

FOR INFORMATIONHYDRAULIC 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.

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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.

FOR INFORMATIONTAPPET 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.

No. S3/E2

(Re-issue)

This Bulletin cancels all previous  
Bulletins numbered S3/E2.

Circulation - All Retailers

CATEGORY CINLET AND EXHAUST VALVE GUIDESAPPLICABLE 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 INFORMATIONENGINE 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.

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FOR INFORMATIONOIL CONSUMPTIONAPPLICABLE 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.

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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.

# V8 Engine Rocker Cover Gaskets

## Service Replacement of Original Neoprene Cork Gaskets by the Silicone Rubber Type

### Applicable to

All Rolls-Royce and Bentley Motor Cars fitted with the V8 engine from Rolls-Royce Silver Cloud II and Bentley S2 onwards.

### Introduction

The purpose of this Product Support Information Sheet is to inform service personnel of a new type of rocker cover gasket. It is now available for the above vehicles.

### Description

A new design rocker cover gasket is now available for all cars fitted with a V8 engine. The gasket is of black Silicone Rubber and replaces the original cork gasket.

The ferrule and rubber bush have been replaced with a new bonded isolator.

New distance pieces have been added to control the amount of compression of the gasket when assembled to the cylinder head. The distance pieces (3 per head) are fitted over the studs which are used to secure the rocker cover in position.

All the new parts must be used together to achieve the optimum performance for sealing the rocker cover to the cylinder head. No special tools or modifications are required to any of the existing parts or surfaces other than to make sure that they are clean and free of debris.

### Procedure.

- 1. With the rocker cover removed from the cylinder head, remove the cork gasket and earthing strips and discard.
- 2. Remove the ferrules and rubber bushes from the rocker cover and discard.
- 3. Remove any debris and thoroughly clean the gasket groove on the rocker cover and the mating face on the cylinder head with a suitable cleaning solvent.
- 4. Using Loctite 406 assemble new gasket to rocker cover groove, allowing time to cure.
- 5. Assemble the 3 bonded isolators to the fixing holes on rocker cover.
- 6. Place the 3 distance pieces over the 3 cylinder head studs.
- 7. Assemble rocker cover to cylinder head.
- 8. Fit the 3 cap nuts through bonded isolator and tighten uniformly.
- 9. Torque tighten cap nuts 8-10 lbs ft.

### Note:

The cap nuts should make a solid joint with the spacers so that the designed compression of the gasket is achieved.

### Parts affected

New part No.	Displaced part No.	Description	Quantity
UV 11306PA	UE 4324	Gasket	2
	UE 6570	Ferrule	6
UV 11306pa		Bonded isolator	6
	UE 42838	Rubber bush	6
UV 11307PA		Distance piece	6
G2/153		Loctite 406	
	UE 34258	Earthing strip	8

### Defect and repair code manual:

For cars prior to those VIN's listed in Appendix 1

Code	Description	Time
Defect 09 05 16 01 21		
Repair 09 05 16 02 S	Replace rocker cover gasket B bank	1.2 hours
Defect 09 05 16 02 21		
Repair 09 05 16 02 S	Replace rocker cover gasket A bank	1.2 hours
Defect 09 05 16 04 21		
Repair 09 05 16 02 S	Replace both A bank and B bank rocker cover gaskets	2.0 hours

A revised MHS time is necessary for certain motor cars.

The revised time and motor cars affected are in accordance with Appendix 1.

### APPENDIX 1

For 1994 MY cars onwards.

Number	Description	Time

Defect code 09 05 16 01 21 Repair code 09 05 16 01 S	Replace rocker cover gasket B bank	3.3 hours
Defect code 09 05 16 02 21 Repair code 09 05 16 02 S	Replace rocker cover gasket A bank	3.3 hours
Defect code 09 05 16 04 21 Repair code 09 05 16 04 S	Replace both A bank and B bank rocker cover gaskets	5.3 hours

## VIN Numbers - Rolls-Royce Motor Cars

Corniche IV \*SCAZDO2C5RCX50001\* to \*SCAZDO2C5SCH50170\*  
 Silver Spirit III \*SCAZSO2D5RCH54003\* to \*SCAZSO2CXSCH55760\*  
 Silver Spur III \*SCAZNO2D6RCX54001\* to \*SCAZNO2C5SCX55749\*  
 Flying Spur III \*SCAZGO3C6SCX54974\* to \*SCAZGO3C5SCX55761\*  
 Silver Dawn \*SCAZAO2C4SCX54846\* to \*SCAZA17C9WCH66305\*  
 Silver Spirit \*SCAZSO2C0TCH57003\* to \*SCAZS12C5VCH59368\*  
 Silver Spur \*SCAZNO2C1TCX57001\* to \*SCAZN2OCXWCX66511\*  
 Corniche S \*SCAZCO3C7SCX50086\* to \*SCAZC03C2SCX50156\*  
 Silver Spur III Limousine \*SCAZW02C2RCX80101\* to \*SCAZW02C4SCX80137\*  
 Park Ward \*SCAZV12CXTCH80205\* to \*SCAZV12C7TCH80212\*  
 Silver Spur Park Ward \*SCAZV20C4VCH80213\* to \*SCAZV19C9WCX80252\*  
 Silver Spur Park Ward \*SCAZY20CXVCH80501\* to \*SCAZY20CTWCX80535\*  
 Silver Spur Park Ward \*SCAZY21C7WCH80701\* to \*SCAZY20CWCH80719\*

## VIN Numbers - Bentley Motor Cars

Brooklands \*SCBZEO2CXRCH54007\* to \*SCBZE2OC7VCH60307\*  
 Brooklands LWB \*SCBZFO2C2RCX54027\* to \*SCBZF2O2C2WCH66420\*  
 Brooklands R \*SCBZE2OC4WCH66003\* to \*SCBZE21C9WCX66400\*  
 Brooklands R LWB \*SCBZF2OC9WCH66284\* to \*SCBZF2OC2WCH66420\*  
 Brooklands R Mulliner \*SCBZF28CXWCH66802\* to \*SCBZF28C1WCH66901\*  
 Turbo R \*SCBZRO3A9RCH54002\* to \*SCBZR15C5VCH60314\*  
 Turbo RL \*SCBZP03C5RCX54017\* to \*SCBZP15C5VCH60321\*  
 Turbo RT (SWB) \*SCBZR23C6WCH66293\* to \*SCBZR23C1WCX66392\*  
 Turbo RT (LWB) \*SCBZP25C6WCX66701\* to \*SCBZP26C2WCX66497\*  
 Turbo RT Mulliner \*SCBZP25C6WCX66701\* to \*SCBZP26C6WCH66750\*  
 Turbo S \*SCBZTO5C8SCH56801\* to \*SCBZTO5C2SCH56560\*  
 Continental \*SCBZDO2C4RCX50003\* to \*SCBZDO2C4SCX50167\*  
 Continental R \*SCBZB03C4RCX52001\* to \*SCBZB15COWCX63124\*  
 Continental S \*SCBZB05C1SCX52332\* to \*SCBZB05C9SCX52451\*  
 Continental T \*SCBZU15C1TCH53159\* to \*SCBZU26C1WCX67052\*  
 Azure \*SCBZK03C3SCH50801\* to \*SCBZK14C2WCX61635\*  
 Continental Turbo \*SCBZC03C4SCX50140\* to \*SCBZC03C5SCX50163\*