glass and rubber seal can be removed from the body.

To remove the rubber seal from the glass, ease the chromium plated finisher from the front face, then the rubber seal can be easily separated from the glass.

To Fit a new Windscreen.

Remove all traces of sealing compound from around the windscreen aperture.

Examine the rubber seal and if in a serviceable condition it can be used with the new screen, if not, a new seal should be fitted.

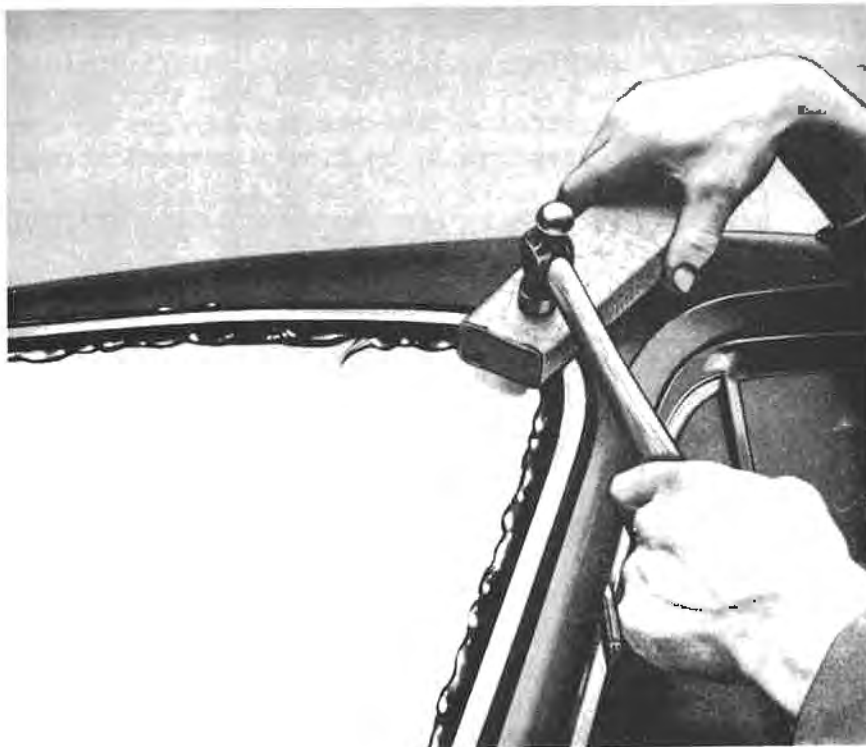


Fig. 4. Chrome finisher being adjusted after Secomastic has been applied.

Cont'd.....

- 5 -

Fit the rubber seal to the new windscreen glass and apply Secomastic to the front face only, between the glass and the rubber. Fit the chromium plated finisher to the rubber.

Fit a length of cord around the inside lip of the rubber seal, leaving the two ends free at the top centre of the windscreen (see Figs. 1 and 2).

Centralise the windscreen complete with rubber seal and chromium plated finisher in the body opening, then lightly press the screen on to retaining angle.

Working from inside the saloon, carefully pull one end of the cord at an angle to the screen so that the lip of the rubber seal is drawn over the retaining angle (see Fig. 3).

Continue this operation around the screen to the bottom corner, then repeat the procedure for the opposite side of the screen. Pull both ends of the cord together to guide the rubber lip over the angle at the bottom of the screen.

Ease up the outside lip on the rubber seal and apply Secomastic between the body panel and the seal; this is necessary only on the top and sides of the windscreen.

Refit all parts, reversing the procedure given for removal.

Should it be necessary to adjust the chromium plated finisher in the rubber seal, tap it in position using a leather faced block (see Fig. 4). Any small gap between the ends of the chromium plated finisher normally closes after approximately 24 hours, when the stretch of the rubber seal adapts itself to the screen opening.

All surplus Secomastic should then be trimmed and washed off with paraffin.

FOR INFORMATION.

AIR OUTLETS FROM SALOON.

The efficiency of any heating or ventilation system with an external air intake, is partly dependent upon the volume of fresh air which can be induced into the car, but it is fundamental that fresh air cannot be taken in unless an equal volume can escape either through apertures provided or from normal leakage round door seals, etc.

Normally, in spite of careful attention to dust sealing and draught exclusion, there is sufficient leakage area outwards to permit an adequate volume of air to come in through the air intakes. Nevertheless, the occasion can arise where sealing is so effective that the volume of incoming fresh air is reduced



Fig.1. View showing slot and baffle plate in position.

and the heating and ventilation system is impaired.

In such cases additional outlet apertures have to be provided. This bulletin describes how the outlet area can be increased by cutting slots in the body beneath the rear bumper of a Standard Steel Saloon. The path of air escaping from the body to the slots is sufficiently tortuous to rule out the possibility of dust entry back into the body.

Before undertaking this modification, ensure that the heater system appears to be functioning normally and that the reduced efficiency is not due to defective electric blowers, choked air intake, or water and air valves not operating.

Cont'd.....

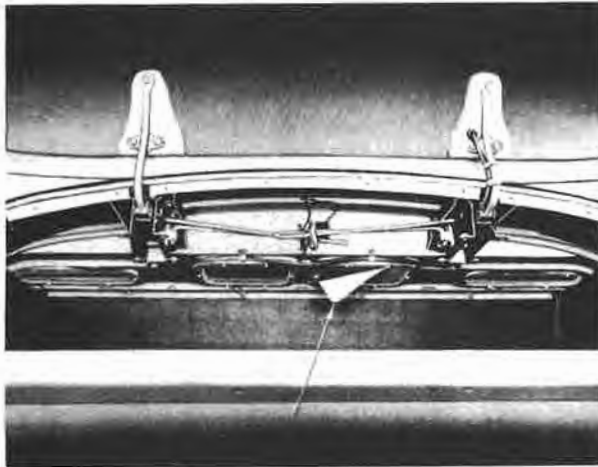


Fig.2. View showing boot upper "trim" removed and leather baffle partly cut away.

- 2 -

PROCEDURE.

Using a tank cutting tool, cut two holes 1 in. diameter and 1 in. apart in each end of the lower sill; (see Fig.1) each inner hole should be approximately 11.500 in. from the centre line of the car.

Note:- In order to prevent the cutting tool from penetrating the inner skin of the boot, it is advisable to fit washers between the cutting edge and the chuck to serve as a depth guide.

Cut away the metal between each pair of holes in order to obtain two slots 3 in. x 1 in. (see Fig.1).

A baffle plate for each slot should be cut from 8 or 10 gauge sheet aluminium and bent as shown in Figure 3.

Fit the baffle plates to the sill as shown in Figure 1, then drill two $\frac{1}{8}$ in. holes through the sill and each baffle plate and secure the plates by means of P.K. screws (see Fig.1).

Remove the screws securing the boot upper "trim" and if necessary, remove a sufficient number of screws from the side "trim" to enable the

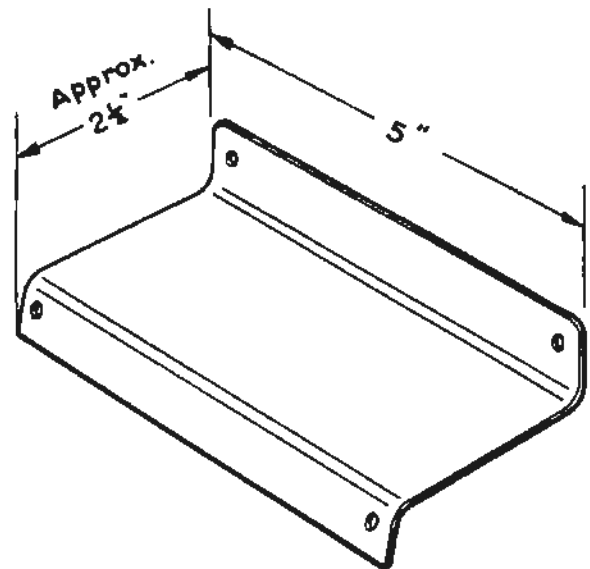


Fig.3. Method of bending baffle plates before fitting to the sill.

upper "trim" to be withdrawn.

Cut out the four leather baffles from beneath the parcel shelf, as shown in Figure 2, then refit the upper "trim".

ELECTRICALLY OPERATED WINDOWS.

The electrically operated windows, introduced on Rolls-Royce and Bentley cars, enable the windows to be raised or lowered, by both the passengers and the driver, with the minimum amount of effort.

This new feature is offered as an optional extra and can be installed if specified when ordering, but it cannot be fitted retrospectively.

