Forklift Starters

A starter motors today is normally a permanent-magnet composition or a series-parallel wound direct current electrical motor together with a starter solenoid mounted on it. When current from the starting battery is applied to the solenoid, basically via a key-operated switch, the solenoid engages a lever which pushes out the drive pinion which is positioned on the driveshaft and meshes the pinion with the starter ring gear which is seen on the engine flywheel.

When the starter motor begins to turn, the solenoid closes the high-current contacts. When the engine has started, the solenoid consists of a key operated switch which opens the spring assembly to pull the pinion gear away from the ring gear. This action causes the starter motor to stop. The starter's pinion is clutched to its driveshaft by an overrunning clutch. This permits the pinion to transmit drive in just one direction. Drive is transmitted in this method via the pinion to the flywheel ring gear. The pinion remains engaged, like for instance as the driver fails to release the key as soon as the engine starts or if the solenoid remains engaged because there is a short. This causes the pinion to spin separately of its driveshaft.

The actions mentioned above would stop the engine from driving the starter. This important step prevents the starter from spinning so fast that it would fly apart. Unless adjustments were done, the sprag clutch arrangement will preclude utilizing the starter as a generator if it was employed in the hybrid scheme mentioned prior. Usually an average starter motor is intended for intermittent use which would stop it being utilized as a generator.

The electrical components are made to work for approximately 30 seconds so as to stop overheating. Overheating is caused by a slow dissipation of heat is because of ohmic losses. The electrical components are intended to save weight and cost. This is actually the reason the majority of owner's handbooks utilized for vehicles suggest the driver to pause for at least ten seconds after each ten or fifteen seconds of cranking the engine, when trying to start an engine which does not turn over right away.

The overrunning-clutch pinion was launched onto the marked in the early part of the 1960's. Before the 1960's, a Bendix drive was utilized. This particular drive system functions on a helically cut driveshaft which consists of a starter drive pinion placed on it. As soon as the starter motor starts spinning, the inertia of the drive pinion assembly enables it to ride forward on the helix, hence engaging with the ring gear. Once the engine starts, the backdrive caused from the ring gear enables the pinion to exceed the rotating speed of the starter. At this moment, the drive pinion is forced back down the helical shaft and thus out of mesh with the ring gear.

In the 1930s, an intermediate development between the Bendix drive was developed. The overrunning-clutch design which was made and launched in the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive has a latching mechanism together with a set of flyweights inside the body of the drive unit. This was a lot better in view of the fact that the typical Bendix drive used so as to disengage from the ring as soon as the engine fired, even if it did not stay functioning.

The drive unit if force forward by inertia on the helical shaft once the starter motor is engaged and starts turning. Then the starter motor becomes latched into the engaged position. As soon as the drive unit is spun at a speed higher than what is achieved by the starter motor itself, for example it is backdriven by the running engine, and afterward the flyweights pull outward in a radial manner. This releases the latch and allows the overdriven drive unit to become spun out of engagement, hence unwanted starter disengagement can be prevented prior to a successful engine start.