Starter for Forklifts

Starter for Forklift - A starter motors today is usually a permanent-magnet composition or a series-parallel wound direct current electrical motor along with a starter solenoid mounted on it. When 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 which is situated on the driveshaft and meshes the pinion using the starter ring gear which is found on the engine flywheel.

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 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 way via the pinion to the flywheel ring gear. The pinion remains engaged, like for example because the driver 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.

This above mentioned action prevents the engine from driving the starter. This is actually an essential step for the reason that this kind of back drive will allow the starter to spin very fast that it would fly apart. Unless modifications were made, the sprag clutch arrangement would preclude making use of the starter as a generator if it was utilized in the hybrid scheme mentioned prior. Usually an average starter motor is meant for intermittent use that will preclude it being used as a generator.

Hence, the electrical components are meant to be able to work for around less than 30 seconds to be able to prevent overheating. The overheating results from too slow dissipation of heat because of ohmic losses. The electrical components are intended to save cost and weight. This is the reason most owner's guidebooks for automobiles suggest the operator to pause for a minimum of ten seconds right 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 1960s, this overrunning-clutch pinion arrangement was phased onto the market. Before that time, a Bendix drive was utilized. The Bendix system works by placing the starter drive pinion on a helically cut driveshaft. As soon as the starter motor starts turning, the inertia of the drive pinion assembly allows it to ride forward on the helix, thus engaging with the ring gear. When the engine starts, the backdrive caused from the ring gear allows the pinion to exceed the rotating speed of the starter. At this instant, the drive pinion is forced back down the helical shaft and thus out of mesh with the ring gear.

In the 1930s, an intermediate development between the Bendix drive was made. The overrunning-clutch design that was developed and introduced during the 1960s was the Bendix Folo-Thru drive. The Folo-Thru drive has a latching mechanism along with a set of flyweights within the body of the drive unit. This was better for the reason that the average Bendix drive used in order to disengage from the ring once the engine fired, even if it did not stay running.

The drive unit if force forward by inertia on the helical shaft as soon as 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 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 enables the overdriven drive unit to become spun out of engagement, thus unwanted starter disengagement could be prevented previous to a successful engine start.