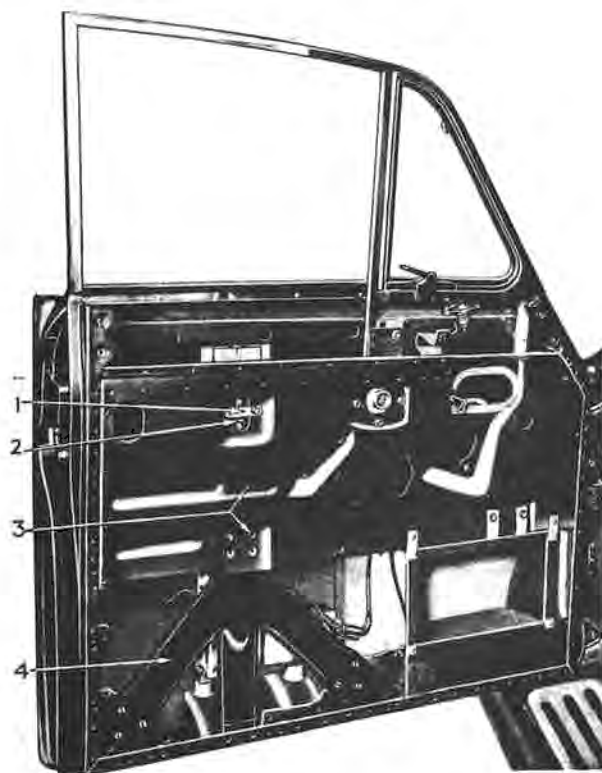


Fig. 1. Left-hand front door with "trim" removed.

1. Mechanism stop.
2. Mechanism stop tongue.
3. Screw holes for arm rest slide.
4. Door brace.

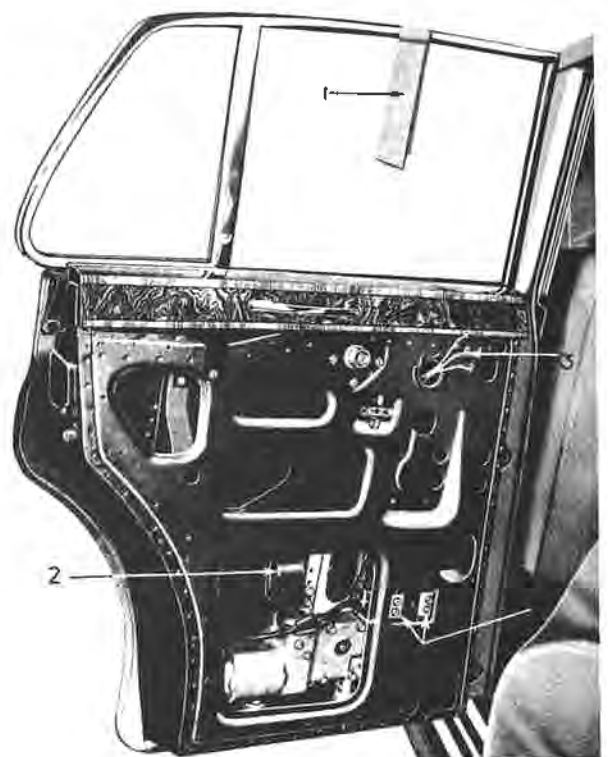


Fig. 2. Left-hand rear door with "trim" removed.

1. Masking tape for securing window.
2. Lower buffer stop.
3. Cables for switch.
4. Retaining screws for check strap.

Cont'd.....

- 2 -

Control.

Self-centering toggle switches, which are conveniently mounted on each door, control the up and down movement of the windows (see Fig.7); any desired window position may be obtained, as movement of the window will cease immediately on releasing the switch.

To enable all windows to be operated from the driving position, a set of four switches are mounted on the driver's door (see Fig.8).

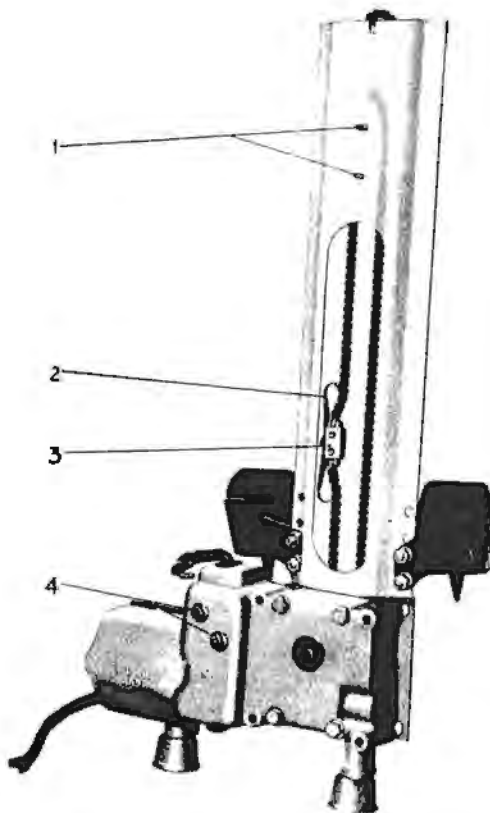


Fig.3. Motor and mechanism assembly for left-hand rear door.

1. Studs for upper flexible mounting.
2. Chain tension spring.
3. Special pick-up link.
4. Solenoid retaining nuts.

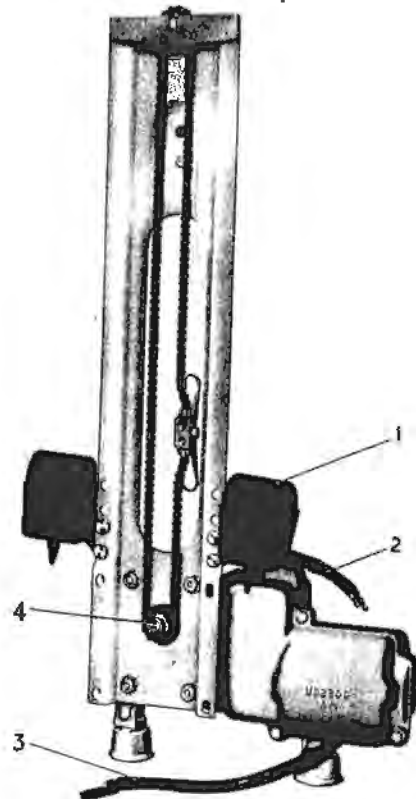


Fig.4. Reverse side of motor and mechanism for left-hand rear door.

1. Lower buffer stop.
2. Cables to solenoid.
3. Cables to electric motor.
- 4 Chain driving sprocket.

Cont'd.....

Raising or lowering the window normally takes from 2 to 3 seconds, but this time may vary slightly due to prevailing conditions of the window channel felt, when the window reaches the end of its travel it is stopped by "stalling" against the special rubber buffers; the top buffer is incorporated in the window seal and the lower buffers are bolted to the chain casing.

Electric motor.

The window mechanism is actuated by means of an electric motor which is enclosed together with the drive and the brake mechanism inside a protective casing.

The electric motor is a reversible type unit, the direction of rotation being provided by dual field windings; incorporated in the motor is a thermostatically controlled cut-out.

This cut-out is provided to safeguard the motor against possible damage due to overloading should a window switch be held in the operating position

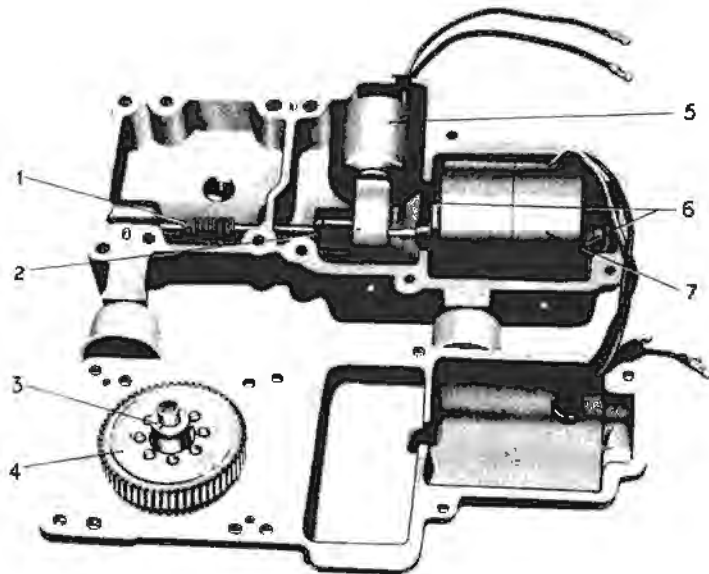


Fig.5. Motor and drive assembly with cover removed.

- | | |
|--------------------------------------|-------------------------------------|
| 1. Worm drive. | 4. Nylon worm wheel reduction gear. |
| 2. Flexible coupling and brake drum. | 5. Brake solenoid. |
| 3. Plain washer. | 6. Rubber shock washers. |
| 7. Electric motor. | |

Cont'd.....

- 4 -

after the window has reached the fully open, or fully closed position.

The motor will heat up and the thermostatically controlled cut-out will break the circuit; after a wait of several seconds the circuit is automatically restored and the switch may again be effectively operated.

