

SECTION 5 — FLUID COUPLING

The fluid coupling torus is housed in a sealed cover secured to and rotating with the engine flywheel. As soon as the engine starts, an oil pump, driven from the shaft onto which the torus cover is splined, transfers oil from the gearbox sump into the torus cover, filling it completely.

Two torus members, located on separate shafts, rotate in the oil and are so shaped that oil is flung from the driving member into the vanes of the driven member. The reaction of this oil causes the driven member also to rotate although there is no mechanical connection between the two components. There is always a certain amount of slip between the two members but this becomes negligible at higher engine speeds. Note that it is the rear of the two components which is the driving member.

Turbulence of the fluid in the coupling is kept to a minimum by careful design of the torus members. These are fabricated from steel pressings with the vanes

located in slots and retained by tangs.

The generation of heat by fluid friction in the coupling is reduced by the provision of a circular flow path between the torus vanes and by the maintenance of a constant flow of oil through the coupling whenever the engine is running.

The fluid exhaust from the coupling passes through a relief valve between the main and the intermediate shafts and is returned to the gearbox to lubricate the bearings and clutches.

As the fluid in the coupling is under pressure both from pumps and from centrifugal force, great care must be taken in sealing the coupling chamber to prevent leakage. Good sealing is dependent upon the accuracy of the face joints and the close spacing of the bolts securing the torus cover to the flywheel and the flywheel to the crankshaft. The seal fitted between the torus cover and the front oil pump body must, of course, be in good condition.