



## **Service Bulletins**

**Rolls-Royce Silver Cloud II**  
**Rolls-Royce Silver Cloud III**  
**Bentley S2**  
**Bentley S3**  
**Phantom V**

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SERVICE INFORMATION FOR THE ROLLS-ROYCE SILVER CLOUD III  
AND BENTLEY S. 3.

The purpose of this News Letter is to present in a concise a manner as possible the technical difference between S. 3 and S. 2 cars.

The following information, although to some extent descriptive, is intended to cater mainly for servicing checks and is published in an endeavour to help Service Personnel responsible for the maintenance of Rolls-Royce and Bentley cars until such time as more comprehensive service literature for S. 3 is published.

ENGINE

The most significant change in the engine specification is that the compression ratio has been raised to 9:1 on cars operating in countries where premium grade fuel is obtainable. In countries where only low octane rated fuel is obtainable, the 8:1 compression ratio is retained.

The crankshaft is nitride hardened and incorporates sludge traps similar to those fitted to the S. 1. The connecting rods have been strengthened and 1.000 in. diameter gudgeon pins are fitted. The gudgeon pins are off-set .062 in. in the piston towards the thrust side, on both the 8:1 and 9:1 compression ratio engines. In fact it is true to say that the only difference between the two engines is the configuration of the piston crown.

The torque loading for the cylinder head nuts has been increased to 42-45 lbs/ft, the tolerances in the valve gear train have been tightened up and a strengthened camshaft gear is fitted. The timing gears are lubricated by a flow of oil which is directed between the gears at the point of 'mesh'.

An enclosed breather system is fitted between the oil filler and the fresh air side of the butterfly in the induction manifold on all S. 3 engines.

Engine Specification

Type	Over square 90° V formation, liquid cooled.
Number of cylinders -	Eight - in two banks of four
Bore	4.100 in.
Stroke	3.600 in.
Displacement	380.2 cu.in. (6230 c.c.)

- 2 -

Compression Ratio	9:1 or 8:1
Compression Pressure	9:1 ratio = 145 lbs. sq.in. approx.
Compression Pressure	8:1 ratio = 120 lbs. sq.in. approx.

### Carburettors

The carburettors fitted to the S.3 have been increased in size.

Data :-

Make & Model	Twin SU HD.8. (side draught)
Choke size	2.000 in.
Jet size	.125 in.
Jet needle	US

### Ignition Distributor

The new ignition distributor contains twin contact breakers which are so arranged that their actions overlap. In this way, one set of contacts connect the low tension circuit, while the second set of contacts breaks the circuit to initiate the high tension spark. The contacts are operated by an eight-lobe cam.

The timing of the spark is controlled with centrifugal governors and a vacuum operated diaphragm. The vacuum tapping is taken off 'A' bank carburetter at the throttle edge.

The diaphragm is exposed to the low pressure obtained in the induction manifold and automatically advances and retards the ignition according to engine loading.

An octane selector is fitted to enable one to adjust the ignition timing to suit low octane rated fuels. The octane selector is initially set in the fully advanced ('A' not 'O') position to suit 95 or 100 octane fuels for 8:1 and 9:1 compression ratios respectively. For lower rated fuel the lock-nut should be released and the eccentric pin should be turned anti-clockwise retarding the ignition until a satisfactory performance is obtained.

### IMPORTANT

If at any time, the distributor has been disturbed, any checks or adjustments to the ignition timing must be carried out with the octane selector in the fully advanced position.

- 3 -

All timing operations should be carried out on the contact breaker set furthest from the vacuum advance unit. The ignition timing should be set to the 'A1' timing mark on the flywheel and not to the 'B4' flywheel marking.

Make & Model	Lucas 20.D8
Ignition Timing	2° B.T.D.C.
Contact Breaker Gap	.014 in. - .016 in.
Dwell Angle	31° - 37°
Mark Location	Flywheel
Cent. Starts. R.P.M.	200-270
Cent. Ends R.P.M.	1,500
Max. Cent. Advance	17° - 19°
Vac. Starts Hg.	5.1/2
Vac. Ends Hg.	8
Max. Vac. Advance	7° - 9°
Direction of Rotation	Anti-clockwise
Firing Order	1, 5, 4, 8, 6, 3, 7, 2.
Contact Arm Spring Tension	18-24 oz.
Condenser Capacity	.18 - .25 Mfd.

Ignition Coil

Make & Model	Lucas HA.12
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Sparking Plugs

Make & Type	Champion RN.8
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Cooling System

A new thermostat has been introduced to provide a more accurate temperature control. The new thermostat which is rated at 82°C is wax filled and is not pressure sensitive. This means that this thermostat 'cracks' open at the actual temperature stated thereon. In the case of the gas filled thermostat used formerly, there was some delay in the opening, over the temperatures stated, as with this type the pressure in the cooling system retarded the opening of the thermostat.

POWER ASSISTED STEERING

The S. 3 is fitted with a development of the S. 2 power-assisted steering system. The power-assistance provided has been increased by (a) reducing the steering wheel rim load after which assistance is received from 11lb. to 1/2 lb.,

- 4 -

(b) reducing the rim load above which very much more steering effort is supplied by the power-assisting system from 8 - 10 lb. to 6 lb. and (c) by increasing the power-assistance received between these two points. These modifications have the effect of increasing the assistance received by the driver especially under parking conditions.

In practice, this has been achieved by omitting two of the four reaction plunger pairs, along with their associated springs and spacing pins and reducing the number of springs in each secondary spring pack from twelve to six. Two anti-judder modifications have been introduced (a) providing a spool valve with swashed lands and (b) fitting restricted banjo-bolts in the steering-box to ram feed lines.

The spool valve housing was produced initially with four bores for the reaction plungers, as on S. 2, but two of these bores were blanked off with aluminium pins. At a later stage the housing was produced with the two redundant bores omitted.

The front end geometry remains the same as for the S. 2.

### HEADLAMPS

The S. 3 is fitted with a four headlamp system to provide more effective lighting which inevitably reduces the strain on the driver.

The four headlamps are sealed beam units. The two inner lamps which are single filament light units are focused as 'main beam' for fast night driving and extinguish when the dip switch is operated. The two outer lamps are double filament light units with one filament set slightly out of focus to act as a supplementary main beam which also extinguishes on dip; while the other filament is focused for driving on dip and extinguishes when driving on main beam.

On all cars except those destined for the U.S.A. the direction indicator switch is wired so that it acts as a combined direction indicator and headlamp flasher switch. With the main lamp switch in the 'OFF' or 'S & T' position or driving with dipped headlights the flasher switch operates the main beam in each headlamp.

Note:- 1A lamp units are fitted to the inner headlamps; 2, 2A or EUROPEAN lamp units are fitted to the outer headlamps

- 5 -

<u>Location</u>	<u>Rating</u>	<u>Colour</u>	<u>Fitting</u>
United Kingdom	1A 12V 37.1/2w 2A 12V 37.1/2/50w	Clear Clear	Push-in two blade Push-in three blade
Europe except France	1A 12V 37.1/2w EUROPEAN 12V 45/40W	Clear Clear	Push-in two blade Push-in three blade
France	1A 12V 37.1/2w 2A 12V 45/40w	Yellow Yellow	Push-in two blade Push-in three blade
Middle & Far East) Canada & S. ) America, U.S.A. )	1A 12V 37.1/2w 2 or 2A 12V 37.1/2/50w	Clear Clear	Push-in two blade Push-in three blade

## **Silver Cloud II**

### **Bentley S2**



No. S2/A1

This Bulletin cancels all  
previous Bulletins numbered  
S2/A1 and S2/A3.

FOR INFORMATION (Strictly Confidential)

CHASSIS SERIES AND ENGINE NUMBERS

FOR S2 CARS

The following is a complete list of engine and chassis numbers which were issued for S2 series cars. It is intended to facilitate the identification of chassis numbers in relation to modifications.

The letter 'L' preceding the chassis series letter indicates a left-hand drive chassis.

Number 13 is omitted from all chassis numbers.

<u>SERIES</u>	<u>CHASSIS NUMBER</u>	<u>ENGINE NUMBERS</u>
<u>SILVER CLOUD II</u>		
Chassis built August 1959.		
A.	SPA.2. to SPA.326 Even Numbers Only	1.AS. to 163.AS.
Chassis built November/December 1959.		
	SRA.1. to SRA.325. Odd Numbers Only	164.AS. to 325.AS.
Chassis built February 1960.		
B.	STB.2. to STB.500. Even Numbers Only	1.BS. to 250.BS.
Chassis built April 1960.		
	SVB.1. to SVB.501 Odd Numbers Only	251.BS. to 500.BS.

No. S2/A1

- 2 -

<u>SERIES</u>	<u>CHASSIS NUMBER</u>	<u>ENGINE NUMBERS</u>
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Chassis built June 1960.

C.	SWC.2. to SWC.700. )	1.CS. to 350.CS.
	SWC.702. ) Even Numbers Only	366 CS.
	SWC.704. to SWC.730 )	352.CS. to 365.CS.

Chassis built November 1960.

	SXC.1. )	351.CS.
	) Odd Numbers Only	
	SXC.3. to SXC 671. )	367 CS. to 700.CS.

Chassis built February 1961.

D.	SYD.2. to SYD.550.	Even Numbers Only	1.DS. to 275.DS.
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Chassis built June 1961.

	SZD.1. to SZD.551.	Odd Numbers Only	276.DS. to 550.DS.
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Chassis built December 1961.

E.	SAE.1. to SAE.685.	Odd Numbers Only	1.ES. to 342.ES.
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BENTLEY S2

Chassis built August 1959.

A.	B.1.AA to B.325.AA.	Odd Numbers Only	1.AB. to 162.AB.
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Chassis built November/December 1959.

	B.2.AM. to B.326.AM.	Even Numbers Only	163.AB. to 325.AB.
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- 3 -

<u>SERIES</u>	<u>CHASSIS NUMBER</u>	<u>ENGINE NUMBERS</u>
Chassis built February 1960.		
B.	B.1.BR. to B.501.BR. Odd Numbers Only	1.BB. to 250.BB.
Chassis built June 1960.		
	B.2.BS. to B 500 BS. Even Numbers Only	251.BB. to 500.BB.
Chassis built September 1960.		
c.	B.1.CT. to B 445.CT. Odd Numbers Only	1.CB. to 222.CB.
Chassis built November 1960.		
	B.2.CU. to B.756 CU. Even Numbers Only	223.CB. to 600.CB
Chassis built April 1961.		
D.	B.1.DV. to B 501.DV. Odd Numbers Only	1.DB. to 250.DB.
Chassis built December 1961.		
	B.2.DW. to B.376.DW. Even Numbers Only	251.DB to 438.DB.
<u>SILVER CLOUD II LONG WHEELBASE</u>		
Chassis built September 1959.		
A.	LCA.1. to LCA.76. Consecutive Numbers	LC.1.A. to LC.75.A.
Chassis built August 1960.		
B.	LCB.1. to LCB.101 Consecutive Numbers	LC.1.B. to LC.100.B.

- 4 -

<u>SERIES</u>	<u>CHASSIS NUMBER</u>	<u>ENGINE NUMBERS</u>
Chassis built May 19 1.		
C.	LCC.1. to LCC.101. Consecutive Numbers	LC.1.C. to LC.100.C.
Chassis built February 1962.		
D.	LCD.1. to LCD.25. Consecutive Numbers	LC.1.D. to LC.24 .
<u>BENTLEY S2 LONG WHEELBASE</u>		
Chassis built January 1960.		
A.	LBA.1. to LBA 26. Consecutive Numbers	LB.1.A. to LB.25.A.
Chassis built February 1961.		
B.	LBB.1. to LBB.33. Consecutive Numbers	LB.1.B. to LB.32.B.

S.2 MODIFICATIONS

Since the introduction of the S.2 and Phantom V cars, a number of modifications have been introduced and instructed to Service under various Categories. The majority of these modifications, which are listed below, were introduced during the early months of production. It has now been decided that, with the exception of two modifications referred to on page 3, the Category for all S.2 and Phantom V modifications is 3a.

Category 3a Modifications

To be dealt with only on a specific complaint from an owner.

Service Bulletin S2/D6	<u>FUROLATOR AIR FILTER ELEMENT</u>
This bulletin applies to certain countries only - see bulletin S2/D9.	
Service Bulletin S2/G2	<u>S.2 BRAKE SERVO</u>
Service Bulletin S2/G4	<u>BRAKE CLEVIS PINS</u>
Service Bulletin S2/K1	<u>MODIFIED THROTTLE CONTROLS LEFT HAND DRIVE S.2 CARS</u>
Service Bulletin S2/K2	<u>MODIFICATIONS TO THE AUTOMATIC CHOKE SYSTEM</u>
Service Bulletin S2/K3	<u>RADIUSED SECTION CHOKE VALVE (UE.8230) - TO FIT</u>
Service Bulletin S2/K4	<u>FUEL VAPORISATION</u>
Service Bulletin S2/K6	<u>AUTOMATIC CHOKE SYSTEM - NEW FAST-IDLE CAM</u>
Service Bulletin S2/K7	<u>FUEL TANK VENTILATION SYSTEM</u>
Service Bulletin S2/K8	<u>AUTOMATIC CHOKE SYSTEM - HEAT SINK MODIFICATION</u>
Service Bulletin S2/L3	<u>COOLING, HEATING AND DE-MISTING SYSTEM S.2 CARS</u>
Service Bulletin S2/L5	<u>RADIATOR FILLER CAP SEAL</u>

Service Bulletin S2/L6	<u>ADDITIONAL CLIP FOR HEATER PIPES</u>
Service Bulletin S2/L9	<u>S.2 COOLING SYSTEM - THERMOSTATS</u>
Service Bulletin S2/L10	<u>S.2 COOLING SYSTEM - PRESSURE RELIEF VALVE - UE.3087</u>
Service Bulletin S2/M1	<u>IMPROVED SEALING OF THE SCINTILLA CHOKE THERMAL DELAY SWITCH</u>
Service Bulletin S2/M4	<u>METHOD OF MODIFYING FUSE HOLDER FOR MAIN FUSE BOARD AND WINDOW- LIFT FUSE BOARD</u>
Service Bulletin S2/M5	<u>STARTER MOTORS</u>
Service Bulletin S2/M6	<u>STARTER MOTOR RELAY</u>
Service Bulletin S2/M7	<u>CHAMPION WATERPROOF SPARKING PLUG ADAPTORS</u>
Service Bulletin S2/Q1	<u>EXHAUST PIPE 'TITTER' ON S.2 CARS</u>
Service Bulletin S2/S2	<u>MODIFIED LOCKING CAM ASSEMBLY FOR THE LUGGAGE BOOT LID</u>
Service Bulletin S2/S4	<u>ELECTRIC WINDOW LIFT SWITCHES - WATER DUCTS</u>
Service Bulletin BC2/G2	<u>BRAKE SERVO OPERATING LEVERS</u>
Service Bulletin BC2/G3	<u>BRAKE CLEVIS PINS - FRONT BRAKES</u>
Service Bulletin PV/K1	<u>FUEL TANK VENTILATION SYSTEM</u>
Service Bulletin PV/M1	<u>STARTER MOTOR ISOLATING RELAY</u>
Service Bulletin S2/E3	<u>BREATHER BAFFLE IN S.2 ENGINE CRANKCASE</u>
Service Bulletin S2/E5	<u>REPOSITIONING THE OCTANE SELECTOR</u>
Service Bulletin S2/C2	<u>INTAKE WHISTLE - UNDERWING A.C.U.</u>
Service Bulletin S2/C3	<u>SUPPORT CLIP FOR COOLANT CONNECTIC</u>

- 3 -

The two excepted modifications are as follows :-

Service Bulletin S2/D10

AUTOMATIC TRANSMISSION FLUID -  
S.2 CARS - To remain CATEGORY 1

Service Bulletins S2/L11,  
S2/L12 and BC2/L1

COOLANT AND HEATER HOSES

This modification will be chargeable to the Owner as outlined in the  
Service Bulletins.

Except for action taken on Service Bulletins S2/D10, S2/L11, S2/L12  
and BC2/L1, all other modifications will be dealt with on a specific complaint  
from an Owner. No doubt there will be cases where Service personnel may consider  
that a certain modification is necessary without the Owner having complained.  
Under these circumstances it is desirable (whenever possible) for the matter to  
be referred to Rolls-Royce Limited or Bentley Motors (1931) Limited before  
action is taken.

No. S2/C7

Circulation - All Distributors  
and Retailers

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.

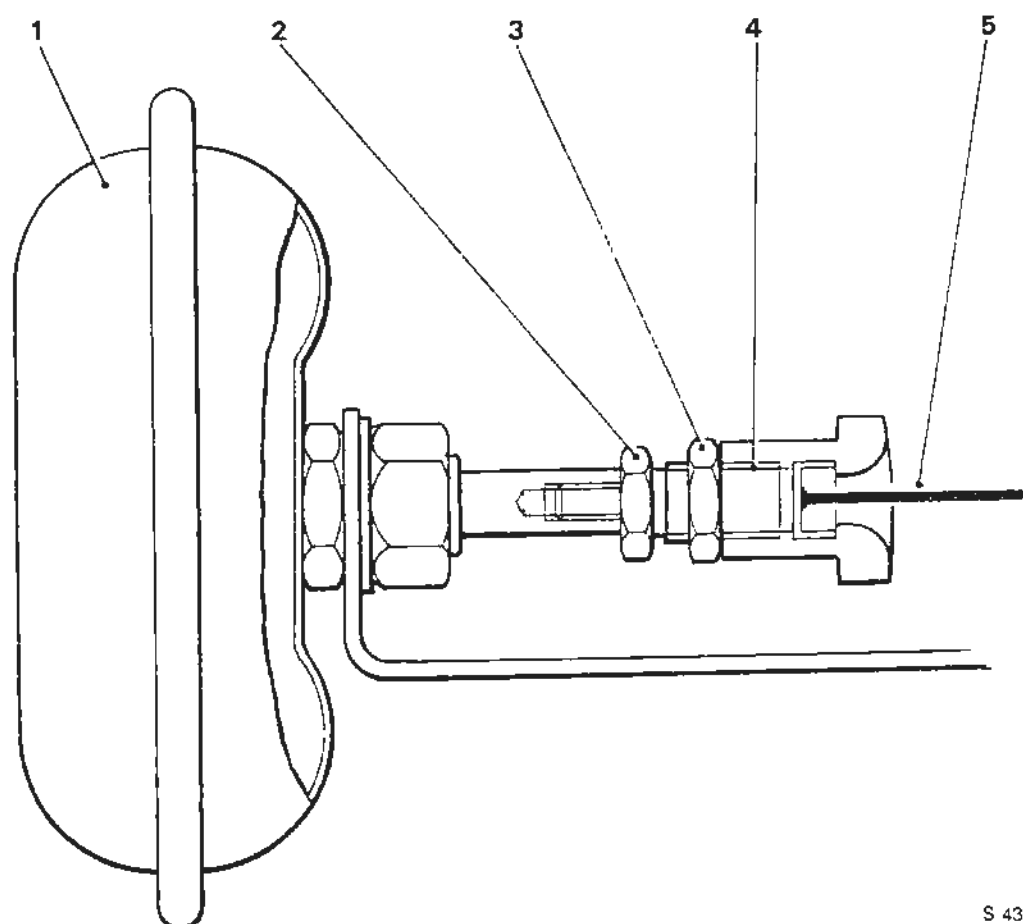
DESCRIPTION:

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).

Continued...



- 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

This Service Bulletin  
cancels all previous  
Bulletins numbered S2/D1

No. S2/D1

FOR INFORMATION

PERIODIC LUBRICATION AND MAINTENANCE SCHEDULES

FOR S2 CARS

The following periodic service schedules have been drawn up to assist Retailers and Service Personnel with the maintenance of Rolls-Royce and Bentley motor cars.

These schedules should be adopted by Retailers as a standard service procedure. Retailers should also endeavour to ensure that cars domiciled in their areas are serviced at the stated mileage intervals and to make the appropriate arrangements with Owners who wish to take advantage of this service procedure.

Briefly the schedules are as follows :-

1. 6,000 Mile Schedule At the completion of every 6,000 miles  
(10,000 Kms.)

Engine oil change - Check oil in steering pump and gearbox -  
Check coolant and brake fluid levels - Carry out minor engine,  
chassis and electrical system checks and lubrication.

2. 12,000 Mile Schedule At the completion of every 12,000 miles  
(20,000 Kms.)

Repetition of 6,000 Mile Schedule plus - Complete lubrication of  
suspension, steering and transmission - Checking of brake system, -  
further maintenance of engine, chassis and electrical system  
components.

3. 24,000 Mile Schedule At the completion of every 24,000 miles  
(40,000 Kms.)

Repetition of 12,000 Mile Schedule plus - Oil change of major  
components - maintenance of power assisted steering unit.

4. Seasonal Schedules

Every 12 months - Drain and reverse flush cooling system, servicing  
refrigeration system (where fitted).

- 2 -

Every 24 months: Repetition of 12 months schedule plus -  
Renewal of heater and coolant hoses.

### 6,000 MILE SCHEDULE

This schedule is to be carried out after the completion of every 6,000 miles (10,000 Kms.).

#### 1. Oil Changes

- i Drain and refill the engine crankcase.  
If the car is regularly used for town work and is subjected to a considerable amount of 'stop-start' operation, the engine crankcase should be drained and re-filled every 3,000 miles (5,000 Kms.).

NOTE:- On the completion of its first 3,000 miles (5,000 Kms.) running, the engine crankcase should be drained and re-filled and the 3,000 mile Service carried out in accordance with Service Bulletin No. S2/D7.

#### 2. Oil Level Checks

- i Carburetter air valve dampers.
- ii Steering pump reservoir.
- iii Automatic gearbox. (Check with the engine running, as described in the Automatic Gearbox Manual).

#### 3. Engine Adjustments and Checks

- i Renew the oil filter element.
- ii Clean the carburetter air valve dampers.
- iii Clean the contact breaker points, re-set the gaps, check and, if necessary, reset the engine timing.
- iv Check the tension of the belts driving the engine auxiliaries and adjust if necessary.
- v Lubricate the ignition distributor automatic advance and retard mechanism, the shaft bearings, the governor spindle, the contact breaker rocker arm pivots and cam.

- 3 -

- vi Clean the air filter element - wire mesh type only.
- vii Clean the spark plugs and re-set the gaps as recommended.

#### 4. Chassis Adjustments and Checks

- i Check the coolant level and its specific gravity. Top-up with the correct mixture of anti-freeze as necessary.
- ii Check and, if necessary, adjust the tyre pressures, (including the spare).
- iii Check and, if necessary, adjust the brake servo.
- iv Check and top-up the reservoir of the windscreen washer. Use only distilled water and Rolls-Royce Windscreen Washer Fluid.
- v Remove any foreign matter from the refrigeration condenser matrix - if fitted.
- vi Check the level of the brake fluid in the brake fluid reservoirs, and top-up if necessary.
- vii Lubricate the gear range selector controls and the accelerator linkage.
- viii Lubricate the brake system pivot pins and bearings.
- ix Change the road wheels round and balance.
- x Remove the brake drums and inspect the brake linings for wear. (The lining faces should not be less than 1/16 in. (1.6 mm.) above the rivets.). Check the rear brake adjustment.

#### 5. Electrical System Checks

- i Check the level of the electrolyte in the battery and top-up with distilled water as required.
- ii Check that all lights, direction indicators, and all instruments are operating satisfactorily.
- iii Check that the heater controls are operating satisfactorily.

#### 12,000 MILE SCHEDULE

This schedule is to be carried out after the completion of every 12,000 miles (20,000 Kms.).

- 1. Repeat 6,000 Mile Schedule.

- 4 -

2. Oil Level Checks

- i Check the front and rear shock dampers for signs of leakage. If apparent, inspect the oil level and top-up if necessary.
- ii Check and, if necessary, top-up the rear axle with oil.

3. Engine Adjustments and Checks

- i Renew the sparking plugs.
- ii Renew the carburetter air filter element - this only applies where the paper type air filter element is fitted (certain overseas countries only).
- iii Clean the filter gauzes in the carburetter float chamber feed connections.

4. Chassis Adjustments and Checks

- i Lubricate the grease nipple on the master cylinder balance lever pivot.
- ii Lubricate the thirteen grease nipples on the steering mechanism.
- iii Lubricate the eight grease nipples on the front suspension.
- iv Lubricate the three grease nipples on the rear propeller shaft.
- v Clean out the main fuel line filter and filter bowl and the filter gauzes in the fuel pump.
- vi Clean the electrical contact points and check the functioning of the fuel pumps. (Each pump should be tested independently).
- vii Clean the nylon filter gauze (Recirculating heater system) under the front right-hand seat.

5. Electrical System Checks

- i Clean, re-vaseline and tighten the battery terminals.

6. Test the Car on the Road

- 5 -

### 24,000 MILE SCHEDULE

This schedule is to be carried out after the completion of every 24,000 miles (40,000 Kms.).

1. Repeat 12,000 Mile Schedule
2. Oil Changes
  - i Drain and re-fill the automatic gearbox. Clean the oil breather in the top of the dipstick
  - ii Drain and refill the rear axle.
3. Oil Level Checks
  - i Check the oil level in the transfer steering box and top-up if necessary.
4. Engine Adjustments and Checks
  - i Clean the filter gauzes in engine breathing tube - on cars fitted with enclosed crankcase breathing system.
5. Chassis Adjustments and Checks
  - i Renew the filter element in the steering pump reservoir.
  - ii Release - but do not remove - the fuel tank drain plug to allow any accumulated water to escape.
6. Electrical System Checks
  - i Inspect the generator commutator and brushes for wear, also check the brushes for freedom in their holders.

### SEASONAL SCHEDULES

#### EVERY 12 MONTHS

1. Cooling System
  - i Drain the cooling system and reverse flush (see Service Bulletin S2/L1). Refill the system with an anti-freeze

- 6 -

mixture as recommended (See Service Bulletin S2/L8).  
This operation should be carried out immediately prior to  
the Autumn season. (In the U.K., prior to September  
21st.).

2. Refrigerated Cars Only

- i Check that the refrigeration system is functioning correctly  
and, if necessary, top-up with refrigerant. If there is a  
loss of refrigerant, check for leaks. (See separate instruction  
book).
- ii Check the level of the oil in the compressor. (See separate  
instruction book).
- iii Clean the air filter gauze fitted over the evaporator unit.  
(Boot Unit Only).

EVERY 24 MONTHS

1. Repeat 12 monthly schedule

2. Cooling System

- i Renew all the heater and coolant hoses.
-

FOR INFORMATION

MULTIGRADE ENGINE OILS

FOR S1 AND S2 CARS

The following multigrade oil has now been approved for use on S1 and S2 cars:-

Mobil - Mobiloil Special 10W/30

This oil should be added to the list of previously approved multigrade oils which are:-

B.P. - Energol Viscostatic 10W/30

Shell - X-100 10W/30

Wakefield's - Castrolite



No. S2/D3

This bulletin cancels all  
previous Service Bulletins  
numbered S2/D3.

FOR INFORMATION

LUBRICANTS: S2 CARS

The following is a revised list of Esso lubricants which are now  
officially recommended for use in all Rolls-Royce and Bentley S2. motor  
cars.

Engine: Winter	
Summer	Esso Extra Motor Oil 20W/30
Carburettor dampers	
Contact breakers	Esso Extra Motor Oil 20W/30
Hand oiling points	
Automatic gearbox	
Shock dampers	Esso Automatic Transmission
Steering pump	Fluid 55
Rear axle	
Steering transfer box	Esso Gear Oil GP 90
Propeller shaft centre bearing	Esso Multi-purpose Grease H
Front hubs	
Rear hubs	Esso Multi-purpose Grease H
Propeller shaft sliding and rear universal joints	Esso Multi-purpose Grease H

Retailers and Service Personnel should amend their Lubricants  
Chart accordingly

No. S2/D4

This Bulletin cancels all  
previous Service Bulletins  
numbered S2/D4

FOR INFORMATION

PUROLATOR AIR FILTER ELEMENT - S2 CARS

A change has been made to the Lubrication and Maintenance Schedule for S2 cars whereby the air filter element should now be renewed every 10,000 miles instead of every 30,000 miles

If for any reason it is necessary to remove the element before the stated mileage, care should be taken to ensure that it is not contaminated by oil, nor should any attempt be made to clean the filter in either petrol or paraffin.

A dirty element will cause considerable loss in engine power at speed. To check that loss of power is due to a blocked element, the performance of the car should be checked on a full throttle run with the gear lever in 3 range, first of all with the filter element fitted and then with the element removed. If it is found that the car's performance is seriously impaired when the element is fitted (usually denoted by a reluctance to change into 4th gear) a new element should be fitted.

The part number of the Purolator air filter element is UE.5801.

AUTOMATIC TRANSMISSION FLUID

Automatic Transmission Fluid WA-389 is to be used as an initial running-in oil on all new and reconditioned gearboxes supplied by the Spares Organisation of Rolls-Royce.

In future all new and reconditioned gearboxes will be supplied with three one-gallon cans of Automatic Transmission Fluid WA-389. This oil should be used in the gearbox until the first oil change, as laid down in the Service Schedule, whereupon one of the oils recommended in the Owner's Handbook or the Lubrication Chart should be used.

Gallon cans of Automatic Transmission Fluid WA-389 can be obtained from either:-

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

or

Rolls-Royce Limited,  
Repair Department,  
Hythe Road,  
Willesden,  
London, N W 10

(Counter Service Only)

No. S2/D6

This bulletin cancels all  
previous Service Bulletins  
numbered S2/D6.

CATEGORY 3

PUROLATOR AIR FILTER ELEMENT

The size of the variations in restriction of air flow to the engine, with the present oil-wetted air filter element (UE. 9513) is not acceptable. Whilst some filter elements give satisfactory engine performance, others, due to the high restriction of air flow to the engine, give increased fuel consumption. It is therefore recommended that the oil wetted elements are discarded and replaced by the dry type of filter element, (UE 5801).

It should be noted that the return to the dry filter element is an interim measure only and that, in a short time, a wire scrubber filter will be introduced.

All existing stocks of the oil wetted filter element (UE. 9513) should be destroyed.

The servicing procedure laid down in Service Bulletin S2/D4 is still applicable to the dry filter element (UE 5801).

FOR INFORMATION

3,000 MILE SERVICE - S2 CARS.

The following Service should be carried out on all S2 cars at the completion of the cars' first 3,000 miles. The main purpose of this Service is to ensure that the engine crankcase is drained and re-filled and to enable Retailers to take the opportunity of carrying out the undermentioned checks and making any adjustments which may have become necessary.

1. Drain and re-fill the engine crankcase.
2. Check the carburetter air valve dampers.
3. Check the steering pump reservoir.
4. Check the brake fluid reservoirs.
5. Check the automatic gearbox oil level.
6. Check the coolant level.
7. Check the tension of the belts driving the engine.  
auxiliaries and adjust.
8. Check and adjust the rear brakes and servo.
9. Check the tyre pressures.
10. Check the battery electrolyte and top-up if necessary.
11. Check and top-up the windscreen washer reservoir.
12. Test the car on the road.

FOR INFORMATION

AIR CONDITIONING SYSTEM - MAINTENANCE PERIODS

Due to the alterations to the Lubrication and Maintenance Schedules it will also be necessary to amend the Service intervals for the Air Conditioning System as laid down in the Workshop Manual (TSD.723).

Lubrication and Maintenance checks should be carried out at the mileage intervals stated below:-

Every 6,000 miles (10,000 Kms.)

1. Check the tension of the compressor driving belts.
2. Apply a few drops of engine oil to the flap actuator Linkages.
3. Examine the condenser matrix and remove all obstructions.

Every 12,000 miles (20,000 Kms) or annually

1. Check the complete system for leaks and correct functioning and if necessary re-charge the system.

These checks apply both to the Underwing Unit and the O.M.C. unit.

FOR INFORMATIONWIRE MESH AIR FILTER ELEMENT (UE.9813) - S.2 CARS

Except in countries where dry dusty conditions prevail, it has been decided to introduce a wire mesh air filter element to replace the existing paper element fitted to S.2 cars. The element is washable and is completely interchangeable with the present paper element. No alterations to the carburetter and automatic choke settings are necessary.

It is recommended that the element is changed at the car's next scheduled service and thereafter that it is cleaned every 6,000 miles.

The wire mesh filter (UE.9813) is to be used in all countries, with the exception of the following, who will continue to use the paper element (UE.5801).

Australia, Bahamas, Gibraltar, Greece, Jamaica, Yugoslavia, Mexico, New Zealand, Portugal, South America and Spain.

The African Continent. (Algeria, Egypt, Kenya, Madeira, Morocco, Nigeria, South Africa, Sudan, Tangiers, Tunis, etc.)

The Asian Continent. (Hong Kong, India, Iran, Iraq, Israel, Jordan, Lebanon, Syria, Turkey, etc.)

INITIAL INSTALLATION OF THE WIRE MESH ELEMENT

The following procedure must be carried out before fitting the wire mesh element to S.2 cars.

1. Immerse the new element in clean engine oil for a period of five minutes.
2. Remove the element from the oil and allow it to drain for a further period of two hours.
3. Fit the element to the air silencer.

- 2 -

SERVICING PROCEDURE - Every 6,000 miles (10,000 Kms.).

At the completion of each 6,000 miles, the element should be removed and thoroughly washed in petrol. After allowing the element to dry repeat the operation described above for installing a new element.

MATERIAL REQUIRED

<u>Part Number</u>	<u>Description</u>	<u>Quantity</u>
UE.9813	Wire mesh filter element and end plate assembly.	1 off



This Bulletin cancels all previous Service Bulletins numbered S2/D10.

CATEGORY 1

AUTOMATIC TRANSMISSION FLUID - S2 CARS

The transmission fluid used at the factory for initial fill of automatic gearboxes during the latter part of 1960 has been found to be unsatisfactory under certain operating conditions in service and the following is a list of cars, to which the contents of this bulletin are applicable.

APPLICABLE TO:-

All cars between the following chassis numbers:-

<u>MODEL</u>	<u>CHASSIS NOS.</u>
Rolls-Royce Silver Cloud II	from SVB.191 to SYD.14.
Bentley S2	from B.2.BS to B.434.CU.
Rolls-Royce L.W.B. Silver Cloud II	from LCA.55 to LCB.81.
Bentley L.W.B. S2	from LBA.14 to LBB.1.
Rolls-Royce Phantom V	from 5.AT.34 to 5.BV.95.
Bentley Continental S2	from BC.125.AR to BC.99.BY.

Chassis numbers are inclusive.

Retailers and Service Personnel should refer to the appendix attached to this Bulletin to ascertain whether the car has already been checked.

PROCEDURE

Retailers are requested to call in all cars in their territory that are within the suspect range, and to carry out the following operations:-

1. Drain Gearbox and remove sump.
2. Examine sump for signs of excessive sludge.
3. Examine filter gauze for signs of deterioration.

If there are signs of excessive sludge in the sump, the gearbox is to be removed from the car and replaced or re-worked. If the filter gauze shows signs of deterioration it should be replaced.

- 2 -

If there are no signs of excessive sludge and the gearbox appears to have been operating satisfactorily, the sump should be replaced and the gearbox re-filled with Mobilfluid 200 type AQ-ATF-752A, which can be obtained through any Mobil Sales Office.

The car should be tested on the road and any necessary adjustments carried out. If there are signs of clutch slip and adjustment does not correct this fault, then the gearbox should be removed from the car and replaced or re-worked.

#### IDENTIFICATION

To indicate that the foregoing action has been taken the drain plug socket should be circled with yellow paint.

#### TIME ALLOWANCE

Drain, inspect and re-fill	2 hours
Drain, inspect and change gearbox	16 hours
Re-work gearbox	21 hours

Guarantee Claims will be accepted for the material and labour utilised.

APPENDIX I

The following is a list of cars which, as on the 29th of March 1962, had had the automatic transmission fluid changed. It should be noted that as these cars were attended to before the introduction of this Service Bulletin, they will not carry the yellow identification mark around the gearbox drain plug socket.

Model and Series

Chassis numbers

SILVER CLOUD II

B.	SVB.315, 351, 441, 495.
C.	SWC.2, 12, 116, 120, 186, 286, 330, 352, 384, 476, 492, 522, 536, 636 and 648.
	SXC.5, 9, 129, 167, 203, 209, 229, 257, 303, 369, 389, 401, 407, 409, 485, 495, 513, 517, 519, 541, 601 and 669.

BENTLEY S.2.

B.	B.220.BS, 230, 280, 304, 356, 362, 364, 430 and 494.
C.	B.9.CT, 37, 63, 87, 139, 205, 267, 353, 355, 399, 429 and 433.
	B.12.CU, 20, 42, 52, 56, 92, 158, 164, 176, 182, 220, 242, 246, 252, 312 and 336.

SILVER CLOUD II L.W.B.

A.	LCA.70,
B.	LCB.8, 22, 29, 38, 45, 67, 75 and 76.

BENTLEY S.2. L.W.B.

A.	LBA.21.
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- 2 -

PHANTOM V

- A. 5.AT.74.  
B. 5.BV.1, 57 and 61,

BENTLEY CONTINENTAL S.2.

- A. BC.150.AR.  
B. BC.10.BY. 43, 50, 84 and 86.

Would Retailers and Service Personnel please notify the Service Promotion Department, Crewe, of the chassis number of each suspect car when it has been checked, and state at the same time whether the transmission fluid has been changed or a reworked gearbox fitted. Replies should be marked for the attention of MGW/Bvr.

No. S2/D11

This Bulletin cancels  
Service Bulletin S2/D5  
dated 14.7.61 and Ser-  
vice Bulletin S2/D11  
dated 30.10.62.

FOR INFORMATION

AUTOMATIC TRANSMISSION FLUIDS

The purpose of this Bulletin is to restate the position regarding Automatic Transmission Fluids recommended for use in the Rolls-Royce Automatic Gear-box.

The following Transmission Fluids are recommended for topping-up gear-boxes in Service, and for use when draining and refilling gearboxes in accordance with the Service Maintenance Schedule.

Castrol	Castrol TQ
Mobil	Mobil fluid 200 AQ-ATF-2320A
	Mobil fluid 200 AQ-ATF-752A
Shell	Donax T6
B.P.	Energol ATF Type A
Esso	Esso Automatic Transmission Fluid

Automatic Transmission Fluid Mobil WA 389 should now be considered only as a 'factory fill' oil for use in new gearboxes within the Rolls-Royce factory at Crewe or in reconditioned gearboxes supplied by the Spares Departments. The Spares Departments at Crewe and Hythe Road will continue to supply this oil with new or reworked gearboxes for 'initial fill' but not for topping-up purposes.

FOR INFORMATION

FUEL TANK DRAIN PLUGS

Difficulty has been experienced in releasing the fuel tank drain plug when carrying out the initial 24,000 mile Service Schedule.

To prevent this difficulty from arising at subsequent Service Schedules, whenever the fuel tank drain plug is removed, the thread should be coated with Marlube Moly 51 lubricant.

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FOR INFORMATION

ENGINE OILS

The manufacturers of Esso oils have changed the name of one of their products from Esso Extra Motor Oil 20W/30 to Esso Motor Oil 20W/30 and therefore the following pages in the Workshop Manual and Service Bulletin should be amended accordingly.

Workshop Manual (T.S.D. 729) Page D.16

Service Bulletin S2/D3 dated 29.5.61. Page 1

Furthermore, a new Esso oil has been introduced and is called Esso Extra Motor Oil 10W/30. This oil has not been approved for use in Rolls-Royce engines and therefore should not be used for engine oil changes or topping-up.

No. S2/D14

Circulation - All Distributors  
and Retailers

CATEGORY C

AUTOMATIC TRANSMISSION FLUIDS

APPLICABLE TO:

All Rolls Royce Silver Cloud II, Phantom V and Bentley S2 cars.

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 Four Speed 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 of service life, the automatic gearbox should be drained and refilled with any fluid shown in the chart.

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

Continued...



- 2 -

**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 752A OR AQ/ATF 2520 A	Mobil ATF 220 Dexron	Mobil ATF 220 (Dexron)
REGENT	-	Regent Texamatic Dexron	Regent Texamatic Dexron
SHELL	Donax T6	Shell Donax T6 (Dexron (®) )	Shell Automatic Transmission Fluid (Dexron (®) )

Note :- Dexron is a registered trade name.

CATEGORY 2

REAR HYDRAULIC BRAKE HOSE

S2 CARS AND PHANTOM V

On certain S2 cars it is possible for the rear brake hose to become trapped on top of the road spring and chafe against the brass poundage plate.

This can only occur if the hose has been fitted so that it is positioned with a bias towards the spring.

It is therefore essential to check the clearance of the hose relative to the spring and also to examine the hose for signs of chafing.

If the hose is found to be in a position with a bias towards the spring but is not damaged, proceed as follows :-

Slacken the unions and reposition the hose so that its loop falls in a vertical plane.

Bleed the braking system.

Time allowance 1 hr.

If the hose is found to be damaged it must be renewed as follows :-

Slacken the unions and remove the damaged hose.

The 'Tee' junction bracket which is welded to the axle tube must be set away from the tube approximately 10°.

Fit the new hose, ensuring that when the unions are tightened, its loop falls in a vertical plane.

Bleed the braking system.

Time allowance 1.1/4 hrs.

CATEGORY 3

S2 BRAKE SERVO

If for any reason it becomes necessary to remove a servo, the opportunity should be taken to incorporate the following modification on all cars built prior to the following Chassis Numbers.

Bentley S2	B-166-BS
Bentley Continental S2	BC-128-AR
Silver Cloud II	SVB-351
Silver Cloud II LWB	LLCA-66
Phantom V	5-LAT-42

The three pins (UG.771), which drive the lined servo friction plate, should be modified by removing .075 in. from the slotted ends, this increases the internal working clearance between the pin ends and pressure plate.

Unscrew the pins from the end of the servo drive shaft.

Using suitable clamps, hold each pin in a vice and file off the required amount, ensuring that the face is kept square to the centre line of the pin.

Remove any burrs, particularly in the slots. Refit the pins in the servo drive shaft and ensure that they are fully tightened.

On completion of the modification, the gearbox rear extension must be marked with a spot of blue paint for future identification that the modification has been carried out.

FOR INFORMATION

BRAKE FLUID

It has become necessary to acquaint all Retailers and Service Personnel with the fact that all brake fluid is hygroscopic, i. e. that the fluid will absorb and chemically combine with water from the atmosphere.

Brake fluid which is contaminated by water will boil at a much lower temperature than fluid with no water content; e.g. fluid which has a water content of 5% will boil at 134°C as opposed to brake fluid with no water content which boils at 206°C.

If the fluid is contaminated and the car is braked excessively or braked hard from very high speeds, there will be a tendency for the heat generated by the brakes to boil the fluid, finally resulting in vaporisation of the brake fluid and in ineffective brakes.

To eliminate the possibility of contaminating the brake fluid it is most essential that the brake fluid is not exposed to the atmosphere for more than the absolute minimum. It should always be stored in and used direct from small sealed containers and when the braking system is replenished, immediately replace the covers both on the brake reservoirs and the container.

IMPORTANT :- Use only Castrol-Girling Brake Fluid (6293) -  
Crimson.

CATEGORY 3

BRAKE CLEVIS PINS

If for any reason it is necessary to carry out any work on the front brakes or to relined the brake shoes, the opportunity should be taken to replace the wheel cylinder clevis pins on all cars built prior to the following chassis numbers.

Bentley S.2	B 475 DV
Silver Cloud II	SZD 503
Bentley S.2. L W.B.	LBB 25
Silver Cloud II L.W.B.	LCC 71
Phantom V	5 CG 33

PROCEDURE

Remove the wheel discs, then slacken the wheel nuts.

Jack up the front end of the car and place it on suitable stands.

Remove the road wheels.

Remove the screws securing the brake drums to the wheel hubs then remove the drums.

Remove the split pin and washer securing the clevis pin between the brake shoe and the wheel cylinder link. Using a 5/16 in. diameter steel bar push the clevis pin out of the brake shoe and link. The bar should be pushed through so that as the clevis pin falls out the shoe is held to the wheel cylinder by the bar.

Insert the new clevis pin from the back of the brake, pushing out the bar. Fit the washer and split pin.

Repeat this operation for the remaining three clevis pins.

Fit the brake drums, road wheels and wheel discs.

- 2 -

MATERIAL REQUIRED

UG.4160 Clevis Pin - Front Brake      4 off

IDENTIFICATION

The new clevis pin is bronze in colour where as the original pin was cadmium plated.

TIME ALLOWANCE

1½ hours.

FOR INFORMATIONHAND BRAKE - WARNING LIGHTDESCRIPTION

A warning light is fitted to all present production cars to indicate to the driver that the handbrake is either 'on' or 'off'. The warning light is operated by a microswitch mounted on a bracket on the chassis frame behind the handbrake operating lever. For the warning light to function correctly, it is essential that when the handbrake is pulled 'on', the light comes on before the handbrake reaches the first notch on the ratchet. Any incorrectly set warning lights should be adjusted as follows.

HANDBRAKE WARNING LIGHT - ADJUSTMENT

With the handbrake in the 'off' position and with the button on the microswitch held down, the microswitch should be adjusted so that a 0.060 in. gap is obtained between the button and the handbrake operating lever.

After carrying out this adjustment, check that the warning light comes on before the first notch on the handbrake ratchet is reached.

FOR INFORMATION

SHORTENED BRAKE LININGS - S2 CARS

From October 1963 all S3 series cars have been fitted with shortened brake linings to alleviate brake squeal problems in service.

It should be noted that all brake linings and brake shoe/lining assemblies supplied in the future by the Spares Central Stores for S2 cars will be of the shortened type. For details of these linings and fitting procedure, all the information contained in Service Bulletin S3/G1 applies to S2 brakes.



FOR INFORMATION

RENEWAL OF RUBBER COMPONENTS FOR THE S2 BRAKING SYSTEM

APPLICABLE TO:

All S2 cars.

In the interest of safety, it has been decided to re-specify mileages at which the rubber components of the braking system should be renewed. These mileages and action required are as follows.

48,000 miles

Renew the high and low pressure hoses and wheel cylinder seals.

60,000 miles

Renew the brake master cylinder seals.

The above mentioned seals should be renewed at the 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 renewing all rubber components is chargeable to the customer. However, it must be emphasised that it should not be a normal function to renew such components unless other work is being undertaken at the same time; also, the approval of the customer must be obtained as to the charges to be incurred.

FOR INFORMATION

HARSH FRONT SUSPENSION

Occasionally complaints have been received concerning harshness of the front suspension; this may be identified by vibrations which may be felt throughout the car, particularly by the driver through the steering wheel. These vibrations are very similar to those produced when driving the car over extremely rough road surfaces.

FRICTION HEIGHT

The friction height, which must not be confused with the standing height, is a means of testing whether there is excessive friction in the front suspension.

To check the friction height, ensure that the car is standing on a level surface, then press down the front of the car as far as possible and release gently. Measure the vertical height from the floor to the underside of the front pan. Raise the front of the car by hand and release gently. Again measure the vertical height to the same point on the underside of the front pan. The difference between the first (lesser) measurement and the second (greater) measurement is the friction height which should not exceed 9/10 in.

If the friction height is over 9/10 in. or if undue effort is required to press down or raise the front of the car, this indicates that there is excessive friction in the front suspension.

Continued.....

- 2 -

HARSH FRONT SUSPENSION - TO RECTIFY

Before commencing any adjustments to the front suspension, it is essential to ensure that the steering geometry is correct.

FIRST METHOD

Lubricate the front suspension pivot points as shown in Figure. 1. with either of the following approved lubricants :-

Rocol Moly Spring Grease 204G.

Shell Grease S5466.

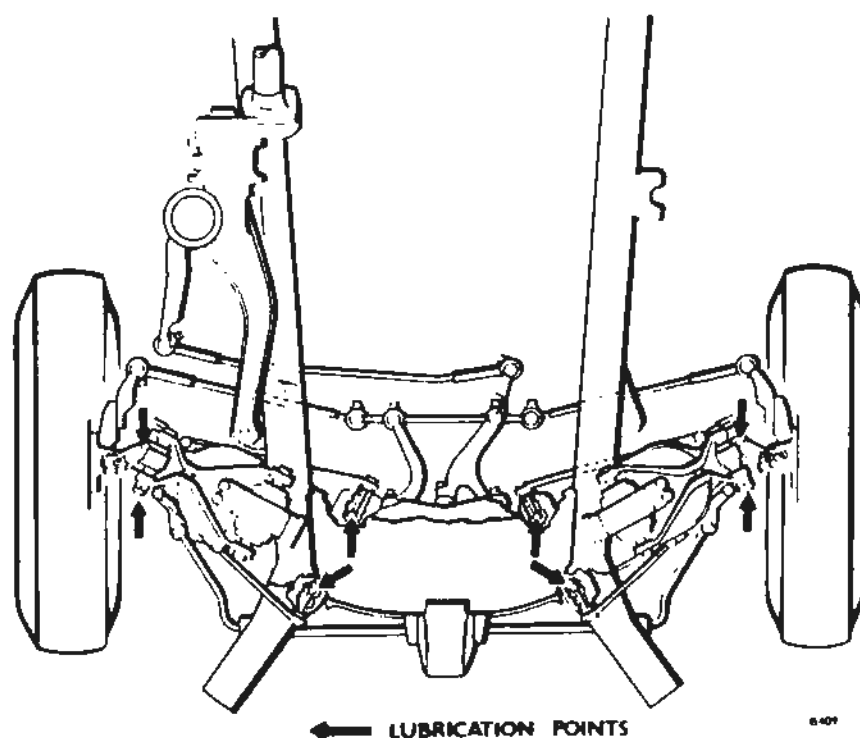


Fig. 1. Front Suspension Lubrication Points.

Continued.....

ROLLS-ROYCE LIMITED, PYM'S LANE, CREWE, ENGLAND

RS/JW/EW.

6.3.61.

SECTION H

PRINTED IN ENGLAND

- 3 -

To facilitate penetration of lubricant to the threaded bearings, the front of the car should be pressed down and then released continuously during the process of lubrication.

After lubricating the suspension, check the friction height again and if the difference between the two measurements is still in excess of 9/10 in. the following method must be carried out.

## SECOND METHOD

### Special Tools Required

RH. 195 Front Spring Compressor

Foot scales capable of weighing up to 10 stone

### Front Suspension - To Measure Friction

Press down on alternate sides of the car to determine whether the friction is greater on one side than the other. If the friction is approximately equal on each side it will be necessary to rectify both sides.

Position a jack under the front pan, taking care that the jack head does not come into contact with the steering power cylinder. Jack up the car and place supports under the chassis side members well clear of the front suspension.

Remove the appropriate road wheel(s) and detach the stabiliser rod. Using Tool No. RH. 195, compress the front coil spring. Unscrew the four nuts, and remove the bolts and plain washers securing the front spring support plate to the lower triangle levers, then remove the front spring. Refit the spring support plate and tighten the securing bolts to prevent distortion in the lower triangle levers when checking the friction.

Place a screw jack on to the weighing scales and add sufficient wood packing under the scales to enable the jack head to contact the brake drum, see Figure.2.

Continued.....

- 4 -

Raise the suspension by means of the screw jack and note the reading on the scales as the upper triangle levers pass the horizontal position. Lower the suspension by unscrewing the jack and again note the reading as the upper triangle levers pass the horizontal position. The difference between the first and second reading should not be more than 36 lb. If the difference is more than 36 lb. the following operations should be carried out in order.

### Harsh Front Suspension - To Rectify

The friction should be measured after each of the following operations until a figure is obtained not exceeding 36 lb. If the friction is reduced by any one of the operations it should be noticeable by raising the suspension by hand.

1. Slacken the two  $\frac{1}{2}$  in. U.N.F. bolts securing the shock damper to the chassis frame; then re-tighten them.
2. Slacken the two bolts securing the shock damper mounting plate to the chassis frame; then re-tighten them.
3. Slacken all four bolts securing the shock damper, then remove the rear two bolts, nuts and washers. Tighten the two front  $\frac{1}{2}$  in. U.N.F. bolts first and then fit and tighten the rear two bolts. If the rear two bolts cannot be positioned in the mounting plate holes these holes should be enlarged by filing to obtain correct alignment.

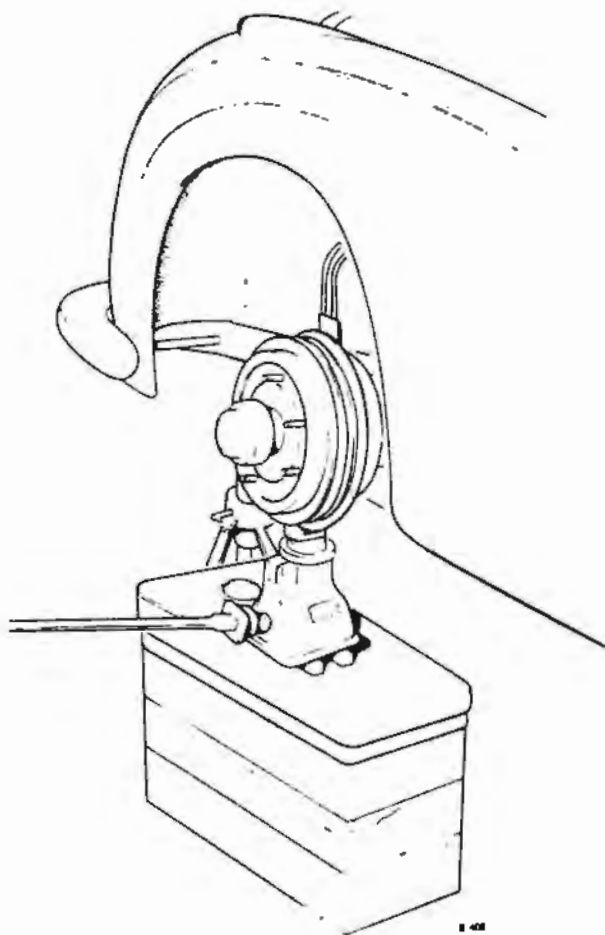


Fig. 2. Method of Measuring Front Suspension Friction.

Continued.....

The previous three operations are usually sufficient to correct most cases of harsh front suspension but in extreme cases it may be necessary to adopt the following operation.

4. Unlock the tabs on the fulcrum bracket locking plates and slacken the four nuts and bolts securing the fulcrum bracket to the front pan. Experiment by placing feeler gauges between the front pan and either the front or rear faces of the fulcrum bracket and tightening the four bolts.

A guide to which face of the fulcrum bracket the feeler gauges should be inserted may be obtained by examining the position of the upper triangle levers on the shock damper shaft. If the levers are positioned more to the rear of the car, the feeler gauges should be inserted between the rear faces of the fulcrum bracket.

For each setting the suspension should be weighed until the friction figure does not exceed 36 lb. When the friction figure is correct, the feeler gauges should be removed and correct packings fitted as follows :-

<u>Part No.</u>	<u>Thickness</u>
UR.5325	0.048 in.
UR.5326	0.037 in.
UR.5327	0.024 in.

Fit new locking plates to the four bolts securing the fulcrum bracket to the chassis frame. Before tightening and locking these bolts, take up the clearance in the bolt holes by pushing the yoke end of the lower triangle levers towards the rear of the car.

Refit the front coil spring reversing the procedure for removal.

Re-connect the stabiliser rod.

Refit the wheel.

Remove the supports, lower the car and remove the jack.

After any adjustment to the front suspension unit it is advisable to finally check the steering geometry.

Circulation - All Rolls-Royce  
Franchise Holders

Category C

DELETION OF RIDE CONTROL

APPLICABLE TO:

All Rolls-Royce Silver Cloud II cars and all Bentley S2 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



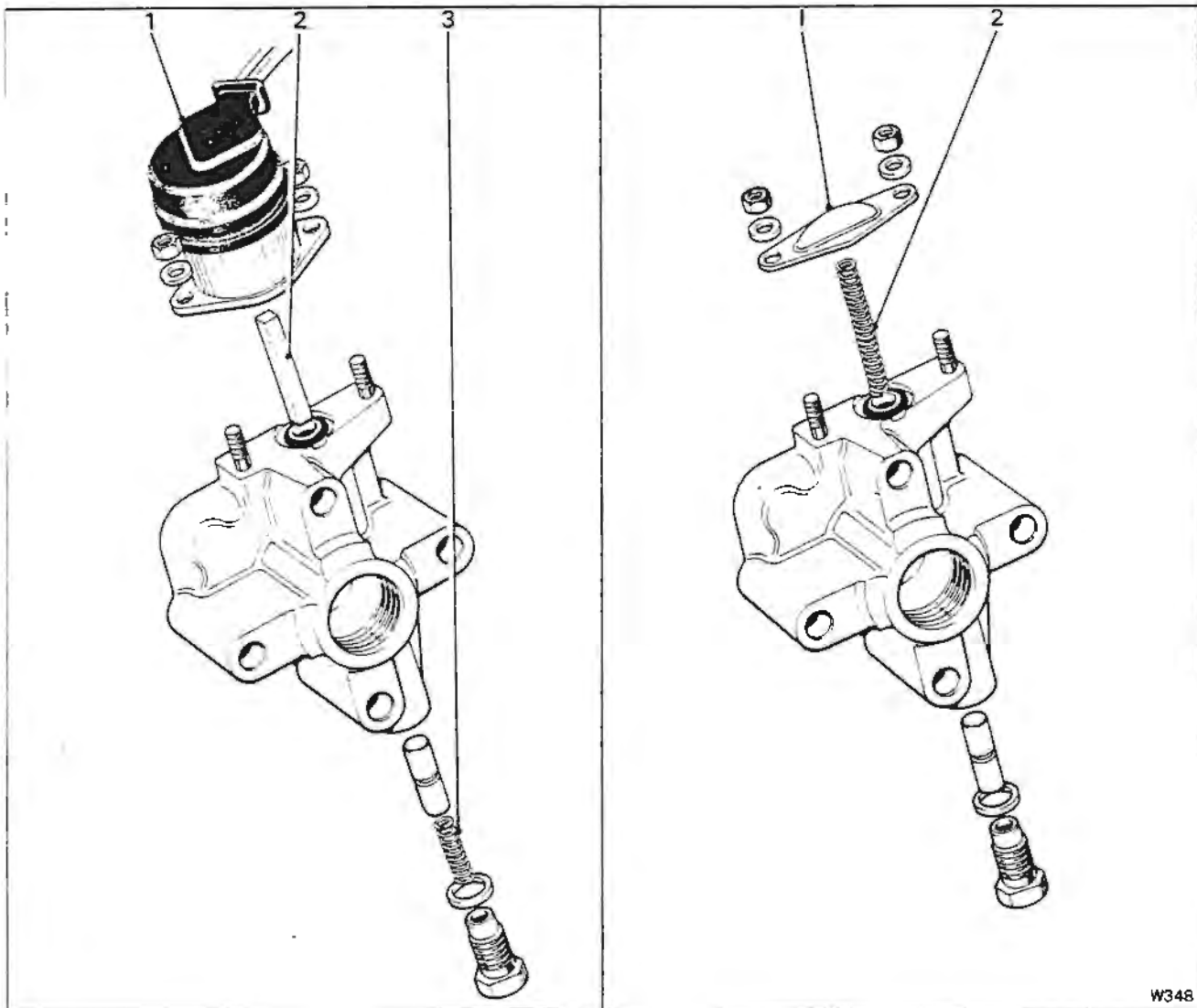


FIG 1 EARLIER ASSEMBLY

- 1 Solenoid
- 2 Push Rod
- 3 Spring

FIG 2 LATER ASSEMBLY

- 1 Blanking Plate
- 2 Spring

No. S2/K1

CATEGORY 2

This Service Bulletin cancels  
S2/K1 dated 29.2.60.

MODIFIED THROTTLE CONTROLS  
LEFT-HAND DRIVE S.2 CARS

A modification has been introduced on S.2. left-hand drive cars, to prevent slipping and consequent damage of the throttle linkage. This involves the fitting of two new levers UE.8052 and UE.8049 which replace levers UE.7836 and UE.7817 respectively.

This modification should be carried out on a Category 2 basis and affects all cars prior to chassis No's SPA.230 and 303.LAA.

THROTTLE SHAFT OPERATING LEVER AND CARBURETTER THROTTLE  
AND STOP LEVER - TO REMOVE

Remove the rubber hosing from the air silencer and the butterfly housing, then remove the air silencer from the bonnet.

Disconnect the control rod from the arm of the throttle shaft operating lever, located just forward of the bulkhead.

Remove from the bulkhead, the screws securing the bracket which carries the Metalastik rubber bush, then move the throttle operating shaft upwards so that the bracket is clear of the bulkhead. Remove the split pin and washers which secure the Metalastik bush to the throttle shaft operating lever then remove from the lever, the rubber bush bracket and distance piece.

Slacken the pinch bolt securing the operating lever to the throttle cross-shaft and remove the lever.

Disconnect the throttle shaft from the carburetter throttle and stop lever by removing the split pin, dished washers and springs.

Unhook the spring from the carburetter throttle levers. Remove the split pin and disconnect the throttle valve control connecting link from the carburetter throttle lever.

Remove the split pins retaining the connecting link between the two carburetter throttle levers and remove the link.

- 2 -

Remove the carburetter throttle and stop lever from the 'B' bank carburetter throttle spindle.

THROTTLE SHAFT OPERATING LEVER (UE.8049) AND CARBURETTER THROTTLE AND STOP LEVER (UE.8052) - TO FIT

Fit the new carburetter throttle and stop lever to 'B' bank carburetter spindle, but do not fully tighten the pinch bolt, then fit the connecting link between the throttle levers, using new split pins. When fitting this link, care should be taken to ensure that it is fitted through the upper hole in the 'B' bank throttle lever. Slacken off the pinch bolt on the 'A' bank carburetter throttle lever and synchronise the two throttles.

THROTTLES - TO SYNCHRONISE

The links incorporated in the induction system are of fixed length; therefore the only setting that is required is to ensure that the throttle blades are synchronised, i.e. that they both reach full throttle simultaneously and that they both return to the closed position together.

To facilitate this setting it is recommended that a quadrant be made, similar to that shown in Figure 1, which will fit over the carburetter spindles.

Two positions are required on the quadrant; "Throttles closed", and "Throttles open".

The procedure for setting the throttles is as follows:-

Remove the carburetter suction chambers and pistons. Fit the special quadrant to the carburetter spindles then with 'B' bank throttle blade held in the closed position and the choke 'off', set the lever (UE.8052), so that the throttle stop platform is opposite the "Throttle closed" position on the quadrant, then tighten the pinch bolt.

With 'B' bank throttle blade still in the position, close 'A' bank throttle blade, then tighten the pinch bolt on the operating lever.

- 3 -

With the throttles closed, adjust the throttle stop screw to obtain a gap of .002 in. between the screw and the lever platform, then turn the screw another half-turn and tighten the locknut. This setting is sufficient to 'crack' open the throttle blades and to prevent them 'digging' into the carburettor body.

Secure the throttle valve control connecting link to the carburettor throttle lever on 'B' bank, using a new split pin.

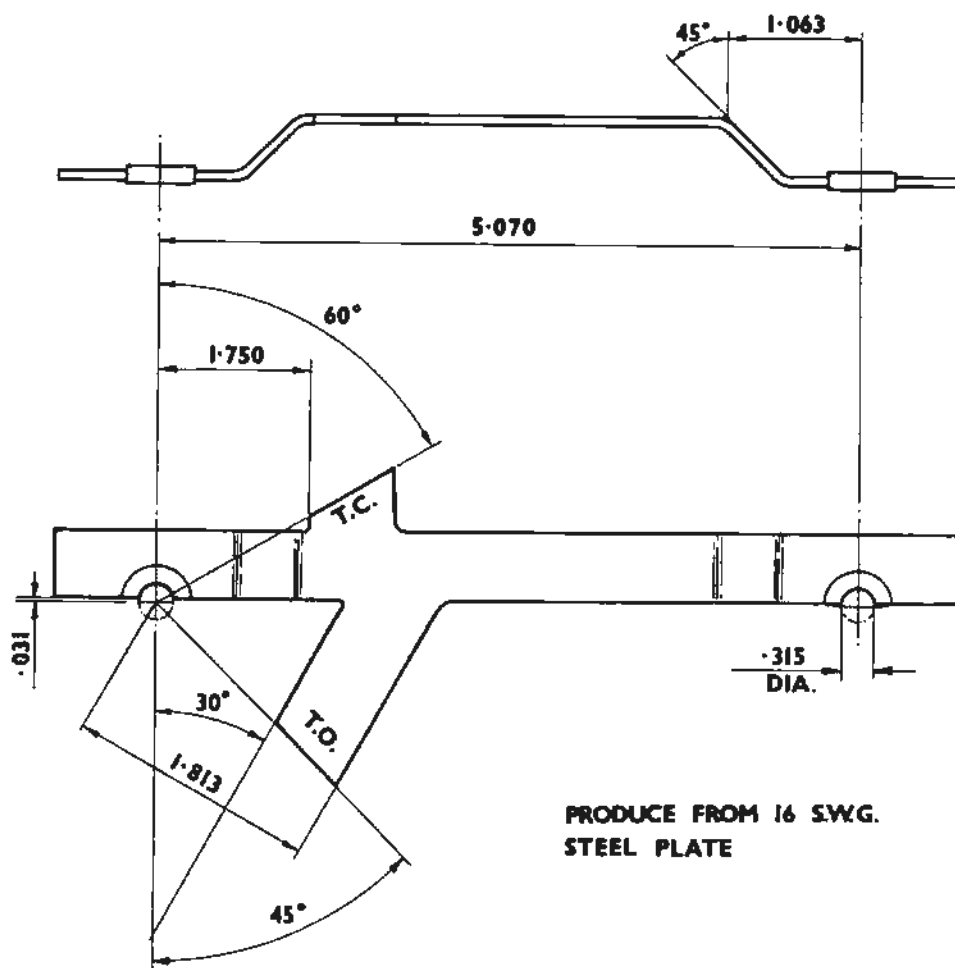


Fig. 1. Carburettor Levers Setting Quadrant.

Connect the spring between the two carburetter throttle levers.

Fit the carburetter pistons and the suction chambers.