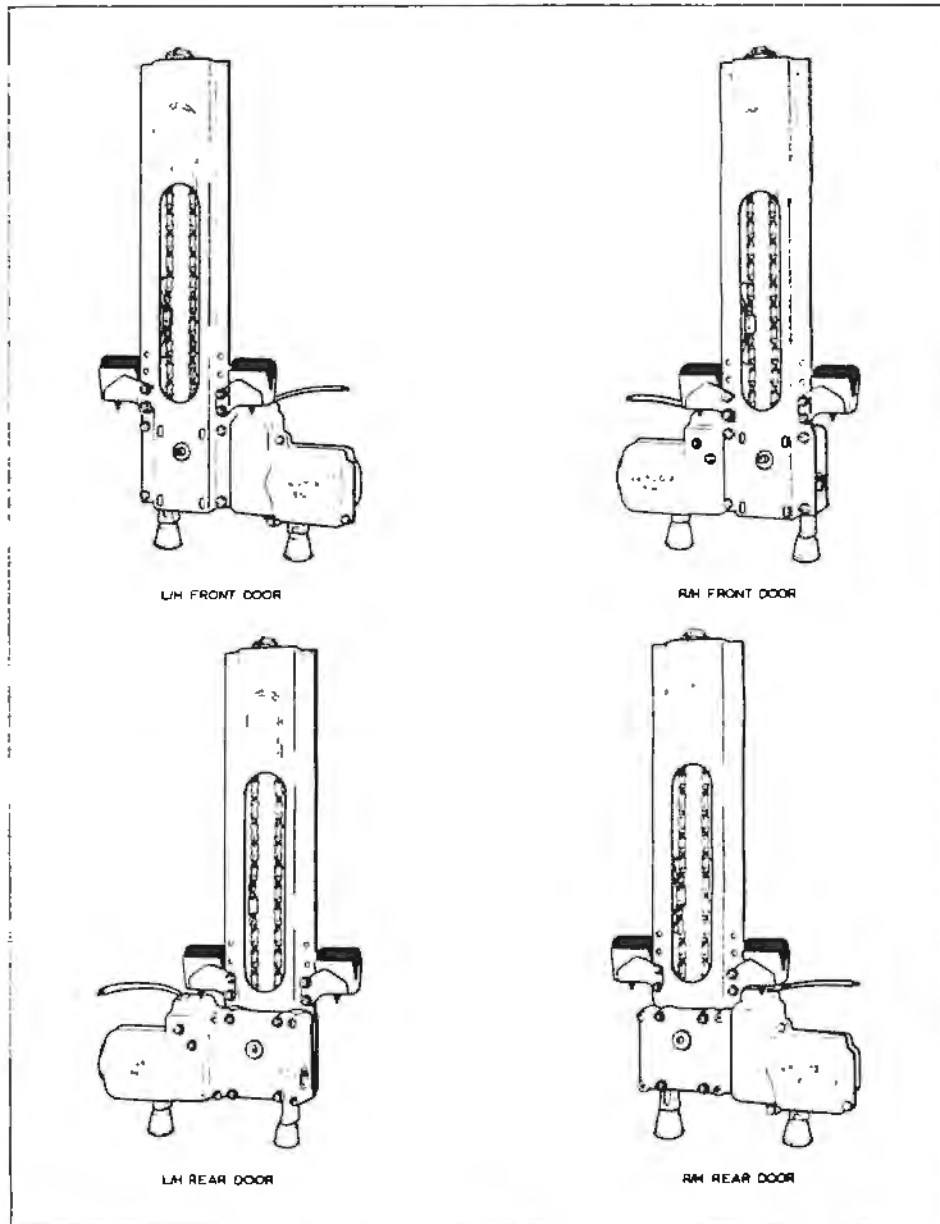


Fig.6. Motor and mechanism assembly showing the positions of mounting for all four doors.

Further protection for the motors is provided by four fuses situated in a fuse box which is mounted on the left-hand side of the dashboard.

No relay is necessary in the electrical circuit as the current for the motor is taken directly by the switches (see Fig.14).

Transmission.

The drive from the motor is transmitted to the mechanism through a flexible coupling which in turn drives a steel worm and nylon reduction gear.

A driving sprocket attached to the reduction gear spindle and an idler sprocket mounted on the upper end of the chain casing carries an endless chain; the chain is secured by means of a special "pick-up" link which is bolted to the window support channel, this link forms part of the chain and is secured by two special 90° links (see Fig.3).

A tensioning spring is secured to the pick-up link in order to take up any slackness in the chain and to prevent chain rattle.

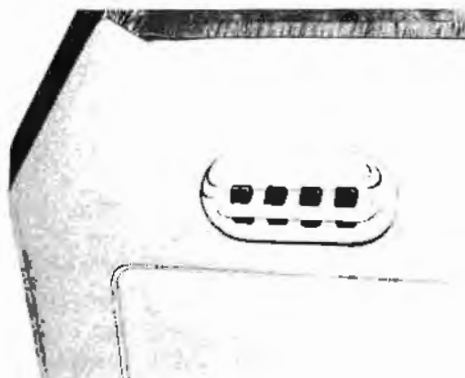


Fig.8. Driver's switches for electrically operated windows.



Fig.7. Passenger switch for electrically operated window.

Brake.

A brake which is built into the motor assembly, is provided to prevent the window moving once the operating switch has been released.

The brake mechanism consists of a solenoid, a coil spring and plunger and a brake drum; the brake drum forms an integral part of the flexible coupling.

When a switch is applied and the motor is operating, the solenoid, which is connected in parallel with the motor, becomes energised and the brake is released; on releasing the switch, the solenoid becomes de-energised and the brake is applied by means of the coil spring and plunger which contacts the brake drum (see Fig.13).

Cont'd.....

TO REMOVE THE MOTOR AND MECHANISM ASSEMBLY.

Should it be necessary to remove the motor and mechanism assembly from the car, it is advisable before proceeding with this operation, to remove the fuses or disconnect the leads from the battery.

Front Doors.

Remove the arm rest from the door

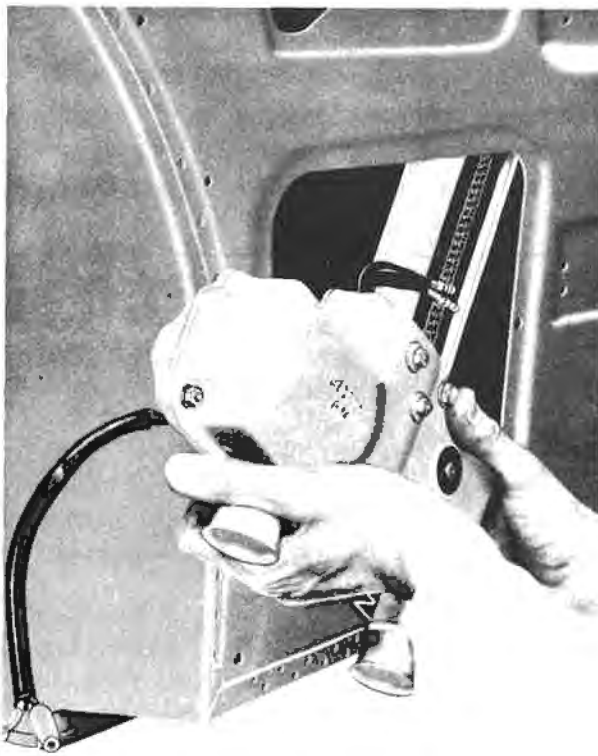


Fig.10. Method of removing mechanism from left-hand rear door.

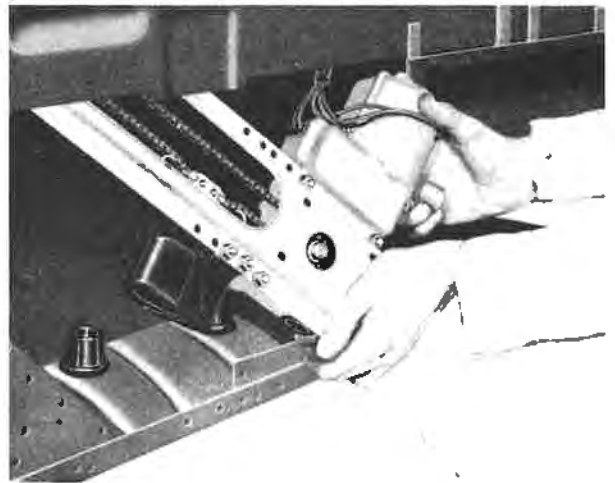


Fig.9. Method of removing mechanism from left-hand front door.

and detach the arm rest slide by removing the two retaining screws.

Note the angular position of the handle on the interior of the door to ensure that it is returned to its original position when refitting, then unscrew the escutcheon with a 'C' spanner and draw the handle from its splines.

Using a screwdriver, carefully ease the "trim" from the door, taking care not to damage the "trim", paintwork or the concealed spring fasteners, then disconnect the cables from the switch and remove the "trim".

Remove the retaining screws and

Cont'd.....



Fig.11. Method of removing electric motor from casing.

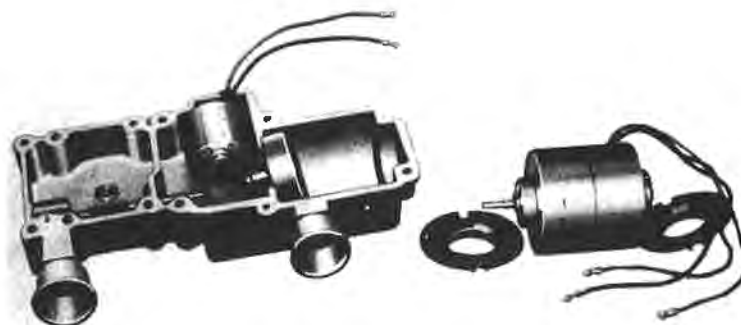


Fig.12. Electric motor removed and flexible coupling partly removed from casing.

- 8 -

carefully ease off the finisher and its plate.

