Starter for Forklifts

Forklift Starters - The starter motor of today is typically 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 through a key-operated switch, the solenoid engages a lever that pushes out the drive pinion which is situated on the driveshaft and meshes the pinion with 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. When the engine starts, the key operated switch is opened and a spring inside the solenoid assembly pulls 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 means of an overrunning clutch. This permits the pinion to transmit drive in just a single direction. Drive is transmitted in this way through the pinion to the flywheel ring gear. The pinion continuous to be engaged, like for instance for the reason that the operator fails to release the key as soon as the engine starts or if there is a short and the solenoid remains engaged. This actually causes the pinion to spin separately of its driveshaft.

The actions discussed above would stop the engine from driving the starter. This important step stops the starter from spinning so fast that it will fly apart. Unless modifications were made, the sprag clutch arrangement will preclude making use of the starter as a generator if it was made use of in the hybrid scheme discussed earlier. Normally a regular starter motor is intended for intermittent utilization that would prevent it being utilized as a generator.

Thus, the electrical parts are designed to work for around under thirty seconds so as to avoid overheating. The overheating results from too slow dissipation of heat because of ohmic losses. The electrical parts are intended to save cost and weight. This is actually the reason most owner's handbooks used for vehicles suggest the driver to stop for a minimum of 10 seconds right after every 10 or 15 seconds of cranking the engine, when trying to start an engine which does not turn over right away.

The overrunning-clutch pinion was launched onto the marked in the early 1960's. Prior to the 1960's, a Bendix drive was utilized. This drive system operates 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 allows it to ride forward on the helix, hence engaging with the ring gear. Once 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.

During the 1930s, an intermediate development between the Bendix drive was developed. The overrunning-clutch design that was made and launched during the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive consists of a latching mechanism along with a set of flyweights within the body of the drive unit. This was much better in view of the fact that the typical Bendix drive used so as 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 as soon as the starter motor is engaged and starts turning. After that 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 example 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 could be avoided before a successful engine start.