

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 |
| UR 5972 | Banjo bolts | 2 |
| UR 8715 | Banjo bolt | 1 |
| UR 8716 | Washer | 1 |
| UR 8717 | Washer | 1 |
| UR 8718 | Taper bung | 1 |
| UR 8732 | Cranked banjo adaptor | 1 |

No. S3/N2

This Bulletin cancels all previous Service Bulletins 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.).

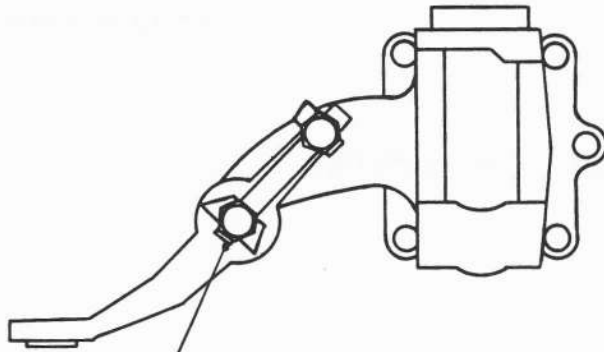
Secure each side steering lever into position using the new locking plate, tightening the original setscrews to their correct torque figure. It is of vital importance that when each setscrew is fitted the correct torque is applied to it. (Refer to torque figures listed). SEE NOTE.

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.

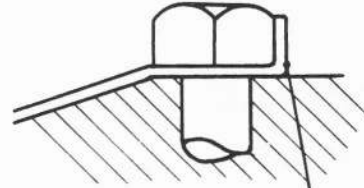
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2.

No.S3/N2



Bend up one tab
for each setscrew



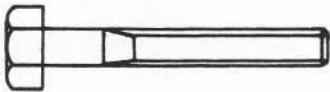
Tab to be flush
with hexagon flat

View of side steering lever showing the locking plate UR 8816
correctly tabbed

TYPE OF SETSCREW

TORQUE FIGURES

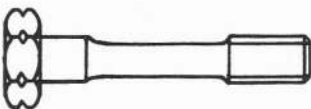
PART NO.



(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

CATEGORY C

ALTERNATIVE STEERING PUMPS

APPLICABLE TO:

All Rolls-Royce Silver Cloud II and III cars, and all Bentley S 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).

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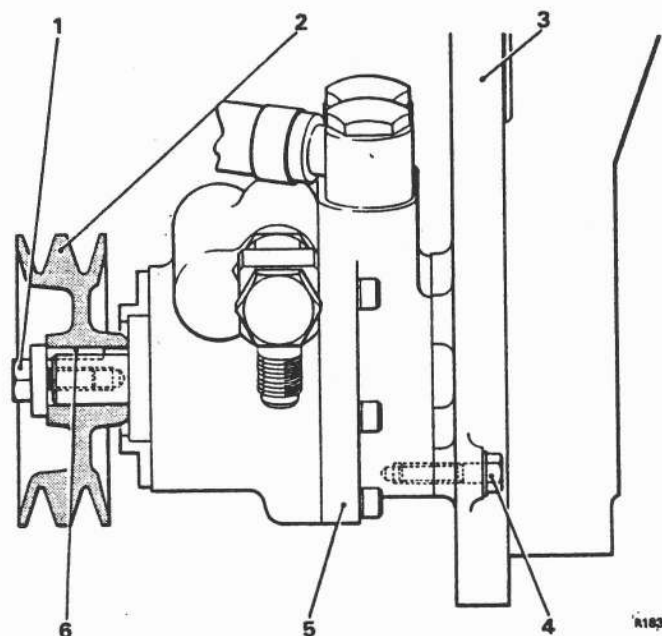


Figure 1. Fitting pump to swivel bracket

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.

