

## Forklift Starter and Alternator

Forklift Starters and Alternators - Today's starter motor is normally a permanent-magnet composition or a series-parallel wound direct current electrical motor along with a starter solenoid installed 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 that is situated on the driveshaft and meshes the pinion using the starter ring gear which is found on the flywheel of the engine.

When 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 which opens the spring assembly so as to pull 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 only a single direction. Drive is transmitted in this manner through the pinion to the flywheel ring gear. The pinion continuous to be engaged, for example as the driver did not release the key as soon as the engine starts or if there is a short and the solenoid remains engaged. This causes the pinion to spin separately of its driveshaft.

This above mentioned action prevents the engine from driving the starter. This is an essential step as this particular type of back drive will enable the starter to spin really fast that it will fly apart. Unless modifications were done, the sprag clutch arrangement will stop the use of the starter as a generator if it was utilized in the hybrid scheme discussed prior. Normally an average starter motor is meant for intermittent use that would preclude it being used as a generator.

Thus, the electrical components are intended to be able to operate for around under thirty seconds to avoid overheating. The overheating results from too slow dissipation of heat due to ohmic losses. The electrical components are meant to save cost and weight. This is truly the reason nearly all owner's guidebooks used for automobiles suggest the driver to stop for at least 10 seconds after each and every ten or fifteen seconds of cranking the engine, if trying to start an engine that does not turn over at once.

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 works by placing the starter drive pinion on a helically cut driveshaft. Once the starter motor begins spinning, the inertia of the drive pinion assembly allows it to ride forward on the helix, hence engaging with the ring gear. As soon as the engine starts, the backdrive caused from the ring gear allows the pinion to exceed the rotating speed of the starter. At this moment, 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 made. The overrunning-clutch design that was made 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 an improvement for the reason that the standard Bendix drive utilized so as to disengage from the ring when the engine fired, even 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 begins 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, 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 enables the overdriven drive unit to become spun out of engagement, therefore unwanted starter disengagement can be prevented previous to a successful engine start.