Forklift Starters

Starter for Forklifts - The starter motor nowadays is usually either a series-parallel wound direct current electric motor which includes a starter solenoid, that is similar to a relay mounted on it, or it could be a permanent-magnet composition. When current from the starting battery is applied to the solenoid, mainly through a key-operated switch, the solenoid engages a lever that pushes out the drive pinion that is positioned on the driveshaft and meshes the pinion using the starter ring gear that is seen on the flywheel of the engine.

Once the starter motor starts to turn, the solenoid closes the high-current contacts. As soon as the engine has started, the solenoid has a key operated switch which opens the spring assembly so as 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 allows the pinion to transmit drive in only one direction. Drive is transmitted in this way through the pinion to the flywheel ring gear. The pinion continuous to be engaged, like for example because the operator fails to release the key once the engine starts or if there is a short and the solenoid remains engaged. This actually causes the pinion to spin separately of its driveshaft.

This aforesaid action prevents the engine from driving the starter. This is actually an important step in view of the fact that this kind of back drive would enable the starter to spin so fast that it would fly apart. Unless adjustments were done, the sprag clutch arrangement would stop making use of the starter as a generator if it was used in the hybrid scheme discussed prior. Usually an average starter motor is intended for intermittent use which would prevent it being used as a generator.

Hence, the electrical parts are meant to be able to function for approximately under 30 seconds to avoid overheating. The overheating results from too slow dissipation of heat due to ohmic losses. The electrical parts are intended to save cost and weight. This is the reason nearly all owner's instruction manuals for automobiles recommend the driver to stop for at least ten seconds right after each and every ten or fifteen seconds of cranking the engine, whenever trying to start an engine which does not turn over at once.

The overrunning-clutch pinion was introduced onto the marked in the early part of the 1960's. Previous to the 1960's, a Bendix drive was used. This drive system operates 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 allows it to ride forward on the helix, therefore engaging with the ring gear. As soon as the engine starts, the backdrive caused from the ring gear enables the pinion to surpass the rotating speed of the starter. At this moment, the drive pinion is forced back down the helical shaft and therefore out of mesh with the ring gear.

The development of Bendix drive was developed in the 1930's with the overrunning-clutch design referred to as the Bendix Folo-Thru drive, developed and launched during the 1960s. The Folo-Thru drive consists of a latching mechanism along with a set of flyweights in the body of the drive unit. This was better as the standard Bendix drive used in order to disengage from the ring as soon as the engine fired, though it did not stay functioning.

The drive unit if force forward by inertia on the helical shaft once the starter motor is engaged and begins turning. Then the starter motor becomes latched into the engaged position. Once the drive unit is spun at a speed higher than what is attained by the starter motor itself, like for instance it is backdriven by the running engine, and afterward the flyweights pull outward in a radial manner. This releases the latch and enables the overdriven drive unit to become spun out of engagement, therefore unwanted starter disengagement can be avoided before a successful engine start.