Fit the throttle cross-shaft to the carburetter throttle lever ensuring that the spring and the dished washers are in the correct positions; fit a new split pin.

Fit the throttle shaft operating lever to the Metalastik rubber bush and secure it in position, using a new split pin.

Fit the throttle shaft operating lever and the rubber bush to the throttle shaft; do not tighten the pinch bolt. Fit the rubber bush and bracket to the bulkhead.

#### ACCELERATOR PEDAL TO CARBURETTER CONTROLS - TO SET

Position the carburetter throttle shaft operating lever arm in a horizontal plane when the throttle blades are fully closed and the choke is 'off' and then tighten the pinch bolt. The 'T' - piece at the carburetter end of the throttle shaft should be in the mid-position of its slide.

Place a rod .125 in. diameter, between the accelerator pedal lever and the rubber off-stop then adjust the length of the control rod so that it mates with the throttle operating shaft lever. Connect the shaft to the lever.

Fit the carburetter lever setting quadrant to the carburetter spindle and check that the throttle levers reach the "Throttles open" position, when the accelerator is fully depressed and the choke is 'off'.

#### CARBURETTER TO GEARBOX CONTROLS - TO SET

Slacken the pinch bolt of the lever on the manifold cross-shaft and adjust the shaft so that the lever at the other end of the shaft lies horizontally when the carburetter throttle blades are closed and the choke is 'off'. Tighten the pinch bolt.

With the throttle valve lever in the fully closed position, check that the distance from the centre of the eye of the throttle valve lever to the rear face of the gearbox main casing is 4.125 in. If necessary, slightly bend the lever to obtain this setting.

- 5 -

With the throttle blades closed and the choke 'off', adjust the lengths of the throttle valve rod and the connecting rod so that the throttle valve lever is in its fully closed position and the lever connecting the throttle valve rod to the connecting rod is against the off-stop on the bell housing, then shorten the throttle valve rod by one complete turn of the rod.

FINAL ADJUSTMENT ON ROAD TEST

Fit the air silencer and rubber hosing.

Set the controls for good, light throttle changes by adjusting the connecting rod as follows:-

If the gear changes are 'slippy', lengthen the connecting rod.

If the gear changes are jerky, shorten the rod.

If, adjustment to the kick-down is necessary after the gear changes have been set, it should be done by adjusting the throttle control rod.

NEW PARTS REQUIRED:-

UE.8052 Assy-Throttle and Stop Levers - Carburetter - 1 off

UE.8049 Assy-Operating Lever and Throttle Shaft - 1 off

CATEGORY 2

MODIFICATIONS TO THE AUTOMATIC CHOKE SYSTEM.

The following modifications will be incorporated on production and should be carried out on cars in customer's hands at the first convenient opportunity, preferably at the 2,500 miles or 5,000 miles maintenance schedules.

a) Fitting of an Otter switch UD.1819

This switch is being incorporated to facilitate easier starting with a warm engine. The Otter switch is wired in series with the thermal delay switch, and prevents the choke solenoid circuit becoming energised and holding the choke butterfly valve closed, when the underbonnet temperature is above 10° Centigrade.

b) Increase of the kick-gap setting

c) Resetting of the bimetal coils

The purpose of the adjustments b & c is to shorten the length of time the choke is opening during engine warm-up.

d) Fitting of a shield over the bimetal coil housing

e) Fitting of asbestos lagged hot air pipes

A separate problem which is not cured by a, b, and c, is the partial closing of the choke when the car is driven at high speeds on an Autobahn or Motorway in cold weather. This is due to a chilling of the hotspot and is curable by fitting a simple shield over the bimetal coil cover and lagging the choke hot air pipes with asbestos sleeving.

MODIFICATION PROCEDURE

a) FITTING THE OTTER SWITCH

The Otter switch is designed to close at an underbonnet temperature of 10°C., thereby completing the choke solenoid circuit. At temperatures above 10°C the switch will not close, therefore the choke solenoid will not hold the butterfly valve closed thereby preventing richness when starting with a warm engine.

The Otter switch should be fitted and wired in series with the solenoid earth return from the Scintilla thermal delay switch.

The switch should be mounted on the bulkhead, working to the dimensions shown in Figure 1. It should be secured with two No. 8 Self-tapping screws (CS. 31060/Z).

Two new cables (UR. 5236 and UR. 5237) are required to wire the Otter switch. One cable (UR. 5236) should be connected from the terminal marked 29 on the thermal delay switch to the top terminal on the Otter switch.

The second cable (UR. 5237), which is the earth return, should be connected to the lower terminal on the Otter switch and to the centre securing screw on the thermal delay switch. When refitting the delay switch, ensure that the Neoprene seal is correctly fitted.

Although the Otter switch, on coachbuilt cars, is mounted in a different position, the wiring is the same as that for the Standard Steel Saloons, the only difference being the length of the cable (UR. 5235) from the thermal delay switch to the Otter switch. The switch should be fitted to the dimensions given in Figure 1. It is advisable to rotate the thermal delay switch 90° clockwise, to facilitate the installation of the Otter switch and to provide neater wiring.

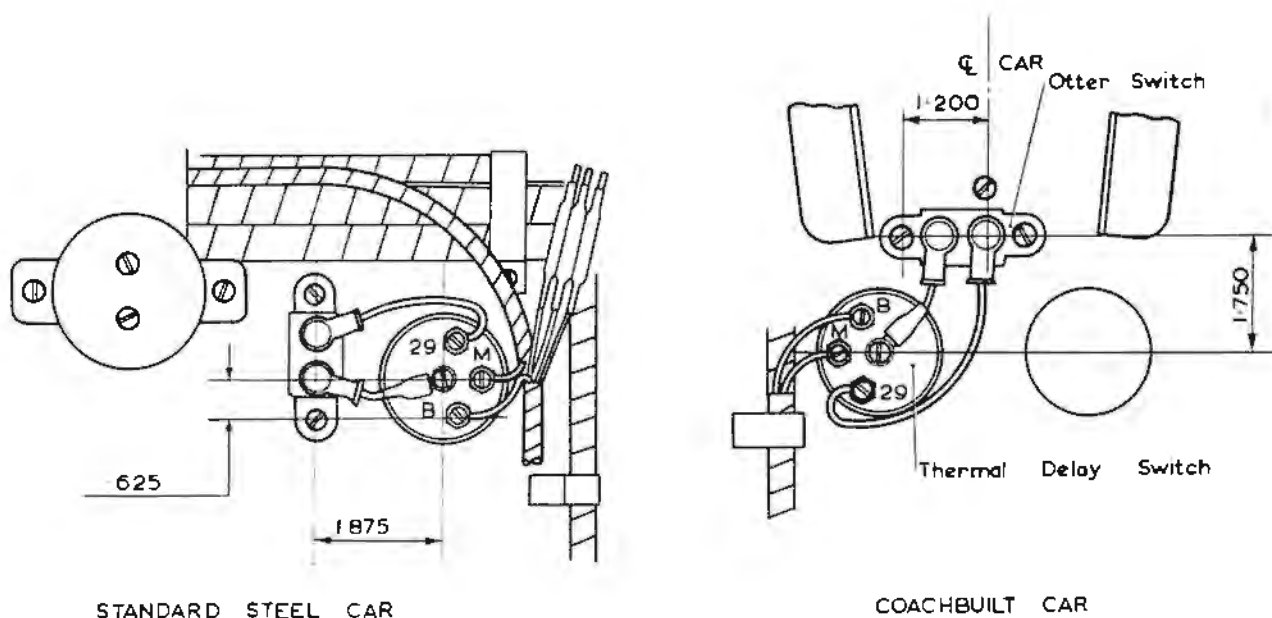


Fig. 1. Showing dimensions for fitting the Otter switch



- 3 -

### Parts required to fit Otter switch

#### Standard steel saloons

UD.1819	Otter switch	1 off
UR.5236	Assembly. Cable. Thermal Delay switch to Otter switch	1 off
UR.5337	Assembly. Cable. Otter switch to Thermal delay switch	1 off
CS.31060/Z	No.8 Self-tapping screw	2 off

#### Coachbuilt cars

As for standard steel saloons except for:-

UR.5235	Assembly. Cable. Thermal delay switch to Otter switch	1 off
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which replaces UR.5236.

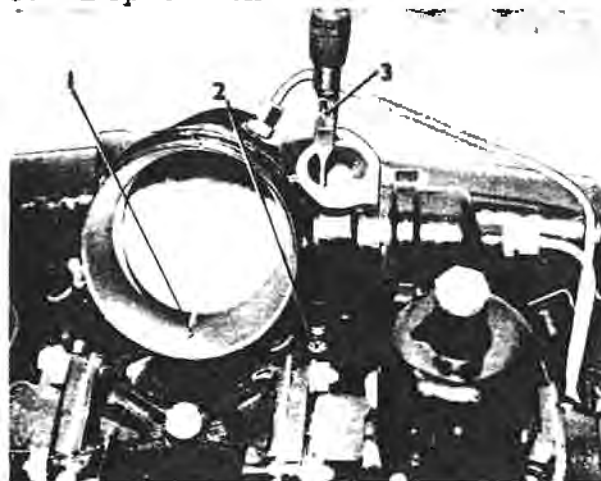
### b) REVISED KICK-GAP SETTING

This revised setting shortens the length of time that the choke is opening whilst the engine is warming-up. This setting should only be adjusted when the engine is cold. Disconnect the air silencer hosing from the butterfly housing. Remove the automatic choke solenoid and the shims from the butterfly housing.

Slacken the choke depression diaphragm locking nut and 2BA. adjusting screw. Ensure that the choke is in the 'off' position, then press down the depression valve operating lever so that the depression valve link rod bears against the end of the 2BA. adjusting screw.

Fig.2.  
Adjustment of Kick-gap setting

1. .100 dia. drill
2. 2BA. adjusting screw
3. Depression valve link-rod



The screw should then be adjusted so that a 0.100 in. diameter rod or drill can be inserted between the butterfly housing and the butterfly valve (see Fig. 2). Tighten the adjusting screw locknut, then re-check the kick-gap and adjust if necessary. Re-fit the solenoid and shims to the butterfly housing and connect the air silencer hosing to the butterfly housing.

### c) ADJUSTMENT OF THE BIMETAL COILS

The present setting of the bimetal coils is too strong and this results in richness during standing warm-ups.

Because of this strong tension in the coils, a high temperature is required to keep the choke open, and when the car is stationary, the temperature around the coils cannot be maintained; this causes the choke to close and results in poor starting when the engine is warm.

Detach the choke hot air pipe from the bimetal coil cover and remove the cover.

Remove, from the butterfly housing, the bimetal coil housing and the bimetal coils.

Slacken the nut and bolt, securing the bimetal coils in position, then retard the pointer four divisions in a clockwise direction, thereby weakening the tension of the coils (see Fig. 3). Lock the bimetal coils in position and make a new centre 'pop' mark opposite the pointer. The old centre 'pop' marking should be peened over.

Refit the bimetal coil housing to the butterfly housing using a new paper joint (UE.6233). Ensure that the joint is fitted in the correct position, otherwise the bleed hole to the depression valve will be blocked. A dowel pin fitted to the butterfly housing locates in a hole in the coil housing.

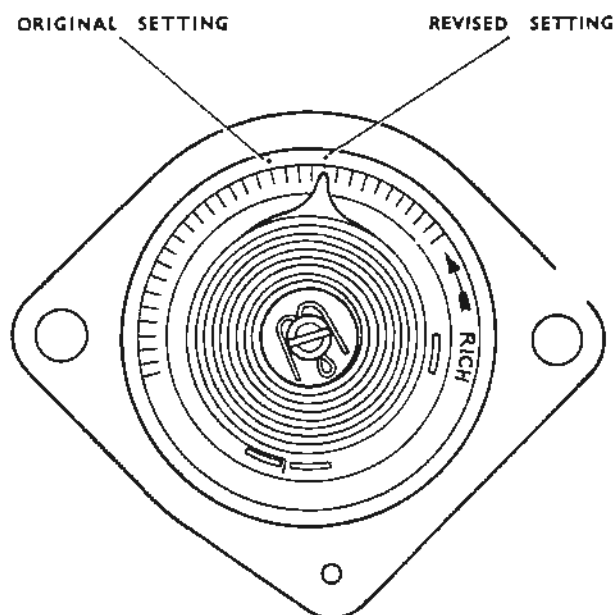


Fig. 3. Setting of bimetal coils

When fitting the housing and coils, it will be necessary to turn the coil shaft clockwise to allow the pin, fitted in the end of the butterfly shaft, to locate the slotted end of the coil shaft.

Fit a new paper joint (UE.6232) to the coil housing, again ensuring that it is fitted correctly, then fit the bimetal coil cover. The cover is located by the dowel pin in the butterfly housing and is secured by two setscrews.

#### New parts required

UE.6232	Joint. Coil housing to cover	1 off
UE.6233	Joint. Butterfly housing to coil housing	1 off

#### FITTING A SHIELD OVER THE BIMETAL COILS, AND ASBESTOS

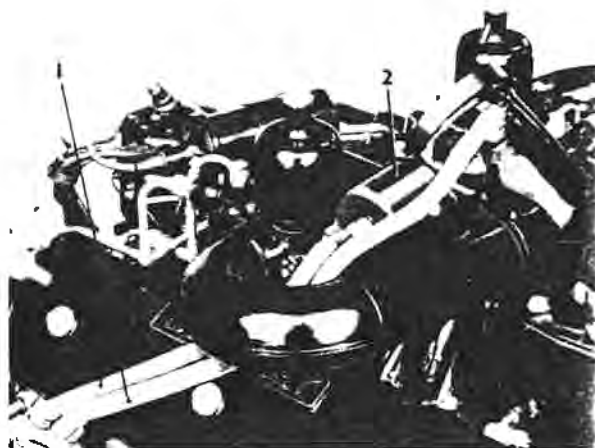
##### LAGGED HOT AIR PIPES

When driving a car for prolonged periods at high speed, there is a reduction in the flow of hot air through the bimetal coil heating system, due to low manifold depression and an increase in heat losses from the bimetal coils due to the underbonnet air flow, with the result that the high temperature cannot be maintained and the choke tends to close. To overcome this fault, a cover shield must be fitted to the bimetal coil housing and the two choke hot air pipes must be replaced by pipes that are lagged with plaited asbestos sleeving. (See Fig. 4.).

Fig. 4.

Engine fitted with heat shield and asbestos lagged hot air pipes

1. Hot air pipes 2. Heat shield



#### d) FITTING SHIELD

Remove the pipe union and washer from the coil cover.

Fit the shield (UE.8264) over the bimetal coil cover, locating it on the two setscrews which secure the coil housing. Then secure the shield in position by refitting the pipe union to the bimetal coil cover. A new aluminium washer should be used.

- 6 -

New parts required

UE.8264	Cover shield. Bimetal coil cover	1 off
KB.1078/R	Washer. Union hot air pipe	1 off

e) FITTING OF THE CHOKE HOT AIR PIPES

Remove the existing choke hot air pipes from the 'A' Bank exhaust manifold and the butterfly housing, then replace them with two pipes UE.8232 and UE.8233, which are lagged with plaited asbestos sleeving. Pipe UE.8232 fits between the exhaust manifold and the coil housing and pipe UE.8233 fits between the exhaust manifold and the butterfly housing.

New parts required

UE.8233	Assembly. Hot air pipe. Exhaust manifold to butterfly housing	1 off
UE.8232	Assembly. Hot air pipe. Exhaust manifold to coil housing	1 off

CATEGORY 2

RADIUSED SECTION CHOKE VALVE (UE.8230) - TO FIT

The above modification should now be carried out in conjunction with the modifications described in Service Bulletin S2/K2 (Modifications to the Automatic Choke System).

The new choke valve incorporates a radiused section on its leading edge which maintains the choke valve in a stable position when the throttle is fully open.

CHOKE VALVE - TO FIT

Remove the silencer hosing from the butterfly housing, then remove the air silencer and hosing from the bonnet.

Open the butterfly valve, and close the split ends of the three screws, which secure the valve to the butterfly shaft. Remove the screws, doubling plate and butterfly valve. Fit the new butterfly valve to the shaft using three new screws (UE.2808). Before tightening the screws ensure that when the butterfly valve is in the closed position, it is seating correctly in the housing. Tighten the screws, then check that the shaft is free to move in the housing and finally open out the ends of the screws.

'KICK-GAP' SETTING - TO CHECK

In fitting the butterfly valve, a slight alteration may occur in the kick-gap setting, which should be 0.100 in. This setting must only be checked when the engine is cold.

Remove the automatic choke solenoid and shims from the butterfly housing. Slacken the choke depression diaphragm 2BA. adjusting screw. Then ensuring that the choke is in the 'off' position press down the depression valve operating lever with a screw-driver so that the depression valve link rod bears against the end of the 2BA. adjusting screw. The screw must then be adjusted so that a 0.100 in. dia. drill or rod can be inserted between the butterfly valve and the housing. Tighten the adjusting screw locknut and re-check the Kick-gap. Re-adjust if necessary. Refit the solenoid and shims to the butterfly housing. Fit the air silencer to the bonnet and connect the hosing to the butterfly housing.

- 2 -

New Parts Required

UE.8230	Radiused Section. Butterfly Valve.	1 off
UE.2808	Screw. Split End.	3 off

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CATEGORY 2

FUEL VAPORISATION

Some isolated cases of poor hot starting have occurred due to vaporisation of fuel in the carburetter jet wells. To remedy this fault, it has been found necessary to replace the existing jet assemblies with modified parts

APPLICABLE TO:-

All cars prior to the following chassis numbers.

Silver Cloud II	L.SWC.130
Bentley S2	B.412.BS
Bentley Continental S2	B C.1.LBY
Phantom V	5.AT.76
Silver Cloud II L. W. B.	LCB.8
Bentley S2 L. W. B.	LBA.19

Carburetters fitted to some cars, prior to the chassis numbers quoted above, have already been modified under an earlier scheme, and these will not require further modification. They can be readily identified by a letter M which is stamped on the carburetter flange adjacent to the serial number.

PROCEDURE:-

Carburetters - To Remove

The carburetters should be removed from the engine as follows -

Disconnect the battery leads.

Disconnect the air silencer hosing from the butterfly housing.

Remove the fuel drain and feed pipes from the carburetter float chambers.

- 2 -

Disconnect the electrical wiring system from the automatic choke solenoid

Remove the two stove pipes from the butterfly housing and the bimetal coil cover.

Disconnect the throttle linkage between the double link connecting piece and the arm at the end of the manifold cross-shaft.

Remove, as a complete assembly, the air horns, the butterfly housing, the carburetters and the 'Tee' Piece.

#### Carburetter - To Dismantle

Unscrew and remove the four bolts securing the float chamber body and the diaphragm casing to the carburetter body. Remove the jet diaphragm assembly and the jet return spring.

#### Carburetter - To Assemble

Fit the nylon plug and tube assembly (CD. 1864) into the base of the main jet well as shown in Figure 1.

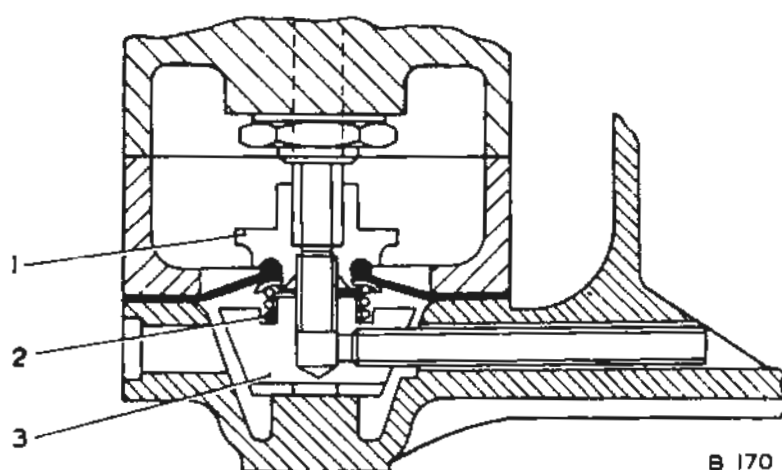


Fig. 1. Section of Carburetter Jet Well.

1. Jet and Diaphragm Assembly.
2. Jet Spring.
3. Nylon Block and Tube.



Place the diaphragm casing on the base of the carburetter body then fit the new jet and diaphragm assembly over the jet needle. Check that the piston is free to move up and down and that the jet needle does not foul the jet. If the needle is sticking it may be necessary to recentralise the jet.

Place the jet return spring (UE. 8048) in the circular recess in the top of the nylon plug, (see fig. 1) then fit the float chamber body to the carburetter and the diaphragm casing, securing it in position with four setscrews and washers. Care should be taken to ensure that the rubber diaphragm is firmly sealed between the two faces of the float chamber casing and the diaphragm casing.

When the carburetters have been modified, a letter N should be stamped on the carburetter flanges adjacent to the serial number.

#### Carburetters - To Fit

To fit the carburetters reverse the procedure given for their removal.

The mixture adjustment of the carburetters should then be set so that the engine is running smoothly at an idle speed of between 450-500 r.p.m.

#### New Parts Required

<u>Part Number</u>	<u>Description</u>	<u>Quantity</u>
CD.1864	Nylon Plug and Tube Assy.	2
UE. 8048	Jet Return Spring	2
UE. 8420	Jet and Diaphragm Assy.	2

FOR INFORMATION

SPLIT THROTTLE VALVE LEVER - TO FACILITATE THE ADJUSTMENT  
OF THE CONTROLS ON RIGHT AND LEFT-HAND CARS.

ADJUSTABLE PEDAL STOP - TO FACILITATE THE ADJUSTMENT  
OF KICK-DOWN ON RIGHT-HAND CARS.

To facilitate the adjustment of controls, a split throttle valve lever, accessible from inside the car (on right and left-hand cars), and an adjustable throttle pedal stop (on right-hand cars only) similar to that already fitted on left-hand cars, have been incorporated.

Access to the split throttle valve lever is through a hole, normally blanked off by a rubber bung, in the body floor. Adjustment of the controls is effected with a screwdriver and a 2 B.A. box spanner. By adjusting the throttle valve lever in the manner described later, it is possible to advance or retard the lever on the gearbox spindle instead of altering the length of the throttle valve rod, which advances or retards the lever and spindle as a unit relative to the remainder of the linkage.

In addition to facilitating the adjustment of the controls. (i.e. from inside the car), it is also possible to obtain a finer degree of adjustment. Previously it was only possible to adjust the controls by one half of a turn of the throttle valve connecting rod, whereas with the new arrangement, fractions of a turn can be obtained; one turn of the adjusting screw being equal to one turn of the throttle valve connecting rod.

On right-hand cars the existing fixed throttle stop has been changed to an adjustable stop beneath the pedal, thus making kick-down adjustment similar to that on left-hand cars.

CARBURETTER TO GEARBOX CONTROLS - TO SET

Close the throttle butterflies and ensure that the fast-idle cam is not engaged.

Disconnect the jaw end of the throttle valve control rod at the gearbox end.

- 2 -

Slacken the pinch bolt at the carburettor end of the manifold cross-shaft, then, whilst holding the throttle closed, position the boomerang lever on the gearbox bell housing so that the lower arm is  $1/4$  in. (0.250 in.) from the boss on the bell housing. Tighten the pinch bolt on the manifold cross-shaft.

Position the adjusting screw on the split throttle valve lever so that it is in the mid-position (i.e. half the threads protrude below the lever and half the threads are above).

Holding the throttle valve lever in its forward position (to take up any play) so that it is just bearing against the spring pressure, adjust the length of the connecting rod so that its jaw mates up with the throttle valve lever. Fit the connecting rod to the throttle valve lever and secure with a new split pin.

#### FINAL ADJUSTMENT ON ROAD TEST.

The controls should be set for good light throttle changes by adjusting the split throttle valve lever. This lever is adjusted through a hole in the floor of the car and requires the use of a 2 B.A. box spanner and screwdriver.

If the gear changes are 'slippy', the adjusting screw should be turned clockwise.

If the gear changes are 'jerky', the adjusting screw should be turned anti-clockwise.

Ensure that after adjusting the gear change, the lock-nut is fully tightened.

If adjustment to the kick-down is necessary after the gear changes have been set, it should be carried out by adjusting the throttle control rod.

If kick-down is 'hard' shorten the throttle rod.

If kick-down is 'soft' lengthen the throttle rod.

It should be noted that the  $5/16$  in. bolt for the throttle pedal off-stop should stand proud approximately 0.750 in. from the car floor.

CATEGORY 2.

AUTOMATIC CHOKE SYSTEM - NEW FAST-IDLE CAM

DESCRIPTION

A new fast-idle cam has been designed for use in conjunction with the heat sink unit on the automatic choke. The new cam has only two steps, the 2nd of which is tapered giving a progressive closing of the throttle. It is easily recognisable from the original cam which has three steps. All cars which have been fitted with the heat sink modification, but have the early type of fast-idle cam, should be modified to incorporate the two step fast-idle cam.

APPLICABLE TO:-

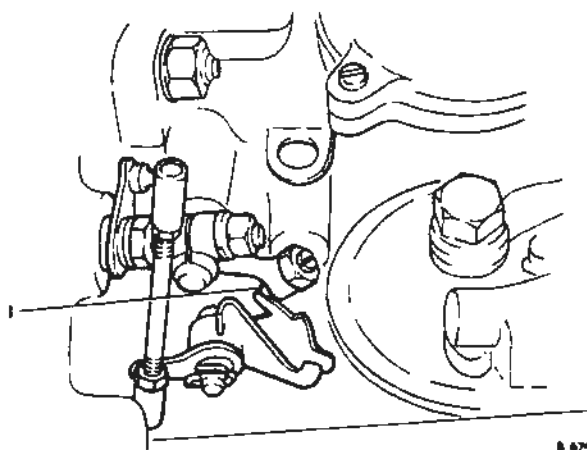
All cars fitted with the heat sink unit, prior to chassis numbers:-

Silver Cloud II	SZD.369	(But including chassis nos. SZD.373 and SZD.385)
Bentley S2	B.445.DV	
Phantom V	5.LCG.11	
Bentley Continental S2	BC.76.CZ	
Silver Cloud II LWB	LCC.54	

METHOD

Remove the split pin securing the choke butterfly operating lever and the fast-idle cam in position. Remove the washer, operating lever and fast-idle cam.

Fit the new fast-idle cam (UE.9451) to the spindle and check that it is free to rotate. The cam should be fitted so that the thin, tapered end is over the stop peg on the spindle bracket.



**Fig. 1. Two Step Fast-Idle Cam**  
**1 Position for setting fast-idle speed at 600 r.p.m.**

CATEGORY 3

FUEL TANK VENTILATION SYSTEM

APPLICABLE TO:-

Rolls-Royce Silver Cloud II (123 in. and 127 in. Wheelbase).  
Bentley S2 (123 in. and 127 in. Wheelbase).  
Bentley S2 Continental.

DESCRIPTION

A modification has been introduced which eliminates the possibility of an air lock forming in the fuel tank and thus allows the tank to be filled to its full capacity and prevents fuel from being forced back up the filler tube when the tank is being filled.

The modification consists of a vent pipe, fitted to the top of the fuel tank, which is connected by a length of rubber hose to a further vent pipe fitted in the filler tube assembly. Thus, as fuel is pumped into the tank, the air is forced out through the vent pipes to atmosphere.

FUEL TANK VENT PIPE - TO FIT

Disconnect the battery.

Remove all dirt from around the tank drain plug, then using the special adaptor and spanner from the tool kit, remove the plug and drain the fuel into a suitable storage container.

Remove the carpet from the luggage boot, then remove the three set-screws which secure the trim cover in position over the fuel tank filler tube where it passes through the boot. Slacken the 'Jubilee' clip securing the hose connection to the filler tube.

Disconnect the fuel pipe line at the tank outlet union.

Disconnect the electrical leads to the fuel level indicator.

Using a box spanner, remove the two 0.250 in. nuts from the tensioning bolts which secure the fuel tank straps, then remove the four 0.250 in. saddle bolts and nuts from the mounting bracket.

Continued.....

Remove the fuel tank together with rubber connecting hose and fabric packing strips.

Remove the union securing the existing vent pipe to the filler tube then bend the vent pipe so that it is out of the way. Remove the six cheese-headed screws securing the filler tube to the body wing and remove the filler tube and rubber sealing washer.

Working to the dimensions given in Figure 1, drill a hole 0.375 in. diameter in the top of the tank, then drill three further holes 0.250 in. diameter and produce the slots.

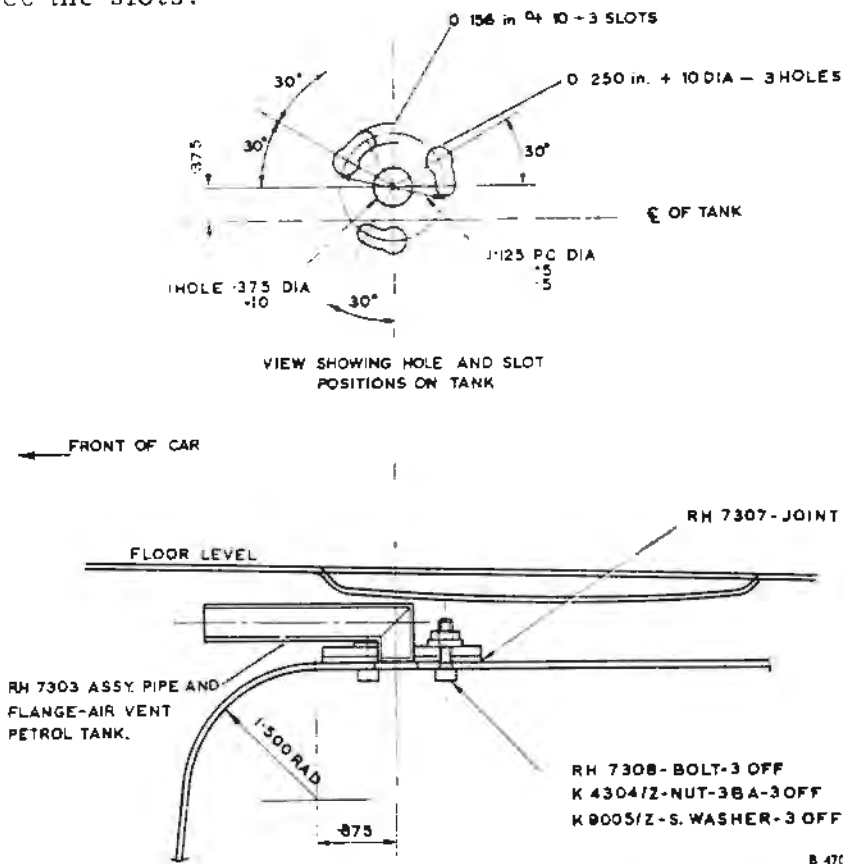


Fig.1. Dimensions for cutting slots in petrol tank.

After drilling the holes and cutting the slots it is most important that the tank is thoroughly washed with paraffin to remove all dirt and swarf.

Loosely assemble the cork joint (RH.7307), screws, washers and nuts to the fuel tank vent pipe assembly (RH.7303). The heads of the screws should be to the bottom of the flange as shown in Figure 1.

Locate the screws in the three slots in the fuel tank.

Continued...

Rotate the vent pipe assembly 30° clockwise, ensuring that the heads of the screws are correctly located in the slots and that the cork washer is not damaged.

Tighten the three nuts and secure the assembly in position.

### FILLER TUBE VENT PIPE - TO FIT

Working to the dimensions given in Figure 2, drill a hole 0.359 in. diameter in the filler tube. Remove all burrs and sharp edges.

Locate the vent pipe (RH.7312) in the hole and 'low temperature braze' it into the filler tube.

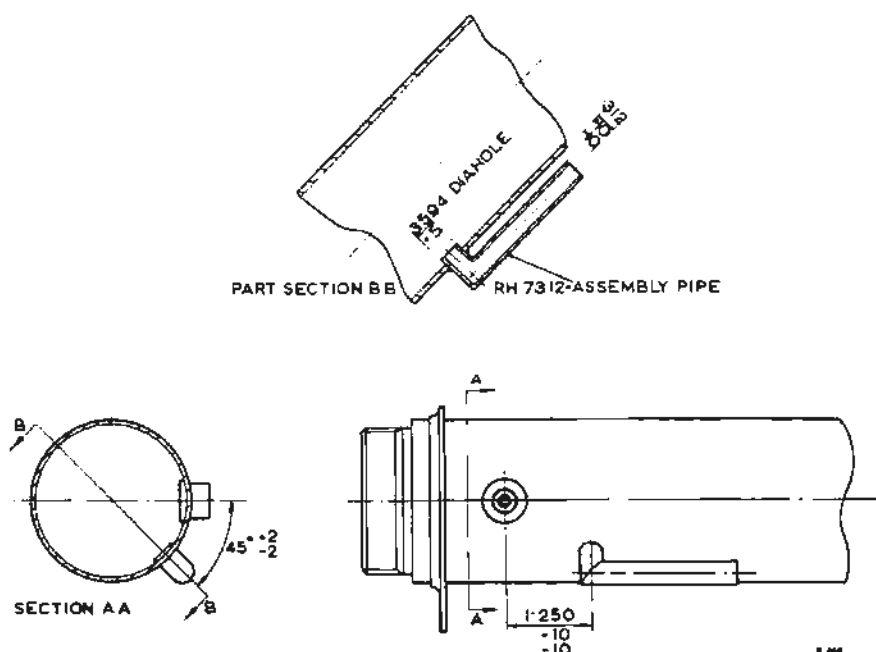


Fig.2. Dimensions for fitting vent pipe to filler tube.

### RUBBER GROMMET - TO FIT

Working to the dimensions shown in Figure 3, drill a hole 0.906 in. diameter in the luggage boot floor. Remove all sharp edges and burrs.

Fit the rubber grommet (UR.5391) into position in the hole.

Fit the fuel tank to the chassis frame, reversing the procedure given for its removal.

Continued...



Fit the filler tube to the body wing, ensuring that the 'Jubilee' clip securing the connecting hose to the filler tube is tight.

Connect the rubber hose (RH.7310) to the vent pipe in the fuel tank. Pass the other end through the grommet and connect it to the vent pipe in the filler tube as shown in Figure 4.

Fit the metal trim cover in place over the filler tube and refit the carpet to the luggage boot.

Reconnect the battery.

### MATERIAL REQUIRED

Fuel tank vent pipe kit (RH.2137) consisting of:-

RH.7303	- Pipe Assembly - Fuel Tank.	1 off
RH.7307	- Joint - Fuel Tank	1 off
RH.7308	- Screw	3 off
RH.7310	- Hose	1 off
RH.7312	- Pipe Assembly - Filler Tube	1 off
UR.5391	- Grommet	1 off
K.4304/Z	- Nut	3 off
K.9005/Z	- Washer	3 off
Time allowed:- 9 hours		

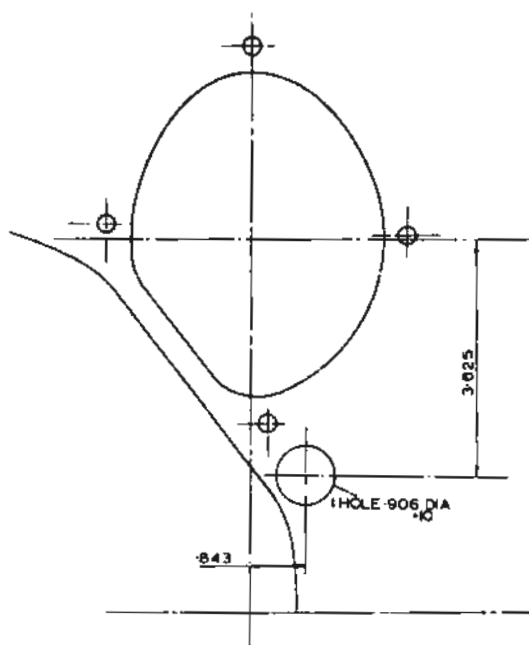


Fig.3. Dimensions for drilling grommet hole in boot floor.

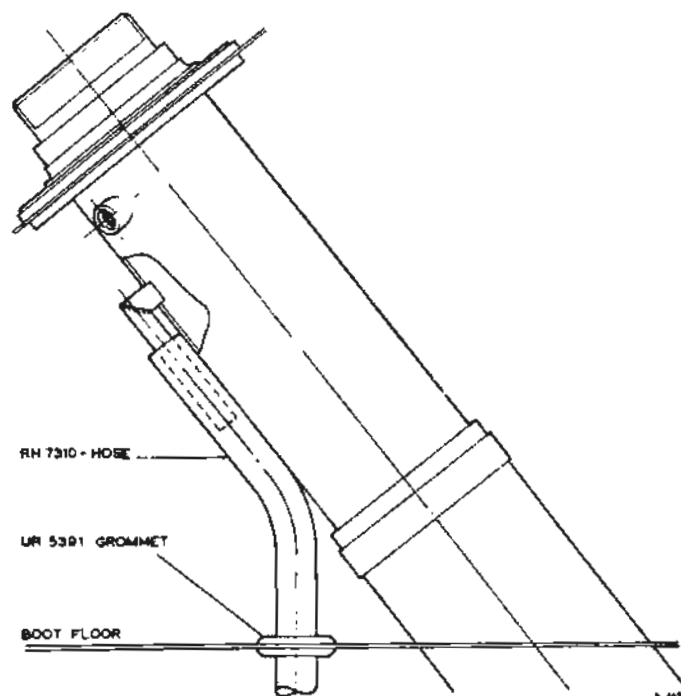


Fig.4. Positioning of rubber hose on filler tube vent pipe.

UNITED KINGDOM  
AND EUROPE ONLY

CATEGORY 2

AUTOMATIC CHOKE SYSTEM - HEAT SINK MODIFICATION

DESCRIPTION

Cars at present domiciled in the United Kingdom and Europe should be modified to incorporate the heat sink in the automatic choke system.

Briefly the heat sink modification consists of :-

A single, longer bimetal coil in place of the two previous coils.

An aluminium heat sink, to retain heat and to allow a greater flow of heat over the bimetal coil.

Asbestos lagged covers to retain heat within the coil housing.

The main purpose of the heat sink modification is to improve initial cold drive-away and to prevent the choke closing under hard driving conditions and coming on too quickly after stopping.

When fitting the heat sink modification the two-step fast-idle cam should also be fitted as described in Service Bulletin S2/K6.

APPLICABLE TO :-

All cars prior to :- (see appendix 1).

Silver Cloud II	SYD. 486
Bentley S2	B. 193. DV
Bentley Continental S2	BC. 37. CZ
Phantom V	5. BX. 54
Silver Cloud II L. W. B.	LCC. 24
Bentley S2 L. W. B.	LBB. 11

-2-

# METHOD

Remove the two choke stove pipes.

Remove the pipe union securing the heat shield to the bimetal coil cover;  
remove the heatshield.

Remove the two 2 B.A. screws and washers securing the bimetal coil  
cover to the choke housing. Then remove the coil cover and the  
bimetal coils and housing.

Using a pair of pliers, remove the locating pin from the choke butterfly  
housing. Care should be taken that the pin is not broken off in the  
housing and that the sealing face around the pin is not damaged.

Fit the new, longer locating pin (UE.9164) to the choke housing, tapping  
it firmly home with a hammer.

If necessary remove any 'Welseal' from the sealing face of the choke  
housing and fit a new paper joint.

Fit the new bimetal coil housing assembly (UE.9285) locating it in position  
on the dowel pin.

Clean the heat sink (UE.9173) and check that none of the holes are blocked.

Fit the rubber 'O' ring (UE.9253) to the heat sink and lightly coat the ring  
with 'Palmolive' grease to prevent it from rolling back when fitting  
it to the housing cover.

Press the heat sink into the coil cover (UE.9175). A recess is cut into the  
heat sink to allow clearance for the pointer on the bimetal coil assembly.

Ensure that the heat sink is positioned correctly. The lower edge of the  
recess should be just below the locating pin hole in the coil cover.

Fit the packing washer (UE.9176) to the coil assembly, positioning it over  
the locating pin.

Fit the coil housing and heat sink to the coil assembly. The two existing screws  
should be replaced by two longer ones (K.1928/Z).

Fit the asbestos lagged cover to the coil housing, securing it in position with  
the pipe union.

-3-

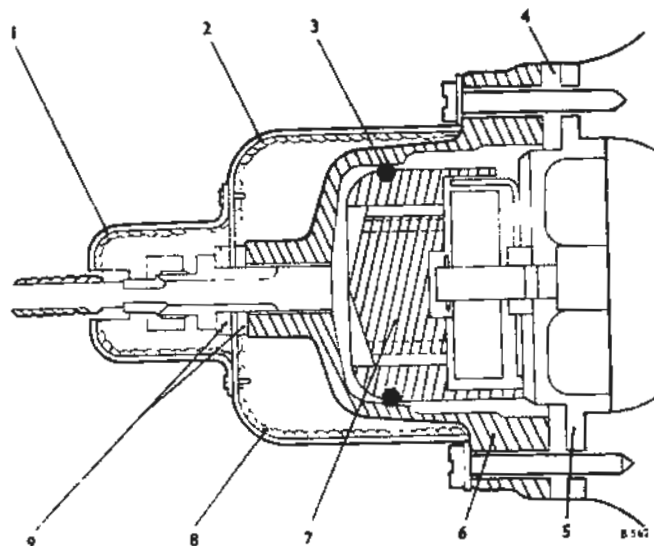


Fig.1. Sectioned View of Heat-Sink.

- |                                   |                         |
|-----------------------------------|-------------------------|
| 1. Small asbestos lagged cover.   | 6. Coil housing cover.  |
| 2. Large asbestos lagged cover.   | 7. Heatsink.            |
| 3. Rubber sealing ring.           | 8. Asbestos lagging.    |
| 4. Packing washer.                | 9. Fibre joint washers. |
| 5. Bimetal coil housing assembly. |                         |

Fibre washers should be fitted either side of the lagged cover.

Bend the choke feed pipe to suit the additional length of the bimetal coil housing, then clean it with an airline to remove any dirt or scale which may be present.

Fit the small asbestos lagged cover over the end of the choke feed pipe. Fit the pipe between the choke and the exhaust stove. The pipe should be connected to the lower connection on the choke stove and not the upper one as before.

Press the small lagged cover over the union and screw it to the large cover with the three 5 B.A. screws. Ensure that the cover clears the rivet holes.

- 4 -

Fit the remaining choke stove pipe bending the pipe so that it passes round the back of the other pipe instead of in front as before.

Remove the split pin securing the choke butterfly operating lever and fast-idle cam.

Remove the fast-idle cam and fit the new 2 step cam. Fit the lever and split pin.

The fast-idle speed should be adjusted to 600 r.p.m., with the engine hot, and should be set on the thin end of the bottom cam and not on the top cam as on earlier cars.

The slow running speed of the carburettors should not be affected but this should be 450-475 r.p.m.

With the engine running remove the choke stove pipe from the butterfly housing and check that air is being drawn through the choke stove system.

#### MATERIAL REQUIRED

Kit No RH 2151 consisting of:-

Part Number	Description	Quantity
UR. 9285	Bimetal coil housing assy.	1
UE. 9170	Asbestos lagged cover	1
UE. 9164	Locating Pin	1
UE. 9175	Coil housing cover	1
UE. 9176	Packing Washer	1
UE. 9253	'O' Ring	1
UE. 5994	Fibre Washer	2
UE. 9173	Heat Sink	1
UE. 9166	Asbestos lagged cover	1
K. 1701/Z	Screw	3
K. 1928/Z	Screw - 2BA	2
UE. 9451	Fast-idle cam	1

TIME ALLOWANCE: 2 Hours.

### APPENDIX I

As on the 25th August, 1961 the following cars had not been fitted with the heat sink modification.

#### SILVER CLOUD.

A.	SPA.2 to SPA.326. SRA.1 to SRA.325	except except	SPA.126 and 132 SRA.143
B.	STB.2 to STB.500 SVB.1 to SVB.501	except except	STB.84, 130, 190, 350 and 410. SVB.43, 279 and 395.
C.	SWC.2 to SWC.730 SXC.1 to SXC.671	except except	SWC.216, 346, 384, 524 and 728. SXC.3, 93, 99, 113, 139, 163, 179, 247, 289, 335, 339, 355, 435, 437, 467, 495, 499, 567, 619, 637 and 639.
D	SYD.2 to SYD.550	except	10, 18, 118, 154, 162, 170, 172, 178, 240, 250, 264, 266, 276, 278, 282, 292, 294, 322, 326, 336, 340, 348, 350, 356 to 360, 364, 368 to 380, 384 to 388, 392 to 396, 400 to 418, 422 to 426, 430 to 436, 440 to 452, 460 to 478, 482 and 486 to 550.

#### BENTLEY S2

A.	B.1.AA to B.325.AA B.2.AM to B.326.AM	except except	B.93.AA, 127 and 301. B.36.AM, 114, and 250.
B	B.1.BR to B.501.BR B.2.BS to B.500.BS	except except	B.71.BR, 89, 189, 267, 351 and 367. B.12.BS, 142, 164, 182, 246, 428, 430 and 494.

- 2 -

BENTLEY S2 (Cont'd)

C.			
B.1.CT to B.445.CT	except	B.51.CT, 99, 101, 369, 407 to 411, 417, 425, 437 and 445.	
B.2.CU to B.756.CU	except	B.18.CU, 50, 56, 94, 104, 108, 116, 134, 152, 160, 180, 192, 194, 198, 206, 210, 214, 284, 288, 336, 346, 360, 430, 574, 682, 710, 722, 726, 742, 752, and 754.	
B.1.DV to B.501.DV	except	B.7.DV, 17, 31, 33, 37 to 41, 49 to 55, 61 to 79, 83 to 155, 159, 163 to 171, 175, 177 to 189, 193 to 501.	

SILVER CLOUD II L.W.B.

A.			
LCA.1 to LCA.76	except	LCA.33	
B.			
LCB.1 to LCB.101	except	LCB.16 and 99	
C.			
LCC.1 to LCC.27	except	LCC.1, 4 to 7, 9, 10, 15 to 18, 20 to 22 and 24 to 27.	

BENTLEY S2 L.W.B.

A.	
LBA.1 to LBA.26	
B.	
LBB.1 to LBB.10	

BENTLEY CONTINENTAL S2

A.		
BC.1.AR to BC.151.AR	except	BC.21.AR, 28, 89, 104 and 151.

- 3 -

BENTLEY CONTINENTAL S2 (Cont'd)

B

BC.1.BY to BC.101.BY	except	BC.23.BY, 31, 36, 42, 65, 68, 72, 73, 80, 81, 83, 85, 88, 90 and 91.
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C.

BC.1.CZ to BC.151.CZ	except	BC.9.CZ, 14, 23, 32, 35 and 37 to 151.
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ROLLS-ROYCE PHANTOM V

A.

5.AS.1 to 5.AS.101	except	5.AS.65 and 69
5.AT.2 to 5.AT.100	except	5.AT.8 and 40

B.

5.BV.1 to 5.BV.101	except	5.BV.23, 49, 69, 85 and 101
5.BX.2 to 5.BX.100	except	5.BX.10, 18, 26 and 54 to 100.



No. S2/K8

Addendum

UNITED KINGDOM ONLY

AUTOMATIC CHOKE SYSTEM - HEAT SINK MODIFICATION

When fitting the above modification would Retailers and Service Personnel please note, that upon removal of the following parts they should be returned to:-

Messrs. Rolls-Royce Limited,  
Spares Central Stores,  
Pym's Lane,  
Crewe.

<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
UE.9113	Thermostat Coils Assy.	1
UE.6219	Cover, Thermostat Coils Assy.	1

If necessary, in order to reduce weight, UE.9113 (Thermostat Coils Assy.) can be broken down and only UE.6220 (Housing, Thermostat Coils Assy.) need be returned.

CATEGORY 3

S.U.FUEL PUMP

DESCRIPTION

Owing to a number of complaints of fuel pump failure, due mainly to contact points eroding and becoming dirty, a modification has been introduced which increases the service life of the contact points and consequently the pump. This modification consists of a small condenser connected directly across the contact points to reduce the arcing which occurs as the points break. The present condenser fitted outside the pump for radio suppression is still retained.

It is recommended that the modification be carried out when the car requires a scheduled service. It is advisable when the modification is carried out that the contact points be examined and if necessary either cleaned or renewed.

Due to recent service experience, it is considered that fuel pump contact points are consumable, and therefore, that the customer be charged accordingly.

APPLICABLE TO:-

Bentley S2  
Bentley S2 L.W.B.  
Silver Cloud II  
Silver Cloud II L.W.B.  
Bentley Continental S2

PROCEDURE

Disconnect the battery

Remove the fuel pumps

Examine the contact points. If these are badly pitted or worn, a new set should be fitted.

It should be noted when re-assembling the pump that the diaphragm settings from the 'toggle-over' position should be as follows:

- 2 -

<u>Part Number</u>	<u>Setting</u>
UD. 1327	6 holes
UD. 8137	8 holes
UD. 8737	8 holes

It should also be noted, that when refitting the coil housing, the number on the identity label should be altered to read AUA 149.

If the points are only slightly worn, they can be cleaned effectively using a fine carborundum stone. Extreme care should be taken when cleaning the points, as the Tungsten layer on the points is only 0.025 in. thick.

No attempt should be made to remove pitting, as this will only reduce service life

#### Condenser - To fit

Remove the screw which secures the contact breaker rocker arm earth wire.

Fit the spring clip (CD 3421) to the end moulding, securing it with the screw. It should be noted that the earth wire should be fitted directly under the head of the screw, and that the spring clip should be fitted between the earth wire and the 'Thackray' washer. Insert the condenser (CD 3422) into the spring clip.

Slacken the screw which secures the spring blade of the contact set.

Insert the spade terminal of the condenser lead between the washer and the contact breaker main feed connection then retighten the screw ensuring that the contact points make full face contact.

Fit the special end cover (CD 3423)

Seal the end cover to the coil housing with a length of plastic self-adhesive tape

Refit the fuel pumps to the car and connect the battery.

- 3 -

SERVICING PROCEDURE

Every 24,000 miles

On fuel pumps fitted with the additional condensers, the contact points should be renewed.

MATERIAL REQUIRED

<u>Description</u>	<u>Part Number</u>	<u>Quantity</u>
Clip	CD. 3421	2
Condenser	CD. 3422	2
Cover	CD. 3423	2

FOR INFORMATIONTHROTTLE CONTROL LINKAGE L.H. CARSAPPLICABLE TO:

All L.H. S2 series cars domiciled in Europe prior to the following chassis numbers

Silver Cloud II	L.SYD.46
Silver Cloud II L.W.B.	L.LCB.87
Bentley S2	B.492 L.CU
Bentley S2 L.W.B.	L.LBB.5
Phantom V	5L.BV.101
Bentley Continental S2	BC.100 L.BY

DESCRIPTION

Ref: S2 Spare Parts List, Page B8

On a number of early S2 left-hand drive cars, it is possible for the throttle controls to foul the bulkhead. In most cases this happens when the engine 'torques' over during acceleration, causing the end of the control jaw (15 UE 1859) clamping bolt to ride past and foul the head of the right-hand bolt (35.UA 1501/2), which secures the flanged 'Metalastik' bush to the bulkhead.

A number of reasons have been put forward as to why this happens on cars that have been in service some time, and these are as follows

- 1 The flanged 'Metalastik' bush (32,33 UE 7828) becomes softer in service, and under acceleration, allows the operating lever (24. UE 8049) to be pushed closer to the bulkhead.
- 2 The engine mounts become softer in service, again allowing the operating lever to be pushed closer to the bulkhead under acceleration.
- 3 Incorrect setting of the rear engine mount buffer plates, again allow the engine to 'torque' over more and cause conditions similar to 1 and 2.

REMEDY

Ascertain whether or not the throttle linkage is likely to jam. If it is possible, proceed as follows

- 1 Check the hardness of the flanged 'Metalastik' bush (UE 7828). If soft, worn or distorted, it should be renewed.
- 2 Check the rear engine mounts. If soft, worn or distorted, they should be renewed.
- 3 Check the rear engine mount buffer plates. The gap should be 0.032 in. (0.8 mm.).
- 4 Fit a suitable washer between the lever (UE 8049) and the flanged 'Metalastik' bush (UE 7828). This increases the clearance by the thickness of the selected washer.
- 5 Bend the lever (UE 8049) sufficiently to ensure adequate clearance between the offending pieces at all engine attitudes.
- 6 Thoroughly road test the car through a series of acceleration tests, ranging from very light to full throttle.

FOR INFORMATION

FLUSHING THE COOLING SYSTEM

S1 AND S2 CARS

The coolant should be drained and the cooling system flushed out annually, adopting the following procedure:-

Remove the radiator cap and open the drain taps situated on the cylinder block and on the bottom tank of the radiator. On S1 cars one tap is fitted on the right-hand rear corner of the cylinder block; on S2 cars two taps are provided, one on each side of the cylinder block.

To flush the radiator, remove the hoses, fit a waste pipe to the upper connection and apply water pressure through the lower connection. Mains water pressure should remove any sediment in approximately half an hour.

To flush the engine, remove the drain tap(s) from the cylinder block, remove the thermostat cover and withdraw the thermostat, then refit the cover; on S1 cars note the position of the thermostat in the body to ensure correct refitting.

Connect a suitable waste pipe and apply water pressure to each drain tap aperture in turn; continue flushing for approximately half an hour or until the water runs clear.

Refit the drain tap(s) to the cylinder block and refit the thermostat, ensuring that a new gasket is fitted to the cover.

Examine the rubber hoses and refit if in a serviceable condition; if they show signs of deterioration new hoses should be fitted.

Refill the system with an anti-freeze mixture to the recommended specification given in Service Bulletin CB.32; the capacity of the cooling system is, S1 cars 28 Imperial pints, S2 cars 21 Imperial pints. Care should be taken when filling the system to avoid air locks.

To ensure uniform distribution of the anti-freeze mixture throughout the system, start the engine and allow time for it to reach normal operating temperature. Examine all hose connections for leaks.

On no account must strong alkaline compounds be used to clean the cooling system, owing to the detrimental chemical action they have on aluminium alloys. Do not use detergents when flushing the system.

CATEGORY 3aCOOLING, HEATING AND DE-MISTING SYSTEMS2 CARS.

In the event of inefficiency in the heating and de-misting systems on Bentley Continental S2, Phantom V, L.W.B. Silver Cloud II and L.W.B. Bentley S2 cars, the filters located in the winter and summer taps should be examined for the presence of foreign matter.

Also, the actuator water tap, fitted to Bentley S2 and Silver Cloud II cars should be examined if its operation is found to be faulty.

		CHASSIS NO.
SILVER CLOUD II	prior to	STB.166
BENTLEY S2	prior to	B.79.LBR
L.W.B. SILVER CLOUD II	prior to	LCA.33
L.W.B. BENTLEY S2	prior to	LBA.4
PHANTOM V	prior to	5.AS.89
BENTLEY CONTINENTAL S2	prior to	BC.75.AR.

The cooling, heating and de-misting systems should be dismantled and reverse flushed if any trace of foreign matter is found.



PROCEDURE FOR REVERSE FLUSHING

LONG WHEELBASE AND COACHBUILT CARS.

a) Cooling System - To Drain

Remove the radiator filler cap and drain the coolant from the complete system. Three drain taps are provided for this purpose; one at the base of the radiator matrix and one on each side of the engine crankcase. The anti-freeze should be drained into a suitable container and stored in readiness for use again.

b) Radiator Matrix - To Flush

Refit the radiator filler cap and disconnect the top and bottom hoses from the radiator. Fit a suitable waste-pipe to the header tank outlet and connect the lower end of the radiator to the mains water supply. Flush the radiator for approximately half an hour.

c) Heating and De-misting Matrices - To Flush

Remove the two winter and summer water taps and the two vacuum operated water taps. The taps on the 'A' bank side of the car are located at the rear of the cylinder head and the taps on 'B' bank side at the rear of the valance. Remove the filters from the summer and winter taps and dismantle the vacuum operated taps. Thoroughly cleanse the filters and taps. Fit a waste pipe to the inlet of the heating system matrix and connect the mains water supply to the outlet of the matrix. Thoroughly flush the matrix for about half an hour, then repeat the operation for the matrix in the de-misting system.

d) Engine - To Flush

Remove the thermostat from its housing, then refit the thermostat cover. Fit waste pipes to the following points:-

The heating and de-misting take-off pipes at the rear of the cylinder heads.

The heating and de-misting return pipe from the water pump.

The inlet side of the water pump.

Open both drain taps and connect the mains water supply to the thermostat cover. Thoroughly flush the engine for approximately half an hour.

e) The Cooling, Heating and De-misting System - To Assemble.

Assemble the complete system, at the same time fitting a new gasket to the thermostat cover. Examine all hosing and pipes; if they show signs of deterioration they should be renewed.

New Part Required

UE.6127                      Joint. Thermostat housing to cover      1 off

f) The Cooling System - To Fill

Filter the coolant and check its specific gravity. Only anti-freeze to the recommended specification given in Service Bulletin S2/L2 should be used. Fill the system taking care to avoid air locks. Run the engine until it reaches normal operating temperature then examine for leaks all hose and pipe connections.

CARS FITTED WITH THE UNDERWING HEATING AND DE-MISTING UNIT

a,b) Drain the cooling system and reverse flush the radiator matrix as described in paragraphs a and b in the instructions for L.W.B. and coach-built cars.

c) Heating and De-misting Matrix - To Flush

Detach the inlet and outlet hoses of the heating and de-misting matrix at the actuator water tap and the water pump respectively. Fit a waste pipe to the inlet of the matrix and connect the mains water supply to the outlet. Flush the matrix for approximately half an hour. Remove the actuator and water tap mounting plate from the right-hand valance. Remove the tap from the mounting plate and drill out the rivet holding the two halves of the tap body in position. Make correlation marks on both halves of the body before separating them to ensure that they are assembled in the

correct position. Clean the tap and examine for damage, the diaphragm, valve and valve seat. If any parts are damaged, the tap must be replaced as an assembly. Assemble the tap, ensuring that the body halves are assembled in the correct position, then lock them together with a 6 BA. nut and bolt in place of the rivet.

#### New Parts Required

UD.4020	Water Tap	1 off
or the following:-		
KB.7752/Z	Bolt. 6 BA.	1 off
K.4002/Z	Nut. 6 BA.	1 off
K.4401/Z	Washer. Plain.	1 off

d,e,f) Flush the engine, assemble the cooling, heating and de-misting system and re-fill the cooling system as described in paragraphs d,e and f, in the instructions for L.W.B. and coachbuilt cars.

On no account must strong alkaline compounds be used to clean the cooling system, owing to the detrimental chemical action they have on aluminium alloys. Do not use detergents when flushing the system.

FOR INFORMATION

AIR CONDITIONING

DAMAGE TO THE 'UPPER' AIR BLOWER MOTORS ON S2 CARS.

Damage to the 'Upper' air blower motor can be caused if dirt or other foreign matter becomes lodged between the fan blades and the fan housing

The clearance between the fan blades and the fan housing is very small and if dirt or grit is allowed to find a way into the housing, it may cause the blades to jam and stall the motor.

Stalling of the motor, even for a short period, is sufficient to cause failure of the motor armature windings.

A fine gauze filter, provided at the inlet end of the ducting, is adequate to prevent the ingress of foreign matter during normal use, but unless great care is taken during servicing, dirt and grit can find a way into the housing

Before attempting to remove the air conditioning unit and the ducting, all dirt or grit must be removed from the ducting, particularly on top and where it joins the fan housing

If it is necessary to remove the air conditioning unit and the ducting, and if the blower unit is to remain in position, it is essential that a protective cover is placed over the housing in order to prevent dirt from entering the housing

Before refitting the parts which have been removed examine the housing to ensure that it is free from any obstructions.

CATEGORY 2

This Bulletin cancels  
Service Bulletin S2/L5  
dated 13.7.60.

RADIATOR FILLER CAP SEAL

There is a tendency for the present filler cap seal to distort due to swelling, thereby causing a poor seal at the base of the filler cap, and if this seal is badly deteriorated, coolant may be lost, causing subsequent overheating of the engine.

In the near future a redesigned seal will be introduced, but until this seal is available Retailers should examine the condition of the filler cap seal each time a car is brought in for service, and where necessary the seal should be renewed.

The part number of the radiator filler cap seal is UE.3083.

CATEGORY 2

ADDITIONAL CLIP FOR HEATER PIPES.

It has been decided to fit an additional clip to the underwing heater unit ducting in order that the heater pipes may be satisfactorily restrained, thus eliminating any possibility of contact between the heater pipes and the offside front tyre.

APPLICABLE TO :

All non-refrigerated S2 Standard Steel Saloons.

METHOD OF FITTING NEW CLIP

Drain the coolant into a suitable container.

Jack up the front end of the car and place it on suitable stands.

Remove the offside (right-hand) front wheel.

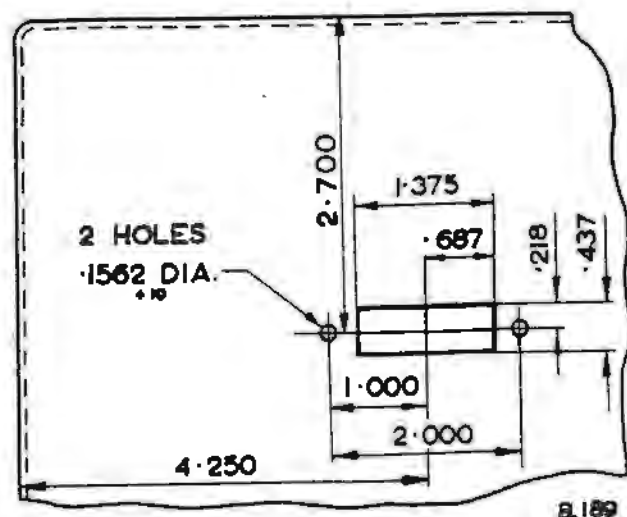


Fig.1. Dimensions for Cutting Slot.

Remove the clip retaining the two heater pipes to the valance plates.

Disconnect the two heater pipes from the underwing heater unit.

In order to fit the new clip it is necessary to cut a slot in the transfer duct to allow the back plate assembly to be inserted. This slot should be cut out of the duct working to the dimensions given in Figure 1. When cutting this slot, great care should be taken to ensure that nothing falls inside the transfer duct. Drill two holes, .156 in. diameter, one on either side of the slot, to the dimensions given in Figure 1; these holes are for self-tapping screws. When drilling the holes, a small amount of grease should be smeared on the drill to prevent any swarf falling inside the ducting.

Pass a length of flexible copper wire through the nut on the back plate assembly, then bend back the wire over the outside of the backing plate; twist the two ends of the wire together so that the backing plate is held in a loop.

Holding the plate by means of the wire, carefully feed it through the slot in the duct. Great care must be taken to ensure that the plate does not fall inside the ducting, as this will necessitate removal of the air conditioning unit.

Draw the plate forward against the inside of the ducting with the aid of the copper wire; then thread the front plate over the wire and lightly secure the plates with two No.6 self-tapping screws. It is possible to manoeuvre the back plate with the aid of the wire until the holes line up.

Ensure that the self tapping screws are securing the back plate to the ducting and then untwist the copper wire and draw it out of the ducting.

Fit the pipe clip, washer and screw to the back plate, then tighten the self-tapping screws. Pass the two heater pipes through the clip, and tighten the .250 in. bolt, positioning the clip in a vertical plane so that it is above the bolt ( see Fig 2).

Seal the plate and clip to the ducting with Bittac Sealing Compound.

-3-

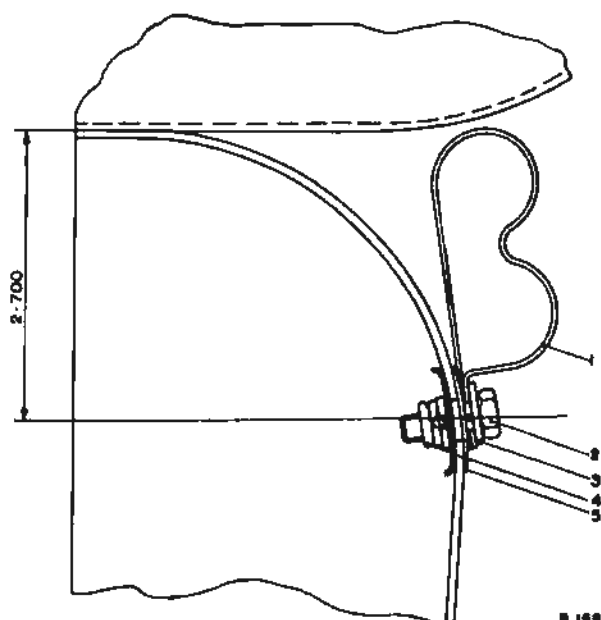


Fig 2. Heater Pipe Clip Assy.

1. Clip.
2. Bolt.
3. Washer.
4. Back Plate Assy.
5. Front Plate.

Connect the hoses to the heater matrix.

Fit the road wheel.

Finally fill the cooling system and check that the two heater pipes are not leaking.

Parts Required

UE.7957	Clip	1 off
UD.5897	Front Plate	1 off
UD.5783	Assy Back Plate	1 off
UA.104/Z	Bolt	1 off
UA.1251/Z	Washer	1 off
CS.31041/Z	S.M.Screw	2 off



No. S2/L7

This Bulletin cancels  
all previous Service  
Bulletins numbered  
S2/L7 and S2/L5.

FOR INFORMATION

RADIATOR FILLER CAP SEAL

Before the modified filler cap sealing washer (UE.8546) was introduced, a number of radiators were modified so that the flat sealing washer (UE.3083) could be used satisfactorily.

This modification consisted of a brass ring sweated into position in the header tank to give a firmer seating for the washer. The brass ring can be readily seen when the filler cap and seal are removed. Due to the additional thickness of the ring the modified sealing washer (UE.8546) cannot be used as its lip is too narrow, and consequently a further sealing washer (RH.7284) with a wider lip has been introduced for use on cars with the modified header tank.

Retailers should ensure that all flat sealing washers (UE.3083) are removed and replaced either with washer UE.8546 or washer RH.7284 as necessary.

