

## SECTION 12 — ROAD WHEEL BRAKE SERVO DRIVE

It is unlikely that removal of the servo drive-shaft will be necessary, except during complete overhaul. It can be removed without disturbing the gearbox, after first removing the brake servo motor (see Section 1) and, the ride control unit, if fitted (see Section 10).

**Servo drive — To remove**

On cars not fitted with a ride control unit, remove the three setscrews and washers securing the servo drive blanking plate, then remove the blanking plate and the three spring washers.

The small tapered bearing outer race will remain in the extension casing.

On all cars, remove the four setscrews and washers securing the servo drive end cover and withdraw the cover; remove the large washer, if fitted, from the cover. The large tapered bearing outer race may remain in the casing, but this can be removed at the same time as the drive unit.

Using a soft punch, tap the small end of the shaft until the large bearing outer race is removed from the casing; the drive-shaft can then be removed. The small bearing outer race should be a push fit in its bore and may then be easily removed.

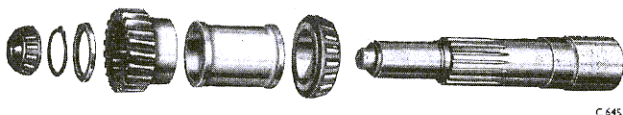


Fig. 93 Servo drive—exploded

**Servo drive — To dismantle**

Before dismantling the servo drive, examine the assembly as described under 'Servo drive — To inspect', it is not advisable to remove any of the parts, except when they require renewing due to wear or damage.

Using a press or a suitable bearing extractor, withdraw the small tapered bearing; care must be taken to protect the ride pump driving lugs at the end of the shaft as they may easily become damaged.

Remove the circlip and slide off the washer, servo drive gear and distance sleeve (see Fig. 93).

Finally, press the large tapered bearing inner race off the shaft.

**Servo drive — To inspect**

After washing all the parts in a suitable cleaning fluid, examine the bronze gear teeth for signs of excessive wear or damage; wear will be shown by the teeth becoming ridged, thin and sharp.

Check the inner races of the tapered bearings for security on the shaft, the rollers for damage and the cages for cracks. Check the condition of the outer races and their respective housings for signs of excessive creep; also check the three dished spring washers for distortion or cracks.

Check the three driving pins, in the end of the shaft, for wear and security.

Check the condition of the oil seal in the end cover; if it needs renewing, tap out the seal with a hammer and soft drift, supporting the cover to avoid damaging the joint face.

If fitted, check the oil drain pipe for security in the end cover.

**Servo drive — To assemble**

Slide the large tapered bearing on to the shaft as far as it will go, then using a sleeve which will pass over the shaft and bear up against the inner race, press the bearing along the shaft until it is approximately 0.062 in. from the shoulder. Do not press the bearing any further otherwise it may bind on the shoulder bottom radius and make final positioning difficult.

## ROLLS-ROYCE AUTOMATIC GEARBOX

In the following order fit the sleeve, gear (plain portion towards the sleeve) abutment washer and circlip.

Position the small bearing onto the end of the shaft and mount the assembly on a press in the manner illustrated in Figure 94. Support the assembly by the outer race of the large bearing, then using a suitable sleeve, press against the inner race of the small bearing, until it abuts against its locating shoulder. Continue the pressure until the larger bearing has moved firmly up against the distance sleeve, securing the gear and abutment washer hard against the circlip.

Check that the sleeve cannot be turned by hand before removing the assembly from the press.

When fitting a new end cover oil seal, ensure that the seal lip faces toward the gearbox and that the seal is pressed fully home into its bore.

### Servo drive — To fit

Before installing the drive-shaft assembly into the gearbox, lubricate the two bearings and drive gear with clean gearbox oil.

