

## Forklift Starter and Alternator

Forklift Alternators and Starters - Today's starter motor is typically a permanent-magnet composition or a series-parallel wound direct current electrical motor with a starter solenoid installed on it. When current from the starting battery is applied to the solenoid, mainly through a key-operated switch, the solenoid engages a lever that pushes out the drive pinion which is located on the driveshaft and meshes the pinion with the starter ring gear that is seen on the flywheel of the engine.

The solenoid closes the high-current contacts for the starter motor, which starts to turn. After the engine starts, the key operated switch is opened and a spring within the solenoid assembly pulls 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 allows the pinion to transmit drive in only one direction. Drive is transmitted in this particular method through the pinion to the flywheel ring gear. The pinion remains engaged, for example because the driver fails to 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 independently of its driveshaft.

This aforementioned action prevents the engine from driving the starter. This is an essential step in view of the fact that this particular type of back drive would enable the starter to spin very fast that it could fly apart. Unless modifications were done, the sprag clutch arrangement would stop utilizing the starter as a generator if it was used in the hybrid scheme discussed prior. Usually a regular starter motor is meant for intermittent utilization which will stop it being used as a generator.

The electrical parts are made so as to function for about thirty seconds to be able to prevent overheating. Overheating is caused by a slow dissipation of heat is because of ohmic losses. The electrical components are intended to save cost and weight. This is actually the reason the majority of owner's handbooks utilized for automobiles suggest the driver to stop for a minimum of ten seconds right after each 10 or 15 seconds of cranking the engine, if trying to start an engine which does not turn over at once.

The overrunning-clutch pinion was launched onto the market in the early part of the 1960's. Previous to the 1960's, a Bendix drive was utilized. This drive system operates on a helically cut driveshaft that has a starter drive pinion placed on it. Once the starter motor begins spinning, the inertia of the drive pinion assembly enables it to ride forward on the helix, thus engaging with the ring gear. Once the engine starts, the backdrive caused from the ring gear enables the pinion to go beyond the rotating speed of the starter. At this point, 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 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 inside the body of the drive unit. This was an enhancement because the average Bendix drive utilized to disengage from the ring once the engine fired, even though it did not stay running.

As soon as 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. As soon as the drive unit is spun at a speed higher than what is achieved by the starter motor itself, like for example it is backdriven by the running engine, and next the flyweights pull outward in a radial manner. This releases the latch and permits the overdriven drive unit to become spun out of engagement, thus unwanted starter disengagement can be prevented prior to a successful engine start.