Standard Radiators	-	Fit washer UE.8546
Radiators with brass ring in header tank	-	Fit washer RH.7284

This cancels all previous  
S2/L8 Service Bulletins.

Circulated to all countries  
except America.

ANTI-FREEZE MIXTURES - S2 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.

A satchet 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 satchet 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)

FOR INFORMATIONS.2. COOLING SYSTEM - THERMOSTATS

A thermostat, with a higher initial opening temperature, is now available for fitting to S.2 engines which are running cold. The thermostat (Part No. RE.23713) should replace the existing thermostat (Part No. UE.6847) in the event of a Customer's complaint of poor heating inside the car.

Operating Temperatures of Thermostats

	<u>Commences Opening</u>	<u>Fully Open</u>
Existing S.2 thermostat (UE.6847)	66° C-70° C	90° C
New thermostat (RE.23713)	70° C-75° C	90° C

The thermostat RE.23713 is to be used all the year round and must not be replaced by thermostat UE.6847 in the summer.

FOR INFORMATION

S2 COOLING SYSTEM - PRESSURE RELIEF VALVE - UE. 3087

Further to Service Bulletin S2/L9, Service experience has shown that complaints concerning the inefficiency of the heating system may also be attributed to leaks in the pressure relief valve (UE. 3087), situated in the matrix header tank. It is essential for optimum efficiency of the heating system that the relief valve should maintain the system between pressures of  $6\frac{1}{4}$  lb./sq.in. and  $7\frac{3}{4}$  lb./sq.in. when the engine is hot, and accordingly, any leaks in the system will reduce the pressure causing the temperature of the heated air to fall.

Two methods are available for checking the pressurization of the system and are as follows:-

1. A visual examination of the system, including the seating of the relief valve in the header tank and the sealing of the filler cap, when the engine is hot.
2. Fit a modified filler cap to the header tank, which incorporates a pressure gauge and Schrader type tyre valve. Pressurise the system when cold and check for loss of pressure over a set period of time

Method 1

Examine the system for leaks, between the pressure relief valve and its seating in the radiator, the header tank, the coolant hose connections and the filler cap seal, when the system is hot.

Fit a suitable length of hose to the steam escape pipe on the header tank and place the other end in a jar of water. If air can be seen continually bubbling into the water then the relief valve is faulty.

Note

The pressure relief valve steam escape pipe is also connected to the overflow pipe of the filler cap, which is not sealed to atmosphere. Therefore care should be taken to ensure that steam is not escaping through the filler cap. The cap can be readily sealed for the purpose of this test with plasticine or some other suitable material

## Method 2

To carry out this test it is necessary to incorporate a pressure gauge and a Schrader tyre valve into a filler cap. It is important to ensure that the sealing around the gauge and the valve is leak free.

With the cooling system COLD fit the modified filler cap. Pressurise the system through the Schrader valve to 5 lb./sq.in.

For the system to work satisfactorily the pressure must not fall more than 1 lb./sq.in. in 2 hours.

If the pressure does fall more than 1 lb./sq.in. it should not be immediately assumed that the relief valve is faulty as the system may be leaking at one or more of the following points:-

1. In the pressure relief valve UE.3087.
2. Between the valve and its seating in the header tank.
3. At some other part of the cooling system. This point would most probably be in the header tank or any other point normally above the level of the coolant in the system as other leakages in the system would be associated with loss of coolant.

## Identification

All reworked pressure relief valves supplied from Crewe Spares Department will be marked with either a yellow or green spot of paint for the purposes of identification.

## Applicable to:-

All cars prior to the following chassis numbers:-

Silver Cloud II	SAE 149
Bentley S2	B 42 DW
Bentley Continental S2	BC 86 CZ

FOR INFORMATION

COOLANT AND HEATER HOSES - STANDARD S2 CARS

On modern cars with pressurised cooling systems and in the presence of inhibited antifreeze mixtures it is generally advisable to change coolant and heater hoses annually, at the same time as the cooling system is drained, flushed, and refilled.

Rolls-Royce have however, developed an improved type of reinforced hose which has a life in excess of two years. This hose is now being fitted to all production cars and it is recommended that existing hoses on cars at present in service should be changed immediately for the improved hose.

A recommendation to change hoses once every two years is being added to the Periodic Lubrication and Maintenance Schedules and retailers are requested to make arrangements to change the present type of hoses on cars in their territory for the improved hose. Hoses should be considered as a consumable item and replacements are therefore chargeable to the owner, but in cases where cars are less than one year old this work should be carried out on a free of charge basis and a guarantee claim submitted accordingly.

Two different heating systems have been fitted to Rolls-Royce and Bentley cars; the first system on earlier cars consisted of a single heater matrix, the second system fitted to later series cars consists of two heater matrices and an additional water tap involving a considerable number of additional hoses. The new type of reinforced hose can be identified by the part number.

Single Matrix Heater System

This system is applicable to all Standard S2 cars prior to the following chassis numbers.

Rolls-Royce Silver Cloud II	123 in. Wheelbase	SZD.347.
Bentley S2	123 in. Wheelbase	B.415.DV.

On the above cars six hoses require replacement: they are the top and bottom coolant hoses from the radiator matrix to the crankcase, the two heater hoses fitted to the crankcase and water tap and the two heater matrix feed and return hoses.

- 2 -

Material Required

<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
UR.5488	Hose - Heater, Feed and Return	2
UR.5489	Hose - Crankcase to Intermediate Pipe	1
UR.5490	Hose - Water Tap to Intermediate Pipe	1
UR.5486	Hose - Top Water Connection	1
UR.5485	Hose - Bottom Water Connection	1
RH.7358	Hose - Bottom Water Connection	1

RH.7358 and UR.5485 Bottom Hoses are not interchangeable. Bottom hose UR.5485 replaces UE.8446 which was introduced on S2 cars when the fan extension cone was shortened. (See Information Sheet No. 2.L.1.).

RH.7358 should be fitted to all chassis prior to the following numbers:-

Bentley S2

B.81.CT except B.3.CT to B.77.CT and B.104.BS, 180-416, 420-500.

Silver Cloud II

SWC.246 except SWC.20, 38, 42, 46, 116, 146, 148, 216 and 230 to 242.

and SVB.17, 239, 373 to 401, 405 to 501.

Twin Matrix Heater System

This system is applicable on all Standard S2 cars to the following chassis numbers only.

Rolls-Royce Silver Cloud II

SZD.347 to SZD.551 and SAE.1 to SAE.85.

Bentley S2

B.415.DV to B.501.DV and B.2.DW to B.22.DW.



- 3 -

On the above cars twelve hoses require replacement: they are the top and bottom coolant hoses from the radiator matrix to the crankcase, the heater elbow hoses fitted to the crankcase and water taps and the hoses connecting the water taps to the heater and demister matrices.

### Material Required

<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
UR.5563	Hose - Return - Upper Heater to Dash	1
UR.5564	Hose - Return - Upper Heater to L.H. Valance Plate	1
UR.5566	Hose - Feed - R.H. Water Tap to Lower Heater	1
UR.5565	Hose - Return - Lower Heater to Engine	1
UR.5560	Hose - Feed - L.H. Water Tap to Dash	1
UR.5562	Hose - Feed - Upper Heater - Dash to R.H. Valance	1
UR.5561	Hose - Feed - Upper Heater to R.H. Valance Plate	1
UR.5567	Hose - Cylinder Head to Water Tap - L.H. Valance	1
UR.5489	Hose - Crankcase to Intermediate Pipe	1
UR.5490	Hose - Water Tap to Intermediate Pipe	1
UR.5485	Hose - Bottom Water Connection	1
UR.5486	Hose - Top Water Connection	1

NOTE: When fitting the hose UR.5489 between the intermediate pipe and the cylinder head, on either the single or twin heater matrix systems care should be taken to position and fix the intermediate pipe so that the hose does not foul on the micro-switch fitted to the steering column. Failure to do this may result in the hose chafing on the switch, eventually causing a complete failure of the hose and loss of engine coolant.

### Heater Pipes and Hose Connections

As the coolant system on the S2 Car is pressurised care should be taken to ensure that good connections are secured. If the pipes to which the hoses are fitted are not swaged the opportunity should be taken to carry out this operation. Care should be taken to ensure that any sharp edges produced during swaging are removed.

No.  
S2/L11

- 4 -

Time Allowance

Single Matrix Heater System - 3 hours.

Twin Matrix Heater System - 5 hours.

FOR INFORMATION

COOLANT AND HEATER HOSES - L.W.B. AND COACHBUILT

123 in. WHEELBASE CARS

On modern cars with pressurised cooling systems and in the presence of inhibited antifreeze mixtures it is generally advisable to change coolant and heater hoses annually, at the same time as the cooling system is drained, flushed, and refilled.

Rolls - Royce have however, developed an improved type of reinforced hose which has a life in excess of two years. This hose is now being fitted to all production cars and it is recommended that existing hoses on cars at present in service should be changed immediately for the improved hose.

A recommendation to change hoses once every two years is being added to the Periodic Lubrication and Maintenance Schedules and retailers are requested to make arrangements to change the present type of hoses on cars in their territory for the improved hose. Hoses should be considered as a consumable item and replacements are therefore chargeable to the owner, but in cases where cars are less than one year old this work should be carried out on a free of charge basis and a guarantee claim submitted accordingly.

APPLICABLE To :-

All cars prior to the following chassis numbers :-

Rolls-Royce Silver Cloud II L.W.B. Saloon	LCC.83
Bentley S2 L.W.B. Saloon	LBB.25

On the above cars eleven hoses require replacement: they are the top and bottom coolant hoses from the radiator matrix to the crankcase, the feed and return hoses from the heater and demister matrices to the coolant pump and vacuum taps and the hoses connecting the water taps to the vacuum taps and cylinder heads.

The new type of reinforced hose can be identified by the part number.

### Material Required

<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
* UR. 5498	Hose - Vacuum Tap to Demister Matrix	1
+ UR. 5497	Hose - Vacuum Tap to Demister Matrix	1
UR. 5492	Hose - Demister Matrix to Pump	1
UR. 5496	Hose - Cylinder Head to Demister Water Tap	1
UR. 5493	Hose - Connecting - Demister Matrix to Pump	1
UR. 5491	Hose - Heater Matrix to Pump	1
UR. 5494	Hose - Water Tap to Vacuum Tap	1
UR. 5506	Hose - Elbow - Vacuum Tap to Heater Matrix	1
UR. 5505	Hose - Elbow - Vacuum Tap to Water Tap - Heater and Demister	2
UR. 5486	Hose - Top Water Connection	1
UR. 5485	Hose - Bottom Water Connection	1
RH. 7358	Hose - Bottom Water Connection	1

\* UR. 5498 is only to be used on Rolls-Royce and Bentley long wheelbase cars with coachwork by Park Ward.

+ UR. 5497 is an alternative piece to UR. 5498 and is only to be used on Rolls-Royce and Bentley long wheelbase cars with coachwork other than by Park Ward, or on coachbuilt Rolls-Royce and Bentley 123 in. wheelbase cars.

RH. 7358 and UR. 5485 Bottom Hoses are not interchangeable. Bottom hose UR. 5485 replaces UE. 8446 which was introduced on S2 cars when the fan extension cone was shortened. (See Information Sheet No. 2. L. 1) RH. 7358 should be fitted to all chassis prior to the following numbers.

Bentley S2 L.W.B. Saloon	LBA. 16 except LBA. 9
Rolls-Royce Silver Cloud	LCB. 14 except LCB. 4
II L.W.B.	and 11 and LCA. 67 to 76

### Heater Pipes and Hose Connections

As the coolant system on the S2 Car is pressurised care should be taken to ensure that good connections are secured. If the pipes to which the hoses are fitted

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- 3 -

are not swaged the opportunity should be taken to carry out this operation. Care should be taken to ensure that any sharp edges produced during swaging are removed.

Time allowance

L.W.B. Cars	5 hours.
Coachbuilt 123 in. Cars	5 hours.

No. S2/L13

Circulation - All Distributors  
and Retailers

CATEGORY C

COOLANT PUMP OVERHAUL

APPLICABLE TO:

All Rolls-Royce Silver Cloud II cars including L.W.B.  
All Bentley S2 cars including L.W.B. and Continental.  
All Rolls-Royce Phantom V cars prior to Chassis No. 5.VA.1.

DESCRIPTION

The purpose of this Service Bulletin is to advise Distributors and Retailers that a special adaptor is available for separating the bearing housing from the main casing of the coolant pump on the above cars.

By using this adaptor, in conjunction with a slide hammer, the bearing housing and pump casing can be separated without risk of damage, thereby eliminating the necessity for Distributors and Retailers to return these units to Rolls-Royce Limited for overhaul.

It is intended that the following should be read in conjunction with Chapter L Section L5 of the Workshop Manual (T.S.D. Publication 729).

OVERHAUL PROCEDURE

1. Remove the coolant pump complete with the main casing from the engine as described on Pages L12 and L13 of the Manual.
2. Remove the coolant pump driving spider using the extractor tool (part No. RH 7099) as shown in Figure L18 of the Manual.
3. Remove the eight setscrews securing the coolant pump bearing housing to the main casing.
4. Fit the adaptor (part No. RH 7314) over the bearing spindle and onto the nose end of the bearing housing; locate the two extractor legs of the adaptor into the two gland drain holes in the bearing housing.

Continued...

-2-

5. Tighten setscrews in the extractor legs sufficiently to secure the legs in the drain holes and tighten the adaptor steady screw onto the nose of the bearing housing; it is sufficient just to 'nip' the screws when tightening.
6. Assemble the slide hammer (part No. RH 7313) onto the adaptor.
7. Operate the slide hammer in the approved manner noting that several applications may be necessary to effect separation of the housings.
8. Continue the coolant pump overhaul as detailed on Pages L14 to L18 of the Manual.

TOOLS REQUIRED

<u>Part Number</u>	<u>Description</u>
RH 7099	Spider extractor
RH 7313	Slide hammer
RH 7314	Adaptor

For additional information concerning the slide hammer and the adaptor refer to Spares Information Sheet 2.A.2.

No. S2/L14

Circulation - United Kingdom Distributors  
and Retailers only

CATEGORY C

ENGINE COOLANT ANTI-FREEZE

APPLICABLE TO:

All Rolls-Royce Silver Cloud II cars including L.W.B.  
All Bentley S2 cars including L.W.B. and Continental.  
All Rolls-Royce Phantom V cars prior to chassis No. 5.VA.1.

DESCRIPTION

The Ford Motor Company have recently begun to market a new anti-freeze solution under the trade name 'Ford Anti-freeze'.

Only anti-freeze solutions conforming to British Standard Specification 3150 : 1959 are approved by Rolls Royce Limited and since the Ford anti-freeze solution does not conform to this standard, it should NOT be used in the cooling system of any Rolls-Royce or Bentley manufactured car.

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CATEGORY 2.

IMPROVED SEALING OF THE SCINTILLA CHOKE

THERMAL DELAY SWITCH

The switch is designed to serve as a thermal delay in the choke circuit and it operates in response to under-bonnet temperature and the heating effect of current supplied by the generator.

The switch is mounted on the dashboard and is secured by a 3BA. screw which passes through an extended boss. This boss provides a clearance between the body of the switch and the mounting surface.

Failure of the switch may be caused by water entering the unit during heavy rain or when the car is being washed. This results in serious corrosion of the internal assembly.

It has therefore been agreed to fit a neoprene washer between the switch body and the dashboard, in order to overcome this problem.

PROCEDURE

Disconnect the leads from the two inner terminals, unscrew the central securing bolt and remove the switch from the dashboard.

Detach the cover from the rear of the unit and inspect the internal assembly for signs of corrosion or the presence of water. Any water should be removed with a clean lint-free cloth, care being taken to ensure that the contacts and bimetallic strips are not disturbed. If serious corrosion is evident, the unit should be renewed.

Refit the cover and place the new sealing washer in position over the extended boss on the switch base.

Insert the securing bolt through the earth lead spade terminal and secure the switch to the dashboard, so that the earth terminal is on the side adjacent to the blower motor resistance.

Connect the two leads, noting that the white lead enters the lower terminal (marked B).

- 2 -

Start the engine and check that the switch is operating. No attempt should be made to carry out adjustments; if operation is unsatisfactory, the unit should be renewed.

MATERIAL

UD.5472 - Sealing Washer - 1 off

FOR INFORMATION

SPARKING PLUGS

It is necessary to draw attention to the deletion of item 7 under Schedule 'A' in Service Bulletin S2/D1.

In cases where the engine is fitted with sparking plugs which have nickel electrodes, it is a wise and economical precaution to change the plugs at 10,000 miles.

If the plugs have platinum points it is necessary only to inspect them, brush off any carbon or soot (do not sandblast) and reset the gaps.

This Bulletin cancels No. S2/M3  
Service Bulletin S2/M3  
dated 16.2.60.

FOR INFORMATION

INSTRUMENT ILLUMINATION

An improvement in the illumination of the instruments has been incorporated in cars on current production. Should complaints arise with respect to earlier cars, similar improvement can be obtained;

- 1) by fitting larger bulbs in the speedometer and the 4 in 1 instrument
- 2) by modifying the panel lamp switch.

It is not recommended that the larger bulbs be fitted to the electric clock as it is considered that adequate illumination of this instrument is provided by the existing bulbs.

Cars produced prior to November 1959 are fitted with switches incorporating both a fixed and a variable resistor. Elimination of the fixed resistor immediately improved illumination of the instrument and must be carried out at the same time as the fitting of larger bulbs. After November 1959, all cars were fitted with an improved two-position switch which requires no modification. The following chassis are fitted with this two-position switch.

SILVER CLOUD II	SRA. 235 onwards
BENTLEY S2	B. 212. AM onwards
PHANTOM V	5. AS. 65 onwards
SILVER CLOUD II LONG	
WHEELBASE	L. CA. 20 onwards
BENTLEY S2 LONG WHEELBASE	L. BA. 4 onwards

BENTLEY CONTINENTAL S2 chassis are subject to variations in coachwork which may involve altogether different switches.

MODIFICATION PROCEDURE

- 1) Replace the two existing 12V 2.2W M.E.S., bulbs, which illuminate the speedometer, and the single 12V 2.2W M.E.S. bulb in the 4 in 1 instrument by three 12V 3.6W M.E.S. bulbs, identified as UD.5500 or Lucas No.948.
- 2) To modify the early panel lamp switch (UD 4498)  
Disconnect the wire soldered to the base of the fixed resistor.  
Re-connect this wire to Terminal 3 of the switch.

CATEGORY 2

METHOD OF MODIFYING FUSE HOLDER FOR

MAIN FUSE BOARD AND WINDOW-LIFT FUSE BOARD

On late S1 cars and certain S2 cars, failure of the fuses to make good contact may be due to the fuse wires being located too high in the fuse clips. This fault can be attributed to one of the following causes.

- (a) Dimensional differences which produce a foul between the base of the fuse holder and the fuse clips, thereby preventing the holder from being pushed fully down into the clips.
- (b) The copper contact strips being incorrectly fitted, do not locate correctly on the moulding, which means that unless the fuse is carefully assembled the wire makes poor contact.

Where it is established that either of these faults exist, proceed as follows.

FUSE HOLDER - TO MODIFY

Remove .050 in. from the bottom of the fuse holder and reduce the width of the bottom to between .630 and .635 as shown in Figure 1.

This allows the position of the fuse wire to be lowered from .425 in. to .375 in. and enables the fuse holder to fit fully down between the clips.

METHOD OF FITTING FUSE WIRE

It is important, when fitting the fuse wire, that the correct method is adopted.

Ensure that the wire is wrapped around the bollard on the fuse holder one and a half times, and passed across the air space along the ledge, parallel with the bottom of the holder, then wrapped around the other bollard one and a half times. The ends of the wire must be positioned so that they are securely trapped by the copper strips when they are fitted.

The correct method of fitting the wire is shown, in comparison with incorrect methods, in Figure 2.

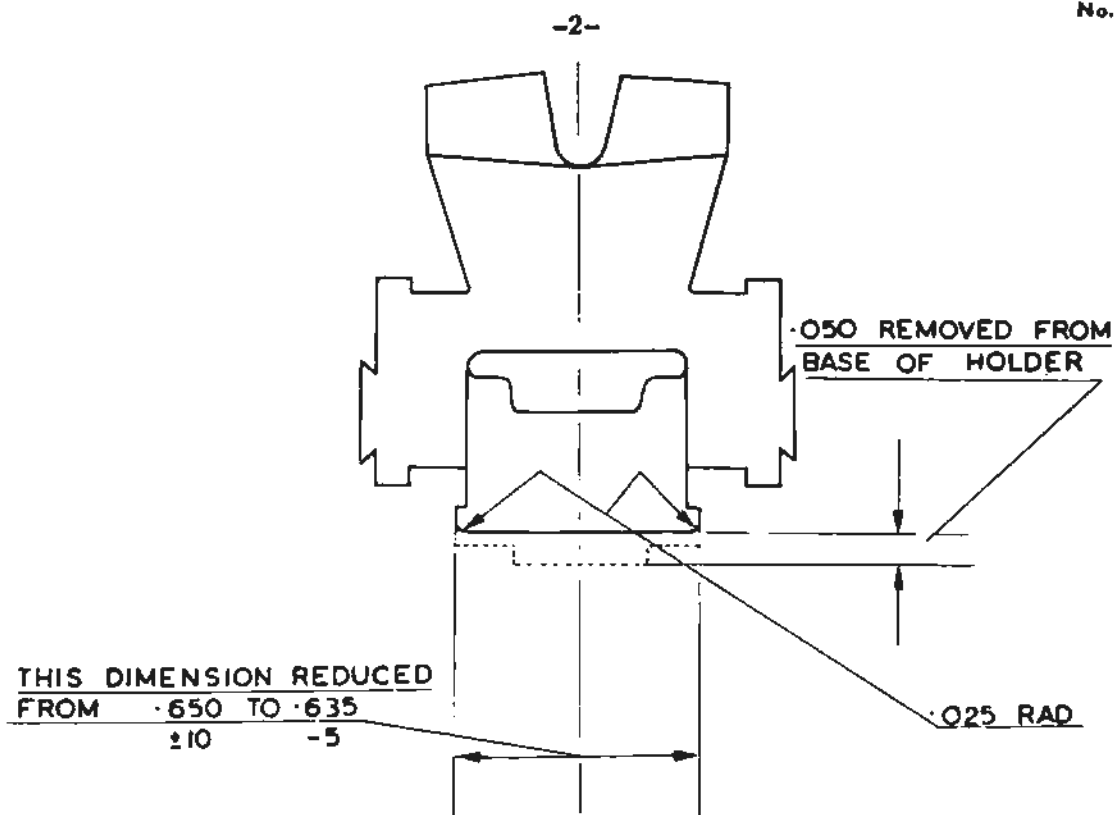


Fig.1. Method of Modifying the Fuse Holder

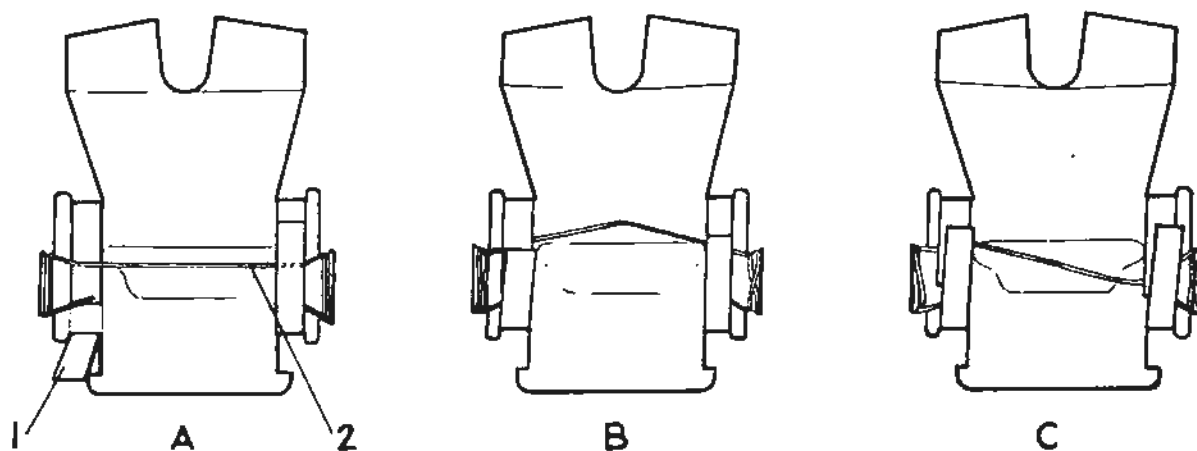


Fig.2. 'A' Correct Method of Fitting the Fuse Wire,  
'B' and 'C' Incorrect Method

1. Contact Strip
2. Fuse Wire

### METHOD OF FITTING COPPER CONTACT STRIPS

Fit the copper strips to the fuse holder so that the fuse wire is firmly trapped and that each end of the copper strip overlaps the wire by an equal amount. The correct method of fitting the fuse wire and the contact strips is shown in 'A' of Figure 2.

### ATTENTION TO FUSE CLIPS

Ensure that the fuse clips are not distorted. They should be set square and parallel in order to maintain the holder firmly in position.

Figure 3 shows a comparison between the fuse clips set correctly and incorrectly.

### IDENTIFICATION OF MODIFICATION

In order to identify that these Modifications have been incorporated, a small green spot should be painted on the side of the fuse boxes nearest the car centre, adjacent to the cover fixing clip.

All S2 cars without the green spot must be inspected and if found to have been already modified, a green spot should be painted as instructed.

If the modification has not been incorporated, carry out the instructions previously stated.

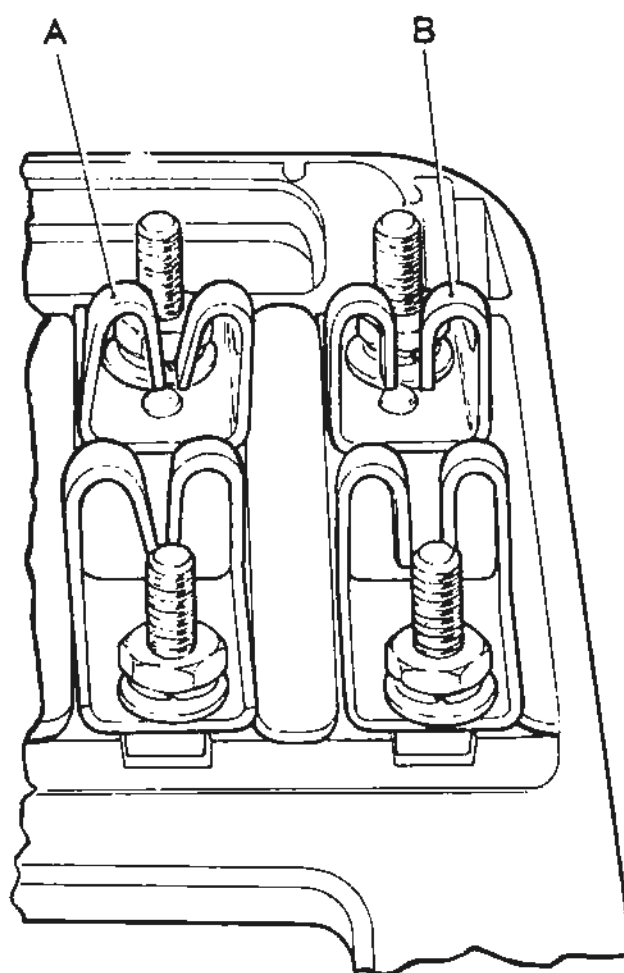


Fig.3. 'A' Fuse Clips set Incorrectly.  
'B' Correctly.

The following S1 chassis should be inspected and if necessary modified to the above information.

Bentley S1	Chassis No. B-38-GC onwards.
Bentley S1 Long Wheelbase	Chassis No. ALB-32 onwards.
Silver Cloud	Chassis No. SMH-117 onwards.
Silver Cloud Long Wheelbase	Chassis No. CLC-31 onwards.



CATEGORY 3A

STARTER MOTORS.

Applicable to:-

Silver Cloud II  
Bentley S2  
Bentley Continental S2  
Phantom V

A number of Starter Motor failures have occurred on S2 Cars, and modification action is required in the case of failure, or on customers complaint. The failures are attributed to the following reasons:-

- 1) Slipping of Starter Motor Clutch.
- 2) Poor electrical connections.

Slipping of Starter Motor Clutch. The symptoms of this failure are; that the starter motor engages normally when the ignition key is turned, and then spins without turning the engine; this is due to the Starter Motor Clutch slipping. A modified clutch unit incorporating stronger springs is now available and in the event of a failure the Starter Motor assembly should be changed for a unit incorporating the modified clutch.

To remove the Starter Motor. Access to the Starter Motor is obtained from beneath the car, it is therefore desirable to have the car placed on a ramp or over a pit.

- 1) Disconnect battery lead.
- 2) Remove the undershield attached to the frame side member beneath the Starter Motor.
- 3) Pull back the rubber cover which shrouds the terminal at the front end of the solenoid casing and detach the heavy duty lead only.
- 4) Unscrew the set-screws retaining the Starter Motor. It should be noted that the upper set-screw is not readily detachable from the bell housing owing to the close proximity of the crankcase breather pipe.

- 2 -

- 5) Remove the Starter Motor by lowering it between the engine and the chassis frame.

Action to be taken - U.K. Starter Motors assemblies with failed clutch units should be returned to the factory for a replacement unit incorporating a modified clutch.

Action Overseas. Arrangements have been made with Joseph Lucas Ltd., agents overseas to re-work any starter motor with a failed clutch. Retailers dealing with a failure of this nature should contact their Lucas agents to obtain a replacement unit.

Part Numbers. After the above modification has been incorporated to a Starter Motor the Part No. of the complete assembly changes from UD. 4587 to UD. 5706.

Identification. The modified Starter Motor is identified by a blob of yellow paint on the Starter Motor Solenoid.

Time Allowance. 1 hour.

Failure due to Poor Electrical Connections. The symptoms of this failure are that the Starter Motor engages correctly with the normal 'clonk' as the pinion engages and then remains silent. This is due to the fact that the poor electrical connections produce a high resistance in the circuit resulting in insufficient current being available to turn the engine, although it is sufficient to engage the starter pinion.

Action required. The simple remedy in the event of this failure is to inspect and tighten all electrical connections on the Starter Motor and Solenoid.

Time Allowance. Half an hour.

CATEGORY 2

STARTER MOTOR RELAY

DESCRIPTION

A protective device, in the form of a relay switch, was fitted to S2 cars to prevent drivers from engaging the starter motor pinion when the engine was running. Recent Service experience has shown that this relay does not function correctly and Retailers and Service Personnel should remove these relays when affected cars next come in for Service or in the case of customer's complaint.

APPLICABLE TO:-

Chassis Numbers

Bentley S2	B.252.CU. to B.738.CU.
Bentley S2 L.W.B.	LBA.25. to LBB.12.
Silver Cloud II	SXC.351. to SYD.306.
Silver Cloud II L.W.B.	LCB.66. to LCC.6.
Bentley Continental S2	BC.72.BY. to BC.19.CZ.

PROCEDURE.

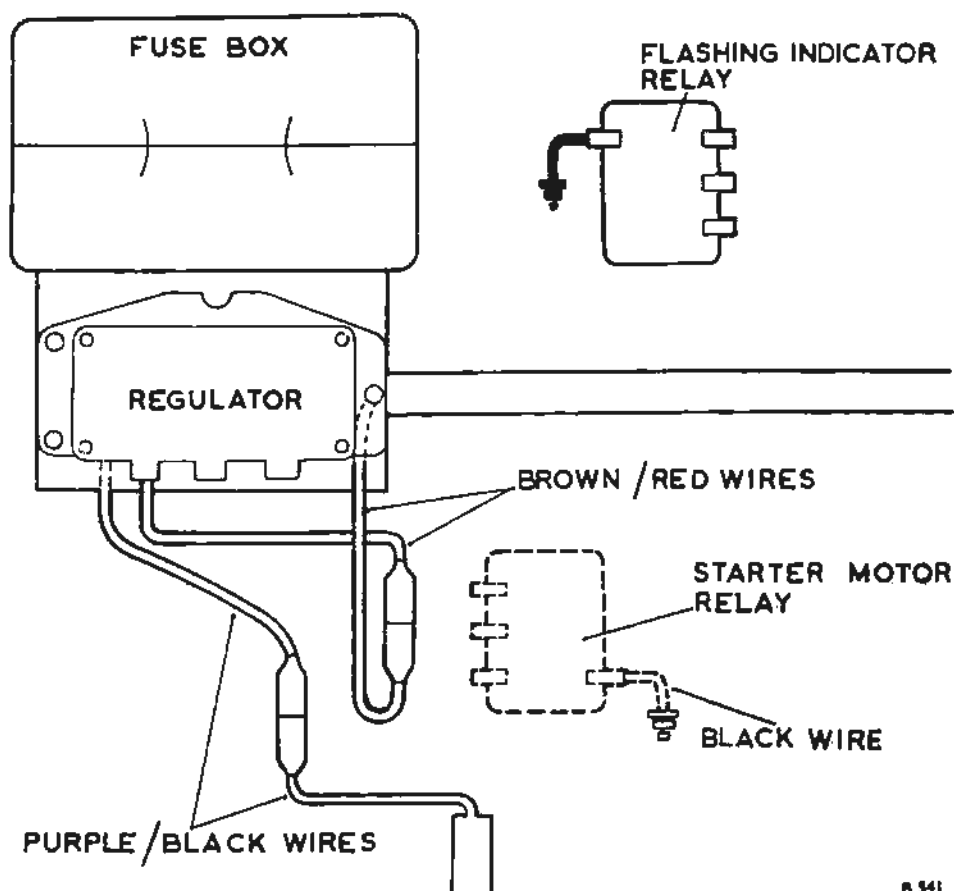
To ascertain whether the starter relay is functioning correctly a check may be made as follows:-

If the engine cannot be started with the ignition key but will start when the rubber button on the solenoid is depressed then the relay is not working.

Disconnect the battery.

Remove the two Brown/Red wires from the connection W.1 on the relay and connect them together using a double-ended 'Lucar Blade'

- 2 -



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Fig. 1. Positioning of Starter Motor Relay and Re-wiring of Connections

connector (UD.6074), (See Fig.1).

Remove the two Purple/Black wires from the connections C.2 and C.3 on the relay and connect them together using another double-ended connector (UD.6074).

Remove the Black earthing wire from the connection W.2 on the relay and from the bulkhead.

Remove the relay. The two cheese-headed screws and washers should be refitted to the bulkhead.

The starter relay is identifiable by a yellow spot of paint on its top side and by its part number 33226B (Lucas).

#### MATERIAL REQUIRED

<u>Description</u>	<u>Part Number</u>	<u>Quantity</u>
Double-ended connector	UD.6074	2 off
Time allowance:-	1 hour.	

This bulletin cancels  
Service Bulletin  
S2/E6.

CATEGORY 3A

CHAMPION WATERPROOF SPARKING PLUG ADAPTORS

DESCRIPTION

A new Champion waterproof sparking plug adaptor is available for fitting to S2 cars. The new adaptor has been designed to grip the insulator of the sparking plug and the high tension lead is now bonded into the plug adaptor with an adhesive compound, thus preventing the ingress of any water to the sparking plug terminal and eliminating misfiring.

In cases of complaint due to engine misfiring where it is known that water is penetrating to the plug terminals, the existing adaptors should be replaced with the new Champion adaptors.

PROCEDURE

Disconnect the battery.

Jack up the front end of the car and place it on suitable stands.

Remove the wheels.

Remove the two access panels fitted to either valance.

Remove the eight leads from the sparking plugs, then remove the existing plug covers.

Roughen the ends of the cables where they are to be bonded to the covers.

Clean the inside of the plug cover and the end of the lead with Carbon Tetrachloride or Trichlorethylene. The cover and lead should be immersed in either of these solvents for a minimum of time, otherwise the rubber may tend to swell and soften.

Allow 10-15 minutes for the cleaner to dry.

- 2 -

Mix the 'Bostik' 2402 adhesive with its catalyst.

**NOTE:-**

The 'Bostik' 2402 sealing compound must be mixed with its catalyst according to the directions given on the tins by the makers. It is permissible to mix smaller quantities than those supplied if required, but care should be taken to ensure that the compound and catalyst are mixed in exact proportions.

Fit the sparking plug connecting tag to the end of the high tension lead.

Apply the compound to the end of the lead and to the inside of the rubber cover. Allow 2-3 minutes for the compound to become tacky, then push the lead into the cover ensuring that the connecting tag is correctly located.

Repeat this operation for the remaining seven leads.

Fit the covers to the sparking plugs. As the compound does not dry immediately care should be taken to ensure that the leads are not disturbed when fitting the covers to the plugs. Once fitted, the heat from the exhaust manifolds will be sufficient to complete the bonding of the covers to the leads.

Fit the access panels.

Fit the wheels.

Reconnect the battery.

**MATERIAL REQUIRED**

<u>Part Number</u>	<u>Description</u>	<u>Quantity</u>
UE. 9258	Rubber Sparking Plug Cover	8
UE. 8587	Sparking Plug Connecting Tag	8

Time Allowance :- 3 hours.

### CATEGORY 3

### SPEEDOMETER DRIVE CABLES

#### DESCRIPTION

An improved type of speedometer cable has recently become available for fitting to S2 series cars. The new cable has been designed to improve the operation of the speedometer, and to eliminate the factors which are likely to cause needle fluctuation. These factors are overcome by a new cable incorporating an improved inner cable and indicated clipping areas which ensure that the run of the cable is kept as smooth and kink free as possible.

In cases of complaint due to speedometer needle fluctuation, the existing cable should be replaced with a new type of cable.

#### APPLICABLE TO :-

Bentley S2  
Bentley S2 L.W.B.  
Silver Cloud II  
Silver Cloud II L.W.B.  
Bentley Continental S2

#### IDENTIFICATION

The new cable may be identified by two white plastic wrappings placed at approximately 1/4 and 1/2 way along the cable from the gearbox drive end.

#### PROCEDURE

Speedometer cable - To remove

Access to the drive end of the speedometer cable is gained beneath the car. It is therefore desirable that the car be placed on a ramp or over a pit.

Disconnect the battery.

Remove the facia panel.

Remove the speedometer head, taking care to note the position in which the various warning and illuminating lamp sockets are fitted.



- 2 -

Disconnect the speedometer cable at the gearbox drive end.

Remove the clips which support the speedometer cable on the frame and bulkhead; disconnect the earthing strip.

Withdraw the speedometer cable, together with the bulkhead grommet and seal, from the engine side of the bulkhead.

New speedometer cable - To fit

Remove and inspect the clips from the old speedometer cable. Should the clip rubbers show any sign of deterioration, new clips will be required.

Fit the clips to the new cable, ensuring that the two clips nearest to the gearbox drive end are fitted in the positions denoted by the white plastic wrappers.

Fit the speedometer cable to the car by reversing the procedure given for its removal and noting the following points.

The clip on the chassis frame and the lower of the two clips on the bulkhead MUST be fitted in the positions denoted by the white plastic wrappers.

If a kink occurs owing to the speedometer cable having to pass over the front near-side body mount, the clip on the chassis frame may be bent upwards to obviate the kink.

Finally, when fitting the cable to the speedometer head, ensure that the felt washer is in position.

MATERIAL REQUIRED

<u>Description</u>	<u>Part number</u>	<u>Quantity</u>
Assembly - Flexible drive - Speedometer	UD 8675	1

- 3 -

When fitting the above new speedometer cable, would Retailers and Service Personnel please note that upon removal, the old speedometer cable MUST be returned to :-

Messrs. Rolls-Royce Limited.  
Spares Central Stores,  
Pym's Lane,  
Crewe

Guarantee claims will be accepted for the material and labour utilised.

Time allowance

2 Hrs. 15 Mins.

No. S2/M9

Circulation - All Distributors  
and Retailers

CATEGORY C

DIRECTION INDICATOR SWITCH

APPLICABLE TO:

All Rolls-Royce Silver Cloud II and III cars and all Bentley S2 and S3 cars.

DESCRIPTION:

The direction indicator switch UR 5273 is no longer available. For replacement purposes, the switch used on Silver Shadow cars (UR 16530) will be fitted. When it is fitted, the terminal connectors must be changed.

PARTS REQUIRED

UR 16530 - Direction Indicator Switch	- 1 off )	
X 4401 - Washer	- 2 off )	
UD 6072 - Lucars	- 5 off )	Kit number RH 2725
UD 19094 - Lucar Sleeves (clickfit)	- 5 off )	

PROCEDURE:

1. The removal and replacement procedure for the new switch remains the same as for the old. However, there is a small modification to be carried out on the new switch as follows:
2. Remove the two screws and discard the brown insulation board (see Fig. 1). Replace the screws with a washer (X 4401) behind each screw head (see Fig 2).
3. Cut the 7 pin plug off and withdraw the insulation board along with the green/yellow and green/blue wires.
4. Fit 'Lucar' connectors to all the wires except the black one to which a bullet connector is fixed. Connect the wires as follows.

New Colour	Existing Colour	Connected To
Green/Red	Pink	Left-hand Flasher
Green/Brown	Green/Yellow	Supply
Green/White	Purple	Right-hand Flasher
Black	Black	Extension to Earth
Blue/Black	Purple/Green	Flick Relay W/L

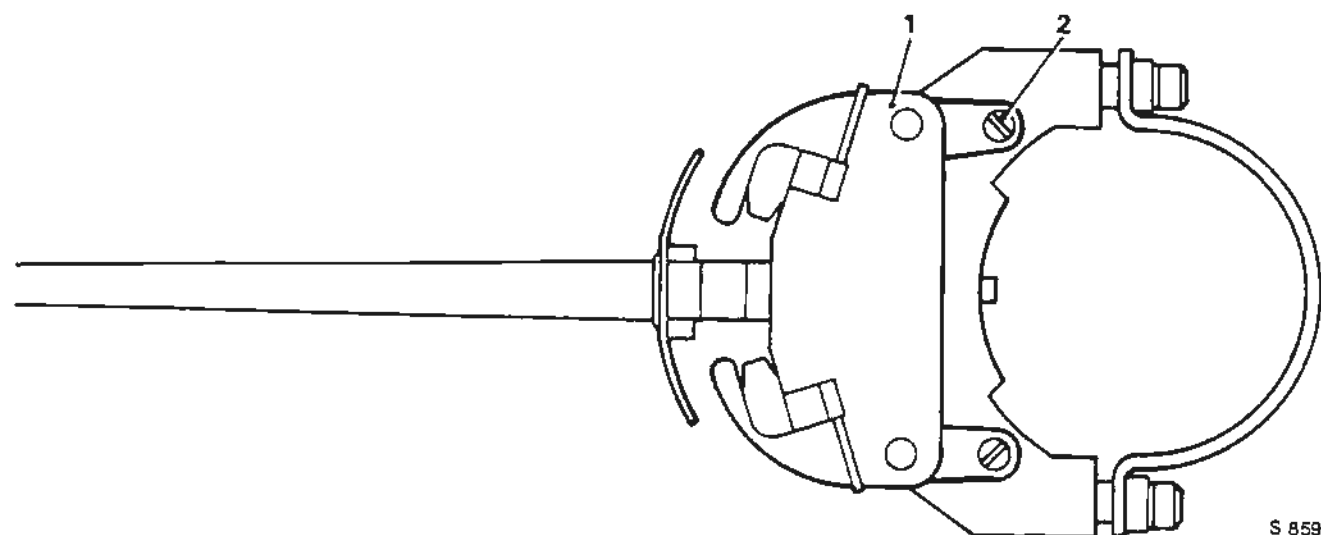


Figure 1. Direction indicator switch (UR 16530)

1. Insulation board
2. Screw

3

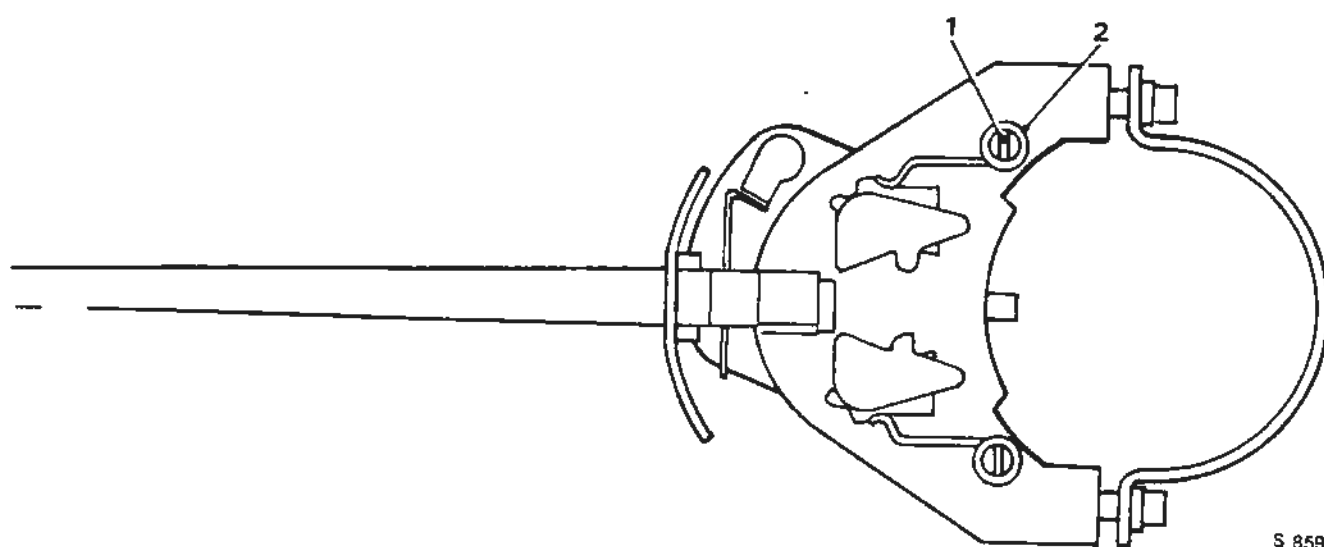


Figure 2. Modified component

- 1. Screw
- 2. Washer

FOR INFORMATION

STEERING TRANSFER BOX

OIL LEVEL

(SILVER CLOUD II AND BENTLEY S2)

Replenishment of the steering transfer box should be carried out at intervals of 20,000 miles, when the following procedure should be adopted:-

Remove the filler plug and joint washer from the top, also the level plug and joint washer from the side of the steering transfer box having first ensured that the area around each plug is clean.

On left-hand drive cars, access to the filler and level plugs is gained by removing the panel situated under the left-hand front wheel arch.

On right-hand drive cars, access is gained to the level plug from beneath the car and to the filler plug from above.

Using a syringe, inject a quantity of the correct lubricant into the casing until it begins to flow from the level plug orifice. Allow a few minutes for the oil to assume its level, then refit the level and filler plugs, using new joint washers.

It will be noted that some oil will be lost from the steering transfer box during the first few miles of driving. This is normal and should cause no alarm.

The following lubricants are approved:-

Wakefield	Castrol Hi-press SC or Castrol Hypoy.
B.P.	Energol EP SAE 90
Shell	Spirax EP 90
Mobil	Mobilube GX 90.

FOR INFORMATION

INTRODUCTION OF LIGHTER STEERING

LEFT-HAND S2 CARS

With the introduction of lighter steering on left-hand drive S2 motor cars, it has been found necessary to restrict the oil feed to each end of the steering ram. This has been effected by reducing the number of feed holes in the two banjo bolts, which connect the power assisted steering box to the ram feed hoses, from two to one. At the same time, the diameter of the remaining feed hole has been reduced from 0.250 in. to 0.0866 in.

To avoid the possibility of the restricted banjo bolts (lighter steering) and the standard banjo bolt (which is still used to retain the steering pump feed hose to the steering box) being interchanged, the restricted bolts have been made readily indentifiable. The restricted bolts have a 0.500 in diameter turret on the bolt head in place of the Unified Thread identification of the standard banjo bolt.

Part Numbers are as follows:-

Restricted banjo bolt - connecting - steering box to ram feed hoses - UR.5972 - 2 off

Standard banjo bolt - connecting - steering box to pump feed hose - UE.2354 - 1 off

Note: On right-hand cars and left-hand drive cars, which are not fitted with the lighter steering, three standard banjo bolts (UE.2354) are required.

Applicable to the Following Chassis Numbers (Left-hand drive only).

Rolls-Royce Silver Cloud II	LSAE.41 and onwards except LSAE.443.
Bentley S2	B.192 LDW and onwards.
Phantom V	5.LCG.77. and onwards.
Bentley Continental S2	BC.135.LCZ. and onwards.
Rolls-Royce L W B.	LLCD.11 and onwards.
Bentley S2 L W B.	LLBB.30 and onwards.

FOR INFORMATIONRENEWAL OF THE OIL SEALS IN THE ROCKING SHAFTLOWER BEARING HOUSING

When renewing either of the two oil seals in the rocking shaft lower bearing housing, it is most important to ensure that the rocking shaft itself is firmly supported against the upper bearing, during the period that the housing is removed. Failure to do this can possibly result in the upper roller bearing being dislodged and upon re-assembly the rocking shaft can trap the bearing against it's housing causing considerable damage.

Ensure, upon re-assembling the housing to the steering box, that the pointer on the lower bearing housing is correctly aligned with the markings on the mounting tube bracket. The pointer must be set in exactly the same position as the pointer on the upper bearing housing in order to give the correct pre-loading on the rocking shaft.

If it is suspected that the top roller bearing has been dislodged, and it is therefore necessary to remove the upper bearing housing in addition to the lower housing, the bearing pre-load should be re-set according to the instructions contained in the S2 Workshop Manual, (see Chapter N, Section N7).



Circulation - All Distributors &  
Retailers

CATEGORY C

ALTERNATIVE STEERING PUMPS

APPLICABLE TO:

All Rolls-Royce Silver Cloud II and III cars, and all Bentley Series II and III cars fitted with power assisted steering.

DESCRIPTION:

The steering pumps used on the above cars are being discontinued. Kits, as described in Spares Information Sheet N2 are to be used for replacement purposes.

Two kits are available and are as follows:

1. RH 2657 - used in place of pump UE 9486 - late S III cars
2. RH 2658 - used in place of pump UE 9916 - S II and early S III cars.

This Service Bulletin details the fitting procedures for each kit.

PROCEDURE:

KIT NO RH 2657

Pump - to fit

1. Disconnect the battery.
2. Unscrew the steering pump pulley retaining setscrew.
3. Remove the drive belts.
4. With a syringe, remove the fluid from the reservoir.

5. Disconnect the pump to steering box pressure pipe. Secure previously removed pipe vertically to prevent fluid loss; retain the banjo and sealing rings.
  6. Remove the nuts and washers securing the pump swivel bracket to the 'B' bank cylinder head, detach the bracket and pump.
  7. Remove the pump from the bracket and remove the pulley.
  8. Mount the new pump (RH 8919) to the pump swivel bracket with four setscrews (UA 107/Z) and flat washers (UA 1251/Z)
  9. Mount the pump swivel bracket to 'B' bank cylinder head.
  10. Using Figure 1 for reference, fit the adapter (RH 8914), banjo (UE 30019), banjo bolt (UE 30020) and new sealing washers (UE 2514).
- NOTE: On left hand drive cars use banjo (UR 2507) and adapter (UR 3186).
11. Connect the hose from the steering box to the adapter and banjo previously fitted.
  12. Fit the pulley and drive belts.

#### Reservoir - to fit

1. Using Figure 3 as a guide drill four holes into the bulkhead, insert an anchor nut (SPC 1697) into each hole, fit the reservoir bracket (RH 8920) and secure with the four setscrews (UA 103/Z) and washers (UA 1251/Z).
- NOTE: The anchor nuts rivet themselves to the bulkhead as the setscrews are tightened.
2. Mount the reservoir to the bracket with the three setscrews (UA 105/Z) and washers (UA 1251/Z).

No.

3

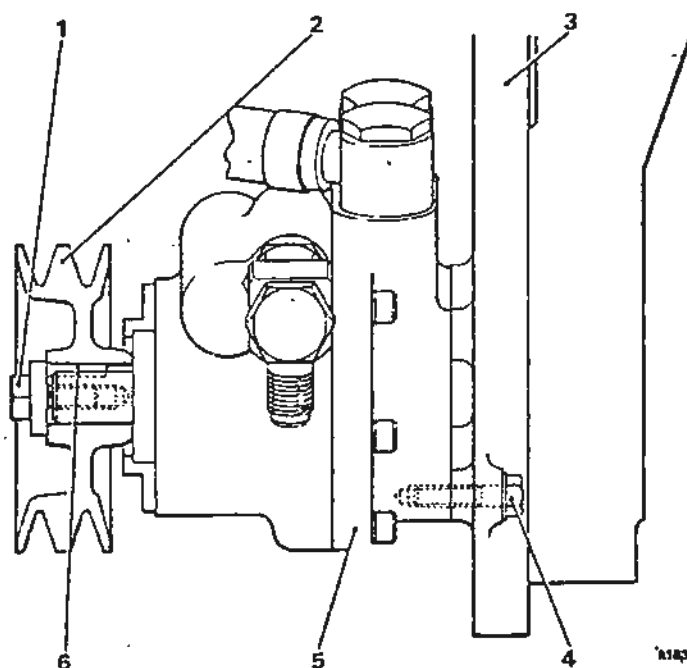


Figure 1. Fitting pump to swivel bracket

1. Pump pulley setscrew and washer.
2. Pump pulley.
3. Swivel bracket.
4. Pump to swivel bracket setscrew (UA 107/Z) and washer (UA 1251/Z).
5. Pump RH (8919).
6. Key.

#### Hoses - to fit

1. Using Figure 2 and Figure 3 as a guide, connect a hose, cut from RH 8912, between the pump and reservoir (pump return line).
2. Connect a hose cut from RH 8912, between steering box and reservoir (steering box return).
3. Connect a hose, cut from RH 8913, between the pump and reservoir.
4. The hoses should be clipped as shown.

System - to fill and prime (Series III cars)

1. Fill the system with approved fluid to just above the filter.
2. Start the engine and allow to idle.
3. Set the steering such that the hydraulic ram is in its most forward position. Right-hand drive - left-hand lock.  
Left-hand drive - right-hand lock.
4. Remove the protective cap, fit a bleed pipe to the ram bleed nipple and insert the open end into a clear container.
5. Unscrew the bleed nipple sufficiently to allow fluid to pass into the container.

Ensure the reservoir fluid level is maintained during this process.

6. Continue bleeding until all air is expelled. Close the bleed nipple.
7. Return the steering to the straight-ahead position and re-check the fluid level of the reservoir.

NOTE: On some series III cars, a bleed nipple is also located on the rocker shaft housing of the box.

System - to fill and prime (Series II cars)

1. Fill the system with approved fluid to just above the filter.
2. Start the engine with the front wheels of the car just raised off the ground and allow to idle.
3. Turn the steering lock-to-lock until all air and noise is eliminated from the system.

5

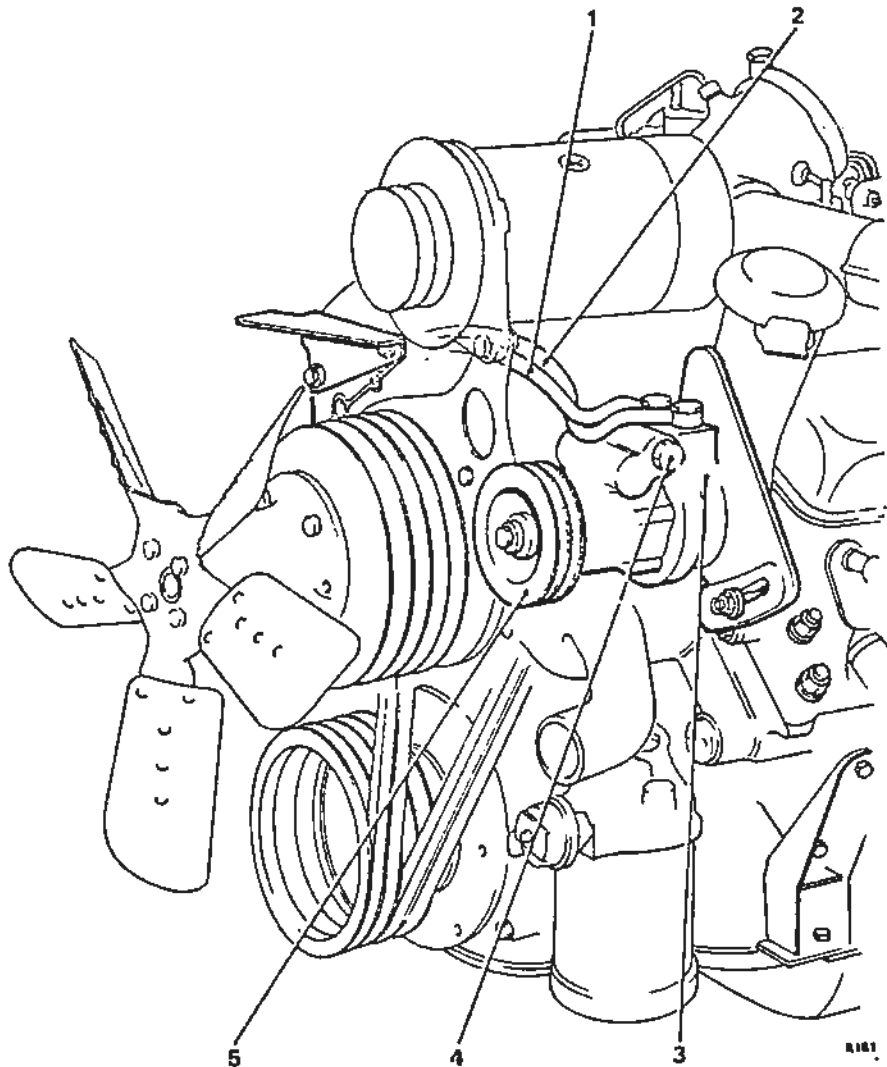


Figure 2. Pump in position

1. Hose cut from RH 8913.
2. Hose cut from RH 8912.
3. Pump and swivel bracket.
4. Pump to steering box connection.
5. Pump pulley.

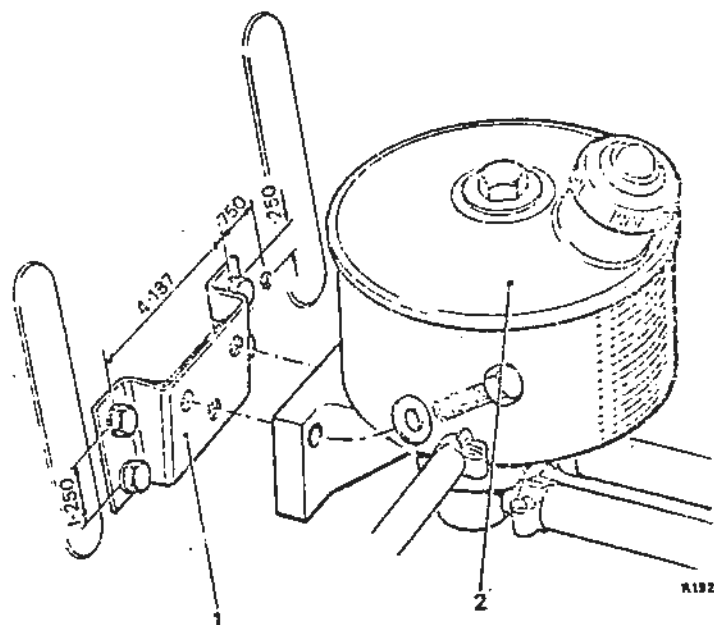


Figure 3. Fitting reservoir mounting bracket RH 8920 to bulkhead.

1. Bracket (RH 8920).
2. Reservoir.

PROCEDURE:

KIT RH 2658 - (Cars not fitted with refrigeration)

The procedures are the same as for Kit RH 2657 with the following exceptions:

1. The new pump swivel bracket (UE 9850) supplied, should be fitted in place of the existing bracket.
2. The steering box to reservoir return pipe should be disconnected, the steering box end banjo bolt retained, the hose discarded and a new hose, cut from PH 8912, fitted as Figure 2. The banjo bolt, with new seals, should be fitted with the new banjo (UE 30018) to the steering box.

NOTE: RH 8912 and RH 8913 are supplied in bulk. The lengths used in the previous procedures should be measured on the car.

TIME ALLOWED

Kit RH 2657 - 5 hours

Kit RH 2658 - 5 hours

CATEGORY 3a

EXHAUST PIPE 'TITTER' ON S2 CARS

Exhaust pipe 'titter' is a high frequency vibration which energises and is transmitted by the pipe shell. On occasions this has given cause for customers complaints.

A modification which provides an effective reduction in 'titter', has recently been introduced on production; this modification consists of lagging the two adjacent lengths of exhaust pipes for a distance of approximately twenty inches at a point immediately forward of the breeches piece. (see Fig. 1.)

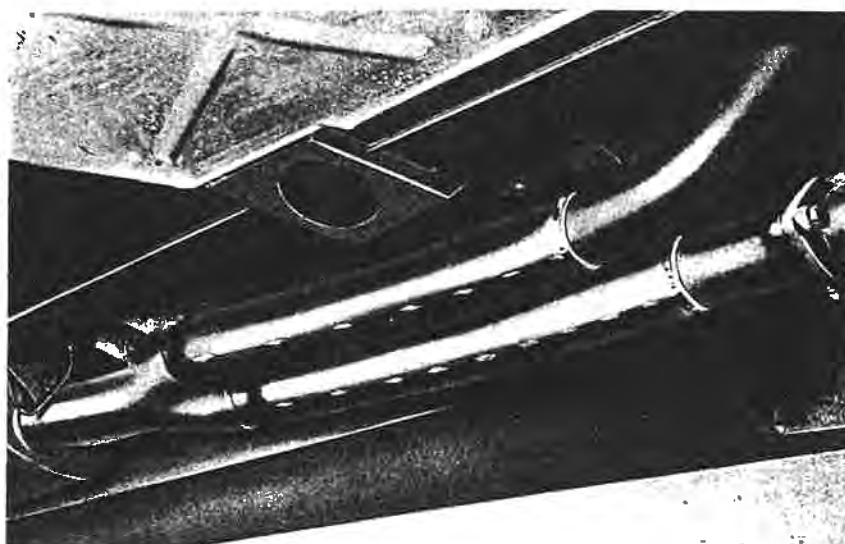


Fig.1. Position of Exhaust Pipe Lagging

PROCEDURE FOR LAGGING

Dampen the asbestos lagging and wrap it around the exhaust pipes. Fit the aluminium covers over the lagging and secure them in position with worm drive clips.



Whilst held in this position tack weld along the longitudinal joints at intervals of two inches. Remove the clips.

The ends of the covers should be sealed by crimping, and the covers painted with heat resisting paint.

PARTS REQUIRED

Outer Pipe

UR.5206	Lagging	1 off
UR.5302	Cover	1 off
UR.5303	Cover	1 off

Inner Pipe

UR.5204	Lagging	1 off
UR.5304	Cover	1 off
UR.5305	Cover	1 off

FOR INFORMATION

DUNLOP TYRE EQUIPMENT FOR  
'S' AND 'S2' CARS.

The following tyres have been approved for use on the Silver Cloud, Silver Cloud II, Bentley 'S' and Bentley 'S2'.

8.20 x 15 (4 ply) Dunlop 'C' Rayon WH2.

8.20 x 15 (4 ply) Dunlop Fort 'C' Nylon WH2.

These tyres are obtainable in black or white sidewall.

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.

The correct tyre pressures are:-

Silver Cloud and Bentley 'S'  
Manual Steering:-

Front 19 lb/sq. in. (1.33 kg/sq. cm)  
Rear 26 lb/sq. in. (1.83 kg/sq. cm) Cold.

Power Assisted Steering:-

Front 21 lb/sq. in. (1.48 kg/sq. cm)  
Rear 26 lb/sq. in. (1.83 kg/sq. cm) Cold.

Silver Cloud and Bentley 'S' Long Wheelbase:-

Front 22 lb/sq. in. (1.55 kg/sq. cm)  
Rear 28 lb/sq. in. (1.97 kg/sq. cm) Cold.

No. S2/R3

- 2 -

Silver Cloud II and Bentley 'S2' :-

Front 22 lb/sq.in. (1.55 kg/sq.cm)  
Rear 27 lb/sq.in. (1.90 kg/sq.cm) Cold.

Silver Cloud II and Bentley 'S2' Long Wheelbase:-

Front 23 lb/sq.in. (1.62 kg/sq.cm)  
Rear 29 lb/sq.in. (2.04 kg/sq.cm) Cold.

---

No. S2/R4

FOR INFORMATION

This bulletin cancels  
all previous Service  
Bulletins numbered  
S2/R4.

AVON TYRES FOR S2 CARS

The following tyre has now been approved for use on the Rolls-Royce and Bentley Standard Steel Saloons and Long Wheelbase Cars :-

8.20 x 15 Avon Safety Tyre - 6 ply rating. Tyrex.

This tyre is tubeless and is available with black or white sidewalls. It has a rayon casing and a low resilience tread, which gives an improved low-speed ride, better wet holding characteristics and reduces the tendency to squeal whilst cornering and braking.

The pressures for this tyre are as follows:-

Front 22 lb/sq.in. (1.55 Kg/sq.cm.)  
Rear 27 lb/sq.in. (1.90 Kg/sq.cm.)

The part numbers of the tyre are as follows :-

UG.4162 - Avon 8.20 x 15 Safety Tyre -  
White Wall  
UG.4163 - Avon 8.20 x 15 Safety Tyre -  
Black Wall

---

FOR INFORMATION

DUNLOP ELITE TYRES FOR S2 CARS

The following tyre has now been approved for use on Rolls-Royce and Bentley Standard Steel Saloons and Long Wheelbase Cars:-

8.20 x 15 Dunlop Elite Tyre - 4 ply Nylon.

This tyre is available in tubeless form only, with either black or white sidewalls. It has a high hysteresis tread compound incorporating 'anti-wander' ribs in the tread, which together give improved wet holding characteristics, reduced tendency to squeal whilst cornering and braking on dry roads and a greater degree of comfort.

The pressures for this tyre are as follows:-

Front	22 lbs/sq.in.	(1.55 kg/sq.cm.)	Cold
Rear	27 lbs/sq.in.	(1.90 kg/sq.cm.)	