Carefully remove the plastic cover from the door inner panel.

By means of the snap connectors, disconnect the cables to the motor and the solenoid, then ensure that all cables are placed where they are not liable to impede the removal of the motor and mechanism assembly.

Unscrew the two 3/16 in. Allen screws which secure the chain pick-up link to the window support channel; these screws are located behind the mechanism (see Fig.18).

If not supported, the window will then be free to drop on to the lower buffer stops, therefore it should be secured to the window frame by means of masking tape as shown in Figure 2.

Unscrew the two 2 B.A. nuts and the two 2 B.A. setscrews then remove the rubber mounting and stop tongue; ensure that note is made of the number and position of the packing washers (see Fig.17).

Remove the retaining screws and detach the brace from the door (see Fig.1).

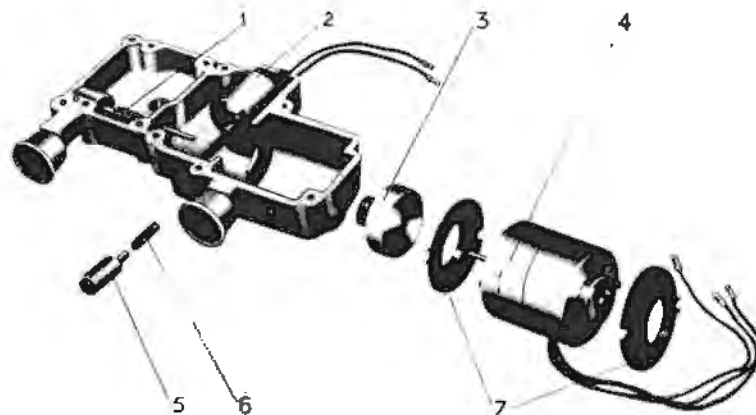


Fig.13. Exploded view of electric motor and drive assembly.

- | | |
|---|--------------------------|
| 1. Worm drive. | 4. Electric motor. |
| 2. Brake solenoid. | 5. Brake plunger. |
| 3. Flexible coupling and
brake drum. | 6. Brake plunger spring. |
| | 7. Rubber shock washers. |

Cont'd.....

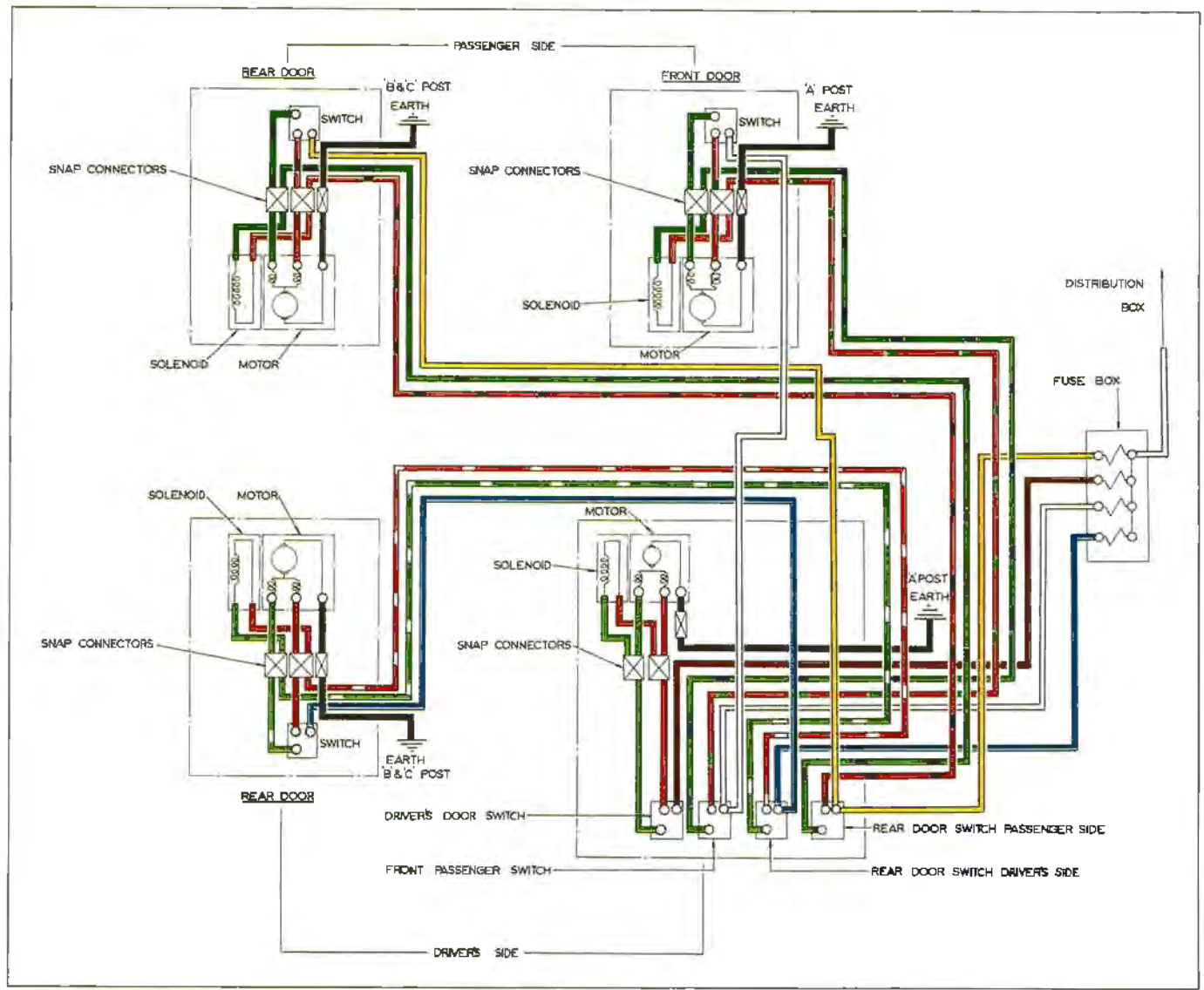


Fig. 14. Wiring diagram for electrically operated windows.

Cont'd.....

- 10 -

To facilitate removal of the assembly, it will be necessary to remove one of the lower buffer stops from the chain casing as shown in Figure 9.

When working on the front left-hand door, remove the right-hand buffer stop and if working on the front right-hand door, remove the left-hand buffer stop, as seen when viewing the door from inside the car.

Remove the motor and mechanism assembly from the door in the manner shown in Figure 9.

Rear Doors.

The procedure for removing the motor and mechanism assembly from the rear doors is similar to that adopted for the front doors, but it is important that the following points are noted in order to facilitate removal of the assembly.

Detach the clip securing the electric cables to the door and place the cables in a position where they will not impede the removal of the assembly.

Disconnect and remove the check strap assembly from the door.

When working on the rear left-hand door, remove the left-hand buffer stop from the chain casing and if working on the rear right-hand door, remove the right-hand buffer stop, as seen when viewing the door from inside the car.

The assembly should then be removed from the door in the manner shown in Figure 10.

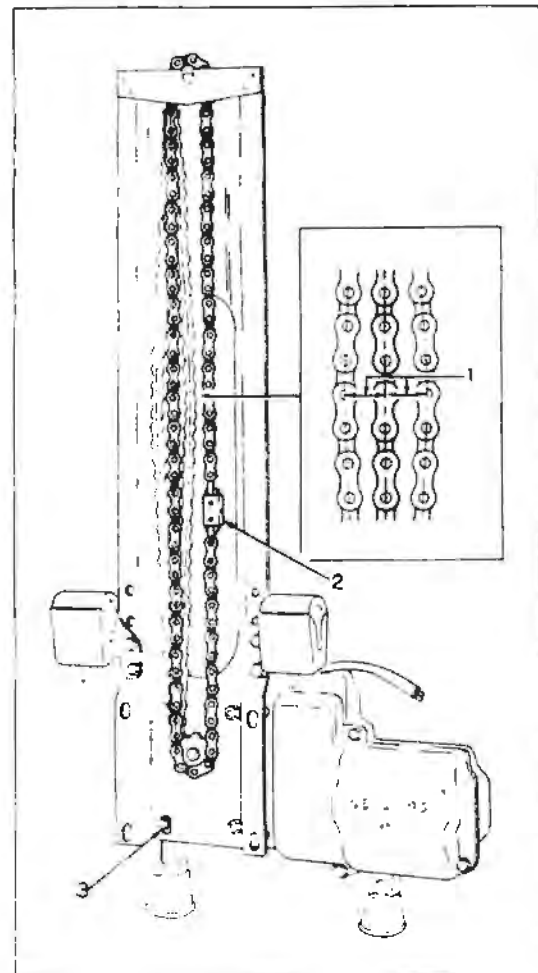


Fig.15. Method of adjusting chain tension.

1. Adjust chain tension to allow a maximum of 0.500 in. slack movement as shown.
2. Remove chain tension spring.
3. Elongated hole for obtaining adjustment.

Cont'd.....

Electric Motor Assembly.

In the event of failure, it may be necessary to dismantle the motor assembly and should the fault be in the motor unit or the brake solenoid, the faulty unit should be returned for overhaul to Rolls-Royce Service Department, Hythe Road, Willesden, London, N.W.10.