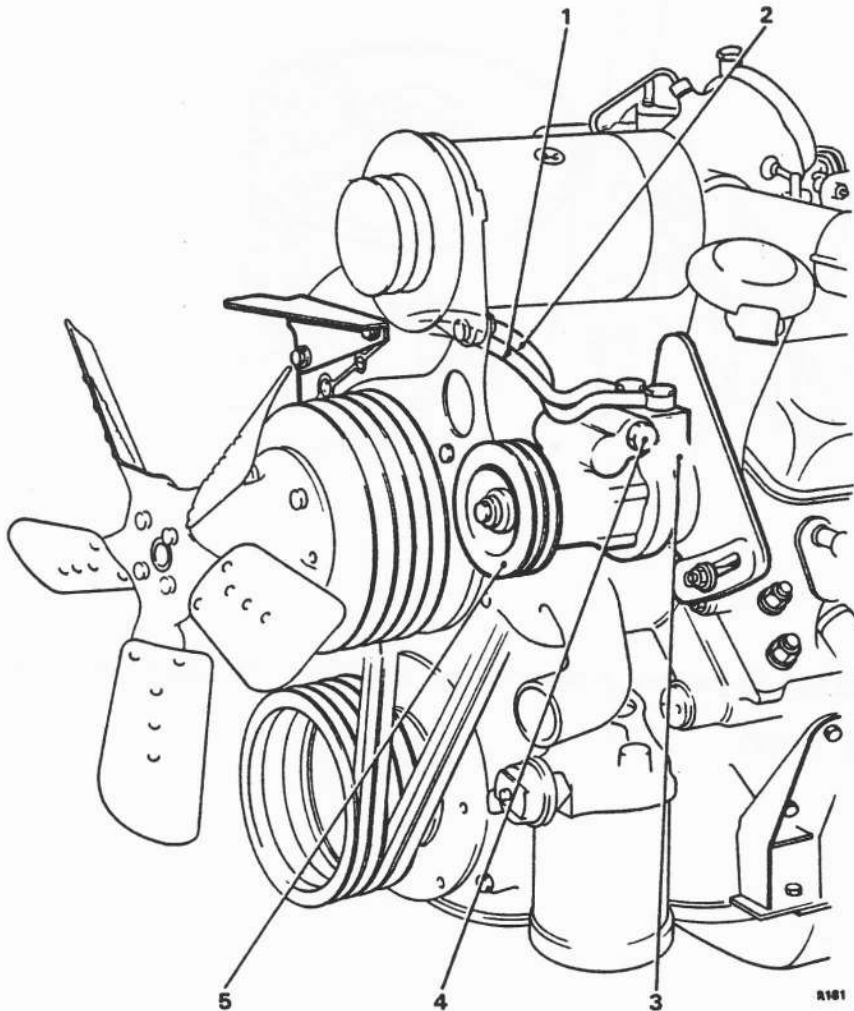


Figure 2. Pump in position

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.

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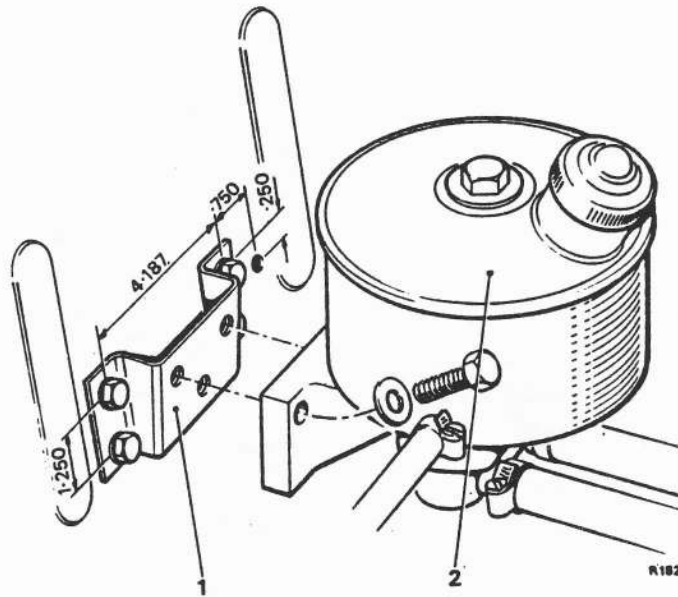


Figure 3. Fitting reservoir mounting bracket RH 8920 to bulkhead.

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