The part numbers of the tyre are as follows:-

UG.4194 - Dunlop 8.20 x 15 Elite Tyre-Black Sidewall  
UG.4195 - Dunlop 8.20 x 15 Elite Tyre-White Sidewall

FOR INFORMATION

This bulletin cancels  
all previous Service  
Bulletins in Section R.

CURRENTLY APPROVED TYRES FOR ROLLS-ROYCE

AND BENTLEY S2 SERIES CARS

APPLICABLE TO

Silver Cloud II  
Silver Cloud II L. W. B.  
Bentley S2  
Bentley S2 L W B.

<u>Part No.</u>	<u>Make</u>	<u>Type</u>	<u>Casing material</u>	<u>Size</u>	<u>Sidewall colour</u>
UG.4194	DUNLOP	Elite C40	Nylon 4 ply	8.20 x 15	Black
UG.4195	DUNLOP	Elite C40	Nylon 4 ply	8.20 x 15	White
UG.4367	DUNLOP	Fort 'C' WH4	Nylon 4 ply	8.20 x 15	Black
UG.4368	DUNLOP	Fort 'C' WH4	Nylon 4 ply	8.20 x 15	White
UG.4365	DUNLOP	Fort 'C' WH4	Rayon 4 ply	8.20 x 15	Black
UG.4366	DUNLOP	Fort 'C' WH4	Rayon 4 ply	8.20 x 15	White
UG.3455	FIRESTONE	P 345	Rayon 4 ply	8.20 x 15	Black
UG.3456	FIRESTONE	P 345	Rayon 4 ply	8.20 x 15	White
UG.4122	FIRESTONE	P 345	Nylon 4 ply	8.20 x 15	White
UG.4123	FIRESTONE	P 345	Nylon 4 ply	8.20 x 15	Black
UG.4162	AVON	HM Ribbed Airseal Safety	Tyrex 6 ply	8.20 x 15	White
UG.4163	AVON	HM Ribbed Airseal Safety	Tyrex 6 ply	8.20 x 15	Black
No RR No.	(INDIA	Super Nylon WH4	Nylon 4 ply	8.20 x 15	Black
	(INDIA	Super Nylon WH4	Nylon 4 ply	8.20 x 15	White

The pressures for these tyres are as follows:-

Front 22 lb/sq.in. (1.55 kg/sq.cm.)  
Rear 27 lb/sq.in. (1.90 kg/sq.cm.)

Cont'd....

- 2 -

WINTER TYRES (Rear wheels only)

<u>Part No.</u>	<u>Make</u>	<u>Type</u>	<u>Casing material</u>	<u>Size</u>	<u>Sidewall colour</u>
No RR No.	DUNLOP	Heavy Duty Weathermaster	Nylon 4 ply	8.00/ 8.20 x 15	Black/ White
No RR No.	FIRESTONE	Town and Country	Nylon 6 ply	8.00 x 15	Black/ White

All the listed tyres are tubeless.

The pressures for Winter tyres are 30 lb/sq.in. (2.11 kg/sq.cm.)

It is recommended that tyres with a nylon carcass be fitted as standard equipment and tyres with a rayon carcass be fitted on special request only.

It should be noted that the tyres listed are those currently approved for use on Rolls-Royce and Bentley S2 cars. If, however, any cancellations or additions are necessary, Retailers and Service Personnel will be notified by Service Bulletin.

FOR INFORMATION

DUNLOP ELITE TYRES

The following tyres are no longer available for use on Rolls-Royce Silver Cloud II and Bentley S2 cars.

Part No .	Make	Type	Casing Material	Size	Sidewall colour
UG 4194	DUNLOP	Elite C40	Nylon 4 Ply	8.20 x 15	Black
UG 4195	DUNLOP	Elite C40	Nylon 4 Ply	8.20 x 15	White

Would Retailers and Service Personnel please amend Service Bulletin S2/R6 accordingly.



C

ALL FRANCHISE HOLDERS

CURRENTLY APPROVED TYRES

APPLICABLE TO:

All Rolls-Royce and Bentley motor cars from 1945.

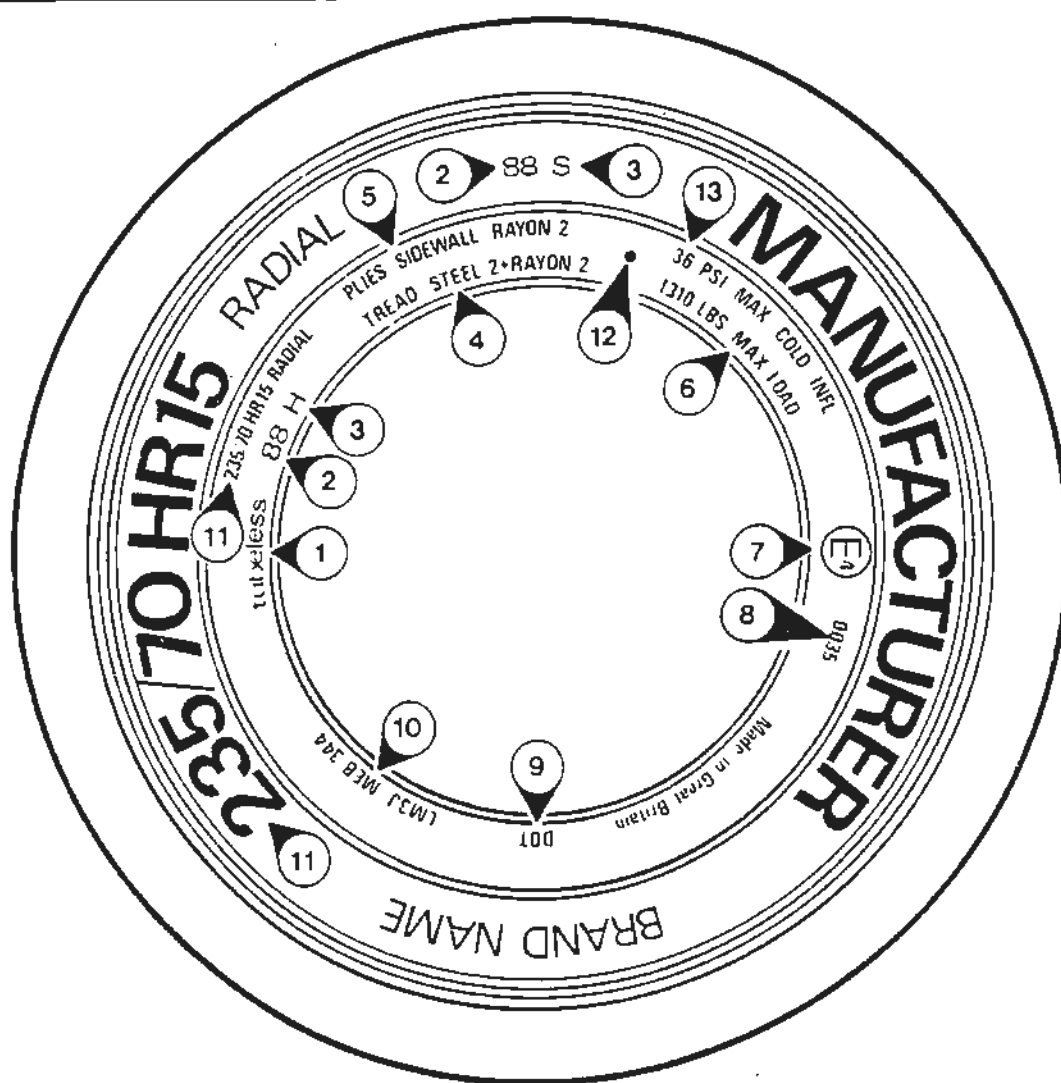
INTRODUCTION:

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 JRH 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	Radial-ply rayon	Black/white	205HR15	SP68 Rayon T/L	
	Dunlop	Radial-ply rayon (Winter) *	Black	205R15	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	Radial-ply rayon	Black	205VR15	Radial T Rayon	
	Dunlop	Cross-ply nylon	Black	8.15 H15	Roadspeed RS5 Nylon 4PR T/L	
	Dunlop	Radial-ply rayon	Black/white	205HR15	SP68 Rayon T/L	
	Dunlop	Radial-ply rayon (Winter) *	Black	205R15	Weathermaster SP44TT/L	
	Firestone	Radial-ply rayon	Black	205SR15	F100 Rayon	Not for use in Australia or New Zealand
Rolls-Royce Phantom V and Phantom VI	Dunlop	Cross-ply nylon	Black	8.90S15	Fort nylon 8PR WH4T/L	

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 H.J. 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 H.J. 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	Cross-ply nylon	Black	6.50/6.70 16	Roadspeed 6PR RS5 nylon T/L	
	Dunlop	Cross-ply rayon (Winter)	Black	6.50 16	RK 3A 6PR T/T	
Bentley R Type sports continental (dependant upon chassis numbers see note 3)	Dunlop	Cross-ply nylon	Black	6.50/6.70 16	Roadspeed 6PR RS5 nylon T/L	
	Dunlop	Cross-ply rayon (Winter)	Black	6.50 16	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 F4F T/T	
<b>Notes</b> 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 6PR Nylon T/L Q2/103.						

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 of 5

No. S2/T

- 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
- 8 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.

FOR INFORMATION

FITTED SUITCASES

Instances have occurred of owners experiencing difficulty in stowing the sets of special suitcases. The cases are designed to be stowed in the manner illustrated in Figures 1 and 2.

The new cases are available in light and dark tan; in nine pieces for standard cars and six pieces for cars fitted with Boot Unit Refrigeration.

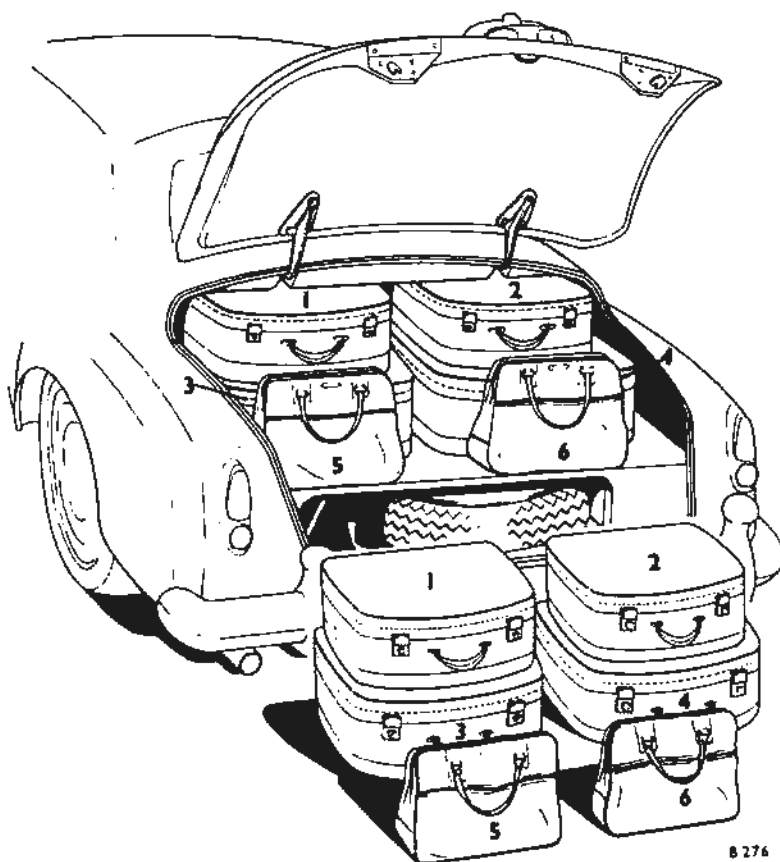


Fig.1. Set of six Suitcases.

Suitcase Dimensions

1 & 2	21 in. x 15 in. x 7 in.
3 & 4	24 in. x 18 in. x 7½ in.
5 & 6	16 in. x 13½ in. x 6½ in.

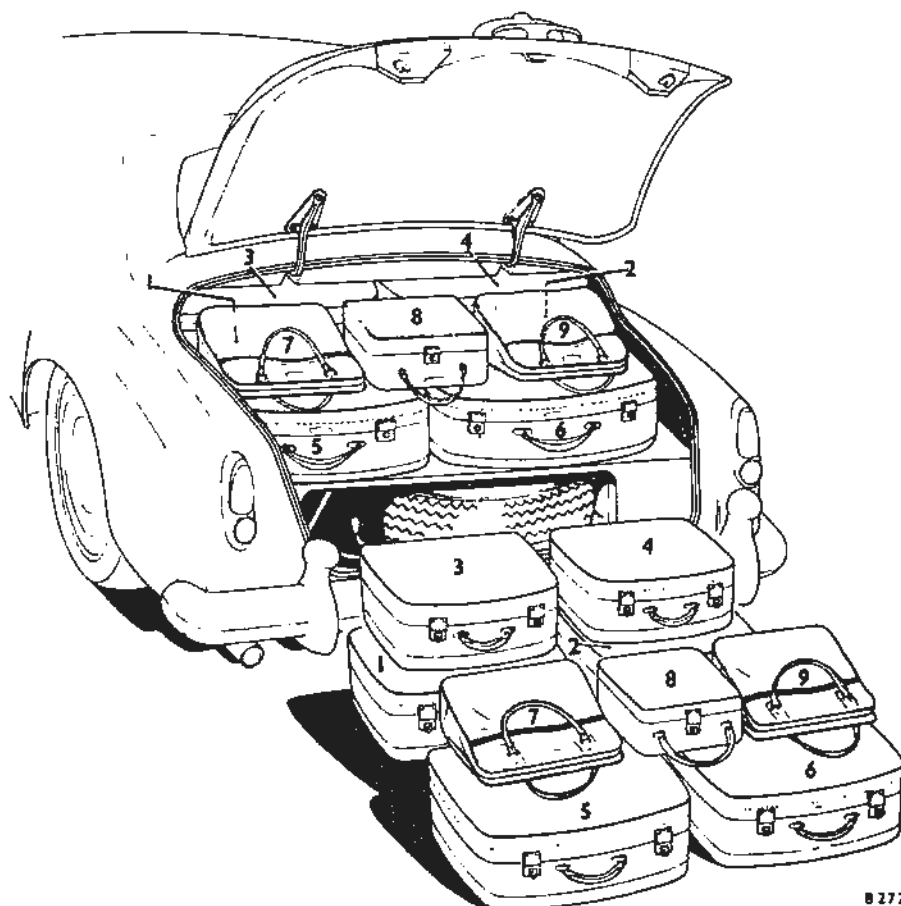


Fig.2. Set of Nine Suitcases.

Suitcase Dimensions

1, 5 & 6	24 in. x 18 in. x 7½ in.
2, 3 & 4	21 in. x 15 in. x 7 in.
8	13 in. x 13 in. x 5½ in.
7 & 9	16 in. x 13½ in. x 6½ in.

To facilitate the ordering of complete sets of the Antler suitcases, the following part numbers are specified -

- RH.2112 - Set - Antler Suitcases - Light Tan - Standard Cars
- RH.2113 - Set - Antler Suitcases - Dark Tan - Standard Cars
- RH.2114 - Set - Antler Suitcases - Light Tan (Cars fitted with Boot
- RH.2115 - Set - Antler Suitcases - Dark Tan Refrigeration Units.)

**CATEGORY 3A**

**MODIFIED LOCKING CAM ASSEMBLY FOR THE**  
**LUGGAGE BOOT LID**

In order to overcome jamming of the luggage boot lid, a modified locking cam assembly has been introduced on production, it incorporates a new cam form as shown in 'B' Figure 1.

**PROCEDURE**

**Locking Cam Assembly - To Renew**

If both locking cam assemblies are to be renewed it is advisable to complete one side at a time to ensure correct assembly of the control rods.

Raise the luggage boot lid and remove the trim pad to gain access to the lock assembly control rods.

Remove the split pin from the left-hand control rod, behind the luggage boot handle, then withdraw the control rod clear of the back plate.

Unscrew and remove the six screws and washers securing the left-hand mounting bracket to the luggage boot lid and remove the bracket, complete with the locking cam assembly and control rod - care should be taken not to bend the control rod when withdrawing the assembly.

Remove the split pin securing the control rod to the locking cam assembly: remove the control rod noting its position so that it may be re-fitted correctly.

Remove the four screws and washers securing the locking cam assembly to the mounting bracket and withdraw the assembly.



The new locking cam assembly should be fitted by reversing the procedure given for removal noting the following points.

Before fitting smear a little grease on the ends of the control rods.

Fit new split pins.

The right-hand locking cam assembly should be fitted in a similar manner to that described for the left-hand side.

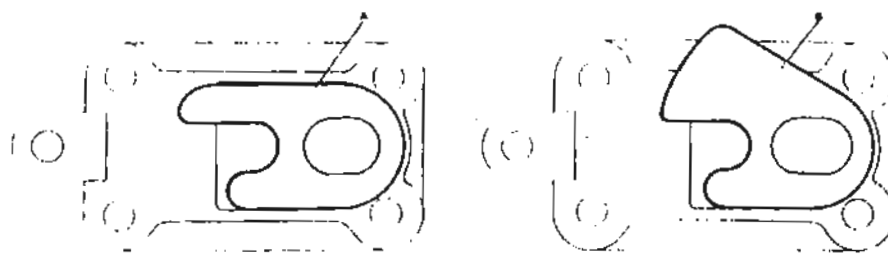


Fig. 1. Locking Cam Assemblies R.H.  
A. Old Cam Form.  
B. New Cam Form.

### PARTS REQUIRED

It will be noted that the Part Numbers used for the old type locking cam assemblies remain unchanged for the modified locking cam assemblies with the new cam form.

<u>Description</u>	<u>Part No.</u>	<u>Quantity</u>
Modified Locking Cam Assembly R.H.	273/190	1 off
Modified Locking Cam Assembly L.H.	273/191	1 off
Split Pin	KB.6851	4 off

No stock is available of the locking cam assemblies with the old cam form.

FOR INFORMATION

INSTRUCTIONS FOR FITTING 'IRVIN' SAFETY BELTS

TO SILVER CLOUD II AND BENTLEY S2 CARS

Owing to an increased demand by customers for the fitting of safety belts, the following types of 'Irvin' safety belts have now been approved for use in Silver Cloud II and Bentley S2 cars:-

Front seats:	'Irvin' diagonal and lap safety belt.
Rear seats:	'Irvin' lap safety belt.

DESCRIPTION

'Irvin' safety belts are designed to conform to British Standards Specification 3254 and will withstand shock loads of 3,000 pounds. They are intended solely for fixing to cars with METAL floors and must not be attached to a wooden floor or to car seats.

FRONT SEATS

The 'Irvin' diagonal and lap safety belt comprises two sections of 2 in. wide nylon or terylene webbing and attached to each section is one part of a two-piece light alloy fixing buckle. The two parts of the buckle are designed so that they can be easily connected to form a harness to hold the wearer securely in his seat, and can be quickly released either by the wearer or, in an emergency, by another person. The ends of one section of the belt are securely fixed to shackles bolted to the car floor and the centre door pillar. The other section of the belt is firmly anchored to the car floor on the opposite side of the seat.

REAR SEATS

The 'Irvin' lap belt is manufactured from the same material as the front seat belts and is fitted with the same type of quick-release buckle. The belt comprises two sections which can be buckled across the wearers' lap to form a continuous belt. The two sections of the belt are securely anchored to the rear seat floor.

- 2 -

## PROCEDURE

### Front Seat Belts - To Fit.

Move the front seat forward to its fullest extent and pull back the rear carpet so that the positions for drilling the holes are easily accessible.

Working to the dimensions given in Figure.1. drill eight 5/16 in. diameter holes in the car floor. The two outer left-hand holes will pass through the exhaust heat shield and care should be taken not to drill through the front silencer box which is positioned directly below the heat shield.

It is necessary to drill four holes in the plate welded to the centre door post but before this can be accomplished the trim pads must be removed as follows:-

Disconnect the battery.

Prise the rubber seals from both sides of the door posts at a point approximately 4 in. from the underside of the roof sill (cant rail).

Remove the two screws securing the trim pad to each side of the door post, then remove the pad. Before the right-hand trim pad can be removed it will be necessary to remove the roof lamp switch and disconnect the leads.

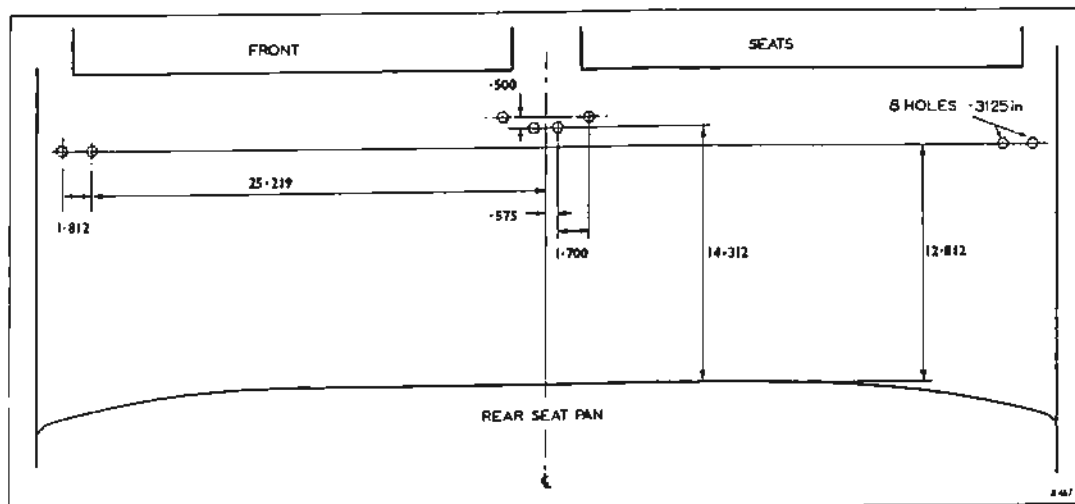


Fig.1. Dimensions for drilling holes for front seat shackles.

- 3 -

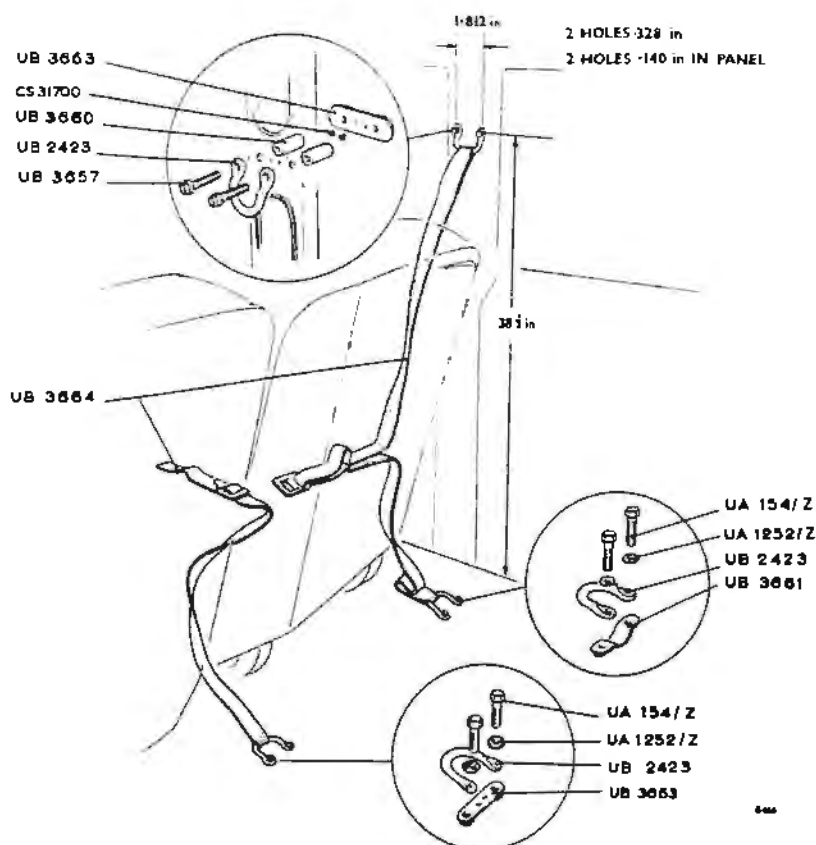


Fig.2. Positions for front seat safety belts and shackles.

Place a cloth in the centre channel of the door post to prevent swarf dropping inside the channel, then working to the dimensions given in Figure.2. drill two  $21/64$  in. diameter holes in the plate welded to the door post. Drill two further holes,  $9/64$  in. diameter, at  $13/16$  in. centres, and equally spaced to the larger holes, so that they correspond with the holes in the anchor plate (UB.3663). When drilling these holes care should be taken to avoid damage to the wiring looms running inside the door posts.

Place the anchor plate inside the door post channel and secure it to the welded plate on the door post with two No.8 self tapping screws.

The trim pad must also be drilled so that two distance pieces can be inserted between the belt shackle and the door post. Screw two short  $5/16$  U.N.F. studs into the anchor plate, then fit the trim pad into position and press it against the door post and the two studs. When the trim pad is removed, a clear impression of the two studs will be seen. Using these indentations as centres, drill two holes  $9/16$  in. diameter through the trim pad.

- 4 -

To ensure that the belts are fitted in their correct position lay them on the seats in the positions that they will occupy when in use.

Fit the six shackles through the loops formed in the belts so that when fitted, the four shackles fitted to the floor will slope forwards and the two shackles fitted to the door posts will slope downwards as shown in Figure.2.

The shackle fitted to the left of the car centre line is to secure the right-hand safety belt and the shackle fitted to the right of the car centre line is to secure the left-hand safety belt; this ensures a more direct pull on the shackles.

To ensure that the shackles seat firmly on the car floor, cut the felt away from the areas around the holes.

Place the two centre shackles over the appropriate holes in the floor and insert the four 5/16 in. U.N.F. fixing bolts and washers from inside the car.

Place the two anchor plates (UB.3663) in position under the floor and screw in the four fixing bolts.

Place the outer left-hand shackle in position then insert a 5/16 in. U.N.F. bolt which is long enough to pass through the shackle, car floor and heat shield. Screw the bolt into the stiffener plate (UB.3661). With the aid of the bolt pull the stiffener upwards until the heat shield touches the underside of the floor. Line up the stiffener plate and screw in a bolt of the correct length through the other hole. Remove the long bolt and replace with a washer and bolt of the correct length.

Similarly position the outer right-hand shackle and screw the two 5/16 in. U.N.F. bolts and washers into the stiffener plate. It should be noted that the two bolts used on the Left-hand shackle are 1/4 in. longer than those used on the right-hand shackle.

Cut three slots in the carpet to accommodate the shackles; one for each outer shackle and one for the two inner shackles. The two outer slots should run to the edge of the carpet so that it can be removed when necessary without removing the safety belts. Bind the edges of the slots with leather to prevent the carpet from fraying.

- 5 -

Fit the trim pads to the door posts reversing the procedure for their removal. Secure the rubber seals with Bostik '1261' adhesive. Fit the roof light switch and connect the battery. Place the two distance pieces into the holes in the trim pad, then secure the shackles with two 5/16 in. U.N.F. bolts. Ensure that the distance pieces are of the correct length otherwise the wooden trim pad may be crushed when the bolts are tightened.

### Rear Seat Belts - To Fit.

To fit the rear seat safety belts it is necessary to remove the rear seats, squabs and centre arm rest.

Remove the felt from the seat pan, then working to the dimensions in Figure 3 drill eight 5/16 in. diameter holes and four 1/4 in. diameter holes in the seat pan. The holes drilled slightly to the left of the car centre line will pass through the rear heat shield.

Fit the two stiffeners (UB.2429) to the underside of the seat pan and secure them in position with four 1/4 in. U.N.F. bolts, washers and nuts.

Place the safety belts in the position they will occupy when in use, as shown in Figure 4 then thread the four 'U' bolts through the loops in the belt.

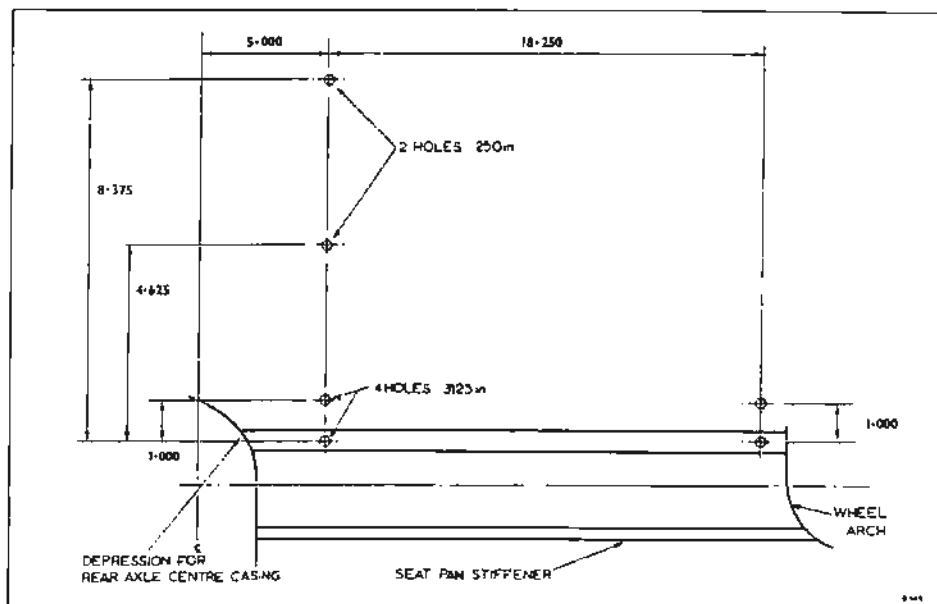


Fig. 3. Dimensions for drilling holes for rear seat 'U' bolts.

- 6 -

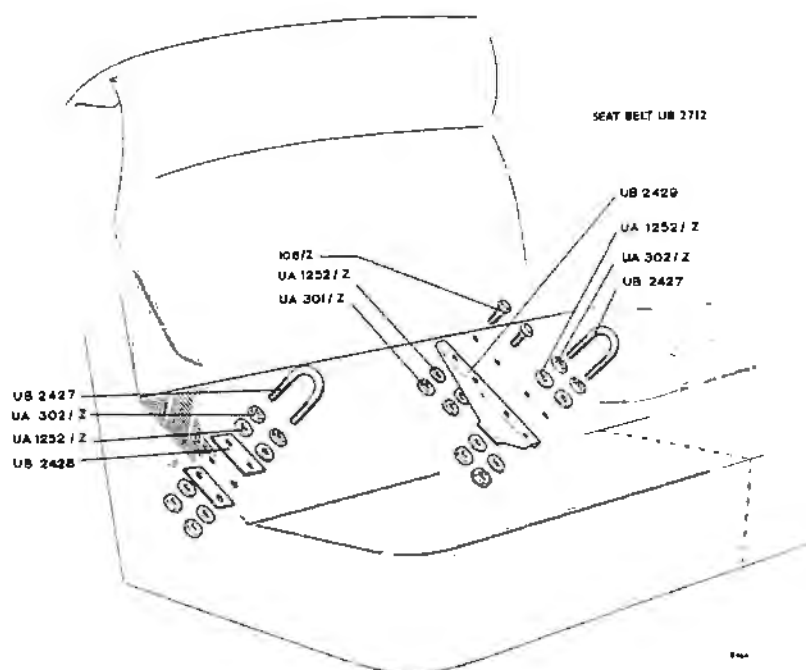


Fig.4. Positions for rear seat Safety belts and 'U' bolts.

Fit nuts and washers to the 'U' bolts, then insert the two centre 'U' bolts through the seat pan and stiffener brackets. Secure them in position with further nuts and washers. Ensure that the nuts are tightened both above and below the seat pan and stiffener bracket.

Fit retaining plates (UB.2428) to each of the outer 'U' bolts and then insert them through the appropriate holes in the seat pan. Fit further retaining plates to the 'U' bolts securing them with nuts and washers (see Figure 4). Again ensure that the nuts are tightened both above and below the stiffener plates.

Cut slots in the felt around the 'U' bolts and stick the felt to the seat pan with Bostick '87 AA' adhesive.

Fit the centre arm rest seat and squabs allowing the safety belts to pass between the base of the seat and the squabs.

- 7 -

**MATERIAL REQUIRED**
**Front Seats**

<u>Description</u>	<u>Part No.</u>	<u>Quantity</u>
Shackle	UB.2423	6
Stiffener	UB.3661	2
Anchor Plate	UB.3663	4
Safety Belt	UB.3664	2
Distance Piece	UB.3660	4
5/16 in. U.N.F.Bolt	UB.3657	4
5/16 in. U.N.F.Bolt	UA.154/Z	6
5/16 in. U.N.F.Bolt	UA.156/Z	2 (Left-hand side only)
Plain Washer	UA.1252/Z	8
Self Tapping Screw No.8.	CS.31700	4

**Rear Seats**

'U' Bolt	UB.2427	4
Retaining Plate	UB.2428	4
Stiffening Bracket	UB.2429	2
Safety Belt	UB.2712	2
5/16 in. U.N.F.Nut	UA.302/Z	16
1/4 in. U.N.F.Bolt	UA.106/Z	4
1/4 in. U.N.F.Nut	UA.301/Z	4
Plain Washer	UA.1252/Z	20



CATEGORY 3ELECTRIC WINDOW LIFT SWITCHES - WATER DUCTSDESCRIPTION

A plastic duct has been designed to fit into the two front doors underneath the quarter lights. The duct is simply secured to the door by one self-tapping screw and one 2 B.A. bolt. Its purpose is to prevent any damage to the electric window lift switches by the ingress of rain water through the quarter light pivots. If the electric window lift switches are changed the opportunity should be taken to fit the ducting to both front doors.

APPLICABLE TO:-

All cars fitted with electric window lifts, prior to the following chassis numbers:-

Rolls-Royce Silver Cloud II	SZD.341
Rolls-Royce L.W.B. Silver Cloud II.	LCC.51.
Bentley S.2.	B.415.DV.
Bentley L.W.B. S.2.	LBB.19.

METHOD

With the trim pad, finisher and finisher plate removed, insert the duct under the quarter light in the position as shown in Figure 1. It should be noted that the ducts are right and left-handed, a small piece being cut out of one side to enable it to fit under the finisher mounting bracket.

With the duct held in position, drill a 7/64 in. dia. hole through the duct and the inner skin of the door. Care should be taken, not to drill into the outer skin of the door. Secure the top corner of the duct to the door with a No.8 self tapping screw (See 1. Fig.1.).

Continued.....

- 2 -

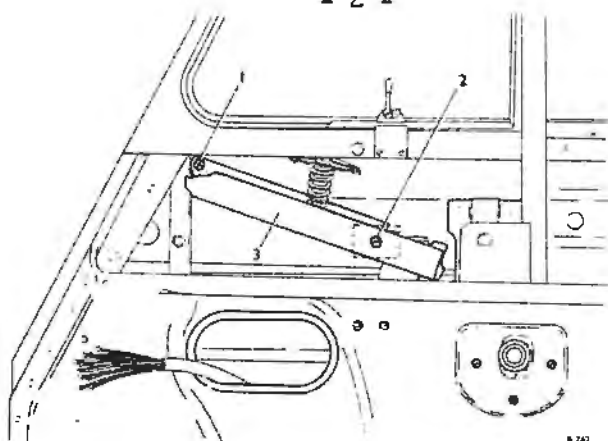


Fig.1. Position of ducting fitted to the R.H. front door.

1. No.8. self-tapping screw 2. Finisher mounting bracket. 3. Ducting.

Hold the lower end of the duct against the finisher mounting bracket and drill a 0.200 in. clearance hole through the duct in line with the weld nut on the bracket.

The lower end of the duct is held in position when the finisher is fitted to the door; the duct being held between the bracket and the finisher plate (See 2. Fig.1.).

#### MATERIAL REQUIRED

<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
UB.3658	Water Duct R.H.	1
UB.3659	Water Duct L.H.	1
UA.7142/Z	No.8. Self-tapping screw	1
CS.32024/Z	Washer	1

#### TIME ALLOWANCE

15 minutes (Per door).

FOR INFORMATION

SPARE WHEEL COMPARTMENT

INTRODUCTION

Owing to the increased tread width of a number of the latest pattern tyres now available, it is not possible to fit them into the spare wheel compartment on early S2 cars.

To overcome this difficulty an alteration has been introduced to the spare wheel compartment which allows the latest pattern tyres to be accommodated.

This alteration is necessary only if the car is to be equipped with these tyres, and is chargeable to the Owner.

APPLICABLE TO:

Silver Cloud II prior to Chassis No. SZD.139.  
Silver Cloud II L.W.B. prior to Chassis No. LCC.34.  
Bentley S2 prior to Chassis No. B.279.DV.  
Bentley S2 L.W.B. prior to Chassis No. LLB.15.

PROCEDURE

Remove the tyre pump and wheel brace.

Remove the spare wheel.

Remove the spare wheel clamp operating tube by removing the two retaining clips.

Remove and discard the spare wheel stop fitted at the rear L.H. side of the spare wheel compartment.

Modify the cam profile of the spare wheel clamp to the dimensions shown in Figure 1. This can best be achieved by making a suitable template and marking the cam accordingly.

Continued....

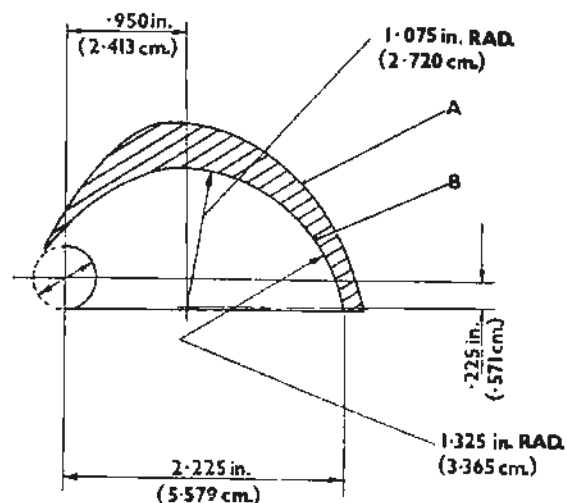
- 2 -

After modifying, the cam should be painted.

Seal the holes left by the removal of the spare wheel stop.

Refit the spare wheel clamp operating tube.

Refit the spare wheel, tyre pump and wheel brace.



C 874

Time allowance

2 Hrs.

Fig.1 Cam profile for spare wheel clamp

A. Existing cam profile

B. Modified cam profile

## **Bentley Continental S2**

No. BC2/A1

This Bulletin cancels all  
previous Bulletins numbered  
BC2/A1 and S2/A3.

FOR INFORMATION (Strictly Confidential)

CHASSIS SERIES AND ENGINE NUMBERS

FOR BENTLEY CONTINENTAL S2 CARS

The following is a complete list of all engine and chassis numbers which were issued for Bentley Continental S2 cars. It is intended to facilitate the identification of chassis numbers in relation to modifications.

The Letter 'L' preceding the chassis series letter indicates a left-hand drive chassis.

Number 13 is omitted from all chassis numbers.

<u>SERIES</u>	<u>CHASSIS NUMBER</u>	<u>ENGINE NUMBER</u>
<u>BENTLEY CONTINENTAL S2</u>		
Chassis built July 1959.		
A.	BC.1.AR. to BC.151.AR Consecutive Numbers	A.1.BC. to A.150.BC.
Chassis built June 1960.		
B.	BC.1.BY. to BC.101.BY. Consecutive Numbers	B.1.BC. to B.100.BC.
Chassis built February 1961.		
C.	BC.1.CZ. to BC.139.CZ. Consecutive Numbers	C.1.BC. to C.138.BC.

FOR INFORMATION

SETTING INSTRUCTIONS FOR FOUR SHOE BRAKES

BENTLEY CONTINENTAL S2.

Investigation has shown that unless one adheres to the specified tolerances when setting the Bentley Continental S2 four shoe brakes, moans and judders may result.

These settings should be made with the aid of the special cut-away brake drum No. RH. 7119. In addition to this special drum, a set of feeler gauges and a suitable set square are necessary to obtain the correct settings.

The following point should be noted before commencing to set the brakes:-

No greasing is necessary, during the assembly of the brake unit.

SETTING INSTRUCTIONS

Ensure that the wheel cylinders are hard against their abutment faces on the torque plate. The most suitable method of checking this is to remove both the shoe carriers and shoe assemblies, then by slackening the wheel cylinder fixing bolts, the wheel cylinders can be pushed hard against the abutment faces.

Partially tighten the wheel cylinder fixing bolts in order to prevent the wheel cylinders from accidentally moving during the following operation.

By adjusting the shake-back steady post 'E' (see fig 1) set the shoes 'A' and 'B' so that they are square to the hub at the points 'X' and 'Y'. If it is impossible to position both shoes so that they are square to the hub at the same time, then the difference in 'out of squareness' of the two shoes should be split so that they are both an equal amount out of square.

Repeat this operation for the shoes 'C' and 'D'.

Fit the special window drum No RH. 7119

- 2 -

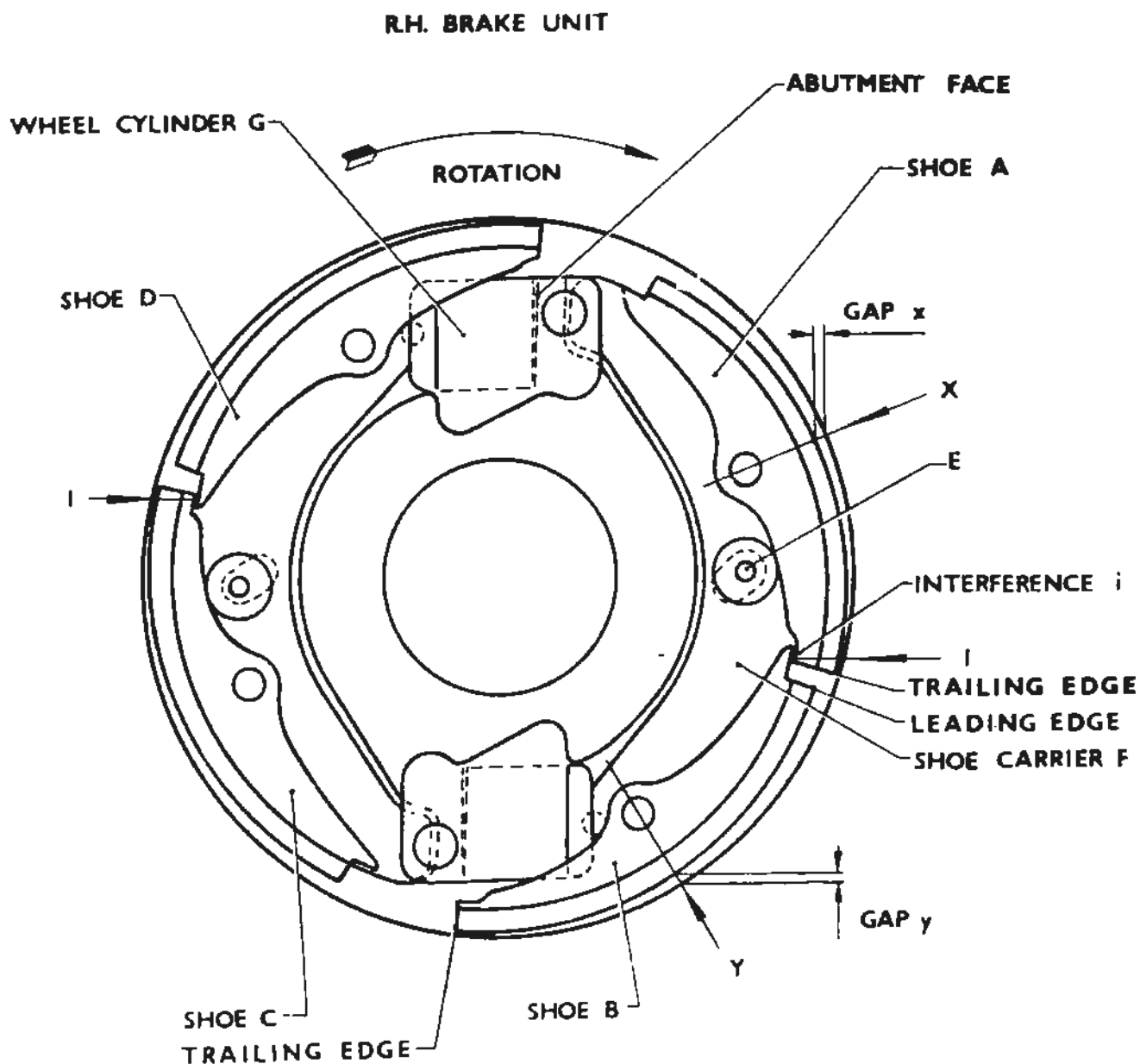


Fig.1 Diagram of Continental S2 Four-shoe Brakes

B.262



- 3 -

Expand the brake shoes against the drum by applying a load to each shoe carrier in the vicinity of the operating link.

The load is best applied with a suitable piece of bar and to carry out this operation, the feed pipes to the wheel cylinders should be disconnected

Release the pressure thus allowing the shoes to take up their normal 'off' position.

Check clearances (x) and (y) between the shoes and the drum at the points 'X' and 'Y' respectively. Also check the interference or possibly clearance at the point 'I'.

The clearances (x) and (y) must be equal within 0.003 in. and at the same time, the fit at 'I' should be between 0.003 in. clearance and 0.015 in. interference. The interference at 'I' is assumed to be equal to the clearance between the leading edge of the shoe 'B' and the drum, providing that the trailing ends of both shoes 'A' and 'B' are touching the drum.

If these clearances are not within the limits, the wheel cylinders must be repositioned on the abutment faces.

For example, if the clearance (x) is much greater than (y), the wheel cylinder 'G' must be moved out from the centre of the brake along the abutment face until (x) and (y) become equal to within 0.003 in. This operation is made easier with the brake pipes disconnected.

It is recommended that during this adjustment, the brake shoes and carriers be removed in order to ensure that the wheel cylinder remains hard against its abutment face during movement. As a rough guide, it will be necessary to move the wheel cylinder approximately the same distance as the difference between (x) and (y).

Note: The interaction interference (i) at the point 'I' has precedence over the shoe/drum clearance at (x) and (y) and the inequality of (x) and (y) may be varied anywhere in the limit of 0.003 in. in order to achieve the correct tolerance in (i).

Before re-checking any tolerances the shoes should be expanded and then brought to their 'off' position as described previously.

Repeat the procedure for shoes 'C' and 'D'

No. BC2/G1

- 4 -

Torque tighten the wheel cylinder fixing bolts; the 5/16 in. dia. bolts should be tightened to 16-18 lb. ft. and the 1/2 in. dia. bolts to 48-52 lb. ft

Finally check again the fits at 'X', 'Y' and 'I'.

Repeat the whole procedure for the other front brake unit.

Note: Once shoes have bedded in, they are not interchangeable.

This bulletin cancels  
all previous Service Bulletins  
numbered BC2/G2

No. BC2/G2

CATEGORY 2

BRAKE SERVO OPERATING LEVERS

To reduce the front/rear braking ratio of the Bentley Continental S2 car and thereby improve its stability on greasy roads under heavy braking conditions, the existing servo operating levers should be replaced by levers with 47 deg. cams.

APPLICABLE TO :-

All chassis prior to chassis No. BC.93.BY.

PROCEDURE

Place the car on a ramp. Remove the right-hand undershield.

Disconnect the rods from the servo operating levers by removing the two setscrews securing the clevis pin retaining plates in position. Remove the retaining plates and clevis pins.

Disconnect the drag links from the servo brake actuating levers in a similar manner.

To provide sufficient clearance for the removal of the servo, the servo 'on-stop' bracket should be moved to one side. It is most important that the 'on-stop' is refitted in its original position and to ensure this, a line should be scribed on the bracket, adjacent to the chassis frame, before it is removed.

Release the handbrake so that the cable is slack and may be lifted out of the way to give further clearance when removing the servo.

Remove the centre securing bolt, then remove the servo motor.

Place the servo in a vice, gripping the inner end of the servo shaft between fibre jaws.

Remove the lock-nut, adjusting nut and washer, then lift off the two servo cam levers.

Separate the two levers, retaining the torsion spring and three steel balls fitted between the two levers.

Continued...

- 2 -

Refit the torsion spring and the balls to the two new operating levers (UG.2586 and UG.2587). The balls should be lightly coated with 'Molytone' grease.

Fit the two operating levers to the servo shaft, then fit the washer, adjusting nut and lock-nut. Do not tighten the nuts at this stage.

Position the servo motor on the gearbox driving shaft, ensuring that the three driving pegs engage with the holes in the friction plate and the servo shaft flange. Fit the centre bolt and tighten securely.

Rock the servo to ensure that it is free, slackening off the adjusting nut if necessary. Retighten the centre securing bolt.

Reconnect the drag links to the actuating levers, then connect the rods to the cam operating levers.

Tighten the adjusting nut until drag on the plates can just be felt, when the servo is rocked. Unscrew the adjusting nut two flats (i.e.  $\frac{1}{3}$  of a turn) to free the servo. Apply the brake pedal to ensure that the outer servo lever has followed the adjusting nut back. Hold the adjusting nut and tighten the lock-nut.

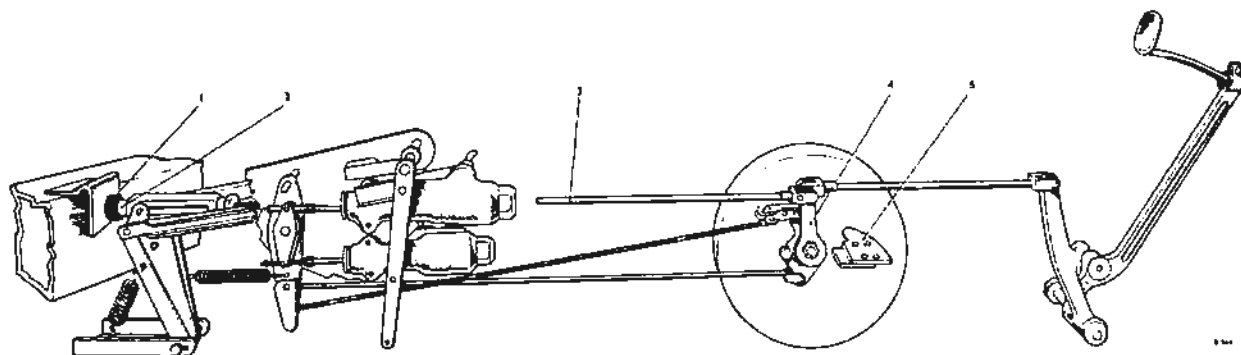


Fig. 1. 'On-stop' adjustment

- |                      |                                     |
|----------------------|-------------------------------------|
| 1. RUBBER 'OFF-STOP' | 3. MECHANICAL LINKAGE OPERATING ROD |
| 2. SLOTTED LINK      | 4. SERVO OUTER LEVER                |
|                      | 5. 'ON-STOP'                        |

Refit the servo 'on-stop' ensuring that it is in its correct position.

If the 'on-stop' requires adjustment proceed as follows:

1. Position the rubber 'off-stop' (see 1. Fig.1) against the bracket on the chassis frame.
2. Adjust rod (3) so that the servo outer lever (4) leans 10 deg.  $\pm$  2 deg. towards the rear of the car when the end of the slotted link (2) is in contact with the rubber 'off-stop' (1). Tighten the lock-nut on rod (3).
3. Place a 1.000 in. distance piece between the end of the slotted link (2) and the rubber 'off-stop' (1). The 'on-stop' (5) should then be positioned so that it is in contact with the outer servo lever (4). Secure the 'on-stop' in position.

NOTE

It is essential that this adjustment is carried out correctly if, in the event of a failure in the mechanical rear brake system the Hydraulic System is to continue operation.

As a check, the distance between the outer servo lever (4) and the 'on-stop' (5) should be 0.800 in., when the distance piece is removed.

Refit the undershield, ensuring that the handbrake cable is correctly routed.

IDENTIFICATION The two 47 deg. servo operating levers should be marked with a spot of yellow paint to distinguish them from the earlier type of levers.

<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
UG.2586	Assembly Inner Operating Lever	1 off
UG.2587	Assembly Outer Operating Lever	1 off

Time allowed:- 2 hours.

CATEGORY 3

BRAKE CLEVIS PINS - FRONT BRAKES

If, for any reason, it is necessary to carry out work on the front brakes, or, if the brake shoes should need relining, the opportunity should be taken to replace the brake clevis pins on all cars built prior to the following chassis number.

Bentley Continental S2      BC.95.CZ.

PROCEDURE

Remove the wheel discs, and slacken the wheel nuts.

Jack-up the front end of the car and place it on suitable stands.

Remove the road wheels.

Remove the screws securing the brake drums to the wheel hubs, then pull off the drums.

On the Bentley Continental S2, it is necessary to remove two of the brake shoes before the brake clevis pins can be replaced. To do this, remove the two spring clips which secure the shoes to the pivot pins. Remove the pivot pins and the brake shoes.

Remove the circlip securing the clevis pin between the shoe carrier and the wheel cylinder link. Using a 5/16 in. diameter steel bar, push out the clevis pins. The bar should be pushed right through to ensure that the brake shoe is secured to the wheel cylinder link when the pin is removed.

Insert the new clevis pin from the back of the brake, pushing out the bar. Fit the circlip.

Fit the brake shoe and pivot pin and secure them in position with the spring clip. Ensure that the clip is correctly located in the pivot pin.

- 2 -

Repeat this operation for the remaining three clevis pins.

Fit the brake drums, road wheels and wheel discs.

MATERIAL REQUIRED

UG.4161      Clevis Pin - Front Brake      4 off

IDENTIFICATION

The new clevis pin is bronze in colour whereas the original pin was cadmium plated.

TIME ALLOWANCE

2 hours.

FOR INFORMATION

COOLANT AND HEATER HOSES - BENTLEY CONTINENTAL S2 CARS

On modern cars with pressurised cooling systems and in the presence of inhibited antifreeze mixtures it is generally advisable to change coolant and heater hoses annually, at the same time as the cooling system is drained, flushed, and refilled.

Rolls-Royce have however, developed an improved type of reinforced hose which has a life in excess of two years. This hose is now being fitted to all production cars and it is recommended that existing hoses on cars at present in service should be changed immediately for the improved hose.

A recommendation to change hoses once very two years is being added to the Periodic Lubrication and Maintenance Schedules and retailers are requested to make arrangements to change the present type of hoses on cars in their territory for the improved hose. Hoses should be considered as a consumable item and replacements are therefore chargeable to the owner, but in cases where cars are less than one year old this work should be carried out on a free of charge basis and a guarantee claim submitted accordingly.

APPLICABLE TO:-

All cars prior to the following chassis number.  
Bentley Continental S2 BC.109.CZ.

On the above cars eleven hoses require replacement: they are the top and bottom coolant hoses from the radiator matrix to the crankcase, the feed and return hoses from the heater and demister matrices to the coolant pump and vacuum taps and the hoses connecting the water taps to the vacuum taps and cylinder heads.

The new type of reinforced hose can be identified by the part number.

Material Required

<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
UR.5497	Hose - Vacuum Tap to Demister Matrix	1
UR.5492	Hose - Demister Matrix to Pump	1



- 2 -

<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
UR.5496	Hose - Cylinder Head to Demister Water Tap	1
UR.5493	Hose - Connecting - Demister Matrix to Pump	1
UR.5491	Hose - Heater Matrix to Pump	1
UR.5494	Hose - Water Tap to Vacuum Tap - Heater	1
UR.5506	Hose - Elbow - Vacuum Tap to Heater Matrix	1
UR.5505	Hose - Elbow - Vacuum Tap to Water Tap - Heater and Demister	2
UR.5502	Hose - Top Water Connection	1
UR.5485	Hose - Bottom Water Connection	1
RH.7358	Hose - Bottom Water Connection	1

RH.7358 and UR.5485 Bottom Hoses are not interchangeable. Bottom hose UR.5485 replaces UE.8446 which was introduced on S2 cars when the fan extension cone was shortened, (see Information Sheet No. 2.L.1.).

RH.7358 should be fitted to all chassis prior to the following number.

#### Bentley Continental S2

BC.10.BY. except BC.133.AR. to 151.

#### Heater Pipes and Hose Connections

As the coolant system on the S2 Car is pressurised care should be taken to ensure that good connections are secured. If the pipes to which the hoses are fitted are not swaged the opportunity should be taken to carry out this operation. Care should be taken to ensure that any sharp edges produced during swaging are removed.

#### Time Allowance

Bentley Continental S2                      5 hours.

No. BC2/R1

This bulletin cancels  
Service Bulletin S2/R1  
dated 2.11.59.

FOR INFORMATION

INDIA SYNTHETIC TYRES FOR BENTLEY CONTINENTAL CARS.

The following Tyre has now been approved for use on Bentley Continental cars:-

8.00 x 15 India Super Speed Special - Nylon Synthetic, WH.2 Tread.

This tyre is similar in construction and tread pattern to the previously approved Dunlop WH.2 tyre and is available with black or white sidewalls

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.	)

No. BC2/R2

This bulletin cancels  
Service Bulletin S2/R2  
dated 16.2.60.

FOR INFORMATION

DUNLOP "WEATHERMASTER" TYRES FOR THE

"S2" CONTINENTAL COUPE.

The following tyre has now been approved for use on the "S2" Continental Coupe for winter driving.

7.00/7.60 x 15 (6 ply) Dunlop "Weathermaster".

The correct pressure for this tyre is 30 lbs/sq.in. (2.11kg/sq.cm).

These tyres are designed to provide adequate traction in snow or mud, but owing to the heavier tread, car speeds should be limited to a maximum of 85 m.p.h. and a sustained speed of 70 m.p.h.

FOR INFORMATION

TYRE PRESSURES

BENTLEY CONTINENTAL S2 CONVERTIBLE COUPE

COACHWORK BY PARK WARD.

With the increased rear axle weights of the Bentley Continental S2 Convertible Coupe cars, it has become necessary to increase the rear 8.00 x 15 tyre pressures, to obviate over loading of the rear tyres.

The revised tyre pressures are as follows:-

For normal speed running as in the United Kingdom.

FRONT	20 lb/sq. in.
REAR	28 lb/sq. in.

For maximum speed running as on the Continent

FRONT	25 lb/sq. in.
REAR	33 lb/sq. in.

## Phantom V

No. PV/A1

This Bulletin cancels all  
previous Service Bulletins  
numbered PV/A1

FOR INFORMATION (Strictly Confidential)

CHASSIS SERIES AND ENGINE NUMBERS FOR

PHANTOM V CARS

The following is a complete list of all chassis and engine numbers which were issued for Phantom V cars prior to chassis no. 5.VA.1. It is intended to facilitate the identification of chassis numbers relative to modifications.

The letter 'L' preceding the chassis series letter indicates a left-hand drive chassis.

Number 13 is omitted from all chassis numbers.

<u>SERIES</u>	<u>CHASSIS NUMBER</u>	<u>ENGINE NUMBER</u>
Chassis built July 1959.		
A. 5.AS.1 to 5.AS.101	Odd numbers only.	PV.1.A to PV.50.A
Chassis built March 1960.		
5.AT.2 to 5.AT.100	Even numbers only.	PV.51.A to PV.100.A
Chassis built August 1960.		
B. 5.BV.1 to 5.BV.101	Odd numbers only.	PV.1.B. to PB.50.B
Chassis built February 1961.		
5.BX.2 to 5.BX.100	Even numbers only.	PV.51.B to PV.100.B
Chassis built September 1961.		
C. 5.CG.1 to 5.CG.79	Odd numbers only.	PV.1.C to PV.39.C

Circulation: ALL DISTRIBUTORS AND RETAILERS

Bulletin No PV/C1  
Section C  
Date 23 4 74  
Page No 1 of 5

CATEGORY CTHE WATER TAPAPPLICABLE TO:

All Rolls-Royce Phantom V Cars.

DESCRIPTION:

Supplies of the water tap (Part Number UD 8506) used in two applications on Phantom V cars are no longer available and when existing stocks have been used, the current type of water tap will be supplied for all replacement purposes. These water taps will be supplied as part of a kit, which will include the additional parts required to affect the change. The part numbers of the two kits are as follows:

RH 2589 - Water tap kit - dashboard application

RH 2590 - Water tap kit - valance application

The necessary instructions to fit either of these kits are given in this Service Bulletin.

PROCEDURE - DASHBOARD WATER TAP

1. Remove the water tap mounting plate from the dashboard and discard the original water tap.
2. Place the flange of the new water tap on to the mounting plate in the position indicated in Figure 1. Mark a line around the flange and rework to produce a clearance hole through the plate.
3. Fabricate a bracket from a suitable piece of mild steel, to the dimensions given in Figure 2.
4. Pass the flange of the water tap through the hole in the mounting plate. Fit the pipe adaptor and sealing ring to the tap and bolt this assembly to the new bracket, using the 2BA bolts provided.
5. Secure the new bracket to the main mounting plate using pop rivets, as shown in Figure 3.

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Bulletin No PV/C1  
Section C  
Date 23 4 74  
Page No 2 of 5

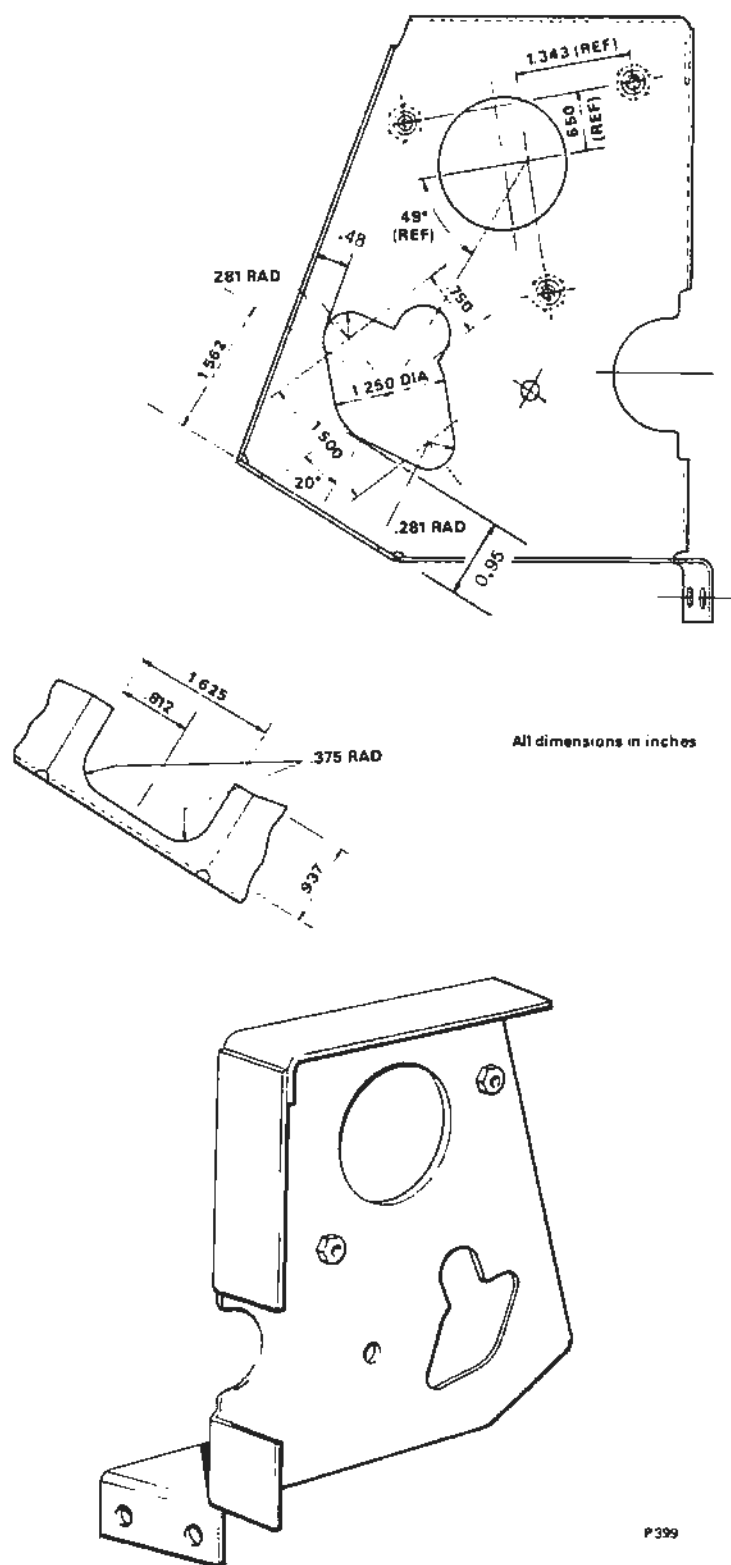


FIGURE 1



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Bulletin No PV/C1  
 Section C  
 Date 23 4 74  
 Page No 3 of 5

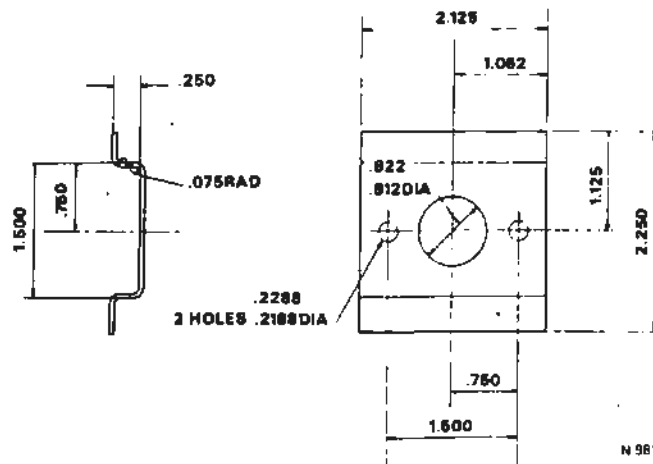


FIGURE 2.