The procedure for dismantling the motor assembly is as follows.

Remove the retaining bolts and detach the motor casing from the chain casing, then remove the remaining bolts which secure the cover to the casing and separate the casing and cover as shown in Figure 5.

Withdraw the motor unit from the casing by tilting it upwards while at the same time drawing it from the flexible coupling as shown in Figure 11; ensure that the rubber shock washers are retained.

If the flexible coupling is to be removed, ensure that the brake plunger and coil spring are not mislaid.

To remove the brake solenoid from the casing, unscrew the two nuts which secure it to the casing (see Fig.3).

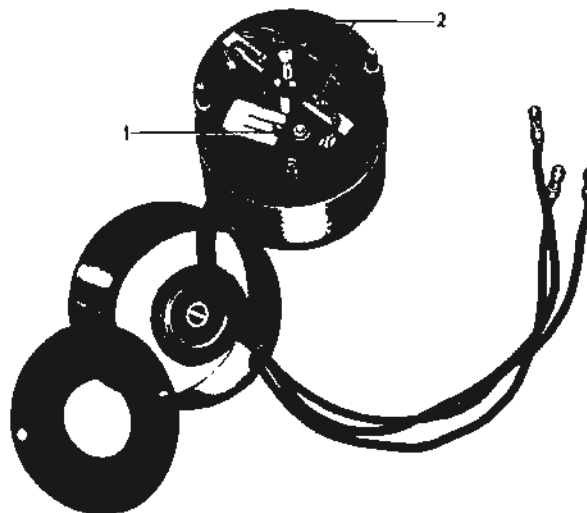


Fig.16. Electric motor with cover removed.

1. Cut-out.

2. Brushes.

Cont'd.....

TO ASSEMBLE AND FIT THE MOTOR AND MECHANISM ASSEMBLY.

Reverse the procedure for removing and dismantling, noting the following points.

Lubricate the worm and reduction gear with Molytone 265 Grease.

The joint faces of the motor casing should be smeared with jointing compound prior to bolting the halves together.

The motor casing is bolted to the chain casing to form a unit which is mounted on rubber mountings to ensure quietness during operation; the motor casing may be attached to the chain casing in four different positions depending to which door the assembly is to be fitted (see Fig.6).

When attaching the motor assembly to the chain casing ensure that the chain is adjusted so that it has a slack movement of 0.500 in. each side of the chain centre line (see Fig.15).

Remove the tension spring from the "pick-up" link and adjust the chain tension by means of the elongated bolt holes in the chain casing as described in Figure 15, then refit the chain tension spring.

Adjust the mechanism stop tongue, by means of the elongated fixing holes, to obtain a gap at 'A' of between 0.015 in. and 0.030 in. with the window in the halfway position as shown in Figure 17.

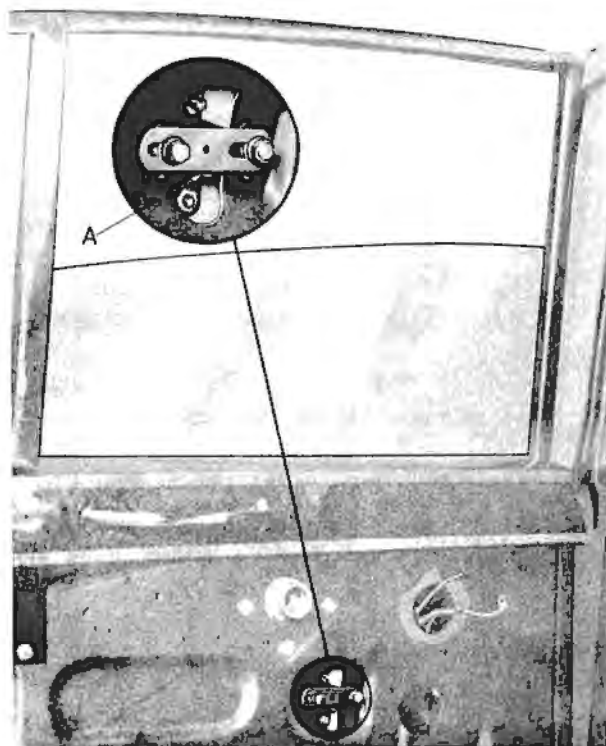


Fig.17. Adjustment for mechanism stop tongue.

Ensure that the switch cables do not foul the edges of the hole in the door inner panel, otherwise they may become damaged and result in 'shorting'.

Check that the correct gauge fuse

Cont'd....

- 13 -

wire is fitted in the fuse box, the specification for the fuse wire is 30 S.W.G. high conductivity tinned copper wire, diameter 0.0124 in. For stocks of fuse wire in America, 28 American or Brown and Sharps gauge, diameter 0.0126 in., is satisfactory.

Should further attention to the wiring be necessary, a wiring diagram is provided in Figure 14.

Before fitting the door "trim", ensure that the plastic cover is fitted and secured with upholsterers' solution.

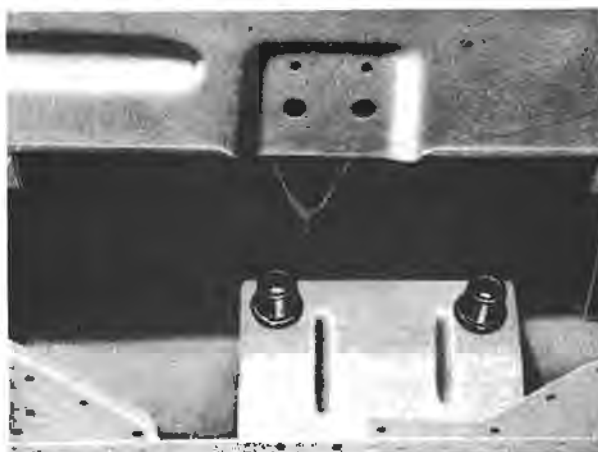


Fig.18. Lower flexible mountings for mechanism and connection for "pick-up" link.

FOR INFORMATION.

FUSES FOR ROLLS-ROYCE & BENTLEY ELECTRICALLY OPERATED WINDOWS.

The electrically operated windows fitted to Rolls-Royce & Bentley 'S' type cars, are operated by means of toggle switches mounted on each door, to enable the driver to operate all windows from the driving position a set of four switches are provided on the driver's door.

It is possible that the driver and passenger may inadvertently operate their respective switches simultaneously in order to select opposite directions of window travel, if this happens the window will remain stationary and should the switches be held in this position for longer than a few seconds there is a possibility that the fuse for that particular window will blow. To overcome this possibility it has been decided to increase the fuse specification to the following:-

30 S.W.G. high conductivity tinned copper wire, diameter 0.0124 in.
For stocks of fuse wire in America, 28 American or Brown and Sharps gauge, 0.0126 in. diameter is satisfactory.

A set of four fuses, one for each window, are situated in a fuse box mounted on the left-hand side of the dashboard.

We should like retailers to check each car which comes into their premises and to change the fuse wire to the correct specification where necessary.

The electric motor has a thermostatic cut-out built into the circuit and if the switches are operated as stated above, or if any switch is held in the operating position for more than a few seconds, after the window has reached the fully open or fully closed position the motor will become heated and the thermostatic cut-out will cause the circuit to be broken, after a short delay the motor will cool and the circuit automatically restored.

CREAKS AND RATTLES FROM THE FACIA ON 'S' TYPE CARS.

Periodical surveys of body complaints recorded against 'S' type cars show that facia rattles and creaks constitute a high proportion of the total. From time to time various modifications have been introduced by Production and corrective measures taken in Service to improve the standard of body silence. The purpose of the following is to review the present state of knowledge in regard to eliminating creaks and rattles from the facia and its associated structure.

Creaks from Instrument Facia:

1. A major cause of creaks from the facia is contact with the capping rail. Remove facia panel by extracting the four 2BA counter-sunk screws. Using a fine cut file it is possible to give the facia adequate clearance at these points of contact. Great care must be taken in filing the facia as it is easy to lift the veneer from its backing, it is therefore essential to lift the file on its back stroke. Fig.1. illustrates the correct manner in which the file should be used.



Fig. 1.

2. To remedy creaks from behind the instrument facia the following procedure should be adopted. Remove facia panel by extracting the four 2BA counter-sunk screws. Examine the points where the facia comes into contact with the instruments and instrument panel, as these points are often the cause of creaks. These can be eliminated by the application of "Aeroprene" UW-1792, to the inside of the instrument facia. The two pieces of "Aeroprene" lining should be stuck in position with "Bostik" 1261 adhesive.

Creaks and Rattles from behind Facia:

Additional felts to prevent creaks and rattles behind the instrument board are now fitted to current production 'S' Series cars. These felts may be fitted to cars in service in accordance with the following procedure:-

1. Speaker Duct: - Disconnect the battery. To fit the felt UW-1923 it is necessary to remove the following parts:- Instrument Facia UB-1007, Speedometer, Instrument Mounting Plate UD-1482 and disconnect the clock trip. Remove the instrument mounting plate, undo the four 2BA screws and two 2BA bolts which pass through the upper lip and screw into the capping rail.

Cont/d.

