Forklift Starter and Alternator

Forklift Starters and Alternators - Today's starter motor is normally a permanent-magnet composition or a series-parallel wound direct current electrical motor together with a starter solenoid mounted on it. As soon as current from the starting battery is applied to the solenoid, basically through a key-operated switch, the solenoid engages a lever which pushes out the drive pinion that is located on the driveshaft and meshes the pinion using the starter ring gear which is found on the flywheel of the engine.

Once the starter motor begins to turn, the solenoid closes the high-current contacts. When the engine has started, the solenoid has a key operated switch that opens the spring assembly so as to pull the pinion gear away from the ring gear. This particular 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 particular manner via the pinion to the flywheel ring gear. The pinion continuous to be engaged, like for example for the reason that the driver fails to release the key once 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 discussed above would stop the engine from driving the starter. This significant step stops the starter from spinning so fast that it can fly apart. Unless modifications were made, the sprag clutch arrangement would preclude the use of the starter as a generator if it was used in the hybrid scheme mentioned prior. Normally an average starter motor is intended for intermittent use that would stop it being used as a generator.

Therefore, the electrical components are designed to be able to operate for around less than 30 seconds in order to prevent overheating. The overheating results from too slow dissipation of heat due to ohmic losses. The electrical components are meant to save cost and weight. This is the reason most owner's instruction manuals used for vehicles recommend the driver to pause for at least 10 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 launched onto the marked in the early 1960's. Prior to the 1960's, a Bendix drive was used. This particular drive system functions on a helically cut driveshaft which has a starter drive pinion placed on it. When the starter motor starts spinning, the inertia of the drive pinion assembly enables it to ride forward on the helix, thus 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 therefore out of mesh with the ring gear.

The development of Bendix drive was developed in the 1930's with the overrunning-clutch design called the Bendix Folo-Thru drive, developed and introduced in the 1960s. The Folo-Thru drive has a latching mechanism together with a set of flyweights in the body of the drive unit. This was a lot better in view of the fact that the average Bendix drive utilized so as to disengage from the ring when the engine fired, 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. As soon as the drive unit is spun at a speed higher than what is attained by the starter motor itself, for example it is backdriven by the running engine, and then the flyweights pull outward in a radial manner. This releases the latch and enables the overdriven drive unit to become spun out of engagement, hence unwanted starter disengagement could be prevented before a successful engine start.