

The synchro mesh action is as follows:— (See Fig. 4)

On each individual driven gear wheel (A) is a ring of clutch teeth (B) and a steel cone (C).

The sliding sleeve (D) has internal teeth in the bore which engage with the splined exterior of the synchro hub (E), and, when the gear is selected, with the clutch teeth (B) of the gearwheel. Between the synchro hub (E) and the gearwheel (A) is located a baulk ring (F), the bore of which is coned to fit the steel cone (C) of the gearwheel. The coned surface of the baulk ring is broken up by fine close pitched grooves, the effect of which is to cause rapid breakdown of the oil film when the two members come together.

On the outside of the baulk ring are teeth (G) which correspond with the clutch teeth (B) of the gear wheel and the sliding sleeve. On the side adjacent to the sliding sleeve (D) the teeth are chamfered at a specially determined angle, as also are the internal teeth (P) on the sliding sleeve (D). The baulk ring has three projections (J) which engage with the three slots in the hub member.

Three shifting plates (T) are positioned in the slots in the hub member. In each shifting plate is a spring loaded ball (K), and a spring (O) and cap (Q) being located in a drilling in the hub member beneath each shifting plate. The ball locates in the groove (R) in the bore of the sliding sleeve in the neutral position (See Fig. 4).

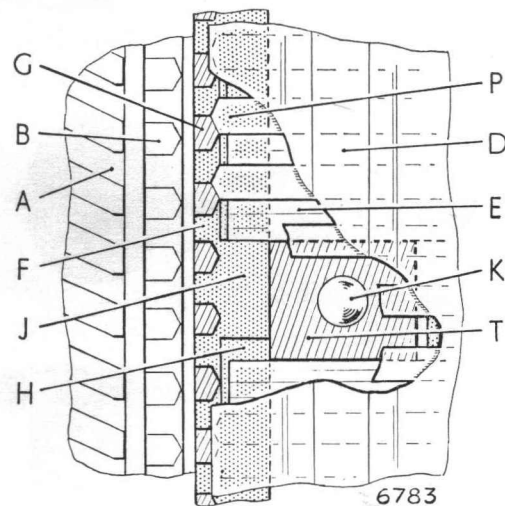
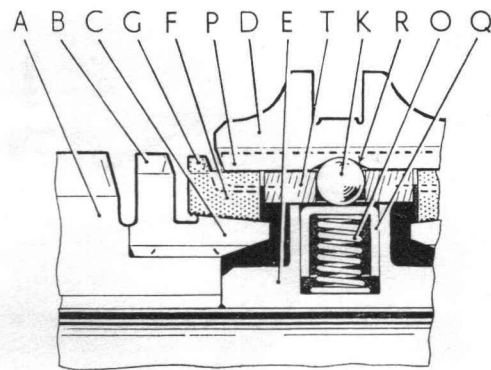


Fig. 4. Details of synchro

When pressure is applied to the gear lever the sliding sleeve will be moved, due to the action of the selector shaft and fork. This movement will move the shifting plates against the baulk ring and bring the baulk ring cone into light engagement with the gear wheel cone (C).

The gear wheel (A) will be rotating at a different speed from that of the hub (E) and the baulk ring will be dragged round by friction to the extent permitted by the clearance (H) between the projections on the baulk ring and the slots in the hub member.

Due to the design width of the projections on the baulk ring, the teeth on the baulk ring will now be out of register with those on the sliding sleeve by half a tooth width, so that the chamfered edges of the teeth bear upon each other.

Friction between the two coned surfaces will eventually cause them to rotate at the same speed.

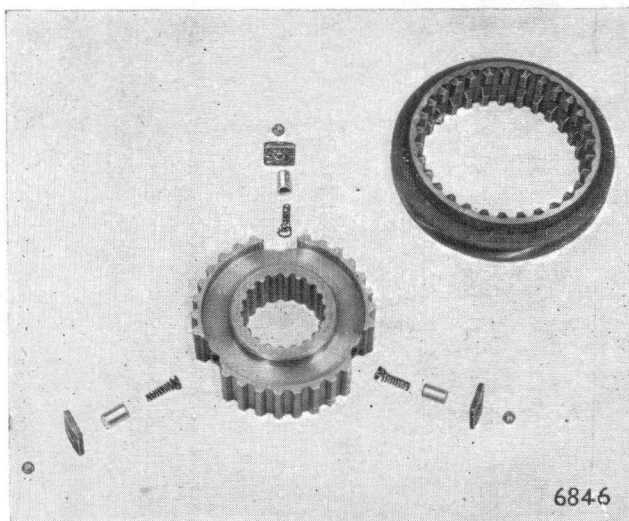


Fig. 3. Exploded synchro hub