

## Forklift Starters and Alternators

Forklift Starters and Alternators - Today's starter motor is usually a permanent-magnet composition or a series-parallel wound direct current electrical motor together with a starter solenoid installed on it. When current from the starting battery is applied to the solenoid, mainly 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 found on the flywheel of the engine.

As soon as the starter motor starts to turn, the solenoid closes the high-current contacts. Once the engine has started, the solenoid consists of a key operated switch which opens the spring assembly to be able 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 a single direction. Drive is transmitted in this way via the pinion to the flywheel ring gear. The pinion remains engaged, for instance as the driver did not release the key once the engine starts or if there is a short and the solenoid remains engaged. This causes the pinion to spin independently of its driveshaft.

The actions discussed above will prevent the engine from driving the starter. This important step prevents the starter from spinning really fast that it could fly apart. Unless adjustments were done, the sprag clutch arrangement will prevent utilizing the starter as a generator if it was employed in the hybrid scheme discussed prior. Normally an average starter motor is intended for intermittent use which would prevent it being used as a generator.

The electrical parts are made to operate for more or less thirty seconds to be able to avoid overheating. Overheating is caused by a slow dissipation of heat is due to ohmic losses. The electrical parts are intended to save cost and weight. This is actually the reason nearly all owner's handbooks for automobiles suggest the operator to pause for at least 10 seconds right after each 10 or 15 seconds of cranking the engine, whenever trying to start an engine which does not turn over instantly.

The overrunning-clutch pinion was launched onto the market during the early part of the 1960's. Prior to the 1960's, a Bendix drive was utilized. This drive system operates on a helically cut driveshaft that consists of a starter drive pinion placed on it. Once the starter motor starts 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 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.

The development of Bendix drive was developed in the 1930's with the overrunning-clutch design called the Bendix Folo-Thru drive, made and launched in the 1960s. The Folo-Thru drive has a latching mechanism together with a set of flyweights inside the body of the drive unit. This was an enhancement as the average Bendix drive utilized so as to disengage from the ring as soon as the engine fired, though it did not stay functioning.

The drive unit is forced forward by inertia on the helical shaft once the starter motor is engaged and starts turning. Afterward the starter motor becomes latched into the engaged position. Once 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 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, therefore unwanted starter disengagement could be prevented before a successful engine start.