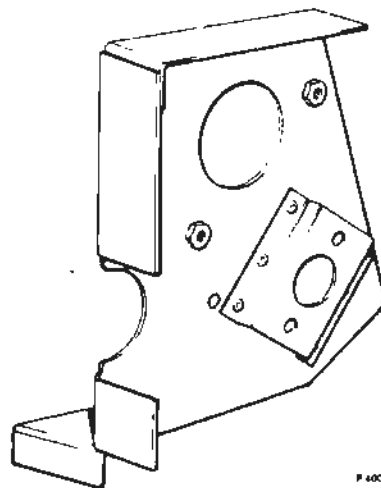
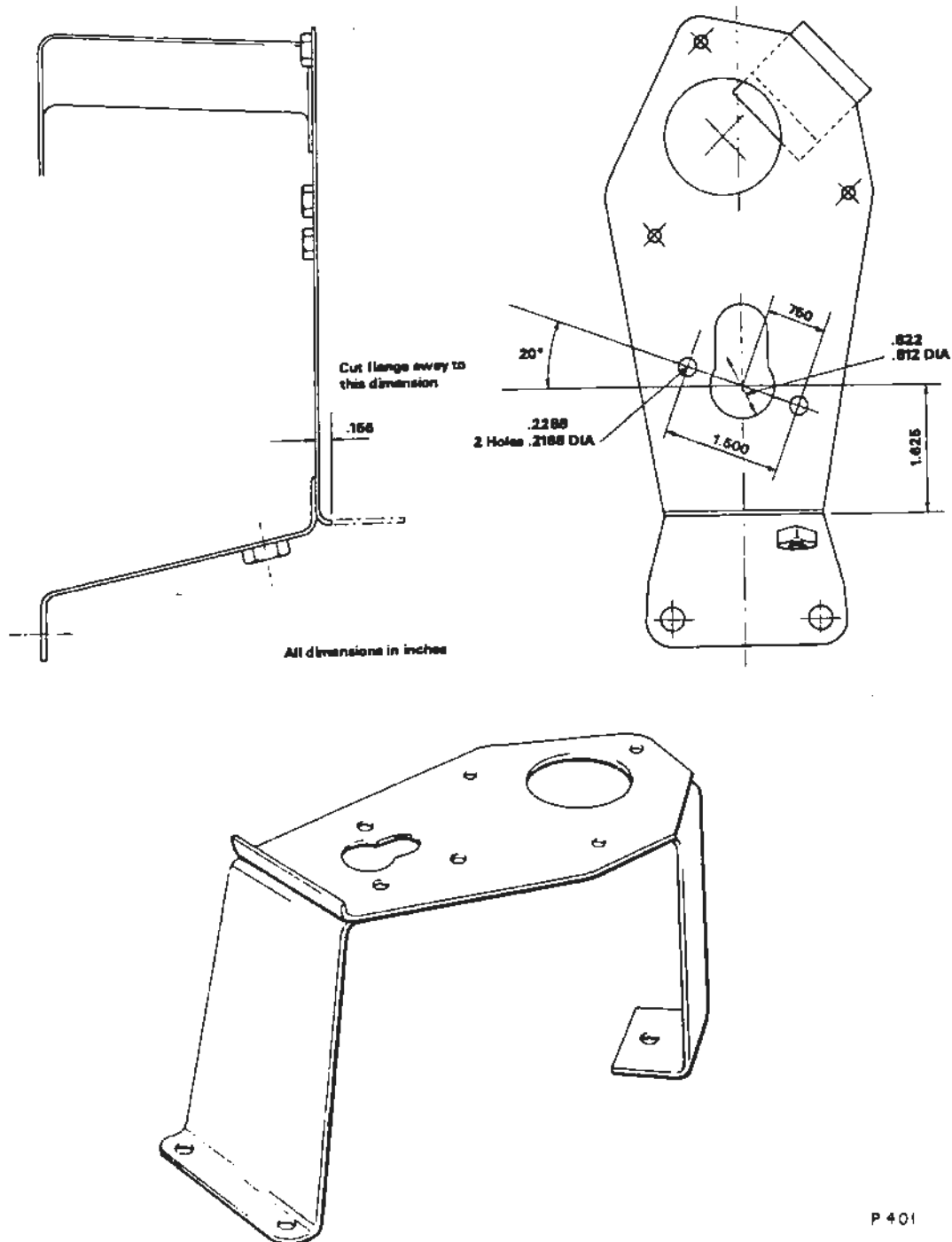


FIGURE 3.

Circulation: ALL DISTRIBUTORS AND RETAILERS

Bulletin No PV/C1  
Section C  
Date 23 4 74  
Page No 4 of 5



P 401

FIGURE 4.

Circulation: ALL DISTRIBUTORS AND RETAILERS

Bulletin No	PV/C1
Section	C
Date	23 4 74
Page No	5 of 5

6. Fit the mounting bracket to the car.
7. Connect the existing hose from the rear of the cylinder head to the pipe adaptor.
8. Connect the corrugated hose provided to the water tap outlet and connect the remaining hose end to the demister matrix, using the reducing adaptor and elbow connection provided.

#### PROCEDURE - VALANCE WATER TAP

1. Remove the water tap mounting bracket from the car and rework the bracket to the dimensions given in Figure 4.
2. Fit the pipe adaptor and sealing ring to the water tap and bolt this assembly to the outside of the mounting plate, using the 2BA bolts provided.
3. Connect the existing hose from the rear of the cylinder head to the pipe adaptor.
4. Connect the large diameter corrugated hose to the water tap outlet and connect the other end of the hose to the heater matrix using the reducing adaptor and small diameter corrugated hose provided.
5. Discard the existing actuator to tap connecting rod and fit the new rod provided.

JC1/ECK

CATEGORY 3

FUEL TANK VENTILATION SYSTEM

APPLICABLE TO:-

Phantom V Cars

DESCRIPTION

A modification has been introduced which eliminates the possibility of an air lock forming in the fuel tank and thus allows the tank to be filled to its full capacity and prevents fuel from being forced back up the filler tube when the tank is being filled.

The modification consists of a vent pipe fitted to the top of the fuel tank which is connected by a length of rubber hose to a further vent pipe fitted in the filler tube assembly. Thus, as fuel is pumped into the tank, the air is forced out through the vent pipes to atmosphere.

FUEL TANK VENT PIPE - TO FIT

Disconnect the battery.

Remove all dirt from around the tank drain plug, then using the special adaptor and spanner from the tool kit, remove the plug and drain the fuel into a suitable storage container.

Remove the carpet from the luggage boot, then remove the three set-screws which secure the trim cover in position over the fuel tank filler tube where it passes through the boot. Slacken the 'Jubilee' clip securing the hose connection to the filler tube.

Disconnect the fuel pipe line at the tank outlet union.

Disconnect the electrical leads to the fuel lever indicator.

Using a box spanner, remove the two 0.250 in. nuts from the tensioning bolts which secure the fuel tank straps, then remove the four 0.250 in. saddle bolts and nuts from the mounting bracket.

Continued...

Remove the fuel tank together with rubber connecting hose and fabric packing strips.

Remove the union securing the existing vent pipe to the filler tube then bend the vent pipe so that it is out of the way. Remove the six cheese-headed screws securing the filler tube to the body wing and remove the filler tube, and rubber sealing washer.

Working to the dimensions given in Figure 1, drill a hole 0.375 in. diameter in the top of the tank, then drill three further holes 0.250 in. diameter and produce the slots.

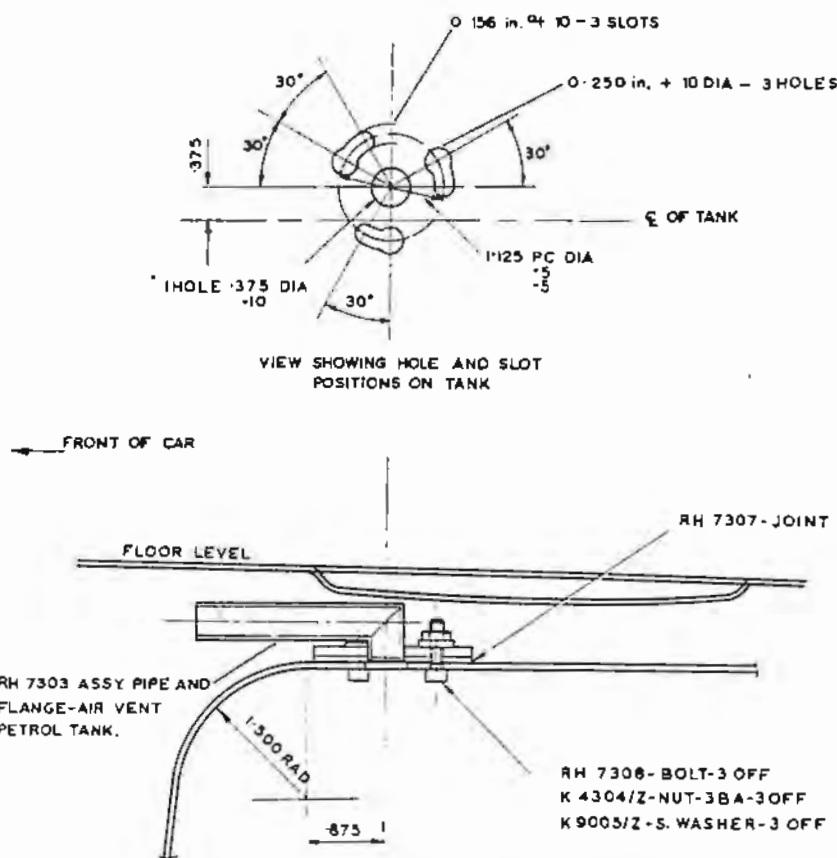


Fig.1. Dimensions for cutting slots in petrol tank.

After drilling the holes and cutting the slots it is most important that the tank is thoroughly washed with paraffin to remove all dirt and swarf.

Loosely assemble the cork joint (RH.7307), screws, washers and nuts to the fuel tank vent pipe assembly (RH.7303). The heads of the screws should be to the bottom of the flange as shown in Figure 1.

Locate the screws in the three slots in the fuel tank.

Continued...

Rotate the vent pipe assembly 30° clockwise, ensuring that the heads of the screws are correctly located in the slots and that the cork washer is not damaged.

Tighten the three nuts and secure the assembly in position.

### FILLER TUBE VENT PIPE - TO FIT

Working to the dimensions given in Figure 2, drill a hole 0.359 in. diameter in the filler tube. Remove all burrs and sharp edges.

Locate the vent pipe (RH.7312) in the hole and 'low temperature braze' it into the filler tube.

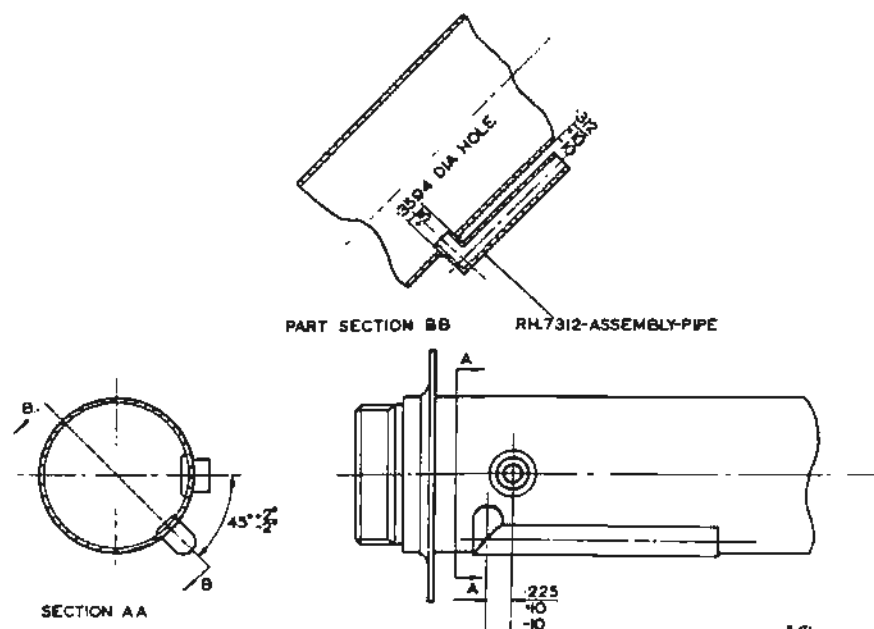


Fig.2. Dimensions for fitting vent pipe to filler tube.

### RUBBER GROMMET - TO FIT

Working to the dimensions shown in Figure 3, drill a hole 0.906 in. diameter in the luggage boot floor. Remove all sharp edges and burrs.

Fit the rubber grommet (UR.5391) into position in the hole.

Fit the fuel tank to the chassis frame, reversing the procedure given for its removal.

Continued...

Fit the filler tube to the body wing, ensuring that the 'Jubilee' clip securing the connecting hose to the filler tube is tight.

Connect the rubber hose (RH.7310) to the vent pipe in the fuel tank. Pass the other end through the grommet and connect it to the vent pipe in the filler tube as shown in Figure 4.

Fit the metal trim cover in place over the filler tube and refit the carpet to the luggage boot.

Reconnect the battery.

### MATERIAL REQUIRED

Fuel tank vent pipe kit (RH.2137) consisting of:-

RH.7303	- Pipe Assembly - Fuel Tank.	1 off
RH.7307	- Joint - Fuel Tank.	1 off
RH.7308	- Screw	3 off
RH.7310	- Hose	1 off
RH.7312	- Pipe Assembly - Filler Tube	1 off
UR.5391	- Grommet	1 off
K.4304/Z	- Nut	3 off
K.9005/Z	- Washer	3 off
Time allowed:- 9 hours		

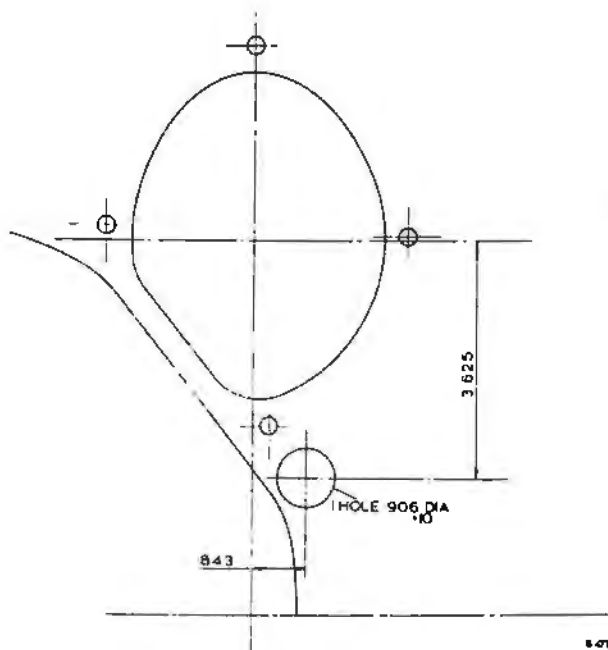


Fig. 3. Dimensions for drilling grommet hole in boot floor.

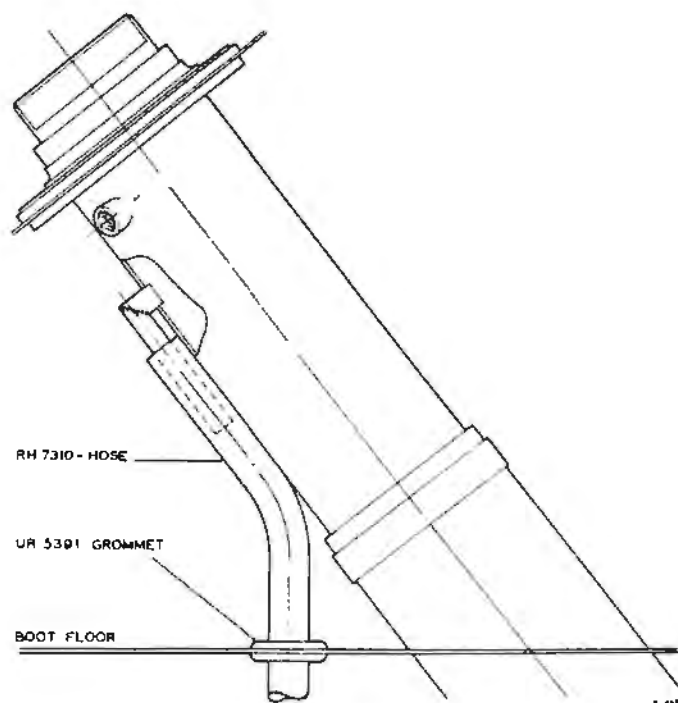


Fig. 4. Positioning of rubber hose on filler tube vent pipe.

ROLLS-ROYCE LIMITED, PYM'S LANE, CREWE, ENGLAND

CATEGORY 2

STARTER MOTOR ISOLATING RELAY

DESCRIPTION

A protective device, in the form of a relay switch, was fitted to Phantom V cars to prevent drivers engaging the starter motor pinion whilst the engine was running. Recent Service experience has shown that this relay does not function correctly and Retailers and Service Personnel should remove these relays when affected cars next require Service attention or in the case of a customer's complaint.

APPLICABLE TO :

Chassis Numbers

Phantom V Cars

5.BV.63 to 5.BX.18

PROCEDURE

To ascertain that the protective starter relay is working correctly a check may be made as follows:

If the engine cannot be started with the ignition key but will start when the ignition is switched on and the rubber button on the starter solenoid is depressed then the relay is not working.

Disconnect the battery.

Remove the two Purple/Black wires from the connections C2 and C3 on the relay. Remove the two cable connecting eyes and replace them with two connecting nipples (UD.2141), then join the two wires together with a snap-on connector (RD.7050).

Remove the Brown/Red wire from the connection W.1 on the relay. The other end fits into a sleeved junction, which is the D+ feed for the choke thermal delay switch. Pull the nipple out of the connection and discard the wire.

Remove the Black earthing wire from the connection W.2 on the relay and from the bulkhead.



- 2 -

Remove the relay. The two cheese-headed screws and washers should be refitted to the bulkhead.

The starter relay can be identified by a yellow spot of paint on its top side and by its part number 33226B (Lucas).

MATERIAL REQUIRED

<u>Description</u>	<u>Part Number</u>	<u>Quantity</u>
Nipple	UD. 2141	2
Connector (Single)	RD. 7050	1

Time allowance: 1 hour

DUNLOP TYRE EQUIPMENT FOR  
PHANTOM V CARS

The following Dunlop tyre has been approved for use on Phantom V cars:-

8.90 x 15 (6 ply) Dunlop Fort 'C'. Rayon Synthetic Tread.

This tyre is of tubeless construction and is available with black or white sidewall.

The correct tyre pressures are:-

Front 22 lb/sq. in. (1.55 kg/sq. cm)  
Rear 27 lb/sq. in. (1.90 kg/sq. cm) Cold.

FOR INFORMATION

DUNLOP "WEATHERMASTER" TYRES FOR PHANTOM V

The following tyre has now been approved for use on the Phantom V car for winter driving.

8.20 x 15 (6 ply) Dunlop "Weathermaster".

The correct pressure for this tyre is 33 lbs/sq.in. (2.320 kg/sq.cm.).

This tyre is designed to provide adequate traction in snow or mud, but owing to its heavier tread, car speeds should be limited to a maximum of 85 m.p.h. and a sustained speed of 70 m.p.h.

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## Air Conditioning

FOR INFORMATION

DANFOSS SOLENOID VALVE

AIR CONDITIONING (REFRIGERATION) SYSTEM

Two different types of solenoid valve are used in Rolls-Royce and Bentley air conditioning (refrigeration) systems :

Valve UD.6175 is used on Standard Steel Saloons fitted with the Underwing Unit and on coachbuilt cars which have a Rolls-Royce Boot Unit. It contains a rubber diaphragm designed for use in liquid lines only.

The valve may be distinguished by the letter 'F' stamped on the brass body.

Valve UD.5707 is used on cars which are destined for the U.S.A. and are therefore fitted with the O.M.C. Unit. This valve contains a 'Teflon' diaphragm suitable for installation in hot gas lines.

The letters FXMW or FXM stamped on the valve body provide a means of identification. Later versions of UD.5707 will also be distinguishable by the absence of a name plate on the top of the solenoid cover.

CATEGORY 3A

INTAKE WHISTLE - UNDERWING A.C.U.

When the intake grilles in the front wings were changed from rubber mouldings to plated wire gauze, air flow in the upper system was increased, as intended, but in some cases gave rise to an obtrusive whistling noise whenever the upper flap was fully open.

The whistle is not evident until the flap passes the two thirds open position and as there is no appreciable difference in air flow between the two thirds open and the fully open positions, the whistle can be avoided simply by eliminating the fully open position, as described below.

MODIFICATION PROCEDURE

Disconnect one battery terminal.

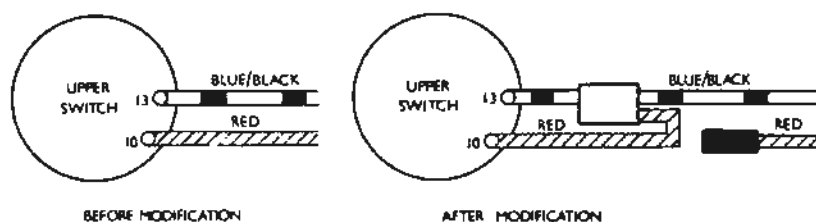
Remove the instrument panel finisher and the knobs of the 'Upper' and 'Lower' air conditioning switches together with their picture plate. Withdraw the 'Upper' switch from the instrument panel.

Remove the red wire from terminal 10 of the switch and tape it back.

Remove the blue/black wire from terminal 13 of the switch and cut the wire approximately one inch from the Lucar socket. Fit connector nipples (UD.2141) to the two cut ends and plug them both into a double connector (UD.1806). Fit a three inch length of red 14/.012 wire to the same connector and fit a Lucar socket (UD.6072) and sleeve (UD.6119) to the free end of the wire.

Reconnect the blue/black wire to terminal 13 of the switch and connect the new red wire to terminal 10.

Continued...



**Fig. 1 Modification of the wiring of the 'Upper' (Ventilation) Switch.**

Refit the switch, picture plate, switch knobs and the instrument panel finisher.

Remove the red wire from terminal 1 of the upper flap actuator and tape it back to the loom.

Reconnect the battery terminal.

#### MATERIAL REQUIRED

UD.2141	Nipple	3 off
UD.1806	Double connector	1 off
UD.6072	Lucar socket	1 off
UD.6119	Sleeve - Lucar socket	1 off
14/.012	Cable (red sleeve)	3 in.

Insulating tape as required.

CATEGORY 2

SUPPORT CLIP FOR COOLANT CONNECTION

In order to increase the support of the water pipe from the rear of the 'A' Bank (right hand) cylinder head to the Summer/Winter water tap it has been necessary to fit a clip

APPLICABLE TO

Silver Cloud II L W B

Bentley S2 L W B

Bentley Continental S2

Phantom V

METHOD OF FITTING THE SUPPORT CLIP

Unscrew and remove the setscrew and plain washer securing the ignition harness clip to the rear of the 'A' Bank cylinder head. Place the support clip around the water pipe and then secure both the existing ignition harness clip and the support clip to the cylinder head with the plain washer and setscrew

After the support clip has been fitted, a check should be made to ensure that sufficient slack remains in the rubber bleed connecting hose between the water tap and the bottom of the vacuum tap mounted on the valance plate; this is necessary to allow for engine movement on the mountings. A dimension of 10 in. from the right-hand valance plate to the centre of the Summer/Winter tap will produce the correct amount of slack. Also ensure that the quadrant on the Summer/Winter tap is at least  $\frac{1}{2}$  in. away from the connections of the resistance mounted on the bulkhead to prevent contact between these parts. If necessary the pipe should be re-set to give these dimensions

Parts Required

RE 17294

Support Clip

1 off



FOR INFORMATION

S2 CARS FITTED WITH THE  
TECUMSEH REFRIGERATION COMPRESSOR

On S2 cars fitted with the Tecumseh refrigeration compressor, a hard fouling is liable to occur between the lower end of the engine top coolant hose and the metal fittings on the refrigeration system hot gas line: the metal fittings are adjacent to the compressor delivery service valve.

ACTION REQUIRED

The simple remedy in the event of fouling taking place is as follows.-

Slacken the generator mounting bolts and release the driving belt tension.

Slacken the bolts securing the compressor and compressor bracket.

Ease the compressor away from the top coolant hose coupling and whilst holding the compressor in this position re-tighten the bolts.

Re-adjust the driving belt tension.

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CATEGORY 3A

FRESH AIR DUCT - S2 CARS

There is a possibility that dirty water may enter the fresh air duct which is positioned under the left-hand front wing on Standard S2 cars.

The leak may be due to poor sealing between the flange joint and the scuttle; this can be rectified as follows:-

Jack up the front of the car taking care not to damage the steering power cylinder.

Remove the front left-hand road wheel.

Clean the immediate area around the joint on the scuttle and duct.

Liberally apply a coating of underseal compound to ensure that a complete external sealing is effected.

Fit the road wheel.

Lower the car and remove the jack.

UNDERWING AIR CONDITIONING UNIT

Adjustment of the Heater and Evaporator Flaps and Actuators and the Water Tap Actuator.

Evaporator Flap (Top) Actuator - To Adjust

1. Slacken the two pinch bolts securing the crank levers to the flap extension spindle and the actuator gear shaft. Also slacken the grubscrew securing the collar to the extension spindle.
2. Push the extension spindle into the flap coupling tube, then tighten the pinch bolt securing the crank lever to the extension spindle.
3. Withdraw the extension spindle and crank lever about 1/16 in., then tighten the grubscrew securing the collar against the end face of the spindle bearing tube.
4. Remove the crank lever from the actuator gear shaft and check that the extension spindle is free to rotate through 90°. Any movement through more than 90° indicates that the flap coupling tube is not engaged with the extension spindle dogs and requires rectification.
5. Switch on the ignition and turn the upper and lower airstream switches to their 'OFF' position. Allow approximately 30 seconds for the actuator motors to return to the fully closed position.
6. Position the actuator crank lever so that it points to the No. 1 position on the motor casing. Tighten the pinch bolt.
7. Slacken the pinch bolt securing the crank lever on the flap extension spindle. Turn the extension spindle anti-clockwise (when viewed over the left-hand wing) to close the flap valve. With the flap valve held closed, adjust the position of the extension spindle crank lever so that the link arm between the two crank levers can just be fitted under slight tension. Fit new split pins on the link arms.

- 2 -

Heater Flap (Bottom) Actuator - To Adjust

Repeat operations 1 - 5 as described for the evaporator flap.

6. Position the actuator crank lever so that it points to the No. 3 position on the motor casing. Tighten the pinch bolt.
7. Slacken the pinch bolt securing the crank lever on the flap extension spindle. Turn the extension spindle clockwise (when viewed over the left-hand wing) to close the flap valve. With the flap valve held closed adjust the position of the extension spindle crank lever so that the link arm between the crank levers can just be fitted under slight tension. Fit new split pins on the link arms.

Water Tap Opening - To Check

To ascertain that the water tap is closed, turn the left-hand facia switch (lower airstream) anti-clockwise, wait 30 seconds to allow the actuator motor to operate, then turn the switch to the 'off' position. If the tap is closed then, with a warm engine, the two pipes passing under the right-hand wing should be cold; if the tap is leaking then the pipes will be warm.

1. Drain the coolant into a suitable storage container, or disconnect the two hoses to the water tap and plug them with suitable wooden pegs to prevent any loss of coolant
2. Close the water tap by turning the lower airstream switch anti-clockwise waiting 30 seconds, then turning the switch back to the 'off' position.
3. If the coolant has been drained disconnect the two hoses to the water tap. Remove the four bolts securing the tap and the actuator motor to the wing valance and lift out the tap.
4. Check whether the tap is open or closed by passing air into it from the inlet side.
5. If the tap is not properly closed, slacken the clamping bolt on the actuator and push the tap lever to the closed position. Hold the lever in the closed position and tighten the clamping bolt so that tension is put into the linkage
6. Check the functioning of the tap then fit it on the valance

LIMITED, PYM'S LANE, CREWE, ENGLAND

No. S2/C7

Circulation - All Distributors  
and Retailers

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:

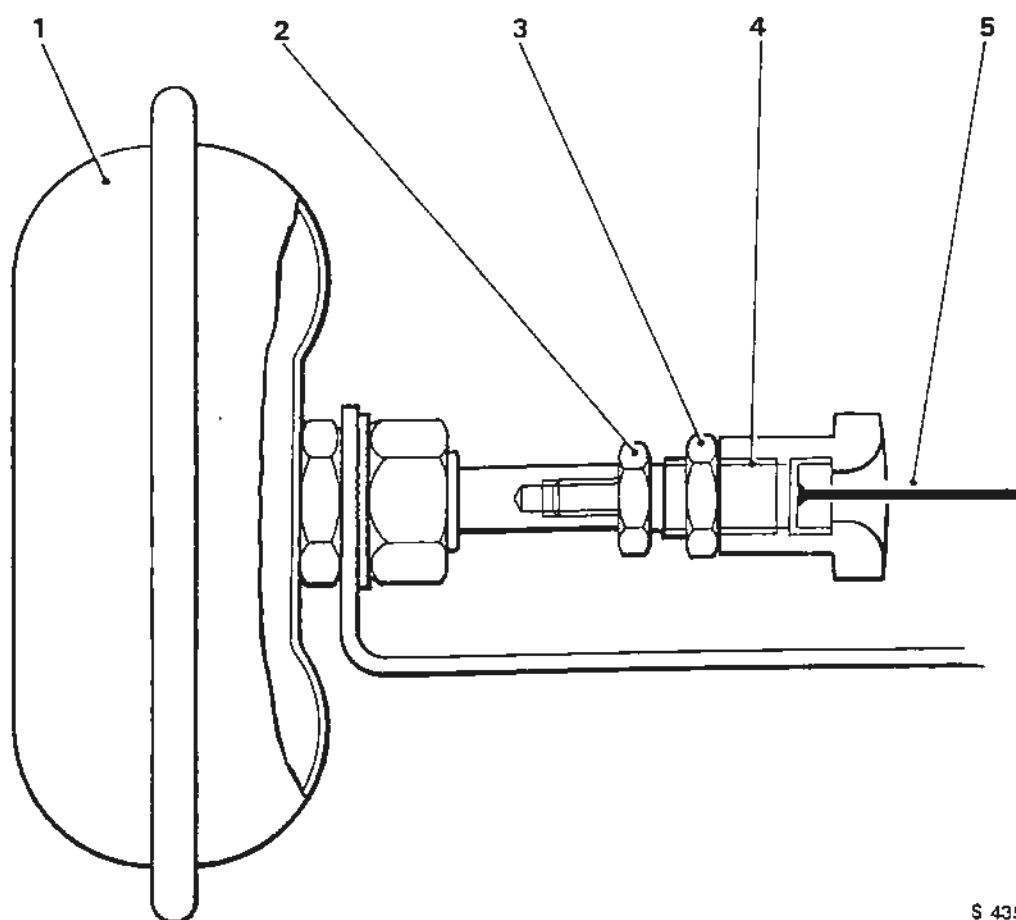
The existing vacuum valve unit is no longer available. Future replacements are a different type which require additional parts.

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).

Continued...

-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

## S2 Engine

FOR INFORMATION

CAMSHAFTS - S2 ENGINES

Three different methods of feeding oil to the camshaft bearings are employed on early production V 8 engines; these differences involve slight modifications to the camshaft and crankcase. The three stages of camshaft design are shown in Figure 1.

Stage 1

Camshafts fitted to engines employing stage one method of lubrication cannot be fitted to engines employing the second or third method.

Stages 1 and 2

Camshafts fitted to engines employing stage two or three method of lubrication, cannot be fitted to engines with stage one method.

Stages two and three are basically the same and camshafts fitted to engines employing either of these methods of lubrication are interchangeable; the only difference between stages two and three is a modification to the camshaft.

Listed below are the chassis numbers, together with the corresponding engine numbers, showing which method of lubrication is fitted to the engine.

Number 13 is omitted from all chassis numbers.

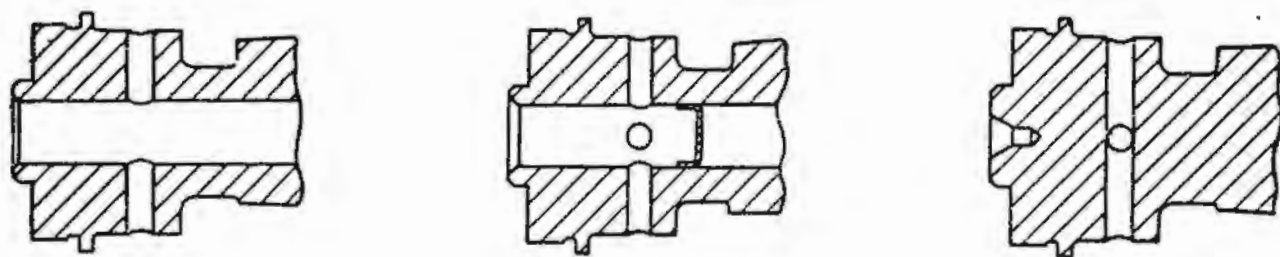


Fig. 1. Three types of camshaft fitted to V8 engines.



- 2 -

No. S2/E1

STAGE ONE

	<u>Engine No.</u>		<u>Chassis No.</u>	
<u>PHANTOM V</u>	PV.1.A.	to PV.18.A.	5.AS.1.	to 5.AS.37.
<u>BENTLEY</u> <u>CONTINENTAL</u> <u>S2</u>	A.1.BC.	to A.32.BC.	BC.1.AR.	to BC.33.AR.
<u>SILVER CLOUD</u> <u>II</u> (Long Wheelbase)	LC.1.A. LC.22.A.	to LC.10.A.	LCA.1. LCA.23.	to LCA.10.
<u>BENTLEY S2</u>	1.AB. 18.AB. 139.AB. 141.AB. 143.AB. 145.AB. 147.AB.	to 16.AB. to 134.AB.	B1.AA. B.37.AA. B.279.AA. B.283.AA. B.287.AA. B.291.AA. B.295.AA.	to B.33.AA. to B.259.AA.
<u>SILVER CLOUD</u> <u>II</u>	1.AS. 137.AS. 148.AS. 152.AS. 156.AS. 196.AS.	to 135.AS. to 142.AS.	SPA.2. SPA.274. SPA.296. SPA.304. SPA.312. SRA.67.	to SPA.270 to SPA.284.

STAGE TWO

<u>PHANTOM V</u>	PV.19.A.	to PV.21.A.	5.AS.39.	to 5.AS.43.
<u>BENTLEY</u> <u>CONTINENTAL</u> <u>S2</u>	A.33.BC.	to A.37.BC.	BC.34.AR.	to BC.38.AR.
<u>SILVER CLOUD</u> <u>II</u> (Long Wheelbase)	LC.24.A. LC.25.A.		LCA.25. LCA.26.	

	<u>Engine No.</u>		<u>Chassis No.</u>	
<u>BENTLEY S2</u>	17. AB.		B. 35. AA.	
	135. AB	to 138. AB.	B. 271. AA.	to B. 277. AA.
	140. AB.		B. 281. AA.	
	142. AB.		B. 285. AA.	
	144. AB.		B. 289. AA.	
	146. AB.		B. 293. AA.	
	148. AB.	to 161. AB.	B. 297. AA.	to B. 323. AA.
	165. AB.	to 177. AB.	B. 6. AM.	to B. 30. AM.
	179. AB.	to 186. AB.	B. 34. AM.	to B. 48. AM.
	188. AB.		B. 52. AM.	
	189. AB.		B. 54. AM.	
	195. AB.		B. 66. AM.	
	198. AB.		B. 72. AM.	

SILVER CLOUD  
II

136. AS.		SPA. 272.	
143. AS.	to 147. AS.	SPA. 286.	to SPA. 294.
149. AS.	to 151. AS.	SPA. 298.	to SPA. 302.
153. AS.	to 155. AS.	SPA. 306.	to SPA. 310.
157. AS.	to 163. AS.	SPA. 314.	to SPA. 326.
164. AS.		SRA. 1.	
165. AS.		SRA. 2.	
167. AS.	to 171. AS.	SRA. 7.	to SRA. 17.
173. AS.	to 178. AS.	SRA. 21.	to SRA. 31.
184. AS.		SRA. 43.	
202. AS.		SRA. 79.	
204. AS.		SRA. 83.	
206. AS.		SRA. 87.	
214. AS.		SRA. 103.	
217. AS.		SRA. 109.	

STAGE THREE

<u>PHANTOM V</u>	PV. 22. A. onwards	5. AS. 45. onwards
<u>BENTLEY</u>		
<u>CONTINENTAL</u>		
<u>S2</u>	A. 38. BC. onwards	BC. 39. AR. onwards

Engine No.

Chassis No.

SILVER CLOUD

II

(Long Wheelbase)	LC 11. A. to LC.21. A.	LCA.11. to LCA.22.
	LC.23. A	LCA.24.
	LC.26. A. onwards	LCA 27. onwards

BENTLEY S2

162. AB.		B 325. AA
163. AB.		B 2. AM.
164. AB.		B 4. AM.
178. AB.		B 32. AM.
187. AB.		B 50. AM
190. AB.	to 194. AB.	B.56. AM. to B.64. AM
196. AB.		B.68. AM.
197. AB.		B 70. AM.
199. AB.	onwards	B.74. AM. onwards

SILVER CLOUD

II

166. AS.		SRA. 5.
172. AS.		SRA. 19.
179. AS.	to 183. AS.	SRA. 33. to SRA. 41
185. AS.	to 195. AS.	SRA 45. to SRA. 65
197. AS.	to 201. AS	SRA. 69. to SRA. 77
203. AS.		SRA. 81.
205. AS		SRA. 85.
207. AS	to 213. AS.	SRA. 89. to SRA. 101.
215. AS.		SRA. 105.
216. AS.		SRA. 107.
218. AS.	onwards	SRA. 111. onwards

FOR INFORMATION

BRITISH FULL-FLOW OIL FILTERS - S2. ENGINES

It has been established that after servicing, some oil filters have been re-assembled without the cork sealing washer and/or the metal cup washer, which should have been fitted beneath the filter element.

Failure to fit these washers, allows unfiltered oil to pass up the central tube of the filter and this can result in serious damage to the engine bearings.

When servicing an oil filter, it is essential that particular care is taken to ensure that the cork washer is in a servicable condition and is fitted, together with the cup washer, in the correct position as shown in Figure 1.

Spare washers can be obtained from the Service Departments in Crewe or London.

Cork sealing washer  
Cup washer

Part No. CD.255  
" " CD.256

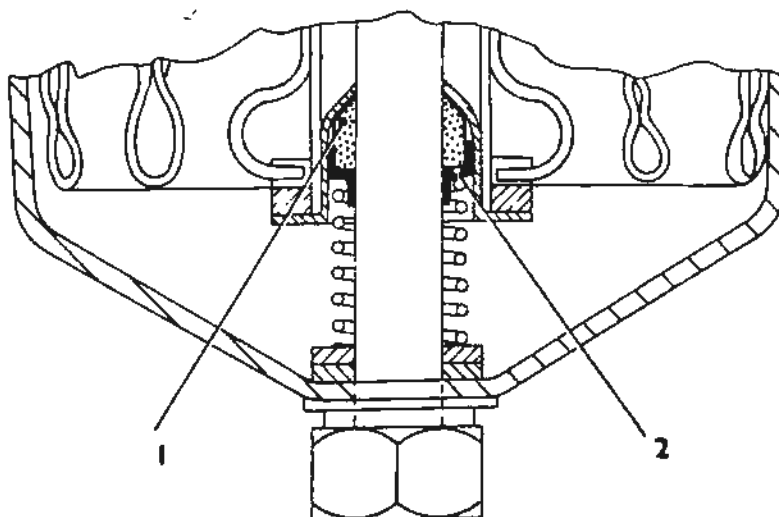


Fig.1. Scrap view of oil filter showing position of washers

- 1. Cork sealing washer
- 2. Cup washer

FOR INFORMATION

BREATHER BAFFLE

IN S2 ENGINE CRANKCASE

In isolated cases, loss of oil down the crankcase breather pipe on S2 cars may occur.

This is caused by the camshaft flinging oil through any gap which may exist between the breather baffle and the wall of the crankcase

In this event, the following modification should be carried out.

Remove the baffle plate and relieve the bottom edge to ensure that it clears the boss, formed by the camshaft bearing (see 'A' in Fig 1). Fit the baffle plate in position, and if necessary bend it to ensure that it fits flush against the wall of the crankcase.

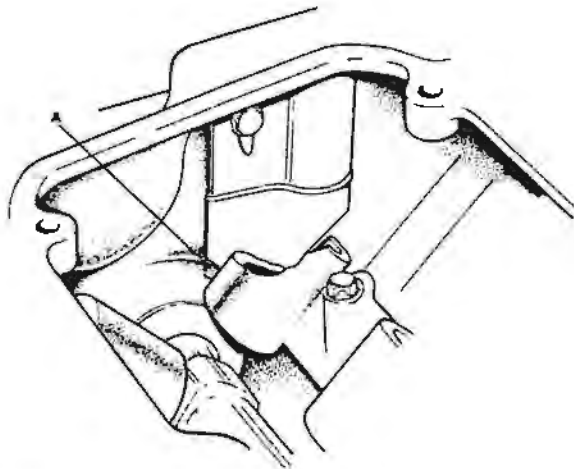


Fig.1. Modified Baffle shown in position.  
'A' Area of Metal to be Removed

FOR INFORMATION

FITTING THE OIL PRESSURE TRANSMITTER

To obtain an accurate oil pressure reading on S2 engines it is essential that the oil pressure transmitter is correctly assembled to the oil filter head.

The transmitter should be fitted so that the raised portion of the cover is to the top of the filter and within  $60^\circ$  of either side of the vertical datum. (See Fig.1).

The correct position of the transmitter can be obtained by fitting additional copper washers to the threaded union.

The part number of the copper washer is UD.8017

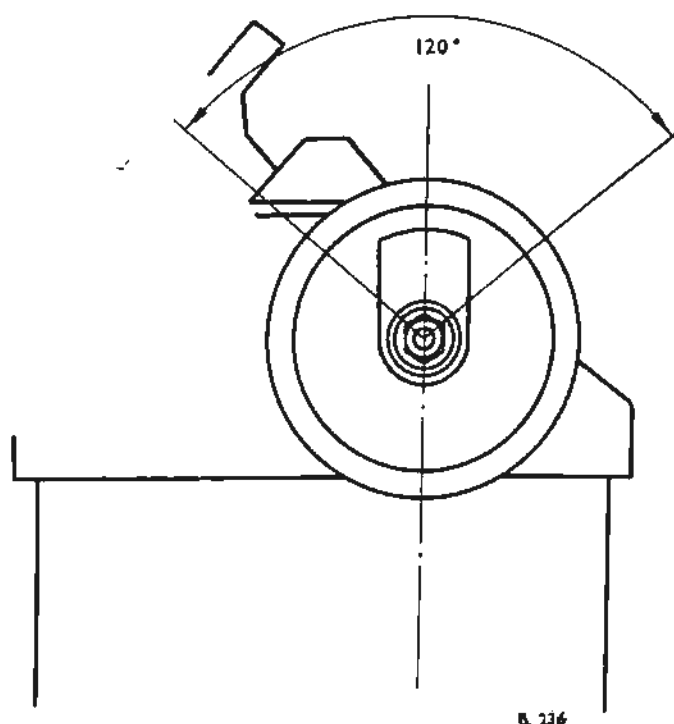


Fig.1. Position of the Oil Pressure Transmitter.

CATEGORY 2

REPOSITIONING THE OCTANE SELECTOR.

There is a tendency for the main charging cable to chafe against the knurled adjusting nut of the octane selector thereby creating a short circuit.

The main charging cable is clipped to the bulkhead and runs adjacent to the 'A' bank rocker cover.

To eliminate the possibility of such an occurrence, it is necessary to carry out the following procedure.

Slacken and remove the two  $\frac{1}{4}$  U. N. F. nuts and plain washers securing the octane selector to the pedestal, and slacken the clamping bolt retaining the distributor.

The distributor will then lift off, enabling the octane selector to be removed and rotated through 180°

Position the octane selector over the shoulder of the distributor base and refit the distributor

For ease of accessibility, the adjuster assembly clamping bolt should be reversed.

Finally, with the octane selector fully advanced, reset the ignition timing 2° B T. D. C., and tighten the two  $\frac{1}{4}$  U. N. F. nuts and clamping bolt.

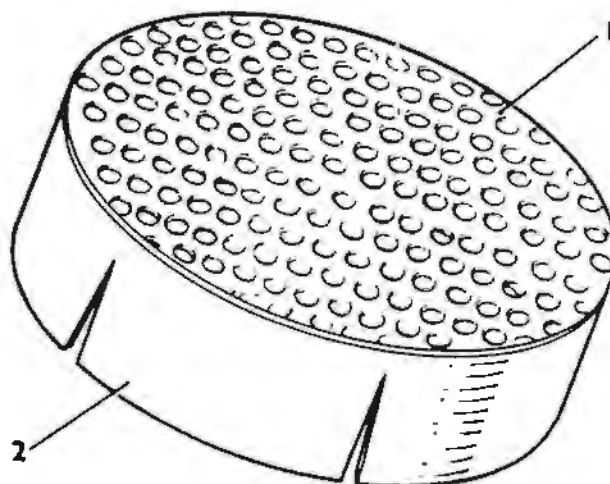
FOR INFORMATION

MASKING THE CARBURETTER CHOKE

AND INDUCTION MANIFOLD.

If, for any reason the air silencer hosing is removed from the carburetter choke housing, it is essential that the choke should be masked with tape immediately, in order to prevent any possibility of foreign matter entering the engine induction system. For the same reason, if the carburetter 'T' piece and carburetters are removed, the induction manifold should also be masked.

Should it be necessary to operate the engine with the air cleaner disconnected, a gauze filter, similar to that shown in Figure 1, should be made and placed over the carburetter choke before running the engine. The sides of the tubing should be cut so that the tubing can be bent to grip the choke housing.



8 278

Fig.1. Sketch of filter for fitting over the carburetter choke housing.

1. Gauze

2.  $4\frac{1}{8}$  in. internal diameter tubing.



FOR INFORMATION

OIL FILTER - TOP SEALING RING

The rubber 'O' ring (Part No. CD.1372) fitted to the oil filter head on earlier S.2 cars has proved unsatisfactory in Service. When an element was changed, the 'O' ring had a tendency to drop out of its groove in the filter head and become trapped between the filter bowl and the head, thus resulting in leaks.

To overcome this, a new seal (Part No. UE.9452 or RH.7323) of square cross section has been introduced. Service experience has shown that this seal is satisfactory as, due to its shape, it remains in the filter head whilst the element and filter bowl are being fitted. In future this new seal will be fitted to all S.2 cars.

Until recently the element has been supplied as a separate item, but now it will only be supplied in kit form with the new square sectioned seal. The seal will also be obtainable as a separate item.

Part numbers of the element and seal are as follows:-

RH.2156	Oil filter element and rubber seal assy.	1 off
UE.9452		
or RH.7323	Oil seal - Oil filter head	1 off

FOR INFORMATION

HYDRAULIC TAPPETS - S2 ENGINES

Service Bulletin S3/E1 entitled 'Hydraulic Tappets - S3 Engines' is equally applicable to all S2 engines, and should be consulted in any cases of engine noise or alleged tappet noise.

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**All S3 cars**

This Bulletin cancels all previous Service Bulletins numbered S3/A1

FOR INFORMATION (Strictly Confidential)

CHASSIS SERIES AND ENGINE NUMBERS

FOR S3 CARS

The following is a list of chassis and engine numbers which have up to the present time been issued for S3 Series cars. It is intended to facilitate the identification of chassis numbers in relation to modifications.

The letter 'L' preceding the chassis series letter indicates a left-hand drive chassis.

Number 13 is omitted from all chassis numbers.

<u>SERIES</u>	<u>CHASSIS NUMBER</u>	<u>ENGINE NUMBER</u>
<u>SILVER CLOUD III</u>		
A. SAZ.1 to SAZ.62	Odd numbers only.	SZ.1.A to SZ.30.A
B. Series not issued.		
C. SCX.1 to SCX.877	Odd numbers only.	SX.1.C to SX.438.C
D. SDW.1 to SDW.601	Odd numbers only.	SW.1.D to SW.300.D
E. SEV.1 to SEV.449	Odd numbers only.	SV.1.E to SV.224.E
F. SFU.1 to SFU.803	Odd numbers only.	SU.1.F to SU.401.F
G. SGT.1 to SGT.659	Odd numbers only.	ST.1.G to ST.329.G
H. SHS.1 to SHS.357	Odd numbers only.	SS.1.H to SS.178.H
J. SJR.1 onwards	Odd numbers only.	SR.1.J onwards

The letter 'C' following a chassis number indicates a coachbuilt Silver Cloud III.

Continued...

<u>SERIES</u>	<u>CHASSIS NUMBER</u>	<u>ENGINE NUMBER</u>
<u>BENTLEY S3</u>		
A. B.2.AV to B.26.AV	Even numbers only.	BAV.1 to BAV.13
B. Series not issued.		
C. B.2.CN to B.828.CN	Even numbers only.	BCN.1 to BCN.414
D. B.2.DF to B.198.DF	Even numbers only.	BDF.1 to BDF.99
E. B.2.EC to B.530.EC	Even numbers only.	BEC.1 to BEC.265
F. B.2.FG to B.350.FG	Even numbers only.	BFG.1 to BFG.175
G. B.2.GJ to B.200.GJ	Even numbers only.	BGJ.1 to BGJ.100
<u>SILVER CLOUD III LONG WHEELBASE</u>		
A. CAL.1 to CAL.83	Odd numbers only.	CL.1.A to CL.41.A
B. CBL.1 to CBL.61	Odd numbers only.	CL.1.B to CL.30.B
C. CCL.1 to CCL.101	Odd numbers only.	CL.1.C to CL.50.C
D. CDL.1 to CDL.95	Odd numbers only.	CL.1.D to CL.47.D
E. CEL.1 to CEL.105	Odd numbers only.	CL.1.E to CL.52.E
<u>BENTLEY S3 LONG WHEELBASE</u>		
A. BAL.2 to BAL.30	Even numbers only.	BL.1.A to BL.15.A
B. BBL.2 to BBL.12	Even numbers only.	BL.1.B to BL.6.B

FOR INFORMATIONIMPROVED HEATING CONDITIONS FOR THE 'UPPER' HEATING SYSTEM

In cases where customers complain that they cannot maintain the car interior temperature at a suitable level without constantly rotating the 'upper' control switch between the second and third clockwise positions, a simple modification can be carried out. This modification consists of changing the position of one of the leads to the 'upper' water tap actuator as described in the following text.

At the present time, the 'upper' water tap is in the leak position for both the first and second clockwise position of the 'upper' control switch and in the fully open position for the third and fourth clockwise positions of the switch. This results in a considerable change of temperature at the outlet ducts when the 'upper' control switch is operated between the second and third clockwise positions.

After carrying out the modification, the 'upper' water tap is two thirds open for the first and second clockwise positions of the 'upper' control switch and in the fully open position for the third and fourth clockwise positions of the switch; this results in a more progressive temperature change at the outlet ducts. Although there will only be a slight variation in temperature of the 'upper' matrix as the 'upper' control switch is operated between the second and third clockwise positions, a temperature change at the outlet ducts will be noticed; this is due to the position of the internal flaps in the ducting which either restrict or let the full volume of intake air through into the car interior.

Continued ....

PROCEDURE

Withdraw the brown/black lead, which is connected by a 'Lucar' connector, from the number three terminal on the 'upper' water tap actuator and transfer it to the number two terminal; the 'upper' water tap actuator is positioned at the front of the left-hand valance plate and the terminals are numbered 1, 2, 3 and 4 from the top of the actuator. It should also be noted that the blade of the 'Lucar' connector on the actuator is in a horizontal plane.

After completing the modification, check to ensure that the 'upper' water tap actuator is operating as follows.

Move the 'upper' switch from the off position to its first or second clockwise position; a whirring noise will be emitted from the actuator and it is also possible to see the crank of the actuator rotating. If no sound is emitted from the actuator, check that the connection to the number two terminal is secure.

FOR INFORMATION

3,000 MILE SERVICE - S3 CARS

The following Service should be carried out on all S3 cars at the completion of the first 3,000 miles. The main purpose of this Service is to ensure that the oil in the engine crankcase is changed, and to enable Retailers to carry out the following checks and make any necessary adjustments.

1. Change the oil in the engine crankcase.
2. Lubricate the eight grease nipples on the front suspension.
3. Tighten the worm drive clips securing ALL coolant hoses.
4. Check the level of oil in the carburettor air valve dampers and top-up if necessary.
5. Check the level of oil in the steering pump reservoir and top-up if necessary.
6. Check the level of fluid in the brake fluid reservoirs and top-up if necessary.
7. Check the level of oil in the automatic gearbox and top-up if necessary.
8. Check the level of coolant in the radiator and top-up if necessary with the correct anti-freeze solution.
9. Check and if necessary adjust the tension of the belts driving the engine auxiliaries.
10. Check and if necessary adjust the rear brakes and servo.
11. Check the tyre pressures.
12. Check the level of the battery electrolyte and top-up if necessary.
13. Check the level of the fluid in the windscreen washer reservoir and top-up if necessary.
14. Test the car on the road and adjust the T. V. rod (A rod) if necessary.

It should be noted that the existing Service Bulletin No. S2/D1 - Periodic Lubrication and Maintenance Schedules for S2 cars is also applicable to S3 cars.



No. S3/D2

CB 136

RB 179

BB 247

RDB 118

Circulation - All Distributors  
and Retailers

This Service Bulletin supersedes  
all Bulletins listed above dated  
either 19.8.69 or 21.8.69

CATEGORY C

AUTOMATIC TRANSMISSION FLUIDS

APPLICABLE TO:

All cars fitted with the Four Speed Automatic Gearbox prior to the Rolls-Royce Silver Shadow and Bentley T series cars.

DESCRIPTION

Type A Suffix A automatic transmission fluids have been superseded by fluids conforming to the Dexron specification.

The fluids listed in the following chart conform to the Dexron specification and are approved for initial filling, topping-up and refilling purposes.

Type A Suffix A fluids are miscible with the fluids listed and can therefore, still be used for topping-up purposes.

Continued...

No. S3/D2

CB 136

RB 179

BB 247

RDB 118

- 2 -

APPROVED FLUIDS - FOUR SPEED AUTOMATIC GEARBOX

	DEXRON FLUIDS U.S.A. AND CANADA ONLY	DEXRON FLUIDS ALL COUNTRIES OTHER THAN U.S.A. AND CANADA
BP	BP Autran DX (Dexron)	BP Autran DX (Dexron)
Castrol	Castrol TQ (Dexron (R))	Castrol TQ (Dexron (R))
Esso	Esso Automatic Transmission Fluid (Dexron)	Esso Automatic Transmission Fluid (Dexron)
Mobil	Mobil ATF 220 (Dexron)	Mobil ATF 220 (Dexron)
Regent	Regent Texamatic Dexron	Regent Texamatic Dexron
Shell	Shell Donax T6 (Dexron R)	Shell Automatic Transmission Fluid (Dexron R)

NOTE:

Dexron is a registered trade name

FOR INFORMATION

ENGINE OILS

The manufacturers of Esso oils have changed the name of one of their products from Esso Extra Motor Oil 20W/30 to Esso Motor Oil 20W/30.

Also, a new Esso oil has been introduced and is called Esso Extra Motor Oil 10W/30. This oil has not been approved for use in Rolls-Royce engines and therefore should not be used for engine oil changes or topping-up.

FOR INFORMATION

ENGINE OIL

This Service Bulletin is issued to advise Retailers and Service Personnel that Shell Super Motor Oil is now approved for use in Rolls-Royce and Bentley engines.

The Shell Super Motor Oil supersedes the previous Shell product X-100 multigrade, and can be used for all engine oil changes and topping-up purposes.

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FOR INFORMATION

FLUID FOR REPLACEMENT GEARBOXES

It has been the practice over the past years for the Spares Organisations at Crewe and Hythe Road to supply Automatic Transmission Fluid WA 389 with each replacement gearbox issued for 'initial fill' purposes.

It has now been decided that this fluid will no longer be issued with replacement gearboxes and it will be necessary to fill the gearbox with one of the recommended automatic transmission fluids.

Note A label warning service personnel that there is no fluid in the gearbox and that it should be filled with one of the recommended fluids will be attached to the gearbox.

No. S3/D6

Circulation - All Retailers

CATEGORY C

IGNITION DISTRIBUTOR CONTACT BREAKER CAM LUBRICATION

APPLICABLE TO

All Rolls-Royce Silver Cloud III and Bentley S3 cars.

DESCRIPTION

This Service Bulletin is issued to advise Distributors, Retailers and Service Personnel of the correct lubricant to use on the surfaces of the ignition distributor contact breaker cam.

Should the ignition distributor be fitted with a cam lubricating pad, this should be checked for wear and if considered unserviceable the pad should be removed by cutting through the spring blade close to its mounting point. If the pad is serviceable one of the approved brands of engine oil may be used for lubrication purposes.

On ignition distributors which have had the lubricating pad deleted the cam should be lubricated with a silicone based compound after all traces of oil have been removed from the cam and the fibre heels.

It is recommended that a supply of suitable silicone compound is obtained and used during normal service schedules. A suitable compound (designated Silicone Compound M.S.4.) is obtainable in the United Kingdom from Midland Silicones Ltd.

CATEGORY C

IGNITION DISTRIBUTOR CONTACT BREAKER CAM LUBRICATION

APPLICABLE TO:

All Rolls-Royce Silver Cloud III and Bentley S3 cars

DESCRIPTION

The purpose of this Service Bulletin is to advise Distributors, Retailers and Service Personnel that the Midland Silicones Compound MS4 mentioned in Service Bulletin S3/D6 is obtainable as a stock item.

The compound is supplied in four ounce tubes, the Rolls-Royce part number being RH.8029.

FOR INFORMATION

HYDRAULIC TAPPETS - S3 ENGINES

Far too many hydraulic tappets have been removed from V8 engines in order to try to cure complaints of engine noise or alleged tappet noise. This Bulletin is issued to clear up many misunderstandings concerning the behaviour of hydraulic tappets, and to assist Service Personnel to make a correct diagnosis in cases of complaints of engine noise.

TAPPET NOISE

There is only one occasion on which the tappets can be blamed for engine noise and that is when one or more tappets have collapsed producing a noise like a 'rifle crack' with each revolution of the camshaft. This can only be cured by replacing that tappet.

The tappet can be isolated by the fact that the noise changes as the rocker arm is depressed manually to take up the 'sponge' while the engine is running.

OCCASIONAL EXCEPTIONS

- (i) Sometimes air is drawn into the tappets after standing overnight and one of the tappets may be reluctant to clear itself even after 30 minutes hot running.
- (ii) Very occasionally a tappet leaks down too quickly at high temperatures causing a knock. This tappet is really a milder case of the 'rifle crack' failure and again should be replaced.
- (iii) Very occasionally a tappet will stick in the bore of the tappet block at high temperatures causing a knock. This will show itself by being consistently noisy when the engine is very hot and always quiet at other times. It can be traced to imperfect bedding between the tappet block and the crankcase and can only be cured by scraping the crankcase face, and bedding the block correctly.
- (iv) A 'catastrophic' cam and tappet failure will also produce the noise like a 'rifle crack'. This too is very rare and is described in the following text.

Continued....



- 2 -

### TAPPET WEAR

There is very seldom a just cause for rejecting tappets due to wear of the bottom face unless the cam peak on the camshaft is also badly worn. This type of excessive mutual wear would cause a loud noise at the valve and is termed a 'catastrophic' failure. It is very rare and has never been known after the first 10,000 miles. Service Personnel faced with this failure should contact the Technical Services Department, Crewe for advice and instructions.

All other cases of seemingly bad surface wear on the tappet bottom - pitting, scuffing etc. - are not yet known to be harmful (after many 100,000 miles experience with experimental engines). It is known however that it may be harmful to replace a mildly worn tappet with a new one unless the camshaft is also changed. For this reason, if not for economy, only those tappets which actually cause a noise should be changed. Of course, if the camshaft ever has to be changed, 16 new tappets should be fitted.

Summary: It is suggested that the hydraulic tappets need never be investigated for a complaint of engine noise except when there is this 'rifle crack' knock of a collapsed tappet when that one, and that one only, should be replaced.

The majority of customers' complaints of engine noise are due to noises from the valves, caused by worn valves and guides, scuffed valve tips, worn rockers and rocker shafts, insufficient lubrication etc. These can only be cured by processes of elimination, in which experience will bring economy.

No. S3/E2

(Re-issue)

This Bulletin cancels all previous  
Bulletins numbered S3/E2.

Circulation - All Retailers

CATEGORY C

INLET AND EXHAUST VALVE GUIDES

APPLICABLE TO:

All Rolls-Royce Silver Cloud II and III and Bentley S2 and S3 series cars

DESCRIPTION

On late S3 series cars the exhaust valve guides were reamed to 0.373 in. + 0.0005 in. (9,474 mm. + 0,013 mm.) diameter instead of the original diameter of 0.3755 in. + 0.0005 in. (9,589 mm. + 0,013 mm.). To bring all S2 and S3 series cars into line with this change the exhaust valve guides on all S2 and S3 series cars are now reamed to the new diameter of 0.373 in. + 0.0005 in. (9,474 mm. + 0,013 mm.).

The inlet valve guide reamed diameter remains unchanged at 0.3755 in. + 0.0005 in. (9,589 mm. + 0,013 mm.).

The reamers necessary to produce these diameters are:

Inlet valve guide No. RH 7825 or No. RH 7827

Exhaust valve guide No. RH 7826 or No. RH 7828

It should be noted that Nos. RH 7827 and RH 7828 are special heavy duty reamers. All the reamers are available through the normal channels.

Note The standard reamer will be adequate for the majority of users, the heavy duty type being intended for workshops carrying out a large number of engine overhauls.

FOR INFORMATION

TAPPET COVER LEAKS

Over the past year, the number of complaints of an oil leak from the tappet cover joint has been increasing and therefore various types of sealing material have been investigated. This Service Bulletin is issued to advise Retailers and Service Personnel that a new and much improved joint is now available.

The new joint is made from a material called 'Dermatine' and is a rubber based compound which is heat and shrink resistant and which does not age or harden in service use. Because this material does not alter its characteristics, the joint can be used not only with standard tappet covers, but with ones which have been modified by having the tappet cover setscrew bosses machined down to allow the old type of gasket to seal properly. In this case however, care must be taken to tighten the cover down sufficiently to seal by feeling the tightness of the setscrews, and not by tightening down until the setscrew bosses touch the crankcase.

It should be noted, however, that supplies of this new joint are in short supply. Therefore the new joint should only be fitted in complaint cases, or if the engine has been stripped down to the tappet cover for any reason.

FOR INFORMATION

ENGINE ROUGHNESS

During recent investigations into the causes of engine roughness, it has been discovered that many cases are directly attributable to power steering pump belts which have been adjusted too tightly. Correct tensioning of the belts as described in the Workshop Manual has, in many cases, effected a cure.

This Service Bulletin is issued to advise Retailers and Service Personnel that whenever a complaint of engine harshness or roughness is encountered, particularly in the 15 m.p.h. to 25 m.p.h. speed range, the driving belts should be checked for tension and if necessary re-adjusted, before any other work is considered.

The tension should be adjusted to that described on page N7 of the Workshop Manual. It will be noticed that when the belts are adjusted to this tension, they may squeal if the engine speed is increased slightly when the steering is on full lock. This is considered to be quite acceptable and should be explained to the Owner.

FOR INFORMATION

OIL CONSUMPTION

APPLICABLE TO:

All S3 series cars.

DESCRIPTION

A number of Customer complaints have been received which state that the oil consumption figures they have recorded on S3 series cars are too high. This problem has been under urgent investigation at the factory for some time now and it has been found that a major source of oil loss is down the valve guides past the wick type grommet.

A more efficient, silicone rubber type of valve seal with a much improved service life is now available for service use. The new seal fits in place of the existing wick type grommet and should be fitted in all cases of oil consumption complaints.

The procedure is as follows.

PROCEDURE

1. Disconnect the battery.
2. Remove the carburetters and fittings.
3. Remove the rocker covers and rocker shafts.
4. Using the valve spring compressing tool (RH 7094) press down the No.1 valve on either the A or B bank cylinder head.
5. Turn the engine over by hand until the piston on that particular cylinder is at T.D.C. This can be ascertained by carefully feeling for the piston with the compressed valve.
6. When the piston is at T.D.C. loosen the collets by carefully tapping the valve spring top washer, then compress the spring. At this point the valve collets can be lifted clear, and the valve springs and grommet housing can be removed.

Continued...

7. Assemble in the reverse order, using the new grommet. By employing this method, a complete set of grommets can be fitted in approximately 4 hours.

MATERIAL REQUIRED

<u>Part Number</u>	<u>Description</u>	<u>Quantity</u>
RH 7906	Valve seal	1 off per valve

Valve seal RH 7906 displaces valve seal UE 7428.

TIME ALLOWED

4 hrs.

No. S3/F1

This Bulletin cancels  
Service Bulletin S3/F1  
dated 1.1.64.

FOR INFORMATION

PROPELLER SHAFT CENTRE BEARING SQUEAL - S3 CARS

APPLICABLE TO:

All S3 series cars.

DESCRIPTION

During the winter months the propeller shaft centre bearing can emit a loud squealing noise soon after starting from rest when the bearing is still cold.

The bearing is very lightly loaded and it is almost certain that this noise is caused by the balls skidding instead of rolling in the tracks. One simple way of ensuring that the balls do roll, is to load them lightly in an axial direction against the tracks by twisting the bearing as described below.

Retailers and Service Personnel can cure the noise with the least delay and inconvenience to the customer by applying a small pre-load to this bearing. It should be stressed, that the application of a small pre-load does not in any way have a detrimental effect on the bearing.

It is recommended that action should be taken in the event of a customer complaint or if a customer has previously recorded a complaint of centre bearing squeal.

PROCEDURE

Place the car on a ramp or over a pit.

Remove the split pin which locks the nut securing the centre bearing mount to the chassis frame. Slacken the nut sufficiently to allow the mount to twist about its retaining bolt.

Continued...

