

ROLLS-ROYCE AUTOMATIC GEARBOX

SECTION 2 — FLUID COUPLING

Fluid coupling — To remove

The fluid coupling can be removed from the gearbox casing only after removal of the gearbox from the car, as described in Section 1. Removal of the coupling includes dismantling to component parts and the opportunity should be taken during this operation to inspect parts for defects, signs of oil leakage and incipient failure.

The joint faces of the torus cover and flywheel should be inspected for dark patches which may indicate the passage of leaking oil.

Before removing the mainshaft nut, check for tightness. Any slackness may have allowed movement of the torque member on the splines and caused wear or noisy operation of the gearbox.

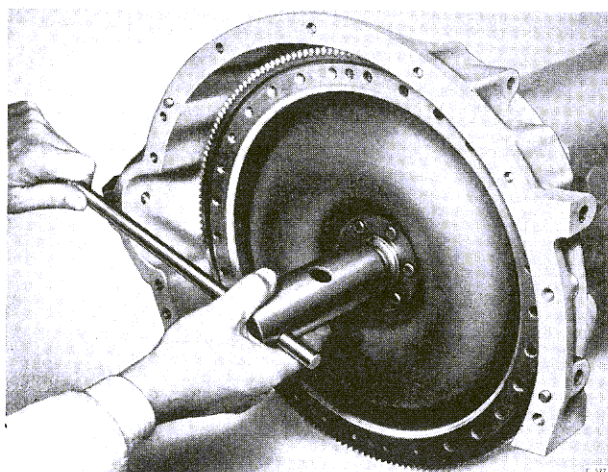


Fig. 43 Removing mainshaft nut

Move the selector lever on the control valve unit to the Reverse position; this will lock the mainshaft by engaging the parking pawl and so facilitate straightening of the locking plate and removal of the mainshaft nut (see Fig. 43).

Remove the nut and locking plate.

Before removing either the torus members or the torus cover, check for play on the splined shaft; excessive play can contribute to noisy operation.

If the fit on the splines is satisfactory, mark the mating splines to facilitate correct assembly.

Withdraw the front (driven) torus member from the splines. If difficulty is experienced, a sharp blow with a soft-faced mallet on the end of the mainshaft will free the torus hub from the splines.

Remove the rear (driving) torus snap ring from the groove in the intermediate shaft and draw the torus member from the splines (see Fig. 44).

Remove the torus cover (see Fig. 45). If it does not slide freely from the splines extreme care must be taken to avoid rocking it excessively, otherwise damage to the oil seals may occur. The cover should be pushed firmly backward and then drawn sharply forward off the shaft. **Care must be taken** not to damage the machined sealing surfaces on the torus neck by careless handling.

Check the end float of the intermediate shaft by drawing the shaft forward and inserting a feeler blade between the bronze washer and the end of the front drive-shaft; clearance in excess of the limits given in the 'Summary of Repair Data' could contribute to noisy operation. If the clearance is incorrect, assess the thickness of the steel washer required for replacement.

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If the gearbox is to be further dismantled, examine the exterior of the bell housing-to-gearbox mating faces for signs of oil which may indicate a leaking front pump cover or front pump seal.

Remove the four setscrews securing the bell housing to the gearbox casing and withdraw the housing. **Note** Early bell housings are in two parts and must be kept 'mated' as a unit.

Check the torus relief valve for freedom and full travel in the retainer. If the valve appears to be serviceable and no complaint has been received of slip as described in Chapter 2, cleaning without dismantling should be sufficient. If, however, it is considered necessary, the torus relief valve and spring can be removed from the driven torus by turning back the locking tabs on the retainer, unscrewing the setscrews and lifting the retainer, relief valve and spring from the recess in the torus hub (see Fig. 46).

Clean all parts thoroughly, using paraffin or a degreasing agent.