- 2 -

Obtain as much clearance as possible between the speaker duct and mounting plate without straining the wiring; if the mounting plate is held in this position it is then possible to fit the felt. Using 'Bostik' A. adhesive stick the felt with the 24" edge to the back of the duct, ensuring that the edges are folded over the back and sides and stuck securely. Before fitting, check that the felt has been relieved at the corners; see Fig. 2. In Fig. 3. the felt is shown in position.

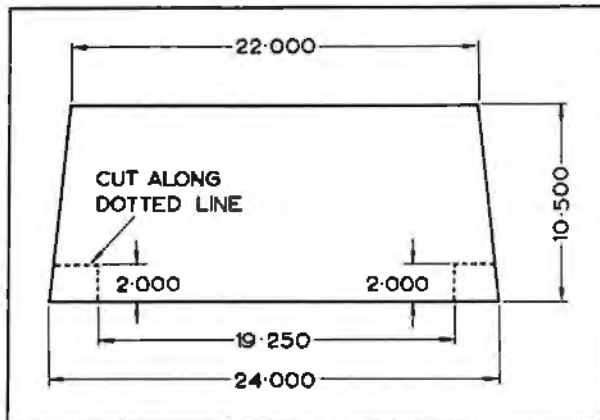


Fig. 2.



Fig. 3.

2. Demister Tubes - To fit the sewn felt sleeves UW-1926 and UW-1924, it is necessary to remove the following parts:- Demister and Heater cross Duct UD-1971, outer Demister Tubes UD-1341 and inner Demister Tubes UD-1342. The picnic tray should be pulled out as far as possible. Remove the heater and demister cross duct, slacken the three securing worm drive clips and push the larger duct into the smaller one allowing the L/H end of the duct to be lowered. Ease the demister tubes off the cross duct, and withdraw the large duct from the smaller leaving the latter still in position. The demister tubes can now be removed. Felts UW-1924 should then be fixed to the outer tubes UD-1341, likewise felts UW-1926, fixed to the inner tubes UD-1342, as shown in Fig. 4. When the sewn felt sleeves are not



Fig. 4.

- 3 -

readily available, an alternative method of fixing the felts is to wrap them around their respective tubes, and using 'Bostik' A. stick at each end and along the over-lapping join; allowing $\frac{1}{2}$ " of tube protrusion at each end.

3. Cubby Boxes - The fitting of felts UW-1928 and UW-1929 necessitates removal of both cubby boxes. Remove the six 2BA cubby box securing screws, three of which secure the top of the box by passing through the front edge, these are easily seen inside the box. The remaining three securing screws are not visible but pass through the lower front edge of the box behind the fascia board. Repeat the process for removal of the other cubby box. Using 'Bostik' A. stick felt UW-1928 to cubby box (LH) UB-1235 and felt UW-1929 to box (RH) UB-1233, commencing from the top surface of each box and wrapping down the back and along the underside, ensuring that all edges adhere securely. Fig. 5. shows the felts in position. It should be noted that the felts are handed and therefore on L.H. drive cars the larger felt, UW-1929 is fitted to the box (LH) UB-1239 and the smaller felt UW-1928 is fitted to the box (RH) UB-1237.

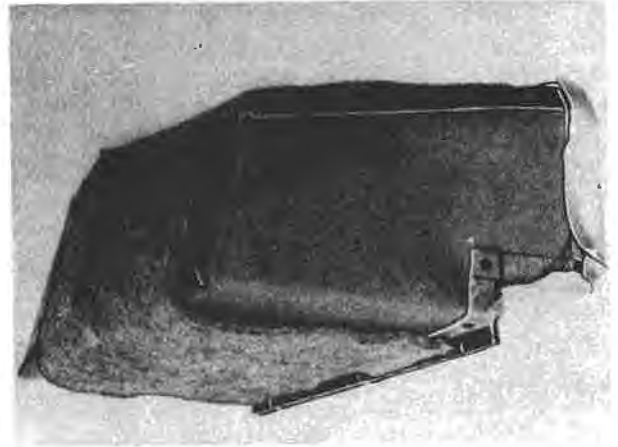


Fig. 5.

4. Instrument Sideplates - Fitment of the felts UW-1930 to the Instrument Sideplates 373/164 and 373/165, requires removal of both cubby boxes, the removal of which was dealt with in paragraph 3. Cut a rectangle 4" x 2" from each felt and slot the corners diagonally as shown in Fig. 6. Cut through from an outer edge to the hole in the centre, thus enabling the felt to be passed over the wiring and fixed in position with the inner edges of the felt wrapped over the edges of the sideplate and stuck securely with 'Bostik' A.

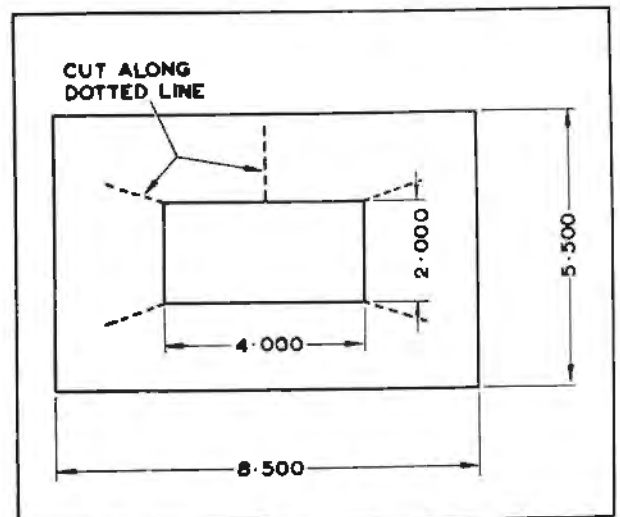


Fig. 6.

Cont/d.

- 4 -

5. Demister Nozzles - Removal of both cubby boxes and instrument mounting plate, in accordance with paragraphs 1 and 3, is necessary to enable the felts UW-1934, see Fig. 7 to be fitted to the demister nozzles in the manner illustrated in Fig. 8. It is possible to stick the felts to the inner demister nozzles without disconnecting any wiring, if the instrument mounting plate is held away from the speaker duct. To fit the felts to the outer demister nozzles access may be gained through the cubby box apertures. 'Bostik' A. adhesive should be used for these felt applications.

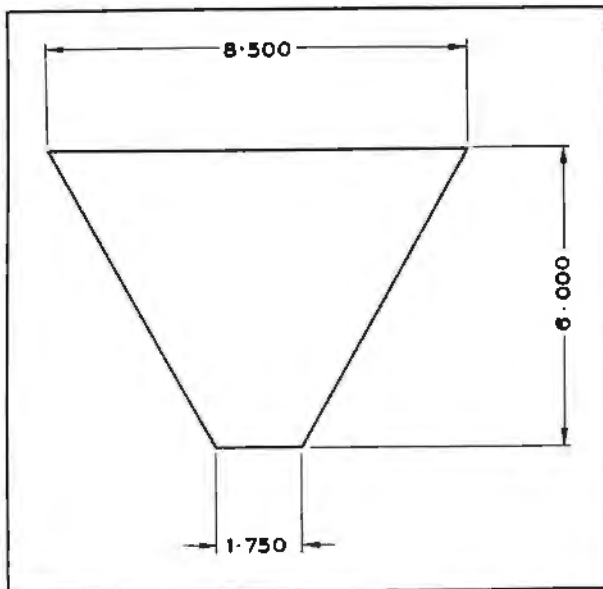


Fig. 7.



Fig. 8.

6. Speedo Cable & Trip Winders - It is practice on Production to fit sewn felt sleeves UW-1933 to the speedo cable and speedo trip, as shown in Fig. 9. In service it is intended to bind the speedo cable and trip with 1" strip felt. Fitting the felt necessitates removal of:- Instrument Facia, Speedometer, Clock and Speedo Trips. The Speedo Cable is disconnected at the drive end and the two retaining clips are slackened, enabling part of the cable to be drawn into the car interior. Bind the felt in a spiral fashion to cover 18" of the Speedo Cable and completely cover the clock and Speedo Trips.



Fig. 9.

Cont/d.

Ensure that the ends of each felt are mitred, so that the first and last coils finish square with the axis of the cable, see Figs. 10 & 11. Finally, bind the end coils with insulation tape.

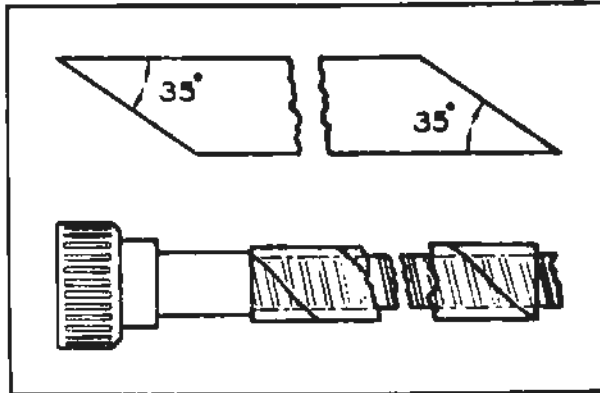


Fig. 10.

