Starter for Forklifts

Starter for Forklift - The starter motor of today is usually either a series-parallel wound direct current electric motor which 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 which pushes out the drive pinion that is positioned on the driveshaft and meshes the pinion using the starter ring gear that is seen on the flywheel of the engine.

When the starter motor starts to turn, the solenoid closes the high-current contacts. Once the engine has started, the solenoid consists of a key operated switch which 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 allows the pinion to transmit drive in only a single direction. Drive is transmitted in this particular method through the pinion to the flywheel ring gear. The pinion continuous to be engaged, for instance as the operator did not release the key when the engine starts or if the solenoid remains engaged in view of the fact that 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 vital step prevents the starter from spinning very fast that it can fly apart. Unless adjustments were made, the sprag clutch arrangement will prevent the use of the starter as a generator if it was used in the hybrid scheme mentioned earlier. Typically a standard starter motor is intended for intermittent utilization that would prevent it being used as a generator.

The electrical parts are made so as to operate for about 30 seconds so as to avoid overheating. Overheating is caused by a slow dissipation of heat is due to ohmic losses. The electrical parts are intended to save cost and weight. This is the reason nearly all owner's handbooks for automobiles suggest the operator to pause for a minimum of 10 seconds after every 10 or 15 seconds of cranking the engine, when trying to start an engine which does not turn over instantly.

The overrunning-clutch pinion was introduced onto the marked in the early 1960's. Before the 1960's, a Bendix drive was utilized. This particular drive system functions on a helically cut driveshaft that has a starter drive pinion placed on it. When the starter motor starts 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 enables the pinion to exceed the rotating speed of the starter. At this point, the drive pinion is forced back down the helical shaft and hence out of mesh with the ring gear.

During the 1930s, an intermediate development between the Bendix drive was made. The overrunning-clutch design that was developed 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 an improvement since the average Bendix drive utilized to be able to disengage from the ring once the engine fired, though it did not stay running.

The drive unit if force forward by inertia on the helical shaft when the starter motor is engaged and starts turning. Afterward the starter motor becomes latched into the engaged position. Once the drive unit is spun at a speed higher than what is achieved 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 permits the overdriven drive unit to become spun out of engagement, thus unwanted starter disengagement could be prevented prior to a successful engine start.