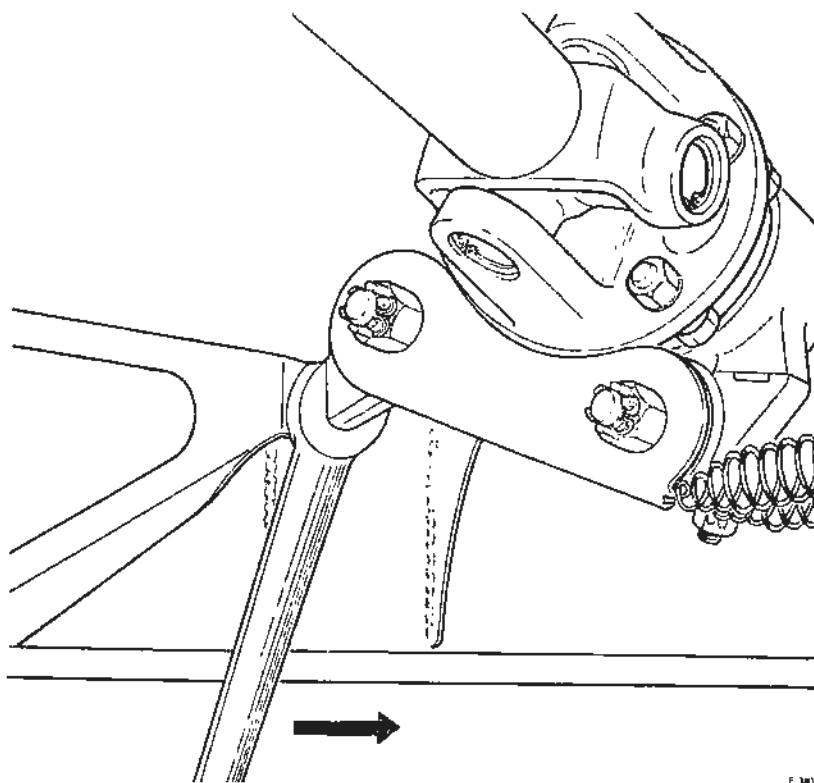


Fig.1 Anti-squeal setting of the centre bearing housing

Using a  $\frac{3}{4}$  in. A/F open ended spanner, twist the centre bearing mount about its retaining bolt (see Fig.1) until all the clearance has been taken up in the bearing. This is a very delicate operation, and can be carried out as follows

Hold the spanner between the forefinger and thumb and gently rock the mount to and fro, watching the gap between the forward end of the centre bearing housing and the flange on the propeller shaft. When the spanner is at one end of this rocking motion, all the bearing clearance will have been taken up. Increase the forefinger pressure on the spanner to apply a very light pre-load to the bearing, and retighten the nut to lock the mount in this position. The mount can be twisted forwards or backwards; either way effectively loads the balls against the race tracks.

Using a new split pin, secure the nut.

Continued...



Alternatively a known amount of pre-load can be applied using a spring balance. With the split pin removed and the nut slackened as before, apply a spanner to the mount as shown in Figure 1. A torque of not more than 4 lb.ft. will impart the correct pre-load to the bearing. Therefore a load of 4 lb. should be applied through the spring balance at a distance of 12 in. from the base of the spanner jaw (or 5 lb. at 9 in. or 8 lb. at 6 in. and so on).

#### IDENTIFICATION

When the bearing has been pre-loaded, both spring plates of the mounting assembly should be marked with a yellow paint stripe to indicate that this action has been carried out.

FOR INFORMATION

SHORTENED BRAKE LININGS - S3 CARS

APPLICABLE TO: All cars built prior to the following chassis numbers.

Silver Cloud III	SEV.471
Silver Cloud III L.W.B.	CCL.79
Bentley S3	B.92.EC
Bentley S3 L.W.B.	BAL.18
Bentley Continental S3	BC.90.LXC
Phantom V	5.LVB.41

DESCRIPTION

Since October 1963 all new S3 series cars have been fitted with shortened brake linings in an effort to alleviate brake squeal problems which arise in service. The brake linings have been shortened by approximately 0.650 in. on all the leading edges of both front and rear brake assemblies, with the exception of the four shoe Continentals where only the rear assemblies have shortened liners. This shortening has the effect of increasing the unit loading on the liner and consequently reduces the tendency to squeal.

This Service Bulletin is issued to advise Retailers and Service Personnel that since supplies of linings UG.2071 and UG.1523 have now run out, all brake linings and brake shoe/lining assemblies supplied in the future by the Spares Central Stores will be of the shortened type. The part numbers of the various assemblies are listed in Spares Information Sheet 3.G.4.

It should be noted that complete brake shoe/lining assemblies are interchangeable, but if shortened linings are to be fitted to existing shoes, then two new rivet holes need to be drilled in the brake shoe to allow the shortened lining to fit. This can be done in the following manner.

Continued...

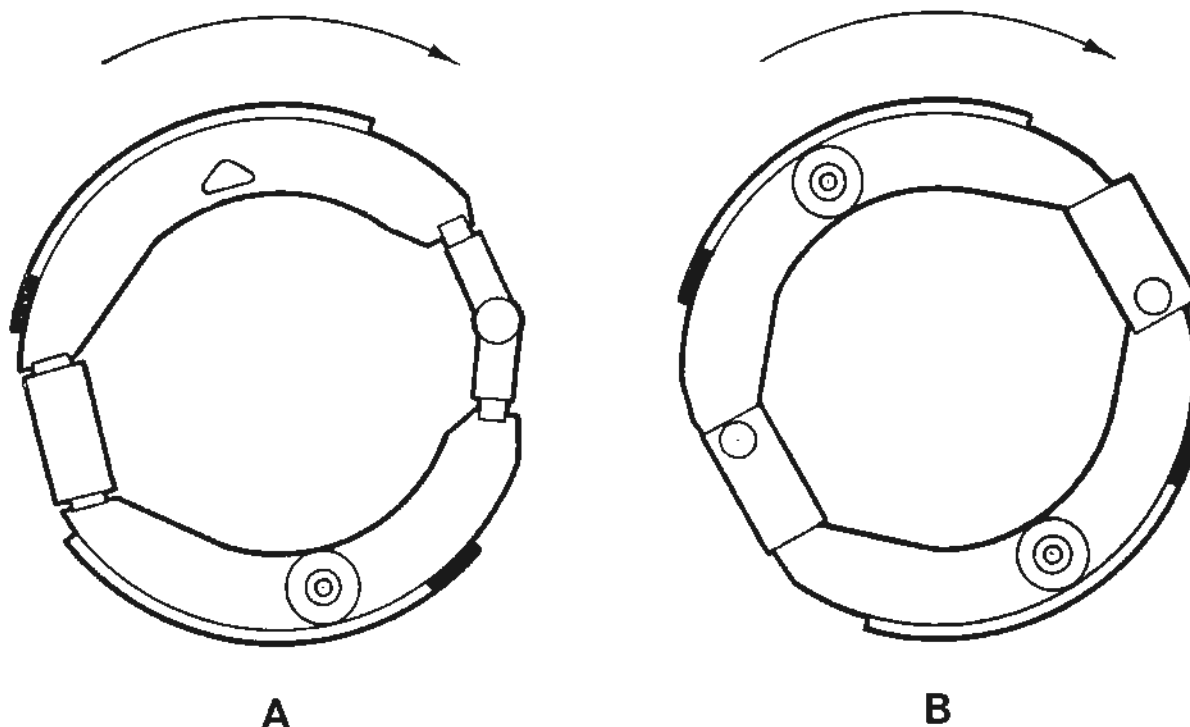


Fig.1 Shortened brake linings

A. Rear      B. Front

### PROCEDURE

Identify the shortened end of the lining. This can be done by comparing the angular distance between the pairs of rivet holes. The end of the lining which has the two adjacent pairs of rivet holes closest together is the shortened end. Place the lining on the brake shoe in the correct position. As described earlier, the linings have been shortened at the leading edge, this being seen more clearly in Figure 1. The shaded parts of the lining denoting the portions which have been cut off.

Mark the position of the two new holes.

Remove the lining and drill two holes in the brake shoe to 0.187 in. dia.

Rivet the brake lining to the shoe in the normal manner.

FOR INFORMATIONSLOTTED BRAKE SERVO PLATE

APPLICABLE TO: All S3 cars prior to the following chassis numbers.

Silver Cloud III	SHS.251
Silver Cloud III L.W.B.	CEL.51
Coachbuilt Silver Cloud III	SJR.561.C
Bentley S3	B.88.GJ
Bentley S3 L.W.B.	LEBL.10
Bentley Continental S3	BC.2.XD
Phantom V	5.VD.53

DESCRIPTION

Over the past year, the number of complaints of brake servo inefficiency have been increasing. Investigation has revealed that many of the complaints are from owners who use their cars in town conditions where frequent but light application of the brakes is required. These driving conditions can cause rapid and excessive glazing of the servo lining. This Service Bulletin is issued to advise Retailers and Service Personnel that a new brake servo pressure plate, which will help to keep the lining clean, is now being built into servo motors fitted to current production cars.

It is thought that the glazing of the servo lining is caused by lining dust, generated during operation of the servo, being compressed into the granular structure of the lining material by the many light applications of the brakes especially during town driving. This eventually produces a hard glazed surface which causes the servo to be inefficient.

The chances of the servo lining becoming glazed can be lessened by keeping the face of the lining clean and by increasing the unit loading applied to the friction members for a given pedal pressure. These requirements are satisfied in the new pressure plate which has 16 slots machined at 45° across the friction face. These slots provide 16 scraping edges which effectively keep the lining clean and which, by virtue of the reduction in pressure plate area, increase the unit loading on the friction members. Tests have proved that the slotted servo plate does not adversely affect the wear rate of the lining.

Continued...

It should be noted that the new pressure plates supplied from the Crewe Spares Central Stores and the Hythe Road Stores will have sharp edges on either side of each slot, and it is most important that these sharp edges are not removed as they play an important part in assisting the rapid 'bedding in' of the servo lining.

The new servo pressure plate should be fitted retrospectively only if the customer complains of servo inefficiency or squeak.

The part number of the new pressure plate is UG 3066, all other servo parts remaining the same. Where possible in service, servo lined plates already fitted with the AD2 lining should be refitted after first breaking down the glazed surface, providing that the lining is not cracked or in an oily condition.

FOR INFORMATION

RENEWAL OF RUBBER COMPONENTS FOR THE S3 BRAKING SYSTEM

APPLICABLE TO:

All S3 cars.

In the interest of safety, it has been decided to re-specify mileages at which the rubber components of the braking system should be renewed. These mileages and action required are as follows.

48,000 miles

Renew the high and low pressure hoses and wheel cylinder seals.

60,000 miles

Renew the brake master cylinder seals.

The above mentioned seals should be renewed at the 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 renewing all rubber components is chargeable to the customer. However, it must be emphasised that it should not be a normal function to renew such components unless other work is being undertaken at the same time; also, the approval of the customer must be obtained as to the charges to be incurred.

No. S3/G4

Circulation - All Retailers

CATEGORY C

CASTROL-GIRLING 'AMBER' BRAKE FLUID

APPLICABLE TO:

Rolls-Royce Silver Cloud III and Bentley S3, and all other 'S' Series cars

DESCRIPTION

This Service Bulletin is issued to advise Distributors, Retailers and Service Personnel that Castrol-Girling 'Amber' Brake Fluid is suitable for use in the braking systems of the above cars.

This type of fluid meets and exceeds the British Standards Specification SAE 70 R3 for extra heavy duty fluids and as the name implies it is amber in colour.

The 'Amber' fluid is miscible with 'Crimson' fluid and can be used for all topping-up purposes on systems already filled with 'Crimson' fluid, however, it is not advisable to use 'Crimson' fluid for topping-up systems already filled with 'Amber' fluid, as this would reduce the effectiveness of the 'Amber' fluid.

It is suggested therefore, that in the event of a braking system being filled with 'Amber' fluid, a label is attached to the brake reservoirs advising that only 'Amber' fluid should be used in that particular system.

Circulation - All Rolls-Royce  
Franchise Holders

Category C

DELETION OF RIDE CONTROL

APPLICABLE TO:

All Rolls-Royce Silver Cloud III cars and all Bentley S3 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

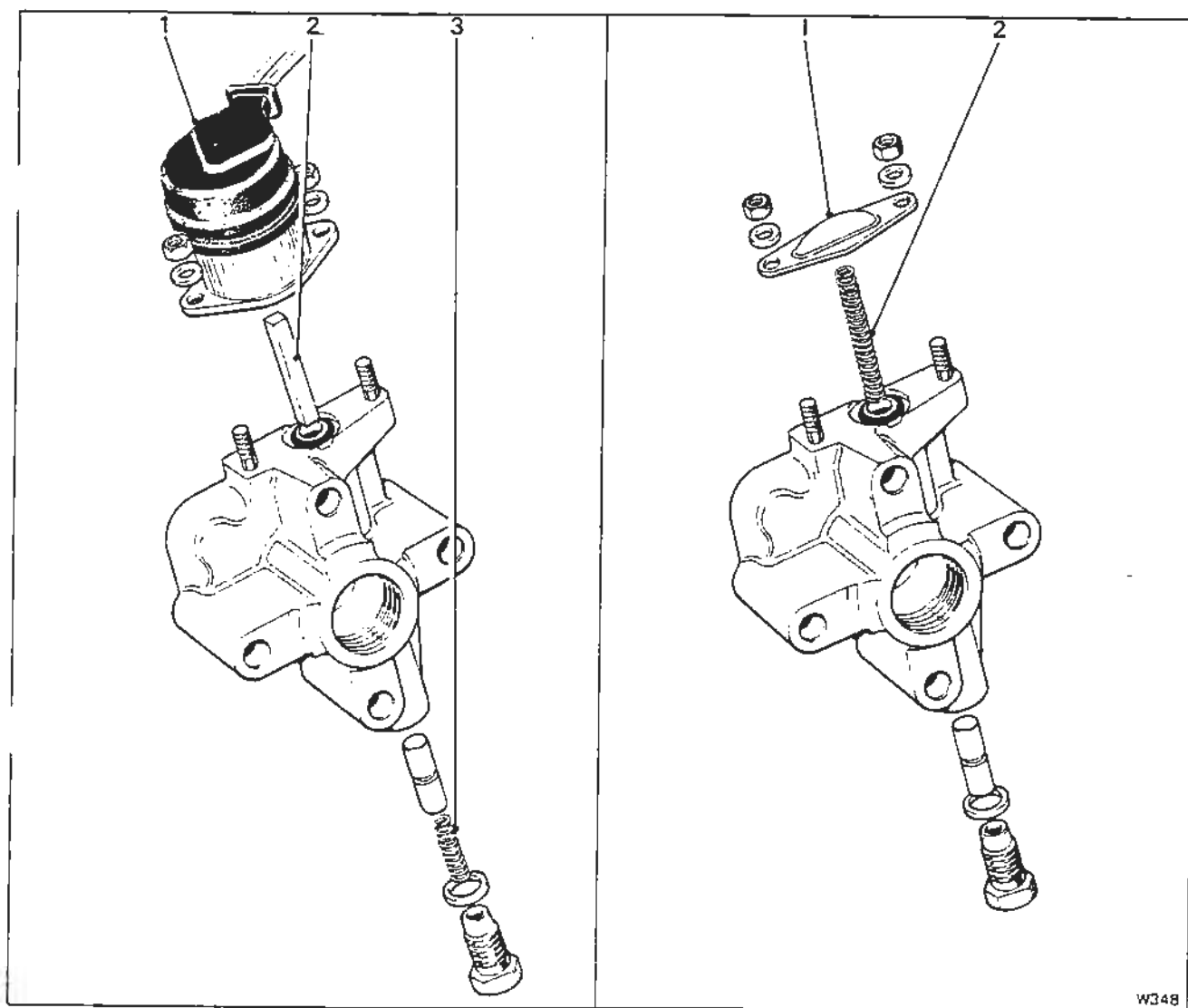


FIG. 1 EARLIER ASSEMBLY

- 1 Solenoid
- 2 Push Rod
- 3 Spring

FIG. 2 LATER ASSEMBLY

- 1 Blanking Plate
- 2 Spring

CATEGORY 3

S.U. FUEL PUMP

DESCRIPTION

Owing to a number of complaints of fuel pump failure, due mainly to contact points eroding and becoming dirty, a modification has been introduced which increases the service life of the contact points and consequently the pump. This modification consists of a small condenser connected directly across the contact points to reduce the arcing which occurs as the points break. The present condenser fitted outside the pump for radio suppression is still retained.

It is recommended that the modification be carried out when the car requires a scheduled service. It is advisable when the modification is carried out that the contact points be examined and if necessary either cleaned or renewed.

Due to recent service experience, it is considered that fuel pump contact points are consumable, and therefore, that the customer be charged accordingly.

APPLICABLE TO:

All S3 cars prior to the following chassis numbers.

Bentley S3	B 304 CN
Bentley S3 L.W.B.	BAL 6
Silver Cloud III	SCX 513
Silver Cloud III L W B	CBL 41
Bentley Continental S3	BC 160 XA

In addition to the above cars, the modification is also applicable to the following cars.

Bentley S3

B 306 CN to B 326 CN inclusive  
 B 330 CN to B 348 inclusive.  
 B 352 CN    B 370 CN    B 450 CN    B 452 CN    B 456 CN  
 B 458 CN    B 460 CN    B 462 CN    B 464 CN

- 2 -

Silver Cloud III

SCX 515 to SCX 565 inclusive.

SCX 569

SCX 573 to SCX 613 inclusive.

SCX 617 SCX 619

SCX 625 to SCX 647 inclusive.

SCX 651 SCX 653

SCX 659 to SCX 669 inclusive.

SCX 675 SCX 677 SCX 681 SCX 689 SCX 695 SCX 719

SCX 723 SCX 727 SCX 763 SCX 773 SCX 775 SCX 789

SCX 791 SCX 793 SCX 809 SCX 821 SCX 835 SCX 837

SCX 841 SCX 845 SCX 847 SCX 851 SCX 853 SCX 855

SCX 859 SCX 861

Silver Cloud III L.W.B.

CBL 45 CBL 49 CBL 51 CBL 53 CBL 57

PROCEDURE

Disconnect the battery.

Remove the fuel pumps.

Examine the contact points. If these are badly pitted or worn, a new set should be fitted. It should be noted when re-assembling the pump that the diaphragm settings from the 'toggle-over' position should be as follows;

<u>Part number</u>	<u>Setting</u>
UD.1327	6 holes
UD.8137	8 holes
UD.8737	8 holes

It should also be noted, that when refitting the coil housing, the number on the identity label should be altered to read AUA 149.

If the points are only slightly worn, they can be cleaned effectively using a fine carborundum stone. Extreme care should be taken when cleaning the points, as the Tungsten layer on the points is only 0.025 in. thick.

No attempt should be made to remove pitting, as this will only reduce service life.

- 3 -

Condenser - To fit

Remove the screw which secures the earth wire of the contact breaker rocker arm.

Fit the spring clip (CD.3421) to the end moulding, securing it with the screw. It should be noted that the earth wire should be fitted directly under the head of the screw, and that the spring clip should be fitted between the earth wire and the 'Thackray' washer. Insert the condenser (CD.3422) into the spring clip.

Slacken the screw which secures the spring blade of the contact set.

Insert the spade terminal of the condenser lead between the washer and the contact breaker main feed connection, then retighten the screw ensuring that the contact points make full face contact.

Fit the special end cover (CD.3423).

Seal the end cover to the coil housing with a length of plastic self-adhesive tape.

Refit the fuel pumps to the car and connect the battery.

SERVICING PROCEDURE

Every 24,000 miles

On fuel pumps fitted with the additional condensers, the contact points should be renewed.

MATERIAL REQUIRED

<u>Description</u>	<u>Part number</u>	<u>Quantity</u>
Clip	CD.3421	2
Condenser	CD.3422	2
Cover	CD.3423	2

FOR INFORMATION

FUEL PUMP DIAPHRAGMS

It is a known fact that fuel containing lead, i.e. 'Premium' or '100 octane' fuel, has a harmful effect on fuel pump diaphragms, if the car is left standing for any length of time. It is therefore advisable, that if a car is to stand in a showroom or service station for any length of time, the fuel tank and fuel system should be completely drained. A small quantity of 'lead-free' fuel, i.e. 'Regular' or 'Pool' grade, should then be put into the fuel tank and circulated throughout the fuel system. This can be achieved by switching on the ignition and allowing the fuel pumps to prime the system.

FOR INFORMATION

FLOODING CARBURETTORS - S3 CARS

INTRODUCTION

A number of complaints of carburettor flooding on S3 cars are still being received. This Bulletin is issued to clarify the situation and to give Service Personnel an insight into what has been done and what can be done at a Service level to rectify these complaints.

Briefly, the improvements and modifications to the fuel system introduced on S3 cars to date are as follows.

Fuel tank

At the completion of S2 car production, investigations proved that a number of complaints of carburettor flooding were caused by particles of flux obstructing the needle valve in the carburettor float chamber and holding it open. The flux was found to have come from the fuel tank, where it had been used during the construction of the tank. The manufacturer of the fuel tank was then requested to introduce a more thorough washing procedure to ensure that all trace of flux was removed.

At the same time, steps were taken within the factory to ensure that all the fittings in the fuel line were cleaned more thoroughly.

Carburettor

Applicable to all S3 cars prior to the following chassis numbers

Silver Cloud III	LSDW.65
Silver Cloud III L.W.B.	CCL.5
Bentley S3	B.508.CN
Bentley S3 L.W.B.	BAL.10
Bentley Continental S3	BC.12.LXB
Phantom V	5.VA.91

After production of cars with these chassis numbers, a modified float chamber lid was introduced which considerably improved the geometry of the

lever and the needle valve so that there would be no side forces imposed on the needle. In addition, a new spring-loaded needle valve was fitted to withstand vibrations; this valve has a silver-steel head with a smoother surface finish than the older type and the sides of the needle are encased in Delrin, the outer bearing surface being fluted to provide a smooth close clearance in the guide. This ensures that there is no cross-binding of the needle valve and that under all conditions the needle valve seats squarely.

#### Carburettor vent pipe

Applicable to all S3 cars.

During December of this year, a modified vent pipe arrangement will be introduced on S3 cars to allow the engine to run while the carburettor is flooding.

The complaint of carburettor flooding is made more serious by the fact that the engine usually stalls and will not easily restart. It has been established that one reason for this is that the surplus fuel passing through the vent pipes under flooding conditions creates a depression in both float chambers and the engine stalls as a result of weak mixture. The modified vent pipe arrangement reduces the depression in the float chambers under such conditions and allows the engine to run reliably.

Note Since this Bulletin is issued primarily for Retailers information, it should be noted that there may be a few weeks delay in obtaining the modification kits.

#### ACTION TO BE TAKEN

In the event of a customer complaint of carburettor flooding, where time is usually at a premium, it has to be decided which course of action would give the greatest relief from subsequent flooding. Therefore, these actions have been listed in priority of 'flooding rectification ability'.

- 1 The modified vent pipe arrangement - Modification kit RH 2521
- 2 The 'improved geometry' float chamber lid comprising the following assemblies  
 Assy lid and hinged lever 'A' bank CD 3549  
 Assy lid and hinged lever 'B' bank CD 3548



It should be stressed that, if time is available, both actions 1 and 2 MUST be carried out to ensure freedom from subsequent flooding complaints.

- 3 Thoroughly clean the fuel tank, main filter, fuel pump filter and pipe lines.

This last action should only be carried out if adequate time is available, or if both the other two actions have been previously carried out.

Note If a car has been involved in an accident and is undergoing subsequent repair work, the fuel tank and fuel lines should be cleaned, since dirt will have been shaken into the system.

#### PROCEDURE

##### 1 - Carburetter vent pipe

Place the car on a ramp or over a pit.

Disconnect the battery.

Remove the right-hand undertray.

Remove the existing lower vent pipe.

Remove the bell housing vent pipe clip, plate and the clip support bracket.

Fit the new clip support bracket to the bell housing; note that the new clip is not secured by the same two bolts which secured the old clip, but by the middle bolt of the three on that side of the bell housing and by the one nearer to the engine crankcase. It should also be noted that the clip mounting face lies parallel with the gear control rod.

Fit the new lower vent pipe using the new clip and plate. The new vent pipe is clipped to the right of the manifold drain pipe and must lie in front of the gear control rod.

Refit the undertray and reconnect the battery.

Material required

<u>Part number</u>	<u>Description</u>	<u>Quantity</u>
RH 2321	Vent pipe modification kit consisting of the following parts	1
RH 7575	Vent pipe assembly	1
UE 31288	Plate	1
UE 31287	Clip	1
UE 31312	Bracket	1

2 - The 'improved geometry' float chamber lid

Disconnect the battery.

Disconnect the float chamber fuel feed and vent pipes.

Remove the float chamber lid.

Remove the fuel feed adaptor and filter from the obsolete float chamber lid and fit them into the modified float chamber lid after first cleaning the filter.

Fit the modified float chamber lids.

Reconnect the fuel feed and vent pipes.

Reconnect the battery.

Material required

<u>Part number</u>	<u>Description</u>	<u>Quantity</u>
CD 3548	Assembly lid and hinged lever 'B' bank consisting of the following parts	1
CL 3512	Lid 'B' bank	1
CD 3513	Hinged lever	1
CD 3514	Needle valve and seat	1

<u>Part number</u>	<u>Description</u>	<u>Quantity</u>
CD 3549	Assembly lid and hinged lever 'A' bank consisting of the following parts	1
CD 3511	Lid 'A' bank	1
CD 3513	Hinged lever	1
CD 3514	Needle valve and seat	1

### 3 - Cleaning the fuel system

Place the car on a ramp or over a pit.

Disconnect the battery.

Drain the fuel into a clean container.

Remove and clean the fuel tank.

To clean the fuel tank, proceed as follows

Wash the tank thoroughly in boiling or near boiling water, which will remove any residual welding flux.

Rinse out with methylated spirits and dry with a compressed air line.

Note This procedure involves considerable fire risk and should be done in a 'fire controlled area', preferably outside.

Remove and clean the main fuel filter, fuel pump filters, float chamber filters and all the inter-connecting pipes.

Refit the complete fuel system to the car.

Refill the fuel tank after first straining the fuel.

Reconnect the battery.

After the complete assembly of the fuel system onto the car, it is recommended that the system be flushed in the following manner.

Continued...

Fuel system - To flush

Disconnect the flexible fuel pipe where it joins onto the engine fuel pipe system. Switch on the ignition and allow the fuel to pump through the system into a container for approximately 3 minutes and at the same time lightly tap the fuel system to shake any dirt loose. This will flush out any foreign matter which entered the system during re-assembly.

Note It is recommended that this 3 minute flushing operation (not the complete cleaning operation) be carried out every time any component in the fuel system has been disturbed, i.e. during Service Schedules, fuel pump changes etc.

Extreme care should be taken during this flushing operation to ensure that the fuel does not spill into the engine compartment. Although this is common workshop practice, considerable fire risk is involved.

Reconnect the fuel line.

FOR INFORMATION

FLOODING CARBURETTORS - S3 CARS

This Service Bulletin is issued as a follow up to Service Bulletin S3/K3 - Flooding Carburettors, and is intended primarily to advise Retailers and Service Personnel of the latest facts concerning flooding carburettors, arising through service experience of this complaint. This Bulletin is not intended to supersede Service Bulletin S3/K3 in its entirety but only in the points raised.

Briefly these are as follows

1. It is considered that the most positive way of relieving the effects of carburettor flooding is to fit the modified vent pipe arrangement, and consequently it is recommended that this is the first step to take in complaint cases.
2. Service experience and investigation into the flooding carburettor complaint has revealed that an old type of carburettor lid (assemblies prior to CD.3548/9) fitted with the new nylon encased needle and seat is just as effective in preventing the usual causes of carburettor flooding as the latest 'improved geometry' type. It is therefore NOT necessary in complaint cases to change the float chamber lid assembly, but just to fit the nylon encased needle and seat (CD.3514) irrespective of the float chamber lid type.

This is not saying that the new float chamber lid is not a logical improvement on the older type for new cars but simply that the improvement is not significant enough to warrant the expense of replacing old lids with new ones on cars already in service.

Again it must be emphasised that these measures should only be carried out in the event of a customer complaint, particularly since the modified vent pipe kit is in short supply.

All the other information in Service Bulletin S3/K3 still applies.

CATEGORY 2

ISOLATING LINK FOR THROTTLE CONTROLS

APPLICABLE TO:

All S3 left-hand drive COACHBUILT cars prior to the following Chassis No.

Silver Cloud III	L.SGT.631.C.
Continental S3	B.160.LXC.
Phantom V	S.L.VD.15.

DESCRIPTION

This Bulletin is to inform Retailers and Service Personnel that on a number of S3 left-hand drive COACHBUILT cars there is the possibility that the isolating link which steadies the throttle control linkage may have been fitted incorrectly.

The isolating link, when fitted in the reverse position lies directly beneath the footbrake pedal and can cause a foul if the brake pedal travel becomes excessive. This is only a hazard if the servo connection to the rear brakes fails and the servo has to rely on the servo 'on - stop' mounted on the chassis frame for its operation. In this circumstance the brake pedal will foul the link before the servo lever strikes the servo 'on - stop', rendering all footbrakes inoperative.

Retailers and Service Personnel should therefore check all suspect S3 left-hand drive COACHBUILT cars domiciled in their area for this fault, at the earliest opportunity.

The link must be fitted so that the forging number of the piece, faces away from the bell housing. In this position the longer straighter portion of the isolating link is towards the bottom as shown in Figure 1.

Continued....

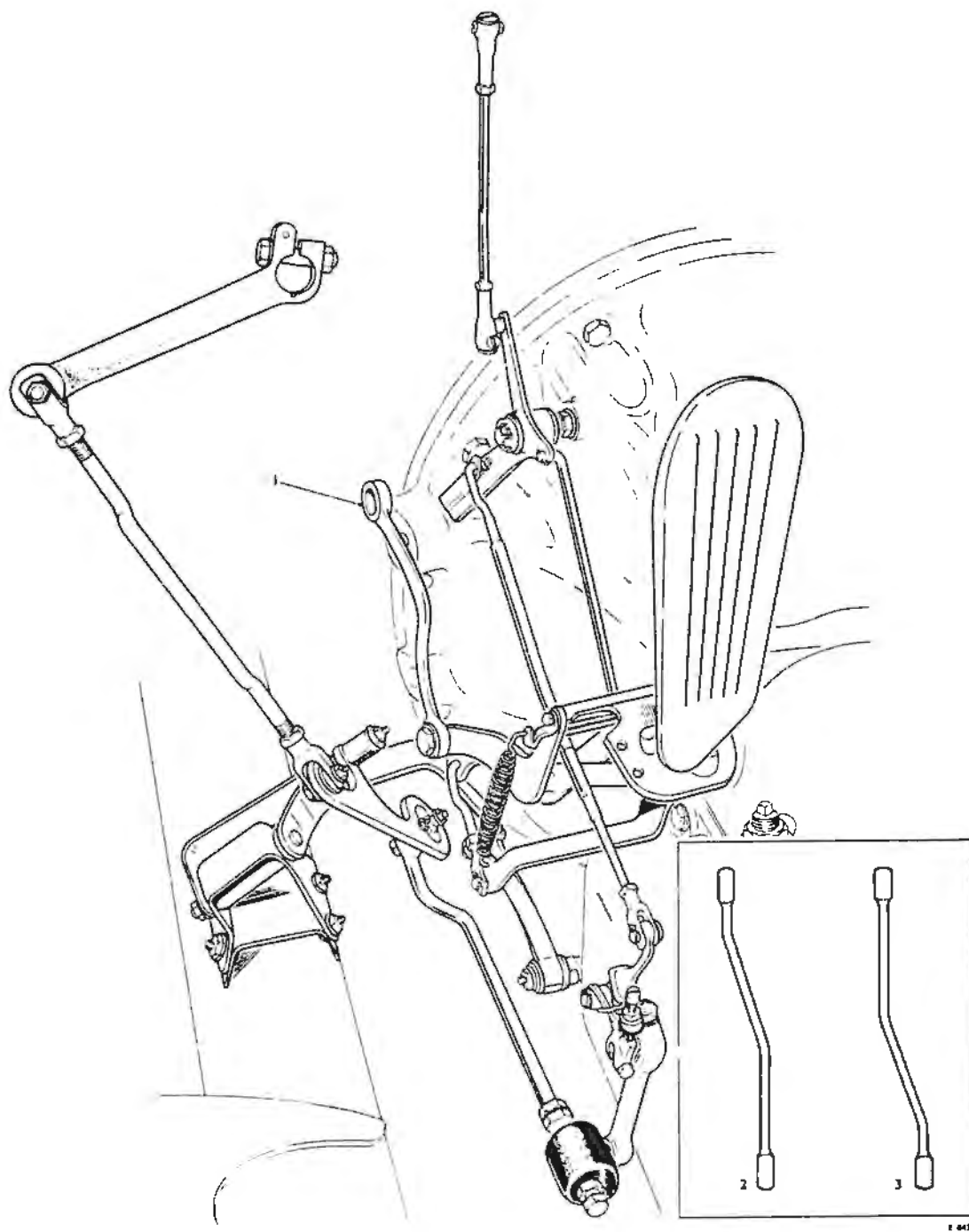


Fig.1 Correct position of the isolating link

1. Isolating link (UE 8090)
2. Correct view

Inset. Position of isolating link viewed from  
above

3. Incorrect view

FOR INFORMATION

S.U. FUEL PUMPS

This Service Bulletin cancels all previous Bulletins which have been issued concerning fuel pumps, with the exception of S3/K2.

DESCRIPTION

To improve the performance of the fuel pump, a 'barrier' type diaphragm has been incorporated. This barrier comprises an extra 0.003 in. layer of nylon added to the original diaphragm and minimises petrol vapour penetration of the diaphragm.

Previously, servicing of the fuel pumps has not been clearly defined and in future, the following service instructions must be strictly adhered to, in order that maximum life be obtained from the pumps.

1. The seal must not be broken as this will render the warranty void.
2. Every 6,000 miles an independent electrical check should be carried out to ensure the correct operation of both halves of the fuel pump.
3. Every 24,000 miles, the fuel pump should be removed from the chassis.

If the pump is fitted with a condenser and/or 'barrier' type diaphragm and there are no signs of outward defects it should be tested as outlined below.

If the pump is not fitted with a condenser, it should be rejected and a replacement unit fitted.

Fuel pumps fitted with a condenser can be identified by their stepped top whilst pumps without a condenser have a plain top.

FLOW TEST

The flow test should be carried out as described in the Workshop Manual (TSD 729) and its Supplement (TSD 2003) but with the following alterations.

- (a) Each half of the pump should be operated independently at 13.5 volts and should pass one pint of paraffin in 56 seconds.

continued...



-2-

- (b) A restriction should be applied to the outlet of the pumps, reducing the flow to one pint of paraffin in 8 minutes when both pumps are operating. Check the operation of the pumps and should buzzing occur, the pumps should be rejected. Buzzing occurs when the pumps are operating quickly without doing any work, because the sponge of the diaphragm is equal to the stroke of the pump.

A pump which fails the flow test should be returned through the normal channels to Rolls-Royce, in exchange for a reconditioned unit. A faulty components label should be attached to the pump and must be correctly completed, stating the Chassis no. etc.

APPLICABLE TO:

- i Fuel pumps fitted to cars prior to the following Chassis numbers are not fitted with condensers.

Silver Cloud III	SCX.863
Bentley S3	B.466.CN
Silver Cloud III L.W.B.	CBL.55
Bentley S3 L.W.B.	BAL.6
Bentley Continental S3	BC.160.XA
Phantom V	5.VA.83

- ii Fuel pumps fitted to cars following the above Chassis numbers are fitted with condensers.

- iii Fuel pumps fitted to cars after the following Chassis numbers are fitted with a 'barrier' type diaphragm.

Silver Cloud III	LSJR.513
Bentley S3	B.226.HN
Silver Cloud III Coachbuilt	LCSC.378
Bentley Continental S3	BC.36.XE
Phantom V	5.VD.95

Replacement pumps are chargeable to the Owner, as reconditioning was in the past.

FOR INFORMATION

AUTOMATIC CHOKE STOVE PIPES - S3 CARS

APPLICABLE TO:

All S3 series cars built prior to the following chassis numbers.

Silver Cloud III	SKP.139
Bentley S3	B.308.HN
Silver Cloud III L.W.B.	CFL.5
Bentley S3 L.W.B.	BCL.12
Bentley Continental S3	BC.42.XE
Phantom V	5.VE.1
Silver Cloud III Coachbuilt	CSC.71

DESCRIPTION

During recent investigations into engine running complaints in service it has been found that the most serious individual cause of complaint is oil blockage of the stove pipes which feed air to the bi-metal coil in the heat sink housing. If these pipes become blocked, the choke opening period will be delayed causing the choke to 'hang-on'. This Service Bulletin is issued to advise Retailers and Service Personnel that a modified stove pipe inlet adaptor which prevents oil entering the stove pipes is now available.

The trouble is caused by the close positioning of the enclosed crank-case oil breather outlet alongside the air intake to the stove pipes in the butterfly housing. The oil mist emitted by the engine crankcase breather is drawn into the stove pipes thus preventing the flow of hot air to the bi-metal coil housing and causing the bi-metal coil to delay or prevent the opening of the choke butterfly. This eventually gives rise to many of the running complaints associated with the Vee-Eight engine, e.g. poor cold start, stalling, incorrect choke operation, hesitation, poor performance, poor fuel consumption, etc.

It has been found that by placing the stove pipe intake forward of the enclosed breather outlet, the ingress of oil into the stove pipes is prevented. This modification is achieved by fitting an inlet adaptor

Continued...

having a curved inlet pipe which faces directly into the incoming air stream, carrying the inlet forward of the breather outlet. This is shown in Figure 1.

It is strongly advised that in all choke complaint cases the stove pipes are checked for oil blockage and that the new inlet adaptor is fitted.

The presence of oil in the choke stove pipes can be readily detected by removing the bi-metal coil housing and inspecting the bi-metal coil which is usually very oily in appearance.

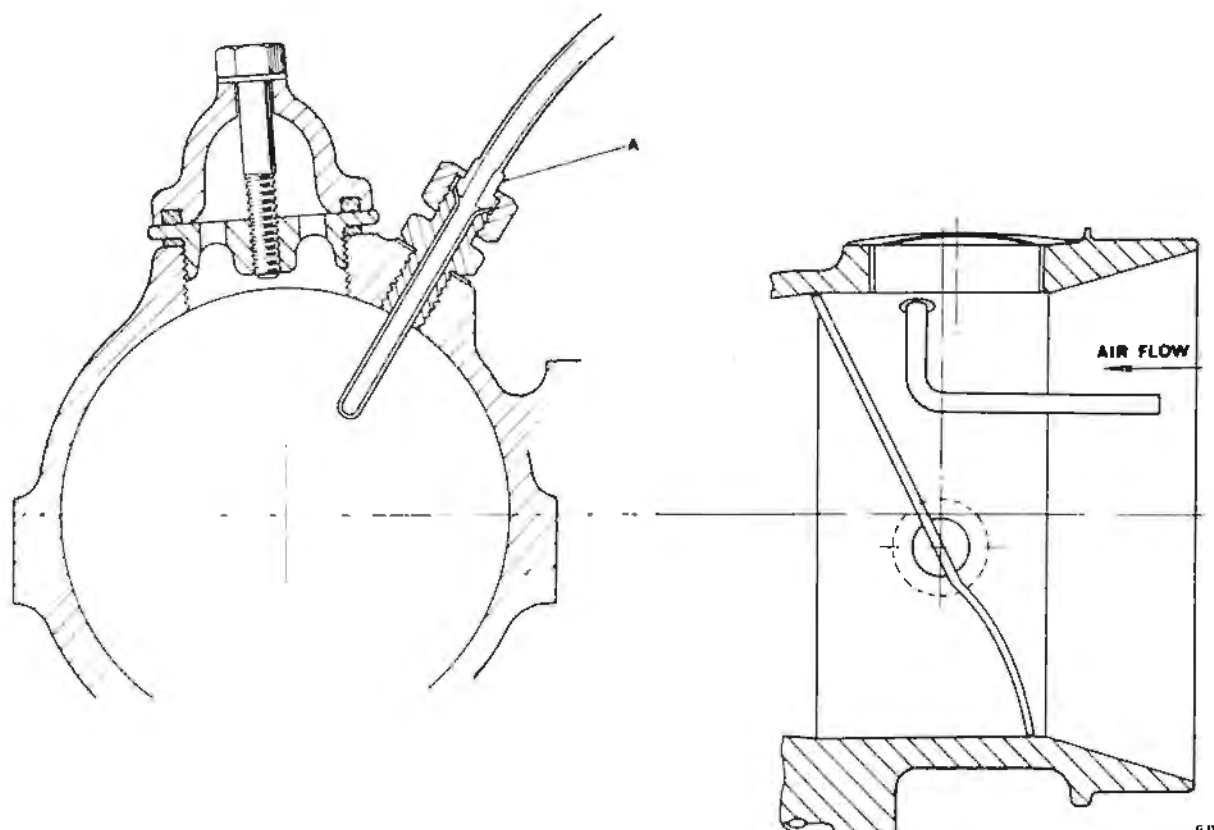


Fig.1 Diagram showing the stove pipe intake fitted forward of the oil breather outlet. 'A' shows the stove pipe nipping the swaged end of the new inlet pipe.

Continued...

PROCEDURE

1. Remove the air silencer trunking from the butterfly housing.
2. Disconnect the choke stove pipes.
3. Blow out the stove pipes with compressed air.
4. Remove the choke stove pipe inlet adaptor. This is the uppermost one and is adjacent to the enclosed crankcase oil breather outlet.
5. Fit the modified inlet adaptor.
6. Remove the bi-metal coil housing and remove the heat sink.
7. Remove the bi-metal coil and thoroughly clean the coils.
8. Fit the bi-metal coil and heat sink.
9. Fit the choke stove pipes making sure that the inlet stove pipe nips the new inlet pipe in the forward position as shown in Figure 1.
10. Set the choke and carburettor as described in Chapter K of the Workshop Manual.

MATERIAL REQUIRED

<u>Part Number</u>	<u>Description</u>	<u>Quantity</u>
UE 32834	Pipe Assembly	1 off

TIME ALLOWED             $\frac{1}{2}$  hour.

FOR INFORMATION

VEE EIGHT ENGINE RUNNING COMPLAINTS

Over the past year a number of complaints of engine misbehaviour have been received. Many of these complaints are very misleading, and much time and energy can be wasted in trying to solve them. In an attempt to cut out unnecessary work, a Service Instruction has been drawn up which directs attention to all those items which are known to cause misbehaviour in Service.

In drawing up this instruction it is not presumed to tell Retailers and Service Personnel what they already know but to try to collect all available evidence into a standard diagnosis procedure in an effort to improve the general standard of engine running in Service.

The complaints which are embraced by the general term engine running complaints are as follows.

Misfires	Poor slow-running
Hesitations and flat spots	Incorrect idle-speed
Stalling	Sticking fast-idle cam
Poor cold starting	Poor performance
Poor warm starting	Fuel consumption poor
Incorrect choke operation	

It is suggested that whenever an engine running complaint is received, and the cause is not clearly obvious, that there are ten checks which should be carried out as a matter of routine. These checks are listed in two groups of five; the first group to be carried out when the engine is cold and stationary and the second group to be carried out when the engine is fully warm and running.

With the engine stationary, proceed as follows:-

1. Remove the carburetter dashpots and check that they are clean and that the pistons slide freely. Replace them and check that each piston falls freely onto the bridge with a soft metallic click, indicating that there is no contact between the needle and jet.
2. Check that the fast-idle cam is free on its pivot.

Continued...

3. Remove the choke stove pipes and inspect the ends for blockage. Blow out the pipes with compressed air, then fit them. If facilities are available the air flow through the pipes should be checked with the engine running. If a manometer is used the measurement of the pressure head should be between 14 and 17 in. at 500 r.p.m.
4. Inspect the condition of the contact breaker points and check the gap setting. The gap setting should be between 0.014 in. and 0.016 in. (0.256 mm. and 0.406 mm.). Renew if necessary.
5. Remove the sparking plugs and clean and re-set the gaps to 0.025 in. (0.635 mm.).

The car should now be driven on the road and the engine thoroughly warmed.

With the engine thoroughly warm:-

6. Check the ignition timing at tickover. This is best done with a stroboscope (Churchill Auto-Timer, Crypton Auto-Flash etc.) with the engine running. The tickover speed for this check should be set in the region of 475 to 500 r.p.m. If, for any reason, it is not possible to carry out a stroboscopic test, a stationary check will suffice.
7. Check the mixture adjustment as described in the S3 Workshop Manual Supplement on Page K4S.
8. Check the tickover speed, which should be set with the throttle stop screw to the maximum speed possible without causing the car to creep in gear. The speed is usually between 475-500 r.p.m. in neutral and 450-475 r.p.m. in gear.
9. Check the carburetter butterfly synchronisation. With the tickover set correctly, cut out each carburetter in turn by lifting the piston. The drop in engine r.p.m. should be equal for each carburetter. Refer to Chapter K of the Workshop Manual if it is necessary to make any adjustments.
10. Check the fast-idle speed.

Continued...

Note 1 The choke must be triggered with the engine switched off. The choke should be held closed and the throttle depressed and released. This is most conveniently done at the rear of the fore and aft manifold shaft.

Note 2 Any change to the carburettor setting or ignition timing will affect the T.V. setting and this must always be re-set on the road after such work has been carried out.

These ten routine checks should cure the majority of engine running complaints, however, where these 10 checks do not cure the complaint, further action must be taken and it may help to consult the following list of items which may cause trouble.

1. Scintilla switch. If this has failed, it will result in the solenoid holding the choke on for too long after a cold start. (Note. This is only applicable at temperatures below 10°C.) This will cause extreme richness and will probably stall the engine.
2. Bi-metal coil loose. Occasionally the ends of the coils become displaced from their anchorage and the choke butterfly will be uncontrolled.
3. Fuel starvation and hence lack of performance can be caused by blockage of the fuel filter, or by the failure of one of the fuel pumps.
4. A number of running complaints arise from various faults found in the distributor. These are as follows:-

For all references, see Figure 1

1. Trapped L.T. and earth leads

It is possible for the braided L.T. lead which connects the condenser to the terminal on the side of the distributor, and the braided earth lead which runs from the distributor base to the rivet which secures the cam lubricating pad, to become trapped between the distributor cap and body when the cap is fitted.

If the L.T. lead is trapped it will eventually cause a short circuit between itself and the distributor body, thus stopping the engine.

A trapped earth lead will not necessarily stop the car, but may cause the rotor arm to foul the segments within the distributor cap.

Continued...

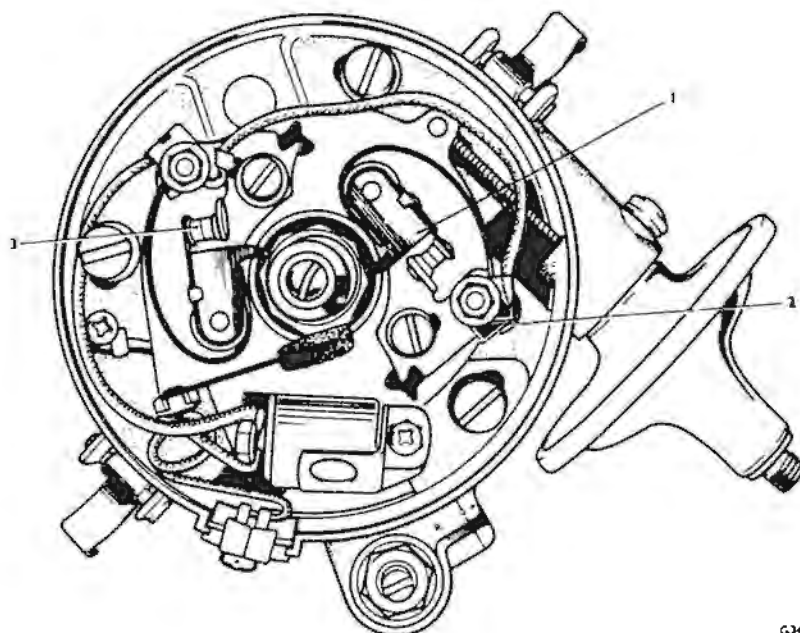


Fig.1 Internal view of distributor

- 1 Contact breaker points
- 2 Incorrectly positioned connecting wire tab
- 3 Contact breaker points

## 2. Loose rivet

Several S3 distributors have been found to have a loose rivet on the 'lubrication pad spring/earth wire' post. A bad earth wire contact at this point can cause misfiring.

The rivet can be tightened in situ by squeezing it with a pair of pliers.

A number of distributors were also fitted with the lubrication pad spring arm secured by a rivet which was too small in diameter. These eventually work loose resulting in a bad contact for the earth wire at this point.

The rivet should be replaced with one of the correct size.

## 3. L.T. lead fraying

The internal braided L.T. lead which runs from the nylon insert on the side of the distributor to the condenser can become very frayed on that

Continued...



part adjacent to the nylon insert, and can possibly cause a short circuit to the distributor body.

Replace the lead taking care not to burn the new lead when soldering it to the terminal on the nylon insert.

4. Incorrect positioning of contact breaker points connecting wire tabs

(a) Contact breaker points (1) nearest to the vacuum advance unit

If this tab is positioned as shown by the dotted outline (see 2, Fig.1) it can, under certain light running conditions, when the vacuum unit is on full advance, cause a short circuit to the contact breaker housing securing screw. This results in a momentary loss of ignition.

Ensure that the tab is positioned correctly as shown in Figure 1.

(b) Contact breaker points (3) furthest away from the vacuum advance unit

If this tab is incorrectly assembled with the tab stop outside the contact breaker spring, a short circuit can occur at a certain stage of contact breaker points adjustment. This is when the fixed point is adjusted towards the moving point anchor stud.

Ensure that the tab stop is positioned inside the spring, thus making sure that the tab cannot foul the contact breaker fixed point at any position through its complete range of adjustment.

5. Contact breaker anchor stud assembly

If the washer which fits under the contact breaker points retaining nut is too large, it can cause a short circuit from the contact breaker points connecting wire tab on contact breaker point (3) to earth.

Fit a washer of the same diameter as the nylon insert.

Conversely, if the washer is too small and the retaining nut tightened too tight, the nylon insert can crack, eventually causing a short circuit from the live feed to the contact breaker point anchor stud.

FOR INFORMATION

CHANGING RADIATORS ON REFRIGERATION CARS

APPLICABLE TO:

All 'S' type cars.

INTRODUCTION

The following instructions are intended to assist Service Personnel, who have some elementary knowledge of refrigeration, to change a radiator matrix without completely discharging the system.

Service Personnel who are not familiar with items referred to in the instructions that follow, should refer to Refrigeration Manuals T.S.D.720, T.S.D.744 and T.S.D.723.

PROCEDURE

Radiator matrix - To remove

Forward seat the compressor low pressure service valve.

Start the engine and engage the compressor clutch.

Allow the engine to run for at least two minutes on fast idle then reduce engine speed to normal tick-over. Fully forward seat the high pressure service valve on the compressor then, switch off the engine immediately. The compressor will then be isolated from the refrigeration circuit.

Remove the radiator shell.

Remove the two setscrews retaining the high pressure service valve to the compressor, then fit a rubber bung into the open aperture in the compressor to prevent the ingress of dirt.

To obviate any significant loss of gas, the following operation should be carried out quickly and carefully.

Continued...

Just 'crack' loose the high pressure pipe connection on top of the condenser and swing the pipe upward and forward clear of the radiator matrix. Tighten the connection on the condenser.

Note During the aforementioned operation, it is important that the operator should wear protective goggles as liquid refrigerant could blow off from the connection if the connections are slackened too much or for too long.

Disconnect the radiator matrix then lift it vertically out of the engine compartment (see T.S.D.729 Workshop Manual - Chapter L - Engine Cooling System - Radiator - To remove).

#### Radiator matrix - To fit

Fit a new matrix by reversing the procedure given for its removal - test the system for leaks then reconnect the refrigeration system in the following manner.

Just 'crack' the high pressure pipe connection on the condenser and swing the pipe back into its normal position then, quickly tighten the connection.

Remove the rubber bung from the compressor then fit the high pressure service valve to the compressor and tighten the setscrews.

Just 'crack' open the low pressure service valve. Remove the cap nut on the high pressure service valve and allow the refrigerant gas to bleed through the compressor and out to atmosphere for about ten seconds; refit the cap nut on the high pressure service valve.

Remove the oil level checking plug in the compressor crankcase then, with the low pressure valve 'cracked' slightly open, allow the refrigerant gas to bleed from the crankcase; bleeding should last approximately 10 seconds. Refit the oil level checking plug.

Before running the engine, finally, fully back seat both the high pressure and low pressure service valves.

If the aforementioned instructions are carried out carefully, not more than  $\frac{1}{2}$  lb. of refrigerant will be lost.

FOR INFORMATION

ANTI-FREEZE MIXTURES

APPLICABLE TO:

All 'S' type cars

DESCRIPTION

In addition to the approved anti-freeze mixtures conforming to British Standard Specification 3150:1959 the following anti-freeze is also approved for use in all the above mentioned cars.

'Prestone' Anti-freeze (manufactured by Union Carbide Ltd.).

An approximate indication of the protection against frost ensured by differing amounts of anti-freeze in the system is given below.

Anti-freeze (%)	12.5	21.4	30.4	39.3
Freezing point °C.	- 6	-10	-16.5	-24
°F.	21.2	14	2.3	-11.2
Degrees of frost °C.	6	10	16.5	24
°F.	10.8	18	29.7	43.2

The maximum anti-freeze mixture in the system should not exceed 50% which will give protection down to -34°C. (-29.2°F.).

In addition to providing protection against frost, anti-freeze mixtures contain inhibitors to prevent corrosion in the cooling system, therefore, it is essential to use an anti-freeze mixture all the year round and in all parts of the world.

In hot climates a minimum of 25% anti-freeze mixture should be used in the engine cooling system; this, in addition to providing corrosion protection, raises the boiling point of the coolant.

Different brands of anti-freeze should not be mixed under any circumstances.

No. S3/L3

Circulation - All Distributors  
and Retailers

CATEGORY C

COOLING SYSTEM - THERMOSTATS

APPLICABLE TO:

All Rolls-Royce Silver Cloud and Bentley S Series cars, fitted with a wax operated thermostat.

DESCRIPTION

This Service Bulletin has been issued to advise Distributors, Retailers and Service Personnel that the wax operated thermostats fitted to the above cars, have a service life of two years.

These thermostats should therefore be changed every two years, the cost being chargeable to the owner.

PROCEDURE

It is recommended that the thermostat should be changed at the 2 Years Service Schedule, as this schedule calls for the removal of the thermostat to enable the cooling system to be reverse flushed.

When a thermostat has been replaced, one of the labels provided with the thermostat should be completed to show the date of the next change and attached to the engine in a conspicuous position. These labels are available from the Spares Department at Crewe, part number RH 8147, and read as follows.

Replace thermostat every  
two years

**Next change due:**

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ROLLS-ROYCE LIMITED

Continued...

It is emphasised that the 2 Years Service Schedule will only be carried out at the request of the owner and it is the responsibility of the Service Manager to advise the owner that the Service is due.

The part number of the thermostat which should be used for all replacements in the S series cars is UE 30193.

IMPORTANT Should an engine be suspected of overheating it is essential that the thermostat be changed.

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No.S3/L4  
Circulation - All Distributors  
and Retailers

CATEGORY C

COOLANT PUMP OVERHAUL

APPLICABLE TO:

All Rolls-Royce Silver Cloud III cars including L.W.B.  
All Bentley S3 cars including L.W.B. and Continental.  
All Rolls-Royce Phantom V cars from Chassis No. 5.VA.1.

DESCRIPTION

The purpose of this Service Bulletin is to advise Distributors and Retailers that a special adaptor is available for separating the bearing housing from the main casing of the coolant pump on the above cars.

By using this adaptor, in conjunction with a slide hammer, the bearing housing and pump casing can be separated without risk of damage, thereby eliminating the necessity for Distributors and Retailers to return these units to Rolls-Royce Limited for overhaul.

It is intended that the following is read in conjunction with Chapter L Section L5 of the Workshop Manual (T.S.D. Publication 729).

OVERHAUL PROCEDURE

1. Remove the coolant pump complete with the main casing from the engine as described on Pages L12 and L13 of the Manual.
2. Remove the coolant pump driving spider using the extractor tool (part No. RH 7099) as shown in Figure L18 of the Manual.
3. Remove the eight setscrews securing the coolant pump bearing housing to the main casing.
4. Fit the adaptor (part No. RH 7314) over the bearing spindle and onto the nose end of the bearing housing; locate the two extractor legs of the adaptor into the two gland drain holes in the bearing housing.

Continued...

- 2 -

5. Tighten the setscrews in the extractor legs sufficiently to secure the legs in the drain holes and tighten the adaptor steady screw onto the nose of the bearing housing; it is sufficient just to 'nip' the screws when tightening them.
6. Assemble the slide hammer (part No. RH 7313) onto the adaptor.
7. Operate the slide hammer in the approved manner noting that several applications may be necessary to effect separation of the housings.
8. Continue the coolant pump overhaul as detailed on Pages L14 to L18 of the Manual.

TOOLS REQUIRED

<u>Part number</u>	<u>Description</u>
RH 7099	Spider extractor
RH 7313	Slide hammer
RH 7314	Adaptor

For additional information concerning the slide hammer and the adaptor refer to Spares Information Sheet 2.A.2.



No. S3/L5

Circulation - United Kingdom Distributors  
and Retailers only

CATEGORY C

ENGINE COOLANT ANTI-FREEZE

APPLICABLE TO:

All Rolls-Royce Silver Cloud III cars including L.W.B.  
All Bentley S3 cars including L.W.B. and Continental.  
All Rolls-Royce Phantom V cars from Chassis No.5.VA.1 and onwards

DESCRIPTION

The Ford Motor Company have recently begun to market a new anti-freeze solution under the trade name 'Ford Anti-freeze'.

Only anti-freeze solutions conforming to British Standard Specification 3150 : 1959 are approved by Rolls-Royce Limited and since the Ford anti-freeze solution does not conform to this standard, it should NOT be used in the cooling system of any Rolls-Royce or Bentley manufactured car.

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FOR INFORMATION

S3 DISTRIBUTOR - TRAPPED L.T. LEAD

On early S3 cars there is a possibility that the L.T. lead, which connects the condenser to the terminal on the side of the distributor, may be trapped between the casing and the cap as the cap is fitted. This braided L.T. wire should be re-routed underneath the P.V.C. coated wire which goes from the condenser to the contact breaker terminal.

All early S3 cars should be checked for this fault at the first opportunity.

On current S3 cars the lead has been re-routed.

CATEGORY 3
SPEEDOMETER DRIVE CABLES
DESCRIPTION

An improved type of speedometer cable is at present being fitted to current production cars. The new cable has been designed to improve the operation of the speedometer, and to eliminate the factors that are likely to cause needle fluctuation. These factors are overcome by a new cable incorporating an improved inner cable and indicated clipping areas, which ensure that the run of the cable is kept as smooth and kink free as possible.

In cases of complaint due to speedometer needle fluctuation, the existing cable should be replaced with a new type of cable.

APPLICABLE TO :-

All S3 cars prior to the following chassis numbers.

Bentley S3	B 232 CN
Bentley S3 L. W. B.	BAL 6
Silver Cloud III	SCX 453
Silver Cloud III L. W. B.	CBL 9
Bentley Continental S3	BC 96 XA

In addition to the above cars, the modification is also applicable to cars with the following chassis numbers

Bentley S3

B 238 CN	B 248 CN	B 252 CN
B 254 CN	B 250 CN	B 262 CN
B 264 CN	B 272 CN	

Silver Cloud III

SCX 455	SCX 457	SCX 461
SCX 463	SCX 465	SCX 467
SCX 469	SCX 473	SCX 479
SCX 487	SCX 491	SCX 493
SCX 495	SCX 497	SCX 503
SCX 505	SCX 507	SCX 511
SCX 513	SCX 515	SCX 517

- 2 -

Silver Cloud III L. W. B.

CBL 11  
CBL 19

CBL 15

CBL 17

Bentley Continental S3

BC 98 XA  
BC 104 XA

BC 100 XA  
BC 106 XA

BC 102 XA

IDENTIFICATION

The new cable may be identified by two white plastic wrappings placed at approximately 1/4 and 1/2 way along the cable from the gearbox drive end.

PROCEDURE

Speedometer cable - To remove

Access to the drive end of the speedometer cable is gained beneath the car. It is therefore desirable that the car be placed on a ramp or over a pit.

Disconnect the battery.

Remove the facia panel.

Remove the speedometer head, taking care to note the position in which the various warning and illuminating lamp sockets are fitted.

Disconnect the speedometer cable at the gearbox drive end.

Remove the clips which support the speedometer cable on the frame and bulkhead; disconnect the earthing strip.

Withdraw the speedometer cable, together with the bulkhead grommet and seal from the engine side of the bulkhead.

New speedometer cable - To fit

Remove and inspect the clips from the old speedometer cable. Should the clip rubbers show any sign of deterioration, new clips will be required.

- 3 -

Fit the clips to the new cable, ensuring that the two clips nearest to the gearbox drive end are fitted in the positions denoted by the white plastic wrappers

Fit the speedometer cable to the car by reversing the procedure given for its removal and noting the following points.

The clip on the chassis frame and the lower of the two clips on the bulkhead MUST be fitted in the positions denoted by the white plastic wrappers.

If a kink occurs owing to the speedometer cable having to pass over the front near-side body mount, the clip on the chassis frame may be bent upwards to obviate the kink.

Finally, when fitting the cable to the speedometer head, ensure that the felt washer is in position.

#### MATERIAL REQUIRED

<u>Description</u>	<u>Part No.</u>	<u>Quantity</u>
Assembly - Flexible drive , Speedometer	UD 8675	1

When fitting the above new speedometer cable, would Retailers and Service Personnel please note that upon removal, the old speedometer cable MUST be returned to :-

Messrs Rolls-Royce Limited.,  
Spares Central Stores,  
Pym's Lane,  
Crewe

Guarantee claims will be accepted for the material and labour utilised

Time allowance      2 Hrs 15 Mins

FOR INFORMATION

AIMING THE FOUR HEADLAMPS

DESCRIPTION

To provide a satisfactory standard of lighting with the four headlamp system, it is essential to aim the headlamps correctly. To do this, two methods are available as follows

- 1 Using the Lucas Lev-L-Lite mechanical beam aimer.
- 2 Using the visual method, aiming the headlamps against a suitably marked screen or against a wall.

Of the two methods, the Lucas Lev-L-Lite mechanical beam aimer is recommended, as this provides quicker and more accurate beam aiming.

APPLICABLE TO

Bentley S3  
Bentley S3 L.W.B.  
Silver Cloud III  
Silver Cloud III L.W.B.

METHOD 1 - TO AIM THE HEADLAMPS USING THE LUCAS LEV-L-LITE BEAM  
AIMER

To enable Retailers and Service Personnel to identify the various pieces mentioned in the procedure, the Lev-L-Lite beam aiming kit comprises the following components.

- 2 Lev-L-Lite beam aimers, right and left-hand.
- 1 Transit, used to obtain the floor level correction factor.
- 1 Target, used in conjunction with the transit.

- 2 -

## PROCEDURE

Drive the car onto a flat area where the lamps are to be aimed. This area need not be level BUT must be flat.

Before aiming the headlamps it is necessary to adjust the two beam aimers to compensate for any out of level of the floor.

### Floor correction figure - To determine

Place the target on the floor by the right-hand rear wheel, with the 'TOP' mark uppermost.

Place the transit on the floor by the right-hand front wheel. Look through the viewer and adjust the transit until the target is visible.

Adjust the knurled screw on the back of the transit until the split image is aligned.

Turn the dial on the side of the transit until the spirit level on top of the transit is centred.

Read off the floor correction figure from the transit dial.

Using a screwdriver, adjust the compensating dial in the end of the right-hand beam aimer to read the same as the dial on the transit.

The right-hand beam aimer is now corrected for any out of level of the floor.

Repeat the operation on the left-hand side of the car.

## Settings

Using the Lucas Lev-L-Lite beam aimer the headlamps should be set as follows

	<u>Horizontal dial settings</u>	<u>Vertical dial settings</u>
Two inner lamps (main beam)	Zero	Zero
Two outer lamps (dipped beam)	Zero	1 division down

3 -

Headlamps To aim

Check the tyre pressures; these should be set at the recommended pressures.

Rock the car to equalise the suspension.

Check the headlamp units to ensure correct operation, then switch off the headlamps.

Remove the headlamp fairings and clean each headlamp lens with a damp cloth.

Position the two aimers on the outer two lamps ensuring that the smooth inner ring of the aimer is located squarely on the three aiming pads on each headlamp lens.

Rotate each aimer so that the sight openings face each other. Secure the aimers to the headlamp lens by pushing forward the sliding handle until the suction cup engages the headlamp lens. Draw the handle back until the spring catch locates.

Horizontal aim - To set

Set the RIGHT-LEFT dials on the aimers to zero.

Look through the viewing port of the right-hand aimer and check the alignment of the split image. If necessary rotate the aimer slightly to locate the target.

- (i) If the split images are aligned, the horizontal aim is correct.
- (ii) If the split images are not aligned, the horizontal aim is incorrect.

If the split image is not aligned, then turn the headlamp horizontal beam adjusting screw until the split image is aligned. To remove backlash make the final adjustment by turning the screw clockwise.

Repeat the above operations on the left-hand aimer and recheck the split image alignment in the right-hand aimer.



- 4 -

### Vertical aim - To set

Set the DOWN-UP dial at 1 division down.

Turn the headlamp vertical aim adjusting screw until the bubble in the spirit level is on the car side of the spirit level centre line. Turn the adjusting screw clockwise until the bubble is centred for correct aim and elimination of backlash

Repeat the setting procedure for horizontal and vertical aiming on the inner two lamps noting that the DOWN-UP reading for the inner lamp should be zero.

To remove the aimer, release the spring catch and push the sliding handle towards the headlamp.

Fit the headlamp fairings ensuring that the fairing does not foul the headlamp bezels.

