Forklift Torque Converter

A torque converter in modern usage, is usually a fluid coupling which is used to transfer rotating power from a prime mover, for instance an internal combustion engine or an electrical motor, to a rotating driven load. Like a basic fluid coupling, the torque converter takes the place of a mechanized clutch. This enables the load to be separated from the main power source. A torque converter can offer the equivalent of a reduction gear by being able to multiply torque when there is a significant difference between output and input rotational speed.

The most common kind of torque converter utilized in car transmissions is the fluid coupling unit. During the 1920s there was also the Constantinesco or otherwise known as pendulum-based torque converter. There are other mechanical designs utilized for constantly variable transmissions that can multiply torque. Like for example, the Variomatic is one version that has a belt drive and expanding pulleys.

The 2 element drive fluid coupling cannot multiply torque. Torque converters have an element called a stator. This alters the drive's characteristics through occasions of high slippage and generates an increase in torque output.

There are a at least three rotating parts inside a torque converter: the turbine, that drives the load, the impeller, which is mechanically driven by the prime mover and the stator, which is between the turbine and the impeller so that it could alter oil flow returning from the turbine to the impeller. Traditionally, the design of the torque converter dictates that the stator be prevented from rotating under any condition and this is where the term stator originates from. Actually, the stator is mounted on an overrunning clutch. This design stops the stator from counter rotating with respect to the prime mover while still allowing forward rotation.

Changes to the basic three element design have been incorporated at times. These modifications have proven worthy especially in application where higher than normal torque multiplication is required. Most commonly, these alterations have taken the form of several turbines and stators. Each set has been intended to generate differing amounts of torque multiplication. Some examples comprise the Dynaflow which makes use of a five element converter in order to generate the wide range of torque multiplication needed to propel a heavy vehicle.

Various auto converters comprise a lock-up clutch in order to lessen heat and so as to improve the cruising power and transmission effectiveness, although it is not strictly component of the torque converter design. The application of the clutch locks the impeller to the turbine. This causes all power transmission to be mechanical which eliminates losses related with fluid drive.