Why Automatic Cars Require Torque Converters

A torque converter is a mechanical device, used mainly in automobiles, that transfers the rotating power generated by a vehicle's engine to the transmission. It is part of the family of mechanisms known as "fluid couplings", which use hydraulic fluid to transmit mechanical power. A converter is installed in automatic transmissions and does the job a clutch would do in a manual transmission—allowing the power created by the engine to be distributed to the wheels.

There are three main torque converter parts: a pump, a turbine, and a stator. The high performance of a converter greatly depends upon the quality of these parts. The pump is attached to directly to the engine, and spins at the same speed as the motor. Torque repair is immediately needed once the pump goes out. The turbine then spins at close to the same speed as the engine, but in the opposite direction. The spinning of the turbine causes the torque converter transmission to rotate and drive the wheels. The hydraulic fluid exits the turbine at its center, moving in the direction opposite to how it was forced in by the pump.

A converter has three operational phases—(1) Stall; (2) Acceleration; and (3) Coupling. During the stall and acceleration phases, in which torque multiplication occurs, the stator remains stationary due to the action of its one-way clutch. However, as the torque converter approaches the coupling phase, the energy and volume of the fluid returning from the turbine will gradually decrease, causing pressure on the stator to likewise decrease. Once in the coupling phase, the returning fluid will reverse direction and now rotate in the direction of the pump and turbine, an effect which will attempt to forward-rotate the stator. At this point, the stator converter clutch will release and the pump, turbine and stator will all (more or less) turn as a unit.

In addition to the very important job of allowing your car come to a complete stop without stalling the engine, the torque converter actually gives your car more torque when you accelerate out of a stop. Modern converters can multiply the torque of the engine by two to three times. This effect only happens when the engine is turning much faster than the transmission.

At higher speeds, the transmission catches up to the engine, eventually moving at almost the same speed. Ideally, though, the transmission would move at exactly the same speed as the engine, because this difference in speed wastes power. This is part of the reason why cars with automatic transmissions get worse gas mileage than cars with high performance torque converters and manual transmissions.

To counter this effect, some cars install a torque converter with a lockup clutch. When the two halves of the converter get up to speed, this clutch locks them together, eliminating the slippage and improving efficiency.

Ameritorque is a torque converter shop which is an all-in-one torque repair specialist, torque rebuild vendor, and torque remanufacture outlet. Install a high performance converter to your car now and safe hundreds of dollars on repairs. They serve the areas of Tampa, Brandon, St Petersburg, Clearwater, Lakeland, Hillsborough, Pinellas, Pasco, and Polk. Click the link to play meilleur casino.

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Source: http://www.car-articles.co.uk