Starters for Forklift

Forklift Starters - The starter motor nowadays 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. Once current from the starting battery is applied to the solenoid, basically via a key-operated switch, the solenoid engages a lever that pushes out the drive pinion that is positioned on the driveshaft and meshes the pinion with the starter ring gear which is seen on the engine flywheel.

As soon as the starter motor starts to turn, the solenoid closes the high-current contacts. As soon as 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 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 just one direction. Drive is transmitted in this method via the pinion to the flywheel ring gear. The pinion remains engaged, like for instance because the driver fails to release the key as soon as 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 mentioned above will stop the engine from driving the starter. This significant step stops the starter from spinning really fast that it can fly apart. Unless adjustments were done, the sprag clutch arrangement would stop the use of the starter as a generator if it was used in the hybrid scheme discussed prior. Normally an average starter motor is meant for intermittent utilization which would prevent it being used as a generator.

Therefore, the electrical parts are meant to be able to work for more or less less than 30 seconds so as to prevent overheating. The overheating results from very slow dissipation of heat because of ohmic losses. The electrical components are designed to save weight and cost. This is the reason nearly all owner's handbooks intended for vehicles suggest the operator to stop for at least ten seconds after each and every ten or fifteen seconds of cranking the engine, when trying to start an engine that does not turn over right away.

In the early part of the 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Before that time, a Bendix drive was used. The Bendix system works by placing the starter drive pinion on a helically cut driveshaft. When the starter motor begins turning, 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 enables the pinion to surpass 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.

In the 1930s, an intermediate development between the Bendix drive was developed. The overrunning-clutch design which 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 within the body of the drive unit. This was an improvement for the reason that the typical Bendix drive used to disengage from the ring once the engine fired, even though it did not stay functioning.

When 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. Once 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 allows the overdriven drive unit to become spun out of engagement, therefore unwanted starter disengagement can be avoided prior to a successful engine start.