After fitting the fairings, check the headlamp aim with the Lev-L-Lite beam aimers.

Important If the Lev-L-Lite beam aimers are dropped or damaged, they should be returned to the manufacturers for recalibration.

### METHOD 2 - TO AIM THE HEADLAMPS BY THE VISUAL METHOD

This method requires either a suitably marked wall and floor, or a movable screen. Of the two methods it is recommended that if possible the movable screen should be used, as it provides a more accurate means of positioning the car at right-angles to the aiming target.

#### Recommended method

The apparatus for use with this method should be constructed as follows

- 1 A matt white painted screen marked and made to the dimensions as shown in Figure 1. The screen should be movable and be provided with aiming blocks and cords, also shown in Figure 1
- 2 A cord anchorage peg which fits into the hole in the rear axle shaft. The peg should be made to the dimensions shown in Figure 1.

- 5 -

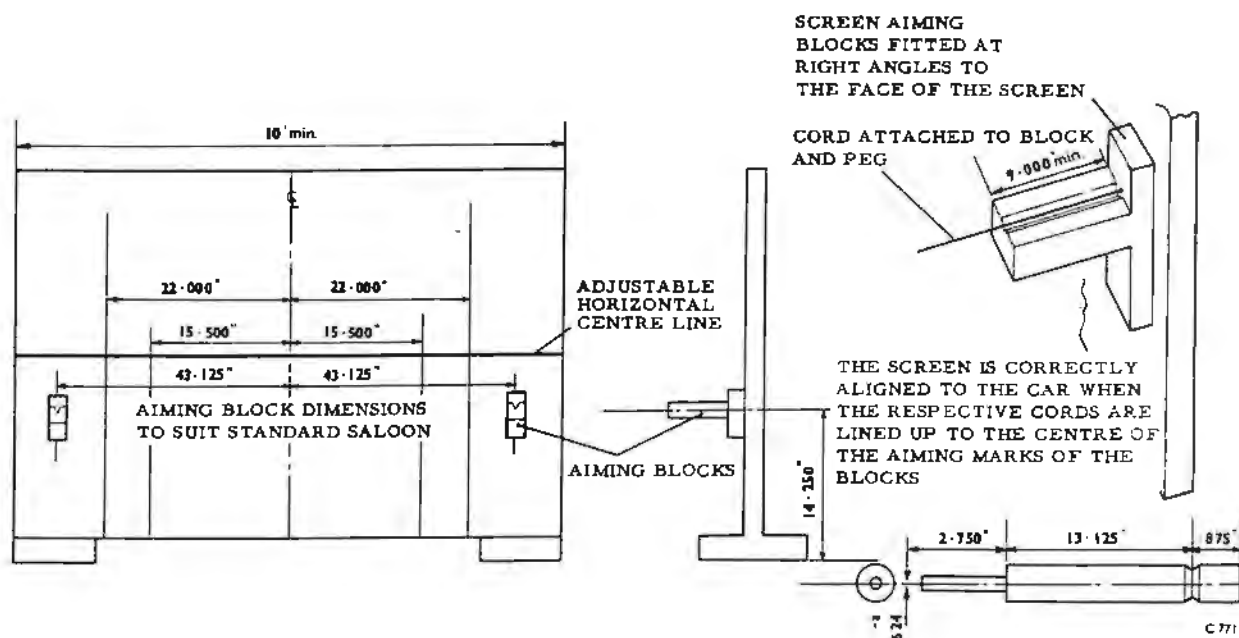


Fig.1 Headlamp aiming screen

Alternative method

A flat wall surface should be selected, preferably with a light coloured matt finish, with a flat but not necessarily level area of floor extending to 40 ft. in front of the wall. The wall and floor should be marked out as shown in Figure 2.

Headlamps - To aim

- 1 Check the tyres for recommended pressure and correct if necessary.
- 2 Remove the headlamp fairings.
- 3 Clean each headlamp lens with a damp cloth.

- 6 -

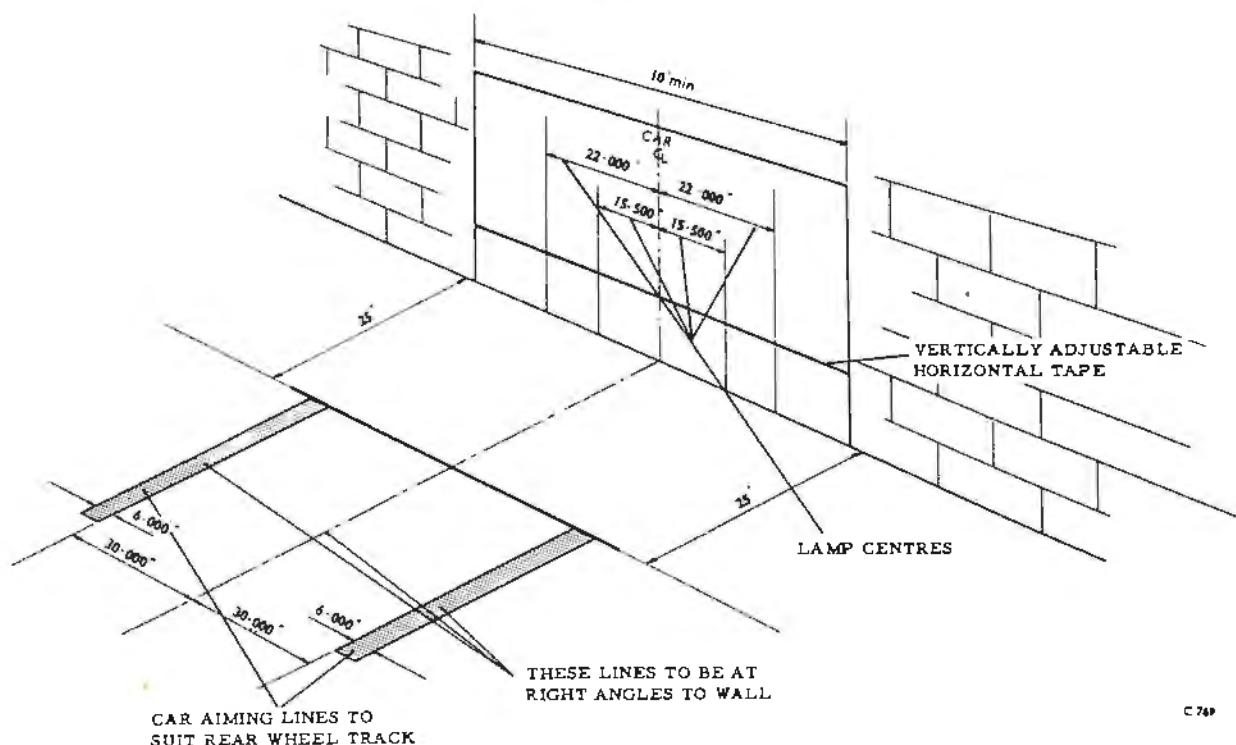


Fig.2 Headlamp aiming - wall markings

- 4a Using the recommended method, the screen should be placed square to the front of the car at a distance of 25 ft. as shown in Figure 3. This is achieved by removing the rear wheel discs and pushing the cord anchorage pegs into the holes in the rear axle shafts. The screen is moved back until the cords are taut and then sideways until the cords line up with the grooves in the aiming blocks.
- 4b Using the alternative method, manoeuvre the car onto the site selected until the headlamps are 25 ft. from the wall and the road wheels are correctly aligned with the lines on the floor. Because of the difference in front and rear wheel tracks, it should be noted that each front wheel should be  $\frac{3}{4}$  in. further inboard than the rear wheel.
- 5 Rock the car to equalise the suspension.
- 6 Measure the height of the centre of the headlamps above the ground and adjust the horizontal tape on the screen or wall to this height.

The car is now ready for the headlamps to be aimed.

The lamps should be aimed in pairs, i.e. the two outer lamps for the dipped beam, and the two inner lamps for the main beam. The outer pair of lamps must be covered over when aiming the main beam.

Inner lamps (main beam) - To aim

**Vertical aim:** The centre of the high intensity zone should be on the horizontal centre line, which represents the height of the lamp centres from the floor on which the car is standing.

**Lateral aim:** The centre of the high intensity zone should be on the vertical line straight ahead of the lamp centres.

Outer lamps (dipped beam) - To aim

**Vertical aim:** The top edge of the high intensity zone should be on the horizontal centre line, or not more than 1 in. below it.

**Lateral aim:** The right-hand edge of the high intensity zone should be 2 in. to the left of the vertical centre line, straight ahead of the lamp centres.

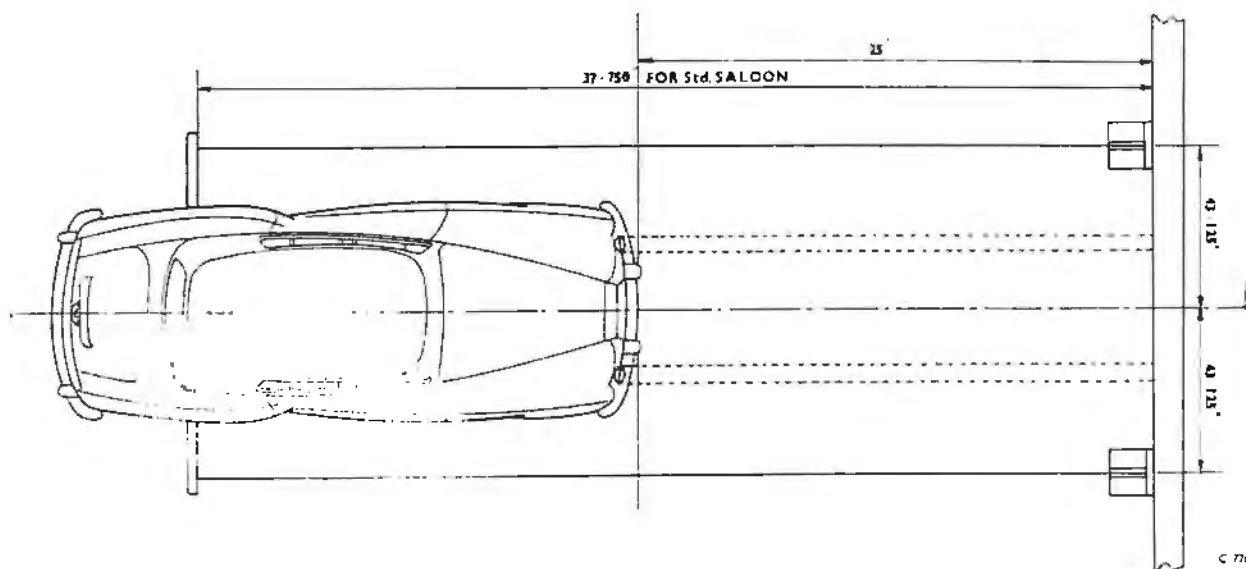


Fig. 3 Car and screen in position for aiming the headlamps

- 8 -

These beam aiming instructions cover right-hand drive cars. The lateral aim of the dipped beam is symmetrically opposite for left-hand drive cars.

It should be noted that when aiming the headlamps, any backlash on the adjusting screws should be eliminated by making the final adjustment in a clockwise direction.

Fit the headlamp fairings.

After fitting the headlamp fairings, check the aim of the headlamps.

---

FOR INFORMATION

S3 DISTRIBUTOR - LOOSE RIVET

Several S3 distributors have been found to have a loose rivet on the 'lubrication pad spring/earth wire' post. Bad contact for the earth wire at this point can cause misfiring.

The rivet can be tightened 'in situ' by squeezing it with grips.

All S3 cars up to the following chassis numbers should be checked for this fault at the first opportunity:

	<u>Chassis No.</u>
Silver Cloud III	SEV.177
Silver Cloud III L.W.B.	CCL.61
Bentley S3	B.98.LDF
Bentley S3 L.W.B.	LBAL.12
Bentley Continental S3	BC.34.XC
Phantom V	5.VB.21

CATEGORY 2

S3 STARTER MOTORS

APPLICABLE TO :

Silver Cloud III Standard and L.W.B. Saloons  
Bentley S3 Standard and L.W.B. Saloons  
Bentley Continental S3  
Phantom V

DESCRIPTION

Since a number of starter motors have failed on S3 cars, it has been decided to modify all S3 starter motors.

The failures are attributed to faulty brush material, and the symptoms are similar to those of a flat battery. The starter engages normally when the ignition key is turned, and then it either turns the engine sluggishly or else it refuses to turn at all. This loss of torque is thought to be due to high brush resistance, caused by the deterioration of the running surfaces of the positive insulated brushes. This surface has a rough sandy appearance with only one or two shiny spots, suggesting that there is very little rubbing contact between the brush and commutator.

A modified starter motor incorporating a new, reliable brush is now available. Retailers are requested to install the new starter motor on all cars in their territory at the next possible opportunity.

PROCEDURE

Starter motor - To remove

Place the car on a ramp or over a pit.

Disconnect the battery lead.

Remove the undershield attached to the frame side member beneath the starter motor.

If the car is a standard right-hand drive model with a chassis number later than B.738.CN, SDW.485 or CCL.43, remove the handbrake pulley bracket. Remove

the four 2BA. screws securing the pulley bracket to the frame then slide the pulley rearward along the cable.

Pull back the rubber cover which shrouds the terminal at the front end of the solenoid casing, then detach the heavy duty lead only.

Unscrew the setscrews retaining the starter motor and remove the motor by lowering it between the engine and the chassis frame.

#### ACTION TO BE TAKEN

##### United Kingdom

New starter motors should be ordered direct from the Spares Department, Rolls-Royce Limited, Crewe. Displaced starter motors must be returned immediately to Rolls-Royce Service Depot, Hythe Road, Willesden, London N.W.10 or, if more convenient, to the Spares Department, Rolls-Royce Limited, Crewe. Stocks of old starter motors held by Retailers should be returned to Hythe Road for exchange.

##### Overseas

New starter motors should be ordered from the local Lucas agent. Displaced starter motors should be returned to him together with stocks of old starter motors.

#### PART NUMBERS

The part number of the new motor with the modified brush gear is UD.8973. This will replace the defective UD.5692 on all S3 cars.

#### IDENTIFICATION

The new motor will have the Lucas part number 26209 A stamped on the casing, visible from underneath the car.

#### TIME ALLOWANCE

1 hour.



CATEGORY 2

S3 STARTER MOTORS

Further to Service Bulletin S3/M5, it should be noted that the chassis affected by the defective starter motor are

Silver Cloud III

SAZ 1 to SAZ 62  
SCX 1 to SCX 877  
SDW 1 to SDW 601  
SEV 1 to SEV 285

Silver Cloud III L.W.B.

CAL 1 to CAL 83  
CBL 1 to CBL 61  
CCL 1 to CCL 59

Bentley S3

B 2 AV to B 26 AV  
B 2 CN to B 828 CN  
B 2 DF to B 160 DF

Bentley S3 L.W.B.

BAL 2 to LBAL 14

Bentley Continental S3

BC 2 XA to BC 174 XA  
BC 2 XB to BC 100 LXB  
BC 2 XC to BC 46 XC

Phantom V

5 VA 1 to 5 VA 123  
5 VB 1 to 5 LVB 27

Continued ....

There will be a few exceptions to this list among the more recently produced chassis; e.g. around SEV 285 or B 160 DF. A more accurate identification is that every engine after crankcase number S 1775 is fitted with a modified starter motor, UD 8973, before leaving the factory. The crankcase number is stamped on the top of the crankcase at the front left-hand side end, and is situated approximately underneath the thermostat housing. Retailers should replace the starter motor on any S3 engine prior to crankcase number S 1776, with a modified starter motor.

#### Action to be taken overseas

Further to Service Bulletin S3/M5, Retailers should order their modified starter motors direct from the local Lucas agent. Displaced S3 starter motors and S3 motors already held in stock should be returned to the agent for exchange.

The Lucas agents are

<u>U.S.A.</u>	Lucas Electrical Services Inc., 501 West 42nd Street, New York 36, N.Y.
<u>Canada</u>	Joseph Lucas (Canada) Ltd., 1030 Birchmount Road, P.O. Box 603, Scarborough, ONTARIO.
<u>France</u>	Société Industrielle et Commerciale, Marceau-Leclerc, 96 Boulevard du General Leclerc, NANTERRE (SEINE).
<u>Switzerland</u>	Joseph Lucas (Switzerland) A.G., Hornegg, Seefeldstrasse 224, ZURICH 8.
<u>Italy</u>	B.R.B. S.p.A., Via G.B. Pirelli 9, MILAN.

Continued ....

South Africa Joseph Lucas (Pty) Ltd.,  
P.O. Box 161,  
Cnr. Marine and Neptune Streets,  
Paarden Eiland,  
CAPE TOWN.

Australia Joseph Lucas (Aust.) Pty. Ltd.,  
81-85 Bouverie Street,  
(P.O. Box 1628),  
MELBOURNE N.3.

IDENTIFICATION

After fitting a new or modified starter motor, UD 8973, to any chassis in service, Retailers should paint a light blue mark on the rear end of the starter solenoid casing, so that it may be seen from under the bonnet when looking down past the rear branch of the A bank exhaust manifold.

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FOR INFORMATION

GENERATOR (COLONIAL TERRITORIES)

APPLICABLE TO:

All S3 cars used in the following territories

Central and South America

East and West Indies

Africa

Middle and Far East

All islands in the Pacific and Indian Oceans

DESCRIPTION

A number of cars have suffered premature generator commutator and brush wear owing to the dusty conditions in which they operate. In view of this, it has been decided to include a visual inspection of the generator commutator and brush gear at the 6,000 mile (10,000 km.) Service Schedule.

The amended Electrical Section of the Service Schedule reads as follows

6,000 MILES (10,000 KM.) SCHEDULE

Electrical system checks

- 1 Check that the heater controls are operating satisfactorily.
- 2 Check that all lights, flasher units and instruments are operating satisfactorily.
- 3 Check the condition of the generator commutator and brush gear. Renew brushes if necessary.

FOR INFORMATION

RECOMMENDED SPARKING PLUGS FOR S3 CARS

U.S.A.

9 : 1 Compression ratio engines - Champion RN 8

Australia

8 : 1 Compression ratio engines - Champion N 16 Y  
Champion UN 12 Y (if N 16 Y are not available)

All other countries

9 : 1 Compression ratio engines - Champion N 16 Y  
Champion RN 8 (if N 16 Y are not available)

8 : 1 Compression ratio engines - Champion N 16 Y  
Champion RN 8 )  
Champion RN 13 P) (if N 16 Y are not available)  
Lodge CLNP )

The Champion N 16 Y is an extended nose type of plug which has been successful in alleviating many misfire complaints on cars used constantly in congested town conditions. Following further service and development experience, this plug is considered to be the best all-round plug for use on S3 cars in all countries other than the U.S.A.

Servicing

6,000 miles (10,000 Kms.) Clean and reset gaps.  
12,000 miles (20,000 Kms.) Plugs should be renewed.

Note Platinum electrode plugs (Champion RN 13 P, Lodge CLNP) can be lightly cleaned on an abrasive blasting machine.

FOR INFORMATION

STARTER MOTOR CONNECTIONS - RIGHT-HAND DRIVE S3 CARS  
WITH PULLEY TYPE HANDBRAKE CABLE

APPLICABLE TO:

All S3 cars after the following chassis numbers

Silver Cloud III	SDW 485	Bentley S3	B 738 CN
Silver Cloud III L.W.B.	CCL 43	Bentley S3 L.W.B.	BAL 16
Bentley Continental S3		BC 100 XC	

DESCRIPTION

With the introduction of the pulley type handbrake system, it is possible for the handbrake cable to run so close to the main starter motor solenoid lead that it fouls the lead when the engine rocks over on its mounts during starting, causing fretting between the cable and the lead and resulting in a short circuit. This usually happens when the starter motor or handbrake cable is removed and refitted in a manner which causes a foul between the handbrake cable and the main starter lead. Retailers and Service Personnel should ensure that these parts are fitted correctly, especially at the present time when many starter motors are being changed, as instructed by Service Bulletin S3/M5.

To ensure sufficient clearance at all times, the starter motor solenoid lead should be fitted in such a way that the starter lead leaves the solenoid in an almost vertical direction and is then bent round to ensure adequate clearance between itself and the exhaust manifold. It should also be noted that the starter lead MUST be fitted rearward of the handbrake cable, otherwise there will be a severe foul as soon as the handbrake is applied. As an additional precaution, the insulation on the starter lead should be examined to ensure that the conductor core is not exposed at a point between the cable insulation and the rubber boot covering the terminal connection.

Each car to which this Bulletin is applicable, should be checked for this complaint by Service Personnel, when the car is next available. Particular attention should be paid to the possibility of this foul during any subsequent work on the starter motor or handbrake cable.

CATEGORY 2

STARTER MOTOR LINK CABLE - S3 CARS

APPLICABLE TO:

All S3 cars prior to the following chassis number:-

Silver Cloud III	SAZ.37
Silver Cloud III L.W.B.	CAL.7
Bentley S3	B.16.AV
Bentley S3 L.W.B.	BAL.2
Bentley Continental S3	BC.24.LXA
Phantom V (from chassis No.5.VA.1)	5.VA.23

DESCRIPTION

There have been a few failures of the link cable which connects the starter motor solenoid to the starter motor relay.

The failure usually takes the form of a fracture across the lug portion of the cable eye which is attached to the starter motor solenoid. It is probably caused by the bending to which the cable eye is subjected during the initial build and during subsequent work on the starter motor in Service.

Because of these failures, it has been decided to replace the link cable for one of an improved pattern. The old link cable was 7½ inches long between the centres of the eyes and the cable eyes were formed by crushing a tube to a compressed thickness of 1/16 inch. The new link cable is 10 inches long between eye centres and the cable eyes are forged from tube to a lug thickness of ¼ inch. Retailers and Service Personnel are requested to fit the new link cable to all affected S3 cars in their territory at the next possible opportunity.

Continued....

PROCEDURE

Disconnect the battery.

Remove the existing link cable connecting the starter motor solenoid to the starter relay.

Fit the new link cable.

Reconnect the battery.

TIME ALLOWANCE             $\frac{3}{4}$  hr.

MATERIAL REQUIRED

<u>Part number</u>	<u>Description</u>	<u>Quantity</u>
UD 4484	Cable - Starter solenoid to relay	1



FOR INFORMATION

ELECTRIC ACTUATORS

It has been noticed recently that intermittent failures have occurred on electric actuators. These failures have been due to a partially open circuit caused by faulty connecting of the Lucar connectors. This difficulty in assembly is due to the rubber cover fitted around the four Lucar connectors.

To ensure that each Lucar blade is firmly located in its respective connector, the rubber cover has now been eliminated.

CATEGORY C

KIENZLE CLOCK

APPLICABLE TO:

S2, S3 and Phantom V cars

INTRODUCTION

The Kienzle clock which is fitted to the Rolls-Royce Silver Shadow and Bentley T Series cars, is now available for use on S2, S3 and Phantom V cars, at Customers' requests, as an alternative to the Smith's clock.

In order to fit a Kienzle clock in place of the Smith's unit, it is necessary to fit two distance pieces between the clock mounting lugs and the instrument board, and to fit a different type of terminal to the clock feed cable.

The distance pieces cannot be obtained from Rolls-Royce Limited but are readily manufactured from a short length of  $\frac{3}{8}$  in. (9,53 mm.) diameter bar to the dimensions given in Figure 1. The Lucar terminal and sleeve required are standard items which should be readily obtainable. Two 3 B.A. screws, 1 in. (2,54 cm.) in length, are also required.

It is imperative that a good electrical connection is achieved between the clock casing and the instrument board, therefore, the contact faces of the distance pieces should not be painted.

It should be noted that Kienzle clocks should be fitted at Customers' expense only, and that no allowance will be given by Rolls-Royce Limited in respect of the displaced Smith's clock.

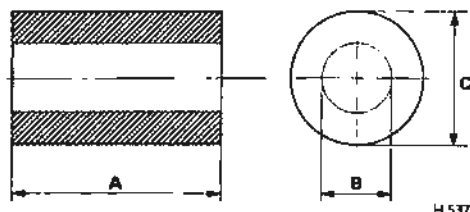
PROCEDURE

1. Disconnect the battery.
2. Remove the facia panel.
3. Remove the Smith's clock from the instrument board, at the same time disconnecting the purple feed cable and removing the instrument lamp from its holder.

Continued...

Fig.1 Dimensions - Distance piece

- A 9/16 in. (14.3 mm.)  
B 3/16 in. (4.76 mm.)  
C 3/8 in. (9.5 mm.)



4. Cut the flag terminal from the end of the purple feed cable; in its place fit a 17½ amp. Lucar terminal and sleeve.
5. Connect the purple feed cable to the insulated terminal at the rear of the Kienzle clock. Fit the instrument lamp to its holder.
6. Fit the Kienzle clock to the instrument board using the two distance pieces and two 3 B.A. screws 1 in. (2,54 cm.) in length.
7. Fit the facia panel.
8. Connect the battery.

MATERIAL REQUIRED

Distance pieces - Brass or aluminium (to give good earthing points)	2 off
Lucar terminal and sleeve	1 off each
3 B.A. screws 1 in. (2,54 cm.) long	2 off

No. S3/M12

Circulation - All Distributors  
and Retailers

CATEGORY C

RECOMMENDED SPARKING PLUGS

APPLICABLE TO:

Rolls-Royce Silver Cloud II and III cars.  
Bentley S2 and S3 cars.  
Bentley S2 and S3 Continental cars.  
Rolls-Royce Phantom V 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>
RH 7712	N.14.Y	Rolls-Royce Silver Cloud II and III. Bentley S2 and S3 Rolls-Royce Phantom V.	0.025 in. (0,635 mm.)
RE 20608	N.5	Bentley S2 and S3 Continental	0.025 in. (0,635 mm.)

No. S3/M13

Circulation - All Distributors  
and Retailers

This Service Bulletin  
cancels Service Bulletin  
S3/M12 dated 17.6.70.  
and S3/M13 dated  
27.7.70.

CATEGORY C

RECOMMENDED SPARKING PLUGS

APPLICABLE TO:

Rolls-Royce Silver Cloud II and III Standard and Coachbuilt cars.  
Bentley S2 and S3 Standard and Coachbuilt cars.  
Rolls-Royce Phantom V 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>
RH 7712	N.14.Y.	Rolls-Royce Silver Cloud II and III Standard and Coachbuilt. Bentley S2 and S3 Standard and Coachbuilt. Rolls-Royce Phantom V.	0.025 in. (0,635 mm.)

No. S3/M14

Circulation - All Distributors  
and Retailers

CATEGORY C

DIRECTION INDICATOR SWITCH

APPLICABLE TO:

All Rolls-Royce Silver Cloud II and III cars and all Bentley S2 and S3 cars.

DESCRIPTION:

The direction indicator switch UR 5273 is no longer available. For replacement purposes, the switch used on Silver Shadow cars (UR 16530) will be fitted. When it is fitted, the terminal connectors must be changed.

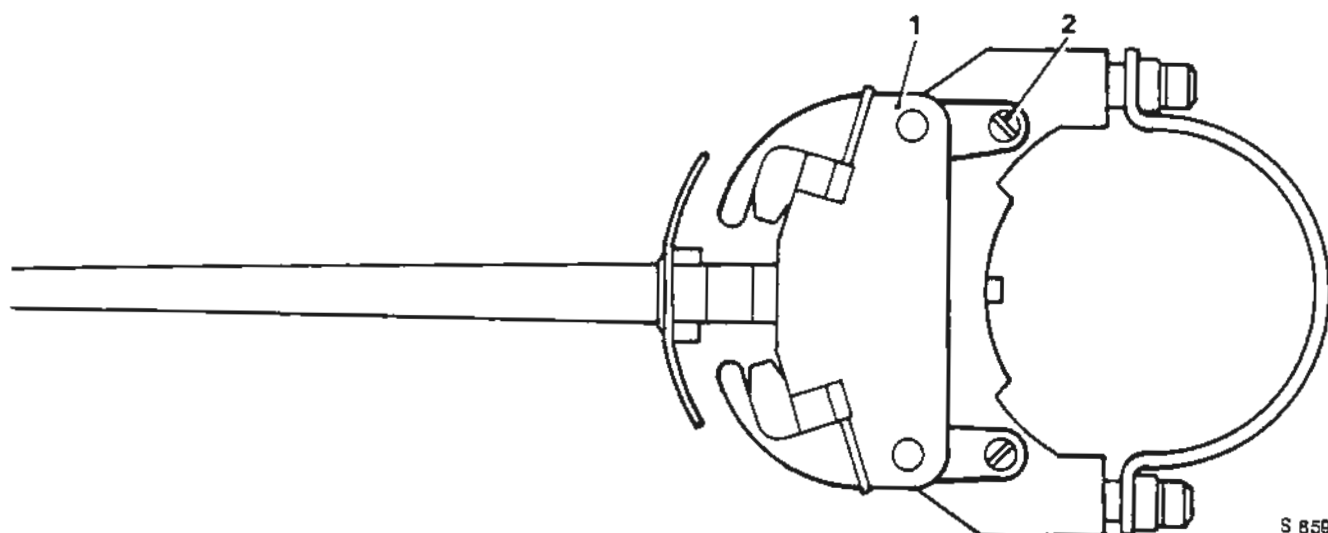
PARTS REQUIRED

UR 16530	- Direction Indicator Switch	- 1 off )	
X 4401	- Washer	- 2 off )	
UD 6072	- Lucars	- 5 off )	Kit number RH 2725
UD 19094	- Lucar Sleeves (clickfit)	- 5 off )	

PROCEDURE:

1. The removal and replacement procedure for the new switch remains the same as for the old. However, there is a small modification to be carried out on the new switch as follows:
2. Remove the two screws and discard the brown insulation board (see Fig. 1). Replace the screws with a washer (X 4401) behind each screw head (see Fig 2).
3. Cut the 7 pin plug off and withdraw the insulation board along with the green/yellow and green/blue wires.
4. Fit 'Lucar' connectors to all the wires except the black one to which a bullet connector is fixed. Connect the wires as follows.

New Colour	Existing Colour	Connected To
Green/Red	Pink	Left-hand Flasher
Green/Brown	Green/Yellow	Supply
Green/White	Purple	Right-hand Flasher
Black	Black	Extension to Earth
Blue/Black	Purple/Green	Flick Relay W/L



S 859

Figure 1. Direction indicator switch (UR 16530)

1. Insulation board
2. Screw

3

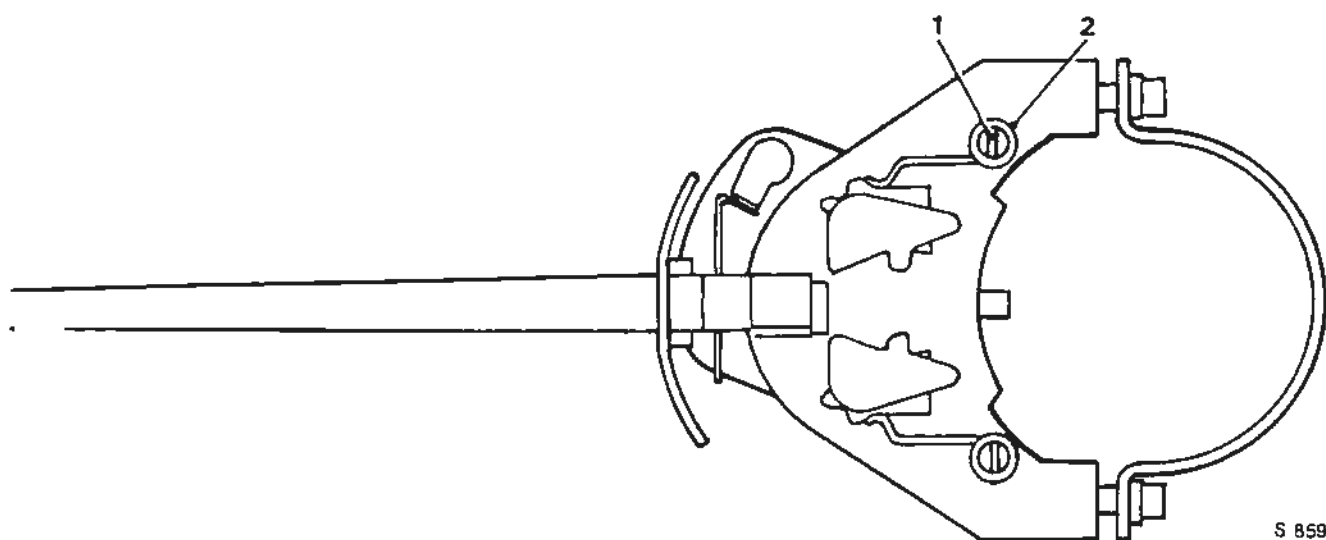


Figure 2. Modified component

- 1. Screw
- 2. Washer



FOR INFORMATION

STEERING JUDDER - S3 CARS

APPLICABLE TO:

Silver Cloud III Standard and L.W.B. Saloons  
Bentley S3 Standard and L.W.B. Saloons  
Bentley Continental S3  
Phantom V from Chassis No. 5.LVA.1

DESCRIPTION

Since the introduction of the S3 car, a number of cases of steering judder have been experienced. This Bulletin is issued to guide Retailers as to what action they should take in cases of customer's complaint.

It is possible to eliminate most judder by taking the following measures.

- 1 More effective and permanent elimination of air from the steering ram. This can be achieved by moving the front ram feed from the side of the ram to the top. This allows any air which collects at the top of the ram to bleed back to the reservoir, thus providing a continuous bleeding operation. A steering judder modification kit comprising all the necessary parts will be available.
- 2 By fitting restricted banjo bolts in each of the ram feed pipes at the spool valve end. This modification gives a useful reduction of judder by smoothing the flow of high pressure oil to the ram, and also makes the car feel more controllable on the road. These special banjo bolts are included in the steering judder modification kit.

These modifications should only be carried out in the event of a customer's complaint.

Note Since this Bulletin is primarily for Retailers information, it should be realised that there will be a few weeks delay in supplies of modification kits.

PROCEDURE

Drive the car on to a ramp or over a pit.

Set the steering so that the piston in the ram is in its most forward position, i.e. on right-hand drive cars, the steering should be set on full

left-hand lock; on left-hand drive cars, the steering should be set on full right-hand lock.

Remove the bleed nipple adaptor, taking care not to forget to remove the steel ball located at the bottom of the bore into which the bleed nipple adaptor screws.

Fit the large bore washer, banjo and small bore washer onto the cranked banjo adaptor, then screw the adaptor into the nipple boss.

Unscrew the hose from the existing elbow and fit it to the new banjo adaptor. On left-hand drive cars, this necessitates a slight re-routing of the front ram feed hose. It should now pass in the groove between the bell-mouth and the dome of the horn nearest to the ram, round this dome, between the two horns and up on its normal route to the steering box.

Remove the elbow from the side of the ram and replace it with the tapered bung.

Fit the restricted banjo bolts at the spool valve housing end of each ram feed hose. If necessary, top-up the fluid in the reservoir.

Drive the car onto an open space (garage forecourt, etc.) and move slowly forward whilst working the steering from lock to lock.

Try the car on the road, where the judder should eventually disappear.

#### MATERIAL REQUIRED

<u>Part Number</u>	<u>Description</u>	<u>Quantity</u>
RH 2323	Modification kit comprising the following parts:	1
LR 5972	Banjo bolts	2
LR 8715	Banjo bolt	1
LR 8716	Washer	1
LR 8717	Washer	1
LR 8718	Taper bung	1
LR 8732	Cranked banjo adaptor	1

No. S3/N2

This Bulletin cancels all  
previous Service Bul-  
letins numbered S3/N2

CATEGORY 2

SIDE STEERING LEVER SETSCREWS - S3 CARS

APPLICABLE TO:

All S3 series cars.

DESCRIPTION

Isolated cases have been encountered where the tabs of the UR 348 locking plates have not been applying their maximum effective locking to the side steering lever setscrews, this condition prevailing because the tabs were not making full face contact with the setscrew hexagon flat. Because of this, the opportunity of introducing a more effective locking device is being taken so that the overall safety factor of the mechanism is increased.

PROCEDURE

Raise the front end of the car until the road wheels are clear of the ground.

Remove the 7/16 in. dia. and 3/8 in. dia. setscrews (1 off each side) which secure the side steering lever to the stub axle.

Throw away the locking plates.

Obtain the new locking plate part number UR 8816 (2 off).

Ensure that all the clamping surfaces are free from contamination (e.g. grease, paint, burrs etc.).

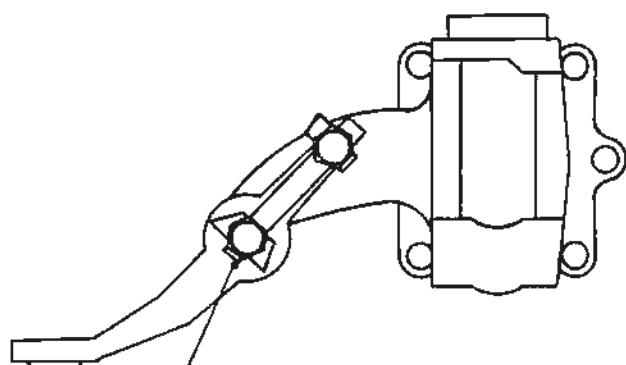
Secure each side steering lever into position using the new locking plate, tightening the original setscrews to their correct torque figure. It is of vital importance that when each setscrew is fitted the correct torque is applied to it. (Refer to torque figures listed). SEE NOTE.

Carefully bend the locking tabs into position as shown. It is important that this operation is carried out with extreme care so as to ensure that each tab is flush against its hexagon flat, this condition being most essential for maximum effective locking.

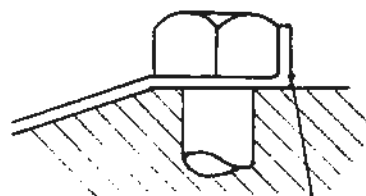
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2.

No.S3/N2



Bend up one tab  
for each setscrew



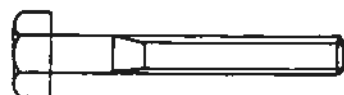
Tab to be flush  
with hexagon flat

View of side steering lever showing the locking plate UR 8816  
correctly tabbed

#### TYPE OF SETSCREW

#### TORQUE FIGURES

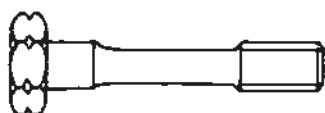
#### PART NO.



(3/8 in. dia. UNF)  
(7/16 in. dia. UNF)

29-32 lb.ft.  
42-45 lb.ft.

UA 209/Z  
UA 260/Z



(3/8 in. dia. UNF)  
(7/16 in. dia. UNF)

NOTE: The waisted type of setscrew illustrated which was fitted to a few late series chassis has since been dispensed with. If encountered in service these setscrews should be removed and replaced by the non-waisted type UA 209/Z and UA 260/Z.

#### MATERIAL REQUIRED

UR 8816      Locking plate 2 off

#### Time Allowance

45 minutes

No. S3/N3

Circulation - All Distributors &  
Retailers

CATEGORY C

ALTERNATIVE STEERING PUMPS

APPLICABLE TO:

All Rolls-Royce Silver Cloud II and III cars, and all Bentley  
Series II and III cars fitted with power assisted steering.

DESCRIPTION:

The steering pumps used on the above cars are being discontinued.  
Kits, as described in Spares Information Sheet N2 are to be used  
for replacement purposes.

Two kits are available and are as follows:

1. RH 2657 - used in place of pump UE 9486 - late S III cars
2. RH 2658 - used in place of pump UE 9916 - S II and early S III cars.

This Service Bulletin details the fitting procedures for each kit.

PROCEDURE:

KIT NO RH 2657

Pump - to fit

1. Disconnect the battery.
2. Unscrew the steering pump pulley retaining setscrew.
3. Remove the drive belts.
4. With a syringe, remove the fluid from the reservoir.

5. Disconnect the pump to steering box pressure pipe. Secure previously removed pipe vertically to prevent fluid loss; retain the banjo and sealing rings.
6. Remove the nuts and washers securing the pump swivel bracket to the 'B' bank cylinder head, detach the bracket and pump.
7. Remove the pump from the bracket and remove the pulley.
8. Mount the new pump (RH 8919) to the pump swivel bracket with four setscrews (UA 107/Z) and flat washers (UA 1251/Z)
9. Mount the pump swivel bracket to 'B' bank cylinder head.
10. Using Figure 1 for reference, fit the adapter (RH 8914), banjo (UE 30019), banjo bolt (UE 30020) and new sealing washers (UE 2514).

NOTE: On left hand drive cars use banjo (UR 2507) and adapter (UR 3186).

11. Connect the hose from the steering box to the adapter and banjo previously fitted.
12. Fit the pulley and drive belts.

#### Reservoir - to fit

1. Using Figure 3 as a guide drill four holes into the bulk-head, insert an anchor nut (SPC 1697) into each hole, fit the reservoir bracket (RH 8920) and secure with the four setscrews (UA 103/Z) and washers (UA 1251/Z).

NOTE: The anchor nuts rivet themselves to the bulkhead as the setscrews are tightened.

2. Mount the reservoir to the bracket with the three setscrews (UA 105/Z) and washers (UA 1251/Z).

3

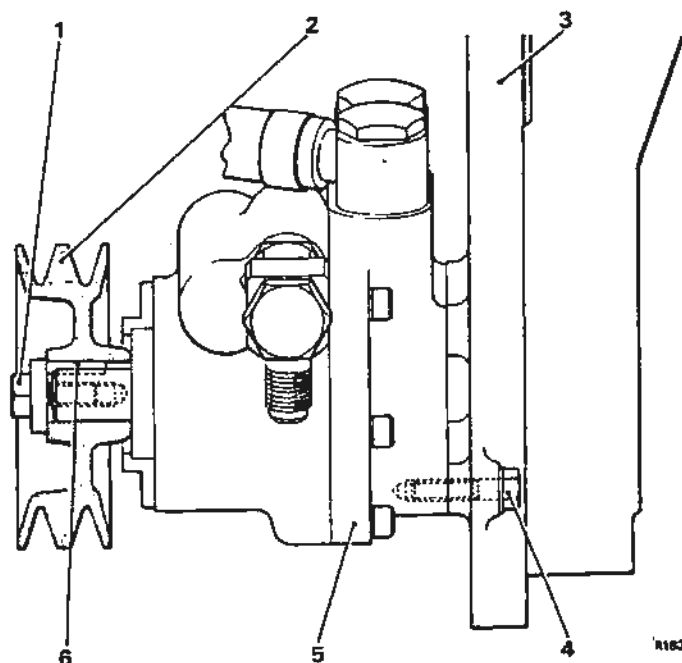


Figure 1. Fitting pump to swivel bracket

1. Pump pulley setscrew and washer.
2. Pump pulley.
3. Swivel bracket.
4. Pump to swivel bracket setscrew (UA 107/Z) and washer (UA 1251/Z).
5. Pump RH(8919).
6. Key.

Hoses - to fit

1. Using Figure 2 and Figure 3 as a guide, connect a hose, cut from RH 8912, between the pump and reservoir (pump return line).
2. Connect a hose cut from RH 8912, between steering box and reservoir (steering box return).
3. Connect a hose, cut from RH 8913, between the pump and reservoir.
4. The hoses should be clipped as shown.

System - to fill and prime (Series III cars)

1. Fill the system with approved fluid to just above the filter.
2. Start the engine and allow to idle.
3. Set the steering such that the hydraulic ram is in its most forward position. Right-hand drive - left-hand lock.  
Left-hand drive - right-hand lock.
4. Remove the protective cap, fit a bleed pipe to the ram bleed nipple and insert the open end into a clear container.
5. Unscrew the bleed nipple sufficiently to allow fluid to pass into the container.

Ensure the reservoir fluid level is maintained during this process.

6. Continue bleeding until all air is expelled. Close the bleed nipple.
7. Return the steering to the straight-ahead position and re-check the fluid level of the reservoir.

NOTE: On some series III cars, a bleed nipple is also located on the rocker shaft housing of the box.

System - to fill and prime (Series II cars)

1. Fill the system with approved fluid to just above the filter.
2. Start the engine with the front wheels of the car just raised off the ground and allow to idle.
3. Turn the steering lock-to-lock until all air and noise is eliminated from the system.



5

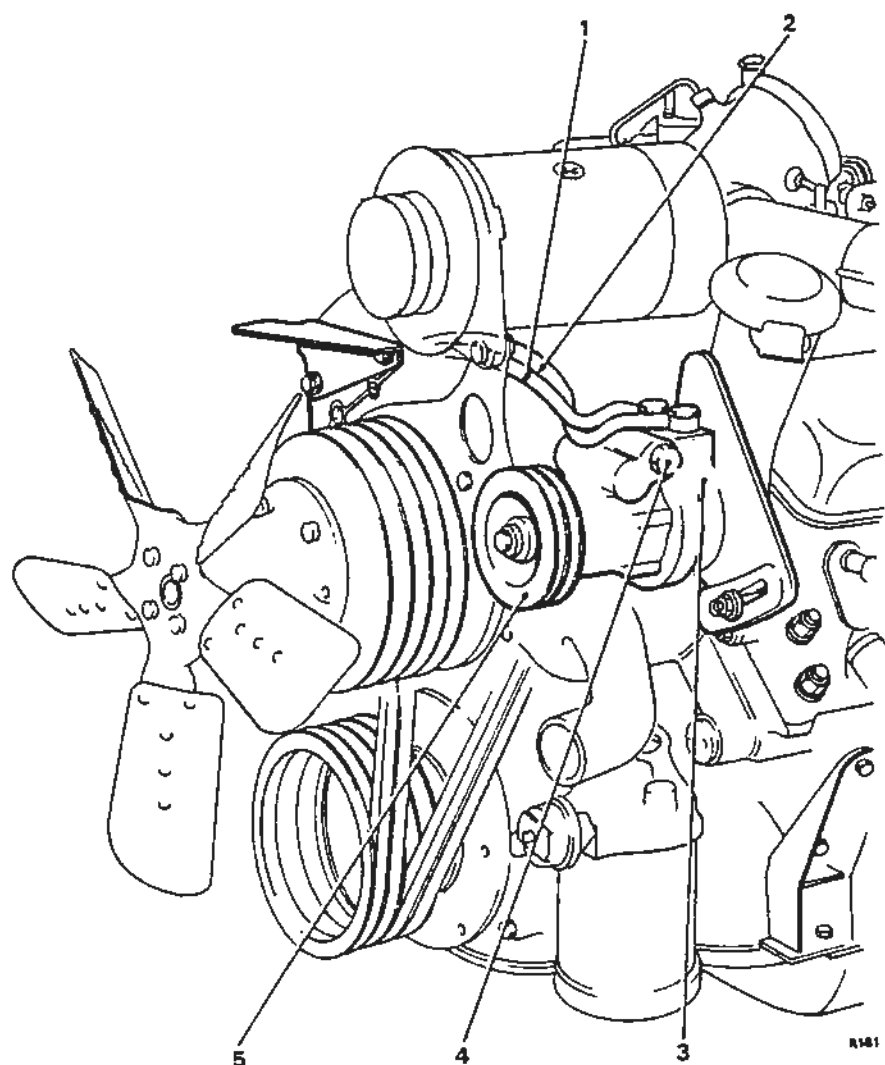


Figure 2. Pump in position

1. Hose cut from RH 8913.
2. Hose cut from RH 8912.
3. Pump and swivel bracket.
4. Pump to steering box connection.
5. Pump pulley.

6

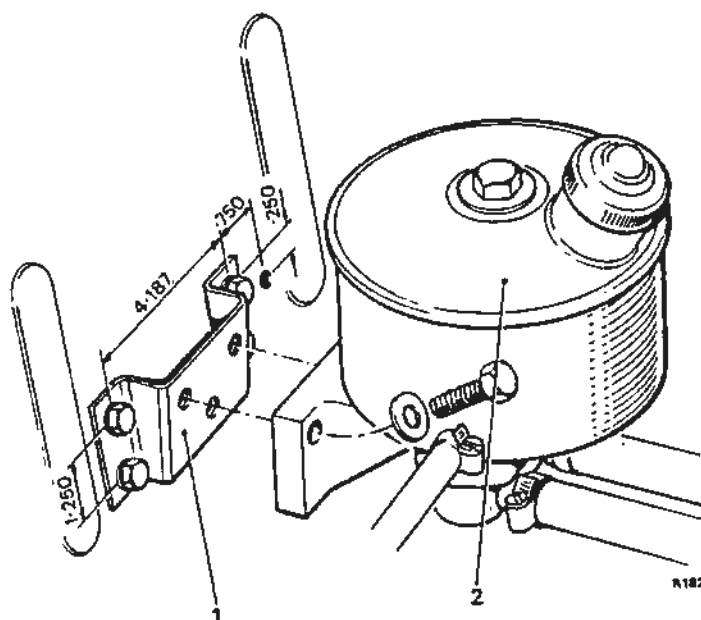


Figure 3. Fitting reservoir mounting bracket RH 8920 to bulkhead.

1. Bracket (RH 8920).
2. Reservoir.

PROCEDURE:

KIT RH 2658 - (Cars not fitted with refrigeration)

The procedures are the same as for Kit RH 2657 with the following exceptions:

1. The new pump swivel bracket (UE 9850) supplied, should be fitted in place of the existing bracket.
2. The steering box to reservoir return pipe should be disconnected, the steering box end banjo bolt retained, the hose discarded and a new hose, cut from PH 8912, fitted as Figure 2. The banjo bolt, with new seals, should be fitted with the new banjo (UE 30018) to the steering box.

NOTE: RH 8912 and RH 8913 are supplied in bulk. The lengths used in the previous procedures should be measured on the car.

TIME ALLOWED

Kit RH 2657 - 5 hours

Kit RH 2658 - 5 hours

No. S3/R1

This Service Bulletin cancels  
Service Bulletin S3/R1 dated  
14.5.63.

FOR INFORMATION

CURRENTLY APPROVED TYRES FOR ROLLS-ROYCE AND  
BENTLEY S3 SERIES CARS

S3 STANDARD AND LONG WHEELBASE CARS

<u>Part No.</u>	<u>Make</u>	<u>Type</u>	<u>Casing material</u>	<u>Size</u>	<u>Sidewall colour</u>
UG.4367	Dunlop	Fort 'C' WH4	Nylon 4 ply	8.20 x 15	Black
UG.4368	Dunlop	Fort 'C' WH4	Nylon 4 ply	8.20 x 15	White
UG.4639	Firestone	ORB De luxe	Nylon 4 ply	8.20 x 15	Black
UG.4640	Firestone	ORB De luxe	Nylon 4 ply	8.20 x 15	White
UG.4644	Avon	Turbospeed R/R-B	Nylon 4 ply	8.20 x 15	Black
UG.4645	Avon	Turbospeed R/R-B	Nylon 4 ply	8.20 x 15	White
No RR No.	India	Super Nylon WH4	Nylon 4 ply	8.20 x 15	Black
No RR No.	India	Super Nylon WH4	Nylon 4 ply	8.20 x 15	White

The pressures for these tyres are as follows

Standard cars	Front	22 lb/sq.in. (1.55 kg/sq.cm.)
	Rear	27 lb/sq.in. (1.90 kg/sq.cm.)
L.W.B. cars	Front	23 lb/sq.in. (1.62 kg/sq.cm.)
	Rear	29 lb/sq.in. (2.04 kg/sq.cm.)

WINTER TYRES (Rear wheels only)

<u>Part No.</u>	<u>Make</u>	<u>Type</u>	<u>Casing material</u>	<u>Size</u>	<u>Sidewall colour</u>
No RR No.	Dunlop	Heavy Duty Weathermaster	Nylon 4 ply	8.00/8.20 x 15	Black or White
No RR No.	Firestone	Town and Country	Rayon 6 ply	8.00/8.20 x 15	Black or White

The pressure for winter tyres is 30 lb/sq.in. (2.11 kg/sq.cm.)

Continued...

COACHBUILT SILVER CLOUD III AND BENTLEY CONTINENTAL S3 CARS

<u>Part No.</u>	<u>Make</u>	<u>Type</u>	<u>Casing material</u>	<u>Size</u>	<u>Sidewall colour</u>
UG.4245	Dunlop	Road Speed RS5	Nylon 6 ply	8.00 x 15	Black
UG.4246	Dunlop	Road Speed RS5	Nylon 6 ply	8.00 x 15	White
UG.4369	India	Super Speed	Nylon 6 ply	8.00 x 15	Black
UG.4370	India	Super Speed	Nylon 6 ply	8.00 x 15	White
UG.3805	Firestone	Sports ORB P345	Nylon 6 ply	8.00 x 15	Black
UG.3804	Firestone	Sports ORB P345	Nylon 6 ply	8.00 x 15	White

The pressures for these tyres are as follows

Front 20 lb/sq.in. (1.41 kg/sq.cm.)  
Rear 25 lb/sq.in. (1.76 kg/sq.cm.)      Normal running

Front 25 lb/sq.in. (1.76 kg/sq.cm.)  
Rear 30 lb/sq.in. (2.11 kg/sq.cm.)      High speed running

WINTER TYRES (Rear wheels only)

<u>Part No.</u>	<u>Make</u>	<u>Type</u>	<u>Casing material</u>	<u>Size</u>	<u>Sidewall colour</u>
No RR No.	Dunlop	Weathermaster	Nylon 4 ply	8.00/8.20 x 15	Black
No RR No.	Firestone	Town and Country	Rayon 6 ply	8.00 x 15	Black

The pressure for winter tyres is 30 lb/sq.in. (2.11 kg/sq.cm.).

Continued...

PHANTOM V CARS

<u>Part No.</u>	<u>Make</u>	<u>Type</u>	<u>Casing material</u>	<u>Size</u>	<u>Sidewall colour</u>
UG.4629	Dunlop	Fort 'C' WH4	Nylon 6 ply	8.90 x 15	Black
UG.4628	Dunlop	Fort 'C' WH4	Nylon 6 ply	8.90 x 15	White

The pressures for these tyres are as follows

Front 22 lb/sq.in. (1.55 kg/sq.cm.)

Rear 27 lb/sq.in. (1.90 kg/sq.cm.)

WINTER TYRES (Rear wheels only)

<u>Part No.</u>	<u>Make</u>	<u>Type</u>	<u>Casing material</u>	<u>Size</u>	<u>Sidewall colour</u>
No RR No.	Dunlop	Weathermaster WM2 or CW44	Nylon 4 ply	8.00/8.20 x 15	Black

The pressure for winter tyres is 30 lb/sq.in. (2.11 kg/sq.cm.)

FOR INFORMATION

DUNLOP ELITE TYRES

The following tyres are no longer available for use on Rolls-Royce Silver Cloud III and Bentley S3 cars.

<u>Part No.</u>	<u>Make</u>	<u>Type</u>	<u>Casing material</u>	<u>Size</u>	<u>Sidewall colour</u>
UG.4194	DUNLOP	Elite C40	Nylon 4 Ply	8.20 x 15	Black
UG.4195	DUNLOP	Elite C40	Nylon 4 Ply	8.20 x 15	White

Would Retailers and Service Personnel please amend Service Bulletin S3/R1 accordingly.

No. S3/R3

UNITED KINGDOM AND  
EUROPE ONLY.  
This Bulletin cancels  
Service Bulletin S3/R3  
dated 8.6.64.

FOR INFORMATION

WIDER REAR WHEELS

APPLICABLE TO

Silver Cloud III  
Silver Cloud III L.W.B.  
Bentley S3  
Bentley S3 L.W.B.

DESCRIPTION

New rear wheels with rims  $\frac{1}{2}$  inch wider than the present standard wheel, will shortly be fitted to all cars leaving the factory destined for the Home or European market. The new rim will be 6.500 inches wide and is fitted to a standard nave plate. The rim will receive standard tyres.

The wider rear rims are being introduced to improve the car's handling and steering characteristics, especially in blustery conditions which cause steering wander and instability during high speed motoring. The wider rims used in conjunction with standard tyres have the effect of increasing the cornering stiffness of the rear tyres, thereby reducing the oversteering characteristics and promoting a more stable understeering condition. This may give the impression that the wider rear rims will only improve the cornering characteristics rather than improve the straight line running conditions from which most complaints arise. However, the main cause of instability during Motorway running in windy conditions, is the oversteer which follows the initial push from the wind. It follows therefore, that any measures taken to increase the understeer characteristics will improve the straight line running stability.

It is not intended that the new wheels be fitted retrospectively in service unless it can be shown that all other known steps have been taken unsuccessfully to cure an owner's complaint of steering instability.

Continued.....



SERVICING

The service schedule instructs that the road wheels should be interchanged after 6,000 miles. The sequence which should now be carried out on cars with wider rear wheels is as follows.

Offside front wheel to nearside front wheel and vice versa,  
offside rear wheel to nearside rear wheel and vice versa  
leaving the spare wheel as a spare. Under no circumstances should a wider rear wheel be fitted to the front hubs.

The spare wheel is only interchangeable with either of the front wheels, but in the event of a puncture in a rear wheel it is permissible for the spare wheel to be fitted to the rear as a temporary replacement, the original wider wheel being refitted as soon as the puncture has been repaired.

Although front and rear wheels will no longer be interchangeable with each other, it is still possible for each individual tyre to be fitted to any of the five wheels. It is highly desirable to have the less worn tyres on the front wheels at all times, even if this means interchanging them on the rims.

The tyre pressures remain unchanged and the standard wheel disc can be fitted to each wheel.

IDENTIFICATION

Identification is provided by means of a plate spot-welded to the wheel, the plate bearing the words 'REAR WHEEL ONLY'. To gain access to the plate, the wheel disc must be removed.

The part number of the new rear wheel is UG 4438.

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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.

2 OF 5

No. S3/R4

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 LAH 19577 Corniche Convertible DRH 18563 Corniche Saloon CRH 18564 Camargue JRH 14674	Avon	Radial-ply rayon	Black/white	HR70 HR15	HR70/HR15 Radial T or 235/70 HR15 101H RR Turbosteel 70 235/70 HR15 101H	Not for use in Kuwait, South Africa, USA or Canada
	Avon	Radial-ply steel	Black/white	235/70 HR15		
	Dunlop	Radial-ply steel	Black/white	235/70 HR15	SP Sport Dunlop Formula 70T/L 235/70 HR15 101H SP Sport Dunlop Formula 70T/L Weathermaster SP44TT/L	
	Dunlop	Radial-ply rayon	Black/white	HR70 HR15		
	Dunlop	Radial-ply rayon (Winter) *	Black	205R15		
	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	Radial-ply rayon	Black/white	205HR15	SP68 Rayon T/L Weathermaster SP44TT/L	
	Dunlop	Radial-ply rayon (Winter) *	Black	205R15		
	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	Radial-ply rayon	Black	205VR15	Radial T Rayon	
	Dunlop	Cross-ply nylon	Black	8.15 H15	Roadspeed RS5 Nylon 4PR T/L SP68 Rayon T/L Weathermaster SP44TT/L	
	Dunlop	Radial-ply rayon	Black/white	205HR15		
	Dunlop	Radial-ply rayon (Winter) *	Black	205R15		
	Firestone	Radial-ply rayon	Black	205SR15	F100 Rayon	Not for use in Australia or New Zealand
	Dunlop	Cross-ply nylon	Black	8.90S15	Fort nylon 8PR WH4T/L	

1784

ROLLS-ROYCE MOTORS LIMITED, CREWE, ENGLAND

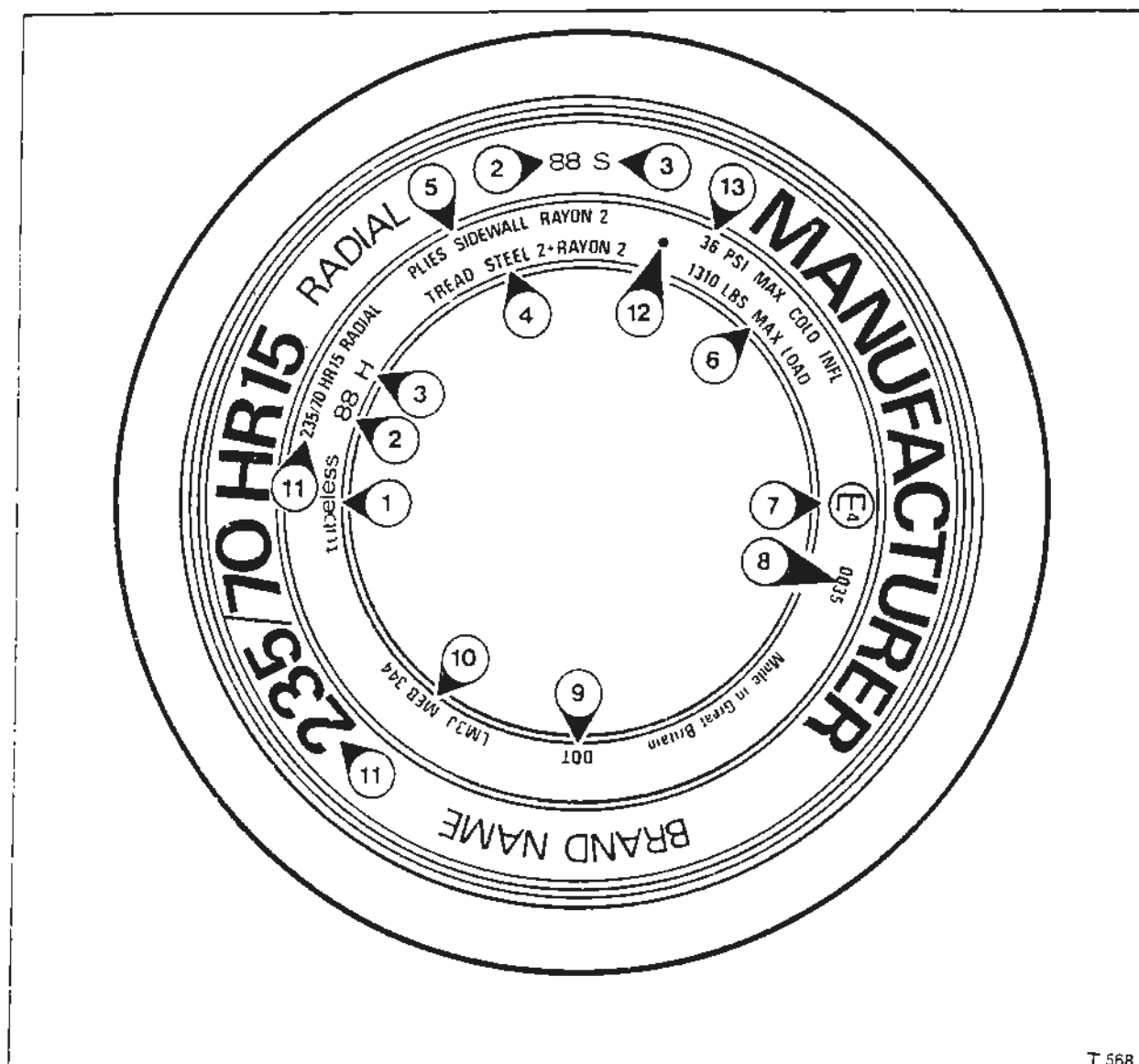
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SECTION R

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 H.J. 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 H.J. 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 BPR 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	
<b>Notes</b> 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 6PR 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 of 5

No. S3/R4

- 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  
8 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.

CATEGORY 3b

MOTIFS - BOOT LIDS - S3 CARS

APPLICABLE TO :-

All cars prior to the following chassis numbers:-

Silver Cloud III SCX.99 except SCX.35, 39 to 49, 55 to 67 and  
75 to 95  
SAZ.5, 19, 23, 37, 49, 53 and 61.

Silver Cloud III L.W.B. CAL.23

Bentley S3 B.44.CN except B.14.CN 20 to 32 and 38 to 40  
BAV.26.

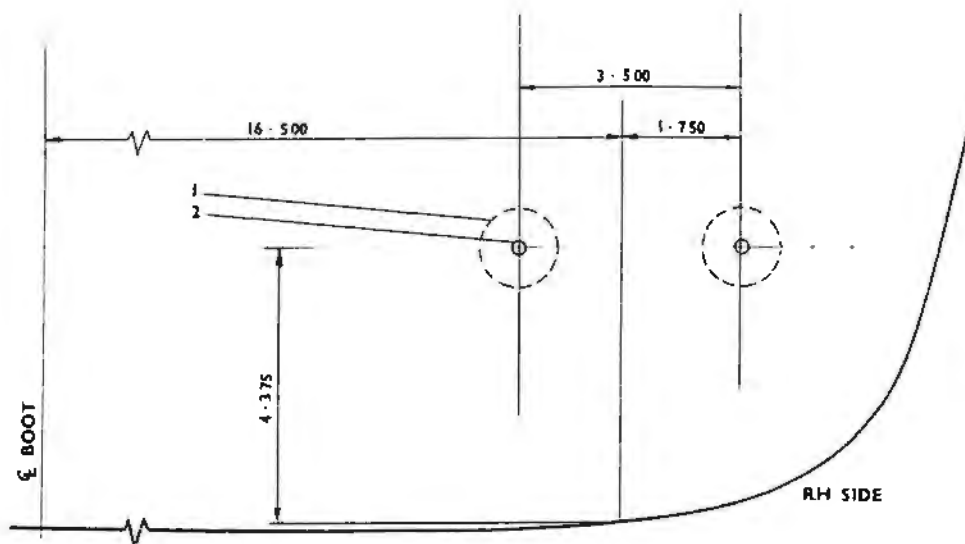
DESCRIPTION

A number of cars were not fitted with the 'Silver Cloud III' and 'S3' motifs to the luggage boot lids before they were despatched from the factory. These motifs should now be fitted retrospectively to customers' cars at their request working to the following instructions.

PROCEDURE

Working to the dimensions given in figure 1 for Silver Cloud III cars and to those given in figure 2 for Bentley S3 cars, drill two holes 7/64 in. in diameter through both the outer and inner skins of the luggage boot lid. The dimensions should be measured along the surface of the boot lid. Open out the two holes in the inner skin with a .250 in. diameter drill, then using a trepanning tool, further open out these holes to .750 in. diameter. These larger holes in the inner skin are necessary to fit the spire speed nuts and washers to the legs of the motifs. If a trepanning tool is not available it is permissible to 'chain drill' round the centre hole and then to file the hole to size. Remove all sharp edges. On Silver Cloud III cars the hole in the inner skin will also pass partly through the cover of the right-hand boot locking mechanism.

