DESCRIPTION OF REAR AXLE AND TRANSMISSION (TYPE 741)

General

The transmission and rear axle, together with the rear mounted engine forms the operating unit of the car. The rear wheels are independently suspended on ball jointed half axles. The transmission housing is suspended in the front and rear on rubber mounts and contains the transmission and differential.

Transmission Housing

The tunnel type transmission housing is made of cast light alloy.

Transmission

The transmission has four forward speeds and one reverse. The forward speeds are fully synchronized and employ a lock-type synchronization. The forward speeds are constantly in mesh and are silent running due to the employment of helical gears.

Gear Ratios

To insure good acceleration and top speed various gear ratios for the different types of engines are used. For special purposes (competition driving etc.) it is possible to exchange individual gear pairs to obtain suitable transmission ratios.

The various gear ratios are shown in diagrams on pages R 9 to R 19. These diagrams enable one to determine the relationship between rpm and speed for the various ratios.

Example:

The engine is turning at 4000 rpm (left, vertical scale). The transmission is in third gear with a ratio of B 23:26. This will give an effective speed of 58.2 mph (intersection of the horizontal rpm line with the gear line 3 B). Similar examples may be read from the various diagrams.

Function of the Synchronized Transmission During Gearchanges

Gears are selected by a shift lever mounted on the floor tunnel within close reach of the steering wheel. A selector rod in the floor tunnel connects the shift lever to the gearbox. The reverse gear is engaged by a non synchronized sliding gear while the forward speeds are engaged through a self-servo lock synchronization which adjusts to the synchronizing load of engaging a forward gear. This variable synchronization enables quick shifting with a minimum effort.

The operations that take place when changing gears will be understood more easily if one first considers what occurs when the gears are stationary.

When a gear is engaged with all gears stationary, the sliding sleeve moves from its central position until it engages with the toothed ring on the gear. As the sliding sleeve moves toward the gear, it compresses the synchronizing ring until the external diameter of the ring corresponds to the internal diameter of the sleeve. As the sleeve passes over it, the ring expands again into the shallow V-groove in the sleeve.