Starters for Forklift

Forklift Starters - The starter motor of today is typically either a series-parallel wound direct current electric motor which consists of a starter solenoid, which 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 which is located on the driveshaft and meshes the pinion with the starter ring gear which is found on the flywheel of the engine.

When 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 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 means of an overrunning clutch. This permits the pinion to transmit drive in just one direction. Drive is transmitted in this particular way through the pinion to the flywheel ring gear. The pinion remains engaged, for instance in view of the fact that the operator did not release the key once the engine starts or if the solenoid remains engaged as there is a short. This actually causes the pinion to spin independently of its driveshaft.

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

Therefore, the electrical components are designed to operate for just about under thirty seconds in order to avoid overheating. The overheating results from very slow dissipation of heat because of ohmic losses. The electrical components are designed to save cost and weight. This is truly the reason most owner's handbooks meant for automobiles suggest the driver to stop for a minimum of ten seconds after 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 during the early 1960's. Previous to the 1960's, a Bendix drive was used. This drive system works on a helically cut driveshaft that consists of a starter drive pinion placed on it. When the starter motor starts spinning, the inertia of the drive pinion assembly allows it to ride forward on the helix, thus engaging with the ring gear. As soon as 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.

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 during the 1960s. The Folo-Thru drive has a latching mechanism along with a set of flyweights within the body of the drive unit. This was an improvement since the typical Bendix drive used to disengage from the ring as soon as the engine fired, although it did not stay functioning.

When the starter motor is engaged and begins 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, like for example 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 before a successful engine start.