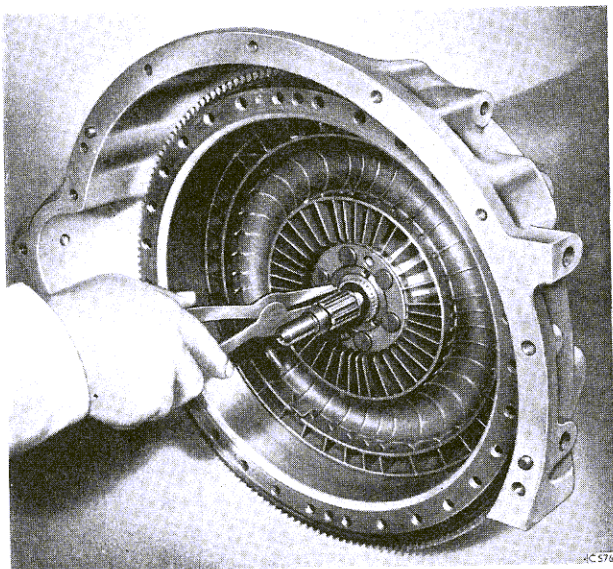


Fig. 44 Removing intermediate shaft snap ring

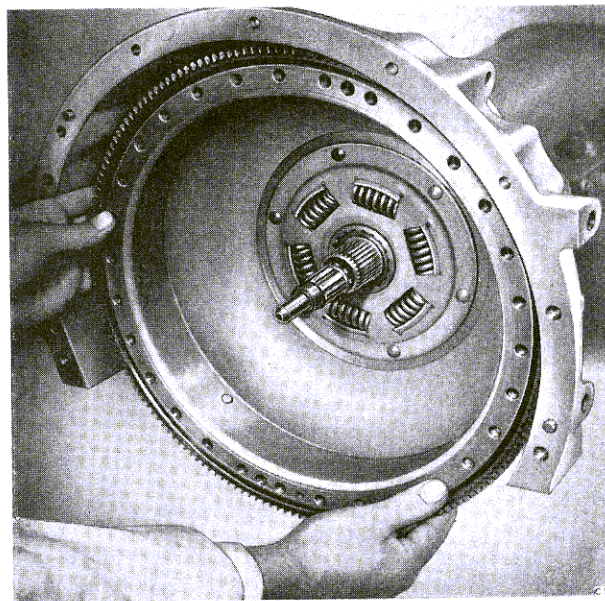


Fig. 45 Withdrawing the torus cover

Fluid coupling — To inspect

Examine the splines for signs of wear and damage; check the torus members and the hub of the spring drive in the torus cover for fit on their respective splines.

Examine all rivets, also the torus vanes, for slackness.

Examine the inner and outer surfaces of the torus cover oil seal neck for scores and other damage.

Examine the torus cover-to-flywheel joint face, for damage and distortion which may allow oil leakage.

Examine the starter ring teeth for wear and damage.

Examine the bell housing for cracks and other damage.

Examine for scoring the bearing face of the relief valve, the inside diameter of the valve and the seating on the end of the intermediate shaft.

Examine the spring for distortion. If the valve has not been removed check the retainer setscrews for security.

Remove the oil seal rings from the front drive-shaft and fit them in the bore of the torus cover oil seal neck. Check that the gap is within the limits given in the 'Summary of Repair Data'.

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Fluid coupling — To fit

The assembly of the fluid coupling and the refitting to the gearbox casing are straightforward, but the following points must be borne in mind.

Ensure that all locking devices, including spring rings, are correctly positioned as the work proceeds.

Fit a new relief valve retainer if it has been disturbed, and a new mainshaft lock-washer.

Ensure that all nuts and bolts are tightened to the correct torque loading as given in the 'Summary of Repair Data' at the front of this Chapter.

Fit a new torus cover oil seal into the housing in the front pump cover as described in Section 9. Care must be taken to avoid damage to the piston-ring type oil seals when fitting the torus cover.

When fitting the starter ring, care must be taken to ensure that it is fitted the correct way round. A fouling pin is fitted to the starter ring on 'S2' and 'S3' series cars to ensure that this does not happen but, if a new starter ring is being fitted, a check should be made to see that a fouling pin is fitted to the starter ring.

If the bell housing has been renewed, check the 'nip' on the front oil pump flange as described in Section 9.

Check the end float of the intermediate shaft before fitting the rear torus. Renew the steel washer, if necessary.

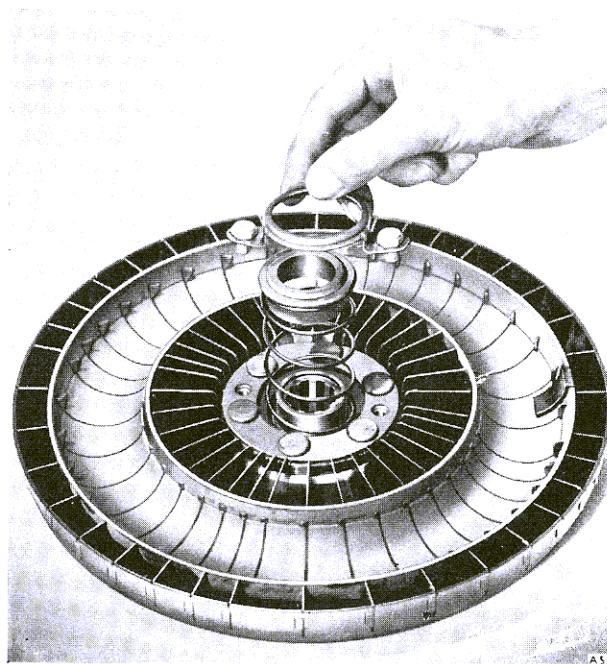


Fig. 46 Removing torus check valve

Lock the gearbox against rotation by placing the selector lever in 'Reverse' before tightening and locking the mainshaft nut.