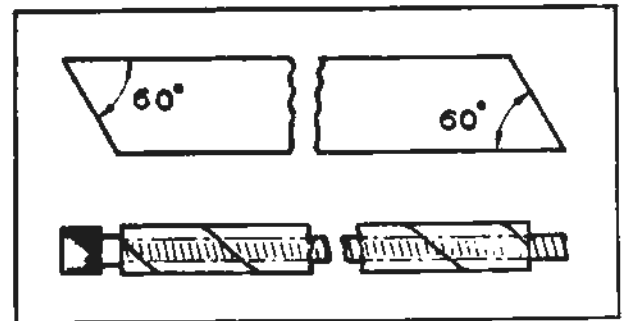


Fig. 11.

Sizes of Felts:

U7-1923 Speaker Duct	See Fig. 2.	1 off.
U7-1924 Demister Tubes	24.00" x 7.75"	2 off.
U7-1926 Demister Tubes	15.50" x 7.75"	2 off.
U7-1928 Cubby Box	16.00" x 7.50"	1 off.
U7-1929 Cubby Box	19.00" x 7.50"	1 off.
U7-1930 Instrument Side-plates	8.50" x 5.50"	2 off.
U7-1933 Trip Winders	13.00" x 2.00"	2 off.
U7-1934 Demister Nozzles	See Fig. 7.	4 off.
1" Strip Felt Speedo Cable	31.50" long.	1 off.
1" Strip Felt Speedo Trip	16.50" long.	1 off.
1" Strip Felt Clock Trip	16.50" long.	1 off.

FOR INFORMATIONModified Acrylic Automotive Finishes
M900 and M901 Line

Modified Acrylic Finishes have recently been introduced on Rolls-Royce and Bentley cars in an endeavour to further improve their unpolished gloss retention under arduous service conditions, as compared to that normally associated with the long established nitro-cellulose finishes.

The standard metallic modified acrylic finishes, which have been produced following close co-operation between Rolls-Royce Ltd. and the Paint Manufacturers, may be distinguished from their predecessors by the increased particle size of the flake aluminium pigment used.

Refinishing Technique

Much the same techniques are required for the M 900 and M 901 line of modified acrylic finishes as for the normal nitro-cellulose finishes, except it is important that the practice of 'spotting-in' must be avoided and only complete panels should be sprayed out, taking care to avoid over-spraying on to the surrounding undamaged areas.

It is not permissible to refinish nitro-cellulose finishes with modified acrylic finishes, or vice versa, and it must be appreciated that both modified acrylic and nitro-cellulose finishes may be used on a car, according to the colour scheme specified by the customer.

Emphasis must also be placed on the use of the correct Thinners 851 - 732, when refinishing with modified acrylic materials.

At present, it is intended that supplies of M 900 and M 901 line materials, which should always be accompanied by an equal volume of 851 - 732 Thinner, will only be made available against orders on which Chassis Numbers are quoted.

Care and Maintenance of Paintwork

The maintenance instructions for care of the paintwork included in the Owners Handbook are generally applicable to modified acrylic finishes; but it is anticipated that much less frequent attention will be found necessary to maintain the high initial gloss of these finishes in all types of climate.

Introduction of Modified Acrylic Finishes

Porcelain White	-	I C I	M. 900-101	B-FD	517 onwards
				SJF	22, 56, 134, 166
				SKG	5, 11, 59,
				SLG	52, 102.
				SMH	61, 191, 195 onwards
				BLC	48.
Pacific Green	-	I. C. I.	M. 901-2570	B-FD	615 onwards
				SLG	4, 62, 96, 100 onwards
Tudor Grey	-	I. C. I.	M. 901-2581	B-FD	237, 279 onwards
				SHF	193, 203, 215, 237, 245 onwards.
				CLC	16 onwards.
Shell Grey	-	I. C. I.	M. 901-2582	B-FD	227, 237, 249, 257 onwards.
				SLG	100
				SHF	195, 203, 213, 215, 241, 245 onwards
				BLC	51
				CLC	11 onwards
Steel Blue	-	I. C. I.	M. 901-2571	B-FD	153, 165, 167, 227 onwards.
				SGE	288
				SHF	107, 109, 131, 135, 143, 159, 161, 183, 225, 233, 245, 249 onwards
				BLC	42
				CLC	25 onwards.
Sand	-	I. C. I.	M. 901-2559	B-FA	394
				B-FD	209 onwards
				SFE	339
				SHF	27, 125, 133, 137, 171, 219, 223 onwards
				BLC	41, 50
				CLC	9 onwards

Cancels previous Service
Bulletin dated 19. 6. 59

No. CB. 128

FOR INFORMATION

INSTRUCTIONS FOR FITTING "IRVIN" SAFETY BELTS
TO ROLLS-ROYCE AND BENTLEY CARS WITH STANDARD STEEL SALOON

DESCRIPTION

Requests have been made from time to time for safety belts to be fitted to Rolls-Royce and Bentley cars and as a result of these requests the "Irvin" single belt type is one which has now been approved.

This belt is designed to withstand shock loads of 3,000 pounds and can be fitted to both front and rear seats. It is intended for fixing solely to cars with METAL floors and must not be attached to a wooden floor or to the car seat.

The "Irvin" car safety belt comprises two sections of 2 in. wide nylon or terylene webbing and attached to each section is one part of the two-piece light alloy fixing buckle (see Fig 3). The two parts of the buckle are designed so that they can easily be connected to form a continuous belt to hold the wearer securely in the seat and can be instantly disconnected either by the wearer or, in an emergency, by another person.

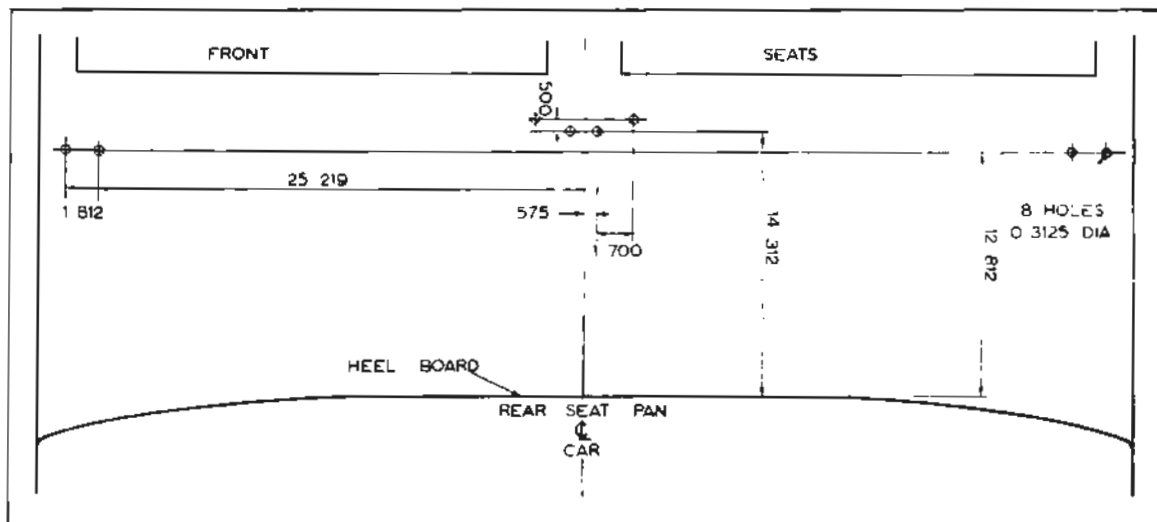


Fig. 1. Diagram for drilling holes for front seat shackles.

- 2 -

INSTRUCTIONS FOR FITTING

FRONT SEATS

Preparation

In order to provide access for fitting the bolts which are to secure the L. H. outer shackles, it is necessary to modify the silencer heat shield; the procedure for modification differs slightly between cars of standard production and cars fitted with refrigeration.

Standard Production Cars

At a point situated directly beneath the mounting points for the L. H. outer shackles (see Fig. 1), cut an oval hole of sufficient dimensions to permit insertion of the stiffener plate.

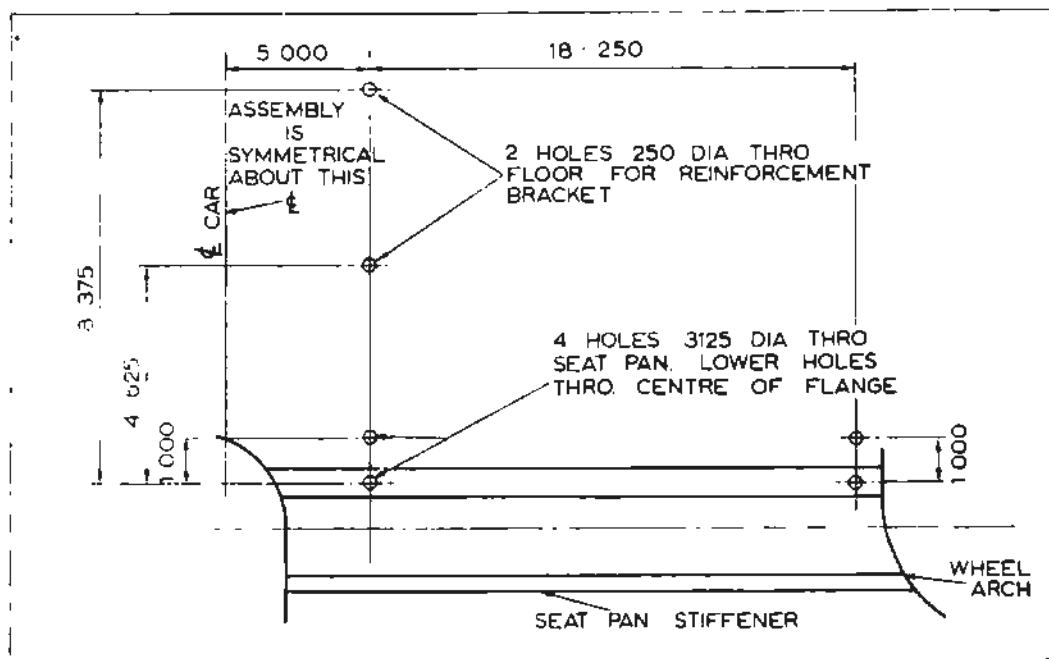


Fig. 2. Diagram for drilling holes for rear seat "U" bolts.