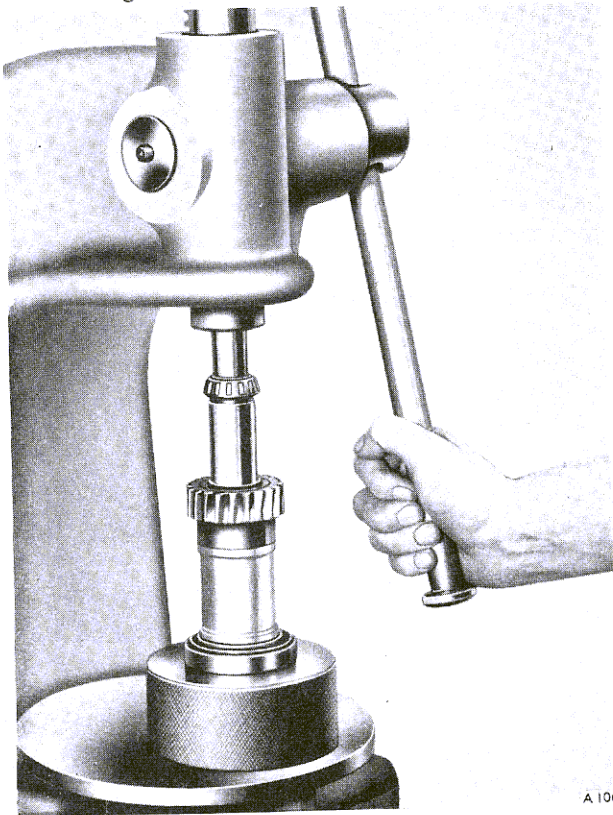


Fig. 94 Pressing bearing into position

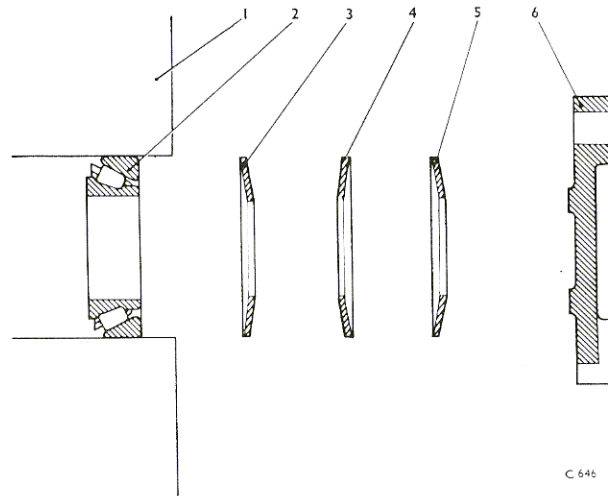


Fig. 95 Correct fitting of spring washers

- |                       |                        |
|-----------------------|------------------------|
| 1 GEARBOX CASING      | 4 CENTRE DISHED WASHER |
| 2 SMALL TAPER BEARING | 5 OUTER DISHED WASHER  |
| 3 INNER DISHED WASHER | 6 BLANKING PLATE       |

Fit the small bearing outer race into its housing, leaving sufficient room for the three dished spring washers, which on 'S' series cars without the ride control unit, should then be fitted in the order shown in Figure 95. Coat the blanking plate with jointing compound and fit the plate; secure with the three setscrews and washers and tighten evenly.

Slide the shaft into the gearbox, carefully meshing the gear teeth, then fit the large bearing outer race into its housing.

Coat the joint face of the end cover with jointing compound, fit the large washer in the cover, then with the drain pipe to the bottom of the gearbox, fit it over the outer race by tapping it evenly with a soft-headed mallet. On cars not fitted with a ride control unit, the large washer and the oil drain pipe are not fitted.

Finally, evenly tighten the four setscrews and washers and check for freedom of rotation by turning the output shaft. It is emphasized that the four setscrews must be tightened evenly otherwise damage may occur as a result of the large bearing outer race cross binding in its bore.

Refit the brake servo motor as described in Section 1 and if fitted, the ride control unit as described in Section 10.