Forklift Alternators and Starters

Forklift Starters and Alternators - A starter motors today is typically a permanent-magnet composition or a series-parallel wound direct current electrical motor 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 that pushes out the drive pinion that is positioned on the driveshaft and meshes the pinion using the starter ring gear which is seen on the flywheel of the engine.

Once the starter motor starts to turn, the solenoid closes the high-current contacts. Once the engine has started, the solenoid consists of a key operated switch which opens the spring assembly to be able 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 particular way via the pinion to the flywheel ring gear. The pinion continuous to be engaged, for example as the operator did not release the key when the engine starts or if the solenoid remains engaged because there is a short. This actually causes the pinion to spin separately of its driveshaft.

This above mentioned action stops the engine from driving the starter. This is an important step in view of the fact that this particular type of back drive would allow the starter to spin very fast that it could fly apart. Unless adjustments were done, the sprag clutch arrangement will preclude the use of the starter as a generator if it was used in the hybrid scheme discussed prior. Normally a standard starter motor is designed for intermittent utilization which would preclude it being utilized as a generator.

Hence, the electrical components are designed to be able to work for just about less than 30 seconds to be able to avoid overheating. The overheating results from too slow dissipation of heat due to ohmic losses. The electrical parts are designed to save cost and weight. This is the reason nearly all owner's guidebooks utilized for vehicles recommend the driver to stop for a minimum of 10 seconds after each ten or fifteen seconds of cranking the engine, whenever trying to start an engine that does not turn over instantly.

The overrunning-clutch pinion was launched onto the marked in the early 1960's. Before the 1960's, a Bendix drive was utilized. 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 enables it to ride forward on the helix, hence engaging with the ring gear. When the engine starts, the backdrive caused from the ring gear enables the pinion to exceed the rotating speed of the starter. At this instant, 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 made. The overrunning-clutch design that was made and introduced in the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive consists of a latching mechanism together with a set of flyweights inside the body of the drive unit. This was a lot better for the reason that the typical Bendix drive used to be able to disengage from the ring once the engine fired, although it did not stay functioning.

The drive unit if force forward by inertia on the helical shaft as soon as the starter motor is engaged and begins turning. Then the starter motor becomes latched into the engaged position. When 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 after that the flyweights pull outward in a radial manner. This releases the latch and permits the overdriven drive unit to become spun out of engagement, thus unwanted starter disengagement could be prevented previous to a successful engine start.