- 3 -

In order to prevent subsequent ingress of water or loss of asbestos from the heat shield, the edges of these holes must be adequately sealed by means of "Bittak" sealing compound.

Refrigerated Cars

At a point situated directly beneath the mounting points for the L. H. outer shackles (see Fig. 1), cut an oval hole of sufficient dimensions to permit insertion of the stiffener plates

This hole must afterwards be covered with an aluminium plate which should be slightly 'dished' to allow sufficient clearance for the shackle retaining nuts; this plate should be secured by means of six self-tapping screws and washers.

The under surface of the plate should be sealed with a coating of "Bittak" sealing compound.

Fitting

Move the front seats back to the fullest extent and drill four pairs of 5/16 in. diameter holes in the floor, following the diagram shown in Figure 1

To ensure that the belts are fitted in the correct position, it is advisable to lay them on the seats in the position they will occupy when in use (see Fig. 3).

Fit the four shackles through the loops formed in the belts so that when they are secured to the floor, the shackles will slope forward.

Position the shackles with the appropriate holes and insert the 5/16 in. fixing bolts from inside the car, then fit the stiffeners to the bolts, under the floor and secure them with the nuts and washers (see Fig 4).

Cut three slots in the carpet to accommodate the shackles, one for each outer shackle and one for both inner shackles; the edges of these slots should then be bound with leather to prevent fraying

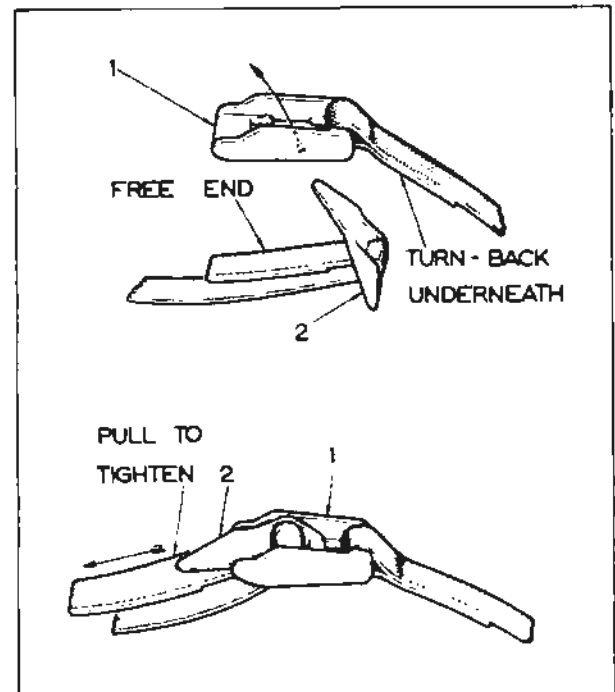


Fig. 3. Method of fixing buckle of safety belt.

1. Buckle housing. 2. Buckle tongue.

REAR SEATS

To enable the rear belts to be fitted it is necessary to remove the rear seats, squabs and centre arm rest.

Drill four pairs of 5/16 in. diameter holes and four 1/4 in. diameter holes in the rear seat pan as shown on the diagram in Figure 2.

Fit the stiffeners (UB. 2429) and secure them with 1/4 in. bolts, washers and nuts. To clear the L.H. inner stiffener, it will be necessary to cut the rear silencer heat shield.

On Standard Cars the heat shield casing should be cut so as to allow sufficient metal for turning over in order to seal the asbestos.

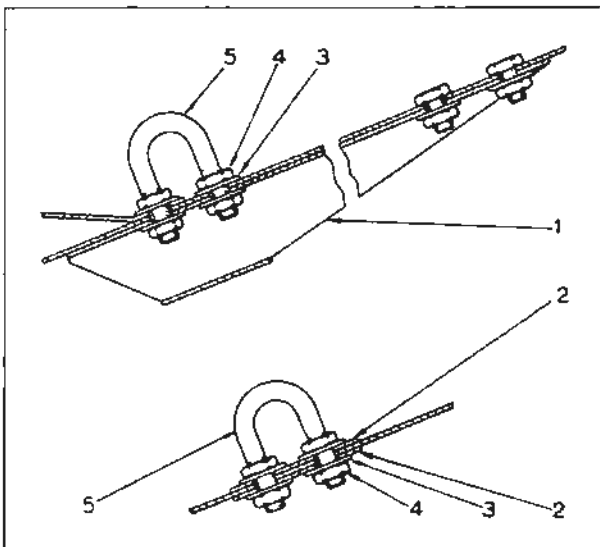


Fig. 5. Safety belt 'U' bolts for rear seats.

- 1 Reinforcement bracket
- 2. Retaining plate.
- 3. Washer.
- 4. Nut.
- 5. 'U' Bolt.

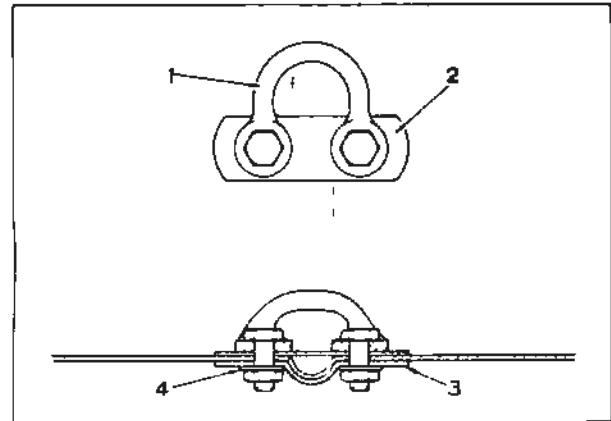


Fig. 4. Safety belt shackles for front seats.

- 1. Shackle.
- 2. Stiffener hinge.
- 3. Stiffener.
- 4. Washer.

This will not be necessary for heat shields fitted to Refrigerated Cars as they contain no asbestos, but after cutting, the edge of the shield should be turned up to seal against the seat pan and then secured by means of the fixing screws contained in the piece of metal already cut away.

Ensure that the belts are placed in the position they will occupy when being used (see Fig. 3), then thread the four 'U' bolts through the loops provided in the belts, position two 'U' bolts and the two reinforcement brackets (UB. 2429) at the inner positions and two 'U' bolts and four retaining plates (UB. 2428) at the outer positions, then secure them with washers and nuts (see Fig. 5)

Refit the centre arm rest, seats and squabs, allowing the belts to pass between the base of the seat and the squab.

- 5 -

SPECIAL PARTS REQUIRED FROM ROLLS-ROYCE LTD. FOR 'IRVIN' BELTS

Front Seats:	UB. 2423	Shackle	4
	UB. 2424	Stiffener hinge	2
	UB. 2425	Stiffener	2
	UB. 2656	Belt	2
Rear Seats:	UB. 2427	'U' Bolt	4
	UB. 2428	Retaining Plate	4
	UB. 2429	Reinforcement Bracket	2
	UB. 2712	Belt	2

OTHER PARTS REQUIRED

Front Seats:	UA. 154/Z	5/16 in. Bolt	8
	UA. 302/Z	5/16 in. Nut	8
	UA. 1252/Z	Plain Washer	8
Rear Seats:	UA. 302/Z	5/16 in. Nut	16
	UA. 1252/Z	Plain Washer	16
	UA. 102/Z	1/4 in Bolt	4
	UA. 301/Z	1/4 in Nut	4
	UA. 1252/Z	Plain Washer	4

CARS FITTED WITH REFRIGERATION

CS. 31020/Z	Screw	6
K. 4401/Z	Washer	6

FOR INFORMATION

TRICO WINDSCREEN WASHER CONTROL VALVE

Prior to July 1956, the windscreen washer control valve, Part No. CD.539, was fitted with a valve seat giving metal to metal contact. Trouble was experienced with this control valve owing to the metal to metal seating having a tendency to leak, causing poor engine idling. To overcome this problem, the design was changed to incorporate a valve seat of natural rubber.

Further trouble was encountered in the form of intermittent or complete failure of the control valve to operate the windscreen washer. This failure was caused through damage of the natural rubber seat on the sharp edge of the valve seating. Accordingly, in February this year, the design of the control valve was changed to incorporate a Neoprene seat in place of natural rubber. To identify the modified control valve, it was marked with a spot of green paint on the side of the valve housing.

To date, this change has proved entirely satisfactory and it has been decided that this control valve will be supplied for all replacements. All control valves supplied will now have the Neoprene seat but they will not necessarily have the green identification mark.