Starters for Forklifts

Starter for Forklifts - The starter motor these days is normally either a series-parallel wound direct current electric motor that consists of a starter solenoid, which is similar to a relay mounted on it, or it can be a permanent-magnet composition. When current from the starting battery is applied to the solenoid, mainly via a key-operated switch, the solenoid engages a lever which pushes out the drive pinion which is situated on the driveshaft and meshes the pinion using the starter ring gear which is found on the flywheel of the engine.

As soon as the starter motor starts to turn, the solenoid closes the high-current contacts. When the engine has started, the solenoid has a key operated switch which opens the spring assembly 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 allows the pinion to transmit drive in only one direction. Drive is transmitted in this method via the pinion to the flywheel ring gear. The pinion remains engaged, like for example since the operator fails to release the key when the engine starts or if there is a short and the solenoid remains engaged. This causes the pinion to spin separately of its driveshaft.

This aforementioned action stops the engine from driving the starter. This is actually an important step since this type of back drive will enable the starter to spin so fast that it could fly apart. Unless modifications were done, the sprag clutch arrangement would stop using the starter as a generator if it was employed in the hybrid scheme discussed earlier. Usually a standard starter motor is intended for intermittent use that would preclude it being utilized as a generator.

Thus, the electrical parts are intended to work for roughly less than 30 seconds to be able to avoid overheating. The overheating results from very slow dissipation of heat because of ohmic losses. The electrical parts are intended to save cost and weight. This is really the reason most owner's handbooks intended for vehicles suggest the operator to stop for a minimum of 10 seconds after every 10 or 15 seconds of cranking the engine, whenever trying to start an engine that does not turn over at once.

The overrunning-clutch pinion was introduced onto the marked in the early part of the 1960's. Before the 1960's, a Bendix drive was utilized. This particular drive system functions on a helically cut driveshaft which has a starter drive pinion placed on it. As soon as the starter motor starts turning, the inertia of the drive pinion assembly enables 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 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 therefore out of mesh with the ring gear.

The development of Bendix drive was developed in the 1930's with the overrunning-clutch design referred to as the Bendix Folo-Thru drive, made and introduced during the 1960s. The Folo-Thru drive has a latching mechanism together with a set of flyweights within the body of the drive unit. This was much better in view of the fact that the average Bendix drive used in order to disengage from the ring once the engine fired, even if it did not stay functioning.

The drive unit if force forward by inertia on the helical shaft once the starter motor is engaged and starts turning. Then the starter motor becomes latched into the engaged position. When the drive unit is spun at a speed higher than what is achieved by the starter motor itself, for instance it is backdriven by the running engine, and afterward 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 previous to a successful engine start.