Starter for Forklift

Forklift Starters - Today's starter motor is usually a permanent-magnet composition or a series-parallel wound direct current electrical motor with a starter solenoid installed on it. As soon as current from the starting battery is applied to the solenoid, basically through a key-operated switch, the solenoid engages a lever which pushes out the drive pinion that is situated 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 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 in order 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 one direction. Drive is transmitted in this particular way through the pinion to the flywheel ring gear. The pinion remains engaged, like for instance since the operator did not release the key once 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.

This aforementioned action stops the engine from driving the starter. This is an essential step for the reason that this kind of back drive would enable the starter to spin really fast that it could fly apart. Unless modifications were done, the sprag clutch arrangement would prevent making use of the starter as a generator if it was made use of in the hybrid scheme mentioned earlier. Usually a regular starter motor is designed for intermittent utilization which would stop it being used as a generator.

Hence, the electrical components are designed to function for around less than 30 seconds in order to prevent overheating. The overheating results from very slow dissipation of heat due to ohmic losses. The electrical parts are meant to save weight and cost. This is actually the reason most owner's instruction manuals utilized for vehicles suggest the operator to stop for at least ten seconds right after each and every 10 or 15 seconds of cranking the engine, if trying to start an engine that does not turn over right away.

During the early 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Before that time, a Bendix drive was used. The Bendix system functions by placing the starter drive pinion on a helically cut driveshaft. As soon as the starter motor begins turning, the inertia of the drive pinion assembly enables it to ride forward on the helix, therefore 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 has a latching mechanism together with a set of flyweights in the body of the drive unit. This was better because the average Bendix drive used to disengage from the ring when the engine fired, even if it did not stay functioning.

The drive unit if force forward by inertia on the helical shaft when the starter motor is engaged and starts turning. Next the starter motor becomes latched into the engaged position. When the drive unit is spun at a speed higher than what is attained by the starter motor itself, for example it is backdriven by the running engine, and next the flyweights pull outward in a radial manner. This releases the latch and enables the overdriven drive unit to become spun out of engagement, thus unwanted starter disengagement could be avoided prior to a successful engine start.