Forklift Starters and Alternators

Forklift Alternators and Starters - The starter motor nowadays is normally either a series-parallel wound direct current electric motor that has a starter solenoid, which is similar to a relay mounted on it, or it could be a permanent-magnet composition. As soon as 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 which is positioned on the driveshaft and meshes the pinion using the starter ring gear that is found on the flywheel of the engine.

As soon as the starter motor starts to turn, the solenoid closes the high-current contacts. As soon as the engine has started, the solenoid consists of a key operated switch that 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 means of an overrunning clutch. This allows the pinion to transmit drive in just a single direction. Drive is transmitted in this particular manner via the pinion to the flywheel ring gear. The pinion continuous to be engaged, for example since the operator did not release the key as soon as the engine starts or if there is a short and the solenoid remains engaged. This actually causes the pinion to spin independently of its driveshaft.

The actions mentioned above would prevent the engine from driving the starter. This significant step stops the starter from spinning really fast that it would fly apart. Unless modifications were made, the sprag clutch arrangement will preclude utilizing the starter as a generator if it was employed in the hybrid scheme mentioned earlier. Usually a standard starter motor is intended for intermittent use that would stop it being used as a generator.

Thus, the electrical components are intended to be able to function for more or less less than thirty seconds to prevent overheating. The overheating results from too slow dissipation of heat because of ohmic losses. The electrical parts are designed to save cost and weight. This is actually the reason nearly all owner's manuals meant for automobiles recommend the driver to pause for a minimum of 10 seconds right after each ten or fifteen seconds of cranking the engine, if trying to start an engine that does not turn over immediately.

During the early part of the 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Before that time, a Bendix drive was utilized. The Bendix system works by placing the starter drive pinion on a helically cut driveshaft. Once 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 allows the pinion to exceed the rotating speed of the starter. At this point, 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 consists of a latching mechanism along with a set of flyweights inside the body of the drive unit. This was better in view of the fact that the typical Bendix drive utilized in order to disengage from the ring when the engine fired, even though it did not stay running.

As soon as the starter motor is engaged and starts turning, the drive unit is forced forward on the helical shaft by inertia. It then 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 then the flyweights pull outward in a radial manner. This releases the latch and allows the overdriven drive unit to become spun out of engagement, thus unwanted starter disengagement can be avoided prior to a successful engine start.