Forklift Alternators and Starters

Forklift Starters and Alternators - A starter motors today is usually 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, mainly through a key-operated switch, the solenoid engages a lever that pushes out the drive pinion that is situated on the driveshaft and meshes the pinion utilizing the starter ring gear which is found on the engine flywheel.

The solenoid closes the high-current contacts for the starter motor, that starts to turn. Once the engine starts, the key operated switch is opened and a spring in the solenoid assembly pulls 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 a single direction. Drive is transmitted in this manner through the pinion to the flywheel ring gear. The pinion continuous to be engaged, like for example as 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 causes the pinion to spin independently of its driveshaft.

This above mentioned action stops the engine from driving the starter. This is actually an essential step as this particular type of back drive would enable the starter to spin so fast that it could 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 discussed prior. Normally an average starter motor is intended for intermittent use that will prevent it being used as a generator.

The electrical parts are made so as to function for approximately 30 seconds to be able to prevent overheating. Overheating is caused by a slow dissipation of heat is due to ohmic losses. The electrical components are meant to save weight and cost. This is really the reason the majority of owner's handbooks for automobiles recommend the driver to stop for at least ten seconds right after every 10 or 15 seconds of cranking the engine, when trying to start an engine which does not turn over immediately.

The overrunning-clutch pinion was launched onto the marked in the early 1960's. Previous to the 1960's, a Bendix drive was used. This particular drive system works on a helically cut driveshaft which consists of a starter drive pinion placed on it. As soon as the starter motor begins turning, 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 go beyond the rotating speed of the starter. At this instant, the drive pinion is forced back down the helical shaft and therefore out of mesh with the ring gear.

During the 1930s, an intermediate development between the Bendix drive was developed. The overrunning-clutch design which was developed and launched during the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive has a latching mechanism along with a set of flyweights inside the body of the drive unit. This was better for the reason that the average Bendix drive utilized so as to disengage from the ring when the engine fired, although it did not stay functioning.

Once 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. As soon as the drive unit is spun at a speed higher than what is attained by the starter motor itself, 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, hence unwanted starter disengagement can be prevented prior to a successful engine start.