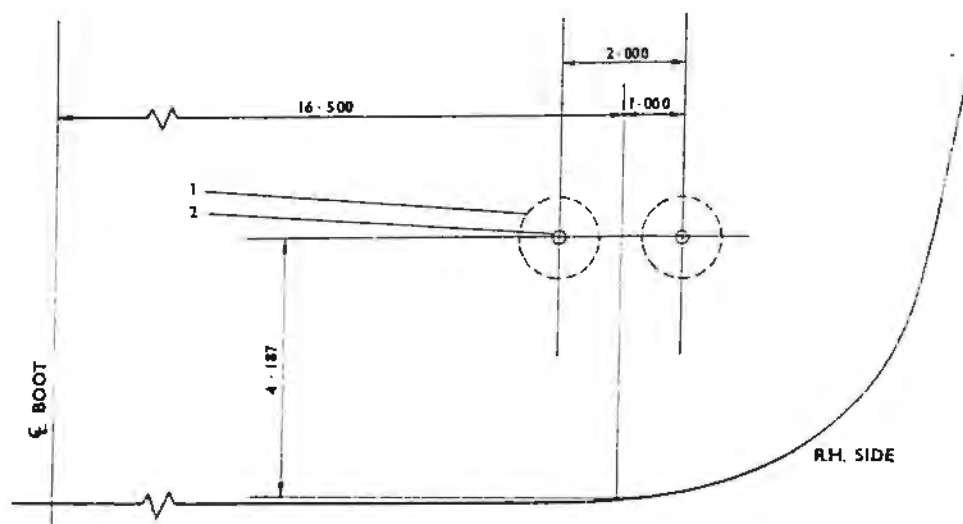
- 2 -



C 473

**Fig. 1. Dimensions for drilling boot lid to fit Silver Cloud III motif**

1. 0.750 in. dia. hole in inner skin
2. 0.1094 in. dia. hole in outer skin



C 474

**Fig. 2. Dimensions for drilling boot lid to fit S3 motif**

1. 0.750 in. dia. hole in inner skin
2. 0.1094 in. dia. hole in outer skin



- 3 -

Before the motif can be fitted it is necessary to bend and shape it to the contour of the boot lid. Each motif should be shaped individually to suit its particular boot. Fit the motif and secure it in position with the two rubber washers and spire speed nuts. It should be noted that once the spire speed nuts are fitted it is very difficult to remove them ( a special three-pronged tool is required) and therefore care should be taken to ensure that the motif is correctly bent to the contour of the boot lid before the nuts are fitted.

Fit two rubber grommets to the holes in the inner skin of the boot lid.

MATERIAL REQUIRED

Part No.	Description	Quantity
UB.5175	Silver Cloud III Motif	1 as required
UB.5174	S3 Motif	1 as required
UD.2136	Rubber Grommet	2
UB.5152	Rubber Washer	2
UB.5162	Spire Speed Nut	2

TIME ALLOWANCE: 1 hour.

JAMMING OF LUGGAGE BOOT LIDS  
ON SILVER CLOUD II AND BENTLEY S2 CARS

There is a possibility of the luggage boot lid jamming on the above cars when the lid is slammed or closed with undue force, or particularly if the lid is distorted by excess luggage.

This condition arises through the boot lock cams overriding the striker pins and results in the pins becoming trapped behind the cams. This renders the boot lock inoperative and therefore the boot cannot be opened by normal means.

Action required

In the event of the boot lid jamming, it can be forced by grasping the handle in such a manner that some of the force applied is directed towards the car and at the same time snatching the handle vertically upwards. If this method fails, the boot lid can be forced with a lever, but in doing this extreme care should be taken not to damage the paint work.

Adjustments required

It is necessary to ascertain the relative position of the cams to the striker pins. We therefore recommend that a piece of plasticine is stuck adjacent to the cams as a guide.

With the plasticine in position and the cams turned to the locked position the boot lid should be pressed firmly down. The lid should then be raised and the relative position of the striker pins to cams will be seen by the track left in the plasticine when passing over the striker pins.

The striker pins are offset to the centre line of the securing screws and therefore fore and aft adjustment can be made by turning the pins around. Some sideways adjustment is obtainable by the clearance in the securing screw holes, but it may be necessary to waffle away some metal to give further access to the tapping blocks.

- 2 -

It may be necessary to adjust the height of the striker pins. This can be denoted by the marks made on the striker pins by the cams when they engage. Suitable aluminium packing pieces should be made and the pins packed so that they fully enter the cams to within 1/16" of the bottom face of the boot lid.

Special attention is now being given to this feature on all cars leaving production. An illustrated Service Bulletin giving detailed information will be issued in due course.

CATEGORY 2

100 OCTANE FUEL WARNING PLATE

APPLICABLE TO:-

All cars prior to the following chassis numbers:-

Silver Cloud III SCX.129 except SAZ.5, 19, 23, 53 and 61,  
SCX.35, 41 to 45, 49, 61, 65, 67, 75 to 89,  
93, 95, 99 to 103, 107 and 111 to 123.

Silver Cloud III LWB. CAL.23.

Bentley S3 B.118.CN except BAV.26  
B.14.CN, 20, 24, 28 to 32, 38, 48 to 58,  
62 to 100, 104, 108, 112 and 114.

DESCRIPTION

With the introduction of 9:1 compression ratio cylinder heads on the V8 engine in S3 cars it is essential for the most satisfactory performance of the engine that 100 octane fuel be used. In certain countries 100 octane fuel is not available and cars domiciled in these territories are fitted with 8:1 cylinder heads.

Cars in the following countries are fitted with 9:1 cylinder heads:-

U.S.A. and Canada.

Japan.

All Europe (except Cyprus, Finland, Greece, Holland, Malta, Portugal, Spain, Turkey and Yugoslavia.).

Small plates are fitted inside the bottom right-hand corner of the fuel filler compartment, indicating that only 100 octane fuel should be used. At the commencement of S3 production however a few cars were despatched from the factory without these plates, which should now be fitted to the following instructions.

- 2 -

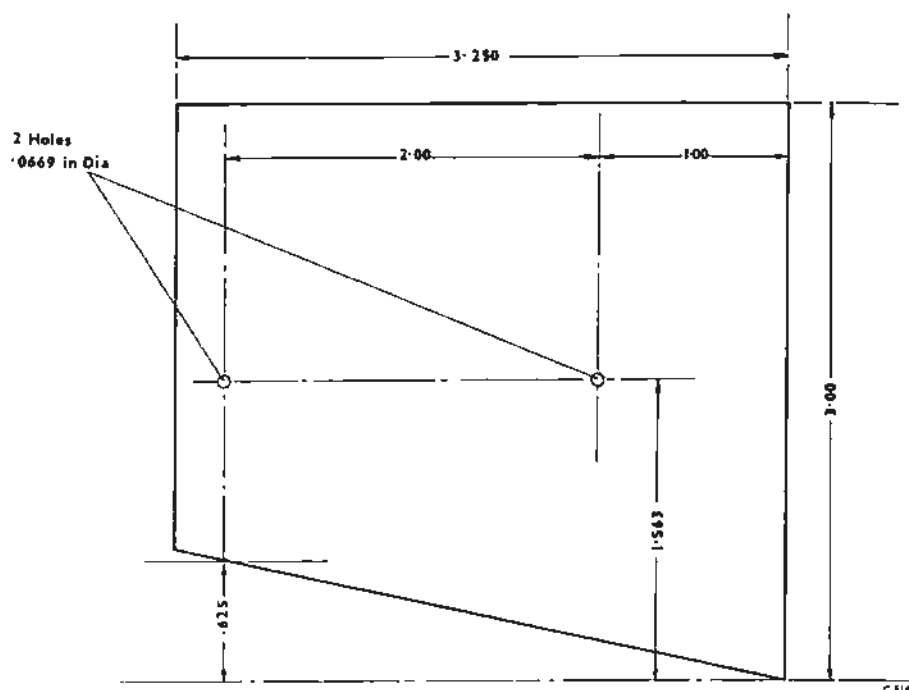


Fig. 1. Dimensions for producing template to drill holes in fuel filler base.  
All dimensions given in inches.

### PROCEDURE

Working to the dimensions given in figure 1, produce a template from a piece of card. Fit this inside the fuel filling compartment and mark off the centres of the two holes required to secure the octane plate in position. Drill two holes  $0.0669 \pm .5$  in. in diameter through the base of the filler compartment. Fit the octane plate in position with two self-tapping screws.

### MATERIAL REQUIRED

<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
UB.5124	Octane Rating Plate (All countries except France)	1
UB.5125	Octane Rating Plate (France Only.)	1
UA.8351/Z	Self-tapping screw.	2

TIME ALLOWANCE:- 45 mins.

FOR INFORMATION

HEADLAMP FAIRING - RETAINING SCREW CORROSION

DESCRIPTION

On a number of S3 cars it is difficult to remove the headlamp fairing retaining screws owing to the screws having corroded. It has been discovered that the cause of this corrosion is due to a tooling hole drilled immediately above each of the retaining screw cage nuts. These holes allow water and dirt to accumulate around the exposed cage nuts and screws.

An effective cure is to seal each hole with 'Bostik' sealing compound.

APPLICABLE TO:-

CHASSIS NO.

Bentley S3 prior to  
Bentley S3 L.W.B. prior to  
Silver Cloud III prior to  
Silver Cloud III L.W.B. prior to

B.356.CN  
BAL.6  
SCX.771  
CBL.43

PROCEDURE

Remove the headlamp fairings.

Position the steering on full right-hand lock to allow access to the holes in the left-hand wing.

Insert a piece of fine wire through each of the cage nuts in turn, so that it sticks up into the cavity above the headlamp recess pressing.

Carefully feel around the headlamp recess pressing, underneath the wing, until the piece of wire can be located.

Brush away the dirt and thoroughly clean the area immediately around each hole; seal each hole using 'Bostik' 1222 sealing compound.

Repeat the above operations on the right-hand wing, positioning the steering on full left-hand lock.

Refit the headlamp fairings.

FOR INFORMATION

MODIFIED ACRYLIC AND NITRO-CELLULOSE FINISHES

Rolls-Royce Limited carry stocks of modified acrylic and nitro-cellulose finishes as a service to Retailers and Rolls-Royce and Bentley owners who experience difficulty in obtaining the correct materials for refinishing purposes. Recent demand for this service has increased and it has become essential to stipulate that, in future when ordering finishes, the chassis number must be quoted so that the original specification of paint and colour may be checked by our Spares Department before finishes are supplied. It should also be stated whether the material is required for repair work or for completely refinishing the car. This is necessary as a modified acrylic finish cannot be used over a nitro-cellulose finish and vice-versa. If an order is received for material other than to the original specification, then a poor finish may result.

Retailers carrying stocks of acrylic and nitro-cellulose finishes should also ascertain for what purpose the material is required before supplying finishes to Traders and Repair shops, in order that correct finishes are used.

Each manufacturer develops thinners to suit the individual requirements of the finishes produced. It is therefore essential that when placing an order for modified acrylic or nitro-cellulose finishes, an equal volume of the correct thinners be ordered at the same time. This is important, as a poor finish may result if the correct thinner is not used.

It is not the policy of Rolls-Royce Limited to supply finishes for any cars other than standard steel bodied cars. For all coachbuilt cars, enquiries should be made to the appropriate coachbuilder, as it is most desirable that the whole of the refinishing operation be carried out to conform with the original specification, especially where a modified acrylic paint is to be used.

FOR INFORMATION

'IRVIN' SAFETY BELTS

APPLICABLE TO

Silver Cloud III  
Silver Cloud III L.W.B.  
Bentley S3  
Bentley S3 L.W.B.

DESCRIPTION

'Irvin' safety belts with single bolt fixing are now available for fitting to the cars listed above.

The safety belts comply with B.S.S. and S.A.E. regulations and can be supplied in lap only or combined lap and diagonal patterns for both front and rear seats. The belts are available in the following range of colours to blend with the upholstery; Grey, Fawn, Red and Green.

Kits, each containing one safety belt and all the relevant anchorage fittings will be available to suit a wide range of requirements.

SAFETY BELT KITS

<u>Part No.</u>	<u>Description</u>	<u>Fitting position</u>
RH 2301	Front seat safety belt kit Std. cars and L.W.B. non- division cars (lap belt)	R.H. or L.H. seat on non- refrigerated cars or R.H. seat only on refrigerated cars.
RH 2302	Rear seat safety belt kit Std. and L.W.B. cars (lap belt)	R.H. or L.H. seat on either non-refrigerated cars or re- frigerated cars.

Continued ...



<u>Part No.</u>	<u>Description</u>	<u>Fitting position</u>
RH 2303	Front seat safety belt kit Std. cars and L.W.B. non- division cars (combined lap and diagonal belt)	R.H. or L.H. seat on non- refrigerated cars or R.H. seat only on refrigerated cars.
RH 2304	Rear seat safety belt kit Std. and L.W.B. cars (combined lap and diagonal belt)	R.H. or L.H. seat on either non-refrigerated or refrig- erated cars.
RH 2305	Front seat safety belt kit L.W.B. division cars (lap belt)	R.H. or L.H. seat on non- refrigerated cars or R.H. seat only on refrigerated cars.
RH 2306	Front seat safety belt kit L.W.B. division cars (com- bined lap and diagonal belt)	R.H. or L.H. seat on non- refrigerated cars or R.H. seat only on refrigerated cars.
RH 2307	Front seat safety belt kit Std. cars and L.W.B. non- division cars (lap belt)	L.H. seat only on refriger- ated cars.
RH 2308	Front seat safety belt kit Std. cars and L.W.B. non- division cars (combined lap and diagonal belt)	L.H. seat only on refriger- ated cars.
RH 2318	Front seat safety belt kit L.W.B. division cars (lap belt)	L.H. seat only on refriger- ated cars.
RH 2319	Front seat safety belt kit L.W.B. division cars (com- bined lap and diagonal belt)	L.H. seat only on refriger- ated cars.

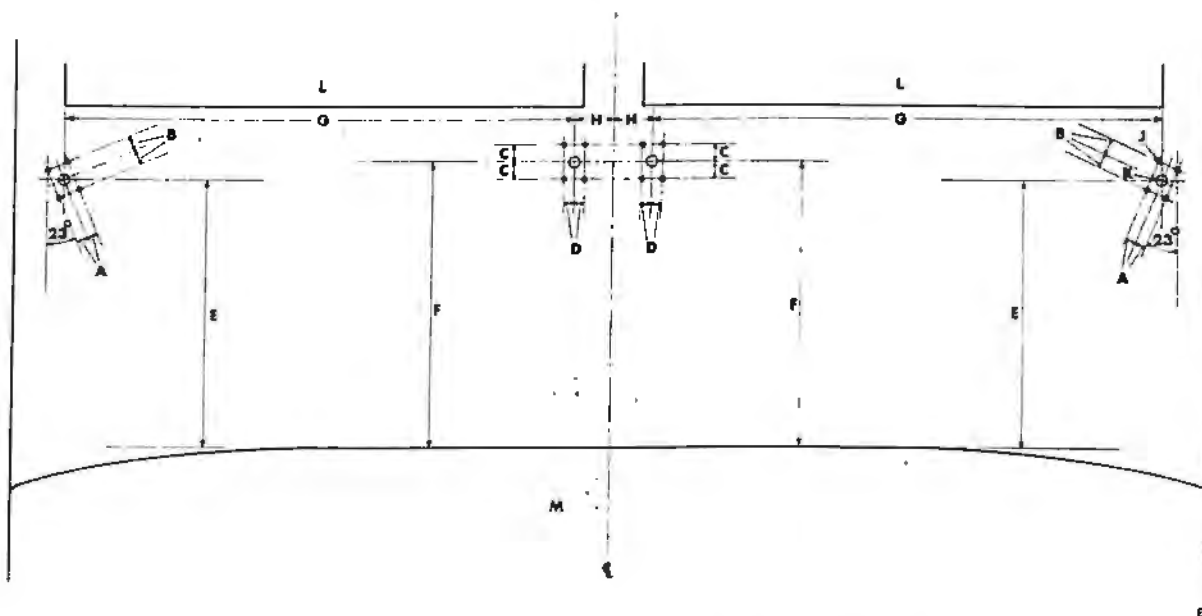
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# PROCEDURE

Front anchorage plates - To fit (Standard and Long Wheelbase cars without a division)

The floor dimensions for drilling the anchorage plate holes are the same for both the lap and the lap/diagonal safety belts.

Slide the front seats to their most forward position, then pull back the rear carpet and felt underlay.



**Fig.1 Floor dimensions for front safety belt anchorages (all non-division cars)**

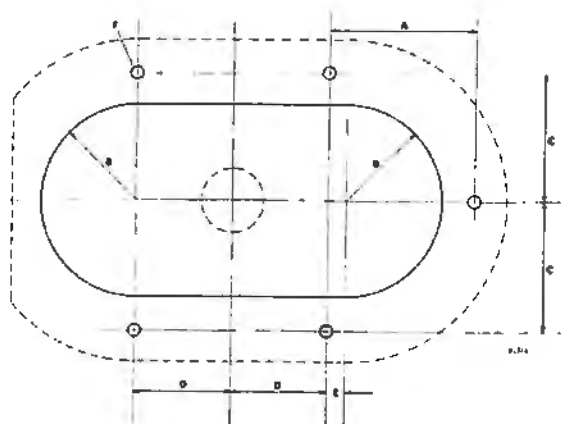
Note For Long Wheelbase saloons without a division, 4 in. should be added to dimensions E and F.

A = 0.562 in.	G = 25.625 in.
B = 0.750 in.	H = 2.031 in.
C = 0.924 in.	J = 16 holes 0.1614 in. dia.
D = 0.468 in.	K = 4 holes 0.4531 in. dia.
E = 13.500 in.	L = Front seats
F = 14.500 in.	M = Rear seat pan

Continued ...

- A = 1.156 in.  
B = 0.750 in. radius  
C = 1.000 in.  
D = 0.750 in.  
E = 0.156 in.  
F = 5 holes 0.093 in. dia.

**Fig.2** Dimensions for cut-out in front heat shield (all cars fitted with refrigeration)



It should be noted that the front safety belts cross one another at the centre anchorages to give a more direct pull, and therefore, if only one belt is to be fitted, the centre holes on the opposite side of the car should be drilled, i.e. if a safety belt is to be fitted to the front right-hand seat the holes for the centre anchorage should be drilled on the left-hand side of the car centre line.

Working to the dimensions given in Figure 1, drill four 0.4531 in. diameter holes and sixteen 0.1614 in. diameter holes.

On cars fitted with refrigeration, mark out the heat shield to the dimensions shown in Figure 2, using the previously drilled holes as a guide. Cut out as necessary and drill the five holes 0.093 in. diameter.

On all cars, carefully clean the areas around the drilled holes, removing any burrs. Also ensure that the floor is flat at these points.

The anchorage plates should be held in position from underneath the car and should be secured with the 3 B.A. screws, nuts and washers provided.

On cars fitted with refrigeration, fit the domed cover plate over the cut-out in the exhaust heat shield using five self-tapping screws and washers.

Front anchorage plates - To fit (Long Wheelbase cars with a division)

The procedure for drilling the holes for the anchorage plates is similar to that described for standard cars except that reference should be made to Figure 3 for the dimensions. Unlike the standard cars, the safety belts do not cross

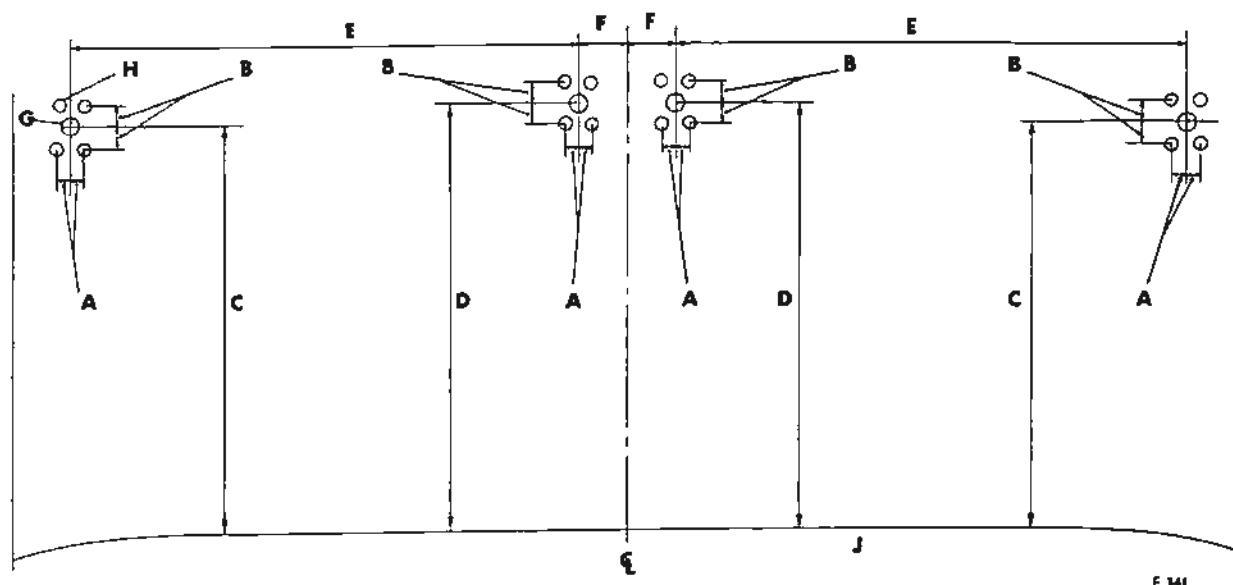
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at the centre anchorages, therefore, if a belt is to be fitted to the right-hand front seat, the holes for the centre anchorage will be to the right of the car centre line.

It should also be noted that it is necessary to remove the front seats and to cut four slots in the sloping metal panel behind the front seats.

After drilling the holes for the anchorage plates, remove both front seats; the driver's seat will slide off whereas the passenger's seat is secured by four setscrews to which access can be gained by removing the cushion.

Working to the dimensions given in Figure 4, cut four slots in the sloping metal panel. Using adhesive, secure the Neoprene sealing strips to the edge of the slots to prevent chafing of the belts.



**Fig.3 Floor dimensions for front safety belt anchorages**  
**(Long Wheelbase saloons fitted with a division)**

A = 0.562 in.	E = 24.343 in.
B = 0.750 in.	F = 2.031 in.
C = 17.500 in.	G = 4 holes 0.453 in. dia.
D = 18.500 in.	H = 16 holes 0.1614 in. dia.
J = Rear seat pan	

Continued ...

- 6 -

No. S3/S5

- A = 2.750 in.
- B = 2.250 in.
- C = 4.875 in.
- D = 21.000 in.
- E = 0.500 in.
- F = Front seat finisher
- G = Sloping panel at rear of front seats

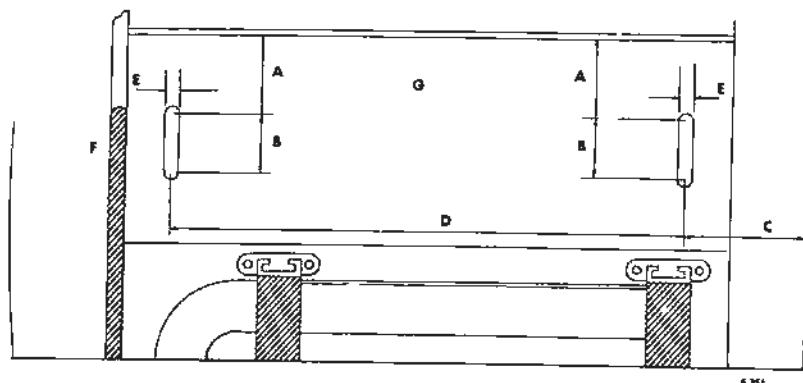
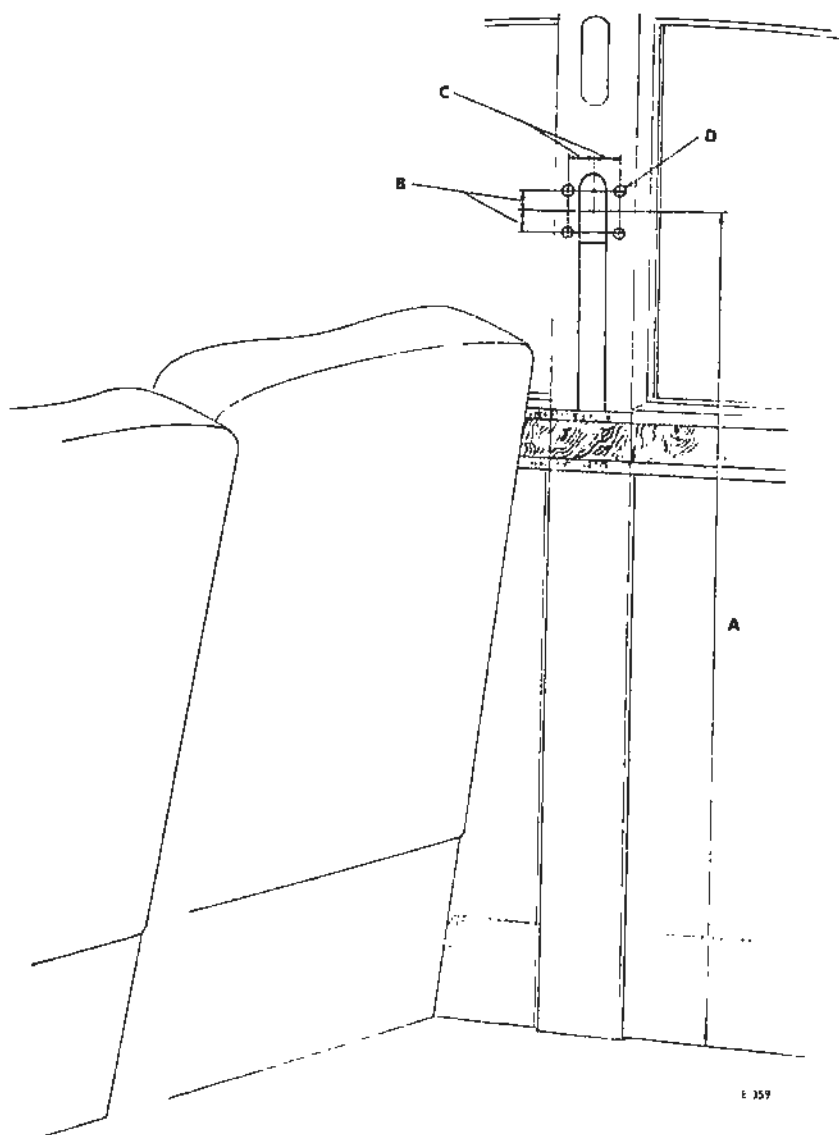


Fig.4 Dimensions for cutting slots in division wall  
(Long Wheelbase Saloons fitted with a division)



- A = 35.500 in.
- B = 0.1875 in.
- C = 1.062 in.
- D = 4 holes 0.1909 in. dia.

Fig.5 Dimensions for  
drilling centre pillar  
(all cars - combined lap  
and diagonal belts only)

Continued ...

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SECTION S

Centre pillar anchorage plates - To fit (All cars)

The following instructions under this heading are only applicable when lap/diagonal safety belts are to be fitted.

The centre pillar anchorage plate is fitted to the inner side of the pillar as shown in Figure 5. Before the anchorage plates can be fitted, it is necessary to remove the trim pad as follows.

Disconnect the battery.

Prise the rubber seals from both sides of the centre pillar at a point approximately 4 in. below the underside of the roof sill (cant rail).

Unscrew the two screws securing the trim pad to each side of the centre pillar, then remove the pad. Before removing the right-hand trim pad, it will be necessary to disconnect the roof lamp switch.

It should be noted that the anchorage plate position lies directly across a flanged stiffening aperture and it will be necessary to flatten out the flange sufficiently to allow the anchorage plate to fit squarely behind the pillar.

Place a cloth in the centre channel of the pillar to prevent swarf dropping inside the channel, then working to the dimensions shown in Figure 5, drill four holes 0.1909 in. diameter in each centre pillar. When drilling these holes, care should be taken to avoid damage to the wiring looms running inside the centre pillar.

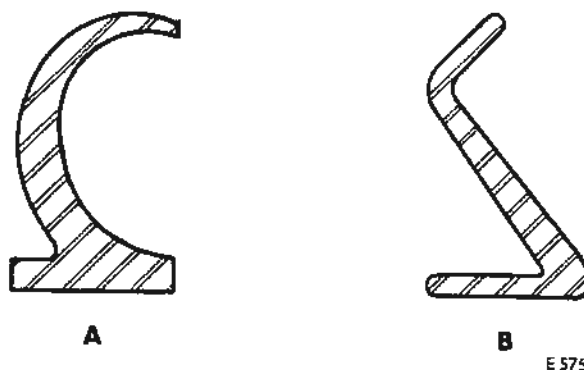
Insert an anchorage plate into each centre pillar and secure with four 2 B.A. screws and washers.

Fit a short 7/16 in. U.N.F. stud into the tapped hole in the anchorage plate, then temporarily fit the trim pad. Press the trim pad against the stud then remove the trim pad and the short stud.

Using the impression made by the stud as a guide, drill a 0.750 in. diameter hole in the trim pad to enable a distance piece to be fitted between the anchorage plate and belt lug.

Continued ...

A = Old type seal  
B = New type seal



E 575

Fig.6 Identification of old and new type door seals

Before fitting the trim pads, it will be necessary to fit the stowage clips and wooden blocks; the blocks should first be covered with leather to match the interior trim.

The centres of the holes for the stowage clip are positioned 3 in. higher than the centre of the hole for the distance piece and are positioned equally from the trim pad vertical centre line; the hole centres are 1.375 in. apart.

After marking the hole centres, drill two holes 0.1614 in. diameter through each trim pad. The leather covered block fits so that the tapered portion is at the top and faces the interior of the car.

Place the block into the stowage clip so that it is central to the clip and with a clearance of approximately  $\frac{1}{8}$  in. between the bottom of the block and the clip. Carefully mark the hole positions on the back of the block using a bradawl. Hold the clip and block in position on the trim pad and screw in the two screws from the back of the trim pad ensuring that the screws pass through the holes in the clip.

Fit the trim pads and secure the door seals as follows

#### Identification and method of securing door seals

All seals and recesses for seals should be cleaned with Bostik cleaner 6001 and allowed to dry for one to one and a half hours.

Continued ...

- 9 -

This page cancels the No. S3/S5  
previous page 9 dated 3.2.64.

On cars fitted with the old type of seal, (see Fig.6 view 'A') apply a light coat of Bostik 1261 adhesive to the bonding surfaces of the seal and recesses and allow approximately fifteen minutes for a condition to be reached whereby the adhesive just fails to transfer onto the knuckle, then press the seals into position with as much force as possible.

On cars fitted with the new type of seal, (see Fig.6 view 'B') apply, using a stiff brush, a light coat of Dunlop S758MG (DS2735/S) primer-adhesive to the recess for the seal, and allow to air dry for a period of not less than twenty minutes and not more than sixty minutes at room temperature.

As soon as possible after applying the primer-adhesive to the metal surface, apply, using a stiff brush, a light coat of Dunlop S691 (DS2738/S) adhesive to the bonding surface of the seal; allow to air dry for a period of not less than twenty minutes and not more than forty-five minutes at room temperature.

When all volatile solvents have thoroughly dried out, press the seals into position using maximum hand pressure.

Note Ensure that the Dunlop S691 (DS2738/S) adhesive, when in a wet state, does not come into contact with the cellulose finish as permanent marring of the finish will result.

#### Front safety belts - To fit (All cars)

Lay the safety belts in the position that they will occupy when in use (see Fig.7).

Cut the felt away from the areas around the holes in the floor to ensure that the belt lugs seat firmly.

On cars without a division, the safety belts cross one another at the centre anchorages.

On cars with a division, the safety belts do not cross one another at the centre anchorages. Thread the belts through the slots in the metal pan at the rear of the front seats and fit the seats.

On all cars, cut three slots in the carpet to accommodate the belt lugs; one slot should be cut for the two centre anchorages and one for each outer anchorage. The two outer slots should be cut to the edge of the carpet to enable

Continued...



the carpet to be removed when necessary without having to remove the safety belts. Bind the edges of the slots with leather to prevent the carpet from fraying.

Thread the safety belts through the slots in the carpet and attach the safety belt lugs to the anchorage points in the following manner.

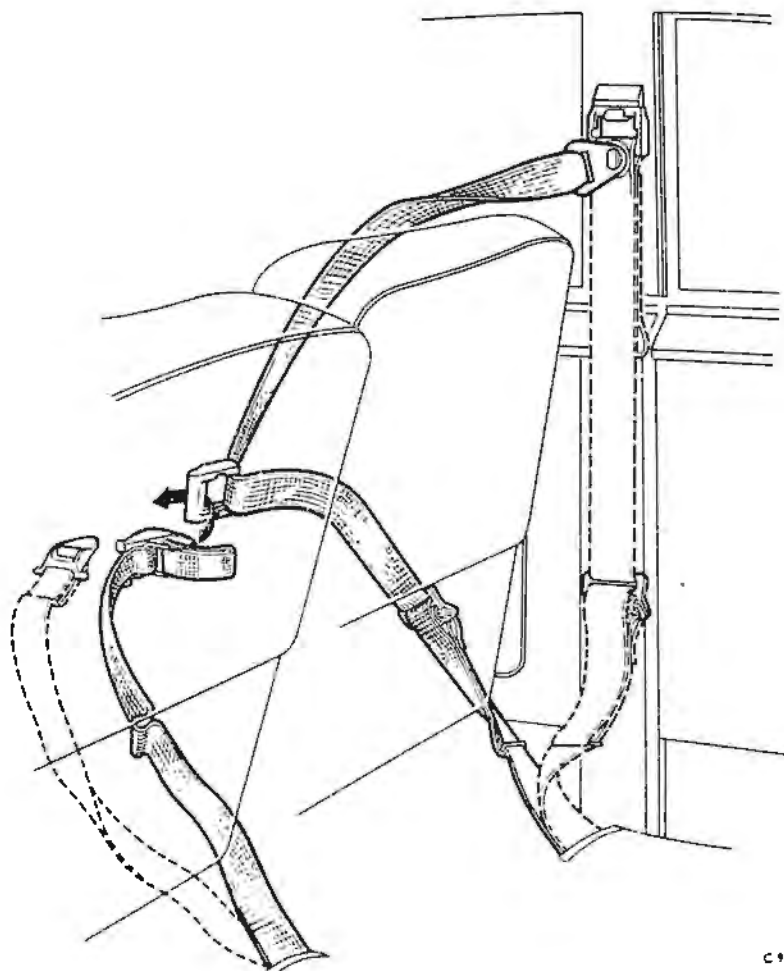


Fig.7 Stowage position and method of fastening front safety belt (combined lap and diagonal belt)

Continued ...

Fit the setscrew through the belt lug, then fit the wave washer and the chrome washer onto the setscrew in that order. Screw the setscrew into the anchorage plate and torque tighten to between 42 and 45 lb.ft. It should still be possible to swivel the belt lug when the setscrew is fully tightened.

The procedure for attaching the safety belt to the centre pillar anchorage point when lap/diagonal belts are being fitted is as follows.

Fit a long setscrew through each safety belt lug, then fit the wave washer, followed by the chrome washer and the distance piece. Screw the setscrew into the anchorage plate and torque tighten to between 42 and 45 lb.ft. It should still be possible to swivel the belt lug when the setscrew is fully tightened.

#### Rear anchorage plates - To fit (All cars)

The dimensions for drilling the holes for the anchorage plates in the rear seat pan are the same for both the lap and the lap/diagonal safety belts.

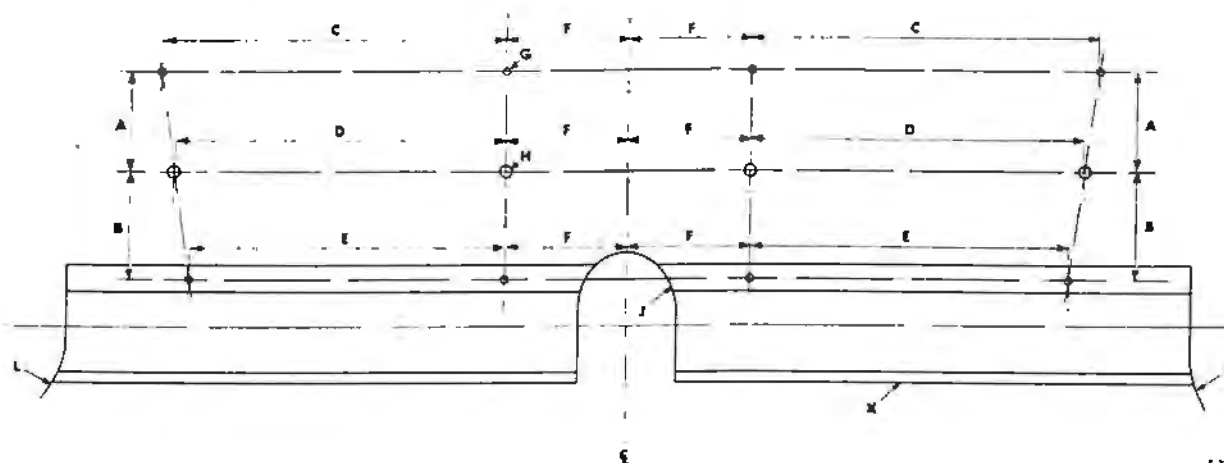


Fig.8 Dimensions for rear safety belt anchorages (all cars)

A = 4.000 in.	G = 8 holes 0.2812 in. dia.
B = 4.375 in.	H = 4 holes 0.4531 in. dia.
C = 13.390 in.	J = Depression for rear axle
D = 13.144 in.	centre casing
E = 12.875 in.	K = Seat pan stiffener
F = 5.000 in.	L = Wheel arch

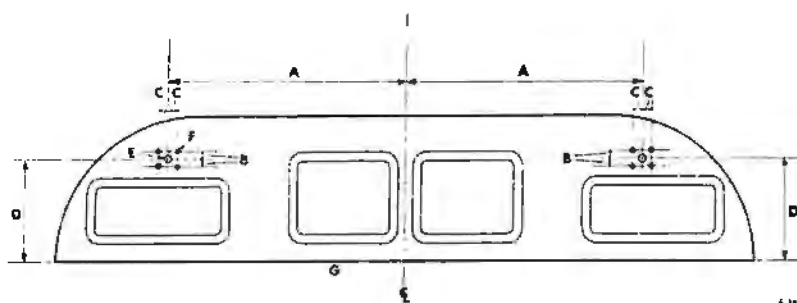
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Remove the rear seat squab, cushion and arm rests.

Remove the felt from the seat pan, then working to the dimensions given in Figure 8, drill four holes 0.4531 in. diameter and eight holes 0.2812 in. diameter. It should be noted that the centre lines of the outer holes are not parallel with the centre line of the car.

The holes drilled slightly to the left of the car centre line will pass through the rear heat shield and before fitting the stiffeners, it will be necessary to trim the shield as follows. Open the ends of the aluminium outer casing and remove sufficient insulation to clear the stiffener. Cut off the excess aluminium outer casing leaving enough to fold over the insulation to seal the heat shield.

Clean the floor area where the stiffeners are to fit and then secure the stiffeners using the eight  $\frac{1}{4}$  in. U.N.F. setscrews and washers.



**Fig.9 Dimensions for drilling the rear parcel shelf**  
(all cars - combined lap and diagonal belts only)

A = 18.500 in.	D = 8.250 in.
B = 0.562 in.	E = 2 holes 0.4531 in. dia.
C = 0.750 in.	F = 8 holes 0.1614 in. dia.

When lap/diagonal safety belts are to be fitted, it will also be necessary to drill holes for anchorage plates in the rear parcel shelf.

Continued ...

Carefully remove the trim from the top of the rear parcel shelf and also remove the trim pad from the top of the boot, under the rear parcel shelf.

Working to the dimensions given in Figure 9, drill two holes 0.4531 in. diameter and eight holes 0.1614 in. diameter in the rear parcel shelf.

Remove any burrs from around the holes and fit the anchorage plates to the underside of the rear parcel shelf, securing them with the 3 B.A. setscrews, nuts and washers.

Fit a short 7/16 in. U.N.F. stud into each tapped hole in the parcel shelf anchorage plates. Temporarily fit the trim pad, pressing it against the two studs. Remove the trim pad and the studs.

Using the impression made by the studs as a guide, drill two 0.750 in. diameter holes in the trim pad to enable a distance piece to be fitted between the anchorage plate and the belt lug.

Fit the rear parcel shelf trim pad and also fit the trim pad to the top of the boot, under the parcel shelf.

Before fitting the safety belts and rear seats, it will be necessary to fit the stowage clips and wooden blocks; the blocks should first be covered with leather to match the interior trim.

The stowage clips and blocks are secured to the side trim panels as shown in Figure 10. The vertical centre line of the stowage clip is positioned 1.437 in. from the front edge of the side trim panel and the centres for the two holes should each be 0.687 in. from this vertical centre line. The horizontal centre line for the two holes should be 1.375 in. from the underside of the wooden finisher.

To fit the stowage clip, it will be necessary to remove the wooden finisher and to partially remove the side trim panel. Carefully prise off the portion of the door seal adjacent to the wooden finisher. Remove the two screws securing the finisher and carefully withdraw the finisher. Peel back the trim leather until the tacks securing the trim panel are revealed. Remove the tacks and ease the trim panel away from the side until it is in a position suitable for drilling the two holes; it is not necessary to completely remove the panel. Mark the hole centres on the trim panels to the measurements previously quoted and drill

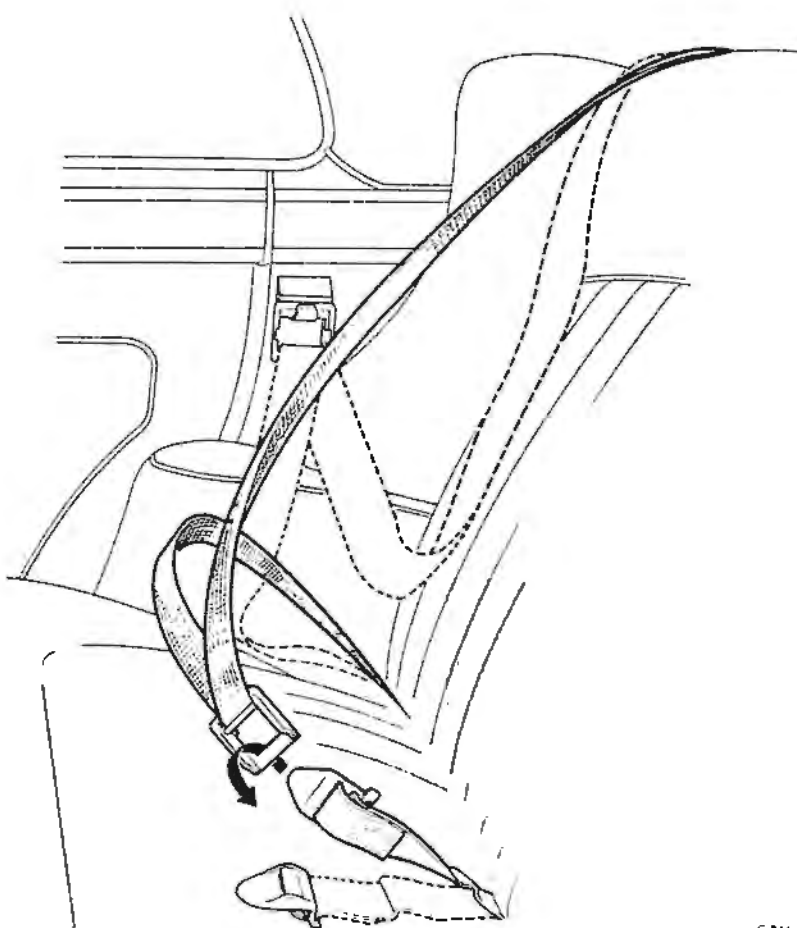
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two holes 0.1614 in. diameter in each panel. The leather covered wooden block fits so that the tapered portion is at the top and faces the interior of the car. Place the block into the stowage clip so that it is central to the clip and with a clearance of approximately  $\frac{1}{8}$  in. between the bottom of the block and the clip. Carefully mark the hole positions on the back of the block using a bradawl. Hold the clip and block in position on the trim panel and screw in the two screws from the back of the trim panel, ensuring that the screws pass through the holes in the clip.

Fit the trim panels using tacks and secure the leather trim with adhesive.

Fit the wooden finishers and secure the door seals as described earlier under the heading 'Identification and method of securing door seals'.

Fig.10 Stowage position  
and method of  
fastening rear  
safety belt  
(combined lap  
and diagonal  
belt)



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Rear seat safety belts - To fit (All cars)

Lay the belts in the position that they will occupy when in use (see Fig.10).

Cut slots in the felt to clear the anchorage points in the rear seat pan and stick the felt to the seat pan with Bostic 89 AA adhesive.

Fit the steel washer and the rubber washer onto each square headed anchorage bolt and screw the four bolts into the anchorage plates in the rear seat pan. Torque tighten the bolts to between 42 and 45 lb.ft. Fit each belt shackle over its respective square headed bolt and secure with the shackle pivot screw.

Fit the arm rests, rear seat squab and cushion allowing the safety belts to pass between the base of the seat and the squabs.

The procedure for attaching the safety belt lugs to the rear parcel shelf anchorage points when lap/diagonal belts are being fitted is as follows.

Fit a long setscrew through each safety belt lug, then fit the wave washer followed by the chrome washer and the distance piece. Screw the setscrew into the anchorage plate and torque tighten to between 42 and 45 lb.ft. It should still be possible to swivel the belt lug when the setscrew is fully tightened.

FOR INFORMATION

RADIATOR SHUTTER MOAN ON EARLY S3 BENTLEY CARS

APPLICABLE TO:

All S3 Bentley cars built prior to the following chassis numbers:

Bentley S3	B.14.EC
Bentley S3 L.W.B.	LBAL.14

INTRODUCTION

Since October 1962 owners of a few early S3 Bentley cars have complained of a 'moan' which can be heard on isolated occasions when driving at particular road speeds and in certain weather conditions.

The purpose of this Bulletin is to familiarise Retailers and Service Personnel with this complaint, since the noise is most difficult to diagnose and cure unless the tester is aware of the essential conditions which must prevail for the complaint to be reproduced.

All later cars are suitably modified against any such complaints arising.

DESCRIPTION

The 'moan' which can be heard from within the car, always occurs when driving at speeds of between 34-38 m.p.h. and 40-50 m.p.h. during cold weather conditions. Extensive road testing by factory personnel located the source of the 'moan' to the radiator shutter assembly. The cause was later attributed to the assembly being too rigid thus allowing it to vibrate at a frequency within the audible range.

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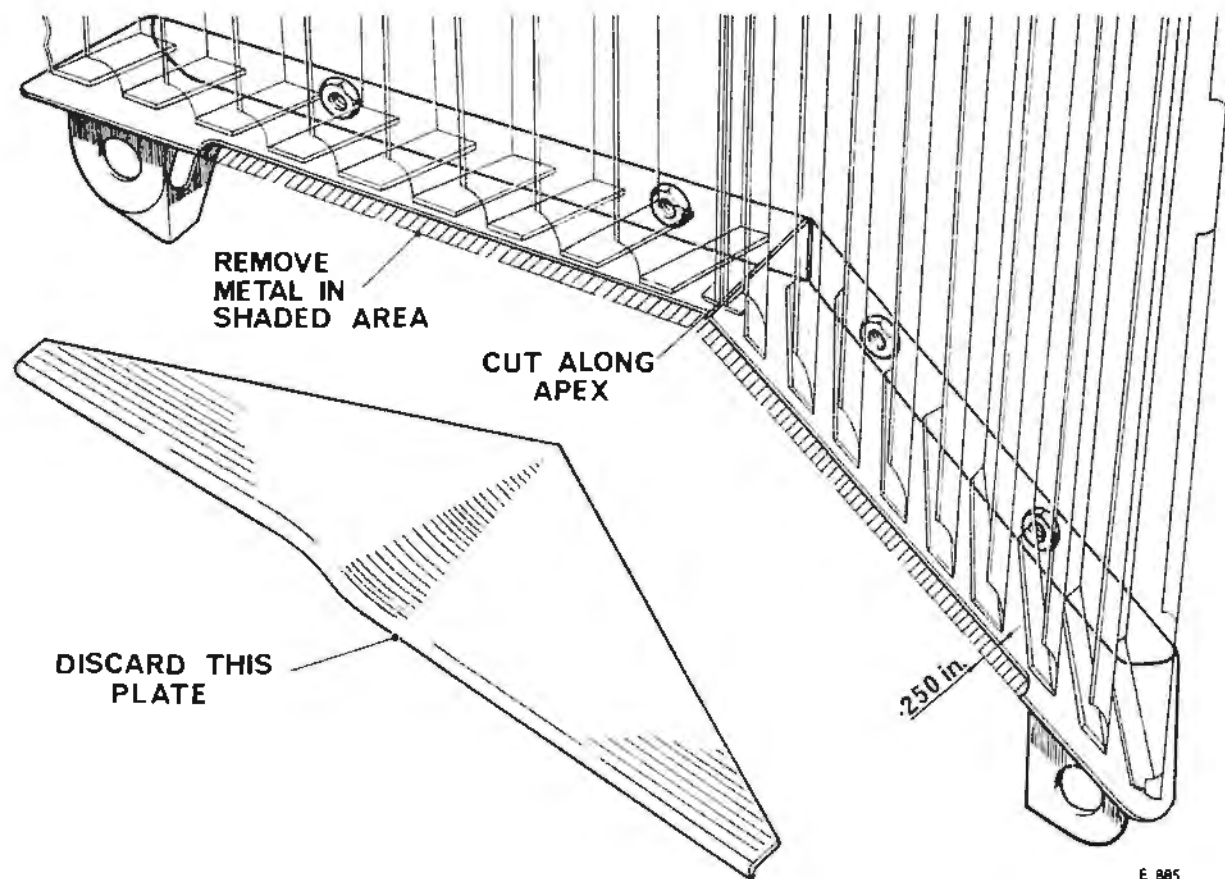


Fig.1 Modified radiator shutter assembly

To eliminate the 'moan', the stiffness of the whole vane assembly was reduced so that its natural frequency of vibration was lowered sufficiently to take it outside the audible range. This was achieved by discarding the triangular shaped blanking plate which is spot welded onto the horizontal flange of the vee shaped lower bearing strip and by removing 0.250 in. from the rear side (i.e. spot welded area) of the lower bearing strip. The strip was then cut into two equal lengths by cutting along the apex of its vee form. For details of the modification see Figure 1.

Since the removal of the triangular shaped plate from the radiators of all Bentley cars after the quoted chassis numbers, there have been no further complaints.

Retailers are requested that the following action should be taken only in the event of a customer complaint of radiator shutter moan.

Continued...



PROCEDURE

- (1) Try to substantiate the customer's complaint if the prevailing weather conditions are as stated.
- (2) Remove the radiator shell.
- (3) Remove the vane assembly complete.
- (4) Carefully remove and discard the triangular shaped blanking plate from the vee shaped lower bearing strip onto which it is attached by means of spot welds.
- (5) Reduce the width of the horizontal flange of the lower bearing strip by removing metal from the area shown shaded (see Fig.1).
- (6) Cut the lower bearing strip along the apex of its vee form, thus producing two separate strips (see Fig.1).
- (7) Treat the exposed metal surfaces resulting from operations (5) and (6) with a suitable paint.
- (8) Refit the vane assembly.
- (9) Refit the radiator shell.

FOR INFORMATION

WINDOW LIFT CHAIN FAILURE

APPLICABLE TO:

All 'S' type cars fitted with electrically operated windows.

DESCRIPTION

Various modifications have been incorporated over the last 18 months to improve the quality of the electrically operated window lift mechanism. These modifications have increased the power output of the mechanism by as much as 60% in some cases and this extra power has been causing the lower stop brackets to bend, so allowing the window glass to go further down its slides. Under these conditions, twist in excess of its design limitations, is applied to the chain in its non-flexible plane and so results in chain failure.

To overcome this problem, a stronger stop bracket with a wider mounting base and interchangeable with the original bracket was designed. Prior to the manufacture of the new brackets, an interim modification was introduced on production; this modification consisted of enlarging the two bolt holes in each lower stop bracket and the corresponding holes in the window channel frame to 5/16 in. diameter. The bolt holes in the new stop brackets with the wider mounting base are drilled 1/4 in. diameter and if fitting one of these brackets to a window channel frame produced during the interim period, it will be necessary to enlarge the lower bolt hole of the new stop bracket to 5/16 in. diameter.

In cases of chain failure the new brackets should be fitted. At the same time, it is very important to check the alignment of the chain at each end of its travel and to correct it if necessary.

PART NUMBERS

The part numbers for these new brackets are UB.5368/9.

CATEGORY C

FRONT WING AND DOOR STYLING STRIPS

APPLICABLE TO:

Standard Rolls-Royce Silver Cloud III and Bentley S3 cars

DESCRIPTION

A number of standard Silver Cloud III and Bentley S3 cars have now been fitted with front wing and door styling strips. These strips were only fitted to a limited number of cars until customer reaction was obtained.

Since the demand for these strips has now increased, the issue of this Bulletin is necessary to enable the correct fitting procedure to be adopted.

PROCEDURE

1. Apply a length of masking tape along each front wing and door to cover the areas which are to be drilled as shown in Figure 1.
2. Mark onto the masking tape, the correct position of each hole to be drilled. The hole centres should be marked so that when the styling strips are fitted, their lower edges are approximately 0.062 in. (1.59 mm.) above the existing styling lines.
3. Drill the holes to the sizes indicated and then remove the masking tape.
4. Paint the edges of each drilled hole with zinc primer and apply a suitable non-staining sealer to the edges of the holes.
5. Apply an extrusion of the same sealer along the complete length of the uppermost interior face of each styling strip.
6. Fit the strips to the wings and doors and secure them into position as shown in Sections 'AA', 'BB', 'CC' and 'DD' (see Fig. 1). Care should be taken when tightening the nuts to ensure that the wing and door panels are not distorted.

Continued...

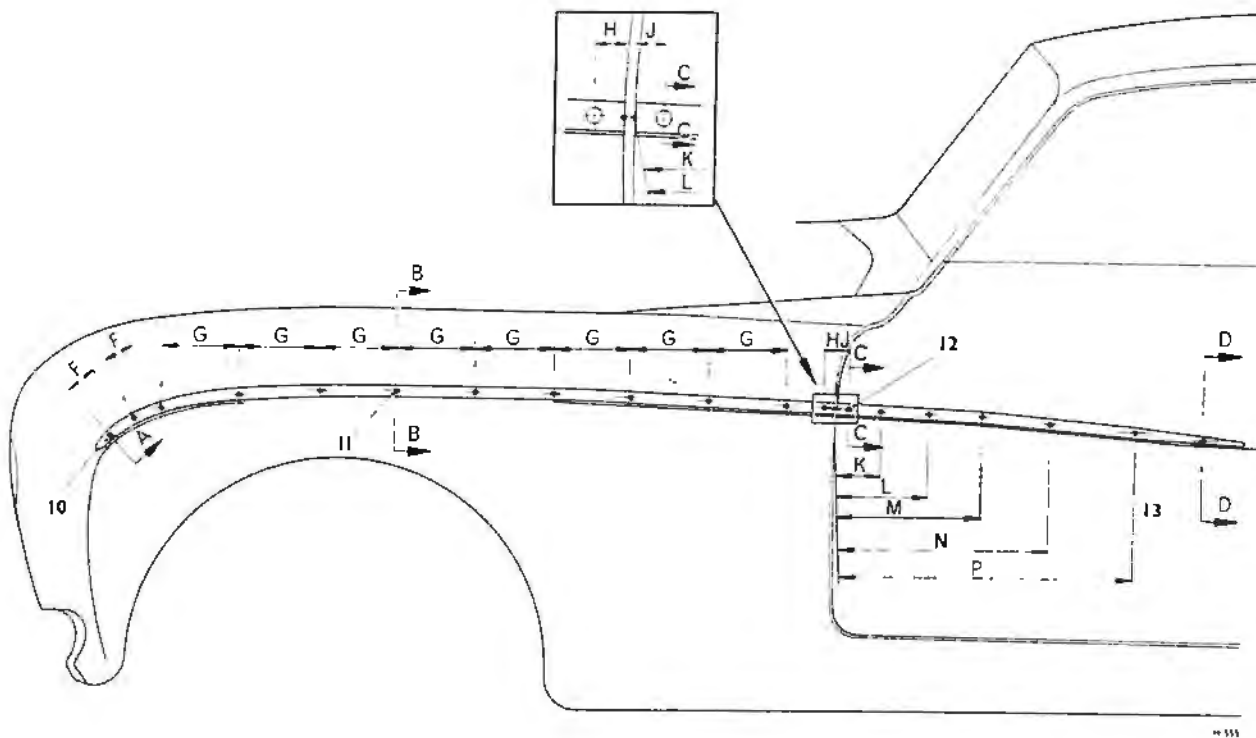
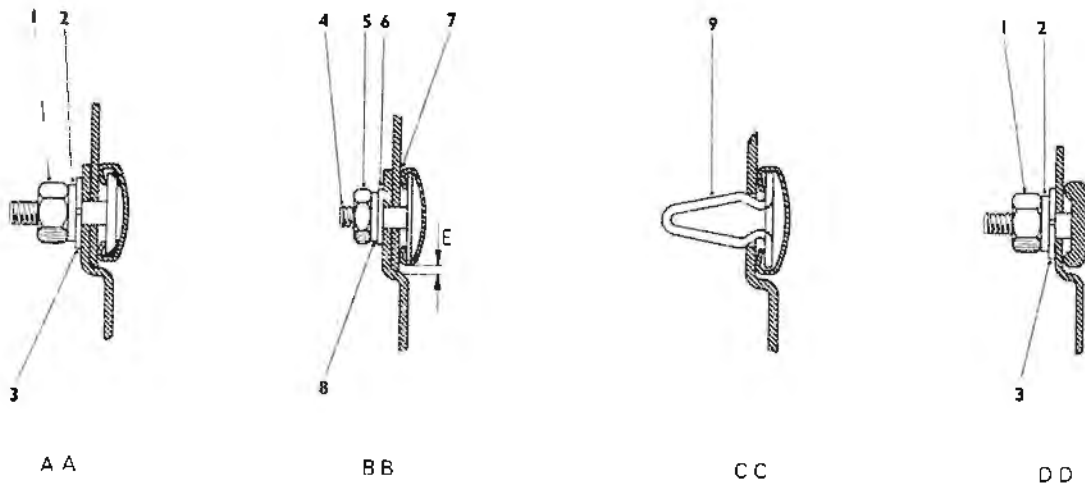


Fig.1 Method of fitting styling strips  
to front doors and wings

Key overleaf...

Key to Fig. 1 :

- 1 NUT (K 4006)
- 2 SPRING WASHER (K 9006)
- 3 PLAIN WASHER (K 4404)
- 4 STUD PLATE (RH 7991)
- 5 NUT (RH 7992)
- 6 PLAIN WASHER (K 4446)
- 7 APPLY SEALER BETWEEN STRIP AND PANEL
- 8 SPRING WASHER (K 9005)
- 9 CLIP (UB 2301)
- 10(AA) DRILL TWO HOLES 13/64 in. dia. (5,16 mm.) i.e.  
ONE IN EACH FRONT WING
- 11(BB) DRILL THIRTY TWO HOLES 11/64 in. dia. (4,37 mm.)  
i.e. ELEVEN IN EACH FRONT WING AND FIVE IN EACH  
FRONT DOOR
- 12(CC) DRILL TWO HOLES 1/4 in. dia. (6,35 mm.) i.e. ONE  
IN EACH FRONT DOOR
- 13(DD) DRILL TWO HOLES 13/64 in. dia. (5,16 mm.) i.e.  
ONE IN EACH FRONT DOOR
- E 1/16 in. (1,6 mm.) CONSTANT GAP
- F 2 1/4 in. (5,7 cm.)
- G 6 in. (15,24 cm.)
- H 7/8 in. (22,23 mm.)
- J 5/8 in. (15,88 mm.)
- K 4 1/2 in. (11,43 cm.)
- L 8 in. (20,32 cm.)
- M 11 1/2 in. (29,21 cm.)
- N 16 3/4 in. (42,55 cm.)
- P 23 1/4 in. (59,06 cm.)

Note Prior to fitting the stud plate into the styling strips, it will be necessary to trim an equal amount from two opposite edges of the square plate, sufficient to allow the plates to slide into the back of the styling strips.

Special attention is required when fitting the styling strips to the front doors, since they may foul the trailing edges of the front wings when the doors are opened. This condition can be alleviated by careful positioning of the door strips prior to securing them in position.

Continued...

7. Wipe clear, the sealer which exudes after tightening but, ensure that the top edge of each strip is sealed.
8. Apply a liberal amount of underseal onto and around the studs where they protrude beneath the wings and inside the doors.

# MATERIAL REQUIRED

<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
RH 7895/6	Styling strips - door	1 off each
RH 7897/8	Styling strips - wing	1 off each
K 4006	Nut - 2 B.A. (Section 'AA' and 'DD')	4 off
K 4004	Washer - plain )	
K 9006	Washer - spring ) Section 'AA' and 'DD'	4 off
UB 2301	Clip (Section 'CC')	2 off
RH 7991	Stud Plate (Section 'BB')	32 off
RH 7992	Nut - 3 B.A. (Section 'BB')	32 off
K 4446	Washer - Plain (Section 'BB')	32 off
K 9005	Washer - Spring (Section 'BB')	32 off

# TIME ALLOWANCE

4.5 hours

CATEGORY C

'MIDNIGHT BLUE' PAINTS

APPLICABLE TO:

All Rolls-Royce and Bentley S series cars.

DESCRIPTION

The purpose of this Service Bulletin is to inform Distributors, Retailers and Service Personnel that I.C.I. 'Midnight Blue' paint is no longer available, and that Mason's 'Midnight Blue' and Thornley and Knight's 'Midnight Blue' should be used for any paintwork rectification in Service.

Mason's 'Midnight Blue' can be used for complete resprays of cars originally finished with the I.C.I. paint providing the existing finish is prepared correctly. It should not be used on the I.C.I. paint for touching in or local repair purposes, due to differences in colour.

Thornley and Knight's 'Midnight Blue' paint should only be used for touching in chip marks on cars finished with the I.C.I. paint.

It is not the policy of Rolls-Royce Limited to supply finishes for any cars other than Standard Steel Saloons. For Coachbuilt cars, enquiries should be made to the appropriate Coachbuilder.

Code and Part Numbers

<u>Material</u>	<u>Code</u>	<u>Part Number</u>	<u>Use</u>
Mason's 'Midnight Blue' Paint	LB 239/5	9510004	Respray only
Mason's Thinner for the above	LB 308/9	9503937	

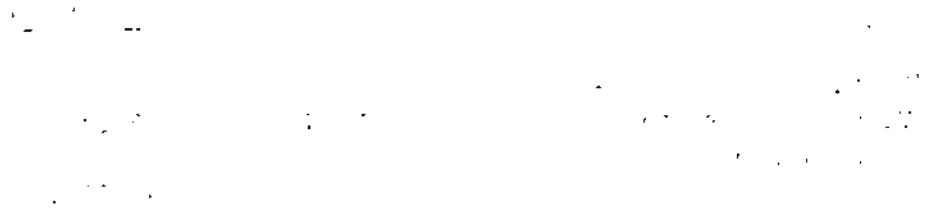
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<u>Material</u>	<u>Code</u>	<u>Part Number</u>	<u>Use</u>
Thornley and Knight's 'Midnight Blue' Paint	TV 3765	RH 2421	Touch-in only
Thornley and Knight's Thinner for the above	'Tekavite'	RH 8047	

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**Silver Cloud III Coachbuilt  
Bentley Continental S3**



No BC3/A1

This Bulletin cancels all  
previous Service Bulletins  
numbered BC3/A1

FOR INFORMATION (Strictly Confidential)

CHASSIS SERIES AND ENGINE NUMBERS FOR  
BENTLEY CONTINENTAL S3 CARS

The following is a list of all engine and chassis numbers which have at present been issued for Bentley Continental S3 cars. It is intended to facilitate the identification of chassis numbers in relation to modifications.

The letter 'L' preceding the chassis series letter indicates a left-hand drive chassis.

Number 13 is omitted from all chassis numbers.

<u>SERIES</u>	<u>CHASSIS NUMBER</u>	<u>ENGINE NUMBER</u>
<u>BENTLEY CONTINENTAL S3</u>		
A. BC.2.XA to BC.174.XA	Even numbers only.	1.ABC to 87.ABC
B. BC.2.XB to BC.100.XB	Even numbers only.	1.BBC to 50.BBC
C. BC.2.XC to BC.202.XC	Even numbers only.	1.CBC to 101.CBC

## Phantom V

No. PV2/A1

This Bulletin cancels all  
previous Service Bulletins  
numbered PV2/A1

FOR INFORMATION (Strictly Confidential)

CHASSIS SERIES AND ENGINE NUMBERS FOR

PHANTOM V CARS

The following is a list of engine and chassis numbers which have at present been issued for Phantom V cars from Chassis no. 5.VA.1. It is intended to facilitate the identification of chassis numbers relative to modifications.

The letter 'L' preceding the chassis series letter indicates a left-hand drive chassis.

Number 13 is omitted from all chassis numbers.

<u>SERIES</u>	<u>CHASSIS NUMBER</u>	<u>ENGINE NUMBER</u>
A. 5.VA.1 to 5.VA.123	Odd numbers only.	A.1.PV to A.61.PV
B. 5.VB.1 to 5.VB.51	Odd numbers only.	B.1.PV to B.25.PV
C. 5.VC.1 to 5.VC.51	Odd numbers only.	C.1.PV to C.25.PV
D. 5.VD.1 to 5.VD.101	Odd numbers only.	D.1.PV to D.50.PV